**DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY**
**ORGANIZATION OF TECHNICAL SUPPORT DATA NOTEBOOKS**

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GREEN PARK CLOMR

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Duck Creek from Tomiyasu Lane to Warm Springs Road
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Duck Creek Crossing at Robindale Road
Aviara Apartments Offsite Channel Improvements
Windmill Lane from Las Vegas Boulevard to Maryland Parkway

**SPECIAL PROBLEM REPORT**
Duck Creek/ Blue Diamond Washes FIS Restudy

Date: March 17, 2002

| | |
|---|---|
| Contract Number: | NA |
| Name of Community: | Clark County, NV |
| Study Contractor: | G.C. Wallace, Inc. |

PROBLEM AREA: Technical coordination

DETAILED EXPLANATION:
The concrete barrier along the I-15 median at Culvert I153 is blocking the Effective floodway.

PROPOSED SOLUTION:
NDOT agreed to remove this section of concrete barrier and replace it with cable guard rail. This is stated in a letter from NDOT dated January 25, 2002, attached in Section 1.3 of the TSDN.

**SPECIAL PROBLEM REPORT**
Duck Creek/ Blue Diamond Washes FIS Restudy

Date: March 17, 2002

| | |
|---|---|
| Contract Number: | NA |
| Name of Community: | Clark County, NV |
| Study Contractor: | G.C. Wallace, Inc. |

PROBLEM AREA: Other

DETAILED EXPLANATION:
Several bridge models showed a major rise in water surface elevation at the downstream bridge face resulting from an internal HEC-2 check during supercritical flow analyses. In the HEC-2 program, if critical depth is above the low chord, it will not pass low flow.

PROPOSED SOLUTION:
In order to pass low flow, bridge low chords were raised artificially using engineer judgment.

**SPECIAL PROBLEM REPORT**
Duck Creek/ Blue Diamond Washes FIS Restudy

Date: March 17, 2002

| | |
|---|---|
| Contract Number: | NA |
| Name of Community: | Clark County, NV |
| Study Contractor: | G.C. Wallace, Inc. |

PROBLEM AREA: Other

DETAILED EXPLANATION:
The results of the HEC-2 modeling show a breakout from Duck Creek, along the left overbank between Sandhill Road and Annie Oakley Drive. The breakout flows north and returns to Duck Creek in a series of splits at downstream intersections. However, the HEC-2 program is not capable of returning portions of split flows at different downstream locations.

PROPOSED SOLUTION:
Modeling the split flows in this area required an iterative solution. An initial HEC-2 run with the base model, DCL1SUBA generated initial split flow values. Normal depth calculations based on these splits were used to map the breakout area, and to determine flow adjustments for a second run with the base model. The difference between the total split flow used in mapping the breakout area and the total flow adjustment shown in the final subcritical model is within 15 percent, which is within the accuracy of the model.

G. C. WALLACE, INC.
Engineers / Planners / Surveyors

**CONFERENCE NOTES** **By:** Michael J. Ludwig, E.I. **Job No.** 550.039

**SUBJECT:** Duck Creek/Blue Diamond Washes Flood Insurance Restudy

(Monthly Meeting Minutes)

**PLACE:** CCRFCD

**TIME:** 11:30 AM **DATE:** July 27, 2000

**ATTENDING:** Kevin Eubanks, CCRFCD
Calvin L. Black, GCW
Jerry E. Pruitt, GCW
Michael J. Ludwig, GCW

1. Discussed progress of the topographic mapping. Mr. Pruitt stated that the topographic mapping should be complete approximately seven weeks from today.

2. Mr. Pruitt discussed the progress of the data collection. A site visit is planned to collect bridge data and estimate channel roughness coefficients.

3. Discussion of the estimated flow reaching the UPRR culverts. Hydrologic analyses have been done by FEMA and PBS&J, which produce different results. Mr. Eubanks requested a letter to FEMA discussing our approach to determine the flow quantity at the UPRR culverts.

MJL:jj

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G. C. WALLACE, INC.
Engineers / Planners / Surveyors

**CONFERENCE NOTES:** **BY: Michael J. Ludwig, E.I.** **JOB NO. 550.039**

**SUBJECT:** **Duck Creek/Blue Diamond Washes Flood Insurance Restudy (Monthly Meeting Minutes)**

**PLACE:** **CCRFCD**

**TIME:** **11:30 AM** **DATE: October 18, 2000**

**ATTENDING:** **Kevin Eubanks, CCRFCD**
**Calvin L. Black, GCW**
**Jerry E. Pruitt, GCW**
**Michael J. Ludwig, GCW**

1. Mr. Pruitt stated that the topographic mapping is 60 percent complete. The topographic mapping is scheduled for completion by November 1, 2000.

2. Mr. Black stated that the majority of the bridge surveys and photographs have been completed. The remaining surveys and photographs will be completed by the end of the month.

3. Mr. Pruitt stated that a site visit will supplement the survey data and photographs already completed.

4. Mr. Pruitt stated that GCW will begin refining the hydrologic modeling for the project. The 100-year flow rates will be determined for Duck Creek and the North and South Branches of the Blue Diamond Wash.

5. Next progress meeting scheduled for 1:30 PM on Tuesday, November 14, 2000, at CCRFCD.

MJL:jj

G. C. WALLACE, INC.
*Engineers / Planners / Surveyors*

**CONFERENCE NOTES:** **BY: Michael J. Ludwig, E.I.** **JOB NO. 550.039**

**SUBJECT:** **Duck Creek/Blue Diamond Washes FIS Restudy (Monthly Meeting Minutes)**

**PLACE:** **CCRFCD**
**600 South Grand Central Parkway, Suite 300**
**Las Vegas, Nevada 89106-4512**

**TIME:** **11:30 AM** **DATE: November 14, 2000**

**ATTENDING:** **Kevin Eubanks, CCRFCD** **Michael J. Ludwig, GCW**
**Calvin L. Black, GCW**

1. Mr. Black stated that the topographic mapping, bridge surveys, and photographs are 100 percent complete.

2. Mr. Ludwig said that GCW has begun developing base maps for Duck Creek and the Blue Diamond Washes.

3. It was stated by Mr. Ludwig that GCW has begun the hydraulic modeling of Duck Creek from the Lower Duck Creek Detention Basin to the Middle Branch of the Blue Diamond Wash.

4. Mr. Black discussed GCW's approach for the hydrologic modeling of the Duck Creek Watershed. The HEC-1 model for this Restudy will be based on the HEC-1 model from the 1991 FIS Restudy by James Montgomery Consulting Engineers. In areas which have experienced significant development since 1991, the LS card will be modified in the HEC-1 model to make a percent of these drainage areas impervious. Drainage basin boundaries and routing input will also be modified to reflect current conditions.

5. According to Mr. Eubanks, the hydrologic modeling for the Lower Duck Creek Detention Basin (LDCDB) by Montgomery Watson assumes the Union Pacific Railroad (UPRR) culverts will not divert flow away from the LDCDB. However, the Southwest Las Vegas Valley Development Guidelines study by PBS&J shows flow splits at the UPRR culverts which divert flow north along the UPRR and into the Blue Diamond Washes. Therefore, a portion of the total flow in Duck Creek downstream of the confluence with the Blue Diamond Washes would be accounted for twice.

6. Mr. Black discussed GCW's approach for the hydrologic modeling of the Pittman Wash Watershed. The HEC-1 model for this Restudy will be based on the HEC-1 model from the 1995 FIS Restudy by Nimbus and Associates. In areas which have experienced significant development since 1995, the LS card will be modified in the HEC-1 model to make a percent of these drainage areas impervious. Drainage basin boundaries and routing input will also be modified to reflect current conditions.

7. Mr. Eubanks stated that flow splits outlined in the 1995 FIS Restudy of the Pittman Wash by Nimbus and Associates may require additional review.

8. Next progress meeting scheduled for 11:30 AM on Wednesday, December 13, 2000, at CCRFCD.

MJL:jj

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

**CONFERENCE NOTES:** **BY: Michael J. Ludwig, E.I.** **JOB NO. 550.039**

**SUBJECT: Duck Creek/Blue Diamond Washes FIS Restudy (Monthly Meeting Minutes)**

**PLACE: CCRFCD**
**600 South Grand Central Parkway, Suite 300**
**Las Vegas, Nevada 89106-4512**

**TIME: 11:30 AM** **DATE: December 13, 2000**

**ATTENDING:** **Kevin Eubanks, CCRFCD** **Jerry E. Pruitt, GCW**
**Calvin L. Black, GCW** **Michael J. Ludwig, GCW**

1. Mr. Black stated that flow diversions at the Union Pacific Railroad (UPRR) would have minimal impact on the outfall from the Lower Duck Creek Detention Basin (LDCDB). Therefore, this Restudy will use the outflow value specified in the Design Report for the LDCDB by Montgomery Watson, November 1998.

2. Mr. Eubanks directed GCW to limit the study to the Duck Creek/Blue Diamond Washes Watershed upstream of Boulder Highway and the Pittman Wash confluence.

3. Mr. Pruitt stated that GCW has cut cross sections from the Lower Duck Creek Detention Basin to Stephanie Street. Cross sections have been cut for a majority of the North Branch of the Blue Diamond Wash. Also, cross sections have been cut for a portion of the Middle Branch of the Blue Diamond Wash. Special bridge models are complete along Duck Creek for Pebble Road, Pollock Drive, and Windmill Lane.

4. It was stated by Mr. Eubanks that the hydraulic models should assume that Phase 1 of the Duck Creek Channel is incomplete.

5. Mr. Eubanks noted that a previous study of the culverts south of the Blue Diamond Road interchange with I-15 indicated flow diversions to the Middle Branch of the Blue Diamond Wash. Mr. Eubanks requested that GCW investigate this possibility.

6. Next progress meeting scheduled for 2:00 PM on Wednesday, January 10, 2001, at CCRFCD.

MJL:jj

pc: Attendees

G. C. WALLACE, INC.
Engineers / Planners / Surveyors

**CONFERENCE NOTES:** **BY: Michael J. Ludwig, E.I.** **JOB NO. 550.039**

**SUBJECT:** **Duck Creek/Blue Diamond Washes FIS Restudy (Monthly Meeting Minutes)**

**PLACE:** **CCRFCD**
**600 South Grand Central Parkway, Suite 300**
**Las Vegas, Nevada 89106-4512**

**TIME:** **9:00 AM** **DATE: January 18, 2001**

**ATTENDING:**

| | |
|---|---|
| **Kevin Eubanks, CCRFCD** | **Jerry Pruitt, GCW** |
| **Calvin Black, GCW** | **Michael Ludwig, GCW** |
| **John Catanese, CCPW** | **Bill Meyer, GCW** |

1. Mr. Pruitt discussed GCW's approach to the hydrologic modeling of the Duck Creek Watershed. The HEC-1 model for this restudy is based from the HEC-1 model from the 1991 FIS Restudy for the Las Vegas Valley by Montgomery Watson. Modifications were made to drainage basins to reflect changes in drainage patterns, land use, and increased development since 1991. A percent increase in impervious area was determined by comparing aerial photographs from 2000 to those from 1990. The percent increase in impervious area for each affected drainage basin was then entered into the LS cards of the HEC-1 model.

2. Mr. Eubanks requested three (3) copies of a written summary of the hydrologic modeling along with the HEC-1 model be submitted for review. Mr. Catanese would also like two (2) copies.

3. Mr. Pruitt discussed the flow splits which occur near the intersection of Blue Diamond Road and the Union Pacific Railroad (UPRR). Split flow calculations by GCW indicate that the remaining flow draining north along the UPRR will be greater than determined in previous drainage studies. The split flow calculations by GCW were supported by field investigations. GCW believes the flow increase along the UPRR is due to the following factors. The diversion at the double-barrel 5-foot wide by 3-foot high reinforced concrete box located 1,200 feet west of the Blue Diamond Road/UPRR intersection was not modeled in the previous study. Modeling this diversion showed that a significant portion of the flow at this culvert will be diverted east along the north side of Blue Diamond Road. The diverted flow will bypass the UPRR double-barrel 36-inch RCP's located south of Blue Diamond Road, thereby decreasing the amount of flow which would have drained east through the UPRR. Additionally, the field investigation showed that the first UPRR culvert north of Blue Diamond Road is a 7-foot wide by 4-foot high reinforced concrete box. The previous study showed this culvert as an 8-foot wide by 4-foot high reinforced concrete box. Therefore, less flow will drain east through the UPRR at this location than previously determined. The result is an increase in flow remaining along the UPRR at the Middle Branch of the Blue Diamond Wash.

4. Mr. Pruitt stated that the hydraulic modeling is approximately 50 percent complete. Cross

sections have been cut for Duck Creek from the Lower Duck Creek Detention Basin (LDCDB) to Stephanie Street. Cross sections have been cut for a majority of the North and Middle Branches of the Blue Diamond Wash.

5. Mr. Eubanks reaffirmed that the limit of study for Duck Creek has been moved from the confluence of the Las Vegas Wash to the confluence of the Pittman Wash, located west of Boulder Highway.

6. It was requested by Mr. Eubanks that GCW review the Nevada Department of Transportation (NDOT) Blue Diamond Road Widening & Interchange at I-15 drainage study by PBS&J to determine whether flow splits at this intersection will impact this restudy.

7. Mr. Pruitt estimated that GCW will be ready to submit by the end of March 2001.

8. Next progress meeting scheduled for 2:00 PM on Thursday, February 15, 2001, at CCRFCD.

MJL:jj

pc: Attendees
Dave Betley, CCPW

G. C. WALLACE, INC.
Engineers / Planners / Surveyors

**CONFERENCE NOTES:** **BY: Michael J. Ludwig, E.I.** **JOB NO. 550.039**

**SUBJECT:** **Duck Creek/Blue Diamond Washes FIS Restudy (Monthly Meeting Minutes)**

**PLACE:** **CCRFCD**
**600 South Grand Central Parkway, Suite 300**
**Las Vegas, Nevada 89106-4512**

**TIME:** **2:00 PM** **DATE: February 15, 2001**

**ATTENDING:** **Kevin Eubanks, CCRFCD** **Jerry Pruitt, GCW**
**Calvin Black, GCW** **Michael Ludwig, GCW**
**Bill Meyer, GCW**

1. Mr. Pruitt summarized GCW's review of the *Drainage/Design Alternatives for Blue Diamond Road (SR160) Widening & Interchange at I-15 from Las Vegas Boulevard to Rainbow Boulevard* (hereafter referred to as the Blue Diamond/I-15 Interchange report). This report was completed by PBS&J for NDOT in January 2001. The report showed that the majority of the flow reaching the I-15 culverts south of Blue Diamond Road will be diverted north along I-15 to the southwest corner of the Blue Diamond Road Interchange with I-15. The report states that approximately 5500 cfs which was previously assumed to drain east to the Lower Duck Creek Detention Basin will drain north to the Middle Branch of the Blue Diamond Wash.

2. Mr. Pruitt stated that the flow diverted north along I-15 will bypass the Lower Duck Creek Detention Basin. This should result in a greater 100-year flow than previously estimated in Duck Creek downstream of the confluence with the Middle Branch of the Blue Diamond Wash. Additional hydrologic modeling is required to determine the revised 100-year flows in Duck Creek.

3. It was stated by Mr. Black that the topographic mapping for the drainage areas contributing to the I-15 culverts south of Blue Diamond Road will have to be flown to satisfy FEMA data requirements. The attendees agreed that survey data of the I-15 culverts from the Blue Diamond/I-15 Interchange report should be acceptable for use in this FIS Restudy. GCW will conduct HY8 culvert analyses using the survey data from the Blue Diamond/I-15 Interchange report and will incorporate the diversion data into the hydrologic modeling.

4. Mr. Ludwig stated that the Blue Diamond/I-15 Interchange report also shows a split flow at the Middle Branch of the Blue Diamond Wash near the future intersection of Hinson Street and Windmill Lane. According to the Blue Diamond/I-15 Interchange report, of the total 100-year flow in the Middle Branch of the Blue Diamond Wash (1,534 cfs), two-thirds will break out to the north and will combine with flow in the North Branch of the Blue Diamond Wash. Therefore, the 100-year flow in the North Branch of the Blue Diamond Wash may be greater than previously estimated.

5. Mr. Eubanks requested that GCW draft a scope of services and fee estimate for the additional hydrologic modeling, hydraulic modeling, and floodplain mapping resulting from the information presented by PBS&J in the Blue Diamond/I-15 Interchange report. Mr. Eubanks noted that funding for these additional services may not be available until July 2001.

6. Mr. Black proposed that GCW divide the additional services into three parts: 1) The hydrologic modeling will be revised to account for the diversions along I-15 south of Blue Diamond Road. The diversions will be re-analyzed by GCW using the survey data from the Blue Diamond/I-15 Interchange report. The diversions will be incorporated into the revised hydrologic modeling. 2) Additional flood zone mapping from I-15 to the Lower Duck Creek Detention Basin reflecting the revised hydrologic modeling. 3) Option of including flood zone mapping along the west side of I-15 reflecting the revised hydrologic modeling. However, floodplain mapping along the west side of I-15 will be included only if floodplain mapping is done from I-15 to the Lower Duck Creek Detention Basin.

7. Mr. Eubanks said he will discuss the above issues with members of FEMA in the upcoming week. This FIS Restudy is on hold until these issues have been resolved.

8. Next progress meeting will be scheduled after Mr. Eubanks discusses the above issues with FEMA.

MJL:jj

pc: Attendees
Dave Betley, CCPW

G. C. WALLACE, INC.
Engineers / Planners / Surveyors

**CONFERENCE NOTES:** **BY: Michael J. Ludwig, E.I.** **JOB NO. 550.039**

**SUBJECT:** **Duck Creek/Blue Diamond Washes FIS Restudy (Monthly Meeting Minutes)**

**PLACE:** **CCRFCD**
**600 South Grand Central Parkway, Suite 300**
**Las Vegas, Nevada 89106-4512**

**TIME:** **11:00 AM** **DATE: April 16, 2001**

| ATTENDING: | | |
|---|---|---|
| | Kevin Eubanks, CCRFCD | Jerry Pruitt, GCW |
| | Calvin Black, GCW | Michael Ludwig, GCW |
| | Kayann Jongsma, GCW | Dennis Wertzler, Pentacore |
| | Edward Thurnbeck, Pentacore | Dale Dowers, IEB |

1. Mr. Pruitt summarized GCW's review of the 30% Hydrology Submittal for St. Rose Parkway (formerly, Lake Mead Drive) Widening from I-15 to Pecos by PBS&J (hereafter referred to as the St. Rose Parkway Report). Drainage basin parameters were referenced from the 1997 Master Plan Update (MPU) for the Las Vegas Valley, which is a developed condition. The St. Rose Parkway report does not reflect a true existing condition of the watershed south of St. Rose Parkway. Therefore, flows determined in the St. Rose Parkway report are not applicable for this FIS Restudy. GCW will reference the 1995 Effective FIS Restudy of the Pittman Wash by Nimbus and Associates for hydrologic modeling of this area.

2. Mr. Eubanks stated that the Nevada Department of Transportation (NDOT) is disputing flow splits determined in the *Drainage/Design Alternatives for Blue Diamond Road (SR160) Widening & Interchange at I-15 from Las Vegas Boulevard to Rainbow Boulevard* (hereafter referred to as the Blue Diamond/I-15 Interchange report). This report was completed by PBS&J for NDOT in January 2001. These flow splits were determined from Flow-2D output. Mr. Eubanks requested that GCW reanalyze the flow split near Hinson Street and Windmill Lane using HEC-2 instead of Flow-2D. The HEC-2 split flow results will be compared to the Flow-2D output of the Blue Diamond/I-15 Interchange report and the split flow results from the Effective FIS Restudy for the Blue Diamond Washes.

3. Mr. Pruitt discussed the status of the hydraulic modeling. GCW has completed preliminary hydraulic models which include all bridges for Duck Creek from the Lower Duck Creek Detention Basin to Boulder Highway and the North and Middle Branches of the Blue Diamond Wash from the Union Pacific Railroad to Duck Creek. The additional study areas outlined in the Supplemental Services will require additional hydraulic modeling. Mr. Pruitt said that hydraulic modeling of these additional study areas will begin when GCW receives the topographic mapping, which is expected in late May 2001.

4. Mr. Eubanks requested that GCW forward the results of the hydrologic modeling to Pentacore as soon as it becomes available. Mr. Eubanks stated that Pentacore may submit the CLOMR for the Green Park Holdings Project as an attachment to this FIS Restudy, under the condition that it does not delay submittal of this FIS Restudy.

5. Mr. Black and Mr. Pruitt recommended against separating out the North Branch of the Blue Diamond Wash from the rest of the FIS Restudy. GCW was asked by the CCRFCD to research the feasibility of mapping the North Branch independently. GCW believes that the North Branch will not be impacted by the additional flow diverted north along I-15. However, the starting water surface elevation for the North Branch hydraulic model will be based on the 100-year water surface elevation of Duck Creek at the confluence. The 100-year water surface elevation in Duck Creek is dependent on the hydrologic modeling along I-15. Therefore, the hydrologic modeling along I-15 must be completed prior to mapping the North Branch of the Blue Diamond Wash.

6. The next progress meeting is tentatively scheduled for mid May.

MJL:jj

pc: Attendees
Dave Betley, CCPW

G. C. WALLACE, INC.
Engineers / Planners / Surveyors

**CONFERENCE NOTES:** **By:** Mike Ludwig **Job No. 550.039**

**SUBJECT:** Duck Creek / Blue Diamond Washes FIS Restudy

**PLACE:** CCRFCD

**TIME:** 11:30 AM **DATE: July 24, 2001**

**ATTENDEES:** **Kevin Eubanks, CCRFCD**
**Calvin Black, GCW**
**Jerry Pruitt, GCW**
**Mike Ludwig, GCW**

1. It was requested by Mr. Eubanks that the storm centering models be included in the final package of the *Summary of Design Flows.* These models analyzed the drainage area east of I-15 and downstream of the Lower Duck Creek Detention Basin to the eastern limit of study at the Pittman Wash confluence.

2. Mr. Pruitt recapped the GCW methodology for the I-15 diversion calculations compared to that for the Drainage/Design Alternatives for Blue Diamond Road (SR160) Widening & Interchange at I-15 from Las Vegas Boulevard to Rainbow Boulevard (hereafter referred to as the Blue Diamond/I-15 Interchange report). Mr. Black reiterated that GCW believes the channel capacity calculations based on a culvert invert to culvert invert slope provides the better estimate for this situation.

3. Mr. Ludwig stated that the weir and culvert geometry in the diversion calculations are based on the topographic mapping from the Blue Diamond/ I-15 Interchange report, which is metric, at a contour interval of approximately 5 feet. Mr. Eubanks agreed that it was the best available information at the time for the hydrologic modeling. The hydraulic modeling will be based on the topographic mapping generated specifically for this project, which has a 4-foot contour interval. The sources of the weir and culvert geometry will be included in the final package.

4. It was stated by Mr. Ludwig that backup information for the flow split near the intersection of Hinson Street and Windmill Lane was referenced from the Blue

Diamond / I-15 Interchange report. The diversion rating table for the HEC-1 model was taken directly from the FLO-2D output in this report.

5. Mr. Eubanks said that the floodplain in the vicinity of I-15 may have to be determined for both scenarios (1) assuming the I-15 barriers stay in place (2) assuming that portions of the I-15 barriers are removed. This would involve additional HEC-1 modeling to determine 100-year flows with portions of the I-15 barriers removed. Comparing the results of the HEC-1 modeling for both scenarios, GCW would determine the 100-year floodplain using the worst case for each location. However, GCW does not have all the information or the authorization to provide the additional modeling and analysis.

6. Mr. Eubanks agreed that the project schedule will be adjusted, in order to allow time to review and discuss the conclusions outlined in the *Summary of Design Flows.* The schedule for submitting a draft to the local entities and the final report to FEMA will be determined after the drainage issues along I-15 are resolved.

7. Mr. Pruitt stated that Duck Creek Channel *Tres Patos* projects presently under construction will be incorporated into the hydraulic modeling of this Restudy. Duck Creek Channel Phase 2 will not be completed in time to be included in this study.

8. Mr. Eubanks requested that GCW develop a list of property owners who will be affected by the revised 100-year floodplain, resulting from this study.

9. It was restated by Mr. Pruitt that the eastern limit of study is located just upstream of the Pittman Wash confluence.

10. GCW will contact/ coordinate a meeting between members of the CCRFCD, GCW, NDOT, CCPW, PBS&J, and Pentacore, to discuss the results of the hydrologic modeling, particularly the drainage issues along I-15.

MJL:jj

pc: Attendees
Dave Betley, CCPW
John Catanese, CCPW

G. C. WALLACE, INC.
Engineers / Planners / Surveyors

**MEETING NOTES:** **By: Michael J. Ludwig** **Job No. 550.039**

**SUBJECT:** **Duck Creek / Blue Diamond Washes FIS Restudy**

**PLACE:** **CCRFCD**

**TIME:** **10:00 a.m.** **DATE: Wednesday, November 7, 2001**

**ATTENDEES:** **Kevin Eubanks, CCRFCD**
**Dave Betley, CCPW**
**Calvin L. Black, GCW**
**Jerry E. Pruitt, GCW**
**Michael J. Ludwig, GCW**

1. Mr. Black explained G. C. Wallace's (GCW) approach to the diversion calculations for DVI153. The current method is an approximate method that GCW believes is acceptable, considering the accuracy of the HEC-1 model. Mr. Eubanks said that GCW should proceed with the current methods and results of the diversion calculations.

2. Mr. Ludwig said the preliminary results of the HEC-2 modeling indicate that there are three breakout locations along the main channel of Duck Creek. These breakouts are located near Robindale Road, Warm Springs Road, and Sandhill Road. In all cases, the breakout flows will return to the main channel.

3. Mr. Pruitt listed new flood control facilities within the Duck Creek Watershed which will be incorporated into the HEC-2 modeling. These projects include Duck Creek Channel Phase 1, Robindale Road Bridge, Aviara Apartments channel improvements, and the channel improvements from Warm Springs Road to Tomiyasu Lane.

4. For planning purposes, Mr. Eubanks asked GCW to run a separate HEC-2 model assuming no breakout to Pine Street in order to check the capacity of the channel improvements from Warm Springs Road to Tomiyasu Lane. However, the HEC-2 models included in the FIS Restudy will reflect the Pine Street breakout.

5. Mr. Eubanks stated that a limit of detailed study for the Pine Street breakout will be set at Topaz Road.

6. Mr. Eubanks asked GCW to determine an appropriate tie-in to the Effective FIRM at the downstream study limit.

7. Mr. Black said that GCW will perform capacity calculations for the new flood control facilities within the Boulevard Acres and Emerald Suites developments. Based on

7. Mr. Black said that GCW will perform capacity calculations for the new flood control facilities within the Boulevard Acres and Emerald Suites developments. Based on the results of this preliminary analysis, GCW will recommend any proposed revisions to the Effective FIRM in this area.

8. Mr. Eubanks said that the CCRFCD will notify property owners affected by the proposed FIRM revisions.

9. Mr. Betley said he would research the flow rates used in the LOMR west of the Lower Duck Creek Detention Basin, near the intersection of Gilespie Road and Serene Avenue.

10. Mr. Eubanks set priorities for the next progress meeting:

    a. Floodplain mapping of Blue Diamond Washes
    b. Set base flood elevations for Duck Creek
    c. Determine tie-in location for downstream study limit of Duck Creek

11. The next progress meeting is scheduled for 11:30 a.m. on Thursday, December 6, 2001, at the CCRFCD.

MJL:jj

pc: Attendees

G. C. WALLACE, INC.
Engineers / Planners / Surveyors

**CONFERENCE NOTES:** **By:** **Michael J. Ludwig** **Job No. 550.039**

**SUBJECT:** **Duck Creek / Blue Diamond Washes FIS Restudy**

**PLACE:** **CCRFCD**

**TIME:** **1:30 P.M.** **DATE:** **Wednesday, November 28, 2001**

**ATTENDEES:** **Kevin Eubanks, CCRFCD** **Jerry E. Pruitt, GCW**
**Calvin L. Black, GCW** **Michael J. Ludwig, GCW**

1. In response to questions and concerns about the diversion calculations at Diversion DVI153, Mr. Black said that G. C. Wallace, Inc. (GCW) will re-analyze this diversion using a different method based on the Bernoulli's equation and additional survey points provided by Pentacore.

2. Mr. Eubanks asked GCW to collect information on the Blue Diamond Ranches channel improvements and determine if it would be appropriate to include it in the FIS Restudy.

3. Mr. Eubanks directed GCW to map the Blue Diamond Washes as Zone A, west of I-15.

4. Mr. Eubanks agreed with GCW's recommendation to set a limit of study at the northwest end of the Lower Duck Creek Detention Basin in order to leave the existing SFHA mapping unaffected.

5. The next progress meeting is scheduled for 11:30 A.M. on Wednesday, December 6, 2001, at the CCRFCD.

MJL:jj

pc: Attendees
Dave Betley, CCPW

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5. The next progress meeting is scheduled for 11:30 AM on Wednesday, December 6, 2001, at the CCRFCD.

pc: Attendees
Dave Betley, CCPW

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

**CONFERENCE NOTES:** **By:** **Michael J. Ludwig** **Job No. 550.039**

**SUBJECT:** **Duck Creek / Blue Diamond Washes FIS Restudy**

**PLACE:** **CCRFCD**

**TIME:** **11:30 P.M.** **DATE:** **Wednesday, December 6, 2001**

**ATTENDEES:** **Kevin Eubanks, CCRFCD** **Jerry E. Pruitt, GCW**
**Calvin L. Black, GCW** **Michael J. Ludwig, GCW**

1. Mr. Black and Mr. Eubanks decided against including the proposed channel improvements from the Blue Diamond Ranches development into the FIS Restudy. The channel is currently under construction and as-built plans will not be ready to submit with the FIS Restudy.

2. Mr. Pruitt said GCW will prepare a list of home owners affected by the proposed floodplain mapping changes. The list will be presented to the CCRFCD after submitting the FIS Restudy to FEMA.

3. For the North Branch of the Blue Diamond Wash, Mr. Eubanks recommended keeping the limit of study at the north side of the upstream face of the I-15 culvert. This matches the limit of study shown on the Effective FIRM.

4. Due to recent developments and projected planning, Mr. Eubanks directed GCW to map the Blue Diamond Washes as Zone A, west of I-15. The Effective FIRM has designated this area as Zone AO. Mr. Black further noted that this course of action would be justified because the area no longer functions as an alluvial fan.

5. Mr. Pruitt said the results of the HEC-2 modeling indicate that the median barrier will be overtopped where the North Branch of Blue Diamond Wash crosses I-15. Mr. Eubanks said that the CCRFCD will not propose removal of the median barrier because the Effective FIRM does not show a floodway at this location.

6. Mr. Eubanks discussed the breakout shown on the work maps for Duck Creek between Robindale Road and Spencer Street. He said he has contacted FEMA and CCPW about the possibility of basing the mapped water surface elevation on a supercritical flow regime because the channel has concrete banks at this location. Mr. Eubanks also directed GCW to contact the CCPW for a recent history of the flooding in the area and review the HEC-2 modeling to ensure that this proposed breakout is appropriate.

7. Mr. Pruitt proposed a downstream tie-in to the Effective FIRM, based on normal depth calculations using the Effective flow rate of 11,500 cfs. He said GCW will proceed with HEC-2 modeling of this area to determine the tie-in.

8. The next progress meeting is tentatively scheduled for 11:30 A.M. on Thursday, December 20, 2001, at the CCRFCD.

MJL:jj

pc: Attendees
Dave Betley, CCPW


1555 SOUTH RAINBOW BLVD. / LAS VEGAS, NEVADA 89146 / TELEPHONE: (702) 804-2000 / FAX: (702) 804-2299
SUMMERLIN OFFICE FAX: (702) 804-2295 • HENDERSON OFFICE FAX: (702) 804-2296

G. C. WALLACE, INC.
Engineers / Planners / Surveyors

**CONFERENCE NOTES:** **By:** **Michael J. Ludwig** **Job No. 550.039**

**SUBJECT:** **Duck Creek / Blue Diamond Washes FIS Restudy**

**PLACE:** **CCRFCD**

**TIME:** **11:30 A.M.** **DATE:** **Thursday, December 20, 2001**

**ATTENDEES:** **Kevin Eubanks, CCRFCD** **Jerry E. Pruitt, GCW**
**Calvin L. Black, GCW** **Michael J. Ludwig, GCW**

1. G. C. Wallace, Inc. (GCW) performed split flow calculations for Diversion DVI153 using four different methods. All four methods utilize the latest topography and survey data provided by Pentacore. Mr. Black and Mr. Pruitt described the following methods in detail:

    a) Spreadsheet using Bernoulli's Equation assuming the lower pond (north of the containment dike) affects the upper pond.

    b) Spreadsheet using standard culvert and weir calculations assuming the lower pond does not affect the upper pond.

    c) Original spreadsheet for upper pond calculations and HEC-2 split flow calculations for the lower pond.

    d) Original spreadsheet calculation modifying the weir depth on the lower pond as a check on the previous three methods.

2. GCW recommends the method based on Bernoulli's Equation because it gives a good, easy to understand, and justifying estimation of how the system operates. Mr. Pruitt added that the results of the other three methods compared closely with those from the recommended method.

3. Mr. Eubanks told GCW to proceed with the hydraulic modeling using the results of the recommended method. He requested that GCW package the results from the recommended method showing all of the equations used in the spreadsheet calculations. Mr. Eubanks also requested that the spreadsheet be submitted electronically to FEMA with the draft FIS Restudy.

4. Mr. Black said GCW will submit a memorandum to the CCRFCD describing the recommended method and summarizing the results of the split flow analysis at Diversion DVI153.

5. The next progress meeting will be scheduled at a later date.

MJL:jj

pc: Attendees
Dave Betley, CCPW

G. C. WALLACE, INC.
Engineers / Planners / Surveyors

**CONFERENCE NOTES:** **By:** **Michael J. Ludwig** **Job No. 550.039**

**SUBJECT:** **Duck Creek / Blue Diamond Washes FIS Restudy**

**PLACE:** **CCRFCD**

**TIME:** **10:30 A.M.** **DATE:** **Thursday, January 31, 2002**

**ATTENDEES:**

| | |
|---|---|
| **Kevin Eubanks, CCRFCD** | **Jerry E. Pruitt, GCW** |
| **Dave Betley, CCPW** | **Michael J. Ludwig, GCW** |
| **Calvin L. Black, GCW** | |

1. Mr. Black said that he called Pentacore to respond to questions concerning the methodology/ calculations for Diversion DVI153, along I-15. Pentacore said they were satisfied with the diversion methodology and results of the HEC-1 modeling. Therefore, G. C. Wallace, Inc. (GCW) is proceeding with updating the HEC-2 models, floodplain mapping, and report preparation.

2. Mr. Pruitt reiterated GCW's approach to model and map the breakout area near Warm Springs Road and the UPRR – Henderson Spur. The breakout flow was separated from the main channel flow in the HEC-2 modeling. The HEC-2 modeling also shows that the flow breaking out to the east will reach Pine Street and rejoin the main channel flow at different locations along Duck Creek. The floodplain and floodway analysis are based on the same flow rates, which are adjusted to replicate the multiple split/return flows. Note that at this location, flow is not accounted for more than once. This is reflected in the HEC-2 modeling and floodplain mapping. Mr. Eubanks directed GCW to proceed with this approach.

3. Mr. Eubanks requested that GCW generate a mailing list to notify all property owners who will be added to Special Flood Hazard Areas, resulting from the revised floodplain mapping presented in this FIS Restudy. The schedule for this work will be established after submittal of the FIS Restudy to FEMA.

4. Mr. Eubanks requested one copy of the draft TSDN's for the CCRFCD and one copy for the CCPW. Upon submittal to FEMA, the CCRFCD and CCPW will each receive two copies of the TSDN's.

5. The next progress meeting is scheduled for 10:30 AM on March 15, 2002, at the CCRFCD.

pc: Attendees
Dave Betley, CCPW

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

KENNY C. GUINN
Governor

TOM STEPHENS, P.E., Director

RFCD
2002 JAN 31 PM 3:00

January 25, 2002

In Reply Refer to:

C010
KEVIN BUBANKS
CCRFCD
600 S GRAND CENTRAL PKWY STE 300
LAS VEGAS NV 89106-4511

Removal of Barrier Rail on I-15
E.A. 72915
Clark County

Dear Mr. Bubanks:

As per our discussions, the Nevada Department of Transportation will remove a section of barrier rail on I-15 from mile post CL 30.92 to mile post CL 30.98 and replace it with cable guardrail. This work, included in a betterment project, is currently scheduled to advertise July 11, 2002.

If you have any questions or comments about this project, please call Charles Wolf at (775) 888-7622, or myself at (775) 888-7797. Thank you for your time.

Sincerely,

Paul Frost

Paul Frost, P.E.
Principal Hydraulic Engineer

PF:CW:ts
cc: Wayne Kinder, Chief Road Design Engineer, NDOT
Ron Marwin, Roadway Design, NDOT
Gene Weight, District I Engineer, NDOT

C L A R K C O U N T Y
REGIONAL FLOOD CONTROL DISTRICT

RECEIVED
JUN 14 2000
G.C. WALLACE

Gale Wm. Fraser, II, P.E.
General Manager/Chief Engineer

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City of Boulder City

John K. Rhodes
City of North Las Vegas

Mayor James Gibson
City of Henderson

Bruce L. Woodbury
Clark County

June 12, 2000

Mr. Calvin Black
GC Wallace, Inc.
1555 South Rainbow Boulevard
Las Vegas, NV 89146

Dear Mr. Black:

An executed copy of the Professional Services Agreement for the Duck Creek and Blue Diamond Flood Insurance Restudy is enclosed.

This letter will serve as a Notice to Proceed with the services described in the Agreement. Please coordinate your efforts with Kevin Eubanks of this office who will serve as the District's representative for this project.

We look forward to working with GC Wallace. Please do not hesitate to contact me if you have any questions or require additional information.

Sincerely,

Gale Wm. Fraser, II, P.E.
General Manager/Chief Engineer

GWF:cmf

Enclosure

c: Kevin Eubanks

File: Duck Creek & Blue Diamond Flood Insurance Restudy

P:Donebox\Letters\2000\June2000\notice_to_proceed_DCreekBlueDiaRestudy

600 S. Grand Central Parkway, Suite 300 • Las Vegas, Nevada 89106-4511
(702) 455-3139 • FAX: (702) 455-3870
Website: *http://www.ccrfcd.org*

## Section I

## RESPONSIBILITY OF CONSULTANT

A. The CONSULTANT shall be responsible for the professional quality, technical accuracy, timely completion, and coordination of all services furnished by the CONSULTANT, its subcontractors and subconsultants and its and their principals, officers, employees, and agents under this AGREEMENT. In performing the specified services, CONSULTANT shall follow practices consistent with generally accepted current professional and technical engineering standards.

B. It shall be the duty of CONSULTANT to assure that all work products are technically sound and in conformance with all pertinent and current federal, State, and local statutes, codes ordinances, resolutions, and other regulations -- in particular, the federal Endangered Species Act. If, during the term of this contract, there are any changes or new laws, ordinances, statutes, rules or regulations not known or foreseeable at the time of signing this contract which become effective and which affect the cost or time of performance of the contract, CONSULTANT shall immediately notify DISTRICT in writing and submit detailed documentation of such effect in terms of both time and cost of performing the contract. Upon concurrence by DISTRICT as to the effect of such changes, and adjustment in time of performance and/or compensation for an increase or decrease in labor, materials, and equipment directly required to be in compliance will be made. Except for an extension of time, no payment or compensation of any kind shall be made to CONSULTANT for damages caused by such changes or new laws, ordinances, statutes, rules or regulations, including, but not limited to, those which may arise due to delay, disruption, acceleration, or inefficiency. If any discrepancy or inconsistency should be discovered between this contract and any law, ordinance, regulation, order, or decree, CONSULTANT shall immediately report the same in writing to DISTRICT, who will issue such instruction as may be necessary. The CONSULTANT shall, without additional compensation, correct or revise any errors or deficiencies in its recommended plans, policies, designs, drawings, and other sections of the PROJECT. It is also understood and agreed by both parties that if any

## Section II

## DISTRICT'S RESPONSIBILITY

A. The DISTRICT agrees that its officers and employees will cooperate with CONSULTANT in performance of services under this AGREEMENT and will be available for consultation with CONSULTANT at such reasonable times with advance notice as to not conflict with their other responsibilities.

B. The services performed by CONSULTANT under this AGREEMENT shall be subject to review and approval by DISTRICT General Manager. The DISTRICT General Manager may delegate any or all of the General Manager's responsibilities under this AGREEMENT to appropriate staff members, and shall so inform CONSULTANT by written notice before the effective date of each such delegation.

C. The services to be performed by the CONSULTANT under this AGREEMENT shall be subject to periodic review by DISTRICT's General Manager. The review comments of DISTRICT's General Manager shall be reported in writing to the CONSULTANT by the DISTRICT's General Manager. To prevent an unreasonable delay in the CONSULTANT's work, the DISTRICT's General Manager will endeavor to examine all documents and will make authorizations in writing to the CONSULTANT to proceed with work within 10 working days of receipt of such documents. It is understood that the DISTRICT's representative's review comments do not relieve the CONSULTANT from the responsibility for professional and technical accuracy of all work delivered under this AGREEMENT.

D. DISTRICT shall, without charge, furnish to or make available for examination or use by the CONSULTANT as it may request, any relevant data which the DISTRICT has available, including as examples only and not as a limitation:

## Section III

## CONSULTANT SERVICES

A. The CONSULTANT shall perform Task 1 through Task 4 including services discussed in the "basic services" as specified in Exhibit A (the Scope of Work), which is attached hereto, and by this reference made a part of this AGREEMENT. In addition, the CONSULTANT will perform Task 5, "Supplemental Services" described in Exhibit A if, as, and when requested in writing by the General Manager. Exhibit B, The Project Study Area, and Exhibit C, the Project Time Schedule, are attached hereto and by this reference are also made a part of this agreement.

B. The DISTRICT may at any time, by written order, make changes within the general scope of this AGREEMENT and in the services or work to be performed by the CONSULTANT. If such changes cause an increase or decrease in the CONSULTANT's cost or time required for performance of any services under this AGREEMENT, an equitable adjustment shall be made and this AGREEMENT shall be modified in writing accordingly. Any claim of the CONSULTANT for adjustment under this clause must be asserted in writing within 30 days from the date of receipt by the CONSULTANT of notification of changes unless the DISTRICT grants a further period of time before the date of final payment under this AGREEMENT.

C. No services for which an additional compensation will be charged by the CONSULTANT shall be furnished without the written authorization of the DISTRICT.

3. Supplemental services will be performed only upon written authorization by the General Manager and at the discretion of the General Manager. Payment for Supplemental Services will be made according to the terms described in this section for basic professional services. The maximum cost to the DISTRICT for supplemental services accomplished under this AGREEMENT shall not exceed Twenty-five thousand dollars ($25,000). While the maximum cost to the District for supplemental services shall not exceed Twenty-five thousand dollars ($25,000), the cost figures presented in Exhibit E are only estimates and are not intended to limit the compensation to be paid for an individual task. Payments will be made to the CONSULTANT on a monthly basis upon receipt of a progress report and itemized invoices for work accomplished.

adjustment.

C. An alteration required by the DISTRICT which results in changes in the scope of work will also be specified in a supplemental AGREEMENT which will set forth the nature and scope thereof and payment therefor.

D. Neither party shall be considered in default in the performance of its obligations hereunder, or any of them, to the extent that performance of such obligations, or any of them is prevented or delayed by any cause, existing or future, which is beyond the reasonable control of such party. Delays arising from the actions or inactions of one or more of CONSULTANT's principals, officers, employees, agents, subcontractors, subconsultants, vendors, or suppliers are expressly recognized to be within the CONSULTANT's control.

any person or persons who are currently employed by the DISTRICT without the DISTRICT's prior approval.

E. The CONSULTANT shall at all times maintain control over and have complete responsibility for all work performed under the AGREEMENT. Any attempted assignment of rights or delegation of duties under this AGREEMENT, without the written consent of the DISTRICT, shall be void.

F. The CONSULTANT shall submit for review and documentation purposes copies of all subconsultant agreements.

G. The CONSULTANT shall place his professional engineer stamp on the final Submittal substantiating that the work has been accomplished under the direct supervision of a professional engineer and in accordance with acceptable professional standards.

H. The CONSULTANT, at his own expense, shall obtain and maintain, for the duration of the Contract, insurance against claims for injuries to persons or damages to property or other losses which may arise from or in connection with CONSULTANT sole negligence or fault in the performance of work hereunder of the CONSULTANT, his agents, representatives, employees or subcontractors of any tier.

The CONSULTANT will provide the DISTRICT with certificates of insurance for coverage as listed below and endorsements, establishing coverage required by the Contract within ten (10) calendar days after approval of this Agreement by the DISTRICT's Board. The certificate of endorsements for each insurance policy are to be signed by a person authorized by the insurer and licensed by the State of Nevada.

All deductibles and self-insured retention shall be fully disclosed in the certificate of insurance. No deductible of self-insured retention may exceed $250,000 for commercial general liability, $250 for automobile, or $250,000 for professional liability without the written approval of the DISTRICT. If aggregate limits are imposed on bodily injury and property damage, then the amount of such limits must not be less than twice the amount of the limits required herein. All aggregate must be fully disclosed and the amount entered on the required certificate of insurance. Any notice given to the CONSULTANT with respect to exhaustion of limits of insurance shall also be sent to the DISTRICT. the adequacy of the insurance supplied by the CONSULTANT, including the rating and financial health of each insurance company providing coverage, is subject to the approval of the DISTRICT.

4. Maintain Nevada Industrial Insurance and occupational Disease Acts; such insurance will protect it and the DISTRICT from claims made by the CONSULTANT due to work-related injuries.

5. The CONSULTANT's insurance shall be primary as respects to the DISTRICT, its officers, employees, and volunteers.

The insurance requirements specified herein do not relieve the CONSULTANT of its responsibility or limit the amount of its liability to the DISTRICT or other persons, and the CONSULTANT is encouraged to purchase such additional insurance as it deems necessary.

6. The insurance certificate supplied by the CONSULTANT must provide for a 30-day notice to the DISTRICT before the implementation of a proposal to cancel the required insurance coverage. This notice requirement does not waive the insurance requirements contained herein. In addition, CONSULTANT shall notify DISTRICT within thirty (30) days of any reduction in coverage or limits.

7. If the CONSULTANT fails to maintain any of the insurance coverage required

To DISTRICT: Clark County Regional Flood Control District
301 East Clark Avenue, Suite 301
Las Vegas, Nevada 89101

To CONSULTANT: G. C. Wallace, Inc.
1555 South Rainbow Boulevard
Las Vegas, Nevada 89146

Attention: Calvin L. Black
Executive Vice President

IN WITNESS WHEREOF, the parties have caused this AGREEMENT to be executed the day and year first above written.

CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

By: Lawrence L Brown III Date: 6/8/00
LAWRENCE L. BROWN, III Chairman

G. C. Wallace, Inc.

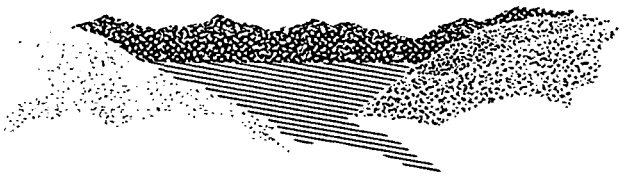
By: Calvin L Black Date: 5/17/00
Calvin L. Black
Executive Vice President

ATTEST:

By: Carolyn Frazer Date: June 8, 2000
Carolyn Frazer, Secretary

550.039

CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT



Gale Wm. Fraser, II, P.E.
General Manager/Chief Engineer

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**John K. Rhodes**
City of North Las Vegas

**Bruce L. Woodbury**
Clark County

May 18, 2001

Mr. Calvin Black
GC Wallace
1555 S. Rainbow
Las Vegas, NV 89102

Dear Mr. Black:

Enclosed is an original of the following agreement:

- First Supplemental Agreement for Professional Services Clark County Regional Flood Control District and G.C. Wallace, Inc.

The Regional Flood Control District's Board of Directors approved this contract at their May 17, 2001 meeting.

The District has kept a copy for our files; please retain the enclosed fully executed original contract for your files.

Sincerely,

Carolyn Frazier
Board Secretary

/cmf

Enclosure

c: Kevin Eubanks, CCRFCD

\\Monsoon\OfficeFiles\Minutes\2001\Board\051701GCWallace_ProfSvcs.doc

600 S. Grand Central Parkway, Suite 300 • Las Vegas, Nevada 89106-4511
(702) 455-3139 • FAX: (702) 455-3870
Website: *http://www.ccrfcd.org*

# FIRST SUPPLEMENTAL
# AGREEMENT FOR PROFESSIONAL SERVICES
# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT
# AND
# G. C. Wallace, Inc.

THIS AGREEMENT is made and entered into this 7th day of May, 2001, by and between the CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT (hereinafter referred to as "DISTRICT") and G. C. Wallace, inc. (hereinafter referred to as "CONSULTANT"), for The Duck Creek and Blue Diamond Flood Insurance Restudy hereinafter referred to as the "PROJECT").

## WITNESSETH

WHEREAS, An agreement for professional services by and between the DISTRICT and the CONSULTANT was entered into on the 8th day of June, 2000, and

WHEREAS, the DISTRICT desires to complete a Flood Insurance Study (FIS) Restudy for the project, and

WHEREAS, the CONSULTANT is experienced and is knowledgeable in the completion of such works, and

WHEREAS, the CONSULTANT and the DISTRICT recognize the need to coordinate the PROJECT with the Technical Review Committee established by the DISTRICT for this project, and

WHEREAS, the CONSULTANT represents that it is properly registered and qualified in accordance with the Nevada Revised Statutes and has the personnel and facilities necessary to accomplish the PROJECT with the required time, and

WHEREAS, the parties desire to set forth the responsibilities, terms, and conditions of completing the PROJECT,

NOW, THEREFORE, in consideration of the premises and terms contained herein, the parties agree as follows:

Section IV Compensation and Terms of Payment, Paragraph B, Items 2 and 3 have been modified as follows:

2. The maximum cost to the DISTRICT for Basic Services Task 1 through Task 4 including services discussed in Project Description accomplished under this AGREEMENT shall not exceed Two hundred sixty three thousand, nine hundred & forty-eight dollars ($263,948) unless the DISTRICT receives a written request, with justification, and the DISTRICT approves a change in scope and an increase in compensation. If approved, a supplement to this AGREEMENT must be executed. An estimated cost based on a detailed breakdown of the cost by tasks, and direct costs is shown on Exhibit E, Estimated Cost By Tasks, which is attached hereto and by this reference made a part of this AGREEMENT. The cost figure presented in Exhibit E is a good faith estimate, and with approval from the DISTRICT compensation to be paid for an individual task may be adjusted from task to task so long as the total amount does not exceed ($263,948). Payments will be made to the CONSULTANT on a monthly basis upon receipt of a progress report and itemized invoices for work accomplished.
3. Supplemental services will be performed only upon written authorization by the General Manager and at the discretion of the General Manager. Payment for Supplemental Services will be made according to the terms described in this section for basic professional services. The maximum cost to the DISTRICT for supplemental services accomplished under this AGREEMENT shall not exceed Thirty-five thousand dollars ($35,000). While the maximum cost to the District for supplemental services shall not exceed Thirty-five thousand dollars ($35,000), the cost figures presented in Exhibit E are only estimates and are not intended to limit the compensation to be paid for an individual task. Payments will be made to the CONSULTANT on a monthly basis upon receipt of a progress report and itemized invoices for work accomplished.

Exhibit A, Scope of services has been revised and is attached hereto and by this reference made a part of this supplemental agreement.

Exhibit E, Estimated Costs by Task has been revised and is attached hereto and by this reference made a part of this supplemental agreement.

IN WITNESS WHEREOF, the parties have caused this FIRST SUPPLEMENTAL AGREEMENT to be executed the day and year first above written.

CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

By: Lawrence L Brown III Date: May 17, 2001
LAWRENCE L. BROWN, III Chairman

G. C. Wallace, Inc.

By: Calvin L Black Date: 5/15/01
Calvin L. Black
Executive Vice President

ATTEST:

By: Carolyn Frazier Date: May 17, 2001
Carolyn Frazier, Secretary

APPROVED AS TO LEGALITY ONLY:

By: Chris Tipper Date: May 17, 01

**EXHIBIT A**
**REVISED SCOPE OF SERVICES**
**DUCK CREEK/BLUE DIAMOND WASHES**
**FLOOD INSURANCE RESTUDY**
**(REVISIONS IN BOLD TEXT)**

## Task 1 Data Collection and Review

**1.1** Collect and review studies, construction drawings, reports, mapping, etc. which pertain to the Duck Creek from the Lower Duck Creek Detention Basin to the Las Vegas Wash and the Blue Diamond Washes from the UPRR to the Duck Creek (see Location Maps). Sources of such information will include but are not limited to technical reports in support of LOMRs, flood control facility plans and design reports, "as built" plans, hydrologic and hydraulic reports and drainage studies from:

1. Federal agencies - FEMA
   a. Duck Creek - Robindale to Las Vegas Wash. Appealed by community. Technical data including topography will form the base conditions for this study.
   b. Blue Diamond Washes
2. State Agencies - NDOT
3. County Public Works
   a. Design of Lower Duck Creek Detention Basin
   b. Private development flood control improvements.
      i. Aviara Apartments (basis of community appeal)
      ii. Echo Glenn
      iii. Others
4. Private consultants or developers

Certifications have been received by FEMA for the Blue Diamond Detention Basin in conjunction with previous LOMR requests sponsored by the District.

**1.2** Perform a detailed field review and document with photos changes to the watercourses from baseline data:

1. Major hydraulic structures & bridges
2. Channel improvements
3. Natural channels

**1.3** Provide field surveys to obtain the physical dimensions of specific hydraulic structures within the study area in accordance with FEMA Document 37.

**1.4** Prepare written summary of field review and data collection. Include preliminary bibliography for final report.

**1.5** Collect available mapping to develop study base map/work map. Review data to determine whether the development of any additional mapping is warranted. Determine level of effort required to be performed under Task 5.2.

**1.6** Major Project Design Data Review

1. The District will furnish paper and digital copies of the technical data prepared for the Duck Creek under contract to FEMA. Review to determine whether additional hydrologic/hydraulic calculations are warranted. Determine level of effort required to be performed under Task 5.3.

2. Design hydrology, hydraulics and sediment transport data (on computer diskette when available) for the Lower Duck Creek Detention Basin will be provided by the District and Clark County Public Works. Review data to determine whether any additional calculations are warranted. Determine level of effort required to be performed under Task 5.3.

**1.7** Prepare summary memorandum detailing review effort, findings and recommendations.

**Task 2 Floodplain Delineation**

**2.1** GCW will retain Kenny Aerial as part of this contract to perform aerial topographic mapping within specific portions of the restudy area. GCW will coordinate the work of Kenny Aerial to ensure that the specifications of the surveying work are met. Quality control of aerial surveys will be per FEMA Document No. 37 **Flood Insurance Study Guidelines and Specifications for Study Contractors**, dated January 1995.

**2.1.1** Prepare topographic mapping with a 4-foot contour interval at a scale of 1-inch = 400-feet. The width of the mapping will generally range from 600 feet to 2600 feet and will include both the main channel and the "breakout areas" for the site. The limits of the topographic mapping will be as follows:

- Duck Creek Wash from the confluence with the Las Vegas Wash to ~~the Lower Duck Creek Detention Basin~~ **Interstate Highway 15. A portion of the area between Interstate Highway 15 and Las Vegas Boulevard in being provided by a private party and will be justified to the mapping required here.**
- Blue Diamond Wash from the confluence with the Duck Creek Wash west to the culvert crossing under the Union Pacific Railroad.
- **West side of I-15 from Duck Creek to Blue Diamond Wash**

2.1.2 Ground Control

a. GCW shall provide survey control using NAVD 88 datum for development of topographic mapping. The ground control will also be converted to NGVD 29 datum. Existing Clark County survey control markers will be identified and described for use as elevation reference markers (ERMs). ERM description, location and elevation will be tabulated for both NAVD 88 and NGVD 29 and submitted with the FIS report.

b. GCW will systematically set panel points and establish horizontal and vertical control throughout the areas to be mapped for use in compilation by Kenny Aerial. Where readily available, survey will be tied to the State Plane Coordinate System. Field control will use existing documented Clark County survey points where possible, and be of an adequate density and location to meet the requirements of the aerial surveying subcontractor and FEMA Document No. 37.

**2.2** Prepare study base map from data gathered in Task 1.5, 2.1 and 5.2.

**2.3** Hydrologic Modeling

1. Blue Diamond Washes. Determine regulatory flow rates entering the study area at the UPRR. Assume Blue Diamond Detention Basin is complete.

2. Determine regulatory flow rates for the Duck Creek. Assume Lower Duck Creek Detention Basin is complete. Analyses various storm scenario above and below the detention basin.

3. **Incorporate findings of NDOT's Blue Diamond Road Widening & Interchange at I-15 project hydrologic design report.**

**2.4** Prepare a written summary of the FIS flows to be used in the study.

**2.5** Prepare detailed methods hydraulic analyses.

1. Base flood elevations, floodplain, floodway and shallow flooding delineations will be based on the U.S. Army Corps of Engineer's HEC-2/HECRAS backwater model and/or additional detailed and approximate method determinations deemed acceptable by FEMA. These delineations will simulate the effects of floodplain geomorphology, flow rate changes, bridges, culverts, hydraulic roughness, effective flow limitations, split flows, and other considerations to most realistically represent flooding conditions. The consultant will analyze riverine and shallow flooding areas and prepare the study and maps according to the guidelines outlined in FEMA

Document No. 37.

2. The consultant will prepare progress work maps and models of the 100-year floodplain during the course of the hydraulic analysis for review by the District and entities during progress meetings.

3. Prepare final Technical Data and workmaps

4. Prepare final TSDN.

5. Complete all applicable FEMA Forms.

**2.6** Prepare final floodplain mapping study to include as a minimum the following outline.

I. Introduction
   a. Purpose of Study
   b. Authority for Study
   c. Coordination and Acknowledgments

II. Area Studied
   a. Scope of Study
   b. Community Description
   c. Principal Flood Problems
   d. Flood Protection Measures

III. Engineering Methods
   a. Hydrologic Analysis
   b. Hydraulic Analysis

IV. Insurance Applications

V. Other Studies

VI. Bibliography

VII. Appendices - Supporting Technical Data, FEMA Forms

**Task 3** **Coordination**

**3.1** The Consultant will coordinate and participate in regular progress meetings with the District and Clark County Public Works Department at least monthly, and at milestones in the development of the study. Consultant will prepare and distribute minutes of all meetings.

3.2 The Consultant will submit to the District two (2) draft copies of all maps, reports and technical data for agency reviewers.

3.3 Throughout the restudy effort, the Consultant will coordinate with FEMA and FEMAs Technical Evaluation Contractor (TEC) in order to proceed in the most time efficient manner.

3.4 The Consultant will be responsible for responding to and interacting with FEMAs TEC throughout the review and community appeals process as outlined in FEMA Document No. 37.

**Task 4 Final Products**

4.1 Mapping

1. Topography mapping prepared under Task 2.1 will be reproduced and delivered to the District in a durable reproducible form acceptable to the District.

2. Additional topographic maps, contact prints, photo mylars, digital data, etc. will be delivered to the District as required by the Supplemental Services Section and authorized per Task 1.4 and developed per Task 5.2.

4.2 Report

1. The consultant will produce a final report incorporating all previous comments from the District, FEMA and other reviewers. Six (6) hard copies of the report and appendices will be delivered.

2. Report text in WordPerfect format digitally, compatible with IBM personal computers.

3. Six (6) copies of the Technical Support Data Notebook.

**Task 5 Supplemental Services**

5.1 The Consultant will obtain all necessary rights-of-entry for the study area. The District will assist as may be necessary.

5.2 The consultant shall provide any additional ground survey and/or aerial survey as determined necessary under Task 1.5. A ground survey and/or aerial survey subcontractor will be retained by the Consultant, if necessary, as part of this contract. The consultant will coordinate the work of the surveying subcontractor(s) to ensure that the specifications of the surveying work are met. Quality control of aerial surveys will be per FEMA Document No.

37, **Flood Insurance Study Guidelines and Specifications for Study Contractors,** dated March 1991.

1. Prepare topographic mapping with a 4-foot contour interval at a scale of 1-inch = 400-feet.

2. Ground Control

   a. The Consultants subcontractor shall provide survey control using NAVD 88 datum for development of topographic mapping for detailed hydraulic analysis. The ground control will also be converted to NGVD 29. Existing Clark County survey control markers will be identified and described for use as elevation reference markers (ERMs). ERM description, location and elevation will be tabulated and submitted with the FIS report.

   b. The Consultants subcontractor will systematically set panel points and establish horizontal and vertical control throughout the areas to be mapped for use in compilation by the aerial survey subcontractor. Where readily available, survey will be tied to the State Plane Coordinate System. Field control will use existing documented Clark County survey points where possible, and be of an adequate density and location to meet the requirements of the aerial surveying subcontractor and FEMA Document No. 37.

3. Digital contour and planimetric data developed under this task shall be delivered to the District in a digital format acceptable to FEMA and the District.

4. The Consultant will provide the District with permanent non-erasable topographic mylar sheets 24" X 36" at the scale and contour interval specified in Task 5.2.1. A cover sheet will be provided with project title, date of topography, and sheet index. Each sheet of topography will include at a minimum a north arrow, scale, photo date, section and quarter corners, street names, State Plane Coordinate information, major drainage features, corporate and town boundaries, cross section lines, channel centerline station, 100-year flood limits, description and elevation of control points and ERMs and reference marks used in ground control.

5.3 The Consultant shall provide any additional technical analyses deemed necessary under Task 1.5.

1. Prepare additional hydrologic, hydraulic and sediment transport analyses.

2. Submit refinements/revisions to the District for approval.

3. Prepare report for final study.

# EXHIBIT E

## ESTIMATED COSTS BY TASKS
**REVISED**

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BASIC SERVICES

| | |
|---|---|
| TASK 1 – Data Collection/Review | $ 66,198 |
| TASK 2 – Floodplain Delineation | **$163,568** |
| TASK 3 – Coordination | $ 22,738 |
| TASK 4 – Final Products | $ 11,444 |
| **SUBTOTAL - BASIC SERVICES** | **$263,948** |
| TASK 5 – Supplemental Services | **$ 35,000** |
| **TOTAL SERVICES** | **$298,948** |

Study Contractor: G. C. WALLACE, INC.

# HYDROLOGIC ANALYSES INDEX

Clark County, Nevada

## DUCK CREEK / BLUE DIAMOND WASHES FIS RESTUDY

| Flooding Source / Stream Name | *Hydrologic Method / Model Used | Method / Model Analysis Date | Exhibit No. Paper Copy | Exhibit No. Floppy Diskettes |
|---|---|---|---|---|
| DC/BDW* | Duck3 | January 21, 2002 | Enclosed | Enclosed |
| DC/BDW | Duck4 | January 21, 2002 | Enclosed | Enclosed |
| DC/BDW | Duck5 | January 21, 2002 | Enclosed | Enclosed |
| DC/BDW | SC3 | July 16, 2002 | Enclosed | Enclosed |
| DC/BDW | SC4 | July 16, 2001 | Enclosed | Enclosed |
| DC/BDW | SC5 | July 16, 2001 | Enclosed | Enclosed |

*Flooding source: Duck Creek and Blue Diamond Washes
*BDW = Blue Diamond Wash
*All models used HEC-1

# SUMMARY OF DESIGN FLOWS
# FOR
# DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## 550.039

## MARCH 2002

Prepared for:

Clark County Regional Flood Control District
600 S. Grand Central Parkway, Suite 300
Las Vegas, NV 89106-4511
Phone: (702) 455-3139
Fax: (702) 455-3870

# I. ENGINEERING METHODS

## A. Hydrologic Analysis

### 1. Introduction

The intent of this hydrologic analysis is to determine 100-year peak flows for the following locations:

- Duck Creek from I-15 to the Pittman Wash confluence
- Conveyance areas downstream of the I-15 culverts to the Lower Duck Creek Detention Basin
- North Branch of the Blue Diamond Wash from the Union Pacific Railroad to the Duck Creek confluence
- Middle Branch of the Blue Diamond Wash from the Union Pacific Railroad to the Duck Creek confluence
- Along the west side of I-15 from 3.2 miles south of Blue Diamond Road to the Blue Diamond Road/ I-15 Interchange

### 2. Modifications to the Effective HEC-1 model

The hydrologic modeling is based on the Effective HEC-1 model, BDE100UN, from the 1991 Las Vegas Valley Flood Insurance Study by James M. Montgomery Engineers (Reference 1). Modifications were made to the Effective HEC-1 model to reflect the current, existing condition of the Duck Creek/ Blue Diamond Watershed. GIS applications were used to update drainage basin areas, precipitation values, and to determine an increase in percent impervious due to development of the watershed since 1991. Drainage patterns were also updated to reflect the existing condition. Specifically, several diversions have been identified along I-15 which were not included in the Effective HEC-1 model. Note, that it was necessary to rearrange the order of the Effective HEC-1 model to incorporate these diversions. Modifications to the overall drainage area and drainage patterns are shown on Figure 3. The following paragraphs discuss modifications to the Effective HEC-1 model in greater detail.

Watershed Development

Portions of the watershed have experienced significant development since 1991. To account for this development, an increase in percent impervious was determined for each drainage basin, and inserted into the LS card of the HEC-1 model. Figures 4A and 4B show drainage basin boundaries overlayed with aerial photographs to compare development in 1991 to the present state. A detailed summary table is attached in the Supporting Information section.

Precipitation Values

Precipitation values were updated using GIS coverages generated from the NOAA Atlas 2, Volume VII Nevada, 1973. The precipitation data is

adjusted by 1.43 for the 100-year storm event, from USACOE, Los Angeles District, 1988. Figure 5 shows the basin boundaries overlayed with the precipitation coverage, and summarizes the change in precipitation from those used in the Effective HEC-1 model.

Combination Points

Additional combination points were inserted into the HEC-1 model to account for changes in drainage patterns, basin delineations, and to reflect appropriate tributary area at specific locations.

Routings

Routings from the Effective HEC-1 model were revised to reflect the addition of combination points, diversions, current drainage patterns, and channel improvements. When possible, routings used in the Effective HEC-1 model were not changed. Revised routings in unimproved channels were first modeled using Muskingum routing parameters. If Muskingum routings proved to be unstable, the routings were modeled using Muskingum-Cunge parameters. Routing calculations are attached in the Supporting Information section.

Diversions

The naming convention for diversions in this report uses "DV" prior to the bridge/culvert ID. For example, a diversion at culvert BD2, is labeled as DVBD2. See Table 2 and Figures 6A and 6B for the location and description of the diversions inserted into the HEC-1 models. Diversion calculations are attached in the Supporting Information section.

Five diversions were identified along I-15, south of Blue Diamond Road in the *Drainage/Design Alternatives for Blue Diamond Road (SR160) Widening & Interchange at I-15 from Las Vegas Boulevard to Rainbow Boulevard* (hereafter referred to as the Blue Diamond/I-15 Interchange report, Reference 2). These culverts are shown on Figure 6B as I151, I152, I153, I154, and I155. Diversion rating tables were developed by GCW for each culvert (DVI151, DVI152, DVI153, DVI154, and DVI155) using culvert survey data and topographic mapping from the Blue Diamond/I-15 Interchange report. This information was supplemented with field surveys by GCW.

Diversion rating tables for the Union Pacific Railroad culverts (DVBD2, DVBD3, and DVBD4) were also generated by GCW and inserted into the HEC-1 models. Culvert data was collected from field surveys by GCW and from Clark County GIS topographic coverages.

Diversion DVBD7 is located at the Middle Branch of the Blue Diamond Wash near the future intersection of Hinson Street and Windmill Lane. The diversion rating table was referenced directly from the results of the

FLO-2D model from the Blue Diamond/I-15 Interchange report (Reference 2). Approximately 2/3 of the total 100-year peak flow in the Middle Branch of the Blue Diamond Wash will split to the northeast, and will combine with the flow in the North Branch of the Blue Diamond Wash at I-15. The bypass from this split will continue east in the Middle Branch of the Blue Diamond Wash.

The Pittman Wash diversion, DVPITT, was referenced from the 1995 Pittman Wash FIS Restudy (Reference 3). This diversion is located near the intersection of Las Vegas Boulevard and St. Rose Parkway (formerly Lake Mead Drive). See PT8 on Figure 6A. To simplify the HEC-1 modeling, ten percent of diversion DVPITT was retained, then diverted immediately after as diversion DVROSE. The diversion rating table for DVROSE was also referenced from the 1995 Pittman Wash FIS Restudy.

An exception to the diversion naming convention is the diversion at the McCarran Airport. This diversion, TORAW, will flow east to the Rawhide Channel. The bypass flow will drain south to the McCarran East Detention Basin. The diversion ID and rating table were referenced directly from the 1996 Master Plan Update for the Las Vegas Valley (Reference 4).

Inflow hydrographs from the Upper Blue Diamond Detention Basin

The Upper Blue Diamond Detention Basin (UBDDB) is located outside of the Duck Creek Watershed. However, in the existing condition, a portion of the 100-year outflow from this detention basin will split to the northeast and drain into the Duck Creek Watershed to the Union Pacific Railroad. The impact of this split flow on the Blue Diamond Washes was addressed in the *CLOMR for the Area Downstream of the Upper Blue Diamond Detention Basin* (Reference 5). This split flow is incorporated into the HEC-1 model for this Restudy using inflow hydrographs, HYDRO1 and HYDRO2. The 100-year peak flow from HYDRO1 (623 cfs) will enter the Middle Branch of the Blue Diamond Wash at the Union Pacific Railroad. HYDRO1 is referenced from Combination Point C-5 of the CLOMR. The 100-year peak flow from HYDRO2 (36 cfs) will enter the North Branch of the Blue Diamond Wash at the Union Pacific Railroad. HYDRO2 is referenced from Combination Point C-11 of the CLOMR. Exhibits and HEC-1 models from the CLOMR are attached in the Supporting Information section.

Detention Basins

Detention basins constructed within the Duck Creek Watershed since the 1991 FIS Restudy of the Las Vegas Valley are incorporated into the HEC-1 models for this FIS Restudy.

Lower Duck Creek Detention Basin (LDCDB): Storage/volume data for this detention basin was referenced from the *Design Report for the Lower Duck Creek Detention Basin* (Reference 6 ).

McCarran East Detention Basin (MCDB): Storage/volume data for this detention basin was referenced from the 1996 Las Vegas Valley Master Plan Update (Reference 4). The outflow from this system will drain to the Rawhide Channel and combine with flow from Duck Creek at US-95.

## 3. Summary of Results

HEC-1 models for the entire Duck Creek watershed were completed for SDN 3, SDN 4, and SDN 5 storm distributions. In addition to these main models, storm centering models were constructed for the area downstream of the Lower Duck Creek Detention Basin. A comparison of the 100-year peak flows from the main models to the storm centering models indicated that the 100-year peak flows in the main models controlled at every location. The results of the HEC-1 modeling are summarized in the attached Tables 1 and 2. Table 1 summarizes 100-year peak flows, appropriate tributary areas, storm distributions, and depth-area-reduction factors (DARF) for each location. Adopted 100-year peak flows are shown where the HEC-1 model indicated a decrease in peak flow downstream. Controlling flow rates are also circled in the HEC-1 output. Note that tributary areas shown in the HEC-1 output often do not reflect the actual tributary areas due to upstream diversions. The results of the HEC-1 model indicate that the 100-year peak flow in Duck Creek at I-215 will be 8,562 cfs. The 100-year peak flows in the North and Middle Branches of the Blue Diamond Wash will be 1,290 cfs and 1,462 cfs respectively. See Figures 6A and 6B for 100-year peak flows at other locations.

Table 2 presents the diversion output from the HEC-1 model. The results of the HEC-1 modeling indicate that 1,462 cfs will be diverted north along the west side of I-15 to the Blue Diamond Road/ I-15 interchange during the 100-year storm event. Conversely, the Effective HEC-1 model assumed that the entire 100-year peak flow at I-15 would drain east through the I-15 culverts. The HEC-1 modeling results also show that 1,260 cfs from the Middle Branch of the Blue Diamond Wash will be diverted north and combine with flow in the North Branch of the Blue Diamond Wash at I-15 during the 100-year storm event. See Figures 6A and 6B for the locations, descriptions, and flow summaries of all diversions.

## REFERENCES


1. James M. Montgomery Engineers, Inc., Las Vegas Valley Flood Insurance Study, September 1991.

2. PBS&J, Inc., Drainage/Design Alternatives for Blue Diamond Road (SR160) Widening & Interchange at I-15 from Las Vegas Boulevard to Rainbow Boulevard, January 2001.

3. Nimbus Engineers, Pittman Wash Flood Insurance Study Restudy, July 1995.

4. PBS&J, Inc., Clark County Regional Flood Control District, The 1996 Master Plan Update of the Las Vegas Valley, February 1997.

5. PBS&J, Inc., CLOMR for Area Downstream of Upper Blue Diamond Detention Basin Based on Post Detention Basin Flows, February 2000.

6. Montgomery Watson, Lower Duck Creek Detention Basin, November 1998.

**TABLE 1: SUMMARY OF HEC-1 MODEL**

| BASIN/ POINT | AREA (SQ MI) | SDN | DARF | FLOW (CFS) | BASIN/ POINT | AREA (SQ MI) | SDN | DARF | FLOW (CFS) |
|---|---|---|---|---|---|---|---|---|---|
| B13A | 1.29 | 3 | 0.95 | 933 | D010 | 10.43 | 4 | 0.857 | 3620 |
| B13B | 0.54 | 3 | 0.975 | 223 | D07 | 4.28 | 3 | 0.908 | 1804 |
| PT1 | 1.83 | 3 | 0.95 | 1050 | PT7 | 32.65 | 5 | 0.725 | 6413 |
| B17 | 0.82 | 3 | 0.975 | 418 | D012B | 0.57 | 3 | 0.975 | 291 |
| PT2 | 2.64 | 3 | 0.925 | 1252 | PT8 | 33.21 | 5 | 0.725 | 6442 |
| DVBD2 | 2.64 | 3 | 0.925 | 466 | DVPITT | 33.21 | 5 | 0.725 | 3160 |
| DVBD2 | 2.64 | 3 | 0.925 | 786 | DVPITT | 33.21 | 5 | 0.725 | 3282 |
| B13C | 2.01 | 3 | 0.925 | 1432 | DVROSE | 33.21 | 5 | 0.725 | 644 |
| PT3 | 4.65 | 3 | 0.908 | 1550 | DVROSE | 33.21 | 5 | 0.725 | 2638 |
| DVBD3 | 4.65 | 3 | 0.908 | 290 | D4A | 1.87 | 3 | 0.95 | 1634 |
| DVBD3 | 4.65 | 3 | 0.908 | 1261 | PT25 | 117.75 | 5 | 0.58 | 6470 |
| DVBD4 | 4.65 | 3 | 0.908 | 227 | D4B | 2.03 | 3 | 0.925 | 1804 |
| DVBD4 | 4.65 | 3 | 0.908 | 1022 | PT26 | 119.78 | 5 | 0.58 | 6470* |
| B11S | 1.12 | 3 | 0.95 | 459 | PT27 | 94.15 | 5 | 0.64 | 3508 |
| HYDRO1 | 0.63 | 3 | 0.975 | 623 | B18C | 1.26 | 3 | 0.95 | 782 |
| PT4 | 6.4 | 3 | 0.895 | 1961 | PT28 | 132.53 | 5 | 0.58 | 9693 |
| DVBD7 | 6.4 | 3 | 0.895 | 1260 | LDCDB | 132.53 | 5 | 0.58 | 7261 |
| DVBD7 | 6.4 | 3 | 0.895 | 630 | D5A | 1.33 | 3 | 0.95 | 1261 |
| B14B | 0.99 | 3 | 0.975 | 440 | PT29 | 133.86 | 5 | 0.58 | 7484 |
| PT22W | 7.39 | 3 | 0.885 | 764 | B16B | 0.7 | 3 | 0.975 | 614 |
| D012A | 10.21 | 4 | 0.857 | 2630 | PT30 | 134.56 | 5 | 0.58 | 7484* |
| DVI151 | 10.21 | 4 | 0.857 | 1326 | B16A | 0.91 | 3 | 0.975 | 411 |
| DVI151 | 10.21 | 4 | 0.857 | 1301 | D5B | 0.6 | 3 | 0.975 | 398 |
| DVI152 | 10.21 | 4 | 0.857 | 482 | PT31 | 136.07 | 5 | 0.58 | 7484 |
| DVI152 | 10.21 | 4 | 0.857 | 816 | PT32 | 143.12 | 5 | 0.58 | 8477 |
| D01 | 9.54 | 4 | 0.865 | 3793 | HYDRO2 | 0.38 | 3 | 0.99 | 36 |
| D005 | 2.73 | 3 | 0.925 | 1464 | B12 | 0.97 | 3 | 0.975 | 262 |
| PT9 | 12.27 | 5 | 0.832 | 3580 | PT33W | 1.35 | 3 | 0.95 | 244 |
| D02 | 5.91 | 3 | 0.903 | 2778 | PT33 | 7.75 | 3 | 0.885 | 1286 |
| D03 | 11.99 | 4 | 0.85 | 4758 | B15A | 0.96 | 3 | 0.975 | 509 |
| D04 | 6.95 | 3 | 0.895 | 3193 | PT34W | 8.71 | 4 | 0.875 | 1290 |
| PT10 | 18.94 | 5 | 0.804 | 5920 | PT34 | 145.42 | 5 | 0.58 | 8551 |
| D006 | 8.52 | 4 | 0.875 | 3509 | MNWB | 0.44 | 3 | 0.99 | 236 |
| PT11 | 33.37 | 5 | 0.725 | 7588 | MNWC | 0.6 | 3 | 0.975 | 322 |
| D2A | 0.99 | 3 | 0.975 | 1028 | PT35 | 1.04 | 3 | 0.95 | 529 |
| PT12 | 46.63 | 5 | 0.695 | 9635 | MNWD | 0.08 | 3 | 0.99 | 72 |
| D2B | 7.5 | 3 | 0.885 | 2188 | PT36 | 1.12 | 3 | 0.95 | 549 |
| PT13 | 54.13 | 5 | 0.64 | 8471 | MC2 | 0.92 | 3 | 0.975 | 367 |
| D06 | 11.68 | 4 | 0.85 | 3819 | PT37 | 2.03 | 3 | 0.925 | 845 |
| D3 | 6.64 | 3 | 0.895 | 1518 | B10A | 1.6 | 3 | 0.95 | 1361 |
| PT14 | 82.66 | 5 | 0.64 | 9510 | PT38 | 3.64 | 3 | 0.915 | 1428 |
| DVI153 | 82.66 | 5 | 0.64 | 5088 | PT39 | 149.06 | 5 | 0.58 | 8562 |
| DVI153 | 82.66 | 5 | 0.64 | 4422 | D6 | 1.56 | 3 | 0.95 | 1098 |
| D1A | 2.29 | 3 | 0.925 | 1186 | PT40 | 150.62 | 5 | 0.53 | 8562* |
| D1B | 0.32 | 3 | 0.99 | 149 | D7 | 0.85 | 3 | 0.975 | 399 |
| PT15 | 2.61 | 3 | 0.925 | 1299 | PT41 | 151.47 | 5 | 0.53 | 8562* |
| D1C | 0.56 | 3 | 0.975 | 203 | D8 | 1.26 | 3 | 0.95 | 1169 |
| PT16 | 3.17 | 3 | 0.915 | 1420 | PT42 | 152.73 | 5 | 0.53 | 8562* |
| D1D | 1.23 | 3 | 0.95 | 764 | B10B | 0.85 | 3 | 0.975 | 476 |
| D1E | 0.22 | 3 | 0.99 | 81 | D9A | 0.86 | 3 | 0.975 | 227 |
| D1F | 0.81 | 3 | 0.975 | 162 | PT43 | 1.71 | 3 | 0.95 | 646 |
| PT17 | 5.43 | 3 | 0.903 | 1820 | PT44 | 154.44 | 5 | 0.53 | 8562* |
| B18A | 1.5 | 3 | 0.95 | 294 | D9B | 1.54 | 3 | 0.95 | 915 |
| PT18 | 89.59 | 5 | 0.64 | 4781 | PT45 | 155.99 | 5 | 0.53 | 8562* |
| DVI154 | 89.59 | 5 | 0.64 | 1232 | D10 | 2.51 | 3 | 0.925 | 1683 |
| DVI154 | 89.59 | 5 | 0.64 | 3549 | PT46 | 158.49 | 5 | 0.53 | 8562* |
| B18B | 1.92 | 3 | 0.95 | 1121 | MC | 2.8 | 3 | 0.925 | 3216 |
| PT19 | 94.15 | 5 | 0.64 | 3721 | TORAW | 2.8 | 3 | 0.925 | 611 |
| DVI155 | 94.15 | 5 | 0.64 | 2277 | TORAW | 2.8 | 3 | 0.925 | 2605 |
| DVI155 | 94.15 | 5 | 0.64 | 1444 | MCDB | 2.8 | 3 | 0.925 | 82 |
| B14A | 1.35 | 3 | 0.95 | 1145 | PT47 | 2.8 | 3 | 0.925 | 658 |
| PT20 | 4.65 | 3 | 0.908 | 516 | RH | 1.36 | 3 | 0.95 | 551 |
| PT21 | 97.51 | 5 | 0.64 | 1462 | PT48W | 4.16 | 3 | 0.908 | 1138 |
| PT22 | 100.25 | 5 | 0.58 | 1462* | B20 | 0.79 | 3 | 0.975 | 395 |
| B15B | 0.95 | 3 | 0.975 | 356 | PT48 | 163.44 | 5 | 0.53 | 8562* |
| PT23 | 101.2 | 5 | 0.58 | 1462* | D12 | 0.18 | 3 | 0.99 | 72 |
| PT24 | 10.21 | 4 | 0.857 | 1805 | D11A | 0.16 | 3 | 0.99 | 131 |
| D009 | 3.62 | 3 | 0.915 | 2594 | PT49 | 0.33 | 3 | 0.99 | 133 |
| D004 | 2.4 | 3 | 0.925 | 1565 | PT50 | 163.78 | 5 | 0.53 | 8562* |
| PT5 | 6.02 | 3 | 0.895 | 3901 | D11B | 0.99 | 3 | 0.975 | 932 |
| D08 | 11.91 | 4 | 0.85 | 3522 | PT51 | 164.76 | 5 | 0.53 | 8562* |
| PT6 | 17.93 | 5 | 0.804 | 4564 | | | | | |

* ADOPTED FLOW, UPSTREAM FLOW CONTROLS

**TABLE 2: SUMMARY OF DIVERSION OUTPUT**

| DIVERSION ID | FACILITY ID | FACILITY DESCRIPTION | DIVERSION | | BYPASS | |
|---|---|---|---|---|---|---|
| | | | Q100 (CFS) | DIRECTION | Q100 (CFS) | DIRECTION |
| **DVBD2** | BD2 | 2- 36" RCP | 466 | EAST | 786 | NORTH |
| **DVBD3** | BD3 | 7' x 4' RCB | 290 | EAST | 1261 | NORTH |
| **DVBD4** | BD4 | 2- 36" RCP | 227 | EAST | 1022 | NORTH |
| **DVBD7** | NA | NA | 1260 | NORTH | 630 | EAST |
| **DVI151** | I151 | 3- 12' x 4' RCB | 1326 | EAST | 1301 | NORTH |
| **DVI152** | I152 | 2- 12' x 4' RCB | 482 | EAST | 816 | NORTH |
| **DVI153** | I153 | 3- 12' x 4' RCB | 5088 | EAST | 4422 | NORTH |
| **DVI154** | I154 | 2- 12' x 4' RCB | 1232 | EAST | 3549 | NORTH |
| **DVI155** | I155 | 3- 12' x 5' RCB | 2277 | EAST | 1444 | NORTH |
| **DVPITT** | NA | NA | 3160 | EAST | 3282 | NORTH |
| **DVROSE** | NA | NA | 644 | NORTHEAST | 2683 | NORTH |
| **TORAW** | NA | NA | 611 | SOUTH | 2605 | EAST |

# SUPPORTING INFORMATION FOR HYDROLOGIC MODELING

**HEC-1 MODELS**

- SDN5, DUCK5.OUT
- SDN4, DUCK4.OUT
- SDN3, DUCK3.OUT
- STORM CENTERING, SDN5, SC5.OUT
- STORM CENTERING, SDN4, SC4.OUT
- STORM CENTERING, SDN3, SC3.OUT

**HYDROLOGIC CALCULATIONS**

- SUMMARY TABLE OF REVISIONS TO EFFECTIVE HEC-1 MODEL
- LAG TIME CALCULATIONS
  - STANDARD FORM 4
  - USBR METHOD
- DIVERSION CALCULATIONS
  - DIVERSION DVBD2
  - DIVERSION DVBD3
  - DIVERSION DVBD4
  - DIVERSION DVBD7
  - MANNING'S n FOR CHANNEL ON WEST SIDE OF I-15
  - SLOPE CALCULATIONS FOR CHANNEL ON WEST SIDE OF I-15
  - REFERENCED SURVEY POINT DATA FOR WEIRS/ CHANNELS
  - DIVERSION DVI151
  - DIVERSION DVI152
  - DIVERSION DVI153
  - DIVERSION DVI154
  - DIVERSION DVI155
  - DIVERSION DVPITT AND DVROSE
  - DIVERSION TORAW
- ROUTING CALCULATIONS
  - MUSKINGUM ROUTING TABLE
  - MUSKINGUM-CUNGE ROUTING RDVI154
  - MUSKINGUM-CUNGE ROUTING RDVI155

**REFERENCES**


- EFFECTIVE HEC-1 MODEL FROM 1991 FIS RESTUDY, BDE100UN
- CLOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND DB
- BLUE DIAMOND/ I-15 INTERCHANGE REPORT
- DESIGN MEMORANDUM FOR LOWER DUCK CREEK DB

# HEC-1 MODELS

# SDN5, DUCK5.OUT

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            SEPTEMBER 1990         *
*             VERSION 4.0           *
*                                   *
*  RUN DATE  01/21/2002  TIME  15:31:08 *
*                                   *
*************************************
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*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*        609 SECOND STREET          *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 756-1104           *
*                                   *
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL  LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



```
         LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
                   *DIAGRAM
*** FREE ***
              1    ID   DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
              2    ID   "G.C. WALLACE, INC. BY MJL"
              3    ID   DUCK5.XLS
              4    ID   "MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
              5    ID   "BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
              6    ID   UPDATED PRECIPITATION VALUES
              7    ID   % IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
              8    ID   ADDITIONAL DIVERSIONS ADDED
              9    ID   DESIGN STORM = 100-YEAR 6-HOUR STORM
             10    ID   STORM DISTRIBUTION = SDN5
                   *
             11    ID     JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
             12    ID
             13    ID     AREA (SQUARE MILES)    DARF
             14    ID    12 - 16    0.832
             15    ID    16 - 20    0.804
             16    ID    20 - 30    0.765
             17    ID    30 - 40    0.725
             18    ID    40 - 50    0.695
             19    ID    50 -100    0.640
             20    ID    100 - 150    0.580
             21    ID    150 - 200    0.530
             22    ID
             23    IT       5       0       0     120
             24    IO       5       0       0
             25    JR    PREC   0.832   0.804   0.765   0.725   0.695   0.640   0.580    0.53
                   *
             26    KK    B13A
             27    BA   1.290
             28    PB    3.14
             29    PC   0.000   0.020   0.059   0.080   0.110   0.144   0.150   0.160   0.168   0.171
             30    PC   0.180   0.182   0.187   0.190   0.197   0.202   0.210   0.220   0.230   0.241
             31    PC   0.250   0.259   0.265   0.280   0.290   0.300   0.305   0.309   0.310   0.317
             32    PC   0.321   0.327   0.333   0.346   0.361   0.381   0.408   0.430   0.477   0.514
             33    PC   0.561   0.630   0.710   0.720   0.731   0.752   0.779   0.790   0.795   0.804
             34    PC   0.810   0.820   0.826   0.840   0.859   0.889   0.910   0.938   0.966   0.970
             35    PC   0.974   0.979   0.981   0.983   0.985   0.989   0.990   0.992   0.993   0.996
             36    PC   0.997   0.999   1.000
             37    LS       0    88.0
             38    UD   0.680
                   *
             39    KK   RB13A
             40    KM   ROUTE B13A TO PT1
             41    RM       7    0.64     0.1
                   *
```



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         LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
             42    KK    B13B
             43    BA   0.538
             44    PB    2.96
             45    LS       0    88.0
             46    UD   1.440
                   *
             47    KK     PT1
             48    KM   COMBINE BASINS B13A AND B13B
             49    HC       2
                   *
             50    KK    RPT1
```

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 51          KM   ROUTE PT1 TO PT2
 52          RM       3    0.28    0.15
             *

 53          KK     B17
 54          BA   0.816
 55          PB    2.80
 56          LS       0    88.0
 57          UD   0.940
             *

 58          KK     PT2
 59          KM   COMBINE PT1 AND BASIN B17
 60          HC       2
             *

 61          KK   DVBD2
 62          KM   "DIVERSION EAST THRU 2-36"" RCP'S AT UPRR LOCATED 300 FT SOUTH OF BLUE DIAMON
 63          DT   DVBD2
 64          DI       0     121     500    1000    1500    2000
 65          DQ       0     121     240     391     540     690
             *

 66          KK    RPT2
 67          KM   ROUTE BYPASS TO PT3
 68          RD    2000   0.008    0.03       0    TRAP      35       3
             *

 69          KK    B13C
 70          BA   2.005
 71          PB    2.82
 72          LS       0    88.1
 73          UD   0.510
             *

 74          KK     PT3
 75          KM   COMBINE BYPASS FROM DVBD2 AND BASIN B13C
 76          HC       2
             *
1                                        HEC-1 INPUT                                                PAGE  3

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 77          KK   DVBD3
 78          KM   DIVERSION EAST THRU 8'x4' RCB AT UPRR LOCATED 1700 FT NORTH OF BLUE DIAMOND
 79          DT   DVBD3
 80          DI       0     238     500    1000    1500    2000
 81          DQ       0     238     252     271     288     304
             *

 82          KK   RPT3A
 83          KM   ROUTE BYPASS FROM DVBD3 NORTH ALONG WEST SIDE OF UPRR TO UPPR CULVERT BD4
 84          KM   MUSKINGUM ROUTING UNSTABLE
 85          RD    1200   0.008    0.03       0    TRAP      35       3
             *

 86          KK   DVBD4
 87          KM   "DIVERSION EAST THRU 2-36"" RCP'S AT UPRR LOCATED 3000 FT NORTH OF BLUE DIAMO
 88          DT   DVBD4
 89          DI       0      97     500    1000    1500    2000
 90          DQ       0      97     149     202     252     296
             *

 91          KK   RPT3B
 92          KM   ROUTE BYPASS FROM DVBD4 NORTH ALONG WEST SIDE OF UPRR TO UPPR BRIDGE
 93          RM       1   0.119    0.15
             *

 94          KK    B11S
 95          KM   SOUTHERN PORTION OF BASIN B11 TIES INTO HYDRO1 BOUNDARY AREA
 96          BA   1.121
 97          PB    2.82
 98          LS       0    78.0
 99          UD   0.580
             *

100          KK  HYDRO1
101          KM   INFLOW HYDROGRAPH
102          KM   "REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B."""
103          KM   "SEE COMBINATION POINT C-5, DARF RATIO 0.98, OF HEC-1 FROM REFERENCED LOMR"
104          BA   0.630
105          QI       0       0       0       0       0       0       0       0       0       0
106          QI       0       0       0       0       0       0       0       0       0       0
107          QI       0       0       1       7      14      29      45      58      69      76
108          QI      82      86      90      94      99     100     101     100     100     100
109          QI     102     109     126     161     223     318     430     538     604     623
110          QI     607     569     525     480     437     397     363     335     316     306
111          QI     304     310     321     333     339     332     314     289     264     239
112          QI     217     198     182     169     159     150     143     137     131     127
113          QI     122     118     114     110     107     104     102     101     100      99
114          QI      98      98      97      97      97      97      97      96      96      96
115          QI      96      96      96      97      96      96      96      96      96      96
116          QI      96      96      96      96      96      96      96      96      96      96
117          QI      96      96      96      96      96      96      96      96      96      96
118          QI      96      96      96      96      96      96      96      96      96      96
119          QI      96      96      96      96      96      96      96      96      96      96
120          QI      96      96      96      96      96      95      95      95      95      95
1                                        HEC-1 INPUT                                                PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

121          QI      95      95      95      95      95      95      95      95      95      95
122          QI      95      95      95      95      95      95      95      95      95      95
123          QI      95      95      95      95      95      95      95      95      95      95
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124         QI      95      95      95      95      95      95      95      95      95      95
125         QI      95      95      95      95      95      95      95      95      95      95
126         QI      95      95      95      95      95      95      95      95      95      95
127         QI      95      95      95      95      95      95      95      95      95      95
128         QI      95      95      94      94      94      94      94      94      94      94
129         QI      94      94      94      94      94      94      94      94      94      94
130         QI      94      94      94      94      94      94      94      94      94      94
131         QI      94      94      94      94      94      94      94      94      94      94
132         QI      94      94      94      94      94      94      94      94      94      94
133         QI      94      94      94      94      94      94      94      94      94      94
134         QI      94      94      94      94      94      94      94      94      94      94
            *

135         KK     PT4
136         KM   "COMBINE BASIN B11S, HYDRO2, AND BYPASS FROM DVBD4"
137         KM   SEE COMBINATION POINT C-5 OF HEC-1 FROM REFERENCED LOMR
138         KM   "PT C-5 REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B.
139         HC       3
            *

140         KK   RPT4A
141         KM   ROUTE PT4 TO DIVERSION DVBD7
142         RM       3    0.22    0.15
            *

143         KK   DVBD7
144         KM   DIVERSION NORTH TO NORTH BRANCH BLUE DIAMOND WASH
145         KM   DIVERSION LOCATED NEAR INTERSECTION OF HINSON AND WINDMILL
146         KM   "REFERENCED FROM BLUE DIAMOND/I-15 INTERCHANGE REPORT, BY PBS&J, JAN 2001"
147         DT   DVBD7
148         DI       0    1200    1500    1800    2100    2400    2700    3000
149         DQ       0     800    1000    1200    1400    1600    1800    2000
            *

150         KK   RPT4B
151         KM   ROUTE BYPASS TO PT22W
152         RM       1    0.11    0.15
            *

153         KK    B14B
154         BA   0.992
155         PB    2.77
156         LS       0    73.4     9.0
157         UD    0.42
            *

158         KK   PT22W
159         KM   COMBINE PT4 AND BASIN B14B
160         HC       2
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

161         KK   D012A
162         BA  10.211
163         PB   2.95
164         LS       0    83.0
165         UD   1.320
            *

166         KK  RD012A
167         KM   ROUTE BASIN D012A TO I15 CULVERT 3 - 12'x4' RCB'S (DCWA 1429)
168         KM   MUSKINGUM ROUTING UNSTABLE
169         RD     750   0.007   0.030       0    TRAP       65      10
            *

170         KK  DVI151
171         KM   DIVERSION EAST THRU I15 CULVERT 3 - 12'x4' RCB'S (DCWA 1429)
172         DT  DVI151
173         DI       0     993    1305    1778    2400    3146
174         DQ       0     992    1100    1200    1298    1389
            *

175         KK   RI151
176         KM   ROUTE BYPASS FROM 3 - 12'x4' RCB'S TO I15 BRIDGE 24'x4' (IS15 0199)
177         RM       1   0.071   0.150
            *

178         KK  DVI152
179         KM   DIVERSION EAST THRU I15 BRIDGE 24'x4' (IS15 0199)
180         DT  DVI152
181         DI       0     128     466     929    1506    2268    3133    3815
182         DQ       0      47     190     362     550     733     896    1040
            *

183         KK   RI152
184         KM   ROUTE BYPASS FROM I15 BRIDGE 24'x4' TO I15 BRIDGE 36'x4' (IS15 0233)
185         RM       1   0.123   0.150
            *

186         KK     D01
187         BA   9.536
188         PB    3.42
189         LS       0    83.0
190         UD   1.000
            *

191         KK    RD01
192         KM   ROUTE BASIN D01 TO PT9
193         RM       3    0.64   0.150
            *
```

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  194     KK    D005
  195     BA   2.732
  196     PB    3.27
  197     LS       0    82.0
  198     UD   0.750
          *

  199     KK     PT9
  200     KM   COMBINE BASINS D01 AND D005
  201     HC       2
          *

  202     KK   RD005
  203     KM   ROUTE BASIN D005 TO PT12
  204     RM       1     0.2   0.150
          *

  205     KK     D02
  206     BA   5.915
  207     PB    3.44
  208     LS       0    83.0
  209     UD   1.030
          *

  210     KK    RD02
  211     KM   ROUTE BASIN D02 TO PT11
  212     RM       3    0.62   0.150
          *

  213     KK     D03
  214     BA  11.991
  215     PB    3.42
  216     LS       0    83.0
  217     UD   0.960
          *

  218     KK     D04
  219     BA   6.950
  220     PB    3.37
  221     LS       0    84.0
  222     UD   1.060
          *

  223     KK    PT10
  224     KM   COMBINE BASINS D03 AND D04
  225     HC       2
          *

  226     KK   RPT10
  227     KM   ROUTE PT10 TO PT11
  228     RM       3    0.82   0.150
          *
1                                   HEC-1 INPUT                                   PAGE  7
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  229     KK    D006
  230     BA   8.518
  231     PB    3.24
  232     LS       0    83.0
  233     UD   0.850
          *

  234     KK    PT11
  235     KM   "COMBINE PT10, BASINS D002 AND D006"
  236     HC       3
          *

  237     KK   RPT11
  238     KM   ROUTE PT11 TO PT12
  239     RM       1    0.18   0.150
          *

  240     KK     D2A
  241     BA   0.988
  242     PB    3.16
  243     LS       0    84.0
  244     UD   0.280
          *

  245     KK    PT12
  246     KM   "COMBINE PT9, PT11 AND BASIN D2A"
  247     HC       3
          *

  248     KK   RPT12
  249     KM   ROUTE PT12 TO PT13
  250     RM       3    0.83   0.150
          *

  251     KK     D2B
  252     BA   7.503
  253     PB    3.06
  254     LS       0    80.1
  255     UD   1.180
          *

  256     KK    PT13
  257     KM   COMBINE PT12 AND BASIN D2B
  258     HC       2
          *
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259          KK   RPT13
260          KM   ROUTE PT13 TO PT14
261          RM       4     0.9   0.100
             *
1                                        HEC-1 INPUT                                                    PAGE  8

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

262          KK     D06
263          BA  11.677
264          PB    3.21
265          LS       0    84.0
266          UD   1.190
             *
267          KK    RD06
268          KM   ROUTE BASIN D06 TO PT14
269          RM       3    0.78   0.150
             *
270          KK      D3
271          BA   6.637
272          PB    2.90
273          LS       0    77.0
274          UD   1.130
             *
275          KK    PT14
276          KM   "COMBINE BASINS D3, D06, PT13, AND BYPASS FROM I-15 CULVERT, I152 (IS15 0199)
277          HC       4
             *
278          KK  DVI153
279          KM   DIVERSION EAST THRU I15 BRIDGE 36'x4' (IS15 0233)
280          DT  DVI153
281          DI    1910    3220    6620    8040    8770    9390   10030   10740
282          DQ    1190    1450    3280    4130    4550    5000    5470    5990
             *
283          KK   RPT14
284          KM   ROUTE BYPASS FROM I15 BRIDGE 36'x4' TO I15 BRIDGE 24'x4' (IS15 0315)
285          RM       6   0.484   0.150
             *
286          KK     D1A
287          BA   2.290
288          PB    3.25
289          LS       0    83.0
290          UD   0.830
             *
291          KK    RD1A
292          KM   ROUTE BASIN D1A TO PT15
293          RM       2    0.17   0.150
             *
294          KK     D1B
295          BA   0.316
296          PB    3.10
297          LS       0    84.0
298          UD   1.060
             *
1                                        HEC-1 INPUT                                                    PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

299          KK    PT15
300          KM   COMBINE BASINS D1A AND D1B
301          HC       2
             *
302          KK   RPT15
303          KM   ROUTE PT15 TO PT16
304          RM       4    0.33   0.150
             *
305          KK     D1C
306          BA   0.565
307          PB    2.97
308          LS       0    83.0
309          UD   1.290
             *
310          KK    PT16
311          KM   COMBINE PT15 AND BASIN D1C
312          HC       2
             *
313          KK   RPT16
314          KM   ROUTE PT16 TO PT17
315          RM       3    0.26   0.150
             *
316          KK     D1D
317          BA   1.231
318          PB    2.99
319          LS       0    82.0
320          UD   0.500
             *
321          KK    RD1D
322          KM   ROUTE BASIN D1D TO PT17
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 323          RM       2    0.16   0.150
              *

 324          KK     D1E
 325          BA   0.224
 326          PB    2.83
 327          LS       0    81.5
 328          UD   1.060
              *

 329          KK     D1F
 330          BA   0.805
 331          PB    2.86
 332          LS       0    75.2
 333          UD   1.500
              *
1                                        HEC-1 INPUT                                                    PAGE 10

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 334          KK    PT17
 335          KM   "COMBINE PT16, BASINS D1D, D1E, AND D1F"
 336          HC       4
              *

 337          KK   RPT17
 338          KM   ROUTE PT17 TO PT18
 339          RM       6     0.5   0.100
              *

 340          KK    B18A
 341          BA   1.503
 342          PB    2.79
 343          LS       0    69.4     1.0
 344          UD   0.700
              *

 345          KK    PT18
 346          KM   "COMBINE PT17, BASIN B18A, AND BYPASS FROM PT14 (IS15 0233)"
 347          HC       3
              *

 348          KK  DVI154
 349          KM   DIVERSION EAST THRU I15 BRIDGE 24'x4' (IS15 0315)
 350          DT  DVI154
 351          DI       0    2318    4128    5274    6452    7636    8617    9479
 352          DQ       0    1040    1205    1252    1297    1341    1373    1404
              *

 353          KK   RPT18
 354          KM   ROUTE BYPASS FROM I15 BRIDGE 24'x4' TO I15 BRIDGE 36'x5' (IS15 0359)
 355          RM       1   0.113   0.150
              *

 356          KK    B18B
 357          BA   1.916
 358          PB    2.77
 359          LS       0    86.4
 360          UD   0.640
              *

 361          KK   DVBD2
 362          KM   RETURN FLOW PASSING THRU UPPR CULVERT AT PT2 (UPRR 0471)
 363          DR   DVBD2
              *

 364          KK  RDVBD2
 365          KM   ROUTE DVBD2 TO PT19
 366          RM       6    0.52   0.100
              *
1                                        HEC-1 INPUT                                                    PAGE 11

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 367          KK    PT19
 368          KM   "COMBINE BASIN B18B, DVBD2, AND BYPASS FROM PT18"
 369          HC       3
              *

 370          KK  DVI155
 371          KM   DIVERSION EAST THRU I15 BRIDGE 36'x5' (IS15 0359)
 372          DT  DVI155
 373          DI       0    2716    3378    4083    4548    4960    5791    6843
 374          DQ       0    1980    2192    2367    2531    2651    3141    3890
              *

 375          KK   RPT19
 376          KM   ROUTE BYPASS AT PT19 TO PT21
 377          RM       8   0.641   0.150
              *

 378          KK    B14A
 379          BA   1.351
 380          PB    2.77
 381          LS       0    88.0     5.0
 382          UD   0.400
              *

 383          KK  RDVBD3
 384          KM   "RETURN FLOW PASSING THRU UPPR CULVERT AT PT3, BD3 (UPRR 0511)"
 385          DR   DVBD3
              *
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```
386          KK  RDVBD4
387          KM   "RETURN FLOW PASSING THRU UPPR CULVERT, BD4 (UPRR 0534)"
388          DR   DVBD4
             *

389          KK    PT20
390          KM   COMBINE DVBD3 AND DVBD4
391          HC       2
             *

392          KK  RDVBD4
393          KM   ROUTE PT20 TO PT21
394          RM       6    0.51   0.100
             *

395          KK    PT21
396          KM   "COMBINE PT20, BASIN B14A, AND BYPASS FROM PT19"
397          HC       3
             *
1                                        HEC-1 INPUT                                                    PAGE 12

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

398          KK    PT22
399          KM   COMBINE PT21 AND PT22W
400          HC       2
             *

401          KK   RPT22
402          KM   ROUTE PT22 TO PT23
403          RM       4     0.3   0.100
             *

404          KK    B15B
405          BA   0.954
406          PB    2.77
407          LS       0    75.0    13.0
408          UD    0.71
             *

409          KK    PT23
410          KM   COMBINE PT22 AND BASIN B15B
411          HC       2
             *

412          KK RDVI151
413          KM   RETURN FLOW PASSING THRU I151 (DCWA 1429)
414          DR  DVI151
             *

415          KK RDVI151
416          KM   ROUTE DVI151 TO PT24
417          RM       1   0.099   0.150
             *

418          KK RDVI152
419          KM   RETURN FLOW PASSING THRU I152 (IS15 0199)
420          DR  DVI152
             *

421          KK RDVI152
422          KM   ROUTE DVI152 TO PT24
423          RM       1   0.089   0.150
             *

424          KK    PT24
425          KM   COMBINE DVI151 AND DVI152
426          HC       2
             *

427          KK   RPT24
428          KM   ROUTE PT24 TO PT25
429          RM       1   0.086   0.150
             *
1                                        HEC-1 INPUT                                                    PAGE 13

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

430          KK RDVI153
431          KM   RETURN FLOW PASSING THRU I153 AT PT14 (IS15 0233)
432          DR  DVI153
             *

433          KK RDVI153
434          KM   ROUTE DVI153 TO PT25
435          RM       1   0.112   0.150
             *

436          KK    D009
437          BA   3.621
438          PB    3.31
439          LS       0    83.0
440          UD   0.510
             *

441          KK   RD009
442          KM   ROUTE BASIN D009 TO PT5
443          RM       1     0.1     0.1
             *

444          KK    D004
445          BA   2.400
446          PB    3.30
```

```
447         LS       0    85.0
448         UD   0.700
            *

449         KK     PT5
450         KM   COMBINE BASINS D009 AND D004
451         HC       2
            *

452         KK    RPT5
453         KM   ROUTE PT5 TO PT6
454         RM       2    0.44    0.15
            *

455         KK     D08
456         BA  11.912
457         PB    3.28
458         LS       0    85.0
459         UD   1.650
            *

460         KK     PT6
461         KM   COMBINE PT5 AND BASIN D08
462         HC       2
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

463         KK    RPT6
464         KM   ROUTE PT6 TO PT7
465         RM       3    0.81   0.150
            *

466         KK    D010
467         BA  10.434
468         PB    3.15
469         LS       0    84.0
470         UD   1.050
            *

471         KK     D07
472         BA   4.280
473         PB    3.20
474         LS       0    84.0
475         UD   1.100
            *

476         KK     PT7
477         KM   "COMBINE PT6, BASINS D010 AND D07"
478         HC       3
            *

479         KK    RPT7
480         KM   ROUTE PT7 TO PT8
481         RM       3   0.224   0.150
            *

482         KK   D012B
483         BA   0.566
484         PB    2.77
485         LS       0    83.0
486         UD   0.642
            *

487         KK     PT8
488         KM   COMBINE BASIN D012B AND PT7
489         HC       2
            *

490         KK  DVPITT
491         KM   DIVERSION EAST ACROSS LAS VEGAS BLVD. TO PITTMAN WATERSHED - DOES NOT RETURN
492         KM   REFERENCED FROM 1995 PITTMAN WASH FIS RESTUDY BY NIMBUS
493         KM   "MODIFIED TO RETAIN 10% OF ACTUAL DIVERTED FLOW TO DIVERT LATER AT ""DVROSE""
494         DT  DVPITT
495         DI       0    3586    3710    3835    3961    5795    7737
496         DQ       0    1554    1618    1681    1747    2774    3933
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

497         KK  DVROSE
498         KM   DIVERSION NORTH ACROSS ST. ROSE PARKWAY (FORMERLY LAKE MEAD DRIVE)
499         KM   DIVERSION BYPASSES LDCDB VIA BASIN D5A AND COMBINES AT PT29
500         KM   REFERENCED FROM 1995 PITTMAN WASH FIS RESTUDY BY NIMBUS
501         DT  DVROSE
502         DI       0    1673    1721    1770    2214    3021    3803
503         DQ       0     359     371     384     396     579     774
            *

504         KK    RPT8
505         KM   ROUTE BYPASS FROM DVROSE AT PT8 TO PT25
506         RM       6    0.49   0.150
            *

507         KK     D4A
508         BA   1.873
509         PB    2.80
510         LS       0    83.8     0.0
511         UD   0.245
            *
```

```
512          KK    PT25
513          KM   "COMBINE PT24, BASIN D4A, DVI153, AND BYPASS FROM PT8"
514          HC       4
             *

515          KK   RPT25
516          KM   ROUTE PT25 TO PT26
517          RM       1   0.099   0.150
             *

518          KK     D4B
519          BA   2.033
520          PB    2.80
521          LS       0    83.8     8.0
522          UD   0.243
             *

523          KK    PT26
524          KM   COMBINE PT25 AND BASIN D4
525          HC       2
             *

526          KK   RPT26
527          KM   ROUTE PT26 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
528          RM       1   0.083   0.150
             *

529          KK RDVI154
530          KM   "RETURN FLOW PASSING THRU I15 BRIDGE, I154 (IS15 0315)"
531          DR  DVI154
             *
1                                        HEC-1 INPUT                                        PAGE 16

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

532          KK RDVI154
533          KM   ROUTE DVI154 TO LAS VEGAS BLVD.
534          RD    2700   0.007   0.015       0    TRAP      25       2
             *

535          KK RDVI154
536          KM   ROUTE DVI154 FROM LAS VEGAS BLVD. TO PT27
537          KM   "2-78"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
538          RD    1300   0.017   0.015       0    TRAP      28       0
             *

539          KK RDVI155
540          KM   "RETURN FLOW PASSING THRU I15 BRIDGE, I155 (IS15 0359)"
541          DR  DVI155
             *

542          KK RDVI155
543          KM   ROUTE DVI155 TO AGATE AVENUE
544          RD    1100    0.01   0.040       0    TRAP      15       3
             *

545          KK RDVI155
546          KM   ROUTE DVI155 FROM AGATE AVENUE TO LAS VEGAS BLVD.
547          KM   "3-10'x5' RCB, INCLUDES PORTION OF TRAP CHANNEL"
548          RD    1530    0.01   0.015       0    TRAP      30       0
             *

549          KK RDVI155
550          KM   ROUTE DVI155 FROM LAS VEGAS BLVD. TO PT27
551          KM   "2-96"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
552          RD     800   0.006   0.015       0    TRAP      35       0
             *

553          KK RDVI155
554          KM   ROUTE DVI155 FROM LAS VEGAS BLVD. TO PT27
555          KM   "2-84"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
556          RD    1100   0.012   0.015       0    TRAP      30       0
             *

557          KK    PT27
558          KM   COMBINE DVI154 AND DVI155
559          HC       2
             *

560          KK   RPT27
561          KM   ROUTE PT27 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
562          KM   "3-96"" CIPCP (EQUIVALENT RECTANGULAR CHANNEL)"
563          RD    1100   0.009   0.015       0    TRAP      56       0
             *
1                                        HEC-1 INPUT                                        PAGE 17

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

564          KK   RPT27
565          KM   ROUTE PT27 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
566          KM   3-8'x8' RCB (EQUIVALENT RECTANGULAR CHANNEL)
567          RD     570   0.004   0.015       0    TRAP      24       0
             *

568          KK    B18C
569          BA   1.259
570          PB    2.77
571          LS       0    75.4    25.0
572          UD   0.380
             *

573          KK    PT28
574          KM   "COMBINE PT26, PT27, AND BASIN B18C AT LDCDB"
```

```
575          HC       3
             *

576          KK   LDCDB
577          KM   LOWER DUCK CREEK DETENTION BASIN
578          RS       1    STOR       0
579          SV       0     2.8    37.5   120.3     229     340   453.8     570     689     810
580          SV     934    1061    1190
581          SE    2183    2184    2186    2188    2190    2192    2194    2196    2198    2200
582          SE    2202    2204    2206
583          SQ       0     126     654    1825    3310    4310    5118    5815    6437    7004
584          SQ    7528    8018    8480
585          SE    2183    2184    2186    2188    2190    2192    2194    2196    2198    2200
586          SE    2202    2204    2206
587          KO       1
             *

588          KK  RLDCDB
589          KM   ROUTE THE OUTFALL FROM THE LOWER DUCK CREEK DETENTION BASIN TO PT29
590          RD    1100   0.004   0.015       0    TRAP       46     1.5
             *

591          KK     D5A
592          BA   1.325
593          PB    2.79
594          LS       0    88.0    15.0
595          UD   0.350
             *

596          KK    RD5A
597          KM   ROUTE BASIN D5A TO PT29
598          RM       1    0.12   0.150
             *
1                                        HEC-1 INPUT                                          PAGE 18

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

599          KK RDVROSE
600          KM   RETURN FLOW CROSSING ST. ROSE PARKWAY (FORMERLY LAKE MEAD DRIVE)
601          DR  DVROSE
             *

602          KK RDVROSE
603          KM   ROUTE DIVERSION DVROSE TO PT29
604          RM       6    0.49   0.150
             *

605          KK    PT29
606          KM   "COMBINE BASIN D5A, BYPASS FROM DVROSE, AND OUTFALL FROM LDCDB"
607          HC       3
             *

608          KK   RPT29
609          KM   ROUTE PT29 TO PT30
610          RD    1800   0.011   0.015       0    TRAP       46     1.5
             *

611          KK    B16B
612          BA   0.701
613          PB    2.77
614          LS       0    83.1    32.0
615          UD   0.380
             *

616          KK   RB16B
617          KM   ROUTE BASIN B16B TO PT30
618          RD    1900   0.008   0.015       0    TRAP        0      50
             *

619          KK    PT30
620          KM   COMBINE PT29 AND BASIN B16B
621          HC       2
             *

622          KK   RPT30
623          KM   ROUTE PT30 TO PT31
624          RD    2900   0.005   0.015       0    TRAP       20       3
             *

625          KK    B16A
626          BA   0.906
627          PB    2.77
628          LS       0    78.2    17.0
629          UD   0.710
             *
1                                        HEC-1 INPUT                                          PAGE 19

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

630          KK     D5B
631          BA   0.602
632          PB    2.77
633          LS       0    82.8    46.0
634          UD   0.710
             *

635          KK    PT31
636          KM   "COMBINE PT30, BASINS B16A AND D5B"
637          HC       3
             *

638          KK   RPT31
639          KM   ROUTE PT31 TO PT32
```

```
640         RD    3200   0.016   0.015       0    TRAP      15       1
            *

641         KK     PT32
642         KM   COMBINE PT23 AND PT31 AT DUCK CREEK/MIDDLE BRANCH BLUE DIAMOND CONFLUENCE
643         HC        2
            *

644         KK   RPT32
645         KM   ROUTE PT32 TO PT34
646         RD    2700   0.009   0.015       0    TRAP      70       2
            *

647         KK  HYDRO2
648         KM   INFLOW HYDROGRAPH
649         KM   "PT C-11 REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B
650         KM   "SEE COMBINATION POINT C-11, DARF RATIO 0.98 OF HEC-1 FROM REFERENCED LOMR"
651         BA   0.380
652         QI       0       0       0       0       0       0       0       0       0       0
653         QI       0       0       0       0       0       0       0       0       0       0
654         QI       0       0       0       0       0       0       0       0       0       0
655         QI       0       0       0       0       0       0       0       0       0       0
656         QI       0       0       1       3       5       9      14      19      23      27
657         QI      30      32      33      33      32      31      29      28      27      27
658         QI      27      27      32      36      36      35      33      31      29      26
659         QI      24      22      20      19      17      16      15      14      13      12
660         QI      11      10       9       8       8       7       6       6       5       5
661         QI       4       4       4       3       3       3       3       3       2       2
662         QI       2       2       2       2       2       2       1       1       1       1
663         QI       1       1       1       1       1       1       1       1       1       1
664         QI       1       1       1       1       1       1       1       0       0       0
665         QI       0       0       0       0       0       0       0       0       0       0
666         QI       0       0       0       0       0       0       0       0       0       0
667         QI       0       0       0       0       0       0       0       0       0       0
668         QI       0       0       0       0       0       0       0       0       0       0
669         QI       0       0       0       0       0       0       0       0       0       0
670         QI       0       0       0       0       0       0       0       0       0       0
671         QI       0       0       0       0       0       0       0       0       0       0
672         QI       0       0       0       0       0       0       0       0       0       0
673         QI       0       0       0       0       0       0       0       0       0       0
1                                      HEC-1 INPUT                                          PAGE 20

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

674         QI       0       0       0       0       0       0       0       0       0       0
675         QI       0       0       0       0       0       0       0       0       0       0
676         QI       0       0       0       0       0       0       0       0       0       0
677         QI       0       0       0       0       0       0       0       0       0       0
678         QI       0       0       0       0       0       0       0       0       0       0
679         QI       0       0       0       0       0       0       0       0       0       0
680         QI       0       0       0       0       0       0       0       0       0       0
681         QI       0       0       0       0       0       0       0       0       0       0
            *

682         KK RHYDRO2
683         KM   ROUTE HYDRO2 TO PT33W
684         RM       8    0.76   0.150
            *

685         KK     B12
686         BA   0.969
687         PB    2.77
688         LS       0    68.4     1.0
689         UD   0.390
            *

690         KK   PT33W
691         KM   COMBINE HYDRO2 AND BASIN B12
692         HC        2
            *

693         KK  RDVBD7
694         KM   "RETURN FLOW SPLIT, DVBD7, FROM MIDDLE BRANCH "
695         DR   DVBD7
            *

696         KK  RDVBD7
697         KM   ROUTE DVBD7 TO PT33
698         RM       2     0.2   0.150
            *

699         KK    PT33
700         KM   COMBINE PT33W AND DVBD7
701         HC        2
            *

702         KK   RPT33
703         KM   ROUTE PT33 TO PT34W
704         RM       4     0.3   0.100
            *

705         KK    B15A
706         BA   0.959
707         PB    2.77
708         LS       0    77.6    14.0
709         UD   0.500
            *
                                       HEC-1 INPUT                                         PAGE 21

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

710         KK   PT34W
711         KM   COMBINE PT33 AND BASIN B15A
712         HC        2
```

```
                *
713             KK    PT34
714             KM    COMBINE PT34W AND PT32
715             HC       2
                *
716             KK    MNWB
717             BA    0.442
718             PB    2.77
719             LS       0     85.0      2.0
720             UD    0.742
                *
721             KK    RMNWB
722             KM    ROUTE MNWB NORTH ALONG I15 TO PT35
723             RD     2200    0.007    0.025        0     TRAP       20       10
                *
724             KK    MNWC
725             BA    0.596
726             PB    2.77
727             LS       0     85.0      7.0
728             UD    0.738
                *
729             KK    PT35
730             KM    COMBINE BASINS MNWB AND MNWC
731             HC       2
                *
732             KK    RPT35
733             KM    ROUTE PT35 TO PT36
734             RM       1    0.055    0.150
                *
735             KK    MNWD
736             BA    0.078
737             PB    2.77
738             LS       0     85.0     13.0
739             UD    0.321
                *
740             KK    PT36
741             KM    COMBINE PT35 AND BASIN MNWD
742             HC       2
                *
1                                        HEC-1 INPUT                                                    PAGE 22

LINE            ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

743             KK    RPT36
744             KM    ROUTE PT36 TO PT37
745             RM       2    0.192    0.150
                *
746             KK     MC2
747             BA    0.919
748             PB    2.77
749             LS       0     74.9     28.0
750             UD    0.873
                *
751             KK    PT37
752             KM    COMBINE PT36 AND BASIN MC2
753             HC       2
                *
754             KK    RPT37
755             KM    ROUTE PT37 TO PT38
756             RD     5200     0.01    0.015        0     TRAP       20        2
                *
757             KK    B10A
758             BA    1.601
759             PB    2.77
760             LS       0     74.9     32.0
761             UD    0.217
                *
762             KK    PT38
763             KM    COMBINE PT37 AND BASIN B10A
764             HC       2
                *
765             KK    RPT38
766             KM    ROUTE PT38 TO PT39
767             RD     2100    0.002    0.015        0     TRAP       20        2
                *
768             KK    PT39
769             KM    COMBINE PT34 AND PT38
770             HC       2
                *
771             KK    RPT39
772             KM    ROUTE PT39 TO PT40
773             RD     2500    0.006    0.025        0     TRAP       70        2
                *
1                                        HEC-1 INPUT                                                    PAGE 23

LINE            ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
```

```
774          KK      D6
775          BA   1.564
776          PB    2.77
777          LS       0    78.3    43.0
778          UD   0.500
             *

779          KK    PT40
780          KM   COMBINE PT39 AND BASIN D6
781          HC       2
             *

782          KK   RPT40
783          KM   ROUTE PT40 TO PT41
784          RM       1    0.08   0.200
             *

785          KK      D7
786          BA   0.850
787          PB    2.77
788          LS       0    77.3    23.0
789          UD   0.710
             *

790          KK    PT41
791          KM   COMBINE PT40 AND BASIN D7
792          HC       2
             *

793          KK   RPT41
794          KM   ROUTE PT41 TO PT42
795          RD    4150   0.006   0.015       0    TRAP      50       0
             *

796          KK      D8
797          BA   1.258
798          PB    2.77
799          LS       0    77.8    34.0
800          UD   0.230
             *

801          KK     RD8
802          KM   ROUTE BASIN D8 TO PT42
803          RM       1   0.088   0.150
             *

804          KK    PT42
805          KM   COMBINE PT41 AND BASIN D8
806          HC       2
             *
                                      HEC-1 INPUT                                          PAGE 24

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

807          KK   RPT42
808          KM   ROUTE PT42 TO PT44
809          RD    3650   0.011   0.015       0    TRAP      28       2
             *

810          KK    B10B
811          BA   0.848
812          PB    2.77
813          LS       0    74.9    44.0
814          UD   0.687
             *

815          KK   RB10B
816          KM   ROUTE BASIN B10B TO PT43
817          RM       6    0.46   0.100
             *

818          KK     D9A
819          BA   0.861
820          PB    2.77
821          LS       0    72.8    16.0
822          UD   1.100
             *

823          KK    PT43
824          KM   COMBINE BASINS B10B AND D9A
825          HC       2
             *

826          KK   RPT43
827          KM   ROUTE PT43 TO PT44
828          RD    4050    0.01   0.016       0    TRAP       0      16
             *

829          KK    PT44
830          KM   COMBINE PT42 AND PT43
831          HC       2
             *

832          KK   RPT44
833          KM   ROUTE PT44 TO PT45
834          RM       1   0.119   0.150
             *

835          KK     D9B
836          BA   1.544
837          PB    2.77
838          LS       0    77.8    17.0
839          UD   0.410
             *
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 840      KK    PT45
 841      KM   COMBINE PT44 AND BASIN D9B
 842      HC       2
          *

 843      KK   RPT45
 844      KM   ROUTE PT45 TO PT46
 845      RM       2   0.184   0.150
          *

 846      KK     D10
 847      BA   2.508
 848      PB    2.77
 849      LS       0    79.0    33.0
 850      UD   0.440
          *

 851      KK    PT46
 852      KM   COMBINE PT45 AND BASIN D10
 853      HC       2
          *

 854      KK   RPT46
 855      KM   ROUTE PT46 TO PT48
 856      RD    2500   0.018   0.035       0    TRAP       75       2
          *

 857      KK      MC
 858      KM   "TLAG AND AREA CALCULATED, CN REFERENCED FROM 1996 MPU"
 859      KM   THEREFORE NO INCREASE IN PERCENT IMPERVIOUS
 860      BA   2.804
 861      PB    2.77
 862      LS       0    91.0
 863      UD   0.244
          *

 864      KK   TORAW
 865      KM   DIVERT FLOW WHICH BYPASSES DETENTION BASIN
 866      DT   TORAW
 867      DI       0     100     500    1000    2000    3000    4000
 868      DQ       0      40     100     200     400     570     760
          *

 869      KK    MCDB
 870      KM   MCCARRAN AIRPORT DETENTION FACILITIES
 871      KM   SIMULATION OF TWO DETENTION BASINS - MCCARRAN EAST AND SPENCER
 872      RS       1    STOR      -1
 873      SV       0       8      40      70     100     160     210     500
 874      SQ       0      30      40      55      65      80      85      87
 875      SE       0       2       4       6       8      12      15      16
 876      KO       1
          *
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 877      KK   RMCDB
 878      KM   ROUTE OUTFALL FROM MCDB TO PT47
 879      RD    3300   0.006   0.013       0    CIRC       4       0
          *

 880      KK  RTORAW
 881      KM   FLOW BYPASSING THE MCCARRAN DETENTION FACILITIES RETURNED IN RAWHIDE CHANNEL
 882      DR   TORAW
          *

 883      KK    PT47
 884      KM   COMBINE OUTFALL FROM MCCARRAN DETENTION FACILITIES AND BYPASSED FLOW
 885      HC       2
          *

 886      KK   RPT47
 887      KM   ROUTE PT47 THRU RAWHIDE CHANNEL TO PT48W
 888      RD   15700   0.015   0.015       0    TRAP       11     1.5
          *

 889      KK      RH
 890      BA   1.355
 891      PB    2.77
 892      LS       0    72.0     6.0
 893      UD   0.340
          *

 894      KK   PT48W
 895      KM   COMBINE PT47 AND BASIN RH
 896      HC       2
          *

 897      KK     B20
 898      BA   0.790
 899      PB    2.77
 900      LS       0    82.4     8.0
 901      UD   0.710
          *

 902      KK    RB20
 903      KM   ROUTE BASIN B20 TO PT48
 904      KM   MUSKINGUM ROUTING UNSTABLE
 905      RD    1800   0.017   0.030       0    TRAP       30      10
```

```
                *
          906   KK    PT48
          907   KM   "COMBINE PT46, PT48W, AND BASIN B20"
          908   HC       3
                *
```



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         LINE   ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

          909   KK   RPT48
          910   KM   ROUTE PT48 TO PT50
          911   RM       1   0.067   0.150
                *

          912   KK     D12
          913   BA   0.176
          914   PB    2.77
          915   LS       0    77.8     7.0
          916   UD   0.710
                *

          917   KK    RD12
          918   KM   ROUTE BASIN D12 TO PT49
          919   KM   MUSKINGUM ROUTING UNSTABLE
          920   RD    1850   0.044   0.150       0    TRAP      50      10
                *

          921   KK    D11A
          922   BA   0.159
          923   PB    2.77
          924   LS       0    77.3     5.0
          925   UD   0.160
                *

          926   KK    PT49
          927   KM   COMBINE BASINS D12 AND D11A
          928   HC       2
                *

          929   KK   RPT49
          930   KM   ROUTE PT49 TO PT50
          931   KM   MUSKINGUM ROUTING UNSTABLE
          932   RD    1050   0.019   0.150       0    TRAP      45      10
                *

          933   KK    PT50
          934   KM   COMBINE PT48 AND PT49
          935   HC       2
                *

          936   KK   RPT50
          937   KM   ROUTE PT50 TO PT51
          938   RD    7000   0.003   0.015       0    TRAP      60       2
                *

          939   KK    D11B
          940   BA   0.987
          941   PB    2.77
          942   LS       0    82.2    12.0
          943   UD   0.220
                *
```

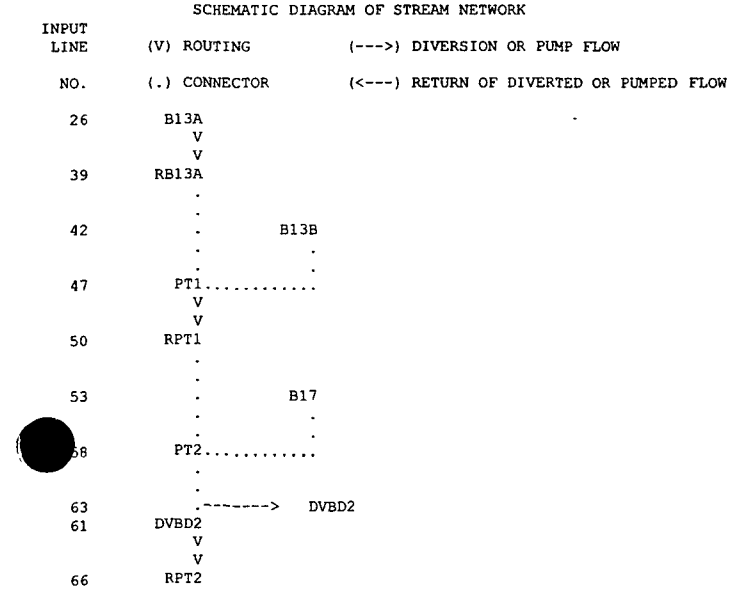


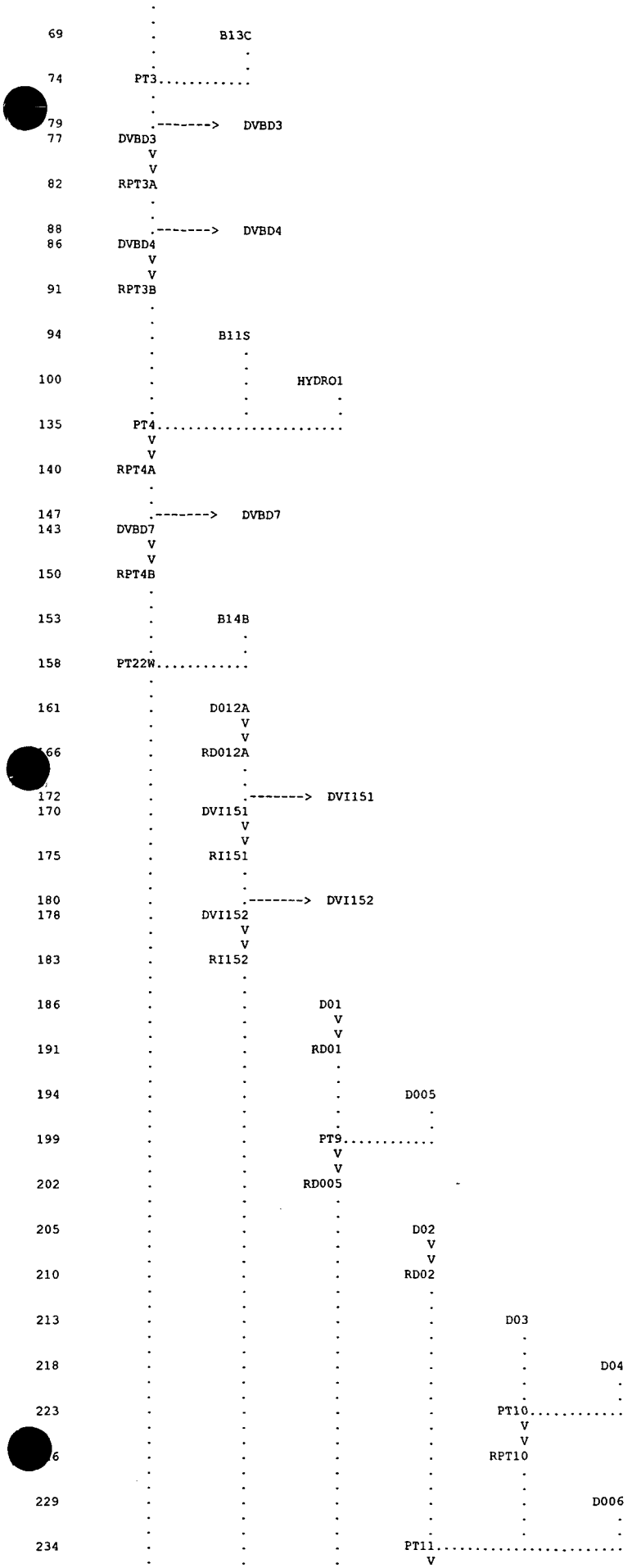
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         LINE   ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

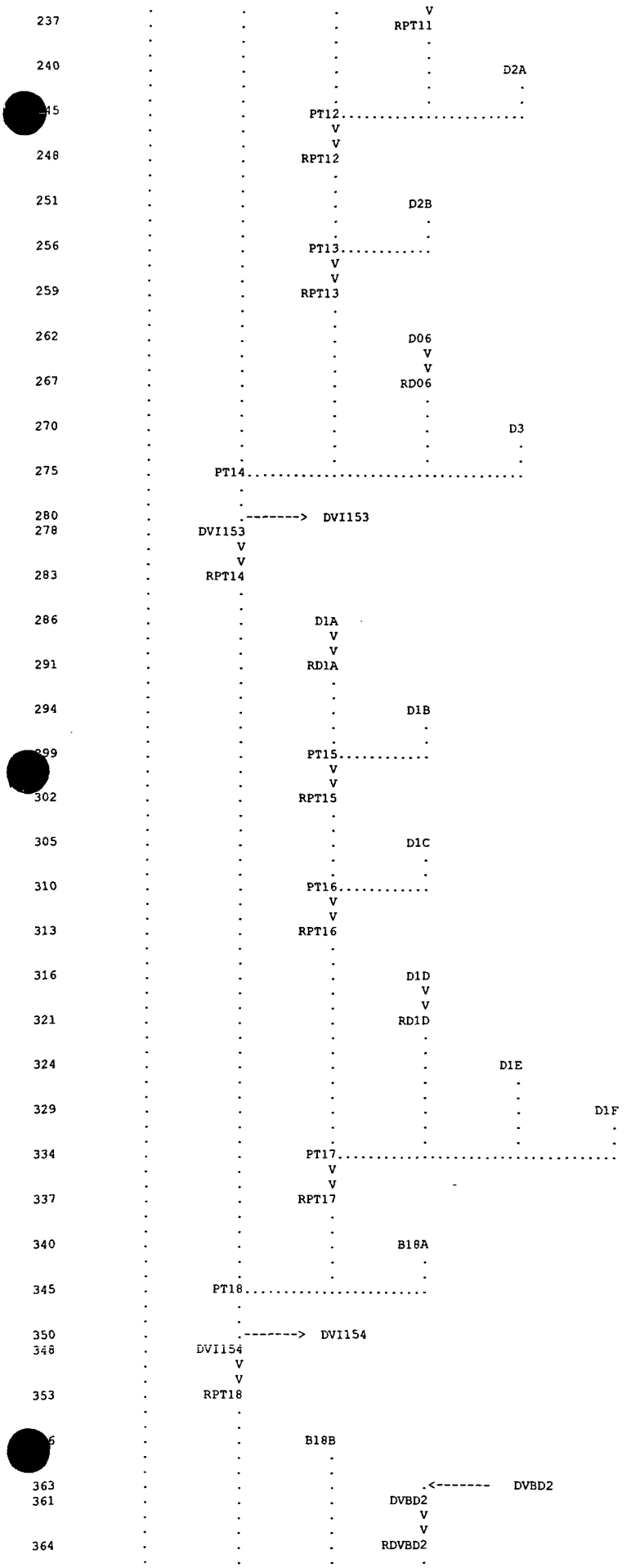
          944   KK    PT51
          945   KM   COMBINE PT50 AND BASIN D11B
          946   HC       2
          947   ZZ
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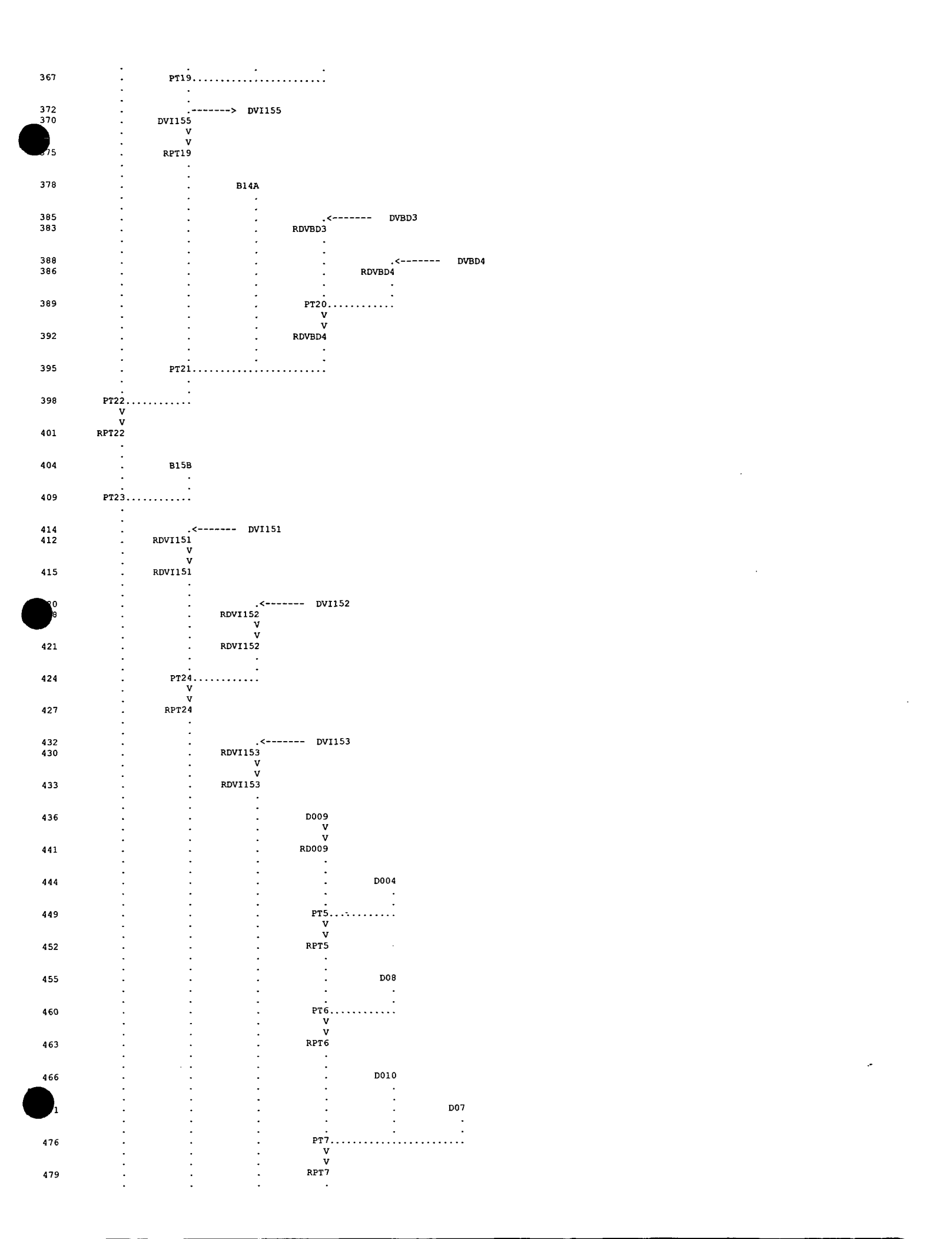
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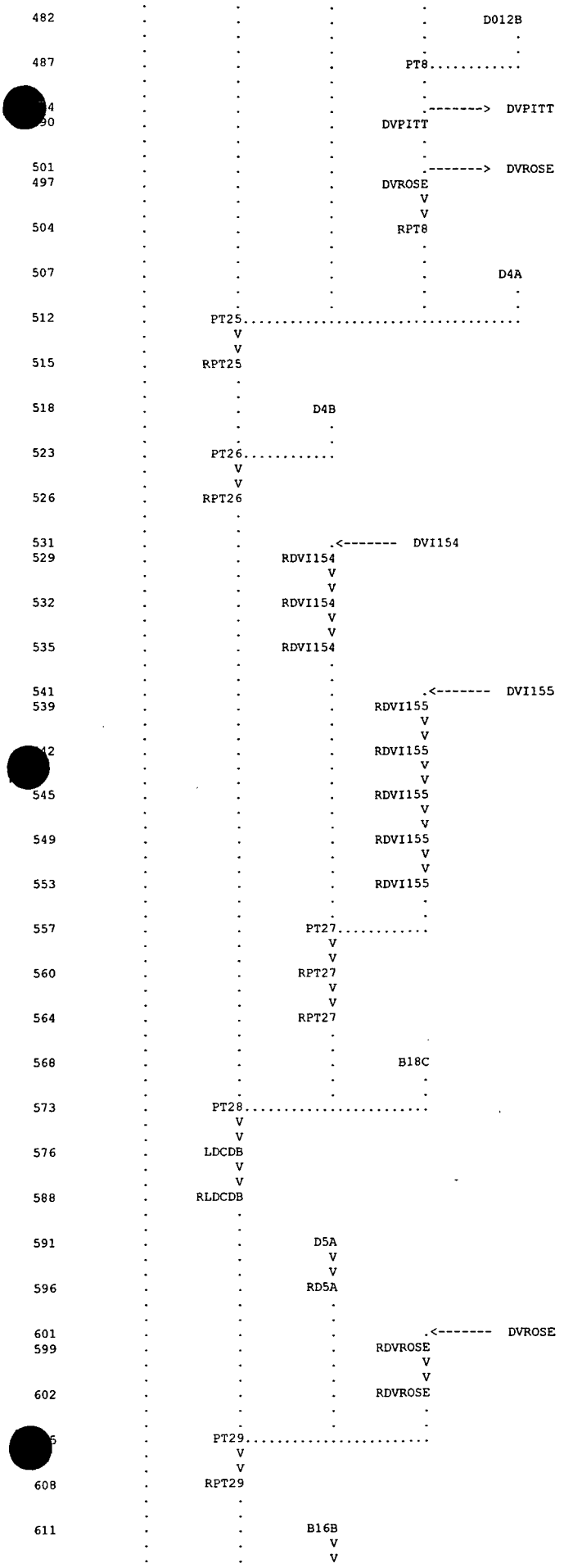
SCHEMATIC DIAGRAM OF STREAM NETWORK

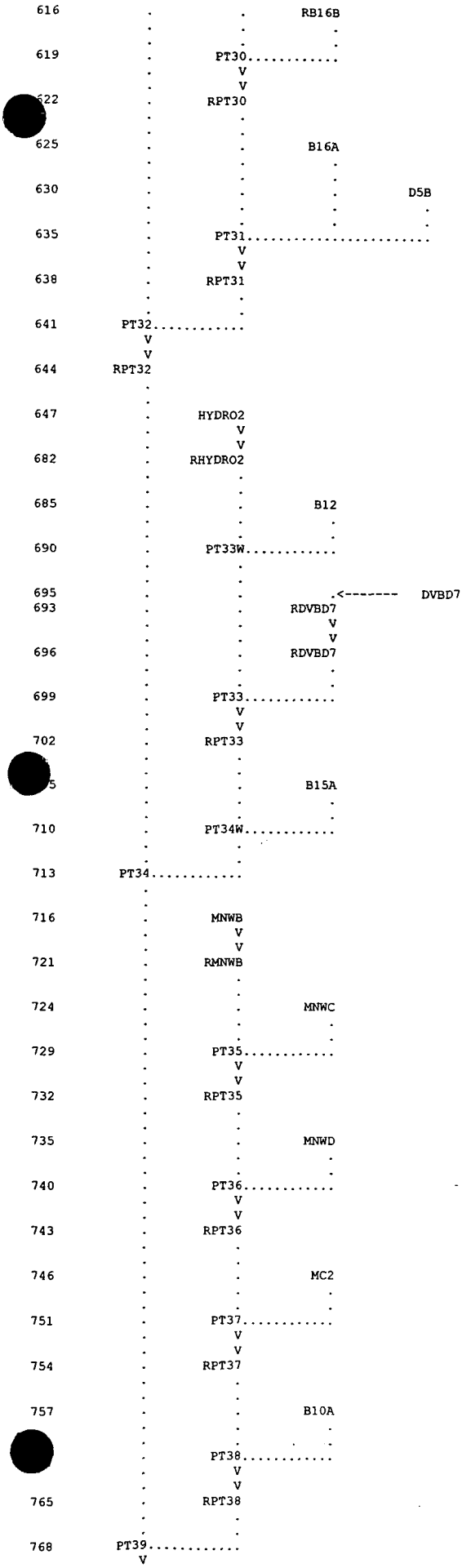


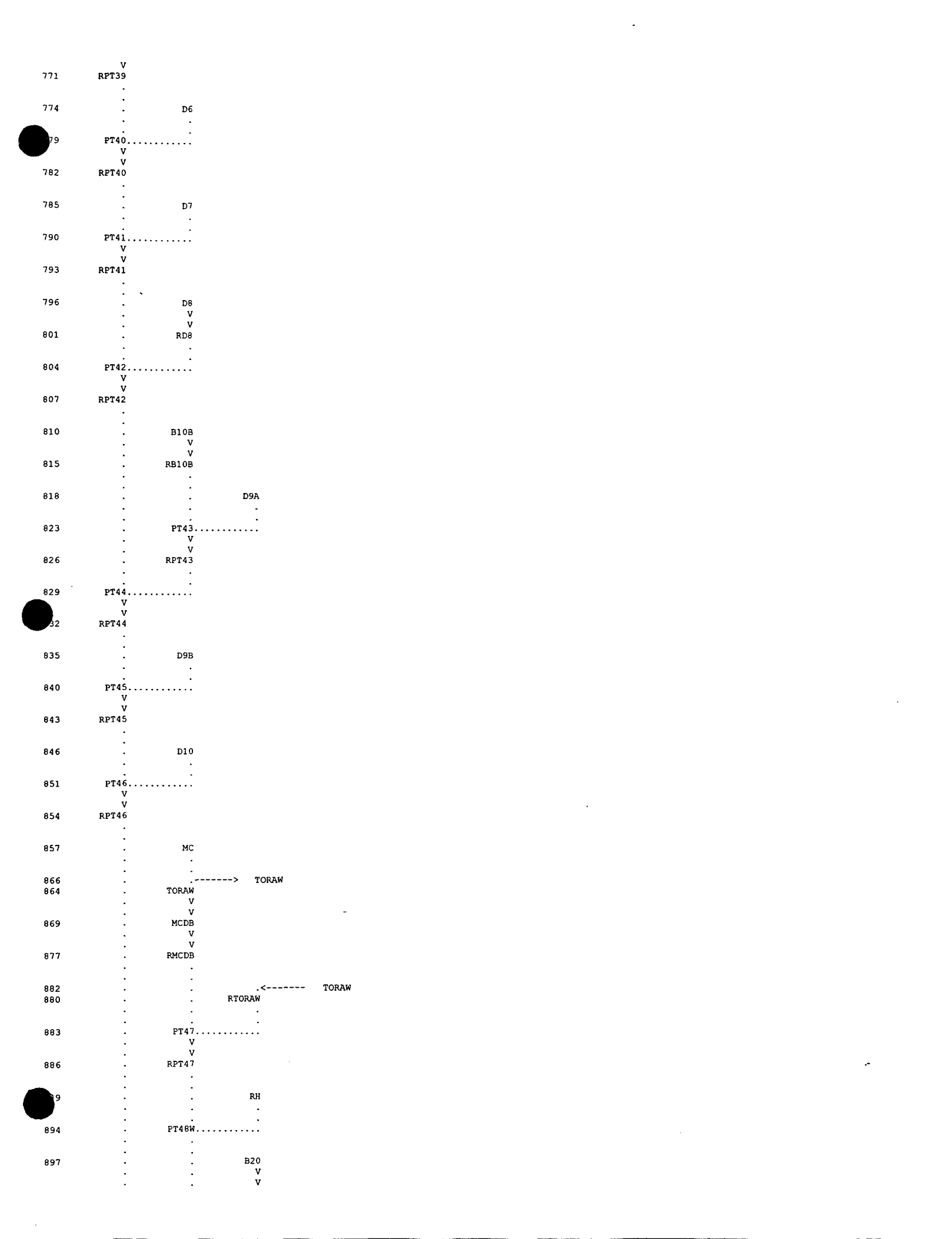

69 B13C
74 PT3
79 DVBD3
77 DVBD3
82 RPT3A
88 DVBD4
86 DVBD4
91 RPT3B
94 B11S
100 HYDRO1
135 PT4
140 RPT4A
147 DVBD7
143 DVBD7
150 RPT4B
153 B14B
158 PT22W
161 D012A
166 RD012A
172 DVI151
170 DVI151
175 RI151
180 DVI152
178 DVI152
183 RI152
186 D01
191 RD01
194 D005
199 PT9
202 RD005
205 D02
210 RD02
213 D03
218 D04
223 PT10
226 RPT10
229 D006
234 PT11

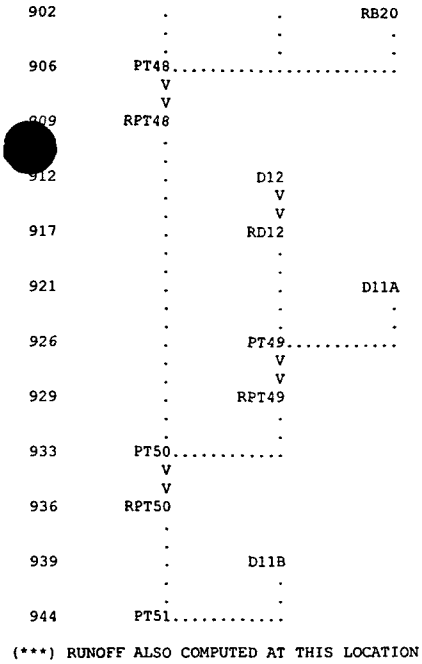

237
RPT11
240
D2A
245
PT12
248
RPT12
251
D2B
256
PT13
259
RPT13
262
D06
267
RD06
270
D3
275
PT14
280
DVI153
278
DVI153
283
RPT14
286
D1A
291
RD1A
294
D1B
299
PT15
302
RPT15
305
D1C
310
PT16
313
RPT16
316
D1D
321
RD1D
324
D1E
329
D1F
334
PT17
337
RPT17
340
B18A
345
PT18
350
DVI154
348
DVI154
353
RPT18
356
B18B
363
DVBD2
361
DVBD2
364
RDVBD2


367 PT19
372 .-------> DVI155
370 DVI155
375 RPT19
378 B14A
385 .<------- DVBD3
383 RDVBD3
388 .<------- DVBD4
386 RDVBD4
389 PT20
392 RDVBD4
395 PT21
398 PT22
401 RPT22
404 B15B
409 PT23
414 .<------- DVI151
412 RDVI151
415 RDVI151
.<------- DVI152
RDVI152
421 RDVI152
424 PT24
427 RPT24
432 .<------- DVI153
430 RDVI153
433 RDVI153
436 D009
441 RD009
444 D004
449 PT5
452 RPT5
455 D08
460 PT6
463 RPT6
466 D010
D07
476 PT7
479 RPT7


482
D012B
487
PT8
DVPITT
DVPITT
501
DVROSE
497
DVROSE
504
RPT8
507
D4A
512
PT25
515
RPT25
518
D4B
523
PT26
526
RPT26
531
DVI154
529
RDVI154
532
RDVI154
535
RDVI154
541
DVI155
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RDVI155
545
RDVI155
549
RDVI155
553
RDVI155
557
PT27
560
RPT27
564
RPT27
568
B18C
573
PT28
576
LDCDB
588
RLDCDB
591
D5A
596
RD5A
601
DVROSE
599
RDVROSE
602
RDVROSE
608
PT29
608
RPT29
611
B16B


616
RB16B
619
PT30
622
RPT30
625
B16A
630
D5B
635
PT31
638
RPT31
641
PT32
644
RPT32
647
HYDRO2
682
RHYDRO2
685
B12
690
PT33W
695
DVBD7
693
RDVBD7
696
RDVBD7
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PT33
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RPT33
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PT34W
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PT34
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MNWB
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RMNWB
724
MNWC
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PT35
732
RPT35
735
MNWD
740
PT36
743
RPT36
746
MC2
751
PT37
754
RPT37
757
B10A
PT38
765
RPT38
768
PT39


771 RPT39
774 D6
779 PT40
782 RPT40
785 D7
790 PT41
793 RPT41
796 D8
801 RD8
804 PT42
807 RPT42
810 B10B
815 RB10B
818 D9A
823 PT43
826 RPT43
829 PT44
832 RPT44
835 D9B
840 PT45
843 RPT45
846 D10
851 PT46
854 RPT46
857 MC
866
864 TORAW
869 MCDB
877 RMCDB
882
880 RTORAW
883 PT47
886 RPT47
894 PT48W
897 B20
TORAW
TORAW




(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            SEPTEMBER 1990             *
*             VERSION 4.0               *
*                                       *
*  RUN DATE  01/21/2002  TIME  15:31:08 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*   U.S. ARMY CORPS OF ENGINEERS        *
*   HYDROLOGIC ENGINEERING CENTER       *
*         609 SECOND STREET             *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
"G.C. WALLACE, INC. BY MJL"
DUCK5.XLS
"MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
"BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
UPDATED PRECIPITATION VALUES
% IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
ADDITIONAL DIVERSIONS ADDED
DESIGN STORM = 100-YEAR 6-HOUR STORM
STORM DISTRIBUTION = SDN5
  JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

  AREA (SQUARE MILES)    DARF
 12 - 16   0.832
 16 - 20   0.804
 20 - 30   0.765
 30 - 40   0.725
 40 - 50   0.695
 50 -100   0.640
 100 - 150   0.580
 150 - 200   0.530


24 IO          OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                     NMIN           5  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME         0000  STARTING TIME
                       NQ          120  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      1    0  ENDING DATE
                   NDTIME         0955  ENDING TIME
                    ICENT           19  CENTURY MARK

                 COMPUTATION INTERVAL      .08 HOURS
                      TOTAL TIME BASE    9.92 HOURS

       ENGLISH UNITS
            DRAINAGE AREA          SQUARE MILES
            PRECIPITATION DEPTH    INCHES
            LENGTH, ELEVATION      FEET
            FLOW                   CUBIC FEET PER SECOND
            STORAGE VOLUME         ACRE-FEET
            SURFACE AREA           ACRES
            TEMPERATURE            DEGREES FAHRENHEIT

   JP          MULTI-PLAN OPTION
                    NPLAN           1  NUMBER OF PLANS

   JR          MULTI-RATIO OPTION
               RATIOS OF PRECIPITATION
                .83       .80       .76       .73       .69       .64       .58       .53
```

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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          **************
          *            *
[redacted] KK     *     LDCDB  *
          *            *
          **************

587 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

578 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       STOR  TYPE OF INITIAL CONDITION
                    RSVRIC        .00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

579 SV            STORAGE          .0       2.8      37.5     120.3     229.0     340.0     453.8     570.0     689.0     810.0
                                 934.0    1061.0    1190.0

581 SE          ELEVATION     2183.00   2184.00   2186.00   2188.00   2190.00   2192.00   2194.00   2196.00   2198.00   2200.00
                              2202.00   2204.00   2206.00

583 SQ          DISCHARGE          0.      126.      654.     1825.     3310.     4310.     5118.     5815.     6437.     7004.
                                7528.     8018.     8480.

585 SE          ELEVATION     2183.00   2184.00   2186.00   2188.00   2190.00   2192.00   2194.00   2196.00   2198.00   2200.00
                              2202.00   2204.00   2206.00

                                                      ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      2.80     37.50    120.30    229.00    340.00    453.80    570.00    689.00    810.00
          OUTFLOW        .00    126.00    654.00   1825.00   3310.00   4310.00   5118.00   5815.00   6437.00   7004.00
        ELEVATION    2183.00   2184.00   2186.00   2188.00   2190.00   2192.00   2194.00   2196.00   2198.00   2200.00

          STORAGE     934.00   1061.00   1190.00
          OUTFLOW    7528.00   8018.00   8480.00
        ELEVATION    2202.00   2204.00   2206.00

WARNING --- ROUTED OUTFLOW (   8658.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
[redacted]ING --- ROUTED OUTFLOW (   8859.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   9060.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   9260.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   9457.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   9652.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   9842.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  10026.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  10204.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  10374.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  10536.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  10688.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  10829.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  10959.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11078.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11185.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11279.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11361.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11430.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11487.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11531.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11563.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11581.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11587.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
[redacted]ING --- ROUTED OUTFLOW (  11580.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11561.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11529.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (  11487.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
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WARNING --- ROUTED OUTFLOW ( 11435.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11373.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11302.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11223.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

[redacted]ING --- ROUTED OUTFLOW ( 11136.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11041.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10939.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10829.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10712.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10588.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10458.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10321.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10179.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10033.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9884.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .83

**********

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 678. | 39.2 | 2186.0 | 1 | | 0640 | 81 | 9260. | 1407.7 | 2209.4 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 796. | 47.5 | 2186.2 | 1 | | 0645 | 82 | 9457. | 1462.9 | 2210.2 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | 1 | | 0330 | 43 | 943. | 57.9 | 2186.5 | 1 | | 0650 | 83 | 9652. | 1517.2 | 2211.1 |
| 1 | | 0015 | 4 | 8. | .2 | 2183.1 | 1 | | 0335 | 44 | 1125. | 70.8 | 2186.8 | 1 | | 0655 | 84 | 9842. | 1570.2 | 2211.9 |
| 1 | | 0020 | 5 | 21. | .5 | 2183.2 | 1 | | 0340 | 45 | 1344. | 86.3 | 2187.2 | 1 | | 0700 | 85 | 10026. | 1621.8 | 2212.7 |
| 1 | | 0025 | 6 | 41. | .9 | 2183.3 | 1 | | 0345 | 46 | 1588. | 103.6 | 2187.6 | 1 | | 0705 | 86 | 10204. | 1671.4 | 2213.5 |
| 1 | | 0030 | 7 | 66. | 1.5 | 2183.5 | 1 | | 0350 | 47 | 1839. | 121.3 | 2188.0 | 1 | | 0710 | 87 | 10374. | 1719.0 | 2214.2 |
| 1 | | 0035 | 8 | 91. | 2.0 | 2183.7 | 1 | | 0355 | 48 | 2074. | 138.5 | 2188.3 | 1 | | 0715 | 88 | 10536. | 1764.0 | 2214.9 |
| 1 | | 0040 | 9 | 113. | 2.5 | 2183.9 | 1 | | 0400 | 49 | 2298. | 154.9 | 2188.6 | 1 | | 0720 | 89 | 10688. | 1806.4 | 2215.6 |
| 1 | | 0045 | 10 | 127. | 2.8 | 2184.0 | 1 | | 0405 | 50 | 2509. | 170.4 | 2188.9 | 1 | | 0725 | 90 | 10829. | 1845.9 | 2216.2 |
| 1 | | 0050 | 11 | 129. | 3.0 | 2184.0 | 1 | | 0410 | 51 | 2710. | 185.1 | 2189.2 | 1 | | 0730 | 91 | 10959. | 1882.2 | 2216.7 |
| 1 | | 0055 | 12 | 129. | 3.0 | 2184.0 | 1 | | 0415 | 52 | 2902. | 199.1 | 2189.5 | 1 | | 0735 | 92 | 11078. | 1915.4 | 2217.2 |
| [redacted] | | 0100 | 13 | 128. | 2.9 | 2184.0 | 1 | | 0420 | 53 | 3091. | 213.0 | 2189.7 | 1 | | 0740 | 93 | 11185. | 1945.2 | 2217.7 |
| [redacted] | | 0105 | 14 | 122. | 2.7 | 2184.0 | 1 | | 0425 | 54 | 3286. | 227.3 | 2190.0 | 1 | | 0745 | 94 | 11279. | 1971.5 | 2218.1 |
| 1 | | 0110 | 15 | 112. | 2.5 | 2183.9 | 1 | | 0430 | 55 | 3435. | 242.9 | 2190.3 | 1 | | 0750 | 95 | 11361. | 1994.4 | 2218.5 |
| 1 | | 0115 | 16 | 103. | 2.3 | 2183.8 | 1 | | 0435 | 56 | 3598. | 261.0 | 2190.6 | 1 | | 0755 | 96 | 11430. | 2013.8 | 2218.8 |
| 1 | | 0120 | 17 | 96. | 2.1 | 2183.8 | 1 | | 0440 | 57 | 3792. | 282.6 | 2191.0 | 1 | | 0800 | 97 | 11487. | 2029.7 | 2219.0 |
| 1 | | 0125 | 18 | 91. | 2.0 | 2183.7 | 1 | | 0445 | 58 | 4023. | 308.2 | 2191.4 | 1 | | 0805 | 98 | 11531. | 2042.0 | 2219.2 |
| 1 | | 0130 | 19 | 90. | 2.0 | 2183.7 | 1 | | 0450 | 59 | 4292. | 338.0 | 2192.0 | 1 | | 0810 | 99 | 11563. | 2050.8 | 2219.3 |
| 1 | | 0135 | 20 | 92. | 2.0 | 2183.7 | 1 | | 0455 | 60 | 4538. | 372.1 | 2192.6 | 1 | | 0815 | 100 | 11581. | 2055.9 | 2219.4 |
| 1 | | 0140 | 21 | 99. | 2.2 | 2183.8 | 1 | | 0500 | 61 | 4808. | 410.1 | 2193.2 | 1 | | 0820 | 101 | 11587. | 2057.5 | 2219.4 |
| 1 | | 0145 | 22 | 111. | 2.5 | 2183.9 | 1 | | 0505 | 62 | 5099. | 451.1 | 2194.0 | 1 | | 0825 | 102 | 11580. | 2055.5 | 2219.4 |
| 1 | | 0150 | 23 | 126. | 2.8 | 2184.0 | 1 | | 0510 | 63 | 5358. | 493.9 | 2194.7 | 1 | | 0830 | 103 | 11561. | 2050.1 | 2219.3 |
| 1 | | 0155 | 24 | 132. | 3.2 | 2184.0 | 1 | | 0515 | 64 | 5620. | 537.5 | 2195.4 | 1 | | 0835 | 104 | 11529. | 2041.4 | 2219.2 |
| 1 | | 0200 | 25 | 141. | 3.8 | 2184.1 | 1 | | 0520 | 65 | 5875. | 581.5 | 2196.2 | 1 | | 0840 | 105 | 11487. | 2029.7 | 2219.0 |
| 1 | | 0205 | 26 | 151. | 4.4 | 2184.1 | 1 | | 0525 | 66 | 6107. | 625.9 | 2196.9 | 1 | | 0845 | 106 | 11435. | 2015.0 | 2218.8 |
| 1 | | 0210 | 27 | 163. | 5.2 | 2184.1 | 1 | | 0530 | 67 | 6342. | 670.9 | 2197.7 | 1 | | 0850 | 107 | 11373. | 1997.7 | 2218.5 |
| 1 | | 0215 | 28 | 178. | 6.2 | 2184.2 | 1 | | 0535 | 68 | 6568. | 716.9 | 2198.5 | 1 | | 0855 | 108 | 11302. | 1978.0 | 2218.2 |
| 1 | | 0220 | 29 | 194. | 7.3 | 2184.3 | 1 | | 0540 | 69 | 6789. | 764.1 | 2199.2 | 1 | | 0900 | 109 | 11223. | 1955.9 | 2217.9 |
| 1 | | 0225 | 30 | 211. | 8.4 | 2184.3 | 1 | | 0545 | 70 | 7015. | 812.5 | 2200.0 | 1 | | 0905 | 110 | 11136. | 1931.5 | 2217.5 |
| 1 | | 0230 | 31 | 228. | 9.5 | 2184.4 | 1 | | 0550 | 71 | 7225. | 862.2 | 2200.8 | 1 | | 0910 | 111 | 11041. | 1905.1 | 2217.1 |
| 1 | | 0235 | 32 | 245. | 10.6 | 2184.4 | 1 | | 0555 | 72 | 7440. | 913.2 | 2201.7 | 1 | | 0915 | 112 | 10939. | 1876.6 | 2216.6 |
| 1 | | 0240 | 33 | 263. | 11.8 | 2184.5 | 1 | | 0600 | 73 | 7649. | 965.3 | 2202.5 | 1 | | 0920 | 113 | 10829. | 1846.0 | 2216.2 |
| 1 | | 0245 | 34 | 284. | 13.2 | 2184.6 | 1 | | 0605 | 74 | 7854. | 1018.5 | 2203.3 | 1 | | 0925 | 114 | 10712. | 1813.3 | 2215.7 |
| 1 | | 0250 | 35 | 309. | 14.8 | 2184.7 | 1 | | 0610 | 75 | 8060. | 1072.8 | 2204.2 | 1 | | 0930 | 115 | 10588. | 1778.7 | 2215.1 |
| 1 | | 0255 | 36 | 340. | 16.9 | 2184.8 | 1 | | 0615 | 76 | 8257. | 1127.9 | 2205.0 | 1 | | 0935 | 116 | 10458. | 1742.2 | 2214.6 |
| 1 | | 0300 | 37 | 380. | 19.5 | 2185.0 | 1 | | 0620 | 77 | 8457. | 1183.5 | 2205.9 | 1 | | 0940 | 117 | 10321. | 1704.1 | 2214.0 |
| 1 | | 0305 | 38 | 431. | 22.8 | 2185.2 | 1 | | 0625 | 78 | 8658. | 1239.6 | 2206.8 | 1 | | 0945 | 118 | 10179. | 1664.5 | 2213.4 |
| 1 | | 0310 | 39 | 496. | 27.1 | 2185.4 | 1 | | 0630 | 79 | 8859. | 1295.8 | 2207.6 | 1 | | 0950 | 119 | 10033. | 1623.7 | 2212.7 |
| 1 | | 0315 | 40 | 577. | 32.5 | 2185.7 | 1 | | 0635 | 80 | 9060. | 1352.0 | 2208.5 | 1 | | 0955 | 120 | 9884. | 1581.9 | 2212.1 |

**********

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | (CFS) | | | | |
| 11587. | 8.33 | | 8489. | 5270. | 5270. | 5270. |
| | | (INCHES) | 2.057 | 2.110 | 2.110 | 2.110 |
| | | (AC-FT) | 4209. | 4319. | 4319. | 4319. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 2058. | 8.33 | 1295. | 791. | 791. | 791. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2219.45 | 8.33 | 2207.39 | 2198.36 | 2198.36 | 2198.36 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8512.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8698.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8883.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9066.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9247.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9423.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9595.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9760.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9918.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10068.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10209.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10341.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10462.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10572.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10671.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10760.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10836.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10902.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10955.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10997.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11026.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11043.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11047.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11040.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11022.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10992.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10953.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10904.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10846.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10780.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10706.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10624.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10535.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10438.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10334.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10222.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10104.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9979.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9849.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9714.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9574.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9432.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .80

**********

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 601. | 34.0 | 2185.8 | 1 | | 0640 | 81 | 8883. | 1302.5 | 2207.7 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 712. | 41.6 | 2186.1 | 1 | | 0645 | 82 | 9066. | 1353.7 | 2208.5 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | 1 | | 0330 | 43 | 847. | 51.1 | 2186.3 | 1 | | 0650 | 83 | 9247. | 1404.1 | 2209.3 |
| 1 | | 0015 | 4 | 8. | .2 | 2183.1 | 1 | | 0335 | 44 | 1014. | 63.0 | 2186.6 | 1 | | 0655 | 84 | 9423. | 1453.3 | 2210.1 |
| 1 | | 0020 | 5 | 21. | .5 | 2183.2 | 1 | | 0340 | 45 | 1216. | 77.2 | 2187.0 | 1 | | 0700 | 85 | 9595. | 1501.2 | 2210.8 |
| 1 | | 0025 | 6 | 40. | .9 | 2183.3 | 1 | | 0345 | 46 | 1442. | 93.3 | 2187.3 | 1 | | 0705 | 86 | 9760. | 1547.4 | 2211.5 |
| 1 | | 0030 | 7 | 64. | 1.4 | 2183.5 | 1 | | 0350 | 47 | 1675. | 109.7 | 2187.7 | 1 | | 0710 | 87 | 9918. | 1591.6 | 2212.2 |
| 1 | | 0035 | 8 | 88. | 2.0 | 2183.7 | 1 | | 0355 | 48 | 1899. | 125.7 | 2188.1 | 1 | | 0715 | 88 | 10068. | 1633.5 | 2212.9 |
| 1 | | 0040 | 9 | 109. | 2.4 | 2183.9 | 1 | | 0400 | 49 | 2108. | 141.0 | 2188.4 | 1 | | 0720 | 89 | 10209. | 1672.9 | 2213.5 |
| 1 | | 0045 | 10 | 124. | 2.7 | 2184.0 | 1 | | 0405 | 50 | 2309. | 155.7 | 2188.7 | 1 | | 0725 | 90 | 10341. | 1709.5 | 2214.1 |
| 1 | | 0050 | 11 | 127. | 2.9 | 2184.0 | 1 | | 0410 | 51 | 2501. | 169.8 | 2188.9 | 1 | | 0730 | 91 | 10462. | 1743.3 | 2214.6 |
| 1 | | 0055 | 12 | 127. | 2.9 | 2184.0 | 1 | | 0415 | 52 | 2686. | 183.3 | 2189.2 | 1 | | 0735 | 92 | 10572. | 1774.1 | 2215.1 |
| 1 | | 0100 | 13 | 124. | 2.7 | 2184.0 | 1 | | 0420 | 53 | 2867. | 196.6 | 2189.4 | 1 | | 0740 | 93 | 10671. | 1801.9 | 2215.5 |
| 1 | | 0105 | 14 | 115. | 2.6 | 2183.9 | 1 | | 0425 | 54 | 3051. | 210.0 | 2189.7 | 1 | | 0745 | 94 | 10760. | 1826.5 | 2215.9 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0110 | 15 | 105. | 2.3 | 2183.8 | * | 1 | 0430 | 55 | 3247. | 224.4 | 2189.9 | * | 1 | 0750 | 95 | 10836. | 1848.0 | 2216.2 |
| 1 | 0115 | 16 | 96. | 2.1 | 2183.8 | * | 1 | 0435 | 56 | 3414. | 240.6 | 2190.2 | * | 1 | 0755 | 96 | 10902. | 1866.2 | 2216.5 |
| 1 | 0120 | 17 | 89. | 2.0 | 2183.7 | * | 1 | 0440 | 57 | 3587. | 259.8 | 2190.6 | * | 1 | 0800 | 97 | 10955. | 1881.1 | 2216.7 |
| 1 | 0125 | 18 | 84. | 1.9 | 2183.7 | * | 1 | 0445 | 58 | 3796. | 282.9 | 2191.0 | * | 1 | 0805 | 98 | 10997. | 1892.7 | 2216.9 |
| 1 | 0130 | 19 | 82. | 1.8 | 2183.6 | * | 1 | 0450 | 59 | 4042. | 310.3 | 2191.5 | * | 1 | 0810 | 99 | 11026. | 1900.8 | 2217.0 |
| 1 | 0135 | 20 | 83. | 1.9 | 2183.7 | * | 1 | 0455 | 60 | 4321. | 341.6 | 2192.0 | * | 1 | 0815 | 100 | 11043. | 1905.5 | 2217.1 |
| 1 | 0140 | 21 | 89. | 2.0 | 2183.7 | * | 1 | 0500 | 61 | 4569. | 376.5 | 2192.6 | * | 1 | 0820 | 101 | 11047. | 1906.8 | 2217.1 |
| | 0145 | 22 | 99. | 2.2 | 2183.8 | * | 1 | 0505 | 62 | 4839. | 414.6 | 2193.3 | * | 1 | 0825 | 102 | 11040. | 1904.8 | 2217.1 |
| | 0150 | 23 | 112. | 2.5 | 2183.9 | * | 1 | 0510 | 63 | 5122. | 454.5 | 2194.0 | * | 1 | 0830 | 103 | 11022. | 1899.7 | 2217.0 |
| | 0155 | 24 | 126. | 2.8 | 2184.0 | * | 1 | 0515 | 64 | 5367. | 495.3 | 2194.7 | * | 1 | 0835 | 104 | 10992. | 1891.5 | 2216.9 |
| 1 | 0200 | 25 | 133. | 3.2 | 2184.0 | * | 1 | 0520 | 65 | 5615. | 536.6 | 2195.4 | * | 1 | 0840 | 105 | 10953. | 1880.4 | 2216.7 |
| 1 | 0205 | 26 | 141. | 3.8 | 2184.1 | * | 1 | 0525 | 66 | 5858. | 578.3 | 2196.1 | * | 1 | 0845 | 106 | 10904. | 1866.8 | 2216.5 |
| 1 | 0210 | 27 | 151. | 4.4 | 2184.1 | * | 1 | 0530 | 67 | 6078. | 620.4 | 2196.8 | * | 1 | 0850 | 107 | 10846. | 1850.7 | 2216.2 |
| 1 | 0215 | 28 | 163. | 5.2 | 2184.1 | * | 1 | 0535 | 68 | 6302. | 663.2 | 2197.6 | * | 1 | 0855 | 108 | 10780. | 1832.3 | 2216.0 |
| 1 | 0220 | 29 | 177. | 6.1 | 2184.2 | * | 1 | 0540 | 69 | 6521. | 706.9 | 2198.3 | * | 1 | 0900 | 109 | 10706. | 1811.5 | 2215.6 |
| 1 | 0225 | 30 | 191. | 7.1 | 2184.2 | * | 1 | 0545 | 70 | 6731. | 751.8 | 2199.0 | * | 1 | 0905 | 110 | 10624. | 1788.7 | 2215.3 |
| 1 | 0230 | 31 | 205. | 8.0 | 2184.3 | * | 1 | 0550 | 71 | 6947. | 797.9 | 2199.8 | * | 1 | 0910 | 111 | 10535. | 1763.7 | 2214.9 |
| 1 | 0235 | 32 | 218. | 8.9 | 2184.4 | * | 1 | 0555 | 72 | 7152. | 845.1 | 2200.6 | * | 1 | 0915 | 112 | 10438. | 1736.7 | 2214.5 |
| 1 | 0240 | 33 | 233. | 9.9 | 2184.4 | * | 1 | 0600 | 73 | 7357. | 893.5 | 2201.3 | * | 1 | 0920 | 113 | 10334. | 1707.6 | 2214.0 |
| 1 | 0245 | 34 | 251. | 11.0 | 2184.5 | * | 1 | 0605 | 74 | 7562. | 942.8 | 2202.1 | * | 1 | 0925 | 114 | 10222. | 1676.4 | 2213.5 |
| 1 | 0250 | 35 | 272. | 12.4 | 2184.6 | * | 1 | 0610 | 75 | 7755. | 993.0 | 2202.9 | * | 1 | 0930 | 115 | 10104. | 1643.4 | 2213.0 |
| 1 | 0255 | 36 | 299. | 14.1 | 2184.7 | * | 1 | 0615 | 76 | 7952. | 1043.8 | 2203.7 | * | 1 | 0935 | 116 | 9979. | 1608.6 | 2212.5 |
| 1 | 0300 | 37 | 333. | 16.4 | 2184.8 | * | 1 | 0620 | 77 | 8140. | 1095.2 | 2204.5 | * | 1 | 0940 | 117 | 9849. | 1572.2 | 2211.9 |
| 1 | 0305 | 38 | 378. | 19.4 | 2185.0 | * | 1 | 0625 | 78 | 8326. | 1146.9 | 2205.3 | * | 1 | 0945 | 118 | 9714. | 1534.4 | 2211.3 |
| 1 | 0310 | 39 | 436. | 23.1 | 2185.2 | * | 1 | 0630 | 79 | 8512. | 1198.9 | 2206.1 | * | 1 | 0950 | 119 | 9574. | 1495.5 | 2210.7 |
| 1 | 0315 | 40 | 509. | 28.0 | 2185.4 | * | 1 | 0635 | 80 | 8698. | 1250.8 | 2206.9 | * | 1 | 0955 | 120 | 9432. | 1455.7 | 2210.1 |
| | | | | | | * | | | | | | | * | | | | | | |

**********

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 11047. | 8.33 | | 8103. | 5024. | 5024. | 5024. |
| | | (INCHES) | 1.963 | 2.012 | 2.012 | 2.012 |
| | | (AC-FT) | 4018. | 4117. | 4117. | 4117. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 1907. | 8.33 | 1199. | 732. | 732. | 732. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 2217.11 | 8.33 | 2205.87 | 2197.41 | 2197.41 | 2197.41 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8553.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8714.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8872.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9026.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9174.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9316.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9450.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9577.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9695.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9804.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9904.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9994.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10074.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10144.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10203.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10250.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10287.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10312.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10326.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10329.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10321.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10304.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10277.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10241.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10197.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10144.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10084.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10016.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9940.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9857.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9766.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9668.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9563.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9452.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9335.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9213.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9087.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8957.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8824.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .76

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 501. | 27.5 | 2185.4 | 1 | | 0640 | 81 | 8389. | 1164.5 | 2205.6 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 601. | 34.0 | 2185.8 | 1 | | 0645 | 82 | 8553. | 1210.4 | 2206.3 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | 1 | | 0330 | 43 | 722. | 42.3 | 2186.1 | 1 | | 0650 | 83 | 8714. | 1255.5 | 2207.0 |
| 1 | | 0015 | 4 | 8. | .2 | 2183.1 | 1 | | 0335 | 44 | 870. | 52.7 | 2186.4 | 1 | | 0655 | 84 | 8872. | 1299.6 | 2207.7 |
| 1 | | 0020 | 5 | 20. | .4 | 2183.2 | 1 | | 0340 | 45 | 1049. | 65.4 | 2186.7 | 1 | | 0700 | 85 | 9026. | 1342.5 | 2208.4 |
| 1 | | 0025 | 6 | 38. | .8 | 2183.3 | 1 | | 0345 | 46 | 1251. | 79.7 | 2187.0 | 1 | | 0705 | 86 | 9174. | 1383.8 | 2209.0 |
| 1 | | 0030 | 7 | 61. | 1.3 | 2183.5 | 1 | | 0350 | 47 | 1459. | 94.4 | 2187.4 | 1 | | 0710 | 87 | 9316. | 1423.4 | 2209.6 |
| 1 | | 0035 | 8 | 84. | 1.9 | 2183.7 | 1 | | 0355 | 48 | 1661. | 108.7 | 2187.7 | 1 | | 0715 | 88 | 9450. | 1460.9 | 2210.2 |
| 1 | | 0040 | 9 | 104. | 2.3 | 2183.8 | 1 | | 0400 | 49 | 1854. | 122.4 | 2188.0 | 1 | | 0720 | 89 | 9577. | 1496.3 | 2210.7 |
| 1 | | 0045 | 10 | 117. | 2.6 | 2183.9 | 1 | | 0405 | 50 | 2036. | 135.8 | 2188.3 | 1 | | 0725 | 90 | 9695. | 1529.3 | 2211.3 |
| 1 | | 0050 | 11 | 123. | 2.7 | 2184.0 | 1 | | 0410 | 51 | 2215. | 148.8 | 2188.5 | 1 | | 0730 | 91 | 9804. | 1559.8 | 2211.7 |
| 1 | | 0055 | 12 | 122. | 2.7 | 2184.0 | 1 | | 0415 | 52 | 2390. | 161.6 | 2188.8 | 1 | | 0735 | 92 | 9904. | 1587.7 | 2212.2 |
| 1 | | 0100 | 13 | 116. | 2.6 | 2183.9 | 1 | | 0420 | 53 | 2561. | 174.2 | 2189.0 | 1 | | 0740 | 93 | 9994. | 1612.9 | 2212.6 |
| 1 | | 0105 | 14 | 108. | 2.4 | 2183.9 | 1 | | 0425 | 54 | 2733. | 186.8 | 2189.2 | 1 | | 0745 | 94 | 10074. | 1635.2 | 2212.9 |
| 1 | | 0110 | 15 | 99. | 2.2 | 2183.8 | 1 | | 0430 | 55 | 2913. | 199.9 | 2189.5 | 1 | | 0750 | 95 | 10144. | 1654.6 | 2213.2 |
| 1 | | 0115 | 16 | 89. | 2.0 | 2183.7 | 1 | | 0435 | 56 | 3110. | 214.3 | 2189.7 | 1 | | 0755 | 96 | 10203. | 1671.0 | 2213.5 |
| 1 | | 0120 | 17 | 82. | 1.8 | 2183.6 | 1 | | 0440 | 57 | 3326. | 230.8 | 2190.0 | 1 | | 0800 | 97 | 10250. | 1684.3 | 2213.7 |
| 1 | | 0125 | 18 | 76. | 1.7 | 2183.6 | 1 | | 0445 | 58 | 3503. | 250.4 | 2190.4 | 1 | | 0805 | 98 | 10287. | 1694.4 | 2213.8 |
| 1 | | 0130 | 19 | 73. | 1.6 | 2183.6 | 1 | | 0450 | 59 | 3716. | 274.0 | 2190.8 | 1 | | 0810 | 99 | 10312. | 1701.4 | 2213.9 |
| 1 | | 0135 | 20 | 73. | 1.6 | 2183.6 | 1 | | 0455 | 60 | 3964. | 301.6 | 2191.3 | 1 | | 0815 | 100 | 10326. | 1705.3 | 2214.0 |
| 1 | | 0140 | 21 | 77. | 1.7 | 2183.6 | 1 | | 0500 | 61 | 4243. | 332.6 | 2191.9 | 1 | | 0820 | 101 | 10329. | 1706.2 | 2214.0 |
| 1 | | 0145 | 22 | 84. | 1.9 | 2183.7 | 1 | | 0505 | 62 | 4497. | 366.3 | 2192.5 | 1 | | 0825 | 102 | 10321. | 1704.1 | 2214.0 |
| 1 | | 0150 | 23 | 95. | 2.1 | 2183.8 | 1 | | 0510 | 63 | 4750. | 401.9 | 2193.1 | 1 | | 0830 | 103 | 10304. | 1699.2 | 2213.9 |
| 1 | | 0155 | 24 | 107. | 2.4 | 2183.8 | 1 | | 0515 | 64 | 5011. | 438.8 | 2193.7 | 1 | | 0835 | 104 | 10277. | 1691.7 | 2213.8 |
| 1 | | 0200 | 25 | 120. | 2.7 | 2184.0 | 1 | | 0520 | 65 | 5252. | 476.2 | 2194.4 | 1 | | 0840 | 105 | 10241. | 1681.7 | 2213.6 |
| 1 | | 0205 | 26 | 130. | 3.0 | 2184.0 | 1 | | 0525 | 66 | 5480. | 514.1 | 2195.0 | 1 | | 0845 | 106 | 10197. | 1669.3 | 2213.4 |
| 1 | | 0210 | 27 | 137. | 3.5 | 2184.0 | 1 | | 0530 | 67 | 5710. | 552.5 | 2195.7 | 1 | | 0850 | 107 | 10144. | 1654.6 | 2213.2 |
| 1 | | 0215 | 28 | 146. | 4.1 | 2184.1 | 1 | | 0535 | 68 | 5927. | 591.4 | 2196.4 | 1 | | 0855 | 108 | 10084. | 1637.8 | 2212.9 |
| 1 | | 0220 | 29 | 156. | 4.8 | 2184.1 | 1 | | 0540 | 69 | 6134. | 631.1 | 2197.0 | 1 | | 0900 | 109 | 10016. | 1618.7 | 2212.6 |
| 1 | | 0225 | 30 | 166. | 5.5 | 2184.2 | 1 | | 0545 | 70 | 6345. | 671.4 | 2197.7 | 1 | | 0905 | 110 | 9940. | 1597.7 | 2212.3 |
| 1 | | 0230 | 31 | 176. | 6.1 | 2184.2 | 1 | | 0550 | 71 | 6548. | 712.7 | 2198.4 | 1 | | 0910 | 111 | 9857. | 1574.4 | 2212.0 |
| 1 | | 0235 | 32 | 187. | 6.8 | 2184.2 | 1 | | 0555 | 72 | 6745. | 754.8 | 2199.1 | 1 | | 0915 | 112 | 9766. | 1549.1 | 2211.6 |
| 1 | | 0240 | 33 | 197. | 7.5 | 2184.3 | 1 | | 0600 | 73 | 6948. | 798.0 | 2199.8 | 1 | | 0920 | 113 | 9668. | 1521.8 | 2211.1 |
| 1 | | 0245 | 34 | 210. | 8.3 | 2184.3 | 1 | | 0605 | 74 | 7140. | 842.1 | 2200.5 | 1 | | 0925 | 114 | 9563. | 1492.5 | 2210.7 |
| 1 | | 0250 | 35 | 226. | 9.4 | 2184.4 | 1 | | 0610 | 75 | 7330. | 887.0 | 2201.2 | 1 | | 0930 | 115 | 9452. | 1461.5 | 2210.2 |
| 1 | | 0255 | 36 | 247. | 10.8 | 2184.5 | 1 | | 0615 | 76 | 7522. | 932.7 | 2202.0 | 1 | | 0935 | 116 | 9335. | 1428.8 | 2209.7 |
| 1 | | 0300 | 37 | 275. | 12.6 | 2184.6 | 1 | | 0620 | 77 | 7701. | 978.8 | 2202.7 | 1 | | 0940 | 117 | 9213. | 1394.8 | 2209.2 |
| 1 | | 0305 | 38 | 312. | 15.0 | 2184.7 | 1 | | 0625 | 78 | 7880. | 1025.2 | 2203.4 | 1 | | 0945 | 118 | 9087. | 1359.5 | 2208.6 |
| 1 | | 0310 | 39 | 360. | 18.2 | 2184.9 | 1 | | 0630 | 79 | 8057. | 1071.8 | 2204.2 | 1 | | 0950 | 119 | 8957. | 1323.1 | 2208.1 |
| 1 | | 0315 | 40 | 422. | 22.2 | 2185.1 | 1 | | 0635 | 80 | 8223. | 1118.3 | 2204.9 | 1 | | 0955 | 120 | 8824. | 1286.0 | 2207.5 |

| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | |
| | | (CFS) | | | |
| 10329. | 8.33 | 7581. | 4692. | 4692. | 4692. |
| | | (INCHES) 1.837 | 1.879 | 1.879 | 1.879 |
| | | (AC-FT) 3759. | 3845. | 3845. | 3845. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 1706. | 8.33 | 1070. | 653. | 653. | 653. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2214.00 | 8.33 | 2203.85 | 2196.13 | 2196.13 | 2196.13 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8606.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8732.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8852.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8964.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9070.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9167.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9255.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9335.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

[redacted]NG --- ROUTED OUTFLOW ( 9406.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

[redacted]NING --- ROUTED OUTFLOW ( 9466.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9517.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9558.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9589.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9610.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9621.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9622.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9615.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9598.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9574.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9541.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9501.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9453.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9397.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9334.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9263.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9185.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9099.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9007.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8909.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8805.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

[redacted]ING --- ROUTED OUTFLOW ( 8695.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

[redacted]NING --- ROUTED OUTFLOW ( 8582.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .73

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 412. | 21.6 | 2185.1 | 1 | | 0640 | 81 | 7900. | 1030.3 | 2203.5 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 497. | 27.2 | 2185.4 | 1 | | 0645 | 82 | 8054. | 1071.0 | 2204.2 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | 1 | | 0330 | 43 | 606. | 34.4 | 2185.8 | 1 | | 0650 | 83 | 8197. | 1111.0 | 2204.8 |
| 1 | | 0015 | 4 | 7. | .2 | 2183.1 | 1 | | 0335 | 44 | 737. | 43.4 | 2186.1 | 1 | | 0655 | 84 | 8338. | 1150.3 | 2205.4 |
| 1 | | 0020 | 5 | 19. | .4 | 2183.1 | 1 | | 0340 | 45 | 894. | 54.5 | 2186.4 | 1 | | 0700 | 85 | 8474. | 1188.4 | 2206.0 |
| 1 | | 0025 | 6 | 36. | .8 | 2183.3 | 1 | | 0345 | 46 | 1072. | 67.0 | 2186.7 | 1 | | 0705 | 86 | 8606. | 1225.2 | 2206.5 |
| 1 | | 0030 | 7 | 57. | 1.3 | 2183.5 | 1 | | 0350 | 47 | 1255. | 80.0 | 2187.0 | 1 | | 0710 | 87 | 8732. | 1260.4 | 2207.1 |
| 1 | | 0035 | 8 | 80. | 1.8 | 2183.6 | 1 | | 0355 | 48 | 1433. | 92.6 | 2187.3 | 1 | | 0715 | 88 | 8852. | 1293.8 | 2207.6 |
| 1 | | 0040 | 9 | 99. | 2.2 | 2183.8 | 1 | | 0400 | 49 | 1604. | 104.6 | 2187.6 | 1 | | 0720 | 89 | 8964. | 1325.3 | 2208.1 |
| 1 | | 0045 | 10 | 111. | 2.5 | 2183.9 | 1 | | 0405 | 50 | 1771. | 116.4 | 2187.9 | 1 | | 0725 | 90 | 9070. | 1354.6 | 2208.6 |
| 1 | | 0050 | 11 | 117. | 2.6 | 2183.9 | 1 | | 0410 | 51 | 1933. | 128.2 | 2188.1 | 1 | | 0730 | 91 | 9167. | 1381.7 | 2209.0 |
| 1 | | 0055 | 12 | 116. | 2.6 | 2183.9 | 1 | | 0415 | 52 | 2094. | 140.0 | 2188.4 | 1 | | 0735 | 92 | 9255. | 1406.5 | 2209.4 |
| 1 | | 0100 | 13 | 110. | 2.5 | 2183.9 | 1 | | 0420 | 53 | 2256. | 151.8 | 2188.6 | 1 | | 0740 | 93 | 9335. | 1428.7 | 2209.7 |
| 1 | | 0105 | 14 | 102. | 2.3 | 2183.8 | 1 | | 0425 | 54 | 2418. | 163.7 | 2188.8 | 1 | | 0745 | 94 | 9406. | 1448.4 | 2210.0 |
| 1 | | 0110 | 15 | 93. | 2.1 | 2183.7 | 1 | | 0430 | 55 | 2585. | 176.0 | 2189.0 | 1 | | 0750 | 95 | 9466. | 1465.4 | 2210.3 |
| 1 | | 0115 | 16 | 84. | 1.9 | 2183.7 | 1 | | 0435 | 56 | 2765. | 189.1 | 2189.3 | 1 | | 0755 | 96 | 9517. | 1479.6 | 2210.5 |
| 1 | | 0120 | 17 | 76. | 1.7 | 2183.6 | 1 | | 0440 | 57 | 2965. | 203.7 | 2189.5 | 1 | | 0800 | 97 | 9558. | 1491.0 | 2210.7 |
| 1 | | 0125 | 18 | 70. | 1.5 | 2183.6 | 1 | | 0445 | 58 | 3196. | 220.6 | 2189.8 | 1 | | 0805 | 98 | 9589. | 1499.6 | 2210.8 |
| 1 | | 0130 | 19 | 66. | 1.5 | 2183.5 | 1 | | 0450 | 59 | 3413. | 240.5 | 2190.2 | 1 | | 0810 | 99 | 9610. | 1505.4 | 2210.9 |
| 1 | | 0135 | 20 | 65. | 1.4 | 2183.5 | 1 | | 0455 | 60 | 3624. | 263.9 | 2190.6 | 1 | | 0815 | 100 | 9621. | 1508.5 | 2210.9 |
| 1 | | 0140 | 21 | 67. | 1.5 | 2183.5 | 1 | | 0500 | 61 | 3866. | 290.7 | 2191.1 | 1 | | 0820 | 101 | 9622. | 1508.9 | 2210.9 |
| 1 | | 0145 | 22 | 72. | 1.6 | 2183.6 | 1 | | 0505 | 62 | 4131. | 320.2 | 2191.6 | 1 | | 0825 | 102 | 9615. | 1506.8 | 2210.9 |
| 1 | | 0150 | 23 | 80. | 1.8 | 2183.6 | 1 | | 0510 | 63 | 4391. | 351.4 | 2192.2 | 1 | | 0830 | 103 | 9598. | 1502.3 | 2210.8 |
| 1 | | 0155 | 24 | 89. | 2.0 | 2183.7 | 1 | | 0515 | 64 | 4620. | 383.7 | 2192.8 | 1 | | 0835 | 104 | 9574. | 1495.5 | 2210.7 |
| 1 | | 0200 | 25 | 100. | 2.2 | 2183.8 | 1 | | 0520 | 65 | 4857. | 417.0 | 2193.4 | 1 | | 0840 | 105 | 9541. | 1486.4 | 2210.6 |
| 1 | | 0205 | 26 | 113. | 2.5 | 2183.9 | 1 | | 0525 | 66 | 5097. | 450.9 | 2193.9 | 1 | | 0845 | 106 | 9501. | 1475.0 | 2210.4 |
| 1 | | 0210 | 27 | 126. | 2.8 | 2184.0 | 1 | | 0530 | 67 | 5308. | 485.4 | 2194.5 | 1 | | 0850 | 107 | 9453. | 1461.6 | 2210.2 |
| 1 | | 0215 | 28 | 132. | 3.2 | 2184.0 | 1 | | 0535 | 68 | 5518. | 520.5 | 2195.1 | 1 | | 0855 | 108 | 9397. | 1446.1 | 2210.0 |
| 1 | | 0220 | 29 | 139. | 3.7 | 2184.1 | 1 | | 0540 | 69 | 5733. | 556.3 | 2195.8 | 1 | | 0900 | 109 | 9334. | 1428.4 | 2209.7 |
| 1 | | 0225 | 30 | 147. | 4.2 | 2184.1 | 1 | | 0545 | 70 | 5934. | 592.8 | 2196.4 | 1 | | 0905 | 110 | 9263. | 1408.6 | 2209.4 |
| 1 | | 0230 | 31 | 153. | 4.6 | 2184.1 | 1 | | 0550 | 71 | 6128. | 629.9 | 2197.0 | 1 | | 0910 | 111 | 9185. | 1386.8 | 2209.1 |
| 1 | | 0235 | 32 | 160. | 5.0 | 2184.1 | 1 | | 0555 | 72 | 6325. | 667.6 | 2197.6 | 1 | | 0915 | 112 | 9099. | 1363.0 | 2208.7 |
| 1 | | 0240 | 33 | 167. | 5.5 | 2184.2 | 1 | | 0600 | 73 | 6517. | 706.0 | 2198.3 | 1 | | 0920 | 113 | 9007. | 1337.2 | 2208.3 |
| 1 | | 0245 | 34 | 176. | 6.1 | 2184.2 | 1 | | 0605 | 74 | 6700. | 745.0 | 2198.9 | 1 | | 0925 | 114 | 8909. | 1309.8 | 2207.9 |
| 1 | | 0250 | 35 | 188. | 6.9 | 2184.2 | 1 | | 0610 | 75 | 6886. | 784.8 | 2199.6 | 1 | | 0930 | 115 | 8805. | 1280.7 | 2207.4 |
| 1 | | 0255 | 36 | 203. | 7.9 | 2184.3 | 1 | | 0615 | 76 | 7068. | 825.0 | 2200.2 | 1 | | 0935 | 116 | 8695. | 1250.2 | 2206.9 |
| 1 | | 0300 | 37 | 225. | 9.3 | 2184.4 | 1 | | 0620 | 77 | 7240. | 865.8 | 2200.9 | 1 | | 0940 | 117 | 8582. | 1218.4 | 2206.4 |
| 1 | | 0305 | 38 | 254. | 11.2 | 2184.5 | 1 | | 0625 | 78 | 7413. | 906.8 | 2201.6 | 1 | | 0945 | 118 | 8464. | 1185.4 | 2205.9 |
| 1 | | 0310 | 39 | 293. | 13.8 | 2184.6 | 1 | | 0630 | 79 | 7582. | 948.1 | 2202.2 | 1 | | 0950 | 119 | 8343. | 1151.6 | 2205.4 |
| 1 | | 0315 | 40 | 345. | 17.2 | 2184.8 | 1 | | 0635 | 80 | 7741. | 989.3 | 2202.9 | 1 | | 0955 | 120 | 8220. | 1117.3 | 2204.9 |

| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | |
| 9622. | 8.33 | 7058. | 4361. | 4361. | 4361. |
| | (CFS) | | | | |
| | (INCHES) | 1.710 | 1.746 | 1.746 | 1.746 |
| | (AC-FT) | 3500. | 3574. | 3574. | 3574. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 1509. | 8.33 | 944. | 576. | 576. | 576. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2210.94 | 8.33 | 2201.86 | 2194.88 | 2194.88 | 2194.88 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8520.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8615.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8702.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8782.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8854.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8917.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8971.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9016.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9052.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9079.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9097.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9106.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9107.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9100.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9085.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9062.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9031.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8993.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8947.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8894.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8834.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8766.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8691.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8609.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8521.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .69

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 353. | 17.7 | 2184.9 | 1 | | 0640 | 81 | 7530. | 934.6 | 2202.0 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 428. | 22.6 | 2185.1 | 1 | | 0645 | 82 | 7672. | 971.4 | 2202.6 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | 1 | | 0330 | 43 | 525. | 29.0 | 2185.5 | 1 | | 0650 | 83 | 7812. | 1007.7 | 2203.2 |
| 1 | | 0015 | 4 | 7. | .2 | 2183.1 | 1 | | 0335 | 44 | 648. | 37.1 | 2186.0 | 1 | | 0655 | 84 | 7949. | 1043.1 | 2203.7 |
| 1 | | 0020 | 5 | 18. | .4 | 2183.1 | 1 | | 0340 | 45 | 789. | 47.0 | 2186.2 | 1 | | 0700 | 85 | 8077. | 1077.5 | 2204.3 |
| 1 | | 0025 | 6 | 35. | .8 | 2183.3 | 1 | | 0345 | 46 | 948. | 58.3 | 2186.5 | 1 | | 0705 | 86 | 8196. | 1110.7 | 2204.8 |
| 1 | | 0030 | 7 | 55. | 1.2 | 2183.4 | 1 | | 0350 | 47 | 1114. | 70.0 | 2186.8 | 1 | | 0710 | 87 | 8310. | 1142.5 | 2205.3 |
| 1 | | 0035 | 8 | 76. | 1.7 | 2183.6 | 1 | | 0355 | 48 | 1274. | 81.3 | 2187.1 | 1 | | 0715 | 88 | 8418. | 1172.7 | 2205.7 |
| 1 | | 0040 | 9 | 95. | 2.1 | 2183.8 | 1 | | 0400 | 49 | 1428. | 92.2 | 2187.3 | 1 | | 0720 | 89 | 8520. | 1201.1 | 2206.2 |
| 1 | | 0045 | 10 | 107. | 2.4 | 2183.8 | 1 | | 0405 | 50 | 1578. | 102.8 | 2187.6 | 1 | | 0725 | 90 | 8615. | 1227.6 | 2206.6 |
| 1 | | 0050 | 11 | 112. | 2.5 | 2183.9 | 1 | | 0410 | 51 | 1729. | 113.5 | 2187.8 | 1 | | 0730 | 91 | 8702. | 1252.0 | 2207.0 |
| 1 | | 0055 | 12 | 111. | 2.5 | 2183.9 | 1 | | 0415 | 52 | 1880. | 124.3 | 2188.1 | 1 | | 0735 | 92 | 8782. | 1274.3 | 2207.3 |
| 1 | | 0100 | 13 | 106. | 2.3 | 2183.8 | 1 | | 0420 | 53 | 2031. | 135.4 | 2188.3 | 1 | | 0740 | 93 | 8854. | 1294.3 | 2207.6 |
| 1 | | 0105 | 14 | 98. | 2.2 | 2183.8 | 1 | | 0425 | 54 | 2186. | 146.7 | 2188.5 | 1 | | 0745 | 94 | 8917. | 1312.0 | 2207.9 |
| 1 | | 0110 | 15 | 89. | 2.0 | 2183.7 | 1 | | 0430 | 55 | 2346. | 158.4 | 2188.7 | 1 | | 0750 | 95 | 8971. | 1327.1 | 2208.1 |
| 1 | | 0115 | 16 | 80. | 1.8 | 2183.6 | 1 | | 0435 | 56 | 2516. | 170.9 | 2188.9 | 1 | | 0755 | 96 | 9016. | 1339.7 | 2208.3 |
| 1 | | 0120 | 17 | 73. | 1.6 | 2183.6 | 1 | | 0440 | 57 | 2702. | 184.5 | 2189.2 | 1 | | 0800 | 97 | 9052. | 1349.8 | 2208.5 |
| 1 | | 0125 | 18 | 66. | 1.5 | 2183.5 | 1 | | 0445 | 58 | 2913. | 199.9 | 2189.5 | 1 | | 0805 | 98 | 9079. | 1357.2 | 2208.6 |
| 1 | | 0130 | 19 | 62. | 1.4 | 2183.5 | 1 | | 0450 | 59 | 3156. | 217.7 | 2189.8 | 1 | | 0810 | 99 | 9097. | 1362.2 | 2208.7 |
| 1 | | 0135 | 20 | 60. | 1.3 | 2183.5 | 1 | | 0455 | 60 | 3393. | 238.2 | 2190.2 | 1 | | 0815 | 100 | 9106. | 1364.8 | 2208.7 |
| 1 | | 0140 | 21 | 61. | 1.4 | 2183.5 | 1 | | 0500 | 61 | 3605. | 261.7 | 2190.6 | 1 | | 0820 | 101 | 9107. | 1365.0 | 2208.7 |
| 1 | | 0145 | 22 | 65. | 1.4 | 2183.5 | 1 | | 0505 | 62 | 3841. | 287.9 | 2191.1 | 1 | | 0825 | 102 | 9100. | 1363.0 | 2208.7 |
| 1 | | 0150 | 23 | 71. | 1.6 | 2183.6 | 1 | | 0510 | 63 | 4093. | 315.9 | 2191.6 | 1 | | 0830 | 103 | 9085. | 1358.8 | 2208.6 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0155 | 24 | 78. | 1.7 | 2183.6 | 1 | 0515 | 64 | 4345. | 344.9 | 2192.1 | 1 | 0835 | 104 | 9062. | 1352.4 | 2208.5 |
| 1 | 0200 | 25 | 87. | 1.9 | 2183.7 | 1 | 0520 | 65 | 4557. | 374.8 | 2192.6 | 1 | 0840 | 105 | 9031. | 1343.8 | 2208.4 |
| 1 | 0205 | 26 | 97. | 2.2 | 2183.8 | 1 | 0525 | 66 | 4774. | 405.4 | 2193.1 | 1 | 0845 | 106 | 8993. | 1333.2 | 2208.2 |
| 1 | 0210 | 27 | 110. | 2.4 | 2183.9 | 1 | 0530 | 67 | 4998. | 436.8 | 2193.7 | 1 | 0850 | 107 | 8947. | 1320.5 | 2208.0 |
| 1 | 0215 | 28 | 123. | 2.7 | 2184.0 | 1 | 0535 | 68 | 5209. | 469.0 | 2194.3 | 1 | 0855 | 108 | 8894. | 1305.7 | 2207.8 |
| 1 | 0220 | 29 | 130. | 3.1 | 2184.0 | 1 | 0540 | 69 | 5407. | 501.9 | 2194.8 | 1 | 0900 | 109 | 8834. | 1288.8 | 2207.5 |
| 1 | 0225 | 30 | 135. | 3.4 | 2184.0 | 1 | 0545 | 70 | 5608. | 535.5 | 2195.4 | 1 | 0905 | 110 | 8766. | 1269.8 | 2207.2 |
| 1 | 0230 | 31 | 140. | 3.7 | 2184.1 | 1 | 0550 | 71 | 5813. | 569.6 | 2196.0 | 1 | 0910 | 111 | 8691. | 1248.8 | 2206.9 |
| 1 | 0235 | 32 | 144. | 4.0 | 2184.1 | 1 | 0555 | 72 | 5995. | 604.4 | 2196.6 | 1 | 0915 | 112 | 8609. | 1226.0 | 2206.6 |
| 1 | 0240 | 33 | 149. | 4.3 | 2184.1 | 1 | 0600 | 73 | 6179. | 639.7 | 2197.2 | 1 | 0920 | 113 | 8521. | 1201.5 | 2206.2 |
| 1 | 0245 | 34 | 155. | 4.7 | 2184.1 | 1 | 0605 | 74 | 6367. | 675.6 | 2197.8 | 1 | 0925 | 114 | 8427. | 1175.3 | 2205.8 |
| 1 | 0250 | 35 | 164. | 5.3 | 2184.1 | 1 | 0610 | 75 | 6544. | 711.8 | 2198.4 | 1 | 0930 | 115 | 8328. | 1147.6 | 2205.3 |
| 1 | 0255 | 36 | 176. | 6.1 | 2184.2 | 1 | 0615 | 76 | 6716. | 748.5 | 2199.0 | 1 | 0935 | 116 | 8224. | 1118.6 | 2204.9 |
| 1 | 0300 | 37 | 193. | 7.2 | 2184.3 | 1 | 0620 | 77 | 6889. | 785.5 | 2199.6 | 1 | 0940 | 117 | 8116. | 1088.5 | 2204.4 |
| 1 | 0305 | 38 | 217. | 8.8 | 2184.3 | 1 | 0625 | 78 | 7058. | 822.8 | 2200.2 | 1 | 0945 | 118 | 8004. | 1057.4 | 2203.9 |
| 1 | 0310 | 39 | 250. | 11.0 | 2184.5 | 1 | 0630 | 79 | 7216. | 860.1 | 2200.8 | 1 | 0950 | 119 | 7881. | 1025.5 | 2203.4 |
| 1 | 0315 | 40 | 295. | 13.9 | 2184.6 | 1 | 0635 | 80 | 7374. | 897.5 | 2201.4 | 1 | 0955 | 120 | 7756. | 993.2 | 2202.9 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 9107. | 8.33 | | 6670. | 4116. | 4116. | 4116. |
| | | (INCHES) | 1.616 | 1.648 | 1.648 | 1.648 |
| | | (AC-FT) | 3308. | 3373. | 3373. | 3373. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 1365. | 8.33 | 853. | 520. | 520. | 520. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2208.71 | 8.33 | 2200.40 | 2193.97 | 2193.97 | 2193.97 |

CUMULATIVE AREA = 38.38 SQ MI

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .64

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 263. | 11.8 | 2184.5 | 1 | | 0640 | 81 | 6814. | 769.4 | 2199.3 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 321. | 15.6 | 2184.7 | 1 | | 0645 | 82 | 6955. | 799.6 | 2199.8 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | 1 | | 0330 | 43 | 397. | 20.6 | 2185.0 | 1 | | 0650 | 83 | 7085. | 829.2 | 2200.3 |
| 1 | | 0015 | 4 | 6. | .1 | 2183.1 | 1 | | 0335 | 44 | 495. | 27.1 | 2185.4 | 1 | | 0655 | 84 | 7208. | 858.2 | 2200.8 |
| 1 | | 0020 | 5 | 16. | .4 | 2183.1 | 1 | | 0340 | 45 | 617. | 35.1 | 2185.9 | 1 | | 0700 | 85 | 7326. | 886.3 | 2201.2 |
| 1 | | 0025 | 6 | 32. | .7 | 2183.3 | 1 | | 0345 | 46 | 749. | 44.2 | 2186.2 | 1 | | 0705 | 86 | 7441. | 913.3 | 2201.7 |
| 1 | | 0030 | 7 | 51. | 1.1 | 2183.4 | 1 | | 0350 | 47 | 883. | 53.7 | 2186.4 | 1 | | 0710 | 87 | 7548. | 939.2 | 2202.1 |
| 1 | | 0035 | 8 | 70. | 1.6 | 2183.6 | 1 | | 0355 | 48 | 1012. | 62.8 | 2186.6 | 1 | | 0715 | 88 | 7643. | 963.7 | 2202.5 |
| 1 | | 0040 | 9 | 87. | 1.9 | 2183.7 | 1 | | 0400 | 49 | 1136. | 71.6 | 2186.8 | 1 | | 0720 | 89 | 7732. | 986.8 | 2202.8 |
| 1 | | 0045 | 10 | 98. | 2.2 | 2183.8 | 1 | | 0405 | 50 | 1257. | 80.1 | 2187.0 | 1 | | 0725 | 90 | 7815. | 1008.3 | 2203.2 |
| 1 | | 0050 | 11 | 103. | 2.3 | 2183.8 | 1 | | 0410 | 51 | 1378. | 88.7 | 2187.2 | 1 | | 0730 | 91 | 7890. | 1027.9 | 2203.5 |
| 1 | | 0055 | 12 | 102. | 2.3 | 2183.8 | 1 | | 0415 | 52 | 1502. | 97.5 | 2187.4 | 1 | | 0735 | 92 | 7959. | 1045.7 | 2203.8 |
| 1 | | 0100 | 13 | 97. | 2.2 | 2183.8 | 1 | | 0420 | 53 | 1633. | 106.7 | 2187.7 | 1 | | 0740 | 93 | 8020. | 1061.5 | 2204.0 |
| 1 | | 0105 | 14 | 90. | 2.0 | 2183.7 | 1 | | 0425 | 54 | 1773. | 116.6 | 2187.9 | 1 | | 0745 | 94 | 8069. | 1075.3 | 2204.2 |
| 1 | | 0110 | 15 | 82. | 1.8 | 2183.7 | 1 | | 0430 | 55 | 1919. | 127.2 | 2188.1 | 1 | | 0750 | 95 | 8111. | 1087.1 | 2204.4 |
| 1 | | 0115 | 16 | 74. | 1.6 | 2183.6 | 1 | | 0435 | 56 | 2074. | 138.6 | 2188.3 | 1 | | 0755 | 96 | 8147. | 1096.9 | 2204.6 |
| 1 | | 0120 | 17 | 67. | 1.5 | 2183.5 | 1 | | 0440 | 57 | 2242. | 150.8 | 2188.6 | 1 | | 0800 | 97 | 8174. | 1104.7 | 2204.7 |
| 1 | | 0125 | 18 | 61. | 1.3 | 2183.5 | 1 | | 0445 | 58 | 2426. | 164.3 | 2188.8 | 1 | | 0805 | 98 | 8195. | 1110.5 | 2204.8 |
| 1 | | 0130 | 19 | 56. | 1.2 | 2183.4 | 1 | | 0450 | 59 | 2632. | 179.4 | 2189.1 | 1 | | 0810 | 99 | 8209. | 1114.3 | 2204.8 |
| 1 | | 0135 | 20 | 54. | 1.2 | 2183.4 | 1 | | 0455 | 60 | 2862. | 196.2 | 2189.4 | 1 | | 0815 | 100 | 8215. | 1116.1 | 2204.9 |
| 1 | | 0140 | 21 | 53. | 1.2 | 2183.4 | 1 | | 0500 | 61 | 3116. | 214.8 | 2189.7 | 1 | | 0820 | 101 | 8214. | 1115.8 | 2204.8 |
| 1 | | 0145 | 22 | 55. | 1.2 | 2183.4 | 1 | | 0505 | 62 | 3364. | 235.0 | 2190.1 | 1 | | 0825 | 102 | 8206. | 1113.6 | 2204.8 |
| 1 | | 0150 | 23 | 58. | 1.3 | 2183.5 | 1 | | 0510 | 63 | 3559. | 256.6 | 2190.5 | 1 | | 0830 | 103 | 8191. | 1109.4 | 2204.8 |
| 1 | | 0155 | 24 | 62. | 1.4 | 2183.5 | 1 | | 0515 | 64 | 3765. | 279.5 | 2190.9 | 1 | | 0835 | 104 | 8169. | 1103.2 | 2204.7 |
| 1 | | 0200 | 25 | 68. | 1.5 | 2183.5 | 1 | | 0520 | 65 | 3981. | 303.5 | 2191.3 | 1 | | 0840 | 105 | 8140. | 1095.0 | 2204.5 |
| 1 | | 0205 | 26 | 75. | 1.7 | 2183.6 | 1 | | 0525 | 66 | 4203. | 328.1 | 2191.8 | 1 | | 0845 | 106 | 8103. | 1084.8 | 2204.4 |
| 1 | | 0210 | 27 | 83. | 1.8 | 2183.7 | 1 | | 0530 | 67 | 4405. | 353.3 | 2192.2 | 1 | | 0850 | 107 | 8059. | 1072.6 | 2204.2 |
| 1 | | 0215 | 28 | 93. | 2.1 | 2183.7 | 1 | | 0535 | 68 | 4590. | 379.5 | 2192.7 | 1 | | 0855 | 108 | 8008. | 1058.4 | 2204.0 |
| 1 | | 0220 | 29 | 102. | 2.3 | 2183.8 | 1 | | 0540 | 69 | 4782. | 406.5 | 2193.2 | 1 | | 0900 | 109 | 7946. | 1042.4 | 2203.7 |
| 1 | | 0225 | 30 | 110. | 2.4 | 2183.9 | 1 | | 0545 | 70 | 4980. | 434.3 | 2193.7 | 1 | | 0905 | 110 | 7878. | 1024.6 | 2203.4 |
| 1 | | 0230 | 31 | 116. | 2.6 | 2183.9 | 1 | | 0550 | 71 | 5173. | 462.9 | 2194.2 | 1 | | 0910 | 111 | 7803. | 1005.2 | 2203.1 |
| 1 | | 0235 | 32 | 120. | 2.7 | 2183.9 | 1 | | 0555 | 72 | 5348. | 492.2 | 2194.7 | 1 | | 0915 | 112 | 7722. | 984.2 | 2202.8 |
| 1 | | 0240 | 33 | 124. | 2.7 | 2184.0 | 1 | | 0600 | 73 | 5528. | 522.1 | 2195.2 | 1 | | 0920 | 113 | 7635. | 961.7 | 2202.4 |
| 1 | | 0245 | 34 | 127. | 2.9 | 2184.0 | 1 | | 0605 | 74 | 5710. | 552.5 | 2195.7 | 1 | | 0925 | 114 | 7543. | 937.8 | 2202.1 |
| 1 | | 0250 | 35 | 131. | 3.1 | 2184.0 | 1 | | 0610 | 75 | 5884. | 583.3 | 2196.2 | 1 | | 0930 | 115 | 7439. | 912.9 | 2201.7 |
| 1 | | 0255 | 36 | 138. | 3.6 | 2184.0 | 1 | | 0615 | 76 | 6047. | 614.3 | 2196.7 | 1 | | 0935 | 116 | 7329. | 886.9 | 2201.2 |
| 1 | | 0300 | 37 | 148. | 4.3 | 2184.1 | 1 | | 0620 | 77 | 6210. | 645.5 | 2197.3 | 1 | | 0940 | 117 | 7216. | 860.3 | 2200.8 |
| 1 | | 0305 | 38 | 164. | 5.3 | 2184.1 | 1 | | 0625 | 78 | 6373. | 676.7 | 2197.8 | 1 | | 0945 | 118 | 7101. | 832.9 | 2200.4 |
| 1 | | 0310 | 39 | 187. | 6.8 | 2184.2 | 1 | | 0630 | 79 | 6525. | 707.8 | 2198.3 | 1 | | 0950 | 119 | 6981. | 805.0 | 2199.9 |
| 1 | | 0315 | 40 | 220. | 9.0 | 2184.4 | 1 | | 0635 | 80 | 6670. | 738.7 | 2198.8 | 1 | | 0955 | 120 | 6848. | 776.8 | 2199.5 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 8215. | 8.25 | | 5961. | 3671. | 3671. | 3671. |
| | | (INCHES) | 1.444 | 1.470 | 1.470 | 1.470 |
| | | (AC-FT) | 2956. | 3008. | 3008. | 3008. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 1116. | 8.25 | 693. | 422. | 422. | 422. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2204.85 | 8.25 | 2197.85 | 2192.36 | 2192.36 | 2192.36 |

CUMULATIVE AREA = 38.38 SQ MI

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .58

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 195. | 7.3 | 2184.3 | 1 | | 0640 | 81 | 5971. | 599.9 | 2196.5 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 236. | 10.0 | 2184.4 | 1 | | 0645 | 82 | 6100. | 624.5 | 2196.9 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | 1 | | 0330 | 43 | 291. | 13.6 | 2184.6 | 1 | | 0650 | 83 | 6226. | 648.6 | 2197.3 |
| 1 | | 0015 | 4 | 6. | .1 | 2183.0 | 1 | | 0335 | 44 | 365. | 18.5 | 2184.9 | 1 | | 0655 | 84 | 6348. | 672.0 | 2197.7 |
| 1 | | 0020 | 5 | 15. | .3 | 2183.1 | 1 | | 0340 | 45 | 458. | 24.6 | 2185.3 | 1 | | 0700 | 85 | 6463. | 694.6 | 2198.1 |
| 1 | | 0025 | 6 | 29. | .6 | 2183.2 | 1 | | 0345 | 46 | 565. | 31.6 | 2185.7 | 1 | | 0705 | 86 | 6565. | 716.2 | 2198.5 |
| 1 | | 0030 | 7 | 46. | 1.0 | 2183.4 | 1 | | 0350 | 47 | 674. | 38.9 | 2186.0 | 1 | | 0710 | 87 | 6661. | 736.9 | 2198.8 |
| 1 | | 0035 | 8 | 64. | 1.4 | 2183.5 | 1 | | 0355 | 48 | 772. | 45.9 | 2186.2 | 1 | | 0715 | 88 | 6752. | 756.3 | 2199.1 |
| 1 | | 0040 | 9 | 79. | 1.8 | 2183.6 | 1 | | 0400 | 49 | 866. | 52.5 | 2186.4 | 1 | | 0720 | 89 | 6837. | 774.5 | 2199.4 |
| 1 | | 0045 | 10 | 89. | 2.0 | 2183.7 | 1 | | 0405 | 50 | 957. | 58.9 | 2186.5 | 1 | | 0725 | 90 | 6916. | 791.2 | 2199.7 |
| 1 | | 0050 | 11 | 93. | 2.1 | 2183.7 | 1 | | 0410 | 51 | 1048. | 65.3 | 2186.7 | 1 | | 0730 | 91 | 6987. | 806.4 | 2199.9 |
| 1 | | 0055 | 12 | 93. | 2.1 | 2183.7 | 1 | | 0415 | 52 | 1141. | 71.9 | 2186.8 | 1 | | 0735 | 92 | 7047. | 820.1 | 2200.2 |
| 1 | | 0100 | 13 | 88. | 2.0 | 2183.7 | 1 | | 0420 | 53 | 1240. | 78.9 | 2187.0 | 1 | | 0740 | 93 | 7098. | 832.2 | 2200.4 |
| 1 | | 0105 | 14 | 82. | 1.8 | 2183.6 | 1 | | 0425 | 54 | 1348. | 86.6 | 2187.2 | 1 | | 0745 | 94 | 7142. | 842.7 | 2200.5 |
| 1 | | 0110 | 15 | 74. | 1.7 | 2183.6 | 1 | | 0430 | 55 | 1470. | 95.2 | 2187.4 | 1 | | 0750 | 95 | 7180. | 851.6 | 2200.7 |
| 1 | | 0115 | 16 | 67. | 1.5 | 2183.5 | 1 | | 0435 | 56 | 1606. | 104.8 | 2187.6 | 1 | | 0755 | 96 | 7211. | 858.9 | 2200.8 |
| 1 | | 0120 | 17 | 60. | 1.3 | 2183.5 | 1 | | 0440 | 57 | 1759. | 115.6 | 2187.9 | 1 | | 0800 | 97 | 7234. | 864.4 | 2200.9 |
| 1 | | 0125 | 18 | 55. | 1.2 | 2183.4 | 1 | | 0445 | 58 | 1925. | 127.6 | 2188.1 | 1 | | 0805 | 98 | 7250. | 868.3 | 2200.9 |
| 1 | | 0130 | 19 | 51. | 1.1 | 2183.4 | 1 | | 0450 | 59 | 2104. | 140.7 | 2188.4 | 1 | | 0810 | 99 | 7259. | 870.5 | 2201.0 |
| 1 | | 0135 | 20 | 48. | 1.1 | 2183.4 | 1 | | 0455 | 60 | 2299. | 155.0 | 2188.6 | 1 | | 0815 | 100 | 7261. | 870.8 | 2201.0 |
| 1 | | 0140 | 21 | 47. | 1.1 | 2183.4 | 1 | | 0500 | 61 | 2507. | 170.2 | 2188.9 | 1 | | 0820 | 101 | 7255. | 869.3 | 2201.0 |
| 1 | | 0145 | 22 | 48. | 1.1 | 2183.4 | 1 | | 0505 | 62 | 2726. | 186.3 | 2189.2 | 1 | | 0825 | 102 | 7241. | 866.1 | 2200.9 |
| 1 | | 0150 | 23 | 49. | 1.1 | 2183.4 | 1 | | 0510 | 63 | 2951. | 202.7 | 2189.5 | 1 | | 0830 | 103 | 7220. | 861.1 | 2200.8 |
| 1 | | 0155 | 24 | 51. | 1.1 | 2183.4 | 1 | | 0515 | 64 | 3179. | 219.4 | 2189.8 | 1 | | 0835 | 104 | 7191. | 854.3 | 2200.7 |
| 1 | | 0200 | 25 | 54. | 1.2 | 2183.4 | 1 | | 0520 | 65 | 3376. | 236.3 | 2190.1 | 1 | | 0840 | 105 | 7155. | 845.8 | 2200.6 |
| 1 | | 0205 | 26 | 57. | 1.3 | 2183.5 | 1 | | 0525 | 66 | 3535. | 254.0 | 2190.5 | 1 | | 0845 | 106 | 7113. | 835.7 | 2200.4 |
| 1 | | 0210 | 27 | 62. | 1.4 | 2183.5 | 1 | | 0530 | 67 | 3703. | 272.7 | 2190.8 | 1 | | 0850 | 107 | 7063. | 824.0 | 2200.2 |
| 1 | | 0215 | 28 | 68. | 1.5 | 2183.5 | 1 | | 0535 | 68 | 3880. | 292.3 | 2191.1 | 1 | | 0855 | 108 | 7007. | 810.7 | 2200.0 |
| 1 | | 0220 | 29 | 74. | 1.6 | 2183.6 | 1 | | 0540 | 69 | 4065. | 312.9 | 2191.5 | 1 | | 0900 | 109 | 6938. | 795.9 | 2199.8 |
| 1 | | 0225 | 30 | 78. | 1.7 | 2183.6 | 1 | | 0545 | 70 | 4257. | 334.1 | 2191.9 | 1 | | 0905 | 110 | 6862. | 779.8 | 2199.5 |
| 1 | | 0230 | 31 | 81. | 1.8 | 2183.6 | 1 | | 0550 | 71 | 4424. | 356.0 | 2192.3 | 1 | | 0910 | 111 | 6781. | 762.3 | 2199.2 |
| 1 | | 0235 | 32 | 82. | 1.8 | 2183.7 | 1 | | 0555 | 72 | 4565. | 378.7 | 2192.7 | 1 | | 0915 | 112 | 6693. | 743.7 | 2198.9 |
| 1 | | 0240 | 33 | 84. | 1.9 | 2183.7 | 1 | | 0600 | 73 | 4751. | 402.1 | 2193.1 | 1 | | 0920 | 113 | 6601. | 724.0 | 2198.6 |
| 1 | | 0245 | 34 | 86. | 1.9 | 2183.7 | 1 | | 0605 | 74 | 4920. | 425.9 | 2193.5 | 1 | | 0925 | 114 | 6505. | 703.4 | 2198.2 |
| 1 | | 0250 | 35 | 91. | 2.0 | 2183.7 | 1 | | 0610 | 75 | 5093. | 450.2 | 2193.9 | 1 | | 0930 | 115 | 6401. | 682.2 | 2197.9 |
| 1 | | 0255 | 36 | 100. | 2.2 | 2183.8 | 1 | | 0615 | 76 | 5244. | 474.8 | 2194.4 | 1 | | 0935 | 116 | 6287. | 660.4 | 2197.5 |
| 1 | | 0300 | 37 | 116. | 2.6 | 2183.9 | 1 | | 0620 | 77 | 5394. | 499.7 | 2194.8 | 1 | | 0940 | 117 | 6171. | 638.0 | 2197.1 |
| 1 | | 0305 | 38 | 131. | 3.1 | 2184.0 | 1 | | 0625 | 78 | 5544. | 524.8 | 2195.2 | 1 | | 0945 | 118 | 6052. | 615.3 | 2196.8 |
| 1 | | 0310 | 39 | 145. | 4.0 | 2184.1 | 1 | | 0630 | 79 | 5695. | 549.9 | 2195.7 | 1 | | 0950 | 119 | 5931. | 592.1 | 2196.4 |
| 1 | | 0315 | 40 | 165. | 5.4 | 2184.1 | 1 | | 0635 | 80 | 5841. | 575.0 | 2196.1 | 1 | | 0955 | 120 | 5808. | 568.8 | 2196.0 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | (CFS) | | | | |
| 7261. | 8.25 | | 5162. | 3173. | 3173. | 3173. |
| | | (INCHES) | 1.251 | 1.270 | 1.270 | 1.270 |
| | | (AC-FT) | 2560. | 2600. | 2600. | 2600. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 871. | 8.25 | 535. | 326. | 326. | 326. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2200.98 | 8.25 | 2195.24 | 2190.72 | 2190.72 | 2190.72 |

CUMULATIVE AREA = 38.38 SQ MI

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .53

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 156. | 4.8 | 2184.1 | 1 | | 0640 | 81 | 5195. | 466.7 | 2194.2 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 185. | 6.7 | 2184.2 | 1 | | 0645 | 82 | 5310. | 485.8 | 2194.6 |
| 1 | | 0010 | 3 | 1. | .0 | 2183.0 | 1 | | 0330 | 43 | 225. | 9.3 | 2184.4 | 1 | | 0650 | 83 | 5423. | 504.6 | 2194.9 |
| 1 | | 0015 | 4 | 5. | .1 | 2183.0 | 1 | | 0335 | 44 | 281. | 13.0 | 2184.6 | 1 | | 0655 | 84 | 5533. | 523.0 | 2195.2 |
| 1 | | 0020 | 5 | 14. | .3 | 2183.1 | 1 | | 0340 | 45 | 353. | 17.7 | 2184.9 | 1 | | 0700 | 85 | 5639. | 540.7 | 2195.5 |
| 1 | | 0025 | 6 | 26. | .6 | 2183.2 | 1 | | 0345 | 46 | 436. | 23.2 | 2185.2 | 1 | | 0705 | 86 | 5741. | 557.7 | 2195.8 |
| 1 | | 0030 | 7 | 42. | .9 | 2183.3 | 1 | | 0350 | 47 | 522. | 28.8 | 2185.5 | 1 | | 0710 | 87 | 5835. | 573.8 | 2196.1 |
| 1 | | 0035 | 8 | 58. | 1.3 | 2183.5 | 1 | | 0355 | 48 | 603. | 34.2 | 2185.8 | 1 | | 0715 | 88 | 5914. | 589.0 | 2196.3 |
| 1 | | 0040 | 9 | 72. | 1.6 | 2183.6 | 1 | | 0400 | 49 | 676. | 39.2 | 2186.0 | 1 | | 0720 | 89 | 5969. | 603.2 | 2196.6 |
| 1 | | 0045 | 10 | 81. | 1.8 | 2183.6 | 1 | | 0405 | 50 | 746. | 44.0 | 2186.2 | 1 | | 0725 | 90 | 6057. | 616.3 | 2196.8 |
| 1 | | 0050 | 11 | 85. | 1.9 | 2183.7 | 1 | | 0410 | 51 | 815. | 48.9 | 2186.3 | 1 | | 0730 | 91 | 6119. | 628.2 | 2197.0 |
| 1 | | 0055 | 12 | 85. | 1.9 | 2183.7 | 1 | | 0415 | 52 | 885. | 53.8 | 2186.4 | 1 | | 0735 | 92 | 6175. | 638.9 | 2197.2 |
| 1 | | 0100 | 13 | 81. | 1.8 | 2183.6 | 1 | | 0420 | 53 | 959. | 59.1 | 2186.5 | 1 | | 0740 | 93 | 6224. | 648.3 | 2197.3 |
| 1 | | 0105 | 14 | 75. | 1.7 | 2183.6 | 1 | | 0425 | 54 | 1041. | 64.9 | 2186.7 | 1 | | 0745 | 94 | 6266. | 656.3 | 2197.4 |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0110 | 15 | 68. | 1.5 | 2183.5 | 1 | 0430 | 55 | 1134. | 71.4 | 2186.8 | 1 | 0750 | 95 | 6300. | 662.9 | 2197.6 |
| 1 | 0115 | 16 | 61. | 1.4 | 2183.5 | 1 | 0435 | 56 | 1242. | 79.1 | 2187.0 | 1 | 0755 | 96 | 6327. | 668.0 | 2197.6 |
| 1 | 0120 | 17 | 55. | 1.2 | 2183.4 | 1 | 0440 | 57 | 1367. | 87.9 | 2187.2 | 1 | 0800 | 97 | 6347. | 671.7 | 2197.7 |
| 1 | 0125 | 18 | 50. | 1.1 | 2183.4 | 1 | 0445 | 58 | 1513. | 98.2 | 2187.5 | 1 | 0805 | 98 | 6358. | 673.9 | 2197.7 |
| 1 | 0130 | 19 | 46. | 1.0 | 2183.4 | 1 | 0450 | 59 | 1677. | 109.8 | 2187.7 | 1 | 0810 | 99 | 6362. | 674.6 | 2197.8 |
| 1 | 0135 | 20 | 44. | 1.0 | 2183.3 | 1 | 0455 | 60 | 1854. | 122.4 | 2188.0 | 1 | 0815 | 100 | 6358. | 673.8 | 2197.7 |
| | 0140 | 21 | 43. | 1.0 | 2183.3 | 1 | 0500 | 61 | 2035. | 135.7 | 2188.3 | 1 | 0820 | 101 | 6346. | 671.6 | 2197.7 |
| | 0145 | 22 | 44. | 1.0 | 2183.3 | 1 | 0505 | 62 | 2221. | 149.3 | 2188.5 | 1 | 0625 | 102 | 6326. | 667.8 | 2197.6 |
| | 0150 | 23 | 45. | 1.0 | 2183.4 | 1 | 0510 | 63 | 2407. | 162.9 | 2188.8 | 1 | 0830 | 103 | 6299. | 662.7 | 2197.6 |
| 1 | 0155 | 24 | 46. | 1.0 | 2183.4 | 1 | 0515 | 64 | 2591. | 176.4 | 2189.0 | 1 | 0835 | 104 | 6265. | 656.1 | 2197.4 |
| 1 | 0200 | 25 | 47. | 1.0 | 2183.4 | 1 | 0520 | 65 | 2775. | 189.8 | 2189.3 | 1 | 0840 | 105 | 6224. | 648.2 | 2197.3 |
| 1 | 0205 | 26 | 49. | 1.1 | 2183.4 | 1 | 0525 | 66 | 2959. | 203.3 | 2189.5 | 1 | 0845 | 106 | 6175. | 638.9 | 2197.2 |
| 1 | 0210 | 27 | 51. | 1.1 | 2183.4 | 1 | 0530 | 67 | 3145. | 216.9 | 2189.8 | 1 | 0850 | 107 | 6120. | 628.4 | 2197.0 |
| 1 | 0215 | 28 | 54. | 1.2 | 2183.4 | 1 | 0535 | 68 | 3327. | 230.9 | 2190.0 | 1 | 0855 | 108 | 6059. | 616.6 | 2196.8 |
| 1 | 0220 | 29 | 57. | 1.3 | 2183.4 | 1 | 0540 | 69 | 3460. | 245.6 | 2190.3 | 1 | 0900 | 109 | 5991. | 603.7 | 2196.6 |
| 1 | 0225 | 30 | 59. | 1.3 | 2183.5 | 1 | 0545 | 70 | 3601. | 261.3 | 2190.6 | 1 | 0905 | 110 | 5917. | 589.6 | 2196.3 |
| 1 | 0230 | 31 | 60. | 1.3 | 2183.5 | 1 | 0550 | 71 | 3750. | 277.8 | 2190.9 | 1 | 0910 | 111 | 5839. | 574.6 | 2196.1 |
| 1 | 0235 | 32 | 59. | 1.3 | 2183.5 | 1 | 0555 | 72 | 3906. | 295.2 | 2191.2 | 1 | 0915 | 112 | 5748. | 558.8 | 2195.8 |
| 1 | 0240 | 33 | 59. | 1.3 | 2183.5 | 1 | 0600 | 73 | 4068. | 313.2 | 2191.5 | 1 | 0920 | 113 | 5650. | 542.5 | 2195.5 |
| 1 | 0245 | 34 | 60. | 1.3 | 2183.5 | 1 | 0605 | 74 | 4234. | 331.5 | 2191.8 | 1 | 0925 | 114 | 5549. | 525.7 | 2195.2 |
| 1 | 0250 | 35 | 63. | 1.4 | 2183.5 | 1 | 0610 | 75 | 4383. | 350.3 | 2192.2 | 1 | 0930 | 115 | 5445. | 508.3 | 2194.9 |
| 1 | 0255 | 36 | 68. | 1.5 | 2183.5 | 1 | 0615 | 76 | 4518. | 369.4 | 2192.5 | 1 | 0935 | 116 | 5338. | 490.4 | 2194.6 |
| 1 | 0300 | 37 | 78. | 1.7 | 2183.6 | 1 | 0620 | 77 | 4656. | 388.7 | 2192.9 | 1 | 0940 | 117 | 5228. | 472.2 | 2194.3 |
| 1 | 0305 | 38 | 95. | 2.1 | 2183.8 | 1 | 0625 | 78 | 4795. | 408.3 | 2193.2 | 1 | 0945 | 118 | 5117. | 453.7 | 2194.0 |
| 1 | 0310 | 39 | 119. | 2.6 | 2183.9 | 1 | 0630 | 79 | 4934. | 427.9 | 2193.5 | 1 | 0950 | 119 | 4984. | 434.9 | 2193.7 |
| 1 | 0315 | 40 | 136. | 3.5 | 2184.0 | 1 | 0635 | 80 | 5072. | 447.3 | 2193.9 | 1 | 0955 | 120 | 4851. | 416.2 | 2193.3 |

| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | |
| | | (CFS) | | | |
| 6362. | 8.17 | 4438. | 2725. | 2725. | 2725. |
| | | (INCHES) 1.075 | 1.091 | 1.091 | 1.091 |
| | | (AC-FT) 2201. | 2233. | 2233. | 2233. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 675. | 8.17 | 412. | 251. | 251. | 251. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2197.76 | 8.17 | 2193.14 | 2189.40 | 2189.40 | 2189.40 |

CUMULATIVE AREA = 38.38 SQ MI

869 KK MCDB

876 KO OUTPUT CONTROL VARIABLES
IPRNT 1 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

872 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC -1.00 INITIAL CONDITION
X .00 WORKING R AND D COEFFICIENT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 873 SV | STORAGE | .0 | 8.0 | 40.0 | 70.0 | 100.0 | 160.0 | 210.0 | 500.0 |
| 874 SQ | DISCHARGE | 0. | 30. | 40. | 55. | 65. | 80. | 85. | 87. |
| 875 SE | ELEVATION | .00 | 2.00 | 4.00 | 6.00 | 8.00 | 12.00 | 15.00 | 16.00 |

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .83

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 38. | 32.1 | 3.5 | 1 | | 0640 | 81 | 76. | 142.4 | 10.8 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 39. | 38.2 | 3.9 | 1 | | 0645 | 82 | 75. | 141.9 | 10.8 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 43. | 45.8 | 4.4 | 1 | | 0650 | 83 | 75. | 141.4 | 10.8 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 48. | 55.1 | 5.0 | 1 | | 0655 | 84 | 75. | 140.9 | 10.7 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 53. | 65.2 | 5.7 | 1 | | 0700 | 85 | 75. | 140.3 | 10.7 |
| 1 | | 0025 | 6 | 0. | .1 | .0 | 1 | | 0345 | 46 | 57. | 74.6 | 6.3 | 1 | | 0705 | 86 | 75. | 139.8 | 10.7 |
| 1 | | 0030 | 7 | 1. | .2 | .1 | 1 | | 0350 | 47 | 59. | 82.4 | 6.8 | 1 | | 0710 | 87 | 75. | 139.3 | 10.6 |
| 1 | | 0035 | 8 | 2. | .5 | .1 | 1 | | 0355 | 48 | 61. | 88.8 | 7.3 | 1 | | 0715 | 88 | 75. | 138.8 | 10.6 |
| 1 | | 0040 | 9 | 3. | .9 | .2 | 1 | | 0400 | 49 | 63. | 94.2 | 7.6 | 1 | | 0720 | 89 | 75. | 138.3 | 10.6 |
| 1 | | 0045 | 10 | 5. | 1.3 | .3 | 1 | | 0405 | 50 | 65. | 98.7 | 7.9 | 1 | | 0725 | 90 | 74. | 137.8 | 10.5 |
| 1 | | 0050 | 11 | 6. | 1.7 | .4 | 1 | | 0410 | 51 | 66. | 102.4 | 8.2 | 1 | | 0730 | 91 | 74. | 137.3 | 10.5 |
| 1 | | 0055 | 12 | 8. | 2.1 | .5 | 1 | | 0415 | 52 | 66. | 105.2 | 8.3 | 1 | | 0735 | 92 | 74. | 136.7 | 10.4 |
| 1 | | 0100 | 13 | 9. | 2.4 | .6 | 1 | | 0420 | 53 | 67. | 107.4 | 8.5 | 1 | | 0740 | 93 | 74. | 136.2 | 10.4 |
| 1 | | 0105 | 14 | 10. | 2.7 | .7 | 1 | | 0425 | 54 | 67. | 109.3 | 8.6 | 1 | | 0745 | 94 | 74. | 135.7 | 10.4 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0110 | 15 | 11. | 3.0 | .8 | 1 | 0430 | 55 | 68. | 111.2 | 8.7 | 1 | 0750 | 95 | 74. | 135.2 | 10.3 |
| 1 | 0115 | 16 | 12. | 3.3 | .8 | 1 | 0435 | 56 | 68. | 113.3 | 8.9 | 1 | 0755 | 96 | 74. | 134.7 | 10.3 |
| 1 | 0120 | 17 | 13. | 3.5 | .9 | 1 | 0440 | 57 | 69. | 116.1 | 9.1 | 1 | 0800 | 97 | 74. | 134.2 | 10.3 |
| 1 | 0125 | 18 | 14. | 3.8 | 1.0 | 1 | 0445 | 58 | 70. | 119.7 | 9.3 | 1 | 0805 | 98 | 73. | 133.7 | 10.2 |
| 1 | 0130 | 19 | 16. | 4.2 | 1.1 | 1 | 0450 | 59 | 71. | 124.0 | 9.6 | 1 | 0810 | 99 | 73. | 133.2 | 10.2 |
| 1 | 0135 | 20 | 18. | 4.8 | 1.2 | 1 | 0455 | 60 | 72. | 128.8 | 9.9 | 1 | 0815 | 100 | 73. | 132.7 | 10.2 |
| 1 | 0140 | 21 | 20. | 5.4 | 1.4 | 1 | 0500 | 61 | 73. | 133.5 | 10.2 | 1 | 0820 | 101 | 73. | 132.2 | 10.1 |
| 1 | 0145 | 22 | 23. | 6.2 | 1.6 | 1 | 0505 | 62 | 74. | 137.6 | 10.5 | 1 | 0825 | 102 | 73. | 131.7 | 10.1 |
| 1 | 0150 | 23 | 26. | 7.0 | 1.8 | 1 | 0510 | 63 | 75. | 140.6 | 10.7 | 1 | 0830 | 103 | 73. | 131.2 | 10.1 |
| 1 | 0155 | 24 | 30. | 7.9 | 2.0 | 1 | 0515 | 64 | 76. | 142.7 | 10.8 | 1 | 0835 | 104 | 73. | 130.7 | 10.0 |
| 1 | 0200 | 25 | 30. | 8.8 | 2.0 | 1 | 0520 | 65 | 76. | 144.1 | 10.9 | 1 | 0840 | 105 | 73. | 130.2 | 10.0 |
| 1 | 0205 | 26 | 31. | 9.7 | 2.1 | 1 | 0525 | 66 | 76. | 144.9 | 11.0 | 1 | 0845 | 106 | 72. | 129.7 | 10.0 |
| 1 | 0210 | 27 | 31. | 10.8 | 2.2 | 1 | 0530 | 67 | 76. | 145.4 | 11.0 | 1 | 0850 | 107 | 72. | 129.2 | 9.9 |
| 1 | 0215 | 28 | 31. | 11.9 | 2.2 | 1 | 0535 | 68 | 76. | 145.7 | 11.0 | 1 | 0855 | 108 | 72. | 128.7 | 9.9 |
| 1 | 0220 | 29 | 32. | 12.8 | 2.3 | 1 | 0540 | 69 | 76. | 145.8 | 11.1 | 1 | 0900 | 109 | 72. | 128.2 | 9.9 |
| 1 | 0225 | 30 | 32. | 13.6 | 2.3 | 1 | 0545 | 70 | 76. | 145.8 | 11.1 | 1 | 0905 | 110 | 72. | 127.7 | 9.8 |
| 1 | 0230 | 31 | 32. | 14.1 | 2.4 | 1 | 0550 | 71 | 76. | 145.7 | 11.0 | 1 | 0910 | 111 | 72. | 127.2 | 9.8 |
| 1 | 0235 | 32 | 32. | 14.6 | 2.4 | 1 | 0555 | 72 | 76. | 145.6 | 11.0 | 1 | 0915 | 112 | 72. | 126.7 | 9.8 |
| 1 | 0240 | 33 | 32. | 15.0 | 2.4 | 1 | 0600 | 73 | 76. | 145.4 | 11.0 | 1 | 0920 | 113 | 72. | 126.2 | 9.7 |
| 1 | 0245 | 34 | 32. | 15.6 | 2.5 | 1 | 0605 | 74 | 76. | 145.2 | 11.0 | 1 | 0925 | 114 | 71. | 125.7 | 9.7 |
| 1 | 0250 | 35 | 33. | 16.2 | 2.5 | 1 | 0610 | 75 | 76. | 145.0 | 11.0 | 1 | 0930 | 115 | 71. | 125.2 | 9.7 |
| 1 | 0255 | 36 | 33. | 17.2 | 2.6 | 1 | 0615 | 76 | 76. | 144.6 | 11.0 | 1 | 0935 | 116 | 71. | 124.7 | 9.6 |
| 1 | 0300 | 37 | 33. | 18.7 | 2.7 | 1 | 0620 | 77 | 76. | 144.3 | 11.0 | 1 | 0940 | 117 | 71. | 124.2 | 9.6 |
| 1 | 0305 | 38 | 34. | 20.8 | 2.8 | 1 | 0625 | 78 | 76. | 143.8 | 10.9 | 1 | 0945 | 118 | 71. | 123.8 | 9.6 |
| 1 | 0310 | 39 | 35. | 23.6 | 3.0 | 1 | 0630 | 79 | 76. | 143.4 | 10.9 | 1 | 0950 | 119 | 71. | 123.3 | 9.6 |
| 1 | 0315 | 40 | 36. | 27.4 | 3.2 | 1 | 0635 | 80 | 76. | 142.9 | 10.9 | 1 | 0955 | 120 | 71. | 122.8 | 9.5 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 76. | 5.67 | | 73. | 53. | 53. | 53. |
| | | (INCHES) | .242 | .293 | .293 | .293 |
| | | (AC-FT) | 36. | 44. | 44. | 44. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 146. | 5.67 | | 132. | 86. | 86. | 86. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 11.05 | 5.67 | | 10.12 | 6.91 | 6.91 | 6.91 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .80

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 37. | 29.7 | 3.4 | 1 | | 0640 | 81 | 74. | 134.8 | 10.3 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 39. | 35.5 | 3.7 | 1 | | 0645 | 82 | 74. | 134.3 | 10.3 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 41. | 42.7 | 4.2 | 1 | | 0650 | 83 | 73. | 133.8 | 10.3 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 51.6 | 4.8 | 1 | | 0655 | 84 | 73. | 133.3 | 10.2 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 51. | 61.2 | 5.4 | 1 | | 0700 | 85 | 73. | 132.8 | 10.2 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 55. | 70.2 | 6.0 | 1 | | 0705 | 86 | 73. | 132.3 | 10.2 |
| 1 | | 0030 | 7 | 1. | .2 | .0 | 1 | | 0350 | 47 | 58. | 77.7 | 6.5 | 1 | | 0710 | 87 | 73. | 131.8 | 10.1 |
| 1 | | 0035 | 8 | 2. | .4 | .1 | 1 | | 0355 | 48 | 60. | 83.8 | 6.9 | 1 | | 0715 | 88 | 73. | 131.3 | 10.1 |
| 1 | | 0040 | 9 | 3. | .7 | .2 | 1 | | 0400 | 49 | 61. | 88.9 | 7.3 | 1 | | 0720 | 89 | 73. | 130.8 | 10.1 |
| 1 | | 0045 | 10 | 4. | 1.1 | .3 | 1 | | 0405 | 50 | 63. | 93.2 | 7.5 | 1 | | 0725 | 90 | 73. | 130.3 | 10.0 |
| 1 | | 0050 | 11 | 6. | 1.5 | .4 | 1 | | 0410 | 51 | 64. | 96.7 | 7.8 | 1 | | 0730 | 91 | 72. | 129.8 | 10.0 |
| 1 | | 0055 | 12 | 7. | 1.8 | .5 | 1 | | 0415 | 52 | 65. | 99.4 | 8.0 | 1 | | 0735 | 92 | 72. | 129.3 | 10.0 |
| 1 | | 0100 | 13 | 8. | 2.1 | .5 | 1 | | 0420 | 53 | 65. | 101.5 | 8.1 | 1 | | 0740 | 93 | 72. | 128.8 | 9.9 |
| 1 | | 0105 | 14 | 9. | 2.4 | .6 | 1 | | 0425 | 54 | 66. | 103.3 | 8.2 | 1 | | 0745 | 94 | 72. | 128.3 | 9.9 |
| 1 | | 0110 | 15 | 10. | 2.6 | .7 | 1 | | 0430 | 55 | 66. | 105.1 | 8.3 | 1 | | 0750 | 95 | 72. | 127.8 | 9.9 |
| 1 | | 0115 | 16 | 11. | 2.9 | .7 | 1 | | 0435 | 56 | 67. | 107.1 | 8.5 | 1 | | 0755 | 96 | 72. | 127.3 | 9.8 |
| 1 | | 0120 | 17 | 12. | 3.1 | .8 | 1 | | 0440 | 57 | 67. | 109.8 | 8.7 | 1 | | 0800 | 97 | 72. | 126.8 | 9.8 |
| 1 | | 0125 | 18 | 13. | 3.4 | .9 | 1 | | 0445 | 58 | 68. | 113.2 | 8.9 | 1 | | 0805 | 98 | 72. | 126.3 | 9.8 |
| 1 | | 0130 | 19 | 14. | 3.8 | .9 | 1 | | 0450 | 59 | 69. | 117.4 | 9.2 | 1 | | 0810 | 99 | 71. | 125.8 | 9.7 |
| 1 | | 0135 | 20 | 16. | 4.3 | 1.1 | 1 | | 0455 | 60 | 70. | 122.0 | 9.5 | 1 | | 0815 | 100 | 71. | 125.3 | 9.7 |
| 1 | | 0140 | 21 | 18. | 4.9 | 1.2 | 1 | | 0500 | 61 | 72. | 126.5 | 9.8 | 1 | | 0820 | 101 | 71. | 124.9 | 9.7 |
| 1 | | 0145 | 22 | 21. | 5.6 | 1.4 | 1 | | 0505 | 62 | 73. | 130.4 | 10.0 | 1 | | 0825 | 102 | 71. | 124.4 | 9.6 |
| 1 | | 0150 | 23 | 24. | 6.3 | 1.6 | 1 | | 0510 | 63 | 73. | 133.3 | 10.2 | 1 | | 0830 | 103 | 71. | 123.9 | 9.6 |
| 1 | | 0155 | 24 | 27. | 7.1 | 1.8 | 1 | | 0515 | 64 | 74. | 135.3 | 10.4 | 1 | | 0835 | 104 | 71. | 123.4 | 9.6 |
| 1 | | 0200 | 25 | 30. | 7.9 | 2.0 | 1 | | 0520 | 65 | 74. | 136.6 | 10.4 | 1 | | 0840 | 105 | 71. | 122.9 | 9.5 |
| 1 | | 0205 | 26 | 30. | 8.8 | 2.1 | 1 | | 0525 | 66 | 74. | 137.4 | 10.5 | 1 | | 0845 | 106 | 71. | 122.4 | 9.5 |
| 1 | | 0210 | 27 | 31. | 9.8 | 2.1 | 1 | | 0530 | 67 | 74. | 137.8 | 10.5 | 1 | | 0850 | 107 | 70. | 121.9 | 9.5 |
| 1 | | 0215 | 28 | 31. | 10.8 | 2.2 | 1 | | 0535 | 68 | 75. | 138.1 | 10.5 | 1 | | 0855 | 108 | 70. | 121.4 | 9.4 |
| 1 | | 0220 | 29 | 31. | 11.7 | 2.2 | 1 | | 0540 | 69 | 75. | 138.2 | 10.5 | 1 | | 0900 | 109 | 70. | 121.0 | 9.4 |
| 1 | | 0225 | 30 | 31. | 12.4 | 2.3 | 1 | | 0545 | 70 | 75. | 138.2 | 10.5 | 1 | | 0905 | 110 | 70. | 120.5 | 9.4 |
| 1 | | 0230 | 31 | 32. | 12.9 | 2.3 | 1 | | 0550 | 71 | 75. | 138.1 | 10.5 | 1 | | 0910 | 111 | 70. | 120.0 | 9.3 |
| 1 | | 0235 | 32 | 32. | 13.3 | 2.3 | 1 | | 0555 | 72 | 74. | 137.9 | 10.5 | 1 | | 0915 | 112 | 70. | 119.5 | 9.3 |
| 1 | | 0240 | 33 | 32. | 13.7 | 2.4 | 1 | | 0600 | 73 | 74. | 137.8 | 10.5 | 1 | | 0920 | 113 | 70. | 119.0 | 9.3 |
| 1 | | 0245 | 34 | 32. | 14.1 | 2.4 | 1 | | 0605 | 74 | 74. | 137.6 | 10.5 | 1 | | 0925 | 114 | 70. | 118.5 | 9.2 |
| 1 | | 0250 | 35 | 32. | 14.8 | 2.4 | 1 | | 0610 | 75 | 74. | 137.3 | 10.5 | 1 | | 0930 | 115 | 70. | 118.1 | 9.2 |
| 1 | | 0255 | 36 | 32. | 15.7 | 2.5 | 1 | | 0615 | 76 | 74. | 137.0 | 10.5 | 1 | | 0935 | 116 | 69. | 117.6 | 9.2 |
| 1 | | 0300 | 37 | 33. | 17.1 | 2.6 | 1 | | 0620 | 77 | 74. | 136.6 | 10.4 | 1 | | 0940 | 117 | 69. | 117.1 | 9.1 |
| 1 | | 0305 | 38 | 33. | 19.0 | 2.7 | 1 | | 0625 | 78 | 74. | 136.2 | 10.4 | 1 | | 0945 | 118 | 69. | 116.6 | 9.1 |
| 1 | | 0310 | 39 | 34. | 21.7 | 2.9 | 1 | | 0630 | 79 | 74. | 135.8 | 10.4 | 1 | | 0950 | 119 | 69. | 116.2 | 9.1 |
| 1 | | 0315 | 40 | 35. | 25.2 | 3.1 | 1 | | 0635 | 80 | 74. | 135.3 | 10.4 | 1 | | 0955 | 120 | 69. | 115.7 | 9.0 |

| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | (CFS) | | | | |
| + 75. | 5.67 | | 71. | 52. | 52. | 52. |
| | | (INCHES) | .236 | .285 | .285 | .285 |
| | | (AC-FT) | 35. | 43. | 43. | 43. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 138. | 5.67 | 125. | 81. | 81. | 81. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 10.55 | 5.67 | 9.64 | 6.58 | 6.58 | 6.58 |

CUMULATIVE AREA = 2.80 SQ MI

**********

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .76

**********

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 36. | 26.5 | 3.2 | 1 | | 0640 | 81 | 71. | 124.4 | 9.6 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 37. | 31.8 | 3.5 | 1 | | 0645 | 82 | 71. | 123.9 | 9.6 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 40. | 38.5 | 3.9 | 1 | | 0650 | 83 | 71. | 123.4 | 9.6 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 43. | 46.8 | 4.5 | 1 | | 0655 | 84 | 71. | 122.9 | 9.5 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 48. | 55.8 | 5.1 | 1 | | 0700 | 85 | 71. | 122.4 | 9.5 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 52. | 64.2 | 5.6 | 1 | | 0705 | 86 | 70. | 122.0 | 9.5 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 55. | 71.2 | 6.1 | 1 | | 0710 | 87 | 70. | 121.5 | 9.4 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 57. | 76.9 | 6.5 | 1 | | 0715 | 88 | 70. | 121.0 | 9.4 |
| 1 | | 0040 | 9 | 2. | .6 | .1 | 1 | | 0400 | 49 | 59. | 81.7 | 6.8 | 1 | | 0720 | 89 | 70. | 120.5 | 9.4 |
| 1 | | 0045 | 10 | 3. | .9 | .2 | 1 | | 0405 | 50 | 60. | 85.8 | 7.1 | 1 | | 0725 | 90 | 70. | 120.0 | 9.3 |
| 1 | | 0050 | 11 | 4. | 1.2 | .3 | 1 | | 0410 | 51 | 61. | 89.0 | 7.3 | 1 | | 0730 | 91 | 70. | 119.5 | 9.3 |
| 1 | | 0055 | 12 | 6. | 1.5 | .4 | 1 | | 0415 | 52 | 62. | 91.5 | 7.4 | 1 | | 0735 | 92 | 70. | 119.1 | 9.3 |
| 1 | | 0100 | 13 | 7. | 1.7 | .4 | 1 | | 0420 | 53 | 63. | 93.5 | 7.6 | 1 | | 0740 | 93 | 70. | 118.6 | 9.2 |
| 1 | | 0105 | 14 | 7. | 2.0 | .5 | 1 | | 0425 | 54 | 63. | 95.2 | 7.7 | 1 | | 0745 | 94 | 70. | 118.1 | 9.2 |
| 1 | | 0110 | 15 | 8. | 2.2 | .6 | 1 | | 0430 | 55 | 64. | 96.8 | 7.8 | 1 | | 0750 | 95 | 69. | 117.6 | 9.2 |
| 1 | | 0115 | 16 | 9. | 2.4 | .6 | 1 | | 0435 | 56 | 65. | 98.7 | 7.9 | 1 | | 0755 | 96 | 69. | 117.1 | 9.1 |
| 1 | | 0120 | 17 | 10. | 2.6 | .7 | 1 | | 0440 | 57 | 65. | 101.2 | 8.1 | 1 | | 0800 | 97 | 69. | 116.7 | 9.1 |
| 1 | | 0125 | 18 | 11. | 2.9 | .7 | 1 | | 0445 | 58 | 66. | 104.4 | 8.3 | 1 | | 0805 | 98 | 69. | 116.2 | 9.1 |
| 1 | | 0130 | 19 | 12. | 3.2 | .8 | 1 | | 0450 | 59 | 67. | 108.3 | 8.6 | 1 | | 0810 | 99 | 69. | 115.7 | 9.0 |
| 1 | | 0135 | 20 | 14. | 3.6 | .9 | 1 | | 0455 | 60 | 68. | 112.6 | 8.8 | 1 | | 0815 | 100 | 69. | 115.2 | 9.0 |
| 1 | | 0140 | 21 | 16. | 4.2 | 1.0 | 1 | | 0500 | 61 | 69. | 116.8 | 9.1 | 1 | | 0820 | 101 | 69. | 114.8 | 9.0 |
| 1 | | 0145 | 22 | 18. | 4.8 | 1.2 | 1 | | 0505 | 62 | 70. | 120.5 | 9.4 | 1 | | 0825 | 102 | 69. | 114.3 | 9.0 |
| 1 | | 0150 | 23 | 20. | 5.5 | 1.4 | 1 | | 0510 | 63 | 71. | 123.2 | 9.5 | 1 | | 0830 | 103 | 68. | 113.8 | 8.9 |
| 1 | | 0155 | 24 | 23. | 6.2 | 1.5 | 1 | | 0515 | 64 | 71. | 125.1 | 9.7 | 1 | | 0835 | 104 | 68. | 113.4 | 8.9 |
| 1 | | 0200 | 25 | 26. | 6.9 | 1.7 | 1 | | 0520 | 65 | 72. | 126.3 | 9.8 | 1 | | 0840 | 105 | 68. | 112.9 | 8.9 |
| 1 | | 0205 | 26 | 29. | 7.7 | 1.9 | 1 | | 0525 | 66 | 72. | 127.0 | 9.8 | 1 | | 0845 | 106 | 68. | 112.4 | 8.8 |
| 1 | | 0210 | 27 | 30. | 8.6 | 2.0 | 1 | | 0530 | 67 | 72. | 127.4 | 9.8 | 1 | | 0850 | 107 | 68. | 111.9 | 8.8 |
| 1 | | 0215 | 28 | 30. | 9.4 | 2.1 | 1 | | 0535 | 68 | 72. | 127.6 | 9.8 | 1 | | 0855 | 108 | 68. | 111.5 | 8.8 |
| 1 | | 0220 | 29 | 31. | 10.2 | 2.1 | 1 | | 0540 | 69 | 72. | 127.7 | 9.8 | 1 | | 0900 | 109 | 68. | 111.0 | 8.7 |
| 1 | | 0225 | 30 | 31. | 10.8 | 2.2 | 1 | | 0545 | 70 | 72. | 127.7 | 9.8 | 1 | | 0905 | 110 | 68. | 110.5 | 8.7 |
| 1 | | 0230 | 31 | 31. | 11.2 | 2.2 | 1 | | 0550 | 71 | 72. | 127.5 | 9.8 | 1 | | 0910 | 111 | 68. | 110.1 | 8.7 |
| 1 | | 0235 | 32 | 31. | 11.5 | 2.2 | 1 | | 0555 | 72 | 72. | 127.4 | 9.8 | 1 | | 0915 | 112 | 67. | 109.6 | 8.6 |
| 1 | | 0240 | 33 | 31. | 11.9 | 2.2 | 1 | | 0600 | 73 | 72. | 127.2 | 9.8 | 1 | | 0920 | 113 | 67. | 109.1 | 8.6 |
| 1 | | 0245 | 34 | 31. | 12.3 | 2.3 | 1 | | 0605 | 74 | 72. | 127.0 | 9.8 | 1 | | 0925 | 114 | 67. | 108.7 | 8.6 |
| 1 | | 0250 | 35 | 32. | 12.8 | 2.3 | 1 | | 0610 | 75 | 72. | 126.8 | 9.8 | 1 | | 0930 | 115 | 67. | 108.2 | 8.5 |
| 1 | | 0255 | 36 | 32. | 13.6 | 2.4 | 1 | | 0615 | 76 | 72. | 126.5 | 9.8 | 1 | | 0935 | 116 | 67. | 107.8 | 8.5 |
| 1 | | 0300 | 37 | 32. | 14.9 | 2.4 | 1 | | 0620 | 77 | 72. | 126.1 | 9.7 | 1 | | 0940 | 117 | 67. | 107.3 | 8.5 |
| 1 | | 0305 | 38 | 33. | 16.7 | 2.5 | 1 | | 0625 | 78 | 71. | 125.7 | 9.7 | 1 | | 0945 | 118 | 67. | 106.8 | 8.5 |
| 1 | | 0310 | 39 | 33. | 19.1 | 2.7 | 1 | | 0630 | 79 | 71. | 125.3 | 9.7 | 1 | | 0950 | 119 | 67. | 106.4 | 8.4 |
| 1 | | 0315 | 40 | 34. | 22.3 | 2.9 | 1 | | 0635 | 80 | 71. | 124.8 | 9.7 | 1 | | 0955 | 120 | 66. | 105.9 | 8.4 |

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| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | |
| | (CFS) | | | | |
| + 72. | 5.67 | 69. | 50. | 50. | 50. |
| | (INCHES) | .227 | .274 | .274 | .274 |
| | (AC-FT) | 34. | 41. | 41. | 41. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 128. | 5.67 | 115. | 75. | 75. | 75. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 9.85 | 5.67 | 8.98 | 6.13 | 6.13 | 6.13 |

CUMULATIVE AREA = 2.80 SQ MI

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HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .73

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 35. | 23.4 | 3.0 | 1 | | 0640 | 81 | 68. | 113.8 | 8.9 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 28.2 | 3.3 | 1 | | 0645 | 82 | 68. | 113.3 | 8.9 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 38. | 34.4 | 3.7 | 1 | | 0650 | 83 | 68. | 112.9 | 8.9 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 41. | 42.1 | 4.1 | 1 | | 0655 | 84 | 68. | 112.4 | 8.8 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 45. | 50.4 | 4.7 | 1 | | 0700 | 85 | 68. | 111.9 | 8.8 |

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 49. | 58.2 | 5.2 | 1 | | 0705 | 86 | 68. | 111.5 | 8.8 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 52. | 64.7 | 5.6 | 1 | | 0710 | 87 | 68. | 111.0 | 8.7 |
| 1 | | 0035 | 8 | 1. | .2 | .1 | 1 | | 0355 | 48 | 55. | 70.0 | 6.0 | 1 | | 0715 | 88 | 68. | 110.5 | 8.7 |
| 1 | | 0040 | 9 | 2. | .4 | .1 | 1 | | 0400 | 49 | 56. | 74.4 | 6.3 | 1 | | 0720 | 89 | 68. | 110.1 | 8.7 |
| 1 | | 0045 | 10 | 3. | .7 | .2 | 1 | | 0405 | 50 | 58. | 78.2 | 6.5 | 1 | | 0725 | 90 | 67. | 109.6 | 8.6 |
| 1 | | 0050 | 11 | 3. | .9 | .2 | 1 | | 0410 | 51 | 59. | 81.2 | 6.7 | 1 | | 0730 | 91 | 67. | 109.1 | 8.6 |
| 1 | | 0055 | 12 | 4. | 1.2 | .3 | 1 | | 0415 | 52 | 60. | 83.5 | 6.9 | 1 | | 0735 | 92 | 67. | 108.7 | 8.6 |
| 1 | | 0100 | 13 | 5. | 1.4 | .3 | 1 | | 0420 | 53 | 60. | 85.3 | 7.0 | 1 | | 0740 | 93 | 67. | 108.2 | 8.5 |
| 1 | | 0105 | 14 | 6. | 1.6 | .4 | 1 | | 0425 | 54 | 61. | 86.9 | 7.1 | 1 | | 0745 | 94 | 67. | 107.8 | 8.5 |
| 1 | | 0110 | 15 | 7. | 1.8 | .4 | 1 | | 0430 | 55 | 61. | 88.4 | 7.2 | 1 | | 0750 | 95 | 67. | 107.3 | 8.5 |
| 1 | | 0115 | 16 | 7. | 2.0 | .5 | 1 | | 0435 | 56 | 62. | 90.2 | 7.3 | 1 | | 0755 | 96 | 67. | 106.8 | 8.5 |
| 1 | | 0120 | 17 | 8. | 2.2 | .5 | 1 | | 0440 | 57 | 62. | 92.5 | 7.5 | 1 | | 0800 | 97 | 67. | 106.4 | 8.4 |
| 1 | | 0125 | 18 | 9. | 2.4 | .6 | 1 | | 0445 | 58 | 63. | 95.5 | 7.7 | 1 | | 0805 | 98 | 66. | 105.9 | 8.4 |
| 1 | | 0130 | 19 | 10. | 2.7 | .7 | 1 | | 0450 | 59 | 65. | 99.1 | 7.9 | 1 | | 0810 | 99 | 66. | 105.5 | 8.4 |
| 1 | | 0135 | 20 | 11. | 3.0 | .8 | 1 | | 0455 | 60 | 66. | 103.1 | 8.2 | 1 | | 0815 | 100 | 66. | 105.0 | 8.3 |
| 1 | | 0140 | 21 | 13. | 3.5 | .9 | 1 | | 0500 | 61 | 67. | 107.1 | 8.5 | 1 | | 0820 | 101 | 66. | 104.6 | 8.3 |
| 1 | | 0145 | 22 | 15. | 4.0 | 1.0 | 1 | | 0505 | 62 | 68. | 110.5 | 8.7 | 1 | | 0825 | 102 | 66. | 104.1 | 8.3 |
| 1 | | 0150 | 23 | 17. | 4.6 | 1.2 | 1 | | 0510 | 63 | 68. | 113.0 | 8.9 | 1 | | 0830 | 103 | 66. | 103.6 | 8.2 |
| 1 | | 0155 | 24 | 20. | 5.2 | 1.3 | 1 | | 0515 | 64 | 69. | 114.8 | 9.0 | 1 | | 0835 | 104 | 66. | 103.2 | 8.2 |
| 1 | | 0200 | 25 | 22. | 5.9 | 1.5 | 1 | | 0520 | 65 | 69. | 115.8 | 9.1 | 1 | | 0840 | 105 | 66. | 102.7 | 8.2 |
| 1 | | 0205 | 26 | 25. | 6.6 | 1.6 | 1 | | 0525 | 66 | 69. | 116.5 | 9.1 | 1 | | 0845 | 106 | 66. | 102.3 | 8.2 |
| 1 | | 0210 | 27 | 28. | 7.3 | 1.8 | 1 | | 0530 | 67 | 69. | 116.8 | 9.1 | 1 | | 0850 | 107 | 65. | 101.8 | 8.1 |
| 1 | | 0215 | 28 | 30. | 8.1 | 2.0 | 1 | | 0535 | 68 | 69. | 117.0 | 9.1 | 1 | | 0855 | 108 | 65. | 101.4 | 8.1 |
| 1 | | 0220 | 29 | 30. | 8.7 | 2.0 | 1 | | 0540 | 69 | 69. | 117.1 | 9.1 | 1 | | 0900 | 109 | 65. | 100.9 | 8.1 |
| 1 | | 0225 | 30 | 30. | 9.2 | 2.1 | 1 | | 0545 | 70 | 69. | 117.0 | 9.1 | 1 | | 0905 | 110 | 65. | 100.5 | 8.0 |
| 1 | | 0230 | 31 | 30. | 9.6 | 2.1 | 1 | | 0550 | 71 | 69. | 116.9 | 9.1 | 1 | | 0910 | 111 | 65. | 100.0 | 8.0 |
| 1 | | 0235 | 32 | 31. | 9.9 | 2.1 | 1 | | 0555 | 72 | 69. | 116.8 | 9.1 | 1 | | 0915 | 112 | 65. | 99.6 | 8.0 |
| 1 | | 0240 | 33 | 31. | 10.1 | 2.1 | 1 | | 0600 | 73 | 69. | 116.6 | 9.1 | 1 | | 0920 | 113 | 65. | 99.1 | 7.9 |
| 1 | | 0245 | 34 | 31. | 10.5 | 2.2 | 1 | | 0605 | 74 | 69. | 116.4 | 9.1 | 1 | | 0925 | 114 | 65. | 98.7 | 7.9 |
| 1 | | 0250 | 35 | 31. | 10.9 | 2.2 | 1 | | 0610 | 75 | 69. | 116.2 | 9.1 | 1 | | 0930 | 115 | 64. | 98.3 | 7.9 |
| 1 | | 0255 | 36 | 31. | 11.6 | 2.2 | 1 | | 0615 | 76 | 69. | 115.9 | 9.1 | 1 | | 0935 | 116 | 64. | 97.8 | 7.9 |
| 1 | | 0300 | 37 | 31. | 12.7 | 2.3 | 1 | | 0620 | 77 | 69. | 115.5 | 9.0 | 1 | | 0940 | 117 | 64. | 97.4 | 7.8 |
| 1 | | 0305 | 38 | 32. | 14.3 | 2.4 | 1 | | 0625 | 78 | 69. | 115.1 | 9.0 | 1 | | 0945 | 118 | 64. | 96.9 | 7.8 |
| 1 | | 0310 | 39 | 33. | 16.6 | 2.5 | 1 | | 0630 | 79 | 69. | 114.7 | 9.0 | 1 | | 0950 | 119 | 64. | 96.5 | 7.8 |
| 1 | | 0315 | 40 | 34. | 19.5 | 2.7 | 1 | | 0635 | 80 | 69. | 114.2 | 8.9 | 1 | | 0955 | 120 | 64. | 96.0 | 7.7 |

| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | |
| | | (CFS) | | | |
| 69. | 5.67 | 66. | 48. | 48. | 48. |
| | | (INCHES) .219 | .262 | .262 | .262 |
| | | (AC-FT) 33. | 39. | 39. | 39. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 117. | 5.67 | 105. | 68. | 68. | 68. |

| STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 9.14 | 5.67 | 8.32 | 5.67 | 5.67 | 5.67 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .69

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 21.1 | 2.8 | 1 | | 0640 | 81 | 66. | 106.0 | 8.4 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 25.6 | 3.1 | 1 | | 0645 | 82 | 66. | 105.5 | 8.4 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 37. | 31.4 | 3.5 | 1 | | 0650 | 83 | 66. | 105.1 | 8.3 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 40. | 38.6 | 3.9 | 1 | | 0655 | 84 | 66. | 104.6 | 8.3 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 43. | 46.4 | 4.4 | 1 | | 0700 | 85 | 66. | 104.2 | 8.3 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 47. | 53.8 | 4.9 | 1 | | 0705 | 86 | 66. | 103.7 | 8.2 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 50. | 59.9 | 5.3 | 1 | | 0710 | 87 | 66. | 103.3 | 8.2 |
| 1 | | 0035 | 8 | 1. | .2 | .0 | 1 | | 0355 | 48 | 52. | 64.9 | 5.7 | 1 | | 0715 | 88 | 66. | 102.8 | 8.2 |
| 1 | | 0040 | 9 | 1. | .3 | .1 | 1 | | 0400 | 49 | 55. | 69.1 | 5.9 | 1 | | 0720 | 89 | 66. | 102.3 | 8.2 |
| 1 | | 0045 | 10 | 2. | .5 | .1 | 1 | | 0405 | 50 | 56. | 72.6 | 6.2 | 1 | | 0725 | 90 | 65. | 101.9 | 8.1 |
| 1 | | 0050 | 11 | 3. | .7 | .2 | 1 | | 0410 | 51 | 57. | 75.5 | 6.4 | 1 | | 0730 | 91 | 65. | 101.4 | 8.1 |
| 1 | | 0055 | 12 | 4. | .9 | .2 | 1 | | 0415 | 52 | 58. | 77.6 | 6.5 | 1 | | 0735 | 92 | 65. | 101.0 | 8.1 |
| 1 | | 0100 | 13 | 4. | 1.1 | .3 | 1 | | 0420 | 53 | 58. | 79.4 | 6.6 | 1 | | 0740 | 93 | 65. | 100.5 | 8.0 |
| 1 | | 0105 | 14 | 5. | 1.3 | .3 | 1 | | 0425 | 54 | 59. | 80.8 | 6.7 | 1 | | 0745 | 94 | 65. | 100.1 | 8.0 |
| 1 | | 0110 | 15 | 6. | 1.5 | .4 | 1 | | 0430 | 55 | 59. | 82.2 | 6.8 | 1 | | 0750 | 95 | 65. | 99.7 | 8.0 |
| 1 | | 0115 | 16 | 6. | 1.7 | .4 | 1 | | 0435 | 56 | 60. | 83.9 | 6.9 | 1 | | 0755 | 96 | 65. | 99.2 | 7.9 |
| 1 | | 0120 | 17 | 7. | 1.8 | .5 | 1 | | 0440 | 57 | 60. | 86.0 | 7.1 | 1 | | 0800 | 97 | 65. | 98.8 | 7.9 |
| 1 | | 0125 | 18 | 8. | 2.0 | .5 | 1 | | 0445 | 58 | 61. | 88.9 | 7.3 | 1 | | 0805 | 98 | 64. | 98.3 | 7.9 |
| 1 | | 0130 | 19 | 9. | 2.3 | .6 | 1 | | 0450 | 59 | 62. | 92.3 | 7.5 | 1 | | 0810 | 99 | 64. | 97.9 | 7.9 |
| 1 | | 0135 | 20 | 10. | 2.6 | .7 | 1 | | 0455 | 60 | 64. | 96.1 | 7.7 | 1 | | 0815 | 100 | 64. | 97.4 | 7.8 |
| 1 | | 0140 | 21 | 11. | 3.0 | .8 | 1 | | 0500 | 61 | 65. | 99.9 | 8.0 | 1 | | 0820 | 101 | 64. | 97.0 | 7.8 |
| 1 | | 0145 | 22 | 13. | 3.5 | .9 | 1 | | 0505 | 62 | 66. | 103.1 | 8.2 | 1 | | 0825 | 102 | 64. | 96.5 | 7.8 |
| 1 | | 0150 | 23 | 15. | 4.0 | 1.0 | 1 | | 0510 | 63 | 66. | 105.5 | 8.4 | 1 | | 0830 | 103 | 64. | 96.1 | 7.7 |
| 1 | | 0155 | 24 | 17. | 4.6 | 1.1 | 1 | | 0515 | 64 | 67. | 107.1 | 8.5 | 1 | | 0835 | 104 | 64. | 95.7 | 7.7 |
| 1 | | 0200 | 25 | 19. | 5.1 | 1.3 | 1 | | 0520 | 65 | 67. | 108.1 | 8.5 | 1 | | 0840 | 105 | 63. | 95.2 | 7.7 |
| 1 | | 0205 | 26 | 22. | 5.8 | 1.4 | 1 | | 0525 | 66 | 67. | 108.7 | 8.6 | 1 | | 0845 | 106 | 63. | 94.8 | 7.7 |
| 1 | | 0210 | 27 | 24. | 6.5 | 1.6 | 1 | | 0530 | 67 | 67. | 109.0 | 8.6 | 1 | | 0850 | 107 | 63. | 94.4 | 7.6 |
| 1 | | 0215 | 28 | 27. | 7.2 | 1.8 | 1 | | 0535 | 68 | 67. | 109.2 | 8.6 | 1 | | 0855 | 108 | 63. | 93.9 | 7.6 |
| 1 | | 0220 | 29 | 29. | 7.7 | 1.9 | 1 | | 0540 | 69 | 67. | 109.2 | 8.6 | 1 | | 0900 | 109 | 63. | 93.5 | 7.6 |
| 1 | | 0225 | 30 | 30. | 8.2 | 2.0 | 1 | | 0545 | 70 | 67. | 109.1 | 8.6 | 1 | | 0905 | 110 | 63. | 93.1 | 7.5 |
| 1 | | 0230 | 31 | 30. | 8.5 | 2.0 | 1 | | 0550 | 71 | 67. | 109.0 | 8.6 | 1 | | 0910 | 111 | 63. | 92.6 | 7.5 |
| 1 | | 0235 | 32 | 30. | 8.7 | 2.0 | 1 | | 0555 | 72 | 67. | 108.9 | 8.6 | 1 | | 0915 | 112 | 62. | 92.2 | 7.5 |
| 1 | | 0240 | 33 | 30. | 8.9 | 2.1 | 1 | | 0600 | 73 | 67. | 108.7 | 8.6 | 1 | | 0920 | 113 | 62. | 91.8 | 7.5 |
| 1 | | 0245 | 34 | 30. | 9.2 | 2.1 | 1 | | 0605 | 74 | 67. | 108.5 | 8.6 | 1 | | 0925 | 114 | 62. | 91.3 | 7.4 |
| 1 | | 0250 | 35 | 30. | 9.6 | 2.1 | 1 | | 0610 | 75 | 67. | 108.3 | 8.6 | 1 | | 0930 | 115 | 62. | 90.9 | 7.4 |
| 1 | | 0255 | 36 | 31. | 10.2 | 2.1 | 1 | | 0615 | 76 | 67. | 108.0 | 8.5 | 1 | | 0935 | 116 | 62. | 90.5 | 7.4 |
| 1 | | 0300 | 37 | 31. | 11.2 | 2.2 | 1 | | 0620 | 77 | 67. | 107.6 | 8.5 | 1 | | 0940 | 117 | 62. | 90.1 | 7.3 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0305 | 38 | 31. | 12.7 | 2.3 | 1 | 0625 | 78 | 67. | 107.2 | 8.5 | 1 | 0945 | 118 | 62. | 89.6 | 7.3 |
| 1 | 0310 | 39 | 32. | 14.7 | 2.4 | 1 | 0630 | 79 | 67. | 106.8 | 8.5 | 1 | 0950 | 119 | 61. | 89.2 | 7.3 |
| 1 | 0315 | 40 | 33. | 17.5 | 2.6 | 1 | 0635 | 80 | 67. | 106.4 | 8.4 | 1 | 0955 | 120 | 61. | 88.8 | 7.3 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 67. | 5.67 | | 64. | 46. | 46. | 46. |
| | | (INCHES) | .212 | .253 | .253 | .253 |
| | | (AC-FT) | 32. | 38. | 38. | 38. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 109. | 5.67 | 97. | 63. | 63. | 63. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 8.61 | 5.67 | 7.83 | 5.33 | 5.33 | 5.33 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .64

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 33. | 17.2 | 2.6 | 1 | | 0640 | 81 | 62. | 92.1 | 7.5 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 34. | 21.2 | 2.8 | 1 | | 0645 | 82 | 62. | 91.7 | 7.4 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 36. | 26.3 | 3.1 | 1 | | 0650 | 83 | 62. | 91.2 | 7.4 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 38. | 32.6 | 3.5 | 1 | | 0655 | 84 | 62. | 90.8 | 7.4 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 40. | 39.6 | 4.0 | 1 | | 0700 | 85 | 62. | 90.4 | 7.4 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 43. | 46.1 | 4.4 | 1 | | 0705 | 86 | 62. | 90.0 | 7.3 |
| 1 | | 0030 | 7 | 0. | .0 | .0 | 1 | | 0350 | 47 | 46. | 51.5 | 4.8 | 1 | | 0710 | 87 | 62. | 89.5 | 7.3 |
| 1 | | 0035 | 8 | 0. | .1 | .0 | 1 | | 0355 | 48 | 48. | 55.9 | 5.1 | 1 | | 0715 | 88 | 61. | 89.1 | 7.3 |
| 1 | | 0040 | 9 | 1. | .2 | .0 | 1 | | 0400 | 49 | 50. | 59.7 | 5.3 | 1 | | 0720 | 89 | 61. | 88.7 | 7.2 |
| 1 | | 0045 | 10 | 1. | .3 | .1 | 1 | | 0405 | 50 | 51. | 62.8 | 5.5 | 1 | | 0725 | 90 | 61. | 88.3 | 7.2 |
| 1 | | 0050 | 11 | 2. | .5 | .1 | 1 | | 0410 | 51 | 53. | 65.4 | 5.7 | 1 | | 0730 | 91 | 61. | 87.9 | 7.2 |
| 1 | | 0055 | 12 | 2. | .6 | .2 | 1 | | 0415 | 52 | 54. | 67.3 | 5.8 | 1 | | 0735 | 92 | 61. | 87.4 | 7.2 |
| 1 | | 0100 | 13 | 3. | .8 | .2 | 1 | | 0420 | 53 | 54. | 68.8 | 5.9 | 1 | | 0740 | 93 | 61. | 87.0 | 7.1 |
| 1 | | 0105 | 14 | 3. | .9 | .2 | 1 | | 0425 | 54 | 55. | 70.0 | 6.0 | 1 | | 0745 | 94 | 61. | 86.6 | 7.1 |
| 1 | | 0110 | 15 | 4. | 1.0 | .3 | 1 | | 0430 | 55 | 55. | 71.3 | 6.1 | 1 | | 0750 | 95 | 60. | 86.2 | 7.1 |
| 1 | | 0115 | 16 | 4. | 1.2 | .3 | 1 | | 0435 | 56 | 56. | 72.7 | 6.2 | 1 | | 0755 | 96 | 60. | 85.8 | 7.1 |
| 1 | | 0120 | 17 | 5. | 1.3 | .3 | 1 | | 0440 | 57 | 57. | 74.7 | 6.3 | 1 | | 0800 | 97 | 60. | 85.4 | 7.0 |
| 1 | | 0125 | 18 | 5. | 1.5 | .4 | 1 | | 0445 | 58 | 57. | 77.2 | 6.5 | 1 | | 0805 | 98 | 60. | 84.9 | 7.0 |
| 1 | | 0130 | 19 | 6. | 1.7 | .4 | 1 | | 0450 | 59 | 58. | 80.2 | 6.7 | 1 | | 0810 | 99 | 60. | 84.5 | 7.0 |
| 1 | | 0135 | 20 | 7. | 1.9 | .5 | 1 | | 0455 | 60 | 60. | 83.7 | 6.9 | 1 | | 0815 | 100 | 60. | 84.1 | 6.9 |
| 1 | | 0140 | 21 | 8. | 2.2 | .6 | 1 | | 0500 | 61 | 61. | 87.0 | 7.1 | 1 | | 0820 | 101 | 60. | 83.7 | 6.9 |
| 1 | | 0145 | 22 | 10. | 2.6 | .7 | 1 | | 0505 | 62 | 62. | 89.9 | 7.3 | 1 | | 0825 | 102 | 59. | 83.3 | 6.9 |
| 1 | | 0150 | 23 | 11. | 3.0 | .8 | 1 | | 0510 | 63 | 62. | 92.1 | 7.5 | 1 | | 0830 | 103 | 59. | 82.9 | 6.9 |
| 1 | | 0155 | 24 | 13. | 3.4 | .9 | 1 | | 0515 | 64 | 63. | 93.5 | 7.6 | 1 | | 0835 | 104 | 59. | 82.5 | 6.8 |
| 1 | | 0200 | 25 | 15. | 3.9 | 1.0 | 1 | | 0520 | 65 | 63. | 94.4 | 7.6 | 1 | | 0840 | 105 | 59. | 82.1 | 6.8 |
| 1 | | 0205 | 26 | 17. | 4.4 | 1.1 | 1 | | 0525 | 66 | 63. | 94.9 | 7.7 | 1 | | 0845 | 106 | 59. | 81.7 | 6.8 |
| 1 | | 0210 | 27 | 19. | 5.0 | 1.2 | 1 | | 0530 | 67 | 63. | 95.1 | 7.7 | 1 | | 0850 | 107 | 59. | 81.3 | 6.8 |
| 1 | | 0215 | 28 | 21. | 5.6 | 1.4 | 1 | | 0535 | 68 | 63. | 95.2 | 7.7 | 1 | | 0855 | 108 | 59. | 80.9 | 6.7 |
| 1 | | 0220 | 29 | 23. | 6.0 | 1.5 | 1 | | 0540 | 69 | 63. | 95.2 | 7.7 | 1 | | 0900 | 109 | 58. | 80.5 | 6.7 |
| 1 | | 0225 | 30 | 24. | 6.4 | 1.6 | 1 | | 0545 | 70 | 63. | 95.1 | 7.7 | 1 | | 0905 | 110 | 58. | 80.1 | 6.7 |
| 1 | | 0230 | 31 | 25. | 6.6 | 1.7 | 1 | | 0550 | 71 | 63. | 95.0 | 7.7 | 1 | | 0910 | 111 | 58. | 79.7 | 6.6 |
| 1 | | 0235 | 32 | 26. | 6.8 | 1.7 | 1 | | 0555 | 72 | 63. | 94.9 | 7.7 | 1 | | 0915 | 112 | 58. | 79.3 | 6.6 |
| 1 | | 0240 | 33 | 26. | 7.0 | 1.7 | 1 | | 0600 | 73 | 63. | 94.7 | 7.6 | 1 | | 0920 | 113 | 58. | 78.9 | 6.6 |
| 1 | | 0245 | 34 | 27. | 7.2 | 1.8 | 1 | | 0605 | 74 | 63. | 94.5 | 7.6 | 1 | | 0925 | 114 | 58. | 78.5 | 6.6 |
| 1 | | 0250 | 35 | 28. | 7.5 | 1.9 | 1 | | 0610 | 75 | 63. | 94.3 | 7.6 | 1 | | 0930 | 115 | 58. | 78.1 | 6.5 |
| 1 | | 0255 | 36 | 30. | 8.0 | 2.0 | 1 | | 0615 | 76 | 63. | 94.0 | 7.6 | 1 | | 0935 | 116 | 58. | 77.7 | 6.5 |
| 1 | | 0300 | 37 | 30. | 8.8 | 2.1 | 1 | | 0620 | 77 | 63. | 93.7 | 7.6 | 1 | | 0940 | 117 | 57. | 77.3 | 6.5 |
| 1 | | 0305 | 38 | 31. | 10.0 | 2.1 | 1 | | 0625 | 78 | 63. | 93.3 | 7.6 | 1 | | 0945 | 118 | 57. | 76.9 | 6.5 |
| 1 | | 0310 | 39 | 31. | 11.8 | 2.2 | 1 | | 0630 | 79 | 63. | 92.9 | 7.5 | 1 | | 0950 | 119 | 57. | 76.5 | 6.4 |
| 1 | | 0315 | 40 | 32. | 14.1 | 2.4 | 1 | | 0635 | 80 | 62. | 92.5 | 7.5 | 1 | | 0955 | 120 | 57. | 76.1 | 6.4 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 63. | 5.58 | | 60. | 43. | 43. | 43. |
| | | (INCHES) | .198 | .234 | .234 | .234 |
| | | (AC-FT) | 30. | 35. | 35. | 35. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 95. | 5.58 | 84. | 54. | 54. | 54. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 7.68 | 5.58 | 6.96 | 4.72 | 4.72 | 4.72 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .58

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 32. | 13.5 | 2.3 | 1 | | 0640 | 81 | 58. | 77.6 | 6.5 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 33. | 16.9 | 2.6 | 1 | | 0645 | 82 | 57. | 77.2 | 6.5 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 34. | 21.2 | 2.8 | 1 | | 0650 | 83 | 57. | 76.8 | 6.5 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 36. | 26.6 | 3.2 | 1 | | 0655 | 84 | 57. | 76.4 | 6.4 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 38. | 32.6 | 3.5 | 1 | | 0700 | 85 | 57. | 76.0 | 6.4 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 39. | 38.2 | 3.9 | 1 | | 0705 | 86 | 57. | 75.7 | 6.4 |
| 1 | | 0030 | 7 | 0. | .0 | .0 | 1 | | 0350 | 47 | 41. | 42.9 | 4.2 | 1 | | 0710 | 87 | 57. | 75.3 | 6.4 |
| 1 | | 0035 | 8 | 0. | .0 | .0 | 1 | | 0355 | 48 | 43. | 46.7 | 4.4 | 1 | | 0715 | 88 | 57. | 74.9 | 6.3 |
| 1 | | 0040 | 9 | 0. | .1 | .0 | 1 | | 0400 | 49 | 45. | 50.0 | 4.7 | 1 | | 0720 | 89 | 56. | 74.5 | 6.3 |
| 1 | | 0045 | 10 | 1. | .1 | .0 | 1 | | 0405 | 50 | 46. | 52.7 | 4.8 | 1 | | 0725 | 90 | 56. | 74.1 | 6.3 |
| 1 | | 0050 | 11 | 1. | .2 | .1 | 1 | | 0410 | 51 | 47. | 54.9 | 5.0 | 1 | | 0730 | 91 | 56. | 73.7 | 6.2 |
| 1 | | 0055 | 12 | 1. | .3 | .1 | 1 | | 0415 | 52 | 48. | 56.5 | 5.1 | 1 | | 0735 | 92 | 56. | 73.3 | 6.2 |
| 1 | | 0100 | 13 | 2. | .4 | .1 | 1 | | 0420 | 53 | 49. | 57.8 | 5.2 | 1 | | 0740 | 93 | 56. | 72.9 | 6.2 |
| 1 | | 0105 | 14 | 2. | .5 | .1 | 1 | | 0425 | 54 | 49. | 58.9 | 5.3 | 1 | | 0745 | 94 | 56. | 72.6 | 6.2 |
| 1 | | 0110 | 15 | 2. | .6 | .2 | 1 | | 0430 | 55 | 50. | 59.9 | 5.3 | 1 | | 0750 | 95 | 56. | 72.2 | 6.1 |
| 1 | | 0115 | 16 | 3. | .7 | .2 | 1 | | 0435 | 56 | 51. | 61.2 | 5.4 | 1 | | 0755 | 96 | 56. | 71.8 | 6.1 |
| 1 | | 0120 | 17 | 3. | .8 | .2 | 1 | | 0440 | 57 | 51. | 62.8 | 5.5 | 1 | | 0800 | 97 | 55. | 71.4 | 6.1 |
| 1 | | 0125 | 18 | 3. | .9 | .2 | 1 | | 0445 | 58 | 53. | 65.0 | 5.7 | 1 | | 0805 | 98 | 55. | 71.0 | 6.1 |
| 1 | | 0130 | 19 | 4. | 1.1 | .3 | 1 | | 0450 | 59 | 54. | 67.7 | 5.8 | 1 | | 0810 | 99 | 55. | 70.6 | 6.0 |
| 1 | | 0135 | 20 | 5. | 1.3 | .3 | 1 | | 0455 | 60 | 55. | 70.7 | 6.0 | 1 | | 0815 | 100 | 55. | 70.3 | 6.0 |
| 1 | | 0140 | 21 | 6. | 1.5 | .4 | 1 | | 0500 | 61 | 56. | 73.6 | 6.2 | 1 | | 0820 | 101 | 55. | 69.9 | 6.0 |
| 1 | | 0145 | 22 | 7. | 1.8 | .5 | 1 | | 0505 | 62 | 57. | 76.2 | 6.4 | 1 | | 0825 | 102 | 55. | 69.5 | 6.0 |
| 1 | | 0150 | 23 | 8. | 2.1 | .5 | 1 | | 0510 | 63 | 58. | 78.0 | 6.5 | 1 | | 0830 | 103 | 55. | 69.1 | 5.9 |
| 1 | | 0155 | 24 | 9. | 2.4 | .6 | 1 | | 0515 | 64 | 58. | 79.2 | 6.6 | 1 | | 0835 | 104 | 54. | 68.8 | 5.9 |
| 1 | | 0200 | 25 | 10. | 2.8 | .7 | 1 | | 0520 | 65 | 58. | 80.0 | 6.7 | 1 | | 0840 | 105 | 54. | 68.4 | 5.9 |
| 1 | | 0205 | 26 | 12. | 3.2 | .8 | 1 | | 0525 | 66 | 58. | 80.4 | 6.7 | 1 | | 0845 | 106 | 54. | 68.0 | 5.9 |
| 1 | | 0210 | 27 | 13. | 3.6 | .9 | 1 | | 0530 | 67 | 59. | 80.6 | 6.7 | 1 | | 0850 | 107 | 54. | 67.6 | 5.8 |
| 1 | | 0215 | 28 | 15. | 4.0 | 1.0 | 1 | | 0535 | 68 | 59. | 80.6 | 6.7 | 1 | | 0855 | 108 | 54. | 67.3 | 5.8 |
| 1 | | 0220 | 29 | 16. | 4.4 | 1.1 | 1 | | 0540 | 69 | 59. | 80.6 | 6.7 | 1 | | 0900 | 109 | 53. | 66.9 | 5.8 |
| 1 | | 0225 | 30 | 17. | 4.7 | 1.2 | 1 | | 0545 | 70 | 58. | 80.5 | 6.7 | 1 | | 0905 | 110 | 53. | 66.5 | 5.8 |
| 1 | | 0230 | 31 | 18. | 4.9 | 1.2 | 1 | | 0550 | 71 | 58. | 80.4 | 6.7 | 1 | | 0910 | 111 | 53. | 66.2 | 5.7 |
| 1 | | 0235 | 32 | 19. | 5.0 | 1.3 | 1 | | 0555 | 72 | 58. | 80.2 | 6.7 | 1 | | 0915 | 112 | 53. | 65.8 | 5.7 |
| 1 | | 0240 | 33 | 19. | 5.2 | 1.3 | 1 | | 0600 | 73 | 58. | 80.0 | 6.7 | 1 | | 0920 | 113 | 53. | 65.4 | 5.7 |
| 1 | | 0245 | 34 | 20. | 5.4 | 1.3 | 1 | | 0605 | 74 | 58. | 79.9 | 6.7 | 1 | | 0925 | 114 | 53. | 65.1 | 5.7 |
| 1 | | 0250 | 35 | 21. | 5.6 | 1.4 | 1 | | 0610 | 75 | 58. | 79.6 | 6.6 | 1 | | 0930 | 115 | 52. | 64.7 | 5.6 |
| 1 | | 0255 | 36 | 23. | 6.0 | 1.5 | 1 | | 0615 | 76 | 58. | 79.4 | 6.6 | 1 | | 0935 | 116 | 52. | 64.3 | 5.6 |
| 1 | | 0300 | 37 | 25. | 6.7 | 1.7 | 1 | | 0620 | 77 | 58. | 79.1 | 6.6 | 1 | | 0940 | 117 | 52. | 64.0 | 5.6 |
| 1 | | 0305 | 38 | 29. | 7.7 | 1.9 | 1 | | 0625 | 78 | 58. | 78.7 | 6.6 | 1 | | 0945 | 118 | 52. | 63.6 | 5.6 |
| 1 | | 0310 | 39 | 30. | 9.0 | 2.1 | 1 | | 0630 | 79 | 58. | 78.4 | 6.6 | 1 | | 0950 | 119 | 52. | 63.3 | 5.6 |
| 1 | | 0315 | 40 | 31. | 11.0 | 2.2 | 1 | | 0635 | 80 | 58. | 78.0 | 6.5 | 1 | | 0955 | 120 | 51. | 62.9 | 5.5 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 59. | 5.58 | | 55. | 39. | 39. | 39. |
| | | (INCHES) | .182 | .212 | .212 | .212 |
| | | (AC-FT) | 27. | 32. | 32. | 32. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 81. | 5.58 | 71. | 46. | 46. | 46. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 6.71 | 5.58 | 6.05 | 4.08 | 4.08 | 4.08 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .53

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 31. | 10.8 | 2.2 | 1 | | 0640 | 81 | 53. | 66.0 | 5.7 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 32. | 13.7 | 2.4 | 1 | | 0645 | 82 | 53. | 65.6 | 5.7 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 33. | 17.4 | 2.6 | 1 | | 0650 | 83 | 53. | 65.3 | 5.7 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 34. | 22.0 | 2.9 | 1 | | 0655 | 84 | 52. | 64.9 | 5.7 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 36. | 27.2 | 3.2 | 1 | | 0700 | 85 | 52. | 64.6 | 5.6 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 38. | 32.0 | 3.5 | 1 | | 0705 | 86 | 52. | 64.2 | 5.6 |
| 1 | | 0030 | 7 | 0. | .0 | .0 | 1 | | 0350 | 47 | 39. | 36.1 | 3.8 | 1 | | 0710 | 87 | 52. | 63.8 | 5.6 |
| 1 | | 0035 | 8 | 0. | .0 | .0 | 1 | | 0355 | 48 | 40. | 39.4 | 4.0 | 1 | | 0715 | 88 | 52. | 63.5 | 5.6 |
| 1 | | 0040 | 9 | 0. | .0 | .0 | 1 | | 0400 | 49 | 41. | 42.3 | 4.2 | 1 | | 0720 | 89 | 52. | 63.1 | 5.5 |
| 1 | | 0045 | 10 | 0. | .1 | .0 | 1 | | 0405 | 50 | 42. | 44.7 | 4.3 | 1 | | 0725 | 90 | 51. | 62.8 | 5.5 |
| 1 | | 0050 | 11 | 0. | .1 | .0 | 1 | | 0410 | 51 | 43. | 46.5 | 4.4 | 1 | | 0730 | 91 | 51. | 62.4 | 5.5 |
| 1 | | 0055 | 12 | 1. | .1 | .0 | 1 | | 0415 | 52 | 44. | 48.0 | 4.5 | 1 | | 0735 | 92 | 51. | 62.1 | 5.5 |
| 1 | | 0100 | 13 | 1. | .2 | .1 | 1 | | 0420 | 53 | 45. | 49.0 | 4.6 | 1 | | 0740 | 93 | 51. | 61.7 | 5.4 |
| 1 | | 0105 | 14 | 1. | .3 | .1 | 1 | | 0425 | 54 | 45. | 50.0 | 4.7 | 1 | | 0745 | 94 | 51. | 61.4 | 5.4 |
| 1 | | 0110 | 15 | 1. | .3 | .1 | 1 | | 0430 | 55 | 45. | 50.9 | 4.7 | 1 | | 0750 | 95 | 51. | 61.0 | 5.4 |
| 1 | | 0115 | 16 | 1. | .4 | .1 | 1 | | 0435 | 56 | 46. | 51.9 | 4.8 | 1 | | 0755 | 96 | 50. | 60.7 | 5.4 |
| 1 | | 0120 | 17 | 2. | .5 | .1 | 1 | | 0440 | 57 | 47. | 53.4 | 4.9 | 1 | | 0800 | 97 | 50. | 60.3 | 5.4 |
| 1 | | 0125 | 18 | 2. | .6 | .1 | 1 | | 0445 | 58 | 48. | 55.3 | 5.0 | 1 | | 0805 | 98 | 50. | 60.0 | 5.3 |
| 1 | | 0130 | 19 | 3. | .7 | .2 | 1 | | 0450 | 59 | 49. | 57.6 | 5.2 | 1 | | 0810 | 99 | 50. | 59.6 | 5.3 |
| 1 | | 0135 | 20 | 3. | .8 | .2 | 1 | | 0455 | 60 | 50. | 60.3 | 5.4 | 1 | | 0815 | 100 | 50. | 59.3 | 5.3 |
| 1 | | 0140 | 21 | 4. | 1.0 | .3 | 1 | | 0500 | 61 | 51. | 62.9 | 5.5 | 1 | | 0820 | 101 | 49. | 59.0 | 5.3 |
| 1 | | 0145 | 22 | 5. | 1.2 | .3 | 1 | | 0505 | 62 | 53. | 65.1 | 5.7 | 1 | | 0825 | 102 | 49. | 58.6 | 5.2 |
| 1 | | 0150 | 23 | 6. | 1.5 | .4 | 1 | | 0510 | 63 | 53. | 66.7 | 5.8 | 1 | | 0830 | 103 | 49. | 58.3 | 5.2 |
| 1 | | 0155 | 24 | 7. | 1.7 | .4 | 1 | | 0515 | 64 | 54. | 67.8 | 5.9 | 1 | | 0835 | 104 | 49. | 57.9 | 5.2 |
| 1 | | 0200 | 25 | 8. | 2.0 | .5 | 1 | | 0520 | 65 | 54. | 68.4 | 5.9 | 1 | | 0840 | 105 | 49. | 57.6 | 5.2 |
| 1 | | 0205 | 26 | 9. | 2.3 | .6 | 1 | | 0525 | 66 | 54. | 68.7 | 5.9 | 1 | | 0845 | 106 | 49. | 57.3 | 5.2 |
| 1 | | 0210 | 27 | 10. | 2.6 | .7 | 1 | | 0530 | 67 | 54. | 68.8 | 5.9 | 1 | | 0850 | 107 | 48. | 56.9 | 5.1 |
| 1 | | 0215 | 28 | 11. | 3.0 | .7 | 1 | | 0535 | 68 | 54. | 68.9 | 5.9 | 1 | | 0855 | 108 | 48. | 56.6 | 5.1 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0220 | 29 | 12. | 3.2 | .8 * | 1 | 0540 | 69 | 54. | 68.8 | 5.9 * | 1 | 0900 | 109 | 48. | 56.3 | 5.1 |
| 1 | 0225 | 30 | 13. | 3.5 | .9 * | 1 | 0545 | 70 | 54. | 68.7 | 5.9 * | 1 | 0905 | 110 | 48. | 55.9 | 5.1 |
| 1 | 0230 | 31 | 14. | 3.7 | .9 * | 1 | 0550 | 71 | 54. | 68.6 | 5.9 * | 1 | 0910 | 111 | 48. | 55.6 | 5.0 |
| 1 | 0235 | 32 | 14. | 3.8 | 1.0 * | 1 | 0555 | 72 | 54. | 68.4 | 5.9 * | 1 | 0915 | 112 | 48. | 55.3 | 5.0 |
| 1 | 0240 | 33 | 15. | 3.9 | 1.0 * | 1 | 0600 | 73 | 54. | 68.3 | 5.9 * | 1 | 0920 | 113 | 47. | 54.9 | 5.0 |
| 1 | 0245 | 34 | 15. | 4.1 | 1.0 * | 1 | 0605 | 74 | 54. | 68.1 | 5.9 * | 1 | 0925 | 114 | 47. | 54.6 | 5.0 |
| | 0250 | 35 | 16. | 4.3 | 1.1 * | 1 | 0610 | 75 | 54. | 67.9 | 5.9 * | 1 | 0930 | 115 | 47. | 54.3 | 5.0 |
| | 0255 | 36 | 17. | 4.6 | 1.2 * | 1 | 0615 | 76 | 54. | 67.6 | 5.8 * | 1 | 0935 | 116 | 47. | 54.0 | 4.9 |
| 1 | 0300 | 37 | 19. | 5.2 | 1.3 * | 1 | 0620 | 77 | 54. | 67.3 | 5.8 * | 1 | 0940 | 117 | 47. | 53.6 | 4.9 |
| 1 | 0305 | 38 | 22. | 6.0 | 1.5 * | 1 | 0625 | 78 | 54. | 67.0 | 5.8 * | 1 | 0945 | 118 | 47. | 53.3 | 4.9 |
| 1 | 0310 | 39 | 27. | 7.1 | 1.8 * | 1 | 0630 | 79 | 53. | 66.7 | 5.8 * | 1 | 0950 | 119 | 47. | 53.0 | 4.9 |
| 1 | 0315 | 40 | 30. | 8.7 | 2.0 * | 1 | 0635 | 80 | 53. | 66.3 | 5.8 * | 1 | 0955 | 120 | 46. | 52.7 | 4.8 |
| | | | | | * | | | | | | * | | | | | | |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 54. | 5.58 | | 50. | 35. | 35. | 35. |
| | | (INCHES) | .166 | .191 | .191 | .191 |
| | | (AC-FT) | 25. | 29. | 29. | 29. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | | |
| 69. | 5.58 | | 60. | 38. | 38. | 38. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | | |
| 5.92 | 5.58 | | 5.34 | 3.58 | 3.58 | 3.58 |

CUMULATIVE AREA = 2.80 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

| OPERATION | STATION | AREA | PLAN | | RATIOS APPLIED TO PRECIPITATION RATIO 1 .83 | RATIO 2 .80 | RATIO 3 .76 | RATIO 4 .73 | RATIO 5 .69 | RATIO 6 .64 | RATIO 7 .58 | RATIO 8 .53 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B13A | 1.29 | 1 | FLOW | 580. | 551. | 512. | 471. | 441. | 387. | 329. | 281. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | | | | |
| | RB13A | 1.29 | 1 | FLOW | 533. | 507. | 470. | 433. | 406. | 356. | 302. | 258. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B13B | .54 | 1 | FLOW | 148. | 140. | 130. | 120. | 112. | 98. | 84. | 72. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.17 | 5.17 | 5.25 | 5.33 | 5.33 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT1 | 1.83 | 1 | FLOW | 675. | 641. | 595. | 547. | 512. | 448. | 380. | 325. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.83 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT1 | 1.83 | 1 | FLOW | 658. | 626. | 581. | 535. | 501. | 439. | 372. | 318. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B17 | .82 | 1 | FLOW | 258. | 244. | 226. | 207. | 193. | 168. | 142. | 120. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.42 | 4.42 | 4.42 | 4.42 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT2 | 2.64 | 1 | FLOW | 864. | 821. | 762. | 702. | 657. | 577. | 490. | 420. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.08 | 5.08 | 5.08 | 5.08 |
| DIVERSION TO | | | | | | | | | | | | |
| + | DVBD2 | 2.64 | 1 | FLOW | 350. | 337. | 319. | 301. | 288. | 263. | 237. | 215. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | DVBD2 | 2.64 | 1 | FLOW | 514. | 484. | 443. | 401. | 370. | 314. | 253. | 205. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.08 | 5.08 | 5.08 | 5.08 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT2 | 2.64 | 1 | FLOW | 513. | 483. | 442. | 400. | 370. | 313. | 253. | 204. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.17 | 5.17 | 5.17 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B13C | 2.01 | 1 | FLOW | 893. | 848. | 785. | 721. | 674. | 588. | 496. | 421. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT3 | 4.65 | 1 | FLOW | 1052. | 998. | 924. | 848. | 792. | 688. | 577. | 487. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| DIVERSION TO | | | | | | | | | | | | |
| + | DVBD3 | 4.65 | 1 | FLOW | 273. | 271. | 268. | 265. | 263. | 259. | 255. | 251. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| [redacted]OGRAPH AT | | | | | | | | | | | | |
| + | DVBD3 | 4.65 | 1 | FLOW | 779. | 727. | 655. | 583. | 529. | 429. | 322. | 236. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT3A | 4.65 | 1 | FLOW | 773. | 722. | 653. | 581. | 526. | 429. | 322. | 236. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVBD4 | 4.65 | 1 | FLOW | 178. | 173. | 165. | 158. | 152. | 140. | 126. | 115. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| [redacted] | DVBD4 | 4.65 | 1 | FLOW | 595. | 549. | 488. | 424. | 375. | 289. | 196. | 121. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT3B | 4.65 | 1 | FLOW | 583. | 537. | 476. | 412. | 364. | 279. | 187. | 112. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B11S | 1.12 | 1 | FLOW | 259. | 240. | 214. | 189. | 170. | 138. | 104. | 82. |
| | | | | TIME | 4.00 | 4.00 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 5.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | HYDRO1 | .63 | 1 | FLOW | 623. | 623. | 623. | 623. | 623. | 623. | 623. | 623. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT4 | 6.40 | 1 | FLOW | 1428. | 1359. | 1265. | 1171. | 1099. | 977. | 847. | 758. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT4A | 6.40 | 1 | FLOW | 1377. | 1310. | 1218. | 1126. | 1057. | 939. | 813. | 723. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVBD7 | 6.40 | 1 | FLOW | 918. | 873. | 812. | 751. | 705. | 626. | 542. | 482. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVBD7 | 6.40 | 1 | FLOW | 459. | 437. | 406. | 375. | 352. | 313. | 271. | 241. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT4B | 6.40 | 1 | FLOW | 446. | 424. | 394. | 364. | 341. | 303. | 262. | 233. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B14B | .99 | 1 | FLOW | 226. | 209. | 186. | 163. | 146. | 118. | 89. | 69. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT22W | 7.39 | 1 | FLOW | 563. | 533. | 492. | 451. | 421. | 369. | 314. | 274. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| [redacted] | D012A | 10.21 | 1 | FLOW | 2260. | 2129. | 1950. | 1770. | 1639. | 1403. | 1157. | 961. |
| | | | | TIME | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5.25 | 5.33 | 5.42 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD012A | 10.21 | 1 | FLOW | 2260. | 2129. | 1950. | 1770. | 1639. | 1403. | 1156. | 961. |
| | | | | TIME | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVI151 | 10.21 | 1 | FLOW | 1276. | 1255. | 1227. | 1198. | 1171. | 1121. | 1049. | 960. |
| | | | | TIME | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVI151 | 10.21 | 1 | FLOW | 984. | 874. | 723. | 572. | 468. | 282. | 108. | 1. |
| | | | | TIME | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RI151 | 10.21 | 1 | FLOW | 983. | 873. | 722. | 571. | 467. | 281. | 107. | 1. |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5.50 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVI152 | 10.21 | 1 | FLOW | 380. | 341. | 285. | 229. | 190. | 112. | 39. | 0. |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVI152 | 10.21 | 1 | FLOW | 604. | 532. | 437. | 342. | 277. | 169. | 68. | 1. |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5.42 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RI152 | 10.21 | 1 | FLOW | 601. | 530. | 435. | 340. | 275. | 168. | 66. | 1. |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.42 | 5.42 | 5.50 | 5.58 | 5.58 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D01 | 9.54 | 1 | FLOW | 3126. | 2950. | 2709. | 2466. | 2286. | 1962. | 1621. | 1347. |
| | | | | TIME | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD01 | 9.54 | 1 | FLOW | 2893. | 2732. | 2510. | 2286. | 2121. | 1825. | 1512. | 1263. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.25 | 5.25 | 5.25 | 5.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D005 | 2.73 | 1 | FLOW | 934. | 879. | 803. | 727. | 670. | 569. | 465. | 381. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.25 | 4.25 | 4.25 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT9 | 12.27 | 1 | FLOW | 3580. | 3384. | 3114. | 2843. | 2642. | 2280. | 1895. | 1587. |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.33 |
| [redacted]ED TO | | | | | | | | | | | | | |
| + | RD005 | 12.27 | 1 | FLOW | 3529. | 3337. | 3072. | 2803. | 2604. | 2245. | 1868. | 1565. |
| | | | | TIME | 5.42 | 5.42 | 5.42 | 5.42 | 5.42 | 5.42 | 5.50 | 5.50 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D02 | 5.91 | 1 | FLOW | 1927. | 1819. | 1671. | 1521. | 1409. | 1210. | 999. | 832. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.58 | 4.58 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | | | | | | |
| + | RD02 | 5.91 | 1 | FLOW | 1798. | 1698. | 1561. | 1423. | 1321. | 1137. | 943. | 789. |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.25 | 5.25 | 5.33 | 5.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D03 | 11.99 | 1 | FLOW | 4032. | 3806. | 3495. | 3180. | 2947. | 2528. | 2086. | 1731. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 |
| [illegible]ROGRAPH AT | | | | | | | | | | | | | |
| + | D04 | 6.95 | 1 | FLOW | 2254. | 2131. | 1960. | 1787. | 1660. | 1432. | 1190. | 995. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.58 | 4.58 | 4.58 | 4.58 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT10 | 18.94 | 1 | FLOW | 6270. | 5920. | 5438. | 4950. | 4589. | 3945. | 3266. | 2720. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT10 | 18.94 | 1 | FLOW | 5597. | 5291. | 4870. | 4443. | 4130. | 3565. | 2974. | 2504. |
| | | | | TIME | 5.42 | 5.42 | 5.42 | 5.50 | 5.50 | 5.50 | 5.67 | 5.75 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D006 | 8.52 | 1 | FLOW | 2804. | 2643. | 2421. | 2199. | 2034. | 1739. | 1428. | 1179. |
| | | | | TIME | 4.25 | 4.25 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT11 | 33.37 | 1 | FLOW | 9528. | 9015. | 8307. | 7588. | 7056. | 6096. | 5082. | 4270. |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.42 | 5.42 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT11 | 33.37 | 1 | FLOW | 9430. | 8921. | 8218. | 7506. | 6978. | 6030. | 5031. | 4225. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.58 | 5.58 | 5.58 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D2A | .99 | 1 | FLOW | 573. | 541. | 497. | 453. | 420. | 361. | 299. | 249. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT12 | 46.63 | 1 | FLOW | 13034. | 12325. | 11346. | 10363. | 9635. | 8323. | 6931. | 5819. |
| | | | | TIME | 5.42 | 5.42 | 5.42 | 5.50 | 5.50 | 5.50 | 5.50 | 5.58 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT12 | 46.63 | 1 | FLOW | 12288. | 11624. | 10708. | 9780. | 9092. | 7853. | 6548. | 5499. |
| | | | | TIME | 6.25 | 6.33 | 6.33 | 6.33 | 6.33 | 6.33 | 6.42 | 6.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D2B | 7.50 | 1 | FLOW | 1583. | 1482. | 1344. | 1207. | 1109. | 936. | 760. | 625. |
| | | | | TIME | 4.75 | 4.83 | 4.83 | 4.92 | 5.08 | 5.17 | 5.33 | 5.42 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT13 | 54.13 | 1 | FLOW | 13326. | 12595. | 11587. | 10572. | 9822. | 8471. | 7040. | 5900. |
| | | | | TIME | 6.17 | 6.17 | 6.17 | 6.25 | 6.25 | 6.25 | 6.33 | 6.33 |
| [illegible]ED TO | | | | | | | | | | | | | |
| + | RPT13 | 54.13 | 1 | FLOW | 12688. | 11992. | 11031. | 10066. | 9352. | 8065. | 6705. | 5619. |
| | | | | TIME | 7.08 | 7.08 | 7.17 | 7.17 | 7.17 | 7.17 | 7.25 | 7.25 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D06 | 11.68 | 1 | FLOW | 3284. | 3103. | 2852. | 2598. | 2410. | 2072. | 1718. | 1438. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.83 | 5.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD06 | 11.68 | 1 | FLOW | 3098. | 2929. | 2699. | 2465. | 2292. | 1981. | 1654. | 1392. |
| | | | | TIME | 5.67 | 5.67 | 5.75 | 5.75 | 5.75 | 5.83 | 5.83 | 5.92 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D3 | 6.64 | 1 | FLOW | 1056. | 981. | 883. | 790. | 722. | 601. | 477. | 380. |
| | | | | TIME | 4.83 | 5.00 | 5.33 | 5.42 | 5.42 | 5.42 | 5.50 | 5.50 |
| 4 COMBINED AT | | | | | | | | | | | | | |
| + | PT14 | 82.66 | 1 | FLOW | 15109. | 14252. | 13078. | 11900. | 11044. | 9510. | 7891. | 6600. |
| | | | | TIME | 6.75 | 6.83 | 6.83 | 6.83 | 6.92 | 6.92 | 7.00 | 7.00 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVI153 | 82.66 | 1 | FLOW | 9190. | 8562. | 7702. | 6840. | 6212. | 5088. | 4041. | 3269. |
| | | | | TIME | 6.75 | 6.83 | 6.83 | 6.83 | 6.92 | 6.92 | 7.00 | 7.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVI153 | 82.66 | 1 | FLOW | 5919. | 5690. | 5376. | 5060. | 4831. | 4422. | 3850. | 3331. |
| | | | | TIME | 6.75 | 6.83 | 6.83 | 6.83 | 6.92 | 6.92 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT14 | 82.66 | 1 | FLOW | 5894. | 5666. | 5355. | 5043. | 4812. | 4405. | 3829. | 3310. |
| | | | | TIME | 7.25 | 7.25 | 7.33 | 7.33 | 7.33 | 7.42 | 7.42 | 7.50 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D1A | 2.29 | 1 | FLOW | 770. | 725. | 665. | 603. | 558. | 476. | 391. | 324. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD1A | 2.29 | 1 | FLOW | 758. | 714. | 655. | 594. | 549. | 469. | 386. | 319. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D1B | .32 | 1 | FLOW | 89. | 84. | 77. | 70. | 65. | 56. | 46. | 38. |
| | | | | TIME | 4.50 | 4.50 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| [illegible]OMBINED AT | | | | | | | | | | | | | |
| | PT15 | 2.61 | 1 | FLOW | 846. | 798. | 731. | 663. | 613. | 525. | 431. | 357. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT15 | 2.61 | 1 | FLOW | 825. | 777. | 713. | 647. | 599. | 513. | 421. | 348. |
| | | | | TIME | 4.75 | 4.75 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 |
| HYDROGRAPH AT | | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | D1C | .56 | 1 | FLOW | 128. | 120. | 110. | 100. | 92. | 79. | 65. | 54. |
| | | | | TIME | 4.92 | 5.00 | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5.33 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT16 | 3.17 | 1 | FLOW | 951. | 897. | 822. | 746. | 690. | 590. | 484. | 399. |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 |
| [redacted]D TO | | | | | | | | | | | | | |
| + | RPT16 | 3.17 | 1 | FLOW | 936. | 883. | 809. | 734. | 679. | 580. | 476. | 393. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D1D | 1.23 | 1 | FLOW | 443. | 416. | 379. | 341. | 314. | 265. | 213. | 172. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD1D | 1.23 | 1 | FLOW | 431. | 405. | 369. | 332. | 305. | 257. | 207. | 167. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D1E | .22 | 1 | FLOW | 47. | 44. | 40. | 35. | 32. | 27. | 22. | 18. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.67 | 5.33 | 5.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D1F | .81 | 1 | FLOW | 104. | 97. | 86. | 76. | 69. | 56. | 43. | 33. |
| | | | | TIME | 5.58 | 5.58 | 5.67 | 5.67 | 5.67 | 5.67 | 5.75 | 5.83 |
| 4 COMBINED AT | | | | | | | | | | | | | |
| + | PT17 | 5.43 | 1 | FLOW | 1351. | 1274. | 1167. | 1060. | 981. | 838. | 690. | 572. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.25 | 5.25 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT17 | 5.43 | 1 | FLOW | 1315. | 1240. | 1136. | 1031. | 953. | 815. | 670. | 555. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.75 | 5.75 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B18A | 1.50 | 1 | FLOW | 162. | 150. | 133. | 116. | 104. | 82. | 61. | 45. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.33 | 5.33 | 5.33 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT18 | 89.59 | 1 | FLOW | 6565. | 6295. | 5922. | 5549. | 5274. | 4781. | 4114. | 3536. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.08 | 7.25 | 7.33 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVI154 | 89.59 | 1 | FLOW | 1301. | 1291. | 1277. | 1263. | 1252. | 1232. | 1204. | 1151. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.08 | 7.25 | 7.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVI154 | 89.59 | 1 | FLOW | 5264. | 5004. | 4646. | 4286. | 4022. | 3549. | 2910. | 2385. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.08 | 7.25 | 7.33 |
| [redacted]D TO | | | | | | | | | | | | | |
| + | RPT18 | 89.59 | 1 | FLOW | 5255. | 4995. | 4639. | 4280. | 4015. | 3541. | 2905. | 2380. |
| | | | | TIME | 7.00 | 7.08 | 7.08 | 7.08 | 7.08 | 7.17 | 7.33 | 7.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B18B | 1.92 | 1 | FLOW | 677. | 640. | 589. | 538. | 500. | 431. | 358. | 300. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVBD2 | .00 | 1 | FLOW | 350. | 337. | 319. | 301. | 286. | 263. | 237. | 215. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.08 | 5.08 | 5.08 | 5.08 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVBD2 | .00 | 1 | FLOW | 343. | 331. | 314. | 296. | 283. | 259. | 233. | 211. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.67 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT19 | 91.51 | 1 | FLOW | 5508. | 5238. | 4868. | 4496. | 4221. | 3721. | 3058. | 2519. |
| | | | | TIME | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.08 | 7.25 | 7.33 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVI155 | 91.51 | 1 | FLOW | 2974. | 2815. | 2624. | 2513. | 2416. | 2277. | 2089. | 1836. |
| | | | | TIME | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.08 | 7.25 | 7.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVI155 | 91.51 | 1 | FLOW | 2534. | 2423. | 2244. | 1983. | 1806. | 1444. | 968. | 683. |
| | | | | TIME | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.08 | 7.25 | 7.33 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT19 | 91.51 | 1 | FLOW | 2522. | 2412. | 2226. | 1967. | 1790. | 1423. | 953. | 676. |
| | | | | TIME | 7.58 | 7.58 | 7.58 | 7.67 | 7.67 | 7.75 | 7.92 | 8.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B14A | 1.35 | 1 | FLOW | 670. | 637. | 590. | 543. | 507. | 443. | 375. | 320. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RDVBD3 | .00 | 1 | FLOW | 273. | 271. | 268. | 265. | 263. | 259. | 255. | 251. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RDVBD4 | .00 | 1 | FLOW | 178. | 173. | 165. | 158. | 152. | 140. | 126. | 115. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 |
| [redacted] COMBINED AT | | | | | | | | | | | | | |
| | PT20 | .00 | 1 | FLOW | 450. | 443. | 433. | 423. | 415. | 399. | 381. | 366. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVBD4 | .00 | 1 | FLOW | 444. | 436. | 427. | 416. | 408. | 392. | 375. | 361. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.67 | 5.67 | 5.67 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT21 | 92.86 | 1 | FLOW | 2750. | 2618. | 2361. | 2075. | 1873. | 1462. | 966. | 682. |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TIME | 7.00 | 7.00 | 7.17 | 7.25 | 7.42 | 7.67 | 7.83 | 7.83 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT22 | 100.25 | 1 | FLOW | 2808. | 2668. | 2404. | 2115. | 1910. | 1496. | 1000. | 887. | 1462 |
| | | | | TIME | 6.92 | 7.00 | 7.08 | 7.25 | 7.42 | 7.67 | 7.83 | 5.00 | |
| [redacted]ED TO | | | | | | | | | | | | | |
| | RPT22 | 100.25 | 1 | FLOW | 2800. | 2658. | 2398. | 2110. | 1903. | 1487. | 994. | 874. | |
| | | | | TIME | 7.17 | 7.25 | 7.42 | 7.58 | 7.67 | 7.92 | 8.08 | 5.33 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B15B | .95 | 1 | FLOW | 199. | 186. | 168. | 149. | 136. | 113. | 90. | 72. | |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT23 | 101.20 | 1 | FLOW | 2809. | 2664. | 2402. | 2113. | 1905. | 1488. | 1063. | 940. | 1462 |
| | | | | TIME | 7.17 | 7.25 | 7.42 | 7.50 | 7.67 | 7.92 | 5.33 | 5.33 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RDVI151 | .00 | 1 | FLOW | 1276. | 1255. | 1227. | 1198. | 1171. | 1121. | 1049. | 960. | |
| | | | | TIME | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVI151 | .00 | 1 | FLOW | 1276. | 1255. | 1227. | 1198. | 1170. | 1120. | 1048. | 958. | |
| | | | | TIME | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5.42 | 5.50 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RDVI152 | .00 | 1 | FLOW | 380. | 341. | 285. | 229. | 190. | 112. | 39. | 0. | |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5.42 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVI152 | .00 | 1 | FLOW | 379. | 341. | 285. | 228. | 190. | 111. | 39. | 0. | |
| | | | | TIME | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5.42 | 5.50 | 5.50 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT24 | .00 | 1 | FLOW | 1655. | 1595. | 1511. | 1426. | 1359. | 1231. | 1087. | 959. | |
| | | | | TIME | 5.25 | 5.25 | 5.33 | 5.33 | 5.33 | 5.42 | 5.50 | 5.50 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT24 | .00 | 1 | FLOW | 1654. | 1595. | 1510. | 1426. | 1359. | 1230. | 1086. | 957. | |
| | | | | TIME | 5.33 | 5.33 | 5.42 | 5.42 | 5.42 | 5.50 | 5.58 | 5.58 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RDVI153 | .00 | 1 | FLOW | 9190. | 8562. | 7702. | 6840. | 6212. | 5088. | 4041. | 3269. | |
| | | | | TIME | 6.75 | 6.83 | 6.83 | 6.83 | 6.92 | 6.92 | 7.00 | 7.00 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVI153 | .00 | 1 | FLOW | 9169. | 8543. | 7683. | 6825. | 6197. | 5071. | 4032. | 3261. | |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.08 | 7.08 | |
| [redacted]OGRAPH AT | | | | | | | | | | | | | |
| | D009 | 3.62 | 1 | FLOW | 1626. | 1535. | 1408. | 1280. | 1185. | 1015. | 836. | 692. | |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD009 | 3.62 | 1 | FLOW | 1586. | 1496. | 1372. | 1247. | 1154. | 988. | 812. | 674. | |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.08 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D004 | 2.40 | 1 | FLOW | 1001. | 947. | 873. | 798. | 743. | 643. | 537. | 452. | |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.17 | 4.17 | 4.17 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT5 | 6.02 | 1 | FLOW | 2567. | 2426. | 2232. | 2035. | 1889. | 1626. | 1347. | 1124. | |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT5 | 6.02 | 1 | FLOW | 2262. | 2137. | 1965. | 1790. | 1661. | 1429. | 1183. | 985. | |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D08 | 11.91 | 1 | FLOW | 3172. | 3008. | 2780. | 2551. | 2381. | 2074. | 1746. | 1483. | |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.58 | 5.58 | 5.58 | 5.58 | 5.67 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT6 | 17.93 | 1 | FLOW | 4808. | 4564. | 4228. | 3885. | 3630. | 3169. | 2677. | 2281. | |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.58 | 5.58 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT6 | 17.93 | 1 | FLOW | 4692. | 4448. | 4111. | 3769. | 3515. | 3059. | 2574. | 2182. | |
| | | | | TIME | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6.17 | 6.17 | 6.17 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D010 | 10.43 | 1 | FLOW | 3045. | 2873. | 2636. | 2397. | 2220. | 1905. | 1573. | 1306. | |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.58 | 4.58 | 4.58 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D07 | 4.28 | 1 | FLOW | 1249. | 1180. | 1083. | 986. | 914. | 785. | 650. | 541. | |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.67 | 4.67 | 4.67 | |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT7 | 32.65 | 1 | FLOW | 8018. | 7594. | 7008. | 6413. | 5972. | 5180. | 4341. | 3663. | |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.58 | 5.58 | 5.58 | |
| ROUTED TO | | | | | | | | | | | | | |
| + [redacted] | RPT7 | 32.65 | 1 | FLOW | 7984. | 7562. | 6979. | 6388. | 5950. | 5158. | 4323. | 3649. | |
| | | | | TIME | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.83 | 5.83 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D012B | .57 | 1 | FLOW | 165. | 155. | 141. | 127. | 117. | 98. | 79. | 64. | |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.17 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT8 | 33.21 | 1 | FLOW | 8053. | 7625. | 7037. | 6442. | 6000. | 5202. | 4355. | 3676. | |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.83 | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIVERSION TO | | | | | | | | | | | | |
| + | DVPITT | 33.21 | 1 | FLOW | 4122. | 3866. | 3516. | 3160. | 2896. | 2442. | 1967. | 1601. |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.83 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | DVPITT | 33.21 | 1 | FLOW | 3931. | 3759. | 3522. | 3282. | 3104. | 2760. | 2387. | 2076. |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.83 |
| DIVERSION TO | | | | | | | | | | | | |
| + | DVROSE | 33.21 | 1 | FLOW | 806. | 763. | 704. | 644. | 600. | 520. | 435. | 392. |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.83 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | DVROSE | 33.21 | 1 | FLOW | 3125. | 2996. | 2818. | 2638. | 2504. | 2240. | 1952. | 1683. |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.83 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT8 | 33.21 | 1 | FLOW | 3105. | 2976. | 2799. | 2620. | 2487. | 2224. | 1938. | 1667. |
| | | | | TIME | 6.17 | 6.17 | 6.25 | 6.25 | 6.25 | 6.25 | 6.25 | 6.33 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D4A | 1.87 | 1 | FLOW | 918. | 864. | 791. | 717. | 662. | 564. | 460. | 378. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 4 COMBINED AT | | | | | | | | | | | | |
| + | PT25 | 35.09 | 1 | FLOW | 13226. | 12434. | 11340. | 10234. | 9405. | 7886. | 6470. | 5327. |
| | | | | TIME | 6.67 | 6.67 | 6.67 | 6.67 | 6.67 | 6.67 | 6.67 | 6.67 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT25 | 35.09 | 1 | FLOW | 13204. | 12412. | 11320. | 10212. | 9384. | 7872. | 6459. | 5318. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D4B | 2.03 | 1 | FLOW | 1061. | 1003. | 923. | 842. | 782. | 674. | 560. | 469. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT26 | 37.12 | 1 | FLOW | 13206. | 12414. | 11321. | 10213. | 9385. | 7873. | 6460. | 5319. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT26 | 37.12 | 1 | FLOW | 13191. | 12400. | 11308. | 10200. | 9372. | 7865. | 6452. | 5312. |
| | | | | TIME | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | RDVI154 | .00 | 1 | FLOW | 1301. | 1291. | 1277. | 1263. | 1252. | 1232. | 1204. | 1151. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.08 | 7.25 | 7.33 |
| ROUTED TO | | | | | | | | | | | | |
| | RDVI154 | .00 | 1 | FLOW | 1301. | 1291. | 1277. | 1262. | 1252. | 1232. | 1204. | 1151. |
| | | | | TIME | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 | 7.25 | 7.33 |
| ROUTED TO | | | | | | | | | | | | |
| + | RDVI154 | .00 | 1 | FLOW | 1301. | 1291. | 1277. | 1262. | 1252. | 1232. | 1204. | 1151. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.17 | 7.25 | 7.33 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 2974. | 2815. | 2624. | 2513. | 2416. | 2277. | 2089. | 1836. |
| | | | | TIME | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.08 | 7.25 | 7.33 |
| ROUTED TO | | | | | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 2973. | 2814. | 2624. | 2512. | 2415. | 2277. | 2089. | 1835. |
| | | | | TIME | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 | 7.17 | 7.33 | 7.33 |
| ROUTED TO | | | | | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 2973. | 2814. | 2624. | 2512. | 2415. | 2277. | 2089. | 1835. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.17 | 7.33 | 7.42 |
| ROUTED TO | | | | | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 2972. | 2814. | 2624. | 2512. | 2415. | 2277. | 2089. | 1834. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 | 7.17 | 7.33 | 7.42 |
| ROUTED TO | | | | | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 2972. | 2814. | 2624. | 2512. | 2415. | 2277. | 2089. | 1834. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 | 7.17 | 7.33 | 7.42 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT27 | .00 | 1 | FLOW | 4273. | 4105. | 3900. | 3774. | 3667. | 3508. | 3292. | 2985. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 | 7.17 | 7.33 | 7.42 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT27 | .00 | 1 | FLOW | 4273. | 4104. | 3900. | 3774. | 3667. | 3508. | 3292. | 2985. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 | 7.17 | 7.33 | 7.42 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT27 | .00 | 1 | FLOW | 4273. | 4104. | 3900. | 3774. | 3666. | 3508. | 3292. | 2985. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.08 | 7.08 | 7.17 | 7.33 | 7.42 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B18C | 1.26 | 1 | FLOW | 445. | 419. | 384. | 349. | 324. | 278. | 231. | 195. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| 3 COMBINED AT | | | | | | | | | | | | |
| + | PT28 | 38.38 | 1 | FLOW | 17454. | 16492. | 15202. | 13965. | 13028. | 11355. | 9693. | 8165. |
| | | | | TIME | 6.83 | 6.83 | 6.83 | 6.92 | 6.92 | 6.92 | 6.92 | 7.00 |
| ED TO | | | | | | | | | | | | |
| + | LDCDB | 38.38 | 1 | FLOW | 11587. | 11047. | 10329. | 9622. | 9107. | 8215. | 7261. | 6362. |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.25 | 8.25 | 8.17 |
| | | | | ** PEAK STAGES IN FEET ** | | | | | | | | |
| | | | 1 | STAGE | 2219.45 | 2217.11 | 2214.00 | 2210.94 | 2208.71 | 2204.85 | 2200.98 | 2197.76 |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.25 | 8.25 | 8.17 |

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| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | | | | | |
| + | RLDCDB | 38.38 | 1 | FLOW | 11586. | 11047. | 10328. | 9622. | 9107. | 8214. | 7261. | 6361. |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.25 | 8.25 | 8.17 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D5A | 1.33 | 1 | FLOW | 738. | 703. | 654. | 605. | 568. | 502. | 431. | 373. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| [redacted]TED TO | | | | | | | | | | | | |
| + | RD5A | 1.33 | 1 | FLOW | 702. | 669. | 623. | 575. | 540. | 477. | 409. | 353. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | RDVROSE | .00 | 1 | FLOW | 806. | 763. | 704. | 644. | 600. | 520. | 435. | 392. |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.83 |
| ROUTED TO | | | | | | | | | | | | |
| + | RDVROSE | .00 | 1 | FLOW | 799. | 756. | 698. | 638. | 594. | 515. | 431. | 392. |
| | | | | TIME | 6.17 | 6.17 | 6.25 | 6.25 | 6.25 | 6.25 | 6.25 | 6.33 |
| 3 COMBINED AT | | | | | | | | | | | | |
| + | PT29 | 39.70 | 1 | FLOW | 11928. | 11377. | 10643. | 9918. | 9388. | 8468. | 7484. | 6559. |
| | | | | TIME | 8.25 | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8.08 | 8.00 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT29 | 39.70 | 1 | FLOW | 11927. | 11375. | 10642. | 9918. | 9387. | 8468. | 7483. | 6559. |
| | | | | TIME | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8.08 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B16B | .70 | 1 | FLOW | 348. | 332. | 309. | 285. | 268. | 236. | 203. | 176. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| ROUTED TO | | | | | | | | | | | | |
| + | RB16B | .70 | 1 | FLOW | 344. | 327. | 305. | 282. | 264. | 235. | 202. | 175. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT30 | 40.40 | 1 | FLOW | 11927. | 11375. | 10642. | 9918. | 9387. | 8468. | 7483. | 6559. |
| | | | | TIME | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8.08 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT30 | 40.40 | 1 | FLOW | 11926. | 11375. | 10639. | 9917. | 9387. | 8467. | 7482. | 6558. |
| | | | | TIME | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8.08 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B16A | .91 | 1 | FLOW | 236. | 222. | 203. | 184. | 170. | 144. | 118. | 98. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D5B | .60 | 1 | FLOW | 242. | 231. | 216. | 201. | 190. | 170. | 148. | 131. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| [redacted]COMBINED AT | | | | | | | | | | | | |
| + | PT31 | 41.91 | 1 | FLOW | 11927. | 11376. | 10641. | 9918. | 9388. | 8468. | 7484. | 6559. |
| | | | | TIME | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8.08 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT31 | 41.91 | 1 | FLOW | 11926. | 11375. | 10640. | 9917. | 9388. | 8467. | 7483. | 6559. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT32 | 143.12 | 1 | FLOW | 14498. | 13841. | 12917. | 11946. | 11242. | 9948. | 8477. | 7274. |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.00 | 8.00 | 8.08 | 8.08 | 8.08 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT32 | 143.12 | 1 | FLOW | 14496. | 13839. | 12917. | 11944. | 11240. | 9948. | 8476. | 7273. |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.08 | 8.00 | 8.08 | 8.17 | 8.08 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | HYDRO2 | .38 | 1 | FLOW | 36. | 36. | 36. | 36. | 36. | 36. | 36. | 36. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 |
| ROUTED TO | | | | | | | | | | | | |
| + | RHYDRO2 | .38 | 1 | FLOW | 32. | 32. | 32. | 32. | 32. | 32. | 32. | 32. |
| | | | | TIME | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B12 | .97 | 1 | FLOW | 119. | 110. | 98. | 86. | 77. | 61. | 45. | 33. |
| | | | | TIME | 5.00 | 5.00 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT33W | 1.35 | 1 | FLOW | 149. | 140. | 128. | 115. | 107. | 91. | 75. | 63. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | RDVBD7 | .00 | 1 | FLOW | 918. | 873. | 812. | 751. | 705. | 626. | 542. | 482. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | | | | |
| + | RDVBD7 | .00 | 1 | FLOW | 879. | 836. | 777. | 718. | 674. | 597. | 516. | 457. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT33 | 1.35 | 1 | FLOW | 956. | 907. | 841. | 775. | 725. | 640. | 550. | 484. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| [redacted]TED TO | | | | | | | | | | | | |
| | RPT33 | 1.35 | 1 | FLOW | 929. | 881. | 815. | 750. | 702. | 618. | 530. | 464. |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B15A | .96 | 1 | FLOW | 279. | 262. | 238. | 214. | 197. | 166. | 134. | 109. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | |

7484

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | PT34W | 2.31 | 1 | FLOW | 1103. | 1046. | 968. | 889. | 831. | 729. | 622. | 541. | |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 4.92 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT34 | 145.42 | 1 | FLOW | 14573. | 13916. | 12994. | 12022. | 11318. | 10024. | 8551. | 7349. | |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.00 | 8.00 | 8.08 | 8.08 | 8.08 | |
| [redacted]ROGRAPH AT | | | | | | | | | | | | | |
| | MNWB | .44 | 1 | FLOW | 136. | 128. | 118. | 107. | 99. | 85. | 70. | 58. | |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.25 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RMNWB | .44 | 1 | FLOW | 136. | 128. | 117. | 107. | 99. | 85. | 70. | 58. | |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | MNWC | .60 | 1 | FLOW | 191. | 180. | 166. | 151. | 141. | 121. | 101. | 85. | |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT35 | 1.04 | 1 | FLOW | 324. | 306. | 281. | 256. | 238. | 205. | 169. | 141. | |
| | | | | TIME | 4.17 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT35 | 1.04 | 1 | FLOW | 324. | 306. | 281. | 256. | 237. | 203. | 169. | 141. | |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.33 | 4.33 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | MNWD | .08 | 1 | FLOW | 39. | 37. | 34. | 31. | 29. | 25. | 21. | 18. | |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT36 | 1.12 | 1 | FLOW | 340. | 321. | 295. | 269. | 250. | 215. | 178. | 148. | |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT36 | 1.12 | 1 | FLOW | 333. | 315. | 289. | 263. | 244. | 210. | 174. | 145. | |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | MC2 | .92 | 1 | FLOW | 218. | 206. | 190. | 173. | 161. | 140. | 118. | 101. | |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT37 | 2.03 | 1 | FLOW | 548. | 518. | 476. | 434. | 403. | 347. | 289. | 244. | |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT37 | 2.03 | 1 | FLOW | 548. | 518. | 476. | 434. | 403. | 347. | 289. | 243. | |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | |
| [redacted]ROGRAPH AT | | | | | | | | | | | | | |
| | B10A | 1.60 | 1 | FLOW | 776. | 735. | 678. | 621. | 579. | 504. | 427. | 366. | |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT38 | 3.64 | 1 | FLOW | 917. | 866. | 795. | 725. | 678. | 594. | 504. | 433. | |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 4.83 | 4.83 | 4.83 | 4.92 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT38 | 3.64 | 1 | FLOW | 907. | 851. | 784. | 721. | 674. | 591. | 502. | 430. | |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT39 | 149.06 | 1 | FLOW | 14586. | 13929. | 13007. | 12036. | 11334. | 10036. | 8562. | 7358. | |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.00 | 8.00 | 8.00 | 8.08 | 8.08 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT39 | 149.06 | 1 | FLOW | 14583. | 13926. | 13007. | 12034. | 11331. | 10036. | 8560. | 7358. | 8562 |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.08 | 8.00 | 8.08 | 8.17 | 8.08 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D6 | 1.56 | 1 | FLOW | 655. | 624. | 582. | 539. | 507. | 451. | 390. | 342. | |
| | | | | TIME | 3.83 | 3.83 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT40 | 150.62 | 1 | FLOW | 14584. | 13926. | 13007. | 12034. | 11331. | 10036. | 8560. | 7358. | |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.08 | 8.00 | 8.08 | 8.17 | 8.08 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT40 | 150.62 | 1 | FLOW | 14580. | 13922. | 13002. | 12029. | 11327. | 10032. | 8557. | 7356. | |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.08 | 8.17 | 8.25 | 8.17 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D7 | .85 | 1 | FLOW | 231. | 218. | 200. | 182. | 169. | 145. | 121. | 102. | |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT41 | 151.47 | 1 | FLOW | 14581. | 13923. | 13003. | 12030. | 11328. | 10033. | 8557. | 7356. | 8562 |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.08 | 8.17 | 8.25 | 8.17 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT41 | 151.47 | 1 | FLOW | 14578. | 13920. | 13001. | 12030. | 11327. | 10032. | 8557. | 7355. | |
| | | | | TIME | 8.25 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.25 | 8.17 | |
| [redacted]DROGRAPH AT | | | | | | | | | | | | | |
| | D8 | 1.26 | 1 | FLOW | 661. | 627. | 581. | 534. | 500. | 439. | 374. | 323. | |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD8 | 1.26 | 1 | FLOW | 626. | 595. | 551. | 507. | 474. | 416. | 355. | 306. | |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT42 | 152.73 | 1 | FLOW | 14578. | 13920. | 13001. | 12030. | 11327. | 10032. | 8557. | 7355. | 8562 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TIME | 8.25 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.25 | 8.17 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT42 | 152.73 | 1 | FLOW | 14578. | 13920. | 12999. | 12028. | 11326. | 10030. | 8556. | 7354. |
| | | | | TIME | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 | 8.17 | 8.25 | 8.25 |
| [redacted]ROGRAPH AT | | | | | | | | | | | | |
| | B10B | .85 | 1 | FLOW | 284. | 271. | 252. | 233. | 220. | 195. | 170. | 149. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | | | | |
| + | RB10B | .85 | 1 | FLOW | 270. | 257. | 239. | 221. | 208. | 185. | 161. | 142. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D9A | .86 | 1 | FLOW | 133. | 124. | 112. | 100. | 92. | 77. | 63. | 52. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 5.42 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT43 | 1.71 | 1 | FLOW | 402. | 381. | 351. | 321. | 300. | 262. | 223. | 193. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT43 | 1.71 | 1 | FLOW | 402. | 381. | 351. | 321. | 300. | 262. | 223. | 193. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT44 | 154.44 | 1 | FLOW | 14590. | 13931. | 13011. | 12039. | 11336. | 10039. | 8563. | 7359. |
| | | | | TIME | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 | 8.17 | 8.25 | 8.25 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT44 | 154.44 | 1 | FLOW | 14581. | 13922. | 12999. | 12028. | 11326. | 10029. | 8555. | 7355. |
| | | | | TIME | 8.33 | 8.33 | 8.25 | 8.25 | 8.25 | 8.33 | 8.33 | 8.33 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D9B | 1.54 | 1 | FLOW | 518. | 487. | 445. | 402. | 371. | 316. | 258. | 213. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT45 | 155.99 | 1 | FLOW | 14581. | 13922. | 12999. | 12028. | 11326. | 10029. | 8555. | 7355. |
| | | | | TIME | 8.33 | 8.33 | 8.25 | 8.25 | 8.25 | 8.33 | 8.33 | 8.33 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT45 | 155.99 | 1 | FLOW | 14570. | 13911. | 12987. | 12016. | 11313. | 10019. | 8546. | 7349. |
| | | | | TIME | 8.50 | 8.50 | 8.50 | 8.50 | 8.42 | 8.50 | 8.58 | 8.50 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D10 | 2.51 | 1 | FLOW | 1032. | 980. | 908. | 836. | 783. | 687. | 586. | 506. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| [redacted]COMBINED AT | | | | | | | | | | | | |
| | PT46 | 158.49 | 1 | FLOW | 14570. | 13911. | 12987. | 12016. | 11313. | 10019. | 8546. | 7349. |
| | | | | TIME | 8.50 | 8.50 | 8.50 | 8.50 | 8.42 | 8.50 | 8.58 | 8.50 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT46 | 158.49 | 1 | FLOW | 14568. | 13909. | 12986. | 12015. | 11313. | 10018. | 8546. | 7348. |
| | | | | TIME | 8.50 | 8.50 | 8.50 | 8.50 | 8.50 | 8.50 | 8.58 | 8.50 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | MC | 2.80 | 1 | FLOW | 1911. | 1824. | 1704. | 1582. | 1490. | 1323. | 1142. | 993. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| DIVERSION TO | | | | | | | | | | | | |
| + | TORAW | 2.80 | 1 | FLOW | 382. | 365. | 341. | 316. | 298. | 265. | 228. | 199. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | TORAW | 2.80 | 1 | FLOW | 1528. | 1459. | 1364. | 1265. | 1192. | 1058. | 913. | 794. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | | | | | |
| + | MCDB | 2.80 | 1 | FLOW | 76. | 75. | 72. | 69. | 67. | 63. | 59. | 54. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.58 | 5.58 | 5.58 |
| | | | ** PEAK STAGES IN FEET ** | | | | | | | | | |
| | | | 1 | STAGE | 11.05 | 10.55 | 9.85 | 9.14 | 8.61 | 7.68 | 6.71 | 5.92 |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.58 | 5.58 | 5.58 |
| ROUTED TO | | | | | | | | | | | | |
| + | RMCDB | 2.80 | 1 | FLOW | 76. | 75. | 72. | 69. | 67. | 63. | 59. | 54. |
| | | | | TIME | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.67 | 5.67 | 5.67 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | RTORAW | .00 | 1 | FLOW | 382. | 365. | 341. | 316. | 298. | 265. | 228. | 199. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT47 | 2.80 | 1 | FLOW | 430. | 411. | 384. | 357. | 338. | 302. | 264. | 233. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT47 | 2.80 | 1 | FLOW | 434. | 414. | 386. | 358. | 337. | 302. | 266. | 236. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.92 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + [redacted] | RH | 1.36 | 1 | FLOW | 288. | 263. | 231. | 199. | 176. | 136. | 107. | 85. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 5.00 | 5.00 |
| [redacted]2 COMBINED AT | | | | | | | | | | | | |
| + | PT48W | 4.16 | 1 | FLOW | 712. | 669. | 611. | 552. | 509. | 433. | 360. | 304. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B20 | .79 | 1 | FLOW | 228. | 215. | 197. | 178. | 165. | 140. | 115. | 95. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |

8562

8562

8562

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | | | | | | |
| + | RB20 | .79 | 1 | FLOW | 227. | 214. | 196. | 178. | 164. | 140. | 115. | 95. | |
| | | | | TIME | 4.17 | 4.17 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | |
| 3 COMBINED AT | | | | | | | | | | | | | |
| | PT48 | 163.44 | 1 | FLOW | 14642. | 13981. | 13055. | 12082. | 11378. | 10078. | 8602. | 7398. | 8562 |
| | | | | TIME | 8.50 | 8.50 | 8.50 | 8.50 | 8.50 | 8.50 | 8.58 | 8.50 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT48 | 163.44 | 1 | FLOW | 14640. | 13978. | 13051. | 12078. | 11374. | 10075. | 8599. | 7397. | |
| | | | | TIME | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.67 | 8.58 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D12 | .18 | 1 | FLOW | 39. | 36. | 33. | 29. | 26. | 22. | 17. | 14. | |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.25 | 4.25 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD12 | .18 | 1 | FLOW | 39. | 36. | 33. | 29. | 26. | 22. | 17. | 14. | |
| | | | | TIME | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 | 4.50 | 4.58 | 4.67 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D11A | .16 | 1 | FLOW | 67. | 63. | 56. | 50. | 46. | 37. | 29. | 23. | |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT49 | .33 | 1 | FLOW | 72. | 68. | 62. | 56. | 52. | 44. | 36. | 30. | |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT49 | .33 | 1 | FLOW | 71. | 67. | 61. | 55. | 51. | 44. | 36. | 29. | |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.08 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT50 | 163.78 | 1 | FLOW | 14641. | 13979. | 13052. | 12079. | 11375. | 10076. | 8599. | 7398. | 8562 |
| | | | | TIME | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.67 | 8.58 | |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT50 | 163.78 | 1 | FLOW | 14637. | 13975. | 13048. | 12076. | 11373. | 10076. | 8599. | 7397. | |
| | | | | TIME | 8.67 | 8.67 | 8.58 | 8.58 | 8.58 | 8.67 | 8.67 | 8.67 | |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D11B | .99 | 1 | FLOW | 504. | 476. | 437. | 397. | 368. | 316. | 261. | 218. | |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT51 | 164.76 | 1 | FLOW | 14637. | 13975. | 13048. | 12076. | 11373. | 10076. | 8599. | 7397. | 8562 |
| | | | | TIME | 8.67 | 8.67 | 8.58 | 8.58 | 8.58 | 8.67 | 8.67 | 8.67 | |

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

| ISTAQ | ELEMENT | DT | PEAK | TIME TO PEAK | VOLUME | INTERPOLATED TO COMPUTATION INTERVAL DT | PEAK | TIME TO PEAK | VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| | | (MIN) | (CFS) | (MIN) | (IN) | (MIN) | (CFS) | (MIN) | (IN) |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.57 | 513.74 | 306.00 | .66 | 5.00 | 513.39 | 305.00 | .66 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9296E+02 EXCESS= .0000E+00 OUTFLOW= .9298E+02 BASIN STORAGE= .3577E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.66 | 483.39 | 303.03 | .62 | 5.00 | 483.38 | 305.00 | .62 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8677E+02 EXCESS= .0000E+00 OUTFLOW= .8679E+02 BASIN STORAGE= .4353E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.81 | 442.44 | 307.67 | .56 | 5.00 | 442.12 | 305.00 | .56 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7833E+02 EXCESS= .0000E+00 OUTFLOW= .7836E+02 BASIN STORAGE= .3619E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.98 | 400.54 | 308.48 | .50 | 5.00 | 400.28 | 305.00 | .50 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6987E+02 EXCESS= .0000E+00 OUTFLOW= .6990E+02 BASIN STORAGE= .3813E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 5.00 | 369.94 | 305.00 | .45 | 5.00 | 369.94 | 305.00 | .45 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6367E+02 EXCESS= .0000E+00 OUTFLOW= .6370E+02 BASIN STORAGE= .3740E-02 PERCENT ERROR= -.1

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.75 | 313.26 | 308.75 | .37 | 5.00 | 312.61 | 310.00 | .37 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5263E+02 EXCESS= .0000E+00 OUTFLOW= .5266E+02 BASIN STORAGE= .3643E-02 PERCENT ERROR= -.1

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.25 | 252.88 | 310.25 | .29 | 5.00 | 252.85 | 310.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4109E+02 EXCESS= .0000E+00 OUTFLOW= .4112E+02 BASIN STORAGE= .3370E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT2 | MANE | 3.75 | 204.53 | 311.25 | .23 | 5.00 | 204.46 | 310.00 | .23 |

TINUITY SUMMARY (AC-FT) - INFLOW= .3200E+02 EXCESS= .0000E+00 OUTFLOW= .3202E+02 BASIN STORAGE= .3489E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.38 | 776.46 | 308.81 | .52 | 5.00 | 773.44 | 310.00 | .52 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1299E+03 EXCESS= .0000E+00 OUTFLOW= .1299E+03 BASIN STORAGE= .2096E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.43 | 724.62 | 308.93 | .48 | 5.00 | 721.99 | 310.00 | .48 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1191E+03 EXCESS= .0000E+00 OUTFLOW= .1191E+03 BASIN STORAGE= .2715E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.52 | 653.94 | 307.53 | .42 | 5.00 | 653.06 | 310.00 | .42 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1044E+03 EXCESS= .0000E+00 OUTFLOW= .1044E+03 BASIN STORAGE= .2081E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.50 | 581.15 | 307.50 | .36 | 5.00 | 581.10 | 310.00 | .36 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8961E+02 EXCESS= .0000E+00 OUTFLOW= .8964E+02 BASIN STORAGE= .2347E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.71 | 527.57 | 309.35 | .32 | 5.00 | 526.42 | 310.00 | .32 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7893E+02 EXCESS= .0000E+00 OUTFLOW= .7895E+02 BASIN STORAGE= .2328E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.50 | 429.06 | 310.00 | .24 | 5.00 | 429.06 | 310.00 | .24 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5990E+02 EXCESS= .0000E+00 OUTFLOW= .5993E+02 BASIN STORAGE= .2076E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.25 | 322.16 | 310.50 | .16 | 5.00 | 322.01 | 310.00 | .16 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4055E+02 EXCESS= .0000E+00 OUTFLOW= .4055E+02 BASIN STORAGE= .2685E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.25 | 236.32 | 310.50 | .11 | 5.00 | 236.02 | 310.00 | .11 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2605E+02 EXCESS= .0000E+00 OUTFLOW= .2607E+02 BASIN STORAGE= .2439E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.48 | 2260.12 | 306.05 | 1.02 | 5.00 | 2260.09 | 305.00 | 1.02 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5551E+03 EXCESS= .0000E+00 OUTFLOW= .5550E+03 BASIN STORAGE= .2618E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.51 | 2129.13 | 307.49 | .96 | 5.00 | 2128.77 | 305.00 | .96 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5217E+03 EXCESS= .0000E+00 OUTFLOW= .5215E+03 BASIN STORAGE= .2548E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.55 | 1950.06 | 311.70 | .87 | 5.00 | 1949.96 | 310.00 | .87 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4759E+03 EXCESS= .0000E+00 OUTFLOW= .4758E+03 BASIN STORAGE= .2423E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.60 | 1770.40 | 313.61 | .79 | 5.00 | 1770.34 | 315.00 | .79 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4301E+03 EXCESS= .0000E+00 OUTFLOW= .4299E+03 BASIN STORAGE= .2303E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.64 | 1638.72 | 316.61 | .73 | 5.00 | 1638.61 | 315.00 | .73 |

INUITY SUMMARY (AC-FT) - INFLOW= .3964E+03 EXCESS= .0000E+00 OUTFLOW= .3963E+03 BASIN STORAGE= .2197E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.73 | 1403.14 | 317.41 | .62 | 5.00 | 1402.58 | 320.00 | .62 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3367E+03 EXCESS= .0000E+00 OUTFLOW= .3366E+03 BASIN STORAGE= .2025E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.84 | 1156.79 | 321.31 | .50 | 5.00 | 1156.42 | 320.00 | .50 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2747E+03 EXCESS= .0000E+00 OUTFLOW= .2746E+03 BASIN STORAGE= .1777E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.95 | 961.15 | 323.63 | .41 | 5.00 | 961.12 | 325.00 | .41 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2259E+03 EXCESS= .0000E+00 OUTFLOW= .2258E+03 BASIN STORAGE= .1608E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.64 | 1301.16 | 417.91 | -1.00 | 5.00 | 1301.12 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.65 | 1290.94 | 419.04 | -1.00 | 5.00 | 1290.91 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.66 | 1276.77 | 420.64 | -1.00 | 5.00 | 1276.77 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.67 | 1262.48 | 419.60 | -1.00 | 5.00 | 1262.47 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.68 | 1251.97 | 420.81 | -1.00 | 5.00 | 1251.93 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.70 | 1231.74 | 425.87 | -1.00 | 5.00 | 1231.69 | 425.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.72 | 1203.64 | 434.70 | -1.00 | 5.00 | 1203.64 | 435.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.76 | 1151.04 | 441.44 | -1.00 | 5.00 | 1151.02 | 440.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .79 | 1301.12 | 416.32 | -1.00 | 5.00 | 1301.10 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .80 | 1290.90 | 420.03 | -1.00 | 5.00 | 1290.90 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .80 | 1276.75 | 420.29 | -1.00 | 5.00 | 1276.74 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .80 | 1262.46 | 420.57 | -1.00 | 5.00 | 1262.44 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .81 | 1251.93 | 421.18 | -1.00 | 5.00 | 1251.88 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .81 | 1231.69 | 426.37 | -1.00 | 5.00 | 1231.65 | 430.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .82 | 1203.62 | 436.05 | -1.00 | 5.00 | 1203.56 | 435.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .83 | 1150.99 | 440.58 | -1.00 | 5.00 | 1150.96 | 440.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | 1.46 | 2973.79 | 417.19 | -1.00 | 5.00 | 2972.91 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | 1.49 | 2814.95 | 416.92 | -1.00 | 5.00 | 2814.29 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00
RDVI155 MANE 1.52 2624.17 420.02 -1.00 5.00 2624.17 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE 1.54 2512.50 421.09 -1.00 5.00 2512.35 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE 1.56 2415.66 421.58 -1.00 5.00 2415.27 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE 1.59 2277.15 427.79 -1.00 5.00 2277.06 430.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE 1.63 2089.31 437.73 -1.00 5.00 2088.92 440.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE 1.70 1836.00 442.03 -1.00 5.00 1835.64 440.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .81 2972.91 416.28 -1.00 5.00 2972.50 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .83 2814.18 419.71 -1.00 5.00 2814.15 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .85 2624.07 420.56 -1.00 5.00 2624.01 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .87 2512.26 421.01 -1.00 5.00 2512.07 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .88 2415.22 421.54 -1.00 5.00 2414.85 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .90 2276.98 430.70 -1.00 5.00 2276.94 430.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .93 2088.90 439.29 -1.00 5.00 2088.68 440.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .98 1835.04 441.05 -1.00 5.00 1834.57 445.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .53 2972.46 420.02 -1.00 5.00 2972.46 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .54 2814.01 420.20 -1.00 5.00 2813.98 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .55 2623.93 420.53 -1.00 5.00 2623.89 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .56 2512.01 420.63 -1.00 5.00 2511.85 420.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .57 2414.86 421.04 -1.00 5.00 2414.81 425.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .58 2276.87 430.48 -1.00 5.00 2276.83 430.00 -1.00

FOR PLAN = 1 RATIO= .00
RDVI155 MANE .60 2088.83 440.14 -1.00 5.00 2088.82 440.00 -1.00

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .64 | 1834.49 | 445.13 | -1.00 | 5.00 | 1834.48 | 445.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .55 | 2972.36 | 420.09 | -1.00 | 5.00 | 2972.34 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .56 | 2813.84 | 420.39 | -1.00 | 5.00 | 2813.77 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .58 | 2623.81 | 420.73 | -1.00 | 5.00 | 2623.72 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .59 | 2511.79 | 421.06 | -1.00 | 5.00 | 2511.59 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .60 | 2414.77 | 424.75 | -1.00 | 5.00 | 2414.76 | 425.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .61 | 2276.79 | 430.57 | -1.00 | 5.00 | 2276.70 | 430.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .63 | 2088.75 | 440.60 | -1.00 | 5.00 | 2088.74 | 440.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .67 | 1834.34 | 445.36 | -1.00 | 5.00 | 1834.32 | 445.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .67 | 4273.25 | 420.32 | -1.00 | 5.00 | 4273.21 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .68 | 4104.46 | 420.37 | -1.00 | 5.00 | 4104.33 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .69 | 3900.40 | 420.73 | -1.00 | 5.00 | 3900.24 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .70 | 3774.00 | 420.70 | -1.00 | 5.00 | 3773.67 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .71 | 3666.57 | 424.88 | -1.00 | 5.00 | 3666.56 | 425.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .72 | 3508.24 | 431.00 | -1.00 | 5.00 | 3508.14 | 430.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .74 | 3292.01 | 440.63 | -1.00 | 5.00 | 3292.00 | 440.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .77 | 2984.76 | 445.15 | -1.00 | 5.00 | 2984.73 | 445.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .31 | 4273.08 | 420.08 | -1.00 | 5.00 | 4273.06 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .32 | 4104.16 | 420.20 | -1.00 | 5.00 | 4104.12 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .33 | 3900.15 | 420.38 | -1.00 | 5.00 | 3900.09 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .33 | 3773.64 | 421.02 | -1.00 | 5.00 | 3773.57 | 425.00 | -1.00 |

FOR PLAN = 1 RATIO= .00
RPT27 MANE .33 3666.49 424.90 -1.00 5.00 3666.49 425.00 -1.00

FOR PLAN = 1 RATIO= .00
RPT27 MANE .34 3508.06 430.42 -1.00 5.00 3508.02 430.00 -1.00

FOR PLAN = 1 RATIO= .00
RPT27 MANE .35 3291.91 440.13 -1.00 5.00 3291.90 440.00 -1.00

FOR PLAN = 1 RATIO= .00
RPT27 MANE .36 2984.60 445.02 -1.00 5.00 2984.59 445.00 -1.00

FOR PLAN = 1 RATIO= .00
RLDCDB MANE .64 11586.40 500.36 2.10 5.00 11586.19 500.00 2.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4321E+04 EXCESS= .0000E+00 OUTFLOW= .4311E+04 BASIN STORAGE= .1133E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RLDCDB MANE .65 11046.81 500.17 2.00 5.00 11046.70 500.00 2.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4113E+04 EXCESS= .0000E+00 OUTFLOW= .4104E+04 BASIN STORAGE= .1101E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RLDCDB MANE .67 10328.23 500.11 1.87 5.00 10328.17 500.00 1.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3845E+04 EXCESS= .0000E+00 OUTFLOW= .3836E+04 BASIN STORAGE= .1055E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RLDCDB MANE .68 9621.79 499.71 1.74 5.00 9621.77 500.00 1.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3575E+04 EXCESS= .0000E+00 OUTFLOW= .3566E+04 BASIN STORAGE= .1009E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RLDCDB MANE .70 9106.70 499.52 1.64 5.00 9106.70 500.00 1.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3371E+04 EXCESS= .0000E+00 OUTFLOW= .3362E+04 BASIN STORAGE= .9733E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RLDCDB MANE .72 8215.04 495.73 1.46 5.00 8214.49 495.00 1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3005E+04 EXCESS= .0000E+00 OUTFLOW= .2997E+04 BASIN STORAGE= .9004E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RLDCDB MANE .76 7260.61 495.38 1.27 5.00 7260.61 495.00 1.27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2601E+04 EXCESS= .0000E+00 OUTFLOW= .2594E+04 BASIN STORAGE= .8112E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RLDCDB MANE .80 6361.41 490.72 1.09 5.00 6361.22 490.00 1.09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2231E+04 EXCESS= .0000E+00 OUTFLOW= .2225E+04 BASIN STORAGE= .7256E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT29 MANE .75 11927.42 495.04 2.18 5.00 11927.41 495.00 2.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4644E+04 EXCESS= .0000E+00 OUTFLOW= .4631E+04 BASIN STORAGE= .1356E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT29 MANE .76 11376.49 491.54 2.08 5.00 11375.37 495.00 2.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4423E+04 EXCESS= .0000E+00 OUTFLOW= .4410E+04 BASIN STORAGE= .1317E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT29 MANE .78 10642.43 490.49 1.94 5.00 10641.92 490.00 1.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4127E+04 EXCESS= .0000E+00 OUTFLOW= .4115E+04 BASIN STORAGE= .1263E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT29 MANE .80 9917.90 490.58 1.80 5.00 9917.88 490.00 1.80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3828E+04 EXCESS= .0000E+00 OUTFLOW= .3816E+04 BASIN STORAGE= .1208E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .82 | 9387.95 | 485.88 | 1.70 | 5.00 | 9387.24 | 490.00 | 1.70 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3609E+04 EXCESS= .0000E+00 OUTFLOW= .3598E+04 BASIN STORAGE= .1166E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .85 | 8468.05 | 486.00 | 1.51 | 5.00 | 8467.80 | 485.00 | 1.52 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3215E+04 EXCESS= .0000E+00 OUTFLOW= .3205E+04 BASIN STORAGE= .1079E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .89 | 7483.32 | 485.53 | 1.31 | 5.00 | 7483.25 | 485.00 | 1.31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2778E+04 EXCESS= .0000E+00 OUTFLOW= .2769E+04 BASIN STORAGE= .9724E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .94 | 6559.40 | 481.66 | 1.12 | 5.00 | 6558.59 | 485.00 | 1.13 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2388E+04 EXCESS= .0000E+00 OUTFLOW= .2380E+04 BASIN STORAGE= .8712E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 347.01 | 228.00 | 1.36 | 5.00 | 343.73 | 230.00 | 1.36 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5087E+02 EXCESS= .0000E+00 OUTFLOW= .5088E+02 BASIN STORAGE= .1161E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 330.25 | 228.00 | 1.30 | 5.00 | 327.28 | 230.00 | 1.30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4851E+02 EXCESS= .0000E+00 OUTFLOW= .4852E+02 BASIN STORAGE= .1127E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 307.12 | 228.00 | 1.21 | 5.00 | 304.56 | 230.00 | 1.21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4526E+02 EXCESS= .0000E+00 OUTFLOW= .4527E+02 BASIN STORAGE= .1078E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 283.68 | 228.00 | 1.12 | 5.00 | 281.52 | 230.00 | 1.12 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4197E+02 EXCESS= .0000E+00 OUTFLOW= .4198E+02 BASIN STORAGE= .1028E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 266.30 | 228.00 | 1.06 | 5.00 | 264.43 | 230.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3954E+02 EXCESS= .0000E+00 OUTFLOW= .3955E+02 BASIN STORAGE= .1524E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 3.75 | 235.20 | 228.75 | .94 | 5.00 | 234.66 | 230.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3516E+02 EXCESS= .0000E+00 OUTFLOW= .3517E+02 BASIN STORAGE= .1424E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 3.75 | 201.89 | 228.75 | .82 | 5.00 | 201.66 | 230.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3054E+02 EXCESS= .0000E+00 OUTFLOW= .3054E+02 BASIN STORAGE= .1302E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 3.75 | 174.98 | 228.75 | .72 | 5.00 | 174.98 | 230.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2682E+02 EXCESS= .0000E+00 OUTFLOW= .2682E+02 BASIN STORAGE= .1154E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.62 | 11926.41 | 495.93 | 2.15 | 5.00 | 11926.18 | 495.00 | 2.16 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4682E+04 EXCESS= .0000E+00 OUTFLOW= .4655E+04 BASIN STORAGE= .2788E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.64 | 11375.35 | 493.72 | 2.05 | 5.00 | 11375.03 | 495.00 | 2.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4452E+04 EXCESS= .0000E+00 OUTFLOW= .4426E+04 BASIN STORAGE= .2705E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.68 | 10641.02 | 492.70 | 1.92 | 5.00 | 10639.34 | 490.00 | 1.92 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4168E+04 EXCESS= .0000E+00 OUTFLOW= .4143E+04 BASIN STORAGE= .2582E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.71 | 9916.95 | 492.01 | 1.78 | 5.00 | 9916.83 | 490.00 | 1.78 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3870E+04 EXCESS= .0000E+00 OUTFLOW= .3846E+04 BASIN STORAGE= .2461E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.74 | 9387.29 | 488.59 | 1.67 | 5.00 | 9387.01 | 490.00 | 1.68 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3633E+04 EXCESS= .0000E+00 OUTFLOW= .3610E+04 BASIN STORAGE= .2374E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.80 | 8467.46 | 487.05 | 1.49 | 5.00 | 8466.51 | 485.00 | 1.50 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3237E+04 EXCESS= .0000E+00 OUTFLOW= .3216E+04 BASIN STORAGE= .2185E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.88 | 7482.67 | 486.18 | 1.28 | 5.00 | 7482.44 | 485.00 | 1.29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2794E+04 EXCESS= .0000E+00 OUTFLOW= .2775E+04 BASIN STORAGE= .1958E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.96 | 6558.77 | 483.77 | 1.11 | 5.00 | 6558.44 | 485.00 | 1.11 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2405E+04 EXCESS= .0000E+00 OUTFLOW= .2389E+04 BASIN STORAGE= .1741E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .96 | 11926.95 | 495.84 | 2.11 | 5.00 | 11926.14 | 495.00 | 2.12 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4745E+04 EXCESS= .0000E+00 OUTFLOW= .4729E+04 BASIN STORAGE= .1686E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .97 | 11375.51 | 495.15 | 2.01 | 5.00 | 11375.42 | 495.00 | 2.02 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4520E+04 EXCESS= .0000E+00 OUTFLOW= .4505E+04 BASIN STORAGE= .1637E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.00 | 10640.76 | 491.62 | 1.86 | 5.00 | 10640.01 | 495.00 | 1.88 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4214E+04 EXCESS= .0000E+00 OUTFLOW= .4199E+04 BASIN STORAGE= .1565E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.02 | 9917.72 | 491.32 | 1.74 | 5.00 | 9917.04 | 490.00 | 1.75 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3913E+04 EXCESS= .0000E+00 OUTFLOW= .3899E+04 BASIN STORAGE= .1494E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.04 | 9387.78 | 490.22 | 1.64 | 5.00 | 9387.71 | 490.00 | 1.65 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3688E+04 EXCESS= .0000E+00 OUTFLOW= .3674E+04 BASIN STORAGE= .1442E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.08 | 8467.82 | 486.24 | 1.46 | 5.00 | 8467.06 | 490.00 | 1.46 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3291E+04 EXCESS= .0000E+00 OUTFLOW= .3279E+04 BASIN STORAGE= .1330E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.12 | 7483.32 | 485.84 | 1.26 | 5.00 | 7482.84 | 485.00 | 1.26 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2840E+04 EXCESS= .0000E+00 OUTFLOW= .2829E+04 BASIN STORAGE= .1196E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.17 | 6559.14 | 485.87 | 1.08 | 5.00 | 6559.08 | 485.00 | 1.09 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2437E+04 EXCESS= .0000E+00 OUTFLOW= .2427E+04 BASIN STORAGE= .1069E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.27 | 14497.61 | 485.89 | .76 | 5.00 | 14496.08 | 485.00 | .76 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5846E+04 EXCESS= .0000E+00 OUTFLOW= .5821E+04 BASIN STORAGE= .2656E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.29 | 13840.26 | 486.66 | .72 | 5.00 | 13839.13 | 485.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5536E+04 EXCESS= .0000E+00 OUTFLOW= .5512E+04 BASIN STORAGE= .2581E+02 PERCENT ERROR= .0

```
          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          1.32  12917.13    484.85       .67       5.00  12917.04    485.00         .67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5145E+04 EXCESS= .0000E+00 OUTFLOW= .5123E+04 BASIN STORAGE= .2462E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          1.36  11946.06    481.53       .62       5.00  11943.78    485.00         .62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4735E+04 EXCESS= .0000E+00 OUTFLOW= .4714E+04 BASIN STORAGE= .2348E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          1.40  11242.09    481.44       .58       5.00  11240.21    480.00         .58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4431E+04 EXCESS= .0000E+00 OUTFLOW= .4410E+04 BASIN STORAGE= .2265E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          1.46   9947.76    483.56       .51       5.00   9947.68    485.00         .51

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3888E+04 EXCESS= .0000E+00 OUTFLOW= .3869E+04 BASIN STORAGE= .2094E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          1.55   8477.22    487.06       .43       5.00   8475.66    490.00         .43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3296E+04 EXCESS= .0000E+00 OUTFLOW= .3279E+04 BASIN STORAGE= .1892E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          1.64   7273.64    486.24       .37       5.00   7273.06    485.00         .37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2821E+04 EXCESS= .0000E+00 OUTFLOW= .2805E+04 BASIN STORAGE= .1700E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMNWB  MANE          5.00    135.71    255.00      1.05       5.00    135.71    255.00        1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2476E+02 EXCESS= .0000E+00 OUTFLOW= .2477E+02 BASIN STORAGE= .2236E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMNWB  MANE          5.00    127.98    255.00       .99       5.00    127.98    255.00         .99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2335E+02 EXCESS= .0000E+00 OUTFLOW= .2335E+02 BASIN STORAGE= .2167E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMNWB  MANE          5.00    117.32    255.00       .91       5.00    117.32    255.00         .91

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2141E+02 EXCESS= .0000E+00 OUTFLOW= .2141E+02 BASIN STORAGE= .1994E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMNWB  MANE          5.00    106.60    260.00       .83       5.00    106.60    260.00         .83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1946E+02 EXCESS= .0000E+00 OUTFLOW= .1946E+02 BASIN STORAGE= .1895E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMNWB  MANE          5.00     98.79    260.00       .76       5.00     98.79    260.00         .76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1802E+02 EXCESS= .0000E+00 OUTFLOW= .1802E+02 BASIN STORAGE= .1820E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMNWB  MANE          5.00     84.74    260.00       .66       5.00     84.74    260.00         .66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1546E+02 EXCESS= .0000E+00 OUTFLOW= .1546E+02 BASIN STORAGE= .2188E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMNWB  MANE          5.00     69.85    260.00       .54       5.00     69.85    260.00         .54

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1279E+02 EXCESS= .0000E+00 OUTFLOW= .1279E+02 BASIN STORAGE= .2061E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMNWB  MANE          5.00     57.90    260.00       .45       5.00     57.90    260.00         .45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1067E+02 EXCESS= .0000E+00 OUTFLOW= .1067E+02 BASIN STORAGE= .1794E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT37  MANE          5.00    547.98    270.00      1.07       5.00    547.98    270.00        1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1157E+03 EXCESS= .0000E+00 OUTFLOW= .1157E+03 BASIN STORAGE= .1818E-01 PERCENT ERROR=    .0
```

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 517.61 | 270.00 | 1.01 | 5.00 | 517.61 | 270.00 | 1.01 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1095E+03 EXCESS= .0000E+00 OUTFLOW= .1095E+03 BASIN STORAGE= .1764E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 475.85 | 270.00 | .93 | 5.00 | 475.85 | 270.00 | .93 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1011E+03 EXCESS= .0000E+00 OUTFLOW= .1011E+03 BASIN STORAGE= .1686E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 433.76 | 270.00 | .85 | 5.00 | 433.76 | 270.00 | .85 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9263E+02 EXCESS= .0000E+00 OUTFLOW= .9265E+02 BASIN STORAGE= .1606E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 402.79 | 270.00 | .80 | 5.00 | 402.79 | 270.00 | .80 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8641E+02 EXCESS= .0000E+00 OUTFLOW= .8642E+02 BASIN STORAGE= .1736E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 347.36 | 270.00 | .69 | 5.00 | 347.36 | 270.00 | .69 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7533E+02 EXCESS= .0000E+00 OUTFLOW= .7534E+02 BASIN STORAGE= .1608E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 289.36 | 270.00 | .59 | 5.00 | 289.36 | 270.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6377E+02 EXCESS= .0000E+00 OUTFLOW= .6378E+02 BASIN STORAGE= .1563E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 243.42 | 270.00 | .50 | 5.00 | 243.42 | 270.00 | .50 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5462E+02 EXCESS= .0000E+00 OUTFLOW= .5463E+02 BASIN STORAGE= .1433E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.39 | 909.98 | 220.30 | 1.08 | 5.00 | 906.65 | 220.00 | 1.08 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2098E+03 EXCESS= .0000E+00 OUTFLOW= .2098E+03 BASIN STORAGE= .1834E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.46 | 856.55 | 221.16 | 1.03 | 5.00 | 850.67 | 220.00 | 1.03 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1991E+03 EXCESS= .0000E+00 OUTFLOW= .1991E+03 BASIN STORAGE= .1739E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.50 | 788.85 | 220.50 | .95 | 5.00 | 783.82 | 220.00 | .95 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1844E+03 EXCESS= .0000E+00 OUTFLOW= .1844E+03 BASIN STORAGE= .1786E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.50 | 722.86 | 294.00 | .87 | 5.00 | 720.89 | 295.00 | .87 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1697E+03 EXCESS= .0000E+00 OUTFLOW= .1697E+03 BASIN STORAGE= .1704E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.50 | 676.04 | 294.00 | .82 | 5.00 | 674.37 | 295.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1589E+03 EXCESS= .0000E+00 OUTFLOW= .1589E+03 BASIN STORAGE= .1958E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.50 | 591.67 | 294.00 | .72 | 5.00 | 590.55 | 295.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1396E+03 EXCESS= .0000E+00 OUTFLOW= .1396E+03 BASIN STORAGE= .1823E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.50 | 502.39 | 294.00 | .62 | 5.00 | 501.80 | 295.00 | .62 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1196E+03 EXCESS= .0000E+00 OUTFLOW= .1195E+03 BASIN STORAGE= .1762E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.75 | 430.65 | 296.25 | .53 | 5.00 | 429.53 | 295.00 | .53 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1037E+03 EXCESS= .0000E+00 OUTFLOW= .1036E+03 BASIN STORAGE= .1753E-01 PERCENT ERROR= .0

```
          FOR PLAN = 1  RATIO=  .00
             RPT39  MANE          1.83  14585.42    487.10       .78      5.00  14583.50    485.00         .78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6242E+04 EXCESS= .0000E+00 OUTFLOW= .6206E+04 BASIN STORAGE= .3885E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT39  MANE          1.86  13927.24    486.28       .74      5.00  13926.11    485.00         .74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5944E+04 EXCESS= .0000E+00 OUTFLOW= .5909E+04 BASIN STORAGE= .3764E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT39  MANE          1.91  13007.36    483.62       .69      5.00  13006.67    485.00         .69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5511E+04 EXCESS= .0000E+00 OUTFLOW= .5478E+04 BASIN STORAGE= .3594E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT39  MANE          1.97  12035.80    482.13       .63      5.00  12033.59    485.00         .63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5070E+04 EXCESS= .0000E+00 OUTFLOW= .5038E+04 BASIN STORAGE= .3429E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT39  MANE          2.01  11332.41    483.05       .59      5.00  11331.06    480.00         .59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4741E+04 EXCESS= .0000E+00 OUTFLOW= .4710E+04 BASIN STORAGE= .3309E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT39  MANE          2.11  10036.10    484.50       .52      5.00  10035.71    485.00         .52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4162E+04 EXCESS= .0000E+00 OUTFLOW= .4134E+04 BASIN STORAGE= .3062E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT39  MANE          2.24   8560.98    487.39       .44      5.00   8559.88    490.00         .44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3543E+04 EXCESS= .0000E+00 OUTFLOW= .3517E+04 BASIN STORAGE= .2767E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT39  MANE          2.37   7357.56    485.09       .38      5.00   7357.51    485.00         .38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3027E+04 EXCESS= .0000E+00 OUTFLOW= .3004E+04 BASIN STORAGE= .2495E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT41  MANE          1.66  14580.42    492.18       .77      5.00  14578.35    495.00         .78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6294E+04 EXCESS= .0000E+00 OUTFLOW= .6260E+04 BASIN STORAGE= .3692E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT41  MANE          1.69  13922.05    491.19       .74      5.00  13920.20    490.00         .74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5991E+04 EXCESS= .0000E+00 OUTFLOW= .5959E+04 BASIN STORAGE= .3577E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT41  MANE          1.74  13001.50    490.89       .68      5.00  13001.36    490.00         .68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5540E+04 EXCESS= .0000E+00 OUTFLOW= .5509E+04 BASIN STORAGE= .3431E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT41  MANE          1.80  12030.21    488.44       .63      5.00  12029.64    490.00         .63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5109E+04 EXCESS= .0000E+00 OUTFLOW= .5079E+04 BASIN STORAGE= .3272E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT41  MANE          1.84  11328.08    487.45       .59      5.00  11326.63    490.00         .59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4780E+04 EXCESS= .0000E+00 OUTFLOW= .4751E+04 BASIN STORAGE= .3158E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT41  MANE          1.93  10031.69    490.47       .52      5.00  10031.60    490.00         .52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4200E+04 EXCESS= .0000E+00 OUTFLOW= .4173E+04 BASIN STORAGE= .2932E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT41  MANE          2.06   8557.51    493.88       .44      5.00   8556.96    495.00         .44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3570E+04 EXCESS= .0000E+00 OUTFLOW= .3545E+04 BASIN STORAGE= .2667E+02 PERCENT ERROR=   -.1
```

```
          FOR PLAN = 1  RATIO=  .00
             RPT41  MANE          2.19   7355.36    491.89        .37       5.00   7354.70    490.00         .37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3057E+04 EXCESS= .0000E+00 OUTFLOW= .3035E+04 BASIN STORAGE= .2417E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT42  MANE          1.36  14578.31    492.68        .78       5.00  14578.06    495.00         .78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6353E+04 EXCESS= .0000E+00 OUTFLOW= .6327E+04 BASIN STORAGE= .2852E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT42  MANE          1.38  13920.27    492.40        .74       5.00  13919.51    495.00         .74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6033E+04 EXCESS= .0000E+00 OUTFLOW= .6007E+04 BASIN STORAGE= .2757E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT42  MANE          1.41  13000.67    491.54        .68       5.00  12999.48    490.00         .68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5594E+04 EXCESS= .0000E+00 OUTFLOW= .5569E+04 BASIN STORAGE= .2633E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT42  MANE          1.45  12028.82    490.51        .63       5.00  12028.40    490.00         .63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5151E+04 EXCESS= .0000E+00 OUTFLOW= .5128E+04 BASIN STORAGE= .2500E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT42  MANE          1.48  11326.06    490.53        .59       5.00  11325.90    490.00         .59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4814E+04 EXCESS= .0000E+00 OUTFLOW= .4791E+04 BASIN STORAGE= .2408E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT42  MANE          1.55  10031.29    491.63        .51       5.00  10029.76    490.00         .52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4215E+04 EXCESS= .0000E+00 OUTFLOW= .4195E+04 BASIN STORAGE= .2225E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT42  MANE          1.63   8556.46    496.74        .44       5.00   8555.97    495.00         .44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3593E+04 EXCESS= .0000E+00 OUTFLOW= .3574E+04 BASIN STORAGE= .2005E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT42  MANE          1.72   7354.65    492.64        .37       5.00   7353.88    495.00         .38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3073E+04 EXCESS= .0000E+00 OUTFLOW= .3056E+04 BASIN STORAGE= .1805E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    402.37    280.00       1.03       5.00    402.37    280.00        1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9403E+02 EXCESS= .0000E+00 OUTFLOW= .9402E+02 BASIN STORAGE= .3309E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    380.62    280.00        .98       5.00    380.62    280.00         .98

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8937E+02 EXCESS= .0000E+00 OUTFLOW= .8937E+02 BASIN STORAGE= .3173E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    350.95    280.00        .91       5.00    350.95    280.00         .91

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8301E+02 EXCESS= .0000E+00 OUTFLOW= .8301E+02 BASIN STORAGE= .2982E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    321.35    280.00        .84       5.00    321.35    280.00         .84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7665E+02 EXCESS= .0000E+00 OUTFLOW= .7665E+02 BASIN STORAGE= .2786E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    299.78    280.00        .79       5.00    299.78    280.00         .79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7200E+02 EXCESS= .0000E+00 OUTFLOW= .7199E+02 BASIN STORAGE= .2638E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    261.81    280.00        .70       5.00    261.81    280.00         .70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6373E+02 EXCESS= .0000E+00 OUTFLOW= .6373E+02 BASIN STORAGE= .2365E-01 PERCENT ERROR=    .0
```

```
          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    223.06    280.00        .61       5.00    223.06    280.00         .61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5515E+02 EXCESS= .0000E+00 OUTFLOW= .5515E+02 BASIN STORAGE= .2066E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    193.25    280.00        .53       5.00    193.25    280.00         .53

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4838E+02 EXCESS= .0000E+00 OUTFLOW= .4838E+02 BASIN STORAGE= .1816E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          1.63  14569.48    512.14        .75       5.00  14568.04    510.00         .75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6346E+04 EXCESS= .0000E+00 OUTFLOW= .6312E+04 BASIN STORAGE= .3697E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          1.66  13910.03    511.19        .71       5.00  13908.81    510.00         .71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6034E+04 EXCESS= .0000E+00 OUTFLOW= .6000E+04 BASIN STORAGE= .3581E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          1.70  12985.83    510.95        .66       5.00  12985.83    510.00         .66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5594E+04 EXCESS= .0000E+00 OUTFLOW= .5562E+04 BASIN STORAGE= .3423E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          1.75  12015.86    508.56        .60       5.00  12015.33    510.00         .60

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5147E+04 EXCESS= .0000E+00 OUTFLOW= .5116E+04 BASIN STORAGE= .3261E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          1.79  11313.66    507.66        .56       5.00  11312.90    510.00         .57

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4807E+04 EXCESS= .0000E+00 OUTFLOW= .4778E+04 BASIN STORAGE= .3142E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          1.88  10018.22    512.61        .49       5.00  10017.51    510.00         .50

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4210E+04 EXCESS= .0000E+00 OUTFLOW= .4183E+04 BASIN STORAGE= .2913E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          1.99   8546.40    514.30        .42       5.00   8546.07    515.00         .42

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3585E+04 EXCESS= .0000E+00 OUTFLOW= .3560E+04 BASIN STORAGE= .2645E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          2.11   7348.76    512.68        .36       5.00   7347.65    510.00         .36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3081E+04 EXCESS= .0000E+00 OUTFLOW= .3059E+04 BASIN STORAGE= .2397E+02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RMCDB  MANE          5.00     76.45    345.00        .29       5.00     76.45    345.00         .29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4407E+02 EXCESS= .0000E+00 OUTFLOW= .4354E+02 BASIN STORAGE= .5432E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMCDB  MANE          5.00     74.54    345.00        .28       5.00     74.54    345.00         .28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4287E+02 EXCESS= .0000E+00 OUTFLOW= .4234E+02 BASIN STORAGE= .5323E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMCDB  MANE          5.00     71.92    345.00        .27       5.00     71.92    345.00         .27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4119E+02 EXCESS= .0000E+00 OUTFLOW= .4068E+02 BASIN STORAGE= .5172E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMCDB  MANE          5.00     69.27    345.00        .26       5.00     69.27    345.00         .26

TINUITY SUMMARY (AC-FT) - INFLOW= .3945E+02 EXCESS= .0000E+00 OUTFLOW= .3895E+02 BASIN STORAGE= .4999E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RMCDB  MANE          5.00     67.30    345.00        .25       5.00     67.30    345.00         .25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3806E+02 EXCESS= .0000E+00 OUTFLOW= .3758E+02 BASIN STORAGE= .4847E+00 PERCENT ERROR=    .0
```

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 63.41 | 340.00 | .23 | 5.00 | 63.41 | 340.00 | .23 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3520E+02 EXCESS= .0000E-00 OUTFLOW= .3475E+02 BASIN STORAGE= .4577E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 58.54 | 340.00 | .21 | 5.00 | 58.54 | 340.00 | .21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3184E+02 EXCESS= .0000E-00 OUTFLOW= .3142E+02 BASIN STORAGE= .4220E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 54.43 | 340.00 | .19 | 5.00 | 54.43 | 340.00 | .19 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2875E+02 EXCESS= .0000E-00 OUTFLOW= .2837E+02 BASIN STORAGE= .3881E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 434.09 | 230.00 | .59 | 5.00 | 434.09 | 230.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9135E+02 EXCESS= .0000E-00 OUTFLOW= .8874E+02 BASIN STORAGE= .3006E+01 PERCENT ERROR= -.4

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 414.04 | 230.00 | .57 | 5.00 | 414.04 | 230.00 | .57 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8806E+02 EXCESS= .0000E-00 OUTFLOW= .8551E+02 BASIN STORAGE= .2954E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 386.17 | 230.00 | .54 | 5.00 | 386.17 | 230.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8347E+02 EXCESS= .0000E-00 OUTFLOW= .8099E+02 BASIN STORAGE= .2883E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 357.73 | 230.00 | .51 | 5.00 | 357.73 | 230.00 | .51 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7877E+02 EXCESS= .0000E+00 OUTFLOW= .7637E+02 BASIN STORAGE= .2804E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 336.61 | 230.00 | .49 | 5.00 | 336.61 | 230.00 | .49 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7520E+02 EXCESS= .0000E+00 OUTFLOW= .7287E+02 BASIN STORAGE= .2731E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 301.52 | 235.00 | .44 | 5.00 | 301.52 | 235.00 | .44 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6835E+02 EXCESS= .0000E-00 OUTFLOW= .6603E+02 BASIN STORAGE= .2601E+01 PERCENT ERROR= -.4

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 265.91 | 235.00 | .39 | 5.00 | 265.91 | 235.00 | .39 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6062E+02 EXCESS= .0000E+00 OUTFLOW= .5847E+02 BASIN STORAGE= .2433E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 235.53 | 235.00 | .35 | 5.00 | 235.53 | 235.00 | .35 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5390E+02 EXCESS= .0000E+00 OUTFLOW= .5191E+02 BASIN STORAGE= .2266E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.83 | 227.91 | 250.97 | .99 | 5.00 | 227.12 | 250.00 | .99 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4181E+02 EXCESS= .0000E+00 OUTFLOW= .4181E+02 BASIN STORAGE= .1945E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.91 | 214.51 | 250.52 | .94 | 5.00 | 214.04 | 250.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3942E+02 EXCESS= .0000E+00 OUTFLOW= .3942E+02 BASIN STORAGE= .1864E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 196.29 | 255.00 | .86 | 5.00 | 196.29 | 255.00 | .86 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3613E+02 EXCESS= .0000E+00 OUTFLOW= .3613E+02 BASIN STORAGE= .1700E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 177.97 | 255.00 | .78 | 5.00 | 177.97 | 255.00 | .78 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3284E+02 EXCESS= .0000E+00 OUTFLOW= .3284E+02 BASIN STORAGE= .1613E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 164.47 | 255.00 | .72 | 5.00 | 164.47 | 255.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3042E+02 EXCESS= .0000E+00 OUTFLOW= .3043E+02 BASIN STORAGE= .1547E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 140.29 | 255.00 | .62 | 5.00 | 140.29 | 255.00 | .62 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2614E+02 EXCESS= .0000E+00 OUTFLOW= .2614E+02 BASIN STORAGE= .1965E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 114.92 | 255.00 | .51 | 5.00 | 114.92 | 255.00 | .51 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2168E+02 EXCESS= .0000E+00 OUTFLOW= .2168E+02 BASIN STORAGE= .1771E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 94.73 | 255.00 | .43 | 5.00 | 94.73 | 255.00 | .43 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1817E+02 EXCESS= .0000E+00 OUTFLOW= .1817E+02 BASIN STORAGE= .1538E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 38.88 | 265.00 | .77 | 5.00 | 38.88 | 265.00 | .77 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7236E+01 EXCESS= .0000E+00 OUTFLOW= .7240E+01 BASIN STORAGE= .6424E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 36.21 | 265.00 | .72 | 5.00 | 36.21 | 265.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6774E+01 EXCESS= .0000E+00 OUTFLOW= .6779E+01 BASIN STORAGE= .6181E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 32.61 | 270.00 | .66 | 5.00 | 32.61 | 270.00 | .66 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6147E+01 EXCESS= .0000E+00 OUTFLOW= .6151E+01 BASIN STORAGE= .7172E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 29.07 | 270.00 | .59 | 5.00 | 29.07 | 270.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5524E+01 EXCESS= .0000E+00 OUTFLOW= .5528E+01 BASIN STORAGE= .6750E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 26.46 | 270.00 | .54 | 5.00 | 26.46 | 270.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5071E+01 EXCESS= .0000E+00 OUTFLOW= .5075E+01 BASIN STORAGE= .6460E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 21.81 | 270.00 | .46 | 5.00 | 21.81 | 270.00 | .46 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4275E+01 EXCESS= .0000E+00 OUTFLOW= .4279E+01 BASIN STORAGE= .7033E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 17.16 | 275.00 | .37 | 5.00 | 17.16 | 275.00 | .37 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3464E+01 EXCESS= .0000E+00 OUTFLOW= .3467E+01 BASIN STORAGE= .6231E-02 PERCENT ERROR= -.3

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 13.52 | 280.00 | .30 | 5.00 | 13.52 | 280.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2839E+01 EXCESS= .0000E+00 OUTFLOW= .2842E+01 BASIN STORAGE= .6715E-02 PERCENT ERROR= -.3

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 70.77 | 300.00 | .75 | 5.00 | 70.77 | 300.00 | .75 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1332E+02 EXCESS= .0000E+00 OUTFLOW= .1332E+02 BASIN STORAGE= .8174E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 66.72 | 300.00 | .70 | 5.00 | 66.72 | 300.00 | .70 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1246E+02 EXCESS= .0000E+00 OUTFLOW= .1246E+02 BASIN STORAGE= .7943E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 61.12 | 300.00 | .63 | 5.00 | 61.12 | 300.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1128E+02 EXCESS= .0000E+00 OUTFLOW= .1128E+02 BASIN STORAGE= .8720E-02 PERCENT ERROR= -.1

# SDN4, DUCK4.OUT

```
1**************************************
*                                    *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            SEPTEMBER 1990          *
*             VERSION 4.0            *
*                                    *
*  RUN DATE  01/21/2002  TIME  15:40:04 *
*                                    *
**************************************
```

```
**************************************
*                                    *
*    U.S. ARMY CORPS OF ENGINEERS    *
*    HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET         *
*       DAVIS, CALIFORNIA 95616      *
*           (916) 756-1104           *
*                                    *
**************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX           XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL  LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



```
         LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
                   *DIAGRAM
*** FREE ***
              1    ID   DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
              2    ID   "G.C. WALLACE, INC. BY MJL"
              3    ID   DUCK4.XLS
              4    ID   "MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
              5    ID   "BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
              6    ID   UPDATED PRECIPITATION VALUES
              7    ID   % IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
              8    ID   ADDITIONAL DIVERSIONS ADDED
              9    ID   DESIGN STORM = 100-YEAR 6-HOUR STORM
             10    ID   STORM DISTRIBUTION = SDN4
                   *
             11    ID     JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
             12    ID
             13    ID     AREA (SQUARE MILES)    DARF
             14    ID    8-9   0.875
             15    ID    9-10   0.865
             16    ID    10-11   0.857
             17    ID    11-12   0.850
             18    ID
             19    IT       5       0       0     120
             20    IO       5       0       0
             21    JR    PREC   0.875   0.865   0.857   0.850
                   *

             22    KK    B13A
             23    BA   1.290
             24    PB    3.14
             25    PC   0.000   0.020   0.058   0.075   0.099   0.126   0.137   0.145   0.149   0.151
             26    PC   0.155   0.156   0.159   0.162   0.169   0.172   0.179   0.189   0.201   0.211
             27    PC   0.220   0.228   0.232   0.240   0.246   0.252   0.260   0.269   0.276   0.283
             28    PC   0.286   0.292   0.302   0.312   0.321   0.332   0.352   0.376   0.415   0.462
             29    PC   0.530   0.610   0.710   0.732   0.756   0.782   0.799   0.813   0.823   0.830
             30    PC   0.835   0.844   0.851   0.864   0.885   0.908   0.924   0.944   0.968   0.973
             31    PC   0.978   0.982   0.984   0.986   0.988   0.991   0.992   0.993   0.994   0.997
             32    PC   0.998   0.999   1.000
             33    LS       0    88.0
             34    UD   0.680
                   *

             35    KK    RB13A
             36    KM    ROUTE B13A TO PT1
             37    RM       7    0.64     0.1
                   *

             38    KK     B13B
             39    BA    0.538
             40    PB     2.96
             41    LS       0    88.0
             42    UD    1.440
                   *
```



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         LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

             43    KK     PT1
             44    KM    COMBINE BASINS B13A AND B13B
             45    HC       2
                   *

             46    KK     RPT1
             47    KM    ROUTE PT1 TO PT2
             48    RM       3    0.28    0.15
                   *
```

```
 49          KK     B17
 50          BA   0.816
 51          PB    2.80
 52          LS       0    88.0
 53          UD   0.940
             *

 54          KK     PT2
 55          KM   COMBINE PT1 AND BASIN B17
 56          HC       2
             *

 57          KK   DVBD2
 58          KM   "DIVERSION EAST THRU 2-36"" RCP'S AT UPRR LOCATED 300 FT SOUTH OF BLUE DIAMON
 59          DT   DVBD2
 60          DI       0     121     500    1000    1500    2000
 61          DQ       0     121     240     391     540     690
             *

 62          KK    RPT2
 63          KM   ROUTE BYPASS TO PT3
 64          RD    2000   0.008    0.03       0    TRAP      35       3
             *

 65          KK    B13C
 66          BA   2.005
 67          PB    2.82
 68          LS       0    88.1
 69          UD   0.510
             *

 70          KK     PT3
 71          KM   COMBINE BYPASS FROM DVBD2 AND BASIN B13C
 72          HC       2
             *

 73          KK   DVBD3
 74          KM   DIVERSION EAST THRU 8'x4' RCB AT UPRR LOCATED 1700 FT NORTH OF BLUE DIAMOND
 75          DT   DVBD3
 76          DI       0     238     500    1000    1500    2000
 77          DQ       0     238     252     271     288     304
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 78          KK   RPT3A
 79          KM   ROUTE BYPASS FROM DVBD3 NORTH ALONG WEST SIDE OF UPRR TO UPPR CULVERT BD4
 80          KM   MUSKINGUM ROUTING UNSTABLE
 81          RD    1200   0.008    0.03       0    TRAP      35       3
             *

 82          KK   DVBD4
 83          KM   "DIVERSION EAST THRU 2-36"" RCP'S AT UPRR LOCATED 3000 FT NORTH OF BLUE DIAMO
 84          DT   DVBD4
 85          DI       0      97     500    1000    1500    2000
 86          DQ       0      97     149     202     252     296
             *

 87          KK   RPT3B
 88          KM   ROUTE BYPASS FROM DVBD4 NORTH ALONG WEST SIDE OF UPRR TO UPPR BRIDGE
 89          RM       1   0.119    0.15
             *

 90          KK    B11S
 91          KM   SOUTHERN PORTION OF BASIN B11 TIES INTO HYDRO1 BOUNDARY AREA
 92          BA   1.121
 93          PB    2.82
 94          LS       0    78.0
 95          UD   0.580
             *

 96          KK  HYDRO1
 97          KM    INFLOW HYDROGRAPH
 98          KM   "REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B."""
 99          KM   "SEE COMBINATION POINT C-5, DARF RATIO 0.98, OF HEC-1 FROM REFERENCED LOMR"
100          BA   0.630
101          QI       0       0       0       0       0       0       0       0       0       0
102          QI       0       0       0       0       0       0       0       0       0       0
103          QI       0       0       1       7      14      29      45      58      69      76
104          QI      82      86      90      94      99     100     101     100     100     100
105          QI     102     109     126     161     223     318     430     538     604     623
106          QI     607     569     525     480     437     397     363     335     316     306
107          QI     304     310     321     333     339     332     314     289     264     239
108          QI     217     198     182     169     159     150     143     137     131     127
109          QI     122     118     114     110     107     104     102     101     100      99
110          QI      98      98      97      97      97      97      97      96      96      96
111          QI      96      96      96      97      96      96      96      96      96      96
112          QI      96      96      96      96      96      96      96      96      96      96
113          QI      96      96      96      96      96      96      96      96      96      96
114          QI      96      96      96      96      96      96      96      96      96      96
115          QI      96      96      96      96      96      96      96      96      96      96
116          QI      96      96      96      96      96      95      95      95      95      95
117          QI      95      95      95      95      95      95      95      95      95      95
118          QI      95      95      95      95      95      95      95      95      95      95
119          QI      95      95      95      95      95      95      95      95      95      95
120          QI      95      95      95      95      95      95      95      95      95      95
121          QI      95      95      95      95      95      95      95      95      95      95
122          QI      95      95      95      95      95      95      95      95      95      95
123          QI      95      95      95      95      95      95      95      95      95      95
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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124         QI      95      95      94      94      94      94      94      94      94      94
125         QI      94      94      94      94      94      94      94      94      94      94
126         QI      94      94      94      94      94      94      94      94      94      94
127         QI      94      94      94      94      94      94      94      94      94      94
128         QI      94      94      94      94      94      94      94      94      94      94
129         QI      94      94      94      94      94      94      94      94      94      94
130         QI      94      94      94      94      94      94      94      94      94      94
            *

131         KK     PT4
132         KM   "COMBINE BASIN B11S, HYDRO2, AND BYPASS FROM DVBD4"
133         KM   SEE COMBINATION POINT C-5 OF HEC-1 FROM REFERENCED LOMR
134         KM   "PT C-5 REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B.
135         HC       3
            *

136         KK   RPT4A
137         KM   ROUTE PT4 TO DIVERSION DVBD7
138         RM       3    0.22    0.15
            *

139         KK   DVBD7
140         KM   DIVERSION NORTH TO NORTH BRANCH BLUE DIAMOND WASH
141         KM   DIVERSION LOCATED NEAR INTERSECTION OF HINSON AND WINDMILL
142         KM   "REFERENCED FROM BLUE DIAMOND/I-15 INTERCHANGE REPORT, BY PBS&J, JAN 2001"
143         DT   DVBD7
144         DI       0    1200    1500    1800    2100    2400    2700    3000
145         DQ       0     800    1000    1200    1400    1600    1800    2000
            *

146         KK   RPT4B
147         KM   ROUTE BYPASS TO PT22W
148         RM       1    0.11    0.15
            *

149         KK    B14B
150         BA   0.992
151         PB    2.77
152         LS       0    73.4     9.0
153         UD    0.42
            *

154         KK   PT22W
155         KM   COMBINE PT4 AND BASIN B14B
156         HC       2
            *

157         KK   D012A
158         BA  10.211
159         PB    2.95
160         LS       0    83.0
161         UD   1.320
            *
```



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LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

162         KK  RD012A
163         KM   ROUTE BASIN D012A TO I15 CULVERT 3 - 12'x4' RCB'S (DCWA 1429)
164         KM   MUSKINGUM ROUTING UNSTABLE
165         RD     750   0.007   0.030       0    TRAP      65      10
            *

166         KK  DVI151
167         KM   DIVERSION EAST THRU I15 CULVERT 3 - 12'x4' RCB'S (DCWA 1429)
168         DT  DVI151
169         DI       0     993    1305    1778    2400    3146
170         DQ       0     992    1100    1200    1298    1389
            *

171         KK   RI151
172         KM   ROUTE BYPASS FROM 3 - 12'x4' RCB'S TO I15 BRIDGE 24'x4' (IS15 0199)
173         RM       1   0.071   0.150
            *

174         KK  DVI152
175         KM   DIVERSION EAST THRU I15 BRIDGE 24'x4' (IS15 0199)
176         DT  DVI152
177         DI       0     128     466     929    1506    2268    3133    3815
178         DQ       0      47     190   - 362     550     733     896    1040
            *

179         KK   RI152
180         KM   ROUTE BYPASS FROM I15 BRIDGE 24'x4' TO I15 BRIDGE 36'x4' (IS15 0233)
181         RM       1   0.123   0.150
            *

182         KK     D01
183         BA   9.536
184         PB    3.42
185         LS       0    83.0
186         UD   1.000
            *

187         KK    RD01
188         KM   ROUTE BASIN D01 TO PT9
189         RM       3    0.64   0.150
            *

190         KK    D005
191         BA   2.732
192         PB    3.27
193         LS       0    82.0
194         UD   0.750
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  195     KK     PT9
  196     KM   COMBINE BASINS D01 AND D005
  197     HC       2
          *
  198     KK   RD005
  199     KM   ROUTE BASIN D005 TO PT12
  200     RM       1     0.2   0.150
          *
  201     KK     D02
  202     BA   5.915
  203     PB    3.44
  204     LS       0    83.0
  205     UD   1.030
          *
  206     KK    RD02
  207     KM   ROUTE BASIN D02 TO PT11
  208     RM       3    0.62   0.150
          *
  209     KK     D03
  210     BA  11.991
  211     PB    3.42
  212     LS       0    83.0
  213     UD   0.960
          *
  214     KK     D04
  215     BA   6.950
  216     PB    3.37
  217     LS       0    84.0
  218     UD   1.060
          *
  219     KK    PT10
  220     KM   COMBINE BASINS D03 AND D04
  221     HC       2
          *
  222     KK   RPT10
  223     KM   ROUTE PT10 TO PT11
  224     RM       3    0.82   0.150
          *
  225     KK    D006
  226     BA   8.518
  227     PB    3.24
  228     LS       0    83.0
  229     UD   0.850
          *
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  230     KK    PT11
  231     KM   "COMBINE PT10, BASINS D002 AND D006"
  232     HC       3
          *
  233     KK   RPT11
  234     KM   ROUTE PT11 TO PT12
  235     RM       1    0.18   0.150
          *
  236     KK     D2A
  237     BA   0.988
  238     PB    3.16
  239     LS       0    84.0
  240     UD   0.280
          *
  241     KK    PT12
  242     KM   "COMBINE PT9, PT11 AND BASIN D2A"
  243     HC       3
          *
  244     KK   RPT12
  245     KM   ROUTE PT12 TO PT13
  246     RM       3    0.83   0.150
          *
  247     KK     D2B
  248     BA   7.503
  249     PB    3.06
  250     LS       0    80.1
  251     UD   1.180
          *
  252     KK    PT13
  253     KM   COMBINE PT12 AND BASIN D2B
  254     HC       2
          *
  255     KK   RPT13
  256     KM   ROUTE PT13 TO PT14
  257     RM       4     0.9   0.100
```

```
                *
258             KK     D06
259             BA  11.677
260             PB    3.21
261             LS       0    84.0
262             UD   1.190
                *
```



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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

263             KK    RD06
264             KM   ROUTE BASIN D06 TO PT14
265             RM       3    0.78   0.150
                *
266             KK      D3
267             BA   6.637
268             PB    2.90
269             LS       0    77.0
270             UD   1.130
                *
271             KK    PT14
272             KM   "COMBINE BASINS D3, D06, PT13, AND BYPASS FROM I-15 CULVERT, I152 (IS15 0199)
273             HC       4
                *
274             KK  DVI153
275             KM   DIVERSION EAST THRU I15 BRIDGE 36'x4' (IS15 0233)
276             DT  DVI153
277             DI    1910    3220    6620    8040    8770    9390   10030   10740
278             DQ    1190    1450    3280    4130    4550    5000    5470    5990
                *
279             KK   RPT14
280             KM   ROUTE BYPASS FROM I15 BRIDGE 36'x4' TO I15 BRIDGE 24'x4' (IS15 0315)
281             RM       6   0.484   0.150
                *
282             KK     D1A
283             BA   2.290
284             PB    3.25
285             LS       0    83.0
286             UD   0.830
                *
287             KK    RD1A
288             KM   ROUTE BASIN D1A TO PT15
289             RM       2    0.17   0.150
                *
290             KK     D1B
291             BA   0.316
292             PB    3.10
293             LS       0    84.0
294             UD   1.060
                *
295             KK    PT15
296             KM   COMBINE BASINS D1A AND D1B
297             HC       2
                *
```

1



```
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

298             KK   RPT15
299             KM   ROUTE PT15 TO PT16
300             RM       4    0.33   0.150
                *
301             KK     D1C
302             BA   0.565
303             PB    2.97
304             LS       0    83.0
305             UD   1.290
                *
306             KK    PT16
307             KM   COMBINE PT15 AND BASIN D1C
308             HC       2
                *
309             KK   RPT16
310             KM   ROUTE PT16 TO PT17
311             RM       3    0.26   0.150
                *
312             KK     D1D
313             BA   1.231
314             PB    2.99
315             LS       0    82.0
316             UD   0.500
                *
317             KK    RD1D
318             KM   ROUTE BASIN D1D TO PT17
319             RM       2    0.16   0.150
                *
320             KK     D1E
```

```
321          BA   0.224
322          PB    2.83
323          LS      0    81.5
324          UD   1.060
             *

325          KK     D1F
326          BA   0.805
327          PB    2.86
328          LS      0    75.2
329          UD   1.500
             *

330          KK    PT17
331          KM   "COMBINE PT16, BASINS D1D, D1E, AND D1F"
332          HC      4
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

333          KK   RPT17
334          KM   ROUTE PT17 TO PT18
335          RM      6     0.5   0.100
             *

336          KK    B18A
337          BA   1.503
338          PB    2.79
339          LS      0    69.4     1.0
340          UD   0.700
             *

341          KK    PT18
342          KM   "COMBINE PT17, BASIN B18A, AND BYPASS FROM PT14 (IS15 0233)"
343          HC      3
             *

344          KK  DVI154
345          KM   DIVERSION EAST THRU I15 BRIDGE 24'x4' (IS15 0315)
346          DT  DVI154
347          DI      0    2318    4128    5274    6452    7636    8617    9479
348          DQ      0    1040    1205    1252    1297    1341    1373    1404
             *

349          KK   RPT18
350          KM   ROUTE BYPASS FROM I15 BRIDGE 24'x4' TO I15 BRIDGE 36'x5' (IS15 0359)
351          RM      1   0.113   0.150
             *

352          KK    B18B
353          BA   1.916
354          PB    2.77
355          LS      0    86.4
356          UD   0.640
             *

357          KK   DVBD2
358          KM   RETURN FLOW PASSING THRU UPPR CULVERT AT PT2 (UPRR 0471)
359          DR   DVBD2
             *

360          KK  RDVBD2
361          KM   ROUTE DVBD2 TO PT19
362          RM      6    0.52   0.100
             *

363          KK    PT19
364          KM   "COMBINE BASIN B18B, DVBD2, AND BYPASS FROM PT18"
365          HC      3
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

366          KK  DVI155
367          KM   DIVERSION EAST THRU I15 BRIDGE 36'x5' (IS15 0359)
368          DT  DVI155
369          DI      0    2716    3378    4083    4548    4960    5791    6843
370          DQ      0    1980    2192    2367    2531    2651    3141    3890
             *

371          KK   RPT19
372          KM   ROUTE BYPASS AT PT19 TO PT21
373          RM      8   0.641   0.150
             *

374          KK    B14A
375          BA   1.351
376          PB    2.77
377          LS      0    88.0     5.0
378          UD   0.400
             *

379          KK  RDVBD3
380          KM   "RETURN FLOW PASSING THRU UPPR CULVERT AT PT3, BD3 (UPRR 0511)"
381          DR   DVBD3
             *

382          KK  RDVBD4
383          KM   "RETURN FLOW PASSING THRU UPPR CULVERT, BD4 (UPRR 0534)"
384          DR   DVBD4
             *
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```
385          KK    PT20
386          KM   COMBINE DVBD3 AND DVBD4
387          HC       2
             *

388          KK  RDVBD4
389          KM   ROUTE PT20 TO PT21
390          RM       6    0.51   0.100
             *

391          KK    PT21
392          KM   "COMBINE PT20, BASIN B14A, AND BYPASS FROM PT19"
393          HC       3
             *

394          KK    PT22
395          KM   COMBINE PT21 AND PT22W
396          HC       2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

397          KK   RPT22
398          KM   ROUTE PT22 TO PT23
399          RM       4     0.3   0.100
             *

400          KK    B15B
401          BA   0.954
402          PB    2.77
403          LS       0    75.0    13.0
404          UD    0.71
             *

405          KK    PT23
406          KM   COMBINE PT22 AND BASIN B15B
407          HC       2
             *

408          KK RDVI151
409          KM   RETURN FLOW PASSING THRU I151 (DCWA 1429)
410          DR  DVI151
             *

411          KK RDVI151
412          KM   ROUTE DVI151 TO PT24
413          RM       1   0.099   0.150
             *

414          KK RDVI152
415          KM   RETURN FLOW PASSING THRU I152 (IS15 0199)
416          DR  DVI152
             *

417          KK RDVI152
418          KM   ROUTE DVI152 TO PT24
419          RM       1   0.089   0.150
             *

420          KK    PT24
421          KM   COMBINE DVI151 AND DVI152
422          HC       2
             *

423          KK   RPT24
424          KM   ROUTE PT24 TO PT25
425          RM       1   0.086   0.150
             *

426          KK RDVI153
427          KM   RETURN FLOW PASSING THRU I153 AT PT14 (IS15 0233)
428          DR  DVI153
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

429          KK RDVI153
430          KM   ROUTE DVI153 TO PT25
431          RM       1   0.112   0.150
             *

432          KK    D009
433          BA   3.621
434          PB    3.31
435          LS       0    83.0
436          UD   0.510
             *

437          KK   RD009
438          KM   ROUTE BASIN D009 TO PT5
439          RM       1     0.1     0.1
             *

440          KK    D004
441          BA   2.400
442          PB    3.30
443          LS       0    85.0
444          UD   0.700
             *
```

```
445          KK     PT5
446          KM    COMBINE BASINS D009 AND D004
447          HC       2
             *

448          KK     RPT5
449          KM    ROUTE PT5 TO PT6
450          RM       2    0.44    0.15
             *

451          KK     D08
452          BA   11.912
453          PB    3.28
454          LS       0    85.0
455          UD   1.650
             *

456          KK     PT6
457          KM    COMBINE PT5 AND BASIN D08
458          HC       2
             *

459          KK     RPT6
460          KM    ROUTE PT6 TO PT7
461          RM       3    0.81   0.150
             *
1                                        HEC-1 INPUT                                                    PAGE 14

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

462          KK     D010
463          BA   10.434
464          PB    3.15
465          LS       0    84.0
466          UD   1.050
             *

467          KK     D07
468          BA   4.280
469          PB    3.20
470          LS       0    84.0
471          UD   1.100
             *

472          KK     PT7
473          KM    "COMBINE PT6, BASINS D010 AND D07"
474          HC       3
             *

475          KK     RPT7
476          KM    ROUTE PT7 TO PT8
477          RM       3   0.224   0.150
             *

478          KK    D012B
479          BA   0.566
480          PB    2.77
481          LS       0    83.0
482          UD   0.642
             *

483          KK     PT8
484          KM    COMBINE BASIN D012B AND PT7
485          HC       2
             *

486          KK   DVPITT
487          KM    DIVERSION EAST ACROSS LAS VEGAS BLVD. TO PITTMAN WATERSHED - DOES NOT RETURN
488          KM    REFERENCED FROM 1995 PITTMAN WASH FIS RESTUDY BY NIMBUS
489          KM    "MODIFIED TO RETAIN 10% OF ACTUAL DIVERTED FLOW TO DIVERT LATER AT ""DVROSE""
490          DT   DVPITT
491          DI       0    3586    3710    3835    3961    5795    7737
492          DQ       0    1554    1618    1681    1747    2774    3933
             *

493          KK   DVROSE
494          KM    DIVERSION NORTH ACROSS ST. ROSE PARKWAY (FORMERLY LAKE MEAD DRIVE)
495          KM    DIVERSION BYPASSES LDCDB VIA BASIN D5A AND COMBINES AT PT29
496          KM    REFERENCED FROM 1995 PITTMAN WASH FIS RESTUDY BY NIMBUS
497          DT   DVROSE
498          DI       0    1673    1721    1770    2214    3021    3803
499          DQ       0     359     371     384     396     579     774
             *
1                                        HEC-1 INPUT                                                    PAGE 15

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

500          KK     RPT8
501          KM    ROUTE BYPASS FROM DVROSE AT PT8 TO PT25
502          RM       6    0.49   0.150
             *

503          KK     D4A
504          BA   1.873
505          PB    2.80
506          LS       0    83.8     0.0
507          UD   0.245
             *

508          KK     PT25
509          KM    "COMBINE PT24, BASIN D4A, DVI153, AND BYPASS FROM PT8"
510          HC       4
             *
```

```
511         KK   RPT25
512         KM   ROUTE PT25 TO PT26
513         RM       1   0.099   0.150
            *

514         KK     D4B
515         BA   2.033
516         PB    2.80
517         LS       0    83.8     8.0
518         UD   0.243
            *

519         KK    PT26
520         KM   COMBINE PT25 AND BASIN D4
521         HC       2
            *

522         KK   RPT26
523         KM   ROUTE PT26 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
524         RM       1   0.083   0.150
            *

525         KK RDVI154
526         KM   "RETURN FLOW PASSING THRU I15 BRIDGE, I154 (IS15 0315)"
527         DR  DVI154
            *

528         KK RDVI154
529         KM   ROUTE DVI154 TO LAS VEGAS BLVD.
530         RD    2700   0.007   0.015       0    TRAP      25       2
            *
1                                    HEC-1 INPUT                                    PAGE 16

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

531         KK RDVI154
532         KM   ROUTE DVI154 FROM LAS VEGAS BLVD. TO PT27
533         KM   "2-78"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
534         RD    1300   0.017   0.015       0    TRAP      28       0
            *

535         KK RDVI155
536         KM   "RETURN FLOW PASSING THRU I15 BRIDGE, I155 (IS15 0359)"
537         DR  DVI155
            *

538         KK RDVI155
539         KM   ROUTE DVI155 TO AGATE AVENUE
540         RD    1100    0.01   0.040       0    TRAP      15       3
            *

541         KK RDVI155
542         KM   ROUTE DVI155 FROM AGATE AVENUE TO LAS VEGAS BLVD.
543         KM   "3-10'x5' RCB, INCLUDES PORTION OF TRAP CHANNEL"
544         RD    1530    0.01   0.015       0    TRAP      30       0
            *

545         KK RDVI155
546         KM   ROUTE DVI155 FROM LAS VEGAS BLVD. TO PT27
547         KM   "2-96"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
548         RD     800   0.006   0.015       0    TRAP      35       0
            *

549         KK RDVI155
550         KM   ROUTE DVI155 FROM LAS VEGAS BLVD. TO PT27
551         KM   "2-84"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
552         RD    1100   0.012   0.015       0    TRAP      30       0
            *

553         KK    PT27
554         KM   COMBINE DVI154 AND DVI155
555         HC       2
            *

556         KK   RPT27
557         KM   ROUTE PT27 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
558         KM   "3-96"" CIPCP (EQUIVALENT RECTANGULAR CHANNEL)"
559         RD    1100   0.009   0.015       0    TRAP      56       0
            *

560         KK   RPT27
561         KM   ROUTE PT27 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
562         KM   3-8'x8' RCB (EQUIVALENT RECTANGULAR CHANNEL)
563         RD     570   0.004   0.015       0    TRAP      24       0
            *
1                                    HEC-1 INPUT                                    PAGE 17

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

564         KK    B18C
565         BA   1.259
566         PB    2.77
567         LS       0    75.4    25.0
568         UD   0.380
            *

569         KK    PT28
570         KM   "COMBINE PT26, PT27, AND BASIN B18C AT LDCDB"
571         HC       3
            *

572         KK   LDCDB
```

```
573          KM   LOWER DUCK CREEK DETENTION BASIN
574          RS       1     STOR        0
575          SV       0      2.8     37.5   120.3     229     340   453.8     570     689     810
576          SV     934     1061     1190
577          SE    2183     2184     2186    2188    2190    2192    2194    2196    2198    2200
578          SE    2202     2204     2206
579          SQ       0      126      654    1825    3310    4310    5118    5815    6437    7004
580          SQ    7528     8018     8480
581          SE    2183     2184     2186    2188    2190    2192    2194    2196    2198    2200
582          SE    2202     2204     2206
583          KO       1
             *

584          KK  RLDCDB
585          KM   ROUTE THE OUTFALL FROM THE LOWER DUCK CREEK DETENTION BASIN TO PT29
586          RD    1100   0.004   0.015       0    TRAP      46     1.5
             *

587          KK     D5A
588          BA   1.325
589          PB    2.79
590          LS       0    88.0    15.0
591          UD   0.350
             *

592          KK    RD5A
593          KM   ROUTE BASIN D5A TO PT29
594          RM       1    0.12   0.150
             *

595          KK RDVROSE
596          KM   RETURN FLOW CROSSING ST. ROSE PARKWAY (FORMERLY LAKE MEAD DRIVE)
597          DR  DVROSE
             *

598          KK RDVROSE
599          KM   ROUTE DIVERSION DVROSE TO PT29
600          RM       6    0.49   0.150
             *
```

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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

601          KK    PT29
602          KM   "COMBINE BASIN D5A, BYPASS FROM DVROSE, AND OUTFALL FROM LDCDB"
603          HC       3
             *

604          KK   RPT29
605          KM   ROUTE PT29 TO PT30
606          RD    1800   0.011   0.015       0    TRAP      46     1.5
             *

607          KK    B16B
608          BA   0.701
609          PB    2.77
610          LS       0    83.1    32.0
611          UD   0.380
             *

612          KK   RB16B
613          KM   ROUTE BASIN B16B TO PT30
614          RD    1900   0.008   0.015       0    TRAP       0      50
             *

615          KK    PT30
616          KM   COMBINE PT29 AND BASIN B16B
617          HC       2
             *

618          KK   RPT30
619          KM   ROUTE PT30 TO PT31
620          RD    2900   0.005   0.015       0    TRAP      20       3
             *

621          KK    B16A
622          BA   0.906
623          PB    2.77
624          LS       0    78.2    17.0
625          UD   0.710
             *

626          KK     D5B
627          BA   0.602
628          PB    2.77
629          LS       0    82.8    46.0
630          UD   0.710
             *

631          KK    PT31
632          KM   "COMBINE PT30, BASINS B16A AND D5B"
633          HC       3
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10

634          KK   RPT31
635          KM   ROUTE PT31 TO PT32
636          RD    3200   0.016   0.015       0    TRAP      15       1
             *

637          KK    PT32
```

```
638          KM   COMBINE PT23 AND PT31 AT DUCK CREEK/MIDDLE BRANCH BLUE DIAMOND CONFLUENCE
639          HC       2
             *
640          KK   RPT32
641          KM   ROUTE PT32 TO PT34
642          RD    2700   0.009   0.015       0    TRAP      70       2
             *
643          KK  HYDRO2
644          KM   INFLOW HYDROGRAPH
645          KM   "PT C-11 REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B
646          KM   "SEE COMBINATION POINT C-11, DARF RATIO 0.98 OF HEC-1 FROM REFERENCED LOMR"
647          BA   0.380
648          QI       0       0       0       0       0       0       0       0       0       0
649          QI       0       0       0       0       0       0       0       0       0       0
650          QI       0       0       0       0       0       0       0       0       0       0
651          QI       0       0       0       0       0       0       0       0       0       0
652          QI       0       0       1       3       5       9      14      19      23      27
653          QI      30      32      33      33      32      31      29      28      27      27
654          QI      27      27      32      36      36      35      33      31      29      26
655          QI      24      22      20      19      17      16      15      14      13      12
656          QI      11      10       9       8       8       7       6       6       5       5
657          QI       4       4       4       3       3       3       3       3       2       2
658          QI       2       2       2       2       2       2       1       1       1       1
659          QI       1       1       1       1       1       1       1       1       1       1
660          QI       1       1       1       1       1       1       1       0       0       0
661          QI       0       0       0       0       0       0       0       0       0       0
662          QI       0       0       0       0       0       0       0       0       0       0
663          QI       0       0       0       0       0       0       0       0       0       0
664          QI       0       0       0       0       0       0       0       0       0       0
665          QI       0       0       0       0       0       0       0       0       0       0
666          QI       0       0       0       0       0       0       0       0       0       0
667          QI       0       0       0       0       0       0       0       0       0       0
668          QI       0       0       0       0       0       0       0       0       0       0
669          QI       0       0       0       0       0       0       0       0       0       0
670          QI       0       0       0       0       0       0       0       0       0       0
671          QI       0       0       0       0       0       0       0       0       0       0
672          QI       0       0       0       0       0       0       0       0       0       0
673          QI       0       0       0       0       0       0       0       0       0       0
674          QI       0       0       0       0       0       0       0       0       0       0
675          QI       0       0       0       0       0       0       0       0       0       0
676          QI       0       0       0       0       0       0       0       0       0       0
677          QI       0       0       0       0       0       0       0       0       0       0
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

678          KK RHYDRO2
679          KM   ROUTE HYDRO2 TO PT33W
680          RM       8    0.76   0.150
             *
681          KK     B12
682          BA   0.969
683          PB    2.77
684          LS       0    68.4     1.0
685          UD   0.390
             *
686          KK   PT33W
687          KM   COMBINE HYDRO2 AND BASIN B12
688          HC       2
             *
689          KK  RDVBD7
690          KM   "RETURN FLOW SPLIT, DVBD7, FROM MIDDLE BRANCH "
691          DR   DVBD7
             *
692          KK  RDVBD7
693          KM   ROUTE DVBD7 TO PT33
694          RM       2     0.2   0.150
             *
695          KK    PT33
696          KM   COMBINE PT33W AND DVBD7
697          HC       2
             *
698          KK   RPT33
699          KM   ROUTE PT33 TO PT34W
700          RM       4     0.3   0.100
             *
701          KK    B15A
702          BA   0.959
703          PB    2.77
704          LS       0    77.6    14.0
705          UD   0.500
             *
706          KK   PT34W
707          KM   COMBINE PT33 AND BASIN B15A
708          HC       2
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

709          KK    PT34
710          KM   COMBINE PT34W AND PT32
```

```
711         HC       2
            *

712         KK    MNWB
713         BA   0.442
714         PB    2.77
715         LS       0    85.0     2.0
716         UD   0.742
            *

717         KK   RMNWB
718         KM   ROUTE MNWB NORTH ALONG I15 TO PT35
719         RD    2200   0.007   0.025       0    TRAP      20      10
            *

720         KK    MNWC
721         BA   0.596
722         PB    2.77
723         LS       0    85.0     7.0
724         UD   0.738
            *

725         KK    PT35
726         KM   COMBINE BASINS MNWB AND MNWC
727         HC       2
            *

728         KK   RPT35
729         KM   ROUTE PT35 TO PT36
730         RM       1   0.055   0.150
            *

731         KK    MNWD
732         BA   0.078
733         PB    2.77
734         LS       0    85.0    13.0
735         UD   0.321
            *

736         KK    PT36
737         KM   COMBINE PT35 AND BASIN MNWD
738         HC       2
            *

739         KK   RPT36
740         KM   ROUTE PT36 TO PT37
741         RM       2   0.192   0.150
            *
```

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```
LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

742         KK     MC2
743         BA   0.919
744         PB    2.77
745         LS       0    74.9    28.0
746         UD   0.873
            *

747         KK    PT37
748         KM   COMBINE PT36 AND BASIN MC2
749         HC       2
            *

750         KK   RPT37
751         KM   ROUTE PT37 TO PT38
752         RD    5200    0.01   0.015       0    TRAP      20       2
            *

753         KK    B10A
754         BA   1.601
755         PB    2.77
756         LS       0    74.9    32.0
757         UD   0.217
            *

758         KK    PT38
759         KM   COMBINE PT37 AND BASIN B10A
760         HC       2
            *

761         KK   RPT38
762         KM   ROUTE PT38 TO PT39
763         RD    2100   0.002   0.015       0    TRAP      20       2
            *

764         KK    PT39
765         KM   COMBINE PT34 AND PT38
766         HC       2
            *

767         KK   RPT39
768         KM   ROUTE PT39 TO PT40
769         RD    2500   0.006   0.025       0    TRAP      70       2
            *

770         KK      D6
771         BA   1.564
772         PB    2.77
773         LS       0    78.3    43.0
774         UD   0.500
            *
```

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```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

775       KK    PT40
776       KM   COMBINE PT39 AND BASIN D6
777       HC       2
          *

778       KK   RPT40
779       KM   ROUTE PT40 TO PT41
780       RM       1    0.08   0.200
          *

781       KK      D7
782       BA   0.850
783       PB    2.77
784       LS       0    77.3    23.0
785       UD   0.710
          *

786       KK    PT41
787       KM   COMBINE PT40 AND BASIN D7
788       HC       2
          *

789       KK   RPT41
790       KM   ROUTE PT41 TO PT42
791       RD    4150   0.006   0.015       0    TRAP      50       0
          *

792       KK      D8
793       BA   1.258
794       PB    2.77
795       LS       0    77.8    34.0
796       UD   0.230
          *

797       KK     RD8
798       KM   ROUTE BASIN D8 TO PT42
799       RM       1   0.088   0.150
          *

800       KK    PT42
801       KM   COMBINE PT41 AND BASIN D8
802       HC       2
          *

803       KK   RPT42
804       KM   ROUTE PT42 TO PT44
805       RD    3650   0.011   0.015       0    TRAP      28       2
          *
                                    HEC-1 INPUT                                        PAGE 24

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

806       KK    B10B
807       BA   0.848
808       PB    2.77
809       LS       0    74.9    44.0
810       UD   0.687
          *

811       KK   RB10B
812       KM   ROUTE BASIN B10B TO PT43
813       RM       6    0.46   0.100
          *

814       KK     D9A
815       BA   0.861
816       PB    2.77
817       LS       0    72.8    16.0
818       UD   1.100
          *

819       KK    PT43
820       KM   COMBINE BASINS B10B AND D9A
821       HC       2
          *

822       KK   RPT43
823       KM   ROUTE PT43 TO PT44
824       RD    4050    0.01   0.016       0    TRAP       0      16
          *

825       KK    PT44
826       KM   COMBINE PT42 AND PT43
827       HC       2
          *

828       KK   RPT44
829       KM   ROUTE PT44 TO PT45
830       RM       1   0.119   0.150
          *

831       KK     D9B
832       BA   1.544
833       PB    2.77
834       LS       0    77.8    17.0
835       UD   0.410
          *

836       KK    PT45
837       KM   COMBINE PT44 AND BASIN D9B
838       HC       2
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

839       KK   RPT45
840       KM   ROUTE PT45 TO PT46
841       RM       2   0.184   0.150
          *
842       KK    D10
843       BA  2.508
844       PB   2.77
845       LS       0    79.0    33.0
846       UD  0.440
          *
847       KK    PT46
848       KM   COMBINE PT45 AND BASIN D10
849       HC       2
          *
850       KK   RPT46
851       KM   ROUTE PT46 TO PT48
852       RD    2500   0.018   0.035       0    TRAP      75       2
          *
853       KK     MC
854       KM   "TLAG AND AREA CALCULATED, CN REFERENCED FROM 1996 MPU"
855       KM   THEREFORE NO INCREASE IN PERCENT IMPERVIOUS
856       BA  2.804
857       PB   2.77
858       LS       0    91.0
859       UD  0.244
          *
860       KK   TORAW
861       KM   DIVERT FLOW WHICH BYPASSES DETENTION BASIN
862       DT   TORAW
863       DI       0     100     500    1000    2000    3000    4000
864       DQ       0      40     100     200     400     570     760
          *
865       KK    MCDB
866       KM   MCCARRAN AIRPORT DETENTION FACILITIES
867       KM   SIMULATION OF TWO DETENTION BASINS - MCCARRAN EAST AND SPENCER
868       RS       1    STOR      -1
869       SV       0       8      40      70     100     160     210     500
870       SQ       0      30      40      55      65      80      85      87
871       SE       0       2       4       6       8      12      15      16
872       KO       1
          *
873       KK   RMCDB
874       KM   ROUTE OUTFALL FROM MCDB TO PT47
875       RD    3300   0.006   0.013       0    CIRC       4       0
          *
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

876       KK  RTORAW
877       KM   FLOW BYPASSING THE MCCARRAN DETENTION FACILITIES RETURNED IN RAWHIDE CHANNEL
878       DR   TORAW
          *
879       KK    PT47
880       KM   COMBINE OUTFALL FROM MCCARRAN DETENTION FACILITIES AND BYPASSED FLOW
881       HC       2
          *
882       KK   RPT47
883       KM   ROUTE PT47 THRU RAWHIDE CHANNEL TO PT48W
884       RD   15700   0.015   0.015       0    TRAP      11     1.5
          *
885       KK     RH
886       BA  1.355
887       PB   2.77
888       LS       0    72.0     6.0
889       UD  0.340
          *
890       KK   PT48W
891       KM   COMBINE PT47 AND BASIN RH
892       HC       2
          *
893       KK    B20
894       BA  0.790
895       PB   2.77
896       LS       0    82.4     8.0
897       UD  0.710
          *
898       KK    RB20
899       KM   ROUTE BASIN B20 TO PT48
900       KM   MUSKINGUM ROUTING UNSTABLE
901       RD    1800   0.017   0.030       0    TRAP      30      10
          *
902       KK    PT48
903       KM   "COMBINE PT46, PT48W, AND BASIN B20"
```

```
904          HC       3
             *

905          KK   RPT48
906          KM   ROUTE PT48 TO PT50
907          RM       1   0.067   0.150
             *
```



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LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

908          KK     D12
909          BA   0.176
910          PB    2.77
911          LS       0    77.8     7.0
912          UD   0.710
             *

913          KK    RD12
914          KM   ROUTE BASIN D12 TO PT49
915          KM   MUSKINGUM ROUTING UNSTABLE
916          RD    1850   0.044   0.150       0    TRAP      50       10
             *

917          KK    D11A
918          BA   0.159
919          PB    2.77
920          LS       0    77.3     5.0
921          UD   0.160
             *

922          KK    PT49
923          KM   COMBINE BASINS D12 AND D11A
924          HC       2
             *

925          KK   RPT49
926          KM   ROUTE PT49 TO PT50
927          KM   MUSKINGUM ROUTING UNSTABLE
928          RD    1050   0.019   0.150       0    TRAP      45       10
             *

929          KK    PT50
930          KM   COMBINE PT48 AND PT49
931          HC       2
             *

932          KK   RPT50
933          KM   ROUTE PT50 TO PT51
934          RD    7000   0.003   0.015       0    TRAP      60        2
             *

935          KK    D11B
936          BA   0.987
937          PB    2.77
938          LS       0    82.2    12.0
939          UD   0.220
             *

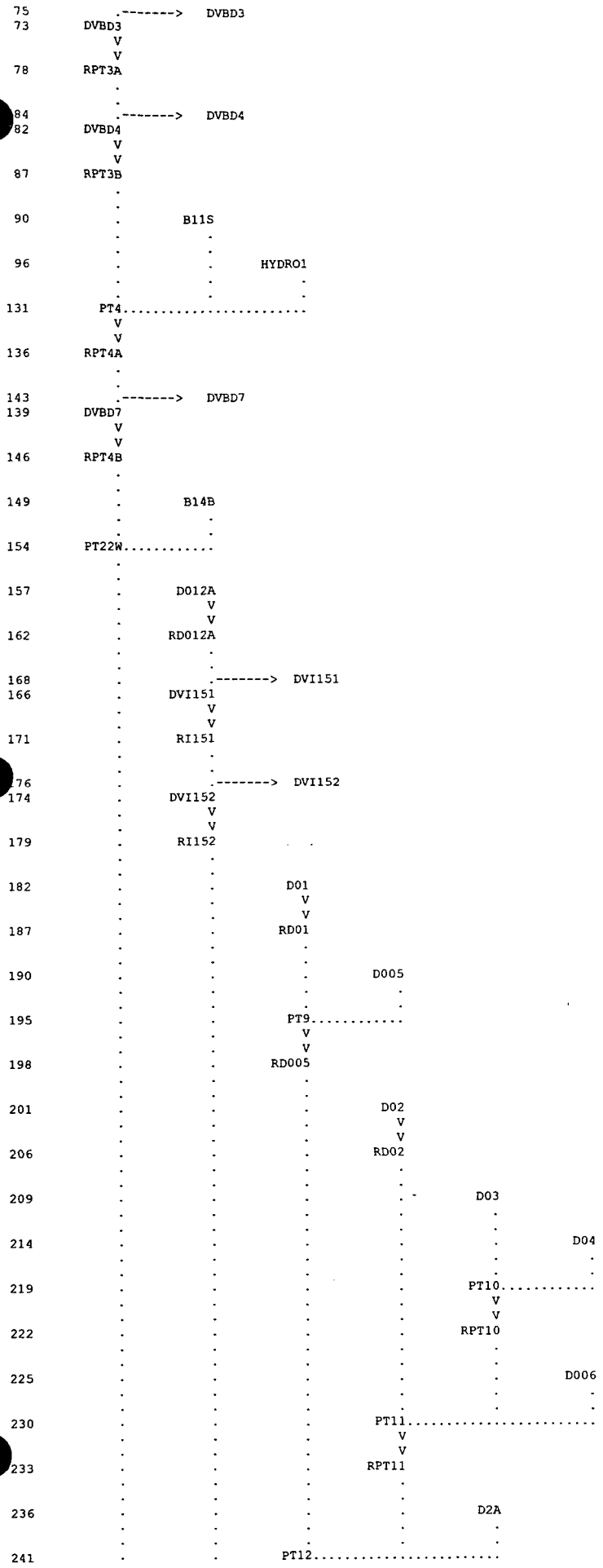
940          KK    PT51
941          KM   COMBINE PT50 AND BASIN D11B
942          HC       2
943          ZZ
```

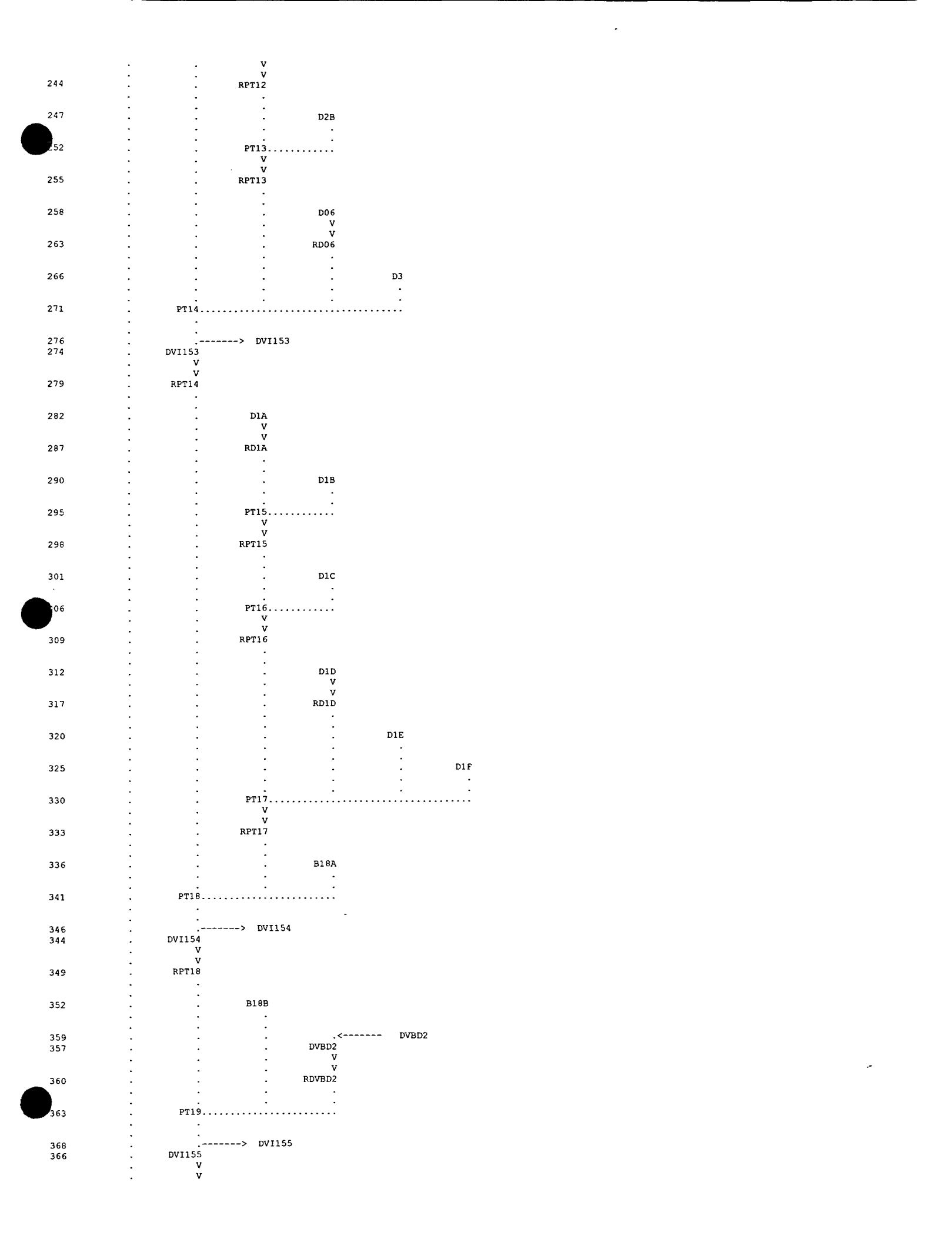
1

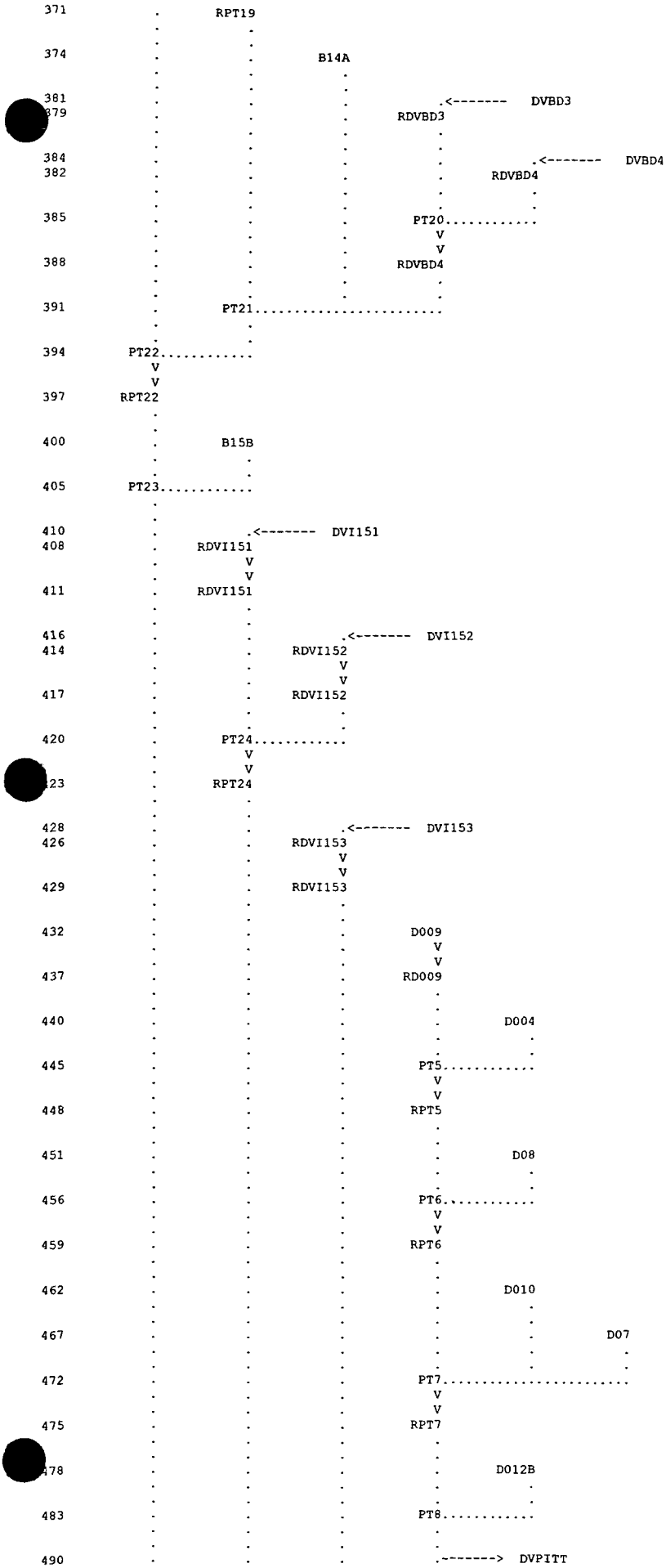
SCHEMATIC DIAGRAM OF STREAM NETWORK

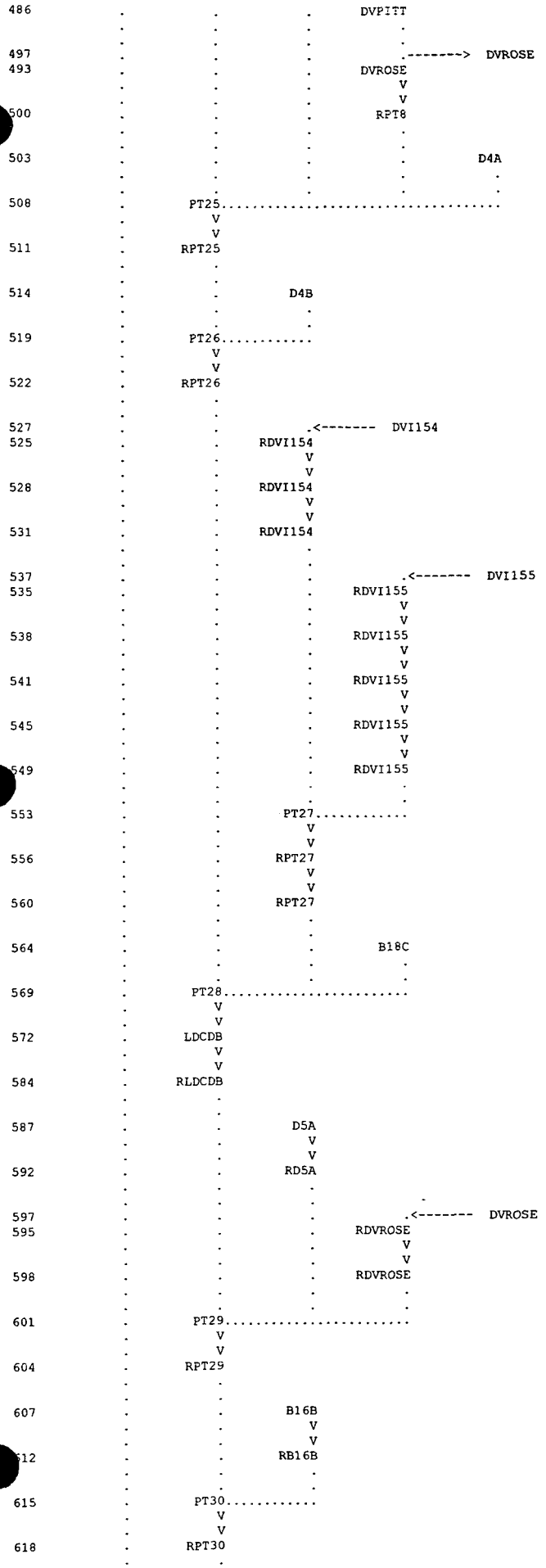
```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW
  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

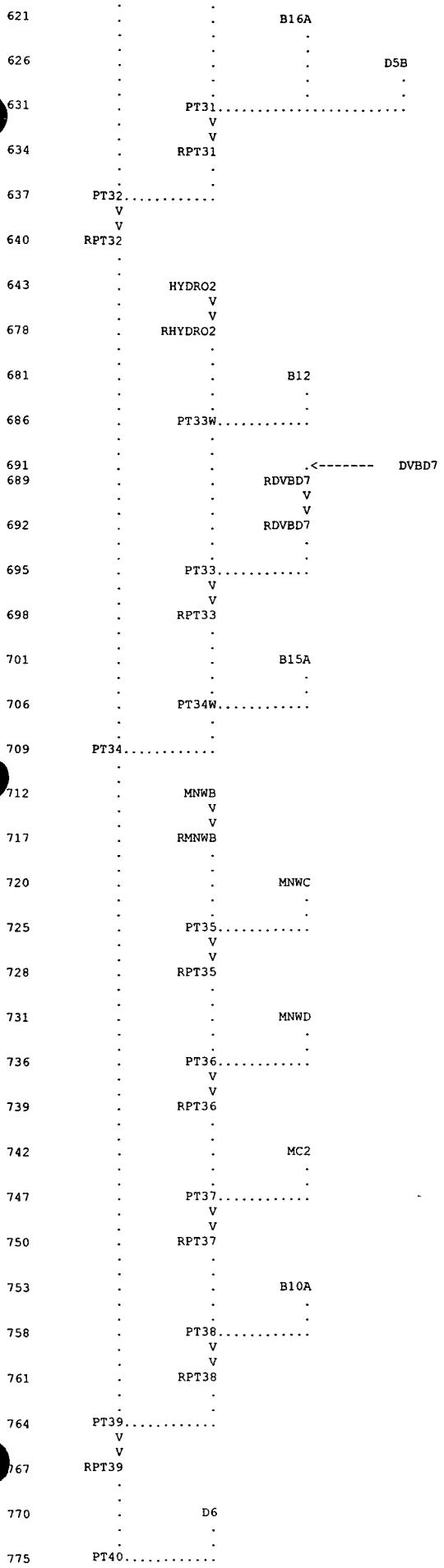
   22        B13A
               V
               V
   35       RB13A
               .
               .
   38          .        B13B
               .          .
               .          .
   43         PT1.............
               V
               V
   46        RPT1
               .
               .
   49          .         B17
               .          .
               .          .
   54         PT2.............
               .
               .
   59          .-------->   DVBD2
   57       DVBD2
               V
               V
   62        RPT2
               .
               .
   65          .        B13C
               .          .
               .          .
   70         PT3.............
               .
               .
```

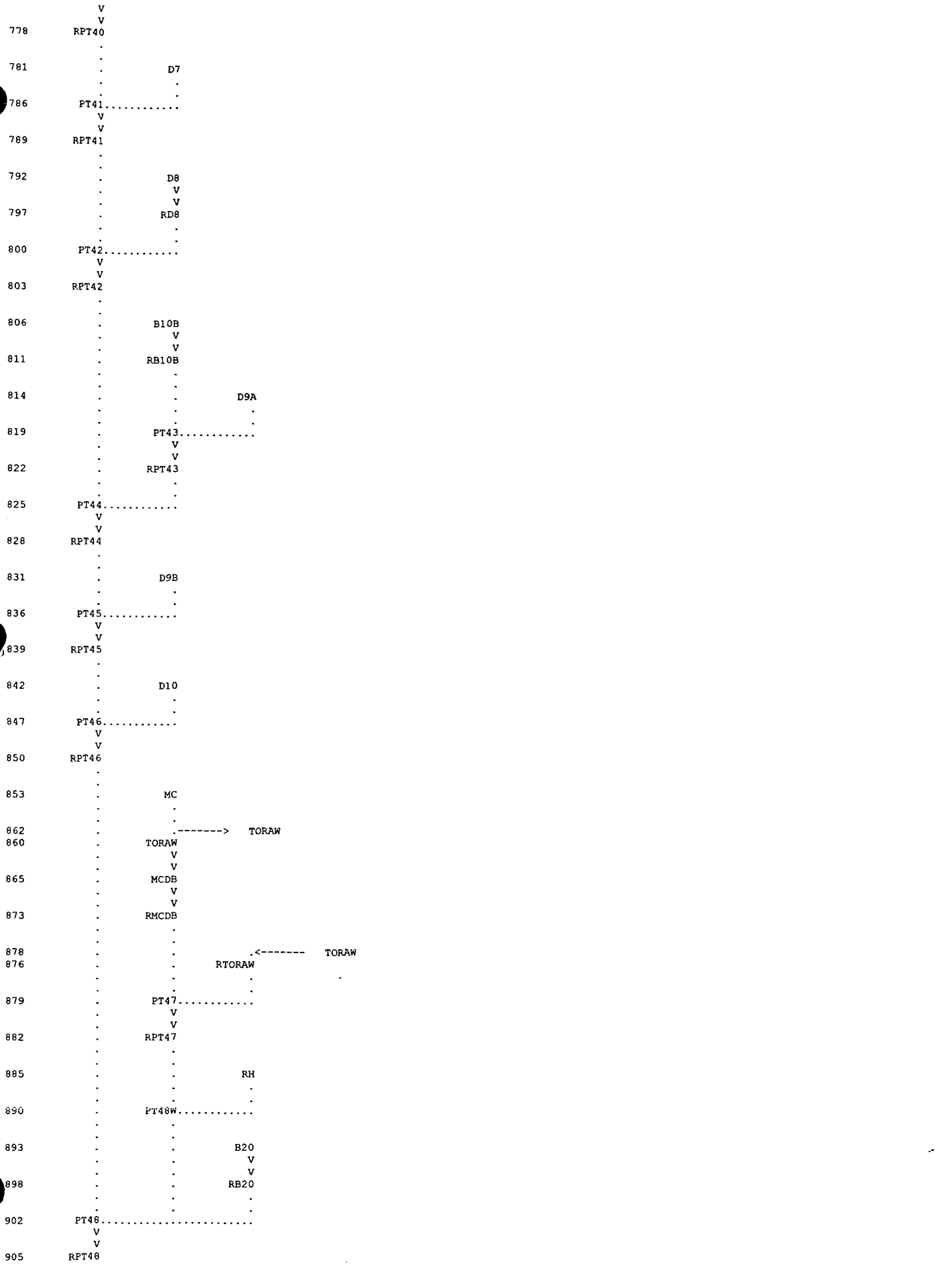

75
.-------> DVBD3
73 DVBD3
V
V
78 RPT3A
.
.
84
.-------> DVBD4
82 DVBD4
V
V
87 RPT3B
.
.
90 . B11S
. .
. .
96 . . HYDRO1
. . .
. . .
131 PT4.....
V
V
136 RPT4A
.
.
143
.-------> DVBD7
139 DVBD7
V
V
146 RPT4B
.
.
149 . B14B
. .
. .
154 PT22W.....
.
.
157 . D012A
. V
. V
162 . RD012A
. .
. .
168 .-------> DVI151
166 . DVI151
. V
. V
171 . RI151
. .
. .
176 .-------> DVI152
174 . DVI152
. V
. V
179 . RI152
. .
. .
182 . . D01
. . V
. . V
187 . . RD01
. . .
. . .
190 . . . D005
. . . .
. . . .
195 . . PT9.....
. . V
. . V
198 . . RD005
. . .
. . .
201 . . . D02
. . . V
. . . V
206 . . . RD02
. . . .
. . . .
209 . . . . D03
. . . . .
. . . . .
214 . . . . . D04
. . . . . .
. . . . . .
219 . . . . PT10.....
. . . . V
. . . . V
222 . . . . RPT10
. . . . .
. . . . .
225 . . . . . D006
. . . . . .
. . . . . .
230 . . . PT11.....
. . . V
. . . V
233 . . . RPT11
. . . .
. . . .
236 . . . . D2A
. . . . .
. . . . .
241 . . PT12.....


244
RPT12
247
D2B
252
PT13
255
RPT13
258
D06
263
RD06
266
D3
271
PT14
276
DVI153
274
DVI153
279
RPT14
282
D1A
287
RD1A
290
D1B
295
PT15
298
RPT15
301
D1C
306
PT16
309
RPT16
312
D1D
317
RD1D
320
D1E
325
D1F
330
PT17
333
RPT17
336
B18A
341
PT18
346
DVI154
344
DVI154
349
RPT18
352
B18B
359
DVBD2
357
DVBD2
360
RDVBD2
363
PT19
368
DVI155
366
DVI155


371 RPT19
374 B14A
381 DVBD3
379 RDVBD3
384 DVBD4
382 RDVBD4
385 PT20
388 RDVBD4
391 PT21
394 PT22
397 RPT22
400 B15B
405 PT23
410 DVI151
408 RDVI151
411 RDVI151
416 DVI152
414 RDVI152
417 RDVI152
420 PT24
423 RPT24
428 DVI153
426 RDVI153
429 RDVI153
432 D009
437 RD009
440 D004
445 PT5
448 RPT5
451 D08
456 PT6
459 RPT6
462 D010
467 D07
472 PT7
475 RPT7
478 D012B
483 PT8
490 DVPITT


DVPITT
DVROSE
RPT8
D4A
PT25
RPT25
D4B
PT26
RPT26
DVI154
RDVI154
RDVI154
RDVI154
DVI155
RDVI155
RDVI155
RDVI155
RDVI155
RDVI155
PT27
RPT27
RPT27
B18C
PT28
LDCDB
RLDCDB
D5A
RD5A
DVROSE
RDVROSE
RDVROSE
PT29
RPT29
B16B
RB16B
PT30
RPT30


621
B16A
626
D5B
631
PT31
634
RPT31
637
PT32
640
RPT32
643
HYDRO2
678
RHYDRO2
681
B12
686
PT33W
691
689
DVBD7
RDVBD7
692
RDVBD7
695
PT33
698
RPT33
701
B15A
706
PT34W
709
PT34
712
MNWB
717
RMNWB
720
MNWC
725
PT35
728
RPT35
731
MNWD
736
PT36
739
RPT36
742
MC2
747
PT37
750
RPT37
753
B10A
758
PT38
761
RPT38
764
PT39
767
RPT39
770
D6
775
PT40


778 RPT40
781 D7
786 PT41
789 RPT41
792 D8
797 RD8
800 PT42
803 RPT42
806 B10B
811 RB10B
814 D9A
819 PT43
822 RPT43
825 PT44
828 RPT44
831 D9B
836 PT45
839 RPT45
842 D10
847 PT46
850 RPT46
853 MC
862
860 TORAW
865 MCDB
873 RMCDB
878
876 RTORAW
879 PT47
882 RPT47
885 RH
890 PT48W
893 B20
898 RB20
902 PT48
905 RPT48
TORAW
TORAW

```
                .
908             .          D12
                .           V
                .           V
913             .         RD12
                .            .
                .            .
917             .            .         D11A
                .            .           .
                .            .           .
922             .         PT49.............
                .           V
                .           V
925             .        RPT49
                .            .
                .            .
929          PT50.............
               V
               V
932         RPT50
               .
               .
935             .         D11B
                .            .
                .            .
940          PT51.............

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            SEPTEMBER 1990            *
*             VERSION 4.0              *
*                                      *
*  RUN DATE  01/21/2002  TIME  15:40:04 *
*                                      *
****************************************

****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************

                      DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
                      "G.C. WALLACE, INC. BY MJL"
                      DUCK4.XLS
                      "MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
                      "BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
                      UPDATED PRECIPITATION VALUES
                      % IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
                      ADDITIONAL DIVERSIONS ADDED
                      DESIGN STORM = 100-YEAR 6-HOUR STORM
                      STORM DISTRIBUTION = SDN4
                        JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

                        AREA (SQUARE MILES)    DARF
                       8-9    0.875
                       9-10    0.865
                       10-11    0.857
                       11-12    0.850


 20 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE      1    0  STARTING DATE
                     ITIME         0000  STARTING TIME
                        NQ         120  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE      1    0  ENDING DATE
                    NDTIME         0955  ENDING TIME
                     ICENT           19  CENTURY MARK

                   COMPUTATION INTERVAL      .08 HOURS
                       TOTAL TIME BASE    9.92 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

    JP          MULTI-PLAN OPTION
                     NPLAN          1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                    RATIOS OF PRECIPITATION
                    .88       .87       .86       .85


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

             **************
             *            *
572 KK       *     LDCDB  *
             *            *
             **************
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583 KO OUTPUT CONTROL VARIABLES

| | | |
|---|---|---|
| IPRNT | 1 | PRINT CONTROL |
| IPLOT | 0 | PLOT CONTROL |
| QSCAL | 0. | HYDROGRAPH PLOT SCALE |

HYDROGRAPH ROUTING DATA

574 RS STORAGE ROUTING

| | | |
|---|---|---|
| NSTPS | 1 | NUMBER OF SUBREACHES |
| ITYP | STOR | TYPE OF INITIAL CONDITION |
| RSVRIC | .00 | INITIAL CONDITION |
| X | .00 | WORKING R AND D COEFFICIENT |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 575 SV | STORAGE | .0 | 2.8 | 37.5 | 120.3 | 229.0 | 340.0 | 453.8 | 570.0 | 689.0 | 810.0 |
| | | 934.0 | 1061.0 | 1190.0 | | | | | | | |
| 577 SE | ELEVATION | 2183.00 | 2184.00 | 2186.00 | 2188.00 | 2190.00 | 2192.00 | 2194.00 | 2196.00 | 2198.00 | 2200.00 |
| | | 2202.00 | 2204.00 | 2206.00 | | | | | | | |
| 579 SQ | DISCHARGE | 0. | 126. | 654. | 1825. | 3310. | 4310. | 5118. | 5815. | 6437. | 7004. |
| | | 7528. | 8018. | 8480. | | | | | | | |
| 581 SE | ELEVATION | 2183.00 | 2184.00 | 2186.00 | 2188.00 | 2190.00 | 2192.00 | 2194.00 | 2196.00 | 2198.00 | 2200.00 |
| | | 2202.00 | 2204.00 | 2206.00 | | | | | | | |

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| STORAGE | .00 | 2.80 | 37.50 | 120.30 | 229.00 | 340.00 | 453.80 | 570.00 | 689.00 | 810.00 |
| OUTFLOW | .00 | 126.00 | 654.00 | 1825.00 | 3310.00 | 4310.00 | 5118.00 | 5815.00 | 6437.00 | 7004.00 |
| ELEVATION | 2183.00 | 2184.00 | 2186.00 | 2188.00 | 2190.00 | 2192.00 | 2194.00 | 2196.00 | 2198.00 | 2200.00 |

| | | | |
|---|---|---|---|
| STORAGE | 934.00 | 1061.00 | 1190.00 |
| OUTFLOW | 7528.00 | 8018.00 | 8480.00 |
| ELEVATION | 2202.00 | 2204.00 | 2206.00 |

WARNING --- ROUTED OUTFLOW ( 8564.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8797.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9033.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9269.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9504.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9739.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9972.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10203.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10429.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10650.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10865.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11072.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11270.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11458.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11635.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11799.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11950.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12088.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12212.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12321.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12415.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12493.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12556.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12604.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12636.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12652.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12654.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12641.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12614.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12573.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12519.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12453.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12376.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12290.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12194.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12089.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11977.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11857.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11730.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11596.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11454.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11306.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11152.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10992.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10828.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10660.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .88

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 500. | 27.4 | 2185.4 | 1 | | 0640 | 81 | 9972. | 1606.7 | 2212.5 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 605. | 34.3 | 2185.8 | 1 | | 0645 | 82 | 10203. | 1671.0 | 2213.5 |
| 1 | | 0010 | 3 | 2. | .1 | 2183.0 | 1 | | 0330 | 43 | 745. | 43.9 | 2186.2 | 1 | | 0650 | 83 | 10429. | 1734.2 | 2214.4 |
| 1 | | 0015 | 4 | 9. | .2 | 2183.1 | 1 | | 0335 | 44 | 932. | 57.1 | 2186.5 | 1 | | 0655 | 84 | 10650. | 1796.0 | 2215.4 |
| 1 | | 0020 | 5 | 22. | .5 | 2183.2 | 1 | | 0340 | 45 | 1173. | 74.2 | 2186.9 | 1 | | 0700 | 85 | 10865. | 1855.9 | 2216.3 |
| 1 | | 0025 | 6 | 41. | .9 | 2183.3 | 1 | | 0345 | 46 | 1455. | 94.1 | 2187.4 | 1 | | 0705 | 86 | 11072. | 1913.7 | 2217.2 |
| 1 | | 0030 | 7 | 64. | 1.4 | 2183.5 | 1 | | 0350 | 47 | 1754. | 115.3 | 2187.9 | 1 | | 0710 | 87 | 11270. | 1969.1 | 2218.1 |
| 1 | | 0035 | 8 | 88. | 1.9 | 2183.7 | 1 | | 0355 | 48 | 2041. | 136.1 | 2188.3 | 1 | | 0715 | 88 | 11458. | 2021.5 | 2218.9 |
| 1 | | 0040 | 9 | 107. | 2.4 | 2183.9 | 1 | | 0400 | 49 | 2309. | 155.7 | 2188.7 | 1 | | 0720 | 89 | 11635. | 2070.9 | 2219.7 |
| 1 | | 0045 | 10 | 120. | 2.7 | 2184.0 | 1 | | 0405 | 50 | 2558. | 174.0 | 2189.0 | 1 | | 0725 | 90 | 11799. | 2116.8 | 2220.4 |
| 1 | | 0050 | 11 | 126. | 2.8 | 2184.0 | 1 | | 0410 | 51 | 2790. | 190.9 | 2189.3 | 1 | | 0730 | 91 | 11950. | 2159.0 | 2221.0 |
| 1 | | 0055 | 12 | 123. | 2.7 | 2184.0 | 1 | | 0415 | 52 | 3006. | 206.7 | 2189.6 | 1 | | 0735 | 92 | 12088. | 2197.5 | 2221.6 |
| 1 | | 0100 | 13 | 116. | 2.6 | 2183.9 | 1 | | 0420 | 53 | 3213. | 221.9 | 2189.9 | 1 | | 0740 | 93 | 12212. | 2231.9 | 2222.2 |
| 1 | | 0105 | 14 | 106. | 2.3 | 2183.8 | 1 | | 0425 | 54 | 3384. | 237.2 | 2190.1 | 1 | | 0745 | 94 | 12321. | 2262.4 | 2222.6 |
| 1 | | 0110 | 15 | 94. | 2.1 | 2183.7 | 1 | | 0430 | 55 | 3535. | 253.9 | 2190.4 | 1 | | 0750 | 95 | 12415. | 2288.6 | 2223.0 |
| 1 | | 0115 | 16 | 84. | 1.9 | 2183.7 | 1 | | 0435 | 56 | 3710. | 273.4 | 2190.8 | 1 | | 0755 | 96 | 12493. | 2310.6 | 2223.4 |
| 1 | | 0120 | 17 | 75. | 1.7 | 2183.6 | 1 | | 0440 | 57 | 3921. | 296.8 | 2191.2 | 1 | | 0800 | 97 | 12556. | 2328.2 | 2223.6 |
| 1 | | 0125 | 18 | 69. | 1.5 | 2183.5 | 1 | | 0445 | 58 | 4172. | 324.7 | 2191.7 | 1 | | 0805 | 98 | 12604. | 2341.5 | 2223.9 |
| 1 | | 0130 | 19 | 65. | 1.5 | 2183.5 | 1 | | 0450 | 59 | 4433. | 357.3 | 2192.3 | 1 | | 0810 | 99 | 12636. | 2350.4 | 2224.0 |
| 1 | | 0135 | 20 | 66. | 1.5 | 2183.5 | 1 | | 0455 | 60 | 4698. | 394.7 | 2193.0 | 1 | | 0815 | 100 | 12652. | 2355.0 | 2224.1 |
| 1 | | 0140 | 21 | 72. | 1.6 | 2183.6 | 1 | | 0500 | 61 | 4993. | 436.2 | 2193.7 | 1 | | 0820 | 101 | 12654. | 2355.4 | 2224.1 |
| 1 | | 0145 | 22 | 82. | 1.8 | 2183.6 | 1 | | 0505 | 62 | 5282. | 481.2 | 2194.5 | 1 | | 0825 | 102 | 12641. | 2351.8 | 2224.0 |
| 1 | | 0150 | 23 | 95. | 2.1 | 2183.8 | 1 | | 0510 | 63 | 5566. | 528.5 | 2195.3 | 1 | | 0830 | 103 | 12614. | 2344.3 | 2223.9 |
| 1 | | 0155 | 24 | 109. | 2.4 | 2183.9 | 1 | | 0515 | 64 | 5854. | 577.4 | 2196.1 | 1 | | 0835 | 104 | 12573. | 2332.9 | 2223.7 |
| 1 | | 0200 | 25 | 124. | 2.7 | 2184.0 | 1 | | 0520 | 65 | 6116. | 627.6 | 2197.0 | 1 | | 0840 | 105 | 12519. | 2317.8 | 2223.5 |
| 1 | | 0205 | 26 | 130. | 3.1 | 2184.0 | 1 | | 0525 | 66 | 6385. | 679.1 | 2197.8 | 1 | | 0845 | 106 | 12453. | 2299.4 | 2223.2 |
| 1 | | 0210 | 27 | 135. | 3.4 | 2184.0 | 1 | | 0530 | 67 | 6639. | 732.1 | 2198.7 | 1 | | 0850 | 107 | 12376. | 2277.9 | 2222.9 |
| 1 | | 0215 | 28 | 142. | 3.8 | 2184.1 | 1 | | 0535 | 68 | 6895. | 786.8 | 2199.6 | 1 | | 0855 | 108 | 12290. | 2253.7 | 2222.5 |
| 1 | | 0220 | 29 | 149. | 4.3 | 2184.1 | 1 | | 0540 | 69 | 7144. | 843.2 | 2200.5 | 1 | | 0900 | 109 | 12194. | 2226.9 | 2222.1 |
| 1 | | 0225 | 30 | 158. | 4.9 | 2184.1 | 1 | | 0545 | 70 | 7390. | 901.4 | 2201.5 | 1 | | 0905 | 110 | 12089. | 2197.8 | 2221.6 |
| 1 | | 0230 | 31 | 170. | 5.7 | 2184.2 | 1 | | 0550 | 71 | 7633. | 961.2 | 2202.4 | 1 | | 0910 | 111 | 11977. | 2166.4 | 2221.1 |
| 1 | | 0235 | 32 | 183. | 6.5 | 2184.2 | 1 | | 0555 | 72 | 7869. | 1022.5 | 2203.4 | 1 | | 0915 | 112 | 11857. | 2133.0 | 2220.6 |
| 1 | | 0240 | 33 | 198. | 7.5 | 2184.3 | 1 | | 0600 | 73 | 8104. | 1085.1 | 2204.4 | 1 | | 0920 | 113 | 11730. | 2097.5 | 2220.1 |
| 1 | | 0245 | 34 | 215. | 8.6 | 2184.3 | 1 | | 0605 | 74 | 8332. | 1148.8 | 2205.4 | 1 | | 0925 | 114 | 11596. | 2060.0 | 2219.5 |
| 1 | | 0250 | 35 | 234. | 9.9 | 2184.4 | 1 | | 0610 | 75 | 8564. | 1213.4 | 2206.4 | 1 | | 0930 | 115 | 11454. | 2020.5 | 2218.9 |
| 1 | | 0255 | 36 | 258. | 11.5 | 2184.5 | 1 | | 0615 | 76 | 8797. | 1278.6 | 2207.4 | 1 | | 0935 | 116 | 11306. | 1979.1 | 2218.2 |
| 1 | | 0300 | 37 | 287. | 13.4 | 2184.6 | 1 | | 0620 | 77 | 9033. | 1344.3 | 2208.4 | 1 | | 0940 | 117 | 11152. | 1936.0 | 2217.6 |
| 1 | | 0305 | 38 | 322. | 15.7 | 2184.7 | 1 | | 0625 | 78 | 9269. | 1410.2 | 2209.4 | 1 | | 0945 | 118 | 10992. | 1891.4 | 2216.9 |
| 1 | | 0310 | 39 | 366. | 18.6 | 2184.9 | 1 | | 0630 | 79 | 9504. | 1476.0 | 2210.4 | 1 | | 0950 | 119 | 10828. | 1845.5 | 2216.2 |
| 1 | | 0315 | 40 | 423. | 22.3 | 2185.1 | 1 | | 0635 | 80 | 9739. | 1541.6 | 2211.5 | 1 | | 0955 | 120 | 10660. | 1798.8 | 2215.4 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 12654. | 8.33 | | 9136. | 5640. | 5640. | 5640. |
| | | (INCHES) | 2.213 | 2.258 | 2.258 | 2.258 |
| | | (AC-FT) | 4530. | 4622. | 4622. | 4622. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 2355. | 8.33 | 1469. | 895. | 895. | 895. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2224.07 | 8.33 | 2210.11 | 2199.93 | 2199.93 | 2199.93 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8679.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8909.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9139.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9369.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9598.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9825.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10050.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10271.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10487.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10696.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10899.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11092.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11276.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11448.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11609.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11757.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11891.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12012.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12119.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12211.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12288.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12349.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12396.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12427.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12443.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12445.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12432.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12405.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12365.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12313.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12248.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12173.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12088.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11995.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11893.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11783.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11666.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11541.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11409.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11270.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11124.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10972.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10815.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10654.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10489.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .87

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 479. | 26.0 | 2185.3 | 1 | | 0640 | 81 | 9825. | 1565.6 | 2211.8 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 582. | 32.7 | 2185.7 | 1 | | 0645 | 82 | 10050. | 1628.3 | 2212.8 |
| 1 | | 0010 | 3 | 2. | .1 | 2183.0 | 1 | | 0330 | 43 | 719. | 42.1 | 2186.1 | 1 | | 0650 | 83 | 10271. | 1690.0 | 2213.8 |
| 1 | | 0015 | 4 | 9. | .2 | 2183.1 | 1 | | 0335 | 44 | 901. | 54.9 | 2186.4 | 1 | | 0655 | 84 | 10487. | 1750.3 | 2214.7 |
| 1 | | 0020 | 5 | 22. | .5 | 2183.2 | 1 | | 0340 | 45 | 1135. | 71.5 | 2186.8 | 1 | | 0700 | 85 | 10696. | 1808.9 | 2215.6 |
| 1 | | 0025 | 6 | 41. | .9 | 2183.3 | 1 | | 0345 | 46 | 1411. | 91.0 | 2187.3 | 1 | | 0705 | 86 | 10899. | 1865.3 | 2216.5 |
| 1 | | 0030 | 7 | 64. | 1.4 | 2183.5 | 1 | | 0350 | 47 | 1703. | 111.7 | 2187.8 | 1 | | 0710 | 87 | 11092. | 1919.4 | 2217.3 |
| 1 | | 0035 | 8 | 87. | 1.9 | 2183.7 | 1 | | 0355 | 48 | 1984. | 132.0 | 2188.2 | 1 | | 0715 | 88 | 11276. | 1970.6 | 2218.1 |
| 1 | | 0040 | 9 | 106. | 2.4 | 2183.8 | 1 | | 0400 | 49 | 2246. | 151.1 | 2188.6 | 1 | | 0720 | 89 | 11448. | 2018.8 | 2218.8 |
| 1 | | 0045 | 10 | 119. | 2.6 | 2183.9 | 1 | | 0405 | 50 | 2490. | 169.0 | 2188.9 | 1 | | 0725 | 90 | 11609. | 2063.6 | 2219.5 |
| 1 | | 0050 | 11 | 124. | 2.8 | 2184.0 | 1 | | 0410 | 51 | 2717. | 185.6 | 2189.2 | 1 | | 0730 | 91 | 11757. | 2104.9 | 2220.2 |
| 1 | | 0055 | 12 | 122. | 2.7 | 2184.0 | 1 | | 0415 | 52 | 2930. | 201.2 | 2189.5 | 1 | | 0735 | 92 | 11891. | 2142.5 | 2220.8 |
| 1 | | 0100 | 13 | 115. | 2.5 | 2183.9 | 1 | | 0420 | 53 | 3134. | 216.1 | 2189.8 | 1 | | 0740 | 93 | 12012. | 2176.3 | 2221.3 |
| 1 | | 0105 | 14 | 104. | 2.3 | 2183.8 | 1 | | 0425 | 54 | 3329. | 231.1 | 2190.0 | 1 | | 0745 | 94 | 12119. | 2206.0 | 2221.8 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0110 | 15 | 93. | 2.1 | 2183.7 | * | 1 | 0430 | 55 | 3475. | 247.3 | 2190.3 | * | 1 | 0750 | 95 | 12211. | 2231.7 | 2222.2 |
| 1 | 0115 | 16 | 82. | 1.8 | 2183.7 | • | 1 | 0435 | 56 | 3645. | 266.2 | 2190.7 | • | 1 | 0755 | 96 | 12288. | 2253.2 | 2222.5 |
| 1 | 0120 | 17 | 74. | 1.6 | 2183.6 | * | 1 | 0440 | 57 | 3849. | 288.8 | 2191.1 | • | 1 | 0800 | 97 | 12349. | 2270.4 | 2222.8 |
| 1 | 0125 | 18 | 67. | 1.5 | 2183.5 | * | 1 | 0445 | 58 | 4093. | 315.9 | 2191.6 | • | 1 | 0805 | 98 | 12396. | 2283.3 | 2223.0 |
| 1 | 0130 | 19 | 64. | 1.4 | 2183.5 | • | 1 | 0450 | 59 | 4364. | 347.6 | 2192.1 | * | 1 | 0810 | 99 | 12427. | 2292.0 | 2223.1 |
| 1 | 0135 | 20 | 65. | 1.4 | 2183.5 | • | 1 | 0455 | 60 | 4621. | 383.8 | 2192.8 | • | 1 | 0815 | 100 | 12443. | 2296.5 | 2223.2 |
| 1 | 0140 | 21 | 69. | 1.5 | 2183.6 | * | 1 | 0500 | 61 | 4909. | 424.4 | 2193.5 | • | 1 | 0820 | 101 | 12445. | 2297.0 | 2223.2 |
| 1 | 0145 | 22 | 79. | 1.8 | 2183.6 | • | 1 | 0505 | 62 | 5205. | 468.3 | 2194.2 | • | 1 | 0825 | 102 | 12432. | 2293.5 | 2223.1 |
| 1 | 0150 | 23 | 91. | 2.0 | 2183.7 | * | 1 | 0510 | 63 | 5483. | 514.6 | 2195.0 | * | 1 | 0830 | 103 | 12405. | 2286.1 | 2223.0 |
| 1 | 0155 | 24 | 105. | 2.3 | 2183.8 | * | 1 | 0515 | 64 | 5770. | 562.5 | 2195.9 | • | 1 | 0835 | 104 | 12365. | 2274.9 | 2222.8 |
| 1 | 0200 | 25 | 119. | 2.6 | 2183.9 | * | 1 | 0520 | 65 | 6032. | 611.5 | 2196.7 | • | 1 | 0840 | 105 | 12313. | 2260.1 | 2222.6 |
| 1 | 0205 | 26 | 128. | 2.9 | 2184.0 | * | 1 | 0525 | 66 | 6295. | 661.8 | 2197.5 | • | 1 | 0845 | 106 | 12248. | 2242.2 | 2222.3 |
| 1 | 0210 | 27 | 133. | 3.2 | 2184.0 | • | 1 | 0530 | 67 | 6552. | 713.5 | 2198.4 | • | 1 | 0850 | 107 | 12173. | 2221.2 | 2222.0 |
| 1 | 0215 | 28 | 138. | 3.6 | 2184.0 | * | 1 | 0535 | 68 | 6802. | 766.8 | 2199.3 | • | 1 | 0855 | 108 | 12088. | 2197.6 | 2221.6 |
| 1 | 0220 | 29 | 145. | 4.1 | 2184.1 | * | 1 | 0540 | 69 | 7053. | 821.7 | 2200.2 | • | 1 | 0900 | 109 | 11995. | 2171.4 | 2221.2 |
| 1 | 0225 | 30 | 154. | 4.6 | 2184.1 | * | 1 | 0545 | 70 | 7292. | 878.3 | 2201.1 | • | 1 | 0905 | 110 | 11893. | 2142.9 | 2220.8 |
| 1 | 0230 | 31 | 164. | 5.3 | 2184.1 | * | 1 | 0550 | 71 | 7537. | 936.4 | 2202.0 | * | 1 | 0910 | 111 | 11783. | 2112.2 | 2220.3 |
| 1 | 0235 | 32 | 177. | 6.1 | 2184.2 | • | 1 | 0555 | 72 | 7768. | 996.1 | 2203.0 | * | 1 | 0915 | 112 | 11666. | 2079.5 | 2219.8 |
| 1 | 0240 | 33 | 191. | 7.1 | 2184.2 | * | 1 | 0600 | 73 | 8003. | 1057.0 | 2203.9 | * | 1 | 0920 | 113 | 11541. | 2044.7 | 2219.3 |
| 1 | 0245 | 34 | 207. | 8.1 | 2184.3 | • | 1 | 0605 | 74 | 8226. | 1119.0 | 2204.9 | * | 1 | 0925 | 114 | 11409. | 2007.8 | 2218.7 |
| 1 | 0250 | 35 | 225. | 9.3 | 2184.4 | • | 1 | 0610 | 75 | 8451. | 1182.0 | 2205.9 | • | 1 | 0930 | 115 | 11270. | 1968.9 | 2218.1 |
| 1 | 0255 | 36 | 248. | 10.8 | 2184.5 | • | 1 | 0615 | 76 | 8679. | 1245.6 | 2206.9 | • | 1 | 0935 | 116 | 11124. | 1928.2 | 2217.4 |
| 1 | 0300 | 37 | 275. | 12.6 | 2184.6 | * | 1 | 0620 | 77 | 8909. | 1309.7 | 2207.9 | • | 1 | 0940 | 117 | 10972. | 1885.8 | 2216.8 |
| 1 | 0305 | 38 | 308. | 14.8 | 2184.7 | * | 1 | 0625 | 78 | 9139. | 1373.9 | 2208.9 | • | 1 | 0945 | 118 | 10815. | 1842.0 | 2216.1 |
| 1 | 0310 | 39 | 351. | 17.6 | 2184.9 | * | 1 | 0630 | 79 | 9369. | 1438.1 | 2209.8 | • | 1 | 0950 | 119 | 10654. | 1797.0 | 2215.4 |
| 1 | 0315 | 40 | 405. | 21.2 | 2185.1 | * | 1 | 0635 | 80 | 9598. | 1502.1 | 2210.8 | • | 1 | 0955 | 120 | 10489. | 1751.1 | 2214.7 |
| | | | | | | * | | | | | | | * | | | | | | |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 12445. | 8.33 | | 8991. | 5549. | 5549. | 5549. |
| | | (INCHES) | 2.178 | 2.222 | 2.222 | 2.222 |
| | | (AC-FT) | 4458. | 4548. | 4548. | 4548. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 2297. | 8.33 | 1432. | 872. | 872. | 872. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 2223.16 | 8.33 | 2209.52 | 2199.57 | 2199.57 | 2199.57 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8586.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8811.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9036.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9262.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9486.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9709.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9929.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10146.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10358.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10563.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10762.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10951.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11131.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11301.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11458.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11604.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11736.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11854.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11959.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12049.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12125.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12185.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12231.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12261.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12277.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12279.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12266.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12240.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12201.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12149.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12086.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12012.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11929.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11837.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11737.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11629.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11513.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11391.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11260.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11123.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10979.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10829.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10675.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10516.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10353.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .86

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 464. | 25.0 | 2185.3 | 1 | | 0640 | 81 | 9709. | 1533.2 | 2211.3 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 563. | 31.5 | 2185.7 | 1 | | 0645 | 82 | 9929. | 1594.7 | 2212.3 |
| 1 | | 0010 | 3 | 2. | .1 | 2183.0 | 1 | | 0330 | 43 | 699. | 40.7 | 2186.1 | 1 | | 0650 | 83 | 10146. | 1655.2 | 2213.2 |
| 1 | | 0015 | 4 | 9. | .2 | 2183.1 | 1 | | 0335 | 44 | 876. | 53.2 | 2186.4 | 1 | | 0655 | 84 | 10358. | 1714.3 | 2214.1 |
| 1 | | 0020 | 5 | 21. | .5 | 2183.2 | 1 | | 0340 | 45 | 1106. | 69.4 | 2186.8 | 1 | | 0700 | 85 | 10563. | 1771.7 | 2215.0 |
| 1 | | 0025 | 6 | 40. | .9 | 2183.3 | 1 | | 0345 | 46 | 1376. | 88.6 | 2187.2 | 1 | | 0705 | 86 | 10762. | 1827.1 | 2215.9 |
| 1 | | 0030 | 7 | 63. | 1.4 | 2183.5 | 1 | | 0350 | 47 | 1662. | 108.8 | 2187.7 | 1 | | 0710 | 87 | 10951. | 1880.1 | 2216.7 |
| 1 | | 0035 | 8 | 86. | 1.9 | 2183.7 | 1 | | 0355 | 48 | 1940. | 128.7 | 2188.2 | 1 | | 0715 | 88 | 11131. | 1930.3 | 2217.5 |
| 1 | | 0040 | 9 | 105. | 2.3 | 2183.8 | 1 | | 0400 | 49 | 2196. | 147.5 | 2188.5 | 1 | | 0720 | 89 | 11301. | 1977.6 | 2218.2 |
| 1 | | 0045 | 10 | 118. | 2.6 | 2183.9 | 1 | | 0405 | 50 | 2436. | 165.0 | 2188.8 | 1 | | 0725 | 90 | 11458. | 2021.6 | 2218.9 |
| 1 | | 0050 | 11 | 123. | 2.7 | 2184.0 | 1 | | 0410 | 51 | 2660. | 181.4 | 2189.1 | 1 | | 0730 | 91 | 11604. | 2062.2 | 2219.5 |
| 1 | | 0055 | 12 | 121. | 2.7 | 2184.0 | 1 | | 0415 | 52 | 2871. | 196.8 | 2189.4 | 1 | | 0735 | 92 | 11736. | 2099.1 | 2220.1 |
| 1 | | 0100 | 13 | 114. | 2.5 | 2183.9 | 1 | | 0420 | 53 | 3072. | 211.6 | 2189.7 | 1 | | 0740 | 93 | 11854. | 2132.2 | 2220.6 |
| 1 | | 0105 | 14 | 103. | 2.3 | 2183.8 | 1 | | 0425 | 54 | 3274. | 226.4 | 2190.0 | 1 | | 0745 | 94 | 11959. | 2161.4 | 2221.1 |
| 1 | | 0110 | 15 | 92. | 2.0 | 2183.7 | 1 | | 0430 | 55 | 3429. | 242.2 | 2190.2 | 1 | | 0750 | 95 | 12049. | 2186.6 | 2221.5 |
| 1 | | 0115 | 16 | 82. | 1.8 | 2183.6 | 1 | | 0435 | 56 | 3594. | 260.5 | 2190.6 | 1 | | 0755 | 96 | 12125. | 2207.7 | 2221.8 |
| 1 | | 0120 | 17 | 73. | 1.6 | 2183.6 | 1 | | 0440 | 57 | 3791. | 282.4 | 2191.0 | 1 | | 0800 | 97 | 12185. | 2224.6 | 2222.0 |
| 1 | | 0125 | 18 | 66. | 1.5 | 2183.5 | 1 | | 0445 | 58 | 4029. | 308.8 | 2191.4 | 1 | | 0805 | 98 | 12231. | 2237.2 | 2222.2 |
| 1 | | 0130 | 19 | 63. | 1.4 | 2183.5 | 1 | | 0450 | 59 | 4308. | 339.8 | 2192.0 | 1 | | 0810 | 99 | 12261. | 2245.8 | 2222.4 |
| 1 | | 0135 | 20 | 63. | 1.4 | 2183.5 | 1 | | 0455 | 60 | 4560. | 375.2 | 2192.6 | 1 | | 0815 | 100 | 12277. | 2250.2 | 2222.4 |
| 1 | | 0140 | 21 | 68. | 1.5 | 2183.5 | 1 | | 0500 | 61 | 4842. | 415.0 | 2193.3 | 1 | | 0820 | 101 | 12279. | 2250.7 | 2222.4 |
| 1 | | 0145 | 22 | 77. | 1.7 | 2183.6 | 1 | | 0505 | 62 | 5144. | 458.1 | 2194.1 | 1 | | 0825 | 102 | 12266. | 2247.2 | 2222.4 |
| 1 | | 0150 | 23 | 89. | 2.0 | 2183.7 | 1 | | 0510 | 63 | 5416. | 503.5 | 2194.9 | 1 | | 0830 | 103 | 12240. | 2239.9 | 2222.3 |
| 1 | | 0155 | 24 | 102. | 2.3 | 2183.8 | 1 | | 0515 | 64 | 5699. | 550.6 | 2195.7 | 1 | | 0835 | 104 | 12201. | 2228.9 | 2222.1 |
| 1 | | 0200 | 25 | 115. | 2.6 | 2183.9 | 1 | | 0520 | 65 | 5966. | 598.8 | 2196.5 | 1 | | 0840 | 105 | 12149. | 2214.4 | 2221.9 |
| 1 | | 0205 | 26 | 126. | 2.8 | 2184.0 | 1 | | 0525 | 66 | 6224. | 648.2 | 2197.3 | 1 | | 0845 | 106 | 12086. | 2196.8 | 2221.6 |
| 1 | | 0210 | 27 | 131. | 3.1 | 2184.0 | 1 | | 0530 | 67 | 6483. | 698.9 | 2198.2 | 1 | | 0850 | 107 | 12012. | 2176.2 | 2221.3 |
| 1 | | 0215 | 28 | 136. | 3.5 | 2184.0 | 1 | | 0535 | 68 | 6728. | 751.0 | 2199.0 | 1 | | 0855 | 108 | 11929. | 2153.0 | 2220.9 |
| 1 | | 0220 | 29 | 142. | 3.9 | 2184.1 | 1 | | 0540 | 69 | 6980. | 804.8 | 2199.9 | 1 | | 0900 | 109 | 11837. | 2127.3 | 2220.5 |
| 1 | | 0225 | 30 | 150. | 4.4 | 2184.1 | 1 | | 0545 | 70 | 7216. | 860.1 | 2200.8 | 1 | | 0905 | 110 | 11737. | 2099.4 | 2220.1 |
| 1 | | 0230 | 31 | 160. | 5.0 | 2184.1 | 1 | | 0550 | 71 | 7456. | 917.0 | 2201.7 | 1 | | 0910 | 111 | 11629. | 2069.2 | 2219.6 |
| 1 | | 0235 | 32 | 172. | 5.8 | 2184.2 | 1 | | 0555 | 72 | 7687. | 975.3 | 2202.7 | 1 | | 0915 | 112 | 11513. | 2037.0 | 2219.1 |
| 1 | | 0240 | 33 | 185. | 6.7 | 2184.2 | 1 | | 0600 | 73 | 7917. | 1034.9 | 2203.6 | 1 | | 0920 | 113 | 11391. | 2002.7 | 2218.6 |
| 1 | | 0245 | 34 | 201. | 7.7 | 2184.3 | 1 | | 0605 | 74 | 8142. | 1095.6 | 2204.5 | 1 | | 0925 | 114 | 11260. | 1966.4 | 2218.0 |
| 1 | | 0250 | 35 | 218. | 8.9 | 2184.3 | 1 | | 0610 | 75 | 8363. | 1157.3 | 2205.5 | 1 | | 0930 | 115 | 11123. | 1928.0 | 2217.4 |
| 1 | | 0255 | 36 | 239. | 10.3 | 2184.4 | 1 | | 0615 | 76 | 8586. | 1219.6 | 2206.5 | 1 | | 0935 | 116 | 10979. | 1887.8 | 2216.8 |
| 1 | | 0300 | 37 | 266. | 12.0 | 2184.5 | 1 | | 0620 | 77 | 8811. | 1282.3 | 2207.4 | 1 | | 0940 | 117 | 10829. | 1846.0 | 2216.2 |
| 1 | | 0305 | 38 | 298. | 14.1 | 2184.7 | 1 | | 0625 | 78 | 9036. | 1345.3 | 2208.4 | 1 | | 0945 | 118 | 10675. | 1802.8 | 2215.5 |
| 1 | | 0310 | 39 | 339. | 16.8 | 2184.8 | 1 | | 0630 | 79 | 9262. | 1408.2 | 2209.4 | 1 | | 0950 | 119 | 10516. | 1758.4 | 2214.8 |
| 1 | | 0315 | 40 | 392. | 20.3 | 2185.0 | 1 | | 0635 | 80 | 9486. | 1471.0 | 2210.4 | 1 | | 0955 | 120 | 10353. | 1713.1 | 2214.1 |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 12279. | 8.33 | | 8876. | 5477. | 5477. | 5477. |
| | | (INCHES) | 2.150 | 2.193 | 2.193 | 2.193 |
| | | (AC-FT) | 4401. | 4488. | 4488. | 4488. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 2251. | 8.33 | | 1403. | 854. | 854. | 854. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 2222.44 | 8.33 | | 2209.06 | 2199.28 | 2199.28 | 2199.28 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8505.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8726.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8947.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9169.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9390.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9609.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9825.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10038.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10246.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10448.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10643.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10830.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11007.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11173.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11328.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11471.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11602.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11718.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11821.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11910.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11984.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 12043.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 12088.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 12118.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 12134.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 12135.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 12123.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 12097.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 12058.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 12007.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11945.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11872.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11791.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11700.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11602.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11495.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11382.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11260.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11132.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10996.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10854.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10706.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10553.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10396.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10235.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .85

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 450. | 24.1 | 2185.2 | 1 | | 0640 | 81 | 9609. | 1505.1 | 2210.9 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 547. | 30.5 | 2185.6 | 1 | | 0645 | 82 | 9825. | 1565.6 | 2211.8 |
| 1 | | 0010 | 3 | 2. | .1 | 2183.0 | 1 | | 0330 | 43 | 681. | 39.4 | 2186.0 | 1 | | 0650 | 83 | 10038. | 1625.0 | 2212.7 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0015 | 4 | 8. | .2 | 2183.1 | * | 1 | 0335 | 44 | 855. | 51.7 | 2186.3 | * | 1 | 0655 | 84 | 10246. | 1683.2 | 2213.6 |
| 1 | 0020 | 5 | 21. | .5 | 2183.2 | * | 1 | 0340 | 45 | 1081. | 67.7 | 2186.7 | * | 1 | 0700 | 85 | 10448. | 1739.6 | 2214.5 |
| 1 | 0025 | 6 | 40. | .9 | 2183.3 | * | 1 | 0345 | 46 | 1346. | 86.4 | 2187.2 | * | 1 | 0705 | 86 | 10643. | 1794.0 | 2215.4 |
| 1 | 0030 | 7 | 63. | 1.4 | 2183.5 | * | 1 | 0350 | 47 | 1627. | 106.3 | 2187.7 | * | 1 | 0710 | 87 | 10830. | 1846.1 | 2216.2 |
| 1 | 0035 | 8 | 85. | 1.9 | 2183.7 | * | 1 | 0355 | 48 | 1901. | 125.9 | 2188.1 | * | 1 | 0715 | 88 | 11007. | 1895.6 | 2216.9 |
| 1 | 0040 | 9 | 104. | 2.3 | 2183.8 | * | 1 | 0400 | 49 | 2153. | 144.3 | 2188.4 | * | 1 | 0720 | 89 | 11173. | 1942.1 | 2217.7 |
| 1 | 0045 | 10 | 117. | 2.6 | 2183.9 | * | 1 | 0405 | 50 | 2389. | 161.6 | 2188.8 | * | 1 | 0725 | 90 | 11328. | 1985.4 | 2218.3 |
| 1 | 0050 | 11 | 122. | 2.7 | 2184.0 | * | 1 | 0410 | 51 | 2610. | 177.8 | 2189.1 | * | 1 | 0730 | 91 | 11471. | 2025.3 | 2218.9 |
| 1 | 0055 | 12 | 120. | 2.7 | 2184.0 | * | 1 | 0415 | 52 | 2819. | 193.0 | 2189.3 | * | 1 | 0735 | 92 | 11602. | 2061.6 | 2219.5 |
| 1 | 0100 | 13 | 113. | 2.5 | 2183.9 | * | 1 | 0420 | 53 | 3018. | 207.6 | 2189.6 | * | 1 | 0740 | 93 | 11718. | 2094.2 | 2220.0 |
| 1 | 0105 | 14 | 102. | 2.3 | 2183.8 | * | 1 | 0425 | 54 | 3217. | 222.2 | 2189.9 | * | 1 | 0745 | 94 | 11821. | 2122.9 | 2220.5 |
| 1 | 0110 | 15 | 91. | 2.0 | 2183.7 | * | 1 | 0430 | 55 | 3389. | 237.7 | 2190.2 | * | 1 | 0750 | 95 | 11910. | 2147.7 | 2220.8 |
| 1 | 0115 | 16 | 81. | 1.8 | 2183.6 | * | 1 | 0435 | 56 | 3549. | 255.6 | 2190.5 | * | 1 | 0755 | 96 | 11984. | 2168.4 | 2221.2 |
| 1 | 0120 | 17 | 72. | 1.6 | 2183.6 | * | 1 | 0440 | 57 | 3742. | 277.0 | 2190.9 | * | 1 | 0800 | 97 | 12043. | 2184.9 | 2221.4 |
| 1 | 0125 | 18 | 66. | 1.5 | 2183.5 | * | 1 | 0445 | 58 | 3975. | 302.8 | 2191.3 | * | 1 | 0805 | 98 | 12088. | 2197.4 | 2221.6 |
| 1 | 0130 | 19 | 62. | 1.4 | 2183.5 | * | 1 | 0450 | 59 | 4248. | 333.1 | 2191.9 | * | 1 | 0810 | 99 | 12118. | 2205.8 | 2221.7 |
| 1 | 0135 | 20 | 62. | 1.4 | 2183.5 | * | 1 | 0455 | 60 | 4508. | 367.9 | 2192.5 | * | 1 | 0815 | 100 | 12134. | 2210.2 | 2221.8 |
| 1 | 0140 | 21 | 66. | 1.5 | 2183.5 | * | 1 | 0500 | 61 | 4785. | 406.9 | 2193.2 | * | 1 | 0820 | 101 | 12135. | 2210.6 | 2221.8 |
| 1 | 0145 | 22 | 75. | 1.7 | 2183.6 | * | 1 | 0505 | 62 | 5086. | 449.3 | 2193.9 | * | 1 | 0825 | 102 | 12123. | 2207.2 | 2221.8 |
| 1 | 0150 | 23 | 86. | 1.9 | 2183.7 | * | 1 | 0510 | 63 | 5359. | 494.1 | 2194.7 | * | 1 | 0830 | 103 | 12097. | 2199.9 | 2221.7 |
| 1 | 0155 | 24 | 99. | 2.2 | 2183.8 | * | 1 | 0515 | 64 | 5638. | 540.4 | 2195.5 | * | 1 | 0835 | 104 | 12058. | 2189.1 | 2221.5 |
| 1 | 0200 | 25 | 112. | 2.5 | 2183.9 | * | 1 | 0520 | 65 | 5908. | 587.9 | 2196.3 | * | 1 | 0840 | 105 | 12007. | 2174.8 | 2221.3 |
| 1 | 0205 | 26 | 124. | 2.7 | 2184.0 | * | 1 | 0525 | 66 | 6162. | 636.4 | 2197.1 | * | 1 | 0845 | 106 | 11945. | 2157.4 | 2221.0 |
| 1 | 0210 | 27 | 129. | 3.0 | 2184.0 | * | 1 | 0530 | 67 | 6422. | 686.2 | 2198.0 | * | 1 | 0850 | 107 | 11872. | 2137.2 | 2220.7 |
| 1 | 0215 | 28 | 134. | 3.3 | 2184.0 | * | 1 | 0535 | 68 | 6664. | 737.5 | 2198.8 | * | 1 | 0855 | 108 | 11791. | 2114.4 | 2220.3 |
| 1 | 0220 | 29 | 140. | 3.7 | 2184.1 | * | 1 | 0540 | 69 | 6911. | 790.2 | 2199.7 | * | 1 | 0900 | 109 | 11700. | 2089.2 | 2219.9 |
| 1 | 0225 | 30 | 147. | 4.2 | 2184.1 | * | 1 | 0545 | 70 | 7150. | 844.5 | 2200.6 | * | 1 | 0905 | 110 | 11602. | 2061.6 | 2219.5 |
| 1 | 0230 | 31 | 157. | 4.8 | 2184.1 | * | 1 | 0550 | 71 | 7385. | 900.3 | 2201.5 | * | 1 | 0910 | 111 | 11495. | 2031.9 | 2219.1 |
| 1 | 0235 | 32 | 168. | 5.6 | 2184.2 | * | 1 | 0555 | 72 | 7618. | 957.4 | 2202.4 | * | 1 | 0915 | 112 | 11382. | 2000.2 | 2218.6 |
| 1 | 0240 | 33 | 181. | 6.4 | 2184.2 | * | 1 | 0600 | 73 | 7844. | 1015.9 | 2203.3 | * | 1 | 0920 | 113 | 11260. | 1966.3 | 2218.0 |
| 1 | 0245 | 34 | 195. | 7.4 | 2184.3 | * | 1 | 0605 | 74 | 8070. | 1075.4 | 2204.2 | * | 1 | 0925 | 114 | 11132. | 1930.4 | 2217.5 |
| 1 | 0250 | 35 | 212. | 8.5 | 2184.3 | * | 1 | 0610 | 75 | 8286. | 1135.9 | 2205.2 | * | 1 | 0930 | 115 | 10996. | 1892.5 | 2216.9 |
| 1 | 0255 | 36 | 233. | 9.8 | 2184.4 | * | 1 | 0615 | 76 | 8505. | 1197.0 | 2206.1 | * | 1 | 0935 | 116 | 10854. | 1852.8 | 2216.3 |
| 1 | 0300 | 37 | 258. | 11.5 | 2184.5 | * | 1 | 0620 | 77 | 8726. | 1258.6 | 2207.1 | * | 1 | 0940 | 117 | 10706. | 1811.5 | 2215.6 |
| 1 | 0305 | 38 | 289. | 13.5 | 2184.6 | * | 1 | 0625 | 78 | 8947. | 1320.5 | 2208.0 | * | 1 | 0945 | 118 | 10553. | 1768.8 | 2215.0 |
| 1 | 0310 | 39 | 328. | 16.1 | 2184.8 | * | 1 | 0630 | 79 | 9169. | 1382.3 | 2209.0 | * | 1 | 0950 | 119 | 10396. | 1724.9 | 2214.3 |
| 1 | 0315 | 40 | 380. | 19.5 | 2185.0 | * | 1 | 0635 | 80 | 9390. | 1444.0 | 2209.9 | * | 1 | 0955 | 120 | 10235. | 1680.1 | 2213.6 |
| | | | | | | * | | | | | | | * | | | | | | |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 12135. | 8.33 | | 8776. | 5414. | 5414. | 5414. |
| | | (INCHES) | 2.126 | 2.168 | 2.168 | 2.168 |
| | | (AC-FT) | 4352. | 4437. | 4437. | 4437. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | | |
| 2211. | 8.33 | | 1377. | 839. | 839. | 839. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | | |
| 2221.82 | 8.33 | | 2208.66 | 2199.03 | 2199.03 | 2199.03 |

CUMULATIVE AREA = 38.38 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

```
          **************
          *            *
865 KK    *     MCDB   *
          *            *
          **************
```

872 KO OUTPUT CONTROL VARIABLES
IPRNT 1 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

868 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC -1.00 INITIAL CONDITION
X .00 WORKING R AND D COEFFICIENT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 869 SV | STORAGE | .0 | 8.0 | 40.0 | 70.0 | 100.0 | 160.0 | 210.0 | 500.0 |
| 870 SQ | DISCHARGE | 0. | 30. | 40. | 55. | 65. | 80. | 85. | 87. |
| 871 SE | ELEVATION | .00 | 2.00 | 4.00 | 6.00 | 8.00 | 12.00 | 15.00 | 16.00 |

***

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .88

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 36. | 27.1 | 3.2 | 1 | | 0640 | 81 | 79. | 155.5 | 11.7 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 38. | 33.4 | 3.6 | 1 | | 0645 | 82 | 79. | 155.0 | 11.7 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 41. | 42.4 | 4.2 | 1 | | 0650 | 83 | 79. | 154.5 | 11.6 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0015 | 4 | 0. | .0 | .0 | 1 | 0335 | 44 | 47. | 54.0 | 4.9 | 1 | 0655 | 84 | 78. | 153.9 | 11.6 |
| 1 | 0020 | 5 | 0. | .0 | .0 | 1 | 0340 | 45 | 54. | 67.4 | 5.8 | 1 | 0700 | 85 | 78. | 153.4 | 11.6 |
| 1 | 0025 | 6 | 0. | .0 | .0 | 1 | 0345 | 46 | 58. | 80.3 | 6.7 | 1 | 0705 | 86 | 78. | 152.9 | 11.5 |
| 1 | 0030 | 7 | 1. | .1 | .0 | 1 | 0350 | 47 | 62. | 91.4 | 7.4 | 1 | 0710 | 87 | 78. | 152.3 | 11.5 |
| 1 | 0035 | 8 | 1. | .4 | .1 | 1 | 0355 | 48 | 65. | 100.4 | 8.0 | 1 | 0715 | 88 | 78. | 151.8 | 11.5 |
| 1 | 0040 | 9 | 2. | .7 | .2 | 1 | 0400 | 49 | 67. | 107.6 | 8.5 | 1 | 0720 | 89 | 78. | 151.2 | 11.4 |
| 1 | 0045 | 10 | 4. | 1.0 | .3 | 1 | 0405 | 50 | 68. | 113.4 | 8.9 | 1 | 0725 | 90 | 78. | 151.7 | 11.4 |
| 1 | 0050 | 11 | 5. | 1.3 | .3 | 1 | 0410 | 51 | 69. | 117.9 | 9.2 | 1 | 0730 | 91 | 78. | 151.2 | 11.3 |
| 1 | 0055 | 12 | 6. | 1.6 | .4 | 1 | 0415 | 52 | 70. | 121.3 | 9.4 | 1 | 0735 | 92 | 77. | 149.6 | 11.3 |
| 1 | 0100 | 13 | 7. | 1.8 | .4 | 1 | 0420 | 53 | 71. | 124.0 | 9.6 | 1 | 0740 | 93 | 77. | 149.1 | 11.3 |
| 1 | 0105 | 14 | 7. | 1.9 | .5 | 1 | 0425 | 54 | 72. | 126.2 | 9.7 | 1 | 0745 | 94 | 77. | 148.6 | 11.2 |
| 1 | 0110 | 15 | 8. | 2.1 | .5 | 1 | 0430 | 55 | 72. | 128.2 | 9.9 | 1 | 0750 | 95 | 77. | 148.0 | 11.2 |
| 1 | 0115 | 16 | 8. | 2.2 | .6 | 1 | 0435 | 56 | 73. | 130.5 | 10.0 | 1 | 0755 | 96 | 77. | 147.5 | 11.2 |
| 1 | 0120 | 17 | 9. | 2.4 | .6 | 1 | 0440 | 57 | 73. | 133.4 | 10.2 | 1 | 0800 | 97 | 77. | 147.0 | 11.1 |
| 1 | 0125 | 18 | 10. | 2.7 | .7 | 1 | 0445 | 58 | 74. | 136.9 | 10.5 | 1 | 0805 | 98 | 77. | 146.5 | 11.1 |
| 1 | 0130 | 19 | 11. | 3.0 | .7 | 1 | 0450 | 59 | 75. | 140.7 | 10.7 | 1 | 0810 | 99 | 76. | 145.9 | 11.1 |
| 1 | 0135 | 20 | 13. | 3.4 | .8 | 1 | 0455 | 60 | 76. | 144.8 | 11.0 | 1 | 0815 | 100 | 76. | 145.4 | 11.0 |
| 1 | 0140 | 21 | 15. | 4.0 | 1.0 | 1 | 0500 | 61 | 77. | 148.9 | 11.3 | 1 | 0820 | 101 | 76. | 144.9 | 11.0 |
| 1 | 0145 | 22 | 18. | 4.7 | 1.2 | 1 | 0505 | 62 | 78. | 152.4 | 11.5 | 1 | 0825 | 102 | 76. | 144.4 | 11.0 |
| 1 | 0150 | 23 | 21. | 5.5 | 1.4 | 1 | 0510 | 63 | 79. | 155.1 | 11.7 | 1 | 0830 | 103 | 76. | 143.8 | 10.9 |
| 1 | 0155 | 24 | 24. | 6.3 | 1.6 | 1 | 0515 | 64 | 79. | 157.0 | 11.8 | 1 | 0835 | 104 | 76. | 143.3 | 10.9 |
| 1 | 0200 | 25 | 26. | 7.0 | 1.7 | 1 | 0520 | 65 | 80. | 158.2 | 11.9 | 1 | 0840 | 105 | 76. | 142.8 | 10.9 |
| 1 | 0205 | 26 | 28. | 7.6 | 1.9 | 1 | 0525 | 66 | 80. | 158.9 | 11.9 | 1 | 0845 | 106 | 76. | 142.3 | 10.8 |
| 1 | 0210 | 27 | 30. | 8.2 | 2.0 | 1 | 0530 | 67 | 80. | 159.4 | 12.0 | 1 | 0850 | 107 | 75. | 141.7 | 10.8 |
| 1 | 0215 | 28 | 30. | 8.8 | 2.1 | 1 | 0535 | 68 | 80. | 159.6 | 12.0 | 1 | 0855 | 108 | 75. | 141.2 | 10.7 |
| 1 | 0220 | 29 | 30. | 9.5 | 2.1 | 1 | 0540 | 69 | 80. | 159.6 | 12.0 | 1 | 0900 | 109 | 75. | 140.7 | 10.7 |
| 1 | 0225 | 30 | 31. | 10.2 | 2.1 | 1 | 0545 | 70 | 80. | 159.5 | 12.0 | 1 | 0905 | 110 | 75. | 140.2 | 10.7 |
| 1 | 0230 | 31 | 31. | 11.0 | 2.2 | 1 | 0550 | 71 | 80. | 159.3 | 12.0 | 1 | 0910 | 111 | 75. | 139.7 | 10.6 |
| 1 | 0235 | 32 | 31. | 11.8 | 2.2 | 1 | 0555 | 72 | 80. | 159.1 | 11.9 | 1 | 0915 | 112 | 75. | 139.2 | 10.6 |
| 1 | 0240 | 33 | 31. | 12.4 | 2.3 | 1 | 0600 | 73 | 80. | 158.9 | 11.9 | 1 | 0920 | 113 | 75. | 138.6 | 10.6 |
| 1 | 0245 | 34 | 32. | 13.1 | 2.3 | 1 | 0605 | 74 | 80. | 158.6 | 11.9 | 1 | 0925 | 114 | 75. | 138.1 | 10.5 |
| 1 | 0250 | 35 | 32. | 13.9 | 2.4 | 1 | 0610 | 75 | 80. | 158.3 | 11.9 | 1 | 0930 | 115 | 74. | 137.6 | 10.5 |
| 1 | 0255 | 36 | 32. | 14.9 | 2.4 | 1 | 0615 | 76 | 79. | 158.0 | 11.9 | 1 | 0935 | 116 | 74. | 137.1 | 10.5 |
| 1 | 0300 | 37 | 33. | 16.1 | 2.5 | 1 | 0620 | 77 | 79. | 157.5 | 11.8 | 1 | 0940 | 117 | 74. | 136.6 | 10.4 |
| 1 | 0305 | 38 | 33. | 17.6 | 2.6 | 1 | 0625 | 78 | 79. | 157.1 | 11.8 | 1 | 0945 | 118 | 74. | 136.1 | 10.4 |
| 1 | 0310 | 39 | 34. | 19.6 | 2.7 | 1 | 0630 | 79 | 79. | 156.6 | 11.8 | 1 | 0950 | 119 | 74. | 135.6 | 10.4 |
| 1 | 0315 | 40 | 35. | 22.7 | 2.9 | 1 | 0635 | 80 | 79. | 156.1 | 11.7 | 1 | 0955 | 120 | 74. | 135.1 | 10.3 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 80. | 5.67 | | 76. | 55. | 55. | 55. |
| | | (INCHES) | .253 | .301 | .301 | .301 |
| | | (AC-FT) | 38. | 45. | 45. | 45. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 160. | 5.67 | | 145. | 94. | 94. | 94. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 11.97 | 5.67 | | 11.02 | 7.40 | 7.40 | 7.40 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .87

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 36. | 26.4 | 3.1 | 1 | | 0640 | 81 | 78. | 152.8 | 11.5 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 38. | 32.6 | 3.5 | 1 | | 0645 | 82 | 78. | 152.2 | 11.5 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 41. | 41.4 | 4.1 | 1 | | 0650 | 83 | 78. | 151.7 | 11.4 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 52.9 | 4.9 | 1 | | 0655 | 84 | 78. | 151.2 | 11.4 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 53. | 66.0 | 5.7 | 1 | | 0700 | 85 | 78. | 150.7 | 11.4 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 58. | 78.7 | 6.6 | 1 | | 0705 | 86 | 78. | 150.1 | 11.3 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 62. | 89.6 | 7.3 | 1 | | 0710 | 87 | 77. | 149.6 | 11.3 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 64. | 98.5 | 7.9 | 1 | | 0715 | 88 | 77. | 149.1 | 11.3 |
| 1 | | 0040 | 9 | 2. | .6 | .2 | 1 | | 0400 | 49 | 66. | 105.6 | 8.4 | 1 | | 0720 | 89 | 77. | 148.5 | 11.2 |
| 1 | | 0045 | 10 | 4. | 1.0 | .2 | 1 | | 0405 | 50 | 68. | 111.3 | 8.8 | 1 | | 0725 | 90 | 77. | 148.0 | 11.2 |
| 1 | | 0050 | 11 | 5. | 1.2 | .3 | 1 | | 0410 | 51 | 69. | 115.7 | 9.0 | 1 | | 0730 | 91 | 77. | 147.5 | 11.2 |
| 1 | | 0055 | 12 | 6. | 1.5 | .4 | 1 | | 0415 | 52 | 70. | 119.1 | 9.3 | 1 | | 0735 | 92 | 77. | 146.9 | 11.1 |
| 1 | | 0100 | 13 | 6. | 1.7 | .4 | 1 | | 0420 | 53 | 70. | 121.8 | 9.5 | 1 | | 0740 | 93 | 77. | 146.4 | 11.1 |
| 1 | | 0105 | 14 | 7. | 1.9 | .5 | 1 | | 0425 | 54 | 71. | 123.9 | 9.6 | 1 | | 0745 | 94 | 76. | 145.9 | 11.1 |
| 1 | | 0110 | 15 | 7. | 2.0 | .5 | 1 | | 0430 | 55 | 71. | 125.9 | 9.7 | 1 | | 0750 | 95 | 76. | 145.4 | 11.0 |
| 1 | | 0115 | 16 | 8. | 2.1 | .5 | 1 | | 0435 | 56 | 72. | 128.2 | 9.9 | 1 | | 0755 | 96 | 76. | 144.8 | 11.0 |
| 1 | | 0120 | 17 | 9. | 2.3 | .6 | 1 | | 0440 | 57 | 73. | 131.0 | 10.1 | 1 | | 0800 | 97 | 76. | 144.3 | 11.0 |
| 1 | | 0125 | 18 | 10. | 2.5 | .6 | 1 | | 0445 | 58 | 74. | 134.4 | 10.3 | 1 | | 0805 | 98 | 76. | 143.8 | 10.9 |
| 1 | | 0130 | 19 | 11. | 2.8 | .7 | 1 | | 0450 | 59 | 75. | 138.2 | 10.5 | 1 | | 0810 | 99 | 76. | 143.3 | 10.9 |
| 1 | | 0135 | 20 | 12. | 3.3 | .8 | 1 | | 0455 | 60 | 76. | 142.3 | 10.8 | 1 | | 0815 | 100 | 76. | 142.7 | 10.8 |
| 1 | | 0140 | 21 | 14. | 3.9 | 1.0 | 1 | | 0500 | 61 | 77. | 146.3 | 11.1 | 1 | | 0820 | 101 | 76. | 142.2 | 10.8 |
| 1 | | 0145 | 22 | 17. | 4.6 | 1.1 | 1 | | 0505 | 62 | 77. | 149.7 | 11.3 | 1 | | 0825 | 102 | 75. | 141.7 | 10.8 |
| 1 | | 0150 | 23 | 20. | 5.3 | 1.3 | 1 | | 0510 | 63 | 78. | 152.4 | 11.5 | 1 | | 0830 | 103 | 75. | 141.2 | 10.7 |
| 1 | | 0155 | 24 | 23. | 6.1 | 1.5 | 1 | | 0515 | 64 | 79. | 154.3 | 11.6 | 1 | | 0835 | 104 | 75. | 140.7 | 10.7 |
| 1 | | 0200 | 25 | 25. | 6.7 | 1.7 | 1 | | 0520 | 65 | 79. | 155.5 | 11.7 | 1 | | 0840 | 105 | 75. | 140.1 | 10.7 |
| 1 | | 0205 | 26 | 28. | 7.3 | 1.8 | 1 | | 0525 | 66 | 79. | 156.2 | 11.7 | 1 | | 0845 | 106 | 75. | 139.6 | 10.6 |
| 1 | | 0210 | 27 | 30. | 7.9 | 2.0 | 1 | | 0530 | 67 | 79. | 156.6 | 11.8 | 1 | | 0850 | 107 | 75. | 139.1 | 10.6 |
| 1 | | 0215 | 28 | 30. | 8.5 | 2.0 | 1 | | 0535 | 68 | 79. | 156.8 | 11.8 | 1 | | 0855 | 108 | 75. | 138.6 | 10.6 |
| 1 | | 0220 | 29 | 30. | 9.2 | 2.1 | 1 | | 0540 | 69 | 79. | 156.8 | 11.8 | 1 | | 0900 | 109 | 75. | 138.1 | 10.5 |
| 1 | | 0225 | 30 | 31. | 9.9 | 2.1 | 1 | | 0545 | 70 | 79. | 156.7 | 11.8 | 1 | | 0905 | 110 | 74. | 137.6 | 10.5 |
| 1 | | 0230 | 31 | 31. | 10.7 | 2.2 | 1 | | 0550 | 71 | 79. | 156.5 | 11.8 | 1 | | 0910 | 111 | 74. | 137.1 | 10.5 |
| 1 | | 0235 | 32 | 31. | 11.4 | 2.2 | 1 | | 0555 | 72 | 79. | 156.3 | 11.8 | 1 | | 0915 | 112 | 74. | 136.5 | 10.4 |
| 1 | | 0240 | 33 | 31. | 12.0 | 2.3 | 1 | | 0600 | 73 | 79. | 156.1 | 11.7 | 1 | | 0920 | 113 | 74. | 136.0 | 10.4 |
| 1 | | 0245 | 34 | 31. | 12.7 | 2.3 | 1 | | 0605 | 74 | 79. | 155.9 | 11.7 | 1 | | 0925 | 114 | 74. | 135.5 | 10.4 |
| 1 | | 0250 | 35 | 32. | 13.5 | 2.3 | 1 | | 0610 | 75 | 79. | 155.5 | 11.7 | 1 | | 0930 | 115 | 74. | 135.0 | 10.3 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0255 | 36 | 32. | 14.4 | 2.4 | 1 | 0615 | 76 | 79. | 155.2 | 11.7 | 1 | 0935 | 116 | 74. | 134.5 | 10.3 |
| 1 | 0300 | 37 | 32. | 15.6 | 2.5 | 1 | 0620 | 77 | 79. | 154.8 | 11.7 | 1 | 0940 | 117 | 74. | 134.0 | 10.3 |
| 1 | 0305 | 38 | 33. | 17.0 | 2.6 | 1 | 0625 | 78 | 79. | 154.3 | 11.6 | 1 | 0945 | 118 | 73. | 133.5 | 10.2 |
| 1 | 0310 | 39 | 33. | 19.1 | 2.7 | 1 | 0630 | 79 | 78. | 153.8 | 11.6 | 1 | 0950 | 119 | 73. | 133.0 | 10.2 |
| 1 | 0315 | 40 | 34. | 22.0 | 2.9 | 1 | 0635 | 80 | 78. | 153.3 | 11.6 | 1 | 0955 | 120 | 73. | 132.5 | 10.2 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 79. | 5.67 | | 76. | 54. | 54. | 54. |
| | | (INCHES) | .251 | .298 | .298 | .298 |
| | | (AC-FT) | 38. | 45. | 45. | 45. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 157. | 5.67 | 143. | 92. | 92. | 92. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 11.79 | 5.67 | 10.85 | 7.29 | 7.29 | 7.29 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .86

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 36. | 25.8 | 3.1 | 1 | | 0640 | 81 | 78. | 150.6 | 11.4 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 37. | 31.9 | 3.5 | 1 | | 0645 | 82 | 78. | 150.0 | 11.3 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 40. | 40.6 | 4.0 | 1 | | 0650 | 83 | 77. | 149.5 | 11.3 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 52.0 | 4.8 | 1 | | 0655 | 84 | 77. | 149.0 | 11.3 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 52. | 64.9 | 5.7 | 1 | | 0700 | 85 | 77. | 148.5 | 11.2 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 57. | 77.4 | 6.5 | 1 | | 0705 | 86 | 77. | 147.9 | 11.2 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 61. | 88.2 | 7.2 | 1 | | 0710 | 87 | 77. | 147.4 | 11.2 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 64. | 97.0 | 7.8 | 1 | | 0715 | 88 | 77. | 146.9 | 11.1 |
| 1 | | 0040 | 9 | 2. | .6 | .1 | 1 | | 0400 | 49 | 66. | 104.0 | 8.3 | 1 | | 0720 | 89 | 77. | 146.3 | 11.1 |
| 1 | | 0045 | 10 | 3. | .9 | .2 | 1 | | 0405 | 50 | 67. | 109.6 | 8.6 | 1 | | 0725 | 90 | 76. | 145.8 | 11.1 |
| 1 | | 0050 | 11 | 4. | 1.2 | .3 | 1 | | 0410 | 51 | 69. | 114.0 | 8.9 | 1 | | 0730 | 91 | 76. | 145.3 | 11.0 |
| 1 | | 0055 | 12 | 5. | 1.4 | .4 | 1 | | 0415 | 52 | 69. | 117.4 | 9.2 | 1 | | 0735 | 92 | 76. | 144.8 | 11.0 |
| 1 | | 0100 | 13 | 6. | 1.6 | .4 | 1 | | 0420 | 53 | 70. | 120.0 | 9.3 | 1 | | 0740 | 93 | 76. | 144.2 | 10.9 |
| 1 | | 0105 | 14 | 7. | 1.8 | .4 | 1 | | 0425 | 54 | 71. | 122.1 | 9.5 | 1 | | 0745 | 94 | 76. | 143.7 | 10.9 |
| 1 | | 0110 | 15 | 7. | 1.9 | .5 | 1 | | 0430 | 55 | 71. | 124.1 | 9.6 | 1 | | 0750 | 95 | 76. | 143.2 | 10.9 |
| 1 | | 0115 | 16 | 8. | 2.1 | .5 | 1 | | 0435 | 56 | 72. | 126.3 | 9.8 | 1 | | 0755 | 96 | 76. | 142.7 | 10.8 |
| 1 | | 0120 | 17 | 8. | 2.2 | .6 | 1 | | 0440 | 57 | 72. | 129.1 | 9.9 | 1 | | 0800 | 97 | 76. | 142.2 | 10.8 |
| 1 | | 0125 | 18 | 9. | 2.5 | .6 | 1 | | 0445 | 58 | 73. | 132.5 | 10.2 | 1 | | 0805 | 98 | 75. | 141.6 | 10.8 |
| 1 | | 0130 | 19 | 10. | 2.7 | .7 | 1 | | 0450 | 59 | 74. | 136.3 | 10.4 | 1 | | 0810 | 99 | 75. | 141.1 | 10.7 |
| 1 | | 0135 | 20 | 12. | 3.2 | .8 | 1 | | 0455 | 60 | 75. | 140.3 | 10.7 | 1 | | 0815 | 100 | 75. | 140.6 | 10.7 |
| 1 | | 0140 | 21 | 14. | 3.7 | .9 | 1 | | 0500 | 61 | 76. | 144.2 | 10.9 | 1 | | 0820 | 101 | 75. | 140.1 | 10.7 |
| 1 | | 0145 | 22 | 17. | 4.4 | 1.1 | 1 | | 0505 | 62 | 77. | 147.6 | 11.2 | 1 | | 0825 | 102 | 75. | 139.6 | 10.6 |
| 1 | | 0150 | 23 | 19. | 5.2 | 1.3 | 1 | | 0510 | 63 | 78. | 150.2 | 11.3 | 1 | | 0830 | 103 | 75. | 139.1 | 10.6 |
| 1 | | 0155 | 24 | 22. | 5.9 | 1.5 | 1 | | 0515 | 64 | 78. | 152.1 | 11.5 | 1 | | 0835 | 104 | 75. | 138.5 | 10.6 |
| 1 | | 0200 | 25 | 25. | 6.5 | 1.6 | 1 | | 0520 | 65 | 78. | 153.3 | 11.6 | 1 | | 0840 | 105 | 75. | 138.0 | 10.5 |
| 1 | | 0205 | 26 | 27. | 7.2 | 1.8 | 1 | | 0525 | 66 | 78. | 154.0 | 11.6 | 1 | | 0845 | 106 | 74. | 137.5 | 10.5 |
| 1 | | 0210 | 27 | 29. | 7.7 | 1.9 | 1 | | 0530 | 67 | 79. | 154.4 | 11.6 | 1 | | 0850 | 107 | 74. | 137.0 | 10.5 |
| 1 | | 0215 | 28 | 30. | 8.3 | 2.0 | 1 | | 0535 | 68 | 79. | 154.6 | 11.6 | 1 | | 0855 | 108 | 74. | 136.5 | 10.4 |
| 1 | | 0220 | 29 | 30. | 8.9 | 2.1 | 1 | | 0540 | 69 | 79. | 154.6 | 11.6 | 1 | | 0900 | 109 | 74. | 136.0 | 10.4 |
| 1 | | 0225 | 30 | 31. | 9.6 | 2.1 | 1 | | 0545 | 70 | 79. | 154.5 | 11.6 | 1 | | 0905 | 110 | 74. | 135.5 | 10.4 |
| 1 | | 0230 | 31 | 31. | 10.4 | 2.1 | 1 | | 0550 | 71 | 79. | 154.3 | 11.6 | 1 | | 0910 | 111 | 74. | 135.0 | 10.3 |
| 1 | | 0235 | 32 | 31. | 11.1 | 2.2 | 1 | | 0555 | 72 | 79. | 154.1 | 11.6 | 1 | | 0915 | 112 | 74. | 134.5 | 10.3 |
| 1 | | 0240 | 33 | 31. | 11.7 | 2.2 | 1 | | 0600 | 73 | 78. | 153.9 | 11.6 | 1 | | 0920 | 113 | 73. | 133.9 | 10.3 |
| 1 | | 0245 | 34 | 31. | 12.4 | 2.3 | 1 | | 0605 | 74 | 78. | 153.6 | 11.6 | 1 | | 0925 | 114 | 73. | 133.4 | 10.2 |
| 1 | | 0250 | 35 | 32. | 13.1 | 2.3 | 1 | | 0610 | 75 | 78. | 153.3 | 11.6 | 1 | | 0930 | 115 | 73. | 132.9 | 10.2 |
| 1 | | 0255 | 36 | 32. | 14.1 | 2.4 | 1 | | 0615 | 76 | 78. | 153.0 | 11.5 | 1 | | 0935 | 116 | 73. | 132.4 | 10.2 |
| 1 | | 0300 | 37 | 32. | 15.2 | 2.4 | 1 | | 0620 | 77 | 78. | 152.5 | 11.5 | 1 | | 0940 | 117 | 73. | 131.9 | 10.1 |
| 1 | | 0305 | 38 | 33. | 16.6 | 2.5 | 1 | | 0625 | 78 | 78. | 152.1 | 11.5 | 1 | | 0945 | 118 | 73. | 131.4 | 10.1 |
| 1 | | 0310 | 39 | 33. | 18.6 | 2.7 | 1 | | 0630 | 79 | 78. | 151.6 | 11.4 | 1 | | 0950 | 119 | 73. | 130.9 | 10.1 |
| 1 | | 0315 | 40 | 34. | 21.5 | 2.8 | 1 | | 0635 | 80 | 78. | 151.1 | 11.4 | 1 | | 0955 | 120 | 73. | 130.4 | 10.0 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 79. | 5.67 | | 75. | 54. | 54. | 54. |
| | | (INCHES) | .249 | .296 | .296 | .296 |
| | | (AC-FT) | 37. | 44. | 44. | 44. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 155. | 5.67 | 141. | 91. | 91. | 91. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 11.64 | 5.67 | 10.71 | 7.19 | 7.19 | 7.19 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB

PLAN 1, RATIO = .85

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 35. | 25.3 | 3.1 | 1 | | 0640 | 81 | 77. | 148.6 | 11.2 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 37. | 31.4 | 3.5 | 1 | | 0645 | 82 | 77. | 148.1 | 11.2 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 40. | 39.9 | 4.0 | 1 | | 0650 | 83 | 77. | 147.6 | 11.2 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 51.2 | 4.7 | 1 | | 0655 | 84 | 77. | 147.1 | 11.1 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 52. | 63.9 | 5.6 | 1 | | 0700 | 85 | 77. | 146.6 | 11.1 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 57. | 76.3 | 6.4 | 1 | | 0705 | 86 | 77. | 146.0 | 11.1 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 61. | 87.0 | 7.1 | 1 | | 0710 | 87 | 76. | 145.5 | 11.0 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 64. | 95.7 | 7.7 | 1 | | 0715 | 88 | 76. | 145.0 | 11.0 |
| 1 | | 0040 | 9 | 2. | .6 | .1 | 1 | | 0400 | 49 | 66. | 102.6 | 8.2 | 1 | | 0720 | 89 | 76. | 144.4 | 11.0 |
| 1 | | 0045 | 10 | 3. | .9 | .2 | 1 | | 0405 | 50 | 67. | 108.2 | 8.5 | 1 | | 0725 | 90 | 76. | 143.9 | 10.9 |
| 1 | | 0050 | 11 | 4. | 1.2 | .3 | 1 | | 0410 | 51 | 68. | 112.5 | 8.8 | 1 | | 0730 | 91 | 76. | 143.4 | 10.9 |
| 1 | | 0055 | 12 | 5. | 1.4 | .3 | 1 | | 0415 | 52 | 69. | 115.9 | 9.1 | 1 | | 0735 | 92 | 76. | 142.9 | 10.9 |
| 1 | | 0100 | 13 | 6. | 1.6 | .4 | 1 | | 0420 | 53 | 70. | 118.4 | 9.2 | 1 | | 0740 | 93 | 76. | 142.4 | 10.8 |
| 1 | | 0105 | 14 | 6. | 1.7 | .4 | 1 | | 0425 | 54 | 70. | 120.5 | 9.4 | 1 | | 0745 | 94 | 75. | 141.8 | 10.8 |
| 1 | | 0110 | 15 | 7. | 1.9 | .5 | 1 | | 0430 | 55 | 71. | 122.5 | 9.5 | 1 | | 0750 | 95 | 75. | 141.3 | 10.8 |
| 1 | | 0115 | 16 | 8. | 2.0 | .5 | 1 | | 0435 | 56 | 71. | 124.7 | 9.6 | 1 | | 0755 | 96 | 75. | 140.8 | 10.7 |
| 1 | | 0120 | 17 | 8. | 2.2 | .5 | 1 | | 0440 | 57 | 72. | 127.5 | 9.8 | 1 | | 0800 | 97 | 75. | 140.3 | 10.7 |
| 1 | | 0125 | 18 | 9. | 2.4 | .6 | 1 | | 0445 | 58 | 73. | 130.8 | 10.1 | 1 | | 0805 | 98 | 75. | 139.8 | 10.7 |
| 1 | | 0130 | 19 | 10. | 2.7 | .7 | 1 | | 0450 | 59 | 74. | 134.5 | 10.3 | 1 | | 0810 | 99 | 75. | 139.3 | 10.6 |
| 1 | | 0135 | 20 | 12. | 3.1 | .8 | 1 | | 0455 | 60 | 75. | 138.5 | 10.6 | 1 | | 0815 | 100 | 75. | 138.7 | 10.6 |
| 1 | | 0140 | 21 | 14. | 3.6 | .9 | 1 | | 0500 | 61 | 76. | 142.4 | 10.8 | 1 | | 0820 | 101 | 75. | 138.2 | 10.5 |
| 1 | | 0145 | 22 | 16. | 4.3 | 1.1 | 1 | | 0505 | 62 | 76. | 145.7 | 11.0 | 1 | | 0825 | 102 | 74. | 137.7 | 10.5 |
| 1 | | 0150 | 23 | 19. | 5.0 | 1.3 | 1 | | 0510 | 63 | 77. | 148.4 | 11.2 | 1 | | 0830 | 103 | 74. | 137.2 | 10.5 |
| 1 | | 0155 | 24 | 22. | 5.7 | 1.4 | 1 | | 0515 | 64 | 78. | 150.2 | 11.3 | 1 | | 0835 | 104 | 74. | 136.7 | 10.4 |
| 1 | | 0200 | 25 | 24. | 6.4 | 1.6 | 1 | | 0520 | 65 | 78. | 151.3 | 11.4 | 1 | | 0840 | 105 | 74. | 136.2 | 10.4 |
| 1 | | 0205 | 26 | 26. | 7.0 | 1.7 | 1 | | 0525 | 66 | 78. | 152.0 | 11.5 | 1 | | 0845 | 106 | 74. | 135.7 | 10.4 |
| 1 | | 0210 | 27 | 28. | 7.5 | 1.9 | 1 | | 0530 | 67 | 78. | 152.4 | 11.5 | 1 | | 0850 | 107 | 74. | 135.2 | 10.3 |
| 1 | | 0215 | 28 | 30. | 8.1 | 2.0 | 1 | | 0535 | 68 | 78. | 152.6 | 11.5 | 1 | | 0855 | 108 | 74. | 134.7 | 10.3 |
| 1 | | 0220 | 29 | 30. | 8.7 | 2.0 | 1 | | 0540 | 69 | 78. | 152.6 | 11.5 | 1 | | 0900 | 109 | 74. | 134.1 | 10.3 |
| 1 | | 0225 | 30 | 30. | 9.4 | 2.1 | 1 | | 0545 | 70 | 78. | 152.5 | 11.5 | 1 | | 0905 | 110 | 73. | 133.6 | 10.2 |
| 1 | | 0230 | 31 | 31. | 10.1 | 2.1 | 1 | | 0550 | 71 | 78. | 152.4 | 11.5 | 1 | | 0910 | 111 | 73. | 133.1 | 10.2 |
| 1 | | 0235 | 32 | 31. | 10.8 | 2.2 | 1 | | 0555 | 72 | 78. | 152.2 | 11.5 | 1 | | 0915 | 112 | 73. | 132.6 | 10.2 |
| 1 | | 0240 | 33 | 31. | 11.5 | 2.2 | 1 | | 0600 | 73 | 78. | 151.9 | 11.5 | 1 | | 0920 | 113 | 73. | 132.1 | 10.1 |
| 1 | | 0245 | 34 | 31. | 12.1 | 2.3 | 1 | | 0605 | 74 | 78. | 151.7 | 11.4 | 1 | | 0925 | 114 | 73. | 131.6 | 10.1 |
| 1 | | 0250 | 35 | 32. | 12.8 | 2.3 | 1 | | 0610 | 75 | 78. | 151.4 | 11.4 | 1 | | 0930 | 115 | 73. | 131.1 | 10.1 |
| 1 | | 0255 | 36 | 32. | 13.7 | 2.4 | 1 | | 0615 | 76 | 78. | 151.0 | 11.4 | 1 | | 0935 | 116 | 73. | 130.6 | 10.0 |
| 1 | | 0300 | 37 | 32. | 14.6 | 2.4 | 1 | | 0620 | 77 | 78. | 150.6 | 11.4 | 1 | | 0940 | 117 | 73. | 130.1 | 10.0 |
| 1 | | 0305 | 38 | 33. | 16.2 | 2.5 | 1 | | 0625 | 78 | 78. | 150.2 | 11.3 | 1 | | 0945 | 118 | 72. | 129.6 | 10.0 |
| 1 | | 0310 | 39 | 33. | 16.2 | 2.6 | 1 | | 0630 | 79 | 77. | 149.7 | 11.3 | 1 | | 0950 | 119 | 72. | 129.1 | 9.9 |
| 1 | | 0315 | 40 | 34. | 21.1 | 2.8 | 1 | | 0635 | 80 | 77. | 149.2 | 11.3 | 1 | | 0955 | 120 | 72. | 128.6 | 9.9 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | (CFS) | | | | |
| 78. | 5.67 | | 75. | 54. | 54. | 54. |
| | | (INCHES) | .248 | .294 | .294 | .294 |
| | | (AC-FT) | 37. | 44. | 44. | 44. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 153. | 5.67 | 139. | 89. | 89. | 89. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 11.51 | 5.67 | 10.59 | 7.11 | 7.11 | 7.11 |

CUMULATIVE AREA = 2.80 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

| OPERATION | STATION | AREA | PLAN | | RATIOS APPLIED TO PRECIPITATION RATIO 1 .88 | RATIO 2 .87 | RATIO 3 .86 | RATIO 4 .85 |
|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | | |
| + | B13A | 1.29 | 1 | FLOW | 729. | 716. | 707. | 698. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | |
| + | RB13A | 1.29 | 1 | FLOW | 661. | 650. | 642. | 634. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 |
| HYDROGRAPH AT | | | | | | | | |
| + | B13B | .54 | 1 | FLOW | 175. | 172. | 170. | 168. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 |
| 2 COMBINED AT | | | | | | | | |
| + | PT1 | 1.83 | 1 | FLOW | 830. | 816. | 805. | 795. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 |
| ROUTED TO | | | | | | | | |
| | RPT1 | 1.83 | 1 | FLOW | 810. | 797. | 786. | 776. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | B17 | .82 | 1 | FLOW | 318. | 312. | 308. | 304. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 |
| 2 COMBINED AT | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| + | PT2 | 2.64 | 1 | FLOW | 1046. | 1028. | 1014. | 1002. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 |
| DIVERSION TO | | | | | | | | |
| + | DVBD2 | 2.64 | 1 | FLOW | 405. | 399. | 395. | 392. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 |
| HYDROGRAPH AT | | | | | | | | |
| | DVBD2 | 2.64 | 1 | FLOW | 641. | 629. | 619. | 611. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 |
| ROUTED TO | | | | | | | | |
| + | RPT2 | 2.64 | 1 | FLOW | 641. | 627. | 619. | 610. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | B13C | 2.01 | 1 | FLOW | 1145. | 1126. | 1110. | 1097. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | |
| + | PT3 | 4.65 | 1 | FLOW | 1287. | 1263. | 1243. | 1226. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| DIVERSION TO | | | | | | | | |
| + | DVBD3 | 4.65 | 1 | FLOW | 281. | 280. | 279. | 279. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| HYDROGRAPH AT | | | | | | | | |
| + | DVBD3 | 4.65 | 1 | FLOW | 1006. | 983. | 964. | 948. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | |
| + | RPT3A | 4.65 | 1 | FLOW | 1000. | 976. | 957. | 942. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| DIVERSION TO | | | | | | | | |
| + | DVBD4 | 4.65 | 1 | FLOW | 202. | 199. | 197. | 196. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| HYDROGRAPH AT | | | | | | | | |
| + | DVBD4 | 4.65 | 1 | FLOW | 798. | 776. | 759. | 746. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | |
| + | RPT3B | 4.65 | 1 | FLOW | 771. | 751. | 735. | 720. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | |
| + | B11S | 1.12 | 1 | FLOW | 340. | 331. | 325. | 319. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | |
| | HYDRO1 | .63 | 1 | FLOW | 623. | 623. | 623. | 623. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| 3 COMBINED AT | | | | | | | | |
| + | PT4 | 6.40 | 1 | FLOW | 1721. | 1692. | 1669. | 1649. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | |
| + | RPT4A | 6.40 | 1 | FLOW | 1659. | 1631. | 1609. | 1590. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| DIVERSION TO | | | | | | | | |
| + | DVBD7 | 6.40 | 1 | FLOW | 1106. | 1088. | 1073. | 1060. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | |
| + | DVBD7 | 6.40 | 1 | FLOW | 553. | 544. | 536. | 530. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | |
| + | RPT4B | 6.40 | 1 | FLOW | 537. | 528. | 521. | 515. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | |
| + | B14B | .99 | 1 | FLOW | 301. | 293. | 287. | 282. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | |
| + | PT22W | 7.39 | 1 | FLOW | 682. | 670. | 660. | 651. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | |
| + | D012A | 10.21 | 1 | FLOW | 2727. | 2673. | 2630. | 2592. |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 |
| ROUTED TO | | | | | | | | |
| + | RD012A | 10.21 | 1 | FLOW | 2723. | 2670. | 2627. | 2590. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 |
| DIVERSION TO | | | | | | | | |
| + | DVI151 | 10.21 | 1 | FLOW | 1337. | 1331. | 1326. | 1321. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 |
| HYDROGRAPH AT | | | | | | | | |
| + | DVI151 | 10.21 | 1 | FLOW | 1386. | 1339. | 1301. | 1268. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 |
| ROUTED TO | | | | | | | | |
| + | RI151 | 10.21 | 1 | FLOW | 1382. | 1335. | 1298. | 1265. |
| | | | | TIME | 5.00 | 5.08 | 5.08 | 5.08 |
| DIVERSION TO | | | | | | | | |
| + | DVI152 | 10.21 | 1 | FLOW | 510. | 494. | 482. | 471. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | TIME | 5.00 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | DVI152 | 10.21 | 1 | FLOW | 873. | 841. | 816. | 794. |
| | | | | TIME | 5.00 | 5.08 | 5.08 | 5.08 |
| ROUTED TO | | | | | | | | |
| | RI152 | 10.21 | 1 | FLOW | 866. | 834. | 809. | 787. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 |
| HYDROGRAPH AT | | | | | | | | |
| + | D01 | 9.54 | 1 | FLOW | 3866. | 3793. | 3735. | 3685. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | |
| + | RD01 | 9.54 | 1 | FLOW | 3531. | 3465. | 3412. | 3366. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 |
| HYDROGRAPH AT | | | | | | | | |
| + | D005 | 2.73 | 1 | FLOW | 1177. | 1154. | 1136. | 1120. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 |
| 2 COMBINED AT | | | | | | | | |
| + | PT9 | 12.27 | 1 | FLOW | 4254. | 4176. | 4113. | 4059. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 |
| ROUTED TO | | | | | | | | |
| + | RD005 | 12.27 | 1 | FLOW | 4183. | 4105. | 4044. | 3990. |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.33 |
| HYDROGRAPH AT | | | | | | | | |
| + | D02 | 5.91 | 1 | FLOW | 2375. | 2330. | 2295. | 2264. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | |
| + | RD02 | 5.91 | 1 | FLOW | 2191. | 2150. | 2117. | 2089. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 |
| HYDROGRAPH AT | | | | | | | | |
| + | D03 | 11.99 | 1 | FLOW | 4992. | 4898. | 4823. | 4758. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | |
| + | D04 | 6.95 | 1 | FLOW | 2769. | 2719. | 2678. | 2643. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| 2 COMBINED AT | | | | | | | | |
| + | PT10 | 18.94 | 1 | FLOW | 7733. | 7590. | 7475. | 7375. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | |
| | RPT10 | 18.94 | 1 | FLOW | 6765. | 6639. | 6539. | 6452. |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.33 |
| HYDROGRAPH AT | | | | | | | | |
| + | D006 | 8.52 | 1 | FLOW | 3509. | 3442. | 3388. | 3341. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| 3 COMBINED AT | | | | | | | | |
| + | PT11 | 33.37 | 1 | FLOW | 11217. | 11012. | 10848. | 10705. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 |
| ROUTED TO | | | | | | | | |
| • | RPT11 | 33.37 | 1 | FLOW | 11078. | 10875. | 10713. | 10571. |
| | | | | TIME | 5.42 | 5.42 | 5.42 | 5.42 |
| HYDROGRAPH AT | | | | | | | | |
| + | D2A | .99 | 1 | FLOW | 745. | 731. | 720. | 710. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| 3 COMBINED AT | | | | | | | | |
| + | PT12 | 46.63 | 1 | FLOW | 15341. | 15061. | 14836. | 14640. |
| | | | | TIME | 5.42 | 5.42 | 5.42 | 5.42 |
| ROUTED TO | | | | | | | | |
| + | RPT12 | 46.63 | 1 | FLOW | 14287. | 14026. | 13817. | 13634. |
| | | | | TIME | 6.25 | 6.25 | 6.25 | 6.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | D2B | 7.50 | 1 | FLOW | 1950. | 1908. | 1875. | 1846. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 |
| 2 COMBINED AT | | | | | | | | |
| + | PT13 | 54.13 | 1 | FLOW | 15393. | 15109. | 14882. | 14684. |
| | | | | TIME | 6.17 | 6.17 | 6.17 | 6.17 |
| ROUTED TO | | | | | | | | |
| + | RPT13 | 54.13 | 1 | FLOW | 14542. | 14274. | 14059. | 13872. |
| | | | | TIME | 7.08 | 7.08 | 7.08 | 7.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | D06 | 11.68 | 1 | FLOW | 4005. | 3930. | 3871. | 3819. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 |
| ROUTED TO | | | | | | | | |
| + | RD06 | 11.68 | 1 | FLOW | 3689. | 3621. | 3566. | 3519. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 |
| [redacted]DROGRAPH AT | | | | | | | | |
| | D3 | 6.64 | 1 | FLOW | 1318. | 1285. | 1260. | 1237. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 |
| 4 COMBINED AT | | | | | | | | |
| + | PT14 | 82.66 | 1 | FLOW | 17122. | 16794. | 16533. | 16304. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DIVERSION TO | | | | | | | | |
| + | DVI153 | 82.66 | 1 | FLOW | 10664. | 10424. | 10232. | 10065. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 |
| HYDROGRAPH AT | | | | | | | | |
| + | DVI153 | 82.66 | 1 | FLOW | 6458. | 6370. | 6300. | 6239. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 |
| ROUTED TO | | | | | | | | |
| + | RPT14 | 82.66 | 1 | FLOW | 6427. | 6340. | 6271. | 6210. |
| | | | | TIME | 7.25 | 7.25 | 7.25 | 7.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | D1A | 2.29 | 1 | FLOW | 961. | 943. | 928. | 915. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | |
| + | RD1A | 2.29 | 1 | FLOW | 946. | 928. | 913. | 901. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | |
| + | D1B | .32 | 1 | FLOW | 110. | 108. | 106. | 105. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| 2 COMBINED AT | | | | | | | | |
| + | PT15 | 2.61 | 1 | FLOW | 1055. | 1035. | 1019. | 1005. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | |
| + | RPT15 | 2.61 | 1 | FLOW | 1027. | 1007. | 992. | 978. |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 |
| HYDROGRAPH AT | | | | | | | | |
| + | D1C | .56 | 1 | FLOW | 155. | 151. | 149. | 147. |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 |
| 2 COMBINED AT | | | | | | | | |
| + | PT16 | 3.17 | 1 | FLOW | 1181. | 1158. | 1140. | 1125. |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 |
| ROUTED TO | | | | | | | | |
| + | RPT16 | 3.17 | 1 | FLOW | 1158. | 1136. | 1118. | 1103. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | D1D | 1.23 | 1 | FLOW | 575. | 563. | 554. | 545. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |
| ROUTED TO | | | | | | | | |
| + | RD1D | 1.23 | 1 | FLOW | 557. | 546. | 536. | 528. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | D1E | .22 | 1 | FLOW | 58. | 57. | 56. | 55. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | D1F | .81 | 1 | FLOW | 122. | 119. | 116. | 114. |
| | | | | TIME | 5.42 | 5.50 | 5.50 | 5.50 |
| 4 COMBINED AT | | | | | | | | |
| + | PT17 | 5.43 | 1 | FLOW | 1601. | 1570. | 1545. | 1524. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 |
| ROUTED TO | | | | | | | | |
| + | RPT17 | 5.43 | 1 | FLOW | 1556. | 1525. | 1501. | 1480. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | B18A | 1.50 | 1 | FLOW | 207. | 200. | 194. | 189. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 |
| 3 COMBINED AT | | | | | | | | |
| + | PT18 | 89.59 | 1 | FLOW | 7096. | 6995. | 6914. | 6843. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 |
| DIVERSION TO | | | | | | | | |
| + | DVI154 | 89.59 | 1 | FLOW | 1321. | 1317. | 1314. | 1312. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 |
| HYDROGRAPH AT | | | | | | | | |
| + | DVI154 | 89.59 | 1 | FLOW | 5775. | 5677. | 5600. | 5532. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 |
| ROUTED TO | | | | | | | | |
| + | RPT18 | 89.59 | 1 | FLOW | 5766. | 5669. | 5592. | 5524. |
| | | | | TIME | 7.08 | 7.08 | 7.08 | 7.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | B18B | 1.92 | 1 | FLOW | 863. | 847. | 834. | 823. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | DVBD2 | .00 | 1 | FLOW | 405. | 399. | 395. | 392. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 |
| ROUTED TO | | | | | | | | |
| | RDVBD2 | .00 | 1 | FLOW | 395. | 390. | 386. | 382. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 |
| 3 COMBINED AT | | | | | | | | |
| + | PT19 | 91.51 | 1 | FLOW | 6016. | 5915. | 5835. | 5765. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DIVERSION TO | | | | | | | | |
| + | DVI155 | 91.51 | 1 | FLOW | 3301. | 3230. | 3172. | 3126. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 |
| HYDROGRAPH AT | | | | | | | | |
| + | DVI155 | 91.51 | 1 | FLOW | 2715. | 2686. | 2663. | 2639. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 |
| UTED TO | | | | | | | | |
| | RPT19 | 91.51 | 1 | FLOW | 2707. | 2678. | 2654. | 2629. |
| | | | | TIME | 7.58 | 7.58 | 7.58 | 7.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | B14A | 1.35 | 1 | FLOW | 867. | 852. | 841. | 830. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 |
| HYDROGRAPH AT | | | | | | | | |
| + | RDVBD3 | .00 | 1 | FLOW | 281. | 280. | 279. | 279. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| HYDROGRAPH AT | | | | | | | | |
| + | RDVBD4 | .00 | 1 | FLOW | 202. | 199. | 197. | 196. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| 2 COMBINED AT | | | | | | | | |
| + | PT20 | .00 | 1 | FLOW | 483. | 479. | 477. | 475. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | |
| + | RDVBD4 | .00 | 1 | FLOW | 469. | 466. | 464. | 462. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| 3 COMBINED AT | | | | | | | | |
| + | PT21 | 92.86 | 1 | FLOW | 2972. | 2931. | 2895. | 2864. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 |
| 2 COMBINED AT | | | | | | | | |
| + | PT22 | 100.25 | 1 | FLOW | 3043. | 2998. | 2961. | 2928. |
| | | | | TIME | 6.67 | 6.75 | 6.75 | 6.75 |
| ROUTED TO | | | | | | | | |
| + | RPT22 | 100.25 | 1 | FLOW | 3037. | 2991. | 2954. | 2921. |
| | | | | TIME | 7.00 | 7.08 | 7.08 | 7.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | B15B | .95 | 1 | FLOW | 256. | 250. | 245. | 241. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| 2 COMBINED AT | | | | | | | | |
| + | PT23 | 101.20 | 1 | FLOW | 3048. | 3002. | 2964. | 2930. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 |
| DROGRAPH AT | | | | | | | | |
| | RDVI151 | .00 | 1 | FLOW | 1337. | 1331. | 1326. | 1321. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 |
| ROUTED TO | | | | | | | | |
| + | RDVI151 | .00 | 1 | FLOW | 1337. | 1330. | 1325. | 1320. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | RDVI152 | .00 | 1 | FLOW | 510. | 494. | 482. | 471. |
| | | | | TIME | 5.00 | 5.08 | 5.08 | 5.08 |
| ROUTED TO | | | | | | | | |
| + | RDVI152 | .00 | 1 | FLOW | 508. | 493. | 481. | 470. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 |
| 2 COMBINED AT | | | | | | | | |
| + | PT24 | .00 | 1 | FLOW | 1844. | 1822. | 1805. | 1790. |
| | | | | TIME | 5.08 | 5.17 | 5.17 | 5.17 |
| ROUTED TO | | | | | | | | |
| + | RPT24 | .00 | 1 | FLOW | 1842. | 1820. | 1803. | 1788. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | RDVI153 | .00 | 1 | FLOW | 10664. | 10424. | 10232. | 10065. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 |
| ROUTED TO | | | | | | | | |
| + | RDVI153 | .00 | 1 | FLOW | 10638. | 10400. | 10209. | 10043. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 |
| HYDROGRAPH AT | | | | | | | | |
| + | D009 | 3.62 | 1 | FLOW | 2094. | 2054. | 2023. | 1995. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |
| ROUTED TO | | | | | | | | |
| + | RD009 | 3.62 | 1 | FLOW | 2034. | 1996. | 1965. | 1939. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | D004 | 2.40 | 1 | FLOW | 1261. | 1239. | 1221. | 1205. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| 2 COMBINED AT | | | | | | | | |
| | PT5 | 6.02 | 1 | FLOW | 3289. | 3228. | 3180. | 3137. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | |
| + | RPT5 | 6.02 | 1 | FLOW | 2835. | 2782. | 2740. | 2704. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| + | D08 | 11.91 | 1 | FLOW | 3685. | 3620. | 3566. | 3522. |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.33 |
| 2 COMBINED AT | | | | | | | | |
| + | PT6 | 17.93 | 1 | FLOW | 5799. | 5693. | 5607. | 5533. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 |
| [redacted]UTED TO | | | | | | | | |
| | RPT6 | 17.93 | 1 | FLOW | 5435. | 5338. | 5261. | 5193. |
| | | | | TIME | 5.83 | 5.92 | 5.92 | 5.92 |
| HYDROGRAPH AT | | | | | | | | |
| + | D010 | 10.43 | 1 | FLOW | 3746. | 3676. | 3620. | 3571. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | D07 | 4.28 | 1 | FLOW | 1533. | 1505. | 1482. | 1462. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| 3 COMBINED AT | | | | | | | | |
| + | PT7 | 32.65 | 1 | FLOW | 9138. | 8974. | 8843. | 8728. |
| | | | | TIME | 5.42 | 5.42 | 5.42 | 5.42 |
| ROUTED TO | | | | | | | | |
| + | RPT7 | 32.65 | 1 | FLOW | 9099. | 8936. | 8805. | 8692. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 |
| HYDROGRAPH AT | | | | | | | | |
| + | D012B | .57 | 1 | FLOW | 212. | 207. | 204. | 201. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| 2 COMBINED AT | | | | | | | | |
| + | PT8 | 33.21 | 1 | FLOW | 9180. | 9014. | 8882. | 8766. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 |
| DIVERSION TO | | | | | | | | |
| + | DVPITT | 33.21 | 1 | FLOW | 4794. | 4695. | 4616. | 4547. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | DVPITT | 33.21 | 1 | FLOW | 4386. | 4319. | 4266. | 4219. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 |
| DIVERSION TO | | | | | | | | |
| + | DVROSE | 33.21 | 1 | FLOW | 919. | 903. | 889. | 878. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | DVROSE | 33.21 | 1 | FLOW | 3467. | 3416. | 3376. | 3341. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 |
| [redacted]UTED TO | | | | | | | | |
| | RPT8 | 33.21 | 1 | FLOW | 3444. | 3394. | 3355. | 3320. |
| | | | | TIME | 6.08 | 6.08 | 6.08 | 6.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | D4A | 1.87 | 1 | FLOW | 1218. | 1194. | 1175. | 1158. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| 4 COMBINED AT | | | | | | | | |
| + | PT25 | 35.09 | 1 | FLOW | 14944. | 14645. | 14406. | 14198. |
| | | | | TIME | 6.67 | 6.67 | 6.67 | 6.67 |
| ROUTED TO | | | | | | | | |
| + | RPT25 | 35.09 | 1 | FLOW | 14919. | 14621. | 14382. | 14174. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 |
| HYDROGRAPH AT | | | | | | | | |
| + | D4B | 2.03 | 1 | FLOW | 1408. | 1382. | 1361. | 1343. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | |
| + | PT26 | 37.12 | 1 | FLOW | 14921. | 14622. | 14383. | 14175. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 |
| ROUTED TO | | | | | | | | |
| + | RPT26 | 37.12 | 1 | FLOW | 14904. | 14605. | 14367. | 14159. |
| | | | | TIME | 6.83 | 6.83 | 6.83 | 6.83 |
| HYDROGRAPH AT | | | | | | | | |
| + | RDVI154 | .00 | 1 | FLOW | 1321. | 1317. | 1314. | 1312. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 |
| ROUTED TO | | | | | | | | |
| + | RDVI154 | .00 | 1 | FLOW | 1321. | 1317. | 1314. | 1312. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | |
| + | RDVI154 | .00 | 1 | FLOW | 1321. | 1317. | 1314. | 1311. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 |
| HYDROGRAPH AT | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 3301. | 3230. | 3172. | 3126. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 |
| ROUTED TO | | | | | | | | |
| [redacted] | RDVI155 | .00 | 1 | FLOW | 3300. | 3228. | 3172. | 3125. |
| | | | | TIME | 6.92 | 7.00 | 7.00 | 7.00 |
| [redacted]ROUTED TO | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 3300. | 3228. | 3171. | 3125. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 3300. | 3228. | 3171. | 3125. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 3300. | 3228. | 3171. | 3125. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 |
| 2 COMBINED AT | | | | | | | | |
| | PT27 | .00 | 1 | FLOW | 4620. | 4545. | 4485. | 4436. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | |
| + | RPT27 | .00 | 1 | FLOW | 4620. | 4545. | 4485. | 4436. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | |
| + | RPT27 | .00 | 1 | FLOW | 4620. | 4545. | 4485. | 4436. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 |
| HYDROGRAPH AT | | | | | | | | |
| + | B18C | 1.26 | 1 | FLOW | 579. | 568. | 559. | 552. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 |
| 3 COMBINED AT | | | | | | | | |
| + | PT28 | 38.38 | 1 | FLOW | 19512. | 19138. | 18839. | 18564. |
| | | | | TIME | 6.83 | 6.83 | 6.83 | 6.83 |
| ROUTED TO | | | | | | | | |
| + | LDCDB | 38.38 | 1 | FLOW | 12654. | 12445. | 12279. | 12135. |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.33 |
| | | | ** | PEAK STAGES IN FEET ** | | | | |
| | | | 1 | STAGE | 2224.07 | 2223.16 | 2222.44 | 2221.82 |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.33 |
| ROUTED TO | | | | | | | | |
| + | RLDCDB | 38.38 | 1 | FLOW | 12654. | 12444. | 12278. | 12135. |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.33 |
| HYDROGRAPH AT | | | | | | | | |
| + | D5A | 1.33 | 1 | FLOW | 961. | 946. | 934. | 923. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 |
| ROUTED TO | | | | | | | | |
| + | RD5A | 1.33 | 1 | FLOW | 901. | 887. | 875. | 865. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | |
| + | RDVROSE | .00 | 1 | FLOW | 919. | 903. | 889. | 878. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 |
| ROUTED TO | | | | | | | | |
| | RDVROSE | .00 | 1 | FLOW | 912. | 895. | 882. | 871. |
| | | | | TIME | 6.08 | 6.08 | 6.08 | 6.08 |
| 3 COMBINED AT | | | | | | | | |
| + | PT29 | 39.70 | 1 | FLOW | 13007. | 12794. | 12626. | 12480. |
| | | | | TIME | 8.25 | 8.17 | 8.17 | 8.17 |
| ROUTED TO | | | | | | | | |
| + | RPT29 | 39.70 | 1 | FLOW | 13007. | 12794. | 12625. | 12479. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | B16B | .70 | 1 | FLOW | 447. | 440. | 434. | 429. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 |
| ROUTED TO | | | | | | | | |
| + | RB16B | .70 | 1 | FLOW | 444. | 439. | 434. | 428. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | |
| + | PT30 | 40.40 | 1 | FLOW | 13007. | 12794. | 12625. | 12479. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 |
| ROUTED TO | | | | | | | | |
| + | RPT30 | 40.40 | 1 | FLOW | 13006. | 12793. | 12624. | 12478. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | B16A | .91 | 1 | FLOW | 301. | 295. | 290. | 286. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | |
| + | D5B | .60 | 1 | FLOW | 301. | 297. | 293. | 290. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| 3 COMBINED AT | | | | | | | | |
| + | PT31 | 41.91 | 1 | FLOW | 13007. | 12794. | 12625. | 12479. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 |
| ROUTED TO | | | | | | | | |
| + | RPT31 | 41.91 | 1 | FLOW | 13006. | 12793. | 12624. | 12479. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 |
| 2 COMBINED AT | | | | | | | | |
| + | PT32 | 143.12 | 1 | FLOW | 15764. | 15521. | 15327. | 15155. |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.08 |
| [redacted]UTED TO | | | | | | | | |
| + | RPT32 | 143.12 | 1 | FLOW | 15763. | 15519. | 15324. | 15152. |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | HYDRO2 | .38 | 1 | FLOW | 36. | 36. | 36. | 36. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | |
| + | RHYDRO2 | .38 | 1 | FLOW | 32. | 32. | 32. | 32. |
| | | | | TIME | 6.08 | 6.08 | 6.08 | 6.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | B12 | .97 | 1 | FLOW | 163. | 158. | 153. | 149. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | |
| + | PT33W | 1.35 | 1 | FLOW | 164. | 158. | 153. | 149. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | |
| + | RDVBD7 | .00 | 1 | FLOW | 1106. | 1088. | 1073. | 1060. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | |
| + | RDVBD7 | .00 | 1 | FLOW | 1060. | 1042. | 1028. | 1016. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| 2 COMBINED AT | | | | | | | | |
| + | PT33 | 1.35 | 1 | FLOW | 1151. | 1131. | 1115. | 1101. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| ROUTED TO | | | | | | | | |
| + | RPT33 | 1.35 | 1 | FLOW | 1114. | 1094. | 1078. | 1065. |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 |
| HYDROGRAPH AT | | | | | | | | |
| + | B15A | .96 | 1 | FLOW | 363. | 356. | 350. | 344. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | |
| + | PT34W | 2.31 | 1 | FLOW | 1290. | 1267. | 1249. | 1233. |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 |
| 2 COMBINED AT | | | | | | | | |
| + | PT34 | 145.42 | 1 | FLOW | 15836. | 15594. | 15400. | 15229. |
| | | | | TIME | 8.17 | 8.08 | 8.08 | 8.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | MNWB | .44 | 1 | FLOW | 171. | 168. | 165. | 163. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | |
| + | RMNWB | .44 | 1 | FLOW | 171. | 168. | 165. | 163. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | |
| + | MNWC | .60 | 1 | FLOW | 240. | 236. | 232. | 229. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| COMBINED AT | | | | | | | | |
| + | PT35 | 1.04 | 1 | FLOW | 409. | 402. | 395. | 390. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | |
| + | RPT35 | 1.04 | 1 | FLOW | 406. | 399. | 393. | 387. |
| | | | | TIME | 4.25 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | |
| + | MNWD | .08 | 1 | FLOW | 51. | 50. | 49. | 49. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | | |
| + | PT36 | 1.12 | 1 | FLOW | 427. | 419. | 412. | 407. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | |
| + | RPT36 | 1.12 | 1 | FLOW | 416. | 408. | 402. | 396. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | |
| + | MC2 | .92 | 1 | FLOW | 273. | 268. | 264. | 261. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| 2 COMBINED AT | | | | | | | | |
| + | PT37 | 2.03 | 1 | FLOW | 686. | 673. | 663. | 654. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 |
| ROUTED TO | | | | | | | | |
| + | RPT37 | 2.03 | 1 | FLOW | 686. | 673. | 663. | 654. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | |
| + | B10A | 1.60 | 1 | FLOW | 1007. | 989. | 975. | 962. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | |
| + | PT38 | 3.64 | 1 | FLOW | 1166. | 1144. | 1127. | 1111. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | |
| + | RPT38 | 3.64 | 1 | FLOW | 1134. | 1115. | 1095. | 1082. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| COMBINED AT | | | | | | | | |
| | PT39 | 149.06 | 1 | FLOW | 15849. | 15607. | 15412. | 15241. |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.08 |
| ROUTED TO | | | | | | | | |
| + | RPT39 | 149.06 | 1 | FLOW | 15849. | 15605. | 15410. | 15238. |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | | |
| + | D6 | 1.56 | 1 | FLOW | 843. | 830. | 819. | 810. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | |
| + | PT40 | 150.62 | 1 | FLOW | 15849. | 15605. | 15410. | 15238. |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 |
| [redacted]UTED TO | | | | | | | | |
| | RPT40 | 150.62 | 1 | FLOW | 15844. | 15600. | 15405. | 15233. |
| | | | | TIME | 8.25 | 8.25 | 8.17 | 8.17 |
| HYDROGRAPH AT | | | | | | | | |
| + | D7 | .85 | 1 | FLOW | 293. | 288. | 283. | 279. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| 2 COMBINED AT | | | | | | | | |
| + | PT41 | 151.47 | 1 | FLOW | 15844. | 15600. | 15405. | 15234. |
| | | | | TIME | 8.25 | 8.25 | 8.17 | 8.17 |
| ROUTED TO | | | | | | | | |
| + | RPT41 | 151.47 | 1 | FLOW | 15844. | 15600. | 15405. | 15233. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | D8 | 1.26 | 1 | FLOW | 873. | 858. | 846. | 836. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | |
| + | RD8 | 1.26 | 1 | FLOW | 827. | 813. | 802. | 792. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | | |
| + | PT42 | 152.73 | 1 | FLOW | 15844. | 15600. | 15405. | 15233. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 |
| ROUTED TO | | | | | | | | |
| + | RPT42 | 152.73 | 1 | FLOW | 15842. | 15598. | 15404. | 15232. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | B10B | .85 | 1 | FLOW | 357. | 352. | 347. | 343. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | |
| + | RB10B | .85 | 1 | FLOW | 337. | 332. | 327. | 324. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | D9A | .86 | 1 | FLOW | 166. | 163. | 160. | 157. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 |
| [redacted] COMBINED AT | | | | | | | | |
| | PT43 | 1.71 | 1 | FLOW | 503. | 494. | 486. | 480. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| ROUTED TO | | | | | | | | |
| + | RPT43 | 1.71 | 1 | FLOW | 502. | 493. | 486. | 480. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 |
| 2 COMBINED AT | | | | | | | | |
| + | PT44 | 154.44 | 1 | FLOW | 15854. | 15610. | 15415. | 15243. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 |
| ROUTED TO | | | | | | | | |
| + | RPT44 | 154.44 | 1 | FLOW | 15843. | 15599. | 15404. | 15233. |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.33 |
| HYDROGRAPH AT | | | | | | | | |
| + | D9B | 1.54 | 1 | FLOW | 683. | 669. | 658. | 649. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | |
| + | PT45 | 155.99 | 1 | FLOW | 15843. | 15599. | 15404. | 15233. |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.33 |
| ROUTED TO | | | | | | | | |
| + | RPT45 | 155.99 | 1 | FLOW | 15829. | 15586. | 15391. | 15220. |
| | | | | TIME | 8.50 | 8.50 | 8.50 | 8.50 |
| HYDROGRAPH AT | | | | | | | | |
| + | D10 | 2.51 | 1 | FLOW | 1333. | 1310. | 1292. | 1276. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | |
| + | PT46 | 158.49 | 1 | FLOW | 15829. | 15586. | 15391. | 15220. |
| | | | | TIME | 8.50 | 8.50 | 8.50 | 8.50 |
| ROUTED TO | | | | | | | | |
| + | RPT46 | 158.49 | 1 | FLOW | 15828. | 15584. | 15388. | 15217. |
| | | | | TIME | 8.58 | 8.58 | 8.58 | 8.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | MC | 2.80 | 1 | FLOW | 2522. | 2484. | 2453. | 2426. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| [redacted]IVERSION TO | | | | | | | | |
| | TORAW | 2.80 | 1 | FLOW | 489. | 482. | 477. | 472. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| HYDROGRAPH AT | | | | | | | | |
| + | TORAW | 2.80 | 1 | FLOW | 2034. | 2002. | 1976. | 1954. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | |

```
+                 MCDB      2.80     1   FLOW          80.      79.      79.      78.
                                         TIME        5.67     5.67     5.67     5.67

                                    ** PEAK STAGES IN FEET **
                                     1  STAGE       11.97    11.79    11.64    11.51
                                         TIME        5.67     5.67     5.67     5.67

[redacted]TED TO
                  RMCDB      2.80     1   FLOW          80.      79.      79.      78.
                                         TIME        5.75     5.75     5.75     5.67

 HYDROGRAPH AT
+                 RTORAW      .00     1   FLOW         489.     482.     477.     472.
                                         TIME        3.67     3.67     3.67     3.67

   2 COMBINED AT
+                  PT47      2.80     1   FLOW         536.     529.     523.     518.
                                         TIME        3.67     3.67     3.67     3.67

 ROUTED TO
+                 RPT47      2.80     1   FLOW         542.     534.     528.     523.
                                         TIME        3.83     3.83     3.83     3.83

 HYDROGRAPH AT
+                    RH      1.36     1   FLOW         387.     377.     368.     361.
                                         TIME        3.83     3.83     3.83     3.83

   2 COMBINED AT
+                 PT48W      4.16     1   FLOW         929.     911.     897.     884.
                                         TIME        3.83     3.83     3.83     3.83

 HYDROGRAPH AT
+                   B20       .79     1   FLOW         290.     284.     280.     276.
                                         TIME        4.17     4.17     4.17     4.17

 ROUTED TO
+                  RB20       .79     1   FLOW         288.     283.     279.     275.
                                         TIME        4.25     4.25     4.25     4.25

   3 COMBINED AT
+                  PT48    163.44     1   FLOW       15905.   15660.   15464.   15292.
                                         TIME        8.58     8.58     8.58     8.50

 ROUTED TO
+                 RPT48    163.44     1   FLOW       15901.   15657.   15462.   15290.
                                         TIME        8.58     8.58     8.58     8.58

 HYDROGRAPH AT
+                   D12       .18     1   FLOW          50.      49.      48.      47.
                                         TIME        4.17     4.17     4.17     4.17

[redacted]TED TO
                   RD12       .18     1   FLOW          50.      49.      48.      47.
                                         TIME        4.42     4.42     4.42     4.42

 HYDROGRAPH AT
+                  D11A       .16     1   FLOW          89.      87.      85.      84.
                                         TIME        3.58     3.58     3.58     3.58

   2 COMBINED AT
+                  PT49       .33     1   FLOW          92.      89.      88.      86.
                                         TIME        3.58     3.58     3.58     3.58

 ROUTED TO
+                 RPT49       .33     1   FLOW          89.      87.      85.      84.
                                         TIME        3.75     3.75     3.75     3.75

   2 COMBINED AT
+                  PT50    163.78     1   FLOW       15902.   15658.   15463.   15290.
                                         TIME        8.58     8.58     8.58     8.58

 ROUTED TO
+                 RPT50    163.78     1   FLOW       15901.   15655.   15461.   15287.
                                         TIME        8.67     8.67     8.67     8.67

 HYDROGRAPH AT
+                  D11B       .99     1   FLOW         661.     649.     639.     630.
                                         TIME        3.67     3.67     3.67     3.67

   2 COMBINED AT
+                  PT51    164.76     1   FLOW       15901.   15655.   15461.   15287.
                                         TIME        8.67     8.67     8.67     8.67
1
                                    SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                        (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                 INTERPOLATED TO
                                                                                 COMPUTATION INTERVAL
          ISTAQ    ELEMENT        DT        PEAK     TIME TO      VOLUME        DT        PEAK     TIME TO      VOLUME
                                                                    PEAK                                PEAK

                                  (MIN)      (CFS)      (MIN)       (IN)      (MIN)      (CFS)      (MIN)        (IN)

        FOR PLAN = 1  RATIO=  .00
            RPT2  MANE          4.23     641.01     304.81        .75       5.00     640.88     305.00         .75

[redacted]NTINUITY SUMMARY (AC-FT) - INFLOW= .1056E+03 EXCESS= .0000E+00 OUTFLOW= .1056E+03 BASIN STORAGE= .4870E-02 PERCENT ERROR=     .0

        FOR PLAN = 1  RATIO=  .00
            RPT2  MANE          4.26     627.59     306.84        .73       5.00     627.28     305.00         .73

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1033E+03 EXCESS= .0000E+00 OUTFLOW= .1034E+03 BASIN STORAGE= .5110E-02 PERCENT ERROR=     .0
```

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT2 | MANE | 4.28 | 619.16 | 304.21 | .72 | 5.00 | 618.75 | 305.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1015E+03 EXCESS= .0000E+00 OUTFLOW= .1015E+03 BASIN STORAGE= .3434E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT2 | MANE | 4.31 | 610.14 | 305.67 | .71 | 5.00 | 609.67 | 305.00 | .71 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9995E+02 EXCESS= .0000E+00 OUTFLOW= .9998E+02 BASIN STORAGE= .4503E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.17 | 1001.41 | 241.40 | .63 | 5.00 | 1000.05 | 240.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1559E+03 EXCESS= .0000E+00 OUTFLOW= .1559E+03 BASIN STORAGE= .2592E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.19 | 977.51 | 241.21 | .61 | 5.00 | 975.76 | 240.00 | .61 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1519E+03 EXCESS= .0000E+00 OUTFLOW= .1519E+03 BASIN STORAGE= .2045E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.21 | 959.34 | 242.83 | .60 | 5.00 | 956.79 | 240.00 | .60 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1486E+03 EXCESS= .0000E+00 OUTFLOW= .1486E+03 BASIN STORAGE= .2661E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.22 | 943.95 | 242.02 | .59 | 5.00 | 942.13 | 240.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1458E+03 EXCESS= .0000E+00 OUTFLOW= .1458E+03 BASIN STORAGE= .2378E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.39 | 2726.19 | 296.36 | 1.12 | 5.00 | 2723.30 | 300.00 | 1.12 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6075E+03 EXCESS= .0000E+00 OUTFLOW= .6073E+03 BASIN STORAGE= .2629E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.40 | 2672.05 | 296.89 | 1.09 | 5.00 | 2669.68 | 300.00 | 1.09 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5952E+03 EXCESS= .0000E+00 OUTFLOW= .5951E+03 BASIN STORAGE= .2613E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.41 | 2628.93 | 297.05 | 1.07 | 5.00 | 2626.95 | 300.00 | 1.07 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5855E+03 EXCESS= .0000E+00 OUTFLOW= .5854E+03 BASIN STORAGE= .2577E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.41 | 2591.32 | 297.03 | 1.06 | 5.00 | 2589.59 | 300.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5770E+03 EXCESS= .0000E+00 OUTFLOW= .5769E+03 BASIN STORAGE= .2559E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.63 | 1320.89 | 418.38 | -1.00 | 5.00 | 1320.86 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.63 | 1317.13 | 418.79 | -1.00 | 5.00 | 1317.10 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.64 | 1314.14 | 419.12 | -1.00 | 5.00 | 1314.11 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.64 | 1311.52 | 419.41 | -1.00 | 5.00 | 1311.50 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .79 | 1320.85 | 420.14 | -1.00 | 5.00 | 1320.84 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .79 | 1317.09 | 420.62 | -1.00 | 5.00 | 1317.08 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .79 | 1314.09 | 420.21 | -1.00 | 5.00 | 1314.09 | 420.00 | -1.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI154 MANE | .79 | 1311.49 | 420.55 | -1.00 | 5.00 | 1311.48 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.42 | 3301.12 | 416.65 | -1.00 | 5.00 | 3299.94 | 415.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.43 | 3229.41 | 416.64 | -1.00 | 5.00 | 3228.44 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.43 | 3172.21 | 417.53 | -1.00 | 5.00 | 3171.54 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.44 | 3125.54 | 418.02 | -1.00 | 5.00 | 3125.09 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .78 | 3300.00 | 416.35 | -1.00 | 5.00 | 3299.78 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .78 | 3228.40 | 420.01 | -1.00 | 5.00 | 3228.40 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .79 | 3171.42 | 419.85 | -1.00 | 5.00 | 3171.40 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .79 | 3124.99 | 419.96 | -1.00 | 5.00 | 3124.98 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .50 | 3299.71 | 419.95 | -1.00 | 5.00 | 3299.70 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .51 | 3228.28 | 420.09 | -1.00 | 5.00 | 3228.27 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .51 | 3171.27 | 420.02 | -1.00 | 5.00 | 3171.26 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .51 | 3124.84 | 419.93 | -1.00 | 5.00 | 3124.84 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .53 | 3299.54 | 420.36 | -1.00 | 5.00 | 3299.54 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .53 | 3228.11 | 420.32 | -1.00 | 5.00 | 3228.07 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .54 | 3171.09 | 420.10 | -1.00 | 5.00 | 3171.05 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .54 | 3124.71 | 420.43 | -1.00 | 5.00 | 3124.64 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RPT27 MANE | .65 | 4620.18 | 420.33 | -1.00 | 5.00 | 4620.11 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RPT27 MANE | .65 | 4544.94 | 420.50 | -1.00 | 5.00 | 4544.85 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RPT27 MANE | .65 | 4484.86 | 420.12 | -1.00 | 5.00 | 4484.80 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RPT27 MANE | .66 | 4435.97 | 420.66 | -1.00 | 5.00 | 4435.85 | 420.00 | -1.00 |

```
          FOR PLAN = 1  RATIO=  .00
            RPT27  MANE          .30   4619.96    419.95     -1.00      5.00   4619.95    420.00       -1.00


          FOR PLAN = 1  RATIO=  .00
            RPT27  MANE          .31   4544.67    419.96     -1.00      5.00   4544.66    420.00       -1.00


          FOR PLAN = 1  RATIO=  .00
            RPT27  MANE          .31   4484.62    420.04     -1.00      5.00   4484.59    420.00       -1.00


          FOR PLAN = 1  RATIO=  .00
            RPT27  MANE          .31   4435.68    420.04     -1.00      5.00   4435.66    420.00       -1.00


          FOR PLAN = 1  RATIO=  .00
            RLDCDB  MANE         .62  12653.63    499.77      2.25      5.00  12653.54    500.00        2.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4626E+04 EXCESS= .0000E+00 OUTFLOW= .4615E+04 BASIN STORAGE= .1188E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RLDCDB  MANE         .62  12444.36    499.75      2.22      5.00  12444.27    500.00        2.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4550E+04 EXCESS= .0000E+00 OUTFLOW= .4540E+04 BASIN STORAGE= .1176E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RLDCDB  MANE         .62  12278.52    499.74      2.19      5.00  12278.44    500.00        2.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4488E+04 EXCESS= .0000E+00 OUTFLOW= .4478E+04 BASIN STORAGE= .1167E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RLDCDB  MANE         .63  12135.16    500.03      2.16      5.00  12135.16    500.00        2.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4438E+04 EXCESS= .0000E+00 OUTFLOW= .4428E+04 BASIN STORAGE= .1158E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RPT29  MANE          .73  13007.17    494.70      2.34      5.00  13007.06    495.00        2.34

NTINUITY SUMMARY (AC-FT) - INFLOW= .4965E+04 EXCESS= .0000E+00 OUTFLOW= .4951E+04 BASIN STORAGE= .1423E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RPT29  MANE          .73  12793.93    491.15      2.30      5.00  12793.59    495.00        2.30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4884E+04 EXCESS= .0000E+00 OUTFLOW= .4871E+04 BASIN STORAGE= .1408E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RPT29  MANE          .74  12625.53    491.35      2.27      5.00  12624.62    495.00        2.27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4819E+04 EXCESS= .0000E+00 OUTFLOW= .4806E+04 BASIN STORAGE= .1397E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RPT29  MANE          .74  12480.18    491.24      2.24      5.00  12478.73    495.00        2.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4768E+04 EXCESS= .0000E+00 OUTFLOW= .4755E+04 BASIN STORAGE= .1386E+02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RB16B  MANE         4.00    445.23    232.00      1.46      5.00    443.84    230.00        1.46

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5454E+02 EXCESS= .0000E+00 OUTFLOW= .5455E+02 BASIN STORAGE= .1032E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RB16B  MANE         3.75    440.86    232.50      1.44      5.00    439.40    230.00        1.44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5368E+02 EXCESS= .0000E+00 OUTFLOW= .5368E+02 BASIN STORAGE= .1464E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RB16B  MANE         3.75    435.11    232.50      1.42      5.00    433.58    230.00        1.42

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5299E+02 EXCESS= .0000E+00 OUTFLOW= .5300E+02 BASIN STORAGE= .1452E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RB16B  MANE         3.75    430.09    232.50      1.40      5.00    428.50    230.00        1.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5240E+02 EXCESS= .0000E+00 OUTFLOW= .5240E+02 BASIN STORAGE= .1442E-02 PERCENT ERROR=    .0
```

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.57 | 13006.16 | 494.85 | 2.30 | 5.00 | 13006.13 | 495.00 | 2.31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5004E+04 EXCESS= .0000E+00 OUTFLOW= .4976E+04 BASIN STORAGE= .2939E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.58 | 12792.84 | 494.33 | 2.27 | 5.00 | 12792.76 | 495.00 | 2.27 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4923E+04 EXCESS= .0000E+00 OUTFLOW= .4895E+04 BASIN STORAGE= .2907E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.59 | 12624.31 | 493.29 | 2.24 | 5.00 | 12624.11 | 495.00 | 2.24 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4872E+04 EXCESS= .0000E+00 OUTFLOW= .4844E+04 BASIN STORAGE= .2878E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.59 | 12478.78 | 493.54 | 2.21 | 5.00 | 12478.45 | 495.00 | 2.22 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4802E+04 EXCESS= .0000E+00 OUTFLOW= .4774E+04 BASIN STORAGE= .2858E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .93 | 13006.41 | 495.35 | 2.27 | 5.00 | 13006.02 | 495.00 | 2.27 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5088E+04 EXCESS= .0000E+00 OUTFLOW= .5071E+04 BASIN STORAGE= .1773E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .93 | 12793.07 | 495.34 | 2.23 | 5.00 | 12792.74 | 495.00 | 2.23 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5000E+04 EXCESS= .0000E+00 OUTFLOW= .4983E+04 BASIN STORAGE= .1755E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .94 | 12624.62 | 495.72 | 2.20 | 5.00 | 12624.21 | 495.00 | 2.20 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4932E+04 EXCESS= .0000E+00 OUTFLOW= .4915E+04 BASIN STORAGE= .1739E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .94 | 12478.97 | 495.80 | 2.17 | 5.00 | 12478.66 | 495.00 | 2.18 |

NTINUITY SUMMARY (AC-FT) - INFLOW= .4882E+04 EXCESS= .0000E+00 OUTFLOW= .4865E+04 BASIN STORAGE= .1726E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.23 | 15763.85 | 486.88 | .82 | 5.00 | 15763.11 | 490.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6267E+04 EXCESS= .0000E+00 OUTFLOW= .6241E+04 BASIN STORAGE= .2797E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.24 | 15520.66 | 487.25 | .80 | 5.00 | 15519.01 | 490.00 | .81 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6178E+04 EXCESS= .0000E+00 OUTFLOW= .6153E+04 BASIN STORAGE= .2763E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.24 | 15326.23 | 487.07 | .79 | 5.00 | 15323.76 | 490.00 | .79 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6080E+04 EXCESS= .0000E+00 OUTFLOW= .6054E+04 BASIN STORAGE= .2742E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.25 | 15154.75 | 486.63 | .78 | 5.00 | 15152.34 | 485.00 | .78 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6007E+04 EXCESS= .0000E+00 OUTFLOW= .5982E+04 BASIN STORAGE= .2721E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 170.95 | 260.00 | 1.14 | 5.00 | 170.95 | 260.00 | 1.14 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2697E+02 EXCESS= .0000E+00 OUTFLOW= .2697E+02 BASIN STORAGE= .1962E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 167.74 | 260.00 | 1.12 | 5.00 | 167.74 | 260.00 | 1.12 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2645E+02 EXCESS= .0000E+00 OUTFLOW= .2646E+02 BASIN STORAGE= .1941E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 165.18 | 260.00 | 1.10 | 5.00 | 165.18 | 260.00 | 1.10 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2604E+02 EXCESS= .0000E+00 OUTFLOW= .2604E+02 BASIN STORAGE= .1925E-02 PERCENT ERROR= .0

```
 FOR PLAN = 1  RATIO=  .00
    RMNWB  MANE          5.00    162.94    260.00      1.09      5.00    162.94    260.00        1.09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2568E+02 EXCESS= .0000E+00 OUTFLOW= .2568E+02 BASIN STORAGE= .1911E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT37  MANE          5.00    685.71    270.00      1.15      5.00    685.71    270.00        1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1253E+03 EXCESS= .0000E+00 OUTFLOW= .1253E+03 BASIN STORAGE= .1678E-01 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT37  MANE          5.00    672.89    270.00      1.13      5.00    672.89    270.00        1.13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1230E+03 EXCESS= .0000E+00 OUTFLOW= .1231E+03 BASIN STORAGE= .1661E-01 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT37  MANE          5.00    662.67    270.00      1.12      5.00    662.67    270.00        1.12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1212E+03 EXCESS= .0000E+00 OUTFLOW= .1213E+03 BASIN STORAGE= .1648E-01 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT37  MANE          5.00    653.74    270.00      1.10      5.00    653.74    270.00        1.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1197E+03 EXCESS= .0000E+00 OUTFLOW= .1197E+03 BASIN STORAGE= .1636E-01 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT38  MANE          3.13   1146.40    222.02      1.17      5.00   1134.37    220.00        1.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2265E+03 EXCESS= .0000E+00 OUTFLOW= .2265E+03 BASIN STORAGE= .1653E-01 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT38  MANE          3.15   1121.81    223.44      1.15      5.00   1114.54    220.00        1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2226E+03 EXCESS= .0000E+00 OUTFLOW= .2226E+03 BASIN STORAGE= .1615E-01 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT38  MANE          3.16   1106.50    221.44      1.13      5.00   1095.47    220.00        1.13

NTINUITY SUMMARY (AC-FT) - INFLOW= .2195E+03 EXCESS= .0000E+00 OUTFLOW= .2195E+03 BASIN STORAGE= .1607E-01 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT38  MANE          3.18   1092.91    222.45      1.12      5.00   1081.71    220.00        1.12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2167E+03 EXCESS= .0000E+00 OUTFLOW= .2167E+03 BASIN STORAGE= .1612E-01 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT39  MANE          1.78  15849.35    488.16       .84      5.00  15848.70    490.00         .84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6745E+04 EXCESS= .0000E+00 OUTFLOW= .6707E+04 BASIN STORAGE= .4076E+02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT39  MANE          1.79  15606.15    487.42       .83      5.00  15604.55    490.00         .83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6630E+04 EXCESS= .0000E+00 OUTFLOW= .6592E+04 BASIN STORAGE= .4029E+02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT39  MANE          1.79  15411.50    487.92       .81      5.00  15409.64    490.00         .82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6526E+04 EXCESS= .0000E+00 OUTFLOW= .6489E+04 BASIN STORAGE= .4003E+02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT39  MANE          1.80  15239.65    488.16       .81      5.00  15237.78    490.00         .81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6459E+04 EXCESS= .0000E+00 OUTFLOW= .6422E+04 BASIN STORAGE= .3968E+02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT41  MANE          1.61  15843.55    495.39       .83      5.00  15843.55    495.00         .84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6775E+04 EXCESS= .0000E+00 OUTFLOW= .6740E+04 BASIN STORAGE= .3872E+02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT41  MANE          1.62  15600.01    493.62       .82      5.00  15599.70    495.00         .82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6670E+04 EXCESS= .0000E+00 OUTFLOW= .6635E+04 BASIN STORAGE= .3829E+02 PERCENT ERROR=    .0
```

FOR PLAN = 1 RATIO= .00
RPT41 MANE 1.63 15405.62 492.86 .81 5.00 15404.82 495.00 .81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6574E+04 EXCESS= .0000E+00 OUTFLOW= .6540E+04 BASIN STORAGE= .3600E+02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RPT41 MANE 1.63 15234.01 491.80 .80 5.00 15233.14 495.00 .80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6512E+04 EXCESS= .0000E+00 OUTFLOW= .6478E+04 BASIN STORAGE= .3765E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT42 MANE 1.32 15842.75 495.75 .84 5.00 15842.11 495.00 .84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6845E+04 EXCESS= .0000E+00 OUTFLOW= .6816E+04 BASIN STORAGE= .3003E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT42 MANE 1.33 15598.97 495.78 .82 5.00 15598.48 495.00 .82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6717E+04 EXCESS= .0000E+00 OUTFLOW= .6689E+04 BASIN STORAGE= .2971E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT42 MANE 1.33 15404.23 495.30 .81 5.00 15403.98 495.00 .81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6624E+04 EXCESS= .0000E+00 OUTFLOW= .6597E+04 BASIN STORAGE= .2946E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT42 MANE 1.34 15232.44 495.90 .80 5.00 15232.23 495.00 .80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6560E+04 EXCESS= .0000E+00 OUTFLOW= .6533E+04 BASIN STORAGE= .2913E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT43 MANE 5.00 502.34 280.00 1.11 5.00 502.34 280.00 1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1013E+03 EXCESS= .0000E+00 OUTFLOW= .1013E+03 BASIN STORAGE= .3138E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT43 MANE 5.00 493.17 280.00 1.09 5.00 493.17 280.00 1.09

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9961E+02 EXCESS= .0000E+00 OUTFLOW= .9960E+02 BASIN STORAGE= .3095E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT43 MANE 5.00 485.87 280.00 1.08 5.00 485.87 280.00 1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9825E+02 EXCESS= .0000E+00 OUTFLOW= .9824E+02 BASIN STORAGE= .3061E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT43 MANE 5.00 479.51 280.00 1.06 5.00 479.51 280.00 1.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9706E+02 EXCESS= .0000E+00 OUTFLOW= .9705E+02 BASIN STORAGE= .3031E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT46 MANE 1.58 15829.23 512.24 .80 5.00 15827.87 515.00 .81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6847E+04 EXCESS= .0000E+00 OUTFLOW= .6811E+04 BASIN STORAGE= .3866E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT46 MANE 1.59 15585.61 512.05 .79 5.00 15583.69 515.00 .79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6737E+04 EXCESS= .0000E+00 OUTFLOW= .6701E+04 BASIN STORAGE= .3844E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT46 MANE 1.60 15390.59 511.28 .78 5.00 15388.32 515.00 .78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6638E+04 EXCESS= .0000E+00 OUTFLOW= .6603E+04 BASIN STORAGE= .3814E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPT46 MANE 1.60 15219.30 511.84 .77 5.00 15216.54 515.00 .77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6545E+04 EXCESS= .0000E+00 OUTFLOW= .6510E+04 BASIN STORAGE= .3790E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RMCDB MANE 5.00 79.89 344.68 .30 5.00 79.89 345.00 .30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4519E+02 EXCESS= .0000E+00 OUTFLOW= .4463E+02 BASIN STORAGE= .5621E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 79.20 | 345.00 | .29 | 5.00 | 79.20 | 345.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4482E+02 EXCESS= .0000E+00 OUTFLOW= .4426E+02 BASIN STORAGE= .5581E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 78.64 | 345.00 | .29 | 5.00 | 78.64 | 345.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4448E+02 EXCESS= .0000E+00 OUTFLOW= .4393E+02 BASIN STORAGE= .5549E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 78.16 | 345.00 | .29 | 5.00 | 78.16 | 345.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4418E+02 EXCESS= .0000E+00 OUTFLOW= .4363E+02 BASIN STORAGE= .5522E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 541.72 | 230.00 | .62 | 5.00 | 541.72 | 230.00 | .62 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9510E+02 EXCESS= .0000E+00 OUTFLOW= .9260E+02 BASIN STORAGE= .3094E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 534.26 | 230.00 | .61 | 5.00 | 534.26 | 230.00 | .61 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9394E+02 EXCESS= .0000E+00 OUTFLOW= .9145E+02 BASIN STORAGE= .3075E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 528.34 | 230.00 | .60 | 5.00 | 528.34 | 230.00 | .60 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9301E+02 EXCESS= .0000E+00 OUTFLOW= .9053E+02 BASIN STORAGE= .3061E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 523.15 | 230.00 | .60 | 5.00 | 523.15 | 230.00 | .60 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9220E+02 EXCESS= .0000E+00 OUTFLOW= .8973E+02 BASIN STORAGE= .3048E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.50 | 288.52 | 231.92 | 1.08 | 5.00 | 288.05 | 255.00 | 1.08 |

NTINUITY SUMMARY (AC-FT) - INFLOW= .4556E+02 EXCESS= .0000E+00 OUTFLOW= .4557E+02 BASIN STORAGE= .2013E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.52 | 283.58 | 253.39 | 1.06 | 5.00 | 282.53 | 255.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4469E+02 EXCESS= .0000E+00 OUTFLOW= .4469E+02 BASIN STORAGE= .1557E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.55 | 279.66 | 254.58 | 1.04 | 5.00 | 279.23 | 255.00 | 1.04 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4398E+02 EXCESS= .0000E+00 OUTFLOW= .4399E+02 BASIN STORAGE= .1817E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.57 | 274.72 | 255.65 | 1.03 | 5.00 | 274.60 | 255.00 | 1.03 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4337E+02 EXCESS= .0000E+00 OUTFLOW= .4337E+02 BASIN STORAGE= .1490E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 49.96 | 265.00 | .85 | 5.00 | 49.96 | 265.00 | .85 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7962E+01 EXCESS= .0000E+00 OUTFLOW= .7967E+01 BASIN STORAGE= .4446E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 48.78 | 265.00 | .83 | 5.00 | 48.78 | 265.00 | .83 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7791E+01 EXCESS= .0000E+00 OUTFLOW= .7796E+01 BASIN STORAGE= .5717E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 47.87 | 265.00 | .82 | 5.00 | 47.87 | 265.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7655E+01 EXCESS= .0000E+00 OUTFLOW= .7661E+01 BASIN STORAGE= .5671E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 47.07 | 265.00 | .80 | 5.00 | 47.07 | 265.00 | .80 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7537E+01 EXCESS= .0000E+00 OUTFLOW= .7543E+01 BASIN STORAGE= .5631E-02 PERCENT ERROR= -.1

```
          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          5.00     89.36    225.00        .82       5.00     89.36    225.00         .82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1469E+02 EXCESS= .0000E+00 OUTFLOW= .1469E+02 BASIN STORAGE= .5987E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          5.00     87.01    225.00        .80       5.00     87.01    225.00         .80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1437E+02 EXCESS= .0000E+00 OUTFLOW= .1437E+02 BASIN STORAGE= .7020E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          5.00     85.24    225.00        .79       5.00     85.24    225.00         .79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1411E+02 EXCESS= .0000E+00 OUTFLOW= .1412E+02 BASIN STORAGE= .6968E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          5.00     83.70    225.00        .78       5.00     83.70    225.00         .78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1389E+02 EXCESS= .0000E+00 OUTFLOW= .1389E+02 BASIN STORAGE= .6922E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          4.33  15901.34    519.10        .78       5.00  15900.66    520.00         .78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6921E+04 EXCESS= .0000E+00 OUTFLOW= .6820E+04 BASIN STORAGE= .1084E+03 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          4.35  15654.66    522.09        .76       5.00  15654.63    520.00         .77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6787E+04 EXCESS= .0000E+00 OUTFLOW= .6687E+04 BASIN STORAGE= .1074E+03 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          4.37  15461.46    520.15        .76       5.00  15461.28    520.00         .76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6746E+04 EXCESS= .0000E+00 OUTFLOW= .6647E+04 BASIN STORAGE= .1061E+03 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          4.39  15287.61    517.93        .74       5.00  15286.97    520.00         .75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6628E+04 EXCESS= .0000E+00 OUTFLOW= .6530E+04 BASIN STORAGE= .1056E+03 PERCENT ERROR=   -.1

1                                                HEC-1 INPUT                                                PAGE  1

          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
                        *


*** NORMAL END OF HEC-1 ***
```

SDN3, DUCK3.OUT

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*          SEPTEMBER 1990           *
*            VERSION 4.0            *
*                                   *
*  RUN DATE  01/21/2002  TIME  15:40:42 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX           XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL  LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



```
          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

                    *DIAGRAM
*** FREE ***
               1    ID   DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
               2    ID   "G.C. WALLACE, INC. BY MJL"
               3    ID   DUCK3.XLS
               4    ID   "MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
               5    ID   "BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
               6    ID   UPDATED PRECIPITATION VALUES
               7    ID   % IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
               8    ID   ADDITIONAL DIVERSIONS ADDED
               9    ID   DESIGN STORM = 100-YEAR 6-HOUR STORM
              10    ID   STORM DISTRIBUTION = SDN3
                    *
              11    ID     JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
              12    ID
              13    ID     AREA (SQUARE MILES)    DARF
              14    ID    0 - 0.5   0.990
              15    ID    0.5 - 1   0.975
              16    ID    1 - 2   0.950
              17    ID    2 - 3   0.925
              18    ID    3 - 4   0.915
              19    ID    4 - 5   0.908
              20    ID    5 - 6   0.903
              21    ID    6 - 7   0.895
              22    ID    7 - 8   0.885
              23    ID
              24    IT       5       0       0     120
              25    IO       5       0       0
              26    JR    PREC   0.990   0.975   0.950   0.925   0.915   0.908   0.903   0.895   0.885
                    *

              27    KK    B13A
              28    BA   1.290
              29    PB    3.14
              30    PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
              31    PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
              32    PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
              33    PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
              34    PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
              35    PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
              36    PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
              37    PC   0.998   0.999   1.000
              38    LS       0    88.0
              39    UD   0.680
                    *

              40    KK   RB13A
              41    KM   ROUTE B13A TO PT1
              42    RM       7    0.64     0.1
                    *
```



```
          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

              43    KK    B13B
              44    BA   0.538
              45    PB    2.96
              46    LS       0    88.0
              47    UD   1.440
                    *

              48    KK     PT1
              49    KM   COMBINE BASINS B13A AND B13B
              50    HC       2
                    *
```

```
KK    RPT1
KM   ROUTE PT1 TO PT2
RM       3    0.28    0.15
*

KK     B17
BA   0.816
PB    2.80
LS       0    88.0
UD   0.940
*

KK     PT2
KM   COMBINE PT1 AND BASIN B17
HC       2
*

KK   DVBD2
KM   "DIVERSION EAST THRU 2-36"" RCP'S AT UPRR LOCATED 300 FT SOUTH OF BLUE DIAMON
DT   DVBD2
DI       0     121     500    1000    1500    2000
DQ       0     121     240     391     540     690
*

KK    RPT2
KM   ROUTE BYPASS TO PT3
RD    2000   0.008    0.03       0    TRAP      35       3
*

KK    B13C
BA   2.005
PB    2.82
LS       0    88.1
UD   0.510
*

KK     PT3
KM   COMBINE BYPASS FROM DVBD2 AND BASIN B13C
HC       2
*
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK   DVBD3
KM   DIVERSION EAST THRU 8'x4' RCB AT UPRR LOCATED 1700 FT NORTH OF BLUE DIAMOND
DT   DVBD3
DI       0     238     500    1000    1500    2000
DQ       0     238     252     271     288     304
*

KK   RPT3A
KM   ROUTE BYPASS FROM DVBD3 NORTH ALONG WEST SIDE OF UPRR TO UPPR CULVERT BD4
KM   MUSKINGUM ROUTING UNSTABLE
RD    1200   0.008    0.03       0    TRAP      35       3
*

KK   DVBD4
KM   "DIVERSION EAST THRU 2-36"" RCP'S AT UPRR LOCATED 3000 FT NORTH OF BLUE DIAMO
DT   DVBD4
DI       0      97     500    1000    1500    2000
DQ       0      97     149     202     252     296
*

KK   RPT3B
KM   ROUTE BYPASS FROM DVBD4 NORTH ALONG WEST SIDE OF UPRR TO UPPR BRIDGE
RM       1   0.119    0.15
*

KK    B11S
KM   SOUTHERN PORTION OF BASIN B11 TIES INTO HYDRO1 BOUNDARY AREA
BA   1.121
PB    2.82
LS       0    78.0
UD   0.580
*

KK  HYDRO1
KM   INFLOW HYDROGRAPH
KM   "REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B."""
KM   "SEE COMBINATION POINT C-5, DARF RATIO 0.98, OF HEC-1 FROM REFERENCED LOMR"
BA   0.630
QI       0       0       0       0       0       0       0       0       0       0
QI       0       0       0       0       0       0       0       0       0       0
QI       0       0       1       7      14      29      45      58      69      76
QI      82      86      90      94      99     100     101     100     100     100
QI     102     109     126     161     223     318     430     538     604     623
QI     607     569     525     480     437     397     363     335     316     306
QI     304     310     321     333     339     332     314     289     264     239
QI     217     198     182     169     159     150     143     137     131     127
QI     122     118     114     110     107     104     102     101     100      99
QI      98      98      97      97      97      97      97      96      96      96
QI      96      96      96      97      96      96      96      96      96      96
QI      96      96      96      96      96      96      96      96      96      96
QI      96      96      96      96      96      96      96      96      96      96
QI      96      96      96      96      96      96      96      96      96      96
QI      96      96      96      96      96      95      95      95      95      95
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

QI      95      95      95      95      95      95      95      95      95      95
QI      95      95      95      95      95      95      95      95      95      95
```

```
124         QI      95      95      95      95      95      95      95      95      95      95
125         QI      95      95      95      95      95      95      95      95      95      95
126         QI      95      95      95      95      95      95      95      95      95      95
127         QI      95      95      95      95      95      95      95      95      95      95
128         QI      95      95      95      95      95      95      95      95      95      95
129         QI      95      95      94      94      94      94      94      94      94      94
130         QI      94      94      94      94      94      94      94      94      94      94
131         QI      94      94      94      94      94      94      94      94      94      94
132         QI      94      94      94      94      94      94      94      94      94      94
133         QI      94      94      94      94      94      94      94      94      94      94
134         QI      94      94      94      94      94      94      94      94      94      94
135         QI      94      94      94      94      94      94      94      94      94      94
            *

136         KK     PT4
137         KM   "COMBINE BASIN B11S, HYDRO2, AND BYPASS FROM DVBD4"
138         KM   SEE COMBINATION POINT C-5 OF HEC-1 FROM REFERENCED LOMR
139         KM   "PT C-5 REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B.
140         HC       3
            *

141         KK   RPT4A
142         KM   ROUTE PT4 TO DIVERSION DVBD7
143         RM       3    0.22    0.15
            *

144         KK   DVBD7
145         KM   DIVERSION NORTH TO NORTH BRANCH BLUE DIAMOND WASH
146         KM   DIVERSION LOCATED NEAR INTERSECTION OF HINSON AND WINDMILL
147         KM   "REFERENCED FROM BLUE DIAMOND/I-15 INTERCHANGE REPORT, BY PBS&J, JAN 2001"
148         DT   DVBD7
149         DI       0    1200    1500    1800    2100    2400    2700    3000
150         DQ       0     800    1000    1200    1400    1600    1800    2000
            *

151         KK   RPT4B
152         KM   ROUTE BYPASS TO PT22W
153         RM       1    0.11    0.15
            *

154         KK    B14B
155         BA   0.992
156         PB    2.77
157         LS       0    73.4     9.0
158         UD    0.42
            *

159         KK   PT22W
160         KM   COMBINE PT4 AND BASIN B14B
161         HC       2
            *
```



```
LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

162         KK   D012A
163         BA  10.211
164         PB    2.95
165         LS       0    83.0
166         UD   1.320
            *

167         KK  RD012A
168         KM   ROUTE BASIN D012A TO I15 CULVERT 3 - 12'x4' RCB'S (DCWA 1429)
169         KM   MUSKINGUM ROUTING UNSTABLE
170         RD     750   0.007   0.030       0    TRAP      65      10
            *

171         KK  DVI151
172         KM   DIVERSION EAST THRU I15 CULVERT 3 - 12'x4' RCB'S (DCWA 1429)
173         DT  DVI151
174         DI       0     993    1305    1778    2400    3146
175         DQ       0     992    1100    1200    1298    1389
            *

176         KK   RI151
177         KM   ROUTE BYPASS FROM 3 - 12'x4' RCB'S TO I15 BRIDGE 24'x4' (IS15 0199)
178         RM       1   0.071   0.150
            *

179         KK  DVI152
180         KM   DIVERSION EAST THRU I15 BRIDGE 24'x4' (IS15 0199)
181         DT  DVI152
182         DI       0     128     466     929    1506    2268    3133    3815
183         DQ       0      47     190     362     550     733     896    1040
            *

184         KK   RI152
185         KM   ROUTE BYPASS FROM I15 BRIDGE 24'x4' TO I15 BRIDGE 36'x4' (IS15 0233)
186         RM       1   0.123   0.150
            *

187         KK     D01
188         BA   9.536
189         PB    3.42
190         LS       0    83.0
191         UD   1.000
            *

192         KK    RD01
193         KM   ROUTE BASIN D01 TO PT9
194         RM       3    0.64   0.150
            *
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 195      KK    D005
 196      BA   2.732
 197      PB    3.27
 198      LS       0    82.0
 199      UD   0.750
          *

 200      KK     PT9
 201      KM   COMBINE BASINS D01 AND D005
 202      HC       2
          *

 203      KK   RD005
 204      KM   ROUTE BASIN D005 TO PT12
 205      RM       1     0.2   0.150
          *

 206      KK     D02
 207      BA   5.915
 208      PB    3.44
 209      LS       0    83.0
 210      UD   1.030
          *

 211      KK    RD02
 212      KM   ROUTE BASIN D02 TO PT11
 213      RM       3    0.62   0.150
          *

 214      KK     D03
 215      BA  11.991
 216      PB    3.42
 217      LS       0    83.0
 218      UD   0.960
          *

 219      KK     D04
 220      BA   6.950
 221      PB    3.37
 222      LS       0    84.0
 223      UD   1.060
          *

 224      KK    PT10
 225      KM   COMBINE BASINS D03 AND D04
 226      HC       2
          *

 227      KK   RPT10
 228      KM   ROUTE PT10 TO PT11
 229      RM       3    0.82   0.150
          *
1                                   HEC-1 INPUT                                    PAGE  7
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 230      KK    D006
 231      BA   8.518
 232      PB    3.24
 233      LS       0    83.0
 234      UD   0.850
          *

 235      KK    PT11
 236      KM   "COMBINE PT10, BASINS D002 AND D006"
 237      HC       3
          *

 238      KK   RPT11
 239      KM   ROUTE PT11 TO PT12
 240      RM       1    0.18   0.150
          *

 241      KK     D2A
 242      BA   0.988
 243      PB    3.16
 244      LS       0    84.0
 245      UD   0.280
          *

 246      KK    PT12
 247      KM   "COMBINE PT9, PT11 AND BASIN D2A"
 248      HC       3
          *

 249      KK   RPT12
 250      KM   ROUTE PT12 TO PT13
 251      RM       3    0.83   0.150
          *

 252      KK     D2B
 253      BA   7.503
 254      PB    3.06
 255      LS       0    80.1
 256      UD   1.180
          *

 257      KK    PT13
 258      KM   COMBINE PT12 AND BASIN D2B
 259      HC       2
```

```
                *
260             KK   RPT13
261             KM   ROUTE PT13 TO PT14
262             RM       4     0.9   0.100
                *
                                        HEC-1 INPUT                                                    PAGE  8

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

263             KK     D06
264             BA  11.677
265             PB    3.21
266             LS       0    84.0
267             UD   1.190
                *
268             KK    RD06
269             KM   ROUTE BASIN D06 TO PT14
270             RM       3    0.78   0.150
                *
271             KK      D3
272             BA   6.637
273             PB    2.90
274             LS       0    77.0
275             UD   1.130
                *
276             KK    PT14
277             KM   "COMBINE BASINS D3, D06, PT13, AND BYPASS FROM I-15 CULVERT, I152 (IS15 0199)
278             HC       4
                *
279             KK  DVI153
280             KM   DIVERSION EAST THRU I15 BRIDGE 36'x4' (IS15 0233)
281             DT  DVI153
282             DI    1910    3220    6620    8040    8770    9390   10030   10740
283             DQ    1190    1450    3280    4130    4550    5000    5470    5990
                *
284             KK   RPT14
285             KM   ROUTE BYPASS FROM I15 BRIDGE 36'x4' TO I15 BRIDGE 24'x4' (IS15 0315)
286             RM       6   0.484   0.150
                *
287             KK     D1A
288             BA   2.290
289             PB    3.25
290             LS       0    83.0
291             UD   0.830
                *
292             KK    RD1A
293             KM   ROUTE BASIN D1A TO PT15
294             RM       2    0.17   0.150
                *
295             KK     D1B
296             BA   0.316
297             PB    3.10
298             LS       0    84.0
299             UD   1.060
                *
1                                       HEC-1 INPUT                                                    PAGE  9

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

300             KK    PT15
301             KM   COMBINE BASINS D1A AND D1B
302             HC       2
                *
303             KK   RPT15
304             KM   ROUTE PT15 TO PT16
305             RM       4    0.33   0.150
                *
306             KK     D1C
307             BA   0.565
308             PB    2.97
309             LS       0    83.0
310             UD   1.290
                *
311             KK    PT16
312             KM   COMBINE PT15 AND BASIN D1C
313             HC       2
                *
314             KK   RPT16
315             KM   ROUTE PT16 TO PT17
316             RM       3    0.26   0.150
                *
317             KK     D1D
318             BA   1.231
319             PB    2.99
320             LS       0    82.0
321             UD   0.500
                *
322             KK    RD1D
```

```
323          KM   ROUTE BASIN D1D TO PT17
324          RM       2    0.16   0.150
             *

325          KK     D1E
326          BA   0.224
327          PB    2.83
328          LS       0    81.5
329          UD   1.060
             *

330          KK     D1F
331          BA   0.805
332          PB    2.86
333          LS       0    75.2
334          UD   1.500
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

335          KK    PT17
336          KM   "COMBINE PT16, BASINS D1D, D1E, AND D1F"
337          HC       4
             *

338          KK   RPT17
339          KM   ROUTE PT17 TO PT18
340          RM       6     0.5   0.100
             *

341          KK    B18A
342          BA   1.503
343          PB    2.79
344          LS       0    69.4     1.0
345          UD   0.700
             *

346          KK    PT18
347          KM   "COMBINE PT17, BASIN B18A, AND BYPASS FROM PT14 (IS15 0233)"
348          HC       3
             *

349          KK  DVI154
350          KM   DIVERSION EAST THRU I15 BRIDGE 24'x4' (IS15 0315)
351          DT  DVI154
352          DI       0    2318    4128    5274    6452    7636    8617    9479
353          DQ       0    1040    1205    1252    1297    1341    1373    1404
             *

354          KK   RPT18
355          KM   ROUTE BYPASS FROM I15 BRIDGE 24'x4' TO I15 BRIDGE 36'x5' (IS15 0359)
356          RM       1   0.113   0.150
             *

357          KK    B18B
358          BA   1.916
359          PB    2.77
360          LS       0    86.4
361          UD   0.640
             *

362          KK   DVBD2
363          KM   RETURN FLOW PASSING THRU UPPR CULVERT AT PT2 (UPRR 0471)
364          DR   DVBD2
             *

365          KK  RDVBD2
366          KM   ROUTE DVBD2 TO PT19
367          RM       6    0.52   0.100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

368          KK    PT19
369          KM   "COMBINE BASIN B18B, DVBD2, AND BYPASS FROM PT18"
370          HC       3
             *

371          KK  DVI155
372          KM   DIVERSION EAST THRU I15 BRIDGE 36'x5' (IS15 0359)
373          DT  DVI155
374          DI       0    2716    3378    4083    4548    4960    5791    6843
375          DQ       0    1980    2192    2367    2531    2651    3141    3890
             *

376          KK   RPT19
377          KM   ROUTE BYPASS AT PT19 TO PT21
378          RM       8   0.641   0.150
             *

379          KK    B14A
380          BA   1.351
381          PB    2.77
382          LS       0    88.0     5.0
383          UD   0.400
             *

384          KK  RDVBD3
385          KM   "RETURN FLOW PASSING THRU UPPR CULVERT AT PT3, BD3 (UPRR 0511)"
386          DR   DVBD3
             *
```

```
387          KK  RDVBD4
388          KM   "RETURN FLOW PASSING THRU UPPR CULVERT, BD4 (UPRR 0534)"
389          DR   DVBD4
             *

390          KK    PT20
391          KM   COMBINE DVBD3 AND DVBD4
392          HC       2
             *

393          KK  RDVBD4
394          KM   ROUTE PT20 TO PT21
395          RM       6    0.51   0.100
             *

396          KK    PT21
397          KM   "COMBINE PT20, BASIN B14A, AND BYPASS FROM PT19"
398          HC       3
             *
1                                        HEC-1 INPUT                                                    PAGE 12

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

399          KK    PT22
400          KM   COMBINE PT21 AND PT22W
401          HC       2
             *

402          KK   RPT22
403          KM   ROUTE PT22 TO PT23
404          RM       4     0.3   0.100
             *

405          KK    B15B
406          BA   0.954
407          PB    2.77
408          LS       0    75.0    13.0
409          UD    0.71
             *

410          KK    PT23
411          KM   COMBINE PT22 AND BASIN B15B
412          HC       2
             *

413          KK RDVI151
414          KM   RETURN FLOW PASSING THRU I151 (DCWA 1429)
415          DR  DVI151
             *

416          KK RDVI151
417          KM   ROUTE DVI151 TO PT24
418          RM       1   0.099   0.150
             *

419          KK RDVI152
420          KM   RETURN FLOW PASSING THRU I152 (IS15 0199)
421          DR  DVI152
             *

422          KK RDVI152
423          KM   ROUTE DVI152 TO PT24
424          RM       1   0.089   0.150
             *

425          KK    PT24
426          KM   COMBINE DVI151 AND DVI152
427          HC       2
             *

428          KK   RPT24
429          KM   ROUTE PT24 TO PT25
430          RM       1   0.086   0.150
             *
1                                        HEC-1 INPUT                                                    PAGE 13

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

431          KK RDVI153
432          KM   RETURN FLOW PASSING THRU I153 AT PT14 (IS15 0233)
433          DR  DVI153
             *

434          KK RDVI153
435          KM   ROUTE DVI153 TO PT25
436          RM       1   0.112   0.150
             *

437          KK    D009
438          BA   3.621
439          PB    3.31
440          LS       0    83.0
441          UD   0.510
             *

442          KK   RD009
443          KM   ROUTE BASIN D009 TO PT5
444          RM       1     0.1     0.1
             *

445          KK    D004
446          BA   2.400
```

```
447         PB    3.30
448         LS       0    85.0
449         UD   0.700
            *

450         KK     PT5
451         KM   COMBINE BASINS D009 AND D004
452         HC       2
            *

453         KK    RPT5
454         KM   ROUTE PT5 TO PT6
455         RM       2    0.44    0.15
            *

456         KK     D08
457         BA  11.912
458         PB    3.28
459         LS       0    85.0
460         UD   1.650
            *

461         KK     PT6
462         KM   COMBINE PT5 AND BASIN D08
463         HC       2
            *
1                                      HEC-1 INPUT                                          PAGE 14

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

464         KK    RPT6
465         KM   ROUTE PT6 TO PT7
466         RM       3    0.81   0.150
            *

467         KK    D010
468         BA  10.434
469         PB    3.15
470         LS       0    84.0
471         UD   1.050
            *

472         KK     D07
473         BA   4.280
474         PB    3.20
475         LS       0    84.0
476         UD   1.100
            *

477         KK     PT7
478         KM   "COMBINE PT6, BASINS D010 AND D07"
479         HC       3
            *

480         KK    RPT7
481         KM   ROUTE PT7 TO PT8
482         RM       3   0.224   0.150
            *

483         KK   D012B
484         BA   0.566
485         PB    2.77
486         LS       0    83.0
487         UD   0.642
            *

488         KK     PT8
489         KM   COMBINE BASIN D012B AND PT7
490         HC       2
            *

491         KK  DVPITT
492         KM   DIVERSION EAST ACROSS LAS VEGAS BLVD. TO PITTMAN WATERSHED - DOES NOT RETURN
493         KM   REFERENCED FROM 1995 PITTMAN WASH FIS RESTUDY BY NIMBUS
494         KM   "MODIFIED TO RETAIN 10% OF ACTUAL DIVERTED FLOW TO DIVERT LATER AT ""DVROSE""
495         DT  DVPITT
496         DI       0    3586    3710    3835    3961    5795    7737
497         DQ       0    1554    1618    1681    1747    2774    3933
            *
1                                      HEC-1 INPUT                                          PAGE 15

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

498         KK  DVROSE
499         KM   DIVERSION NORTH ACROSS ST. ROSE PARKWAY (FORMERLY LAKE MEAD DRIVE)
500         KM   DIVERSION BYPASSES LDCDB VIA BASIN D5A AND COMBINES AT PT29
501         KM   REFERENCED FROM 1995 PITTMAN WASH FIS RESTUDY BY NIMBUS
502         DT  DVROSE
503         DI       0    1673    1721    1770    2214    3021    3803
504         DQ       0     359     371     384     396     579     774
            *

505         KK    RPT8
506         KM   ROUTE BYPASS FROM DVROSE AT PT8 TO PT25
507         RM       6    0.49   0.150
            *

508         KK     D4A
509         BA   1.873
510         PB    2.80
511         LS       0    83.8     0.0
512         UD   0.245
            *
```

```
513          KK    PT25
514          KM   "COMBINE PT24, BASIN D4A, DVI153, AND BYPASS FROM PT8"
515          HC       4
             *

516          KK   RPT25
517          KM   ROUTE PT25 TO PT26
518          RM       1   0.099   0.150
             *

519          KK     D4B
520          BA   2.033
521          PB    2.80
522          LS       0    83.8     8.0
523          UD   0.243
             *

524          KK    PT26
525          KM   COMBINE PT25 AND BASIN D4
526          HC       2
             *

527          KK   RPT26
528          KM   ROUTE PT26 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
529          RM       1   0.083   0.150
             *

530          KK RDVI154
531          KM   "RETURN FLOW PASSING THRU I15 BRIDGE, I154 (IS15 0315)"
532          DR  DVI154
             *
1                                        HEC-1 INPUT                                                    PAGE 16

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

533          KK RDVI154
534          KM   ROUTE DVI154 TO LAS VEGAS BLVD.
535          RD    2700   0.007   0.015       0    TRAP      25       2
             *

536          KK RDVI154
537          KM   ROUTE DVI154 FROM LAS VEGAS BLVD. TO PT27
538          KM   "2-78"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
539          RD    1300   0.017   0.015       0    TRAP      28       0
             *

540          KK RDVI155
541          KM   "RETURN FLOW PASSING THRU I15 BRIDGE, I155 (IS15 0359)"
542          DR  DVI155
             *

543          KK RDVI155
544          KM   ROUTE DVI155 TO AGATE AVENUE
545          RD    1100    0.01   0.040       0    TRAP      15       3
             *

546          KK RDVI155
547          KM   ROUTE DVI155 FROM AGATE AVENUE TO LAS VEGAS BLVD.
548          KM   "3-10'x5' RCB, INCLUDES PORTION OF TRAP CHANNEL"
549          RD    1530    0.01   0.015       0    TRAP      30       0
             *

550          KK RDVI155
551          KM   ROUTE DVI155 FROM LAS VEGAS BLVD. TO PT27
552          KM   "2-96"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
553          RD     800   0.006   0.015       0    TRAP      35       0
             *

554          KK RDVI155
555          KM   ROUTE DVI155 FROM LAS VEGAS BLVD. TO PT27
556          KM   "2-84"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
557          RD    1100   0.012   0.015       0    TRAP      30       0
             *

558          KK    PT27
559          KM   COMBINE DVI154 AND DVI155
560          HC       2
             *

561          KK   RPT27
562          KM   ROUTE PT27 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
563          KM   "3-96"" CIPCP (EQUIVALENT RECTANGULAR CHANNEL)"
564          RD    1100   0.009   0.015       0    TRAP      56       0
             *
1                                        HEC-1 INPUT                                                    PAGE 17

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

565          KK   RPT27
566          KM   ROUTE PT27 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
567          KM   3-8'x8' RCB (EQUIVALENT RECTANGULAR CHANNEL)
568          RD     570   0.004   0.015       0    TRAP      24       0
             *

569          KK    B18C
570          BA   1.259
571          PB    2.77
572          LS       0    75.4    25.0
573          UD   0.380
             *

574          KK    PT28
```

```
575          KM   "COMBINE PT26, PT27, AND BASIN B18C AT LDCDB"
576          HC      3
             *

577          KK   LDCDB
578          KM   LOWER DUCK CREEK DETENTION BASIN
579          RS      1    STOR      0
580          SV      0     2.8    37.5   120.3     229     340   453.8     570     689     810
581          SV    934    1061    1190
582          SE   2183    2184    2186    2188    2190    2192    2194    2196    2198    2200
583          SE   2202    2204    2206
584          SQ      0     126     654    1825    3310    4310    5118    5815    6437    7004
585          SQ   7528    8018    8480
586          SE   2183    2184    2186    2188    2190    2192    2194    2196    2198    2200
587          SE   2202    2204    2206
588          KO      1
             *

589          KK  RLDCDB
590          KM   ROUTE THE OUTFALL FROM THE LOWER DUCK CREEK DETENTION BASIN TO PT29
591          RD   1100   0.004   0.015       0    TRAP      46     1.5
             *

592          KK    D5A
593          BA  1.325
594          PB   2.79
595          LS      0    88.0    15.0
596          UD  0.350
             *

597          KK   RD5A
598          KM   ROUTE BASIN D5A TO PT29
599          RM      1    0.12   0.150
             *

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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

600          KK RDVROSE
601          KM   RETURN FLOW CROSSING ST. ROSE PARKWAY (FORMERLY LAKE MEAD DRIVE)
602          DR  DVROSE
             *

603          KK RDVROSE
604          KM   ROUTE DIVERSION DVROSE TO PT29
605          RM      6    0.49   0.150
             *

606          KK   PT29
607          KM   "COMBINE BASIN D5A, BYPASS FROM DVROSE, AND OUTFALL FROM LDCDB"
608          HC      3
             *

609          KK   RPT29
610          KM   ROUTE PT29 TO PT30
611          RD   1800   0.011   0.015       0    TRAP      46     1.5
             *

612          KK   B16B
613          BA  0.701
614          PB   2.77
615          LS      0    83.1    32.0
616          UD  0.380
             *

617          KK   RB16B
618          KM   ROUTE BASIN B16B TO PT30
619          RD   1900   0.008   0.015       0    TRAP       0      50
             *

620          KK   PT30
621          KM   COMBINE PT29 AND BASIN B16B
622          HC      2
             *

623          KK   RPT30
624          KM   ROUTE PT30 TO PT31
625          RD   2900   0.005   0.015       0    TRAP      20       3
             *

626          KK   B16A
627          BA  0.906
628          PB   2.77
629          LS      0    78.2    17.0
630          UD  0.710
             *

1                                        HEC-1 INPUT                                        PAGE 19

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

631          KK    D5B
632          BA  0.602
633          PB   2.77
634          LS      0    82.8    46.0
635          UD  0.710
             *

636          KK   PT31
637          KM   "COMBINE PT30, BASINS B16A AND D5B"
638          HC      3
             *

639          KK   RPT31
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```
640         KM   ROUTE PT31 TO PT32
641         RD    3200   0.016   0.015       0    TRAP      15       1
            *

642         KK    PT32
643         KM   COMBINE PT23 AND PT31 AT DUCK CREEK/MIDDLE BRANCH BLUE DIAMOND CONFLUENCE
644         HC       2
            *

645         KK   RPT32
646         KM   ROUTE PT32 TO PT34
647         RD    2700   0.009   0.015       0    TRAP      70       2
            *

648         KK  HYDRO2
649         KM   INFLOW HYDROGRAPH
650         KM   "PT C-11 REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B
651         KM   "SEE COMBINATION POINT C-11, DARF RATIO 0.98 OF HEC-1 FROM REFERENCED LOMR"
652         BA   0.380
653         QI       0       0       0       0       0       0       0       0       0       0
654         QI       0       0       0       0       0       0       0       0       0       0
655         QI       0       0       0       0       0       0       0       0       0       0
656         QI       0       0       0       0       0       0       0       0       0       0
657         QI       0       0       1       3       5       9      14      19      23      27
658         QI      30      32      33      33      32      31      29      28      27      27
659         QI      27      27      32      36      36      35      33      31      29      26
660         QI      24      22      20      19      17      16      15      14      13      12
661         QI      11      10       9       8       8       7       6       6       5       5
662         QI       4       4       4       3       3       3       3       3       2       2
663         QI       2       2       2       2       2       2       1       1       1       1
664         QI       1       1       1       1       1       1       1       1       1       1
665         QI       1       1       1       1       1       1       1       0       0       0
666         QI       0       0       0       0       0       0       0       0       0       0
667         QI       0       0       0       0       0       0       0       0       0       0
668         QI       0       0       0       0       0       0       0       0       0       0
669         QI       0       0       0       0       0       0       0       0       0       0
670         QI       0       0       0       0       0       0       0       0       0       0
671         QI       0       0       0       0       0       0       0       0       0       0
672         QI       0       0       0       0       0       0       0       0       0       0
673         QI       0       0       0       0       0       0       0       0       0       0
674         QI       0       0       0       0       0       0       0       0       0       0
1                                        HEC-1 INPUT                                          PAGE 20

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

675         QI       0       0       0       0       0       0       0       0       0       0
676         QI       0       0       0       0       0       0       0       0       0       0
677         QI       0       0       0       0       0       0       0       0       0       0
678         QI       0       0       0       0       0       0       0       0       0       0
679         QI       0       0       0       0       0       0       0       0       0       0
680         QI       0       0       0       0       0       0       0       0       0       0
681         QI       0       0       0       0       0       0       0       0       0       0
682         QI       0       0       0       0       0       0       0       0       0       0
            *

683         KK RHYDRO2
684         KM   ROUTE HYDRO2 TO PT33W
685         RM       8    0.76   0.150
            *

686         KK     B12
687         BA   0.969
688         PB    2.77
689         LS       0    68.4     1.0
690         UD   0.390
            *

691         KK   PT33W
692         KM   COMBINE HYDRO2 AND BASIN B12
693         HC       2
            *

694         KK  RDVBD7
695         KM   "RETURN FLOW SPLIT, DVBD7, FROM MIDDLE BRANCH "
696         DR   DVBD7
            *

697         KK  RDVBD7
698         KM   ROUTE DVBD7 TO PT33
699         RM       2     0.2   0.150
            *

700         KK    PT33
701         KM   COMBINE PT33W AND DVBD7
702         HC       2
            *

703         KK   RPT33
704         KM   ROUTE PT33 TO PT34W
705         RM       4     0.3   0.100
            *

706         KK    B15A
707         BA   0.959
708         PB    2.77
709         LS       0    77.6    14.0
710         UD   0.500
            *
1                                        HEC-1 INPUT                                          PAGE 21

LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

711         KK   PT34W
712         KM   COMBINE PT33 AND BASIN B15A
```

```
713         HC       2
            *

714         KK    PT34
715         KM   COMBINE PT34W AND PT32
716         HC       2
            *

717         KK    MNWB
718         BA   0.442
719         PB    2.77
720         LS       0    85.0     2.0
721         UD   0.742
            *

722         KK   RMNWB
723         KM   ROUTE MNWB NORTH ALONG I15 TO PT35
724         RD    2200   0.007   0.025       0    TRAP       20       10
            *

725         KK    MNWC
726         BA   0.596
727         PB    2.77
728         LS       0    85.0     7.0
729         UD   0.738
            *

730         KK    PT35
731         KM   COMBINE BASINS MNWB AND MNWC
732         HC       2
            *

733         KK   RPT35
734         KM   ROUTE PT35 TO PT36
735         RM       1   0.055   0.150
            *

736         KK    MNWD
737         BA   0.078
738         PB    2.77
739         LS       0    85.0    13.0
740         UD   0.321
            *

741         KK    PT36
742         KM   COMBINE PT35 AND BASIN MNWD
743         HC       2
            *
```

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LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

744         KK   RPT36
745         KM   ROUTE PT36 TO PT37
746         RM       2   0.192   0.150
            *

747         KK     MC2
748         BA   0.919
749         PB    2.77
750         LS       0    74.9    28.0
751         UD   0.873
            *

752         KK    PT37
753         KM   COMBINE PT36 AND BASIN MC2
754         HC       2
            *

755         KK   RPT37
756         KM   ROUTE PT37 TO PT38
757         RD    5200    0.01   0.015       0    TRAP       20       2
            *

758         KK    B10A
759         BA   1.601
760         PB    2.77
761         LS       0    74.9    32.0
762         UD   0.217
            *

763         KK    PT38
764         KM   COMBINE PT37 AND BASIN B10A
765         HC       2
            *

766         KK   RPT38
767         KM   ROUTE PT38 TO PT39
768         RD    2100   0.002   0.015       0    TRAP       20       2
            *

769         KK    PT39
770         KM   COMBINE PT34 AND PT38
771         HC       2
            *

772         KK   RPT39
773         KM   ROUTE PT39 TO PT40
774         RD    2500   0.006   0.025       0    TRAP       70       2
            *
```

1 HEC-1 INPUT PAGE 23

```
LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
```

```
775          KK      D6
776          BA   1.564
777          PB    2.77
778          LS       0    78.3    43.0
779          UD   0.500
             *

780          KK     PT40
781          KM   COMBINE PT39 AND BASIN D6
782          HC        2
             *

783          KK   RPT40
784          KM   ROUTE PT40 TO PT41
785          RM        1    0.08   0.200
             *

786          KK      D7
787          BA   0.850
788          PB    2.77
789          LS       0    77.3    23.0
790          UD   0.710
             *

791          KK     PT41
792          KM   COMBINE PT40 AND BASIN D7
793          HC        2
             *

794          KK   RPT41
795          KM   ROUTE PT41 TO PT42
796          RD    4150   0.006   0.015       0    TRAP       50       0
             *

797          KK      D8
798          BA   1.258
799          PB    2.77
800          LS       0    77.8    34.0
801          UD   0.230
             *

802          KK     RD8
803          KM   ROUTE BASIN D8 TO PT42
804          RM        1   0.088   0.150
             *

805          KK     PT42
806          KM   COMBINE PT41 AND BASIN D8
807          HC        2
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

808          KK   RPT42
809          KM   ROUTE PT42 TO PT44
810          RD    3650   0.011   0.015       0    TRAP       28       2
             *

811          KK    B10B
812          BA   0.848
813          PB    2.77
814          LS       0    74.9    44.0
815          UD   0.687
             *

816          KK   RB10B
817          KM   ROUTE BASIN B10B TO PT43
818          RM        6    0.46   0.100
             *

819          KK     D9A
820          BA   0.861
821          PB    2.77
822          LS       0    72.8    16.0
823          UD   1.100
             *

824          KK    PT43
825          KM   COMBINE BASINS B10B AND D9A
826          HC        2
             *

827          KK   RPT43
828          KM   ROUTE PT43 TO PT44
829          RD    4050    0.01   0.016       0    TRAP        0      16
             *

830          KK    PT44
831          KM   COMBINE PT42 AND PT43
832          HC        2
             *

833          KK   RPT44
834          KM   ROUTE PT44 TO PT45
835          RM        1   0.119   0.150
             *

836          KK     D9B
837          BA   1.544
838          PB    2.77
839          LS       0    77.8    17.0
840          UD   0.410
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 841      KK    PT45
 842      KM    COMBINE PT44 AND BASIN D9B
 843      HC       2
          *

 844      KK    RPT45
 845      KM    ROUTE PT45 TO PT46
 846      RM       2   0.184   0.150
          *

 847      KK     D10
 848      BA    2.508
 849      PB     2.77
 850      LS        0    79.0    33.0
 851      UD    0.440
          *

 852      KK    PT46
 853      KM    COMBINE PT45 AND BASIN D10
 854      HC       2
          *

 855      KK    RPT46
 856      KM    ROUTE PT46 TO PT48
 857      RD     2500   0.018   0.035       0    TRAP      75       2
          *

 858      KK      MC
 859      KM    "TLAG AND AREA CALCULATED, CN REFERENCED FROM 1996 MPU"
 860      KM    THEREFORE NO INCREASE IN PERCENT IMPERVIOUS
 861      BA    2.804
 862      PB     2.77
 863      LS        0    91.0
 864      UD    0.244
          *

 865      KK    TORAW
 866      KM    DIVERT FLOW WHICH BYPASSES DETENTION BASIN
 867      DT    TORAW
 868      DI        0     100     500    1000    2000    3000    4000
 869      DQ        0      40     100     200     400     570     760
          *

 870      KK    MCDB
 871      KM    MCCARRAN AIRPORT DETENTION FACILITIES
 872      KM    SIMULATION OF TWO DETENTION BASINS - MCCARRAN EAST AND SPENCER
 873      RS        1    STOR      -1
 874      SV        0       8      40      70     100     160     210     500
 875      SQ        0      30      40      55      65      80      85      87
 876      SE        0       2       4       6       8      12      15      16
 877      KO        1
          *
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 878      KK    RMCDB
 879      KM    ROUTE OUTFALL FROM MCDB TO PT47
 880      RD     3300   0.006   0.013       0    CIRC       4       0
          *

 881      KK  RTORAW
 882      KM    FLOW BYPASSING THE MCCARRAN DETENTION FACILITIES RETURNED IN RAWHIDE CHANNEL
 883      DR    TORAW
          *

 884      KK    PT47
 885      KM    COMBINE OUTFALL FROM MCCARRAN DETENTION FACILITIES AND BYPASSED FLOW
 886      HC       2
          *

 887      KK    RPT47
 888      KM    ROUTE PT47 THRU RAWHIDE CHANNEL TO PT48W
 889      RD    15700   0.015   0.015       0    TRAP      11     1.5
          *

 890      KK      RH
 891      BA    1.355
 892      PB     2.77
 893      LS        0    72.0     6.0
 894      UD    0.340
          *

 895      KK    PT48W
 896      KM    COMBINE PT47 AND BASIN RH
 897      HC       2
          *

 898      KK     B20
 899      BA    0.790
 900      PB     2.77
 901      LS        0    82.4     8.0
 902      UD    0.710
          *

 903      KK     RB20
 904      KM    ROUTE BASIN B20 TO PT48
 905      KM    MUSKINGUM ROUTING UNSTABLE
```

```
906          RD    1800   0.017   0.030       0    TRAP      30      10
             *
907          KK    PT48
908          KM   "COMBINE PT46, PT48W, AND BASIN B20"
909          HC       3
             *
                                        HEC-1 INPUT                                        PAGE 27
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

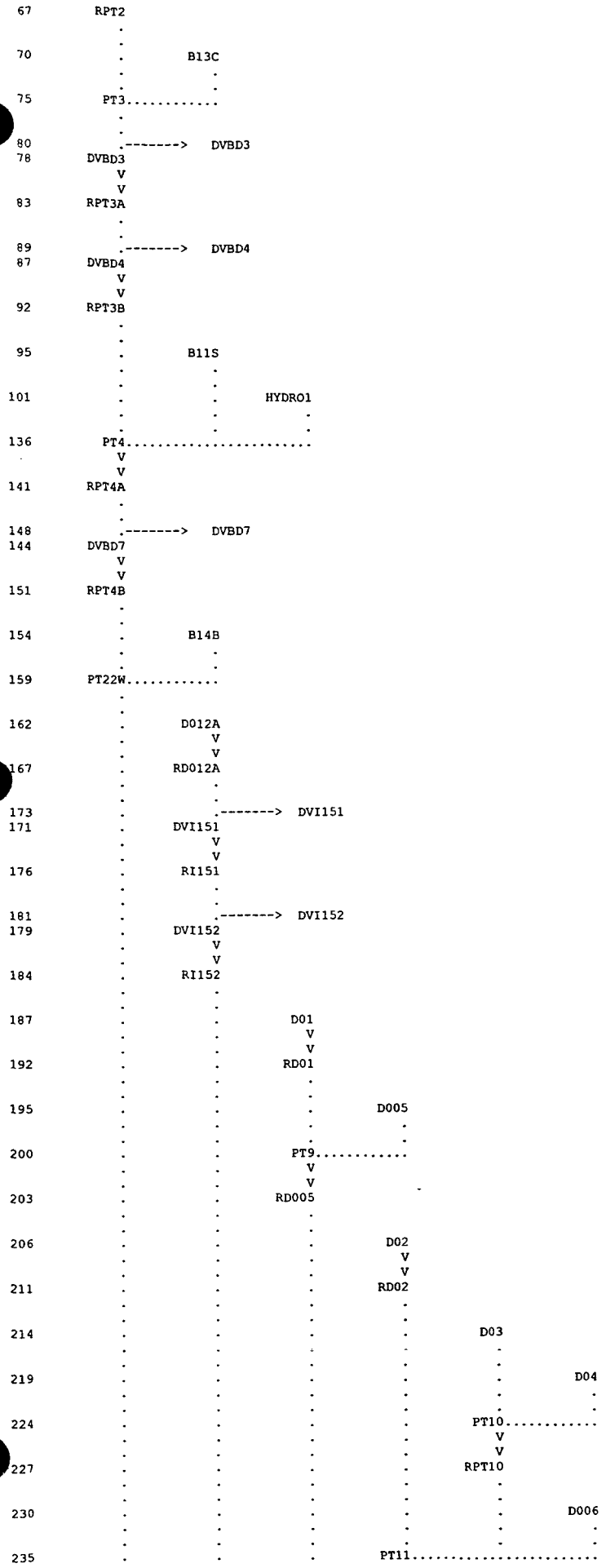
910          KK   RPT48
911          KM   ROUTE PT48 TO PT50
912          RM       1   0.067   0.150
             *
913          KK    D12
914          BA   0.176
915          PB    2.77
916          LS       0    77.8     7.0
917          UD   0.710
             *
918          KK    RD12
919          KM   ROUTE BASIN D12 TO PT49
920          KM   MUSKINGUM ROUTING UNSTABLE
921          RD    1850   0.044   0.150       0    TRAP      50      10
             *
922          KK    D11A
923          BA   0.159
924          PB    2.77
925          LS       0    77.3     5.0
926          UD   0.160
             *
927          KK    PT49
928          KM   COMBINE BASINS D12 AND D11A
929          HC       2
             *
930          KK   RPT49
931          KM   ROUTE PT49 TO PT50
932          KM   MUSKINGUM ROUTING UNSTABLE
933          RD    1050   0.019   0.150       0    TRAP      45      10
             *
934          KK    PT50
935          KM   COMBINE PT48 AND PT49
936          HC       2
             *
937          KK   RPT50
938          KM   ROUTE PT50 TO PT51
939          RD    7000   0.003   0.015       0    TRAP      60       2
             *
940          KK    D11B
941          BA   0.987
942          PB    2.77
943          LS       0    82.2    12.0
944          UD   0.220
             *
1                                       HEC-1 INPUT                                        PAGE 28
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

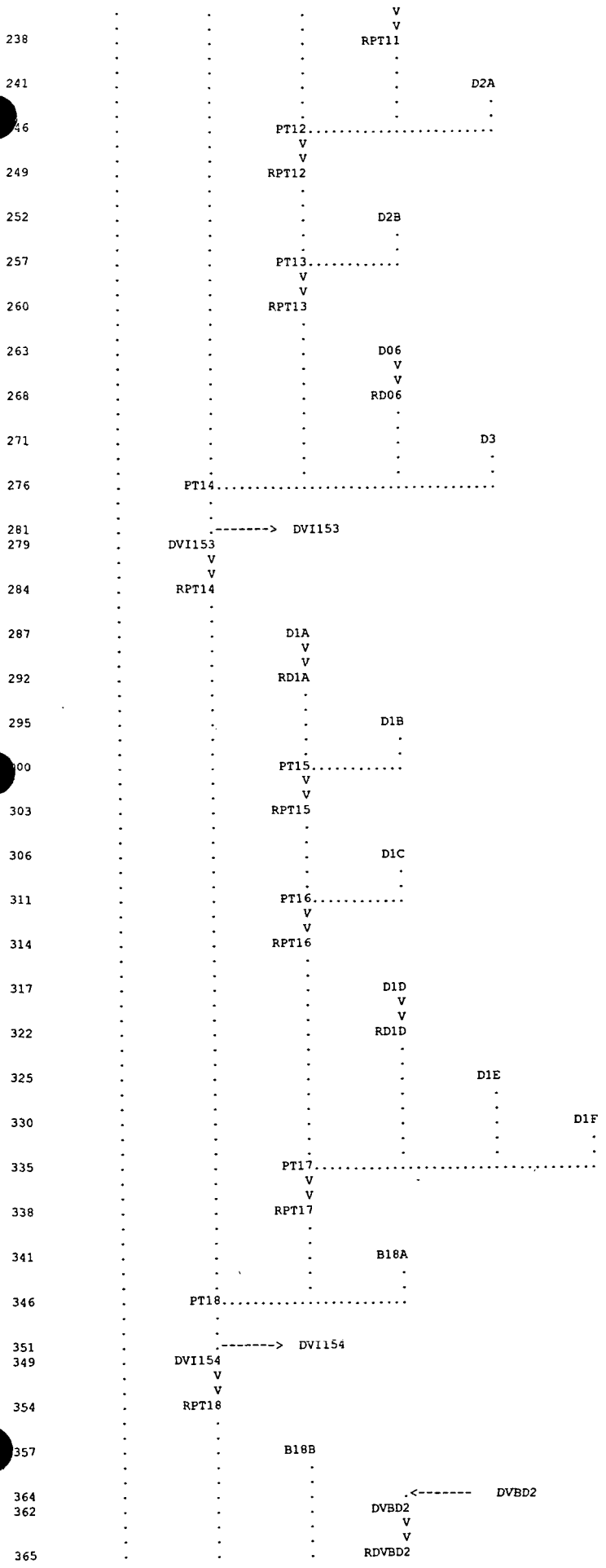
945          KK    PT51
946          KM   COMBINE PT50 AND BASIN D11B
947          HC       2
948          ZZ
1
          SCHEMATIC DIAGRAM OF STREAM NETWORK

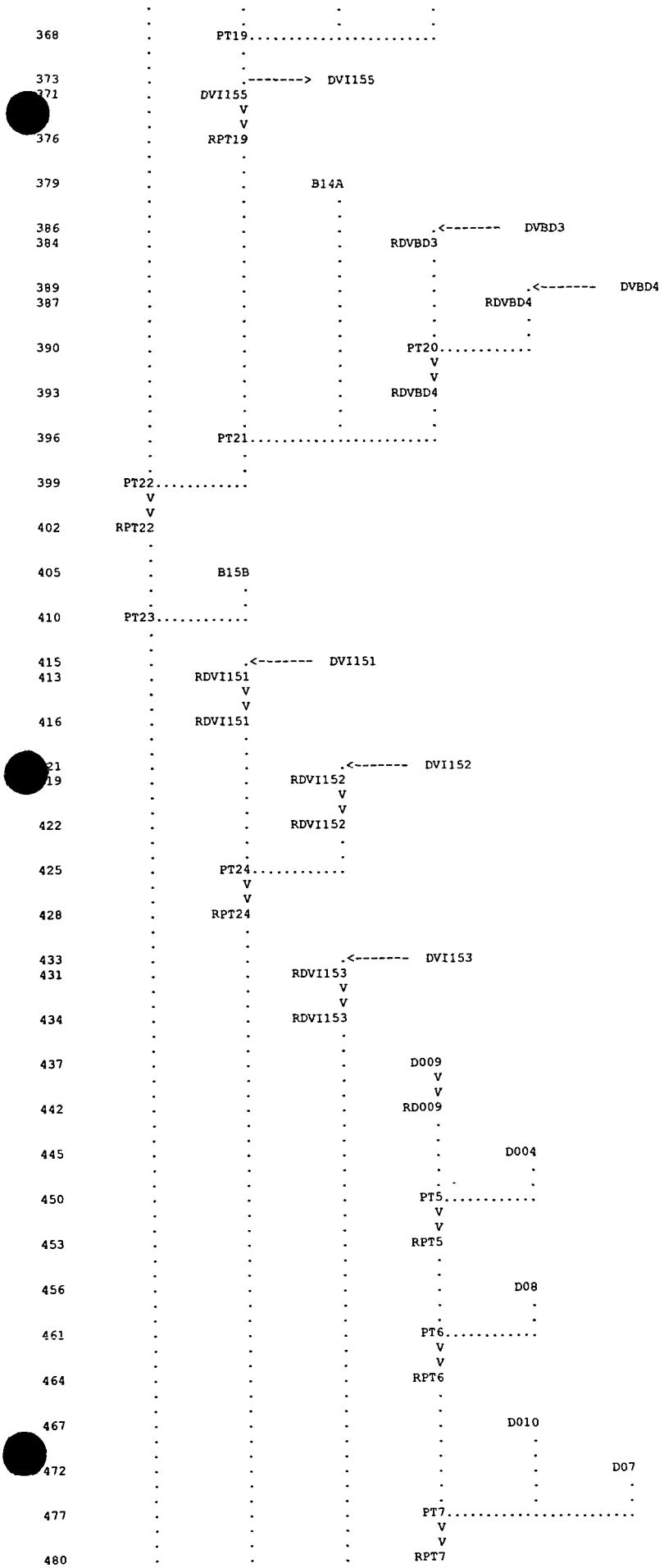
INPUT
 LINE     (V) ROUTING          (---->) DIVERSION OR PUMP FLOW

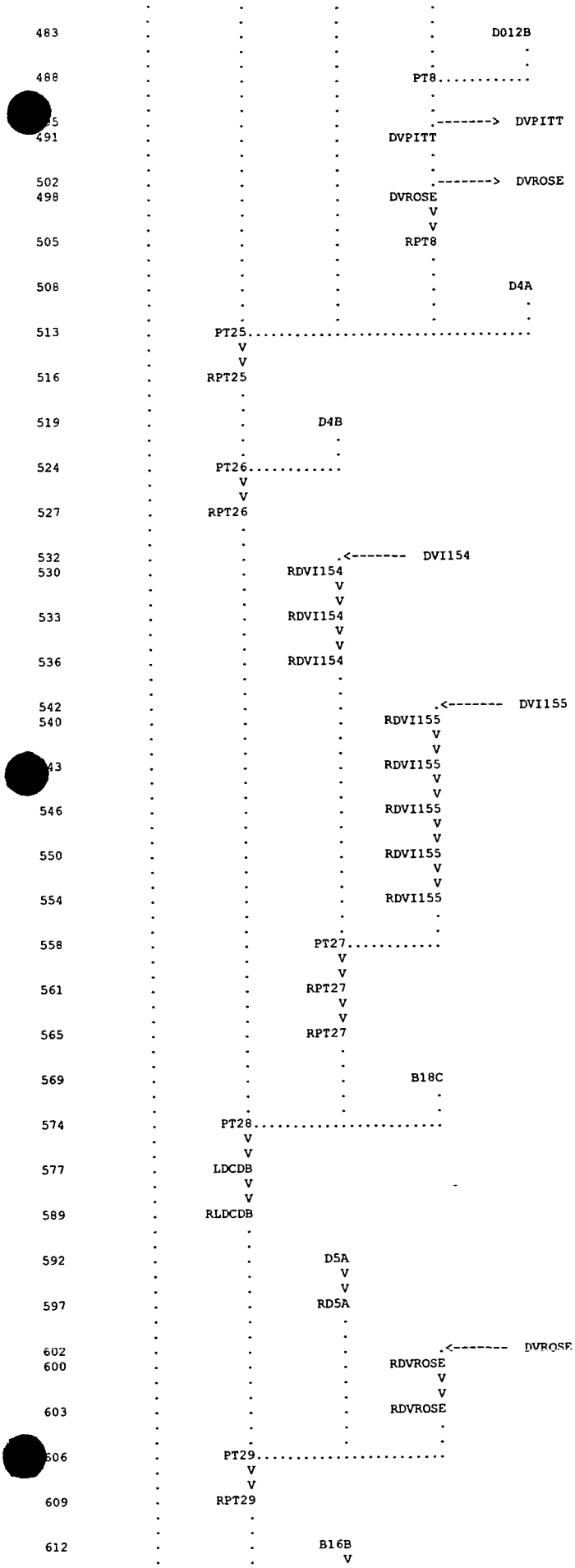
  NO.     (.) CONNECTOR        (<----) RETURN OF DIVERTED OR PUMPED FLOW

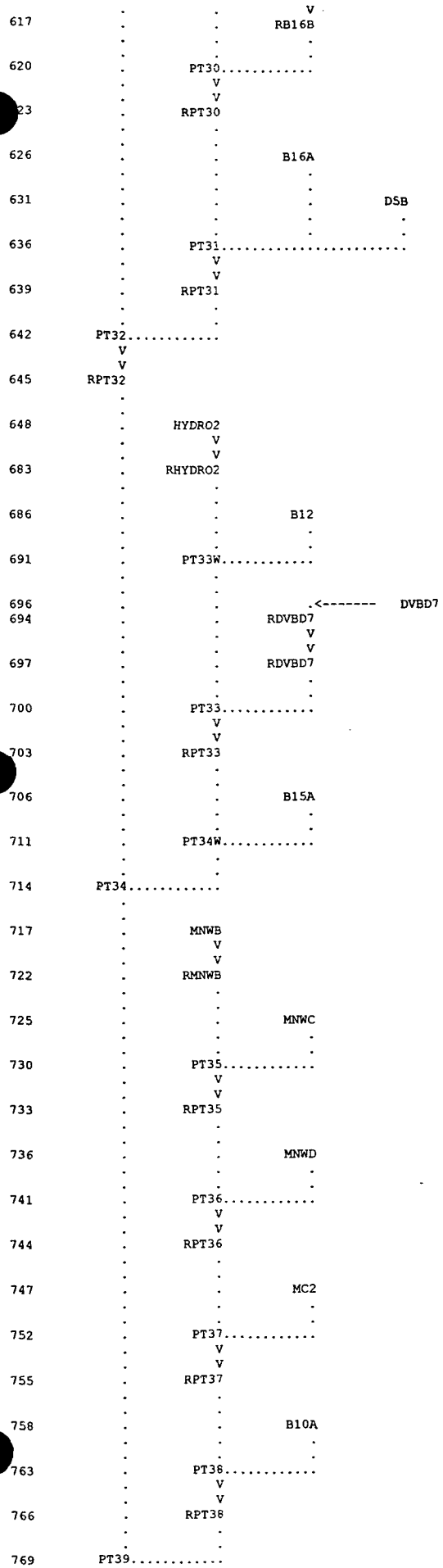
   27       B13A
              V
              V
   40       RB13A
              .
              .
   43         .        B13B
              .          .
              .          .
   48        PT1.............
              V
              V
   51       RPT1
              .
              .
   54         .         B17
              .          .
              .          .
   59        PT2.............
              .
              .
   64         .-------->   DVBD2
   62       DVBD2
              V
              V
```

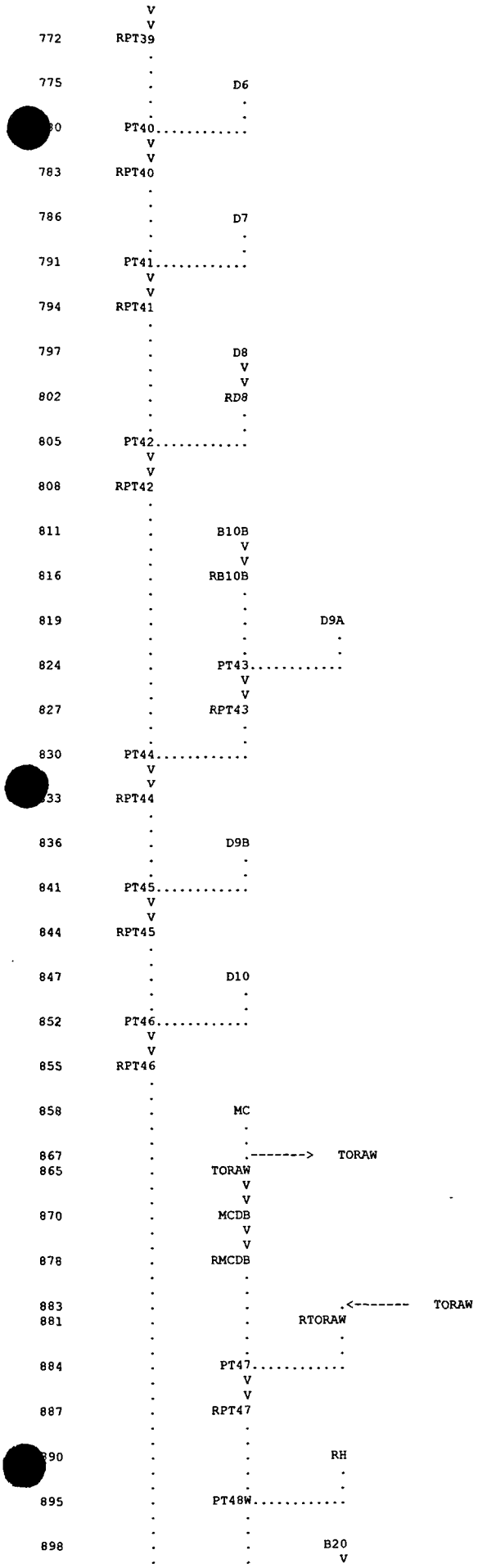

67 RPT2
70 B13C
75 PT3
80 DVBD3
78 DVBD3
83 RPT3A
89 DVBD4
87 DVBD4
92 RPT3B
95 B11S
101 HYDRO1
136 PT4
141 RPT4A
148 DVBD7
144 DVBD7
151 RPT4B
154 B14B
159 PT22W
162 D012A
167 RD012A
173 DVI151
171 DVI151
176 RI151
181 DVI152
179 DVI152
184 RI152
187 D01
192 RD01
195 D005
200 PT9
203 RD005
206 D02
211 RD02
214 D03
219 D04
224 PT10
227 RPT10
230 D006
235 PT11

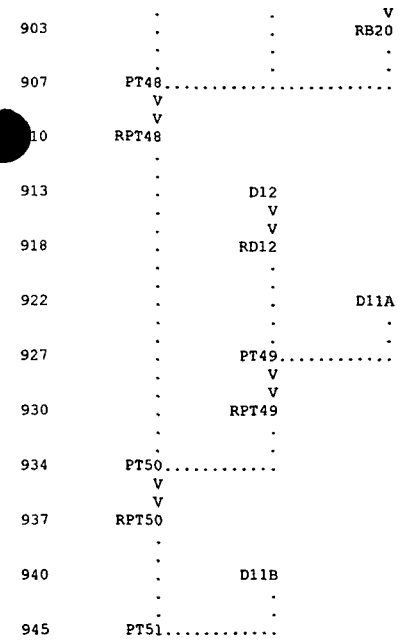

238 RPT11
241 D2A
246 PT12
249 RPT12
252 D2B
257 PT13
260 RPT13
263 D06
268 RD06
271 D3
276 PT14
281
279 DVI153
284 RPT14
287 D1A
292 RD1A
295 D1B
300 PT15
303 RPT15
306 D1C
311 PT16
314 RPT16
317 D1D
322 RD1D
325 D1E
330 D1F
335 PT17
338 RPT17
341 B18A
346 PT18
351
349 DVI154
354 RPT18
357 B18B
364 DVBD2
362 DVBD2
365 RDVBD2


368 PT19
373
371 DVI155
376 RPT19
379 B14A
386 DVBD3
384 RDVBD3
389 DVBD4
387 RDVBD4
390 PT20
393 RDVBD4
396 PT21
399 PT22
402 RPT22
405 B15B
410 PT23
415 DVI151
413 RDVI151
416 RDVI151
421 DVI152
419 RDVI152
422 RDVI152
425 PT24
428 RPT24
433 DVI153
431 RDVI153
434 RDVI153
437 D009
442 RD009
445 D004
450 PT5
453 RPT5
456 D08
461 PT6
464 RPT6
467 D010
472 D07
477 PT7
480 RPT7


483
D012B
488
PT8
DVPITT
491
DVPITT
502
DVROSE
498
DVROSE
505
RPT8
508
D4A
513
PT25
516
RPT25
519
D4B
524
PT26
527
RPT26
532
DVI154
530
RDVI154
533
RDVI154
536
RDVI154
542
DVI155
540
RDVI155
543
RDVI155
546
RDVI155
550
RDVI155
554
RDVI155
558
PT27
561
RPT27
565
RPT27
569
B18C
574
PT28
577
LDCDB
589
RLDCDB
592
D5A
597
RD5A
602
DVROSE
600
RDVROSE
603
RDVROSE
606
PT29
609
RPT29
612
B16B


617 RB16B
620 PT30
623 RPT30
626 B16A
631 DSB
636 PT31
639 RPT31
642 PT32
645 RPT32
648 HYDRO2
683 RHYDRO2
686 B12
691 PT33W
696 DVBD7
694 RDVBD7
697 RDVBD7
700 PT33
703 RPT33
706 B15A
711 PT34W
714 PT34
717 MNWB
722 RMNWB
725 MNWC
730 PT35
733 RPT35
736 MNWD
741 PT36
744 RPT36
747 MC2
752 PT37
755 RPT37
758 B10A
763 PT38
766 RPT38
769 PT39


772 RPT39
775 D6
780 PT40
783 RPT40
786 D7
791 PT41
794 RPT41
797 D8
802 RD8
805 PT42
808 RPT42
811 B10B
816 RB10B
819 D9A
824 PT43
827 RPT43
830 PT44
833 RPT44
836 D9B
841 PT45
844 RPT45
847 D10
852 PT46
855 RPT46
858 MC
867 TORAW
865 TORAW
870 MCDB
878 RMCDB
883 TORAW
881 RTORAW
884 PT47
887 RPT47
890 RH
895 PT48W
898 B20




(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            SEPTEMBER 1990             *
*             VERSION 4.0               *
*                                       *
*  RUN DATE  01/21/2002  TIME  15:40:42 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
"G.C. WALLACE, INC. BY MJL"
DUCK3.XLS
"MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
"BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
UPDATED PRECIPITATION VALUES
% IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
ADDITIONAL DIVERSIONS ADDED
DESIGN STORM = 100-YEAR 6-HOUR STORM
STORM DISTRIBUTION = SDN3
  JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

  AREA (SQUARE MILES)    DARF
 0 - 0.5    0.990
 0.5 - 1    0.975
 1 - 2    0.950
 2 - 3    0.925
 3 - 4    0.915
 4 - 5    0.908
 5 - 6    0.903
 6 - 7    0.895
 7 - 8    0.885
```

```
25 IO          OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL           0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                     NMIN           5  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME         0000  STARTING TIME
                       NQ          120  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      1    0  ENDING DATE
                   NDTIME         0955  ENDING TIME
                    ICENT           19  CENTURY MARK

                 COMPUTATION INTERVAL      .08 HOURS
                     TOTAL TIME BASE    9.92 HOURS

       ENGLISH UNITS
            DRAINAGE AREA          SQUARE MILES
            PRECIPITATION DEPTH    INCHES
            LENGTH, ELEVATION      FEET
            FLOW                   CUBIC FEET PER SECOND
            STORAGE VOLUME         ACRE-FEET
            SURFACE AREA           ACRES
            TEMPERATURE            DEGREES FAHRENHEIT

   JP          MULTI-PLAN OPTION
                    NPLAN           1  NUMBER OF PLANS

   JR          MULTI-RATIO OPTION
```

RATIOS OF PRECIPITATION
.99 .98 .95 .93 .92 .91 .90 .89 .88

*** *** *** *

WARNING --- ROUTED OUTFLOW ( 15348.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15386.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15404.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15401.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15379.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15337.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15277.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15200.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15108.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15000.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14880.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14747.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14604.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14451.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14291.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14122.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13947.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13766.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13577.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13382.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13182.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12976.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12767.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

**********

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .99

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 444. | 23.7 | 2185.2 | 1 | | 0640 | 81 | 11895. | 2143.5 | 2220.8 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 547. | 30.5 | 2185.6 | 1 | | 0645 | 82 | 12200. | 2228.6 | 2222.1 |
| 1 | | 0010 | 3 | 3. | .1 | 2183.0 | 1 | | 0330 | 43 | 705. | 41.1 | 2186.1 | 1 | | 0650 | 83 | 12499. | 2312.1 | 2223.4 |
| 1 | | 0015 | 4 | 10. | .2 | 2183.1 | 1 | | 0335 | 44 | 931. | 57.1 | 2186.5 | 1 | | 0655 | 84 | 12790. | 2393.6 | 2224.7 |
| 1 | | 0020 | 5 | 24. | .5 | 2183.2 | 1 | | 0340 | 45 | 1240. | 78.9 | 2187.0 | 1 | | 0700 | 85 | 13073. | 2472.5 | 2225.9 |
| 1 | | 0025 | 6 | 44. | 1.0 | 2183.4 | 1 | | 0345 | 46 | 1616. | 105.5 | 2187.6 | 1 | | 0705 | 86 | 13346. | 2548.6 | 2227.1 |
| 1 | | 0030 | 7 | 67. | 1.5 | 2183.5 | 1 | | 0350 | 47 | 2017. | 134.4 | 2188.3 | 1 | | 0710 | 87 | 13606. | 2621.4 | 2228.2 |
| 1 | | 0035 | 8 | 89. | 2.0 | 2183.7 | 1 | | 0355 | 48 | 2408. | 162.9 | 2188.8 | 1 | | 0715 | 88 | 13854. | 2690.4 | 2229.3 |
| 1 | | 0040 | 9 | 108. | 2.4 | 2183.9 | 1 | | 0400 | 49 | 2771. | 189.5 | 2189.3 | 1 | | 0720 | 89 | 14086. | 2755.3 | 2230.3 |
| 1 | | 0045 | 10 | 120. | 2.7 | 2184.0 | 1 | | 0405 | 50 | 3098. | 213.5 | 2189.7 | 1 | | 0725 | 90 | 14302. | 2815.7 | 2231.2 |
| 1 | | 0050 | 11 | 124. | 2.8 | 2184.0 | 1 | | 0410 | 51 | 3363. | 234.9 | 2190.1 | 1 | | 0730 | 91 | 14501. | 2871.2 | 2232.1 |
| 1 | | 0055 | 12 | 121. | 2.7 | 2184.0 | 1 | | 0415 | 52 | 3541. | 254.6 | 2190.5 | 1 | | 0735 | 92 | 14682. | 2921.6 | 2232.8 |
| 1 | | 0100 | 13 | 112. | 2.5 | 2183.9 | 1 | | 0420 | 53 | 3714. | 273.8 | 2190.8 | 1 | | 0740 | 93 | 14843. | 2966.8 | 2233.5 |
| 1 | | 0105 | 14 | 99. | 2.2 | 2183.8 | 1 | | 0425 | 54 | 3893. | 293.8 | 2191.2 | 1 | | 0745 | 94 | 14985. | 3006.4 | 2234.2 |
| 1 | | 0110 | 15 | 85. | 1.9 | 2183.7 | 1 | | 0430 | 55 | 4093. | 315.9 | 2191.6 | 1 | | 0750 | 95 | 15107. | 3040.4 | 2234.7 |
| 1 | | 0115 | 16 | 73. | 1.6 | 2183.6 | 1 | | 0435 | 56 | 4322. | 341.8 | 2192.0 | 1 | | 0755 | 96 | 15208. | 3068.6 | 2235.1 |
| 1 | | 0120 | 17 | 63. | 1.4 | 2183.5 | 1 | | 0440 | 57 | 4541. | 372.5 | 2192.6 | 1 | | 0800 | 97 | 15288. | 3091.0 | 2235.5 |
| 1 | | 0125 | 18 | 56. | 1.2 | 2183.4 | 1 | | 0445 | 58 | 4798. | 408.8 | 2193.2 | 1 | | 0805 | 98 | 15348. | 3107.6 | 2235.7 |
| 1 | | 0130 | 19 | 53. | 1.2 | 2183.4 | 1 | | 0450 | 59 | 5096. | 450.7 | 2193.9 | 1 | | 0810 | 99 | 15386. | 3118.3 | 2235.9 |
| 1 | | 0135 | 20 | 54. | 1.2 | 2183.4 | 1 | | 0455 | 60 | 5382. | 497.8 | 2194.8 | 1 | | 0815 | 100 | 15404. | 3123.3 | 2236.0 |
| 1 | | 0140 | 21 | 60. | 1.3 | 2183.5 | 1 | | 0500 | 61 | 5693. | 549.6 | 2195.6 | 1 | | 0820 | 101 | 15401. | 3122.5 | 2236.0 |
| 1 | | 0145 | 22 | 71. | 1.6 | 2183.6 | 1 | | 0505 | 62 | 6002. | 605.8 | 2196.6 | 1 | | 0825 | 102 | 15379. | 3116.2 | 2235.9 |
| 1 | | 0150 | 23 | 86. | 1.9 | 2183.7 | 1 | | 0510 | 63 | 6317. | 666.0 | 2197.6 | 1 | | 0830 | 103 | 15337. | 3104.6 | 2235.7 |
| 1 | | 0155 | 24 | 102. | 2.3 | 2183.8 | 1 | | 0515 | 64 | 6629. | 729.9 | 2198.7 | 1 | | 0835 | 104 | 15277. | 3087.8 | 2235.4 |
| 1 | | 0200 | 25 | 115. | 2.6 | 2183.9 | 1 | | 0520 | 65 | 6945. | 797.3 | 2199.8 | 1 | | 0840 | 105 | 15200. | 3066.4 | 2235.1 |
| 1 | | 0205 | 26 | 124. | 2.8 | 2184.0 | 1 | | 0525 | 66 | 7250. | 868.1 | 2200.9 | 1 | | 0845 | 106 | 15108. | 3040.6 | 2234.7 |
| 1 | | 0210 | 27 | 127. | 2.9 | 2184.0 | 1 | | 0530 | 67 | 7559. | 942.1 | 2202.1 | 1 | | 0850 | 107 | 15000. | 3010.6 | 2234.2 |
| 1 | | 0215 | 28 | 128. | 2.9 | 2184.0 | 1 | | 0535 | 68 | 7856. | 1019.1 | 2203.3 | 1 | | 0855 | 108 | 14880. | 2976.9 | 2233.7 |
| 1 | | 0220 | 29 | 130. | 3.1 | 2184.0 | 1 | | 0540 | 69 | 8153. | 1098.8 | 2204.6 | 1 | | 0900 | 109 | 14747. | 2939.8 | 2233.1 |
| 1 | | 0225 | 30 | 136. | 3.5 | 2184.0 | 1 | | 0545 | 70 | 8448. | 1180.9 | 2205.9 | 1 | | 0905 | 110 | 14604. | 2899.8 | 2232.5 |
| 1 | | 0230 | 31 | 147. | 4.2 | 2184.1 | 1 | | 0550 | 71 | 8749. | 1265.1 | 2207.2 | 1 | | 0910 | 111 | 14451. | 2857.3 | 2231.8 |
| 1 | | 0235 | 32 | 162. | 5.2 | 2184.1 | 1 | | 0555 | 72 | 9056. | 1350.9 | 2208.5 | 1 | | 0915 | 112 | 14291. | 2812.4 | 2231.2 |
| 1 | | 0240 | 33 | 180. | 6.3 | 2184.2 | 1 | | 0600 | 73 | 9368. | 1438.0 | 2209.8 | 1 | | 0920 | 113 | 14122. | 2765.5 | 2230.4 |
| 1 | | 0245 | 34 | 199. | 7.6 | 2184.3 | 1 | | 0605 | 74 | 9683. | 1526.0 | 2211.2 | 1 | | 0925 | 114 | 13947. | 2716.6 | 2229.7 |
| 1 | | 0250 | 35 | 220. | 9.0 | 2184.4 | 1 | | 0610 | 75 | 10001. | 1614.6 | 2212.6 | 1 | | 0930 | 115 | 13766. | 2665.9 | 2228.9 |
| 1 | | 0255 | 36 | 244. | 10.6 | 2184.4 | 1 | | 0615 | 76 | 10319. | 1703.6 | 2214.0 | 1 | | 0935 | 116 | 13577. | 2613.2 | 2228.1 |
| 1 | | 0300 | 37 | 271. | 12.3 | 2184.5 | 1 | | 0620 | 77 | 10638. | 1792.5 | 2215.3 | 1 | | 0940 | 117 | 13382. | 2558.8 | 2227.2 |
| 1 | | 0305 | 38 | 300. | 14.2 | 2184.7 | 1 | | 0625 | 78 | 10956. | 1881.2 | 2216.7 | 1 | | 0945 | 118 | 13182. | 2502.8 | 2226.4 |
| 1 | | 0310 | 39 | 334. | 16.4 | 2184.8 | 1 | | 0630 | 79 | 11272. | 1969.5 | 2218.1 | 1 | | 0950 | 119 | 12976. | 2445.3 | 2225.5 |
| 1 | | 0315 | 40 | 378. | 19.4 | 2185.0 | 1 | | 0635 | 80 | 11585. | 2057.0 | 2219.4 | 1 | | 0955 | 120 | 12767. | 2386.9 | 2224.6 |

**********

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | (CFS) | | | | |
| + 15404. | 8.25 | | 10913. | 6716. | 6716. | 6716. |
| | | (INCHES) | 2.644 | 2.689 | 2.689 | 2.689 |
| | | (AC-FT) | 5411. | 5504. | 5504. | 5504. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 3123. | 8.25 | 1941. | 1181. | 1181. | 1181. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2235.97 | 8.25 | 2217.47 | 2204.37 | 2204.37 | 2204.37 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8598.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8895.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9197.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9503.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9810.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10119.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10428.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10737.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11043.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11348.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11649.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11945.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12236.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12519.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12794.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13059.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13313.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13553.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13779.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13990.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14183.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14359.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14516.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14654.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14773.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14871.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14949.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15007.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15044.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15061.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15058.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 15036.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14995.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14937.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14862.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14772.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14668.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14550.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14421.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14282.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14134.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13978.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13815.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13644.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13467.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13283.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13093.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12897.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12696.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

[redacted]NING --- ROUTED OUTFLOW ( 12491.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .98

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 421. | 22.2 | 2185.1 | 1 | | 0640 | 81 | 11649. | 2074.7 | 2219.7 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 519. | 28.6 | 2185.5 | 1 | | 0645 | 82 | 11945. | 2157.5 | 2221.0 |
| 1 | | 0010 | 3 | 3. | .1 | 2183.0 | 1 | | 0330 | 43 | 674. | 38.9 | 2186.0 | 1 | | 0650 | 83 | 12236. | 2238.7 | 2222.3 |
| 1 | | 0015 | 4 | 10. | .2 | 2183.1 | 1 | | 0335 | 44 | 892. | 54.3 | 2186.4 | 1 | | 0655 | 84 | 12519. | 2317.8 | 2223.5 |
| 1 | | 0020 | 5 | 23. | .5 | 2183.2 | 1 | | 0340 | 45 | 1191. | 75.5 | 2186.9 | 1 | | 0700 | 85 | 12794. | 2394.6 | 2224.7 |
| 1 | | 0025 | 6 | 44. | 1.0 | 2183.3 | 1 | | 0345 | 46 | 1556. | 101.3 | 2187.5 | 1 | | 0705 | 86 | 13059. | 2468.6 | 2225.8 |
| 1 | | 0030 | 7 | 66. | 1.5 | 2183.5 | 1 | | 0350 | 47 | 1947. | 129.2 | 2188.2 | 1 | | 0710 | 87 | 13313. | 2539.4 | 2226.9 |
| 1 | | 0035 | 8 | 88. | 2.0 | 2183.7 | 1 | | 0355 | 48 | 2326. | 157.0 | 2188.7 | 1 | | 0715 | 88 | 13553. | 2606.6 | 2228.0 |
| 1 | | 0040 | 9 | 106. | 2.4 | 2183.8 | 1 | | 0400 | 49 | 2680. | 182.9 | 2189.2 | 1 | | 0720 | 89 | 13779. | 2669.7 | 2228.9 |
| 1 | | 0045 | 10 | 118. | 2.6 | 2183.9 | 1 | | 0405 | 50 | 2999. | 206.2 | 2189.6 | 1 | | 0725 | 90 | 13990. | 2728.4 | 2229.9 |
| 1 | | 0050 | 11 | 123. | 2.7 | 2184.0 | 1 | | 0410 | 51 | 3284. | 227.1 | 2190.0 | 1 | | 0730 | 91 | 14183. | 2782.5 | 2230.7 |
| 1 | | 0055 | 12 | 119. | 2.6 | 2183.9 | 1 | | 0415 | 52 | 3466. | 246.3 | 2190.3 | 1 | | 0735 | 92 | 14359. | 2831.6 | 2231.5 |
| 1 | | 0100 | 13 | 110. | 2.4 | 2183.9 | 1 | | 0420 | 53 | 3633. | 264.9 | 2190.6 | 1 | | 0740 | 93 | 14516. | 2875.5 | 2232.1 |
| 1 | | 0105 | 14 | 97. | 2.2 | 2183.8 | 1 | | 0425 | 54 | 3806. | 284.0 | 2191.0 | 1 | | 0745 | 94 | 14654. | 2914.0 | 2232.7 |
| 1 | | 0110 | 15 | 84. | 1.9 | 2183.7 | 1 | | 0430 | 55 | 3997. | 305.3 | 2191.4 | 1 | | 0750 | 95 | 14773. | 2947.1 | 2233.2 |
| 1 | | 0115 | 16 | 71. | 1.6 | 2183.6 | 1 | | 0435 | 56 | 4221. | 330.1 | 2191.8 | 1 | | 0755 | 96 | 14871. | 2974.6 | 2233.7 |
| 1 | | 0120 | 17 | 61. | 1.4 | 2183.5 | 1 | | 0440 | 57 | 4449. | 359.6 | 2192.3 | 1 | | 0800 | 97 | 14949. | 2996.3 | 2234.0 |
| 1 | | 0125 | 18 | 55. | 1.2 | 2183.4 | 1 | | 0445 | 58 | 4698. | 394.6 | 2193.0 | 1 | | 0805 | 98 | 15007. | 3012.4 | 2234.3 |
| 1 | | 0130 | 19 | 52. | 1.1 | 2183.4 | 1 | | 0450 | 59 | 4986. | 435.3 | 2193.7 | 1 | | 0810 | 99 | 15044. | 3022.8 | 2234.4 |
| 1 | | 0135 | 20 | 52. | 1.2 | 2183.4 | 1 | | 0455 | 60 | 5281. | 481.0 | 2194.5 | 1 | | 0815 | 100 | 15061. | 3027.5 | 2234.5 |
| 1 | | 0140 | 21 | 58. | 1.3 | 2183.5 | 1 | | 0500 | 61 | 5583. | 531.4 | 2195.3 | 1 | | 0820 | 101 | 15058. | 3026.7 | 2234.5 |
| 1 | | 0145 | 22 | 68. | 1.5 | 2183.5 | 1 | | 0505 | 62 | 5898. | 586.0 | 2196.3 | 1 | | 0825 | 102 | 15036. | 3020.5 | 2234.4 |
| 1 | | 0150 | 23 | 82. | 1.8 | 2183.7 | 1 | | 0510 | 63 | 6204. | 644.3 | 2197.2 | 1 | | 0830 | 103 | 14995. | 3009.1 | 2234.2 |
| 1 | | 0155 | 24 | 97. | 2.1 | 2183.8 | 1 | | 0515 | 64 | 6518. | 706.2 | 2198.3 | 1 | | 0835 | 104 | 14937. | 2992.8 | 2234.0 |
| 1 | | 0200 | 25 | 109. | 2.4 | 2183.9 | 1 | | 0520 | 65 | 6823. | 771.3 | 2199.4 | 1 | | 0840 | 105 | 14862. | 2972.0 | 2233.6 |
| 1 | | 0205 | 26 | 117. | 2.6 | 2183.9 | 1 | | 0525 | 66 | 7129. | 839.6 | 2200.5 | 1 | | 0845 | 106 | 14772. | 2946.8 | 2233.2 |
| 1 | | 0210 | 27 | 121. | 2.7 | 2184.0 | 1 | | 0530 | 67 | 7431. | 911.0 | 2201.6 | 1 | | 0850 | 107 | 14668. | 2917.7 | 2232.8 |
| 1 | | 0215 | 28 | 123. | 2.7 | 2184.0 | 1 | | 0535 | 68 | 7726. | 985.3 | 2202.8 | 1 | | 0855 | 108 | 14550. | 2884.9 | 2232.3 |
| 1 | | 0220 | 29 | 127. | 2.9 | 2184.0 | 1 | | 0540 | 69 | 8023. | 1062.3 | 2204.0 | 1 | | 0900 | 109 | 14421. | 2848.9 | 2231.7 |
| 1 | | 0225 | 30 | 132. | 3.2 | 2184.0 | 1 | | 0545 | 70 | 8307. | 1141.6 | 2205.2 | 1 | | 0905 | 110 | 14282. | 2810.1 | 2231.1 |
| 1 | | 0230 | 31 | 142. | 3.8 | 2184.1 | 1 | | 0550 | 71 | 8598. | 1223.0 | 2206.5 | 1 | | 0910 | 111 | 14134. | 2768.8 | 2230.5 |
| 1 | | 0235 | 32 | 156. | 4.8 | 2184.1 | 1 | | 0555 | 72 | 8895. | 1306.0 | 2207.8 | 1 | | 0915 | 112 | 13978. | 2725.2 | 2229.8 |
| 1 | | 0240 | 33 | 172. | 5.8 | 2184.2 | 1 | | 0600 | 73 | 9197. | 1390.3 | 2209.1 | 1 | | 0920 | 113 | 13815. | 2679.5 | 2229.1 |
| [redacted] | | 0245 | 34 | 190. | 7.0 | 2184.2 | 1 | | 0605 | 74 | 9503. | 1475.6 | 2210.4 | 1 | | 0925 | 114 | 13644. | 2632.0 | 2228.4 |
| [redacted] | | 0250 | 35 | 210. | 8.3 | 2184.3 | 1 | | 0610 | 75 | 9810. | 1561.5 | 2211.8 | 1 | | 0930 | 115 | 13467. | 2582.5 | 2227.6 |
| 1 | | 0255 | 36 | 232. | 9.8 | 2184.4 | 1 | | 0615 | 76 | 10119. | 1647.7 | 2213.1 | 1 | | 0935 | 116 | 13283. | 2531.1 | 2226.8 |
| 1 | | 0300 | 37 | 257. | 11.4 | 2184.5 | 1 | | 0620 | 77 | 10428. | 1734.0 | 2214.4 | 1 | | 0940 | 117 | 13093. | 2478.0 | 2226.0 |
| 1 | | 0305 | 38 | 284. | 13.2 | 2184.6 | 1 | | 0625 | 78 | 10737. | 1820.1 | 2215.8 | 1 | | 0945 | 118 | 12897. | 2423.2 | 2225.1 |
| 1 | | 0310 | 39 | 316. | 15.3 | 2184.7 | 1 | | 0630 | 79 | 11043. | 1905.7 | 2217.1 | 1 | | 0950 | 119 | 12696. | 2367.1 | 2224.2 |
| 1 | | 0315 | 40 | 358. | 18.0 | 2184.9 | 1 | | 0635 | 80 | 11348. | 1990.7 | 2218.4 | 1 | | 0955 | 120 | 12491. | 2310.0 | 2223.4 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | (CFS) | | | | |
| 15061. | 8.25 | | 10682. | 6572. | 6572. | 6572. |
| | | (INCHES) | 2.588 | 2.631 | 2.631 | 2.631 |
| | | (AC-FT) | 5297. | 5386. | 5386. | 5386. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 3028. | 8.25 | 1880. | 1143. | 1143. | 1143. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2234.49 | 8.25 | 2216.52 | 2203.78 | 2203.78 | 2203.78 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8631.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8917.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9206.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9497.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9790.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10083.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10376.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

[redacted]RNING --- ROUTED OUTFLOW ( 10667.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

[redacted]ARNING --- ROUTED OUTFLOW ( 10956.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11242.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11525.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11801.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12071.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12333.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12586.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12828.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13057.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13273.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13473.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13658.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13825.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13975.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14107.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14220.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14313.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14388.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14442.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14477.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14493.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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WARNING --- ROUTED OUTFLOW ( 14374.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14303.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14217.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14117.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 14005.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13883.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13751.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13610.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13461.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13306.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13143.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12973.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12796.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12614.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12425.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12232.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12036.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .95

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 384. | 19.7 | 2185.0 | 1 | | 0640 | 81 | 11242. | 1961.3 | 2218.0 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 476. | 25.8 | 2185.3 | 1 | | 0645 | 82 | 11525. | 2040.1 | 2219.2 |
| 1 | | 0010 | 3 | 3. | .1 | 2183.0 | 1 | | 0330 | 43 | 622. | 35.4 | 2185.9 | 1 | | 0650 | 83 | 11801. | 2117.4 | 2220.4 |
| 1 | | 0015 | 4 | 9. | .2 | 2183.1 | 1 | | 0335 | 44 | 830. | 49.9 | 2186.3 | 1 | | 0655 | 84 | 12071. | 2192.8 | 2221.5 |
| 1 | | 0020 | 5 | 23. | .5 | 2183.2 | 1 | | 0340 | 45 | 1113. | 69.9 | 2186.8 | 1 | | 0700 | 85 | 12333. | 2266.0 | 2222.7 |
| 1 | | 0025 | 6 | 42. | .9 | 2183.3 | 1 | | 0345 | 46 | 1459. | 94.4 | 2187.4 | 1 | | 0705 | 86 | 12586. | 2336.5 | 2223.8 |
| 1 | | 0030 | 7 | 65. | 1.4 | 2183.5 | 1 | | 0350 | 47 | 1634. | 120.9 | 2188.0 | 1 | | 0710 | 87 | 12828. | 2404.0 | 2224.8 |
| 1 | | 0035 | 8 | 86. | 1.9 | 2183.7 | 1 | | 0355 | 48 | 2194. | 147.3 | 2188.5 | 1 | | 0715 | 88 | 13057. | 2468.0 | 2225.8 |
| 1 | | 0040 | 9 | 104. | 2.3 | 2183.8 | 1 | | 0400 | 49 | 2530. | 171.9 | 2188.9 | 1 | | 0720 | 89 | 13273. | 2528.2 | 2226.7 |
| 1 | | 0045 | 10 | 115. | 2.6 | 2183.9 | 1 | | 0405 | 50 | 2834. | 194.2 | 2189.4 | 1 | | 0725 | 90 | 13473. | 2584.2 | 2227.6 |
| 1 | | 0050 | 11 | 119. | 2.7 | 2183.9 | 1 | | 0410 | 51 | 3108. | 214.2 | 2189.7 | 1 | | 0730 | 91 | 13658. | 2635.7 | 2228.4 |
| 1 | | 0055 | 12 | 116. | 2.6 | 2183.9 | 1 | | 0415 | 52 | 3342. | 232.6 | 2190.1 | 1 | | 0735 | 92 | 13825. | 2682.6 | 2229.1 |
| 1 | | 0100 | 13 | 107. | 2.4 | 2183.8 | 1 | | 0420 | 53 | 3501. | 250.2 | 2190.4 | 1 | | 0740 | 93 | 13975. | 2724.4 | 2229.8 |
| 1 | | 0105 | 14 | 95. | 2.1 | 2183.8 | 1 | | 0425 | 54 | 3663. | 268.2 | 2190.7 | 1 | | 0745 | 94 | 14107. | 2761.2 | 2230.4 |
| 1 | | 0110 | 15 | 81. | 1.8 | 2183.6 | 1 | | 0430 | 55 | 3841. | 288.0 | 2191.1 | 1 | | 0750 | 95 | 14220. | 2792.7 | 2230.8 |
| 1 | | 0115 | 16 | 69. | 1.5 | 2183.5 | 1 | | 0435 | 56 | 4050. | 311.1 | 2191.5 | 1 | | 0755 | 96 | 14313. | 2818.8 | 2231.3 |
| 1 | | 0120 | 17 | 60. | 1.3 | 2183.5 | 1 | | 0440 | 57 | 4298. | 338.7 | 2192.0 | 1 | | 0800 | 97 | 14388. | 2839.5 | 2231.6 |
| 1 | | 0125 | 18 | 53. | 1.2 | 2183.4 | 1 | | 0445 | 58 | 4534. | 371.5 | 2192.6 | 1 | | 0805 | 98 | 14442. | 2854.8 | 2231.8 |
| 1 | | 0130 | 19 | 50. | 1.1 | 2183.4 | 1 | | 0450 | 59 | 4806. | 409.8 | 2193.2 | 1 | | 0810 | 99 | 14477. | 2864.6 | 2232.0 |
| 1 | | 0135 | 20 | 50. | 1.1 | 2183.4 | 1 | | 0455 | 60 | 5114. | 453.2 | 2194.0 | 1 | | 0815 | 100 | 14493. | 2869.0 | 2232.0 |
| 1 | | 0140 | 21 | 55. | 1.2 | 2183.4 | 1 | | 0500 | 61 | 5402. | 501.2 | 2194.8 | 1 | | 0820 | 101 | 14490. | 2868.2 | 2232.0 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0145 | 22 | 64. | 1.4 | 2183.5 | 1 | 0505 | 62 | 5714. | 553.1 | 2195.7 | 1 | 0825 | 102 | 14469. | 2862.1 | 2231.9 |
| 1 | 0150 | 23 | 76. | 1.7 | 2183.6 | 1 | 0510 | 63 | 6016. | 608.5 | 2196.6 | 1 | 0830 | 103 | 14429. | 2851.2 | 2231.8 |
| 1 | 0155 | 24 | 89. | 2.0 | 2183.7 | 1 | 0515 | 64 | 6323. | 667.1 | 2197.6 | 1 | 0835 | 104 | 14374. | 2835.7 | 2231.5 |
| 1 | 0200 | 25 | 100. | 2.2 | 2183.8 | 1 | 0520 | 65 | 6622. | 728.6 | 2198.7 | 1 | 0840 | 105 | 14303. | 2815.8 | 2231.2 |
| 1 | 0205 | 26 | 107. | 2.4 | 2183.9 | 1 | 0525 | 66 | 6924. | 792.9 | 2199.7 | 1 | 0845 | 106 | 14217. | 2791.8 | 2230.8 |
| 1 | 0210 | 27 | 111. | 2.5 | 2183.9 | 1 | 0530 | 67 | 7215. | 860.0 | 2200.6 | 1 | 0850 | 107 | 14117. | 2764.0 | 2230.4 |
| 1 | 0215 | 28 | 112. | 2.5 | 2183.9 | 1 | 0535 | 68 | 7511. | 929.9 | 2201.9 | 1 | 0855 | 108 | 14005. | 2732.8 | 2229.9 |
| 1 | 0220 | 29 | 117. | 2.6 | 2183.9 | 1 | 0540 | 69 | 7792. | 1002.4 | 2203.1 | 1 | 0900 | 109 | 13883. | 2698.6 | 2229.4 |
| 1 | 0225 | 30 | 127. | 2.9 | 2184.0 | 1 | 0545 | 70 | 8076. | 1077.1 | 2204.3 | 1 | 0905 | 110 | 13751. | 2661.7 | 2228.8 |
| 1 | 0230 | 31 | 135. | 3.4 | 2184.0 | 1 | 0550 | 71 | 8350. | 1153.8 | 2205.4 | 1 | 0910 | 111 | 13610. | 2622.4 | 2228.2 |
| 1 | 0235 | 32 | 147. | 4.2 | 2184.1 | 1 | 0555 | 72 | 8631. | 1232.2 | 2206.7 | 1 | 0915 | 112 | 13461. | 2580.9 | 2227.6 |
| 1 | 0240 | 33 | 162. | 5.1 | 2184.1 | 1 | 0600 | 73 | 8917. | 1311.9 | 2207.9 | 1 | 0920 | 113 | 13306. | 2537.4 | 2226.9 |
| 1 | 0245 | 34 | 177. | 6.2 | 2184.2 | 1 | 0605 | 74 | 9206. | 1392.6 | 2209.1 | 1 | 0925 | 114 | 13143. | 2492.0 | 2226.2 |
| 1 | 0250 | 35 | 194. | 7.3 | 2184.3 | 1 | 0610 | 75 | 9497. | 1474.0 | 2210.4 | 1 | 0930 | 115 | 12973. | 2444.6 | 2225.5 |
| 1 | 0255 | 36 | 214. | 8.6 | 2184.3 | 1 | 0615 | 76 | 9790. | 1555.7 | 2211.7 | 1 | 0935 | 116 | 12796. | 2395.2 | 2224.7 |
| 1 | 0300 | 37 | 236. | 10.0 | 2184.4 | 1 | 0620 | 77 | 10083. | 1637.5 | 2212.9 | 1 | 0940 | 117 | 12614. | 2344.2 | 2223.9 |
| 1 | 0305 | 38 | 260. | 11.6 | 2184.5 | 1 | 0625 | 78 | 10376. | 1719.3 | 2214.2 | 1 | 0945 | 118 | 12425. | 2291.5 | 2223.1 |
| 1 | 0310 | 39 | 288. | 13.5 | 2184.6 | 1 | 0630 | 79 | 10667. | 1800.6 | 2215.5 | 1 | 0950 | 119 | 12232. | 2237.6 | 2222.2 |
| 1 | 0315 | 40 | 326. | 16.0 | 2184.8 | 1 | 0635 | 80 | 10956. | 1881.4 | 2216.7 | 1 | 0955 | 120 | 12036. | 2182.8 | 2221.4 |

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| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | |
| | | (CFS) | | | |
| 14493. | 8.25 | 10298. | 6333. | 6333. | 6333. |
| | | (INCHES) 2.495 | 2.536 | 2.536 | 2.536 |
| | | (AC-FT) 5107. | 5190. | 5190. | 5190. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 2869. | 8.25 | 1779. | 1082. | 1082. | 1082. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2232.03 | 8.25 | 2214.94 | 2202.81 | 2202.81 | 2202.81 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8644.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8916.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9191.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9468.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9745.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10022.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10298.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10573.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10844.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11112.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11374.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11631.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11880.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12120.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12350.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12568.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12773.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12964.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13139.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13299.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13441.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13566.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13673.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13762.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13833.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13884.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13918.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13932.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13929.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13908.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13871.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13818.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13750.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13668.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13573.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13467.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13351.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13226.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13092.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12951.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12803.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12647.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12484.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12315.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12139.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11958.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11773.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11584.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

**********

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .93

**********

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 350. | 17.5 | 2184.8 | 1 | | 0640 | 81 | 10844. | 1850.1 | 2216.2 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 435. | 23.1 | 2185.2 | 1 | | 0645 | 82 | 11112. | 1924.8 | 2217.4 |
| 1 | | 0010 | 3 | 2. | .1 | 2183.0 | 1 | | 0330 | 43 | 571. | 32.1 | 2185.7 | 1 | | 0650 | 83 | 11374. | 1998.2 | 2218.5 |
| 1 | | 0015 | 4 | 9. | .2 | 2183.1 | 1 | | 0335 | 44 | 770. | 45.7 | 2186.2 | 1 | | 0655 | 84 | 11631. | 2069.8 | 2219.6 |
| 1 | | 0020 | 5 | 22. | .5 | 2183.2 | 1 | | 0340 | 45 | 1038. | 64.6 | 2186.7 | 1 | | 0700 | 85 | 11880. | 2139.3 | 2220.7 |
| 1 | | 0025 | 6 | 41. | .9 | 2183.3 | 1 | | 0345 | 46 | 1365. | 87.8 | 2187.2 | 1 | | 0705 | 86 | 12120. | 2206.4 | 2221.8 |
| 1 | | 0030 | 7 | 63. | 1.4 | 2183.5 | 1 | | 0350 | 47 | 1721. | 113.0 | 2187.8 | 1 | | 0710 | 87 | 12350. | 2270.6 | 2222.8 |
| 1 | | 0035 | 8 | 84. | 1.9 | 2183.7 | 1 | | 0355 | 48 | 2066. | 137.9 | 2188.3 | 1 | | 0715 | 88 | 12568. | 2331.4 | 2223.7 |
| 1 | | 0040 | 9 | 101. | 2.2 | 2183.8 | 1 | | 0400 | 49 | 2384. | 161.2 | 2188.8 | 1 | | 0720 | 89 | 12773. | 2388.7 | 2224.6 |
| 1 | | 0045 | 10 | 112. | 2.5 | 2183.9 | 1 | | 0405 | 50 | 2674. | 182.4 | 2189.1 | 1 | | 0725 | 90 | 12964. | 2441.9 | 2225.4 |
| 1 | | 0050 | 11 | 116. | 2.6 | 2183.9 | 1 | | 0410 | 51 | 2937. | 201.7 | 2189.5 | 1 | | 0730 | 91 | 13139. | 2490.9 | 2226.2 |
| 1 | | 0055 | 12 | 113. | 2.5 | 2183.9 | 1 | | 0415 | 52 | 3178. | 219.4 | 2189.8 | 1 | | 0735 | 92 | 13299. | 2535.4 | 2226.9 |
| 1 | | 0100 | 13 | 104. | 2.3 | 2183.8 | 1 | | 0420 | 53 | 3374. | 236.1 | 2190.1 | 1 | | 0740 | 93 | 13441. | 2575.3 | 2227.5 |
| 1 | | 0105 | 14 | 92. | 2.0 | 2183.7 | 1 | | 0425 | 54 | 3526. | 253.0 | 2190.4 | 1 | | 0745 | 94 | 13566. | 2610.2 | 2228.0 |
| 1 | | 0110 | 15 | 79. | 1.8 | 2183.6 | 1 | | 0430 | 55 | 3693. | 271.5 | 2190.8 | 1 | | 0750 | 95 | 13673. | 2640.1 | 2228.5 |
| 1 | | 0115 | 16 | 67. | 1.5 | 2183.5 | 1 | | 0435 | 56 | 3886. | 292.9 | 2191.2 | 1 | | 0755 | 96 | 13762. | 2664.9 | 2228.9 |
| 1 | | 0120 | 17 | 58. | 1.3 | 2183.5 | 1 | | 0440 | 57 | 4118. | 318.7 | 2191.6 | 1 | | 0800 | 97 | 13833. | 2684.6 | 2229.2 |
| 1 | | 0125 | 18 | 51. | 1.1 | 2183.4 | 1 | | 0445 | 58 | 4377. | 349.5 | 2192.2 | 1 | | 0805 | 98 | 13884. | 2699.0 | 2229.4 |
| 1 | | 0130 | 19 | 48. | 1.1 | 2183.4 | 1 | | 0450 | 59 | 4633. | 385.4 | 2192.8 | 1 | | 0810 | 99 | 13918. | 2708.3 | 2229.5 |
| 1 | | 0135 | 20 | 48. | 1.1 | 2183.4 | 1 | | 0455 | 60 | 4924. | 426.5 | 2193.5 | 1 | | 0815 | 100 | 13932. | 2712.4 | 2229.6 |
| 1 | | 0140 | 21 | 52. | 1.2 | 2183.4 | 1 | | 0500 | 61 | 5227. | 472.0 | 2194.3 | 1 | | 0820 | 101 | 13929. | 2711.5 | 2229.6 |
| 1 | | 0145 | 22 | 60. | 1.3 | 2183.5 | 1 | | 0505 | 62 | 5524. | 521.4 | 2195.2 | 1 | | 0825 | 102 | 13908. | 2705.6 | 2229.5 |
| 1 | | 0150 | 23 | 71. | 1.6 | 2183.6 | 1 | | 0510 | 63 | 5836. | 574.1 | 2196.1 | 1 | | 0830 | 103 | 13871. | 2695.2 | 2229.3 |
| 1 | | 0155 | 24 | 82. | 1.8 | 2183.7 | 1 | | 0515 | 64 | 6126. | 629.5 | 2197.0 | 1 | | 0835 | 104 | 13818. | 2680.4 | 2229.1 |
| 1 | | 0200 | 25 | 92. | 2.0 | 2183.7 | 1 | | 0520 | 65 | 6429. | 687.5 | 2198.0 | 1 | | 0840 | 105 | 13750. | 2661.5 | 2228.8 |
| 1 | | 0205 | 26 | 98. | 2.2 | 2183.8 | 1 | | 0525 | 66 | 6713. | 748.0 | 2199.0 | 1 | | 0845 | 106 | 13668. | 2638.6 | 2228.5 |
| 1 | | 0210 | 27 | 101. | 2.2 | 2183.8 | 1 | | 0530 | 67 | 7008. | 811.1 | 2200.0 | 1 | | 0850 | 107 | 13573. | 2612.2 | 2228.0 |
| 1 | | 0215 | 28 | 102. | 2.3 | 2183.8 | 1 | | 0535 | 68 | 7286. | 876.7 | 2201.1 | 1 | | 0855 | 108 | 13467. | 2582.6 | 2227.6 |
| 1 | | 0220 | 29 | 106. | 2.3 | 2183.8 | 1 | | 0540 | 69 | 7569. | 944.7 | 2202.2 | 1 | | 0900 | 109 | 13351. | 2550.1 | 2227.1 |
| 1 | | 0225 | 30 | 117. | 2.6 | 2183.9 | 1 | | 0545 | 70 | 7840. | 1014.9 | 2203.3 | 1 | | 0905 | 110 | 13226. | 2515.2 | 2226.5 |
| 1 | | 0230 | 31 | 130. | 3.0 | 2184.0 | 1 | | 0550 | 71 | 8111. | 1087.0 | 2204.4 | 1 | | 0910 | 111 | 13092. | 2477.9 | 2226.0 |
| 1 | | 0235 | 32 | 140. | 3.7 | 2184.1 | 1 | | 0555 | 72 | 8375. | 1160.7 | 2205.5 | 1 | | 0915 | 112 | 12951. | 2438.4 | 2225.4 |
| 1 | | 0240 | 33 | 152. | 4.5 | 2184.1 | 1 | | 0600 | 73 | 8644. | 1235.8 | 2206.7 | 1 | | 0920 | 113 | 12803. | 2396.9 | 2224.7 |
| 1 | | 0245 | 34 | 166. | 5.4 | 2184.2 | 1 | | 0605 | 74 | 8916. | 1311.9 | 2207.9 | 1 | | 0925 | 114 | 12647. | 2353.5 | 2224.0 |
| 1 | | 0250 | 35 | 181. | 6.4 | 2184.2 | 1 | | 0610 | 75 | 9191. | 1388.6 | 2209.1 | 1 | | 0930 | 115 | 12484. | 2308.0 | 2223.3 |
| 1 | | 0255 | 36 | 198. | 7.5 | 2184.3 | 1 | | 0615 | 76 | 9468. | 1465.9 | 2210.3 | 1 | | 0935 | 116 | 12315. | 2260.7 | 2222.6 |
| 1 | | 0300 | 37 | 217. | 8.8 | 2184.3 | 1 | | 0620 | 77 | 9745. | 1543.3 | 2211.5 | 1 | | 0940 | 117 | 12139. | 2211.7 | 2221.8 |
| 1 | | 0305 | 38 | 238. | 10.2 | 2184.4 | 1 | | 0625 | 78 | 10022. | 1620.6 | 2212.7 | 1 | | 0945 | 118 | 11958. | 2161.1 | 2221.1 |
| 1 | | 0310 | 39 | 263. | 11.8 | 2184.5 | 1 | | 0630 | 79 | 10298. | 1697.7 | 2213.9 | 1 | | 0950 | 119 | 11773. | 2109.4 | 2220.3 |
| 1 | | 0315 | 40 | 297. | 14.1 | 2184.6 | 1 | | 0635 | 80 | 10573. | 1774.3 | 2215.1 | 1 | | 0955 | 120 | 11584. | 2056.7 | 2219.4 |

**********

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 13932. | 8.25 | | 9920. | 6097. | 6097. | 6097. |
| | | (INCHES) | 2.403 | 2.441 | 2.441 | 2.441 |
| | | (AC-FT) | 4919. | 4997. | 4997. | 4997. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 2712. | 8.25 | 1680. | 1021. | 1021. | 1021. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2229.60 | 8.25 | 2213.39 | 2201.85 | 2201.85 | 2201.85 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8537.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8803.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9071.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9341.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9612.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9883.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10153.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10421.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10687.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10948.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11206.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11457.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11701.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11936.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12161.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12374.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12575.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12762.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12934.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13090.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13229.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13352.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13457.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13544.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13612.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13663.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13695.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13710.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13706.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13686.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13649.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13597.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13531.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13450.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13358.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13254.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13140.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13018.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12887.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12749.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12603.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12450.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12290.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12123.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11951.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11773.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11590.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11405.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .92

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 337. | 16.6 | 2184.8 | 1 | | 0640 | 81 | 10687. | 1806.1 | 2215.6 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 419. | 22.1 | 2185.1 | 1 | | 0645 | 82 | 10948. | 1879.2 | 2216.7 |
| 1 | | 0010 | 3 | 2. | .1 | 2183.0 | 1 | | 0330 | 43 | 552. | 30.8 | 2185.6 | 1 | | 0650 | 83 | 11206. | 1951.0 | 2217.8 |
| 1 | | 0015 | 4 | 9. | .2 | 2183.1 | 1 | | 0335 | 44 | 748. | 44.1 | 2186.2 | 1 | | 0655 | 84 | 11457. | 2021.2 | 2218.9 |
| 1 | | 0020 | 5 | 22. | .5 | 2183.2 | 1 | | 0340 | 45 | 1009. | 62.6 | 2186.6 | 1 | | 0700 | 85 | 11701. | 2089.2 | 2219.9 |
| 1 | | 0025 | 6 | 41. | .9 | 2183.3 | 1 | | 0345 | 46 | 1329. | 85.2 | 2187.2 | 1 | | 0705 | 86 | 11936. | 2154.9 | 2221.0 |
| 1 | | 0030 | 7 | 62. | 1.4 | 2183.5 | 1 | | 0350 | 47 | 1677. | 109.8 | 2187.7 | 1 | | 0710 | 87 | 12161. | 2217.7 | 2221.9 |
| 1 | | 0035 | 8 | 83. | 1.8 | 2183.7 | 1 | | 0355 | 48 | 2016. | 134.3 | 2188.3 | 1 | | 0715 | 88 | 12374. | 2277.3 | 2222.9 |
| 1 | | 0040 | 9 | 100. | 2.2 | 2183.8 | 1 | | 0400 | 49 | 2327. | 157.1 | 2188.7 | 1 | | 0720 | 89 | 12575. | 2333.4 | 2223.7 |
| 1 | | 0045 | 10 | 111. | 2.5 | 2183.9 | 1 | | 0405 | 50 | 2611. | 177.8 | 2189.1 | 1 | | 0725 | 90 | 12762. | 2385.5 | 2224.5 |
| 1 | | 0050 | 11 | 115. | 2.6 | 2183.9 | 1 | | 0410 | 51 | 2870. | 196.8 | 2189.4 | 1 | | 0730 | 91 | 12934. | 2433.5 | 2225.3 |
| 1 | | 0055 | 12 | 112. | 2.5 | 2183.9 | 1 | | 0415 | 52 | 3108. | 214.2 | 2189.7 | 1 | | 0735 | 92 | 13090. | 2477.1 | 2226.0 |
| 1 | | 0100 | 13 | 103. | 2.3 | 2183.8 | 1 | | 0420 | 53 | 3325. | 230.6 | 2190.0 | 1 | | 0740 | 93 | 13229. | 2516.1 | 2226.6 |
| 1 | | 0105 | 14 | 91. | 2.0 | 2183.7 | 1 | | 0425 | 54 | 3473. | 247.1 | 2190.3 | 1 | | 0745 | 94 | 13352. | 2550.3 | 2227.1 |
| 1 | | 0110 | 15 | 78. | 1.7 | 2183.6 | 1 | | 0430 | 55 | 3635. | 265.0 | 2190.6 | 1 | | 0750 | 95 | 13457. | 2579.6 | 2227.5 |
| 1 | | 0115 | 16 | 66. | 1.5 | 2183.5 | 1 | | 0435 | 56 | 3822. | 285.9 | 2191.0 | 1 | | 0755 | 96 | 13544. | 2603.9 | 2227.9 |
| 1 | | 0120 | 17 | 57. | 1.3 | 2183.5 | 1 | | 0440 | 57 | 4048. | 310.9 | 2191.5 | 1 | | 0800 | 97 | 13612. | 2623.1 | 2228.2 |
| 1 | | 0125 | 18 | 51. | 1.1 | 2183.4 | 1 | | 0445 | 58 | 4315. | 340.8 | 2192.0 | 1 | | 0805 | 98 | 13663. | 2637.2 | 2228.4 |
| 1 | | 0130 | 19 | 47. | 1.1 | 2183.4 | 1 | | 0450 | 59 | 4564. | 375.8 | 2192.6 | 1 | | 0810 | 99 | 13695. | 2646.3 | 2228.6 |
| 1 | | 0135 | 20 | 47. | 1.1 | 2183.4 | 1 | | 0455 | 60 | 4848. | 415.8 | 2193.3 | 1 | | 0815 | 100 | 13710. | 2650.3 | 2228.6 |
| 1 | | 0140 | 21 | 51. | 1.1 | 2183.4 | 1 | | 0500 | 61 | 5158. | 460.4 | 2194.1 | 1 | | 0820 | 101 | 13706. | 2649.3 | 2228.6 |
| 1 | | 0145 | 22 | 59. | 1.3 | 2183.5 | 1 | | 0505 | 62 | 5448. | 508.8 | 2194.9 | 1 | | 0825 | 102 | 13686. | 2643.5 | 2228.5 |
| 1 | | 0150 | 23 | 69. | 1.5 | 2183.5 | 1 | | 0510 | 63 | 5757. | 560.3 | 2195.8 | 1 | | 0830 | 103 | 13649. | 2633.3 | 2228.4 |
| 1 | | 0155 | 24 | 80. | 1.8 | 2183.6 | 1 | | 0515 | 64 | 6048. | 614.6 | 2196.7 | 1 | | 0835 | 104 | 13597. | 2618.9 | 2228.2 |
| 1 | | 0200 | 25 | 89. | 2.0 | 2183.7 | 1 | | 0520 | 65 | 6344. | 671.3 | 2197.7 | 1 | | 0840 | 105 | 13531. | 2600.3 | 2227.9 |
| 1 | | 0205 | 26 | 95. | 2.1 | 2183.8 | 1 | | 0525 | 66 | 6631. | 730.4 | 2198.7 | 1 | | 0845 | 106 | 13450. | 2577.9 | 2227.5 |
| 1 | | 0210 | 27 | 97. | 2.2 | 2183.8 | 1 | | 0530 | 67 | 6919. | 791.9 | 2199.7 | 1 | | 0850 | 107 | 13358. | 2552.0 | 2227.1 |
| 1 | | 0215 | 28 | 98. | 2.2 | 2183.8 | 1 | | 0535 | 68 | 7198. | 855.8 | 2200.7 | 1 | | 0855 | 108 | 13254. | 2523.0 | 2226.7 |
| 1 | | 0220 | 29 | 102. | 2.3 | 2183.8 | 1 | | 0540 | 69 | 7478. | 922.1 | 2201.8 | 1 | | 0900 | 109 | 13140. | 2491.3 | 2226.2 |
| 1 | | 0225 | 30 | 112. | 2.5 | 2183.9 | 1 | | 0545 | 70 | 7746. | 990.5 | 2202.9 | 1 | | 0905 | 110 | 13018. | 2457.1 | 2225.6 |
| 1 | | 0230 | 31 | 128. | 2.9 | 2184.0 | 1 | | 0550 | 71 | 8017. | 1060.8 | 2204.0 | 1 | | 0910 | 111 | 12887. | 2420.5 | 2225.1 |
| 1 | | 0235 | 32 | 137. | 3.5 | 2184.0 | 1 | | 0555 | 72 | 8275. | 1132.7 | 2205.1 | 1 | | 0915 | 112 | 12749. | 2381.9 | 2224.5 |
| 1 | | 0240 | 33 | 149. | 4.3 | 2184.1 | 1 | | 0600 | 73 | 8537. | 1205.9 | 2206.2 | 1 | | 0920 | 113 | 12603. | 2341.2 | 2223.8 |
| 1 | | 0245 | 34 | 161. | 5.1 | 2184.1 | 1 | | 0605 | 74 | 8803. | 1280.1 | 2207.4 | 1 | | 0925 | 114 | 12450. | 2298.6 | 2223.2 |
| 1 | | 0250 | 35 | 176. | 6.1 | 2184.2 | 1 | | 0610 | 75 | 9071. | 1355.1 | 2208.6 | 1 | | 0930 | 115 | 12290. | 2253.9 | 2222.5 |
| 1 | | 0255 | 36 | 192. | 7.1 | 2184.2 | 1 | | 0615 | 76 | 9341. | 1430.5 | 2209.7 | 1 | | 0935 | 116 | 12123. | 2207.3 | 2221.8 |
| 1 | | 0300 | 37 | 210. | 8.3 | 2184.3 | 1 | | 0620 | 77 | 9612. | 1506.1 | 2210.9 | 1 | | 0940 | 117 | 11951. | 2159.1 | 2221.0 |
| 1 | | 0305 | 38 | 230. | 9.6 | 2184.4 | 1 | | 0625 | 78 | 9883. | 1581.7 | 2212.1 | 1 | | 0945 | 118 | 11773. | 2109.4 | 2220.3 |
| 1 | | 0310 | 39 | 253. | 11.2 | 2184.5 | 1 | | 0630 | 79 | 10153. | 1657.1 | 2213.2 | 1 | | 0950 | 119 | 11590. | 2058.5 | 2219.5 |
| 1 | | 0315 | 40 | 286. | 13.3 | 2184.6 | 1 | | 0635 | 80 | 10421. | 1732.0 | 2214.4 | 1 | | 0955 | 120 | 11405. | 2006.7 | 2218.7 |

**********

| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | |
| | | (CFS) | | | |
| + 13710. | 8.25 | 9769. | 6004. | 6004. | 6004. |
| | | (INCHES) 2.367 | 2.404 | 2.404 | 2.404 |
| | | (AC-FT) 4844. | 4920. | 4920. | 4920. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 2650. | 8.25 | 1641. | 997. | 997. | 997. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 2228.64 | 8.25 | 2212.78 | 2201.47 | 2201.47 | 2201.47 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8724.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8988.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9254.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9520.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9786.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10052.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10316.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10577.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10835.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11088.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11336.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11576.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11807.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12029.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12239.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12437.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12621.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12790.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12944.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13082.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13202.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13306.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13391.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13459.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13509.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13541.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13555.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13551.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13531.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13495.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13444.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13378.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13299.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13208.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13106.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12994.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12873.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12744.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12608.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12464.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12313.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12155.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11990.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11819.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11644.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11463.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11280.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .91

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 328. | 16.1 | 2184.8 | 1 | | 0640 | 81 | 10577. | 1775.6 | 2215.1 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 408. | 21.4 | 2185.1 | 1 | | 0645 | 82 | 10835. | 1847.6 | 2216.2 |
| 1 | | 0010 | 3 | 2. | .1 | 2183.0 | 1 | | 0330 | 43 | 539. | 29.9 | 2185.6 | 1 | | 0650 | 83 | 11088. | 1918.3 | 2217.3 |
| 1 | | 0015 | 4 | 9. | .2 | 2183.1 | 1 | | 0335 | 44 | 732. | 43.0 | 2186.1 | 1 | | 0655 | 84 | 11336. | 1987.4 | 2218.4 |
| 1 | | 0020 | 5 | 22. | .5 | 2183.2 | 1 | | 0340 | 45 | 989. | 61.2 | 2186.6 | 1 | | 0700 | 85 | 11576. | 2054.4 | 2219.4 |
| 1 | | 0025 | 6 | 41. | .9 | 2183.3 | 1 | | 0345 | 46 | 1304. | 83.4 | 2187.1 | 1 | | 0705 | 86 | 11807. | 2119.1 | 2220.4 |
| 1 | | 0030 | 7 | 62. | 1.4 | 2183.5 | 1 | | 0350 | 47 | 1647. | 107.7 | 2187.7 | 1 | | 0710 | 87 | 12029. | 2181.0 | 2221.4 |
| 1 | | 0035 | 8 | 82. | 1.8 | 2183.7 | 1 | | 0355 | 48 | 1981. | 131.7 | 2188.2 | 1 | | 0715 | 88 | 12239. | 2239.7 | 2222.3 |
| 1 | | 0040 | 9 | 99. | 2.2 | 2183.8 | 1 | | 0400 | 49 | 2288. | 154.2 | 2188.6 | 1 | | 0720 | 89 | 12437. | 2294.9 | 2223.1 |
| 1 | | 0045 | 10 | 110. | 2.4 | 2183.9 | 1 | | 0405 | 50 | 2568. | 174.7 | 2189.0 | 1 | | 0725 | 90 | 12621. | 2346.3 | 2223.9 |
| 1 | | 0050 | 11 | 114. | 2.5 | 2183.9 | 1 | | 0410 | 51 | 2823. | 193.3 | 2189.3 | 1 | | 0730 | 91 | 12790. | 2393.6 | 2224.7 |
| 1 | | 0055 | 12 | 111. | 2.5 | 2183.9 | 1 | | 0415 | 52 | 3059. | 210.6 | 2189.7 | 1 | | 0735 | 92 | 12944. | 2436.5 | 2225.3 |
| 1 | | 0100 | 13 | 102. | 2.3 | 2183.8 | 1 | | 0420 | 53 | 3281. | 226.9 | 2190.0 | 1 | | 0740 | 93 | 13082. | 2474.9 | 2225.9 |
| 1 | | 0105 | 14 | 90. | 2.0 | 2183.7 | 1 | | 0425 | 54 | 3437. | 243.1 | 2190.3 | 1 | | 0745 | 94 | 13202. | 2508.6 | 2226.4 |
| 1 | | 0110 | 15 | 78. | 1.7 | 2183.6 | 1 | | 0430 | 55 | 3595. | 260.6 | 2190.6 | 1 | | 0750 | 95 | 13306. | 2537.4 | 2226.9 |
| 1 | | 0115 | 16 | 66. | 1.5 | 2183.5 | 1 | | 0435 | 56 | 3778. | 281.0 | 2190.9 | 1 | | 0755 | 96 | 13391. | 2561.3 | 2227.3 |
| 1 | | 0120 | 17 | 57. | 1.3 | 2183.5 | 1 | | 0440 | 57 | 3999. | 305.5 | 2191.4 | 1 | | 0800 | 97 | 13459. | 2580.3 | 2227.6 |
| 1 | | 0125 | 18 | 50. | 1.1 | 2183.4 | 1 | | 0445 | 58 | 4263. | 334.8 | 2191.9 | 1 | | 0805 | 98 | 13509. | 2594.2 | 2227.8 |
| 1 | | 0130 | 19 | 47. | 1.0 | 2183.4 | 1 | | 0450 | 59 | 4517. | 369.1 | 2192.5 | 1 | | 0810 | 99 | 13541. | 2603.1 | 2227.9 |
| 1 | | 0135 | 20 | 47. | 1.0 | 2183.4 | 1 | | 0455 | 60 | 4796. | 408.5 | 2193.2 | 1 | | 0815 | 100 | 13555. | 2607.0 | 2228.0 |
| 1 | | 0140 | 21 | 51. | 1.1 | 2183.4 | 1 | | 0500 | 61 | 5108. | 452.4 | 2194.0 | 1 | | 0820 | 101 | 13551. | 2606.0 | 2228.0 |
| 1 | | 0145 | 22 | 58. | 1.3 | 2183.5 | 1 | | 0505 | 62 | 5395. | 500.1 | 2194.8 | 1 | | 0825 | 102 | 13531. | 2600.3 | 2227.9 |
| 1 | | 0150 | 23 | 68. | 1.5 | 2183.5 | 1 | | 0510 | 63 | 5700. | 550.9 | 2195.7 | 1 | | 0830 | 103 | 13495. | 2590.3 | 2227.7 |
| 1 | | 0155 | 24 | 78. | 1.7 | 2183.6 | 1 | | 0515 | 64 | 5994. | 604.3 | 2196.6 | 1 | | 0835 | 104 | 13444. | 2576.0 | 2227.5 |
| 1 | | 0200 | 25 | 87. | 1.9 | 2183.7 | 1 | | 0520 | 65 | 6286. | 660.1 | 2197.5 | 1 | | 0840 | 105 | 13378. | 2557.6 | 2227.2 |
| 1 | | 0205 | 26 | 92. | 2.1 | 2183.7 | 1 | | 0525 | 66 | 6574. | 718.2 | 2198.5 | 1 | | 0845 | 106 | 13299. | 2535.5 | 2226.9 |
| 1 | | 0210 | 27 | 95. | 2.1 | 2183.8 | 1 | | 0530 | 67 | 6857. | 778.7 | 2199.5 | 1 | | 0850 | 107 | 13208. | 2510.1 | 2226.5 |
| 1 | | 0215 | 28 | 95. | 2.1 | 2183.8 | 1 | | 0535 | 68 | 7137. | 841.5 | 2200.5 | 1 | | 0855 | 108 | 13106. | 2481.5 | 2226.0 |
| 1 | | 0220 | 29 | 99. | 2.2 | 2183.8 | 1 | | 0540 | 69 | 7412. | 906.6 | 2201.6 | 1 | | 0900 | 109 | 12994. | 2450.3 | 2225.5 |
| 1 | | 0225 | 30 | 109. | 2.4 | 2183.9 | 1 | | 0545 | 70 | 7681. | 973.7 | 2202.6 | 1 | | 0905 | 110 | 12873. | 2416.6 | 2225.0 |
| 1 | | 0230 | 31 | 126. | 2.8 | 2184.0 | 1 | | 0550 | 71 | 7947. | 1042.7 | 2203.7 | 1 | | 0910 | 111 | 12744. | 2380.6 | 2224.5 |
| 1 | | 0235 | 32 | 135. | 3.4 | 2184.0 | 1 | | 0555 | 72 | 8205. | 1113.3 | 2204.8 | 1 | | 0915 | 112 | 12608. | 2342.5 | 2223.9 |
| 1 | | 0240 | 33 | 146. | 4.1 | 2184.1 | 1 | | 0600 | 73 | 8463. | 1185.2 | 2205.9 | 1 | | 0920 | 113 | 12464. | 2302.4 | 2223.2 |
| 1 | | 0245 | 34 | 159. | 4.9 | 2184.1 | 1 | | 0605 | 74 | 8724. | 1258.2 | 2207.1 | 1 | | 0925 | 114 | 12313. | 2260.3 | 2222.6 |
| 1 | | 0250 | 35 | 172. | 5.8 | 2184.2 | 1 | | 0610 | 75 | 8988. | 1331.9 | 2208.2 | 1 | | 0930 | 115 | 12155. | 2216.1 | 2221.9 |
| 1 | | 0255 | 36 | 187. | 6.8 | 2184.2 | 1 | | 0615 | 76 | 9254. | 1406.0 | 2209.3 | 1 | | 0935 | 116 | 11990. | 2170.1 | 2221.2 |
| 1 | | 0300 | 37 | 205. | 8.0 | 2184.3 | 1 | | 0620 | 77 | 9520. | 1480.4 | 2210.5 | 1 | | 0940 | 117 | 11819. | 2122.5 | 2220.5 |
| 1 | | 0305 | 38 | 224. | 9.2 | 2184.4 | 1 | | 0625 | 78 | 9786. | 1554.8 | 2211.7 | 1 | | 0945 | 118 | 11644. | 2073.3 | 2219.7 |
| 1 | | 0310 | 39 | 247. | 10.7 | 2184.5 | 1 | | 0630 | 79 | 10052. | 1628.9 | 2212.8 | 1 | | 0950 | 119 | 11463. | 2023.0 | 2218.9 |
| 1 | | 0315 | 40 | 279. | 12.8 | 2184.6 | 1 | | 0635 | 80 | 10316. | 1702.6 | 2213.9 | 1 | | 0955 | 120 | 11280. | 1971.8 | 2218.1 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 13555. | 8.25 | | 9664. | 5938. | 5938. | 5938. |
| | | (INCHES) | 2.341 | 2.378 | 2.378 | 2.378 |
| | | (AC-FT) | 4792. | 4867. | 4867. | 4867. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 2607. | 8.25 | 1614. | 981. | 981. | 981. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 2227.97 | 8.25 | 2212.35 | 2201.20 | 2201.20 | 2201.20 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8668.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8929.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9191.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9455.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9718.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9980.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10241.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10500.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10754.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11005.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11250.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11487.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11716.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11935.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

ARNING --- ROUTED OUTFLOW ( 12143.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

ARNING --- ROUTED OUTFLOW ( 12339.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12521.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12689.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12841.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12977.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13096.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13198.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13283.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13350.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13399.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13431.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13444.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13441.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13421.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13385.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13334.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13269.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13191.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13101.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13000.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12889.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12770.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

ARNING --- ROUTED OUTFLOW ( 12642.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12507.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12365.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12216.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12059.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11895.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11726.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11552.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11373.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11191.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .90

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 322. | 15.7 | 2184.7 | 1 | | 0640 | 81 | 10500. | 1753.9 | 2214.7 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 401. | 20.9 | 2185.0 | 1 | | 0645 | 82 | 10754. | 1825.1 | 2215.8 |
| 1 | | 0010 | 3 | 2. | .1 | 2183.0 | 1 | | 0330 | 43 | 529. | 29.3 | 2185.5 | 1 | | 0650 | 83 | 11005. | 1895.0 | 2216.9 |
| 1 | | 0015 | 4 | 9. | .2 | 2183.1 | 1 | | 0335 | 44 | 721. | 42.2 | 2186.1 | 1 | | 0655 | 84 | 11250. | 1963.3 | 2218.0 |
| 1 | | 0020 | 5 | 22. | .5 | 2183.2 | 1 | | 0340 | 45 | 974. | 60.2 | 2186.5 | 1 | | 0700 | 85 | 11487. | 2029.6 | 2219.0 |
| 1 | | 0025 | 6 | 40. | .9 | 2183.3 | 1 | | 0345 | 46 | 1286. | 82.2 | 2187.1 | 1 | | 0705 | 86 | 11716. | 2093.6 | 2220.0 |
| 1 | | 0030 | 7 | 61. | 1.4 | 2183.5 | 1 | | 0350 | 47 | 1625. | 106.2 | 2187.7 | 1 | | 0710 | 87 | 11935. | 2154.8 | 2221.0 |
| 1 | | 0035 | 8 | 82. | 1.8 | 2183.6 | 1 | | 0355 | 48 | 1957. | 129.9 | 2188.2 | 1 | | 0715 | 88 | 12143. | 2212.9 | 2221.9 |
| 1 | | 0040 | 9 | 98. | 2.2 | 2183.8 | 1 | | 0400 | 49 | 2260. | 152.1 | 2188.6 | 1 | | 0720 | 89 | 12339. | 2267.5 | 2222.7 |
| 1 | | 0045 | 10 | 110. | 2.4 | 2183.9 | 1 | | 0405 | 50 | 2537. | 172.4 | 2189.0 | 1 | | 0725 | 90 | 12521. | 2318.3 | 2223.5 |
| 1 | | 0050 | 11 | 113. | 2.5 | 2183.9 | 1 | | 0410 | 51 | 2790. | 190.9 | 2189.3 | 1 | | 0730 | 91 | 12689. | 2365.1 | 2224.2 |
| 1 | | 0055 | 12 | 110. | 2.5 | 2183.9 | 1 | | 0415 | 52 | 3024. | 208.0 | 2189.6 | 1 | | 0735 | 92 | 12841. | 2407.6 | 2224.9 |
| 1 | | 0100 | 13 | 102. | 2.3 | 2183.8 | 1 | | 0420 | 53 | 3244. | 224.2 | 2189.9 | 1 | | 0740 | 93 | 12977. | 2445.6 | 2225.5 |
| 1 | | 0105 | 14 | 90. | 2.0 | 2183.7 | 1 | | 0425 | 54 | 3411. | 240.2 | 2190.2 | 1 | | 0745 | 94 | 13096. | 2478.9 | 2226.0 |
| 1 | | 0110 | 15 | 77. | 1.7 | 2183.6 | 1 | | 0430 | 55 | 3567. | 257.5 | 2190.5 | 1 | | 0750 | 95 | 13198. | 2507.4 | 2226.4 |
| 1 | | 0115 | 16 | 66. | 1.5 | 2183.5 | 1 | | 0435 | 56 | 3747. | 277.5 | 2190.9 | 1 | | 0755 | 96 | 13283. | 2531.1 | 2226.8 |
| 1 | | 0120 | 17 | 56. | 1.3 | 2183.4 | 1 | | 0440 | 57 | 3964. | 301.6 | 2191.3 | 1 | | 0800 | 97 | 13350. | 2549.8 | 2227.1 |
| 1 | | 0125 | 18 | 50. | 1.1 | 2183.4 | 1 | | 0445 | 58 | 4225. | 330.6 | 2191.8 | 1 | | 0805 | 98 | 13399. | 2563.6 | 2227.3 |
| 1 | | 0130 | 19 | 47. | 1.0 | 2183.4 | 1 | | 0450 | 59 | 4484. | 364.5 | 2192.4 | 1 | | 0810 | 99 | 13431. | 2572.3 | 2227.4 |
| 1 | | 0135 | 20 | 47. | 1.0 | 2183.4 | 1 | | 0455 | 60 | 4760. | 403.3 | 2193.1 | 1 | | 0815 | 100 | 13444. | 2576.1 | 2227.5 |
| 1 | | 0140 | 21 | 50. | 1.1 | 2183.4 | 1 | | 0500 | 61 | 5068. | 446.7 | 2193.9 | 1 | | 0820 | 101 | 13441. | 2575.1 | 2227.5 |
| 1 | | 0145 | 22 | 57. | 1.3 | 2183.5 | 1 | | 0505 | 62 | 5359. | 493.9 | 2194.7 | 1 | | 0825 | 102 | 13421. | 2569.6 | 2227.4 |
| 1 | | 0150 | 23 | 67. | 1.5 | 2183.5 | 1 | | 0510 | 63 | 5660. | 544.2 | 2195.6 | 1 | | 0830 | 103 | 13385. | 2559.6 | 2227.2 |
| 1 | | 0155 | 24 | 77. | 1.7 | 2183.6 | 1 | | 0515 | 64 | 5957. | 597.1 | 2196.5 | 1 | | 0835 | 104 | 13334. | 2545.5 | 2227.0 |
| 1 | | 0200 | 25 | 85. | 1.9 | 2183.7 | 1 | | 0520 | 65 | 6245. | 652.3 | 2197.4 | 1 | | 0840 | 105 | 13269. | 2527.3 | 2226.7 |
| 1 | | 0205 | 26 | 91. | 2.0 | 2183.7 | 1 | | 0525 | 66 | 6534. | 709.6 | 2198.3 | 1 | | 0845 | 106 | 13191. | 2505.5 | 2226.4 |
| 1 | | 0210 | 27 | 93. | 2.1 | 2183.7 | 1 | | 0530 | 67 | 6813. | 769.3 | 2199.3 | 1 | | 0850 | 107 | 13101. | 2480.2 | 2226.0 |
| 1 | | 0215 | 28 | 94. | 2.1 | 2183.7 | 1 | | 0535 | 68 | 7094. | 831.3 | 2200.3 | 1 | | 0855 | 108 | 13000. | 2452.1 | 2225.6 |
| 1 | | 0220 | 29 | 97. | 2.2 | 2183.8 | 1 | | 0540 | 69 | 7365. | 895.5 | 2201.4 | 1 | | 0900 | 109 | 12889. | 2421.2 | 2225.1 |
| 1 | | 0225 | 30 | 107. | 2.4 | 2183.8 | 1 | | 0545 | 70 | 7635. | 961.8 | 2202.4 | 1 | | 0905 | 110 | 12770. | 2387.8 | 2224.6 |
| 1 | | 0230 | 31 | 125. | 2.8 | 2184.0 | 1 | | 0550 | 71 | 7898. | 1029.9 | 2203.5 | 1 | | 0910 | 111 | 12642. | 2352.2 | 2224.0 |
| 1 | | 0235 | 32 | 134. | 3.3 | 2184.0 | 1 | | 0555 | 72 | 8156. | 1099.6 | 2204.6 | 1 | | 0915 | 112 | 12507. | 2314.5 | 2223.4 |
| 1 | | 0240 | 33 | 145. | 4.0 | 2184.1 | 1 | | 0600 | 73 | 8410. | 1170.6 | 2205.7 | 1 | | 0920 | 113 | 12365. | 2274.8 | 2222.8 |
| 1 | | 0245 | 34 | 157. | 4.8 | 2184.1 | 1 | | 0605 | 74 | 8668. | 1242.6 | 2206.8 | 1 | | 0925 | 114 | 12216. | 2233.1 | 2222.2 |
| 1 | | 0250 | 35 | 170. | 5.7 | 2184.2 | 1 | | 0610 | 75 | 8929. | 1315.4 | 2207.9 | 1 | | 0930 | 115 | 12059. | 2189.3 | 2221.5 |
| 1 | | 0255 | 36 | 185. | 6.6 | 2184.2 | 1 | | 0615 | 76 | 9191. | 1388.6 | 2209.1 | 1 | | 0935 | 116 | 11895. | 2143.7 | 2220.8 |
| 1 | | 0300 | 37 | 201. | 7.8 | 2184.3 | 1 | | 0620 | 77 | 9455. | 1462.1 | 2210.2 | 1 | | 0940 | 117 | 11726. | 2096.4 | 2220.1 |
| 1 | | 0305 | 38 | 220. | 9.0 | 2184.4 | 1 | | 0625 | 78 | 9718. | 1535.6 | 2211.4 | 1 | | 0945 | 118 | 11552. | 2047.7 | 2219.3 |
| 1 | | 0310 | 39 | 242. | 10.5 | 2184.4 | 1 | | 0630 | 79 | 9980. | 1608.9 | 2212.5 | 1 | | 0950 | 119 | 11373. | 1997.8 | 2218.5 |
| 1 | | 0315 | 40 | 273. | 12.5 | 2184.6 | 1 | | 0635 | 80 | 10241. | 1681.7 | 2213.6 | 1 | | 0955 | 120 | 11191. | 1947.1 | 2217.7 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 13444. | 8.25 | | 9590. | 5892. | 5892. | 5892. |
| | | (INCHES) | 2.323 | 2.359 | 2.359 | 2.359 |
| | | (AC-FT) | 4755. | 4829. | 4829. | 4829. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 2576. | 8.25 | 1594. | 969. | 969. | 969. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2227.49 | 8.25 | 2212.05 | 2201.01 | 2201.01 | 2201.01 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8580.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8835.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9092.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9350.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9609.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9866.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10122.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10376.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10626.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10872.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11112.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11346.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11571.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11786.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11991.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12183.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12362.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12526.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12676.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12809.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12926.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13027.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13110.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13176.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13224.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13255.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13268.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13265.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13245.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13210.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13160.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13096.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13019.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12931.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12832.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12723.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12606.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12480.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12347.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12207.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12060.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11905.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11744.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11577.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11405.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11229.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11050.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .89

**********

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 312. | 15.0 | 2184.7 | 1 | | 0640 | 81 | 10376. | 1719.4 | 2214.2 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 389. | 20.1 | 2185.0 | 1 | | 0645 | 82 | 10626. | 1789.3 | 2215.3 |
| 1 | | 0010 | 3 | 2. | .1 | 2183.0 | 1 | | 0330 | 43 | 515. | 28.3 | 2185.5 | 1 | | 0650 | 83 | 10872. | 1857.9 | 2216.4 |
| 1 | | 0015 | 4 | 9. | .2 | 2183.1 | 1 | | 0335 | 44 | 704. | 41.0 | 2186.1 | 1 | | 0655 | 84 | 11112. | 1925.0 | 2217.4 |
| 1 | | 0020 | 5 | 22. | .5 | 2183.2 | 1 | | 0340 | 45 | 952. | 58.6 | 2186.5 | 1 | | 0700 | 85 | 11346. | 1990.2 | 2218.4 |
| 1 | | 0025 | 6 | 40. | .9 | 2183.3 | 1 | | 0345 | 46 | 1258. | 80.2 | 2187.0 | 1 | | 0705 | 86 | 11571. | 2053.0 | 2219.4 |
| 1 | | 0030 | 7 | 61. | 1.4 | 2183.5 | 1 | | 0350 | 47 | 1591. | 103.7 | 2187.6 | 1 | | 0710 | 87 | 11786. | 2113.2 | 2220.3 |
| 1 | | 0035 | 8 | 81. | 1.8 | 2183.6 | 1 | | 0355 | 48 | 1918. | 127.1 | 2188.1 | 1 | | 0715 | 88 | 11991. | 2170.2 | 2221.2 |
| 1 | | 0040 | 9 | 98. | 2.2 | 2183.8 | 1 | | 0400 | 49 | 2216. | 148.9 | 2188.5 | 1 | | 0720 | 89 | 12183. | 2223.9 | 2222.0 |
| 1 | | 0045 | 10 | 109. | 2.4 | 2183.9 | 1 | | 0405 | 50 | 2487. | 168.8 | 2188.9 | 1 | | 0725 | 90 | 12362. | 2273.8 | 2222.8 |
| 1 | | 0050 | 11 | 112. | 2.5 | 2183.9 | 1 | | 0410 | 51 | 2736. | 187.0 | 2189.2 | 1 | | 0730 | 91 | 12526. | 2319.8 | 2223.5 |
| 1 | | 0055 | 12 | 109. | 2.4 | 2183.9 | 1 | | 0415 | 52 | 2967. | 203.9 | 2189.5 | 1 | | 0735 | 92 | 12676. | 2361.5 | 2224.2 |
| 1 | | 0100 | 13 | 101. | 2.2 | 2183.8 | 1 | | 0420 | 53 | 3185. | 219.8 | 2189.8 | 1 | | 0740 | 93 | 12809. | 2398.8 | 2224.7 |
| 1 | | 0105 | 14 | 89. | 2.0 | 2183.7 | 1 | | 0425 | 54 | 3370. | 235.6 | 2190.1 | 1 | | 0745 | 94 | 12926. | 2431.5 | 2225.2 |
| 1 | | 0110 | 15 | 76. | 1.7 | 2183.6 | 1 | | 0430 | 55 | 3522. | 252.5 | 2190.4 | 1 | | 0750 | 95 | 13027. | 2459.6 | 2225.7 |
| 1 | | 0115 | 16 | 65. | 1.4 | 2183.5 | 1 | | 0435 | 56 | 3698. | 272.1 | 2190.8 | 1 | | 0755 | 96 | 13110. | 2482.8 | 2226.0 |
| 1 | | 0120 | 17 | 56. | 1.2 | 2183.4 | 1 | | 0440 | 57 | 3910. | 295.6 | 2191.2 | 1 | | 0800 | 97 | 13176. | 2501.2 | 2226.3 |
| 1 | | 0125 | 18 | 50. | 1.1 | 2183.4 | 1 | | 0445 | 58 | 4165. | 323.9 | 2191.7 | 1 | | 0805 | 98 | 13224. | 2514.7 | 2226.5 |
| 1 | | 0130 | 19 | 46. | 1.0 | 2183.4 | 1 | | 0450 | 59 | 4431. | 357.1 | 2192.3 | 1 | | 0810 | 99 | 13255. | 2523.3 | 2226.7 |
| 1 | | 0135 | 20 | 46. | 1.0 | 2183.4 | 1 | | 0455 | 60 | 4701. | 395.1 | 2193.0 | 1 | | 0815 | 100 | 13268. | 2527.0 | 2226.7 |
| 1 | | 0140 | 21 | 49. | 1.1 | 2183.4 | 1 | | 0500 | 61 | 5004. | 437.7 | 2193.7 | 1 | | 0820 | 101 | 13265. | 2526.0 | 2226.7 |
| 1 | | 0145 | 22 | 56. | 1.2 | 2183.4 | 1 | | 0505 | 62 | 5300. | 484.1 | 2194.5 | 1 | | 0825 | 102 | 13245. | 2520.6 | 2226.6 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0150 | 23 | 65. | 1.5 | 2183.5 | * | 1 | 0510 | 63 | 5597. | 533.6 | 2195.4 | * | 1 | 0830 | 103 | 13210. | 2510.8 | 2226.5 |
| 1 | 0155 | 24 | 75. | 1.7 | 2183.6 | * | 1 | 0515 | 64 | 5896. | 585.6 | 2196.3 | * | 1 | 0835 | 104 | 13160. | 2496.9 | 2226.3 |
| 1 | 0200 | 25 | 83. | 1.8 | 2183.7 | * | 1 | 0520 | 65 | 6180. | 639.7 | 2197.2 | * | 1 | 0840 | 105 | 13096. | 2479.0 | 2226.0 |
| 1 | 0205 | 26 | 88. | 2.0 | 2183.7 | * | 1 | 0525 | 66 | 6470. | 696.0 | 2198.1 | * | 1 | 0845 | 106 | 13019. | 2457.5 | 2225.7 |
| 1 | 0210 | 27 | 90. | 2.0 | 2183.7 | * | 1 | 0530 | 67 | 6744. | 754.5 | 2199.1 | * | 1 | 0850 | 107 | 12931. | 2432.7 | 2225.3 |
| 1 | 0215 | 28 | 91. | 2.0 | 2183.7 | * | 1 | 0535 | 68 | 7026. | 815.2 | 2200.1 | * | 1 | 0855 | 108 | 12832. | 2405.0 | 2224.8 |
| 1 | 0220 | 29 | 94. | 2.1 | 2183.7 | * | 1 | 0540 | 69 | 7292. | 878.1 | 2201.1 | * | 1 | 0900 | 109 | 12723. | 2374.7 | 2224.4 |
| 1 | 0225 | 30 | 103. | 2.3 | 2183.8 | * | 1 | 0545 | 70 | 7563. | 943.0 | 2202.1 | * | 1 | 0905 | 110 | 12606. | 2341.9 | 2223.9 |
| 1 | 0230 | 31 | 121. | 2.7 | 2184.0 | * | 1 | 0550 | 71 | 7820. | 1009.6 | 2203.2 | * | 1 | 0910 | 111 | 12480. | 2306.9 | 2223.3 |
| 1 | 0235 | 32 | 132. | 3.2 | 2184.0 | * | 1 | 0555 | 72 | 8078. | 1077.8 | 2204.3 | * | 1 | 0915 | 112 | 12347. | 2269.8 | 2222.7 |
| 1 | 0240 | 33 | 142. | 3.9 | 2184.1 | * | 1 | 0600 | 73 | 8327. | 1147.3 | 2205.3 | * | 1 | 0920 | 113 | 12207. | 2230.7 | 2222.1 |
| 1 | 0245 | 34 | 154. | 4.6 | 2184.1 | * | 1 | 0605 | 74 | 8580. | 1217.9 | 2206.4 | * | 1 | 0925 | 114 | 12060. | 2189.6 | 2221.5 |
| 1 | 0250 | 35 | 166. | 5.4 | 2184.2 | * | 1 | 0610 | 75 | 8835. | 1289.2 | 2207.5 | * | 1 | 0930 | 115 | 11905. | 2146.4 | 2220.8 |
| 1 | 0255 | 36 | 180. | 6.4 | 2184.2 | * | 1 | 0615 | 76 | 9092. | 1361.0 | 2208.7 | * | 1 | 0935 | 116 | 11744. | 2101.4 | 2220.1 |
| 1 | 0300 | 37 | 196. | 7.4 | 2184.3 | * | 1 | 0620 | 77 | 9350. | 1433.1 | 2209.8 | * | 1 | 0940 | 117 | 11577. | 2054.7 | 2219.4 |
| 1 | 0305 | 38 | 214. | 8.6 | 2184.3 | * | 1 | 0625 | 78 | 9609. | 1505.2 | 2210.9 | * | 1 | 0945 | 118 | 11405. | 2006.7 | 2218.7 |
| 1 | 0310 | 39 | 235. | 10.0 | 2184.4 | * | 1 | 0630 | 79 | 9866. | 1577.1 | 2212.0 | * | 1 | 0950 | 119 | 11229. | 1957.5 | 2217.9 |
| 1 | 0315 | 40 | 265. | 12.0 | 2184.5 | * | 1 | 0635 | 80 | 10122. | 1648.5 | 2213.1 | * | 1 | 0955 | 120 | 11050. | 1907.5 | 2217.1 |
| | | | | | | * | | | | | | | * | | | | | | |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 13268. | 8.25 | | 9471. | 5818. | 5818. | 5818. |
| | | (INCHES) | 2.294 | 2.330 | 2.330 | 2.330 |
| | | (AC-FT) | 4696. | 4768. | 4768. | 4768. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 2527. | 8.25 | 1563. | 950. | 950. | 950. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 2226.73 | 8.25 | 2211.56 | 2200.72 | 2200.72 | 2200.72 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8719.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8970.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9222.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9474.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9725.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9975.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10223.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10467.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10707.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10942.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11170.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11390.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11601.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11801.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11988.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12163.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12324.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12470.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12601.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12716.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12814.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12895.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12960.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13007.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13037.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13050.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13046.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 13027.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12993.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12944.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12881.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12806.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12719.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12622.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12516.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12401.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12278.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12148.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 12011.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11866.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11714.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11556.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11391.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11222.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11049.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10873.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

**********

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .88

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 300. | 14.3 | 2184.7 | 1 | | 0640 | 81 | 10223. | 1676.6 | 2213.5 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 375. | 19.1 | 2184.9 | 1 | | 0645 | 82 | 10467. | 1744.8 | 2214.6 |
| 1 | | 0010 | 3 | 2. | .1 | 2183.0 | 1 | | 0330 | 43 | 497. | 27.2 | 2185.4 | 1 | | 0650 | 83 | 10707. | 1811.9 | 2215.6 |
| 1 | | 0015 | 4 | 9. | .2 | 2183.1 | 1 | | 0335 | 44 | 682. | 39.5 | 2186.0 | 1 | | 0655 | 84 | 10942. | 1877.5 | 2216.7 |
| 1 | | 0020 | 5 | 21. | .5 | 2183.2 | 1 | | 0340 | 45 | 925. | 56.6 | 2186.5 | 1 | | 0700 | 85 | 11170. | 1941.2 | 2217.6 |
| 1 | | 0025 | 6 | 40. | .9 | 2183.3 | 1 | | 0345 | 46 | 1223. | 77.8 | 2187.0 | 1 | | 0705 | 86 | 11390. | 2002.6 | 2218.6 |
| 1 | | 0030 | 7 | 60. | 1.3 | 2183.5 | 1 | | 0350 | 47 | 1549. | 100.8 | 2187.5 | 1 | | 0710 | 87 | 11601. | 2061.4 | 2219.5 |
| 1 | | 0035 | 8 | 80. | 1.8 | 2183.6 | 1 | | 0355 | 48 | 1870. | 123.6 | 2188.1 | 1 | | 0715 | 88 | 11801. | 2117.2 | 2220.4 |
| 1 | | 0040 | 9 | 97. | 2.1 | 2183.8 | 1 | | 0400 | 49 | 2161. | 144.9 | 2188.5 | 1 | | 0720 | 89 | 11988. | 2169.6 | 2221.2 |
| 1 | | 0045 | 10 | 107. | 2.4 | 2183.9 | 1 | | 0405 | 50 | 2426. | 164.3 | 2188.8 | 1 | | 0725 | 90 | 12163. | 2218.5 | 2221.9 |
| 1 | | 0050 | 11 | 111. | 2.5 | 2183.9 | 1 | | 0410 | 51 | 2670. | 182.1 | 2189.1 | 1 | | 0730 | 91 | 12324. | 2263.4 | 2222.6 |
| 1 | | 0055 | 12 | 108. | 2.4 | 2183.9 | 1 | | 0415 | 52 | 2897. | 198.7 | 2189.4 | 1 | | 0735 | 92 | 12470. | 2304.2 | 2223.3 |
| 1 | | 0100 | 13 | 100. | 2.2 | 2183.8 | 1 | | 0420 | 53 | 3112. | 214.5 | 2189.7 | 1 | | 0740 | 93 | 12601. | 2340.7 | 2223.8 |
| 1 | | 0105 | 14 | 88. | 2.0 | 2183.7 | 1 | | 0425 | 54 | 3319. | 230.0 | 2190.0 | 1 | | 0745 | 94 | 12716. | 2372.7 | 2224.3 |
| 1 | | 0110 | 15 | 76. | 1.7 | 2183.6 | 1 | | 0430 | 55 | 3467. | 246.4 | 2190.3 | 1 | | 0750 | 95 | 12814. | 2400.1 | 2224.8 |
| 1 | | 0115 | 16 | 64. | 1.4 | 2183.5 | 1 | | 0435 | 56 | 3637. | 265.3 | 2190.7 | 1 | | 0755 | 96 | 12895. | 2422.9 | 2225.1 |
| 1 | | 0120 | 17 | 55. | 1.2 | 2183.4 | 1 | | 0440 | 57 | 3842. | 288.1 | 2191.1 | 1 | | 0800 | 97 | 12960. | 2440.8 | 2225.4 |
| 1 | | 0125 | 18 | 49. | 1.1 | 2183.4 | 1 | | 0445 | 58 | 4090. | 315.5 | 2191.6 | 1 | | 0805 | 98 | 13007. | 2454.0 | 2225.6 |
| 1 | | 0130 | 19 | 46. | 1.0 | 2183.4 | 1 | | 0450 | 59 | 4366. | 347.8 | 2192.1 | 1 | | 0810 | 99 | 13037. | 2462.4 | 2225.7 |
| 1 | | 0135 | 20 | 45. | 1.0 | 2183.4 | 1 | | 0455 | 60 | 4629. | 384.9 | 2192.8 | 1 | | 0815 | 100 | 13050. | 2465.9 | 2225.8 |
| 1 | | 0140 | 21 | 49. | 1.1 | 2183.4 | 1 | | 0500 | 61 | 4924. | 426.5 | 2193.5 | 1 | | 0820 | 101 | 13046. | 2465.0 | 2225.8 |
| 1 | | 0145 | 22 | 55. | 1.2 | 2183.4 | 1 | | 0505 | 62 | 5226. | 471.9 | 2194.3 | 1 | | 0825 | 102 | 13027. | 2459.6 | 2225.7 |
| 1 | | 0150 | 23 | 64. | 1.4 | 2183.5 | 1 | | 0510 | 63 | 5517. | 520.3 | 2195.1 | 1 | | 0830 | 103 | 12993. | 2450.0 | 2225.5 |
| 1 | | 0155 | 24 | 73. | 1.6 | 2183.6 | 1 | | 0515 | 64 | 5821. | 571.1 | 2196.0 | 1 | | 0835 | 104 | 12944. | 2436.4 | 2225.3 |
| 1 | | 0200 | 25 | 81. | 1.8 | 2183.6 | 1 | | 0520 | 65 | 6097. | 624.0 | 2196.9 | 1 | | 0840 | 105 | 12881. | 2418.8 | 2225.1 |
| 1 | | 0205 | 26 | 85. | 1.9 | 2183.7 | 1 | | 0525 | 66 | 6385. | 679.0 | 2197.8 | 1 | | 0845 | 106 | 12806. | 2397.8 | 2224.7 |
| 1 | | 0210 | 27 | 87. | 1.9 | 2183.7 | 1 | | 0530 | 67 | 6657. | 736.0 | 2198.8 | 1 | | 0850 | 107 | 12719. | 2373.6 | 2224.4 |
| 1 | | 0215 | 28 | 87. | 1.9 | 2183.7 | 1 | | 0535 | 68 | 6934. | 795.1 | 2199.8 | 1 | | 0855 | 108 | 12622. | 2346.5 | 2223.9 |
| 1 | | 0220 | 29 | 90. | 2.0 | 2183.7 | 1 | | 0540 | 69 | 7200. | 856.4 | 2200.7 | 1 | | 0900 | 109 | 12516. | 2316.9 | 2223.5 |
| 1 | | 0225 | 30 | 99. | 2.2 | 2183.8 | 1 | | 0545 | 70 | 7467. | 919.6 | 2201.8 | 1 | | 0905 | 110 | 12401. | 2284.9 | 2223.0 |
| 1 | | 0230 | 31 | 116. | 2.6 | 2183.9 | 1 | | 0550 | 71 | 7723. | 984.5 | 2202.8 | 1 | | 0910 | 111 | 12278. | 2250.6 | 2222.4 |
| 1 | | 0235 | 32 | 130. | 3.1 | 2184.0 | 1 | | 0555 | 72 | 7979. | 1050.9 | 2203.8 | 1 | | 0915 | 112 | 12148. | 2214.3 | 2221.9 |
| 1 | | 0240 | 33 | 140. | 3.7 | 2184.1 | 1 | | 0600 | 73 | 8224. | 1118.6 | 2204.9 | 1 | | 0920 | 113 | 12011. | 2175.9 | 2221.3 |
| 1 | | 0245 | 34 | 150. | 4.4 | 2184.1 | 1 | | 0605 | 74 | 8470. | 1187.3 | 2206.0 | 1 | | 0925 | 114 | 11866. | 2135.5 | 2220.7 |
| 1 | | 0250 | 35 | 161. | 5.1 | 2184.1 | 1 | | 0610 | 75 | 8719. | 1256.8 | 2207.0 | 1 | | 0930 | 115 | 11714. | 2093.0 | 2220.0 |
| 1 | | 0255 | 36 | 175. | 6.0 | 2184.2 | 1 | | 0615 | 76 | 8970. | 1326.8 | 2208.1 | 1 | | 0935 | 116 | 11556. | 2048.8 | 2219.3 |
| 1 | | 0300 | 37 | 190. | 7.0 | 2184.2 | 1 | | 0620 | 77 | 9222. | 1397.1 | 2209.2 | 1 | | 0940 | 117 | 11391. | 2002.9 | 2218.6 |
| 1 | | 0305 | 38 | 207. | 8.1 | 2184.3 | 1 | | 0625 | 78 | 9474. | 1467.4 | 2210.3 | 1 | | 0945 | 118 | 11222. | 1955.7 | 2217.9 |
| 1 | | 0310 | 39 | 227. | 9.4 | 2184.4 | 1 | | 0630 | 79 | 9725. | 1537.6 | 2211.4 | 1 | | 0950 | 119 | 11049. | 1907.3 | 2217.1 |
| 1 | | 0315 | 40 | 255. | 11.3 | 2184.5 | 1 | | 0635 | 80 | 9975. | 1607.4 | 2212.5 | 1 | | 0955 | 120 | 10873. | 1858.1 | 2216.4 |

**********

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 13050. | 8.25 | | 9322. | 5726. | 5726. | 5726. |
| | | (INCHES) | 2.258 | 2.293 | 2.293 | 2.293 |
| | | (AC-FT) | 4623. | 4693. | 4693. | 4693. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 2466. | 8.25 | 1525. | 927. | 927. | 927. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2225.78 | 8.25 | 2210.96 | 2200.34 | 2200.34 | 2200.34 |

CUMULATIVE AREA = 38.38 SQ MI

*** *** *** *

```
870 KK          **********
                *        *
                *  MCDB  *
                *        *
                **********

877 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

873 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC     -1.00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

874 SV            STORAGE        .0      8.0     40.0     70.0    100.0    160.0    210.0    500.0

875 SQ          DISCHARGE        0.      30.     40.      55.      65.      80.      85.      87.

876 SE          ELEVATION       .00     2.00    4.00     6.00     8.00    12.00    15.00    16.00
                                                          ***
```

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .99

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 36. | 25.8 | 3.1 | 1 | | 0640 | 81 | 83. | 190.2 | 13.8 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 38. | 33.2 | 3.6 | 1 | | 0645 | 82 | 83. | 189.7 | 13.8 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 42. | 44.7 | 4.3 | 1 | | 0650 | 83 | 83. | 189.1 | 13.7 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 50. | 60.5 | 5.4 | 1 | | 0655 | 84 | 83. | 188.6 | 13.7 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 58. | 79.1 | 6.6 | 1 | | 0700 | 85 | 83. | 188.0 | 13.7 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 64. | 97.6 | 7.8 | 1 | | 0705 | 86 | 83. | 187.4 | 13.6 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 68. | 113.9 | 8.9 | 1 | | 0710 | 87 | 83. | 186.9 | 13.6 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 72. | 127.0 | 9.8 | 1 | | 0715 | 88 | 83. | 186.3 | 13.6 |
| 1 | | 0040 | 9 | 3. | .7 | .2 | 1 | | 0400 | 49 | 74. | 137.2 | 10.5 | 1 | | 0720 | 89 | 83. | 185.7 | 13.5 |
| 1 | | 0045 | 10 | 4. | 1.0 | .3 | 1 | | 0405 | 50 | 76. | 145.0 | 11.0 | 1 | | 0725 | 90 | 83. | 185.1 | 13.5 |
| 1 | | 0050 | 11 | 5. | 1.3 | .3 | 1 | | 0410 | 51 | 78. | 151.1 | 11.4 | 1 | | 0730 | 91 | 82. | 184.6 | 13.5 |
| 1 | | 0055 | 12 | 6. | 1.5 | .4 | 1 | | 0415 | 52 | 79. | 155.7 | 11.7 | 1 | | 0735 | 92 | 82. | 184.0 | 13.4 |
| 1 | | 0100 | 13 | 6. | 1.6 | .4 | 1 | | 0420 | 53 | 80. | 159.1 | 11.9 | 1 | | 0740 | 93 | 82. | 183.4 | 13.4 |
| 1 | | 0105 | 14 | 6. | 1.6 | .4 | 1 | | 0425 | 54 | 80. | 161.8 | 12.1 | 1 | | 0745 | 94 | 82. | 182.9 | 13.4 |
| 1 | | 0110 | 15 | 6. | 1.7 | .4 | 1 | | 0430 | 55 | 80. | 164.3 | 12.3 | 1 | | 0750 | 95 | 82. | 182.3 | 13.3 |
| 1 | | 0115 | 16 | 7. | 1.7 | .4 | 1 | | 0435 | 56 | 81. | 167.0 | 12.4 | 1 | | 0755 | 96 | 82. | 181.7 | 13.3 |
| 1 | | 0120 | 17 | 7. | 1.9 | .5 | 1 | | 0440 | 57 | 81. | 170.2 | 12.6 | 1 | | 0800 | 97 | 82. | 181.2 | 13.3 |
| 1 | | 0125 | 18 | 8. | 2.1 | .5 | 1 | | 0445 | 58 | 81. | 173.7 | 12.8 | 1 | | 0805 | 98 | 82. | 180.6 | 13.2 |
| 1 | | 0130 | 19 | 9. | 2.3 | .6 | 1 | | 0450 | 59 | 82. | 177.4 | 13.0 | 1 | | 0810 | 99 | 82. | 180.0 | 13.2 |
| 1 | | 0135 | 20 | 10. | 2.8 | .7 | 1 | | 0455 | 60 | 82. | 181.0 | 13.3 | 1 | | 0815 | 100 | 82. | 179.5 | 13.2 |
| 1 | | 0140 | 21 | 13. | 3.4 | .9 | 1 | | 0500 | 61 | 82. | 184.6 | 13.5 | 1 | | 0820 | 101 | 82. | 178.9 | 13.1 |
| 1 | | 0145 | 22 | 16. | 4.2 | 1.1 | 1 | | 0505 | 62 | 83. | 187.8 | 13.7 | 1 | | 0825 | 102 | 82. | 178.4 | 13.1 |
| 1 | | 0150 | 23 | 19. | 5.1 | 1.3 | 1 | | 0510 | 63 | 83. | 190.4 | 13.8 | 1 | | 0830 | 103 | 82. | 177.8 | 13.1 |
| 1 | | 0155 | 24 | 22. | 5.9 | 1.5 | 1 | | 0515 | 64 | 83. | 192.3 | 13.9 | 1 | | 0835 | 104 | 82. | 177.2 | 13.0 |
| 1 | | 0200 | 25 | 24. | 6.4 | 1.6 | 1 | | 0520 | 65 | 83. | 193.5 | 14.0 | 1 | | 0840 | 105 | 82. | 176.7 | 13.0 |
| 1 | | 0205 | 26 | 26. | 6.8 | 1.7 | 1 | | 0525 | 66 | 83. | 194.2 | 14.1 | 1 | | 0845 | 106 | 82. | 176.1 | 13.0 |
| 1 | | 0210 | 27 | 26. | 7.0 | 1.8 | 1 | | 0530 | 67 | 83. | 194.6 | 14.1 | 1 | | 0850 | 107 | 82. | 175.5 | 12.9 |
| 1 | | 0215 | 28 | 27. | 7.3 | 1.8 | 1 | | 0535 | 68 | 83. | 194.8 | 14.1 | 1 | | 0855 | 108 | 81. | 175.0 | 12.9 |
| 1 | | 0220 | 29 | 29. | 7.8 | 2.0 | 1 | | 0540 | 69 | 83. | 194.7 | 14.1 | 1 | | 0900 | 109 | 81. | 174.4 | 12.9 |
| 1 | | 0225 | 30 | 30. | 8.7 | 2.0 | 1 | | 0545 | 70 | 83. | 194.6 | 14.1 | 1 | | 0905 | 110 | 81. | 173.9 | 12.8 |
| 1 | | 0230 | 31 | 31. | 9.8 | 2.1 | 1 | | 0550 | 71 | 83. | 194.4 | 14.1 | 1 | | 0910 | 111 | 81. | 173.3 | 12.8 |
| 1 | | 0235 | 32 | 31. | 11.0 | 2.2 | 1 | | 0555 | 72 | 83. | 194.1 | 14.0 | 1 | | 0915 | 112 | 81. | 172.7 | 12.8 |
| 1 | | 0240 | 33 | 31. | 12.1 | 2.3 | 1 | | 0600 | 73 | 83. | 193.9 | 14.0 | 1 | | 0920 | 113 | 81. | 172.2 | 12.7 |
| 1 | | 0245 | 34 | 32. | 13.1 | 2.3 | 1 | | 0605 | 74 | 83. | 193.6 | 14.0 | 1 | | 0925 | 114 | 81. | 171.6 | 12.7 |
| 1 | | 0250 | 35 | 32. | 14.1 | 2.4 | 1 | | 0610 | 75 | 83. | 193.2 | 14.0 | 1 | | 0930 | 115 | 81. | 171.1 | 12.7 |
| 1 | | 0255 | 36 | 32. | 15.3 | 2.5 | 1 | | 0615 | 76 | 83. | 192.8 | 14.0 | 1 | | 0935 | 116 | 81. | 170.5 | 12.6 |
| 1 | | 0300 | 37 | 33. | 16.3 | 2.5 | 1 | | 0620 | 77 | 83. | 192.4 | 13.9 | 1 | | 0940 | 117 | 81. | 169.9 | 12.6 |
| 1 | | 0305 | 38 | 33. | 17.3 | 2.6 | 1 | | 0625 | 78 | 83. | 191.9 | 13.9 | 1 | | 0945 | 118 | 81. | 169.4 | 12.6 |
| 1 | | 0310 | 39 | 33. | 18.8 | 2.7 | 1 | | 0630 | 79 | 83. | 191.3 | 13.9 | 1 | | 0950 | 119 | 81. | 168.8 | 12.5 |
| 1 | | 0315 | 40 | 34. | 21.3 | 2.8 | 1 | | 0635 | 80 | 83. | 190.8 | 13.8 | 1 | | 0955 | 120 | 81. | 168.3 | 12.5 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 83. | 5.58 | | 82. | 58. | 58. | 58. |
| | | (INCHES) | .271 | .319 | .319 | .319 |
| | | (AC-FT) | 41. | 48. | 48. | 48. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 195. | 5.58 | 180. | 115. | 115. | 115. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 14.09 | 5.58 | 13.18 | 8.73 | 8.73 | 8.73 |

CUMULATIVE AREA = 2.80 SQ MI

PLAN 1, RATIO = .98

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 35. | 24.9 | 3.1 | 1 | | 0640 | 81 | 83. | 185.9 | 13.6 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 38. | 32.1 | 3.5 | 1 | | 0645 | 82 | 83. | 185.3 | 13.5 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 42. | 43.4 | 4.2 | 1 | | 0650 | 83 | 82. | 184.8 | 13.5 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 49. | 58.9 | 5.3 | 1 | | 0655 | 84 | 82. | 184.2 | 13.5 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 57. | 77.1 | 6.5 | 1 | | 0700 | 85 | 82. | 183.7 | 13.4 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 63. | 95.2 | 7.7 | 1 | | 0705 | 86 | 82. | 183.1 | 13.4 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 68. | 111.2 | 8.7 | 1 | | 0710 | 87 | 82. | 182.5 | 13.4 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 71. | 124.1 | 9.6 | 1 | | 0715 | 88 | 82. | 182.0 | 13.3 |
| 1 | | 0040 | 9 | 2. | .6 | .2 | 1 | | 0400 | 49 | 74. | 134.0 | 10.3 | 1 | | 0720 | 89 | 82. | 181.4 | 13.3 |
| 1 | | 0045 | 10 | 4. | .9 | .2 | 1 | | 0405 | 50 | 75. | 141.7 | 10.8 | 1 | | 0725 | 90 | 82. | 180.8 | 13.2 |
| 1 | | 0050 | 11 | 5. | 1.2 | .3 | 1 | | 0410 | 51 | 77. | 147.6 | 11.2 | 1 | | 0730 | 91 | 82. | 180.3 | 13.2 |
| 1 | | 0055 | 12 | 5. | 1.4 | .3 | 1 | | 0415 | 52 | 78. | 152.1 | 11.5 | 1 | | 0735 | 92 | 82. | 179.7 | 13.2 |
| 1 | | 0100 | 13 | 6. | 1.5 | .4 | 1 | | 0420 | 53 | 79. | 155.5 | 11.7 | 1 | | 0740 | 93 | 82. | 179.1 | 13.1 |
| 1 | | 0105 | 14 | 6. | 1.5 | .4 | 1 | | 0425 | 54 | 80. | 158.2 | 11.9 | 1 | | 0745 | 94 | 82. | 178.6 | 13.1 |
| 1 | | 0110 | 15 | 6. | 1.6 | .4 | 1 | | 0430 | 55 | 80. | 160.6 | 12.0 | 1 | | 0750 | 95 | 82. | 178.0 | 13.1 |
| 1 | | 0115 | 16 | 6. | 1.6 | .4 | 1 | | 0435 | 56 | 80. | 163.3 | 12.2 | 1 | | 0755 | 96 | 82. | 177.4 | 13.0 |
| 1 | | 0120 | 17 | 7. | 1.8 | .4 | 1 | | 0440 | 57 | 81. | 166.4 | 12.4 | 1 | | 0800 | 97 | 82. | 176.9 | 13.0 |
| 1 | | 0125 | 18 | 7. | 1.9 | .5 | 1 | | 0445 | 58 | 81. | 169.9 | 12.6 | 1 | | 0805 | 98 | 82. | 176.3 | 13.0 |
| 1 | | 0130 | 19 | 8. | 2.2 | .5 | 1 | | 0450 | 59 | 81. | 173.4 | 12.8 | 1 | | 0810 | 99 | 82. | 175.8 | 12.9 |
| 1 | | 0135 | 20 | 10. | 2.6 | .7 | 1 | | 0455 | 60 | 82. | 177.0 | 13.0 | 1 | | 0815 | 100 | 82. | 175.2 | 12.9 |
| 1 | | 0140 | 21 | 12. | 3.2 | .8 | 1 | | 0500 | 61 | 82. | 180.5 | 13.2 | 1 | | 0820 | 101 | 81. | 174.6 | 12.9 |
| 1 | | 0145 | 22 | 15. | 4.0 | 1.0 | 1 | | 0505 | 62 | 82. | 183.6 | 13.4 | 1 | | 0825 | 102 | 81. | 174.1 | 12.8 |
| 1 | | 0150 | 23 | 18. | 4.9 | 1.2 | 1 | | 0510 | 63 | 83. | 186.2 | 13.6 | 1 | | 0830 | 103 | 81. | 173.5 | 12.8 |
| 1 | | 0155 | 24 | 21. | 5.6 | 1.4 | 1 | | 0515 | 64 | 83. | 188.0 | 13.7 | 1 | | 0835 | 104 | 81. | 172.9 | 12.8 |
| 1 | | 0200 | 25 | 23. | 6.2 | 1.5 | 1 | | 0520 | 65 | 83. | 189.2 | 13.8 | 1 | | 0840 | 105 | 81. | 172.4 | 12.7 |
| 1 | | 0205 | 26 | 24. | 6.5 | 1.6 | 1 | | 0525 | 66 | 83. | 189.9 | 13.8 | 1 | | 0845 | 106 | 81. | 171.8 | 12.7 |
| 1 | | 0210 | 27 | 25. | 6.7 | 1.7 | 1 | | 0530 | 67 | 83. | 190.3 | 13.8 | 1 | | 0850 | 107 | 81. | 171.3 | 12.7 |
| 1 | | 0215 | 28 | 26. | 7.0 | 1.7 | 1 | | 0535 | 68 | 83. | 190.4 | 13.8 | 1 | | 0855 | 108 | 81. | 170.7 | 12.6 |
| 1 | | 0220 | 29 | 28. | 7.5 | 1.9 | 1 | | 0540 | 69 | 83. | 190.4 | 13.8 | 1 | | 0900 | 109 | 81. | 170.2 | 12.6 |
| 1 | | 0225 | 30 | 30. | 8.3 | 2.0 | 1 | | 0545 | 70 | 83. | 190.2 | 13.8 | 1 | | 0905 | 110 | 81. | 169.6 | 12.6 |
| 1 | | 0230 | 31 | 30. | 9.4 | 2.1 | 1 | | 0550 | 71 | 83. | 190.0 | 13.8 | 1 | | 0910 | 111 | 81. | 169.0 | 12.5 |
| 1 | | 0235 | 32 | 31. | 10.6 | 2.2 | 1 | | 0555 | 72 | 83. | 189.8 | 13.8 | 1 | | 0915 | 112 | 81. | 168.5 | 12.5 |
| 1 | | 0240 | 33 | 31. | 11.6 | 2.2 | 1 | | 0600 | 73 | 83. | 189.5 | 13.8 | 1 | | 0920 | 113 | 81. | 167.9 | 12.5 |
| 1 | | 0245 | 34 | 31. | 12.5 | 2.3 | 1 | | 0605 | 74 | 83. | 189.2 | 13.8 | 1 | | 0925 | 114 | 81. | 167.4 | 12.4 |
| 1 | | 0250 | 35 | 32. | 13.6 | 2.3 | 1 | | 0610 | 75 | 83. | 188.9 | 13.7 | 1 | | 0930 | 115 | 81. | 166.8 | 12.4 |
| 1 | | 0255 | 36 | 32. | 14.6 | 2.4 | 1 | | 0615 | 76 | 83. | 188.5 | 13.7 | 1 | | 0935 | 116 | 81. | 166.3 | 12.4 |
| 1 | | 0300 | 37 | 32. | 15.6 | 2.5 | 1 | | 0620 | 77 | 83. | 188.0 | 13.7 | 1 | | 0940 | 117 | 81. | 165.7 | 12.3 |
| 1 | | 0305 | 38 | 33. | 16.6 | 2.5 | 1 | | 0625 | 78 | 83. | 187.5 | 13.7 | 1 | | 0945 | 118 | 81. | 165.1 | 12.3 |
| 1 | | 0310 | 39 | 33. | 18.0 | 2.6 | 1 | | 0630 | 79 | 83. | 187.0 | 13.6 | 1 | | 0950 | 119 | 80. | 164.6 | 12.3 |
| 1 | | 0315 | 40 | 34. | 20.5 | 2.8 | 1 | | 0635 | 80 | 83. | 186.5 | 13.6 | 1 | | 0955 | 120 | 80. | 164.0 | 12.2 |

| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | |
| | | (CFS) | | | |
| 83. | 5.58 | 81. | 58. | 58. | 58. |
| | | (INCHES) .270 | .316 | .316 | .316 |
| | | (AC-FT) 40. | 47. | 47. | 47. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 190. | 5.58 | 176. | 112. | 112. | 112. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 13.83 | 5.58 | 12.93 | 8.56 | 8.56 | 8.56 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .95

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 35. | 23.4 | 3.0 | 1 | | 0640 | 81 | 82. | 178.7 | 13.1 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 37. | 30.4 | 3.4 | 1 | | 0645 | 82 | 82. | 178.1 | 13.1 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 41. | 41.2 | 4.1 | 1 | | 0650 | 83 | 82. | 177.6 | 13.1 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 48. | 56.2 | 5.1 | 1 | | 0655 | 84 | 82. | 177.0 | 13.0 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 56. | 73.7 | 6.2 | 1 | | 0700 | 85 | 82. | 176.5 | 13.0 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 62. | 91.2 | 7.4 | 1 | | 0705 | 86 | 82. | 175.9 | 13.0 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 67. | 106.7 | 8.4 | 1 | | 0710 | 87 | 82. | 175.3 | 12.9 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 70. | 119.1 | 9.3 | 1 | | 0715 | 88 | 81. | 174.8 | 12.9 |
| 1 | | 0040 | 9 | 2. | .5 | .1 | 1 | | 0400 | 49 | 72. | 128.8 | 9.9 | 1 | | 0720 | 89 | 81. | 174.2 | 12.9 |
| 1 | | 0045 | 10 | 3. | .8 | .2 | 1 | | 0405 | 50 | 74. | 136.2 | 10.4 | 1 | | 0725 | 90 | 81. | 173.7 | 12.8 |
| 1 | | 0050 | 11 | 4. | 1.1 | .3 | 1 | | 0410 | 51 | 75. | 141.9 | 10.8 | 1 | | 0730 | 91 | 81. | 173.1 | 12.8 |
| 1 | | 0055 | 12 | 5. | 1.2 | .3 | 1 | | 0415 | 52 | 77. | 146.3 | 11.1 | 1 | | 0735 | 92 | 81. | 172.5 | 12.8 |
| 1 | | 0100 | 13 | 5. | 1.3 | .3 | 1 | | 0420 | 53 | 77. | 149.6 | 11.3 | 1 | | 0740 | 93 | 81. | 172.0 | 12.7 |
| 1 | | 0105 | 14 | 5. | 1.4 | .3 | 1 | | 0425 | 54 | 78. | 152.1 | 11.5 | 1 | | 0745 | 94 | 81. | 171.4 | 12.7 |
| 1 | | 0110 | 15 | 5. | 1.4 | .4 | 1 | | 0430 | 55 | 79. | 154.5 | 11.6 | 1 | | 0750 | 95 | 81. | 170.9 | 12.7 |
| 1 | | 0115 | 16 | 6. | 1.5 | .4 | 1 | | 0435 | 56 | 79. | 157.1 | 11.8 | 1 | | 0755 | 96 | 81. | 170.3 | 12.6 |
| 1 | | 0120 | 17 | 6. | 1.6 | .4 | 1 | | 0440 | 57 | 80. | 160.1 | 12.0 | 1 | | 0800 | 97 | 81. | 169.8 | 12.6 |
| 1 | | 0125 | 18 | 7. | 1.7 | .4 | 1 | | 0445 | 58 | 80. | 163.4 | 12.2 | 1 | | 0805 | 98 | 81. | 169.2 | 12.6 |
| 1 | | 0130 | 19 | 7. | 2.0 | .5 | 1 | | 0450 | 59 | 81. | 166.9 | 12.4 | 1 | | 0810 | 99 | 81. | 168.6 | 12.5 |
| 1 | | 0135 | 20 | 9. | 2.4 | .6 | 1 | | 0455 | 60 | 81. | 170.4 | 12.6 | 1 | | 0815 | 100 | 81. | 168.1 | 12.5 |
| 1 | | 0140 | 21 | 11. | 3.0 | .7 | 1 | | 0500 | 61 | 81. | 173.7 | 12.8 | 1 | | 0820 | 101 | 81. | 167.5 | 12.5 |
| 1 | | 0145 | 22 | 14. | 3.7 | .9 | 1 | | 0505 | 62 | 82. | 176.8 | 13.0 | 1 | | 0825 | 102 | 81. | 167.0 | 12.4 |
| 1 | | 0150 | 23 | 17. | 4.5 | 1.1 | 1 | | 0510 | 63 | 82. | 179.2 | 13.2 | 1 | | 0830 | 103 | 81. | 166.4 | 12.4 |
| 1 | | 0155 | 24 | 19. | 5.2 | 1.3 | 1 | | 0515 | 64 | 82. | 181.0 | 13.3 | 1 | | 0835 | 104 | 81. | 165.9 | 12.4 |
| 1 | | 0200 | 25 | 21. | 5.7 | 1.4 | 1 | | 0520 | 65 | 82. | 182.1 | 13.3 | 1 | | 0840 | 105 | 81. | 165.3 | 12.3 |
| 1 | | 0205 | 26 | 23. | 6.0 | 1.5 | 1 | | 0525 | 66 | 82. | 182.8 | 13.4 | 1 | | 0845 | 106 | 80. | 164.7 | 12.3 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0210 | 27 | 23. | 6.2 | 1.6 | 1 | 0530 | 67 | 82. | 183.1 | 13.4 | 1 | 0850 | 107 | 80. | 164.2 | 12.3 |
| 1 | 0215 | 28 | 24. | 6.5 | 1.6 | 1 | 0535 | 68 | 82. | 183.3 | 13.4 | 1 | 0855 | 108 | 80. | 163.6 | 12.2 |
| 1 | 0220 | 29 | 26. | 6.9 | 1.7 | 1 | 0540 | 69 | 82. | 183.2 | 13.4 | 1 | 0900 | 109 | 80. | 163.1 | 12.2 |
| 1 | 0225 | 30 | 29. | 7.7 | 1.9 | 1 | 0545 | 70 | 82. | 183.0 | 13.4 | 1 | 0905 | 110 | 80. | 162.5 | 12.2 |
| 1 | 0230 | 31 | 30. | 8.8 | 2.0 | 1 | 0550 | 71 | 82. | 182.8 | 13.4 | 1 | 0910 | 111 | 80. | 162.0 | 12.1 |
| 1 | 0235 | 32 | 31. | 9.8 | 2.1 | 1 | 0555 | 72 | 82. | 182.6 | 13.4 | 1 | 0915 | 112 | 80. | 161.4 | 12.1 |
| 1 | 0240 | 33 | 31. | 10.8 | 2.2 | 1 | 0600 | 73 | 82. | 182.3 | 13.3 | 1 | 0920 | 113 | 80. | 160.9 | 12.1 |
| 1 | 0245 | 34 | 31. | 11.7 | 2.2 | 1 | 0605 | 74 | 82. | 182.0 | 13.3 | 1 | 0925 | 114 | 80. | 160.3 | 12.0 |
| 1 | 0250 | 35 | 31. | 12.7 | 2.3 | 1 | 0610 | 75 | 82. | 181.6 | 13.3 | 1 | 0930 | 115 | 80. | 159.8 | 12.0 |
| 1 | 0255 | 36 | 32. | 13.7 | 2.4 | 1 | 0615 | 76 | 82. | 181.2 | 13.3 | 1 | 0935 | 116 | 80. | 159.2 | 11.9 |
| 1 | 0300 | 37 | 32. | 14.6 | 2.4 | 1 | 0620 | 77 | 82. | 180.8 | 13.2 | 1 | 0940 | 117 | 80. | 158.7 | 11.9 |
| 1 | 0305 | 38 | 32. | 15.5 | 2.5 | 1 | 0625 | 78 | 82. | 180.3 | 13.2 | 1 | 0945 | 118 | 80. | 158.1 | 11.9 |
| 1 | 0310 | 39 | 33. | 16.9 | 2.6 | 1 | 0630 | 79 | 82. | 179.8 | 13.2 | 1 | 0950 | 119 | 79. | 157.6 | 11.8 |
| 1 | 0315 | 40 | 34. | 19.2 | 2.7 | 1 | 0635 | 80 | 82. | 179.2 | 13.2 | 1 | 0955 | 120 | 79. | 157.0 | 11.8 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 82. | 5.58 | | 81. | 57. | 57. | 57. |
| | | (INCHES) | .267 | .312 | .312 | .312 |
| | | (AC-FT) | 40. | 47. | 47. | 47. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 183. | 5.58 | | 169. | 108. | 108. | 108. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 13.40 | 5.58 | | 12.51 | 8.27 | 8.27 | 8.27 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .93

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 22.0 | 2.9 | 1 | | 0640 | 81 | 81. | 171.5 | 12.7 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 28.7 | 3.3 | 1 | | 0645 | 82 | 81. | 171.0 | 12.7 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 40. | 39.1 | 3.9 | 1 | | 0650 | 83 | 81. | 170.4 | 12.6 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 47. | 53.5 | 4.9 | 1 | | 0655 | 84 | 81. | 169.9 | 12.6 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 55. | 70.4 | 6.0 | 1 | | 0700 | 85 | 81. | 169.3 | 12.6 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 61. | 87.3 | 7.2 | 1 | | 0705 | 86 | 81. | 168.8 | 12.5 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 66. | 102.2 | 8.1 | 1 | | 0710 | 87 | 81. | 168.2 | 12.5 |
| 1 | | 0035 | 8 | 1. | .2 | .1 | 1 | | 0355 | 48 | 69. | 114.2 | 8.9 | 1 | | 0715 | 88 | 81. | 167.7 | 12.5 |
| 1 | | 0040 | 9 | 2. | .5 | .1 | 1 | | 0400 | 49 | 71. | 123.5 | 9.6 | 1 | | 0720 | 89 | 81. | 167.1 | 12.4 |
| 1 | | 0045 | 10 | 3. | .7 | .2 | 1 | | 0405 | 50 | 73. | 130.7 | 10.0 | 1 | | 0725 | 90 | 81. | 166.5 | 12.4 |
| 1 | | 0050 | 11 | 4. | 1.0 | .2 | 1 | | 0410 | 51 | 74. | 136.3 | 10.4 | 1 | | 0730 | 91 | 81. | 166.0 | 12.4 |
| 1 | | 0055 | 12 | 4. | 1.1 | .3 | 1 | | 0415 | 52 | 75. | 140.5 | 10.7 | 1 | | 0735 | 92 | 81. | 165.4 | 12.3 |
| 1 | | 0100 | 13 | 4. | 1.2 | .3 | 1 | | 0420 | 53 | 76. | 143.6 | 10.9 | 1 | | 0740 | 93 | 80. | 164.9 | 12.3 |
| 1 | | 0105 | 14 | 5. | 1.2 | .3 | 1 | | 0425 | 54 | 77. | 146.1 | 11.1 | 1 | | 0745 | 94 | 80. | 164.3 | 12.3 |
| 1 | | 0110 | 15 | 5. | 1.2 | .3 | 1 | | 0430 | 55 | 77. | 148.4 | 11.2 | 1 | | 0750 | 95 | 80. | 163.8 | 12.2 |
| 1 | | 0115 | 16 | 5. | 1.3 | .3 | 1 | | 0435 | 56 | 78. | 150.9 | 11.4 | 1 | | 0755 | 96 | 80. | 163.2 | 12.2 |
| 1 | | 0120 | 17 | 5. | 1.4 | .4 | 1 | | 0440 | 57 | 78. | 153.8 | 11.6 | 1 | | 0800 | 97 | 80. | 162.7 | 12.2 |
| 1 | | 0125 | 18 | 6. | 1.6 | .4 | 1 | | 0445 | 58 | 79. | 157.0 | 11.8 | 1 | | 0805 | 98 | 80. | 162.1 | 12.1 |
| 1 | | 0130 | 19 | 7. | 1.8 | .4 | 1 | | 0450 | 59 | 80. | 160.4 | 12.0 | 1 | | 0810 | 99 | 80. | 161.6 | 12.1 |
| 1 | | 0135 | 20 | 8. | 2.2 | .5 | 1 | | 0455 | 60 | 80. | 163.7 | 12.2 | 1 | | 0815 | 100 | 80. | 161.0 | 12.1 |
| 1 | | 0140 | 21 | 10. | 2.7 | .7 | 1 | | 0500 | 61 | 81. | 167.0 | 12.4 | 1 | | 0820 | 101 | 80. | 160.5 | 12.0 |
| 1 | | 0145 | 22 | 13. | 3.4 | .8 | 1 | | 0505 | 62 | 81. | 169.9 | 12.6 | 1 | | 0825 | 102 | 80. | 159.9 | 12.0 |
| 1 | | 0150 | 23 | 15. | 4.1 | 1.0 | 1 | | 0510 | 63 | 81. | 172.3 | 12.7 | 1 | | 0830 | 103 | 80. | 159.4 | 12.0 |
| 1 | | 0155 | 24 | 18. | 4.7 | 1.2 | 1 | | 0515 | 64 | 81. | 174.0 | 12.8 | 1 | | 0835 | 104 | 80. | 158.8 | 11.9 |
| 1 | | 0200 | 25 | 20. | 5.2 | 1.3 | 1 | | 0520 | 65 | 82. | 175.1 | 12.9 | 1 | | 0840 | 105 | 80. | 158.3 | 11.9 |
| 1 | | 0205 | 26 | 21. | 5.5 | 1.4 | 1 | | 0525 | 66 | 82. | 175.7 | 12.9 | 1 | | 0845 | 106 | 79. | 157.7 | 11.8 |
| 1 | | 0210 | 27 | 22. | 5.7 | 1.4 | 1 | | 0530 | 67 | 82. | 176.0 | 13.0 | 1 | | 0850 | 107 | 79. | 157.2 | 11.8 |
| 1 | | 0215 | 28 | 22. | 6.0 | 1.5 | 1 | | 0535 | 68 | 82. | 176.1 | 13.0 | 1 | | 0855 | 108 | 79. | 156.6 | 11.8 |
| 1 | | 0220 | 29 | 24. | 6.4 | 1.6 | 1 | | 0540 | 69 | 82. | 176.0 | 13.0 | 1 | | 0900 | 109 | 79. | 156.1 | 11.7 |
| 1 | | 0225 | 30 | 27. | 7.2 | 1.8 | 1 | | 0545 | 70 | 82. | 175.9 | 13.0 | 1 | | 0905 | 110 | 79. | 155.5 | 11.7 |
| 1 | | 0230 | 31 | 30. | 8.1 | 2.0 | 1 | | 0550 | 71 | 82. | 175.6 | 12.9 | 1 | | 0910 | 111 | 79. | 155.0 | 11.7 |
| 1 | | 0235 | 32 | 30. | 9.1 | 2.1 | 1 | | 0555 | 72 | 82. | 175.4 | 12.9 | 1 | | 0915 | 112 | 79. | 154.4 | 11.6 |
| 1 | | 0240 | 33 | 31. | 10.0 | 2.1 | 1 | | 0600 | 73 | 82. | 175.1 | 12.9 | 1 | | 0920 | 113 | 78. | 153.9 | 11.6 |
| 1 | | 0245 | 34 | 31. | 10.8 | 2.2 | 1 | | 0605 | 74 | 81. | 174.8 | 12.9 | 1 | | 0925 | 114 | 78. | 153.4 | 11.6 |
| 1 | | 0250 | 35 | 31. | 11.8 | 2.2 | 1 | | 0610 | 75 | 81. | 174.5 | 12.9 | 1 | | 0930 | 115 | 78. | 152.8 | 11.5 |
| 1 | | 0255 | 36 | 31. | 12.7 | 2.3 | 1 | | 0615 | 76 | 81. | 174.1 | 12.8 | 1 | | 0935 | 116 | 78. | 152.3 | 11.5 |
| 1 | | 0300 | 37 | 32. | 13.6 | 2.3 | 1 | | 0620 | 77 | 81. | 173.6 | 12.8 | 1 | | 0940 | 117 | 78. | 151.7 | 11.4 |
| 1 | | 0305 | 38 | 32. | 14.4 | 2.4 | 1 | | 0625 | 78 | 81. | 173.1 | 12.8 | 1 | | 0945 | 118 | 78. | 151.2 | 11.4 |
| 1 | | 0310 | 39 | 32. | 15.7 | 2.5 | 1 | | 0630 | 79 | 81. | 172.6 | 12.8 | 1 | | 0950 | 119 | 78. | 150.7 | 11.4 |
| 1 | | 0315 | 40 | 33. | 18.0 | 2.6 | 1 | | 0635 | 80 | 81. | 172.1 | 12.7 | 1 | | 0955 | 120 | 78. | 150.1 | 11.3 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 82. | 5.58 | | 80. | 56. | 56. | 56. |
| | | (INCHES) | .264 | .307 | .307 | .307 |
| | | (AC-FT) | 39. | 46. | 46. | 46. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 176. | 5.58 | | 162. | 103. | 103. | 103. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |

| + (FEET) | (HR) | | | | |
|---|---|---|---|---|---|
| 12.97 | 5.58 | 12.08 | 7.98 | 7.98 | 7.98 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .92

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 21.4 | 2.8 | 1 | | 0640 | 81 | 81. | 168.7 | 12.5 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 28.0 | 3.2 | 1 | | 0645 | 82 | 81. | 168.1 | 12.5 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 39. | 38.2 | 3.9 | 1 | | 0650 | 83 | 81. | 167.6 | 12.5 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 52.4 | 4.8 | 1 | | 0655 | 84 | 81. | 167.0 | 12.4 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 55. | 69.1 | 5.9 | 1 | | 0700 | 85 | 81. | 166.5 | 12.4 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 60. | 85.7 | 7.0 | 1 | | 0705 | 86 | 81. | 165.9 | 12.4 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 65. | 100.4 | 8.0 | 1 | | 0710 | 87 | 81. | 165.4 | 12.3 |
| 1 | | 0035 | 8 | 1. | .2 | .1 | 1 | | 0355 | 48 | 68. | 112.3 | 8.8 | 1 | | 0715 | 88 | 80. | 164.8 | 12.3 |
| 1 | | 0040 | 9 | 2. | .4 | .1 | 1 | | 0400 | 49 | 70. | 121.5 | 9.4 | 1 | | 0720 | 89 | 80. | 164.2 | 12.3 |
| 1 | | 0045 | 10 | 3. | .7 | .2 | 1 | | 0405 | 50 | 72. | 128.6 | 9.9 | 1 | | 0725 | 90 | 80. | 163.7 | 12.2 |
| 1 | | 0050 | 11 | 3. | .9 | .2 | 1 | | 0410 | 51 | 74. | 134.0 | 10.3 | 1 | | 0730 | 91 | 80. | 163.1 | 12.2 |
| 1 | | 0055 | 12 | 4. | 1.0 | .3 | 1 | | 0415 | 52 | 75. | 138.2 | 10.5 | 1 | | 0735 | 92 | 80. | 162.6 | 12.2 |
| 1 | | 0100 | 13 | 4. | 1.1 | .3 | 1 | | 0420 | 53 | 75. | 141.3 | 10.8 | 1 | | 0740 | 93 | 80. | 162.0 | 12.1 |
| 1 | | 0105 | 14 | 4. | 1.2 | .3 | 1 | | 0425 | 54 | 76. | 143.7 | 10.9 | 1 | | 0745 | 94 | 80. | 161.5 | 12.1 |
| 1 | | 0110 | 15 | 4. | 1.2 | .3 | 1 | | 0430 | 55 | 76. | 146.0 | 11.1 | 1 | | 0750 | 95 | 80. | 160.9 | 12.1 |
| 1 | | 0115 | 16 | 5. | 1.2 | .3 | 1 | | 0435 | 56 | 77. | 148.4 | 11.2 | 1 | | 0755 | 96 | 80. | 160.4 | 12.0 |
| 1 | | 0120 | 17 | 5. | 1.3 | .3 | 1 | | 0440 | 57 | 78. | 151.3 | 11.4 | 1 | | 0800 | 97 | 80. | 159.8 | 12.0 |
| 1 | | 0125 | 18 | 6. | 1.5 | .4 | 1 | | 0445 | 58 | 79. | 154.5 | 11.6 | 1 | | 0805 | 98 | 80. | 159.3 | 12.0 |
| 1 | | 0130 | 19 | 6. | 1.7 | .4 | 1 | | 0450 | 59 | 79. | 157.8 | 11.9 | 1 | | 0810 | 99 | 80. | 158.7 | 11.9 |
| 1 | | 0135 | 20 | 8. | 2.1 | .5 | 1 | | 0455 | 60 | 80. | 161.1 | 12.1 | 1 | | 0815 | 100 | 80. | 158.2 | 11.9 |
| 1 | | 0140 | 21 | 10. | 2.6 | .6 | 1 | | 0500 | 61 | 80. | 164.3 | 12.3 | 1 | | 0820 | 101 | 79. | 157.6 | 11.8 |
| 1 | | 0145 | 22 | 12. | 3.2 | .8 | 1 | | 0505 | 62 | 81. | 167.2 | 12.4 | 1 | | 0825 | 102 | 79. | 157.1 | 11.8 |
| 1 | | 0150 | 23 | 15. | 3.9 | 1.0 | 1 | | 0510 | 63 | 81. | 169.5 | 12.6 | 1 | | 0830 | 103 | 79. | 156.5 | 11.8 |
| 1 | | 0155 | 24 | 17. | 4.6 | 1.1 | 1 | | 0515 | 64 | 81. | 171.2 | 12.7 | 1 | | 0835 | 104 | 79. | 156.0 | 11.7 |
| 1 | | 0200 | 25 | 19. | 5.0 | 1.3 | 1 | | 0520 | 65 | 81. | 172.3 | 12.7 | 1 | | 0840 | 105 | 79. | 155.5 | 11.7 |
| 1 | | 0205 | 26 | 20. | 5.3 | 1.3 | 1 | | 0525 | 66 | 81. | 172.9 | 12.8 | 1 | | 0845 | 106 | 79. | 154.9 | 11.7 |
| 1 | | 0210 | 27 | 21. | 5.5 | 1.4 | 1 | | 0530 | 67 | 81. | 173.2 | 12.8 | 1 | | 0850 | 107 | 79. | 154.4 | 11.6 |
| 1 | | 0215 | 28 | 22. | 5.8 | 1.4 | 1 | | 0535 | 68 | 81. | 173.3 | 12.8 | 1 | | 0855 | 108 | 78. | 153.8 | 11.6 |
| 1 | | 0220 | 29 | 23. | 6.2 | 1.6 | 1 | | 0540 | 69 | 81. | 173.2 | 12.8 | 1 | | 0900 | 109 | 78. | 153.3 | 11.6 |
| 1 | | 0225 | 30 | 26. | 6.9 | 1.7 | 1 | | 0545 | 70 | 81. | 173.0 | 12.8 | 1 | | 0905 | 110 | 78. | 152.8 | 11.5 |
| 1 | | 0230 | 31 | 30. | 7.9 | 2.0 | 1 | | 0550 | 71 | 81. | 172.8 | 12.8 | 1 | | 0910 | 111 | 78. | 152.2 | 11.5 |
| 1 | | 0235 | 32 | 30. | 8.8 | 2.1 | 1 | | 0555 | 72 | 81. | 172.5 | 12.8 | 1 | | 0915 | 112 | 78. | 151.7 | 11.4 |
| 1 | | 0240 | 33 | 31. | 9.7 | 2.1 | 1 | | 0600 | 73 | 81. | 172.2 | 12.7 | 1 | | 0920 | 113 | 78. | 151.1 | 11.4 |
| 1 | | 0245 | 34 | 31. | 10.5 | 2.2 | 1 | | 0605 | 74 | 81. | 171.9 | 12.7 | 1 | | 0925 | 114 | 78. | 150.6 | 11.4 |
| 1 | | 0250 | 35 | 31. | 11.4 | 2.2 | 1 | | 0610 | 75 | 81. | 171.6 | 12.7 | 1 | | 0930 | 115 | 78. | 150.1 | 11.3 |
| 1 | | 0255 | 36 | 31. | 12.3 | 2.3 | 1 | | 0615 | 76 | 81. | 171.2 | 12.7 | 1 | | 0935 | 116 | 77. | 149.5 | 11.3 |
| 1 | | 0300 | 37 | 32. | 13.2 | 2.3 | 1 | | 0620 | 77 | 81. | 170.7 | 12.6 | 1 | | 0940 | 117 | 77. | 149.0 | 11.3 |
| 1 | | 0305 | 38 | 32. | 14.0 | 2.4 | 1 | | 0625 | 78 | 81. | 170.3 | 12.6 | 1 | | 0945 | 118 | 77. | 148.5 | 11.2 |
| 1 | | 0310 | 39 | 32. | 15.3 | 2.5 | 1 | | 0630 | 79 | 81. | 169.7 | 12.6 | 1 | | 0950 | 119 | 77. | 147.9 | 11.2 |
| 1 | | 0315 | 40 | 33. | 17.5 | 2.6 | 1 | | 0635 | 80 | 81. | 169.2 | 12.6 | 1 | | 0955 | 120 | 77. | 147.4 | 11.2 |

| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | |
| | | (CFS) | | | |
| + 81. | 5.58 | 79. | 56. | 56. | 56. |
| | | (INCHES) | .262 | .305 | .305 | .305 |
| | | (AC-FT) | 39. | 46. | 46. | 46. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 173. | 5.58 | 159. | 102. | 102. | 102. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 12.80 | 5.58 | 11.91 | 7.87 | 7.87 | 7.87 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .91

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 21.0 | 2.8 | 1 | | 0640 | 81 | 81. | 166.7 | 12.4 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 27.5 | 3.2 | 1 | | 0645 | 82 | 81. | 166.1 | 12.4 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 39. | 37.6 | 3.9 | 1 | | 0650 | 83 | 81. | 165.6 | 12.3 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 51.7 | 4.8 | 1 | | 0655 | 84 | 81. | 165.0 | 12.3 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 54. | 68.1 | 5.9 | 1 | | 0700 | 85 | 80. | 164.5 | 12.3 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 60. | 84.6 | 7.0 | 1 | | 0705 | 86 | 80. | 163.9 | 12.2 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 65. | 99.2 | 7.9 | 1 | | 0710 | 87 | 80. | 163.4 | 12.2 |
| 1 | | 0035 | 8 | 1. | .2 | .1 | 1 | | 0355 | 48 | 68. | 110.9 | 8.7 | 1 | | 0715 | 88 | 80. | 162.8 | 12.2 |
| 1 | | 0040 | 9 | 2. | .4 | .1 | 1 | | 0400 | 49 | 70. | 120.0 | 9.3 | 1 | | 0720 | 89 | 80. | 162.3 | 12.1 |
| 1 | | 0045 | 10 | 2. | .7 | .2 | 1 | | 0405 | 50 | 72. | 127.0 | 9.8 | 1 | | 0725 | 90 | 80. | 161.7 | 12.1 |
| 1 | | 0050 | 11 | 3. | .9 | .2 | 1 | | 0410 | 51 | 73. | 132.4 | 10.2 | 1 | | 0730 | 91 | 80. | 161.2 | 12.1 |
| 1 | | 0055 | 12 | 4. | 1.0 | .3 | 1 | | 0415 | 52 | 74. | 136.5 | 10.4 | 1 | | 0735 | 92 | 80. | 160.6 | 12.0 |
| 1 | | 0100 | 13 | 4. | 1.1 | .3 | 1 | | 0420 | 53 | 75. | 139.6 | 10.6 | 1 | | 0740 | 93 | 80. | 160.1 | 12.0 |
| 1 | | 0105 | 14 | 4. | 1.1 | .3 | 1 | | 0425 | 54 | 76. | 142.1 | 10.8 | 1 | | 0745 | 94 | 80. | 159.5 | 12.0 |
| 1 | | 0110 | 15 | 4. | 1.1 | .3 | 1 | | 0430 | 55 | 76. | 144.3 | 11.0 | 1 | | 0750 | 95 | 80. | 159.0 | 11.9 |
| 1 | | 0115 | 16 | 5. | 1.2 | .3 | 1 | | 0435 | 56 | 77. | 146.7 | 11.1 | 1 | | 0755 | 96 | 80. | 158.4 | 11.9 |
| 1 | | 0120 | 17 | 5. | 1.3 | .3 | 1 | | 0440 | 57 | 77. | 149.5 | 11.3 | 1 | | 0800 | 97 | 79. | 157.9 | 11.9 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0125 | 18 | 5. | 1.4 | .4 | 1 | 0445 | 58 | 78. | 152.7 | 11.5 | 1 | 0805 | 98 | 79. | 157.3 | 11.8 |
| 1 | 0130 | 19 | 6. | 1.7 | .4 | 1 | 0450 | 59 | 79. | 156.0 | 11.7 | 1 | 0810 | 99 | 79. | 156.8 | 11.8 |
| 1 | 0135 | 20 | 8. | 2.0 | .5 | 1 | 0455 | 60 | 80. | 159.2 | 11.9 | 1 | 0815 | 100 | 79. | 156.2 | 11.7 |
| 1 | 0140 | 21 | 9. | 2.5 | .6 | 1 | 0500 | 61 | 80. | 162.4 | 12.1 | 1 | 0820 | 101 | 79. | 155.7 | 11.7 |
| 1 | 0145 | 22 | 12. | 3.2 | .8 | 1 | 0505 | 62 | 81. | 165.3 | 12.3 | 1 | 0825 | 102 | 79. | 155.1 | 11.7 |
| 1 | 0150 | 23 | 14. | 3.8 | 1.0 | 1 | 0510 | 63 | 81. | 167.6 | 12.5 | 1 | 0830 | 103 | 79. | 154.6 | 11.6 |
| 1 | 0155 | 24 | 17. | 4.5 | 1.1 | 1 | 0515 | 64 | 81. | 169.2 | 12.6 | 1 | 0835 | 104 | 79. | 154.1 | 11.6 |
| 1 | 0200 | 25 | 18. | 4.9 | 1.2 | 1 | 0520 | 65 | 81. | 170.3 | 12.6 | 1 | 0840 | 105 | 78. | 153.5 | 11.6 |
| 1 | 0205 | 26 | 20. | 5.2 | 1.3 | 1 | 0525 | 66 | 81. | 170.9 | 12.7 | 1 | 0845 | 106 | 78. | 153.0 | 11.5 |
| 1 | 0210 | 27 | 20. | 5.4 | 1.4 | 1 | 0530 | 67 | 81. | 171.2 | 12.7 | 1 | 0850 | 107 | 78. | 152.4 | 11.5 |
| 1 | 0215 | 28 | 21. | 5.6 | 1.4 | 1 | 0535 | 68 | 81. | 171.3 | 12.7 | 1 | 0855 | 108 | 78. | 151.9 | 11.5 |
| 1 | 0220 | 29 | 23. | 6.1 | 1.5 | 1 | 0540 | 69 | 81. | 171.2 | 12.7 | 1 | 0900 | 109 | 78. | 151.4 | 11.4 |
| 1 | 0225 | 30 | 25. | 6.8 | 1.7 | 1 | 0545 | 70 | 81. | 171.0 | 12.7 | 1 | 0905 | 110 | 78. | 150.8 | 11.4 |
| 1 | 0230 | 31 | 29. | 7.7 | 1.9 | 1 | 0550 | 71 | 81. | 170.8 | 12.6 | 1 | 0910 | 111 | 78. | 150.3 | 11.4 |
| 1 | 0235 | 32 | 30. | 8.7 | 2.0 | 1 | 0555 | 72 | 81. | 170.5 | 12.6 | 1 | 0915 | 112 | 77. | 149.8 | 11.3 |
| 1 | 0240 | 33 | 30. | 9.5 | 2.1 | 1 | 0600 | 73 | 81. | 170.2 | 12.6 | 1 | 0920 | 113 | 77. | 149.2 | 11.3 |
| 1 | 0245 | 34 | 31. | 10.3 | 2.1 | 1 | 0605 | 74 | 81. | 169.9 | 12.6 | 1 | 0925 | 114 | 77. | 148.7 | 11.2 |
| 1 | 0250 | 35 | 31. | 11.2 | 2.2 | 1 | 0610 | 75 | 81. | 169.6 | 12.6 | 1 | 0930 | 115 | 77. | 148.2 | 11.2 |
| 1 | 0255 | 36 | 31. | 12.1 | 2.3 | 1 | 0615 | 76 | 81. | 169.2 | 12.6 | 1 | 0935 | 116 | 77. | 147.6 | 11.2 |
| 1 | 0300 | 37 | 32. | 12.9 | 2.3 | 1 | 0620 | 77 | 81. | 168.7 | 12.5 | 1 | 0940 | 117 | 77. | 147.1 | 11.1 |
| 1 | 0305 | 38 | 32. | 13.7 | 2.4 | 1 | 0625 | 78 | 81. | 168.3 | 12.5 | 1 | 0945 | 118 | 77. | 146.6 | 11.1 |
| 1 | 0310 | 39 | 32. | 14.9 | 2.4 | 1 | 0630 | 79 | 81. | 167.7 | 12.5 | 1 | 0950 | 119 | 77. | 146.0 | 11.1 |
| 1 | 0315 | 40 | 33. | 17.1 | 2.6 | 1 | 0635 | 80 | 81. | 167.2 | 12.4 | 1 | 0955 | 120 | 76. | 145.5 | 11.0 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 81. | 5.58 | | 79. | 55. | 55. | 55. |
| | | (INCHES) | .261 | .303 | .303 | .303 |
| | | (AC-FT) | 39. | 45. | 45. | 45. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 171. | 5.58 | 157. | 100. | 100. | 100. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 12.68 | 5.58 | 11.79 | 7.78 | 7.78 | 7.78 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .90

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 20.7 | 2.8 | 1 | | 0640 | 81 | 81. | 165.2 | 12.3 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 27.2 | 3.2 | 1 | | 0645 | 82 | 80. | 164.7 | 12.3 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 39. | 37.2 | 3.8 | 1 | | 0650 | 83 | 80. | 164.2 | 12.2 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 51.1 | 4.7 | 1 | | 0655 | 84 | 80. | 163.6 | 12.2 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 54. | 67.5 | 5.8 | 1 | | 0700 | 85 | 80. | 163.1 | 12.2 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 60. | 83.8 | 6.9 | 1 | | 0705 | 86 | 80. | 162.5 | 12.2 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 64. | 98.3 | 7.9 | 1 | | 0710 | 87 | 80. | 161.9 | 12.1 |
| 1 | | 0035 | 8 | 1. | .2 | .0 | 1 | | 0355 | 48 | 67. | 110.0 | 8.7 | 1 | | 0715 | 88 | 80. | 161.4 | 12.1 |
| 1 | | 0040 | 9 | 2. | .4 | .1 | 1 | | 0400 | 49 | 70. | 119.0 | 9.3 | 1 | | 0720 | 89 | 80. | 160.8 | 12.1 |
| 1 | | 0045 | 10 | 2. | .6 | .2 | 1 | | 0405 | 50 | 71. | 125.9 | 9.7 | 1 | | 0725 | 90 | 80. | 160.3 | 12.0 |
| 1 | | 0050 | 11 | 3. | .8 | .2 | 1 | | 0410 | 51 | 73. | 131.3 | 10.1 | 1 | | 0730 | 91 | 80. | 159.7 | 12.0 |
| 1 | | 0055 | 12 | 4. | 1.0 | .2 | 1 | | 0415 | 52 | 74. | 135.4 | 10.4 | 1 | | 0735 | 92 | 80. | 159.2 | 11.9 |
| 1 | | 0100 | 13 | 4. | 1.0 | .3 | 1 | | 0420 | 53 | 75. | 138.5 | 10.6 | 1 | | 0740 | 93 | 80. | 158.6 | 11.9 |
| 1 | | 0105 | 14 | 4. | 1.1 | .3 | 1 | | 0425 | 54 | 75. | 140.9 | 10.7 | 1 | | 0745 | 94 | 80. | 158.1 | 11.9 |
| 1 | | 0110 | 15 | 4. | 1.1 | .3 | 1 | | 0430 | 55 | 76. | 143.0 | 10.9 | 1 | | 0750 | 95 | 79. | 157.5 | 11.8 |
| 1 | | 0115 | 16 | 4. | 1.2 | .3 | 1 | | 0435 | 56 | 76. | 145.5 | 11.0 | 1 | | 0755 | 96 | 79. | 157.0 | 11.8 |
| 1 | | 0120 | 17 | 5. | 1.3 | .3 | 1 | | 0440 | 57 | 77. | 148.3 | 11.2 | 1 | | 0800 | 97 | 79. | 156.5 | 11.8 |
| 1 | | 0125 | 18 | 5. | 1.4 | .4 | 1 | | 0445 | 58 | 78. | 151.4 | 11.4 | 1 | | 0805 | 98 | 79. | 155.9 | 11.7 |
| 1 | | 0130 | 19 | 6. | 1.6 | .4 | 1 | | 0450 | 59 | 79. | 154.7 | 11.6 | 1 | | 0810 | 99 | 79. | 155.4 | 11.7 |
| 1 | | 0135 | 20 | 7. | 2.0 | .5 | 1 | | 0455 | 60 | 79. | 157.9 | 11.9 | 1 | | 0815 | 100 | 79. | 154.8 | 11.7 |
| 1 | | 0140 | 21 | 9. | 2.5 | .6 | 1 | | 0500 | 61 | 80. | 161.1 | 12.1 | 1 | | 0820 | 101 | 79. | 154.3 | 11.6 |
| 1 | | 0145 | 22 | 12. | 3.1 | .8 | 1 | | 0505 | 62 | 80. | 163.9 | 12.2 | 1 | | 0825 | 102 | 78. | 153.7 | 11.6 |
| 1 | | 0150 | 23 | 14. | 3.8 | .9 | 1 | | 0510 | 63 | 81. | 166.2 | 12.4 | 1 | | 0830 | 103 | 78. | 153.2 | 11.5 |
| 1 | | 0155 | 24 | 16. | 4.4 | 1.1 | 1 | | 0515 | 64 | 81. | 167.8 | 12.5 | 1 | | 0835 | 104 | 78. | 152.7 | 11.5 |
| 1 | | 0200 | 25 | 18. | 4.8 | 1.2 | 1 | | 0520 | 65 | 81. | 168.9 | 12.5 | 1 | | 0840 | 105 | 78. | 152.1 | 11.5 |
| 1 | | 0205 | 26 | 19. | 5.1 | 1.3 | 1 | | 0525 | 66 | 81. | 169.5 | 12.6 | 1 | | 0845 | 106 | 78. | 151.6 | 11.4 |
| 1 | | 0210 | 27 | 20. | 5.3 | 1.3 | 1 | | 0530 | 67 | 81. | 169.8 | 12.6 | 1 | | 0850 | 107 | 78. | 151.1 | 11.4 |
| 1 | | 0215 | 28 | 21. | 5.5 | 1.4 | 1 | | 0535 | 68 | 81. | 169.9 | 12.6 | 1 | | 0855 | 108 | 78. | 150.5 | 11.4 |
| 1 | | 0220 | 29 | 22. | 6.0 | 1.5 | 1 | | 0540 | 69 | 81. | 169.8 | 12.6 | 1 | | 0900 | 109 | 77. | 150.0 | 11.3 |
| 1 | | 0225 | 30 | 25. | 6.7 | 1.7 | 1 | | 0545 | 70 | 81. | 169.6 | 12.6 | 1 | | 0905 | 110 | 77. | 149.5 | 11.3 |
| 1 | | 0230 | 31 | 28. | 7.6 | 1.9 | 1 | | 0550 | 71 | 81. | 169.3 | 12.6 | 1 | | 0910 | 111 | 77. | 148.9 | 11.3 |
| 1 | | 0235 | 32 | 30. | 8.5 | 2.0 | 1 | | 0555 | 72 | 81. | 169.1 | 12.5 | 1 | | 0915 | 112 | 77. | 148.4 | 11.2 |
| 1 | | 0240 | 33 | 30. | 9.3 | 2.1 | 1 | | 0600 | 73 | 81. | 168.8 | 12.5 | 1 | | 0920 | 113 | 77. | 147.9 | 11.2 |
| 1 | | 0245 | 34 | 31. | 10.1 | 2.1 | 1 | | 0605 | 74 | 81. | 168.5 | 12.5 | 1 | | 0925 | 114 | 77. | 147.3 | 11.2 |
| 1 | | 0250 | 35 | 31. | 11.0 | 2.2 | 1 | | 0610 | 75 | 81. | 168.2 | 12.5 | 1 | | 0930 | 115 | 77. | 146.8 | 11.1 |
| 1 | | 0255 | 36 | 31. | 11.9 | 2.2 | 1 | | 0615 | 76 | 81. | 167.8 | 12.5 | 1 | | 0935 | 116 | 77. | 146.3 | 11.1 |
| 1 | | 0300 | 37 | 31. | 12.7 | 2.3 | 1 | | 0620 | 77 | 81. | 167.3 | 12.4 | 1 | | 0940 | 117 | 76. | 145.7 | 11.0 |
| 1 | | 0305 | 38 | 32. | 13.5 | 2.3 | 1 | | 0625 | 78 | 81. | 166.8 | 12.4 | 1 | | 0945 | 118 | 76. | 145.2 | 11.0 |
| 1 | | 0310 | 39 | 32. | 14.7 | 2.4 | 1 | | 0630 | 79 | 81. | 166.3 | 12.4 | 1 | | 0950 | 119 | 76. | 144.7 | 11.0 |
| 1 | | 0315 | 40 | 33. | 16.9 | 2.6 | 1 | | 0635 | 80 | 81. | 165.8 | 12.3 | 1 | | 0955 | 120 | 76. | 144.2 | 10.9 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 81. | 5.58 | | 79. | 55. | 55. | 55. |
| | | (INCHES) | .260 | .302 | .302 | .302 |

| | | | | | |
|---|---|---|---|---|---|
| (AC-FT) | 39. | 45. | 45. | 45. | |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 170. | 5.58 | 156. | 99. | 99. | 99. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 12.59 | 5.58 | 11.70 | 7.73 | 7.73 | 7.73 |

CUMULATIVE AREA = 2.80 SQ MI

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HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .89

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 20.3 | 2.8 | 1 | | 0640 | 81 | 80. | 163.0 | 12.2 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 26.6 | 3.2 | 1 | | 0645 | 82 | 80. | 162.4 | 12.1 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 39. | 36.6 | 3.8 | 1 | | 0650 | 83 | 80. | 161.9 | 12.1 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 45. | 50.3 | 4.7 | 1 | | 0655 | 84 | 80. | 161.3 | 12.1 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 53. | 66.4 | 5.8 | 1 | | 0700 | 85 | 80. | 160.8 | 12.0 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 59. | 82.6 | 6.8 | 1 | | 0705 | 86 | 80. | 160.2 | 12.0 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 64. | 96.9 | 7.8 | 1 | | 0710 | 87 | 80. | 159.7 | 12.0 |
| 1 | | 0035 | 8 | 1. | .2 | .0 | 1 | | 0355 | 48 | 67. | 108.4 | 8.6 | 1 | | 0715 | 88 | 80. | 159.1 | 11.9 |
| 1 | | 0040 | 9 | 1. | .4 | .1 | 1 | | 0400 | 49 | 69. | 117.3 | 9.2 | 1 | | 0720 | 89 | 80. | 158.6 | 11.9 |
| 1 | | 0045 | 10 | 2. | .6 | .2 | 1 | | 0405 | 50 | 71. | 124.2 | 9.6 | 1 | | 0725 | 90 | 80. | 158.0 | 11.9 |
| 1 | | 0050 | 11 | 3. | .8 | .2 | 1 | | 0410 | 51 | 72. | 129.5 | 10.0 | 1 | | 0730 | 91 | 79. | 157.5 | 11.8 |
| 1 | | 0055 | 12 | 4. | .9 | .2 | 1 | | 0415 | 52 | 73. | 133.5 | 10.2 | 1 | | 0735 | 92 | 79. | 156.9 | 11.8 |
| 1 | | 0100 | 13 | 4. | 1.0 | .3 | 1 | | 0420 | 53 | 74. | 136.6 | 10.4 | 1 | | 0740 | 93 | 79. | 156.4 | 11.8 |
| 1 | | 0105 | 14 | 4. | 1.0 | .3 | 1 | | 0425 | 54 | 75. | 138.9 | 10.6 | 1 | | 0745 | 94 | 79. | 155.9 | 11.7 |
| 1 | | 0110 | 15 | 4. | 1.1 | .3 | 1 | | 0430 | 55 | 75. | 141.1 | 10.7 | 1 | | 0750 | 95 | 79. | 155.3 | 11.7 |
| 1 | | 0115 | 16 | 4. | 1.1 | .3 | 1 | | 0435 | 56 | 76. | 143.5 | 10.9 | 1 | | 0755 | 96 | 79. | 154.8 | 11.7 |
| 1 | | 0120 | 17 | 5. | 1.2 | .3 | 1 | | 0440 | 57 | 77. | 146.3 | 11.1 | 1 | | 0800 | 97 | 79. | 154.2 | 11.6 |
| 1 | | 0125 | 18 | 5. | 1.4 | .3 | 1 | | 0445 | 58 | 77. | 149.4 | 11.3 | 1 | | 0805 | 98 | 78. | 153.7 | 11.6 |
| 1 | | 0130 | 19 | 6. | 1.6 | .4 | 1 | | 0450 | 59 | 78. | 152.6 | 11.5 | 1 | | 0810 | 99 | 78. | 153.1 | 11.5 |
| 1 | | 0135 | 20 | 7. | 1.9 | .5 | 1 | | 0455 | 60 | 79. | 155.8 | 11.7 | 1 | | 0815 | 100 | 78. | 152.6 | 11.5 |
| 1 | | 0140 | 21 | 9. | 2.4 | .6 | 1 | | 0500 | 61 | 80. | 158.9 | 11.9 | 1 | | 0820 | 101 | 78. | 152.1 | 11.5 |
| 1 | | 0145 | 22 | 11. | 3.0 | .7 | 1 | | 0505 | 62 | 80. | 161.7 | 12.1 | 1 | | 0825 | 102 | 78. | 151.5 | 11.4 |
| 1 | | 0150 | 23 | 14. | 3.6 | .9 | 1 | | 0510 | 63 | 80. | 164.0 | 12.2 | 1 | | 0830 | 103 | 78. | 151.0 | 11.4 |
| 1 | | 0155 | 24 | 16. | 4.2 | 1.1 | 1 | | 0515 | 64 | 81. | 165.6 | 12.3 | 1 | | 0835 | 104 | 78. | 150.5 | 11.4 |
| 1 | | 0200 | 25 | 18. | 4.7 | 1.2 | 1 | | 0520 | 65 | 81. | 166.6 | 12.4 | 1 | | 0840 | 105 | 77. | 149.9 | 11.3 |
| 1 | | 0205 | 26 | 19. | 5.0 | 1.2 | 1 | | 0525 | 66 | 81. | 167.2 | 12.4 | 1 | | 0845 | 106 | 77. | 149.4 | 11.3 |
| 1 | | 0210 | 27 | 19. | 5.2 | 1.3 | 1 | | 0530 | 67 | 81. | 167.5 | 12.5 | 1 | | 0850 | 107 | 77. | 148.9 | 11.3 |
| 1 | | 0215 | 28 | 20. | 5.4 | 1.3 | 1 | | 0535 | 68 | 81. | 167.6 | 12.5 | 1 | | 0855 | 108 | 77. | 148.3 | 11.2 |
| 1 | | 0220 | 29 | 22. | 5.8 | 1.4 | 1 | | 0540 | 69 | 81. | 167.5 | 12.4 | 1 | | 0900 | 109 | 77. | 147.8 | 11.2 |
| 1 | | 0225 | 30 | 24. | 6.5 | 1.6 | 1 | | 0545 | 70 | 81. | 167.3 | 12.4 | 1 | | 0905 | 110 | 77. | 147.3 | 11.2 |
| 1 | | 0230 | 31 | 28. | 7.4 | 1.8 | 1 | | 0550 | 71 | 81. | 167.1 | 12.4 | 1 | | 0910 | 111 | 77. | 146.7 | 11.1 |
| 1 | | 0235 | 32 | 30. | 8.3 | 2.0 | 1 | | 0555 | 72 | 81. | 166.8 | 12.4 | 1 | | 0915 | 112 | 77. | 146.2 | 11.1 |
| 1 | | 0240 | 33 | 30. | 9.1 | 2.1 | 1 | | 0600 | 73 | 81. | 166.5 | 12.4 | 1 | | 0920 | 113 | 76. | 145.7 | 11.0 |
| 1 | | 0245 | 34 | 31. | 9.9 | 2.1 | 1 | | 0605 | 74 | 81. | 166.2 | 12.4 | 1 | | 0925 | 114 | 76. | 145.2 | 11.0 |
| 1 | | 0250 | 35 | 31. | 10.7 | 2.2 | 1 | | 0610 | 75 | 81. | 165.9 | 12.4 | 1 | | 0930 | 115 | 76. | 144.6 | 11.0 |
| 1 | | 0255 | 36 | 31. | 11.6 | 2.2 | 1 | | 0615 | 76 | 81. | 165.5 | 12.3 | 1 | | 0935 | 116 | 76. | 144.1 | 10.9 |
| 1 | | 0300 | 37 | 31. | 12.4 | 2.3 | 1 | | 0620 | 77 | 81. | 165.0 | 12.3 | 1 | | 0940 | 117 | 76. | 143.6 | 10.9 |
| 1 | | 0305 | 38 | 32. | 13.2 | 2.3 | 1 | | 0625 | 78 | 80. | 164.5 | 12.3 | 1 | | 0945 | 118 | 76. | 143.1 | 10.9 |
| 1 | | 0310 | 39 | 32. | 14.4 | 2.4 | 1 | | 0630 | 79 | 80. | 164.0 | 12.2 | 1 | | 0950 | 119 | 76. | 142.5 | 10.8 |
| 1 | | 0315 | 40 | 33. | 16.5 | 2.5 | 1 | | 0635 | 80 | 80. | 163.5 | 12.2 | 1 | | 0955 | 120 | 76. | 142.0 | 10.8 |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 81. | 5.58 | | 78. | 55. | 55. | 55. |
| | | (INCHES) | .259 | .300 | .300 | .300 |
| | | (AC-FT) | 39. | 45. | 45. | 45. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 168. | 5.58 | 154. | 98. | 98. | 98. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 12.46 | 5.58 | 11.56 | 7.63 | 7.63 | 7.63 |

CUMULATIVE AREA = 2.80 SQ MI

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HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .88

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 19.7 | 2.7 | 1 | | 0640 | 81 | 80. | 160.1 | 12.0 |
| | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 26.0 | 3.1 | 1 | | 0645 | 82 | 80. | 159.6 | 12.0 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 39. | 35.7 | 3.7 | 1 | | 0650 | 83 | 80. | 159.0 | 11.9 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 45. | 49.2 | 4.6 | 1 | | 0655 | 84 | 80. | 158.5 | 11.9 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 53. | 65.1 | 5.7 | 1 | | 0700 | 85 | 79. | 158.0 | 11.9 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 59. | 81.1 | 6.7 | 1 | | 0705 | 86 | 79. | 157.4 | 11.8 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 63. | 95.1 | 7.7 | 1 | | 0710 | 87 | 79. | 156.9 | 11.8 |
| 1 | | 0035 | 8 | 1. | .2 | .0 | 1 | | 0355 | 48 | 67. | 106.5 | 8.4 | 1 | | 0715 | 88 | 79. | 156.3 | 11.8 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0040 | 9 | 1. | .4 | .1 | * | 1 | 0400 | 49 | 69. | 115.2 | 9.0 | * | 1 | 0720 | 89 | 79. | 155.8 | 11.7 |
| 1 | 0045 | 10 | 2. | .6 | .1 | * | 1 | 0405 | 50 | 71. | 122.0 | 9.5 | * | 1 | 0725 | 90 | 79. | 155.2 | 11.7 |
| 1 | 0050 | 11 | 3. | .8 | .2 | * | 1 | 0410 | 51 | 72. | 127.3 | 9.8 | * | 1 | 0730 | 91 | 79. | 154.7 | 11.6 |
| 1 | 0055 | 12 | 3. | .9 | .2 | * | 1 | 0415 | 52 | 73. | 131.2 | 10.1 | * | 1 | 0735 | 92 | 79. | 154.1 | 11.6 |
| 1 | 0100 | 13 | 4. | .9 | .2 | * | 1 | 0420 | 53 | 74. | 134.2 | 10.3 | * | 1 | 0740 | 93 | 78. | 153.6 | 11.6 |
| 1 | 0105 | 14 | 4. | 1.0 | .2 | * | 1 | 0425 | 54 | 74. | 136.6 | 10.4 | * | 1 | 0745 | 94 | 78. | 153.1 | 11.5 |
| 1 | 0110 | 15 | 4. | 1.0 | .3 | * | 1 | 0430 | 55 | 75. | 138.7 | 10.6 | * | 1 | 0750 | 95 | 78. | 152.5 | 11.5 |
| 1 | 0115 | 16 | 4. | 1.1 | .3 | * | 1 | 0435 | 56 | 75. | 141.0 | 10.7 | * | 1 | 0755 | 96 | 78. | 152.0 | 11.5 |
| 1 | 0120 | 17 | 4. | 1.2 | .3 | * | 1 | 0440 | 57 | 76. | 143.8 | 10.9 | * | 1 | 0800 | 97 | 78. | 151.5 | 11.4 |
| 1 | 0125 | 18 | 5. | 1.3 | .3 | * | 1 | 0445 | 58 | 77. | 146.9 | 11.1 | * | 1 | 0805 | 98 | 78. | 150.9 | 11.4 |
| 1 | 0130 | 19 | 6. | 1.5 | .4 | * | 1 | 0450 | 59 | 78. | 150.0 | 11.3 | * | 1 | 0810 | 99 | 78. | 150.4 | 11.4 |
| 1 | 0135 | 20 | 7. | 1.8 | .5 | * | 1 | 0455 | 60 | 78. | 153.2 | 11.5 | * | 1 | 0815 | 100 | 77. | 149.9 | 11.3 |
| 1 | 0140 | 21 | 9. | 2.3 | .6 | * | 1 | 0500 | 61 | 79. | 156.3 | 11.8 | * | 1 | 0820 | 101 | 77. | 149.3 | 11.3 |
| 1 | 0145 | 22 | 11. | 2.9 | .7 | * | 1 | 0505 | 62 | 80. | 159.0 | 11.9 | * | 1 | 0825 | 102 | 77. | 148.8 | 11.3 |
| 1 | 0150 | 23 | 13. | 3.5 | .9 | * | 1 | 0510 | 63 | 80. | 161.3 | 12.1 | * | 1 | 0830 | 103 | 77. | 148.3 | 11.2 |
| 1 | 0155 | 24 | 15. | 4.1 | 1.0 | * | 1 | 0515 | 64 | 80. | 162.8 | 12.2 | * | 1 | 0835 | 104 | 77. | 147.7 | 11.2 |
| 1 | 0200 | 25 | 17. | 4.5 | 1.1 | * | 1 | 0520 | 65 | 80. | 163.8 | 12.2 | * | 1 | 0840 | 105 | 77. | 147.2 | 11.1 |
| 1 | 0205 | 26 | 18. | 4.8 | 1.2 | * | 1 | 0525 | 66 | 80. | 164.4 | 12.3 | * | 1 | 0845 | 106 | 77. | 146.7 | 11.1 |
| 1 | 0210 | 27 | 19. | 5.0 | 1.2 | * | 1 | 0530 | 67 | 80. | 164.7 | 12.3 | * | 1 | 0850 | 107 | 77. | 146.1 | 11.1 |
| 1 | 0215 | 28 | 19. | 5.2 | 1.3 | * | 1 | 0535 | 68 | 80. | 164.8 | 12.3 | * | 1 | 0855 | 108 | 76. | 145.6 | 11.0 |
| 1 | 0220 | 29 | 21. | 5.6 | 1.4 | * | 1 | 0540 | 69 | 80. | 164.7 | 12.3 | * | 1 | 0900 | 109 | 76. | 145.1 | 11.0 |
| 1 | 0225 | 30 | 24. | 6.3 | 1.6 | * | 1 | 0545 | 70 | 80. | 164.5 | 12.3 | * | 1 | 0905 | 110 | 76. | 144.6 | 11.0 |
| 1 | 0230 | 31 | 27. | 7.2 | 1.8 | * | 1 | 0550 | 71 | 80. | 164.2 | 12.3 | * | 1 | 0910 | 111 | 76. | 144.0 | 10.9 |
| 1 | 0235 | 32 | 30. | 8.0 | 2.0 | * | 1 | 0555 | 72 | 80. | 164.0 | 12.2 | * | 1 | 0915 | 112 | 76. | 143.5 | 10.9 |
| 1 | 0240 | 33 | 30. | 8.8 | 2.1 | * | 1 | 0600 | 73 | 80. | 163.7 | 12.2 | * | 1 | 0920 | 113 | 76. | 143.0 | 10.9 |
| 1 | 0245 | 34 | 30. | 9.6 | 2.1 | * | 1 | 0605 | 74 | 80. | 163.4 | 12.2 | * | 1 | 0925 | 114 | 76. | 142.5 | 10.8 |
| 1 | 0250 | 35 | 31. | 10.4 | 2.1 | * | 1 | 0610 | 75 | 80. | 163.0 | 12.2 | * | 1 | 0930 | 115 | 75. | 142.0 | 10.8 |
| 1 | 0255 | 36 | 31. | 11.2 | 2.2 | * | 1 | 0615 | 76 | 80. | 162.6 | 12.2 | * | 1 | 0935 | 116 | 75. | 141.4 | 10.8 |
| 1 | 0300 | 37 | 31. | 12.0 | 2.3 | * | 1 | 0620 | 77 | 80. | 162.2 | 12.1 | * | 1 | 0940 | 117 | 75. | 140.9 | 10.7 |
| 1 | 0305 | 38 | 31. | 12.8 | 2.3 | * | 1 | 0625 | 78 | 80. | 161.7 | 12.1 | * | 1 | 0945 | 118 | 75. | 140.4 | 10.7 |
| 1 | 0310 | 39 | 32. | 13.9 | 2.4 | * | 1 | 0630 | 79 | 80. | 161.2 | 12.1 | * | 1 | 0950 | 119 | 75. | 139.9 | 10.7 |
| 1 | 0315 | 40 | 33. | 16.0 | 2.5 | * | 1 | 0635 | 80 | 80. | 160.7 | 12.0 | * | 1 | 0955 | 120 | 75. | 139.4 | 10.6 |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 80. | 5.58 | | 78. | 54. | 54. | 54. |
| | | (INCHES) | .257 | .298 | .298 | .298 |
| | | (AC-FT) | 38. | 45. | 45. | 45. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 165. | 5.58 | 151. | 96. | 96. | 96. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 12.29 | 5.58 | 11.39 | 7.51 | 7.51 | 7.51 |

CUMULATIVE AREA = 2.80 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

| OPERATION | STATION | AREA | PLAN | | RATIOS APPLIED TO PRECIPITATION RATIO 1 .99 | RATIO 2 .98 | RATIO 3 .95 | RATIO 4 .93 | RATIO 5 .92 | RATIO 6 .91 | RATIO 7 .90 | RATIO 8 .89 | RATIO 9 .88 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B13A | 1.29 | 1 | FLOW | 988. | 967. | 933. | 898. | 884. | 875. | 868. | 857. | 843. |
| | | | | TIME | 4.08 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RB13A | 1.29 | 1 | FLOW | 889. | 870. | 839. | 807. | 795. | 786. | 780. | 770. | 757. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.83 | 4.83 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B13B | .54 | 1 | FLOW | 228. | 223. | 215. | 207. | 204. | 201. | 200. | 197. | 194. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT1 | 1.83 | 1 | FLOW | 1113. | 1089. | 1050. | 1011. | 995. | 984. | 976. | 964. | 948. |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT1 | 1.83 | 1 | FLOW | 1082. | 1059. | 1021. | 982. | 967. | 956. | 949. | 937. | 921. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B17 | .82 | 1 | FLOW | 428. | 418. | 402. | 387. | 381. | 376. | 373. | 368. | 362. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT2 | 2.64 | 1 | FLOW | 1379. | 1350. | 1301. | 1252. | 1232. | 1219. | 1209. | 1193. | 1174. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVBD2 | 2.64 | 1 | FLOW | 504. | 495. | 481. | 466. | 460. | 456. | 453. | 449. | 443. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVBD2 | 2.64 | 1 | FLOW | 875. | 855. | 820. | 786. | 772. | 763. | 756. | 745. | 731. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT2 | 2.64 | 1 | FLOW | 874. | 853. | 819. | 785. | 771. | 761. | 755. | 744. | 730. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B13C | 2.01 | 1 | FLOW | 1582. | 1548. | 1490. | 1432. | 1409. | 1393. | 1382. | 1363. | 1340. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| | PT3 | 4.65 | 1 | FLOW | 1780. | 1738. | 1668. | 1598. | 1570. | 1550. | 1536. | 1514. | 1486. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVBD3 | 4.65 | 1 | FLOW | 297. | 296. | 293. | 291. | 290. | 290. | 289. | 288. | 288. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVBD3 | 4.65 | 1 | FLOW | 1483. | 1442. | 1375. | 1307. | 1280. | 1261. | 1247. | 1226. | 1199. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT3A | 4.65 | 1 | FLOW | 1471. | 1429. | 1361. | 1293. | 1267. | 1249. | 1235. | 1214. | 1186. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVBD4 | 4.65 | 1 | FLOW | 249. | 245. | 238. | 231. | 229. | 227. | 226. | 223. | 221. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVBD4 | 4.65 | 1 | FLOW | 1222. | 1184. | 1123. | 1062. | 1039. | 1022. | 1010. | 990. | 966. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT3B | 4.65 | 1 | FLOW | 1179. | 1144. | 1085. | 1026. | 1003. | 986. | 974. | 956. | 932. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B11S | 1.12 | 1 | FLOW | 499. | 484. | 459. | 435. | 425. | 419. | 414. | 406. | 397. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | HYDRO1 | .63 | 1 | FLOW | 623. | 623. | 623. | 623. | 623. | 623. | 623. | 623. | 623. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT4 | 6.40 | 1 | FLOW | 2278. | 2227. | 2143. | 2060. | 2027. | 2004. | 1987. | 1961. | 1927. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT4A | 6.40 | 1 | FLOW | 2197. | 2148. | 2067. | 1986. | 1954. | 1932. | 1916. | 1890. | 1858. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| DIVERSION TO | | | | | | | | | | | | | |
| | DVBD7 | 6.40 | 1 | FLOW | 1465. | 1432. | 1378. | 1324. | 1303. | 1288. | 1277. | 1260. | 1239. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVBD7 | 6.40 | 1 | FLOW | 732. | 716. | 689. | 662. | 651. | 644. | 639. | 630. | 619. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT4B | 6.40 | 1 | FLOW | 713. | 697. | 671. | 645. | 634. | 627. | 622. | 613. | 603. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B14B | .99 | 1 | FLOW | 454. | 440. | 417. | 395. | 385. | 379. | 375. | 368. | 359. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT22W | 7.39 | 1 | FLOW | 915. | 892. | 856. | 821. | 806. | 797. | 789. | 778. | 764. |
| | | | | TIME | 4.33 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D012A | 10.21 | 1 | FLOW | 3668. | 3576. | 3423. | 3271. | 3211. | 3169. | 3139. | 3091. | 3031. |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD012A | 10.21 | 1 | FLOW | 3665. | 3572. | 3420. | 3268. | 3207. | 3165. | 3135. | 3087. | 3027. |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVI151 | 10.21 | 1 | FLOW | 1452. | 1441. | 1422. | 1404. | 1396. | 1391. | 1388. | 1382. | 1374. |
| | | | | TIME | -4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVI151 | 10.21 | 1 | FLOW | 2212. | 2131. | 1997. | 1864. | 1811. | 1774. | 1748. | 1705. | 1652. |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RI151 | 10.21 | 1 | FLOW | 2205. | 2124. | 1991. | 1858. | 1805. | 1768. | 1742. | 1700. | 1647. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVI152 | 10.21 | 1 | FLOW | 718. | 699. | 666. | 635. | 622. | 613. | 607. | 597. | 584. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVI152 | 10.21 | 1 | FLOW | 1487. | 1426. | 1324. | 1223. | 1183. | 1155. | 1135. | 1103. | 1063. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| TED TO | | | | | | | | | | | | | |
| | RI152 | 10.21 | 1 | FLOW | 1470. | 1409. | 1309. | 1209. | 1169. | 1141. | 1122. | 1090. | 1051. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D01 | 9.54 | 1 | FLOW | 5256. | 5131. | 4923. | 4717. | 4634. | 4577. | 4536. | 4470. | 4389. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | | | | | | |
| + | RD01 | 9.54 | 1 | FLOW | 4748. | 4635. | 4448. | 4262. | 4188. | 4136. | 4099. | 4040. | 3966. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D005 | 2.73 | 1 | FLOW | 1638. | 1598. | 1530. | 1464. | 1437. | 1418. | 1405. | 1384. | 1357. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT9 | 12.27 | 1 | FLOW | 5597. | 5465. | 5245. | 5026. | 4939. | 4878. | 4835. | 4766. | 4680. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD005 | 12.27 | 1 | FLOW | 5494. | 5365. | 5150. | 4936. | 4850. | 4791. | 4748. | 4680. | 4596. |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D02 | 5.91 | 1 | FLOW | 3219. | 3143. | 3015. | 2889. | 2838. | 2803. | 2778. | 2737. | 2687. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD02 | 5.91 | 1 | FLOW | 2942. | 2872. | 2756. | 2641. | 2595. | 2563. | 2540. | 2503. | 2458. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D03 | 11.99 | 1 | FLOW | 6792. | 6630. | 6361. | 6093. | 5986. | 5911. | 5858. | 5773. | 5667. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D04 | 6.95 | 1 | FLOW | 3740. | 3653. | 3508. | 3365. | 3308. | 3268. | 3239. | 3193. | 3136. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT10 | 18.94 | 1 | FLOW | 10504. | 10256. | 9845. | 9436. | 9273. | 9159. | 9077. | 8947. | 8785. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT10 | 18.94 | 1 | FLOW | 9031. | 8818. | 8465. | 8113. | 7973. | 7875. | 7805. | 7694. | 7555. |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D006 | 8.52 | 1 | FLOW | 4827. | 4710. | 4515. | 4322. | 4244. | 4191. | 4152. | 4091. | 4014. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT11 | 33.37 | 1 | FLOW | 14638. | 14296. | 13729. | 13164. | 12939. | 12781. | 12669. | 12490. | 12266. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT11 | 33.37 | 1 | FLOW | 14444. | 14107. | 13546. | 12988. | 12765. | 12610. | 12499. | 12321. | 12100. |
| | | | | TIME | 5.42 | 5.42 | 5.42 | 5.42 | 5.42 | 5.42 | 5.42 | 5.42 | 5.42 |
| DROGRAPH AT | | | | | | | | | | | | | |
| + | D2A | .99 | 1 | FLOW | 1053. | 1028. | 988. | 947. | 931. | 920. | 911. | 899. | 882. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT12 | 46.63 | 1 | FLOW | 20027. | 19555. | 18772. | 17993. | 17682. | 17465. | 17311. | 17063. | 16755. |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT12 | 46.63 | 1 | FLOW | 18471. | 18036. | 17314. | 16595. | 16309. | 16108. | 15966. | 15737. | 15453. |
| | | | | TIME | 6.17 | 6.17 | 6.17 | 6.17 | 6.17 | 6.17 | 6.17 | 6.17 | 6.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D2B | 7.50 | 1 | FLOW | 2688. | 2616. | 2496. | 2377. | 2329. | 2296. | 2273. | 2235. | 2188. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT13 | 54.13 | 1 | FLOW | 19780. | 19311. | 18532. | 17757. | 17449. | 17235. | 17082. | 16838. | 16534. |
| | | | | TIME | 6.08 | 6.08 | 6.08 | 6.08 | 6.17 | 6.17 | 6.17 | 6.17 | 6.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT13 | 54.13 | 1 | FLOW | 18582. | 18141. | 17409. | 16681. | 16391. | 16188. | 16044. | 15813. | 15524. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D06 | 11.68 | 1 | FLOW | 5379. | 5252. | 5041. | 4831. | 4747. | 4689. | 4647. | 4580. | 4497. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD06 | 11.68 | 1 | FLOW | 4870. | 4755. | 4565. | 4376. | 4301. | 4248. | 4210. | 4150. | 4075. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D3 | 6.64 | 1 | FLOW | 1871. | 1814. | 1720. | 1628. | 1591. | 1565. | 1547. | 1518. | 1482. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 |
| 4 COMBINED AT | | | | | | | | | | | | | |
| + | PT14 | 82.66 | 1 | FLOW | 21706. | 21177. | 20300. | 19428. | 19081. | 18838. | 18666. | 18389. | 18045. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVI153 | 82.66 | 1 | FLOW | 14022. | 13634. | 12992. | 12353. | 12099. | 11921. | 11795. | 11592. | 11340. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 |
| DROGRAPH AT | | | | | | | | | | | | | |
| | DVI153 | 82.66 | 1 | FLOW | 7685. | 7543. | 7308. | 7075. | 6982. | 6917. | 6871. | 6797. | 6705. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT14 | 82.66 | 1 | FLOW | 7643. | 7503. | 7270. | 7038. | 6946. | 6882. | 6836. | 6763. | 6671. |
| | | | | TIME | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 | 7.25 |
| HYDROGRAPH AT | | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | D1A | 2.29 | 1 | FLOW | 1324. | 1292. | 1239. | 1186. | 1165. | 1150. | 1140. | 1123. | 1102. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD1A | 2.29 | 1 | FLOW | 1301. | 1270. | 1218. | 1166. | 1145. | 1131. | 1120. | 1104. | 1083. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| [redacted]ROGRAPH AT | | | | | | | | | | | | | |
| | D1B | .32 | 1 | FLOW | 149. | 146. | 140. | 134. | 131. | 130. | 129. | 127. | 124. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT15 | 2.61 | 1 | FLOW | 1450. | 1415. | 1357. | 1299. | 1276. | 1260. | 1248. | 1230. | 1207. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT15 | 2.61 | 1 | FLOW | 1407. | 1373. | 1316. | 1260. | 1238. | 1222. | 1211. | 1193. | 1171. |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D1C | .56 | 1 | FLOW | 208. | 203. | 194. | 186. | 182. | 180. | 178. | 175. | 172. |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT16 | 3.17 | 1 | FLOW | 1615. | 1576. | 1510. | 1445. | 1420. | 1402. | 1389. | 1368. | 1343. |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT16 | 3.17 | 1 | FLOW | 1580. | 1541. | 1477. | 1414. | 1388. | 1371. | 1358. | 1338. | 1313. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D1D | 1.23 | 1 | FLOW | 819. | 798. | 764. | 729. | 716. | 706. | 699. | 688. | 675. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD1D | 1.23 | 1 | FLOW | 790. | 770. | 736. | 703. | 690. | 681. | 674. | 664. | 651. |
| | | | | TIME | 4.08 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D1E | .22 | 1 | FLOW | 81. | 78. | 75. | 71. | 70. | 69. | 68. | 67. | 66. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D1F | .81 | 1 | FLOW | 167. | 162. | 153. | 144. | 141. | 139. | 137. | 134. | 131. |
| | | | | TIME | 5.25 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 |
| 4 COMBINED AT | | | | | | | | | | | | | |
| + | PT17 | 5.43 | 1 | FLOW | 2122. | 2069. | 1982. | 1896. | 1861. | 1837. | 1820. | 1793. | 1759. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| [redacted]TED TO | | | | | | | | | | | | | |
| | RPT17 | 5.43 | 1 | FLOW | 2057. | 2006. | 1922. | 1838. | 1805. | 1781. | 1765. | 1738. | 1705. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B18A | 1.50 | 1 | FLOW | 329. | 316. | 294. | 273. | 265. | 259. | 255. | 248. | 240. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT18 | 89.59 | 1 | FLOW | 8399. | 8238. | 7970. | 7705. | 7599. | 7525. | 7473. | 7390. | 7286. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVI154 | 89.59 | 1 | FLOW | 1366. | 1361. | 1352. | 1343. | 1340. | 1337. | 1335. | 1332. | 1328. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVI154 | 89.59 | 1 | FLOW | 7033. | 6877. | 6618. | 6361. | 6259. | 6189. | 6138. | 6058. | 5958. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT18 | 89.59 | 1 | FLOW | 7023. | 6867. | 6610. | 6354. | 6253. | 6182. | 6132. | 6051. | 5951. |
| | | | | TIME | 7.00 | 7.00 | 7.08 | 7.08 | 7.08 | 7.08 | 7.08 | 7.08 | 7.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B18B | 1.92 | 1 | FLOW | 1195. | 1167. | 1121. | 1075. | 1056. | 1044. | 1035. | 1020. | 1002. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVBD2 | .00 | 1 | FLOW | 504. | 495. | 481. | 466. | 460. | 456. | 453. | 449. | 443. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVBD2 | .00 | 1 | FLOW | 489. | 480. | 466. | 452. | 447. | 443. | 440. | 436. | 430. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT19 | 91.51 | 1 | FLOW | 7292. | 7131. | 6865. | 6601. | 6496. | 6423. | 6370. | 6287. | 6184. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVI155 | 91.51 | 1 | FLOW | 4209. | 4095. | 3906. | 3717. | 3643. | 3591. | 3554. | 3494. | 3421. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 |
| [redacted]YDROGRAPH AT | | | | | | | | | | | | | |
| | DVI155 | 91.51 | 1 | FLOW | 3082. | 3036. | 2959. | 2883. | 2853. | 2832. | 2817. | 2793. | 2763. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT19 | 91.51 | 1 | FLOW | 3075. | 3029. | 2952. | 2876. | 2846. | 2825. | 2811. | 2787. | 2757. |
| | | | | TIME | 7.50 | 7.50 | 7.50 | 7.58 | 7.58 | 7.58 | 7.58 | 7.58 | 7.58 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B14A | 1.35 | 1 | FLOW | 1215. | 1189. | 1145. | 1102. | 1085. | 1072. | 1064. | 1050. | 1033. |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | RDVBD3 | .00 | 1 | FLOW | 297. | 296. | 293. | 291. | 290. | 290. | 289. | 288. | 288. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| [redacted]ROGRAPH AT | | | | | | | | | | | | | | |
| | RDVBD4 | .00 | 1 | FLOW | 249. | 245. | 238. | 231. | 229. | 227. | 226. | 223. | 221. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT20 | .00 | 1 | FLOW | 546. | 541. | 532. | 522. | 519. | 516. | 515. | 512. | 508. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RDVBD4 | .00 | 1 | FLOW | 526. | 521. | 513. | 504. | 501. | 499. | 497. | 494. | 491. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| 3 COMBINED AT | | | | | | | | | | | | | | |
| + | PT21 | 92.86 | 1 | FLOW | 3384. | 3335. | 3252. | 3169. | 3136. | 3113. | 3097. | 3070. | 3036. |
| | | | | TIME | 6.83 | 6.83 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT22 | 100.25 | 1 | FLOW | 3519. | 3463. | 3369. | 3274. | 3237. | 3210. | 3191. | 3159. | 3120. |
| | | | | TIME | 6.33 | 6.33 | 6.42 | 6.50 | 6.50 | 6.50 | 6.50 | 6.58 | 6.58 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT22 | 100.25 | 1 | FLOW | 3508. | 3453. | 3359. | 3265. | 3227. | 3200. | 3180. | 3150. | 3111. |
| | | | | TIME | 6.67 | 6.75 | 6.75 | 6.83 | 6.83 | 6.83 | 6.83 | 6.92 | 6.92 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | B15B | .95 | 1 | FLOW | 367. | 356. | 339. | 322. | 315. | 311. | 307. | 302. | 295. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT23 | 101.20 | 1 | FLOW | 3533. | 3475. | 3378. | 3281. | 3242. | 3215. | 3195. | 3163. | 3123. |
| | | | | TIME | 6.67 | 6.67 | 6.75 | 6.75 | 6.83 | 6.83 | 6.83 | 6.83 | 6.92 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | RDVI151 | .00 | 1 | FLOW | 1452. | 1441. | 1422. | 1404. | 1396. | 1391. | 1388. | 1382. | 1374. |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RDVI151 | .00 | 1 | FLOW | 1450. | 1439. | 1420. | 1402. | 1395. | 1389. | 1386. | 1380. | 1373. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | RDVI152 | .00 | 1 | FLOW | 718. | 699. | 666. | 635. | 622. | 613. | 607. | 597. | 584. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| [redacted]UTED TO | | | | | | | | | | | | | | |
| | RDVI152 | .00 | 1 | FLOW | 715. | 696. | 664. | 632. | 619. | 611. | 604. | 594. | 582. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT24 | .00 | 1 | FLOW | 2165. | 2134. | 2084. | 2034. | 2014. | 2000. | 1990. | 1974. | 1954. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT24 | .00 | 1 | FLOW | 2161. | 2131. | 2081. | 2031. | 2011. | 1997. | 1987. | 1971. | 1951. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | RDVI153 | .00 | 1 | FLOW | 14022. | 13634. | 12992. | 12353. | 12099. | 11921. | 11795. | 11592. | 11340. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RDVI153 | .00 | 1 | FLOW | 13979. | 13592. | 12954. | 12320. | 12068. | 11891. | 11765. | 11564. | 11314. |
| | | | | TIME | 6.83 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | D009 | 3.62 | 1 | FLOW | 2942. | 2872. | 2756. | 2640. | 2594. | 2562. | 2539. | 2503. | 2457. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RD009 | 3.62 | 1 | FLOW | 2864. | 2796. | 2682. | 2569. | 2524. | 2493. | 2470. | 2434. | 2390. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | D004 | 2.40 | 1 | FLOW | 1735. | 1695. | 1630. | 1565. | 1539. | 1520. | 1507. | 1487. | 1461. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT5 | 6.02 | 1 | FLOW | 4579. | 4471. | 4292. | 4114. | 4043. | 3993. | 3958. | 3901. | 3831. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT5 | 6.02 | 1 | FLOW | 3887. | 3796. | 3643. | 3491. | 3431. | 3389. | 3358. | 3310. | 3250. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | D08 | 11.91 | 1 | FLOW | 4765. | 4657. | 4476. | 4297. | 4225. | 4175. | 4139. | 4082. | 4012. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.33 | 5.33 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| [redacted] | PT6 | 17.93 | 1 | FLOW | 7748. | 7567. | 7266. | 6966. | 6847. | 6763. | 6704. | 6609. | 6490. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 |
| [redacted]OUTED TO | | | | | | | | | | | | | | |
| + | RPT6 | 17.93 | 1 | FLOW | 7059. | 6896. | 6626. | 6357. | 6250. | 6175. | 6121. | 6036. | 5929. |
| | | | | TIME | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | D010 | 10.43 | 1 | FLOW | 5086. | 4964. | 4763. | 4563. | 4484. | 4428. | 4388. | 4325. | 4246. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D07 | 4.28 | 1 | FLOW | 2072. | 2023. | 1941. | 1859. | 1827. | 1804. | 1788. | 1762. | 1730. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| | PT7 | 32.65 | 1 | FLOW | 11628. | 11358. | 10912. | 10467. | 10290. | 10166. | 10078. | 9937. | 9761. |
| | | | | TIME | 5.25 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT7 | 32.65 | 1 | FLOW | 11597. | 11327. | 10880. | 10434. | 10257. | 10133. | 10044. | 9903. | 9726. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D012B | .57 | 1 | FLOW | 299. | 291. | 278. | 265. | 260. | 257. | 254. | 250. | 245. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT8 | 33.21 | 1 | FLOW | 11697. | 11425. | 10974. | 10525. | 10346. | 10221. | 10132. | 9989. | 9811. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVPITT | 33.21 | 1 | FLOW | 6296. | 6134. | 5865. | 5597. | 5490. | 5415. | 5362. | 5277. | 5171. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVPITT | 33.21 | 1 | FLOW | 5401. | 5291. | 5109. | 4928. | 4856. | 4806. | 4770. | 4712. | 4640. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | DVROSE | 33.21 | 1 | FLOW | 1172. | 1145. | 1100. | 1055. | 1037. | 1024. | 1015. | 1001. | 983. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | DVROSE | 33.21 | 1 | FLOW | 4228. | 4146. | 4009. | 3874. | 3819. | 3782. | 3755. | 3711. | 3658. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT8 | 33.21 | 1 | FLOW | 4200. | 4118. | 3983. | 3848. | 3794. | 3756. | 3730. | 3687. | 3634. |
| | | | | TIME | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D4A | 1.87 | 1 | FLOW | 1751. | 1707. | 1634. | 1562. | 1533. | 1513. | 1499. | 1476. | 1447. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 4 COMBINED AT | | | | | | | | | | | | | |
| + | PT25 | 35.09 | 1 | FLOW | 18965. | 18488. | 17697. | 16910. | 16596. | 16377. | 16220. | 15970. | 15658. |
| | | | | TIME | 6.67 | 6.67 | 6.67 | 6.67 | 6.67 | 6.67 | 6.67 | 6.67 | 6.67 |
| ROUTED TO | | | | | | | | | | | | | |
| | RPT25 | 35.09 | 1 | FLOW | 18938. | 18462. | 17671. | 16883. | 16570. | 16351. | 16194. | 15944. | 15633. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D4B | 2.03 | 1 | FLOW | 2010. | 1962. | 1883. | 1804. | 1773. | 1751. | 1735. | 1710. | 1679. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT26 | 37.12 | 1 | FLOW | 18939. | 18463. | 17672. | 16885. | 16571. | 16352. | 16195. | 15945. | 15634. |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT26 | 37.12 | 1 | FLOW | 18919. | 18443. | 17652. | 16866. | 16553. | 16334. | 16177. | 15928. | 15616. |
| | | | | TIME | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RDVI154 | .00 | 1 | FLOW | 1366. | 1361. | 1352. | 1343. | 1340. | 1337. | 1335. | 1332. | 1328. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVI154 | .00 | 1 | FLOW | 1366. | 1361. | 1352. | 1343. | 1340. | 1337. | 1335. | 1332. | 1328. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVI154 | .00 | 1 | FLOW | 1366. | 1361. | 1352. | 1343. | 1340. | 1337. | 1335. | 1332. | 1328. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 4209. | 4095. | 3906. | 3717. | 3643. | 3591. | 3554. | 3494. | 3421. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 4209. | 4094. | 3904. | 3716. | 3642. | 3590. | 3553. | 3494. | 3421. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 4208. | 4094. | 3904. | 3716. | 3642. | 3590. | 3553. | 3494. | 3420. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 4208. | 4093. | 3904. | 3716. | 3642. | 3590. | 3553. | 3494. | 3420. |
| | | | | TIME | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVI155 | .00 | 1 | FLOW | 4207. | 4093. | 3904. | 3716. | 3641. | 3590. | 3553. | 3493. | 3420. |
| | | | | TIME | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| COMBINED AT | | | | | | | | | | | | | |
| | PT27 | .00 | 1 | FLOW | 5573. | 5453. | 5255. | 5059. | 4981. | 4926. | 4888. | 4825. | 4748. |
| | | | | TIME | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT27 | .00 | 1 | FLOW | 5572. | 5453. | 5255. | 5059. | 4981. | 4926. | 4887. | 4825. | 4747. |
| | | | | TIME | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT27 | .00 | 1 | FLOW | 5572. | 5453. | 5255. | 5059. | 4961. | 4926. | 4887. | 4825. | 4747. |
| | | | | TIME | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B18C | 1.26 | 1 | FLOW | 837. | 816. | 782. | 748. | 735. | 725. | 719. | 708. | 695. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| [redacted] COMBINED AT | | | | | | | | | | | | | |
| + | PT28 | 38.38 | 1 | FLOW | 24487. | 23890. | 22900. | 21915. | 21522. | 21248. | 21053. | 20740. | 20350. |
| | | | | TIME | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 |
| ROUTED TO | | | | | | | | | | | | | |
| + | LDCDB | 38.38 | 1 | FLOW | 15404. | 15061. | 14493. | 13932. | 13710. | 13555. | 13444. | 13268. | 13050. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| | | | ** PEAK STAGES IN FEET ** | | | | | | | | | | |
| | | | 1 | STAGE | 2235.97 | 2234.49 | 2232.03 | 2229.60 | 2226.64 | 2227.97 | 2227.49 | 2226.73 | 2225.78 |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RLDCDB | 38.38 | 1 | FLOW | 15402. | 15059. | 14492. | 13931. | 13708. | 13553. | 13443. | 13267. | 13048. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D5A | 1.33 | 1 | FLOW | 1335. | 1307. | 1261. | 1215. | 1197. | 1184. | 1175. | 1161. | 1142. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD5A | 1.33 | 1 | FLOW | 1259. | 1233. | 1190. | 1147. | 1130. | 1118. | 1110. | 1096. | 1079. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RDVROSE | .00 | 1 | FLOW | 1172. | 1145. | 1100. | 1055. | 1037. | 1024. | 1015. | 1001. | 983. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVROSE | .00 | 1 | FLOW | 1163. | 1136. | 1091. | 1046. | 1028. | 1016. | 1007. | 993. | 975. |
| | | | | TIME | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT29 | 39.70 | 1 | FLOW | 15789. | 15442. | 14866. | 14297. | 14073. | 13915. | 13803. | 13625. | 13403. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT29 | 39.70 | 1 | FLOW | 15788. | 15442. | 14866. | 14297. | 14071. | 13913. | 13801. | 13623. | 13401. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B16B | .70 | 1 | FLOW | 627. | 614. | 592. | 570. | 562. | 556. | 551. | 544. | 536. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| [redacted]OUTED TO | | | | | | | | | | | | | |
| + | RB16B | .70 | 1 | FLOW | 615. | 602. | 580. | 559. | 550. | 544. | 540. | 533. | 525. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT30 | 40.40 | 1 | FLOW | 15788. | 15442. | 14866. | 14297. | 14071. | 13913. | 13801. | 13623. | 13401. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT30 | 40.40 | 1 | FLOW | 15786. | 15440. | 14865. | 14296. | 14071. | 13913. | 13800. | 13622. | 13399. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B16A | .91 | 1 | FLOW | 422. | 411. | 394. | 376. | 369. | 364. | 360. | 355. | 348. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D5B | .60 | 1 | FLOW | 405. | 398. | 384. | 371. | 366. | 362. | 360. | 356. | 351. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT31 | 41.91 | 1 | FLOW | 15787. | 15441. | 14866. | 14297. | 14072. | 13914. | 13801. | 13623. | 13400. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT31 | 41.91 | 1 | FLOW | 15786. | 15439. | 14865. | 14296. | 14071. | 13913. | 13801. | 13622. | 13400. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT32 | 143.12 | 1 | FLOW | 18908. | 18514. | 17863. | 17220. | 16965. | 16787. | 16660. | 16457. | 16206. |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT32 | 143.12 | 1 | FLOW | 18907. | 18514. | 17863. | 17219. | 16964. | 16786. | 16660. | 16457. | 16205. |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | HYDRO2 | .38 | 1 | FLOW | 36. | 36. | 36. | 36. | 36. | 36. | 36. | 36. | 36. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RHYDRO2 | .38 | 1 | FLOW | 32. | 32. | 32. | 32. | 32. | 32. | 32. | 32. | 32. |
| | | | | TIME | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 |
| [redacted]DROGRAPH AT | | | | | | | | | | | | | |
| + | B12 | .97 | 1 | FLOW | 274. | 262. | 244. | 225. | 218. | 213. | 210. | 204. | 197. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT33W | 1.35 | 1 | FLOW | 274. | 263. | 244. | 226. | 218. | 213. | 210. | 204. | 197. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | RDVBD7 | .00 | 1 | FLOW | 1465. | 1432. | 1378. | 1324. | 1303. | 1288. | 1277. | 1260. | 1239. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RDVBD7 | .00 | 1 | FLOW | 1405. | 1374. | 1322. | 1270. | 1250. | 1235. | 1225. | 1209. | 1188. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| COMBINED AT | | | | | | | | | | | | | |
| | PT33 | 1.35 | 1 | FLOW | 1528. | 1493. | 1435. | 1377. | 1354. | 1338. | 1327. | 1309. | 1286. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT33 | 1.35 | 1 | FLOW | 1474. | 1440. | 1384. | 1328. | 1306. | 1290. | 1279. | 1261. | 1239. |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B15A | .96 | 1 | FLOW | 523. | 509. | 486. | 464. | 455. | 448. | 444. | 437. | 428. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT34W | 2.31 | 1 | FLOW | 1676. | 1637. | 1573. | 1509. | 1484. | 1466. | 1454. | 1434. | 1408. |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT34 | 145.42 | 1 | FLOW | 18982. | 18589. | 17938. | 17294. | 17039. | 16861. | 16734. | 16532. | 16280. |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | MNWB | .44 | 1 | FLOW | 236. | 231. | 221. | 212. | 208. | 206. | 204. | 201. | 197. |
| | | | | TIME | 4.17 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RMNWB | .44 | 1 | FLOW | 236. | 231. | 221. | 212. | 208. | 206. | 204. | 201. | 197. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | MNWC | .60 | 1 | FLOW | 330. | 322. | 309. | 297. | 292. | 288. | 285. | 281. | 276. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT35 | 1.04 | 1 | FLOW | 565. | 551. | 529. | 507. | 498. | 492. | 488. | 481. | 472. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT35 | 1.04 | 1 | FLOW | 561. | 548. | 526. | 504. | 495. | 489. | 485. | 478. | 469. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | MNWD | .08 | 1 | FLOW | 72. | 71. | 68. | 65. | 64. | 64. | 63. | 62. | 61. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| COMBINED AT | | | | | | | | | | | | | |
| | PT36 | 1.12 | 1 | FLOW | 586. | 572. | 549. | 526. | 517. | 510. | 506. | 499. | 489. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT36 | 1.12 | 1 | FLOW | 571. | 558. | 535. | 513. | 504. | 498. | 494. | 487. | 478. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | MC2 | .92 | 1 | FLOW | 376. | 367. | 352. | 337. | 331. | 327. | 324. | 319. | 314. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT37 | 2.03 | 1 | FLOW | 942. | 919. | 882. | 845. | 830. | 820. | 812. | 801. | 786. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT37 | 2.03 | 1 | FLOW | 937. | 919. | 879. | 845. | 830. | 820. | 813. | 801. | 786. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B10A | 1.60 | 1 | FLOW | 1451. | 1417. | 1361. | 1306. | 1284. | 1268. | 1258. | 1240. | 1218. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT38 | 3.64 | 1 | FLOW | 1625. | 1587. | 1521. | 1454. | 1428. | 1411. | 1398. | 1378. | 1352. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT38 | 3.64 | 1 | FLOW | 1572. | 1538. | 1472. | 1407. | 1385. | 1366. | 1353. | 1336. | 1310. |
| | | | | TIME | 3.75 | 3.67 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT39 | 149.06 | 1 | FLOW | 18993. | 18599. | 17948. | 17304. | 17049. | 16871. | 16744. | 16541. | 16289. |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT39 | 149.06 | 1 | FLOW | 18992. | 18599. | 17947. | 17303. | 17048. | 16870. | 16743. | 16540. | 16289. |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D6 | 1.56 | 1 | FLOW | 1162. | 1138. | 1098. | 1058. | 1042. | 1031. | 1023. | 1011. | 995. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| | PT40 | 150.62 | 1 | FLOW | 18992. | 18599. | 17947. | 17303. | 17048. | 16870. | 16743. | 16541. | 16289. |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT40 | 150.62 | 1 | FLOW | 18987. | 18594. | 17942. | 17298. | 17043. | 16865. | 16738. | 16535. | 16284. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D7 | .85 | 1 | FLOW | 409. | 399. | 382. | 366. | 359. | 355. | 351. | 346. | 340. |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT41 | 151.47 | 1 | FLOW | 18988. | 18594. | 17943. | 17299. | 17043. | 16865. | 16738. | 16536. | 16284. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| ROUTED TO | | | | | | | | | | | | | |
| | RPT41 | 151.47 | 1 | FLOW | 18987. | 18593. | 17941. | 17297. | 17042. | 16864. | 16737. | 16534. | 16283. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D8 | 1.26 | 1 | FLOW | 1242. | 1214. | 1169. | 1123. | 1105. | 1093. | 1084. | 1069. | 1051. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD8 | 1.26 | 1 | FLOW | 1177. | 1151. | 1108. | 1065. | 1048. | 1036. | 1027. | 1013. | 997. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT42 | 152.73 | 1 | FLOW | 18987. | 18593. | 17941. | 17297. | 17042. | 16864. | 16737. | 16534. | 16283. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT42 | 152.73 | 1 | FLOW | 18986. | 18592. | 17940. | 17295. | 17040. | 16862. | 16735. | 16533. | 16281. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B10B | .85 | 1 | FLOW | 486. | 476. | 459. | 442. | 436. | 431. | 428. | 422. | 416. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RB10B | .85 | 1 | FLOW | 456. | 446. | 431. | 415. | 408. | 404. | 401. | 396. | 390. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D9A | .86 | 1 | FLOW | 234. | 227. | 216. | 206. | 201. | 199. | 196. | 193. | 189. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT43 | 1.71 | 1 | FLOW | 689. | 673. | 646. | 619. | 609. | 602. | 596. | 588. | 578. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT43 | 1.71 | 1 | FLOW | 688. | 672. | 645. | 619. | 608. | 601. | 596. | 588. | 577. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT44 | 154.44 | 1 | FLOW | 18997. | 18603. | 17950. | 17306. | 17051. | 16872. | 16745. | 16543. | 16291. |
| | | | | TIME | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 | 8.25 |
| ROUTED TO | | | | | | | | | | | | | |
| | RPT44 | 154.44 | 1 | FLOW | 18983. | 18589. | 17937. | 17293. | 17038. | 16859. | 16732. | 16530. | 16278. |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D9B | 1.54 | 1 | FLOW | 982. | 957. | 915. | 873. | 857. | 845. | 837. | 824. | 808. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT45 | 155.99 | 1 | FLOW | 18983. | 18589. | 17937. | 17293. | 17038. | 16859. | 16732. | 16530. | 16278. |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 | 8.33 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT45 | 155.99 | 1 | FLOW | 18968. | 18574. | 17923. | 17279. | 17024. | 16845. | 16718. | 16516. | 16264. |
| | | | | TIME | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D10 | 2.51 | 1 | FLOW | 1859. | 1818. | 1750. | 1683. | 1656. | 1638. | 1624. | 1603. | 1576. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT46 | 158.49 | 1 | FLOW | 18968. | 18574. | 17923. | 17279. | 17024. | 16845. | 16718. | 16516. | 16264. |
| | | | | TIME | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT46 | 158.49 | 1 | FLOW | 18967. | 18574. | 17922. | 17279. | 17023. | 16845. | 16718. | 16516. | 16264. |
| | | | | TIME | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | MC | 2.80 | 1 | FLOW | 3517. | 3447. | 3332. | 3216. | 3170. | 3137. | 3114. | 3077. | 3031. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | TORAW | 2.80 | 1 | FLOW | 668. | 655. | 633. | 611. | 602. | 596. | 592. | 585. | 576. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | TORAW | 2.80 | 1 | FLOW | 2849. | 2792. | 2699. | 2605. | 2567. | 2541. | 2522. | 2493. | 2455. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | | | | | | |
| + | MCDB | 2.80 | 1 | FLOW | 83. | 83. | 82. | 82. | 81. | 81. | 81. | 81. | 80. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 |
| | | | ** | PEAK STAGES IN FEET ** | | | | | | | | | |
| | | | 1 | STAGE | 14.09 | 13.83 | 13.40 | 12.97 | 12.80 | 12.68 | 12.59 | 12.46 | 12.29 |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RMCDB | 2.80 | 1 | FLOW | 83. | 83. | 82. | 82. | 81. | 81. | 81. | 81. | 80. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RTORAW | .00 | 1 | FLOW | 668. | 655. | 633. | 611. | 602. | 596. | 592. | 585. | 576. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT47 | 2.80 | 1 | FLOW | 719. | 705. | 681. | 658. | 649. | 642. | 637. | 630. | 621. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | | | | | | |
| | RPT47 | 2.80 | 1 | FLOW | 718. | 704. | 680. | 657. | 648. | 642. | 637. | 630. | 621. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RH | 1.36 | 1 | FLOW | 605. | 585. | 551. | 519. | 506. | 497. | 490. | 480. | 467. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT48W | 4.16 | 1 | FLOW | 1323. | 1289. | 1232. | 1175. | 1153. | 1138. | 1127. | 1110. | 1089. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B20 | .79 | 1 | FLOW | 405. | 395. | 378. | 361. | 355. | 350. | 347. | 341. | 335. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RB20 | .79 | 1 | FLOW | 402. | 394. | 377. | 359. | 354. | 349. | 345. | 339. | 335. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| 3 COMBINED AT | | | | | | | | | | | | | |
| + | PT48 | 163.44 | 1 | FLOW | 19050. | 18656. | 18003. | 17359. | 17103. | 16924. | 16797. | 16594. | 16341. |
| | | | | TIME | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT48 | 163.44 | 1 | FLOW | 19044. | 18651. | 17998. | 17354. | 17098. | 16919. | 16792. | 16589. | 16337. |
| | | | | TIME | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D12 | .18 | 1 | FLOW | 72. | 70. | 66. | 63. | 61. | 61. | 60. | 59. | 58. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RD12 | .18 | 1 | FLOW | 72. | 70. | 66. | 63. | 62. | 61. | 60. | 59. | 58. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D11A | .16 | 1 | FLOW | 131. | 127. | 121. | 114. | 112. | 110. | 109. | 107. | 104. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT49 | .33 | 1 | FLOW | 133. | 129. | 123. | 116. | 114. | 112. | 111. | 109. | 106. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 |
| ROUTED TO | | | | | | | | | | | | | |
| | RPT49 | .33 | 1 | FLOW | 127. | 124. | 117. | 111. | 110. | 109. | 107. | 105. | 101. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT50 | 163.78 | 1 | FLOW | 19045. | 18651. | 17999. | 17355. | 17099. | 16920. | 16793. | 16590. | 16337. |
| | | | | TIME | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT50 | 163.78 | 1 | FLOW | 19042. | 18648. | 17997. | 17353. | 17096. | 16919. | 16790. | 16589. | 16334. |
| | | | | TIME | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D11B | .99 | 1 | FLOW | 955. | 932. | 894. | 856. | 841. | 831. | 823. | 811. | 796. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT51 | 164.76 | 1 | FLOW | 19042. | 18648. | 17997. | 17353. | 17096. | 16919. | 16790. | 16589. | 16334. |
| | | | | TIME | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 | 8.67 |

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

| ISTAQ | ELEMENT | DT | PEAK | TIME TO PEAK | VOLUME | INTERPOLATED TO COMPUTATION INTERVAL DT | PEAK | TIME TO PEAK | VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| | | (MIN) | (CFS) | (MIN) | (IN) | (MIN) | (CFS) | (MIN) | (IN) |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 3.80 | 874.94 | 304.26 | .96 | 5.00 | 874.21 | 305.00 | .96 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1357E+03 EXCESS= .0000E+00 OUTFLOW= .1358E+03 BASIN STORAGE= .4986E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 3.83 | 853.30 | 302.94 | .94 | 5.00 | 852.51 | 305.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1322E+03 EXCESS= .0000E+00 OUTFLOW= .1322E+03 BASIN STORAGE= .4435E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 3.89 | 819.49 | 303.36 | .90 | 5.00 | 818.64 | 305.00 | .90 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1263E+03 EXCESS= .0000E+00 OUTFLOW= .1263E+03 BASIN STORAGE= .4053E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 3.95 | 785.93 | 303.91 | .85 | 5.00 | 785.18 | 305.00 | .85 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1204E+03 EXCESS= .0000E+00 OUTFLOW= .1204E+03 BASIN STORAGE= .3691E-02 PERCENT ERROR= .0

```
 FOR PLAN = 1  RATIO=  .00
     RPT2  MANE          3.97    771.34    305.76       .84       5.00    770.75    305.00         .84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1180E+03 EXCESS= .0000E+00 OUTFLOW= .1181E+03 BASIN STORAGE= .4385E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
     RPT2  MANE          3.99    761.42    303.09       .83       5.00    760.94    305.00         .83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1164E+03 EXCESS= .0000E+00 OUTFLOW= .1164E+03 BASIN STORAGE= .3272E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
     RPT2  MANE          4.00    755.91    304.03       .82       5.00    755.28    305.00         .82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1152E+03 EXCESS= .0000E+00 OUTFLOW= .1153E+03 BASIN STORAGE= .4475E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
     RPT2  MANE          4.02    744.26    305.56       .80       5.00    743.75    305.00         .80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1134E+03 EXCESS= .0000E+00 OUTFLOW= .1134E+03 BASIN STORAGE= .5156E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
     RPT2  MANE          4.05    730.51    303.46       .79       5.00    729.98    305.00         .79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1111E+03 EXCESS= .0000E+00 OUTFLOW= .1111E+03 BASIN STORAGE= .3460E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT3A  MANE          1.90   1478.55    241.70       .86       5.00   1470.59    240.00         .86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2139E+03 EXCESS= .0000E+00 OUTFLOW= .2139E+03 BASIN STORAGE= .2362E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT3A  MANE          1.92   1438.40    242.10       .84       5.00   1429.36    240.00         .84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2074E+03 EXCESS= .0000E+00 OUTFLOW= .2074E+03 BASIN STORAGE= .1922E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT3A  MANE          1.95   1370.34    242.24       .79       5.00   1361.26    240.00         .79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1967E+03 EXCESS= .0000E+00 OUTFLOW= .1967E+03 BASIN STORAGE= .2937E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT3A  MANE          1.99   1302.11    242.52       .75       5.00   1293.16    240.00         .75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1860E+03 EXCESS= .0000E+00 OUTFLOW= .1861E+03 BASIN STORAGE= .2031E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT3A  MANE          2.00   1276.49    242.00       .73       5.00   1267.43    240.00         .73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1818E+03 EXCESS= .0000E+00 OUTFLOW= .1818E+03 BASIN STORAGE= .2497E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT3A  MANE          2.00   1257.55    242.00       .72       5.00   1248.51    240.00         .72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1789E+03 EXCESS= .0000E+00 OUTFLOW= .1789E+03 BASIN STORAGE= .2327E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT3A  MANE          2.00   1244.12    242.00       .71       5.00   1235.10    240.00         .71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1768E+03 EXCESS= .0000E+00 OUTFLOW= .1768E+03 BASIN STORAGE= .2190E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT3A  MANE          2.00   1222.84    242.00       .70       5.00   1213.61    240.00         .70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1734E+03 EXCESS= .0000E+00 OUTFLOW= .1734E+03 BASIN STORAGE= .1905E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
    RPT3A  MANE          2.05   1193.19    241.64       .68       5.00   1186.26    240.00         .68

NTINUITY SUMMARY (AC-FT) - INFLOW= .1692E+03 EXCESS= .0000E+00 OUTFLOW= .1692E+03 BASIN STORAGE= .2488E-02 PERCENT ERROR=    .0

 FOR PLAN = 1  RATIO=  .00
   RD012A  MANE          1.26   3665.78    295.81      1.38       5.00   3664.71    295.00        1.38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7519E+03 EXCESS= .0000E+00 OUTFLOW= .7517E+03 BASIN STORAGE= .2812E+00 PERCENT ERROR=    .0
```

```
          FOR PLAN = 1  RATIO=  .00
            RD012A  MANE          1.27   3573.62    295.70      1.35       5.00   3572.47    295.00        1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7327E+03 EXCESS= .0000E+00 OUTFLOW= .7326E+03 BASIN STORAGE= .2781E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RD012A  MANE          1.29   3421.18    296.03      1.29       5.00   3419.76    295.00        1.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7010E+03 EXCESS= .0000E+00 OUTFLOW= .7009E+03 BASIN STORAGE= .2683E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RD012A  MANE          1.31   3269.49    296.47      1.23       5.00   3268.02    295.00        1.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6696E+03 EXCESS= .0000E+00 OUTFLOW= .6695E+03 BASIN STORAGE= .2633E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RD012A  MANE          1.32   3208.61    295.62      1.21       5.00   3207.20    295.00        1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6571E+03 EXCESS= .0000E+00 OUTFLOW= .6569E+03 BASIN STORAGE= .2621E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RD012A  MANE          1.33   3166.35    295.56      1.19       5.00   3165.00    295.00        1.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6484E+03 EXCESS= .0000E+00 OUTFLOW= .6482E+03 BASIN STORAGE= .2607E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RD012A  MANE          1.33   3137.05    296.47      1.18       5.00   3135.24    295.00        1.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6422E+03 EXCESS= .0000E+00 OUTFLOW= .6420E+03 BASIN STORAGE= .2572E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RD012A  MANE          1.34   3088.83    296.62      1.16       5.00   3087.02    295.00        1.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6323E+03 EXCESS= .0000E+00 OUTFLOW= .6321E+03 BASIN STORAGE= .2537E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RD012A  MANE          1.34   3028.76    295.81      1.14       5.00   3026.92    295.00        1.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6199E+03 EXCESS= .0000E+00 OUTFLOW= .6198E+03 BASIN STORAGE= .2521E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RDVI154 MANE          2.60   1365.81    416.19     -1.00       5.00   1365.76    420.00       -1.00

          FOR PLAN = 1  RATIO=  .00
            RDVI154 MANE          2.60   1360.57    416.75     -1.00       5.00   1360.53    420.00       -1.00

          FOR PLAN = 1  RATIO=  .00
            RDVI154 MANE          2.61   1351.88    417.67     -1.00       5.00   1351.87    420.00       -1.00

          FOR PLAN = 1  RATIO=  .00
            RDVI154 MANE          2.62   1343.23    418.59     -1.00       5.00   1343.22    420.00       -1.00

          FOR PLAN = 1  RATIO=  .00
            RDVI154 MANE          2.62   1339.63    418.98     -1.00       5.00   1339.61    420.00       -1.00

          FOR PLAN = 1  RATIO=  .00
            RDVI154 MANE          2.62   1336.90    419.28     -1.00       5.00   1336.89    420.00       -1.00

          FOR PLAN = 1  RATIO=  .00
            RDVI154 MANE          2.62   1334.96    419.49     -1.00       5.00   1334.94    420.00       -1.00

          FOR PLAN = 1  RATIO=  .00
            RDVI154 MANE          2.62   1331.85    419.82     -1.00       5.00   1331.85    420.00       -1.00

          FOR PLAN = 1  RATIO=  .00
            RDVI154 MANE          2.63   1327.98    420.24     -1.00       5.00   1327.97    420.00       -1.00

          FOR PLAN = 1  RATIO=  .00
            RDVI154 MANE           .78   1365.76    420.02     -1.00       5.00   1365.76    420.00       -1.00
```

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .78 | 1360.53 | 419.88 | -1.00 | 5.00 | 1360.52 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .78 | 1351.86 | 420.17 | -1.00 | 5.00 | 1351.86 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .78 | 1343.20 | 420.47 | -1.00 | 5.00 | 1343.20 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .79 | 1339.59 | 420.92 | -1.00 | 5.00 | 1339.59 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .79 | 1336.87 | 420.48 | -1.00 | 5.00 | 1336.86 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .79 | 1334.93 | 420.72 | -1.00 | 5.00 | 1334.92 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .79 | 1331.83 | 420.33 | -1.00 | 5.00 | 1331.81 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .79 | 1327.97 | 420.82 | -1.00 | 5.00 | 1327.94 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | 1.31 | 4208.79 | 416.62 | -1.00 | 5.00 | 4208.58 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | 1.33 | 4094.75 | 416.21 | -1.00 | 5.00 | 4094.26 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | 1.35 | 3905.20 | 417.00 | -1.00 | 5.00 | 3904.49 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | 1.37 | 3717.21 | 416.61 | -1.00 | 5.00 | 3716.27 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | 1.37 | 3642.53 | 416.49 | -1.00 | 5.00 | 3641.88 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | 1.38 | 3590.51 | 416.97 | -1.00 | 5.00 | 3590.10 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | 1.39 | 3553.42 | 416.94 | -1.00 | 5.00 | 3553.14 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | 1.39 | 3494.32 | 417.73 | -1.00 | 5.00 | 3494.09 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | 1.40 | 3420.53 | 419.09 | -1.00 | 5.00 | 3420.53 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .70 | 4208.43 | 415.81 | -1.00 | 5.00 | 4208.09 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .71 | 4094.06 | 416.14 | -1.00 | 5.00 | 4093.65 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .73 | 3904.43 | 416.13 | -1.00 | 5.00 | 3903.78 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .74 | 3716.25 | 419.99 | -1.00 | 5.00 | 3716.25 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .75 | 3641.79 | 419.67 | -1.00 | 5.00 | 3641.75 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .75 | 3589.96 | 419.82 | -1.00 | 5.00 | 3589.94 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .75 | 3553.00 | 420.05 | -1.00 | 5.00 | 3552.99 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .76 | 3493.89 | 419.84 | -1.00 | 5.00 | 3493.89 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .77 | 3420.32 | 420.37 | -1.00 | 5.00 | 3420.25 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .46 | 4207.90 | 415.29 | -1.00 | 5.00 | 4207.69 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .46 | 4093.52 | 415.74 | -1.00 | 5.00 | 4093.21 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .47 | 3903.75 | 416.19 | -1.00 | 5.00 | 3903.64 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .48 | 3716.14 | 420.13 | -1.00 | 5.00 | 3716.13 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .48 | 3641.62 | 420.16 | -1.00 | 5.00 | 3641.61 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .49 | 3589.80 | 420.15 | -1.00 | 5.00 | 3589.77 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .49 | 3552.82 | 419.94 | -1.00 | 5.00 | 3552.82 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .49 | 3493.73 | 420.30 | -1.00 | 5.00 | 3493.68 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .50 | 3420.09 | 420.42 | -1.00 | 5.00 | 3420.03 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .48 | 4207.64 | 415.47 | -1.00 | 5.00 | 4207.30 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .49 | 4093.17 | 415.72 | -1.00 | 5.00 | 4092.73 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .49 | 3903.59 | 419.72 | -1.00 | 5.00 | 3903.56 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .50 | 3716.03 | 420.00 | -1.00 | 5.00 | 3716.03 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .51 | 3641.47 | 420.37 | -1.00 | 5.00 | 3641.44 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .51 | 3589.62 | 420.23 | -1.00 | 5.00 | 3589.56 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .51 | 3552.68 | 420.43 | -1.00 | 5.00 | 3552.61 | 420.00 | -1.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RDVI155 | MANE | .52 | 3493.50 | 420.16 | -1.00 | 5.00 | 3493.43 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RDVI155 | MANE | .52 | 3419.85 | 420.63 | -1.00 | 5.00 | 3419.77 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .60 | 5572.93 | 415.76 | -1.00 | 5.00 | 5572.37 | 415.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .61 | 5453.15 | 416.37 | -1.00 | 5.00 | 5452.94 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .61 | 5255.30 | 420.11 | -1.00 | 5.00 | 5255.29 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .62 | 5059.02 | 420.31 | -1.00 | 5.00 | 5058.96 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .63 | 4980.83 | 420.43 | -1.00 | 5.00 | 4980.74 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .63 | 4926.21 | 420.40 | -1.00 | 5.00 | 4926.09 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .63 | 4887.34 | 420.47 | -1.00 | 5.00 | 4887.18 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .64 | 4825.04 | 420.73 | -1.00 | 5.00 | 4824.90 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .64 | 4747.45 | 420.27 | -1.00 | 5.00 | 4747.29 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .28 | 5572.30 | 415.90 | -1.00 | 5.00 | 5572.05 | 415.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .28 | 5452.91 | 419.80 | -1.00 | 5.00 | 5452.87 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .29 | 5255.21 | 419.97 | -1.00 | 5.00 | 5255.20 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .29 | 5058.82 | 419.97 | -1.00 | 5.00 | 5058.81 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .30 | 4980.56 | 419.92 | -1.00 | 5.00 | 4980.56 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .30 | 4925.93 | 420.00 | -1.00 | 5.00 | 4925.93 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .30 | 4887.00 | 420.14 | -1.00 | 5.00 | 4886.96 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .30 | 4824.72 | 420.21 | -1.00 | 5.00 | 4824.67 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RPT27 | MANE | .30 | 4747.11 | 420.23 | -1.00 | 5.00 | 4747.05 | 420.00 | -1.00 |
| FOR PLAN = 1 | RATIO= | .00 | | | | | | | |
| RLDCDB | MANE | .57 | 15403.27 | 495.74 | 2.68 | 5.00 | 15402.00 | 495.00 | 2.68 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5501E+04 EXCESS= .0000E+00 OUTFLOW= .5489E+04 BASIN STORAGE= .1332E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .58 | 15060.41 | 495.82 | 2.62 | 5.00 | 15059.15 | 495.00 | 2.63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5389E+04 EXCESS= .0000E+00 OUTFLOW= .5377E+04 BASIN STORAGE= .1313E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .59 | 14492.78 | 495.87 | 2.53 | 5.00 | 14491.61 | 495.00 | 2.53 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5188E+04 EXCESS= .0000E+00 OUTFLOW= .5177E+04 BASIN STORAGE= .1263E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .60 | 13931.83 | 496.00 | 2.44 | 5.00 | 13930.84 | 495.00 | 2.44 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5001E+04 EXCESS= .0000E+00 OUTFLOW= .4990E+04 BASIN STORAGE= .1252E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .60 | 13709.18 | 495.96 | 2.40 | 5.00 | 13708.21 | 495.00 | 2.40 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4924E+04 EXCESS= .0000E+00 OUTFLOW= .4913E+04 BASIN STORAGE= .1240E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .60 | 13554.23 | 495.65 | 2.37 | 5.00 | 13553.35 | 495.00 | 2.37 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4863E+04 EXCESS= .0000E+00 OUTFLOW= .4852E+04 BASIN STORAGE= .1232E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .60 | 13443.78 | 495.94 | 2.35 | 5.00 | 13442.84 | 495.00 | 2.35 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4824E+04 EXCESS= .0000E+00 OUTFLOW= .4813E+04 BASIN STORAGE= .1226E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .61 | 13267.87 | 495.94 | 2.32 | 5.00 | 13266.96 | 495.00 | 2.32 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4771E+04 EXCESS= .0000E+00 OUTFLOW= .4760E+04 BASIN STORAGE= .1215E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .61 | 13049.11 | 495.94 | 2.29 | 5.00 | 13048.23 | 495.00 | 2.29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4695E+04 EXCESS= .0000E+00 OUTFLOW= .4685E+04 BASIN STORAGE= .1203E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .68 | 15788.47 | 495.03 | 2.79 | 5.00 | 15788.44 | 495.00 | 2.79 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5921E+04 EXCESS= .0000E+00 OUTFLOW= .5906E+04 BASIN STORAGE= .1594E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .68 | 15441.60 | 495.02 | 2.73 | 5.00 | 15441.58 | 495.00 | 2.73 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5795E+04 EXCESS= .0000E+00 OUTFLOW= .5781E+04 BASIN STORAGE= .1571E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .69 | 14866.14 | 495.10 | 2.63 | 5.00 | 14866.12 | 495.00 | 2.63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5586E+04 EXCESS= .0000E+00 OUTFLOW= .5571E+04 BASIN STORAGE= .1535E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .70 | 14297.52 | 491.05 | 2.53 | 5.00 | 14297.07 | 495.00 | 2.53 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5369E+04 EXCESS= .0000E+00 OUTFLOW= .5355E+04 BASIN STORAGE= .1499E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .71 | 14072.51 | 491.11 | 2.49 | 5.00 | 14071.18 | 495.00 | 2.49 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5296E+04 EXCESS= .0000E+00 OUTFLOW= .5283E+04 BASIN STORAGE= .1483E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .71 | 13915.01 | 491.03 | 2.46 | 5.00 | 13913.36 | 495.00 | 2.46 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5233E+04 EXCESS= .0000E+00 OUTFLOW= .5219E+04 BASIN STORAGE= .1474E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .71 | 13802.99 | 491.08 | 2.45 | 5.00 | 13800.99 | 490.00 | 2.45 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5197E+04 EXCESS= .0000E-00 OUTFLOW= .5184E+04 BASIN STORAGE= .1466E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .72 | 13624.32 | 491.30 | 2.41 | 5.00 | 13622.64 | 490.00 | 2.41 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5132E+04 EXCESS= .0000E-00 OUTFLOW= .5118E+04 BASIN STORAGE= .1454E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .72 | 13402.42 | 490.70 | 2.37 | 5.00 | 13400.90 | 490.00 | 2.38 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5039E+04 EXCESS= .0000E-00 OUTFLOW= .5026E+04 BASIN STORAGE= .1440E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 621.91 | 232.00 | 1.73 | 5.00 | 615.22 | 230.00 | 1.73 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6456E+02 EXCESS= .0000E-00 OUTFLOW= .6456E+02 BASIN STORAGE= .1055E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 608.87 | 232.00 | 1.69 | 5.00 | 602.17 | 230.00 | 1.69 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6323E+02 EXCESS= .0000E-00 OUTFLOW= .6324E+02 BASIN STORAGE= .1041E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 587.19 | 232.00 | 1.63 | 5.00 | 580.49 | 230.00 | 1.63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6104E+02 EXCESS= .0000E-00 OUTFLOW= .6105E+02 BASIN STORAGE= .1018E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 565.62 | 232.00 | 1.57 | 5.00 | 558.92 | 230.00 | 1.57 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5886E+02 EXCESS= .0000E-00 OUTFLOW= .5887E+02 BASIN STORAGE= .1511E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 557.02 | 232.00 | 1.55 | 5.00 | 550.32 | 230.00 | 1.55 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5799E+02 EXCESS= .0000E+00 OUTFLOW= .5800E+02 BASIN STORAGE= .1497E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 551.00 | 232.00 | 1.54 | 5.00 | 544.31 | 230.00 | 1.54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5738E+02 EXCESS= .0000E+00 OUTFLOW= .5739E+02 BASIN STORAGE= .1487E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 546.71 | 232.00 | 1.52 | 5.00 | 540.02 | 230.00 | 1.52 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5695E+02 EXCESS= .0000E+00 OUTFLOW= .5696E+02 BASIN STORAGE= .1480E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 539.86 | 232.00 | 1.51 | 5.00 | 533.17 | 230.00 | 1.51 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5626E+02 EXCESS= .0000E+00 OUTFLOW= .5627E+02 BASIN STORAGE= .1469E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 531.31 | 232.00 | 1.48 | 5.00 | 524.71 | 235.00 | 1.48 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5540E+02 EXCESS= .0000E+00 OUTFLOW= .5541E+02 BASIN STORAGE= .1455E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.48 | 15787.11 | 495.90 | 2.75 | 5.00 | 15786.46 | 495.00 | 2.76 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5981E+04 EXCESS= .0000E+00 OUTFLOW= .5950E+04 BASIN STORAGE= .3315E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.49 | 15440.27 | 496.49 | 2.69 | 5.00 | 15440.08 | 495.00 | 2.70 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5849E+04 EXCESS= .0000E+00 OUTFLOW= .5818E+04 BASIN STORAGE= .3266E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.50 | 14865.02 | 495.07 | 2.59 | 5.00 | 14864.98 | 495.00 | 2.60 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5632E+04 EXCESS= .0000E+00 OUTFLOW= .5602E+04 BASIN STORAGE= .3187E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.52 | 14296.33 | 495.24 | 2.50 | 5.00 | 14296.31 | 495.00 | 2.50 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5420E+04 EXCESS= .0000E+00 OUTFLOW= .5390E+04 BASIN STORAGE= .3107E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.53 | 14070.97 | 493.19 | 2.46 | 5.00 | 14070.59 | 495.00 | 2.46 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5336E+04 EXCESS= .0000E+00 OUTFLOW= .5306E+04 BASIN STORAGE= .3072E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.54 | 13913.37 | 493.45 | 2.43 | 5.00 | 13913.12 | 495.00 | 2.44 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5288E+04 EXCESS= .0000E+00 OUTFLOW= .5258E+04 BASIN STORAGE= .3049E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.54 | 13801.28 | 493.20 | 2.42 | 5.00 | 13800.49 | 495.00 | 2.42 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5246E+04 EXCESS= .0000E+00 OUTFLOW= .5217E+04 BASIN STORAGE= .3031E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.55 | 13622.43 | 492.18 | 2.38 | 5.00 | 13621.64 | 495.00 | 2.39 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5170E+04 EXCESS= .0000E+00 OUTFLOW= .5142E+04 BASIN STORAGE= .3007E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.56 | 13400.48 | 493.23 | 2.34 | 5.00 | 13399.10 | 495.00 | 2.35 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5089E+04 EXCESS= .0000E+00 OUTFLOW= .5060E+04 BASIN STORAGE= .2976E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .87 | 15787.07 | 495.89 | 2.70 | 5.00 | 15786.08 | 495.00 | 2.70 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6056E+04 EXCESS= .0000E+00 OUTFLOW= .6037E+04 BASIN STORAGE= .1996E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .88 | 15440.18 | 496.15 | 2.64 | 5.00 | 15439.46 | 495.00 | 2.65 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5928E+04 EXCESS= .0000E+00 OUTFLOW= .5909E+04 BASIN STORAGE= .1967E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .89 | 14865.18 | 495.50 | 2.55 | 5.00 | 14864.50 | 495.00 | 2.55 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5722E+04 EXCESS= .0000E+00 OUTFLOW= .5704E+04 BASIN STORAGE= .1919E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .90 | 14296.70 | 495.84 | 2.45 | 5.00 | 14296.21 | 495.00 | 2.45 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5505E+04 EXCESS= .0000E+00 OUTFLOW= .5487E+04 BASIN STORAGE= .1872E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .90 | 14070.94 | 495.82 | 2.41 | 5.00 | 14070.64 | 495.00 | 2.41 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5414E+04 EXCESS= .0000E+00 OUTFLOW= .5396E+04 BASIN STORAGE= .1853E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .91 | 13913.45 | 495.91 | 2.39 | 5.00 | 13913.26 | 495.00 | 2.39 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5362E+04 EXCESS= .0000E+00 OUTFLOW= .5344E+04 BASIN STORAGE= .1838E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .91 | 13800.83 | 495.46 | 2.37 | 5.00 | 13800.57 | 495.00 | 2.37 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5317E+04 EXCESS= .0000E+00 OUTFLOW= .5299E+04 BASIN STORAGE= .1828E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .91 | 13621.96 | 495.84 | 2.34 | 5.00 | 13621.92 | 495.00 | 2.34 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5248E+04 EXCESS= .0000E+00 OUTFLOW= .5231E+04 BASIN STORAGE= .1814E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .92 | 13399.57 | 494.95 | 2.30 | 5.00 | 13399.56 | 495.00 | 2.30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5159E+04 EXCESS= .0000E+00 OUTFLOW= .5142E+04 BASIN STORAGE= .1797E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.15 | 18907.28 | 489.28 | .98 | 5.00 | 18907.18 | 490.00 | .98 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7498E+04 EXCESS= .0000E+00 OUTFLOW= .7469E+04 BASIN STORAGE= .3138E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.16 | 18514.02 | 489.67 | .95 | 5.00 | 18513.88 | 490.00 | .96 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7316E+04 EXCESS= .0000E+00 OUTFLOW= .7287E+04 BASIN STORAGE= .3099E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.17 | 17862.88 | 490.41 | .92 | 5.00 | 17862.82 | 490.00 | .92 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7068E+04 EXCESS= .0000E+00 OUTFLOW= .7040E+04 BASIN STORAGE= .3018E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.19 | 17219.52 | 490.07 | .89 | 5.00 | 17219.47 | 490.00 | .89 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6802E+04 EXCESS= .0000E+00 OUTFLOW= .6775E+04 BASIN STORAGE= .2944E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.20 | 16964.44 | 490.41 | .87 | 5.00 | 16964.34 | 490.00 | .87 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6692E+04 EXCESS= .0000E+00 OUTFLOW= .6665E+04 BASIN STORAGE= .2915E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.20 | 16786.38 | 489.96 | .86 | 5.00 | 16786.36 | 490.00 | .86 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6618E+04 EXCESS= .0000E+00 OUTFLOW= .6591E+04 BASIN STORAGE= .2893E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.20 | 16659.65 | 490.15 | .86 | 5.00 | 16659.57 | 490.00 | .86 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6574E+04 EXCESS= .0000E+00 OUTFLOW= .6547E+04 BASIN STORAGE= .2875E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.21 | 16457.26 | 489.98 | .84 | 5.00 | 16457.24 | 490.00 | .85 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6474E+04 EXCESS= .0000E+00 OUTFLOW= .6448E+04 BASIN STORAGE= .2857E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.22 | 16205.43 | 490.38 | .83 | 5.00 | 16205.41 | 490.00 | .83 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6366E+04 EXCESS= .0000E+00 OUTFLOW= .6340E+04 BASIN STORAGE= .2829E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 236.45 | 260.00 | 1.40 | 5.00 | 236.45 | 260.00 | 1.40 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3304E+02 EXCESS= .0000E+00 OUTFLOW= .3304E+02 BASIN STORAGE= .1949E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 230.81 | 260.00 | 1.37 | 5.00 | 230.81 | 260.00 | 1.37 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3224E+02 EXCESS= .0000E+00 OUTFLOW= .3224E+02 BASIN STORAGE= .1923E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 221.44 | 260.00 | 1.31 | 5.00 | 221.44 | 260.00 | 1.31 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3091E+02 EXCESS= .0000E+00 OUTFLOW= .3091E+02 BASIN STORAGE= .1880E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 212.11 | 260.00 | 1.25 | 5.00 | 212.11 | 260.00 | 1.25 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2958E+02 EXCESS= .0000E+00 OUTFLOW= .2958E+02 BASIN STORAGE= .1837E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 208.40 | 260.00 | 1.23 | 5.00 | 208.40 | 260.00 | 1.23 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2906E+02 EXCESS= .0000E+00 OUTFLOW= .2906E+02 BASIN STORAGE= .1819E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 205.80 | 260.00 | 1.22 | 5.00 | 205.80 | 260.00 | 1.22 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2869E+02 EXCESS= .0000E+00 OUTFLOW= .2869E+02 BASIN STORAGE= .1807E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 203.95 | 260.00 | 1.21 | 5.00 | 203.95 | 260.00 | 1.21 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2843E+02 EXCESS= .0000E+00 OUTFLOW= .2843E+02 BASIN STORAGE= .1798E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 200.99 | 260.00 | 1.19 | 5.00 | 200.99 | 260.00 | 1.19 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2801E+02 EXCESS= .0000E+00 OUTFLOW= .2801E+02 BASIN STORAGE= .1784E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 197.30 | 260.00 | 1.17 | 5.00 | 197.30 | 260.00 | 1.17 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2749E+02 EXCESS= .0000E+00 OUTFLOW= .2749E+02 BASIN STORAGE= .2349E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 4.87 | 937.97 | 268.03 | 1.40 | 5.00 | 936.98 | 270.00 | 1.40 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1517E+03 EXCESS= .0000E+00 OUTFLOW= .1518E+03 BASIN STORAGE= .1670E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 4.91 | 919.02 | 270.22 | 1.37 | 5.00 | 918.58 | 270.00 | 1.37 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1483E+03 EXCESS= .0000E+00 OUTFLOW= .1484E+03 BASIN STORAGE= .1656E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 4.98 | 880.13 | 269.03 | 1.31 | 5.00 | 879.03 | 270.00 | 1.31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1425E+03 EXCESS= .0000E+00 OUTFLOW= .1425E+03 BASIN STORAGE= .1715E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 845.16 | 270.00 | 1.26 | 5.00 | 845.16 | 270.00 | 1.26 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1367E+03 EXCESS= .0000E+00 OUTFLOW= .1367E+03 BASIN STORAGE= .1569E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 830.39 | 270.00 | 1.24 | 5.00 | 830.39 | 270.00 | 1.24 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1344E+03 EXCESS= .0000E+00 OUTFLOW= .1344E+03 BASIN STORAGE= .1554E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 820.08 | 270.00 | 1.22 | 5.00 | 820.08 | 270.00 | 1.22 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1328E+03 EXCESS= .0000E+00 OUTFLOW= .1328E+03 BASIN STORAGE= .1544E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 812.73 | 270.00 | 1.21 | 5.00 | 812.73 | 270.00 | 1.21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1316E+03 EXCESS= .0000E+00 OUTFLOW= .1317E+03 BASIN STORAGE= .1537E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 800.99 | 270.00 | 1.20 | 5.00 | 800.99 | 270.00 | 1.20 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1298E+03 EXCESS= .0000E+00 OUTFLOW= .1298E+03 BASIN STORAGE= .1525E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT37 | MANE | 5.00 | 786.37 | 270.00 | 1.18 | 5.00 | 786.37 | 270.00 | 1.18 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1276E+03 EXCESS= .0000E+00 OUTFLOW= .1276E+03 BASIN STORAGE= .1509E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.80 | 1591.70 | 223.80 | 1.41 | 5.00 | 1571.64 | 225.00 | 1.41 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2726E+03 EXCESS= .0000E+00 OUTFLOW= .2726E+03 BASIN STORAGE= .1641E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.82 | 1566.74 | 222.77 | 1.38 | 5.00 | 1537.80 | 220.00 | 1.38 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2667E+03 EXCESS= .0000E+00 OUTFLOW= .2667E+03 BASIN STORAGE= .1565E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.86 | 1498.80 | 223.11 | 1.32 | 5.00 | 1472.07 | 225.00 | 1.32 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2564E+03 EXCESS= .0000E+00 OUTFLOW= .2564E+03 BASIN STORAGE= .1586E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.90 | 1427.46 | 223.60 | 1.27 | 5.00 | 1407.01 | 225.00 | 1.27 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2464E+03 EXCESS= .0000E+00 OUTFLOW= .2464E+03 BASIN STORAGE= .1595E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.92 | 1402.68 | 222.01 | 1.25 | 5.00 | 1385.29 | 225.00 | 1.25 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2424E+03 EXCESS= .0000E+00 OUTFLOW= .2423E+03 BASIN STORAGE= .1560E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.93 | 1392.75 | 222.95 | 1.24 | 5.00 | 1366.32 | 225.00 | 1.24 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2396E+03 EXCESS= .0000E+00 OUTFLOW= .2396E+03 BASIN STORAGE= .1566E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.94 | 1372.49 | 223.63 | 1.23 | 5.00 | 1353.12 | 225.00 | 1.23 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2376E+03 EXCESS= .0000E+00 OUTFLOW= .2376E+03 BASIN STORAGE= .1499E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.96 | 1350.33 | 221.77 | 1.21 | 5.00 | 1335.56 | 225.00 | 1.21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2344E+03 EXCESS= .0000E+00 OUTFLOW= .2344E+03 BASIN STORAGE= .1490E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.98 | 1333.66 | 223.14 | 1.19 | 5.00 | 1309.96 | 225.00 | 1.19 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2305E+03 EXCESS= .0000E+00 OUTFLOW= .2305E+03 BASIN STORAGE= .1554E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *RPT39* | *MANE* | *1.66* | *18992.71* | *489.34* | *1.00* | *5.00* | *18992.30* | *490.00* | *1.01* |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8046E+04 EXCESS= .0000E+00 OUTFLOW= .8003E+04 BASIN STORAGE= .4580E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 1.67 | 18598.92 | 488.18 | .98 | 5.00 | 18598.78 | 490.00 | .99 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7866E+04 EXCESS= .0000E+00 OUTFLOW= .7823E+04 BASIN STORAGE= .4523E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 1.69 | 17947.27 | 489.66 | .95 | 5.00 | 17947.09 | 490.00 | .95 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7601E+04 EXCESS= .0000E+00 OUTFLOW= .7560E+04 BASIN STORAGE= .4399E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 1.72 | 17303.22 | 489.54 | .91 | 5.00 | 17303.05 | 490.00 | .91 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7307E+04 EXCESS= .0000E+00 OUTFLOW= .7267E+04 BASIN STORAGE= .4295E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 1.73 | 17047.79 | 488.82 | .90 | 5.00 | 17047.71 | 490.00 | .90 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7191E+04 EXCESS= .0000E+00 OUTFLOW= .7151E+04 BASIN STORAGE= .4254E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 1.73 | 16869.87 | 489.01 | .89 | 5.00 | 16869.66 | 490.00 | .89 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7122E+04 EXCESS= .0000E+00 OUTFLOW= .7083E+04 BASIN STORAGE= .4218E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 1.74 | 16742.86 | 488.66 | .88 | 5.00 | 16742.79 | 490.00 | .88 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7064E+04 EXCESS= .0000E+00 OUTFLOW= .7025E+04 BASIN STORAGE= .4193E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 1.75 | 16540.75 | 489.14 | .87 | 5.00 | 16540.44 | 490.00 | .87 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6960E+04 EXCESS= .0000E+00 OUTFLOW= .6921E+04 BASIN STORAGE= .4170E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 1.76 | 16288.98 | 488.45 | .85 | 5.00 | 16288.72 | 490.00 | .86 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6846E+04 EXCESS= .0000E+00 OUTFLOW= .6808E+04 BASIN STORAGE= .4129E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.50 | 18987.00 | 495.20 | 1.00 | 5.00 | 18986.93 | 495.00 | 1.00 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8109E+04 EXCESS= .0000E+00 OUTFLOW= .8069E+04 BASIN STORAGE= .4326E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.51 | 18593.24 | 496.35 | .98 | 5.00 | 18593.23 | 495.00 | .98 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7943E+04 EXCESS= .0000E+00 OUTFLOW= .7904E+04 BASIN STORAGE= .4266E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.53 | 17941.64 | 495.83 | .94 | 5.00 | 17941.28 | 495.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7640E+04 EXCESS= .0000E+00 OUTFLOW= .7602E+04 BASIN STORAGE= .4171E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.55 | 17297.32 | 495.37 | .91 | 5.00 | 17297.07 | 495.00 | .91 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7371E+04 EXCESS= .0000E+00 OUTFLOW= .7333E+04 BASIN STORAGE= .4066E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.56 | 17041.89 | 495.21 | .89 | 5.00 | 17041.75 | 495.00 | .89 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7235E+04 EXCESS= .0000E+00 OUTFLOW= .7198E+04 BASIN STORAGE= .4036E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.57 | 16863.90 | 495.72 | .88 | 5.00 | 16863.53 | 495.00 | .88 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7172E+04 EXCESS= .0000E+00 OUTFLOW= .7135E+04 BASIN STORAGE= .4000E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.57 | 16736.97 | 495.65 | .87 | 5.00 | 16736.63 | 495.00 | .88 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7118E+04 EXCESS= .0000E+00 OUTFLOW= .7082E+04 BASIN STORAGE= .3978E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.58 | 16534.67 | 496.48 | .86 | 5.00 | 16534.43 | 495.00 | .86 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7022E+04 EXCESS= .0000E+00 OUTFLOW= .6986E+04 BASIN STORAGE= .3950E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.59 | 16282.88 | 496.36 | .85 | 5.00 | 16282.62 | 495.00 | .85 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6917E+04 EXCESS= .0000E+00 OUTFLOW= .6881E+04 BASIN STORAGE= .3907E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.24 | 18985.93 | 496.41 | 1.00 | 5.00 | 18985.51 | 495.00 | 1.00 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8176E+04 EXCESS= .0000E+00 OUTFLOW= .8144E+04 BASIN STORAGE= .3390E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.25 | 18592.47 | 496.31 | .98 | 5.00 | 18591.82 | 495.00 | .98 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8012E+04 EXCESS= .0000E+00 OUTFLOW= .7980E+04 BASIN STORAGE= .3335E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.26 | 17940.64 | 496.20 | .94 | 5.00 | 17939.73 | 495.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7715E+04 EXCESS= .0000E+00 OUTFLOW= .7685E+04 BASIN STORAGE= .3256E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.28 | 17296.41 | 496.17 | .91 | 5.00 | 17295.26 | 495.00 | .91 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7423E+04 EXCESS= .0000E+00 OUTFLOW= .7393E+04 BASIN STORAGE= .3169E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.29 | 17041.09 | 496.17 | .89 | 5.00 | 17039.93 | 495.00 | .89 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7293E+04 EXCESS= .0000E+00 OUTFLOW= .7263E+04 BASIN STORAGE= .3145E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.29 | 16862.34 | 496.70 | .88 | 5.00 | 16861.54 | 495.00 | .88 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7228E+04 EXCESS= .0000E+00 OUTFLOW= .7199E+04 BASIN STORAGE= .3112E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.29 | 16735.41 | 496.72 | .87 | 5.00 | 16734.64 | 495.00 | .88 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7152E+04 EXCESS= .0000E+00 OUTFLOW= .7123E+04 BASIN STORAGE= .3100E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.30 | 16533.77 | 496.23 | .86 | 5.00 | 16532.69 | 495.00 | .86 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7082E+04 EXCESS= .0000E+00 OUTFLOW= .7053E+04 BASIN STORAGE= .3068E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.31 | 16281.98 | 496.28 | .85 | 5.00 | 16281.02 | 495.00 | .85 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6954E+04 EXCESS= .0000E+00 OUTFLOW= .6925E+04 BASIN STORAGE= .3037E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 688.45 | 280.00 | 1.33 | 5.00 | 688.45 | 280.00 | 1.33 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1215E+03 EXCESS= .0000E+00 OUTFLOW= .1216E+03 BASIN STORAGE= .3003E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 672.19 | 280.00 | 1.30 | 5.00 | 672.19 | 280.00 | 1.30 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1189E+03 EXCESS= .0000E+00 OUTFLOW= .1189E+03 BASIN STORAGE= .2951E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 645.32 | 280.00 | 1.26 | 5.00 | 645.32 | 280.00 | 1.26 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1144E+03 EXCESS= .0000E+00 OUTFLOW= .1144E+03 BASIN STORAGE= .2864E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 618.76 | 280.00 | 1.21 | 5.00 | 618.76 | 280.00 | 1.21 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1100E+03 EXCESS= .0000E+00 OUTFLOW= .1100E+03 BASIN STORAGE= .2952E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 608.27 | 285.00 | 1.19 | 5.00 | 608.27 | 285.00 | 1.19 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1082E+03 EXCESS= .0000E+00 OUTFLOW= .1082E+03 BASIN STORAGE= .2915E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 601.00 | 285.00 | 1.17 | 5.00 | 601.00 | 285.00 | 1.17 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1070E+03 EXCESS= .0000E+00 OUTFLOW= .1070E+03 BASIN STORAGE= .2889E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 595.82 | 285.00 | 1.16 | 5.00 | 595.82 | 285.00 | 1.16 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1061E+03 EXCESS= .0000E+00 OUTFLOW= .1061E+03 BASIN STORAGE= .2870E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 587.56 | 285.00 | 1.15 | 5.00 | 587.56 | 285.00 | 1.15 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1048E+03 EXCESS= .0000E+00 OUTFLOW= .1048E+03 BASIN STORAGE= .2840E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 577.28 | 285.00 | 1.13 | 5.00 | 577.28 | 285.00 | 1.13 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1030E+03 EXCESS= .0000E+00 OUTFLOW= .1030E+03 BASIN STORAGE= .2803E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.48 | 18967.63 | 512.53 | .96 | 5.00 | 18967.27 | 515.00 | .96 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8172E+04 EXCESS= .0000E+00 OUTFLOW= .8132E+04 BASIN STORAGE= .4368E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.49 | 18574.11 | 513.60 | .94 | 5.00 | 18574.03 | 515.00 | .94 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8000E+04 EXCESS= .0000E+00 OUTFLOW= .7960E+04 BASIN STORAGE= .4308E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.51 | 17922.39 | 513.00 | .91 | 5.00 | 17922.07 | 515.00 | .91 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7717E+04 EXCESS= .0000E+00 OUTFLOW= .7678E+04 BASIN STORAGE= .4205E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.53 | 17278.72 | 515.52 | .87 | 5.00 | 17278.70 | 515.00 | .87 | |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7406E+04 EXCESS= .0000E+00 OUTFLOW= .7367E+04 BASIN STORAGE= .4111E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.54 | 17023.27 | 515.33 | .86 | 5.00 | 17023.26 | 515.00 | .86 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7295E+04 EXCESS= .0000E+00 OUTFLOW= .7257E+04 BASIN STORAGE= .4069E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.54 | 16844.78 | 512.75 | .85 | 5.00 | 16844.77 | 515.00 | .85 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7230E+04 EXCESS= .0000E+00 OUTFLOW= .7193E+04 BASIN STORAGE= .4035E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.55 | 16717.84 | 514.21 | .84 | 5.00 | 16717.82 | 515.00 | .84 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7175E+04 EXCESS= .0000E+00 OUTFLOW= .7138E+04 BASIN STORAGE= .4014E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.56 | 16515.74 | 513.46 | .83 | 5.00 | 16515.62 | 515.00 | .83 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7076E+04 EXCESS= .0000E+00 OUTFLOW= .7039E+04 BASIN STORAGE= .3984E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.56 | 16263.96 | 513.30 | .82 | 5.00 | 16263.57 | 515.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6967E+04 EXCESS= .0000E+00 OUTFLOW= .6930E+04 BASIN STORAGE= .3940E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.95 | 83.48 | 341.67 | .31 | 5.00 | 83.47 | 340.00 | .31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4782E+02 EXCESS= .0000E+00 OUTFLOW= .4722E+02 BASIN STORAGE= .6042E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.96 | 83.04 | 342.03 | .31 | 5.00 | 83.04 | 340.00 | .31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4752E+02 EXCESS= .0000E+00 OUTFLOW= .4692E+02 BASIN STORAGE= .6016E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.97 | 82.32 | 342.62 | .30 | 5.00 | 82.32 | 340.00 | .31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4645E+02 EXCESS= .0000E+00 OUTFLOW= .4586E+02 BASIN STORAGE= .5958E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.97 | 81.61 | 338.25 | .30 | 5.00 | 81.61 | 340.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4585E+02 EXCESS= .0000E+00 OUTFLOW= .4527E+02 BASIN STORAGE= .5852E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.98 | 81.32 | 338.48 | .30 | 5.00 | 81.32 | 340.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4557E+02 EXCESS= .0000E+00 OUTFLOW= .4500E+02 BASIN STORAGE= .5811E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.98 | 81.13 | 338.65 | .30 | 5.00 | 81.12 | 340.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4537E+02 EXCESS= .0000E+00 OUTFLOW= .4479E+02 BASIN STORAGE= .5782E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.98 | 80.98 | 338.77 | .30 | 5.00 | 80.98 | 340.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4522E+02 EXCESS= .0000E+00 OUTFLOW= .4465E+02 BASIN STORAGE= .5761E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.98 | 80.76 | 338.96 | .30 | 5.00 | 80.76 | 340.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4497E+02 EXCESS= .0000E+00 OUTFLOW= .4440E+02 BASIN STORAGE= .5728E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.99 | 80.47 | 339.19 | .29 | 5.00 | 80.47 | 340.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4465E+02 EXCESS= .0000E+00 OUTFLOW= .4408E+02 BASIN STORAGE= .5687E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 718.39 | 230.00 | .69 | 5.00 | 718.39 | 230.00 | .69 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1054E+03 EXCESS= .0000E+00 OUTFLOW= .1028E+03 BASIN STORAGE= .3284E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 704.05 | 230.00 | .68 | 5.00 | 704.05 | 230.00 | .68 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1039E+03 EXCESS= .0000E+00 OUTFLOW= .1013E+03 BASIN STORAGE= .3273E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 680.17 | 230.00 | .66 | 5.00 | 680.17 | 230.00 | .66 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1014E+03 EXCESS= .0000E+00 OUTFLOW= .9879E+02 BASIN STORAGE= .3249E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 656.71 | 230.00 | .64 | 5.00 | 656.71 | 230.00 | .64 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9886E+02 EXCESS= .0000E+00 OUTFLOW= .9626E+02 BASIN STORAGE= .3200E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 647.87 | 230.00 | .63 | 5.00 | 647.87 | 230.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9781E+02 EXCESS= .0000E+00 OUTFLOW= .9523E+02 BASIN STORAGE= .3181E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 641.69 | 230.00 | .63 | 5.00 | 641.69 | 230.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9706E+02 EXCESS= .0000E+00 OUTFLOW= .9450E+02 BASIN STORAGE= .3168E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 637.27 | 230.00 | .63 | 5.00 | 637.27 | 230.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9652E+02 EXCESS= .0000E+00 OUTFLOW= .9397E+02 BASIN STORAGE= .3158E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 630.21 | 230.00 | .62 | 5.00 | 630.21 | 230.00 | .62 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9566E+02 EXCESS= .0000E+00 OUTFLOW= .9311E+02 BASIN STORAGE= .3143E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 621.40 | 230.00 | .61 | 5.00 | 621.40 | 230.00 | .61 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9456E+02 EXCESS= .0000E+00 OUTFLOW= .9204E+02 BASIN STORAGE= .3124E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.08 | 403.51 | 252.96 | 1.33 | 5.00 | 402.11 | 255.00 | 1.33 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5592E+02 EXCESS= .0000E+00 OUTFLOW= .5592E+02 BASIN STORAGE= .1884E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.11 | 393.90 | 254.84 | 1.29 | 5.00 | 393.69 | 255.00 | 1.29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5454E+02 EXCESS= .0000E+00 OUTFLOW= .5455E+02 BASIN STORAGE= .1853E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.16 | 377.71 | 253.94 | 1.24 | 5.00 | 376.64 | 255.00 | 1.24 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5227E+02 EXCESS= .0000E+00 OUTFLOW= .5227E+02 BASIN STORAGE= .1941E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.22 | 360.04 | 253.09 | 1.19 | 5.00 | 359.13 | 255.00 | 1.19 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5001E+02 EXCESS= .0000E+00 OUTFLOW= .5001E+02 BASIN STORAGE= .1494E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.24 | 354.58 | 254.46 | 1.17 | 5.00 | 354.04 | 255.00 | 1.17 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4911E+02 EXCESS= .0000E+00 OUTFLOW= .4911E+02 BASIN STORAGE= .1594E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.26 | 349.14 | 255.44 | 1.15 | 5.00 | 348.86 | 255.00 | 1.15 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4849E+02 EXCESS= .0000E+00 OUTFLOW= .4849E+02 BASIN STORAGE= .1873E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.27 | 345.09 | 256.15 | 1.14 | 5.00 | 344.81 | 255.00 | 1.14 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4804E+02 EXCESS= .0000E+00 OUTFLOW= .4805E+02 BASIN STORAGE= .1630E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.29 | 340.01 | 253.01 | 1.12 | 5.00 | 339.45 | 255.00 | 1.12 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4733E+02 EXCESS= .0000E+00 OUTFLOW= .4733E+02 BASIN STORAGE= .1872E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.31 | 335.00 | 254.45 | 1.10 | 5.00 | 334.50 | 255.00 | 1.10 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4644E+02 EXCESS= .0000E+00 OUTFLOW= .4645E+02 BASIN STORAGE= .1465E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 71.81 | 265.00 | 1.07 | 5.00 | 71.81 | 265.00 | 1.07 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9994E+01 EXCESS= .0000E+00 OUTFLOW= .1000E+02 BASIN STORAGE= .4457E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 69.76 | 265.00 | 1.04 | 5.00 | 69.76 | 265.00 | 1.04 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9722E+01 EXCESS= .0000E+00 OUTFLOW= .9730E+01 BASIN STORAGE= .4399E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 66.37 | 265.00 | .99 | 5.00 | 66.37 | 265.00 | .99 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9273E+01 EXCESS= .0000E+00 OUTFLOW= .9281E+01 BASIN STORAGE= .5458E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 63.01 | 265.00 | .94 | 5.00 | 63.01 | 265.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8830E+01 EXCESS= .0000E+00 OUTFLOW= .8838E+01 BASIN STORAGE= .5272E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 61.67 | 265.00 | .92 | 5.00 | 61.67 | 265.00 | .92 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8654E+01 EXCESS= .0000E+00 OUTFLOW= .8662E+01 BASIN STORAGE= .5185E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 60.74 | 265.00 | .91 | 5.00 | 60.74 | 265.00 | .91 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8532E+01 EXCESS= .0000E+00 OUTFLOW= .8540E+01 BASIN STORAGE= .5151E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 60.08 | 265.00 | .90 | 5.00 | 60.08 | 265.00 | .90 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8445E+01 EXCESS= .0000E+00 OUTFLOW= .8452E+01 BASIN STORAGE= .5126E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 59.01 | 265.00 | .89 | 5.00 | 59.01 | 265.00 | .89 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8306E+01 EXCESS= .0000E+00 OUTFLOW= .8314E+01 BASIN STORAGE= .5086E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 57.69 | 265.00 | .87 | 5.00 | 57.69 | 265.00 | .87 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8133E+01 EXCESS= .0000E+00 OUTFLOW= .8141E+01 BASIN STORAGE= .5036E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 4.00 | 128.00 | 224.00 | 1.04 | 5.00 | 127.39 | 225.00 | 1.04 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1851E+02 EXCESS= .0000E+00 OUTFLOW= .1851E+02 BASIN STORAGE= .6464E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 4.00 | 124.06 | 224.00 | 1.01 | 5.00 | 123.57 | 225.00 | 1.01 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1800E+02 EXCESS= .0000E+00 OUTFLOW= .1800E+02 BASIN STORAGE= .6387E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 4.00 | 117.54 | 224.00 | .96 | 5.00 | 117.26 | 225.00 | .96 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1715E+02 EXCESS= .0000E+00 OUTFLOW= .1716E+02 BASIN STORAGE= .6214E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 4.00 | 111.08 | 224.00 | .91 | 5.00 | 111.00 | 225.00 | .91 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1632E+02 EXCESS= .0000E+00 OUTFLOW= .1633E+02 BASIN STORAGE= .6067E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 3.75 | 110.28 | 225.00 | .89 | 5.00 | 110.28 | 225.00 | .89 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1599E+02 EXCESS= .0000E+00 OUTFLOW= .1599E+02 BASIN STORAGE= .5712E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 3.75 | 108.54 | 225.00 | .88 | 5.00 | 108.54 | 225.00 | .88 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1576E+02 EXCESS= .0000E+00 OUTFLOW= .1576E+02 BASIN STORAGE= .5677E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 3.75 | 107.29 | 225.00 | .87 | 5.00 | 107.29 | 225.00 | .87 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1559E+02 EXCESS= .0000E+00 OUTFLOW= .1560E+02 BASIN STORAGE= .5651E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 3.75 | 105.31 | 225.00 | .86 | 5.00 | 105.31 | 225.00 | .86 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1533E+02 EXCESS= .0000E+00 OUTFLOW= .1534E+02 BASIN STORAGE= .5610E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 3.50 | 101.77 | 227.50 | .84 | 5.00 | 101.21 | 225.00 | .84 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1501E+02 EXCESS= .0000E+00 OUTFLOW= .1502E+02 BASIN STORAGE= .6341E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 4.05 | 19043.15 | 521.90 | .93 | 5.00 | 19042.36 | 520.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8324E+04 EXCESS= .0000E+00 OUTFLOW= .8211E+04 BASIN STORAGE= .1213E+03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 4.08 | 18649.52 | 521.89 | .90 | 5.00 | 18648.44 | 520.00 | .91 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8063E+04 EXCESS= .0000E+00 OUTFLOW= .7951E+04 BASIN STORAGE= .1203E+03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 4.13 | 17997.92 | 520.57 | .88 | 5.00 | 17996.89 | 520.00 | .88 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7849E+04 EXCESS= .0000E+00 OUTFLOW= .7739E+04 BASIN STORAGE= .1169E+03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 4.19 | 17353.63 | 519.28 | .85 | 5.00 | 17353.44 | 520.00 | .85 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7546E+04 EXCESS= .0000E+00 OUTFLOW= .7439E+04 BASIN STORAGE= .1142E+03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 4.21 | 17097.04 | 522.15 | .83 | 5.00 | 17095.64 | 520.00 | .83 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7409E+04 EXCESS= .0000E+00 OUTFLOW= .7303E+04 BASIN STORAGE= .1133E+03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 4.23 | 16919.21 | 519.96 | .82 | 5.00 | 16919.19 | 520.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7287E+04 EXCESS= .0000E+00 OUTFLOW= .7182E+04 BASIN STORAGE= .1128E+03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 4.24 | 16791.24 | 521.42 | .81 | 5.00 | 16789.53 | 520.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7263E+04 EXCESS= .0000E+00 OUTFLOW= .7158E+04 BASIN STORAGE= .1119E+03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 4.26 | 16589.05 | 519.52 | .80 | 5.00 | 16588.85 | 520.00 | .81 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7137E+04 EXCESS= .0000E+00 OUTFLOW= .7034E+04 BASIN STORAGE= .1113E+03 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 4.28 | 16335.22 | 522.49 | .79 | 5.00 | 16334.41 | 520.00 | .79 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7003E+04 EXCESS= .0000E+00 OUTFLOW= .6900E+04 BASIN STORAGE= .1103E+03 PERCENT ERROR= -.1



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

*** NORMAL END OF HEC-1 ***

# STORM CENTERING, SDN5, SC5.OUT

```
1*************************************
*                                   *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*        SEPTEMBER 1990             *
*         VERSION 4.0               *
*                                   *
*  RUN DATE  07/16/2001  TIME  17:28:51 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX           XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL  LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
                    *DIAGRAM
*** FREE ***
         1          ID   DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
         2          ID   "G.C. WALLACE, INC. BY MJL"
         3          ID   DUCK5.XLS
         4          ID   "MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
         5          ID   "BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
         6          ID   UPDATED PRECIPITATION VALUES
         7          ID   % IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
         8          ID   ADDITIONAL DIVERSIONS ADDED
         9          ID   DESIGN STORM = 100-YEAR 6-HOUR STORM
        10          ID   STORM DISTRIBUTION = SDN5
                    *
        11          ID     JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
        12          ID
        13          ID     AREA (SQUARE MILES)    DARF
        14          ID    12 - 16    0.832
        15          ID    16 - 20    0.804
        16          ID    20 - 30    0.765
        17          ID    30 - 40    0.725
        18          ID    40 - 50    0.695
        19          ID    50 -100    0.640
        20          ID    100 - 150    0.580
        21          ID    150 - 200    0.530
        22          ID
        23          IT       5       0       0     120
        24          IO       5       0       0
        25          JR    PREC   0.832   0.804   0.765   0.725   0.695   0.640   0.580    0.53
                    *
        26          KK    B15B
        27          BA   0.954
        28          PB    2.77
        29          PC   0.000   0.020   0.059   0.080   0.110   0.144   0.150   0.160   0.168   0.171
        30          PC   0.180   0.182   0.187   0.190   0.197   0.202   0.210   0.220   0.230   0.241
        31          PC   0.250   0.259   0.265   0.280   0.290   0.300   0.305   0.309   0.310   0.317
        32          PC   0.321   0.327   0.333   0.346   0.361   0.381   0.408   0.430   0.477   0.514
        33          PC   0.561   0.630   0.710   0.720   0.731   0.752   0.779   0.790   0.795   0.804
        34          PC   0.810   0.820   0.826   0.840   0.859   0.889   0.910   0.938   0.966   0.970
        35          PC   0.974   0.979   0.981   0.983   0.985   0.989   0.990   0.992   0.993   0.996
        36          PC   0.997   0.999   1.000
        37          LS       0    75.0    13.0
        38          UD    0.71
                    *
        39          KK    B16B
        40          BA   0.701
        41          PB    2.77
        42          LS       0    83.1    32.0
        43          UD   0.380
                    *
```

1 HEC-1 INPUT PAGE 2

```
      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
        44          KK   RB16B
        45          KM   ROUTE BASIN B16B TO PT30
        46          RD    1900   0.008   0.015       0    TRAP       0      50
                    *
        47          KK   RPT30
        48          KM   ROUTE PT30 TO PT31
        49          RD    2900   0.005   0.015       0    TRAP      20       3
```

```
          *
     50   KK    B16A
     51   BA   0.906
     52   PB    2.77
     53   LS       0    78.2    17.0
     54   UD   0.710
          *
     55   KK     D5B
     56   BA   0.602
     57   PB    2.77
     58   LS       0    82.8    46.0
     59   UD   0.710
          *
     60   KK    PT31
     61   KM   "COMBINE BASINS B16B, B16A AND D5B"
     62   HC       3
          *
     63   KK   RPT31
     64   KM   ROUTE PT31 TO PT32
     65   RD    3200   0.016   0.015       0    TRAP      15       1
          *
     66   KK    PT32
     67   KM   COMBINE BASIN B15B AND PT31 AT DUCK CREEK/MIDDLE BRANCH BLUE DIAMOND CONFLUEN
     68   HC       2
          *
     69   KK   RPT32
     70   KM   ROUTE PT32 TO PT34
     71   RD    2700   0.009   0.015       0    TRAP      70       2
          *
     72   KK    B15A
     73   BA   0.959
     74   PB    2.77
     75   LS       0    77.6    14.0
     76   UD   0.500
          *
1                                        HEC-1 INPUT                                          PAGE  3

   LINE       ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

     77   KK    PT34
     78   KM   COMBINE BASIN B15A AND PT32
     79   HC       2
          *
     80   KK     MC2
     81   BA   0.919
     82   PB    2.77
     83   LS       0    74.9    28.0
     84   UD   0.873
          *
     85   KK    RMC2
     86   KM   ROUTE PT37 TO PT38
     87   RD    5200    0.01   0.015       0    TRAP      20       2
          *
     88   KK    B10A
     89   BA   1.601
     90   PB    2.77
     91   LS       0    74.9    32.0
     92   UD   0.217
          *
     93   KK    PT38
     94   KM   COMBINE BASINS MC2 AND B10A
     95   HC       2
          *
     96   KK   RPT38
     97   KM   ROUTE PT38 TO PT39
     98   RD    2100   0.002   0.015       0    TRAP      20       2
          *
     99   KK    PT39
    100   KM   COMBINE PT34 AND PT38
    101   HC       2
          *
    102   KK   RPT39
    103   KM   ROUTE PT39 TO PT40
    104   RD    2500   0.006   0.025       0    TRAP      70       2
          *
    105   KK      D6
    106   BA   1.564
    107   PB    2.77
    108   LS       0    78.3    43.0
    109   UD   0.500
          *
                                         HEC-1 INPUT                                          PAGE  4

   LINE       ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    110   KK    PT40
    111   KM   COMBINE PT39 AND BASIN D6
    112   HC       2
```

```
          *
113       KK   RPT40
114       KM   ROUTE PT40 TO PT41
115       RM       1    0.08   0.200
          *
116       KK     D7
117       BA   0.850
118       PB    2.77
119       LS       0    77.3    23.0
120       UD   0.710
          *
121       KK    PT41
122       KM   COMBINE PT40 AND BASIN D7
123       HC       2
          *
124       KK   RPT41
125       KM   ROUTE PT41 TO PT42
126       RD    4150   0.006   0.015       0    TRAP       50        0
          *
127       KK     D8
128       BA   1.258
129       PB    2.77
130       LS       0    77.8    34.0
131       UD   0.230
          *
132       KK    RD8
133       KM   ROUTE BASIN D8 TO PT42
134       RM       1   0.088   0.150
          *
135       KK    PT42
136       KM   COMBINE PT41 AND BASIN D8
137       HC       2
          *
138       KK   RPT42
139       KM   ROUTE PT42 TO PT44
140       RD    3650   0.011   0.015       0    TRAP       28        2
          *
1                                        HEC-1 INPUT                                        PAGE  5

     LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

141       KK    B10B
142       BA   0.848
143       PB    2.77
144       LS       0    74.9    44.0
145       UD   0.687
          *
146       KK   RB10B
147       KM   ROUTE BASIN B10B TO PT43
148       RM       6    0.46   0.100
          *
149       KK     D9A
150       BA   0.861
151       PB    2.77
152       LS       0    72.8    16.0
153       UD   1.100
          *
154       KK    PT43
155       KM   COMBINE BASINS B10B AND D9A
156       HC       2
          *
157       KK   RPT43
158       KM   ROUTE PT43 TO PT44
159       RD    4050    0.01   0.016       0    TRAP        0       16
          *
160       KK    PT44
161       KM   COMBINE PT42 AND PT43
162       HC       2
          *
163       KK   RPT44
164       KM   ROUTE PT44 TO PT45
165       RM       1   0.119   0.150
          *
166       KK     D9B
167       BA   1.544
168       PB    2.77
169       LS       0    77.8    17.0
170       UD   0.410
          *
171       KK    PT45
172       KM   COMBINE PT44 AND BASIN D9B
173       HC       2
          *
1                                        HEC-1 INPUT                                        PAGE  6

     LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
174          KK   RPT45
175          KM   ROUTE PT45 TO PT46
176          RM       2   0.184   0.150
             *

177          KK    D10
178          BA   2.508
179          PB    2.77
180          LS       0    79.0    33.0
181          UD   0.440
             *

182          KK    PT46
183          KM   COMBINE PT45 AND BASIN D10
184          HC       2
             *

185          KK   RPT46
186          KM   ROUTE PT46 TO PT48
187          RD    2500   0.018   0.035       0    TRAP      75       2
             *

188          KK     MC
189          KM   "TLAG AND AREA CALCULATED, CN REFERENCED FROM 1996 MPU"
190          KM   THEREFORE NO INCREASE IN PERCENT IMPERVIOUS
191          BA   2.804
192          PB    2.77
193          LS       0    91.0
194          UD   0.244
             *

195          KK   TORAW
196          KM   DIVERT FLOW WHICH BYPASSES DETENTION BASIN
197          DT   TORAW
198          DI       0     100     500    1000    2000    3000    4000
199          DQ       0      40     100     200     400     570     760
             *

200          KK    MCDB
201          KM   MCCARRAN AIRPORT DETENTION FACILITIES
202          KM   SIMULATION OF TWO DETENTION BASINS - MCCARRAN EAST AND SPENCER
203          RS       1    STOR      -1
204          SV       0       8      40      70     100     160     210     500
205          SQ       0      30      40      55      65      80      85      87
206          SE       0       2       4       6       8      12      15      16
207          KO       1
             *

208          KK   RMCDB
209          KM   ROUTE OUTFALL FROM MCDB TO PT47
210          RD    3300   0.006   0.013       0    CIRC       4       0
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

211          KK  RTORAW
212          KM   FLOW BYPASSING THE MCCARRAN DETENTION FACILITIES RETURNED IN RAWHIDE CHANNEL
213          DR   TORAW
             *

214          KK    PT47
215          KM   COMBINE OUTFALL FROM MCCARRAN DETENTION FACILITIES AND BYPASSED FLOW
216          HC       2
             *

217          KK   RPT47
218          KM   ROUTE PT47 THRU RAWHIDE CHANNEL TO PT48W
219          RD   15700   0.015   0.015       0    TRAP      11     1.5
             *

220          KK     RH
221          BA   1.355
222          PB    2.77
223          LS       0    72.0     6.0
224          UD   0.340
             *

225          KK   PT48W
226          KM   COMBINE PT47 AND BASIN RH
227          HC       2
             *

228          KK     B20
229          BA   0.790
230          PB    2.77
231          LS       0    82.4     8.0
232          UD   0.710
             *

233          KK    RB20
234          KM   ROUTE BASIN B20 TO PT48
235          KM   MUSKINGUM ROUTING UNSTABLE
236          RD    1800   0.017   0.030       0    TRAP      30      10
             *

237          KK    PT48
238          KM   "COMBINE PT46, PT48W, AND BASIN B20"
239          HC       3
             *

240          KK   RPT48
241          KM   ROUTE PT48 TO PT50
242          RM       1   0.067   0.150
```

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  243         KK     D12
  244         BA    0.176
  245         PB     2.77
  246         LS        0     77.8      7.0
  247         UD    0.710
              *

  248         KK     RD12
  249         KM    ROUTE BASIN D12 TO PT49
  250         KM    MUSKINGUM ROUTING UNSTABLE
  251         RD     1850    0.044    0.150        0     TRAP       50       10
              *

  252         KK     D11A
  253         BA    0.159
  254         PB     2.77
  255         LS        0     77.3      5.0
  256         UD    0.160
              *

  257         KK     PT49
  258         KM    COMBINE BASINS D12 AND D11A
  259         HC        2
              *

  260         KK    RPT49
  261         KM    ROUTE PT49 TO PT50
  262         KM    MUSKINGUM ROUTING UNSTABLE
  263         RD     1050    0.019    0.150        0     TRAP       45       10
              *

  264         KK     PT50
  265         KM    COMBINE PT48 AND PT49
  266         HC        2
              *

  267         KK    RPT50
  268         KM    ROUTE PT50 TO PT51
  269         RD     7000    0.003    0.015        0     TRAP       60        2
              *

  270         KK     D11B
  271         BA    0.987
  272         PB     2.77
  273         LS        0     82.2     12.0
  274         UD    0.220
              *

  275         KK     PT51
  276         KM    COMBINE PT50 AND BASIN D11B
  277         HC        2
  278         ZZ
```

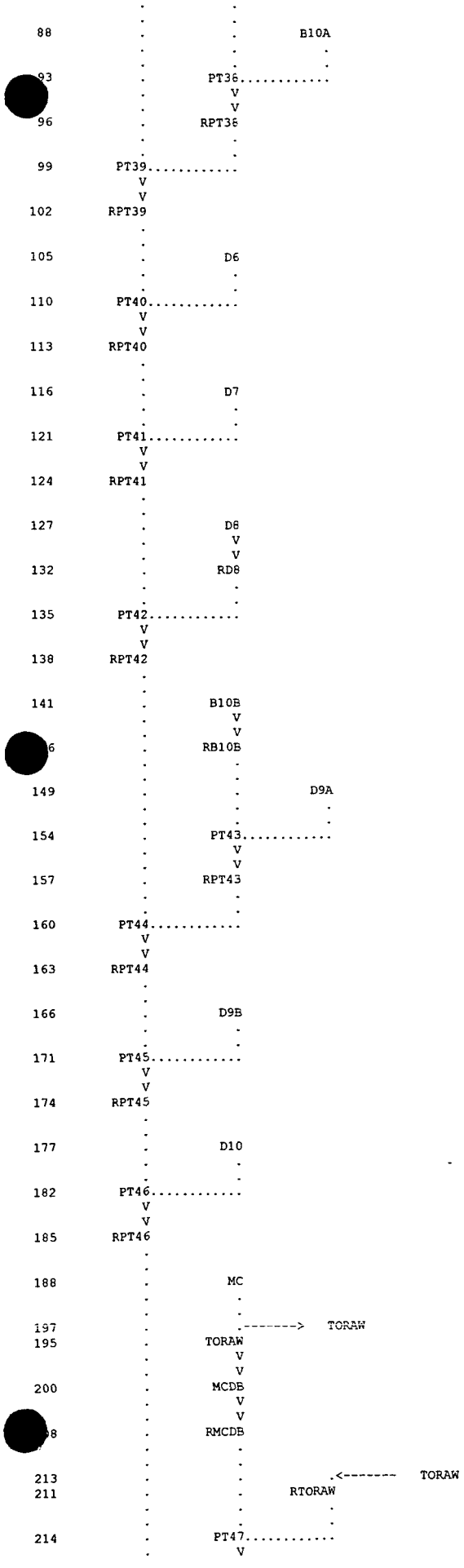
1

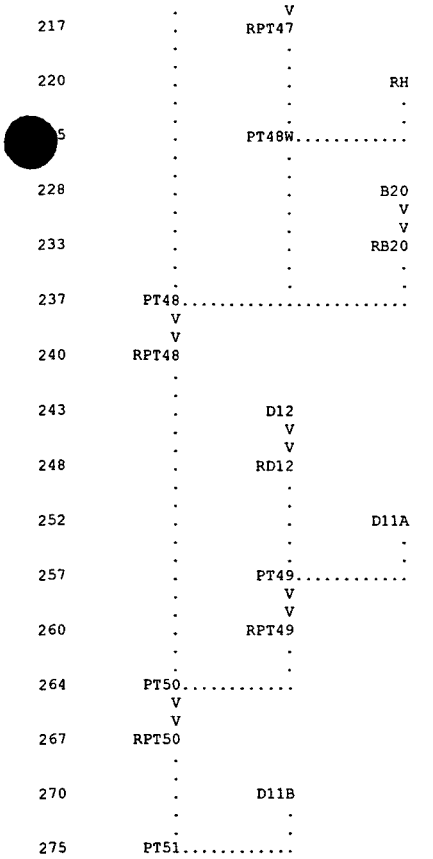
SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   26        B15B
               .
               .
   39          .        B16B
               .          V
               .          V
   44          .       RB16B
               .          V
               .          V
   47          .       RPT30
               .          .
               .          .
   50          .          .        B16A
               .          .          .
               .          .          .
   55          .          .          .         D5B
               .          .          .          .
               .          .          .          .
   60          .        PT31.........................
               .          V
               .          V
   63          .       RPT31
               .          .
               .          .
   66        PT32.............
               V
               V
   69       RPT32
               .
               .
   72          .        B15A
               .          .
               .          .
   77        PT34.............
               .
               .
   80          .         MC2
               .          V
               .          V
   85          .        RMC2
```


B10A
PT36
RPT36
PT39
RPT39
D6
PT40
RPT40
D7
PT41
RPT41
D8
RD8
PT42
RPT42
B10B
RB10B
D9A
PT43
RPT43
PT44
RPT44
D9B
PT45
RPT45
D10
PT46
RPT46
MC
TORAW
TORAW
MCDB
RMCDB
TORAW
RTORAW
PT47




(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *
*            SEPTEMBER 1990             *
*             VERSION 4.0               *
*                                       *
*  RUN DATE  07/16/2001  TIME  17:28:51 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*            (916) 756-1104             *
*                                       *
*****************************************
```

DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
"G.C. WALLACE, INC. BY MJL"
DUCK5.XLS
"MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
"BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
UPDATED PRECIPITATION VALUES
% IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
ADDITIONAL DIVERSIONS ADDED
DESIGN STORM = 100-YEAR 6-HOUR STORM
STORM DISTRIBUTION = SDN5
JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

| AREA (SQUARE MILES) | DARF |
|---|---|
| 12 - 16 | 0.832 |
| 16 - 20 | 0.804 |
| 20 - 30 | 0.765 |
| 30 - 40 | 0.725 |
| 40 - 50 | 0.695 |
| 50 -100 | 0.640 |
| 100 - 150 | 0.580 |
| 150 - 200 | 0.530 |

```
 24 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE      1   0  STARTING DATE
                     ITIME         0000  STARTING TIME
                        NQ         120  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE      1   0  ENDING DATE
                    NDTIME         0955  ENDING TIME
                     ICENT           19  CENTURY MARK

                   COMPUTATION INTERVAL      .08 HOURS
                       TOTAL TIME BASE     9.92 HOURS

         ENGLISH UNITS
              DRAINAGE AREA         SQUARE MILES
```

```
            PRECIPITATION DEPTH   INCHES
            LENGTH, ELEVATION     FEET
            FLOW                  CUBIC FEET PER SECOND
            STORAGE VOLUME        ACRE-FEET
            SURFACE AREA          ACRES
            TEMPERATURE           DEGREES FAHRENHEIT

   JP         MULTI-PLAN OPTION
                   NPLAN          1  NUMBER OF PLANS

   JR         MULTI-RATIO OPTION
                  RATIOS OF PRECIPITATION
                  .83      .80      .76      .73      .69      .64      .58      .53

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
200 KK    *    MCDB    *
          *            *
          **************

207 KO         OUTPUT CONTROL VARIABLES
                   IPRNT          1  PRINT CONTROL
                   IPLOT          0  PLOT CONTROL
                   QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

203 RS         STORAGE ROUTING
                   NSTPS          1  NUMBER OF SUBREACHES
                    ITYP       STOR  TYPE OF INITIAL CONDITION
                  RSVRIC      -1.00  INITIAL CONDITION
                       X        .00 WORKING R AND D COEFFICIENT

204 SV           STORAGE         .0       8.0      40.0      70.0     100.0     160.0     210.0     500.0

205 SQ         DISCHARGE         0.       30.       40.       55.       65.       80.       85.       87.

206 SE         ELEVATION        .00      2.00      4.00      6.00      8.00     12.00     15.00     16.00
                                                                        ***

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                                                HYDROGRAPH AT STATION     MCDB
                                                   PLAN 1,   RATIO =   .83

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | CUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 38. | 32.1 | 3.5 | 1 | | 0640 | 81 | 76. | 142.4 | 10.8 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 39. | 38.2 | 3.9 | 1 | | 0645 | 82 | 75. | 141.9 | 10.8 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 43. | 45.8 | 4.4 | 1 | | 0650 | 83 | 75. | 141.4 | 10.8 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 48. | 55.1 | 5.0 | 1 | | 0655 | 84 | 75. | 140.9 | 10.7 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 53. | 65.2 | 5.7 | 1 | | 0700 | 85 | 75. | 140.3 | 10.7 |
| 1 | | 0025 | 6 | 0. | .1 | .0 | 1 | | 0345 | 46 | 57. | 74.6 | 6.3 | 1 | | 0705 | 86 | 75. | 139.8 | 10.7 |
| 1 | | 0030 | 7 | 1. | .2 | .1 | 1 | | 0350 | 47 | 59. | 82.4 | 6.8 | 1 | | 0710 | 87 | 75. | 139.3 | 10.6 |
| 1 | | 0035 | 8 | 2. | .5 | .1 | 1 | | 0355 | 48 | 61. | 88.8 | 7.3 | 1 | | 0715 | 88 | 75. | 138.8 | 10.6 |
| 1 | | 0040 | 9 | 3. | .9 | .2 | 1 | | 0400 | 49 | 63. | 94.2 | 7.6 | 1 | | 0720 | 89 | 75. | 138.3 | 10.6 |
| 1 | | 0045 | 10 | 5. | 1.3 | .3 | 1 | | 0405 | 50 | 65. | 98.7 | 7.9 | 1 | | 0725 | 90 | 74. | 137.8 | 10.5 |
| 1 | | 0050 | 11 | 6. | 1.7 | .4 | 1 | | 0410 | 51 | 66. | 102.4 | 8.2 | 1 | | 0730 | 91 | 74. | 137.3 | 10.5 |
| 1 | | 0055 | 12 | 8. | 2.1 | .5 | 1 | | 0415 | 52 | 66. | 105.2 | 8.3 | 1 | | 0735 | 92 | 74. | 136.7 | 10.4 |
| 1 | | 0100 | 13 | 9. | 2.4 | .6 | 1 | | 0420 | 53 | 67. | 107.4 | 8.5 | 1 | | 0740 | 93 | 74. | 136.2 | 10.4 |
| 1 | | 0105 | 14 | 10. | 2.7 | .7 | 1 | | 0425 | 54 | 67. | 109.3 | 8.6 | 1 | | 0745 | 94 | 74. | 135.7 | 10.4 |
| 1 | | 0110 | 15 | 11. | 3.0 | .8 | 1 | | 0430 | 55 | 68. | 111.2 | 8.7 | 1 | | 0750 | 95 | 74. | 135.2 | 10.3 |
| 1 | | 0115 | 16 | 12. | 3.3 | .8 | 1 | | 0435 | 56 | 68. | 113.3 | 8.9 | 1 | | 0755 | 96 | 74. | 134.7 | 10.3 |
| 1 | | 0120 | 17 | 13. | 3.5 | .9 | 1 | | 0440 | 57 | 69. | 116.1 | 9.1 | 1 | | 0800 | 97 | 74. | 134.2 | 10.3 |
| 1 | | 0125 | 18 | 14. | 3.8 | 1.0 | 1 | | 0445 | 58 | 70. | 119.7 | 9.3 | 1 | | 0805 | 98 | 73. | 133.7 | 10.2 |
| 1 | | 0130 | 19 | 16. | 4.2 | 1.1 | 1 | | 0450 | 59 | 71. | 124.0 | 9.6 | 1 | | 0810 | 99 | 73. | 133.2 | 10.2 |
| 1 | | 0135 | 20 | 18. | 4.6 | 1.2 | 1 | | 0455 | 60 | 72. | 128.8 | 9.9 | 1 | | 0815 | 100 | 73. | 132.7 | 10.2 |
| 1 | | 0140 | 21 | 20. | 5.4 | 1.4 | 1 | | 0500 | 61 | 73. | 133.5 | 10.2 | 1 | | 0820 | 101 | 73. | 132.2 | 10.1 |
| 1 | | 0145 | 22 | 23. | 6.2 | 1.6 | 1 | | 0505 | 62 | 74. | 137.6 | 10.5 | 1 | | 0825 | 102 | 73. | 131.7 | 10.1 |
| 1 | | 0150 | 23 | 26. | 7.0 | 1.8 | 1 | | 0510 | 63 | 75. | 140.6 | 10.7 | 1 | | 0830 | 103 | 73. | 131.2 | 10.1 |
| 1 | | 0155 | 24 | 30. | 7.9 | 2.0 | 1 | | 0515 | 64 | 76. | 142.7 | 10.8 | 1 | | 0835 | 104 | 73. | 130.7 | 10.0 |
| 1 | | 0200 | 25 | 30. | 8.8 | 2.0 | 1 | | 0520 | 65 | 76. | 144.1 | 10.9 | 1 | | 0840 | 105 | 73. | 130.2 | 10.0 |
| 1 | | 0205 | 26 | 31. | 9.7 | 2.1 | 1 | | 0525 | 66 | 76. | 144.9 | 11.0 | 1 | | 0845 | 106 | 72. | 129.7 | 10.0 |
| 1 | | 0210 | 27 | 31. | 10.8 | 2.2 | 1 | | 0530 | 67 | 76. | 145.4 | 11.0 | 1 | | 0850 | 107 | 72. | 129.2 | 9.9 |
| 1 | | 0215 | 28 | 31. | 11.9 | 2.2 | 1 | | 0535 | 68 | 76. | 145.7 | 11.0 | 1 | | 0855 | 108 | 72. | 128.7 | 9.9 |
| 1 | | 0220 | 29 | 32. | 12.8 | 2.3 | 1 | | 0540 | 69 | 76. | 145.8 | 11.1 | 1 | | 0900 | 109 | 72. | 128.2 | 9.9 |
| 1 | | 0225 | 30 | 32. | 13.6 | 2.3 | 1 | | 0545 | 70 | 76. | 145.8 | 11.1 | 1 | | 0905 | 110 | 72. | 127.7 | 9.8 |
| 1 | | 0230 | 31 | 32. | 14.1 | 2.4 | 1 | | 0550 | 71 | 76. | 145.7 | 11.0 | 1 | | 0910 | 111 | 72. | 127.2 | 9.8 |
| 1 | | 0235 | 32 | 32. | 14.6 | 2.4 | 1 | | 0555 | 72 | 76. | 145.6 | 11.0 | 1 | | 0915 | 112 | 72. | 126.7 | 9.8 |
| 1 | | 0240 | 33 | 32. | 15.0 | 2.4 | 1 | | 0600 | 73 | 76. | 145.4 | 11.0 | 1 | | 0920 | 113 | 72. | 126.2 | 9.7 |
| 1 | | 0245 | 34 | 32. | 15.6 | 2.5 | 1 | | 0605 | 74 | 76. | 145.2 | 11.0 | 1 | | 0925 | 114 | 71. | 125.7 | 9.7 |
| 1 | | 0250 | 35 | 33. | 16.2 | 2.5 | 1 | | 0610 | 75 | 76. | 145.0 | 11.0 | 1 | | 0930 | 115 | 71. | 125.2 | 9.7 |
| 1 | | 0255 | 36 | 33. | 17.2 | 2.6 | 1 | | 0615 | 76 | 76. | 144.6 | 11.0 | 1 | | 0935 | 116 | 71. | 124.7 | 9.6 |
| 1 | | 0300 | 37 | 33. | 18.7 | 2.7 | 1 | | 0620 | 77 | 76. | 144.3 | 11.0 | 1 | | 0940 | 117 | 71. | 124.2 | 9.6 |
| 1 | | 0305 | 38 | 34. | 20.8 | 2.8 | 1 | | 0625 | 78 | 76. | 143.8 | 10.9 | 1 | | 0945 | 118 | 71. | 123.8 | 9.6 |
| 1 | | 0310 | 39 | 35. | 23.6 | 3.0 | 1 | | 0630 | 79 | 76. | 143.4 | 10.9 | 1 | | 0950 | 119 | 71. | 123.3 | 9.6 |
| 1 | | 0315 | 40 | 36. | 27.4 | 3.2 | 1 | | 0635 | 80 | 76. | 142.9 | 10.9 | 1 | | 0955 | 120 | 71. | 122.8 | 9.5 |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 76. | 5.67 | | 73. | 53. | 53. | 53. |
| | | (INCHES) | .242 | .293 | .293 | .293 |
| | | (AC-FT) | 36. | 44. | 44. | 44. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 146. | 5.67 | 132. | 86. | 86. | 86. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 11.03 | 5.67 | 10.12 | 6.91 | 6.91 | 6.91 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .80

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 37. | 29.7 | 3.4 | 1 | | 0640 | 81 | 74. | 134.8 | 10.3 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 39. | 35.5 | 3.7 | 1 | | 0645 | 82 | 74. | 134.3 | 10.3 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 41. | 42.7 | 4.2 | 1 | | 0650 | 83 | 73. | 133.8 | 10.3 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 51.6 | 4.8 | 1 | | 0655 | 84 | 73. | 133.3 | 10.2 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 51. | 61.2 | 5.4 | 1 | | 0700 | 85 | 73. | 132.8 | 10.2 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 55. | 70.2 | 6.0 | 1 | | 0705 | 86 | 73. | 132.3 | 10.2 |
| 1 | | 0030 | 7 | 1. | .2 | .0 | 1 | | 0350 | 47 | 58. | 77.7 | 6.5 | 1 | | 0710 | 87 | 73. | 131.8 | 10.1 |
| 1 | | 0035 | 8 | 2. | .4 | .1 | 1 | | 0355 | 48 | 60. | 83.8 | 6.9 | 1 | | 0715 | 88 | 73. | 131.3 | 10.1 |
| 1 | | 0040 | 9 | 3. | .7 | .2 | 1 | | 0400 | 49 | 61. | 88.9 | 7.3 | 1 | | 0720 | 89 | 73. | 130.8 | 10.1 |
| 1 | | 0045 | 10 | 4. | 1.1 | .3 | 1 | | 0405 | 50 | 63. | 93.2 | 7.5 | 1 | | 0725 | 90 | 73. | 130.3 | 10.0 |
| 1 | | 0050 | 11 | 6. | 1.5 | .4 | 1 | | 0410 | 51 | 64. | 96.7 | 7.8 | 1 | | 0730 | 91 | 72. | 129.8 | 10.0 |
| 1 | | 0055 | 12 | 7. | 1.8 | .5 | 1 | | 0415 | 52 | 65. | 99.4 | 8.0 | 1 | | 0735 | 92 | 72. | 129.3 | 10.0 |
| 1 | | 0100 | 13 | 8. | 2.1 | .5 | 1 | | 0420 | 53 | 65. | 101.5 | 8.1 | 1 | | 0740 | 93 | 72. | 128.8 | 9.9 |
| 1 | | 0105 | 14 | 9. | 2.4 | .6 | 1 | | 0425 | 54 | 66. | 103.3 | 8.2 | 1 | | 0745 | 94 | 72. | 128.3 | 9.9 |
| 1 | | 0110 | 15 | 10. | 2.6 | .7 | 1 | | 0430 | 55 | 66. | 105.1 | 8.3 | 1 | | 0750 | 95 | 72. | 127.8 | 9.9 |
| 1 | | 0115 | 16 | 11. | 2.9 | .7 | 1 | | 0435 | 56 | 67. | 107.1 | 8.5 | 1 | | 0755 | 96 | 72. | 127.3 | 9.8 |
| 1 | | 0120 | 17 | 12. | 3.1 | .8 | 1 | | 0440 | 57 | 67. | 109.8 | 8.7 | 1 | | 0800 | 97 | 72. | 126.8 | 9.8 |
| 1 | | 0125 | 18 | 13. | 3.4 | .9 | 1 | | 0445 | 58 | 68. | 113.2 | 8.9 | 1 | | 0805 | 98 | 72. | 126.3 | 9.8 |
| 1 | | 0130 | 19 | 14. | 3.8 | .9 | 1 | | 0450 | 59 | 69. | 117.4 | 9.2 | 1 | | 0810 | 99 | 71. | 125.8 | 9.7 |
| 1 | | 0135 | 20 | 16. | 4.3 | 1.1 | 1 | | 0455 | 60 | 70. | 122.0 | 9.5 | 1 | | 0815 | 100 | 71. | 125.3 | 9.7 |
| 1 | | 0140 | 21 | 18. | 4.9 | 1.2 | 1 | | 0500 | 61 | 72. | 126.5 | 9.8 | 1 | | 0820 | 101 | 71. | 124.9 | 9.7 |
| 1 | | 0145 | 22 | 21. | 5.6 | 1.4 | 1 | | 0505 | 62 | 73. | 130.4 | 10.0 | 1 | | 0825 | 102 | 71. | 124.4 | 9.6 |
| 1 | | 0150 | 23 | 24. | 6.3 | 1.6 | 1 | | 0510 | 63 | 73. | 133.3 | 10.2 | 1 | | 0830 | 103 | 71. | 123.9 | 9.6 |
| 1 | | 0155 | 24 | 27. | 7.1 | 1.8 | 1 | | 0515 | 64 | 74. | 135.3 | 10.4 | 1 | | 0835 | 104 | 71. | 123.4 | 9.6 |
| 1 | | 0200 | 25 | 30. | 7.9 | 2.0 | 1 | | 0520 | 65 | 74. | 136.6 | 10.4 | 1 | | 0840 | 105 | 71. | 122.9 | 9.5 |
| 1 | | 0205 | 26 | 30. | 8.8 | 2.1 | 1 | | 0525 | 66 | 74. | 137.4 | 10.5 | 1 | | 0845 | 106 | 71. | 122.4 | 9.5 |
| 1 | | 0210 | 27 | 31. | 9.8 | 2.1 | 1 | | 0530 | 67 | 74. | 137.8 | 10.5 | 1 | | 0850 | 107 | 70. | 121.9 | 9.5 |
| 1 | | 0215 | 28 | 31. | 10.8 | 2.2 | 1 | | 0535 | 68 | 75. | 138.1 | 10.5 | 1 | | 0855 | 108 | 70. | 121.4 | 9.4 |
| 1 | | 0220 | 29 | 31. | 11.7 | 2.2 | 1 | | 0540 | 69 | 75. | 138.2 | 10.5 | 1 | | 0900 | 109 | 70. | 121.0 | 9.4 |
| 1 | | 0225 | 30 | 31. | 12.4 | 2.3 | 1 | | 0545 | 70 | 75. | 138.2 | 10.5 | 1 | | 0905 | 110 | 70. | 120.5 | 9.4 |
| 1 | | 0230 | 31 | 32. | 12.9 | 2.3 | 1 | | 0550 | 71 | 75. | 138.1 | 10.5 | 1 | | 0910 | 111 | 70. | 120.0 | 9.3 |
| 1 | | 0235 | 32 | 32. | 13.3 | 2.3 | 1 | | 0555 | 72 | 74. | 137.9 | 10.5 | 1 | | 0915 | 112 | 70. | 119.5 | 9.3 |
| 1 | | 0240 | 33 | 32. | 13.7 | 2.4 | 1 | | 0600 | 73 | 74. | 137.8 | 10.5 | 1 | | 0920 | 113 | 70. | 119.0 | 9.3 |
| 1 | | 0245 | 34 | 32. | 14.1 | 2.4 | 1 | | 0605 | 74 | 74. | 137.6 | 10.5 | 1 | | 0925 | 114 | 70. | 118.5 | 9.2 |
| 1 | | 0250 | 35 | 32. | 14.8 | 2.4 | 1 | | 0610 | 75 | 74. | 137.3 | 10.5 | 1 | | 0930 | 115 | 70. | 118.1 | 9.2 |
| 1 | | 0255 | 36 | 32. | 15.7 | 2.5 | 1 | | 0615 | 76 | 74. | 137.0 | 10.5 | 1 | | 0935 | 116 | 69. | 117.6 | 9.2 |
| 1 | | 0300 | 37 | 33. | 17.1 | 2.6 | 1 | | 0620 | 77 | 74. | 136.6 | 10.4 | 1 | | 0940 | 117 | 69. | 117.1 | 9.1 |
| 1 | | 0305 | 38 | 33. | 19.0 | 2.7 | 1 | | 0625 | 78 | 74. | 136.2 | 10.4 | 1 | | 0945 | 118 | 69. | 116.6 | 9.1 |
| 1 | | 0310 | 39 | 34. | 21.7 | 2.9 | 1 | | 0630 | 79 | 74. | 135.8 | 10.4 | 1 | | 0950 | 119 | 69. | 116.2 | 9.1 |
| 1 | | 0315 | 40 | 35. | 25.2 | 3.1 | 1 | | 0635 | 80 | 74. | 135.3 | 10.4 | 1 | | 0955 | 120 | 69. | 115.7 | 9.0 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | (CFS) | | | | |
| + 75. | 5.67 | | 71. | 52. | 52. | 52. |
| | | (INCHES) | .236 | .285 | .285 | .285 |
| | | (AC-FT) | 35. | 43. | 43. | 43. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 136. | 5.67 | 125. | 81. | 81. | 81. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 10.55 | 5.67 | 9.64 | 6.58 | 6.58 | 6.58 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .76

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 36. | 26.5 | 3.2 | 1 | | 0640 | 81 | 71. | 124.4 | 9.6 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 37. | 31.8 | 3.5 | 1 | | 0645 | 82 | 71. | 123.9 | 9.6 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 40. | 38.5 | 3.9 | 1 | | 0650 | 83 | 71. | 123.4 | 9.6 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 43. | 46.8 | 4.5 | 1 | | 0655 | 84 | 71. | 122.9 | 9.5 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 48. | 55.8 | 5.1 | 1 | | 0700 | 85 | 71. | 122.4 | 9.5 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 52. | 64.2 | 5.6 | 1 | | 0705 | 86 | 70. | 122.0 | 9.5 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 55. | 71.2 | 6.1 | 1 | | 0710 | 87 | 70. | 121.5 | 9.4 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 57. | 76.9 | 6.5 | 1 | | 0715 | 88 | 70. | 121.0 | 9.4 |
| 1 | | 0040 | 9 | 2. | .6 | .1 | 1 | | 0400 | 49 | 59. | 81.7 | 6.8 | 1 | | 0720 | 89 | 70. | 120.5 | 9.4 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0045 | 10 | 3. | .9 | .2 | 1 | 0405 | 50 | 60. | 85.8 | 7.1 | 1 | 0725 | 90 | 70. | 120.0 | 9.3 |
| 1 | 0050 | 11 | 4. | 1.2 | .3 | 1 | 0410 | 51 | 61. | 89.0 | 7.3 | 1 | 0730 | 91 | 70. | 119.5 | 9.3 |
| 1 | 0055 | 12 | 6. | 1.5 | .4 | 1 | 0415 | 52 | 62. | 91.5 | 7.4 | 1 | 0735 | 92 | 70. | 119.1 | 9.3 |
| 1 | 0100 | 13 | 7. | 1.7 | .4 | 1 | 0420 | 53 | 63. | 93.5 | 7.6 | 1 | 0740 | 93 | 70. | 118.6 | 9.2 |
| 1 | 0105 | 14 | 7. | 2.0 | .5 | 1 | 0425 | 54 | 63. | 95.2 | 7.7 | 1 | 0745 | 94 | 70. | 118.1 | 9.2 |
| 1 | 0110 | 15 | 8. | 2.2 | .6 | 1 | 0430 | 55 | 64. | 96.8 | 7.8 | 1 | 0750 | 95 | 69. | 117.6 | 9.2 |
| 1 | 0115 | 16 | 9. | 2.4 | .6 | 1 | 0435 | 56 | 65. | 98.7 | 7.9 | 1 | 0755 | 96 | 69. | 117.1 | 9.1 |
| 1 | 0120 | 17 | 10. | 2.6 | .7 | 1 | 0440 | 57 | 65. | 101.2 | 8.1 | 1 | 0800 | 97 | 69. | 116.7 | 9.1 |
| 1 | 0125 | 18 | 11. | 2.9 | .7 | 1 | 0445 | 58 | 66. | 104.4 | 8.3 | 1 | 0805 | 98 | 69. | 116.2 | 9.1 |
| 1 | 0130 | 19 | 12. | 3.2 | .8 | 1 | 0450 | 59 | 67. | 108.3 | 8.6 | 1 | 0810 | 99 | 69. | 115.7 | 9.0 |
| 1 | 0135 | 20 | 14. | 3.6 | .9 | 1 | 0455 | 60 | 68. | 112.6 | 8.8 | 1 | 0815 | 100 | 69. | 115.2 | 9.0 |
| 1 | 0140 | 21 | 16. | 4.2 | 1.0 | 1 | 0500 | 61 | 69. | 116.8 | 9.1 | 1 | 0820 | 101 | 69. | 114.8 | 9.0 |
| 1 | 0145 | 22 | 18. | 4.8 | 1.2 | 1 | 0505 | 62 | 70. | 120.5 | 9.4 | 1 | 0825 | 102 | 69. | 114.3 | 9.0 |
| 1 | 0150 | 23 | 20. | 5.5 | 1.4 | 1 | 0510 | 63 | 71. | 123.2 | 9.5 | 1 | 0830 | 103 | 68. | 113.8 | 8.9 |
| 1 | 0155 | 24 | 23. | 6.2 | 1.5 | 1 | 0515 | 64 | 71. | 125.1 | 9.7 | 1 | 0835 | 104 | 68. | 113.4 | 8.9 |
| 1 | 0200 | 25 | 26. | 6.9 | 1.7 | 1 | 0520 | 65 | 72. | 126.3 | 9.8 | 1 | 0840 | 105 | 68. | 112.9 | 8.9 |
| 1 | 0205 | 26 | 29. | 7.7 | 1.9 | 1 | 0525 | 66 | 72. | 127.0 | 9.8 | 1 | 0845 | 106 | 68. | 112.4 | 8.8 |
| 1 | 0210 | 27 | 30. | 8.6 | 2.0 | 1 | 0530 | 67 | 72. | 127.4 | 9.8 | 1 | 0850 | 107 | 68. | 111.9 | 8.8 |
| 1 | 0215 | 28 | 30. | 9.4 | 2.1 | 1 | 0535 | 68 | 72. | 127.6 | 9.8 | 1 | 0855 | 108 | 68. | 111.5 | 8.8 |
| 1 | 0220 | 29 | 31. | 10.2 | 2.1 | 1 | 0540 | 69 | 72. | 127.7 | 9.8 | 1 | 0900 | 109 | 68. | 111.0 | 8.7 |
| 1 | 0225 | 30 | 31. | 10.8 | 2.2 | 1 | 0545 | 70 | 72. | 127.7 | 9.8 | 1 | 0905 | 110 | 68. | 110.5 | 8.7 |
| 1 | 0230 | 31 | 31. | 11.2 | 2.2 | 1 | 0550 | 71 | 72. | 127.5 | 9.8 | 1 | 0910 | 111 | 68. | 110.1 | 8.7 |
| 1 | 0235 | 32 | 31. | 11.5 | 2.2 | 1 | 0555 | 72 | 72. | 127.4 | 9.8 | 1 | 0915 | 112 | 67. | 109.6 | 8.6 |
| 1 | 0240 | 33 | 31. | 11.9 | 2.2 | 1 | 0600 | 73 | 72. | 127.2 | 9.8 | 1 | 0920 | 113 | 67. | 109.1 | 8.6 |
| 1 | 0245 | 34 | 31. | 12.3 | 2.3 | 1 | 0605 | 74 | 72. | 127.0 | 9.8 | 1 | 0925 | 114 | 67. | 108.7 | 8.6 |
| 1 | 0250 | 35 | 32. | 12.8 | 2.3 | 1 | 0610 | 75 | 72. | 126.8 | 9.8 | 1 | 0930 | 115 | 67. | 108.2 | 8.5 |
| 1 | 0255 | 36 | 32. | 13.6 | 2.4 | 1 | 0615 | 76 | 72. | 126.5 | 9.8 | 1 | 0935 | 116 | 67. | 107.8 | 8.5 |
| 1 | 0300 | 37 | 32. | 14.9 | 2.4 | 1 | 0620 | 77 | 72. | 126.1 | 9.7 | 1 | 0940 | 117 | 67. | 107.3 | 8.5 |
| 1 | 0305 | 38 | 33. | 16.7 | 2.5 | 1 | 0625 | 78 | 71. | 125.7 | 9.7 | 1 | 0945 | 118 | 67. | 106.8 | 8.5 |
| 1 | 0310 | 39 | 33. | 19.1 | 2.7 | 1 | 0630 | 79 | 71. | 125.3 | 9.7 | 1 | 0950 | 119 | 67. | 106.4 | 8.4 |
| 1 | 0315 | 40 | 34. | 22.3 | 2.9 | 1 | 0635 | 80 | 71. | 124.8 | 9.7 | 1 | 0955 | 120 | 66. | 105.9 | 8.4 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 72. | 5.67 | | 69. | 50. | 50. | 50. |
| | | (INCHES) | .227 | .274 | .274 | .274 |
| | | (AC-FT) | 34. | 41. | 41. | 41. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 128. | 5.67 | | 115. | 75. | 75. | 75. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 9.85 | 5.67 | | 8.98 | 6.13 | 6.13 | 6.13 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .73

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 35. | 23.4 | 3.0 | 1 | | 0640 | 81 | 68. | 113.8 | 8.9 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 28.2 | 3.3 | 1 | | 0645 | 82 | 68. | 113.3 | 8.9 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 38. | 34.4 | 3.7 | 1 | | 0650 | 83 | 68. | 112.9 | 8.9 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 41. | 42.1 | 4.1 | 1 | | 0655 | 84 | 68. | 112.4 | 8.8 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 45. | 50.4 | 4.7 | 1 | | 0700 | 85 | 68. | 111.9 | 8.8 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 49. | 58.2 | 5.2 | 1 | | 0705 | 86 | 68. | 111.5 | 8.8 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 52. | 64.7 | 5.6 | 1 | | 0710 | 87 | 68. | 111.0 | 8.7 |
| 1 | | 0035 | 8 | 1. | .2 | .1 | 1 | | 0355 | 48 | 55. | 70.0 | 6.0 | 1 | | 0715 | 88 | 68. | 110.5 | 8.7 |
| 1 | | 0040 | 9 | 2. | .4 | .1 | 1 | | 0400 | 49 | 56. | 74.4 | 6.3 | 1 | | 0720 | 89 | 68. | 110.1 | 8.7 |
| 1 | | 0045 | 10 | 3. | .7 | .2 | 1 | | 0405 | 50 | 58. | 78.2 | 6.5 | 1 | | 0725 | 90 | 67. | 109.6 | 8.6 |
| 1 | | 0050 | 11 | 3. | .9 | .2 | 1 | | 0410 | 51 | 59. | 81.2 | 6.7 | 1 | | 0730 | 91 | 67. | 109.1 | 8.6 |
| 1 | | 0055 | 12 | 4. | 1.2 | .3 | 1 | | 0415 | 52 | 60. | 83.5 | 6.9 | 1 | | 0735 | 92 | 67. | 108.7 | 8.6 |
| 1 | | 0100 | 13 | 5. | 1.4 | .3 | 1 | | 0420 | 53 | 60. | 85.3 | 7.0 | 1 | | 0740 | 93 | 67. | 108.2 | 8.5 |
| 1 | | 0105 | 14 | 6. | 1.6 | .4 | 1 | | 0425 | 54 | 61. | 86.9 | 7.1 | 1 | | 0745 | 94 | 67. | 107.8 | 8.5 |
| 1 | | 0110 | 15 | 7. | 1.8 | .4 | 1 | | 0430 | 55 | 61. | 88.4 | 7.2 | 1 | | 0750 | 95 | 67. | 107.3 | 8.5 |
| 1 | | 0115 | 16 | 7. | 2.0 | .5 | 1 | | 0435 | 56 | 62. | 90.2 | 7.3 | 1 | | 0755 | 96 | 67. | 106.8 | 8.5 |
| 1 | | 0120 | 17 | 8. | 2.2 | .5 | 1 | | 0440 | 57 | 62. | 92.5 | 7.5 | 1 | | 0800 | 97 | 67. | 106.4 | 8.4 |
| 1 | | 0125 | 18 | 9. | 2.4 | .6 | 1 | | 0445 | 58 | 63. | 95.5 | 7.7 | 1 | | 0805 | 98 | 66. | 105.9 | 8.4 |
| 1 | | 0130 | 19 | 10. | 2.7 | .7 | 1 | | 0450 | 59 | 65. | 99.1 | 7.9 | 1 | | 0810 | 99 | 66. | 105.5 | 8.4 |
| 1 | | 0135 | 20 | 11. | 3.0 | .8 | 1 | | 0455 | 60 | 66. | 103.1 | 8.2 | 1 | | 0815 | 100 | 66. | 105.0 | 8.3 |
| 1 | | 0140 | 21 | 13. | 3.5 | .9 | 1 | | 0500 | 61 | 67. | 107.1 | 8.5 | 1 | | 0820 | 101 | 66. | 104.6 | 8.3 |
| 1 | | 0145 | 22 | 15. | 4.0 | 1.0 | 1 | | 0505 | 62 | 68. | 110.5 | 8.7 | 1 | | 0825 | 102 | 66. | 104.1 | 8.3 |
| 1 | | 0150 | 23 | 17. | 4.6 | 1.2 | 1 | | 0510 | 63 | 68. | 113.0 | 8.9 | 1 | | 0830 | 103 | 66. | 103.6 | 8.2 |
| 1 | | 0155 | 24 | 20. | 5.2 | 1.3 | 1 | | 0515 | 64 | 69. | 114.8 | 9.0 | 1 | | 0835 | 104 | 66. | 103.2 | 8.2 |
| 1 | | 0200 | 25 | 22. | 5.9 | 1.5 | 1 | | 0520 | 65 | 69. | 115.8 | 9.1 | 1 | | 0840 | 105 | 66. | 102.7 | 8.2 |
| 1 | | 0205 | 26 | 25. | 6.6 | 1.6 | 1 | | 0525 | 66 | 69. | 116.5 | 9.1 | 1 | | 0845 | 106 | 66. | 102.3 | 8.2 |
| 1 | | 0210 | 27 | 28. | 7.3 | 1.8 | 1 | | 0530 | 67 | 69. | 116.8 | 9.1 | 1 | | 0850 | 107 | 65. | 101.8 | 8.1 |
| 1 | | 0215 | 28 | 30. | 8.1 | 2.0 | 1 | | 0535 | 68 | 69. | 117.0 | 9.1 | 1 | | 0855 | 108 | 65. | 101.4 | 8.1 |
| 1 | | 0220 | 29 | 30. | 8.7 | 2.0 | 1 | | 0540 | 69 | 69. | 117.1 | 9.1 | 1 | | 0900 | 109 | 65. | 100.9 | 8.1 |
| 1 | | 0225 | 30 | 30. | 9.2 | 2.1 | 1 | | 0545 | 70 | 69. | 117.0 | 9.1 | 1 | | 0905 | 110 | 65. | 100.5 | 8.0 |
| 1 | | 0230 | 31 | 30. | 9.6 | 2.1 | 1 | | 0550 | 71 | 69. | 116.9 | 9.1 | 1 | | 0910 | 111 | 65. | 100.0 | 8.0 |
| 1 | | 0235 | 32 | 31. | 9.9 | 2.1 | 1 | | 0555 | 72 | 69. | 116.8 | 9.1 | 1 | | 0915 | 112 | 65. | 99.6 | 8.0 |
| 1 | | 0240 | 33 | 31. | 10.1 | 2.1 | 1 | | 0600 | 73 | 69. | 116.6 | 9.1 | 1 | | 0920 | 113 | 65. | 99.1 | 7.9 |
| 1 | | 0245 | 34 | 31. | 10.5 | 2.2 | 1 | | 0605 | 74 | 69. | 116.4 | 9.1 | 1 | | 0925 | 114 | 65. | 98.7 | 7.9 |
| 1 | | 0250 | 35 | 31. | 10.9 | 2.2 | 1 | | 0610 | 75 | 69. | 116.2 | 9.1 | 1 | | 0930 | 115 | 64. | 98.3 | 7.9 |
| 1 | | 0255 | 36 | 31. | 11.6 | 2.2 | 1 | | 0615 | 76 | 69. | 115.9 | 9.1 | 1 | | 0935 | 116 | 64. | 97.8 | 7.9 |
| 1 | | 0300 | 37 | 31. | 12.7 | 2.3 | 1 | | 0620 | 77 | 69. | 115.5 | 9.0 | 1 | | 0940 | 117 | 64. | 97.4 | 7.8 |
| 1 | | 0305 | 38 | 32. | 14.3 | 2.4 | 1 | | 0625 | 78 | 69. | 115.1 | 9.0 | 1 | | 0945 | 118 | 64. | 96.9 | 7.8 |
| 1 | | 0310 | 39 | 33. | 16.6 | 2.5 | 1 | | 0630 | 79 | 69. | 114.7 | 9.0 | 1 | | 0950 | 119 | 64. | 96.5 | 7.8 |
| 1 | | 0315 | 40 | 34. | 19.5 | 2.7 | 1 | | 0635 | 80 | 69. | 114.2 | 8.9 | 1 | | 0955 | 120 | 64. | 96.0 | 7.7 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 69. | 5.67 | | 66. | 48. | 48. | 48. |
| | | (INCHES) | .219 | .262 | .262 | .262 |
| | | (AC-FT) | 33. | 39. | 39. | 39. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | | |
| 117. | 5.67 | | 105. | 68. | 68. | 68. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | | |
| 9.14 | 5.67 | | 8.32 | 5.67 | 5.67 | 5.67 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .69

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 21.1 | 2.6 | 1 | | 0640 | 81 | 66. | 106.0 | 8.4 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 25.6 | 3.1 | 1 | | 0645 | 82 | 66. | 105.5 | 8.4 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 37. | 31.4 | 3.5 | 1 | | 0650 | 83 | 66. | 105.1 | 8.3 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 40. | 36.6 | 3.9 | 1 | | 0655 | 84 | 66. | 104.6 | 8.3 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 43. | 40.4 | 4.4 | 1 | | 0700 | 85 | 66. | 104.2 | 8.3 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 47. | 53.8 | 4.9 | 1 | | 0705 | 86 | 66. | 103.7 | 8.2 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 50. | 59.9 | 5.3 | 1 | | 0710 | 87 | 66. | 103.3 | 8.2 |
| 1 | | 0035 | 8 | 1. | .2 | .0 | 1 | | 0355 | 48 | 52. | 64.9 | 5.7 | 1 | | 0715 | 88 | 66. | 102.8 | 8.2 |
| 1 | | 0040 | 9 | 1. | .3 | .1 | 1 | | 0400 | 49 | 55. | 69.1 | 5.9 | 1 | | 0720 | 89 | 66. | 102.3 | 8.2 |
| 1 | | 0045 | 10 | 2. | .5 | .1 | 1 | | 0405 | 50 | 56. | 72.6 | 6.2 | 1 | | 0725 | 90 | 65. | 101.9 | 8.1 |
| 1 | | 0050 | 11 | 3. | .7 | .2 | 1 | | 0410 | 51 | 57. | 75.5 | 6.4 | 1 | | 0730 | 91 | 65. | 101.4 | 8.1 |
| 1 | | 0055 | 12 | 4. | .9 | .2 | 1 | | 0415 | 52 | 58. | 77.6 | 6.5 | 1 | | 0735 | 92 | 65. | 101.0 | 8.1 |
| 1 | | 0100 | 13 | 4. | 1.1 | .3 | 1 | | 0420 | 53 | 58. | 79.4 | 6.6 | 1 | | 0740 | 93 | 65. | 100.5 | 8.0 |
| 1 | | 0105 | 14 | 5. | 1.3 | .3 | 1 | | 0425 | 54 | 59. | 80.8 | 6.7 | 1 | | 0745 | 94 | 65. | 100.1 | 8.0 |
| 1 | | 0110 | 15 | 6. | 1.5 | .4 | 1 | | 0430 | 55 | 59. | 82.2 | 6.8 | 1 | | 0750 | 95 | 65. | 99.7 | 8.0 |
| 1 | | 0115 | 16 | 6. | 1.7 | .4 | 1 | | 0435 | 56 | 60. | 83.9 | 6.9 | 1 | | 0755 | 96 | 65. | 99.2 | 7.9 |
| 1 | | 0120 | 17 | 7. | 1.8 | .5 | 1 | | 0440 | 57 | 60. | 86.0 | 7.1 | 1 | | 0800 | 97 | 65. | 98.8 | 7.9 |
| 1 | | 0125 | 18 | 8. | 2.0 | .5 | 1 | | 0445 | 58 | 61. | 86.9 | 7.3 | 1 | | 0805 | 98 | 64. | 98.3 | 7.9 |
| 1 | | 0130 | 19 | 9. | 2.3 | .6 | 1 | | 0450 | 59 | 62. | 92.3 | 7.5 | 1 | | 0810 | 99 | 64. | 97.9 | 7.9 |
| 1 | | 0135 | 20 | 10. | 2.6 | .7 | 1 | | 0455 | 60 | 64. | 96.1 | 7.7 | 1 | | 0815 | 100 | 64. | 97.4 | 7.8 |
| 1 | | 0140 | 21 | 11. | 3.0 | .8 | 1 | | 0500 | 61 | 65. | 99.9 | 8.0 | 1 | | 0820 | 101 | 64. | 97.0 | 7.8 |
| 1 | | 0145 | 22 | 13. | 3.5 | .9 | 1 | | 0505 | 62 | 66. | 103.1 | 8.2 | 1 | | 0825 | 102 | 64. | 96.5 | 7.8 |
| 1 | | 0150 | 23 | 15. | 4.0 | 1.0 | 1 | | 0510 | 63 | 66. | 105.5 | 8.4 | 1 | | 0830 | 103 | 64. | 96.1 | 7.7 |
| 1 | | 0155 | 24 | 17. | 4.6 | 1.1 | 1 | | 0515 | 64 | 67. | 107.1 | 8.5 | 1 | | 0835 | 104 | 64. | 95.7 | 7.7 |
| 1 | | 0200 | 25 | 19. | 5.1 | 1.3 | 1 | | 0520 | 65 | 67. | 106.1 | 8.5 | 1 | | 0840 | 105 | 63. | 95.2 | 7.7 |
| 1 | | 0205 | 26 | 22. | 5.8 | 1.4 | 1 | | 0525 | 66 | 67. | 108.7 | 8.6 | 1 | | 0845 | 106 | 63. | 94.8 | 7.7 |
| 1 | | 0210 | 27 | 24. | 6.5 | 1.6 | 1 | | 0530 | 67 | 67. | 109.0 | 8.6 | 1 | | 0850 | 107 | 63. | 94.4 | 7.6 |
| 1 | | 0215 | 28 | 27. | 7.2 | 1.8 | 1 | | 0535 | 68 | 67. | 109.2 | 8.6 | 1 | | 0855 | 108 | 63. | 93.9 | 7.6 |
| 1 | | 0220 | 29 | 29. | 7.7 | 1.9 | 1 | | 0540 | 69 | 67. | 109.2 | 8.6 | 1 | | 0900 | 109 | 63. | 93.5 | 7.6 |
| 1 | | 0225 | 30 | 30. | 8.2 | 2.0 | 1 | | 0545 | 70 | 67. | 109.1 | 8.6 | 1 | | 0905 | 110 | 63. | 93.1 | 7.5 |
| 1 | | 0230 | 31 | 30. | 8.5 | 2.0 | 1 | | 0550 | 71 | 67. | 109.0 | 8.6 | 1 | | 0910 | 111 | 63. | 92.6 | 7.5 |
| 1 | | 0235 | 32 | 30. | 8.7 | 2.0 | 1 | | 0555 | 72 | 67. | 108.9 | 8.6 | 1 | | 0915 | 112 | 62. | 92.2 | 7.5 |
| 1 | | 0240 | 33 | 30. | 8.9 | 2.1 | 1 | | 0600 | 73 | 67. | 108.7 | 8.6 | 1 | | 0920 | 113 | 62. | 91.8 | 7.5 |
| 1 | | 0245 | 34 | 30. | 9.2 | 2.1 | 1 | | 0605 | 74 | 67. | 108.5 | 8.6 | 1 | | 0925 | 114 | 62. | 91.3 | 7.4 |
| 1 | | 0250 | 35 | 30. | 9.6 | 2.1 | 1 | | 0610 | 75 | 67. | 108.3 | 8.6 | 1 | | 0930 | 115 | 62. | 90.9 | 7.4 |
| 1 | | 0255 | 36 | 31. | 10.2 | 2.1 | 1 | | 0615 | 76 | 67. | 108.0 | 8.5 | 1 | | 0935 | 116 | 62. | 90.5 | 7.4 |
| 1 | | 0300 | 37 | 31. | 11.2 | 2.2 | 1 | | 0620 | 77 | 67. | 107.6 | 8.5 | 1 | | 0940 | 117 | 62. | 90.1 | 7.3 |
| 1 | | 0305 | 38 | 31. | 12.7 | 2.3 | 1 | | 0625 | 78 | 67. | 107.2 | 8.5 | 1 | | 0945 | 118 | 62. | 89.6 | 7.3 |
| 1 | | 0310 | 39 | 32. | 14.7 | 2.4 | 1 | | 0630 | 79 | 67. | 106.8 | 8.5 | 1 | | 0950 | 119 | 61. | 89.2 | 7.3 |
| 1 | | 0315 | 40 | 33. | 17.5 | 2.6 | 1 | | 0635 | 80 | 67. | 106.4 | 8.4 | 1 | | 0955 | 120 | 61. | 88.8 | 7.3 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 67. | 5.67 | | 64. | 46. | 46. | 46. |
| | | (INCHES) | .212 | .253 | .253 | .253 |
| | | (AC-FT) | 32. | 38. | 38. | 38. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | | |
| 109. | 5.67 | | 97. | 63. | 63. | 63. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | | |
| 8.61 | 5.67 | | 7.83 | 5.33 | 5.33 | 5.33 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .64

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0000 | 1 | 0. | .0 | .0 | 1 | 0320 | 41 | 33. | 17.2 | 2.6 | 1 | 0640 | 81 | 62. | 92.1 | 7.5 |
| 1 | 0005 | 2 | 0. | .0 | .0 | 1 | 0325 | 42 | 34. | 21.2 | 2.8 | 1 | 0645 | 82 | 62. | 91.7 | 7.4 |
| 1 | 0010 | 3 | 0. | .0 | .0 | 1 | 0330 | 43 | 36. | 26.3 | 3.1 | 1 | 0650 | 83 | 62. | 91.2 | 7.4 |
| 1 | 0015 | 4 | 0. | .0 | .0 | 1 | 0335 | 44 | 38. | 32.6 | 3.5 | 1 | 0655 | 84 | 62. | 90.8 | 7.4 |
| 1 | 0020 | 5 | 0. | .0 | .0 | 1 | 0340 | 45 | 40. | 39.6 | 4.0 | 1 | 0700 | 85 | 62. | 90.4 | 7.4 |
| 1 | 0025 | 6 | 0. | .0 | .0 | 1 | 0345 | 46 | 43. | 46.1 | 4.4 | 1 | 0705 | 86 | 62. | 90.0 | 7.3 |
| 1 | 0030 | 7 | 0. | .0 | .0 | 1 | 0350 | 47 | 46. | 51.5 | 4.8 | 1 | 0710 | 87 | 62. | 89.5 | 7.3 |
| 1 | 0035 | 8 | 0. | .1 | .0 | 1 | 0355 | 48 | 48. | 55.9 | 5.1 | 1 | 0715 | 88 | 61. | 89.1 | 7.3 |
| 1 | 0040 | 9 | 1. | .2 | .0 | 1 | 0400 | 49 | 50. | 59.7 | 5.3 | 1 | 0720 | 89 | 61. | 88.7 | 7.2 |
| 1 | 0045 | 10 | 1. | .3 | .1 | 1 | 0405 | 50 | 51. | 62.8 | 5.5 | 1 | 0725 | 90 | 61. | 88.3 | 7.2 |
| 1 | 0050 | 11 | 2. | .5 | .1 | 1 | 0410 | 51 | 53. | 65.4 | 5.7 | 1 | 0730 | 91 | 61. | 87.9 | 7.2 |
| 1 | 0055 | 12 | 2. | .6 | .2 | 1 | 0415 | 52 | 54. | 67.3 | 5.8 | 1 | 0735 | 92 | 61. | 87.4 | 7.2 |
| 1 | 0100 | 13 | 3. | .8 | .2 | 1 | 0420 | 53 | 54. | 68.8 | 5.9 | 1 | 0740 | 93 | 61. | 87.0 | 7.1 |
| 1 | 0105 | 14 | 3. | .9 | .2 | 1 | 0425 | 54 | 55. | 70.0 | 6.0 | 1 | 0745 | 94 | 61. | 86.6 | 7.1 |
| 1 | 0110 | 15 | 4. | 1.0 | .3 | 1 | 0430 | 55 | 55. | 71.3 | 6.1 | 1 | 0750 | 95 | 60. | 86.2 | 7.1 |
| 1 | 0115 | 16 | 4. | 1.2 | .3 | 1 | 0435 | 56 | 56. | 72.7 | 6.2 | 1 | 0755 | 96 | 60. | 85.8 | 7.1 |
| 1 | 0120 | 17 | 5. | 1.3 | .3 | 1 | 0440 | 57 | 57. | 74.7 | 6.3 | 1 | 0800 | 97 | 60. | 85.4 | 7.0 |
| 1 | 0125 | 18 | 5. | 1.5 | .4 | 1 | 0445 | 58 | 57. | 77.2 | 6.5 | 1 | 0805 | 98 | 60. | 84.9 | 7.0 |
| 1 | 0130 | 19 | 6. | 1.7 | .4 | 1 | 0450 | 59 | 58. | 80.2 | 6.7 | 1 | 0810 | 99 | 60. | 84.5 | 7.0 |
| 1 | 0135 | 20 | 7. | 1.9 | .5 | 1 | 0455 | 60 | 60. | 83.7 | 6.9 | 1 | 0815 | 100 | 60. | 84.1 | 6.9 |
| 1 | 0140 | 21 | 8. | 2.2 | .6 | 1 | 0500 | 61 | 61. | 87.0 | 7.1 | 1 | 0820 | 101 | 60. | 83.7 | 6.9 |
| 1 | 0145 | 22 | 10. | 2.6 | .7 | 1 | 0505 | 62 | 62. | 89.9 | 7.3 | 1 | 0825 | 102 | 59. | 83.3 | 6.9 |
| 1 | 0150 | 23 | 11. | 3.0 | .8 | 1 | 0510 | 63 | 62. | 92.1 | 7.5 | 1 | 0830 | 103 | 59. | 82.9 | 6.9 |
| 1 | 0155 | 24 | 13. | 3.4 | .9 | 1 | 0515 | 64 | 63. | 93.5 | 7.6 | 1 | 0835 | 104 | 59. | 82.5 | 6.8 |
| 1 | 0200 | 25 | 15. | 3.9 | 1.0 | 1 | 0520 | 65 | 63. | 94.4 | 7.6 | 1 | 0840 | 105 | 59. | 82.1 | 6.8 |
| 1 | 0205 | 26 | 17. | 4.4 | 1.1 | 1 | 0525 | 66 | 63. | 94.9 | 7.7 | 1 | 0845 | 106 | 59. | 81.7 | 6.8 |
| 1 | 0210 | 27 | 19. | 5.0 | 1.2 | 1 | 0530 | 67 | 63. | 95.1 | 7.7 | 1 | 0850 | 107 | 59. | 81.3 | 6.8 |
| 1 | 0215 | 28 | 21. | 5.6 | 1.4 | 1 | 0535 | 68 | 63. | 95.2 | 7.7 | 1 | 0855 | 108 | 59. | 80.9 | 6.7 |
| 1 | 0220 | 29 | 23. | 6.0 | 1.5 | 1 | 0540 | 69 | 63. | 95.2 | 7.7 | 1 | 0900 | 109 | 58. | 80.5 | 6.7 |
| 1 | 0225 | 30 | 24. | 6.4 | 1.6 | 1 | 0545 | 70 | 63. | 95.1 | 7.7 | 1 | 0905 | 110 | 58. | 80.1 | 6.7 |
| 1 | 0230 | 31 | 25. | 6.6 | 1.7 | 1 | 0550 | 71 | 63. | 95.0 | 7.7 | 1 | 0910 | 111 | 58. | 79.7 | 6.6 |
| 1 | 0235 | 32 | 26. | 6.8 | 1.7 | 1 | 0555 | 72 | 63. | 94.9 | 7.7 | 1 | 0915 | 112 | 58. | 79.3 | 6.6 |
| 1 | 0240 | 33 | 26. | 7.0 | 1.7 | 1 | 0600 | 73 | 63. | 94.7 | 7.6 | 1 | 0920 | 113 | 58. | 78.9 | 6.6 |
| 1 | 0245 | 34 | 27. | 7.2 | 1.8 | 1 | 0605 | 74 | 63. | 94.5 | 7.6 | 1 | 0925 | 114 | 58. | 78.5 | 6.6 |
| 1 | 0250 | 35 | 28. | 7.5 | 1.9 | 1 | 0610 | 75 | 63. | 94.3 | 7.6 | 1 | 0930 | 115 | 58. | 78.1 | 6.5 |
| 1 | 0255 | 36 | 30. | 8.0 | 2.0 | 1 | 0615 | 76 | 63. | 94.0 | 7.6 | 1 | 0935 | 116 | 58. | 77.7 | 6.5 |
| 1 | 0300 | 37 | 30. | 8.8 | 2.1 | 1 | 0620 | 77 | 63. | 93.7 | 7.6 | 1 | 0940 | 117 | 57. | 77.3 | 6.5 |
| 1 | 0305 | 38 | 31. | 10.0 | 2.1 | 1 | 0625 | 78 | 63. | 93.3 | 7.6 | 1 | 0945 | 118 | 57. | 76.9 | 6.5 |
| 1 | 0310 | 39 | 31. | 11.8 | 2.2 | 1 | 0630 | 79 | 63. | 92.9 | 7.5 | 1 | 0950 | 119 | 57. | 76.5 | 6.4 |
| 1 | 0315 | 40 | 32. | 14.1 | 2.4 | 1 | 0635 | 80 | 62. | 92.5 | 7.5 | 1 | 0955 | 120 | 57. | 76.1 | 6.4 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 63. | 5.58 | | 60. | 43. | 43. | 43. |
| | | (INCHES) | .198 | .234 | .234 | .234 |
| | | (AC-FT) | 30. | 35. | 35. | 35. |

| STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 95. | 5.58 | 84. | 54. | 54. | 54. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 7.68 | 5.58 | 6.96 | 4.72 | 4.72 | 4.72 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .58

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 32. | 13.5 | 2.3 | 1 | | 0640 | 81 | 58. | 77.6 | 6.5 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 33. | 16.9 | 2.6 | 1 | | 0645 | 82 | 57. | 77.2 | 6.5 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 34. | 21.2 | 2.8 | 1 | | 0650 | 83 | 57. | 76.8 | 6.5 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 36. | 26.6 | 3.2 | 1 | | 0655 | 84 | 57. | 76.4 | 6.4 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 38. | 32.6 | 3.5 | 1 | | 0700 | 85 | 57. | 76.0 | 6.4 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 39. | 38.2 | 3.9 | 1 | | 0705 | 86 | 57. | 75.7 | 6.4 |
| 1 | | 0030 | 7 | 0. | .0 | .0 | 1 | | 0350 | 47 | 41. | 42.9 | 4.2 | 1 | | 0710 | 87 | 57. | 75.3 | 6.4 |
| 1 | | 0035 | 8 | 0. | .0 | .0 | 1 | | 0355 | 48 | 43. | 46.7 | 4.4 | 1 | | 0715 | 88 | 57. | 74.9 | 6.3 |
| 1 | | 0040 | 9 | 0. | .1 | .0 | 1 | | 0400 | 49 | 45. | 50.0 | 4.7 | 1 | | 0720 | 89 | 56. | 74.5 | 6.3 |
| 1 | | 0045 | 10 | 1. | .1 | .0 | 1 | | 0405 | 50 | 46. | 52.7 | 4.8 | 1 | | 0725 | 90 | 56. | 74.1 | 6.3 |
| 1 | | 0050 | 11 | 1. | .2 | .1 | 1 | | 0410 | 51 | 47. | 54.9 | 5.0 | 1 | | 0730 | 91 | 56. | 73.7 | 6.2 |
| 1 | | 0055 | 12 | 1. | .3 | .1 | 1 | | 0415 | 52 | 48. | 56.5 | 5.1 | 1 | | 0735 | 92 | 56. | 73.3 | 6.2 |
| 1 | | 0100 | 13 | 2. | .4 | .1 | 1 | | 0420 | 53 | 49. | 57.8 | 5.2 | 1 | | 0740 | 93 | 56. | 72.9 | 6.2 |
| 1 | | 0105 | 14 | 2. | .5 | .1 | 1 | | 0425 | 54 | 49. | 58.9 | 5.3 | 1 | | 0745 | 94 | 56. | 72.6 | 6.2 |
| 1 | | 0110 | 15 | 2. | .6 | .2 | 1 | | 0430 | 55 | 50. | 59.9 | 5.3 | 1 | | 0750 | 95 | 56. | 72.2 | 6.1 |
| 1 | | 0115 | 16 | 3. | .7 | .2 | 1 | | 0435 | 56 | 51. | 61.2 | 5.4 | 1 | | 0755 | 96 | 56. | 71.8 | 6.1 |
| 1 | | 0120 | 17 | 3. | .8 | .2 | 1 | | 0440 | 57 | 51. | 62.8 | 5.5 | 1 | | 0800 | 97 | 55. | 71.4 | 6.1 |
| 1 | | 0125 | 18 | 3. | .9 | .2 | 1 | | 0445 | 58 | 53. | 65.0 | 5.7 | 1 | | 0805 | 98 | 55. | 71.0 | 6.1 |
| 1 | | 0130 | 19 | 4. | 1.1 | .3 | 1 | | 0450 | 59 | 54. | 67.7 | 5.8 | 1 | | 0810 | 99 | 55. | 70.6 | 6.0 |
| 1 | | 0135 | 20 | 5. | 1.3 | .3 | 1 | | 0455 | 60 | 55. | 70.7 | 6.0 | 1 | | 0815 | 100 | 55. | 70.3 | 6.0 |
| 1 | | 0140 | 21 | 6. | 1.5 | .4 | 1 | | 0500 | 61 | 56. | 73.6 | 6.2 | 1 | | 0820 | 101 | 55. | 69.9 | 6.0 |
| 1 | | 0145 | 22 | 7. | 1.8 | .5 | 1 | | 0505 | 62 | 57. | 76.2 | 6.4 | 1 | | 0825 | 102 | 55. | 69.5 | 6.0 |
| 1 | | 0150 | 23 | 8. | 2.1 | .5 | 1 | | 0510 | 63 | 58. | 78.0 | 6.5 | 1 | | 0830 | 103 | 55. | 69.1 | 5.9 |
| 1 | | 0155 | 24 | 9. | 2.4 | .6 | 1 | | 0515 | 64 | 58. | 79.2 | 6.6 | 1 | | 0835 | 104 | 54. | 68.8 | 5.9 |
| 1 | | 0200 | 25 | 10. | 2.8 | .7 | 1 | | 0520 | 65 | 58. | 80.0 | 6.7 | 1 | | 0840 | 105 | 54. | 68.4 | 5.9 |
| 1 | | 0205 | 26 | 12. | 3.2 | .8 | 1 | | 0525 | 66 | 58. | 80.4 | 6.7 | 1 | | 0845 | 106 | 54. | 68.0 | 5.9 |
| 1 | | 0210 | 27 | 13. | 3.6 | .9 | 1 | | 0530 | 67 | 59. | 80.6 | 6.7 | 1 | | 0850 | 107 | 54. | 67.6 | 5.8 |
| 1 | | 0215 | 28 | 15. | 4.0 | 1.0 | 1 | | 0535 | 68 | 59. | 80.6 | 6.7 | 1 | | 0855 | 108 | 54. | 67.3 | 5.8 |
| 1 | | 0220 | 29 | 16. | 4.4 | 1.1 | 1 | | 0540 | 69 | 59. | 80.6 | 6.7 | 1 | | 0900 | 109 | 53. | 66.9 | 5.8 |
| 1 | | 0225 | 30 | 17. | 4.7 | 1.2 | 1 | | 0545 | 70 | 58. | 80.5 | 6.7 | 1 | | 0905 | 110 | 53. | 66.5 | 5.8 |
| 1 | | 0230 | 31 | 18. | 4.9 | 1.2 | 1 | | 0550 | 71 | 58. | 80.4 | 6.7 | 1 | | 0910 | 111 | 53. | 66.2 | 5.7 |
| 1 | | 0235 | 32 | 19. | 5.0 | 1.3 | 1 | | 0555 | 72 | 58. | 80.2 | 6.7 | 1 | | 0915 | 112 | 53. | 65.8 | 5.7 |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0240 | 33 | 19. | 5.2 | 1.3 | * | 1 | 0600 | 73 | 58. | 80.0 | 6.7 | * | 1 | 0920 | 113 | 53. | 65.4 | 5.7 |
| 1 | 0245 | 34 | 20. | 5.4 | 1.3 | * | 1 | 0605 | 74 | 58. | 79.9 | 6.7 | * | 1 | 0925 | 114 | 53. | 65.1 | 5.7 |
| 1 | 0250 | 35 | 21. | 5.6 | 1.4 | * | 1 | 0610 | 75 | 58. | 79.6 | 6.6 | * | 1 | 0930 | 115 | 52. | 64.7 | 5.6 |
| 1 | 0255 | 36 | 23. | 6.0 | 1.5 | * | 1 | 0615 | 76 | 58. | 79.4 | 6.6 | * | 1 | 0935 | 116 | 52. | 64.3 | 5.6 |
| 1 | 0300 | 37 | 25. | 6.7 | 1.7 | * | 1 | 0620 | 77 | 58. | 79.1 | 6.6 | * | 1 | 0940 | 117 | 52. | 64.0 | 5.6 |
| 1 | 0305 | 38 | 29. | 7.7 | 1.9 | * | 1 | 0625 | 78 | 58. | 78.7 | 6.6 | * | 1 | 0945 | 118 | 52. | 63.6 | 5.6 |
| 1 | 0310 | 39 | 30. | 9.0 | 2.1 | * | 1 | 0630 | 79 | 58. | 78.4 | 6.6 | * | 1 | 0950 | 119 | 52. | 63.3 | 5.6 |
| 1 | 0315 | 40 | 31. | 11.0 | 2.2 | * | 1 | 0635 | 80 | 58. | 78.0 | 6.5 | * | 1 | 0955 | 120 | 51. | 62.9 | 5.5 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 59. | 5.58 | | 55. | 39. | 39. | 39. |
| | | (INCHES) | .182 | .212 | .212 | .212 |
| | | (AC-FT) | 27. | 32. | 32. | 32. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 81. | 5.58 | | 71. | 46. | 46. | 46. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 6.71 | 5.58 | | 6.05 | 4.08 | 4.08 | 4.08 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .53

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | * | 1 | | 0320 | 41 | 31. | 10.8 | 2.2 | * | 1 | | 0640 | 81 | 53. | 66.0 | 5.7 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | * | 1 | | 0325 | 42 | 32. | 13.7 | 2.4 | * | 1 | | 0645 | 82 | 53. | 65.6 | 5.7 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | * | 1 | | 0330 | 43 | 33. | 17.4 | 2.6 | * | 1 | | 0650 | 83 | 53. | 65.3 | 5.7 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | * | 1 | | 0335 | 44 | 34. | 22.0 | 2.9 | * | 1 | | 0655 | 84 | 52. | 64.9 | 5.7 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | * | 1 | | 0340 | 45 | 36. | 27.2 | 3.2 | * | 1 | | 0700 | 85 | 52. | 64.6 | 5.6 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | * | 1 | | 0345 | 46 | 38. | 32.0 | 3.5 | * | 1 | | 0705 | 86 | 52. | 64.2 | 5.6 |
| 1 | | 0030 | 7 | 0. | .0 | .0 | * | 1 | | 0350 | 47 | 39. | 36.1 | 3.8 | * | 1 | | 0710 | 87 | 52. | 63.8 | 5.6 |
| 1 | | 0035 | 8 | 0. | .0 | .0 | * | 1 | | 0355 | 48 | 40. | 39.4 | 4.0 | * | 1 | | 0715 | 88 | 52. | 63.5 | 5.6 |
| 1 | | 0040 | 9 | 0. | .0 | .0 | * | 1 | | 0400 | 49 | 41. | 42.3 | 4.2 | * | 1 | | 0720 | 89 | 52. | 63.1 | 5.5 |
| 1 | | 0045 | 10 | 0. | .1 | .0 | * | 1 | | 0405 | 50 | 42. | 44.7 | 4.3 | * | 1 | | 0725 | 90 | 51. | 62.8 | 5.5 |
| 1 | | 0050 | 11 | 0. | .1 | .0 | * | 1 | | 0410 | 51 | 43. | 46.5 | 4.4 | * | 1 | | 0730 | 91 | 51. | 62.4 | 5.5 |
| 1 | | 0055 | 12 | 1. | .1 | .0 | * | 1 | | 0415 | 52 | 44. | 48.0 | 4.5 | * | 1 | | 0735 | 92 | 51. | 62.1 | 5.5 |
| 1 | | 0100 | 13 | 1. | .2 | .1 | * | 1 | | 0420 | 53 | 45. | 49.0 | 4.6 | * | 1 | | 0740 | 93 | 51. | 61.7 | 5.4 |
| 1 | | 0105 | 14 | 1. | .3 | .1 | * | 1 | | 0425 | 54 | 45. | 50.0 | 4.7 | * | 1 | | 0745 | 94 | 51. | 61.4 | 5.4 |
| 1 | | 0110 | 15 | 1. | .3 | .1 | * | 1 | | 0430 | 55 | 45. | 50.9 | 4.7 | * | 1 | | 0750 | 95 | 51. | 61.0 | 5.4 |
| 1 | | 0115 | 16 | 1. | .4 | .1 | * | 1 | | 0435 | 56 | 46. | 51.9 | 4.8 | * | 1 | | 0755 | 96 | 50. | 60.7 | 5.4 |
| 1 | | 0120 | 17 | 2. | .5 | .1 | * | 1 | | 0440 | 57 | 47. | 53.4 | 4.9 | * | 1 | | 0800 | 97 | 50. | 60.3 | 5.4 |
| 1 | | 0125 | 18 | 2. | .6 | .1 | * | 1 | | 0445 | 58 | 48. | 55.3 | 5.0 | * | 1 | | 0805 | 98 | 50. | 60.0 | 5.3 |
| 1 | | 0130 | 19 | 3. | .7 | .2 | * | 1 | | 0450 | 59 | 49. | 57.6 | 5.2 | * | 1 | | 0810 | 99 | 50. | 59.6 | 5.3 |
| 1 | | 0135 | 20 | 3. | .8 | .2 | * | 1 | | 0455 | 60 | 50. | 60.3 | 5.4 | * | 1 | | 0815 | 100 | 50. | 59.3 | 5.3 |
| 1 | | 0140 | 21 | 4. | 1.0 | .3 | * | 1 | | 0500 | 61 | 51. | 62.9 | 5.5 | * | 1 | | 0820 | 101 | 49. | 59.0 | 5.3 |
| 1 | | 0145 | 22 | 5. | 1.2 | .3 | * | 1 | | 0505 | 62 | 53. | 65.1 | 5.7 | * | 1 | | 0825 | 102 | 49. | 58.6 | 5.2 |
| 1 | | 0150 | 23 | 6. | 1.5 | .4 | * | 1 | | 0510 | 63 | 53. | 66.7 | 5.8 | * | 1 | | 0830 | 103 | 49. | 58.3 | 5.2 |
| 1 | | 0155 | 24 | 7. | 1.7 | .4 | * | 1 | | 0515 | 64 | 54. | 67.8 | 5.9 | * | 1 | | 0835 | 104 | 49. | 57.9 | 5.2 |
| 1 | | 0200 | 25 | 8. | 2.0 | .5 | * | 1 | | 0520 | 65 | 54. | 68.4 | 5.9 | * | 1 | | 0840 | 105 | 49. | 57.6 | 5.2 |
| 1 | | 0205 | 26 | 9. | 2.3 | .6 | * | 1 | | 0525 | 66 | 54. | 68.7 | 5.9 | * | 1 | | 0845 | 106 | 49. | 57.3 | 5.2 |
| 1 | | 0210 | 27 | 10. | 2.6 | .7 | * | 1 | | 0530 | 67 | 54. | 68.8 | 5.9 | * | 1 | | 0850 | 107 | 48. | 56.9 | 5.1 |
| 1 | | 0215 | 28 | 11. | 3.0 | .7 | * | 1 | | 0535 | 68 | 54. | 68.9 | 5.9 | * | 1 | | 0855 | 108 | 48. | 56.6 | 5.1 |
| 1 | | 0220 | 29 | 12. | 3.2 | .8 | * | 1 | | 0540 | 69 | 54. | 68.8 | 5.9 | * | 1 | | 0900 | 109 | 48. | 56.3 | 5.1 |
| 1 | | 0225 | 30 | 13. | 3.5 | .9 | * | 1 | | 0545 | 70 | 54. | 68.7 | 5.9 | * | 1 | | 0905 | 110 | 48. | 55.9 | 5.1 |
| 1 | | 0230 | 31 | 14. | 3.7 | .9 | * | 1 | | 0550 | 71 | 54. | 68.6 | 5.9 | * | 1 | | 0910 | 111 | 48. | 55.6 | 5.0 |
| 1 | | 0235 | 32 | 14. | 3.8 | 1.0 | * | 1 | | 0555 | 72 | 54. | 68.4 | 5.9 | * | 1 | | 0915 | 112 | 48. | 55.3 | 5.0 |
| 1 | | 0240 | 33 | 15. | 3.9 | 1.0 | * | 1 | | 0600 | 73 | 54. | 68.3 | 5.9 | * | 1 | | 0920 | 113 | 47. | 54.9 | 5.0 |
| 1 | | 0245 | 34 | 15. | 4.1 | 1.0 | * | 1 | | 0605 | 74 | 54. | 68.1 | 5.9 | * | 1 | | 0925 | 114 | 47. | 54.6 | 5.0 |
| 1 | | 0250 | 35 | 16. | 4.3 | 1.1 | * | 1 | | 0610 | 75 | 54. | 67.9 | 5.9 | * | 1 | | 0930 | 115 | 47. | 54.3 | 5.0 |
| 1 | | 0255 | 36 | 17. | 4.6 | 1.2 | * | 1 | | 0615 | 76 | 54. | 67.6 | 5.8 | * | 1 | | 0935 | 116 | 47. | 54.0 | 4.9 |
| 1 | | 0300 | 37 | 19. | 5.2 | 1.3 | * | 1 | | 0620 | 77 | 54. | 67.3 | 5.8 | * | 1 | | 0940 | 117 | 47. | 53.6 | 4.9 |
| 1 | | 0305 | 38 | 22. | 6.0 | 1.5 | * | 1 | | 0625 | 78 | 54. | 67.0 | 5.8 | * | 1 | | 0945 | 118 | 47. | 53.3 | 4.9 |
| 1 | | 0310 | 39 | 27. | 7.1 | 1.8 | * | 1 | | 0630 | 79 | 53. | 66.7 | 5.8 | * | 1 | | 0950 | 119 | 47. | 53.0 | 4.9 |
| 1 | | 0315 | 40 | 30. | 8.7 | 2.0 | * | 1 | | 0635 | 80 | 53. | 66.3 | 5.8 | * | 1 | | 0955 | 120 | 46. | 52.7 | 4.8 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 54. | 5.58 | | 50. | 35. | 35. | 35. |
| | | (INCHES) | .166 | .191 | .191 | .191 |
| | | (AC-FT) | 25. | 29. | 29. | 29. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 69. | 5.58 | | 60. | 38. | 38. | 38. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 5.92 | 5.58 | | 5.34 | 3.58 | 3.58 | 3.58 |

CUMULATIVE AREA = 2.80 SQ MI

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

| RATION | STATION | AREA | PLAN | | RATIOS APPLIED TO PRECIPITATION RATIO 1 .83 | RATIO 2 .80 | RATIO 3 .76 | RATIO 4 .73 | RATIO 5 .69 | RATIO 6 .64 | RATIO 7 .58 | RATIO 8 .53 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B15B | .95 | 1 | FLOW | 199. | 186. | 168. | 149. | 136. | 113. | 90. | 72. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B16B | .70 | 1 | FLOW | 348. | 332. | 309. | 285. | 268. | 236. | 203. | 176. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| ROUTED TO | | | | | | | | | | | | |
| + | RB16B | .70 | 1 | FLOW | 344. | 327. | 305. | 282. | 264. | 235. | 202. | 175. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT30 | .70 | 1 | FLOW | 339. | 322. | 300. | 278. | 261. | 232. | 199. | 173. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B16A | .91 | 1 | FLOW | 236. | 222. | 203. | 184. | 170. | 144. | 118. | 98. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D5B | .60 | 1 | FLOW | 242. | 231. | 216. | 201. | 190. | 170. | 148. | 131. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| 3 COMBINED AT | | | | | | | | | | | | |
| + | PT31 | 2.21 | 1 | FLOW | 792. | 752. | 698. | 643. | 602. | 529. | 452. | 391. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT31 | 2.21 | 1 | FLOW | 787. | 748. | 694. | 639. | 598. | 526. | 449. | 388. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.08 | 4.08 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT32 | 3.16 | 1 | FLOW | 979. | 928. | 856. | 784. | 730. | 635. | 537. | 459. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT32 | 3.16 | 1 | FLOW | 979. | 926. | 854. | 779. | 729. | 633. | 534. | 458. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.17 |
| [redacted]DROGRAPH AT | | | | | | | | | | | | |
| | B15A | .96 | 1 | FLOW | 279. | 262. | 238. | 214. | 197. | 166. | 134. | 109. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT34 | 4.12 | 1 | FLOW | 1238. | 1169. | 1075. | 980. | 913. | 789. | 661. | 561. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | MC2 | .92 | 1 | FLOW | 218. | 206. | 190. | 173. | 161. | 140. | 118. | 101. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | | | | |
| + | RMC2 | .92 | 1 | FLOW | 219. | 206. | 190. | 173. | 161. | 140. | 118. | 101. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B10A | 1.60 | 1 | FLOW | 776. | 735. | 678. | 621. | 579. | 504. | 427. | 366. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT38 | 2.52 | 1 | FLOW | 837. | 792. | 730. | 668. | 623. | 543. | 461. | 396. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT38 | 2.52 | 1 | FLOW | 822. | 777. | 716. | 655. | 610. | 532. | 450. | 390. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT39 | 6.64 | 1 | FLOW | 1786. | 1687. | 1551. | 1415. | 1314. | 1137. | 956. | 811. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.08 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT39 | 6.64 | 1 | FLOW | 1775. | 1674. | 1540. | 1407. | 1307. | 1129. | 956. | 811. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D6 | 1.56 | 1 | FLOW | 655. | 624. | 582. | 539. | 507. | 451. | 390. | 342. |
| | | | | TIME | 3.83 | 3.83 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT40 | 8.21 | 1 | FLOW | 2400. | 2271. | 2093. | 1916. | 1785. | 1551. | 1310. | 1120. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.08 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT40 | 8.21 | 1 | FLOW | 2388. | 2259. | 2082. | 1906. | 1776. | 1543. | 1306. | 1116. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| [redacted]DROGRAPH AT | | | | | | | | | | | | |
| + | D7 | .85 | 1 | FLOW | 231. | 218. | 200. | 182. | 169. | 145. | 121. | 102. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT41 | 9.06 | 1 | FLOW | 2618. | 2476. | 2281. | 2087. | 1944. | 1687. | 1426. | 1217. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | | | | | |
| + | RPT41 | 9.06 | 1 | FLOW | 2612. | 2471. | 2276. | 2076. | 1934. | 1678. | 1422. | 1213. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.17 | 4.17 | 4.08 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | D8 | 1.26 | 1 | FLOW | 661. | 627. | 581. | 534. | 500. | 439. | 374. | 323. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 |
| ROUTED TO | | | | | | | | | | | | |
| + | RD8 | 1.26 | 1 | FLOW | 626. | 595. | 551. | 507. | 474. | 416. | 355. | 306. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT42 | 10.31 | 1 | FLOW | 2965. | 2801. | 2577. | 2356. | 2193. | 1905. | 1610. | 1371. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT42 | 10.31 | 1 | FLOW | 2954. | 2794. | 2575. | 2353. | 2191. | 1905. | 1609. | 1366. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B10B | .85 | 1 | FLOW | 284. | 271. | 252. | 233. | 220. | 195. | 170. | 149. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | | | | |
| + | RB10B | .85 | 1 | FLOW | 270. | 257. | 239. | 221. | 208. | 185. | 161. | 142. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D9A | .86 | 1 | FLOW | 133. | 124. | 112. | 100. | 92. | 77. | 63. | 52. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 5.42 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT43 | 1.71 | 1 | FLOW | 402. | 381. | 351. | 321. | 300. | 262. | 223. | 193. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT43 | 1.71 | 1 | FLOW | 402. | 381. | 351. | 321. | 300. | 262. | 223. | 193. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT44 | 12.02 | 1 | FLOW | 3176. | 3003. | 2765. | 2527. | 2356. | 2050. | 1737. | 1485. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT44 | 12.02 | 1 | FLOW | 3132. | 2962. | 2731. | 2497. | 2326. | 2021. | 1711. | 1464. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.33 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | D9B | 1.54 | 1 | FLOW | 518. | 487. | 445. | 402. | 371. | 316. | 258. | 213. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT45 | 13.57 | 1 | FLOW | 3472. | 3280. | 3018. | 2753. | 2560. | 2218. | 1874. | 1598. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT45 | 13.57 | 1 | FLOW | 3413. | 3222. | 2966. | 2709. | 2521. | 2187. | 1846. | 1574. |
| | | | | TIME | 4.33 | 4.33 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D10 | 2.51 | 1 | FLOW | 1032. | 980. | 908. | 836. | 783. | 687. | 586. | 506. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT46 | 16.08 | 1 | FLOW | 4000. | 3776. | 3475. | 3169. | 2946. | 2554. | 2155. | 1838. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT46 | 16.08 | 1 | FLOW | 3990. | 3769. | 3470. | 3166. | 2944. | 2551. | 2149. | 1833. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | MC | 2.80 | 1 | FLOW | 1911. | 1624. | 1704. | 1582. | 1490. | 1323. | 1142. | 993. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| DIVERSION TO | | | | | | | | | | | | |
| + | TORAW | 2.80 | 1 | FLOW | 382. | 365. | 341. | 316. | 298. | 265. | 228. | 199. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | TORAW | 2.80 | 1 | FLOW | 1528. | 1459. | 1364. | 1265. | 1192. | 1058. | 913. | 794. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | | | | | |
| + | MCDB | 2.80 | 1 | FLOW | 76. | 75. | 72. | 69. | 67. | 63. | 59. | 54. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.58 | 5.58 | 5.58 |
| | | | ** PEAK STAGES IN FEET ** | | | | | | | | | |
| | | | 1 | STAGE | 11.05 | 10.55 | 9.85 | 9.14 | 8.61 | 7.68 | 6.71 | 5.92 |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.58 | 5.58 | 5.58 |
| ROUTED TO | | | | | | | | | | | | |
| + | RMCDB | 2.80 | 1 | FLOW | 76. | 75. | 72. | 69. | 67. | 63. | 59. | 54. |
| | | | | TIME | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.67 | 5.67 | 5.67 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | RTORAW | .00 | 1 | FLOW | 382. | 365. | 341. | 316. | 298. | 265. | 228. | 199. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT47 | 2.80 | 1 | FLOW | 430. | 411. | 384. | 357. | 338. | 302. | 264. | 233. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | | | | | |
| + | RPT47 | 2.80 | 1 | FLOW | 434. | 414. | 386. | 358. | 337. | 302. | 266. | 236. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.92 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | RH | 1.36 | 1 | FLOW | 288. | 263. | 231. | 199. | 176. | 136. | 107. | 85. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 5.00 | 5.00 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT48W | 4.16 | 1 | FLOW | 712. | 669. | 611. | 552. | 509. | 433. | 360. | 304. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | B20 | .79 | 1 | FLOW | 228. | 215. | 197. | 178. | 165. | 140. | 115. | 95. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | | | | | |
| + | RB20 | .79 | 1 | FLOW | 227. | 214. | 196. | 178. | 164. | 140. | 115. | 95. |
| | | | | TIME | 4.17 | 4.17 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| 3 COMBINED AT | | | | | | | | | | | | |
| + | PT48 | 21.02 | 1 | FLOW | 4619. | 4362. | 4011. | 3657. | 3400. | 2935. | 2469. | 2107. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT48 | 21.02 | 1 | FLOW | 4599. | 4343. | 3996. | 3644. | 3388. | 2928. | 2460. | 2098. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D12 | .18 | 1 | FLOW | 39. | 36. | 33. | 29. | 26. | 22. | 17. | 14. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | | | | | |
| + | RD12 | .18 | 1 | FLOW | 39. | 36. | 33. | 29. | 26. | 22. | 17. | 14. |
| | | | | TIME | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 | 4.50 | 4.58 | 4.67 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D11A | .16 | 1 | FLOW | 67. | 63. | 56. | 50. | 46. | 37. | 29. | 23. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT49 | .33 | 1 | FLOW | 72. | 68. | 62. | 56. | 52. | 44. | 36. | 30. |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT49 | .33 | 1 | FLOW | 71. | 67. | 61. | 55. | 51. | 44. | 36. | 29. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.08 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT50 | 21.36 | 1 | FLOW | 4646. | 4387. | 4035. | 3678. | 3418. | 2951. | 2476. | 2110. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.42 | 4.42 |
| ROUTED TO | | | | | | | | | | | | |
| + | RPT50 | 21.36 | 1 | FLOW | 4644. | 4384. | 4033. | 3674. | 3414. | 2945. | 2478. | 2109. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | | | | | |
| + | D11B | .99 | 1 | FLOW | 504. | 476. | 437. | 397. | 368. | 316. | 261. | 218. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 |
| 2 COMBINED AT | | | | | | | | | | | | |
| + | PT51 | 22.35 | 1 | FLOW | 4754. | 4489. | 4130. | 3764. | 3498. | 3025. | 2546. | 2174. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4.58 |

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

| ISTAQ | ELEMENT | DT | PEAK | TIME TO PEAK | VOLUME | INTERPOLATED TO COMPUTATION INTERVAL DT | PEAK | TIME TO PEAK | VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| | | (MIN) | (CFS) | (MIN) | (IN) | (MIN) | (CFS) | (MIN) | (IN) |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| | RB16B MANE | 4.00 | 347.01 | 228.00 | 1.36 | 5.00 | 343.73 | 230.00 | 1.36 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5087E+02 EXCESS= .0000E+00 OUTFLOW= .5088E+02 BASIN STORAGE= .1161E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| | RB16B MANE | 4.00 | 330.25 | 228.00 | 1.30 | 5.00 | 327.28 | 230.00 | 1.30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4851E+02 EXCESS= .0000E+00 OUTFLOW= .4852E+02 BASIN STORAGE= .1127E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| | RB16B MANE | 4.00 | 307.12 | 228.00 | 1.21 | 5.00 | 304.56 | 230.00 | 1.21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4526E+02 EXCESS= .0000E+00 OUTFLOW= .4527E+02 BASIN STORAGE= .1078E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| | RB16B MANE | 4.00 | 283.68 | 228.00 | 1.12 | 5.00 | 281.52 | 230.00 | 1.12 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4197E+02 EXCESS= .0000E+00 OUTFLOW= .4198E+02 BASIN STORAGE= .1028E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| | RB16B MANE | 4.00 | 266.30 | 228.00 | 1.06 | 5.00 | 264.43 | 230.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3954E+02 EXCESS= .0000E+00 OUTFLOW= .3955E+02 BASIN STORAGE= .1524E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 3.75 | 235.20 | 228.75 | .94 | 5.00 | 234.66 | 230.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3516E+02 EXCESS= .0000E+00 OUTFLOW= .3517E+02 BASIN STORAGE= .1424E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 3.75 | 201.89 | 228.75 | .82 | 5.00 | 201.66 | 230.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3054E+02 EXCESS= .0000E+00 OUTFLOW= .3054E+02 BASIN STORAGE= .1302E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 3.75 | 174.98 | 228.75 | .72 | 5.00 | 174.98 | 230.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2682E+02 EXCESS= .0000E+00 OUTFLOW= .2682E+02 BASIN STORAGE= .1154E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 4.00 | 340.12 | 232.00 | 1.36 | 5.00 | 338.58 | 235.00 | 1.36 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5088E+02 EXCESS= .0000E+00 OUTFLOW= .5089E+02 BASIN STORAGE= .2489E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

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|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 4.00 | 323.56 | 232.00 | 1.30 | 5.00 | 322.47 | 235.00 | 1.30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4852E+02 EXCESS= .0000E+00 OUTFLOW= .4853E+02 BASIN STORAGE= .2428E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 4.00 | 300.66 | 232.00 | 1.21 | 5.00 | 300.19 | 235.00 | 1.21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4526E+02 EXCESS= .0000E+00 OUTFLOW= .4528E+02 BASIN STORAGE= .3396E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 4.00 | 277.69 | 232.00 | 1.12 | 5.00 | 277.61 | 235.00 | 1.12 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4198E+02 EXCESS= .0000E+00 OUTFLOW= .4198E+02 BASIN STORAGE= .2608E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 3.75 | 262.83 | 232.50 | 1.06 | 5.00 | 261.43 | 235.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3955E+02 EXCESS= .0000E+00 OUTFLOW= .3955E+02 BASIN STORAGE= .2517E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 3.50 | 232.38 | 234.50 | .94 | 5.00 | 231.98 | 235.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3517E+02 EXCESS= .0000E+00 OUTFLOW= .3518E+02 BASIN STORAGE= .2521E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 3.50 | 199.58 | 234.50 | .82 | 5.00 | 199.36 | 235.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3055E+02 EXCESS= .0000E+00 OUTFLOW= .3055E+02 BASIN STORAGE= .3274E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 3.50 | 172.97 | 234.50 | .72 | 5.00 | 172.90 | 235.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2682E+02 EXCESS= .0000E+00 OUTFLOW= .2683E+02 BASIN STORAGE= .2878E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 2.41 | 788.64 | 241.26 | 1.24 | 5.00 | 787.38 | 240.00 | 1.24 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1464E+03 EXCESS= .0000E+00 OUTFLOW= .1464E+03 BASIN STORAGE= .2319E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 2.46 | 750.19 | 240.60 | 1.18 | 5.00 | 748.49 | 240.00 | 1.18 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1394E+03 EXCESS= .0000E+00 OUTFLOW= .1394E+03 BASIN STORAGE= .2224E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 2.52 | 695.11 | 241.79 | 1.10 | 5.00 | 693.80 | 240.00 | 1.10 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1298E+03 EXCESS= .0000E+00 OUTFLOW= .1298E+03 BASIN STORAGE= .2211E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 2.59 | 641.31 | 240.87 | 1.02 | 5.00 | 638.75 | 240.00 | 1.02 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1200E+03 EXCESS= .0000E+00 OUTFLOW= .1200E+03 BASIN STORAGE= .1933E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 2.65 | 600.48 | 241.09 | .96 | 5.00 | 597.67 | 240.00 | .96 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1129E+03 EXCESS= .0000E+00 OUTFLOW= .1129E+03 BASIN STORAGE= .1903E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

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|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 2.77 | 528.41 | 240.76 | .85 | 5.00 | 526.24 | 240.00 | .85 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1000E+03 EXCESS= .0000E+00 OUTFLOW= .1000E+03 BASIN STORAGE= .2224E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 2.92 | 451.75 | 242.32 | .73 | 5.00 | 448.99 | 245.00 | .73 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8650E+02 EXCESS= .0000E+00 OUTFLOW= .8650E+02 BASIN STORAGE= .2108E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 3.07 | 390.66 | 242.42 | .64 | 5.00 | 388.07 | 245.00 | .64 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7570E+02 EXCESS= .0000E+00 OUTFLOW= .7570E+02 BASIN STORAGE= .2282E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 3.48 | 979.66 | 243.72 | 1.10 | 5.00 | 979.07 | 245.00 | 1.10 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1855E+03 EXCESS= .0000E+00 OUTFLOW= .1856E+03 BASIN STORAGE= .4965E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 3.55 | 926.75 | 245.13 | 1.04 | 5.00 | 926.32 | 245.00 | 1.04 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1762E+03 EXCESS= .0000E+00 OUTFLOW= .1762E+03 BASIN STORAGE= .4489E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 3.66 | 854.66 | 245.34 | .97 | 5.00 | 853.59 | 245.00 | .97 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1633E+03 EXCESS= .0000E+00 OUTFLOW= .1633E+03 BASIN STORAGE= .4604E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 3.79 | 781.55 | 246.03 | .89 | 5.00 | 779.48 | 245.00 | .89 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1503E+03 EXCESS= .0000E+00 OUTFLOW= .1503E+03 BASIN STORAGE= .5715E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 3.89 | 728.86 | 244.88 | .84 | 5.00 | 728.84 | 245.00 | .84 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1409E+03 EXCESS= .0000E+00 OUTFLOW= .1409E+03 BASIN STORAGE= .5628E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 4.09 | 634.69 | 245.66 | .73 | 5.00 | 632.68 | 245.00 | .73 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1239E+03 EXCESS= .0000E+00 OUTFLOW= .1240E+03 BASIN STORAGE= .4653E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 4.36 | 535.84 | 248.56 | .63 | 5.00 | 534.21 | 245.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1063E+03 EXCESS= .0000E+00 OUTFLOW= .1063E+03 BASIN STORAGE= .4908E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 4.62 | 458.18 | 249.73 | .55 | 5.00 | 457.65 | 250.00 | .55 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9232E+02 EXCESS= .0000E+00 OUTFLOW= .9235E+02 BASIN STORAGE= .5409E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 218.60 | 265.00 | 1.03 | 5.00 | 218.60 | 265.00 | 1.03 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5054E+02 EXCESS= .0000E+00 OUTFLOW= .5055E+02 BASIN STORAGE= .1312E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 206.44 | 265.00 | .98 | 5.00 | 206.44 | 265.00 | .98 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4799E+02 EXCESS= .0000E+00 OUTFLOW= .4800E+02 BASIN STORAGE= .1271E-01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 189.81 | 265.00 | .91 | 5.00 | 189.81 | 265.00 | .91 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4451E+02 EXCESS= .0000E+00 OUTFLOW= .4452E+02 BASIN STORAGE= .1214E-01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 173.20 | 265.00 | .84 | 5.00 | 173.20 | 265.00 | .84 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4103E+02 EXCESS= .0000E+00 OUTFLOW= .4104E+02 BASIN STORAGE= .1153E-01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 161.07 | 265.00 | .79 | 5.00 | 161.07 | 265.00 | .79 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3849E+02 EXCESS= .0000E+00 OUTFLOW= .3850E+02 BASIN STORAGE= .1108E-01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 139.69 | 265.00 | .69 | 5.00 | 139.69 | 265.00 | .69 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3396E+02 EXCESS= .0000E+00 OUTFLOW= .3397E+02 BASIN STORAGE= .1131E-01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 117.82 | 265.00 | .60 | 5.00 | 117.82 | 265.00 | .60 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2927E+02 EXCESS= .0000E+00 OUTFLOW= .2927E+02 BASIN STORAGE= .1027E-01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 101.01 | 265.00 | .52 | 5.00 | 101.01 | 265.00 | .52 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2556E+02 EXCESS= .0000E+00 OUTFLOW= .2557E+02 BASIN STORAGE= .9382E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.00 | 823.88 | 219.00 | 1.08 | 5.00 | 821.67 | 220.00 | 1.08 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1446E+03 EXCESS= .0000E+00 OUTFLOW= .1446E+03 BASIN STORAGE= .1460E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.00 | 778.76 | 219.00 | 1.02 | 5.00 | 776.99 | 220.00 | 1.02 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1375E+03 EXCESS= .0000E+00 OUTFLOW= .1375E+03 BASIN STORAGE= .1417E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.00 | 717.17 | 219.00 | .95 | 5.00 | 715.97 | 220.00 | .95 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1278E+03 EXCESS= .0000E+00 OUTFLOW= .1278E+03 BASIN STORAGE= .1356E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.00 | 655.68 | 219.00 | .88 | 5.00 | 655.02 | 220.00 | .88 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1181E+03 EXCESS= .0000E+00 OUTFLOW= .1181E+03 BASIN STORAGE= .1293E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.00 | 610.78 | 219.00 | .83 | 5.00 | 610.50 | 220.00 | .83 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1109E+03 EXCESS= .0000E+00 OUTFLOW= .1109E+03 BASIN STORAGE= .1245E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.00 | 532.36 | 222.00 | .73 | 5.00 | 531.70 | 220.00 | .73 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9825E+02 EXCESS= .0000E+00 OUTFLOW= .9823E+02 BASIN STORAGE= .1359E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.00 | 452.14 | 222.00 | .63 | 5.00 | 450.34 | 220.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8504E+02 EXCESS= .0000E+00 OUTFLOW= .8503E+02 BASIN STORAGE= .1243E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.75 | 390.44 | 220.00 | .55 | 5.00 | 390.44 | 220.00 | .56 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7461E+02 EXCESS= .0000E+00 OUTFLOW= .7459E+02 BASIN STORAGE= .1125E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

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|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 4.02 | 1777.05 | 241.30 | 1.06 | 5.00 | 1774.59 | 245.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3751E+03 EXCESS= .0000E+00 OUTFLOW= .3751E+03 BASIN STORAGE= .5430E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 4.11 | 1680.31 | 242.40 | 1.01 | 5.00 | 1673.53 | 245.00 | 1.00 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3560E+03 EXCESS= .0000E+00 OUTFLOW= .3560E+03 BASIN STORAGE= .5266E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 4.24 | 1541.85 | 241.70 | .93 | 5.00 | 1540.10 | 245.00 | .93 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3299E+03 EXCESS= .0000E+00 OUTFLOW= .3300E+03 BASIN STORAGE= .4839E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 4.39 | 1407.29 | 245.73 | .86 | 5.00 | 1406.76 | 245.00 | .86 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3037E+03 EXCESS= .0000E+00 OUTFLOW= .3037E+03 BASIN STORAGE= .4858E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 4.51 | 1310.30 | 243.65 | .80 | 5.00 | 1307.09 | 245.00 | .80 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2845E+03 EXCESS= .0000E+00 OUTFLOW= .2845E+03 BASIN STORAGE= .4929E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 4.76 | 1129.93 | 242.93 | .71 | 5.00 | 1129.29 | 245.00 | .71 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2502E+03 EXCESS= .0000E+00 OUTFLOW= .2503E+03 BASIN STORAGE= .5376E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 5.00 | 955.97 | 245.00 | .61 | 5.00 | 955.97 | 245.00 | .61 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2147E+03 EXCESS= .0000E+00 OUTFLOW= .2148E+03 BASIN STORAGE= .4511E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 5.00 | 810.52 | 245.00 | .53 | 5.00 | 810.52 | 245.00 | .53 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1868E+03 EXCESS= .0000E+00 OUTFLOW= .1868E+03 BASIN STORAGE= .4135E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 3.30 | 2614.43 | 247.86 | 1.11 | 5.00 | 2612.48 | 245.00 | 1.11 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5362E+03 EXCESS= .0000E+00 OUTFLOW= .5362E+03 BASIN STORAGE= .9927E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 3.38 | 2471.09 | 246.71 | 1.06 | 5.00 | 2470.85 | 245.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5096E+03 EXCESS= .0000E+00 OUTFLOW= .5096E+03 BASIN STORAGE= .9802E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 3.49 | 2276.99 | 247.93 | .98 | 5.00 | 2275.95 | 245.00 | .98 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4733E+03 EXCESS= .0000E+00 OUTFLOW= .4734E+03 BASIN STORAGE= .9828E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 3.62 | 2079.62 | 246.07 | .90 | 5.00 | 2076.50 | 250.00 | .90 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4367E+03 EXCESS= .0000E+00 OUTFLOW= .4368E+03 BASIN STORAGE= .9660E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 3.72 | 1937.90 | 249.44 | .85 | 5.00 | 1934.20 | 250.00 | .85 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4098E+03 EXCESS= .0000E+00 OUTFLOW= .4099E+03 BASIN STORAGE= .9813E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 3.94 | 1684.46 | 248.21 | .75 | 5.00 | 1678.05 | 245.00 | .75 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3619E+03 EXCESS= .0000E+00 OUTFLOW= .3619E+03 BASIN STORAGE= .9747E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 4.21 | 1424.22 | 248.63 | .65 | 5.00 | 1421.59 | 250.00 | .65 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3120E+03 EXCESS= .0000E+00 OUTFLOW= .3121E+03 BASIN STORAGE= .9370E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 4.49 | 1214.09 | 251.44 | .56 | 5.00 | 1213.06 | 250.00 | .56 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2727E+03 EXCESS= .0000E+00 OUTFLOW= .2727E+03 BASIN STORAGE= .9017E-01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.36 | 2961.19 | 243.46 | 1.12 | 5.00 | 2954.28 | 245.00 | 1.12 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6178E+03 EXCESS= .0000E+00 OUTFLOW= .6178E+03 BASIN STORAGE= .6017E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.41 | 2798.71 | 243.49 | 1.07 | 5.00 | 2794.22 | 245.00 | 1.07 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5873E+03 EXCESS= .0000E+00 OUTFLOW= .5873E+03 BASIN STORAGE= .5968E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

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|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.48 | 2574.93 | 245.72 | .99 | 5.00 | 2574.59 | 245.00 | .99 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5459E+03 EXCESS= .0000E+00 OUTFLOW= .5459E+03 BASIN STORAGE= .5872E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.56 | 2353.36 | 245.83 | .92 | 5.00 | 2352.94 | 245.00 | .92 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5039E+03 EXCESS= .0000E+00 OUTFLOW= .5039E+03 BASIN STORAGE= .5670E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.63 | 2192.25 | 244.17 | .86 | 5.00 | 2190.94 | 245.00 | .86 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4731E+03 EXCESS= .0000E+00 OUTFLOW= .4732E+03 BASIN STORAGE= .5692E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.76 | 1906.23 | 245.42 | .76 | 5.00 | 1905.16 | 245.00 | .76 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4181E+03 EXCESS= .0000E+00 OUTFLOW= .4181E+03 BASIN STORAGE= .5931E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.92 | 1609.63 | 245.63 | .66 | 5.00 | 1608.52 | 245.00 | .66 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3609E+03 EXCESS= .0000E+00 OUTFLOW= .3610E+03 BASIN STORAGE= .5607E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 3.09 | 1371.20 | 247.36 | .57 | 5.00 | 1365.98 | 245.00 | .57 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3157E+03 EXCESS= .0000E+00 OUTFLOW= .3157E+03 BASIN STORAGE= .5308E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 402.37 | 280.00 | 1.03 | 5.00 | 402.37 | 280.00 | 1.03 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9403E+02 EXCESS= .0000E+00 OUTFLOW= .9402E+02 BASIN STORAGE= .3309E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 380.62 | 280.00 | .98 | 5.00 | 380.62 | 280.00 | .98 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8937E+02 EXCESS= .0000E+00 OUTFLOW= .8937E+02 BASIN STORAGE= .3173E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 350.95 | 280.00 | .91 | 5.00 | 350.95 | 280.00 | .91 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8301E+02 EXCESS= .0000E+00 OUTFLOW= .8301E+02 BASIN STORAGE= .2982E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 321.35 | 280.00 | .84 | 5.00 | 321.35 | 280.00 | .84 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7665E+02 EXCESS= .0000E+00 OUTFLOW= .7665E+02 BASIN STORAGE= .2786E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 299.78 | 280.00 | .79 | 5.00 | 299.78 | 280.00 | .79 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7200E+02 EXCESS= .0000E+00 OUTFLOW= .7199E+02 BASIN STORAGE= .2638E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 261.81 | 280.00 | .70 | 5.00 | 261.81 | 280.00 | .70 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6373E+02 EXCESS= .0000E+00 OUTFLOW= .6373E+02 BASIN STORAGE= .2365E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 223.06 | 280.00 | .61 | 5.00 | 223.06 | 280.00 | .61 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5515E+02 EXCESS= .0000E+00 OUTFLOW= .5515E+02 BASIN STORAGE= .2066E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 193.25 | 280.00 | .53 | 5.00 | 193.25 | 280.00 | .53 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4838E+02 EXCESS= .0000E+00 OUTFLOW= .4838E+02 BASIN STORAGE= .1816E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 2.65 | 3994.13 | 257.26 | 1.11 | 5.00 | 3989.90 | 260.00 | 1.11 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9541E+03 EXCESS= .0000E+00 OUTFLOW= .9541E+03 BASIN STORAGE= .2319E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 2.71 | 3772.06 | 257.46 | 1.06 | 5.00 | 3769.33 | 260.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9067E+03 EXCESS= .0000E+00 OUTFLOW= .9067E+03 BASIN STORAGE= .2296E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 2.80 | 3472.42 | 257.24 | .98 | 5.00 | 3469.99 | 260.00 | .98 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8424E+03 EXCESS= .0000E+00 OUTFLOW= .8424E+03 BASIN STORAGE= .2261E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 2.89 | 3167.78 | 257.65 | .91 | 5.00 | 3166.47 | 260.00 | .91 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7773E+03 EXCESS= .0000E+00 OUTFLOW= .7774E+03 BASIN STORAGE= .2165E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 2.98 | 2944.70 | 261.83 | .85 | 5.00 | 2944.29 | 260.00 | .85 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7298E+03 EXCESS= .0000E+00 OUTFLOW= .7298E+03 BASIN STORAGE= .2166E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 3.14 | 2551.34 | 260.58 | .75 | 5.00 | 2550.72 | 260.00 | .75 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6446E+03 EXCESS= .0000E+00 OUTFLOW= .6446E+03 BASIN STORAGE= .2095E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 3.35 | 2151.02 | 261.03 | .65 | 5.00 | 2148.77 | 260.00 | .65 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5560E+03 EXCESS= .0000E+00 OUTFLOW= .5561E+03 BASIN STORAGE= .2016E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 3.55 | 1836.19 | 262.91 | .57 | 5.00 | 1832.81 | 260.00 | .57 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4859E+03 EXCESS= .0000E+00 OUTFLOW= .4860E+03 BASIN STORAGE= .1870E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 76.45 | 345.00 | .29 | 5.00 | 76.45 | 345.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4407E+02 EXCESS= .0000E+00 OUTFLOW= .4354E+02 BASIN STORAGE= .5432E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 74.54 | 345.00 | .28 | 5.00 | 74.54 | 345.00 | .28 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4287E+02 EXCESS= .0000E+00 OUTFLOW= .4234E+02 BASIN STORAGE= .5323E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 71.92 | 345.00 | .27 | 5.00 | 71.92 | 345.00 | .27 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4119E+02 EXCESS= .0000E+00 OUTFLOW= .4068E+02 BASIN STORAGE= .5172E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 69.27 | 345.00 | .26 | 5.00 | 69.27 | 345.00 | .26 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3945E+02 EXCESS= .0000E+00 OUTFLOW= .3895E+02 BASIN STORAGE= .4999E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 67.30 | 345.00 | .25 | 5.00 | 67.30 | 345.00 | .25 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3806E+02 EXCESS= .0000E+00 OUTFLOW= .3758E+02 BASIN STORAGE= .4847E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 63.41 | 340.00 | .23 | 5.00 | 63.41 | 340.00 | .23 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3520E+02 EXCESS= .0000E+00 OUTFLOW= .3475E+02 BASIN STORAGE= .4577E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 58.54 | 340.00 | .21 | 5.00 | 58.54 | 340.00 | .21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3184E+02 EXCESS= .0000E+00 OUTFLOW= .3142E+02 BASIN STORAGE= .4220E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 54.43 | 340.00 | .19 | 5.00 | 54.43 | 340.00 | .19 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2875E+02 EXCESS= .0000E+00 OUTFLOW= .2837E+02 BASIN STORAGE= .3881E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 434.09 | 230.00 | .59 | 5.00 | 434.09 | 230.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9135E+02 EXCESS= .0000E+00 OUTFLOW= .8874E+02 BASIN STORAGE= .3006E+01 PERCENT ERROR= -.4

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 414.04 | 230.00 | .57 | 5.00 | 414.04 | 230.00 | .57 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8806E+02 EXCESS= .0000E+00 OUTFLOW= .8551E+02 BASIN STORAGE= .2954E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 386.17 | 230.00 | .54 | 5.00 | 386.17 | 230.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8347E+02 EXCESS= .0000E+00 OUTFLOW= .8099E+02 BASIN STORAGE= .2883E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 357.73 | 230.00 | .51 | 5.00 | 357.73 | 230.00 | .51 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7877E+02 EXCESS= .0000E+00 OUTFLOW= .7637E+02 BASIN STORAGE= .2804E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 336.61 | 230.00 | .49 | 5.00 | 336.61 | 230.00 | .49 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7520E+02 EXCESS= .0000E+00 OUTFLOW= .7287E+02 BASIN STORAGE= .2731E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 301.52 | 235.00 | .44 | 5.00 | 301.52 | 235.00 | .44 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6835E+02 EXCESS= .0000E+00 OUTFLOW= .6603E+02 BASIN STORAGE= .2601E+01 PERCENT ERROR= -.4

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 265.91 | 235.00 | .39 | 5.00 | 265.91 | 235.00 | .39 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6062E+02 EXCESS= .0000E+00 OUTFLOW= .5847E+02 BASIN STORAGE= .2433E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 235.53 | 235.00 | .35 | 5.00 | 235.53 | 235.00 | .35 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5390E+02 EXCESS= .0000E+00 OUTFLOW= .5191E+02 BASIN STORAGE= .2266E+01 PERCENT ERROR= -.5

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.83 | 227.91 | 250.97 | .99 | 5.00 | 227.12 | 250.00 | .99 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4181E+02 EXCESS= .0000E+00 OUTFLOW= .4181E+02 BASIN STORAGE= .1945E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.91 | 214.51 | 250.52 | .94 | 5.00 | 214.04 | 250.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3942E+02 EXCESS= .0000E+00 OUTFLOW= .3942E+02 BASIN STORAGE= .1864E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 196.29 | 255.00 | .86 | 5.00 | 196.29 | 255.00 | .86 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3613E+02 EXCESS= .0000E+00 OUTFLOW= .3613E+02 BASIN STORAGE= .1700E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 177.97 | 255.00 | .78 | 5.00 | 177.97 | 255.00 | .78 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3284E+02 EXCESS= .0000E+00 OUTFLOW= .3284E+02 BASIN STORAGE= .1613E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 164.47 | 255.00 | .72 | 5.00 | 164.47 | 255.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3042E+02 EXCESS= .0000E+00 OUTFLOW= .3043E+02 BASIN STORAGE= .1547E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 140.29 | 255.00 | .62 | 5.00 | 140.29 | 255.00 | .62 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2614E+02 EXCESS= .0000E+00 OUTFLOW= .2614E+02 BASIN STORAGE= .1965E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 114.92 | 255.00 | .51 | 5.00 | 114.92 | 255.00 | .51 |

INUITY SUMMARY (AC-FT) - INFLOW= .2168E+02 EXCESS= .0000E+00 OUTFLOW= .2168E+02 BASIN STORAGE= .1771E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 94.73 | 255.00 | .43 | 5.00 | 94.73 | 255.00 | .43 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1817E+02 EXCESS= .0000E+00 OUTFLOW= .1817E+02 BASIN STORAGE= .1538E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 38.88 | 265.00 | .77 | 5.00 | 38.88 | 265.00 | .77 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7236E+01 EXCESS= .0000E+00 OUTFLOW= .7240E+01 BASIN STORAGE= .6424E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 36.21 | 265.00 | .72 | 5.00 | 36.21 | 265.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6774E+01 EXCESS= .0000E+00 OUTFLOW= .6779E+01 BASIN STORAGE= .6181E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 32.61 | 270.00 | .66 | 5.00 | 32.61 | 270.00 | .66 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6147E+01 EXCESS= .0000E+00 OUTFLOW= .6151E+01 BASIN STORAGE= .7172E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 29.07 | 270.00 | .59 | 5.00 | 29.07 | 270.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5524E+01 EXCESS= .0000E+00 OUTFLOW= .5528E+01 BASIN STORAGE= .6750E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 26.46 | 270.00 | .54 | 5.00 | 26.46 | 270.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5071E+01 EXCESS= .0000E+00 OUTFLOW= .5075E+01 BASIN STORAGE= .6460E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 21.81 | 270.00 | .46 | 5.00 | 21.81 | 270.00 | .46 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4275E+01 EXCESS= .0000E+00 OUTFLOW= .4279E+01 BASIN STORAGE= .7033E-02 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 17.16 | 275.00 | .37 | 5.00 | 17.16 | 275.00 | .37 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3464E+01 EXCESS= .0000E+00 OUTFLOW= .3467E+01 BASIN STORAGE= .6231E-02 PERCENT ERROR= -.3

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 13.52 | 280.00 | .30 | 5.00 | 13.52 | 280.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2839E+01 EXCESS= .0000E+00 OUTFLOW= .2842E+01 BASIN STORAGE= .6715E-02 PERCENT ERROR= -.3

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 70.77 | 300.00 | .75 | 5.00 | 70.77 | 300.00 | .75 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1332E+02 EXCESS= .0000E+00 OUTFLOW= .1332E+02 BASIN STORAGE= .8174E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 66.72 | 300.00 | .70 | 5.00 | 66.72 | 300.00 | .70 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1246E+02 EXCESS= .0000E+00 OUTFLOW= .1246E+02 BASIN STORAGE= .7943E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 61.12 | 300.00 | .63 | 5.00 | 61.12 | 300.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1128E+02 EXCESS= .0000E+00 OUTFLOW= .1128E+02 BASIN STORAGE= .8720E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 55.44 | 300.00 | .57 | 5.00 | 55.44 | 300.00 | .57 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1011E+02 EXCESS= .0000E+00 OUTFLOW= .1011E+02 BASIN STORAGE= .8331E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 51.24 | 300.00 | .52 | 5.00 | 51.24 | 300.00 | .52 |

```
CONTINUITY SUMMARY (AC-FT) - INFLOW= .9264E+01 EXCESS= .0000E+00 OUTFLOW= .9267E+01 BASIN STORAGE= .8035E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          5.00     43.74    300.00       .44      5.00     43.74    300.00         .44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7777E+01 EXCESS= .0000E+00 OUTFLOW= .7778E+01 BASIN STORAGE= .9167E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          5.00     35.76    300.00       .35      5.00     35.76    300.00         .35

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6264E+01 EXCESS= .0000E+00 OUTFLOW= .6266E+01 BASIN STORAGE= .8386E-02 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          4.75     29.37    304.00       .29      5.00     29.12    305.00         .29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5103E+01 EXCESS= .0000E+00 OUTFLOW= .5103E+01 BASIN STORAGE= .9324E-02 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   4643.63    265.00      1.00      5.00   4643.63    265.00        1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1137E+04 EXCESS= .0000E+00 OUTFLOW= .1135E+04 BASIN STORAGE= .4103E+01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   4384.39    265.00       .95      5.00   4384.39    265.00         .95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1080E+04 EXCESS= .0000E+00 OUTFLOW= .1079E+04 BASIN STORAGE= .4037E+01 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   4032.66    265.00       .88      5.00   4032.66    265.00         .88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1003E+04 EXCESS= .0000E+00 OUTFLOW= .1001E+04 BASIN STORAGE= .3963E+01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   3674.50    265.00       .81      5.00   3674.50    265.00         .81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9251E+03 EXCESS= .0000E+00 OUTFLOW= .9233E+03 BASIN STORAGE= .3867E+01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   3414.47    265.00       .76      5.00   3414.47    265.00         .76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8681E+03 EXCESS= .0000E+00 OUTFLOW= .8664E+03 BASIN STORAGE= .3776E+01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   2945.15    270.00       .67      5.00   2945.15    270.00         .67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7657E+03 EXCESS= .0000E+00 OUTFLOW= .7641E+03 BASIN STORAGE= .3621E+01 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   2477.98    270.00       .58      5.00   2477.98    270.00         .58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6590E+03 EXCESS= .0000E+00 OUTFLOW= .6576E+03 BASIN STORAGE= .3418E+01 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   2109.32    270.00       .50      5.00   2109.32    270.00         .50

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5743E+03 EXCESS= .0000E+00 OUTFLOW= .5730E+03 BASIN STORAGE= .3205E+01 PERCENT ERROR=   -.3

1                                                HEC-1 INPUT                                                PAGE  1

          LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
                        *


*** NORMAL END OF HEC-1 ***
```

# STORM CENTERING, SDN4, SC4.OUT

```
1*************************************
*                                   *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*           SEPTEMBER 1990          *
*            VERSION 4.0            *
*                                   *
*  RUN DATE  07/16/2001  TIME  17:47:35 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL  LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
                    *DIAGRAM
*** FREE ***
               1    ID   DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
               2    ID   "G.C. WALLACE, INC. BY MJL"
               3    ID   SC4.XLS
               4    ID   "MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
               5    ID   "BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
               6    ID   UPDATED PRECIPITATION VALUES
               7    ID   % IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
               8    ID   ADDITIONAL DIVERSIONS ADDED
               9    ID   DESIGN STORM = 100-YEAR 6-HOUR STORM
              10    ID   STORM DISTRIBUTION = SDN4
                    *
              11    ID     JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
              12    ID
              13    ID     AREA (SQUARE MILES)    DARF
              14    ID    8-9   0.875
              15    ID    9-10   0.865
              16    ID    10-11   0.857
              17    ID    11-12   0.850
              18    ID
              19    IT       5       0       0     120
              20    IO       5       0       0
              21    JR    PREC   0.875   0.865   0.857   0.850
                    *

              22    KK    B15B
              23    BA   0.954
              24    PB    2.77
              25    PC   0.000   0.020   0.058   0.075   0.099   0.126   0.137   0.145   0.149   0.151
              26    PC   0.155   0.156   0.159   0.162   0.169   0.172   0.179   0.189   0.201   0.211
              27    PC   0.220   0.228   0.232   0.240   0.246   0.252   0.260   0.269   0.276   0.283
              28    PC   0.286   0.292   0.302   0.312   0.321   0.332   0.352   0.376   0.415   0.462
              29    PC   0.530   0.610   0.710   0.732   0.756   0.782   0.799   0.813   0.823   0.830
              30    PC   0.835   0.844   0.851   0.864   0.885   0.908   0.924   0.944   0.968   0.973
              31    PC   0.978   0.982   0.984   0.986   0.988   0.991   0.992   0.993   0.994   0.997
              32    PC   0.998   0.999   1.000
              33    LS       0    75.0    13.0
              34    UD    0.71
                    *

              35    KK    B16B
              36    BA   0.701
              37    PB    2.77
              38    LS       0    83.1    32.0
              39    UD   0.380
                    *

              40    KK   RB16B
              41    KM   ROUTE BASIN B16B TO PT30
              42    RD    1900   0.008   0.015       0    TRAP       0      50
                    *
```

1 HEC-1 INPUT PAGE 2

```
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

              43    KK   RPT30
              44    KM   ROUTE PT30 TO PT31
              45    RD    2900   0.005   0.015       0    TRAP      20       3
                    *

              46    KK    B16A
              47    BA   0.906
```

```
 48          PB    2.77
 49          LS       0    78.2    17.0
 50          UD   0.710
             *

 51          KK     D5B
 52          BA   0.602
 53          PB    2.77
 54          LS       0    82.8    46.0
 55          UD   0.710
             *

 56          KK    PT31
 57          KM   "COMBINE BASINS B16B, B16A AND D5B"
 58          HC       3
             *

 59          KK   RPT31
 60          KM   ROUTE PT31 TO PT32
 61          RD    3200   0.016   0.015       0    TRAP      15       2
             *

 62          KK    PT32
 63          KM   COMBINE BASIN B15B AND PT31 AT DUCK CREEK/MIDDLE BRANCH BLUE DIAMOND CONFLUEN
 64          HC       2
             *

 65          KK   RPT32
 66          KM   ROUTE PT32 TO PT34
 67          RD    2700   0.009   0.015       0    TRAP      70       2
             *

 68          KK    B15A
 69          BA   0.959
 70          PB    2.77
 71          LS       0    77.6    14.0
 72          UD   0.500
             *

 73          KK    PT34
 74          KM   COMBINE BASIN B15A AND PT32
 75          HC       2
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 76          KK     MC2
 77          BA   0.919
 78          PB    2.77
 79          LS       0    74.9    28.0
 80          UD   0.873
             *

 81          KK    RMC2
 82          KM   ROUTE PT37 TO PT38
 83          RD    5200    0.01   0.015       0    TRAP      20       2
             *

 84          KK    B10A
 85          BA   1.601
 86          PB    2.77
 87          LS       0    74.9    32.0
 88          UD   0.217
             *

 89          KK    PT38
 90          KM   COMBINE BASINS MC2 AND B10A
 91          HC       2
             *

 92          KK   RPT38
 93          KM   ROUTE PT38 TO PT39
 94          RD    2100   0.002   0.015       0    TRAP      20       2
             *

 95          KK    PT39
 96          KM   COMBINE PT34 AND PT38
 97          HC       2
             *

 98          KK   RPT39
 99          KM   ROUTE PT39 TO PT40
100          RD    2500   0.006   0.025       0    TRAP      70       2
             *

101          KK      D6
102          BA   1.564
103          PB    2.77
104          LS       0    78.3    43.0
105          UD   0.500
             *

106          KK    PT40
107          KM   COMBINE PT39 AND BASIN D6
108          HC       2
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

109          KK   RPT40
110          KM   ROUTE PT40 TO PT41
```

```
111          RM       1    0.08   0.200
             *

112          KK      D7
113          BA   0.850
114          PB    2.77
115          LS       0    77.3    23.0
116          UD   0.710
             *

117          KK    PT41
118          KM   COMBINE PT40 AND BASIN D7
119          HC       2
             *

120          KK   RPT41
121          KM   ROUTE PT41 TO PT42
122          RD    4150   0.006   0.015       0    TRAP       50        0
             *

123          KK      D8
124          BA   1.258
125          PB    2.77
126          LS       0    77.8    34.0
127          UD   0.230
             *

128          KK     RD8
129          KM   ROUTE BASIN D8 TO PT42
130          RM       1   0.088   0.150
             *

131          KK    PT42
132          KM   COMBINE PT41 AND BASIN D8
133          HC       2
             *

134          KK   RPT42
135          KM   ROUTE PT42 TO PT44
136          RD    3650   0.011   0.015       0    TRAP       28        2
             *

137          KK    B10B
138          BA   0.848
139          PB    2.77
140          LS       0    74.9    44.0
141          UD   0.687
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

142          KK   RB10B
143          KM   ROUTE BASIN B10B TO PT43
144          RM       6    0.46   0.100
             *

145          KK     D9A
146          BA   0.861
147          PB    2.77
148          LS       0    72.8    16.0
149          UD   1.100
             *

150          KK    PT43
151          KM   COMBINE BASINS B10B AND D9A
152          HC       2
             *

153          KK   RPT43
154          KM   ROUTE PT43 TO PT44
155          RD    4050    0.01   0.016       0    TRAP        0       16
             *

156          KK    PT44
157          KM   COMBINE PT42 AND PT43
158          HC       2
             *

159          KK   RPT44
160          KM   ROUTE PT44 TO PT45
161          RM       1   0.119   0.150
             *

162          KK     D9B
163          BA   1.544
164          PB    2.77
165          LS       0    77.8    17.0
166          UD   0.410
             *

167          KK    PT45
168          KM   COMBINE PT44 AND BASIN D9B
169          HC       2
             *

170          KK   RPT45
171          KM   ROUTE PT45 TO PT46
172          RM       2   0.184   0.150
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
173          KK     D10
174          BA   2.508
175          PB    2.77
176          LS       0    79.0    33.0
177          UD   0.440
             *

178          KK    PT46
179          KM   COMBINE PT45 AND BASIN D10
180          HC       2
             *

181          KK   RPT46
182          KM   ROUTE PT46 TO PT48
183          RD    2500   0.018   0.035       0    TRAP      75       2
             *

184          KK      MC
185          KM   "TLAG AND AREA CALCULATED, CN REFERENCED FROM 1996 MPU"
186          KM   THEREFORE NO INCREASE IN PERCENT IMPERVIOUS
187          BA   2.804
188          PB    2.77
189          LS       0    91.0
190          UD   0.244
             *

191          KK   TORAW
192          KM   DIVERT FLOW WHICH BYPASSES DETENTION BASIN
193          DT   TORAW
194          DI       0     100     500    1000    2000    3000    4000
195          DQ       0      40     100     200     400     570     760
             *

196          KK    MCDB
197          KM   MCCARRAN AIRPORT DETENTION FACILITIES
198          KM   SIMULATION OF TWO DETENTION BASINS - MCCARRAN EAST AND SPENCER
199          RS       1    STOR      -1
200          SV       0       8      40      70     100     160     210     500
201          SQ       0      30      40      55      65      80      85      87
202          SE       0       2       4       6       8      12      15      16
203          KO       1
             *

204          KK   RMCDB
205          KM   ROUTE OUTFALL FROM MCDB TO PT47
206          RD    3300   0.006   0.013       0    CIRC       4       0
             *

207          KK  RTORAW
208          KM   FLOW BYPASSING THE MCCARRAN DETENTION FACILITIES RETURNED IN RAWHIDE CHANNEL
209          DR   TORAW
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

210          KK    PT47
211          KM   COMBINE OUTFALL FROM MCCARRAN DETENTION FACILITIES AND BYPASSED FLOW
212          HC       2
             *

213          KK   RPT47
214          KM   ROUTE PT47 THRU RAWHIDE CHANNEL TO PT48W
215          RD   15700   0.015   0.015       0    TRAP      11     1.5
             *

216          KK      RH
217          BA   1.355
218          PB    2.77
219          LS       0    72.0     6.0
220          UD   0.340
             *

221          KK   PT48W
222          KM   COMBINE PT47 AND BASIN RH
223          HC       2
             *

224          KK     B20
225          BA   0.790
226          PB    2.77
227          LS       0    82.4     6.0
228          UD   0.710
             *

229          KK    RB20
230          KM   ROUTE BASIN B20 TO PT48
231          KM   MUSKINGUM ROUTING UNSTABLE
232          RD    1800   0.017   0.030       0    TRAP      30      10
             *

233          KK    PT48
234          KM   "COMBINE PT46, PT48W, AND BASIN B20"
235          HC       3
             *

236          KK   RPT48
237          KM   ROUTE PT48 TO PT50
238          RM       1   0.067   0.150
             *

239          KK     D12
240          BA   0.176
```

```
241          PB    2.77
242          LS       0    77.8     7.0
243          UD   0.710
             *
1                                        HEC-1 INPUT                                                    PAGE  8

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

244          KK    RD12
245          KM   ROUTE BASIN D12 TO PT49
246          KM   MUSKINGUM ROUTING UNSTABLE
247          RD    1550   0.044   0.150       0    TRAP      50      10
             *

248          KK    D11A
249          BA   0.159
250          PB    2.77
251          LS       0    77.3     5.0
252          UD   0.160
             *

253          KK    PT49
254          KM   COMBINE BASINS D12 AND D11A
255          HC       2
             *

256          KK   RPT49
257          KM   ROUTE PT49 TO PT50
258          KM   MUSKINGUM ROUTING UNSTABLE
259          RD    1050   0.019   0.150       0    TRAP      45      10
             *

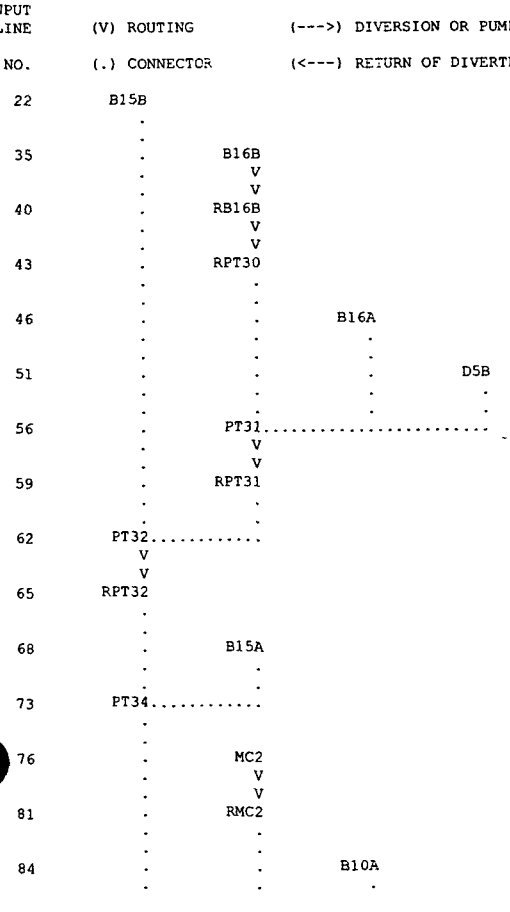
260          KK    PT50
261          KM   COMBINE PT48 AND PT49
262          HC       2
             *

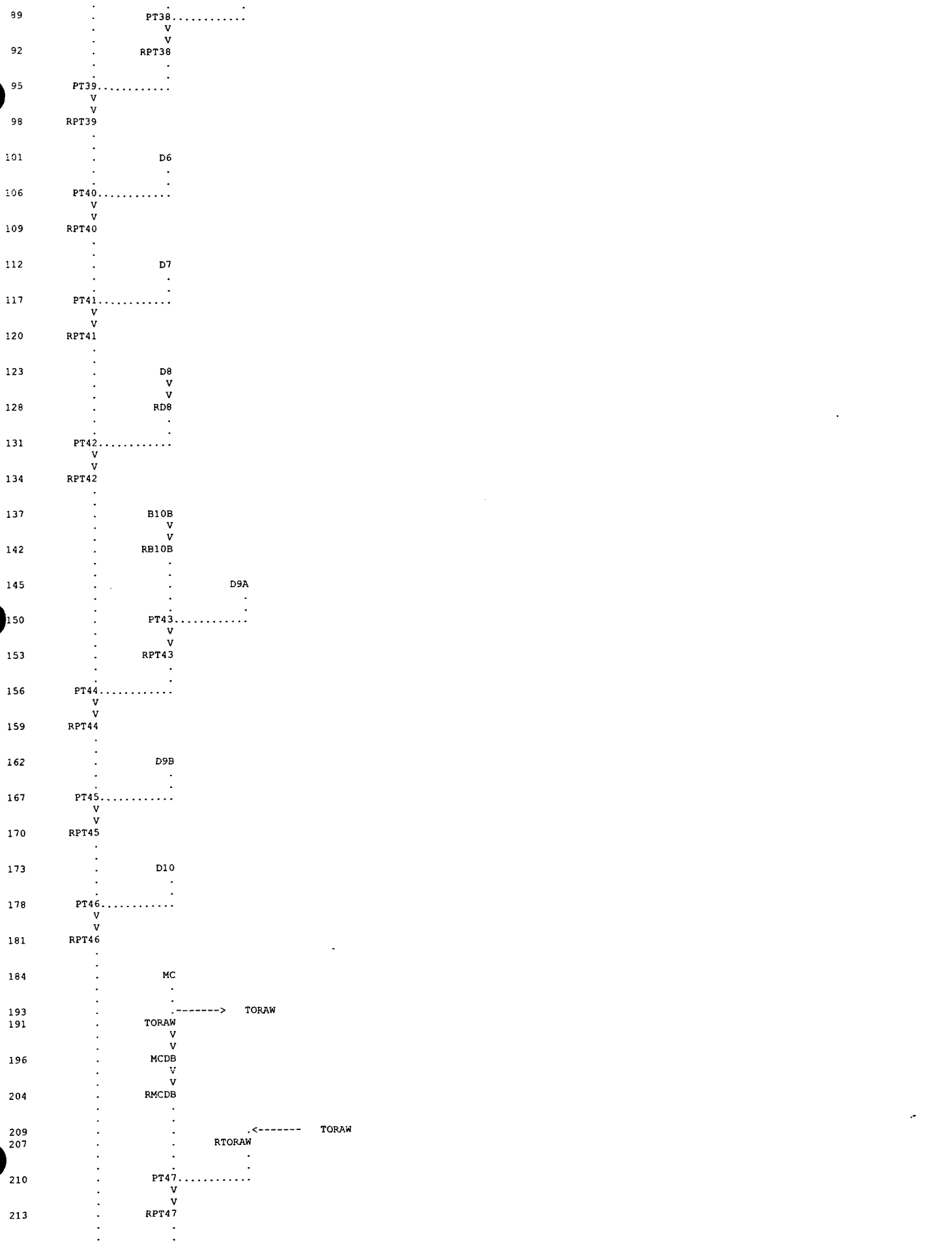
263          KK   RPT50
264          KM   ROUTE PT50 TO PT51
265          RD    7000   0.003   0.015       0    TRAP      60       2
             *

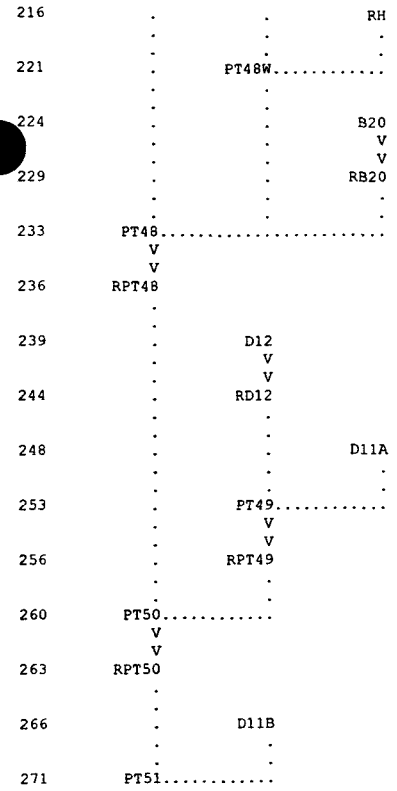
266          KK    D11B
267          BA   0.987
268          PB    2.77
269          LS       0    82.2    12.0
270          UD   0.220
             *

271          KK    PT51
272          KM   COMBINE PT50 AND BASIN D11B
273          HC       2
274          ZZ
1
```

*SCHEMATIC DIAGRAM OF STREAM NETWORK*




89 PT38
92 RPT38
95 PT39
98 RPT39
101 D6
106 PT40
109 RPT40
112 D7
117 PT41
120 RPT41
123 D8
128 RD8
131 PT42
134 RPT42
137 B10B
142 RB10B
145 D9A
150 PT43
153 RPT43
156 PT44
159 RPT44
162 D9B
167 PT45
170 RPT45
173 D10
178 PT46
181 RPT46
184 MC
193 TORAW
191 TORAW
196 MCDB
204 RMCDB
209 TORAW
207 RTORAW
210 PT47
213 RPT47




(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            SEPTEMBER 1990             *
*             VERSION 4.0               *
*                                       *
*  RUN DATE  07/16/2001  TIME  17:47:35 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*          (916) 756-1104               *
*                                       *
*****************************************
```

DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
"G.C. WALLACE, INC. BY MJL"
SC4.XLS
"MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
"BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
UPDATED PRECIPITATION VALUES
% IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
ADDITIONAL DIVERSIONS ADDED
DESIGN STORM = 100-YEAR 6-HOUR STORM
STORM DISTRIBUTION = SDN4
JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

| AREA (SQUARE MILES) | DARF |
|---|---|
| 8-9 0.875 | |
| 9-10 0.865 | |
| 10-11 0.857 | |
| 11-12 0.850 | |

```
 20 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE      1   0  STARTING DATE
                     ITIME       0000  STARTING TIME
                        NQ        120  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE      1   0  ENDING DATE
                    NDTIME       0955  ENDING TIME
                     ICENT         19  CENTURY MARK

                  COMPUTATION INTERVAL      .08 HOURS
                      TOTAL TIME BASE    9.92 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

    JP          MULTI-PLAN OPTION
```

```
                NPLAN          1  NUMBER OF PLANS

   JR         MULTI-RATIO OPTION
                 RATIOS OF PRECIPITATION
                  .88       .87       .86       .85

* *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
196 KK    *     MCDB   *
          *            *
          **************

203 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          1  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

             HYDROGRAPH ROUTING DATA

199 RS         STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       STOR  TYPE OF INITIAL CONDITION
                    RSVRIC     -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

200 SV           STORAGE          .0       8.0      40.0      70.0     100.0     160.0     210.0     500.0

201 SQ         DISCHARGE          0.       30.       40.       55.       65.       80.       85.       87.

202 SE         ELEVATION         .00      2.00      4.00      6.00      8.00     12.00     15.00     16.00
                                                                        ***
```

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .88

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 36. | 27.1 | 3.2 | 1 | | 0640 | 81 | 79. | 155.5 | 11.7 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 38. | 33.4 | 3.6 | 1 | | 0645 | 82 | 79. | 155.0 | 11.7 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 41. | 42.4 | 4.2 | 1 | | 0650 | 83 | 79. | 154.5 | 11.6 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 47. | 54.0 | 4.9 | 1 | | 0655 | 84 | 78. | 153.9 | 11.6 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 54. | 67.4 | 5.8 | 1 | | 0700 | 85 | 78. | 153.4 | 11.6 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 58. | 80.3 | 6.7 | 1 | | 0705 | 86 | 78. | 152.9 | 11.5 |
| 1 | | 0030 | 7 | 1. | .1 | .0 | 1 | | 0350 | 47 | 62. | 91.4 | 7.4 | 1 | | 0710 | 87 | 78. | 152.3 | 11.5 |
| 1 | | 0035 | 8 | 1. | .4 | .1 | 1 | | 0355 | 48 | 65. | 100.4 | 8.0 | 1 | | 0715 | 88 | 78. | 151.8 | 11.5 |
| 1 | | 0040 | 9 | 2. | .7 | .2 | 1 | | 0400 | 49 | 67. | 107.6 | 8.5 | 1 | | 0720 | 89 | 78. | 151.2 | 11.4 |
| 1 | | 0045 | 10 | 4. | 1.0 | .3 | 1 | | 0405 | 50 | 68. | 113.4 | 8.9 | 1 | | 0725 | 90 | 78. | 150.7 | 11.4 |
| 1 | | 0050 | 11 | 5. | 1.3 | .3 | 1 | | 0410 | 51 | 69. | 117.9 | 9.2 | 1 | | 0730 | 91 | 78. | 150.2 | 11.3 |
| 1 | | 0055 | 12 | 6. | 1.6 | .4 | 1 | | 0415 | 52 | 70. | 121.3 | 9.4 | 1 | | 0735 | 92 | 77. | 149.6 | 11.3 |
| 1 | | 0100 | 13 | 7. | 1.8 | .4 | 1 | | 0420 | 53 | 71. | 124.0 | 9.6 | 1 | | 0740 | 93 | 77. | 149.1 | 11.3 |
| 1 | | 0105 | 14 | 7. | 1.9 | .5 | 1 | | 0425 | 54 | 72. | 126.2 | 9.7 | 1 | | 0745 | 94 | 77. | 148.6 | 11.2 |
| 1 | | 0110 | 15 | 8. | 2.1 | .5 | 1 | | 0430 | 55 | 72. | 128.2 | 9.9 | 1 | | 0750 | 95 | 77. | 148.0 | 11.2 |
| 1 | | 0115 | 16 | 8. | 2.2 | .6 | 1 | | 0435 | 56 | 73. | 130.5 | 10.0 | 1 | | 0755 | 96 | 77. | 147.5 | 11.2 |
| 1 | | 0120 | 17 | 9. | 2.4 | .6 | 1 | | 0440 | 57 | 73. | 133.4 | 10.2 | 1 | | 0800 | 97 | 77. | 147.0 | 11.1 |
| 1 | | 0125 | 18 | 10. | 2.7 | .7 | 1 | | 0445 | 58 | 74. | 136.9 | 10.5 | 1 | | 0805 | 98 | 77. | 146.5 | 11.1 |
| 1 | | 0130 | 19 | 11. | 3.0 | .7 | 1 | | 0450 | 59 | 75. | 140.7 | 10.7 | 1 | | 0810 | 99 | 76. | 145.9 | 11.1 |
| 1 | | 0135 | 20 | 13. | 3.4 | .8 | 1 | | 0455 | 60 | 76. | 144.8 | 11.0 | 1 | | 0815 | 100 | 76. | 145.4 | 11.0 |
| 1 | | 0140 | 21 | 15. | 4.0 | 1.0 | 1 | | 0500 | 61 | 77. | 148.9 | 11.3 | 1 | | 0820 | 101 | 76. | 144.9 | 11.0 |
| 1 | | 0145 | 22 | 18. | 4.7 | 1.2 | 1 | | 0505 | 62 | 78. | 152.4 | 11.5 | 1 | | 0825 | 102 | 76. | 144.4 | 11.0 |
| 1 | | 0150 | 23 | 21. | 5.5 | 1.4 | 1 | | 0510 | 63 | 79. | 155.1 | 11.7 | 1 | | 0830 | 103 | 76. | 143.8 | 10.9 |
| 1 | | 0155 | 24 | 24. | 6.3 | 1.6 | 1 | | 0515 | 64 | 79. | 157.0 | 11.8 | 1 | | 0835 | 104 | 76. | 143.3 | 10.9 |
| 1 | | 0200 | 25 | 26. | 7.0 | 1.7 | 1 | | 0520 | 65 | 80. | 158.2 | 11.9 | 1 | | 0840 | 105 | 76. | 142.8 | 10.9 |
| 1 | | 0205 | 26 | 28. | 7.6 | 1.9 | 1 | | 0525 | 66 | 80. | 158.9 | 11.9 | 1 | | 0845 | 106 | 76. | 142.3 | 10.8 |
| 1 | | 0210 | 27 | 30. | 8.2 | 2.0 | 1 | | 0530 | 67 | 80. | 159.4 | 12.0 | 1 | | 0850 | 107 | 75. | 141.7 | 10.8 |
| 1 | | 0215 | 28 | 30. | 8.8 | 2.1 | 1 | | 0535 | 68 | 80. | 159.6 | 12.0 | 1 | | 0855 | 108 | 75. | 141.2 | 10.7 |
| 1 | | 0220 | 29 | 30. | 9.5 | 2.1 | 1 | | 0540 | 69 | 80. | 159.6 | 12.0 | 1 | | 0900 | 109 | 75. | 140.7 | 10.7 |
| 1 | | 0225 | 30 | 31. | 10.2 | 2.1 | 1 | | 0545 | 70 | 80. | 159.5 | 12.0 | 1 | | 0905 | 110 | 75. | 140.2 | 10.7 |
| 1 | | 0230 | 31 | 31. | 11.0 | 2.2 | 1 | | 0550 | 71 | 80. | 159.3 | 12.0 | 1 | | 0910 | 111 | 75. | 139.7 | 10.6 |
| 1 | | 0235 | 32 | 31. | 11.8 | 2.2 | 1 | | 0555 | 72 | 80. | 159.1 | 11.9 | 1 | | 0915 | 112 | 75. | 139.2 | 10.6 |
| 1 | | 0240 | 33 | 31. | 12.4 | 2.3 | 1 | | 0600 | 73 | 80. | 158.9 | 11.9 | 1 | | 0920 | 113 | 75. | 138.6 | 10.6 |
| 1 | | 0245 | 34 | 32. | 13.1 | 2.3 | 1 | | 0605 | 74 | 80. | 158.6 | 11.9 | 1 | | 0925 | 114 | 75. | 138.1 | 10.5 |
| 1 | | 0250 | 35 | 32. | 13.9 | 2.4 | 1 | | 0610 | 75 | 80. | 158.3 | 11.9 | 1 | | 0930 | 115 | 74. | 137.6 | 10.5 |
| 1 | | 0255 | 36 | 32. | 14.9 | 2.4 | 1 | | 0615 | 76 | 79. | 158.0 | 11.9 | 1 | | 0935 | 116 | 74. | 137.1 | 10.5 |
| 1 | | 0300 | 37 | 33. | 16.1 | 2.5 | 1 | | 0620 | 77 | 79. | 157.5 | 11.8 | 1 | | 0940 | 117 | 74. | 136.6 | 10.4 |
| 1 | | 0305 | 38 | 33. | 17.6 | 2.6 | 1 | | 0625 | 78 | 79. | 157.1 | 11.8 | 1 | | 0945 | 118 | 74. | 136.1 | 10.4 |
| 1 | | 0310 | 39 | 34. | 19.6 | 2.7 | 1 | | 0630 | 79 | 79. | 156.6 | 11.8 | 1 | | 0950 | 119 | 74. | 135.6 | 10.4 |
| 1 | | 0315 | 40 | 35. | 22.7 | 2.9 | 1 | | 0635 | 80 | 79. | 156.1 | 11.7 | 1 | | 0955 | 120 | 74. | 135.1 | 10.3 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW 6-HR | 24-HR | 72-HR | 9.92-HR |
|---|---|---|---|---|---|---|
| (CFS) | (HR) | (CFS) | | | | |
| 80. | 5.67 | | 76. | 55. | 55. | 55. |
| | | (INCHES) | .253 | .301 | .301 | .301 |
| | | (AC-FT) | 38. | 45. | 45. | 45. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE 6-HR | 24-HR | 72-HR | 9.92-HR |
|---|---|---|---|---|---|
| (AC-FT) | (HR) | | | | |
| 160. | 5.67 | 145. | 94. | 94. | 94. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE 6-HR | 24-HR | 72-HR | 9.92-HR |
|---|---|---|---|---|---|

| + (FEET) | (HR) | | | | |
|---|---|---|---|---|---|
| 11.97 | 5.67 | 11.02 | 7.40 | 7.40 | 7.40 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .87

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 36. | 26.4 | 3.1 | 1 | | 0640 | 81 | 78. | 152.8 | 11.5 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 38. | 32.6 | 3.5 | 1 | | 0645 | 82 | 78. | 152.2 | 11.5 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 41. | 41.4 | 4.1 | 1 | | 0650 | 83 | 78. | 151.7 | 11.4 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 52.9 | 4.9 | 1 | | 0655 | 84 | 78. | 151.2 | 11.4 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 53. | 66.0 | 5.7 | 1 | | 0700 | 85 | 78. | 150.7 | 11.4 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 58. | 78.7 | 6.6 | 1 | | 0705 | 86 | 78. | 150.1 | 11.3 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 62. | 89.6 | 7.3 | 1 | | 0710 | 87 | 77. | 149.6 | 11.3 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 64. | 98.5 | 7.9 | 1 | | 0715 | 88 | 77. | 149.1 | 11.3 |
| 1 | | 0040 | 9 | 2. | .6 | .2 | 1 | | 0400 | 49 | 66. | 105.6 | 8.4 | 1 | | 0720 | 89 | 77. | 148.5 | 11.2 |
| 1 | | 0045 | 10 | 4. | 1.0 | .2 | 1 | | 0405 | 50 | 68. | 111.3 | 8.8 | 1 | | 0725 | 90 | 77. | 148.0 | 11.2 |
| 1 | | 0050 | 11 | 5. | 1.2 | .3 | 1 | | 0410 | 51 | 69. | 115.7 | 9.0 | 1 | | 0730 | 91 | 77. | 147.5 | 11.2 |
| 1 | | 0055 | 12 | 6. | 1.5 | .4 | 1 | | 0415 | 52 | 70. | 119.1 | 9.3 | 1 | | 0735 | 92 | 77. | 146.9 | 11.1 |
| 1 | | 0100 | 13 | 6. | 1.7 | .4 | 1 | | 0420 | 53 | 70. | 121.8 | 9.5 | 1 | | 0740 | 93 | 77. | 146.4 | 11.1 |
| 1 | | 0105 | 14 | 7. | 1.9 | .5 | 1 | | 0425 | 54 | 71. | 123.9 | 9.6 | 1 | | 0745 | 94 | 76. | 145.9 | 11.1 |
| 1 | | 0110 | 15 | 7. | 2.0 | .5 | 1 | | 0430 | 55 | 71. | 125.9 | 9.7 | 1 | | 0750 | 95 | 76. | 145.4 | 11.0 |
| 1 | | 0115 | 16 | 8. | 2.1 | .5 | 1 | | 0435 | 56 | 72. | 128.2 | 9.9 | 1 | | 0755 | 96 | 76. | 144.8 | 11.0 |
| 1 | | 0120 | 17 | 9. | 2.3 | .6 | 1 | | 0440 | 57 | 73. | 131.0 | 10.1 | 1 | | 0800 | 97 | 76. | 144.3 | 11.0 |
| 1 | | 0125 | 18 | 10. | 2.5 | .6 | 1 | | 0445 | 58 | 74. | 134.4 | 10.3 | 1 | | 0805 | 98 | 76. | 143.8 | 10.9 |
| 1 | | 0130 | 19 | 11. | 2.8 | .7 | 1 | | 0450 | 59 | 75. | 138.2 | 10.5 | 1 | | 0810 | 99 | 76. | 143.3 | 10.9 |
| 1 | | 0135 | 20 | 12. | 3.3 | .8 | 1 | | 0455 | 60 | 76. | 142.3 | 10.8 | 1 | | 0815 | 100 | 76. | 142.7 | 10.8 |
| 1 | | 0140 | 21 | 14. | 3.9 | 1.0 | 1 | | 0500 | 61 | 77. | 146.3 | 11.1 | 1 | | 0820 | 101 | 76. | 142.2 | 10.8 |
| 1 | | 0145 | 22 | 17. | 4.6 | 1.1 | 1 | | 0505 | 62 | 77. | 149.7 | 11.3 | 1 | | 0825 | 102 | 75. | 141.7 | 10.8 |
| 1 | | 0150 | 23 | 20. | 5.3 | 1.3 | 1 | | 0510 | 63 | 78. | 152.4 | 11.5 | 1 | | 0830 | 103 | 75. | 141.2 | 10.7 |
| 1 | | 0155 | 24 | 23. | 6.1 | 1.5 | 1 | | 0515 | 64 | 79. | 154.3 | 11.6 | 1 | | 0835 | 104 | 75. | 140.7 | 10.7 |
| 1 | | 0200 | 25 | 25. | 6.7 | 1.7 | 1 | | 0520 | 65 | 79. | 155.5 | 11.7 | 1 | | 0840 | 105 | 75. | 140.1 | 10.7 |
| 1 | | 0205 | 26 | 28. | 7.3 | 1.8 | 1 | | 0525 | 66 | 79. | 156.2 | 11.7 | 1 | | 0845 | 106 | 75. | 139.6 | 10.6 |
| 1 | | 0210 | 27 | 30. | 7.9 | 2.0 | 1 | | 0530 | 67 | 79. | 156.6 | 11.8 | 1 | | 0850 | 107 | 75. | 139.1 | 10.6 |
| 1 | | 0215 | 28 | 30. | 8.5 | 2.0 | 1 | | 0535 | 68 | 79. | 156.8 | 11.8 | 1 | | 0855 | 108 | 75. | 138.6 | 10.6 |
| 1 | | 0220 | 29 | 30. | 9.2 | 2.1 | 1 | | 0540 | 69 | 79. | 156.8 | 11.8 | 1 | | 0900 | 109 | 75. | 138.1 | 10.5 |
| 1 | | 0225 | 30 | 31. | 9.9 | 2.1 | 1 | | 0545 | 70 | 79. | 156.7 | 11.8 | 1 | | 0905 | 110 | 74. | 137.6 | 10.5 |
| 1 | | 0230 | 31 | 31. | 10.7 | 2.2 | 1 | | 0550 | 71 | 79. | 156.5 | 11.8 | 1 | | 0910 | 111 | 74. | 137.1 | 10.5 |
| 1 | | 0235 | 32 | 31. | 11.4 | 2.2 | 1 | | 0555 | 72 | 79. | 156.3 | 11.8 | 1 | | 0915 | 112 | 74. | 136.5 | 10.4 |
| 1 | | 0240 | 33 | 31. | 12.0 | 2.3 | 1 | | 0600 | 73 | 79. | 156.1 | 11.7 | 1 | | 0920 | 113 | 74. | 136.0 | 10.4 |
| 1 | | 0245 | 34 | 31. | 12.7 | 2.3 | 1 | | 0605 | 74 | 79. | 155.9 | 11.7 | 1 | | 0925 | 114 | 74. | 135.5 | 10.4 |
| 1 | | 0250 | 35 | 32. | 13.5 | 2.3 | 1 | | 0610 | 75 | 79. | 155.5 | 11.7 | 1 | | 0930 | 115 | 74. | 135.0 | 10.3 |
| 1 | | 0255 | 36 | 32. | 14.4 | 2.4 | 1 | | 0615 | 76 | 79. | 155.2 | 11.7 | 1 | | 0935 | 116 | 74. | 134.5 | 10.3 |
| 1 | | 0300 | 37 | 32. | 15.6 | 2.5 | 1 | | 0620 | 77 | 79. | 154.8 | 11.7 | 1 | | 0940 | 117 | 74. | 134.0 | 10.3 |
| 1 | | 0305 | 38 | 33. | 17.0 | 2.6 | 1 | | 0625 | 78 | 79. | 154.3 | 11.6 | 1 | | 0945 | 118 | 73. | 133.5 | 10.2 |
| 1 | | 0310 | 39 | 33. | 19.1 | 2.7 | 1 | | 0630 | 79 | 78. | 153.8 | 11.6 | 1 | | 0950 | 119 | 73. | 133.0 | 10.2 |
| 1 | | 0315 | 40 | 34. | 22.0 | 2.9 | 1 | | 0635 | 80 | 78. | 153.3 | 11.6 | 1 | | 0955 | 120 | 73. | 132.5 | 10.2 |

| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | | | | |
| | | (CFS) | | | |
| + 79. | 5.67 | 76. | 54. | 54. | 54. |
| | | (INCHES) .251 | .298 | .298 | .298 |
| | | (AC-FT) 38. | 45. | 45. | 45. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 157. | 5.67 | 143. | 92. | 92. | 92. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 11.79 | 5.67 | 10.85 | 7.29 | 7.29 | 7.29 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .86

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 36. | 25.8 | 3.1 | 1 | | 0640 | 81 | 78. | 150.6 | 11.4 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 37. | 31.9 | 3.5 | 1 | | 0645 | 82 | 78. | 150.0 | 11.3 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 40. | 40.6 | 4.0 | 1 | | 0650 | 83 | 77. | 149.5 | 11.3 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 52.0 | 4.8 | 1 | | 0655 | 84 | 77. | 149.0 | 11.3 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 52. | 64.9 | 5.7 | 1 | | 0700 | 85 | 77. | 148.5 | 11.2 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 57. | 77.4 | 6.5 | 1 | | 0705 | 86 | 77. | 147.9 | 11.2 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 61. | 88.2 | 7.2 | 1 | | 0710 | 87 | 77. | 147.4 | 11.2 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 64. | 97.0 | 7.8 | 1 | | 0715 | 88 | 77. | 146.9 | 11.1 |
| 1 | | 0040 | 9 | 2. | .6 | .1 | 1 | | 0400 | 49 | 66. | 104.0 | 8.3 | 1 | | 0720 | 89 | 77. | 146.3 | 11.1 |
| 1 | | 0045 | 10 | 3. | .9 | .2 | 1 | | 0405 | 50 | 67. | 109.6 | 8.6 | 1 | | 0725 | 90 | 76. | 145.8 | 11.1 |
| 1 | | 0050 | 11 | 4. | 1.2 | .3 | 1 | | 0410 | 51 | 69. | 114.0 | 8.9 | 1 | | 0730 | 91 | 76. | 145.3 | 11.0 |
| 1 | | 0055 | 12 | 5. | 1.4 | .4 | 1 | | 0415 | 52 | 69. | 117.4 | 9.2 | 1 | | 0735 | 92 | 76. | 144.8 | 11.0 |
| 1 | | 0100 | 13 | 6. | 1.6 | .4 | 1 | | 0420 | 53 | 70. | 120.0 | 9.3 | 1 | | 0740 | 93 | 76. | 144.2 | 10.9 |
| 1 | | 0105 | 14 | 7. | 1.8 | .4 | 1 | | 0425 | 54 | 71. | 122.1 | 9.5 | 1 | | 0745 | 94 | 76. | 143.7 | 10.9 |
| 1 | | 0110 | 15 | 7. | 1.9 | .5 | 1 | | 0430 | 55 | 71. | 124.1 | 9.6 | 1 | | 0750 | 95 | 76. | 143.2 | 10.9 |
| 1 | | 0115 | 16 | 8. | 2.1 | .5 | 1 | | 0435 | 56 | 72. | 126.3 | 9.8 | 1 | | 0755 | 96 | 76. | 142.7 | 10.8 |
| 1 | | 0120 | 17 | 8. | 2.2 | .6 | 1 | | 0440 | 57 | 72. | 129.1 | 9.9 | 1 | | 0800 | 97 | 76. | 142.2 | 10.8 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0125 | 18 | 9. | 2.5 | .6 | 1 | 0445 | 58 | 73. | 132.5 | 10.2 | 1 | 0805 | 98 | 75. | 141.6 | 10.8 |
| 1 | 0130 | 19 | 10. | 2.7 | .7 | 1 | 0450 | 59 | 74. | 136.3 | 10.4 | 1 | 0810 | 99 | 75. | 141.1 | 10.7 |
| 1 | 0135 | 20 | 12. | 3.2 | .8 | 1 | 0455 | 60 | 75. | 140.3 | 10.7 | 1 | 0815 | 100 | 75. | 140.6 | 10.7 |
| 1 | 0140 | 21 | 14. | 3.7 | .9 | 1 | 0500 | 61 | 76. | 144.2 | 10.9 | 1 | 0820 | 101 | 75. | 140.1 | 10.7 |
| 1 | 0145 | 22 | 17. | 4.4 | 1.1 | 1 | 0505 | 62 | 77. | 147.6 | 11.2 | 1 | 0825 | 102 | 75. | 139.6 | 10.6 |
| 1 | 0150 | 23 | 19. | 5.2 | 1.3 | 1 | 0510 | 63 | 78. | 150.2 | 11.3 | 1 | 0830 | 103 | 75. | 139.1 | 10.6 |
| 1 | 0155 | 24 | 22. | 5.9 | 1.5 | 1 | 0515 | 64 | 78. | 152.1 | 11.5 | 1 | 0835 | 104 | 75. | 138.5 | 10.6 |
| 1 | 0200 | 25 | 25. | 6.5 | 1.6 | 1 | 0520 | 65 | 78. | 153.3 | 11.6 | 1 | 0840 | 105 | 75. | 138.0 | 10.5 |
| 1 | 0205 | 26 | 27. | 7.2 | 1.8 | 1 | 0525 | 66 | 78. | 154.0 | 11.6 | 1 | 0845 | 106 | 74. | 137.5 | 10.5 |
| 1 | 0210 | 27 | 29. | 7.7 | 1.9 | 1 | 0530 | 67 | 79. | 154.4 | 11.6 | 1 | 0850 | 107 | 74. | 137.0 | 10.5 |
| 1 | 0215 | 28 | 30. | 8.3 | 2.0 | 1 | 0535 | 68 | 79. | 154.6 | 11.6 | 1 | 0855 | 108 | 74. | 136.5 | 10.4 |
| 1 | 0220 | 29 | 30. | 8.9 | 2.1 | 1 | 0540 | 69 | 79. | 154.6 | 11.6 | 1 | 0900 | 109 | 74. | 136.0 | 10.4 |
| 1 | 0225 | 30 | 31. | 9.6 | 2.1 | 1 | 0545 | 70 | 79. | 154.5 | 11.6 | 1 | 0905 | 110 | 74. | 135.5 | 10.4 |
| 1 | 0230 | 31 | 31. | 10.4 | 2.1 | 1 | 0550 | 71 | 79. | 154.3 | 11.6 | 1 | 0910 | 111 | 74. | 135.0 | 10.3 |
| 1 | 0235 | 32 | 31. | 11.1 | 2.2 | 1 | 0555 | 72 | 79. | 154.1 | 11.6 | 1 | 0915 | 112 | 74. | 134.5 | 10.3 |
| 1 | 0240 | 33 | 31. | 11.7 | 2.2 | 1 | 0600 | 73 | 78. | 153.9 | 11.6 | 1 | 0920 | 113 | 73. | 133.9 | 10.3 |
| 1 | 0245 | 34 | 31. | 12.4 | 2.3 | 1 | 0605 | 74 | 78. | 153.6 | 11.6 | 1 | 0925 | 114 | 73. | 133.4 | 10.2 |
| 1 | 0250 | 35 | 32. | 13.1 | 2.3 | 1 | 0610 | 75 | 78. | 153.3 | 11.6 | 1 | 0930 | 115 | 73. | 132.9 | 10.2 |
| 1 | 0255 | 36 | 32. | 14.1 | 2.4 | 1 | 0615 | 76 | 78. | 153.0 | 11.5 | 1 | 0935 | 116 | 73. | 132.4 | 10.2 |
| 1 | 0300 | 37 | 32. | 15.2 | 2.4 | 1 | 0620 | 77 | 78. | 152.5 | 11.5 | 1 | 0940 | 117 | 73. | 131.9 | 10.1 |
| 1 | 0305 | 38 | 33. | 16.6 | 2.5 | 1 | 0625 | 78 | 78. | 152.1 | 11.5 | 1 | 0945 | 118 | 73. | 131.4 | 10.1 |
| 1 | 0310 | 39 | 33. | 18.6 | 2.7 | 1 | 0630 | 79 | 78. | 151.6 | 11.4 | 1 | 0950 | 119 | 73. | 130.9 | 10.1 |
| 1 | 0315 | 40 | 34. | 21.5 | 2.8 | 1 | 0635 | 80 | 78. | 151.1 | 11.4 | 1 | 0955 | 120 | 73. | 130.4 | 10.0 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 79. | 5.67 | | 75. | 54. | 54. | 54. |
| | | (INCHES) | .249 | .296 | .296 | .296 |
| | | (AC-FT) | 37. | 44. | 44. | 44. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 155. | 5.67 | | 141. | 91. | 91. | 91. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 11.64 | 5.67 | | 10.71 | 7.19 | 7.19 | 7.19 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .85

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 35. | 25.3 | 3.1 | 1 | | 0640 | 81 | 77. | 148.6 | 11.2 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 37. | 31.4 | 3.5 | 1 | | 0645 | 82 | 77. | 148.1 | 11.2 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 40. | 39.9 | 4.0 | 1 | | 0650 | 83 | 77. | 147.6 | 11.2 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 51.2 | 4.7 | 1 | | 0655 | 84 | 77. | 147.1 | 11.1 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 52. | 63.9 | 5.6 | 1 | | 0700 | 85 | 77. | 146.6 | 11.1 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 57. | 76.3 | 6.4 | 1 | | 0705 | 86 | 77. | 146.0 | 11.1 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 61. | 87.0 | 7.1 | 1 | | 0710 | 87 | 76. | 145.5 | 11.0 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 64. | 95.7 | 7.7 | 1 | | 0715 | 88 | 76. | 145.0 | 11.0 |
| 1 | | 0040 | 9 | 2. | .6 | .1 | 1 | | 0400 | 49 | 66. | 102.6 | 8.2 | 1 | | 0720 | 89 | 76. | 144.4 | 11.0 |
| 1 | | 0045 | 10 | 3. | .9 | .2 | 1 | | 0405 | 50 | 67. | 108.2 | 8.5 | 1 | | 0725 | 90 | 76. | 143.9 | 10.9 |
| 1 | | 0050 | 11 | 4. | 1.2 | .3 | 1 | | 0410 | 51 | 68. | 112.5 | 8.8 | 1 | | 0730 | 91 | 76. | 143.4 | 10.9 |
| 1 | | 0055 | 12 | 5. | 1.4 | .3 | 1 | | 0415 | 52 | 69. | 115.9 | 9.1 | 1 | | 0735 | 92 | 76. | 142.9 | 10.9 |
| 1 | | 0100 | 13 | 6. | 1.6 | .4 | 1 | | 0420 | 53 | 70. | 118.4 | 9.2 | 1 | | 0740 | 93 | 76. | 142.4 | 10.8 |
| 1 | | 0105 | 14 | 6. | 1.7 | .4 | 1 | | 0425 | 54 | 70. | 120.5 | 9.4 | 1 | | 0745 | 94 | 75. | 141.8 | 10.8 |
| 1 | | 0110 | 15 | 7. | 1.9 | .5 | 1 | | 0430 | 55 | 71. | 122.5 | 9.5 | 1 | | 0750 | 95 | 75. | 141.3 | 10.8 |
| 1 | | 0115 | 16 | 8. | 2.0 | .5 | 1 | | 0435 | 56 | 71. | 124.7 | 9.6 | 1 | | 0755 | 96 | 75. | 140.8 | 10.7 |
| 1 | | 0120 | 17 | 8. | 2.2 | .5 | 1 | | 0440 | 57 | 72. | 127.5 | 9.8 | 1 | | 0800 | 97 | 75. | 140.3 | 10.7 |
| 1 | | 0125 | 18 | 9. | 2.4 | .6 | 1 | | 0445 | 58 | 73. | 130.8 | 10.1 | 1 | | 0805 | 98 | 75. | 139.8 | 10.7 |
| 1 | | 0130 | 19 | 10. | 2.7 | .7 | 1 | | 0450 | 59 | 74. | 134.5 | 10.3 | 1 | | 0810 | 99 | 75. | 139.3 | 10.6 |
| 1 | | 0135 | 20 | 12. | 3.1 | .8 | 1 | | 0455 | 60 | 75. | 138.5 | 10.6 | 1 | | 0815 | 100 | 75. | 138.7 | 10.6 |
| 1 | | 0140 | 21 | 14. | 3.6 | .9 | 1 | | 0500 | 61 | 76. | 142.4 | 10.8 | 1 | | 0820 | 101 | 75. | 138.2 | 10.5 |
| 1 | | 0145 | 22 | 16. | 4.3 | 1.1 | 1 | | 0505 | 62 | 76. | 145.7 | 11.0 | 1 | | 0825 | 102 | 74. | 137.7 | 10.5 |
| 1 | | 0150 | 23 | 19. | 5.0 | 1.3 | 1 | | 0510 | 63 | 77. | 148.4 | 11.2 | 1 | | 0830 | 103 | 74. | 137.2 | 10.5 |
| 1 | | 0155 | 24 | 22. | 5.7 | 1.4 | 1 | | 0515 | 64 | 78. | 150.2 | 11.3 | 1 | | 0835 | 104 | 74. | 136.7 | 10.4 |
| 1 | | 0200 | 25 | 24. | 6.4 | 1.6 | 1 | | 0520 | 65 | 78. | 151.3 | 11.4 | 1 | | 0840 | 105 | 74. | 136.2 | 10.4 |
| 1 | | 0205 | 26 | 26. | 7.0 | 1.7 | 1 | | 0525 | 66 | 78. | 152.0 | 11.5 | 1 | | 0845 | 106 | 74. | 135.7 | 10.4 |
| 1 | | 0210 | 27 | 28. | 7.5 | 1.9 | 1 | | 0530 | 67 | 78. | 152.4 | 11.5 | 1 | | 0850 | 107 | 74. | 135.2 | 10.3 |
| 1 | | 0215 | 28 | 30. | 8.1 | 2.0 | 1 | | 0535 | 68 | 78. | 152.6 | 11.5 | 1 | | 0855 | 108 | 74. | 134.7 | 10.3 |
| 1 | | 0220 | 29 | 30. | 8.7 | 2.0 | 1 | | 0540 | 69 | 78. | 152.6 | 11.5 | 1 | | 0900 | 109 | 74. | 134.1 | 10.3 |
| 1 | | 0225 | 30 | 30. | 9.4 | 2.1 | 1 | | 0545 | 70 | 78. | 152.5 | 11.5 | 1 | | 0905 | 110 | 73. | 133.6 | 10.2 |
| 1 | | 0230 | 31 | 31. | 10.1 | 2.1 | 1 | | 0550 | 71 | 78. | 152.4 | 11.5 | 1 | | 0910 | 111 | 73. | 133.1 | 10.2 |
| 1 | | 0235 | 32 | 31. | 10.8 | 2.2 | 1 | | 0555 | 72 | 78. | 152.2 | 11.5 | 1 | | 0915 | 112 | 73. | 132.6 | 10.2 |
| 1 | | 0240 | 33 | 31. | 11.5 | 2.2 | 1 | | 0600 | 73 | 78. | 151.9 | 11.5 | 1 | | 0920 | 113 | 73. | 132.1 | 10.1 |
| 1 | | 0245 | 34 | 31. | 12.1 | 2.3 | 1 | | 0605 | 74 | 78. | 151.7 | 11.4 | 1 | | 0925 | 114 | 73. | 131.6 | 10.1 |
| 1 | | 0250 | 35 | 32. | 12.8 | 2.3 | 1 | | 0610 | 75 | 78. | 151.4 | 11.4 | 1 | | 0930 | 115 | 73. | 131.1 | 10.1 |
| 1 | | 0255 | 36 | 32. | 13.7 | 2.4 | 1 | | 0615 | 76 | 78. | 151.0 | 11.4 | 1 | | 0935 | 116 | 73. | 130.6 | 10.0 |
| 1 | | 0300 | 37 | 32. | 14.8 | 2.4 | 1 | | 0620 | 77 | 78. | 150.6 | 11.4 | 1 | | 0940 | 117 | 73. | 130.1 | 10.0 |
| 1 | | 0305 | 38 | 33. | 16.2 | 2.5 | 1 | | 0625 | 78 | 78. | 150.2 | 11.3 | 1 | | 0945 | 118 | 72. | 129.6 | 10.0 |
| 1 | | 0310 | 39 | 33. | 18.2 | 2.6 | 1 | | 0630 | 79 | 77. | 149.7 | 11.3 | 1 | | 0950 | 119 | 72. | 129.1 | 9.9 |
| 1 | | 0315 | 40 | 34. | 21.1 | 2.8 | 1 | | 0635 | 80 | 77. | 149.2 | 11.3 | 1 | | 0955 | 120 | 72. | 128.6 | 9.9 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 78. | 5.67 | | 75. | 54. | 54. | 54. |
| | | (INCHES) | .248 | .294 | .294 | .294 |

| | | | | | |
|---|---|---|---|---|---|
| | (AC-FT) | 37. | 44. | 44. | 44. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 153. | 5.67 | 139. | 89. | 89. | 89. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 11.51 | 5.67 | 10.59 | 7.11 | 7.11 | 7.11 |

CUMULATIVE AREA = 2.80 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

| OPERATION | STATION | AREA | PLAN | | RATIOS APPLIED TO PRECIPITATION RATIO 1 .88 | RATIO 2 .87 | RATIO 3 .86 | RATIO 4 .85 |
|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | | |
| + | B15B | .95 | 1 | FLOW | 256. | 250. | 245. | 241. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | |
| + | B16B | .70 | 1 | FLOW | 447. | 440. | 434. | 429. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 |
| ROUTED TO | | | | | | | | |
| + | RB16B | .70 | 1 | FLOW | 444. | 439. | 434. | 428. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 |
| ROUTED TO | | | | | | | | |
| + | RPT30 | .70 | 1 | FLOW | 439. | 433. | 428. | 423. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | |
| + | B16A | .91 | 1 | FLOW | 301. | 295. | 290. | 286. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | |
| + | D5B | .60 | 1 | FLOW | 301. | 297. | 293. | 290. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| 3 COMBINED AT | | | | | | | | |
| [redacted] | PT31 | 2.21 | 1 | FLOW | 1002. | 985. | 971. | 960. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | |
| + | RPT31 | 2.21 | 1 | FLOW | 998. | 980. | 967. | 955. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| 2 COMBINED AT | | | | | | | | |
| + | PT32 | 3.16 | 1 | FLOW | 1248. | 1224. | 1207. | 1191. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | |
| + | RPT32 | 3.16 | 1 | FLOW | 1236. | 1216. | 1196. | 1181. |
| | | | | TIME | 4.17 | 4.08 | 4.17 | 4.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | B15A | .96 | 1 | FLOW | 363. | 356. | 350. | 344. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | |
| + | PT34 | 4.12 | 1 | FLOW | 1579. | 1552. | 1525. | 1506. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | MC2 | .92 | 1 | FLOW | 273. | 268. | 264. | 261. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | |
| + | RMC2 | .92 | 1 | FLOW | 273. | 268. | 264. | 260. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | |
| + | B10A | 1.60 | 1 | FLOW | 1007. | 989. | 975. | 962. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | |
| + | PT38 | 2.52 | 1 | FLOW | 1081. | 1061. | 1045. | 1032. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | |
| + | RPT38 | 2.52 | 1 | FLOW | 1057. | 1041. | 1021. | 1007. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | |
| + | PT39 | 6.64 | 1 | FLOW | 2253. | 2213. | 2179. | 2150. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| [redacted]OUTED TO | | | | | | | | |
| [redacted] | RPT39 | 6.64 | 1 | FLOW | 2245. | 2199. | 2168. | 2140. |
| | | | | TIME | 4.00 | 4.08 | 4.00 | 4.00 |
| HYDROGRAPH AT | | | | | | | | |
| + | D6 | 1.56 | 1 | FLOW | 843. | 830. | 819. | 810. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2 COMBINED AT | | | | | | | | |
| + | PT40 | 8.21 | 1 | FLOW | 3068. | 3008. | 2968. | 2931. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | |
| + | RPT40 | 8.21 | 1 | FLOW | 3041. | 2986. | 2942. | 2906. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | |
| | D7 | .85 | 1 | FLOW | 293. | 288. | 283. | 279. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| 2 COMBINED AT | | | | | | | | |
| + | PT41 | 9.06 | 1 | FLOW | 3331. | 3270. | 3222. | 3181. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | |
| + | RPT41 | 9.06 | 1 | FLOW | 3313. | 3251. | 3204. | 3159. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | D8 | 1.26 | 1 | FLOW | 873. | 858. | 846. | 836. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | |
| + | RD8 | 1.26 | 1 | FLOW | 827. | 813. | 802. | 792. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | | |
| + | PT42 | 10.31 | 1 | FLOW | 3754. | 3681. | 3627. | 3579. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | |
| + | RPT42 | 10.31 | 1 | FLOW | 3749. | 3678. | 3628. | 3575. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | |
| + | B10B | .85 | 1 | FLOW | 357. | 352. | 347. | 343. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | |
| + | RB10B | .85 | 1 | FLOW | 337. | 332. | 327. | 324. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| HYDROGRAPH AT | | | | | | | | |
| + | D9A | .86 | 1 | FLOW | 166. | 163. | 160. | 157. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 |
| 2 COMBINED AT | | | | | | | | |
| + | PT43 | 1.71 | 1 | FLOW | 503. | 494. | 486. | 480. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 |
| ROUTED TO | | | | | | | | |
| | RPT43 | 1.71 | 1 | FLOW | 502. | 493. | 486. | 480. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 |
| 2 COMBINED AT | | | | | | | | |
| + | PT44 | 12.02 | 1 | FLOW | 3985. | 3909. | 3856. | 3806. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | |
| + | RPT44 | 12.02 | 1 | FLOW | 3920. | 3850. | 3792. | 3743. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 |
| HYDROGRAPH AT | | | | | | | | |
| + | D9B | 1.54 | 1 | FLOW | 683. | 669. | 658. | 649. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | |
| + | PT45 | 13.57 | 1 | FLOW | 4357. | 4274. | 4211. | 4153. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | |
| + | RPT45 | 13.57 | 1 | FLOW | 4263. | 4185. | 4122. | 4066. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | |
| + | D10 | 2.51 | 1 | FLOW | 1333. | 1310. | 1292. | 1276. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | |
| + | PT46 | 16.08 | 1 | FLOW | 4992. | 4897. | 4822. | 4757. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | |
| + | RPT46 | 16.08 | 1 | FLOW | 4980. | 4890. | 4818. | 4749. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | |
| + | MC | 2.80 | 1 | FLOW | 2522. | 2484. | 2453. | 2426. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| DIVERSION TO | | | | | | | | |
| + | TORAW | 2.80 | 1 | FLOW | 489. | 482. | 477. | 472. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| HYDROGRAPH AT | | | | | | | | |
| | TORAW | 2.80 | 1 | FLOW | 2034. | 2002. | 1976. | 1954. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | |
| + | MCDB | 2.80 | 1 | FLOW | 80. | 79. | 79. | 78. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 |

** PEAK STAGES IN FEET **

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 1 | STAGE | 11.97 | 11.79 | 11.64 | 11.51 |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 |
| ROUTED TO | | | | | | | | |
| + | RMCDB | 2.80 | 1 | FLOW | 80. | 79. | 79. | 78. |
| | | | | TIME | 5.75 | 5.75 | 5.75 | 5.67 |
| [redacted]DROGRAPH AT | | | | | | | | |
| | RTORAW | .00 | 1 | FLOW | 489. | 482. | 477. | 472. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | |
| + | PT47 | 2.80 | 1 | FLOW | 536. | 529. | 523. | 518. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | |
| + | RPT47 | 2.80 | 1 | FLOW | 542. | 534. | 528. | 523. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 |
| HYDROGRAPH AT | | | | | | | | |
| + | RH | 1.36 | 1 | FLOW | 387. | 377. | 368. | 361. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | |
| + | PT48W | 4.16 | 1 | FLOW | 929. | 911. | 897. | 884. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 |
| HYDROGRAPH AT | | | | | | | | |
| + | B20 | .79 | 1 | FLOW | 290. | 284. | 280. | 276. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | |
| + | RB20 | .79 | 1 | FLOW | 288. | 283. | 279. | 275. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 |
| 3 COMBINED AT | | | | | | | | |
| + | PT48 | 21.02 | 1 | FLOW | 5749. | 5642. | 5561. | 5480. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | |
| + | RPT48 | 21.02 | 1 | FLOW | 5722. | 5616. | 5535. | 5455. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | |
| + | D12 | .18 | 1 | FLOW | 50. | 49. | 48. | 47. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | |
| + | RD12 | .18 | 1 | FLOW | 50. | 49. | 48. | 47. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 |
| [redacted]DROGRAPH AT | | | | | | | | |
| | D11A | .16 | 1 | FLOW | 89. | 87. | 85. | 84. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 |
| 2 COMBINED AT | | | | | | | | |
| + | PT49 | .33 | 1 | FLOW | 92. | 89. | 88. | 86. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 |
| ROUTED TO | | | | | | | | |
| + | RPT49 | .33 | 1 | FLOW | 89. | 87. | 85. | 84. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | | |
| + | PT50 | 21.36 | 1 | FLOW | 5781. | 5673. | 5591. | 5510. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | |
| + | RPT50 | 21.36 | 1 | FLOW | 5775. | 5668. | 5585. | 5505. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | |
| + | D11B | .99 | 1 | FLOW | 661. | 649. | 639. | 630. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | |
| + | PT51 | 22.35 | 1 | FLOW | 5895. | 5787. | 5703. | 5620. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 |

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

| ISTAQ | ELEMENT | DT | PEAK | TIME TO PEAK | VOLUME | INTERPOLATED TO COMPUTATION INTERVAL DT | PEAK | TIME TO PEAK | VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| | | (MIN) | (CFS) | (MIN) | (IN) | (MIN) | (CFS) | (MIN) | (IN) |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| | RB16B MANE | 4.00 | 445.23 | 232.00 | 1.46 | 5.00 | 443.84 | 230.00 | 1.46 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5454E+02 EXCESS= .0000E+00 OUTFLOW= .5455E+02 BASIN STORAGE= .1032E-02 PERCENT ERROR= .0

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RB16B MANE | 3.75 | 440.86 | 232.50 | 1.44 | 5.00 | 439.40 | 230.00 | 1.44 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5368E+02 EXCESS= .0000E+00 OUTFLOW= .5368E+02 BASIN STORAGE= .1464E-02 PERCENT ERROR= .0

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RB16B MANE | 3.75 | 435.11 | 232.50 | 1.42 | 5.00 | 433.58 | 230.00 | 1.42 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5299E+02 EXCESS= .0000E+00 OUTFLOW= .5300E+02 BASIN STORAGE= .1452E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 3.75 | 430.09 | 232.50 | 1.40 | 5.00 | 428.50 | 230.00 | 1.40 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5240E+02 EXCESS= .0000E+00 OUTFLOW= .5240E+02 BASIN STORAGE= .1442E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 3.75 | 438.99 | 232.50 | 1.46 | 5.00 | 438.80 | 235.00 | 1.46 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5455E+02 EXCESS= .0000E+00 OUTFLOW= .5457E+02 BASIN STORAGE= .3314E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 3.75 | 433.38 | 236.25 | 1.44 | 5.00 | 433.37 | 235.00 | 1.44 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5369E+02 EXCESS= .0000E+00 OUTFLOW= .5370E+02 BASIN STORAGE= .2875E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 3.75 | 427.74 | 236.25 | 1.42 | 5.00 | 427.66 | 235.00 | 1.42 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5301E+02 EXCESS= .0000E+00 OUTFLOW= .5302E+02 BASIN STORAGE= .2855E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 3.75 | 422.81 | 236.25 | 1.40 | 5.00 | 422.67 | 235.00 | 1.40 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5241E+02 EXCESS= .0000E+00 OUTFLOW= .5242E+02 BASIN STORAGE= .2838E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 2.23 | 1000.32 | 242.71 | 1.34 | 5.00 | 997.55 | 245.00 | 1.34 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1574E+03 EXCESS= .0000E+00 OUTFLOW= .1574E+03 BASIN STORAGE= .2300E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 2.24 | 984.23 | 244.12 | 1.31 | 5.00 | 980.01 | 245.00 | 1.31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1548E+03 EXCESS= .0000E+00 OUTFLOW= .1548E+03 BASIN STORAGE= .2015E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 2.25 | 970.29 | 243.02 | 1.30 | 5.00 | 966.75 | 245.00 | 1.30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1528E+03 EXCESS= .0000E+00 OUTFLOW= .1528E+03 BASIN STORAGE= .1928E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 2.26 | 959.45 | 244.03 | 1.28 | 5.00 | 955.02 | 245.00 | 1.28 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1510E+03 EXCESS= .0000E+00 OUTFLOW= .1510E+03 BASIN STORAGE= .1898E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 3.18 | 1246.41 | 248.02 | 1.19 | 5.00 | 1236.18 | 250.00 | 1.19 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2003E+03 EXCESS= .0000E+00 OUTFLOW= .2003E+03 BASIN STORAGE= .5057E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 3.20 | 1220.96 | 246.58 | 1.17 | 5.00 | 1215.86 | 245.00 | 1.17 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1968E+03 EXCESS= .0000E+00 OUTFLOW= .1968E+03 BASIN STORAGE= .4702E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 3.22 | 1205.84 | 247.94 | 1.15 | 5.00 | 1195.86 | 250.00 | 1.15 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1941E+03 EXCESS= .0000E+00 OUTFLOW= .1941E+03 BASIN STORAGE= .4738E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 3.24 | 1184.33 | 245.92 | 1.14 | 5.00 | 1180.75 | 245.00 | 1.14 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1917E+03 EXCESS= .0000E+00 OUTFLOW= .1917E+03 BASIN STORAGE= .4893E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 273.28 | 265.00 | 1.11 | 5.00 | 273.28 | 265.00 | 1.11 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5452E+02 EXCESS= .0000E+00 OUTFLOW= .5453E+02 BASIN STORAGE= .1217E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 268.14 | 265.00 | 1.09 | 5.00 | 268.14 | 265.00 | 1.09 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5359E+02 EXCESS= .0000E+00 OUTFLOW= .5360E+02 BASIN STORAGE= .1204E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 264.05 | 265.00 | 1.08 | 5.00 | 264.05 | 265.00 | 1.08 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5284E+02 EXCESS= .0000E+00 OUTFLOW= .5285E+02 BASIN STORAGE= .1194E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 260.48 | 265.00 | 1.07 | 5.00 | 260.48 | 265.00 | 1.07 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5219E+02 EXCESS= .0000E+00 OUTFLOW= .5220E+02 BASIN STORAGE= .1185E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.21 | 1063.70 | 221.33 | 1.16 | 5.00 | 1057.09 | 220.00 | 1.16 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1558E+03 EXCESS= .0000E+00 OUTFLOW= .1558E+03 BASIN STORAGE= .1302E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.23 | 1040.97 | 222.70 | 1.14 | 5.00 | 1040.71 | 220.00 | 1.14 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1531E+03 EXCESS= .0000E+00 OUTFLOW= .1531E+03 BASIN STORAGE= .1279E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.24 | 1028.82 | 220.57 | 1.12 | 5.00 | 1021.50 | 220.00 | 1.12 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1510E+03 EXCESS= .0000E+00 OUTFLOW= .1510E+03 BASIN STORAGE= .1277E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.25 | 1015.15 | 221.00 | 1.11 | 5.00 | 1006.52 | 220.00 | 1.11 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1492E+03 EXCESS= .0000E+00 OUTFLOW= .1492E+03 BASIN STORAGE= .1238E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.69 | 2247.41 | 243.30 | 1.14 | 5.00 | 2244.74 | 240.00 | 1.14 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4051E+03 EXCESS= .0000E+00 OUTFLOW= .4051E+03 BASIN STORAGE= .4182E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.71 | 2204.09 | 241.24 | 1.12 | 5.00 | 2198.61 | 245.00 | 1.12 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3980E+03 EXCESS= .0000E+00 OUTFLOW= .3981E+03 BASIN STORAGE= .4124E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.73 | 2173.72 | 242.66 | 1.11 | 5.00 | 2167.81 | 240.00 | 1.11 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3925E+03 EXCESS= .0000E+00 OUTFLOW= .3925E+03 BASIN STORAGE= .4137E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.75 | 2143.77 | 243.86 | 1.09 | 5.00 | 2140.08 | 240.00 | 1.09 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3876E+03 EXCESS= .0000E+00 OUTFLOW= .3876E+03 BASIN STORAGE= .4207E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 3.00 | 3321.89 | 246.11 | 1.20 | 5.00 | 3313.34 | 245.00 | 1.20 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5778E+03 EXCESS= .0000E+00 OUTFLOW= .5779E+03 BASIN STORAGE= .8370E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 3.02 | 3264.81 | 247.95 | 1.18 | 5.00 | 3250.87 | 245.00 | 1.18 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5681E+03 EXCESS= .0000E+00 OUTFLOW= .5681E+03 BASIN STORAGE= .8651E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 3.04 | 3213.87 | 246.38 | 1.16 | 5.00 | 3203.95 | 245.00 | 1.16 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5603E+03 EXCESS= .0000E+00 OUTFLOW= .5604E+03 BASIN STORAGE= .8530E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 3.06 | 3176.55 | 247.62 | 1.15 | 5.00 | 3158.85 | 245.00 | 1.15 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5535E+03 EXCESS= .0000E+00 OUTFLOW= .5536E+03 BASIN STORAGE= .8521E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.18 | 3758.47 | 243.85 | 1.21 | 5.00 | 3748.77 | 245.00 | 1.21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6654E+03 EXCESS= .0000E+00 OUTFLOW= .6655E+03 BASIN STORAGE= .4876E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.19 | 3684.96 | 243.33 | 1.19 | 5.00 | 3677.63 | 245.00 | 1.19 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6543E+03 EXCESS= .0000E+00 OUTFLOW= .6543E+03 BASIN STORAGE= .4941E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.20 | 3631.55 | 244.59 | 1.17 | 5.00 | 3628.17 | 245.00 | 1.17 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6454E+03 EXCESS= .0000E+00 OUTFLOW= .6454E+03 BASIN STORAGE= .4834E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.21 | 3583.69 | 243.50 | 1.16 | 5.00 | 3575.45 | 245.00 | 1.16 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6376E+03 EXCESS= .0000E+00 OUTFLOW= .6376E+03 BASIN STORAGE= .4980E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 502.34 | 280.00 | 1.11 | 5.00 | 502.34 | 280.00 | 1.11 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1013E+03 EXCESS= .0000E+00 OUTFLOW= .1013E+03 BASIN STORAGE= .3138E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 493.17 | 280.00 | 1.09 | 5.00 | 493.17 | 280.00 | 1.09 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9961E+02 EXCESS= .0000E+00 OUTFLOW= .9960E+02 BASIN STORAGE= .3095E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 485.87 | 280.00 | 1.08 | 5.00 | 485.87 | 280.00 | 1.08 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9825E+02 EXCESS= .0000E+00 OUTFLOW= .9824E+02 BASIN STORAGE= .3061E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 479.51 | 280.00 | 1.06 | 5.00 | 479.51 | 280.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9706E+02 EXCESS= .0000E+00 OUTFLOW= .9705E+02 BASIN STORAGE= .3031E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 2.44 | 4987.67 | 258.65 | 1.20 | 5.00 | 4980.03 | 260.00 | 1.20 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1028E+04 EXCESS= .0000E+00 OUTFLOW= .1028E+04 BASIN STORAGE= .2128E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 2.46 | 4891.05 | 258.06 | 1.18 | 5.00 | 4889.51 | 260.00 | 1.18 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1011E+04 EXCESS= .0000E+00 OUTFLOW= .1011E+04 BASIN STORAGE= .2042E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 2.47 | 4822.10 | 259.56 | 1.16 | 5.00 | 4817.53 | 260.00 | 1.16 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9969E+03 EXCESS= .0000E+00 OUTFLOW= .9969E+03 BASIN STORAGE= .2090E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 2.48 | 4752.83 | 258.41 | 1.15 | 5.00 | 4749.35 | 260.00 | 1.15 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9848E+03 EXCESS= .0000E+00 OUTFLOW= .9848E+03 BASIN STORAGE= .2060E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 79.89 | 344.68 | .30 | 5.00 | 79.89 | 345.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4519E+02 EXCESS= .0000E+00 OUTFLOW= .4463E+02 BASIN STORAGE= .5621E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 79.20 | 345.00 | .29 | 5.00 | 79.20 | 345.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4482E+02 EXCESS= .0000E+00 OUTFLOW= .4426E+02 BASIN STORAGE= .5581E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 78.64 | 345.00 | .29 | 5.00 | 78.64 | 345.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4448E+02 EXCESS= .0000E+00 OUTFLOW= .4393E+02 BASIN STORAGE= .5549E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 78.16 | 345.00 | .29 | 5.00 | 78.16 | 345.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4418E+02 EXCESS= .0000E+00 OUTFLOW= .4363E+02 BASIN STORAGE= .5522E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 541.72 | 230.00 | .62 | 5.00 | 541.72 | 230.00 | .62 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9510E+02 EXCESS= .0000E+00 OUTFLOW= .9260E+02 BASIN STORAGE= .3094E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 534.26 | 230.00 | .61 | 5.00 | 534.26 | 230.00 | .61 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9394E+02 EXCESS= .0000E+00 OUTFLOW= .9145E+02 BASIN STORAGE= .3075E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 528.34 | 230.00 | .60 | 5.00 | 528.34 | 230.00 | .60 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9301E+02 EXCESS= .0000E+00 OUTFLOW= .9053E+02 BASIN STORAGE= .3061E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 523.15 | 230.00 | .60 | 5.00 | 523.15 | 230.00 | .60 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9220E+02 EXCESS= .0000E+00 OUTFLOW= .8973E+02 BASIN STORAGE= .3048E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.50 | 288.52 | 251.92 | 1.08 | 5.00 | 288.05 | 255.00 | 1.08 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4556E+02 EXCESS= .0000E+00 OUTFLOW= .4557E+02 BASIN STORAGE= .2013E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.52 | 283.58 | 253.39 | 1.06 | 5.00 | 282.53 | 255.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4469E+02 EXCESS= .0000E+00 OUTFLOW= .4469E+02 BASIN STORAGE= .1557E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.55 | 279.66 | 254.56 | 1.04 | 5.00 | 279.23 | 255.00 | 1.04 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4398E+02 EXCESS= .0000E+00 OUTFLOW= .4399E+02 BASIN STORAGE= .1817E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.57 | 274.72 | 255.65 | 1.03 | 5.00 | 274.60 | 255.00 | 1.03 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4337E+02 EXCESS= .0000E+00 OUTFLOW= .4337E+02 BASIN STORAGE= .1490E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 49.96 | 265.00 | .85 | 5.00 | 49.96 | 265.00 | .85 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7962E+01 EXCESS= .0000E+00 OUTFLOW= .7967E+01 BASIN STORAGE= .4446E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 48.78 | 265.00 | .83 | 5.00 | 48.78 | 265.00 | .83 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7791E+01 EXCESS= .0000E+00 OUTFLOW= .7796E+01 BASIN STORAGE= .5717E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 47.87 | 265.00 | .82 | 5.00 | 47.87 | 265.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7655E+01 EXCESS= .0000E+00 OUTFLOW= .7661E+01 BASIN STORAGE= .5671E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | 5.00 | 47.07 | 265.00 | .80 | 5.00 | 47.07 | 265.00 | .80 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7537E+01 EXCESS= .0000E+00 OUTFLOW= .7543E+01 BASIN STORAGE= .5631E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 89.36 | 225.00 | .82 | 5.00 | 89.36 | 225.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1469E+02 EXCESS= .0000E+00 OUTFLOW= .1469E+02 BASIN STORAGE= .5987E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 87.01 | 225.00 | .80 | 5.00 | 87.01 | 225.00 | .80 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1437E+02 EXCESS= .0000E+00 OUTFLOW= .1437E+02 BASIN STORAGE= .7020E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 85.24 | 225.00 | .79 | 5.00 | 85.24 | 225.00 | .79 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1411E+02 EXCESS= .0000E+00 OUTFLOW= .1412E+02 BASIN STORAGE= .6968E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT49 | MANE | 5.00 | 83.70 | 225.00 | .78 | 5.00 | 83.70 | 225.00 | .78 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1389E+02 EXCESS= .0000E+00 OUTFLOW= .1389E+02 BASIN STORAGE= .6922E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 5.00 | 5774.69 | 265.00 | 1.07 | 5.00 | 5774.69 | 265.00 | 1.07 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1224E+04 EXCESS= .0000E+00 OUTFLOW= .1222E+04 BASIN STORAGE= .4176E+01 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 5.00 | 5667.92 | 265.00 | 1.06 | 5.00 | 5667.92 | 265.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1203E+04 EXCESS= .0000E+00 OUTFLOW= .1202E+04 BASIN STORAGE= .4153E+01 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 5.00 | 5585.50 | 265.00 | 1.04 | 5.00 | 5585.50 | 265.00 | 1.04 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1187E+04 EXCESS= .0000E+00 OUTFLOW= .1185E+04 BASIN STORAGE= .4135E+01 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 5.00 | 5504.52 | 265.00 | 1.03 | 5.00 | 5504.52 | 265.00 | 1.03 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1172E+04 EXCESS= .0000E+00 OUTFLOW= .1171E+04 BASIN STORAGE= .4118E+01 PERCENT ERROR= -.2



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

*

*** NORMAL END OF HEC-1 ***

# STORM CENTERING, SDN3, SC3.OUT

```
1*****************************************
*                                       *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *
*        SEPTEMBER 1990                 *
*         VERSION 4.0                   *
*                                       *
*  RUN DATE  07/16/2001  TIME  17:39:06 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```


```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X         XXXXX  X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX           XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL  LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
      LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

                    *DIAGRAM
*** FREE ***
          1         ID   DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
          2         ID   "G.C. WALLACE, INC. BY MJL"
          3         ID   SC3.XLS
          4         ID   "MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
          5         ID   "BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
          6         ID   UPDATED PRECIPITATION VALUES
          7         ID   % IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
          8         ID   ADDITIONAL DIVERSIONS ADDED
          9         ID   DESIGN STORM = 100-YEAR 6-HOUR STORM
         10         ID   STORM DISTRIBUTION = SDN3
                    *
         11         ID     JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
         12         ID
         13         ID     AREA (SQUARE MILES)    DARF
         14         ID    0 - 0.5   0.990
         15         ID    0.5 - 1   0.975
         16         ID    1 - 2   0.950
         17         ID    2 - 3   0.925
         18         ID    3 - 4   0.915
         19         ID    4 - 5   0.908
         20         ID    5 - 6   0.903
         21         ID    6 - 7   0.895
         22         ID    7 - 8   0.885
         23         ID
         24         IT       5       0       0     120
         25         IO       5       0       0
         26         JR    PREC   0.990   0.975   0.950   0.925   0.915   0.908   0.903   0.895   0.885
                    *

         27         KK    B15B
         28         BA   0.954
         29         PB    2.77
         30         PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
         31         PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
         32         PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
         33         PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
         34         PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
         35         PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
         36         PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
         37         PC   0.998   0.999   1.000
         38         LS       0    75.0    13.0
         39         UD    0.71
                    *

         40         KK    B16B
         41         BA   0.701
         42         PB    2.77
         43         LS       0    83.1    32.0
         44         UD   0.380
                    *
```

1 HEC-1 INPUT PAGE 2

```
      LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

         45         KK   RB16B
         46         KM   ROUTE BASIN B16B TO PT30
         47         RD    1900   0.008   0.015       0    TRAP       0      50
                    *

         48         KK   RPT30
         49         KM   ROUTE PT30 TO PT31
```

```
 50          RD    2900   0.005   0.015       0    TRAP      20       3
             *

 51          KK    B16A
 52          BA   0.906
 53          PB    2.77
 54          LS       0    78.2    17.0
 55          UD   0.710
             *

 56          KK     D5B
 57          BA   0.602
 58          PB    2.77
 59          LS       0    82.8    46.0
 60          UD   0.710
             *

 61          KK    PT31
 62          KM   "COMBINE BASINS B16B, B16A AND D5B"
 63          HC       3
             *

 64          KK   RPT31
 65          KM   ROUTE PT31 TO PT32
 66          RD    3200   0.016   0.015       0    TRAP      15       1
             *

 67          KK    PT32
 68          KM   COMBINE BASIN B15B AND PT31 AT DUCK CREEK/MIDDLE BRANCH BLUE DIAMOND CONFLUEN
 69          HC       2
             *

 70          KK   RPT32
 71          KM   ROUTE PT32 TO PT34
 72          RD    2700   0.009   0.015       0    TRAP      70       2
             *

 73          KK    B15A
 74          BA   0.959
 75          PB    2.77
 76          LS       0    77.6    14.0
 77          UD   0.500
             *
1                                        HEC-1 INPUT                                          PAGE  3

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 78          KK    PT34
 79          KM   COMBINE BASIN B15A AND PT32
 80          HC       2
             *

 81          KK     MC2
 82          BA   0.919
 83          PB    2.77
 84          LS       0    74.9    28.0
 85          UD   0.873
             *

 86          KK    RMC2
 87          KM   ROUTE PT37 TO PT38
 88          RD    5200    0.01   0.015       0    TRAP      20       2
             *

 89          KK    B10A
 90          BA   1.601
 91          PB    2.77
 92          LS       0    74.9    32.0
 93          UD   0.217
             *

 94          KK    PT38
 95          KM   COMBINE BASINS MC2 AND B10A
 96          HC       2
             *

 97          KK   RPT38
 98          KM   ROUTE PT38 TO PT39
 99          RD    2100   0.002   0.015       0    TRAP      20       2
             *

100          KK    PT39
101          KM   COMBINE PT34 AND PT38
102          HC       2
             *

103          KK   RPT39
104          KM   ROUTE PT39 TO PT40
105          RD    2500   0.006   0.025       0    TRAP      70       2
             *

106          KK      D6
107          BA   1.564
108          PB    2.77
109          LS       0    78.3    43.0
110          UD   0.500
             *
1                                        HEC-1 INPUT                                          PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

111          KK    PT40
112          KM   COMBINE PT39 AND BASIN D6
```

```
113          HC       2
             *

114          KK   RPT40
115          KM   ROUTE PT40 TO PT41
116          RM       1    0.08   0.200
             *

117          KK      D7
118          BA   0.850
119          PB    2.77
120          LS       0    77.3    23.0
121          UD   0.710
             *

122          KK    PT41
123          KM   COMBINE PT40 AND BASIN D7
124          HC       2
             *

125          KK   RPT41
126          KM   ROUTE PT41 TO PT42
127          RD    4150   0.006   0.015       0    TRAP       50       0
             *

128          KK      D8
129          BA   1.258
130          PB    2.77
131          LS       0    77.8    34.0
132          UD   0.230
             *

133          KK     RD8
134          KM   ROUTE BASIN D8 TO PT42
135          RM       1   0.088   0.150
             *

136          KK    PT42
137          KM   COMBINE PT41 AND BASIN D8
138          HC       2
             *

139          KK   RPT42
140          KM   ROUTE PT42 TO PT44
141          RD    3650   0.011   0.015       0    TRAP       28       2
             *
1                                    HEC-1 INPUT                                    PAGE  5

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

142          KK    B10B
143          BA   0.848
144          PB    2.77
145          LS       0    74.9    44.0
146          UD   0.687
             *

147          KK   RB10B
148          KM   ROUTE BASIN B10B TO PT43
149          RM       6    0.46   0.100
             *

150          KK     D9A
151          BA   0.861
152          PB    2.77
153          LS       0    72.8    16.0
154          UD   1.100
             *

155          KK    PT43
156          KM   COMBINE BASINS B10B AND D9A
157          HC       2
             *

158          KK   RPT43
159          KM   ROUTE PT43 TO PT44
160          RD    4050    0.01   0.016       0    TRAP        0      16
             *

161          KK    PT44
162          KM   COMBINE PT42 AND PT43
163          HC       2
             *

164          KK   RPT44
165          KM   ROUTE PT44 TO PT45
166          RM       1   0.119   0.150
             *

167          KK     D9B
168          BA   1.544
169          PB    2.77
170          LS       0    77.8    17.0
171          UD   0.410
             *

172          KK    PT45
173          KM   COMBINE PT44 AND BASIN D9B
174          HC       2
             *
1                                    HEC-1 INPUT                                    PAGE  6

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
```

```
175          KK   RPT45
176          KM   ROUTE PT45 TO PT46
177          RM       2   0.184   0.150
             *

178          KK     D10
179          BA   2.508
180          PB    2.77
181          LS       0    79.0    33.0
182          UD   0.440
             *

183          KK    PT46
184          KM   COMBINE PT45 AND BASIN D10
185          HC       2
             *

186          KK   RPT46
187          KM   ROUTE PT46 TO PT48
188          RD    2500   0.018   0.035       0    TRAP      75       2
             *

189          KK      MC
190          KM   "TLAG AND AREA CALCULATED, CN REFERENCED FROM 1996 MPU"
191          KM   THEREFORE NO INCREASE IN PERCENT IMPERVIOUS
192          BA   2.804
193          PB    2.77
194          LS       0    91.0
195          UD   0.244
             *

196          KK   TORAW
197          KM   DIVERT FLOW WHICH BYPASSES DETENTION BASIN
198          DT   TORAW
199          DI       0     100     500    1000    2000    3000    4000
200          DQ       0      40     100     200     400     570     760
             *

201          KK    MCDB
202          KM   MCCARRAN AIRPORT DETENTION FACILITIES
203          KM   SIMULATION OF TWO DETENTION BASINS - MCCARRAN EAST AND SPENCER
204          RS       1    STOR      -1
205          SV       0       8      40      70     100     160     210     500
206          SQ       0      30      40      55      65      80      85      87
207          SE       0       2       4       6       8      12      15      16
208          KO       1
             *

209          KK   RMCDB
210          KM   ROUTE OUTFALL FROM MCDB TO PT47
211          RD    3300   0.006   0.013       0    CIRC       4       0
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

212          KK  RTORAW
213          KM   FLOW BYPASSING THE MCCARRAN DETENTION FACILITIES RETURNED IN RAWHIDE CHANNEL
214          DR   TORAW
             *

215          KK    PT47
216          KM   COMBINE OUTFALL FROM MCCARRAN DETENTION FACILITIES AND BYPASSED FLOW
217          HC       2
             *

218          KK   RPT47
219          KM   ROUTE PT47 THRU RAWHIDE CHANNEL TO PT48W
220          RD   15700   0.015   0.015       0    TRAP      11     1.5
             *

221          KK      RH
222          BA   1.355
223          PB    2.77
224          LS       0    72.0     6.0
225          UD   0.340
             *

226          KK   PT48W
227          KM   COMBINE PT47 AND BASIN RH
228          HC       2
             *

229          KK     B20
230          BA   0.790
231          PB    2.77
232          LS       0    82.4     8.0
233          UD   0.710
             *

234          KK    RB20
235          KM   ROUTE BASIN B20 TO PT48
236          KM   MUSKINGUM ROUTING UNSTABLE
237          RD    1800   0.017   0.030       0    TRAP      30      10
             *

238          KK    PT48
239          KM   "COMBINE PT46, PT48W, AND BASIN B20"
240          HC       3
             *

241          KK   RPT48
242          KM   ROUTE PT48 TO PT50
```

```
243          RM       1   0.067   0.150
             *
1                                        HEC-1 INPUT                                                    PAGE  8

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

244          KK     D12
245          BA   0.176
246          PB    2.77
247          LS       0    77.8     7.0
248          UD   0.710
             *

249          KK    RD12
250          KM   ROUTE BASIN D12 TO PT49
251          KM   MUSKINGUM ROUTING UNSTABLE
252          RD    1850   0.044   0.150       0    TRAP      50      10
             *

253          KK    D11A
254          BA   0.159
255          PB    2.77
256          LS       0    77.3     5.0
257          UD   0.160
             *

258          KK    PT49
259          KM   COMBINE BASINS D12 AND D11A
260          HC       2
             *

261          KK   RPT49
262          KM   ROUTE PT49 TO PT50
263          KM   MUSKINGUM ROUTING UNSTABLE
264          RD    1050   0.019   0.150       0    TRAP      45      10
             *

265          KK    PT50
266          KM   COMBINE PT48 AND PT49
267          HC       2
             *

268          KK   RPT50
269          KM   ROUTE PT50 TO PT51
270          RD    7000   0.003   0.015       0    TRAP      60       2
             *

271          KK    D11B
272          BA   0.987
273          PB    2.77
274          LS       0    82.2    12.0
275          UD   0.220
             *

276          KK    PT51
277          KM   COMBINE PT50 AND BASIN D11B
278          HC       2
279          ZZ
```

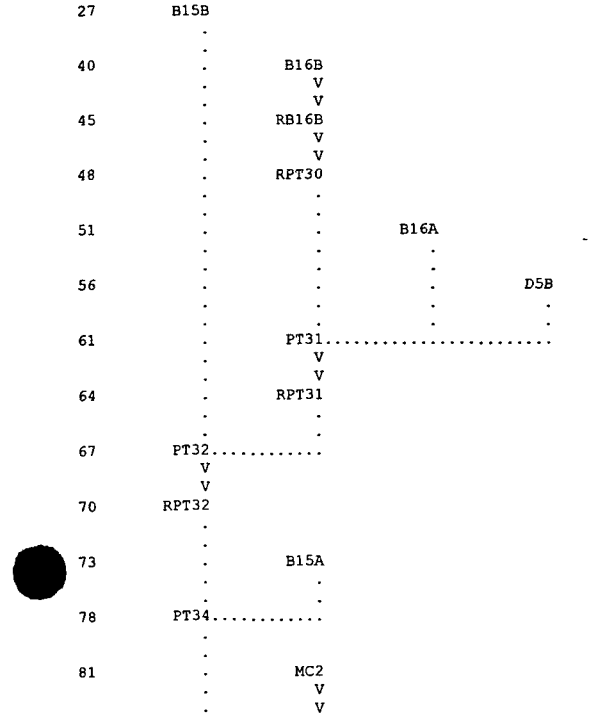
1

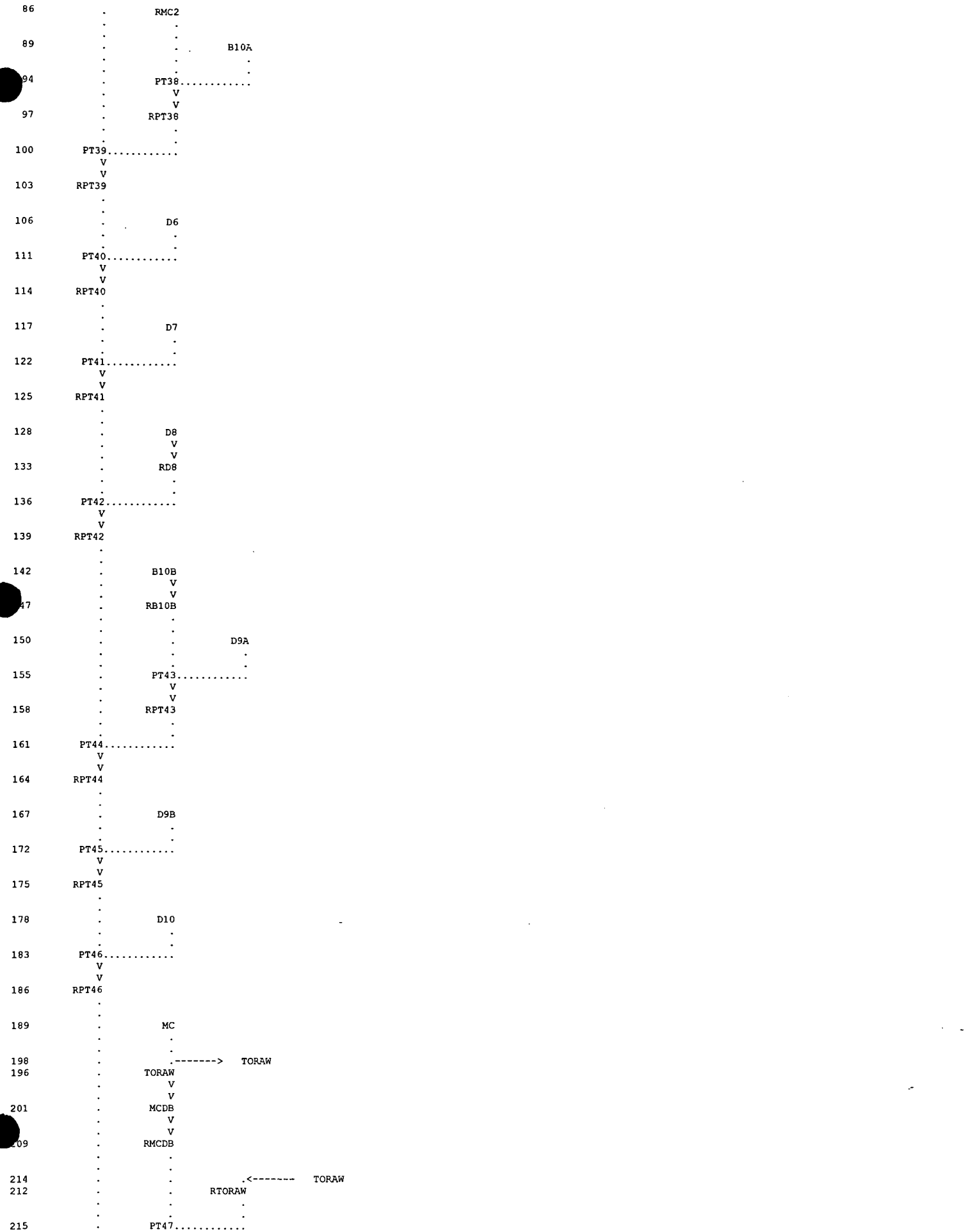
SCHEMATIC DIAGRAM OF STREAM NETWORK

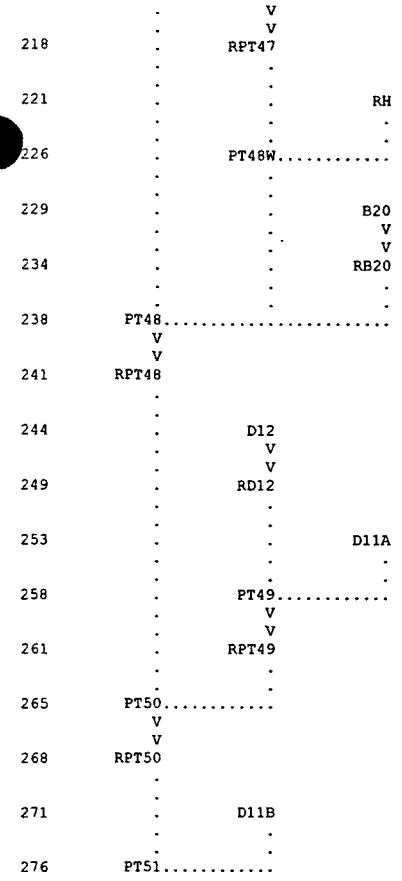
INPUT LINE NO.

(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW




RMC2
B10A
PT38
RPT38
PT39
RPT39
D6
PT40
RPT40
D7
PT41
RPT41
D8
RD8
PT42
RPT42
B10B
RB10B
D9A
PT43
RPT43
PT44
RPT44
D9B
PT45
RPT45
D10
PT46
RPT46
MC
TORAW
TORAW
MCDB
RMCDB
TORAW
RTORAW
PT47




(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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**************************************
*                                    *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1) *
*        SEPTEMBER 1990              *
*         VERSION 4.0                *
*                                    *
*  RUN DATE  07/16/2001  TIME  17:39:06 *
*                                    *
**************************************
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**************************************
*                                    *
*   U.S. ARMY CORPS OF ENGINEERS     *
*   HYDROLOGIC ENGINEERING CENTER    *
*         609 SECOND STREET          *
*       DAVIS, CALIFORNIA 95616      *
*           (916) 756-1104           *
*                                    *
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DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
"G.C. WALLACE, INC. BY MJL"
SC3.XLS
"MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
"BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
UPDATED PRECIPITATION VALUES
% IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
ADDITIONAL DIVERSIONS ADDED
DESIGN STORM = 100-YEAR 6-HOUR STORM
STORM DISTRIBUTION = SDN3
JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

| AREA (SQUARE MILES) | DARF |
|---|---|
| 0 - 0.5 | 0.990 |
| 0.5 - 1 | 0.975 |
| 1 - 2 | 0.950 |
| 2 - 3 | 0.925 |
| 3 - 4 | 0.915 |
| 4 - 5 | 0.908 |
| 5 - 6 | 0.903 |
| 6 - 7 | 0.895 |
| 7 - 8 | 0.885 |

25 IO OUTPUT CONTROL VARIABLES

| | | |
|---|---|---|
| IPRNT | 5 | PRINT CONTROL |
| IPLOT | 0 | PLOT CONTROL |
| QSCAL | 0. | HYDROGRAPH PLOT SCALE |

IT HYDROGRAPH TIME DATA

| | | | |
|---|---|---|---|
| NMIN | | 5 | MINUTES IN COMPUTATION INTERVAL |
| IDATE | 1 | 0 | STARTING DATE |
| ITIME | | 0000 | STARTING TIME |
| NQ | | 120 | NUMBER OF HYDROGRAPH ORDINATES |
| NDDATE | 1 | 0 | ENDING DATE |
| NDTIME | | 0955 | ENDING TIME |
| ICENT | | 19 | CENTURY MARK |

COMPUTATION INTERVAL .08 HOURS
TOTAL TIME BASE 9.92 HOURS

```
        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

    JP         MULTI-PLAN OPTION
                   NPLAN           1  NUMBER OF PLANS

    JR         MULTI-RATIO OPTION
                  RATIOS OF PRECIPITATION
                  .99       .98       .95       .93       .92       .91       .90       .89       .88


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
201 KK    *      MCDB  *
          *            *
          **************

208 KO         OUTPUT CONTROL VARIABLES
                    IPRNT           1  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

204 RS         STORAGE ROUTING
                    NSTPS           1  NUMBER OF SUBREACHES
                     ITYP        STOR  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                        X         .00 WORKING R AND D COEFFICIENT

205 SV           STORAGE          .0       8.0      40.0      70.0     100.0     160.0     210.0     500.0

206 SQ         DISCHARGE          0.       30.       40.       55.       65.       80.       85.       87.

207 SE         ELEVATION         .00      2.00      4.00      6.00      8.00     12.00     15.00     16.00

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HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .99

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 36. | 25.8 | 3.1 | 1 | | 0640 | 81 | 83. | 190.2 | 13.8 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 38. | 33.2 | 3.6 | 1 | | 0645 | 82 | 83. | 189.7 | 13.8 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 42. | 44.7 | 4.3 | 1 | | 0650 | 83 | 83. | 189.1 | 13.7 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 50. | 60.5 | 5.4 | 1 | | 0655 | 84 | 83. | 188.6 | 13.7 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 58. | 79.1 | 6.6 | 1 | | 0700 | 85 | 83. | 188.0 | 13.7 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 64. | 97.6 | 7.8 | 1 | | 0705 | 86 | 83. | 187.4 | 13.6 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 68. | 113.9 | 8.9 | 1 | | 0710 | 87 | 83. | 186.9 | 13.6 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 72. | 127.0 | 9.8 | 1 | | 0715 | 88 | 83. | 186.3 | 13.6 |
| 1 | | 0040 | 9 | 3. | .7 | .2 | 1 | | 0400 | 49 | 74. | 137.2 | 10.5 | 1 | | 0720 | 89 | 83. | 185.7 | 13.5 |
| 1 | | 0045 | 10 | 4. | 1.0 | .3 | 1 | | 0405 | 50 | 76. | 145.0 | 11.0 | 1 | | 0725 | 90 | 83. | 185.1 | 13.5 |
| 1 | | 0050 | 11 | 5. | 1.3 | .3 | 1 | | 0410 | 51 | 78. | 151.1 | 11.4 | 1 | | 0730 | 91 | 82. | 184.6 | 13.5 |
| 1 | | 0055 | 12 | 6. | 1.5 | .4 | 1 | | 0415 | 52 | 79. | 155.7 | 11.7 | 1 | | 0735 | 92 | 82. | 184.0 | 13.4 |
| 1 | | 0100 | 13 | 6. | 1.6 | .4 | 1 | | 0420 | 53 | 80. | 159.1 | 11.9 | 1 | | 0740 | 93 | 82. | 183.4 | 13.4 |
| 1 | | 0105 | 14 | 6. | 1.6 | .4 | 1 | | 0425 | 54 | 80. | 161.8 | 12.1 | 1 | | 0745 | 94 | 82. | 182.9 | 13.4 |
| 1 | | 0110 | 15 | 6. | 1.7 | .4 | 1 | | 0430 | 55 | 80. | 164.3 | 12.3 | 1 | | 0750 | 95 | 82. | 182.3 | 13.3 |
| 1 | | 0115 | 16 | 7. | 1.7 | .4 | 1 | | 0435 | 56 | 81. | 167.0 | 12.4 | 1 | | 0755 | 96 | 82. | 181.7 | 13.3 |
| 1 | | 0120 | 17 | 7. | 1.9 | .5 | 1 | | 0440 | 57 | 81. | 170.2 | 12.6 | 1 | | 0800 | 97 | 82. | 181.2 | 13.3 |
| 1 | | 0125 | 18 | 8. | 2.1 | .5 | 1 | | 0445 | 58 | 81. | 173.7 | 12.8 | 1 | | 0805 | 98 | 82. | 180.6 | 13.2 |
| 1 | | 0130 | 19 | 9. | 2.3 | .6 | 1 | | 0450 | 59 | 82. | 177.4 | 13.0 | 1 | | 0810 | 99 | 82. | 180.0 | 13.2 |
| 1 | | 0135 | 20 | 10. | 2.8 | .7 | 1 | | 0455 | 60 | 82. | 181.0 | 13.3 | 1 | | 0815 | 100 | 82. | 179.5 | 13.2 |
| 1 | | 0140 | 21 | 13. | 3.4 | .9 | 1 | | 0500 | 61 | 82. | 184.6 | 13.5 | 1 | | 0820 | 101 | 82. | 178.9 | 13.1 |
| 1 | | 0145 | 22 | 16. | 4.2 | 1.1 | 1 | | 0505 | 62 | 83. | 187.8 | 13.7 | 1 | | 0825 | 102 | 82. | 178.4 | 13.1 |
| 1 | | 0150 | 23 | 19. | 5.1 | 1.3 | 1 | | 0510 | 63 | 83. | 190.4 | 13.8 | 1 | | 0830 | 103 | 82. | 177.8 | 13.1 |
| 1 | | 0155 | 24 | 22. | 5.9 | 1.5 | 1 | | 0515 | 64 | 83. | 192.3 | 13.9 | 1 | | 0835 | 104 | 82. | 177.2 | 13.0 |
| 1 | | 0200 | 25 | 24. | 6.4 | 1.6 | 1 | | 0520 | 65 | 83. | 193.5 | 14.0 | 1 | | 0840 | 105 | 82. | 176.7 | 13.0 |
| 1 | | 0205 | 26 | 26. | 6.8 | 1.7 | 1 | | 0525 | 66 | 83. | 194.2 | 14.1 | 1 | | 0845 | 106 | 82. | 176.1 | 13.0 |
| 1 | | 0210 | 27 | 26. | 7.0 | 1.8 | 1 | | 0530 | 67 | 83. | 194.6 | 14.1 | 1 | | 0850 | 107 | 82. | 175.5 | 12.9 |
| 1 | | 0215 | 28 | 27. | 7.3 | 1.8 | 1 | | 0535 | 68 | 83. | 194.8 | 14.1 | 1 | | 0855 | 108 | 81. | 175.0 | 12.9 |
| 1 | | 0220 | 29 | 29. | 7.8 | 2.0 | 1 | | 0540 | 69 | 83. | 194.7 | 14.1 | 1 | | 0900 | 109 | 81. | 174.4 | 12.9 |
| 1 | | 0225 | 30 | 30. | 8.7 | 2.0 | 1 | | 0545 | 70 | 83. | 194.6 | 14.1 | 1 | | 0905 | 110 | 81. | 173.9 | 12.8 |
| 1 | | 0230 | 31 | 31. | 9.8 | 2.1 | 1 | | 0550 | 71 | 83. | 194.4 | 14.1 | 1 | | 0910 | 111 | 81. | 173.3 | 12.8 |
| 1 | | 0235 | 32 | 31. | 11.0 | 2.2 | 1 | | 0555 | 72 | 83. | 194.1 | 14.0 | 1 | | 0915 | 112 | 81. | 172.7 | 12.8 |
| 1 | | 0240 | 33 | 31. | 12.1 | 2.3 | 1 | | 0600 | 73 | 83. | 193.9 | 14.0 | 1 | | 0920 | 113 | 81. | 172.2 | 12.7 |
| 1 | | 0245 | 34 | 32. | 13.1 | 2.3 | 1 | | 0605 | 74 | 83. | 193.6 | 14.0 | 1 | | 0925 | 114 | 81. | 171.6 | 12.7 |
| 1 | | 0250 | 35 | 32. | 14.1 | 2.4 | 1 | | 0610 | 75 | 83. | 193.2 | 14.0 | 1 | | 0930 | 115 | 81. | 171.1 | 12.7 |
| 1 | | 0255 | 36 | 32. | 15.3 | 2.5 | 1 | | 0615 | 76 | 83. | 192.8 | 14.0 | 1 | | 0935 | 116 | 81. | 170.5 | 12.6 |
| 1 | | 0300 | 37 | 33. | 16.3 | 2.5 | 1 | | 0620 | 77 | 83. | 192.4 | 13.9 | 1 | | 0940 | 117 | 81. | 169.9 | 12.6 |
| 1 | | 0305 | 38 | 33. | 17.3 | 2.6 | 1 | | 0625 | 78 | 83. | 191.9 | 13.9 | 1 | | 0945 | 118 | 81. | 169.4 | 12.6 |
| 1 | | 0310 | 39 | 33. | 18.8 | 2.7 | 1 | | 0630 | 79 | 83. | 191.3 | 13.9 | 1 | | 0950 | 119 | 81. | 168.8 | 12.5 |
| 1 | | 0315 | 40 | 34. | 21.3 | 2.8 | 1 | | 0635 | 80 | 83. | 190.8 | 13.8 | 1 | | 0955 | 120 | 81. | 168.3 | 12.5 |

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| PEAK FLOW (CFS) | TIME (HR) | MAXIMUM AVERAGE FLOW (CFS) 6-HR | 24-HR | 72-HR | 9.92-HR |
|---|---|---|---|---|---|
| 83. | 5.58 | 82. | 58. | 58. | 58. |

| | | | | |
|---|---|---|---|---|
| (INCHES) | .271 | .319 | .319 | .319 |
| (AC-FT) | 41. | 48. | 48. | 48. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 195. | 5.58 | 180. | 115. | 115. | 115. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 14.09 | 5.58 | 13.18 | 8.73 | 8.73 | 8.73 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .98

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 35. | 24.9 | 3.1 | 1 | | 0640 | 81 | 83. | 185.9 | 13.6 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 38. | 32.1 | 3.5 | 1 | | 0645 | 82 | 83. | 185.3 | 13.5 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 42. | 43.4 | 4.2 | 1 | | 0650 | 83 | 82. | 184.8 | 13.5 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 49. | 58.9 | 5.3 | 1 | | 0655 | 84 | 82. | 184.2 | 13.5 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 57. | 77.1 | 6.5 | 1 | | 0700 | 85 | 82. | 183.7 | 13.4 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 63. | 95.2 | 7.7 | 1 | | 0705 | 86 | 82. | 183.1 | 13.4 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 68. | 111.2 | 8.7 | 1 | | 0710 | 87 | 82. | 182.5 | 13.4 |
| 1 | | 0035 | 8 | 1. | .3 | .1 | 1 | | 0355 | 48 | 71. | 124.1 | 9.6 | 1 | | 0715 | 88 | 82. | 182.0 | 13.3 |
| 1 | | 0040 | 9 | 2. | .6 | .2 | 1 | | 0400 | 49 | 74. | 134.0 | 10.3 | 1 | | 0720 | 89 | 82. | 181.4 | 13.3 |
| 1 | | 0045 | 10 | 4. | .9 | .2 | 1 | | 0405 | 50 | 75. | 141.7 | 10.8 | 1 | | 0725 | 90 | 82. | 180.8 | 13.2 |
| 1 | | 0050 | 11 | 5. | 1.2 | .3 | 1 | | 0410 | 51 | 77. | 147.6 | 11.2 | 1 | | 0730 | 91 | 82. | 180.3 | 13.2 |
| 1 | | 0055 | 12 | 5. | 1.4 | .3 | 1 | | 0415 | 52 | 78. | 152.1 | 11.5 | 1 | | 0735 | 92 | 82. | 179.7 | 13.2 |
| 1 | | 0100 | 13 | 6. | 1.5 | .4 | 1 | | 0420 | 53 | 79. | 155.5 | 11.7 | 1 | | 0740 | 93 | 82. | 179.1 | 13.1 |
| 1 | | 0105 | 14 | 6. | 1.5 | .4 | 1 | | 0425 | 54 | 80. | 158.2 | 11.9 | 1 | | 0745 | 94 | 82. | 178.6 | 13.1 |
| 1 | | 0110 | 15 | 6. | 1.6 | .4 | 1 | | 0430 | 55 | 80. | 160.6 | 12.0 | 1 | | 0750 | 95 | 82. | 178.0 | 13.1 |
| 1 | | 0115 | 16 | 6. | 1.6 | .4 | 1 | | 0435 | 56 | 80. | 163.3 | 12.2 | 1 | | 0755 | 96 | 82. | 177.4 | 13.0 |
| 1 | | 0120 | 17 | 7. | 1.8 | .4 | 1 | | 0440 | 57 | 81. | 166.4 | 12.4 | 1 | | 0800 | 97 | 82. | 176.9 | 13.0 |
| 1 | | 0125 | 18 | 7. | 1.9 | .5 | 1 | | 0445 | 58 | 81. | 169.9 | 12.6 | 1 | | 0805 | 98 | 82. | 176.3 | 13.0 |
| 1 | | 0130 | 19 | 8. | 2.2 | .5 | 1 | | 0450 | 59 | 81. | 173.4 | 12.8 | 1 | | 0810 | 99 | 82. | 175.8 | 12.9 |
| 1 | | 0135 | 20 | 10. | 2.6 | .7 | 1 | | 0455 | 60 | 82. | 177.0 | 13.0 | 1 | | 0815 | 100 | 82. | 175.2 | 12.9 |
| 1 | | 0140 | 21 | 12. | 3.2 | .8 | 1 | | 0500 | 61 | 82. | 180.5 | 13.2 | 1 | | 0820 | 101 | 81. | 174.6 | 12.9 |
| 1 | | 0145 | 22 | 15. | 4.0 | 1.0 | 1 | | 0505 | 62 | 82. | 183.6 | 13.4 | 1 | | 0825 | 102 | 81. | 174.1 | 12.8 |
| 1 | | 0150 | 23 | 18. | 4.9 | 1.2 | 1 | | 0510 | 63 | 83. | 186.2 | 13.6 | 1 | | 0830 | 103 | 81. | 173.5 | 12.8 |
| 1 | | 0155 | 24 | 21. | 5.6 | 1.4 | 1 | | 0515 | 64 | 83. | 188.0 | 13.7 | 1 | | 0835 | 104 | 81. | 172.9 | 12.8 |
| 1 | | 0200 | 25 | 23. | 6.2 | 1.5 | 1 | | 0520 | 65 | 83. | 189.2 | 13.8 | 1 | | 0840 | 105 | 81. | 172.4 | 12.7 |
| 1 | | 0205 | 26 | 24. | 6.5 | 1.6 | 1 | | 0525 | 66 | 83. | 189.9 | 13.8 | 1 | | 0845 | 106 | 81. | 171.8 | 12.7 |
| 1 | | 0210 | 27 | 25. | 6.7 | 1.7 | 1 | | 0530 | 67 | 83. | 190.3 | 13.8 | 1 | | 0850 | 107 | 81. | 171.3 | 12.7 |
| 1 | | 0215 | 28 | 26. | 7.0 | 1.7 | 1 | | 0535 | 68 | 83. | 190.4 | 13.8 | 1 | | 0855 | 108 | 81. | 170.7 | 12.6 |
| 1 | | 0220 | 29 | 28. | 7.5 | 1.9 | 1 | | 0540 | 69 | 83. | 190.4 | 13.8 | 1 | | 0900 | 109 | 81. | 170.2 | 12.6 |
| 1 | | 0225 | 30 | 30. | 8.3 | 2.0 | 1 | | 0545 | 70 | 83. | 190.2 | 13.8 | 1 | | 0905 | 110 | 81. | 169.6 | 12.6 |
| 1 | | 0230 | 31 | 30. | 9.4 | 2.1 | 1 | | 0550 | 71 | 83. | 190.0 | 13.8 | 1 | | 0910 | 111 | 81. | 169.0 | 12.5 |
| 1 | | 0235 | 32 | 31. | 10.6 | 2.2 | 1 | | 0555 | 72 | 83. | 189.8 | 13.8 | 1 | | 0915 | 112 | 81. | 168.5 | 12.5 |
| 1 | | 0240 | 33 | 31. | 11.6 | 2.2 | 1 | | 0600 | 73 | 83. | 189.5 | 13.8 | 1 | | 0920 | 113 | 81. | 167.9 | 12.5 |
| 1 | | 0245 | 34 | 31. | 12.5 | 2.3 | 1 | | 0605 | 74 | 83. | 189.2 | 13.8 | 1 | | 0925 | 114 | 81. | 167.4 | 12.4 |
| 1 | | 0250 | 35 | 32. | 13.6 | 2.3 | 1 | | 0610 | 75 | 83. | 188.9 | 13.7 | 1 | | 0930 | 115 | 81. | 166.8 | 12.4 |
| 1 | | 0255 | 36 | 32. | 14.6 | 2.4 | 1 | | 0615 | 76 | 83. | 188.5 | 13.7 | 1 | | 0935 | 116 | 81. | 166.3 | 12.4 |
| 1 | | 0300 | 37 | 32. | 15.6 | 2.5 | 1 | | 0620 | 77 | 83. | 188.0 | 13.7 | 1 | | 0940 | 117 | 81. | 165.7 | 12.3 |
| 1 | | 0305 | 38 | 33. | 16.6 | 2.5 | 1 | | 0625 | 78 | 83. | 187.5 | 13.7 | 1 | | 0945 | 118 | 81. | 165.1 | 12.3 |
| 1 | | 0310 | 39 | 33. | 18.0 | 2.6 | 1 | | 0630 | 79 | 83. | 187.0 | 13.6 | 1 | | 0950 | 119 | 80. | 164.6 | 12.3 |
| 1 | | 0315 | 40 | 34. | 20.5 | 2.8 | 1 | | 0635 | 80 | 83. | 186.5 | 13.6 | 1 | | 0955 | 120 | 80. | 164.0 | 12.2 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (CFS) | (HR) | (CFS) | | | | |
| + 83. | 5.58 | | 81. | 58. | 58. | 58. |
| | | (INCHES) | .270 | .316 | .316 | .316 |
| | | (AC-FT) | 40. | 47. | 47. | 47. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (AC-FT) | (HR) | | | | |
| 190. | 5.58 | 176. | 112. | 112. | 112. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| + (FEET) | (HR) | | | | |
| 13.83 | 5.58 | 12.93 | 8.56 | 8.56 | 8.56 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .95

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 35. | 23.4 | 3.0 | 1 | | 0640 | 81 | 82. | 178.7 | 13.1 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 37. | 30.4 | 3.4 | 1 | | 0645 | 82 | 82. | 178.1 | 13.1 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 41. | 41.2 | 4.1 | 1 | | 0650 | 83 | 82. | 177.6 | 13.1 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 48. | 56.2 | 5.1 | 1 | | 0655 | 84 | 82. | 177.0 | 13.0 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 56. | 73.7 | 6.2 | 1 | | 0700 | 85 | 82. | 176.5 | 13.0 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 62. | 91.2 | 7.4 | 1 | | 0705 | 86 | 82. | 175.9 | 13.0 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 67. | 106.7 | 8.4 | 1 | | 0710 | 87 | 82. | 175.3 | 12.9 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0035 | 8 | 1. | .3 | .1 | 1 | 0355 | 48 | 70. | 119.1 | 9.3 | 1 | 0715 | 88 | 81. | 174.8 | 12.9 |
| 1 | 0040 | 9 | 2. | .5 | .1 | 1 | 0400 | 49 | 72. | 128.8 | 9.9 | 1 | 0720 | 89 | 81. | 174.2 | 12.9 |
| 1 | 0045 | 10 | 3. | .8 | .2 | 1 | 0405 | 50 | 74. | 136.2 | 10.4 | 1 | 0725 | 90 | 81. | 173.7 | 12.8 |
| 1 | 0050 | 11 | 4. | 1.1 | .3 | 1 | 0410 | 51 | 75. | 141.9 | 10.8 | 1 | 0730 | 91 | 81. | 173.1 | 12.8 |
| 1 | 0055 | 12 | 5. | 1.2 | .3 | 1 | 0415 | 52 | 77. | 146.3 | 11.1 | 1 | 0735 | 92 | 81. | 172.5 | 12.8 |
| 1 | 0100 | 13 | 5. | 1.3 | .3 | 1 | 0420 | 53 | 77. | 149.6 | 11.3 | 1 | 0740 | 93 | 81. | 172.0 | 12.7 |
| 1 | 0105 | 14 | 5. | 1.4 | .3 | 1 | 0425 | 54 | 78. | 152.1 | 11.5 | 1 | 0745 | 94 | 81. | 171.4 | 12.7 |
| 1 | 0110 | 15 | 5. | 1.4 | .4 | 1 | 0430 | 55 | 79. | 154.5 | 11.6 | 1 | 0750 | 95 | 81. | 170.9 | 12.7 |
| 1 | 0115 | 16 | 6. | 1.5 | .4 | 1 | 0435 | 56 | 79. | 157.1 | 11.8 | 1 | 0755 | 96 | 81. | 170.3 | 12.6 |
| 1 | 0120 | 17 | 6. | 1.6 | .4 | 1 | 0440 | 57 | 80. | 160.1 | 12.0 | 1 | 0800 | 97 | 81. | 169.8 | 12.6 |
| 1 | 0125 | 18 | 7. | 1.7 | .4 | 1 | 0445 | 58 | 80. | 163.4 | 12.2 | 1 | 0805 | 98 | 81. | 169.2 | 12.6 |
| 1 | 0130 | 19 | 7. | 2.0 | .5 | 1 | 0450 | 59 | 81. | 166.9 | 12.4 | 1 | 0810 | 99 | 81. | 168.6 | 12.5 |
| 1 | 0135 | 20 | 9. | 2.4 | .6 | 1 | 0455 | 60 | 81. | 170.4 | 12.6 | 1 | 0815 | 100 | 81. | 168.1 | 12.5 |
| 1 | 0140 | 21 | 11. | 3.0 | .7 | 1 | 0500 | 61 | 81. | 173.7 | 12.8 | 1 | 0820 | 101 | 81. | 167.5 | 12.5 |
| 1 | 0145 | 22 | 14. | 3.7 | .9 | 1 | 0505 | 62 | 82. | 176.8 | 13.0 | 1 | 0825 | 102 | 81. | 167.0 | 12.4 |
| 1 | 0150 | 23 | 17. | 4.5 | 1.1 | 1 | 0510 | 63 | 82. | 179.2 | 13.2 | 1 | 0830 | 103 | 81. | 166.4 | 12.4 |
| 1 | 0155 | 24 | 19. | 5.2 | 1.3 | 1 | 0515 | 64 | 82. | 181.0 | 13.3 | 1 | 0835 | 104 | 81. | 165.9 | 12.4 |
| 1 | 0200 | 25 | 21. | 5.7 | 1.4 | 1 | 0520 | 65 | 82. | 182.1 | 13.3 | 1 | 0840 | 105 | 81. | 165.3 | 12.3 |
| 1 | 0205 | 26 | 23. | 6.0 | 1.5 | 1 | 0525 | 66 | 82. | 182.8 | 13.4 | 1 | 0845 | 106 | 80. | 164.7 | 12.3 |
| 1 | 0210 | 27 | 23. | 6.2 | 1.6 | 1 | 0530 | 67 | 82. | 183.1 | 13.4 | 1 | 0850 | 107 | 80. | 164.2 | 12.3 |
| 1 | 0215 | 28 | 24. | 6.5 | 1.6 | 1 | 0535 | 68 | 82. | 183.3 | 13.4 | 1 | 0855 | 108 | 80. | 163.6 | 12.2 |
| 1 | 0220 | 29 | 26. | 6.9 | 1.7 | 1 | 0540 | 69 | 82. | 183.2 | 13.4 | 1 | 0900 | 109 | 80. | 163.1 | 12.2 |
| 1 | 0225 | 30 | 29. | 7.7 | 1.9 | 1 | 0545 | 70 | 82. | 183.0 | 13.4 | 1 | 0905 | 110 | 80. | 162.5 | 12.2 |
| 1 | 0230 | 31 | 30. | 8.8 | 2.0 | 1 | 0550 | 71 | 82. | 182.8 | 13.4 | 1 | 0910 | 111 | 80. | 162.0 | 12.1 |
| 1 | 0235 | 32 | 31. | 9.8 | 2.1 | 1 | 0555 | 72 | 82. | 182.6 | 13.4 | 1 | 0915 | 112 | 80. | 161.4 | 12.1 |
| 1 | 0240 | 33 | 31. | 10.8 | 2.2 | 1 | 0600 | 73 | 82. | 182.3 | 13.3 | 1 | 0920 | 113 | 80. | 160.9 | 12.1 |
| 1 | 0245 | 34 | 31. | 11.7 | 2.2 | 1 | 0605 | 74 | 82. | 182.0 | 13.3 | 1 | 0925 | 114 | 80. | 160.3 | 12.0 |
| 1 | 0250 | 35 | 31. | 12.7 | 2.3 | 1 | 0610 | 75 | 82. | 181.6 | 13.3 | 1 | 0930 | 115 | 80. | 159.8 | 12.0 |
| 1 | 0255 | 36 | 32. | 13.7 | 2.4 | 1 | 0615 | 76 | 82. | 181.2 | 13.3 | 1 | 0935 | 116 | 80. | 159.2 | 11.9 |
| 1 | 0300 | 37 | 32. | 14.6 | 2.4 | 1 | 0620 | 77 | 82. | 180.8 | 13.2 | 1 | 0940 | 117 | 80. | 158.7 | 11.9 |
| 1 | 0305 | 38 | 32. | 15.5 | 2.5 | 1 | 0625 | 78 | 82. | 180.3 | 13.2 | 1 | 0945 | 118 | 80. | 158.1 | 11.9 |
| 1 | 0310 | 39 | 33. | 16.9 | 2.6 | 1 | 0630 | 79 | 82. | 179.8 | 13.2 | 1 | 0950 | 119 | 79. | 157.6 | 11.8 |
| 1 | 0315 | 40 | 34. | 19.2 | 2.7 | 1 | 0635 | 80 | 82. | 179.2 | 13.2 | 1 | 0955 | 120 | 79. | 157.0 | 11.8 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 82. | 5.58 | | 81. | 57. | 57. | 57. |
| | | (INCHES) | .267 | .312 | .312 | .312 |
| | | (AC-FT) | 40. | 47. | 47. | 47. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 183. | 5.58 | 169. | 108. | 108. | 108. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 13.40 | 5.58 | 12.51 | 8.27 | 8.27 | 8.27 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .93

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 22.0 | 2.9 | 1 | | 0640 | 81 | 81. | 171.5 | 12.7 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 28.7 | 3.3 | 1 | | 0645 | 82 | 81. | 171.0 | 12.7 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 40. | 39.1 | 3.9 | 1 | | 0650 | 83 | 81. | 170.4 | 12.6 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 47. | 53.5 | 4.9 | 1 | | 0655 | 84 | 81. | 169.9 | 12.6 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 55. | 70.4 | 6.0 | 1 | | 0700 | 85 | 81. | 169.3 | 12.6 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 61. | 87.3 | 7.2 | 1 | | 0705 | 86 | 81. | 168.8 | 12.5 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 66. | 102.2 | 8.1 | 1 | | 0710 | 87 | 81. | 168.2 | 12.5 |
| 1 | | 0035 | 8 | 1. | .2 | .1 | 1 | | 0355 | 48 | 69. | 114.2 | 8.9 | 1 | | 0715 | 88 | 81. | 167.7 | 12.5 |
| 1 | | 0040 | 9 | 2. | .5 | .1 | 1 | | 0400 | 49 | 71. | 123.5 | 9.6 | 1 | | 0720 | 89 | 81. | 167.1 | 12.4 |
| 1 | | 0045 | 10 | 3. | .7 | .2 | 1 | | 0405 | 50 | 73. | 130.7 | 10.0 | 1 | | 0725 | 90 | 81. | 166.5 | 12.4 |
| 1 | | 0050 | 11 | 4. | 1.0 | .2 | 1 | | 0410 | 51 | 74. | 136.3 | 10.4 | 1 | | 0730 | 91 | 81. | 166.0 | 12.4 |
| 1 | | 0055 | 12 | 4. | 1.1 | .3 | 1 | | 0415 | 52 | 75. | 140.5 | 10.7 | 1 | | 0735 | 92 | 81. | 165.4 | 12.3 |
| 1 | | 0100 | 13 | 4. | 1.2 | .3 | 1 | | 0420 | 53 | 76. | 143.6 | 10.9 | 1 | | 0740 | 93 | 80. | 164.9 | 12.3 |
| 1 | | 0105 | 14 | 5. | 1.2 | .3 | 1 | | 0425 | 54 | 77. | 146.1 | 11.1 | 1 | | 0745 | 94 | 80. | 164.3 | 12.3 |
| 1 | | 0110 | 15 | 5. | 1.2 | .3 | 1 | | 0430 | 55 | 77. | 148.4 | 11.2 | 1 | | 0750 | 95 | 80. | 163.8 | 12.2 |
| 1 | | 0115 | 16 | 5. | 1.3 | .3 | 1 | | 0435 | 56 | 78. | 150.9 | 11.4 | 1 | | 0755 | 96 | 80. | 163.2 | 12.2 |
| 1 | | 0120 | 17 | 5. | 1.4 | .4 | 1 | | 0440 | 57 | 78. | 153.8 | 11.6 | 1 | | 0800 | 97 | 80. | 162.7 | 12.2 |
| 1 | | 0125 | 18 | 6. | 1.6 | .4 | 1 | | 0445 | 58 | 79. | 157.0 | 11.8 | 1 | | 0805 | 98 | 80. | 162.1 | 12.1 |
| 1 | | 0130 | 19 | 7. | 1.8 | .4 | 1 | | 0450 | 59 | 80. | 160.4 | 12.0 | 1 | | 0810 | 99 | 80. | 161.6 | 12.1 |
| 1 | | 0135 | 20 | 8. | 2.2 | .5 | 1 | | 0455 | 60 | 80. | 163.7 | 12.2 | 1 | | 0815 | 100 | 80. | 161.0 | 12.1 |
| 1 | | 0140 | 21 | 10. | 2.7 | .7 | 1 | | 0500 | 61 | 81. | 167.0 | 12.4 | 1 | | 0820 | 101 | 80. | 160.5 | 12.0 |
| 1 | | 0145 | 22 | 13. | 3.4 | .8 | 1 | | 0505 | 62 | 81. | 169.9 | 12.6 | 1 | | 0825 | 102 | 80. | 159.9 | 12.0 |
| 1 | | 0150 | 23 | 15. | 4.1 | 1.0 | 1 | | 0510 | 63 | 81. | 172.3 | 12.7 | 1 | | 0830 | 103 | 80. | 159.4 | 12.0 |
| 1 | | 0155 | 24 | 18. | 4.7 | 1.2 | 1 | | 0515 | 64 | 81. | 174.0 | 12.8 | 1 | | 0835 | 104 | 80. | 158.8 | 11.9 |
| 1 | | 0200 | 25 | 20. | 5.2 | 1.3 | 1 | | 0520 | 65 | 82. | 175.1 | 12.9 | 1 | | 0840 | 105 | 80. | 158.3 | 11.9 |
| 1 | | 0205 | 26 | 21. | 5.5 | 1.4 | 1 | | 0525 | 66 | 82. | 175.7 | 12.9 | 1 | | 0845 | 106 | 79. | 157.7 | 11.8 |
| 1 | | 0210 | 27 | 22. | 5.7 | 1.4 | 1 | | 0530 | 67 | 82. | 176.0 | 13.0 | 1 | | 0850 | 107 | 79. | 157.2 | 11.8 |
| 1 | | 0215 | 28 | 22. | 6.0 | 1.5 | 1 | | 0535 | 68 | 82. | 176.1 | 13.0 | 1 | | 0855 | 108 | 79. | 156.6 | 11.8 |
| 1 | | 0220 | 29 | 24. | 6.4 | 1.6 | 1 | | 0540 | 69 | 82. | 176.0 | 13.0 | 1 | | 0900 | 109 | 79. | 156.1 | 11.7 |
| 1 | | 0225 | 30 | 27. | 7.2 | 1.8 | 1 | | 0545 | 70 | 82. | 175.9 | 13.0 | 1 | | 0905 | 110 | 79. | 155.5 | 11.7 |
| 1 | | 0230 | 31 | 30. | 8.1 | 2.0 | 1 | | 0550 | 71 | 82. | 175.6 | 12.9 | 1 | | 0910 | 111 | 79. | 155.0 | 11.7 |
| 1 | | 0235 | 32 | 30. | 9.1 | 2.1 | 1 | | 0555 | 72 | 82. | 175.4 | 12.9 | 1 | | 0915 | 112 | 79. | 154.4 | 11.6 |
| 1 | | 0240 | 33 | 31. | 10.0 | 2.1 | 1 | | 0600 | 73 | 82. | 175.1 | 12.9 | 1 | | 0920 | 113 | 78. | 153.9 | 11.6 |
| 1 | | 0245 | 34 | 31. | 10.8 | 2.2 | 1 | | 0605 | 74 | 81. | 174.8 | 12.9 | 1 | | 0925 | 114 | 78. | 153.4 | 11.6 |
| 1 | | 0250 | 35 | 31. | 11.8 | 2.2 | 1 | | 0610 | 75 | 81. | 174.5 | 12.9 | 1 | | 0930 | 115 | 78. | 152.8 | 11.5 |
| 1 | | 0255 | 36 | 31. | 12.7 | 2.3 | 1 | | 0615 | 76 | 81. | 174.1 | 12.8 | 1 | | 0935 | 116 | 78. | 152.3 | 11.5 |
| 1 | | 0300 | 37 | 32. | 13.6 | 2.3 | 1 | | 0620 | 77 | 81. | 173.6 | 12.8 | 1 | | 0940 | 117 | 78. | 151.7 | 11.4 |
| 1 | | 0305 | 38 | 32. | 14.4 | 2.4 | 1 | | 0625 | 78 | 81. | 173.1 | 12.8 | 1 | | 0945 | 118 | 78. | 151.2 | 11.4 |
| 1 | | 0310 | 39 | 32. | 15.7 | 2.5 | 1 | | 0630 | 79 | 81. | 172.6 | 12.8 | 1 | | 0950 | 119 | 78. | 150.7 | 11.4 |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0315 | 40 | 33. | 18.0 | 2.6 | 1 | 0635 | 80 | 81. | 172.1 | 12.7 | 1 | 0955 | 120 | 78. | 150.1 | 11.3 | | | | |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 82. | 5.58 | | 80. | 56. | 56. | 56. |
| | | (INCHES) | .264 | .307 | .307 | .307 |
| | | (AC-FT) | 39. | 46. | 46. | 46. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 176. | 5.58 | 162. | 103. | 103. | 103. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 12.97 | 5.58 | 12.08 | 7.98 | 7.98 | 7.98 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .92

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 21.4 | 2.8 | 1 | | 0640 | 81 | 81. | 168.7 | 12.5 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 28.0 | 3.2 | 1 | | 0645 | 82 | 81. | 168.1 | 12.5 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 39. | 38.2 | 3.9 | 1 | | 0650 | 83 | 81. | 167.6 | 12.5 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 52.4 | 4.8 | 1 | | 0655 | 84 | 81. | 167.0 | 12.4 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 55. | 69.1 | 5.9 | 1 | | 0700 | 85 | 81. | 166.5 | 12.4 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 60. | 85.7 | 7.0 | 1 | | 0705 | 86 | 81. | 165.9 | 12.4 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 65. | 100.4 | 8.0 | 1 | | 0710 | 87 | 81. | 165.4 | 12.3 |
| 1 | | 0035 | 8 | 1. | .2 | .1 | 1 | | 0355 | 48 | 68. | 112.3 | 8.8 | 1 | | 0715 | 88 | 80. | 164.8 | 12.3 |
| 1 | | 0040 | 9 | 2. | .4 | .1 | 1 | | 0400 | 49 | 70. | 121.5 | 9.4 | 1 | | 0720 | 89 | 80. | 164.2 | 12.3 |
| 1 | | 0045 | 10 | 3. | .7 | .2 | 1 | | 0405 | 50 | 72. | 128.6 | 9.9 | 1 | | 0725 | 90 | 80. | 163.7 | 12.2 |
| 1 | | 0050 | 11 | 3. | .9 | .2 | 1 | | 0410 | 51 | 74. | 134.0 | 10.3 | 1 | | 0730 | 91 | 80. | 163.1 | 12.2 |
| 1 | | 0055 | 12 | 4. | 1.0 | .3 | 1 | | 0415 | 52 | 75. | 138.2 | 10.5 | 1 | | 0735 | 92 | 80. | 162.6 | 12.2 |
| 1 | | 0100 | 13 | 4. | 1.1 | .3 | 1 | | 0420 | 53 | 75. | 141.3 | 10.8 | 1 | | 0740 | 93 | 80. | 162.0 | 12.1 |
| 1 | | 0105 | 14 | 4. | 1.2 | .3 | 1 | | 0425 | 54 | 76. | 143.7 | 10.9 | 1 | | 0745 | 94 | 80. | 161.5 | 12.1 |
| 1 | | 0110 | 15 | 4. | 1.2 | .3 | 1 | | 0430 | 55 | 76. | 146.0 | 11.1 | 1 | | 0750 | 95 | 80. | 160.9 | 12.1 |
| 1 | | 0115 | 16 | 5. | 1.2 | .3 | 1 | | 0435 | 56 | 77. | 148.4 | 11.2 | 1 | | 0755 | 96 | 80. | 160.4 | 12.0 |
| 1 | | 0120 | 17 | 5. | 1.3 | .3 | 1 | | 0440 | 57 | 78. | 151.3 | 11.4 | 1 | | 0800 | 97 | 80. | 159.8 | 12.0 |
| 1 | | 0125 | 18 | 6. | 1.5 | .4 | 1 | | 0445 | 58 | 79. | 154.5 | 11.6 | 1 | | 0805 | 98 | 80. | 159.3 | 12.0 |
| 1 | | 0130 | 19 | 6. | 1.7 | .4 | 1 | | 0450 | 59 | 79. | 157.8 | 11.9 | 1 | | 0810 | 99 | 80. | 158.7 | 11.9 |
| 1 | | 0135 | 20 | 8. | 2.1 | .5 | 1 | | 0455 | 60 | 80. | 161.1 | 12.1 | 1 | | 0815 | 100 | 80. | 158.2 | 11.9 |
| 1 | | 0140 | 21 | 10. | 2.6 | .6 | 1 | | 0500 | 61 | 80. | 164.3 | 12.3 | 1 | | 0820 | 101 | 79. | 157.6 | 11.8 |
| 1 | | 0145 | 22 | 12. | 3.2 | .8 | 1 | | 0505 | 62 | 81. | 167.2 | 12.4 | 1 | | 0825 | 102 | 79. | 157.1 | 11.8 |
| 1 | | 0150 | 23 | 15. | 3.9 | 1.0 | 1 | | 0510 | 63 | 81. | 169.5 | 12.6 | 1 | | 0830 | 103 | 79. | 156.5 | 11.8 |
| 1 | | 0155 | 24 | 17. | 4.6 | 1.1 | 1 | | 0515 | 64 | 81. | 171.2 | 12.7 | 1 | | 0835 | 104 | 79. | 156.0 | 11.7 |
| 1 | | 0200 | 25 | 19. | 5.0 | 1.3 | 1 | | 0520 | 65 | 81. | 172.3 | 12.7 | 1 | | 0840 | 105 | 79. | 155.5 | 11.7 |
| 1 | | 0205 | 26 | 20. | 5.3 | 1.3 | 1 | | 0525 | 66 | 81. | 172.9 | 12.8 | 1 | | 0845 | 106 | 79. | 154.9 | 11.7 |
| 1 | | 0210 | 27 | 21. | 5.5 | 1.4 | 1 | | 0530 | 67 | 81. | 173.2 | 12.8 | 1 | | 0850 | 107 | 79. | 154.4 | 11.6 |
| 1 | | 0215 | 28 | 22. | 5.8 | 1.4 | 1 | | 0535 | 68 | 81. | 173.3 | 12.8 | 1 | | 0855 | 108 | 78. | 153.8 | 11.6 |
| 1 | | 0220 | 29 | 23. | 6.2 | 1.6 | 1 | | 0540 | 69 | 81. | 173.2 | 12.8 | 1 | | 0900 | 109 | 78. | 153.3 | 11.6 |
| 1 | | 0225 | 30 | 26. | 6.9 | 1.7 | 1 | | 0545 | 70 | 81. | 173.0 | 12.8 | 1 | | 0905 | 110 | 78. | 152.8 | 11.5 |
| 1 | | 0230 | 31 | 30. | 7.9 | 2.0 | 1 | | 0550 | 71 | 81. | 172.8 | 12.8 | 1 | | 0910 | 111 | 78. | 152.2 | 11.5 |
| 1 | | 0235 | 32 | 30. | 8.8 | 2.1 | 1 | | 0555 | 72 | 81. | 172.5 | 12.8 | 1 | | 0915 | 112 | 78. | 151.7 | 11.4 |
| 1 | | 0240 | 33 | 31. | 9.7 | 2.1 | 1 | | 0600 | 73 | 81. | 172.2 | 12.7 | 1 | | 0920 | 113 | 78. | 151.1 | 11.4 |
| 1 | | 0245 | 34 | 31. | 10.5 | 2.2 | 1 | | 0605 | 74 | 81. | 171.9 | 12.7 | 1 | | 0925 | 114 | 78. | 150.6 | 11.4 |
| 1 | | 0250 | 35 | 31. | 11.4 | 2.2 | 1 | | 0610 | 75 | 81. | 171.6 | 12.7 | 1 | | 0930 | 115 | 78. | 150.1 | 11.3 |
| 1 | | 0255 | 36 | 31. | 12.3 | 2.3 | 1 | | 0615 | 76 | 81. | 171.2 | 12.7 | 1 | | 0935 | 116 | 77. | 149.5 | 11.3 |
| 1 | | 0300 | 37 | 32. | 13.2 | 2.3 | 1 | | 0620 | 77 | 81. | 170.7 | 12.6 | 1 | | 0940 | 117 | 77. | 149.0 | 11.3 |
| 1 | | 0305 | 38 | 32. | 14.0 | 2.4 | 1 | | 0625 | 78 | 81. | 170.3 | 12.6 | 1 | | 0945 | 118 | 77. | 148.5 | 11.2 |
| 1 | | 0310 | 39 | 32. | 15.3 | 2.5 | 1 | | 0630 | 79 | 81. | 169.7 | 12.6 | 1 | | 0950 | 119 | 77. | 147.9 | 11.2 |
| 1 | | 0315 | 40 | 33. | 17.5 | 2.6 | 1 | | 0635 | 80 | 81. | 169.2 | 12.6 | 1 | | 0955 | 120 | 77. | 147.4 | 11.2 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 81. | 5.58 | | 79. | 56. | 56. | 56. |
| | | (INCHES) | .262 | .305 | .305 | .305 |
| | | (AC-FT) | 39. | 46. | 46. | 46. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 173. | 5.58 | 159. | 102. | 102. | 102. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 12.80 | 5.58 | 11.91 | 7.87 | 7.87 | 7.87 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .91

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 21.0 | 2.8 | 1 | | 0640 | 81 | 81. | 166.7 | 12.4 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 27.5 | 3.2 | 1 | | 0645 | 82 | 81. | 166.1 | 12.4 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 39. | 37.6 | 3.9 | 1 | | 0650 | 83 | 81. | 165.6 | 12.3 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 51.7 | 4.8 | 1 | | 0655 | 84 | 81. | 165.0 | 12.3 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 54. | 68.1 | 5.9 | 1 | | 0700 | 85 | 80. | 164.5 | 12.3 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 60. | 84.6 | 7.0 | 1 | | 0705 | 86 | 80. | 163.9 | 12.2 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 65. | 99.2 | 7.9 | 1 | | 0710 | 87 | 80. | 163.4 | 12.2 |
| 1 | | 0035 | 8 | 1. | .2 | .1 | 1 | | 0355 | 48 | 68. | 110.9 | 8.7 | 1 | | 0715 | 88 | 80. | 162.8 | 12.2 |
| 1 | | 0040 | 9 | 2. | .4 | .1 | 1 | | 0400 | 49 | 70. | 120.0 | 9.3 | 1 | | 0720 | 89 | 80. | 162.3 | 12.1 |
| 1 | | 0045 | 10 | 2. | .7 | .2 | 1 | | 0405 | 50 | 72. | 127.0 | 9.8 | 1 | | 0725 | 90 | 80. | 161.7 | 12.1 |
| 1 | | 0050 | 11 | 3. | .9 | .2 | 1 | | 0410 | 51 | 73. | 132.4 | 10.2 | 1 | | 0730 | 91 | 80. | 161.2 | 12.1 |
| 1 | | 0055 | 12 | 4. | 1.0 | .3 | 1 | | 0415 | 52 | 74. | 136.5 | 10.4 | 1 | | 0735 | 92 | 80. | 160.6 | 12.0 |
| 1 | | 0100 | 13 | 4. | 1.1 | .3 | 1 | | 0420 | 53 | 75. | 139.6 | 10.6 | 1 | | 0740 | 93 | 80. | 160.1 | 12.0 |
| 1 | | 0105 | 14 | 4. | 1.1 | .3 | 1 | | 0425 | 54 | 76. | 142.1 | 10.8 | 1 | | 0745 | 94 | 80. | 159.5 | 12.0 |
| 1 | | 0110 | 15 | 4. | 1.1 | .3 | 1 | | 0430 | 55 | 76. | 144.3 | 11.0 | 1 | | 0750 | 95 | 80. | 159.0 | 11.9 |
| 1 | | 0115 | 16 | 5. | 1.2 | .3 | 1 | | 0435 | 56 | 77. | 146.7 | 11.1 | 1 | | 0755 | 96 | 80. | 158.4 | 11.9 |
| 1 | | 0120 | 17 | 5. | 1.3 | .3 | 1 | | 0440 | 57 | 77. | 149.5 | 11.3 | 1 | | 0800 | 97 | 79. | 157.9 | 11.9 |
| 1 | | 0125 | 18 | 5. | 1.4 | .4 | 1 | | 0445 | 58 | 78. | 152.7 | 11.5 | 1 | | 0805 | 98 | 79. | 157.3 | 11.8 |
| 1 | | 0130 | 19 | 6. | 1.7 | .4 | 1 | | 0450 | 59 | 79. | 156.0 | 11.7 | 1 | | 0810 | 99 | 79. | 156.8 | 11.8 |
| 1 | | 0135 | 20 | 8. | 2.0 | .5 | 1 | | 0455 | 60 | 80. | 159.2 | 11.9 | 1 | | 0815 | 100 | 79. | 156.2 | 11.7 |
| 1 | | 0140 | 21 | 9. | 2.5 | .6 | 1 | | 0500 | 61 | 80. | 162.4 | 12.1 | 1 | | 0820 | 101 | 79. | 155.7 | 11.7 |
| 1 | | 0145 | 22 | 12. | 3.2 | .8 | 1 | | 0505 | 62 | 81. | 165.3 | 12.3 | 1 | | 0825 | 102 | 79. | 155.1 | 11.7 |
| 1 | | 0150 | 23 | 14. | 3.8 | 1.0 | 1 | | 0510 | 63 | 81. | 167.6 | 12.5 | 1 | | 0830 | 103 | 79. | 154.6 | 11.6 |
| 1 | | 0155 | 24 | 17. | 4.5 | 1.1 | 1 | | 0515 | 64 | 81. | 169.2 | 12.6 | 1 | | 0835 | 104 | 79. | 154.1 | 11.6 |
| 1 | | 0200 | 25 | 18. | 4.9 | 1.2 | 1 | | 0520 | 65 | 81. | 170.3 | 12.6 | 1 | | 0840 | 105 | 78. | 153.5 | 11.6 |
| 1 | | 0205 | 26 | 20. | 5.2 | 1.3 | 1 | | 0525 | 66 | 81. | 170.9 | 12.7 | 1 | | 0845 | 106 | 78. | 153.0 | 11.5 |
| 1 | | 0210 | 27 | 20. | 5.4 | 1.4 | 1 | | 0530 | 67 | 81. | 171.2 | 12.7 | 1 | | 0850 | 107 | 78. | 152.4 | 11.5 |
| 1 | | 0215 | 28 | 21. | 5.6 | 1.4 | 1 | | 0535 | 68 | 81. | 171.3 | 12.7 | 1 | | 0855 | 108 | 78. | 151.9 | 11.5 |
| 1 | | 0220 | 29 | 23. | 6.1 | 1.5 | 1 | | 0540 | 69 | 81. | 171.2 | 12.7 | 1 | | 0900 | 109 | 78. | 151.4 | 11.4 |
| 1 | | 0225 | 30 | 25. | 6.8 | 1.7 | 1 | | 0545 | 70 | 81. | 171.0 | 12.7 | 1 | | 0905 | 110 | 78. | 150.8 | 11.4 |
| 1 | | 0230 | 31 | 29. | 7.7 | 1.9 | 1 | | 0550 | 71 | 81. | 170.8 | 12.6 | 1 | | 0910 | 111 | 78. | 150.3 | 11.4 |
| 1 | | 0235 | 32 | 30. | 8.7 | 2.0 | 1 | | 0555 | 72 | 81. | 170.5 | 12.6 | 1 | | 0915 | 112 | 77. | 149.8 | 11.3 |
| 1 | | 0240 | 33 | 30. | 9.5 | 2.1 | 1 | | 0600 | 73 | 81. | 170.2 | 12.6 | 1 | | 0920 | 113 | 77. | 149.2 | 11.3 |
| 1 | | 0245 | 34 | 31. | 10.3 | 2.1 | 1 | | 0605 | 74 | 81. | 169.9 | 12.6 | 1 | | 0925 | 114 | 77. | 148.7 | 11.2 |
| 1 | | 0250 | 35 | 31. | 11.2 | 2.2 | 1 | | 0610 | 75 | 81. | 169.6 | 12.6 | 1 | | 0930 | 115 | 77. | 148.2 | 11.2 |
| 1 | | 0255 | 36 | 31. | 12.1 | 2.3 | 1 | | 0615 | 76 | 81. | 169.2 | 12.6 | 1 | | 0935 | 116 | 77. | 147.6 | 11.2 |
| 1 | | 0300 | 37 | 32. | 12.9 | 2.3 | 1 | | 0620 | 77 | 81. | 168.7 | 12.5 | 1 | | 0940 | 117 | 77. | 147.1 | 11.1 |
| 1 | | 0305 | 38 | 32. | 13.7 | 2.4 | 1 | | 0625 | 78 | 81. | 168.3 | 12.5 | 1 | | 0945 | 118 | 77. | 146.6 | 11.1 |
| 1 | | 0310 | 39 | 32. | 14.9 | 2.4 | 1 | | 0630 | 79 | 81. | 167.7 | 12.5 | 1 | | 0950 | 119 | 77. | 146.0 | 11.1 |
| 1 | | 0315 | 40 | 33. | 17.1 | 2.6 | 1 | | 0635 | 80 | 81. | 167.2 | 12.4 | 1 | | 0955 | 120 | 76. | 145.5 | 11.0 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 81. | 5.58 | | 79. | 55. | 55. | 55. |
| | | (INCHES) | .261 | .303 | .303 | .303 |
| | | (AC-FT) | 39. | 45. | 45. | 45. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 171. | 5.58 | | 157. | 100. | 100. | 100. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 12.68 | 5.58 | | 11.79 | 7.78 | 7.78 | 7.78 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .90

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 20.7 | 2.8 | 1 | | 0640 | 81 | 81. | 165.2 | 12.3 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 27.2 | 3.2 | 1 | | 0645 | 82 | 80. | 164.7 | 12.3 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 39. | 37.2 | 3.8 | 1 | | 0650 | 83 | 80. | 164.2 | 12.2 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 46. | 51.1 | 4.7 | 1 | | 0655 | 84 | 80. | 163.6 | 12.2 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 54. | 67.5 | 5.8 | 1 | | 0700 | 85 | 80. | 163.1 | 12.2 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 60. | 83.8 | 6.9 | 1 | | 0705 | 86 | 80. | 162.5 | 12.2 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 64. | 98.3 | 7.9 | 1 | | 0710 | 87 | 80. | 161.9 | 12.1 |
| 1 | | 0035 | 8 | 1. | .2 | .0 | 1 | | 0355 | 48 | 67. | 110.0 | 8.7 | 1 | | 0715 | 88 | 80. | 161.4 | 12.1 |
| 1 | | 0040 | 9 | 2. | .4 | .1 | 1 | | 0400 | 49 | 70. | 119.0 | 9.3 | 1 | | 0720 | 89 | 80. | 160.8 | 12.1 |
| 1 | | 0045 | 10 | 2. | .6 | .2 | 1 | | 0405 | 50 | 71. | 125.9 | 9.7 | 1 | | 0725 | 90 | 80. | 160.3 | 12.0 |
| 1 | | 0050 | 11 | 3. | .8 | .2 | 1 | | 0410 | 51 | 73. | 131.3 | 10.1 | 1 | | 0730 | 91 | 80. | 159.7 | 12.0 |
| 1 | | 0055 | 12 | 4. | 1.0 | .2 | 1 | | 0415 | 52 | 74. | 135.4 | 10.4 | 1 | | 0735 | 92 | 80. | 159.2 | 11.9 |
| 1 | | 0100 | 13 | 4. | 1.0 | .3 | 1 | | 0420 | 53 | 75. | 138.5 | 10.6 | 1 | | 0740 | 93 | 80. | 158.6 | 11.9 |
| 1 | | 0105 | 14 | 4. | 1.1 | .3 | 1 | | 0425 | 54 | 75. | 140.9 | 10.7 | 1 | | 0745 | 94 | 80. | 158.1 | 11.9 |
| 1 | | 0110 | 15 | 4. | 1.1 | .3 | 1 | | 0430 | 55 | 76. | 143.0 | 10.9 | 1 | | 0750 | 95 | 79. | 157.5 | 11.8 |
| 1 | | 0115 | 16 | 4. | 1.2 | .3 | 1 | | 0435 | 56 | 76. | 145.5 | 11.0 | 1 | | 0755 | 96 | 79. | 157.0 | 11.8 |
| 1 | | 0120 | 17 | 5. | 1.3 | .3 | 1 | | 0440 | 57 | 77. | 148.3 | 11.2 | 1 | | 0800 | 97 | 79. | 156.5 | 11.8 |
| 1 | | 0125 | 18 | 5. | 1.4 | .4 | 1 | | 0445 | 58 | 78. | 151.4 | 11.4 | 1 | | 0805 | 98 | 79. | 155.9 | 11.7 |
| 1 | | 0130 | 19 | 6. | 1.6 | .4 | 1 | | 0450 | 59 | 79. | 154.7 | 11.6 | 1 | | 0810 | 99 | 79. | 155.4 | 11.7 |
| 1 | | 0135 | 20 | 7. | 2.0 | .5 | 1 | | 0455 | 60 | 79. | 157.9 | 11.9 | 1 | | 0815 | 100 | 79. | 154.8 | 11.7 |
| 1 | | 0140 | 21 | 9. | 2.5 | .6 | 1 | | 0500 | 61 | 80. | 161.1 | 12.1 | 1 | | 0820 | 101 | 79. | 154.3 | 11.6 |
| 1 | | 0145 | 22 | 12. | 3.1 | .8 | 1 | | 0505 | 62 | 80. | 163.9 | 12.2 | 1 | | 0825 | 102 | 78. | 153.7 | 11.6 |
| 1 | | 0150 | 23 | 14. | 3.8 | .9 | 1 | | 0510 | 63 | 81. | 166.2 | 12.4 | 1 | | 0830 | 103 | 78. | 153.2 | 11.5 |
| 1 | | 0155 | 24 | 16. | 4.4 | 1.1 | 1 | | 0515 | 64 | 81. | 167.8 | 12.5 | 1 | | 0835 | 104 | 78. | 152.7 | 11.5 |
| 1 | | 0200 | 25 | 18. | 4.8 | 1.2 | 1 | | 0520 | 65 | 81. | 168.9 | 12.5 | 1 | | 0840 | 105 | 78. | 152.1 | 11.5 |
| 1 | | 0205 | 26 | 19. | 5.1 | 1.3 | 1 | | 0525 | 66 | 81. | 169.5 | 12.6 | 1 | | 0845 | 106 | 78. | 151.6 | 11.4 |
| 1 | | 0210 | 27 | 20. | 5.3 | 1.3 | 1 | | 0530 | 67 | 81. | 169.8 | 12.6 | 1 | | 0850 | 107 | 78. | 151.1 | 11.4 |
| 1 | | 0215 | 28 | 21. | 5.5 | 1.4 | 1 | | 0535 | 68 | 81. | 169.9 | 12.6 | 1 | | 0855 | 108 | 78. | 150.5 | 11.4 |
| 1 | | 0220 | 29 | 22. | 6.0 | 1.5 | 1 | | 0540 | 69 | 81. | 169.8 | 12.6 | 1 | | 0900 | 109 | 77. | 150.0 | 11.3 |
| 1 | | 0225 | 30 | 25. | 6.7 | 1.7 | 1 | | 0545 | 70 | 81. | 169.6 | 12.6 | 1 | | 0905 | 110 | 77. | 149.5 | 11.3 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0230 | 31 | 28. | 7.6 | 1.9 | 1 | 0550 | 71 | 81. | 169.3 | 12.6 | 1 | 0910 | 111 | 77. | 148.9 | 11.3 |
| 1 | 0235 | 32 | 30. | 8.5 | 2.0 | 1 | 0555 | 72 | 81. | 169.1 | 12.5 | 1 | 0915 | 112 | 77. | 148.4 | 11.2 |
| 1 | 0240 | 33 | 30. | 9.3 | 2.1 | 1 | 0600 | 73 | 81. | 168.8 | 12.5 | 1 | 0920 | 113 | 77. | 147.9 | 11.2 |
| 1 | 0245 | 34 | 31. | 10.1 | 2.1 | 1 | 0605 | 74 | 81. | 168.5 | 12.5 | 1 | 0925 | 114 | 77. | 147.3 | 11.2 |
| 1 | 0250 | 35 | 31. | 11.0 | 2.2 | 1 | 0610 | 75 | 81. | 168.2 | 12.5 | 1 | 0930 | 115 | 77. | 146.8 | 11.1 |
| 1 | 0255 | 36 | 31. | 11.9 | 2.2 | 1 | 0615 | 76 | 81. | 167.8 | 12.5 | 1 | 0935 | 116 | 77. | 146.3 | 11.1 |
| 1 | 0300 | 37 | 31. | 12.7 | 2.3 | 1 | 0620 | 77 | 81. | 167.3 | 12.4 | 1 | 0940 | 117 | 76. | 145.7 | 11.0 |
| 1 | 0305 | 38 | 32. | 13.5 | 2.3 | 1 | 0625 | 78 | 81. | 166.8 | 12.4 | 1 | 0945 | 118 | 76. | 145.2 | 11.0 |
| 1 | 0310 | 39 | 32. | 14.7 | 2.4 | 1 | 0630 | 79 | 81. | 166.3 | 12.4 | 1 | 0950 | 119 | 76. | 144.7 | 11.0 |
| 1 | 0315 | 40 | 33. | 16.9 | 2.6 | 1 | 0635 | 80 | 81. | 165.8 | 12.3 | 1 | 0955 | 120 | 76. | 144.2 | 10.9 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 81. | 5.58 | | 79. | 55. | 55. | 55. |
| | | (INCHES) | .260 | .302 | .302 | .302 |
| | | (AC-FT) | 39. | 45. | 45. | 45. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 170. | 5.58 | 156. | 99. | 99. | 99. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 12.59 | 5.58 | 11.70 | 7.73 | 7.73 | 7.73 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .89

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 20.3 | 2.8 | 1 | | 0640 | 81 | 80. | 163.0 | 12.2 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 26.6 | 3.2 | 1 | | 0645 | 82 | 80. | 162.4 | 12.1 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 39. | 36.6 | 3.8 | 1 | | 0650 | 83 | 80. | 161.9 | 12.1 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 45. | 50.3 | 4.7 | 1 | | 0655 | 84 | 80. | 161.3 | 12.1 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 53. | 66.4 | 5.8 | 1 | | 0700 | 85 | 80. | 160.8 | 12.0 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 59. | 82.6 | 6.8 | 1 | | 0705 | 86 | 80. | 160.2 | 12.0 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 64. | 96.9 | 7.8 | 1 | | 0710 | 87 | 80. | 159.7 | 12.0 |
| 1 | | 0035 | 8 | 1. | .2 | .0 | 1 | | 0355 | 48 | 67. | 108.4 | 8.6 | 1 | | 0715 | 88 | 80. | 159.1 | 11.9 |
| 1 | | 0040 | 9 | 1. | .4 | .1 | 1 | | 0400 | 49 | 69. | 117.3 | 9.2 | 1 | | 0720 | 89 | 80. | 158.6 | 11.9 |
| 1 | | 0045 | 10 | 2. | .6 | .2 | 1 | | 0405 | 50 | 71. | 124.2 | 9.6 | 1 | | 0725 | 90 | 80. | 158.0 | 11.9 |
| 1 | | 0050 | 11 | 3. | .8 | .2 | 1 | | 0410 | 51 | 72. | 129.5 | 10.0 | 1 | | 0730 | 91 | 79. | 157.5 | 11.8 |
| 1 | | 0055 | 12 | 4. | .9 | .2 | 1 | | 0415 | 52 | 73. | 133.5 | 10.2 | 1 | | 0735 | 92 | 79. | 156.9 | 11.8 |
| 1 | | 0100 | 13 | 4. | 1.0 | .3 | 1 | | 0420 | 53 | 74. | 136.6 | 10.4 | 1 | | 0740 | 93 | 79. | 156.4 | 11.8 |
| 1 | | 0105 | 14 | 4. | 1.0 | .3 | 1 | | 0425 | 54 | 75. | 138.9 | 10.6 | 1 | | 0745 | 94 | 79. | 155.9 | 11.7 |
| 1 | | 0110 | 15 | 4. | 1.1 | .3 | 1 | | 0430 | 55 | 75. | 141.1 | 10.7 | 1 | | 0750 | 95 | 79. | 155.3 | 11.7 |
| 1 | | 0115 | 16 | 4. | 1.1 | .3 | 1 | | 0435 | 56 | 76. | 143.5 | 10.9 | 1 | | 0755 | 96 | 79. | 154.8 | 11.7 |
| 1 | | 0120 | 17 | 5. | 1.2 | .3 | 1 | | 0440 | 57 | 77. | 146.3 | 11.1 | 1 | | 0800 | 97 | 79. | 154.2 | 11.6 |
| 1 | | 0125 | 18 | 5. | 1.4 | .3 | 1 | | 0445 | 58 | 77. | 149.4 | 11.3 | 1 | | 0805 | 98 | 78. | 153.7 | 11.6 |
| 1 | | 0130 | 19 | 6. | 1.6 | .4 | 1 | | 0450 | 59 | 78. | 152.6 | 11.5 | 1 | | 0810 | 99 | 78. | 153.1 | 11.5 |
| 1 | | 0135 | 20 | 7. | 1.9 | .5 | 1 | | 0455 | 60 | 79. | 155.8 | 11.7 | 1 | | 0815 | 100 | 78. | 152.6 | 11.5 |
| 1 | | 0140 | 21 | 9. | 2.4 | .6 | 1 | | 0500 | 61 | 80. | 158.9 | 11.9 | 1 | | 0820 | 101 | 78. | 152.1 | 11.5 |
| 1 | | 0145 | 22 | 11. | 3.0 | .7 | 1 | | 0505 | 62 | 80. | 161.7 | 12.1 | 1 | | 0825 | 102 | 78. | 151.5 | 11.4 |
| 1 | | 0150 | 23 | 14. | 3.6 | .9 | 1 | | 0510 | 63 | 80. | 164.0 | 12.2 | 1 | | 0830 | 103 | 78. | 151.0 | 11.4 |
| 1 | | 0155 | 24 | 16. | 4.2 | 1.1 | 1 | | 0515 | 64 | 81. | 165.6 | 12.3 | 1 | | 0835 | 104 | 78. | 150.5 | 11.4 |
| 1 | | 0200 | 25 | 18. | 4.7 | 1.2 | 1 | | 0520 | 65 | 81. | 166.6 | 12.4 | 1 | | 0840 | 105 | 77. | 149.9 | 11.3 |
| 1 | | 0205 | 26 | 19. | 5.0 | 1.2 | 1 | | 0525 | 66 | 81. | 167.2 | 12.4 | 1 | | 0845 | 106 | 77. | 149.4 | 11.3 |
| 1 | | 0210 | 27 | 19. | 5.2 | 1.3 | 1 | | 0530 | 67 | 81. | 167.5 | 12.5 | 1 | | 0850 | 107 | 77. | 148.9 | 11.3 |
| 1 | | 0215 | 28 | 20. | 5.4 | 1.3 | 1 | | 0535 | 68 | 81. | 167.6 | 12.5 | 1 | | 0855 | 108 | 77. | 148.3 | 11.2 |
| 1 | | 0220 | 29 | 22. | 5.8 | 1.4 | 1 | | 0540 | 69 | 81. | 167.5 | 12.4 | 1 | | 0900 | 109 | 77. | 147.8 | 11.2 |
| 1 | | 0225 | 30 | 24. | 6.5 | 1.6 | 1 | | 0545 | 70 | 81. | 167.3 | 12.4 | 1 | | 0905 | 110 | 77. | 147.3 | 11.2 |
| 1 | | 0230 | 31 | 28. | 7.4 | 1.8 | 1 | | 0550 | 71 | 81. | 167.1 | 12.4 | 1 | | 0910 | 111 | 77. | 146.7 | 11.1 |
| 1 | | 0235 | 32 | 30. | 8.3 | 2.0 | 1 | | 0555 | 72 | 81. | 166.8 | 12.4 | 1 | | 0915 | 112 | 77. | 146.2 | 11.1 |
| 1 | | 0240 | 33 | 30. | 9.1 | 2.1 | 1 | | 0600 | 73 | 81. | 166.5 | 12.4 | 1 | | 0920 | 113 | 76. | 145.7 | 11.0 |
| 1 | | 0245 | 34 | 31. | 9.9 | 2.1 | 1 | | 0605 | 74 | 81. | 166.2 | 12.4 | 1 | | 0925 | 114 | 76. | 145.2 | 11.0 |
| 1 | | 0250 | 35 | 31. | 10.7 | 2.2 | 1 | | 0610 | 75 | 81. | 165.9 | 12.4 | 1 | | 0930 | 115 | 76. | 144.6 | 11.0 |
| 1 | | 0255 | 36 | 31. | 11.6 | 2.2 | 1 | | 0615 | 76 | 81. | 165.5 | 12.3 | 1 | | 0935 | 116 | 76. | 144.1 | 10.9 |
| 1 | | 0300 | 37 | 31. | 12.4 | 2.3 | 1 | | 0620 | 77 | 81. | 165.0 | 12.3 | 1 | | 0940 | 117 | 76. | 143.6 | 10.9 |
| 1 | | 0305 | 38 | 32. | 13.2 | 2.3 | 1 | | 0625 | 78 | 80. | 164.5 | 12.3 | 1 | | 0945 | 118 | 76. | 143.1 | 10.9 |
| 1 | | 0310 | 39 | 32. | 14.4 | 2.4 | 1 | | 0630 | 79 | 80. | 164.0 | 12.2 | 1 | | 0950 | 119 | 76. | 142.5 | 10.8 |
| 1 | | 0315 | 40 | 33. | 16.5 | 2.5 | 1 | | 0635 | 80 | 80. | 163.5 | 12.2 | 1 | | 0955 | 120 | 76. | 142.0 | 10.8 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 81. | 5.58 | | 78. | 55. | 55. | 55. |
| | | (INCHES) | .259 | .300 | .300 | .300 |
| | | (AC-FT) | 39. | 45. | 45. | 45. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 168. | 5.58 | 154. | 98. | 98. | 98. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 12.46 | 5.58 | 11.56 | 7.63 | 7.63 | 7.63 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .88

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | 1 | | 0320 | 41 | 34. | 19.7 | 2.7 | 1 | | 0640 | 81 | 80. | 160.1 | 12.0 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | 1 | | 0325 | 42 | 36. | 26.0 | 3.1 | 1 | | 0645 | 82 | 80. | 159.6 | 12.0 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | 1 | | 0330 | 43 | 39. | 35.7 | 3.7 | 1 | | 0650 | 83 | 80. | 159.0 | 11.9 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | 1 | | 0335 | 44 | 45. | 49.2 | 4.6 | 1 | | 0655 | 84 | 80. | 158.5 | 11.9 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | 1 | | 0340 | 45 | 53. | 65.1 | 5.7 | 1 | | 0700 | 85 | 79. | 158.0 | 11.9 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | 1 | | 0345 | 46 | 59. | 81.1 | 6.7 | 1 | | 0705 | 86 | 79. | 157.4 | 11.8 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | 1 | | 0350 | 47 | 63. | 95.1 | 7.7 | 1 | | 0710 | 87 | 79. | 156.9 | 11.8 |
| 1 | | 0035 | 8 | 1. | .2 | .0 | 1 | | 0355 | 48 | 67. | 106.5 | 8.4 | 1 | | 0715 | 88 | 79. | 156.3 | 11.8 |
| 1 | | 0040 | 9 | 1. | .4 | .1 | 1 | | 0400 | 49 | 69. | 115.2 | 9.0 | 1 | | 0720 | 89 | 79. | 155.8 | 11.7 |
| 1 | | 0045 | 10 | 2. | .6 | .1 | 1 | | 0405 | 50 | 71. | 122.0 | 9.5 | 1 | | 0725 | 90 | 79. | 155.2 | 11.7 |
| 1 | | 0050 | 11 | 3. | .8 | .2 | 1 | | 0410 | 51 | 72. | 127.3 | 9.8 | 1 | | 0730 | 91 | 79. | 154.7 | 11.6 |
| 1 | | 0055 | 12 | 3. | .9 | .2 | 1 | | 0415 | 52 | 73. | 131.2 | 10.1 | 1 | | 0735 | 92 | 79. | 154.1 | 11.6 |
| 1 | | 0100 | 13 | 4. | .9 | .2 | 1 | | 0420 | 53 | 74. | 134.2 | 10.3 | 1 | | 0740 | 93 | 78. | 153.6 | 11.6 |
| 1 | | 0105 | 14 | 4. | 1.0 | .2 | 1 | | 0425 | 54 | 74. | 136.6 | 10.4 | 1 | | 0745 | 94 | 78. | 153.1 | 11.5 |
| 1 | | 0110 | 15 | 4. | 1.0 | .3 | 1 | | 0430 | 55 | 75. | 138.7 | 10.6 | 1 | | 0750 | 95 | 78. | 152.5 | 11.5 |
| 1 | | 0115 | 16 | 4. | 1.1 | .3 | 1 | | 0435 | 56 | 75. | 141.0 | 10.7 | 1 | | 0755 | 96 | 78. | 152.0 | 11.5 |
| 1 | | 0120 | 17 | 4. | 1.2 | .3 | 1 | | 0440 | 57 | 76. | 143.8 | 10.9 | 1 | | 0800 | 97 | 78. | 151.5 | 11.4 |
| 1 | | 0125 | 18 | 5. | 1.3 | .3 | 1 | | 0445 | 58 | 77. | 146.9 | 11.1 | 1 | | 0805 | 98 | 78. | 150.9 | 11.4 |
| 1 | | 0130 | 19 | 6. | 1.5 | .4 | 1 | | 0450 | 59 | 78. | 150.0 | 11.3 | 1 | | 0810 | 99 | 78. | 150.4 | 11.4 |
| 1 | | 0135 | 20 | 7. | 1.8 | .5 | 1 | | 0455 | 60 | 78. | 153.2 | 11.5 | 1 | | 0815 | 100 | 77. | 149.9 | 11.3 |
| 1 | | 0140 | 21 | 9. | 2.3 | .6 | 1 | | 0500 | 61 | 79. | 156.3 | 11.8 | 1 | | 0820 | 101 | 77. | 149.3 | 11.3 |
| 1 | | 0145 | 22 | 11. | 2.9 | .7 | 1 | | 0505 | 62 | 80. | 159.0 | 11.9 | 1 | | 0825 | 102 | 77. | 148.8 | 11.3 |
| 1 | | 0150 | 23 | 13. | 3.5 | .9 | 1 | | 0510 | 63 | 80. | 161.3 | 12.1 | 1 | | 0830 | 103 | 77. | 148.3 | 11.2 |
| 1 | | 0155 | 24 | 15. | 4.1 | 1.0 | 1 | | 0515 | 64 | 80. | 162.8 | 12.2 | 1 | | 0835 | 104 | 77. | 147.7 | 11.2 |
| 1 | | 0200 | 25 | 17. | 4.5 | 1.1 | 1 | | 0520 | 65 | 80. | 163.8 | 12.2 | 1 | | 0840 | 105 | 77. | 147.2 | 11.1 |
| 1 | | 0205 | 26 | 18. | 4.8 | 1.2 | 1 | | 0525 | 66 | 80. | 164.4 | 12.3 | 1 | | 0845 | 106 | 77. | 146.7 | 11.1 |
| 1 | | 0210 | 27 | 19. | 5.0 | 1.2 | 1 | | 0530 | 67 | 80. | 164.7 | 12.3 | 1 | | 0850 | 107 | 77. | 146.1 | 11.1 |
| 1 | | 0215 | 28 | 19. | 5.2 | 1.3 | 1 | | 0535 | 68 | 80. | 164.8 | 12.3 | 1 | | 0855 | 108 | 76. | 145.6 | 11.0 |
| 1 | | 0220 | 29 | 21. | 5.6 | 1.4 | 1 | | 0540 | 69 | 80. | 164.7 | 12.3 | 1 | | 0900 | 109 | 76. | 145.1 | 11.0 |
| 1 | | 0225 | 30 | 24. | 6.3 | 1.6 | 1 | | 0545 | 70 | 80. | 164.5 | 12.3 | 1 | | 0905 | 110 | 76. | 144.6 | 11.0 |
| 1 | | 0230 | 31 | 27. | 7.2 | 1.8 | 1 | | 0550 | 71 | 80. | 164.2 | 12.3 | 1 | | 0910 | 111 | 76. | 144.0 | 10.9 |
| 1 | | 0235 | 32 | 30. | 8.0 | 2.0 | 1 | | 0555 | 72 | 80. | 164.0 | 12.2 | 1 | | 0915 | 112 | 76. | 143.5 | 10.9 |
| 1 | | 0240 | 33 | 30. | 8.8 | 2.1 | 1 | | 0600 | 73 | 80. | 163.7 | 12.2 | 1 | | 0920 | 113 | 76. | 143.0 | 10.9 |
| 1 | | 0245 | 34 | 30. | 9.6 | 2.1 | 1 | | 0605 | 74 | 80. | 163.4 | 12.2 | 1 | | 0925 | 114 | 76. | 142.5 | 10.8 |
| 1 | | 0250 | 35 | 31. | 10.4 | 2.1 | 1 | | 0610 | 75 | 80. | 163.0 | 12.2 | 1 | | 0930 | 115 | 75. | 142.0 | 10.8 |
| 1 | | 0255 | 36 | 31. | 11.2 | 2.2 | 1 | | 0615 | 76 | 80. | 162.6 | 12.2 | 1 | | 0935 | 116 | 75. | 141.4 | 10.8 |
| 1 | | 0300 | 37 | 31. | 12.0 | 2.3 | 1 | | 0620 | 77 | 80. | 162.2 | 12.1 | 1 | | 0940 | 117 | 75. | 140.9 | 10.7 |
| 1 | | 0305 | 38 | 31. | 12.8 | 2.3 | 1 | | 0625 | 78 | 80. | 161.7 | 12.1 | 1 | | 0945 | 118 | 75. | 140.4 | 10.7 |
| 1 | | 0310 | 39 | 32. | 13.9 | 2.4 | 1 | | 0630 | 79 | 80. | 161.2 | 12.1 | 1 | | 0950 | 119 | 75. | 139.9 | 10.7 |
| 1 | | 0315 | 40 | 33. | 16.0 | 2.5 | 1 | | 0635 | 80 | 80. | 160.7 | 12.0 | 1 | | 0955 | 120 | 75. | 139.4 | 10.6 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 80. | 5.58 | | 78. | 54. | 54. | 54. |
| | | (INCHES) | .257 | .298 | .298 | .298 |
| | | (AC-FT) | 38. | 45. | 45. | 45. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 165. | 5.58 | | 151. | 96. | 96. | 96. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 12.29 | 5.58 | | 11.39 | 7.51 | 7.51 | 7.51 |

CUMULATIVE AREA = 2.80 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

| OPERATION | STATION | AREA | PLAN | | RATIOS APPLIED TO PRECIPITATION RATIO 1 .99 | RATIO 2 .98 | RATIO 3 .95 | RATIO 4 .93 | RATIO 5 .92 | RATIO 6 .91 | RATIO 7 .90 | RATIO 8 .89 | RATIO 9 .88 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B15B | .95 | 1 | FLOW | 367. | 356. | 339. | 322. | 315. | 311. | 307. | 302. | 295. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B16B | .70 | 1 | FLOW | 627. | 614. | 592. | 570. | 562. | 556. | 551. | 544. | 536. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RB16B | .70 | 1 | FLOW | 615. | 602. | 580. | 559. | 550. | 544. | 540. | 533. | 525. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.92 |
| TED TO | | | | | | | | | | | | | |
| | RPT30 | .70 | 1 | FLOW | 610. | 597. | 576. | 555. | 546. | 540. | 536. | 529. | 521. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B16A | .91 | 1 | FLOW | 422. | 411. | 394. | 376. | 369. | 364. | 360. | 355. | 348. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | D5E | .60 | 1 | FLOW | 405. | 398. | 384. | 371. | 366. | 362. | 360. | 356. | 351. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| 3 COMBINED AT | | | | | | | | | | | | | | |
| + | PT31 | 2.21 | 1 | FLOW | 1372. | 1342. | 1292. | 1243. | 1223. | 1209. | 1200. | 1184. | 1165. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT31 | 2.21 | 1 | FLOW | 1367. | 1338. | 1289. | 1241. | 1220. | 1208. | 1199. | 1182. | 1163. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT32 | 3.16 | 1 | FLOW | 1724. | 1684. | 1618. | 1553. | 1526. | 1509. | 1496. | 1475. | 1449. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT32 | 3.16 | 1 | FLOW | 1710. | 1670. | 1605. | 1538. | 1515. | 1496. | 1482. | 1464. | 1437. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | B15A | .96 | 1 | FLOW | 523. | 509. | 486. | 464. | 455. | 448. | 444. | 437. | 428. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT34 | 4.12 | 1 | FLOW | 2205. | 2148. | 2064. | 1977. | 1940. | 1919. | 1900. | 1873. | 1839. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | MC2 | .92 | 1 | FLOW | 376. | 367. | 352. | 337. | 331. | 327. | 324. | 319. | 314. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RMC2 | .92 | 1 | FLOW | 376. | 367. | 352. | 337. | 331. | 327. | 324. | 319. | 313. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | B10A | 1.60 | 1 | FLOW | 1451. | 1417. | 1361. | 1306. | 1284. | 1268. | 1258. | 1240. | 1218. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT38 | 2.52 | 1 | FLOW | 1532. | 1496. | 1436. | 1377. | 1353. | 1337. | 1325. | 1307. | 1284. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT38 | 2.52 | 1 | FLOW | 1489. | 1447. | 1388. | 1331. | 1314. | 1293. | 1280. | 1262. | 1239. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT39 | 6.64 | 1 | FLOW | 3114. | 3039. | 2916. | 2795. | 2743. | 2711. | 2687. | 2645. | 2599. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT39 | 6.64 | 1 | FLOW | 3113. | 3035. | 2909. | 2788. | 2739. | 2701. | 2680. | 2641. | 2588. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | D6 | 1.56 | 1 | FLOW | 1162. | 1138. | 1098. | 1058. | 1042. | 1031. | 1023. | 1011. | 995. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT40 | 8.21 | 1 | FLOW | 4259. | 4157. | 3992. | 3832. | 3767. | 3719. | 3691. | 3639. | 3571. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT40 | 8.21 | 1 | FLOW | 4217. | 4117. | 3954. | 3795. | 3730. | 3684. | 3654. | 3602. | 3537. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | D7 | .85 | 1 | FLOW | 409. | 399. | 382. | 366. | 359. | 355. | 351. | 346. | 340. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT41 | 9.06 | 1 | FLOW | 4618. | 4508. | 4329. | 4153. | 4081. | 4031. | 3998. | 3941. | 3869. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.03 | 4.08 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT41 | 9.06 | 1 | FLOW | 4602. | 4487. | 4304. | 4126. | 4053. | 4006. | 3975. | 3910. | 3843. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | D8 | 1.26 | 1 | FLOW | 1242. | 1214. | 1169. | 1123. | 1105. | 1093. | 1084. | 1069. | 1051. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RD8 | 1.26 | 1 | FLOW | 1177. | 1151. | 1108. | 1065. | 1048. | 1036. | 1027. | 1013. | 997. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT42 | 10.31 | 1 | FLOW | 5221. | 5091. | 4889. | 4675. | 4602. | 4537. | 4506. | 4435. | 4358. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.08 | 4.00 | 4.00 | 4.00 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT42 | 10.31 | 1 | FLOW | 5207. | 5078. | 4875. | 4672. | 4591. | 4537. | 4502. | 4432. | 4355. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| [redacted]ROGRAPH AT | | | | | | | | | | | | | | |
| | B10B | .85 | 1 | FLOW | 486. | 476. | 459. | 442. | 436. | 431. | 428. | 422. | 416. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RB10B | .85 | 1 | FLOW | 456. | 446. | 431. | 415. | 408. | 404. | 401. | 396. | 390. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | D9A | .86 | 1 | FLOW | 234. | 227. | 216. | 206. | 201. | 199. | 196. | 193. | 189. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT43 | 1.71 | 1 | FLOW | 689. | 673. | 646. | 619. | 609. | 602. | 596. | 588. | 578. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| [redacted]TED TO | | | | | | | | | | | | | |
| | RPT43 | 1.71 | 1 | FLOW | 688. | 672. | 645. | 619. | 608. | 601. | 596. | 588. | 577. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT44 | 12.02 | 1 | FLOW | 5496. | 5359. | 5144. | 4928. | 4843. | 4785. | 4748. | 4674. | 4592. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT44 | 12.02 | 1 | FLOW | 5386. | 5255. | 5043. | 4838. | 4753. | 4697. | 4658. | 4589. | 4507. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D9B | 1.54 | 1 | FLOW | 962. | 957. | 915. | 873. | 857. | 845. | 837. | 824. | 808. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT45 | 13.57 | 1 | FLOW | 6017. | 5868. | 5630. | 5390. | 5297. | 5230. | 5187. | 5109. | 5017. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT45 | 13.57 | 1 | FLOW | 5870. | 5723. | 5490. | 5262. | 5171. | 5108. | 5064. | 4990. | 4901. |
| | | | | TIME | 4.33 | 4.33 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D10 | 2.51 | 1 | FLOW | 1859. | 1818. | 1750. | 1683. | 1656. | 1638. | 1624. | 1603. | 1576. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT46 | 16.08 | 1 | FLOW | 6873. | 6702. | 6431. | 6153. | 6049. | 5970. | 5918. | 5832. | 5726. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT46 | 16.08 | 1 | FLOW | 6854. | 6686. | 6418. | 6145. | 6037. | 5967. | 5909. | 5830. | 5725. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | MC | 2.80 | 1 | FLOW | 3517. | 3447. | 3332. | 3216. | 3170. | 3137. | 3114. | 3077. | 3031. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| DIVERSION TO | | | | | | | | | | | | | |
| + | TORAW | 2.80 | 1 | FLOW | 668. | 655. | 633. | 611. | 602. | 596. | 592. | 585. | 576. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| [redacted]ROGRAPH AT | | | | | | | | | | | | | |
| | TORAW | 2.80 | 1 | FLOW | 2849. | 2792. | 2699. | 2605. | 2567. | 2541. | 2522. | 2493. | 2455. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | | | | | | |
| + | MCDB | 2.80 | 1 | FLOW | 83. | 83. | 82. | 82. | 81. | 81. | 81. | 81. | 80. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 |
| | | | ** PEAK STAGES IN FEET ** | | | | | | | | | | |
| | | | 1 | STAGE | 14.09 | 13.83 | 13.40 | 12.97 | 12.80 | 12.68 | 12.59 | 12.46 | 12.29 |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RMCDB | 2.80 | 1 | FLOW | 83. | 83. | 82. | 82. | 81. | 81. | 81. | 81. | 80. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RTORAW | .00 | 1 | FLOW | 668. | 655. | 633. | 611. | 602. | 596. | 592. | 585. | 576. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT47 | 2.80 | 1 | FLOW | 719. | 705. | 681. | 658. | 649. | 642. | 637. | 630. | 621. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT47 | 2.80 | 1 | FLOW | 718. | 704. | 680. | 657. | 648. | 642. | 637. | 630. | 621. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | RH | 1.36 | 1 | FLOW | 605. | 585. | 551. | 519. | 506. | 497. | 490. | 480. | 467. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | | | | | | | |
| + | PT48W | 4.16 | 1 | FLOW | 1323. | 1289. | 1232. | 1175. | 1153. | 1138. | 1127. | 1110. | 1089. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | B20 | .79 | 1 | FLOW | 405. | 395. | 378. | 361. | 355. | 350. | 347. | 341. | 335. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RB20 | .79 | 1 | FLOW | 402. | 394. | 377. | 359. | 354. | 349. | 345. | 339. | 335. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| [redacted] COMBINED AT | | | | | | | | | | | | | |
| | PT48 | 21.02 | 1 | FLOW | 7896. | 7702. | 7396. | 7079. | 6957. | 6864. | 6803. | 6705. | 6590. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | | | | | | |
| + | RPT48 | 21.02 | 1 | FLOW | 7854. | 7661. | 7355. | 7041. | 6920. | 6831. | 6769. | 6672. | 6556. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | | | | | | |
| + | D12 | .18 | 1 | FLOW | 72. | 70. | 66. | 63. | 61. | 61. | 60. | 59. | 58. |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RD12 | .18 | 1 | FLOW | 72. | 70. | 66. | 63. | 62. | 61. | 60. | 59. | 58. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| DROGRAPH AT | | | | | | | | | | | | | | |
| | D11A | .16 | 1 | FLOW | 131. | 127. | 121. | 114. | 112. | 110. | 109. | 107. | 104. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT49 | .33 | 1 | FLOW | 133. | 129. | 123. | 116. | 114. | 112. | 111. | 109. | 106. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT49 | .33 | 1 | FLOW | 127. | 124. | 117. | 111. | 110. | 109. | 107. | 105. | 101. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT50 | 21.36 | 1 | FLOW | 7939. | 7744. | 7433. | 7114. | 6991. | 6901. | 6838. | 6740. | 6622. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | | | | | | |
| + | RPT50 | 21.36 | 1 | FLOW | 7926. | 7731. | 7422. | 7105. | 6983. | 6893. | 6830. | 6732. | 6615. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | | | | | | |
| + | D11B | .99 | 1 | FLOW | 955. | 932. | 894. | 856. | 841. | 831. | 823. | 811. | 796. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | | | | | | | | |
| + | PT51 | 22.35 | 1 | FLOW | 8072. | 7875. | 7560. | 7238. | 7114. | 7022. | 6958. | 6859. | 6739. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

| ISTAQ | ELEMENT | DT | PEAK | TIME TO PEAK | VOLUME | INTERPOLATED TO COMPUTATION INTERVAL DT | PEAK | TIME TO PEAK | VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| | | (MIN) | (CFS) | (MIN) | (IN) | (MIN) | (CFS) | (MIN) | (IN) |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RB16B | MANE | 4.00 | 621.91 | 232.00 | 1.73 | 5.00 | 615.22 | 230.00 | 1.73 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6456E+02 EXCESS= .0000E+00 OUTFLOW= .6456E+02 BASIN STORAGE= .1055E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RB16B | MANE | 4.00 | 608.87 | 232.00 | 1.69 | 5.00 | 602.17 | 230.00 | 1.69 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6323E+02 EXCESS= .0000E+00 OUTFLOW= .6324E+02 BASIN STORAGE= .1041E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RB16B | MANE | 4.00 | 587.19 | 232.00 | 1.63 | 5.00 | 580.49 | 230.00 | 1.63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6104E+02 EXCESS= .0000E+00 OUTFLOW= .6105E+02 BASIN STORAGE= .1018E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RB16B | MANE | 4.00 | 565.62 | 232.00 | 1.57 | 5.00 | 558.92 | 230.00 | 1.57 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5886E+02 EXCESS= .0000E+00 OUTFLOW= .5887E+02 BASIN STORAGE= .1511E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RB16B | MANE | 4.00 | 557.02 | 232.00 | 1.55 | 5.00 | 550.32 | 230.00 | 1.55 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5799E+02 EXCESS= .0000E+00 OUTFLOW= .5800E+02 BASIN STORAGE= .1497E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RB16B | MANE | 4.00 | 551.00 | 232.00 | 1.54 | 5.00 | 544.31 | 230.00 | 1.54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5738E+02 EXCESS= .0000E+00 OUTFLOW= .5739E+02 BASIN STORAGE= .1487E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RB16B | MANE | 4.00 | 546.71 | 232.00 | 1.52 | 5.00 | 540.02 | 230.00 | 1.52 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5695E+02 EXCESS= .0000E+00 OUTFLOW= .5696E+02 BASIN STORAGE= .1480E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RB16B | MANE | 4.00 | 539.86 | 232.00 | 1.51 | 5.00 | 533.17 | 230.00 | 1.51 |

TINUITY SUMMARY (AC-FT) - INFLOW= .5626E+02 EXCESS= .0000E+00 OUTFLOW= .5627E+02 BASIN STORAGE= .1469E-02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RB16B | MANE | 4.00 | 531.31 | 232.00 | 1.48 | 5.00 | 524.71 | 235.00 | 1.48 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5540E+02 EXCESS= .0000E+00 OUTFLOW= .5541E+02 BASIN STORAGE= .1455E-02 PERCENT ERROR= .0

```
          FOR PLAN = 1  RATIO=  .00
             RPT30  MANE         3.75    611.87    236.25      1.73      5.00    610.32    235.00        1.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6457E+02 EXCESS= .0000E+00 OUTFLOW= .6459E+02 BASIN STORAGE= .3326E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT30  MANE         3.75    599.09    236.25      1.69      5.00    597.44    235.00        1.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6325E+02 EXCESS= .0000E+00 OUTFLOW= .6327E+02 BASIN STORAGE= .3290E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT30  MANE         3.75    577.86    236.25      1.63      5.00    576.04    235.00        1.63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6106E+02 EXCESS= .0000E+00 OUTFLOW= .6107E+02 BASIN STORAGE= .3229E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT30  MANE         3.75    556.71    236.25      1.58      5.00    554.72    235.00        1.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5887E+02 EXCESS= .0000E+00 OUTFLOW= .5889E+02 BASIN STORAGE= .2932E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT30  MANE         3.75    548.27    236.25      1.55      5.00    546.22    235.00        1.55

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5801E+02 EXCESS= .0000E+00 OUTFLOW= .5802E+02 BASIN STORAGE= .2909E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT30  MANE         3.75    542.37    236.25      1.54      5.00    540.28    235.00        1.54

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5740E+02 EXCESS= .0000E+00 OUTFLOW= .5741E+02 BASIN STORAGE= .2893E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT30  MANE         3.75    538.16    236.25      1.52      5.00    536.04    235.00        1.52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5697E+02 EXCESS= .0000E+00 OUTFLOW= .5698E+02 BASIN STORAGE= .2881E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT30  MANE         3.75    531.44    236.25      1.51      5.00    529.27    235.00        1.51

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5627E+02 EXCESS= .0000E+00 OUTFLOW= .5629E+02 BASIN STORAGE= .2862E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT30  MANE         4.00    524.40    236.00      1.48      5.00    520.71    235.00        1.48

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5541E+02 EXCESS= .0000E+00 OUTFLOW= .5542E+02 BASIN STORAGE= .2822E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT31  MANE         2.00   1372.23    244.06      1.59      5.00   1367.49    245.00        1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1874E+03 EXCESS= .0000E+00 OUTFLOW= .1874E+03 BASIN STORAGE= .2207E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT31  MANE         2.02   1343.05    243.89      1.56      5.00   1337.69    245.00        1.56

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1835E+03 EXCESS= .0000E+00 OUTFLOW= .1835E+03 BASIN STORAGE= .2141E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT31  MANE         2.04   1294.06    242.96      1.50      5.00   1289.39    245.00        1.50

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1769E+03 EXCESS= .0000E+00 OUTFLOW= .1769E+03 BASIN STORAGE= .2232E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT31  MANE         2.07   1244.82    244.13      1.45      5.00   1240.70    245.00        1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1703E+03 EXCESS= .0000E+00 OUTFLOW= .1703E+03 BASIN STORAGE= .1905E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT31  MANE         2.08   1225.86    243.38      1.42      5.00   1220.48    245.00        1.42

INUITY SUMMARY (AC-FT) - INFLOW= .1677E+03 EXCESS= .0000E+00 OUTFLOW= .1677E+03 BASIN STORAGE= .2054E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT31  MANE         2.09   1211.07    244.32      1.41      5.00   1208.15    245.00        1.41

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1659E+03 EXCESS= .0000E+00 OUTFLOW= .1659E+03 BASIN STORAGE= .2026E-02 PERCENT ERROR=    .0
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          FOR PLAN = 1  RATIO=  .00
             RPT31  MANE          2.09   1201.42    242.91      1.40      5.00   1198.52    245.00        1.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1646E+03 EXCESS= .0000E+00 OUTFLOW= .1646E+03 BASIN STORAGE= .2163E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT31  MANE          2.10   1186.66    243.99      1.38      5.00   1182.43    245.00        1.38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1625E+03 EXCESS= .0000E+00 OUTFLOW= .1626E+03 BASIN STORAGE= .2016E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT31  MANE          2.12   1167.39    243.25      1.36      5.00   1163.12    245.00        1.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1600E+03 EXCESS= .0000E+00 OUTFLOW= .1600E+03 BASIN STORAGE= .2226E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          2.82   1718.58    247.90      1.43      5.00   1709.65    250.00        1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2408E+03 EXCESS= .0000E+00 OUTFLOW= .2408E+03 BASIN STORAGE= .5120E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          2.84   1679.72    247.25      1.40      5.00   1669.71    250.00        1.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2354E+03 EXCESS= .0000E+00 OUTFLOW= .2354E+03 BASIN STORAGE= .5365E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          2.88   1613.64    248.06      1.34      5.00   1605.49    250.00        1.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2265E+03 EXCESS= .0000E+00 OUTFLOW= .2265E+03 BASIN STORAGE= .5296E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          2.93   1545.67    246.07      1.29      5.00   1537.89    250.00        1.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2177E+03 EXCESS= .0000E+00 OUTFLOW= .2177E+03 BASIN STORAGE= .5174E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          2.95   1523.85    247.69      1.27      5.00   1514.75    250.00        1.27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2142E+03 EXCESS= .0000E+00 OUTFLOW= .2142E+03 BASIN STORAGE= .4772E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          2.96   1500.54    248.73      1.26      5.00   1495.58    250.00        1.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2117E+03 EXCESS= .0000E+00 OUTFLOW= .2117E+03 BASIN STORAGE= .4966E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          2.97   1490.66    246.56      1.24      5.00   1482.50    250.00        1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2100E+03 EXCESS= .0000E+00 OUTFLOW= .2100E+03 BASIN STORAGE= .5776E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          2.99   1472.96    247.89      1.23      5.00   1463.98    250.00        1.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2072E+03 EXCESS= .0000E+00 OUTFLOW= .2072E+03 BASIN STORAGE= .5387E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT32  MANE          3.01   1443.53    246.53      1.21      5.00   1436.69    250.00        1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2037E+03 EXCESS= .0000E+00 OUTFLOW= .2037E+03 BASIN STORAGE= .4997E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RMC2  MANE          5.00    376.07    265.00      1.34      5.00    376.07    265.00        1.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6557E+02 EXCESS= .0000E+00 OUTFLOW= .6559E+02 BASIN STORAGE= .1207E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RMC2  MANE          5.00    366.96    265.00      1.31      5.00    366.96    265.00        1.31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6410E+02 EXCESS= .0000E+00 OUTFLOW= .6411E+02 BASIN STORAGE= .1191E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RMC2  MANE          5.00    351.90    265.00      1.26      5.00    351.90    265.00        1.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6167E+02 EXCESS= .0000E+00 OUTFLOW= .6168E+02 BASIN STORAGE= .1164E-01 PERCENT ERROR=    .0
```

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 336.99 | 265.00 | 1.21 | 5.00 | 336.99 | 265.00 | 1.21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5926E+02 EXCESS= .0000E+00 OUTFLOW= .5927E+02 BASIN STORAGE= .1137E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 331.08 | 265.00 | 1.19 | 5.00 | 331.08 | 265.00 | 1.19 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5830E+02 EXCESS= .0000E+00 OUTFLOW= .5831E+02 BASIN STORAGE= .1126E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 326.95 | 265.00 | 1.18 | 5.00 | 326.95 | 265.00 | 1.18 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5763E+02 EXCESS= .0000E+00 OUTFLOW= .5765E+02 BASIN STORAGE= .1118E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 324.01 | 265.00 | 1.17 | 5.00 | 324.01 | 265.00 | 1.17 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5716E+02 EXCESS= .0000E+00 OUTFLOW= .5717E+02 BASIN STORAGE= .1112E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 319.33 | 265.00 | 1.15 | 5.00 | 319.33 | 265.00 | 1.15 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5640E+02 EXCESS= .0000E+00 OUTFLOW= .5641E+02 BASIN STORAGE= .1103E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMC2 | MANE | 5.00 | 313.50 | 265.00 | 1.13 | 5.00 | 313.50 | 265.00 | 1.13 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5546E+02 EXCESS= .0000E+00 OUTFLOW= .5547E+02 BASIN STORAGE= .1092E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.85 | 1505.97 | 222.57 | 1.39 | 5.00 | 1488.66 | 220.00 | 1.39 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1865E+03 EXCESS= .0000E+00 OUTFLOW= .1865E+03 BASIN STORAGE= .1277E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.88 | 1465.70 | 221.49 | 1.36 | 5.00 | 1447.01 | 220.00 | 1.36 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1824E+03 EXCESS= .0000E+00 OUTFLOW= .1824E+03 BASIN STORAGE= .1290E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.92 | 1407.29 | 221.62 | 1.31 | 5.00 | 1388.32 | 220.00 | 1.31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1756E+03 EXCESS= .0000E+00 OUTFLOW= .1756E+03 BASIN STORAGE= .1203E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.96 | 1349.76 | 221.81 | 1.26 | 5.00 | 1330.50 | 220.00 | 1.26 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1689E+03 EXCESS= .0000E+00 OUTFLOW= .1689E+03 BASIN STORAGE= .1189E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.97 | 1329.53 | 223.09 | 1.24 | 5.00 | 1313.69 | 220.00 | 1.24 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1663E+03 EXCESS= .0000E+00 OUTFLOW= .1663E+03 BASIN STORAGE= .1167E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 2.99 | 1307.05 | 221.02 | 1.22 | 5.00 | 1292.70 | 220.00 | 1.22 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1644E+03 EXCESS= .0000E+00 OUTFLOW= .1644E+03 BASIN STORAGE= .1174E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.00 | 1298.36 | 221.66 | 1.21 | 5.00 | 1279.77 | 220.00 | 1.21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1631E+03 EXCESS= .0000E+00 OUTFLOW= .1631E+03 BASIN STORAGE= .1200E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.00 | 1281.50 | 222.00 | 1.20 | 5.00 | 1262.17 | 220.00 | 1.20 |

INUITY SUMMARY (AC-FT) - INFLOW= .1610E+03 EXCESS= .0000E+00 OUTFLOW= .1610E+03 BASIN STORAGE= .1169E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT38 | MANE | 3.00 | 1258.77 | 222.00 | 1.18 | 5.00 | 1239.45 | 220.00 | 1.18 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1583E+03 EXCESS= .0000E+00 OUTFLOW= .1583E+03 BASIN STORAGE= .1157E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.27 | 3113.78 | 238.40 | 1.38 | 5.00 | 3112.73 | 240.00 | 1.38 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4878E+03 EXCESS= .0000E+00 OUTFLOW= .4878E+03 BASIN STORAGE= .3850E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.30 | 3036.48 | 240.59 | 1.35 | 5.00 | 3034.68 | 240.00 | 1.35 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4767E+03 EXCESS= .0000E+00 OUTFLOW= .4768E+03 BASIN STORAGE= .3949E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.35 | 2911.74 | 240.99 | 1.29 | 5.00 | 2909.09 | 240.00 | 1.29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4585E+03 EXCESS= .0000E+00 OUTFLOW= .4586E+03 BASIN STORAGE= .3963E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.40 | 2790.17 | 241.45 | 1.24 | 5.00 | 2787.51 | 240.00 | 1.24 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4405E+03 EXCESS= .0000E+00 OUTFLOW= .4406E+03 BASIN STORAGE= .4001E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.42 | 2738.58 | 239.71 | 1.22 | 5.00 | 2738.52 | 240.00 | 1.22 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4334E+03 EXCESS= .0000E+00 OUTFLOW= .4334E+03 BASIN STORAGE= .3900E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.44 | 2704.68 | 240.77 | 1.21 | 5.00 | 2701.02 | 240.00 | 1.21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4284E+03 EXCESS= .0000E+00 OUTFLOW= .4284E+03 BASIN STORAGE= .3984E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.45 | 2683.19 | 241.58 | 1.20 | 5.00 | 2680.23 | 240.00 | 1.20 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4248E+03 EXCESS= .0000E+00 OUTFLOW= .4248E+03 BASIN STORAGE= .3758E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.47 | 2641.31 | 239.55 | 1.18 | 5.00 | 2641.14 | 240.00 | 1.18 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4191E+03 EXCESS= .0000E+00 OUTFLOW= .4192E+03 BASIN STORAGE= .3716E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 3.49 | 2593.05 | 241.12 | 1.16 | 5.00 | 2588.07 | 240.00 | 1.16 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4121E+03 EXCESS= .0000E+00 OUTFLOW= .4121E+03 BASIN STORAGE= .3660E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 2.63 | 4602.23 | 244.94 | 1.43 | 5.00 | 4602.21 | 245.00 | 1.43 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6925E+03 EXCESS= .0000E+00 OUTFLOW= .6926E+03 BASIN STORAGE= .8013E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 2.66 | 4493.84 | 247.30 | 1.40 | 5.00 | 4487.12 | 245.00 | 1.40 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6772E+03 EXCESS= .0000E+00 OUTFLOW= .6772E+03 BASIN STORAGE= .7898E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 2.70 | 4319.62 | 245.95 | 1.35 | 5.00 | 4303.72 | 245.00 | 1.35 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6520E+03 EXCESS= .0000E+00 OUTFLOW= .6521E+03 BASIN STORAGE= .7551E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 2.75 | 4141.56 | 247.32 | 1.30 | 5.00 | 4126.17 | 245.00 | 1.30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6270E+03 EXCESS= .0000E+00 OUTFLOW= .6271E+03 BASIN STORAGE= .7665E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 2.77 | 4072.28 | 246.27 | 1.28 | 5.00 | 4052.64 | 245.00 | 1.28 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6171E+03 EXCESS= .0000E+00 OUTFLOW= .6172E+03 BASIN STORAGE= .7398E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 2.78 | 4020.77 | 247.50 | 1.26 | 5.00 | 4005.84 | 245.00 | 1.26 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6102E+03 EXCESS= .0000E+00 OUTFLOW= .6102E+03 BASIN STORAGE= .7840E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 2.79 | 3984.19 | 245.52 | 1.25 | 5.00 | 3975.42 | 245.00 | 1.25 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6052E+03 EXCESS= .0000E+00 OUTFLOW= .6053E+03 BASIN STORAGE= .7463E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 2.81 | 3931.96 | 246.94 | 1.24 | 5.00 | 3909.62 | 245.00 | 1.24 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5973E+03 EXCESS= .0000E+00 OUTFLOW= .5974E+03 BASIN STORAGE= .7329E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 2.83 | 3857.98 | 245.94 | 1.22 | 5.00 | 3843.28 | 245.00 | 1.22 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5875E+03 EXCESS= .0000E+00 OUTFLOW= .5876E+03 BASIN STORAGE= .7511E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.94 | 5223.77 | 242.61 | 1.45 | 5.00 | 5206.53 | 245.00 | 1.45 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7967E+03 EXCESS= .0000E+00 OUTFLOW= .7966E+03 BASIN STORAGE= .4494E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.96 | 5095.04 | 242.79 | 1.42 | 5.00 | 5078.03 | 245.00 | 1.42 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7790E+03 EXCESS= .0000E+00 OUTFLOW= .7791E+03 BASIN STORAGE= .4519E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.99 | 4889.10 | 242.27 | 1.36 | 5.00 | 4875.41 | 245.00 | 1.36 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7504E+03 EXCESS= .0000E+00 OUTFLOW= .7504E+03 BASIN STORAGE= .4398E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.02 | 4681.32 | 244.05 | 1.31 | 5.00 | 4671.67 | 245.00 | 1.31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7217E+03 EXCESS= .0000E+00 OUTFLOW= .7217E+03 BASIN STORAGE= .4280E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.03 | 4606.69 | 243.37 | 1.29 | 5.00 | 4591.21 | 245.00 | 1.29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7104E+03 EXCESS= .0000E+00 OUTFLOW= .7104E+03 BASIN STORAGE= .4288E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.04 | 4541.03 | 242.54 | 1.28 | 5.00 | 4537.41 | 245.00 | 1.28 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7025E+03 EXCESS= .0000E+00 OUTFLOW= .7025E+03 BASIN STORAGE= .4452E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.04 | 4513.78 | 243.12 | 1.27 | 5.00 | 4501.91 | 245.00 | 1.27 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6968E+03 EXCESS= .0000E+00 OUTFLOW= .6968E+03 BASIN STORAGE= .4264E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.05 | 4436.78 | 244.47 | 1.25 | 5.00 | 4432.27 | 245.00 | 1.25 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6878E+03 EXCESS= .0000E+00 OUTFLOW= .6878E+03 BASIN STORAGE= .4309E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 2.07 | 4365.82 | 243.89 | 1.23 | 5.00 | 4355.07 | 245.00 | 1.23 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6765E+03 EXCESS= .0000E+00 OUTFLOW= .6766E+03 BASIN STORAGE= .4370E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 688.45 | 280.00 | 1.33 | 5.00 | 688.45 | 280.00 | 1.33 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1215E+03 EXCESS= .0000E+00 OUTFLOW= .1216E+03 BASIN STORAGE= .3003E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 672.19 | 280.00 | 1.30 | 5.00 | 672.19 | 280.00 | 1.30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1189E+03 EXCESS= .0000E+00 OUTFLOW= .1189E+03 BASIN STORAGE= .2951E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 645.32 | 280.00 | 1.26 | 5.00 | 645.32 | 280.00 | 1.26 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1144E+03 EXCESS= .0000E+00 OUTFLOW= .1144E+03 BASIN STORAGE= .2864E-01 PERCENT ERROR= .0

```
          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    618.76    280.00      1.21      5.00    618.76    280.00        1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1100E+03 EXCESS= .0000E+00 OUTFLOW= .1100E+03 BASIN STORAGE= .2952E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    608.27    285.00      1.19      5.00    608.27    285.00        1.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1082E+03 EXCESS= .0000E+00 OUTFLOW= .1082E+03 BASIN STORAGE= .2915E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    601.00    285.00      1.17      5.00    601.00    285.00        1.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1070E+03 EXCESS= .0000E+00 OUTFLOW= .1070E+03 BASIN STORAGE= .2889E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    595.82    285.00      1.16      5.00    595.82    285.00        1.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1061E+03 EXCESS= .0000E+00 OUTFLOW= .1061E+03 BASIN STORAGE= .2870E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    587.56    285.00      1.15      5.00    587.56    285.00        1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1048E+03 EXCESS= .0000E+00 OUTFLOW= .1048E+03 BASIN STORAGE= .2840E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT43  MANE          5.00    577.28    285.00      1.13      5.00    577.28    285.00        1.13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1030E+03 EXCESS= .0000E+00 OUTFLOW= .1030E+03 BASIN STORAGE= .2803E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          2.16   6867.75    257.48      1.44      5.00   6853.59    260.00        1.44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1232E+04 EXCESS= .0000E+00 OUTFLOW= .1232E+04 BASIN STORAGE= .1980E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          2.18   6698.04    257.74      1.40      5.00   6686.07    260.00        1.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1204E+04 EXCESS= .0000E+00 OUTFLOW= .1204E+04 BASIN STORAGE= .1913E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          2.22   6425.08    259.55      1.35      5.00   6417.82    260.00        1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1160E+04 EXCESS= .0000E+00 OUTFLOW= .1160E+04 BASIN STORAGE= .1870E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          2.26   6154.08    259.39      1.30      5.00   6145.16    260.00        1.30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1115E+04 EXCESS= .0000E+00 OUTFLOW= .1115E+04 BASIN STORAGE= .1959E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          2.27   6050.97    258.78      1.28      5.00   6037.36    260.00        1.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1098E+04 EXCESS= .0000E+00 OUTFLOW= .1098E+04 BASIN STORAGE= .1889E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          2.28   5967.41    257.78      1.27      5.00   5966.52    260.00        1.27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1085E+04 EXCESS= .0000E+00 OUTFLOW= .1085E+04 BASIN STORAGE= .1941E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          2.29   5920.56    258.64      1.26      5.00   5909.08    260.00        1.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1077E+04 EXCESS= .0000E+00 OUTFLOW= .1077E+04 BASIN STORAGE= .1945E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          2.30   5829.75    260.07      1.24      5.00   5829.72    260.00        1.24

NUITY SUMMARY (AC-FT) - INFLOW= .1063E+04 EXCESS= .0000E+00 OUTFLOW= .1063E+04 BASIN STORAGE= .1902E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RPT46  MANE          2.32   5730.51    259.56      1.22      5.00   5724.55    260.00        1.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1045E+04 EXCESS= .0000E+00 OUTFLOW= .1045E+04 BASIN STORAGE= .1906E+00 PERCENT ERROR=    .0
```

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.95 | 83.48 | 341.67 | .31 | 5.00 | 83.47 | 340.00 | .31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4782E+02 EXCESS= .0000E+00 OUTFLOW= .4722E+02 BASIN STORAGE= .6042E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.96 | 83.04 | 342.03 | .31 | 5.00 | 83.04 | 340.00 | .31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4752E+02 EXCESS= .0000E+00 OUTFLOW= .4692E+02 BASIN STORAGE= .6016E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.97 | 82.32 | 342.62 | .30 | 5.00 | 82.32 | 340.00 | .31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4645E+02 EXCESS= .0000E+00 OUTFLOW= .4586E+02 BASIN STORAGE= .5958E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.97 | 81.61 | 338.25 | .30 | 5.00 | 81.61 | 340.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4585E+02 EXCESS= .0000E+00 OUTFLOW= .4527E+02 BASIN STORAGE= .5852E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.98 | 81.32 | 338.48 | .30 | 5.00 | 81.32 | 340.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4557E+02 EXCESS= .0000E+00 OUTFLOW= .4500E+02 BASIN STORAGE= .5811E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.98 | 81.13 | 338.65 | .30 | 5.00 | 81.12 | 340.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4537E+02 EXCESS= .0000E+00 OUTFLOW= .4479E+02 BASIN STORAGE= .5782E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.98 | 80.98 | 338.77 | .30 | 5.00 | 80.98 | 340.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4522E+02 EXCESS= .0000E+00 OUTFLOW= .4465E+02 BASIN STORAGE= .5761E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.98 | 80.76 | 338.96 | .30 | 5.00 | 80.76 | 340.00 | .30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4497E+02 EXCESS= .0000E+00 OUTFLOW= .4440E+02 BASIN STORAGE= .5728E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 4.99 | 80.47 | 339.19 | .29 | 5.00 | 80.47 | 340.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4465E+02 EXCESS= .0000E+00 OUTFLOW= .4408E+02 BASIN STORAGE= .5687E+00 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 718.39 | 230.00 | .69 | 5.00 | 718.39 | 230.00 | .69 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1054E+03 EXCESS= .0000E+00 OUTFLOW= .1028E+03 BASIN STORAGE= .3284E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 704.05 | 230.00 | .68 | 5.00 | 704.05 | 230.00 | .68 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1039E+03 EXCESS= .0000E+00 OUTFLOW= .1013E+03 BASIN STORAGE= .3273E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 680.17 | 230.00 | .66 | 5.00 | 680.17 | 230.00 | .66 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1014E+03 EXCESS= .0000E+00 OUTFLOW= .9879E+02 BASIN STORAGE= .3249E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 656.71 | 230.00 | .64 | 5.00 | 656.71 | 230.00 | .64 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9886E+02 EXCESS= .0000E+00 OUTFLOW= .9626E+02 BASIN STORAGE= .3200E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 647.87 | 230.00 | .63 | 5.00 | 647.87 | 230.00 | .63 |

INUITY SUMMARY (AC-FT) - INFLOW= .9781E+02 EXCESS= .0000E+00 OUTFLOW= .9523E+02 BASIN STORAGE= .3181E+01 PERCENT ERROR= -.6

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 641.69 | 230.00 | .63 | 5.00 | 641.69 | 230.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9706E+02 EXCESS= .0000E+00 OUTFLOW= .9450E+02 BASIN STORAGE= .3168E+01 PERCENT ERROR= -.6

```
          FOR PLAN = 1  RATIO=  .00
             RPT47  MANE         5.00    637.27    230.00       .63       5.00    637.27    230.00         .63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9652E+02 EXCESS= .0000E+00 OUTFLOW= .9397E+02 BASIN STORAGE= .3158E+01 PERCENT ERROR=   -.6

          FOR PLAN = 1  RATIO=  .00
             RPT47  MANE         5.00    630.21    230.00       .62       5.00    630.21    230.00         .62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9566E+02 EXCESS= .0000E+00 OUTFLOW= .9311E+02 BASIN STORAGE= .3143E+01 PERCENT ERROR=   -.6

          FOR PLAN = 1  RATIO=  .00
             RPT47  MANE         5.00    621.40    230.00       .61       5.00    621.40    230.00         .61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9456E+02 EXCESS= .0000E+00 OUTFLOW= .9204E+02 BASIN STORAGE= .3124E+01 PERCENT ERROR=   -.6

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE         4.08    403.51    252.96      1.33       5.00    402.11    255.00        1.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5592E+02 EXCESS= .0000E+00 OUTFLOW= .5592E+02 BASIN STORAGE= .1884E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE         4.11    393.90    254.84      1.29       5.00    393.69    255.00        1.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5454E+02 EXCESS= .0000E+00 OUTFLOW= .5455E+02 BASIN STORAGE= .1853E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE         4.16    377.71    253.94      1.24       5.00    376.64    255.00        1.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5227E+02 EXCESS= .0000E+00 OUTFLOW= .5227E+02 BASIN STORAGE= .1941E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE         4.22    360.04    253.09      1.19       5.00    359.13    255.00        1.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5001E+02 EXCESS= .0000E+00 OUTFLOW= .5001E+02 BASIN STORAGE= .1494E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE         4.24    354.58    254.46      1.17       5.00    354.04    255.00        1.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4911E+02 EXCESS= .0000E+00 OUTFLOW= .4911E+02 BASIN STORAGE= .1594E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE         4.26    349.14    255.44      1.15       5.00    348.86    255.00        1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4849E+02 EXCESS= .0000E+00 OUTFLOW= .4849E+02 BASIN STORAGE= .1873E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE         4.27    345.09    256.15      1.14       5.00    344.81    255.00        1.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4804E+02 EXCESS= .0000E+00 OUTFLOW= .4805E+02 BASIN STORAGE= .1630E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE         4.29    340.01    253.01      1.12       5.00    339.45    255.00        1.12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4733E+02 EXCESS= .0000E+00 OUTFLOW= .4733E+02 BASIN STORAGE= .1872E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE         4.31    335.00    254.45      1.10       5.00    334.50    255.00        1.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4644E+02 EXCESS= .0000E+00 OUTFLOW= .4645E+02 BASIN STORAGE= .1465E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE         5.00     71.81    265.00      1.07       5.00     71.81    265.00        1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9994E+01 EXCESS= .0000E+00 OUTFLOW= .1000E+02 BASIN STORAGE= .4457E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE         5.00     69.76    265.00      1.04       5.00     69.76    265.00        1.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9722E+01 EXCESS= .0000E+00 OUTFLOW= .9730E+01 BASIN STORAGE= .4399E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE         5.00     66.37    265.00       .99       5.00     66.37    265.00         .99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9273E+01 EXCESS= .0000E+00 OUTFLOW= .9281E+01 BASIN STORAGE= .5458E-02 PERCENT ERROR=   -.1
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          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     63.01    265.00        .94       5.00     63.01    265.00         .94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8830E+01 EXCESS= .0000E+00 OUTFLOW= .8838E+01 BASIN STORAGE= .5272E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     61.67    265.00        .92       5.00     61.67    265.00         .92

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8654E+01 EXCESS= .0000E+00 OUTFLOW= .8662E+01 BASIN STORAGE= .5185E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     60.74    265.00        .91       5.00     60.74    265.00         .91

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8532E+01 EXCESS= .0000E+00 OUTFLOW= .8540E+01 BASIN STORAGE= .5151E-02 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     60.08    265.00        .90       5.00     60.08    265.00         .90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8445E+01 EXCESS= .0000E+00 OUTFLOW= .8452E+01 BASIN STORAGE= .5126E-02 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     59.01    265.00        .89       5.00     59.01    265.00         .89

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8306E+01 EXCESS= .0000E+00 OUTFLOW= .8314E+01 BASIN STORAGE= .5086E-02 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     57.69    265.00        .87       5.00     57.69    265.00         .87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8133E+01 EXCESS= .0000E+00 OUTFLOW= .8141E+01 BASIN STORAGE= .5036E-02 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          4.00    128.00    224.00       1.04       5.00    127.39    225.00        1.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1851E+02 EXCESS= .0000E+00 OUTFLOW= .1851E+02 BASIN STORAGE= .6464E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          4.00    124.06    224.00       1.01       5.00    123.57    225.00        1.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1800E+02 EXCESS= .0000E+00 OUTFLOW= .1800E+02 BASIN STORAGE= .6387E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          4.00    117.54    224.00        .96       5.00    117.26    225.00         .96

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1715E+02 EXCESS= .0000E+00 OUTFLOW= .1716E+02 BASIN STORAGE= .6214E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          4.00    111.08    224.00        .91       5.00    111.00    225.00         .91

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1632E+02 EXCESS= .0000E+00 OUTFLOW= .1633E+02 BASIN STORAGE= .6067E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          3.75    110.28    225.00        .89       5.00    110.28    225.00         .89

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1599E+02 EXCESS= .0000E+00 OUTFLOW= .1599E+02 BASIN STORAGE= .5712E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          3.75    108.54    225.00        .88       5.00    108.54    225.00         .88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1576E+02 EXCESS= .0000E+00 OUTFLOW= .1576E+02 BASIN STORAGE= .5677E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          3.75    107.29    225.00        .87       5.00    107.29    225.00         .87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1559E+02 EXCESS= .0000E+00 OUTFLOW= .1560E+02 BASIN STORAGE= .5651E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          3.75    105.31    225.00        .86       5.00    105.31    225.00         .86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1533E+02 EXCESS= .0000E+00 OUTFLOW= .1534E+02 BASIN STORAGE= .5610E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RPT49  MANE          3.50    101.77    227.50        .84       5.00    101.21    225.00         .84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1501E+02 EXCESS= .0000E+00 OUTFLOW= .1502E+02 BASIN STORAGE= .6341E-02 PERCENT ERROR=   -.1
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          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   7925.82    265.00       1.28       5.00   7925.82    265.00         1.28

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1465E+04 EXCESS= .0000E+00 OUTFLOW= .1464E+04 BASIN STORAGE= .4369E+01 PERCENT ERROR=   -.2


          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   7731.47    265.00       1.26       5.00   7731.47    265.00         1.26

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1433E+04 EXCESS= .0000E+00 OUTFLOW= .1431E+04 BASIN STORAGE= .4353E+01 PERCENT ERROR=   -.2


          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   7421.84    265.00       1.21       5.00   7421.84    265.00         1.21

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1380E+04 EXCESS= .0000E+00 OUTFLOW= .1378E+04 BASIN STORAGE= .4327E+01 PERCENT ERROR=   -.2


          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   7105.07    265.00       1.16       5.00   7105.07    265.00         1.16

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1327E+04 EXCESS= .0000E+00 OUTFLOW= .1325E+04 BASIN STORAGE= .4282E+01 PERCENT ERROR=   -.2


          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   6982.74    265.00       1.14       5.00   6982.74    265.00         1.14

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1306E+04 EXCESS= .0000E+00 OUTFLOW= .1304E+04 BASIN STORAGE= .4258E+01 PERCENT ERROR=   -.2


          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   6892.73    265.00       1.13       5.00   6892.73    265.00         1.13

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1291E+04 EXCESS= .0000E+00 OUTFLOW= .1290E+04 BASIN STORAGE= .4241E+01 PERCENT ERROR=   -.2


          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   6829.79    265.00       1.12       5.00   6829.79    265.00         1.12

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1281E+04 EXCESS= .0000E+00 OUTFLOW= .1279E+04 BASIN STORAGE= .4229E+01 PERCENT ERROR=   -.2


          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   6732.49    265.00       1.11       5.00   6732.49    265.00         1.11

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1264E+04 EXCESS= .0000E+00 OUTFLOW= .1262E+04 BASIN STORAGE= .4210E+01 PERCENT ERROR=   -.2


          FOR PLAN = 1  RATIO=  .00
             RPT50  MANE          5.00   6614.52    265.00       1.09       5.00   6614.52    265.00         1.09

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1243E+04 EXCESS= .0000E+00 OUTFLOW= .1242E+04 BASIN STORAGE= .4187E+01 PERCENT ERROR=   -.2

1                                                  HEC-1 INPUT                                                  PAGE  1

          LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
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 *** NORMAL END OF HEC-1 ***
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# HYDROLOGIC CALCULATIONS

# SUMMARY TABLE OF REVISIONS TO EFFECTIVE HEC-1 MODEL

## SUMMARY OF REVISIONS TO 1991 FIS HYDROLOGIC MODELING

### PERCENT INCREASE IN IMPERVIOUS AREA FOR DUCK CREEK AND BLUE DIAMOND BASINS

| BASIN | TOTAL AREA | LAND USE AS OF 1990 (ACRES) | | | | | | LAND USE AS OF 2000 (ACRES) | | | | | | PERCENT | CURVE NUMBER CHECK | | | RAINFALL CHECK | | | BASIN AREA CHECK | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (ACRES) | NONE | COM | HDR | LDR | MULTI | %IMP | NONE | COM | HDR | LDR | MULTI | %IMP | INCREASE | 1991 FIS | 2000 FIS | CHANGE | 1991 FIS | 2000 FIS | CHANGE | 1991 FIS (MI^2) | 2000 FIS (AC) | 2000 FIS (MI^2) | CHANGE (MI^2) | SEE BELOW |
| B10A | 1024.66 | 869 | 0 | 86 | 70 | 0 | 7 | 447 | 285 | 175 | 118 | 0 | 40 | 32 | 74.9 | 86.6 | 11.7 | 2.77 | 2.77 | 0.00 | - | 1024.66 | 1.601 | 1.601 | 1 |
| B10B | 542.67 | 307 | 26 | 192 | 7 | 11 | 31 | 12 | 188 | 285 | 6 | 51 | 74 | 44 | 74.9 | 82.2 | 7.3 | 2.78 | 2.77 | -0.01 | 2.890 | 542.67 | 0.848 | - | 1 |
| B11 | 717.75 | 718 | 0 | 0 | 0 | 0 | 0 | 718 | 0 | 0 | 0 | 0 | 0 | 0 | 78.0 | 78.0 | 0.0 | 2.77 | 2.82 | 0.05 | 2.060 | 717.75 | 1.121 | -0.939 | 2 |
| B12 | 620.14 | 559 | 13 | 0 | 48 | 0 | 4 | 557 | 20 | 0 | 43 | 0 | 5 | 1 | 68.4 | 68.4 | 0.0 | 2.78 | 2.77 | -0.01 | 1.050 | 620.14 | 0.969 | -0.081 | |
| B13A | 825.34 | 825 | 0 | 0 | 0 | 0 | 0 | 825 | 0 | 0 | 0 | 0 | 0 | 0 | 88.0 | 88.0 | 0.0 | 2.78 | 3.14 | 0.36 | 1.340 | 825.34 | 1.290 | -0.050 | |
| B13B | 344.27 | 344 | 0 | 0 | 0 | 0 | 0 | 344 | 0 | 0 | 0 | 0 | 0 | 0 | 88.0 | 88.0 | 0.0 | 2.78 | 2.96 | 0.18 | 0.650 | 344.27 | 0.538 | -0.112 | |
| B13C | 1282.92 | 1283 | 0 | 0 | 0 | 0 | 0 | 1283 | 0 | 0 | 0 | 0 | 0 | 0 | 88.1 | 88.1 | 0.0 | 2.77 | 2.82 | 0.05 | 1.920 | 1282.92 | 2.005 | 0.085 | |
| B14A | 864.40 | 828 | 0 | 0 | 37 | 0 | 1 | 654 | 0 | 0 | 211 | 0 | 6 | 5 | 88.0 | 88.0 | 0.0 | 2.77 | 2.77 | 0.00 | 1.340 | 864.40 | 1.351 | 0.011 | |
| B14B | 634.66 | 632 | 2 | 0 | 0 | 0 | 0 | 564 | 35 | 0 | 0 | 36 | 9 | 9 | 73.4 | 73.4 | 0.0 | 2.77 | 2.77 | 0.00 | 1.030 | 634.66 | 0.992 | -0.038 | |
| B15A | 613.77 | 368 | 0 | 0 | 245 | 0 | 10 | 265 | 35 | 79 | 234 | 0 | 24 | 14 | 77.6 | 77.6 | 0.0 | 2.77 | 2.77 | 0.00 | 0.940 | 613.77 | 0.959 | 0.019 | |
| B15B | 610.38 | 342 | 0 | 6 | 263 | 0 | 11 | 194 | 0 | 69 | 311 | 36 | 25 | 13 | 75.0 | 75.0 | 0.0 | 2.77 | 2.77 | 0.00 | 0.880 | 610.38 | 0.954 | 0.074 | |
| B16A | 579.98 | 234 | 0 | 92 | 255 | 0 | 22 | 54 | 0 | 176 | 309 | 40 | 39 | 17 | 78.2 | 78.2 | 0.0 | 2.77 | 2.77 | 0.00 | 0.990 | 579.98 | 0.906 | -0.084 | |
| B16B | 448.78 | 374 | 14 | 0 | 81 | 0 | 6 | 122 | 59 | 87 | 155 | 26 | 38 | 32 | 83.1 | 83.1 | 0.0 | 2.77 | 2.77 | 0.00 | 0.720 | 448.78 | 0.701 | -0.019 | |
| B17 | 522.15 | 522 | 0 | 0 | 0 | 0 | 0 | 522 | 0 | 0 | 0 | 0 | 0 | 0 | 88.0 | 88.0 | 0.0 | 2.71 | 2.80 | 0.09 | 0.800 | 522.15 | 0.816 | 0.016 | |
| B18A | 961.62 | 962 | 0 | 0 | 0 | 0 | 0 | 928 | 0 | 0 | 34 | 0 | 1 | 1 | 69.4 | 69.4 | 0.0 | 2.77 | 2.79 | 0.02 | 1.590 | 961.62 | 1.503 | -0.087 | |
| B18B | 1226.36 | 1169 | 0 | 0 | 57 | 0 | 1 | 1150 | 0 | 0 | 77 | 0 | 2 | 0 | 86.4 | 86.4 | 0.0 | 2.77 | 2.77 | 0.00 | 1.940 | 1226.36 | 1.916 | -0.024 | |
| B18C | 805.64 | 771 | 0 | 0 | 0 | 35 | 3 | 492 | 32 | 119 | 0 | 162 | 28 | 25 | 75.4 | 75.4 | 0.0 | 2.77 | 2.77 | 0.00 | 1.190 | 805.64 | 1.259 | 0.069 | |
| B20 | 505.74 | 88 | 5 | 364 | 11 | 39 | 57 | 37 | 0 | 431 | 1 | 37 | 64 | 8 | 82.4 | 82.4 | 0.0 | 2.77 | 2.77 | 0.00 | 0.810 | 505.74 | 0.790 | -0.020 | |
| D004 | 1535.69 | 1536 | 0 | 0 | 0 | 0 | 0 | 1536 | 0 | 0 | 0 | 0 | 0 | 0 | 85.0 | 85.0 | 0.0 | 3.34 | 3.30 | -0.04 | 2.420 | 1535.69 | 2.400 | -0.020 | |
| D005 | 1748.65 | 1749 | 0 | 0 | 0 | 0 | 0 | 1749 | 0 | 0 | 0 | 0 | 0 | 0 | 82.0 | 82.0 | 0.0 | 3.36 | 3.27 | -0.09 | 2.600 | 1748.65 | 2.732 | 0.132 | |
| D006 | 5451.66 | 5452 | 0 | 0 | 0 | 0 | 0 | 5452 | 0 | 0 | 0 | 0 | 0 | 0 | 83.0 | 83.0 | 0.0 | 3.36 | 3.24 | -0.12 | 8.260 | 5451.66 | 8.518 | 0.258 | |
| D009 | 2317.62 | 2318 | 0 | 0 | 0 | 0 | 0 | 2318 | 0 | 0 | 0 | 0 | 0 | 0 | 83.0 | 83.0 | 0.0 | 2.73 | 3.31 | 0.58 | 3.670 | 2317.62 | 3.621 | -0.049 | |
| D01 | 6102.90 | 6103 | 0 | 0 | 0 | 0 | 0 | 6103 | 0 | 0 | 0 | 0 | 0 | 0 | 83.0 | 83.0 | 0.0 | 3.48 | 3.42 | -0.06 | 9.570 | 6102.90 | 9.536 | -0.034 | |
| D010 | 6677.78 | 6678 | 0 | 0 | 0 | 0 | 0 | 6678 | 0 | 0 | 0 | 0 | 0 | 0 | 84.0 | 84.0 | 0.0 | 2.73 | 3.15 | 0.42 | 10.580 | 6677.78 | 10.434 | -0.146 | |
| D012A | 6489.01 | 6489 | 0 | 0 | 0 | 0 | 0 | 6489 | 0 | 0 | 0 | 0 | 0 | 0 | 83.0 | 83.0 | 0.0 | 2.77 | 2.95 | 0.18 | NA | 6489.01 | 10.200 | NA | 4 |
| D012B | 362.29 | 362 | 0 | 0 | 0 | 0 | 0 | 362 | 0 | 0 | 0 | 0 | 0 | 0 | 83.0 | 83.0 | 0.0 | 2.77 | 2.95 | 0.18 | NA | 362.29 | 0.566 | NA | 4 |
| D02 | 3785.49 | 3785 | 0 | 0 | 0 | 0 | 0 | 3785 | 0 | 0 | 0 | 0 | 0 | 0 | 83.0 | 83.0 | 0.0 | 3.34 | 3.44 | 0.10 | 5.900 | 3785.49 | 5.915 | 0.015 | |
| D03 | 7674.10 | 7674 | 0 | 0 | 0 | 0 | 0 | 7674 | 0 | 0 | 0 | 0 | 0 | 0 | 83.0 | 83.0 | 0.0 | 3.34 | 3.42 | 0.08 | 10.130 | 7674.10 | 11.991 | 1.861 | 3 |
| D04 | 4448.07 | 4448 | 0 | 0 | 0 | 0 | 0 | 4448 | 0 | 0 | 0 | 0 | 0 | 0 | 84.0 | 84.0 | 0.0 | 3.34 | 3.37 | 0.03 | 8.760 | 4448.07 | 6.950 | -1.810 | 3 |
| D06 | 7473.34 | 7473 | 0 | 0 | 0 | 0 | 0 | 7473 | 0 | 0 | 0 | 0 | 0 | 0 | 84.0 | 84.0 | 0.0 | 3.36 | 3.21 | -0.15 | 11.680 | 7473.34 | 11.677 | -0.003 | |
| D07 | 2739.16 | 2739 | 0 | 0 | 0 | 0 | 0 | 2739 | 0 | 0 | 0 | 0 | 0 | 0 | 84.0 | 84.0 | 0.0 | 2.73 | 3.20 | 0.47 | 4.290 | 2739.16 | 4.280 | -0.010 | |
| D08 | 7623.60 | 7624 | 0 | 0 | 0 | 0 | 0 | 7624 | 0 | 0 | 0 | 0 | 0 | 0 | 85.0 | 85.0 | 0.0 | 3.36 | 3.28 | -0.08 | 12.110 | 7623.60 | 11.912 | -0.198 | |
| D10 | 1605.01 | 929 | 216 | 110 | 314 | 36 | 23 | 301 | 695 | 187 | 312 | 110 | 57 | 33 | 79.0 | 79.0 | 0.0 | 2.77 | 2.77 | 0.00 | 2.510 | 1605.01 | 2.508 | -0.002 | |
| D11A | 101.60 | 84 | 17 | 0 | 0 | 0 | 15 | 79 | 22 | 0 | 0 | 0 | 20 | 5 | 77.3 | 77.3 | 0.0 | 2.77 | 2.77 | 0.00 | 0.150 | 101.60 | 0.159 | 0.009 | |
| D11B | 631.80 | 379 | 134 | 95 | 0 | 24 | 32 | 279 | 176 | 132 | 0 | 45 | 45 | 12 | 82.2 | 82.2 | 0.0 | 2.77 | 2.77 | 0.00 | 1.040 | 631.80 | 0.987 | -0.053 | |
| D12 | 112.47 | 95 | 8 | 0 | 1 | 9 | 12 | 88 | 16 | 0 | 1 | 10 | 19 | 7 | 77.8 | 77.8 | 0.0 | 2.77 | 2.77 | 0.00 | 0.180 | 112.47 | 0.176 | -0.004 | |
| D1A | 1465.51 | 1466 | 0 | 0 | 0 | 0 | 0 | 1466 | 0 | 0 | 0 | 0 | 0 | 0 | 83.0 | 83.0 | 0.0 | 3.36 | 3.25 | -0.11 | 2.390 | 1465.51 | 2.290 | -0.100 | |
| D1B | 202.39 | 202 | 0 | 0 | 0 | 0 | 0 | 202 | 0 | 0 | 0 | 0 | 0 | 0 | 84.0 | 84.0 | 0.0 | 2.78 | 3.10 | 0.32 | 0.380 | 202.39 | 0.316 | -0.064 | |
| D1C | 361.82 | 362 | 0 | 0 | 0 | 0 | 0 | 362 | 0 | 0 | 0 | 0 | 0 | 0 | 83.0 | 83.0 | 0.0 | 2.78 | 2.97 | 0.19 | 0.480 | 361.82 | 0.565 | 0.085 | |
| D1D | 787.86 | 788 | 0 | 0 | 0 | 0 | 0 | 788 | 0 | 0 | 0 | 0 | 0 | 0 | 82.0 | 82.0 | 0.0 | 2.78 | 2.99 | 0.21 | 1.150 | 787.86 | 1.231 | 0.081 | |
| D1E | 143.29 | 143 | 0 | 0 | 0 | 0 | 0 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 81.5 | 81.5 | 0.0 | 2.77 | 2.83 | 0.06 | 0.220 | 143.29 | 0.224 | 0.004 | |
| D1F | 515.17 | 515 | 0 | 0 | 0 | 0 | 0 | 515 | 0 | 0 | 0 | 0 | 0 | 0 | 75.2 | 75.2 | 0.0 | 2.77 | 2.86 | 0.09 | 0.880 | 515.17 | 0.805 | -0.075 | |
| D2A | 632.62 | 633 | 0 | 0 | 0 | 0 | 0 | 633 | 0 | 0 | 0 | 0 | 0 | 0 | 84.0 | 84.0 | 0.0 | 2.77 | 3.16 | 0.39 | 0.970 | 632.62 | 0.988 | 0.018 | |
| D2B | 4801.96 | 4802 | 0 | 0 | 0 | 0 | 0 | 4802 | 0 | 0 | 0 | 0 | 0 | 0 | 80.1 | 80.1 | 0.0 | 2.77 | 3.06 | 0.29 | 7.390 | 4801.96 | 7.503 | 0.113 | |
| D3 | 4247.82 | 4248 | 0 | 0 | 0 | 0 | 0 | 4248 | 0 | 0 | 0 | 0 | 0 | 0 | 77.0 | 77.0 | 0.0 | 2.77 | 2.90 | 0.13 | 6.220 | 4247.82 | 6.637 | 0.417 | |
| D4A | 1137.34 | 1137 | 0 | 0 | 0 | 0 | 0 | 1137 | 0 | 0 | 0 | 0 | 0 | 0 | 83.8 | 83.8 | 0.0 | 2.77 | 2.80 | 0.03 | 3.830 | 2433.47 | 3.802 | -0.028 | 5 |
| D4B | 1301.10 | 1168 | 0 | 0 | 133 | 0 | 3 | 897 | 0 | 89 | 315 | 0 | 11 | 8 | 83.8 | 83.8 | 0.0 | 2.77 | 2.80 | 0.03 | 3.830 | 2433.47 | 3.802 | -0.028 | 5 |
| D5A | 847.98 | 848 | 0 | 0 | 0 | 0 | 0 | 667 | 0 | 148 | 5 | 28 | 15 | 15 | 88.0 | 88.0 | 0.0 | 2.77 | 2.79 | 0.02 | 1.310 | 847.98 | 1.325 | 0.015 | |
| D5B | 385.02 | 356 | 0 | 29 | 0 | 0 | 5 | 97 | 0 | 286 | 2 | 0 | 51 | 46 | 82.8 | 82.8 | 0.0 | 2.77 | 2.77 | 0.00 | 0.580 | 385.02 | 0.602 | 0.022 | |
| D6 | 1001.12 | 874 | 0 | 93 | 34 | 0 | 7 | 269 | 0 | 729 | 3 | 0 | 50 | 43 | 78.3 | 78.3 | 0.0 | 2.77 | 2.77 | 0.00 | 1.560 | 1001.12 | 1.564 | 0.004 | |
| D7 | 543.84 | 363 | 7 | 101 | 73 | 0 | 17 | 233 | 44 | 192 | 14 | 61 | 40 | 23 | 77.3 | 77.3 | 0.0 | 2.77 | 2.77 | 0.00 | 0.730 | 543.84 | 0.850 | 0.120 | |
| D8 | 804.91 | 655 | 28 | 174 | 26 | 22 | 21 | 183 | 88 | 466 | 16 | 31 | 55 | 34 | 77.8 | 77.8 | 0.0 | 2.77 | 2.77 | 0.00 | 1.350 | 804.91 | 1.258 | -0.092 | |
| D9A | 551.17 | 326 | 93 | 0 | 110 | 22 | 23 | 295 | 179 | 53 | 0 | 23 | 39 | 16 | 72.8 | 72.8 | 0.0 | 2.77 | 2.77 | 0.00 | 0.820 | 551.17 | 0.881 | 0.041 | |
| D9B | 988.29 | 397 | 36 | 19 | 511 | 25 | 19 | 336 | 56 | 336 | 234 | 24 | 36 | 17 | 77.8 | 77.8 | 0.0 | 2.77 | 2.77 | 0.00 | 1.550 | 988.29 | 1.544 | -0.006 | |
| MC | 1794.39 | 931 | 725 | 82 | 57 | 0 | 40 | -0 | 1713 | 81 | 0 | 0 | 89 | 49 | NA | 91.0 | NA | 2.77 | 2.77 | 0.00 | NA | 1794.39 | 2.804 | NA | |
| MC2 | 588.25 | 588 | 0 | 0 | 0 | 0 | 0 | 403 | 185 | 0 | 0 | 0 | 28 | 28 | NA | 91.0 | NA | 2.77 | 2.77 | 0.00 | NA | 588.25 | 0.919 | NA | |
| MNWB | 282.74 | 118 | 0 | 0 | 164 | 0 | 15 | 111 | 0 | 0 | 164 | 8 | 16 | 2 | 85.0 | 85.0 | 0.0 | 2.77 | 2.77 | 0.00 | 0.680 | 282.74 | 0.442 | -0.238 | |
| MNWC | 381.56 | 161 | 0 | 36 | 185 | 0 | 19 | 70 | 0 | 35 | 264 | 12 | 26 | 7 | 85.0 | 85.0 | 0.0 | 2.77 | 2.77 | 0.00 | 0.690 | 381.56 | 0.596 | -0.094 | |
| MNWD | 49.83 | 49 | 0 | 0 | 1 | 0 | 0 | 24 | 0 | 0 | 26 | 0 | 13 | 13 | NEW | 85.0 | 85.0 | 2.77 | 2.77 | 0.00 | NA | 49.83 | 0.078 | 0.078 | |
| RH | 867.44 | 122 | 29 | 538 | 130 | 49 | 54 | 20 | 48 | 502 | 189 | 108 | 59 | 6 | 72.0 | 72.0 | 0.0 | 2.77 | 2.77 | 0.00 | 3.880 | 867.44 | 1.355 | -2.525 | |

| LANDUSE | %IMPERVIOUS |
|---|---|
| NONE = | 0 |
| COM = | 90 |
| HDR = | 69 |
| LDR = | 25 |
| MULTI = | 72 |

**REMARKS/EXPLANATIONS**

1. AREA: 1991 FIS BASIN B10 IS NOW DIVIDED INTO B10A AND B10B
2. AREA: NORTH PORTION REMOVED FOR TIE IN TO PBS&J LOMR
3. AREA: CANCELS OUT ERROR IN ADJACENT D03/D04
4. AREA: 1991 FIS BASIN D012 IS NOW DIVIDED INTO D012A AND D012B
4. AREA: 1991 FIS BASIN D4 IS NOW DIVIDED INTO D4A AND D4B

# LAG TIME CALCULATIONS

# STANDARD FORM 4

# HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

## TIME OF CONCENTRATION

G.C. Wallace, Inc.
File: stdform4.xls
Project No.: 550.039

DUCK CREEK/BLUE DIAMOND WASHES
FIS RESTUDY

BY: MJL
DATE: 7/13/01

| SUB-BASIN DATA | | | | | | INITIAL / OVERLAND TIME (Ti) | | | TRAVEL TIME (Tt) | | | | | Tc | Tlag | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DESIG: (1) | DEV./EX. (D or E) | CN | K (2) | AREA Ac (3) | AREA MI^2 | INITIAL LENGTH Feet (4) | SLOPE % (5) | Ti Min (6) | TRAVEL LENGTH Feet (7) | SLOPE % (8) | V1 VELOCITY FPS (9a) | V2 VELOCITY FPS (9b) | Tt Min (10) | Min (13) | Tlag= 0.6Tc/60 Hours | RAINFALL Q100/Q10 Inches |
| MC2 | E | 74.9 | 0.5987 | 588.25 | 0.91914 | 500 | 1.0 | 20.2 | 10300 | 0.8 | 1.3 | 2.7 | 67.2 | 87.3 | 0.873 | 2.77 |
| MNWB | E | 85.0 | 0.7320 | 282.74 | 0.44178 | 500 | 1.0 | 14.8 | 10500 | 1.1 | 1.6 | 3.1 | 59.4 | 74.2 | 0.742 | 2.77 |
| MNWC | E | 85.0 | 0.7320 | 381.56 | 0.59619 | 500 | 1.0 | 14.8 | 10900 | 1.2 | 1.6 | 3.2 | 59.0 | 73.8 | 0.738 | 2.77 |
| MNWD | E | 85.0 | 0.7320 | 49.83 | 0.07786 | 100 | 1.0 | 6.6 | 4000 | 1.0 | 1.5 | 2.9 | 25.5 | 32.1 | 0.321 | 2.77 |
| B10B | E | 74.9 | 0.5987 | 542.67 | 0.84792 | 100 | 1.0 | 9.0 | 9100 | 0.8 | 1.3 | 2.7 | 59.7 | 68.7 | 0.687 | 2.77 |
| D012B | E | 83.0 | 0.7056 | 362.29 | 0.56608 | 500 | 1.0 | 15.9 | 9600 | 1.4 | 1.8 | 3.5 | 48.4 | 64.2 | 0.642 | 2.77 |
| MC | CALCULATED USING THE USBR METHOD | | | | | | | | | | | | | | | |
| B10A | CALCULATED USING THE USBR METHOD | | | | | | | | | | | | | | | |
| D4A | CALCULATED USING THE USBR METHOD | | | | | | | | | | | | | | | |
| D4B | CALCULATED USING THE USBR METHOD | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | |

Tc = Ti + Tt  Tlag = 0.6 Tc
Ti = 1.8 (1.1 - K) L^1/2 / S^1/3
K = 0.0132 (CN) - 0.39

For the travel time (Tt) calculations,
V1 applies to the first 500 feet of travel distance;
V2 applies to the remaining travel distance.

Existing V1 = 14.8*(S/100)^1/2  Developed V1 = 20.2*(S/100)^1/2
Existing V2 = 29.4*(S/100)^1/2  Developed V2 = 30.6*(S/100)^1/2

REFERENCE :

STANDARD FORM 4

# USBR METHOD

2. At a given point on a stream, discharge ordinates of different unit graphs of the same unit time of rainfall excess are mutually proportional to respective volumes.

3. A hydrograph of storm discharge that would result from a series of bursts of excess rain or from continuous excess rain of variable intensity may be constructed from a series of overlapping unitgraphs each resulting from a single increment of excess rain of unit duration.

## 606.3 Lag Time

Input data for the SCS Dimensionless Unit Hydrograph method (SCS, 1985) consists of a single parameter, TLAG, which is equal to the lag (in hours) between the center of mass of rainfall excess and the peak of the unit hydrograph. For small drainage basins (less than 1 sq mi) in the Clark County area, the lag time may be related to the time of concentration, $t_c$, by the following empirical relationship:

$$TLAG = 0.6\ t_c \qquad (612)$$

The $t_c$ is computed as presented in Section 602.

For larger drainage basins (greater than 1 sq mi), the lag time (and $t_c$) is generally governed mostly by the concentrated flow travel time, not the initial overland flow time. In addition, as the basin gets increasingly larger, the average flow velocity (and associated travel time) becomes more difficult to estimate. Therefore, for these basins, the following lag equation is recommended for use in computing TLAG:

$$TLAG = 20\ K_n\ (L\ L_c / S^{0.5})^{0.33} \qquad (613)$$

where $K_n$ = Manning's Roughness Factor for the Basin Channels

$L$ = Length of Longest Watercourse (mi)

$L_c$ = Length Along Longest Watercourse Measured Upstream to a Point Opposite the Centroid of the Basin (mi)

$S$ = Representative (Average) Slope of the Longest Watercourse (ft per mi)

This lag equation is based on the United States Bureau of Reclamation's (USBR) analysis of the above parameters for several drainage basins in the Southwest desert, Great Basin, and Colorado Plateau area (USBR, 1989). This equation was developed by converting the USBR's S-graph lag equation to a dimensionless unit hydrograph lag equation.

G.C. WALLACE, INC.

DATE _____ SUBJECT HYDROLOGY SHEET NO. _____ OF _____

BY _____ JOB NO. 550.039

BASIN MIC

$A > 1\ mi^2$ USE USBR METHOD

$$TLAG = 20\,K_n \left[\frac{L \cdot L_c}{S^{0.5}}\right]^{0.33}$$ EQ. 613 MANUAL SEE ATTACHED

$K_n = 0.015$

$$L = 15400\ FT \left(\frac{mi}{5280\ FT}\right) = 2.92\ mi$$

$$L_c = 7360\ FT \left(\frac{mi}{5280\ FT}\right) = 1.39\ mi$$

$$S = 1.1\% = 0.011\ \frac{FT}{FT} \left(\frac{5280\ FT}{mi}\right) = 58.1\ \frac{FT}{mi}$$

$$TLAG = 20\,(0.015)\left[\frac{(2.92\ mi)(1.39\ mi)}{(58.1\ \frac{FT}{mi})^{0.5}}\right]^{0.33}$$

$$= \boxed{0.244\ HR}$$

G.C. WALLACE, INC.

DATE _____ SUBJECT HYDROLOGY SHEET NO._____ OF_____

BY_____ JOB NO. 550.039

BASIN B10A

$A > 1\ mi^2$ USE USBR METHOD

$$TLAG = 20\ K_n \left[\frac{L \cdot L_c}{S^{0.5}}\right]^{0.33}$$ EQ. 613 MANUAL SEE ATTACHED

$K_n = 0.015$

$L = 12710\ FT \left(\frac{mi}{5280\ FT}\right) = 2.41\ mi$

$L_c = 7110\ FT \left(\frac{mi}{5280\ FT}\right) = 1.35\ mi$

$S = \frac{180\ FT}{12710\ FT} = 0.014\ \frac{FT}{FT} \left(\frac{5280\ FT}{mi}\right) = 74.8\ \frac{FT}{mi}$

$$TLAG = 20\,(0.015)\left[\frac{(2.41\ mi)(1.35\ mi)}{(74.8\ \frac{FT}{mi})^{0.5}}\right]^{0.33}$$

$= \boxed{0.217\ HR}$

G.C. WALLACE, INC.

DATE _____ SUBJECT HYDROLOGY SHEET NO._____ OF_____

BY_____ JOB NO. 550.037

BASIN D4A

$A > 1\ mi^2$ USE SCS METHOD

$$TLAG = 20\ K_n \left[\frac{L \cdot L_c}{S^{0.5}}\right]^{0.33}$$ EQ. 6.13 MANUAL SEE ATTACHED

$K_n = 0.015$

$$L = 17210\ FT \left(\frac{mi}{5280\ FT}\right) = 3.26\ mi$$

$$L_c = 7730\ FT \left(\frac{mi}{5280\ FT}\right) = 1.46\ mi$$

$$S = \frac{250\ FT}{17210\ FT} = 0.015\ \frac{FT}{FT}\left(\frac{5280\ FT}{mi}\right) = 79.2\ \frac{FT}{mi}$$

$$TLAG = 20(0.015)\left[\frac{(3.26\ mi)(1.46\ mi)}{(79.2\ \frac{FT}{mi})^{0.5}}\right]^{0.33}$$

$$= \boxed{0.245}$$

G.C. WALLACE, INC.

DATE _____ SUBJECT HYDROLOGY SHEET NO._____ OF_____

BY_____ JOB NO. 550.039

BASIN D4B

$A > 1 \text{ mi}^2$ USE USBR METHOD

$$TLAG = 20\, K_n \left[\frac{L \cdot L_c}{S^{0.5}}\right]^{0.33}$$ EQ. 613 MANUAL SEE ATTACHED

$K_n = 0.015$

$$L = 17310 \text{ FT}\left(\frac{\text{mi}}{5280 \text{ FT}}\right) = 3.28 \text{ mi}$$

$$L_c = 7350 \text{ FT}\left(\frac{\text{mi}}{5280 \text{ FT}}\right) = 1.39 \text{ mi}$$

$$S = \frac{245 \text{ FT}}{17310 \text{ FT}} = 0.014 \frac{\text{FT}}{\text{FT}}\left(\frac{5280 \text{ FT}}{\text{mi}}\right) = 73.9 \frac{\text{FT}}{\text{mi}}$$

$$TLAG = 20\,(0.015)\left[\frac{(3.28 \text{ mi})(1.39 \text{ mi})}{\left(73.9 \frac{\text{FT}}{\text{mi}}\right)^{0.5}}\right]^{0.33}$$

$$= \boxed{0.243}$$

# DIVERSION CALCULATIONS

# DIVERSION DVBD2

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

DATE _____ SUBJECT DIVERSION SHEET NO. _____ OF _____

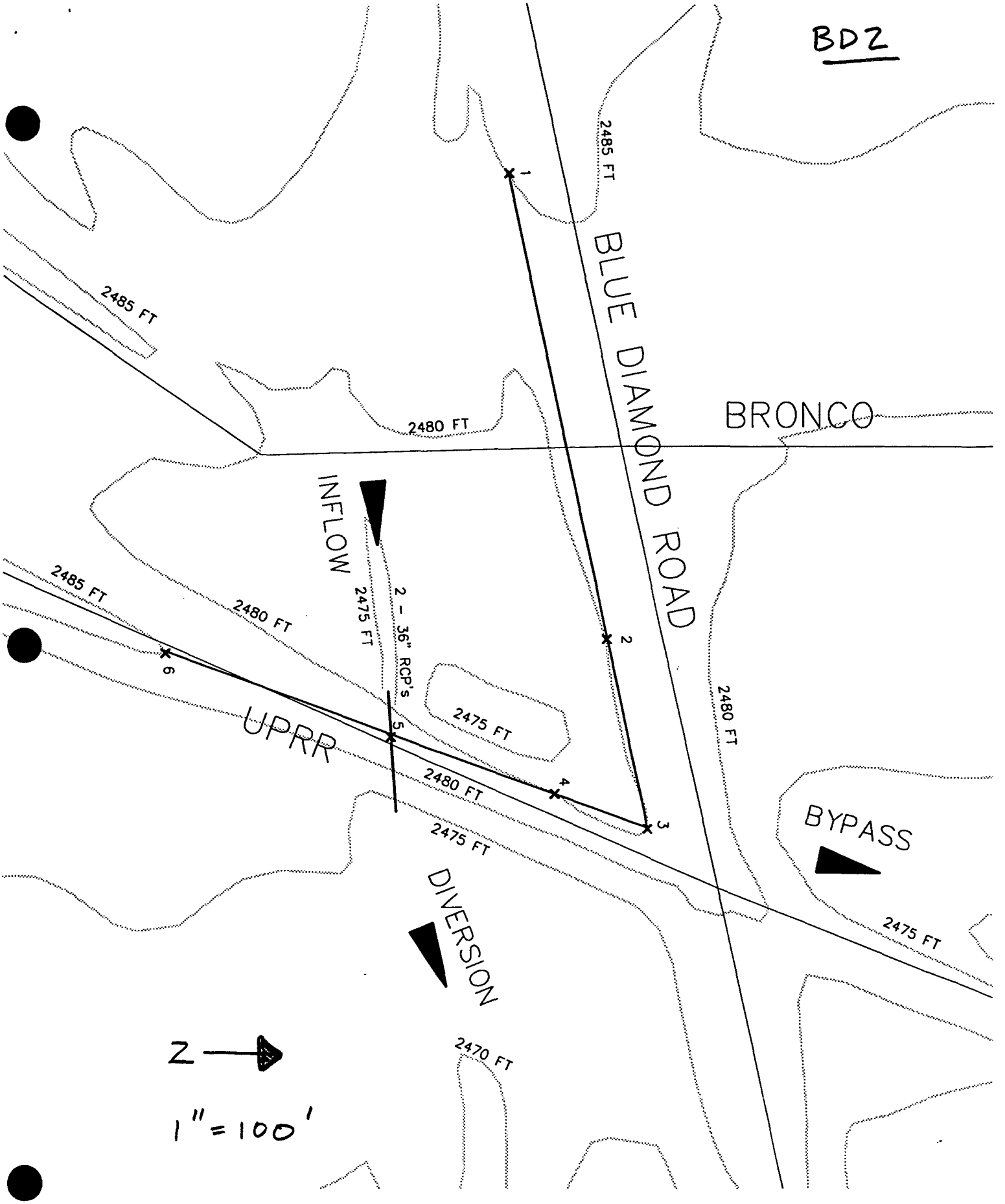
BY _____ JOB NO. 550.039

DVBD2

| " DI | " DQ " | |
|---|---|---|
| 0 | 0 | |
| 121 | 121 | — FROM HYB, START OVERTOP |
| 500 | 240 | OTHER OUTPUT FROM |
| 1000 | 391 | SPREADSHEET |
| 1500 | 540 | |
| 2000 | 690 | |

SUMMARY/NOTES

- DIVERSION GOES EAST
- BYPASS GOES NORTH
- ASSUMED WEIR CONTROL & CHANNEL D/S OF WEIR AT WEST SIDE OF UPRR HAS CAPACITY FOR BYPASS FLOW.


BD2
2485 FT
1
BLUE DIAMOND ROAD
2485 FT
BRONCO
2480 FT
INFLOW
2475 FT
2 - 36" RCP's
2485 FT
2480 FT
6
2
2480 FT
UPRR
5
2475 FT
4
2480 FT
3
BYPASS
2475 FT
DIVERSION
2475 FT
N
2470 FT
1" = 100'

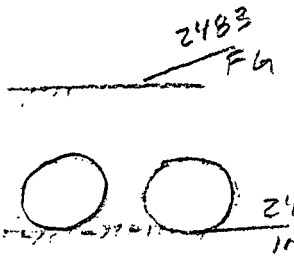
**G. C. WALLACE, INC.**
Engineers/Planners/Surveyors

DATE _____ SUBJECT _____ SHEET NO. _____ OF _____

BY _____ JOB NO. _____

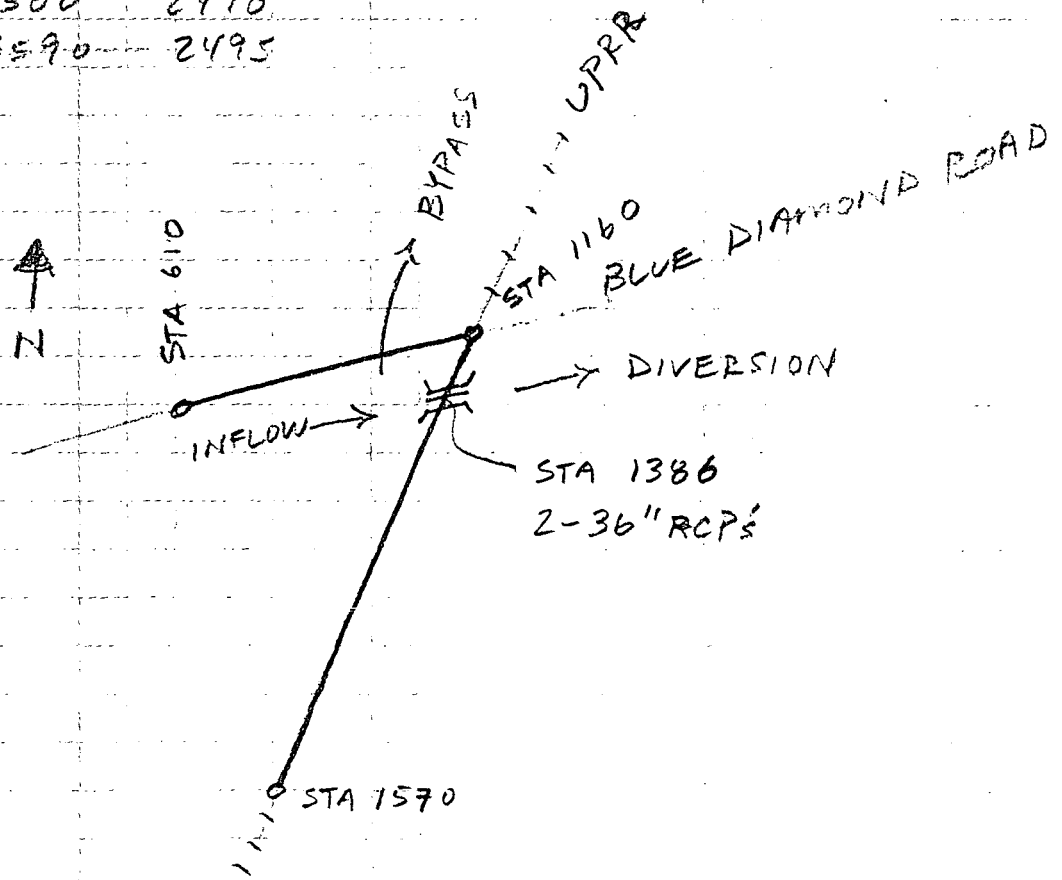
DVBD2

WEIR SECTION




| * PT # | STA (FT) | ELEV (FT) | AREA CALC. |
|---|---|---|---|
| | 100 | 2495 | |
| | 300 | 2490 | |
| 1 | 610 | 2485 | |
| 2 | 990 | 2480 | |
| | 1020 | 2480 | |
| | 1120 | 2480 | |
| 3 | 1160 | 2480 | — INTERSECTION W/ BLUE DIAMOND RD |
| 4 | 1230 | 2480 | |
| 5 | 1386 | 2483 | — ℄ CULVERT |
| 6 | 1570 | 2485 | |
| | 2580 | 2490 | |
| | 3590 | 2495 | |

* EXTRA POINTS AT SAME GROUND ELEVATION REMOVED FROM AREA/DIVERSION CALC. SEE ATTACHED SPREADSHEET




DATA SOURCE: CLARK COUNTY GIS TOPO (5-FOOT)
GCW SITE VISIT

CURRENT DATE: 01-15-2001
CURRENT TIME: 19:59:36

FILE DATE: 01-15-2001
FILE NAME: BD2X

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.0

| CULV NO. | SITE DATA | | | CULVERT SHAPE, MATERIAL, INLET | | | | |
|---|---|---|---|---|---|---|---|---|
| | INLET ELEV. (ft) | OUTLET ELEV. (ft) | CULVERT LENGTH (ft) | BARRELS SHAPE MATERIAL | SPAN (ft) | RISE (ft) | MANNING n | INLET TYPE |
| 1 | 2475.00 | 2474.50 | 50.00 | 2 RCP | 3.00 | 3.00 | .013 | CONVENTIONAL |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |

SUMMARY OF CULVERT FLOWS (cfs) FILE: BD2X DATE: 01-15-2001

| ELEV (ft) | TOTAL | 1 | 2 | 3 | 4 | 5 | 6 | ROADWAY | ITR |
|---|---|---|---|---|---|---|---|---|---|
| 2475.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 1 |
| 2480.59 | 500.0 | 132.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 366.03 | 10 |
| 2481.00 | 1000.0 | 140.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 855.37 | 4 |
| 2481.31 | 1500.0 | 146.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1350.57 | 4 |
| 2481.57 | 2000.0 | 150.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1833.76 | 3 |
| 2481.80 | 2500.0 | 154.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2330.02 | 3 |
| 2482.01 | 3000.0 | 157.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2828.06 | 3 |
| 2482.20 | 3500.0 | 160.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3326.44 | 3 |
| 2482.38 | 4000.0 | 163.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3823.09 | 3 |
| 2482.54 | 4500.0 | 166.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4320.73 | 3 |
| 2482.70 | 5000.0 | 168.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4818.04 | 3 |
| 2480.00 | 120.7 | 120.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | OVERTOPPING | |

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: BD2X DATE: 01-15-2001

| HEAD ELEV (ft) | HEAD ERROR (ft) | TOTAL FLOW (cfs) | FLOW ERROR (cfs) | % FLOW ERROR |
|---|---|---|---|---|
| 2475.00 | 0.000 | 0.00 | 0.00 | 0.00 |
| 2480.59 | -0.005 | 500.00 | 1.07 | 0.21 |
| 2481.00 | -0.002 | 1000.00 | 4.07 | 0.41 |
| 2481.31 | -0.009 | 1500.00 | 3.28 | 0.22 |
| 2481.57 | -0.006 | 2000.00 | 15.68 | 0.78 |
| 2481.80 | -0.006 | 2500.00 | 15.59 | 0.62 |
| 2482.01 | -0.005 | 3000.00 | 14.18 | 0.47 |
| 2482.20 | -0.004 | 3500.00 | 12.78 | 0.37 |
| 2482.38 | -0.004 | 4000.00 | 13.42 | 0.34 |
| 2482.54 | -0.004 | 4500.00 | 13.27 | 0.29 |
| 2482.70 | -0.003 | 5000.00 | 13.67 | 0.27 |

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 01-15-2001
CURRENT TIME: 19:59:36
FILE DATE: 01-15-2001
FILE NAME: BD2X

PERFORMANCE CURVE FOR CULVERT 1 - 2( 3.00 (ft) BY 3.00 (ft)) RCP

| DIS-CHARGE FLOW (cfs) | HEAD-WATER ELEV. (ft) | INLET CONTROL DEPTH (ft) | OUTLET CONTROL DEPTH (ft) | FLOW TYPE <F4> | NORMAL DEPTH (ft) | CRIT. DEPTH (ft) | OUTLET DEPTH (ft) | TW DEPTH (ft) | OUTLET VEL. (fps) | TW VEL. (fps) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 2475.00 | 0.00 | -0.50 | 0-NF | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 132.90 | 2480.48 | 5.48 | 4.85 | 5-S2n | 2.46 | 2.59 | 2.39 | 0.81 | 11.01 | 6.00 |
| 140.56 | 2480.90 | 5.90 | 5.30 | 2-M2c | 2.65 | 2.65 | 2.65 | 1.23 | 10.66 | 7.84 |
| 146.15 | 2481.22 | 6.22 | 5.47 | 2-M2c | 3.00 | 2.70 | 2.70 | 1.57 | 10.92 | 9.15 |
| 150.55 | 2481.48 | 6.48 | 5.63 | 2-M2c | 3.00 | 2.73 | 2.73 | 1.86 | 11.13 | 10.19 |
| 154.38 | 2481.71 | 6.71 | 5.62 | 2-M2c | 3.00 | 2.76 | 2.76 | 2.12 | 11.39 | 11.08 |
| 157.76 | 2481.92 | 6.92 | 5.85 | 2-M2c | 3.00 | 2.79 | 2.79 | 2.36 | 11.58 | 11.86 |
| 160.78 | 2482.12 | 7.12 | 6.13 | 2-M2c | 3.00 | 2.81 | 2.81 | 2.59 | 11.75 | 12.55 |
| 163.50 | 2482.29 | 7.29 | 6.28 | 2-M2c | 3.00 | 2.83 | 2.83 | 2.80 | 11.91 | 13.18 |
| 166.00 | 2482.46 | 7.46 | 6.21 | 3-M1f | 3.00 | 2.85 | 3.00 | 3.00 | 11.74 | 13.75 |
| 168.29 | 2482.61 | 7.61 | 6.30 | 3-M1f | 3.00 | 2.87 | 3.00 | 3.19 | 11.90 | 14.29 |

El. inlet face invert 2475.00 ft  El. outlet invert 2474.50 ft
El. inlet throat invert 0.00 ft  El. inlet crest 0.00 ft

** SITE DATA ***** CULVERT INVERT **********

| | |
|---|---|
| INLET STATION | 100.00 ft |
| INLET ELEVATION | 2475.00 ft |
| OUTLET STATION | 150.00 ft |
| OUTLET ELEVATION | 2474.50 ft |
| NUMBER OF BARRELS | 2 |
| SLOPE (V/H) | 0.0100 |
| CULVERT LENGTH ALONG SLOPE | 50.00 ft |

***** CULVERT DATA SUMMARY **********

| | |
|---|---|
| BARREL SHAPE | CIRCULAR |
| BARREL DIAMETER | 3.00 ft |
| BARREL MATERIAL | CONCRETE |
| BARREL MANNING'S n | 0.013 |
| INLET TYPE | CONVENTIONAL |
| INLET EDGE AND WALL | SQUARE EDGE WITH HEADWALL |
| INLET DEPRESSION | NONE |

CURRENT DATE: 01-15-2001
CURRENT TIME: 19:59:36

FILE DATE: 01-15-2001
FILE NAME: BD2X

## TAILWATER

******* REGULAR CHANNEL CROSS SECTION **********

| | |
|---|---|
| BOTTOM WIDTH | 100.00 ft |
| SIDE SLOPE H/V (X:1) | 3.0 |
| CHANNEL SLOPE V/H (ft/ft) | 0.020 |
| MANNING'S n (.01-0.1) | 0.030 |
| CHANNEL INVERT ELEVATION | 2474.50 ft |
| CULVERT NO.1 OUTLET INVERT ELEVATION | 2474.50 ft |

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

| FLOW (cfs) | W.S.E. (ft) | FROUDE NUMBER | DEPTH (ft) | VEL. (f/s) | SHEAR (psf) |
|---|---|---|---|---|---|
| 0.00 | 2474.50 | 0.000 | 0.00 | 0.00 | 0.00 |
| 500.00 | 2475.31 | 1.172 | 0.81 | 6.00 | 1.01 |
| 1000.00 | 2475.73 | 1.245 | 1.23 | 7.84 | 1.53 |
| 1500.00 | 2476.07 | 1.288 | 1.57 | 9.15 | 1.96 |
| 2000.00 | 2476.36 | 1.318 | 1.86 | 10.19 | 2.32 |
| 2500.00 | 2476.62 | 1.341 | 2.12 | 11.08 | 2.65 |
| 3000.00 | 2476.86 | 1.359 | 2.36 | 11.86 | 2.95 |
| 3500.00 | 2477.09 | 1.375 | 2.59 | 12.55 | 3.23 |
| 4000.00 | 2477.30 | 1.388 | 2.80 | 13.18 | 3.49 |
| 4500.00 | 2477.50 | 1.399 | 3.00 | 13.75 | 3.75 |
| 5000.00 | 2477.69 | 1.409 | 3.19 | 14.29 | 3.99 |

## ROADWAY OVERTOPPING DATA

| | |
|---|---|
| WEIR COEFFICIENT | 3.00 |
| EMBANKMENT TOP WIDTH | 50.00 ft |

***** USER DEFINED ROADWAY PROFILE

| CROSS-SECTION COORD. NO. | X ft | Y ft |
|---|---|---|
| 1 | 100.00 | 2495.00 |
| 2 | 300.00 | 2490.00 |
| 3 | 610.00 | 2485.00 |
| 4 | 990.00 | 2480.00 |
| 5 | 1020.00 | 2480.00 |
| 6 | 1120.00 | 2480.00 |
| 7 | 1160.00 | 2480.00 |
| 8 | 1230.00 | 2480.00 |
| 9 | 1386.00 | 2483.00 |
| 10 | 1570.00 | 2485.00 |
| 11 | 2580.00 | 2490.00 |
| 12 | 3590.00 | 2495.00 |

# DIVERSION DVBD3

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

DATE _____ SUBJECT DIVERSION SHEET NO. _____ OF _____

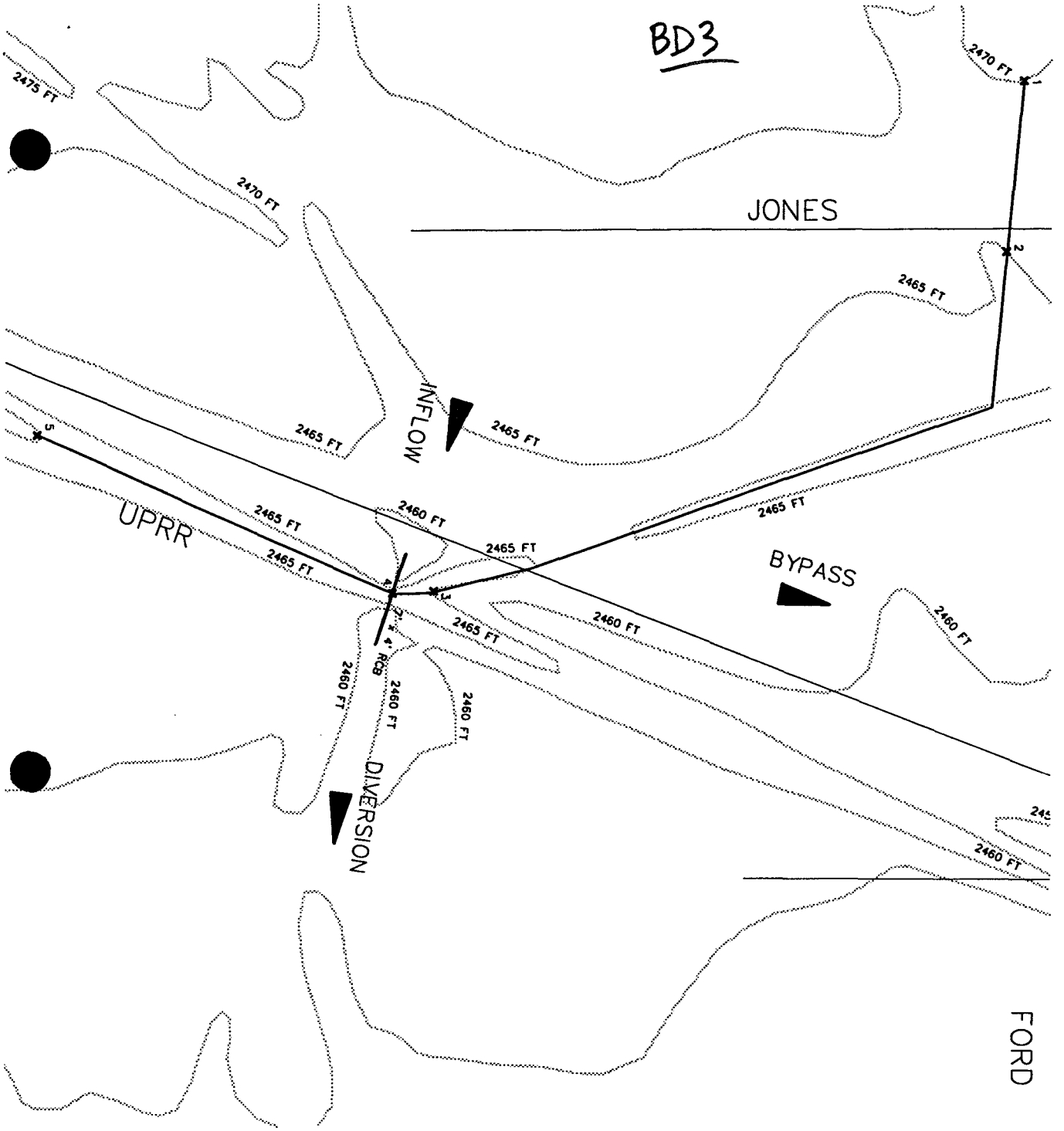
BY _____ JOB NO. 550.039

DVBD3

| "DI" | "DQ" | |
|---|---|---|
| 0 | 0 | |
| 238 | 238 | — FROM HY8, START OVERTOP |
| 500 | 252 | OTHER OUTPUT FROM |
| 1000 | 271 | SPREADSHEET |
| 1500 | 288 | |
| 2000 | 304 | |

SUMMARY / NOTES

- DIVERSION GOES EAST
- BYPASS GOES NORTH
- ASSUMED WEIR CONTROLS AND CHANNEL D/S OF WEIR AT WEST SIDE OF UPPER HAS CAPACITY FOR BYPASS FLOW.


BD3
2475 FT
2470 FT
2470 FT
JONES
2465 FT
2465 FT
INFLOW
2465 FT
2465 FT
UPRR
2465 FT
2460 FT
2465 FT
2465 FT
BYPASS
2465 FT
2460 FT
2460 FT
2460 FT
2460 FT
2460 FT
DIVERSION
2460 FT
FORD

N →

1" = 150'

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

DATE _____ SUBJECT

BY _____

SHEET NO. _____ OF _____

JOB NO. _____

DVBD3

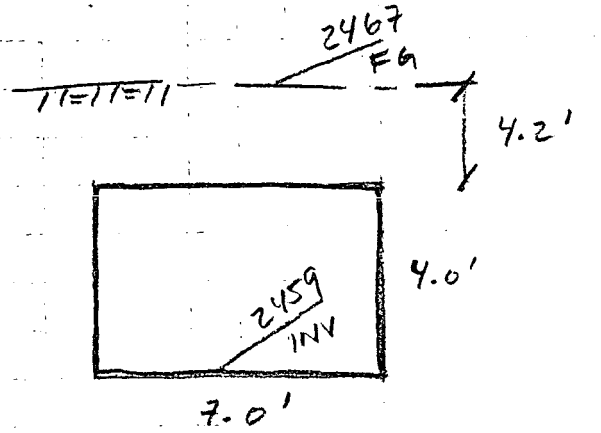
WEIR SECTION

| PT # USED IN AREA CALC | STA (FT) | ELEV (FT) |
|---|---|---|
| | 1000 | 2480 |
| | 1467 | 2475 |
| 1 | 1712 | 2470 |
| 2 | 1892 | 2465 |
| | 2043 | 2465 |
| | 2431 | 2465 |
| | 2540 | 2465 |
| | 2569 | 2465 |
| 3 | 2636 | 2465 |
| 4 | 2670 | 2467 |
| 5 | 3094 | 2470 |
| | 3884 | 2475 |
| | 4296 | 2480 |

BYPASS NORTH

℄ OF CULVERT

ALL GROUND POINTS USED IN HYB INPUT EXTRA GROUND POINTS AT SAME ELEVATION REMOVED FROM AREA / DIVERSION CALCULATION TO SIMPLIFY CALCULATION. SEE ATTACHED SPREADSHEET.




7'x4' ECB
@ 0.5%

DATA SOURCE: CLARK COUNTY GIS TOPO (5-FOOT)
GCW SITE VISIT

CURRENT DATE: 01-15-2001
CURRENT TIME: 20:01:35

FILE DATE: 01-15-2001
FILE NAME: BD3X

## FHWA CULVERT ANALYSIS
## HY-8, VERSION 6.0

| CULV NO. | SITE DATA: INLET ELEV. (ft) | SITE DATA: OUTLET ELEV. (ft) | SITE DATA: CULVERT LENGTH (ft) | CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL | SPAN (ft) | RISE (ft) | MANNING n | INLET TYPE |
|---|---|---|---|---|---|---|---|---|
| 1 | 2459.00 | 2458.50 | 50.00 | 1 RCB | 7.00 | 4.00 | .015 | CONVENTIONAL |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |

SUMMARY OF CULVERT FLOWS (cfs) FILE: BD3X DATE: 01-15-2001

| ELEV (ft) | TOTAL | 1 | 2 | 3 | 4 | 5 | 6 | ROADWAY | ITR |
|---|---|---|---|---|---|---|---|---|---|
| 2459.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 1 |
| 2465.23 | 500.0 | 246.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 251.16 | 12 |
| 2465.48 | 1000.0 | 256.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 740.81 | 5 |
| 2465.67 | 1500.0 | 263.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1230.78 | 4 |
| 2465.83 | 2000.0 | 269.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1726.37 | 4 |
| 2465.98 | 2500.0 | 274.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2207.83 | 3 |
| 2466.12 | 3000.0 | 279.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2704.36 | 3 |
| 2466.25 | 3500.0 | 283.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3202.14 | 3 |
| 2466.37 | 4000.0 | 288.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3699.05 | 3 |
| 2466.49 | 4500.0 | 279.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4207.53 | 3 |
| 2466.60 | 5000.0 | 270.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4716.33 | 3 |
| 2465.00 | 237.6 | 237.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | OVERTOPPING | |

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: BD3X DATE: 01-15-2001

| HEAD ELEV (ft) | HEAD ERROR (ft) | TOTAL FLOW (cfs) | FLOW ERROR (cfs) | % FLOW ERROR |
|---|---|---|---|---|
| 2459.00 | 0.000 | 0.00 | 0.00 | 0.00 |
| 2465.23 | -0.002 | 500.00 | 1.96 | 0.39 |
| 2465.48 | -0.004 | 1000.00 | 2.89 | 0.29 |
| 2465.67 | -0.008 | 1500.00 | 6.05 | 0.40 |
| 2465.83 | -0.006 | 2000.00 | 4.36 | 0.22 |
| 2465.98 | -0.004 | 2500.00 | 17.65 | 0.71 |
| 2466.12 | -0.004 | 3000.00 | 16.22 | 0.54 |
| 2466.25 | -0.003 | 3500.00 | 13.98 | 0.40 |
| 2466.37 | -0.003 | 4000.00 | 12.83 | 0.32 |
| 2466.49 | -0.002 | 4500.00 | 12.93 | 0.29 |
| 2466.60 | -0.002 | 5000.00 | 12.95 | 0.26 |

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 01-15-2001
CURRENT TIME: 20:01:35

FILE DATE: 01-15-2001
FILE NAME: BD3X

PERFORMANCE CURVE FOR CULVERT 1 - 1( 7.00 (ft) BY 4.00 (ft)) RCB

| DIS-CHARGE FLOW (cfs) | HEAD-WATER ELEV. (ft) | INLET CONTROL DEPTH (ft) | OUTLET CONTROL DEPTH (ft) | FLOW TYPE <F4> | NORMAL DEPTH (ft) | CRIT. DEPTH (ft) | OUTLET DEPTH (ft) | TW DEPTH (ft) | OUTLET VEL. (fps) | TW VEL. (fps) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 2459.00 | 0.00 | -0.50 | 0-NF | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 246.87 | 2465.23 | 6.23 | 5.29 | 5-S2n | 2.69 | 3.39 | 2.89 | 1.66 | 12.21 | 7.89 |
| 256.29 | 2465.47 | 6.47 | 5.50 | 5-S2n | 2.76 | 3.47 | 2.97 | 2.43 | 12.31 | 9.79 |
| 263.17 | 2465.66 | 6.66 | 5.65 | 5-S2n | 2.82 | 3.54 | 3.03 | 3.01 | 12.43 | 11.05 |
| 269.27 | 2465.82 | 6.82 | 5.79 | 5-S2n | 2.86 | 3.59 | 3.08 | 3.50 | 12.49 | 12.01 |
| 274.51 | 2465.97 | 6.97 | 6.03 | 5-S2n | 2.90 | 3.64 | 3.13 | 3.94 | 12.55 | 12.79 |
| 279.42 | 2466.11 | 7.11 | 6.50 | 4-FFt | 2.94 | 3.68 | 2.94 | 4.32 | 13.58 | 13.46 |
| 283.88 | 2466.24 | 7.24 | 6.94 | 4-FFt | 2.97 | 3.72 | 2.97 | 4.67 | 13.63 | 14.05 |
| 288.12 | 2466.36 | 7.36 | 7.35 | 4-FFt | 3.01 | 3.76 | 3.01 | 4.99 | 13.69 | 14.57 |
| 279.54 | 2466.48 | 7.11 | 7.48 | 4-FFt | 2.94 | 3.68 | 4.00 | 5.29 | 9.98 | 15.05 |
| 270.72 | 2466.60 | 6.86 | 7.60 | 4-FFt | 2.87 | 3.60 | 4.00 | 5.57 | 9.67 | 15.50 |

El. inlet face invert 2459.00 ft  El. outlet invert 2458.50 ft
El. inlet throat invert 0.00 ft  El. inlet crest 0.00 ft

** SITE DATA ***** CULVERT INVERT **********

| | |
|---|---|
| INLET STATION | 100.00 ft |
| INLET ELEVATION | 2459.00 ft |
| OUTLET STATION | 150.00 ft |
| OUTLET ELEVATION | 2458.50 ft |
| NUMBER OF BARRELS | 1 |
| SLOPE (V/H) | 0.0100 |
| CULVERT LENGTH ALONG SLOPE | 50.00 ft |

***** CULVERT DATA SUMMARY **********

| | |
|---|---|
| BARREL SHAPE | BOX |
| BARREL SPAN | 7.00 ft |
| BARREL RISE | 4.00 ft |
| BARREL MATERIAL | CONCRETE |
| BARREL MANNING'S n | 0.015 |
| INLET TYPE | CONVENTIONAL |
| INLET EDGE AND WALL | SQUARE EDGE (90-45 DEG.) |
| INLET DEPRESSION | NONE |

CURRENT DATE: 01-15-2001
CURRENT TIME: 20:01:35

FILE DATE: 01-15-2001
FILE NAME: BD3X

## TAILWATER

******* REGULAR CHANNEL CROSS SECTION ****************

| | |
|---|---|
| BOTTOM WIDTH | 30.00 ft |
| SIDE SLOPE H/V (X:1) | 5.0 |
| CHANNEL SLOPE V/H (ft/ft) | 0.017 |
| MANNING'S n (.01-0.1) | 0.030 |
| CHANNEL INVERT ELEVATION | 2458.50 ft |
| CULVERT NO.1 OUTLET INVERT ELEVATION | 2458.50 ft |

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

| FLOW (cfs) | W.S.E. (ft) | FROUDE NUMBER | DEPTH (ft) | VEL. (f/s) | SHEAR (psf) |
|---|---|---|---|---|---|
| 0.00 | 2458.50 | 0.000 | 0.00 | 0.00 | 0.00 |
| 500.00 | 2460.16 | 1.081 | 1.66 | 7.89 | 1.75 |
| 1000.00 | 2460.93 | 1.108 | 2.43 | 9.79 | 2.57 |
| 1500.00 | 2461.51 | 1.121 | 3.01 | 11.05 | 3.20 |
| 2000.00 | 2462.00 | 1.130 | 3.50 | 12.01 | 3.72 |
| 2500.00 | 2462.44 | 1.136 | 3.94 | 12.79 | 4.17 |
| 3000.00 | 2462.82 | 1.142 | 4.32 | 13.46 | 4.58 |
| 3500.00 | 2463.17 | 1.146 | 4.67 | 14.05 | 4.95 |
| 4000.00 | 2463.49 | 1.149 | 4.99 | 14.57 | 5.30 |
| 4500.00 | 2463.79 | 1.153 | 5.29 | 15.05 | 5.62 |
| 5000.00 | 2464.07 | 1.157 | 5.57 | 15.50 | 5.91 |

## ROADWAY OVERTOPPING DATA

| | |
|---|---|
| WEIR COEFFICIENT | 3.00 |
| EMBANKMENT TOP WIDTH | 50.00 ft |

***** USER DEFINED ROADWAY PROFILE

| CROSS-SECTION COORD. NO. | X ft | Y ft |
|---|---|---|
| 1 | 1000.00 | 2480.00 |
| 2 | 1467.00 | 2475.00 |
| 3 | 1712.00 | 2470.00 |
| 4 | 1892.00 | 2465.00 |
| 5 | 2043.00 | 2465.00 |
| 6 | 2431.00 | 2465.00 |
| 7 | 2540.00 | 2465.00 |
| 8 | 2569.00 | 2465.00 |
| 9 | 2636.00 | 2465.00 |
| 10 | 2670.00 | 2467.00 |
| 11 | 3094.00 | 2470.00 |
| 12 | 3884.00 | 2475.00 |
| 13 | 4296.00 | 2480.00 |

# DIVERSION DVBD4

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

DATE _____ SUBJECT DIVERSION SHEET NO. _____ OF _____

BY _____ JOB NO. 550.039

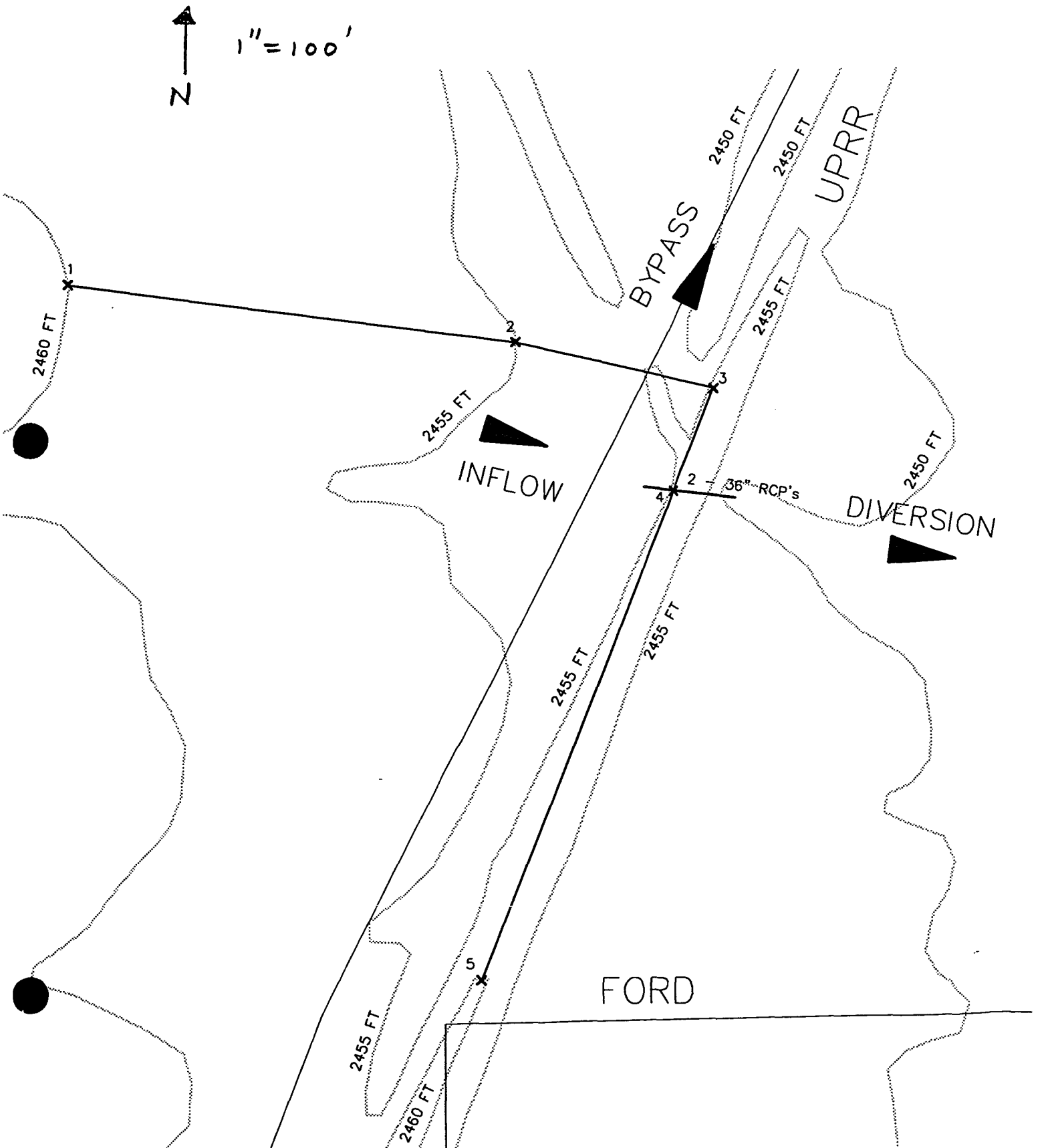
DVBD4

| "DI" | "DQ" | |
|---|---|---|
| 0 | 0 | |
| 97 | 97 | — FROM HYB, START OVERTOP |
| 500 | 149 | OTHER OUTPUT FROM |
| 1000 | 202 | SPREADSHEET |
| 1500 | 252 | |
| 2000 | 296 | |

SUMMARY / NOTES

- DIVERSION GOES EAST
- BYPASS GOES NORTH
- ASSUMED WEIR CONTROLS AND CHANNEL D/S OF WEIR AT WEST SIDE OF UPRC HAS CAPACITY FOR BYPASS FLOW.

BD4


N
1"=100'
1
2
3
4
5
2460 FT
2455 FT
2450 FT
2450 FT
2455 FT
2455 FT
2455 FT
2455 FT
2450 FT
2455 FT
2460 FT
BYPASS
UPRR
INFLOW
2 - 36" RCP's
DIVERSION
FORD

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

DATE _____ SUBJECT

BY _____

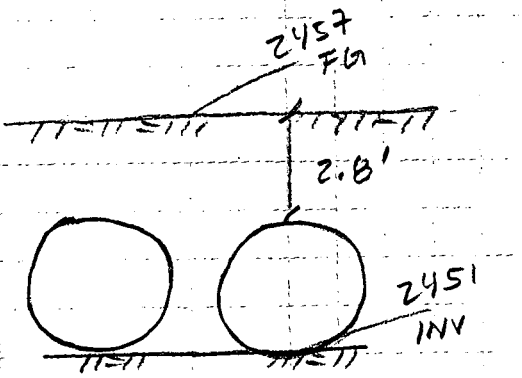
SHEET NO. _____ OF _____

JOB NO. _____

DVBDY

WEIR SECTION

| PT # USED IN AREA CALC | STA (FT) | ELEV (FT) | |
|---|---|---|---|
| | 1000 | 2465 | |
| 1 | 1223 | 2460 | BYPASS |
| 2 | 1575 | 2455 | ↑ |
| 3 | 1736 | 2455 | — |
| 4 | 1800 | 2457 | — ℄ CULVERT |
| 5 | 2342 | 2460 | |
| | 2910 | 2465 | |




2-36" RCP's

DATA SOURCE: CLARK COUNTY GIS TOPO (5-FOOT)
GCW SITE VISIT

CURRENT DATE: 01-15-2001
CURRENT TIME: 20:04:13

FILE DATE: 01-15-2001
FILE NAME: BD4X

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.0

| CULV NO. | SITE DATA | | | CULVERT SHAPE, MATERIAL, INLET | | | | |
|---|---|---|---|---|---|---|---|---|
| | INLET ELEV. (ft) | OUTLET ELEV. (ft) | CULVERT LENGTH (ft) | BARRELS SHAPE MATERIAL | SPAN (ft) | RISE (ft) | MANNING n | INLET TYPE |
| 1 | 2451.00 | 2450.50 | 50.00 | 2 RCP | 3.00 | 3.00 | .013 | CONVENTIONAL |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |

SUMMARY OF CULVERT FLOWS (cfs) FILE: BD4X DATE: 01-15-2001

| ELEV (ft) | TOTAL | 1 | 2 | 3 | 4 | 5 | 6 | ROADWAY | ITR |
|---|---|---|---|---|---|---|---|---|---|
| 2451.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 1 |
| 2455.77 | 500.0 | 115.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 383.50 | 7 |
| 2456.26 | 1000.0 | 126.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 872.08 | 4 |
| 2456.62 | 1500.0 | 132.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1352.37 | 3 |
| 2456.93 | 2000.0 | 134.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1861.63 | 4 |
| 2457.19 | 2500.0 | 129.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2349.46 | 3 |
| 2457.42 | 3000.0 | 125.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2850.84 | 3 |
| 2457.63 | 3500.0 | 121.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3355.56 | 3 |
| 2457.82 | 4000.0 | 117.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3860.45 | 3 |
| 2457.99 | 4500.0 | 113.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4365.06 | 3 |
| 2458.14 | 5000.0 | 109.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4869.79 | 3 |
| 2455.00 | 96.5 | 96.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | OVERTOPPING | |

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: BD4X DATE: 01-15-2001

| HEAD ELEV (ft) | HEAD ERROR (ft) | TOTAL FLOW (cfs) | FLOW ERROR (cfs) | % FLOW ERROR |
|---|---|---|---|---|
| 2451.00 | 0.000 | 0.00 | 0.00 | 0.00 |
| 2455.77 | -0.001 | 500.00 | 0.90 | 0.18 |
| 2456.26 | -0.001 | 1000.00 | 1.93 | 0.19 |
| 2456.62 | -0.008 | 1500.00 | 14.85 | 0.99 |
| 2456.93 | -0.010 | 2000.00 | 4.08 | 0.20 |
| 2457.19 | -0.008 | 2500.00 | 20.79 | 0.83 |
| 2457.42 | -0.008 | 3000.00 | 23.61 | 0.79 |
| 2457.63 | -0.007 | 3500.00 | 22.96 | 0.66 |
| 2457.82 | -0.006 | 4000.00 | 22.07 | 0.55 |
| 2457.99 | -0.006 | 4500.00 | 21.41 | 0.48 |
| 2458.14 | -0.005 | 5000.00 | 20.47 | 0.41 |

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

ENT DATE: 01-15-2001
RRENT TIME: 20:04:13

FILE DATE: 01-15-2001
FILE NAME: BD4X

PERFORMANCE CURVE FOR CULVERT 1 - 2( 3.00 (ft) BY 3.00 (ft)) RCP

| DIS-CHARGE FLOW (cfs) | HEAD-WATER ELEV. (ft) | INLET CONTROL DEPTH (ft) | OUTLET CONTROL DEPTH (ft) | FLOW TYPE <F4> | NORMAL DEPTH (ft) | CRIT. DEPTH (ft) | OUTLET DEPTH (ft) | TW DEPTH (ft) | OUTLET VEL. (fps) | TW VEL. (fps) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 2451.00 | 0.00 | -0.50 | 0-NF | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 115.60 | 2455.64 | 4.64 | 4.16 | 5-S2n | 2.16 | 2.45 | 2.23 | 1.68 | 10.29 | 7.73 |
| 125.99 | 2456.13 | 5.13 | 4.56 | 5-S2n | 2.33 | 2.53 | 2.36 | 2.47 | 10.56 | 9.59 |
| 132.77 | 2456.47 | 5.47 | 5.11 | 4-FFt | 2.45 | 2.59 | 2.45 | 3.06 | 10.75 | 10.81 |
| 134.29 | 2456.67 | 5.55 | 5.67 | 4-FFt | 2.49 | 2.60 | 3.00 | 3.56 | 9.50 | 11.75 |
| 129.75 | 2456.93 | 5.32 | 5.93 | 4-FFt | 2.39 | 2.56 | 3.00 | 4.00 | 9.18 | 12.52 |
| 125.54 | 2457.16 | 5.10 | 6.16 | 4-FFt | 2.32 | 2.53 | 3.00 | 4.39 | 8.88 | 13.17 |
| 121.48 | 2457.37 | 4.91 | 6.37 | 4-FFt | 2.25 | 2.50 | 3.00 | 4.74 | 8.59 | 13.74 |
| 117.48 | 2457.56 | 4.72 | 6.56 | 4-FFt | 2.19 | 2.47 | 3.00 | 5.07 | 8.31 | 14.26 |
| 113.52 | 2457.74 | 4.54 | 6.74 | 4-FFt | 2.13 | 2.43 | 3.00 | 5.38 | 8.03 | 14.72 |
| 109.74 | 2457.90 | 4.38 | 6.90 | 4-FFt | 2.07 | 2.40 | 3.00 | 5.66 | 7.76 | 15.16 |

El. inlet face invert 2451.00 ft El. outlet invert 2450.50 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

| | |
|---|---|
| INLET STATION | 100.00 ft |
| INLET ELEVATION | 2451.00 ft |
| OUTLET STATION | 150.00 ft |
| OUTLET ELEVATION | 2450.50 ft |
| NUMBER OF BARRELS | 2 |
| SLOPE (V/H) | 0.0100 |
| CULVERT LENGTH ALONG SLOPE | 50.00 ft |

***** CULVERT DATA SUMMARY **********

| | |
|---|---|
| BARREL SHAPE | CIRCULAR |
| BARREL DIAMETER | 3.00 ft |
| BARREL MATERIAL | CONCRETE |
| BARREL MANNING'S n | 0.013 |
| INLET TYPE | CONVENTIONAL |
| INLET EDGE AND WALL | SQUARE EDGE WITH HEADWALL |
| INLET DEPRESSION | NONE |

CURRENT DATE: 01-15-2001 FILE DATE: 01-15-2001
CURRENT TIME: 20:04:13 FILE NAME: BD4X

## TAILWATER

******* REGULAR CHANNEL CROSS SECTION ****************

| | |
|---|---|
| BOTTOM WIDTH | 30.00 ft |
| SIDE SLOPE H/V (X:1) | 5.0 |
| CHANNEL SLOPE V/H (ft/ft) | 0.016 |
| MANNING'S n (.01-0.1) | 0.030 |
| CHANNEL INVERT ELEVATION | 2450.50 ft |
| CULVERT NO.1 OUTLET INVERT ELEVATION | 2450.50 ft |

******* UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

| FLOW (cfs) | W.S.E. (ft) | FROUDE NUMBER | DEPTH (ft) | VEL. (f/s) | SHEAR (psf) |
|---|---|---|---|---|---|
| 0.00 | 2450.50 | 0.000 | 0.00 | 0.00 | 0.00 |
| 500.00 | 2452.18 | 1.050 | 1.68 | 7.73 | 1.68 |
| 1000.00 | 2452.97 | 1.076 | 2.47 | 9.59 | 2.46 |
| 1500.00 | 2453.56 | 1.089 | 3.06 | 10.81 | 3.06 |
| 2000.00 | 2454.06 | 1.097 | 3.56 | 11.75 | 3.56 |
| 2500.00 | 2454.50 | 1.103 | 4.00 | 12.52 | 3.99 |
| 3000.00 | 2454.89 | 1.108 | 4.39 | 13.17 | 4.38 |
| 3500.00 | 2455.24 | 1.112 | 4.74 | 13.74 | 4.73 |
| 4000.00 | 2455.57 | 1.116 | 5.07 | 14.26 | 5.06 |
| 4500.00 | 2455.88 | 1.119 | 5.38 | 14.72 | 5.37 |
| 5000.00 | 2456.16 | 1.123 | 5.66 | 15.16 | 5.65 |

## ROADWAY OVERTOPPING DATA

| | |
|---|---|
| WEIR COEFFICIENT | 3.00 |
| EMBANKMENT TOP WIDTH | 50.00 ft |

***** USER DEFINED ROADWAY PROFILE

| CROSS-SECTION COORD. NO. | X ft | Y ft |
|---|---|---|
| 1 | 1000.00 | 2465.00 |
| 2 | 1223.00 | 2460.00 |
| 3 | 1575.00 | 2455.00 |
| 4 | 1736.00 | 2455.00 |
| 5 | 1800.00 | 2457.00 |
| 6 | 2342.00 | 2460.00 |
| 7 | 2910.00 | 2465.00 |

DVBD2

| HY8 OUTPUT DATA | | | | WEIR SECTION FACING DOWNSTREAM, SEE WEIR SECTION EXHIBIT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| "DI" | WSE @ | THRU | TOTAL | 1ST POINT FROM LEFT | | | | | 2ND POINT FROM LEFT | | | | | 3RD POINT FROM LEFT | | | | | 4TH POINT FROM LEFT | | | | | 5TH POINT FROM LEFT | | | | | 6TH POINT FROM LEFT | | | | | | SUM | | | "DQ" |
| TOTAL | CVT(S) | CVT(S) | WEIR | 610 | D1 | D1+D2 | L | A | 990 | D1 | D1+D2 | L | A | 1160 | D1 | D1+D2 | L | A | 1230 | D1 | D1+D2 | L | A | 1386 | D1 | D1+D2 | L | A | 1570 | D1 | D1+D2 | L | A | SUM | AREA | % WEIR | WEIR | TOTAL |
| (CFS) | (FT) | (CFS) | (CFS) | (FT) | | | | | (FT) | | | | | (FT) | | | | | (FT) | | | | | (FT) | | | | | (FT) | | | | | AREA | EAST | EAST | EAST | EAST |
| 0 | 2475.0 | 0 | 0 | 2485 | 0.0 | -- | -- | -- | 2480 | 0.0 | 0.0 | 380 | 0 | 2480 | 0.0 | 0.0 | 170 | 0 | 2480 | 0.0 | 0.0 | 70 | 0 | 2483 | 0.0 | 0.0 | 156 | 0 | 2485 | 0.0 | 0.0 | 184 | 0 | 0 | 0 | 0% | 0 | 0 |
| 500 | 2480.6 | 133 | 367 | 2485 | 0.0 | -- | -- | -- | 2480 | 0.6 | 0.6 | 380 | 114 | 2480 | 0.6 | 1.2 | 170 | 102 | 2480 | 0.6 | 1.2 | 70 | 42 | 2483 | 0.0 | 0.6 | 156 | 47 | 2485 | 0.0 | 0.0 | 184 | 0 | 305 | 89 | 29% | 107 | 240 |
| 1000 | 2481.0 | 141 | 859 | 2485 | 0.0 | -- | -- | -- | 2480 | 1.0 | 1.0 | 380 | 190 | 2480 | 1.0 | 2.0 | 170 | 170 | 2480 | 1.0 | 2.0 | 70 | 70 | 2483 | 0.0 | 1.0 | 156 | 78 | 2485 | 0.0 | 0.0 | 184 | 0 | 508 | 148 | 29% | 250 | 391 |
| 1500 | 2481.3 | 146 | 1354 | 2485 | 0.0 | -- | -- | -- | 2480 | 1.3 | 1.3 | 380 | 247 | 2480 | 1.3 | 2.6 | 170 | 221 | 2480 | 1.3 | 2.6 | 70 | 91 | 2483 | 0.0 | 1.3 | 156 | 101 | 2485 | 0.0 | 0.0 | 184 | 0 | 660 | 192 | 29% | 394 | 540 |
| 2000 | 2481.6 | 151 | 1849 | 2485 | 0.0 | -- | -- | -- | 2480 | 1.6 | 1.6 | 380 | 304 | 2480 | 1.6 | 3.2 | 170 | 272 | 2480 | 1.6 | 3.2 | 70 | 112 | 2483 | 0.0 | 1.6 | 156 | 125 | 2485 | 0.0 | 0.0 | 184 | 0 | 813 | 237 | 29% | 539 | 690 |

DVBD3

| HY8 OUTPUT DATA | | | | WEIR SECTION FACING DOWNSTREAM, SEE WEIR SECTION EXHIBIT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| "DI" | WSE @ | THRU | TOTAL | 1ST POINT FROM LEFT | | | | | 2ND POINT FROM LEFT | | | | | 3RD POINT FROM LEFT | | | | | 4TH POINT FROM LEFT | | | | | 5TH POINT FROM LEFT | | | | | | | | | | | SUM | | | "DQ" |
| TOTAL | CVT(S) | CVT(S) | WEIR | 1712 | D1 | D1+D2 | L | A | 1892 | D1 | D1+D2 | L | A | 2636 | D1 | D1+D2 | L | A | 2670 | D1 | D1+D2 | L | A | 3094 | D1 | D1+D2 | L | A | SUM | AREA | % WEIR | WEIR | TOTAL |
| (CFS) | (FT) | (CFS) | (CFS) | (FT) | | | | | (FT) | | | | | (FT) | | | | | (FT) | | | | | (FT) | | | | | AREA | EAST | EAST | EAST | EAST |
| 0 | 2459.0 | 0 | 0 | 2470 | 0.0 | -- | -- | -- | 2465 | 0.0 | 0.0 | 180 | 0 | 2465 | 0.0 | 0.0 | 744 | 0 | 2467 | 0.0 | 0.0 | 34 | 0 | 2470 | 0.0 | 0.0 | 424 | 0 | 0 | 0 | 0% | 0 | 0 |
| 500 | 2465.2 | 247 | 253 | 2470 | 0.0 | -- | -- | -- | 2465 | 0.2 | 0.2 | 180 | 21 | 2465 | 0.2 | 0.5 | 744 | 171 | 2467 | 0.0 | 0.2 | 34 | 4 | 2470 | 0.0 | 0.0 | 424 | 0 | 196 | 4 | 2% | 5 | 252 |
| 1000 | 2465.5 | 256 | 744 | 2470 | 0.0 | -- | -- | -- | 2465 | 0.5 | 0.5 | 180 | 43 | 2465 | 0.5 | 1.0 | 744 | 357 | 2467 | 0.0 | 0.5 | 34 | 8 | 2470 | 0.0 | 0.0 | 424 | 0 | 408 | 8 | 2% | 15 | 271 |
| 1500 | 2465.7 | 263 | 1237 | 2470 | 0.0 | -- | -- | -- | 2465 | 0.7 | 0.7 | 180 | 60 | 2465 | 0.7 | 1.3 | 744 | 498 | 2467 | 0.0 | 0.7 | 34 | 11 | 2470 | 0.0 | 0.0 | 424 | 0 | 570 | 11 | 2% | 25 | 288 |
| 2000 | 2465.8 | 269 | 1731 | 2470 | 0.0 | -- | -- | -- | 2465 | 0.8 | 0.8 | 180 | 75 | 2465 | 0.8 | 1.7 | 744 | 618 | 2467 | 0.0 | 0.8 | 34 | 14 | 2470 | 0.0 | 0.0 | 424 | 0 | 706 | 14 | 2% | 35 | 304 |

DVBD4

| HY8 OUTPUT DATA | | | | WEIR SECTION FACING DOWNSTREAM, SEE WEIR SECTION EXHIBIT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| "DI" | WSE @ | THRU | TOTAL | 1ST POINT FROM LEFT | | | | | 2ND POINT FROM LEFT | | | | | 3RD POINT FROM LEFT | | | | | 4TH POINT FROM LEFT | | | | | 5TH POINT FROM LEFT | | | | | | | | | | | SUM | | | "DQ" |
| TOTAL | CVT(S) | CVT(S) | WEIR | 1223 | D1 | D1+D2 | L | A | 1575 | D1 | D1+D2 | L | A | 1736 | D1 | D1+D2 | L | A | 1800 | D1 | D1+D2 | L | A | 2342 | D1 | D1+D2 | L | A | SUM | AREA | % WEIR | WEIR | TOTAL |
| (CFS) | (FT) | (CFS) | (CFS) | (FT) | | | | | (FT) | | | | | (FT) | | | | | (FT) | | | | | (FT) | | | | | AREA | EAST | EAST | EAST | EAST |
| 0 | 2451.0 | 0 | 0 | 2460 | 0.0 | -- | -- | -- | 2455 | 0.0 | 0.0 | 352 | 0 | 2455 | 0.0 | 0.0 | 161 | 0 | 2457 | 0.0 | 0.0 | 64 | 0 | 2460 | 0.0 | 0.0 | 542 | 0 | 0 | 0 | 0% | 0 | 0 |
| 500 | 2455.8 | 116 | 384 | 2460 | 0.0 | -- | -- | -- | 2455 | 0.8 | 0.8 | 352 | 136 | 2455 | 0.8 | 1.5 | 161 | 124 | 2457 | 0.0 | 0.8 | 64 | 25 | 2460 | 0.0 | 0.0 | 542 | 0 | 284 | 25 | 9% | 33 | 149 |
| 1000 | 2456.3 | 126 | 874 | 2460 | 0.0 | -- | -- | -- | 2455 | 1.3 | 1.3 | 352 | 222 | 2455 | 1.3 | 2.5 | 161 | 203 | 2457 | 0.0 | 1.3 | 64 | 40 | 2460 | 0.0 | 0.0 | 542 | 0 | 465 | 40 | 9% | 76 | 202 |
| 1500 | 2456.6 | 133 | 1367 | 2460 | 0.0 | -- | -- | -- | 2455 | 1.6 | 1.6 | 352 | 285 | 2455 | 1.6 | 3.2 | 161 | 261 | 2457 | 0.0 | 1.6 | 64 | 52 | 2460 | 0.0 | 0.0 | 542 | 0 | 598 | 52 | 9% | 119 | 252 |
| 2000 | 2456.9 | 134 | 1866 | 2460 | 0.0 | -- | -- | -- | 2455 | 1.9 | 1.9 | 352 | 340 | 2455 | 1.9 | 3.9 | 161 | 311 | 2457 | 0.0 | 1.9 | 64 | 62 | 2460 | 0.0 | 0.0 | 542 | 0 | 712 | 62 | 9% | 162 | 296 |

# DIVERSION DVBD7

# MANNING'S n FOR CHANNEL ON WEST SIDE OF I-15

G.C. WALLACE, INC.

DATE 7/01 SUBJECT DIVERSION SHEET NO. ____ OF ____

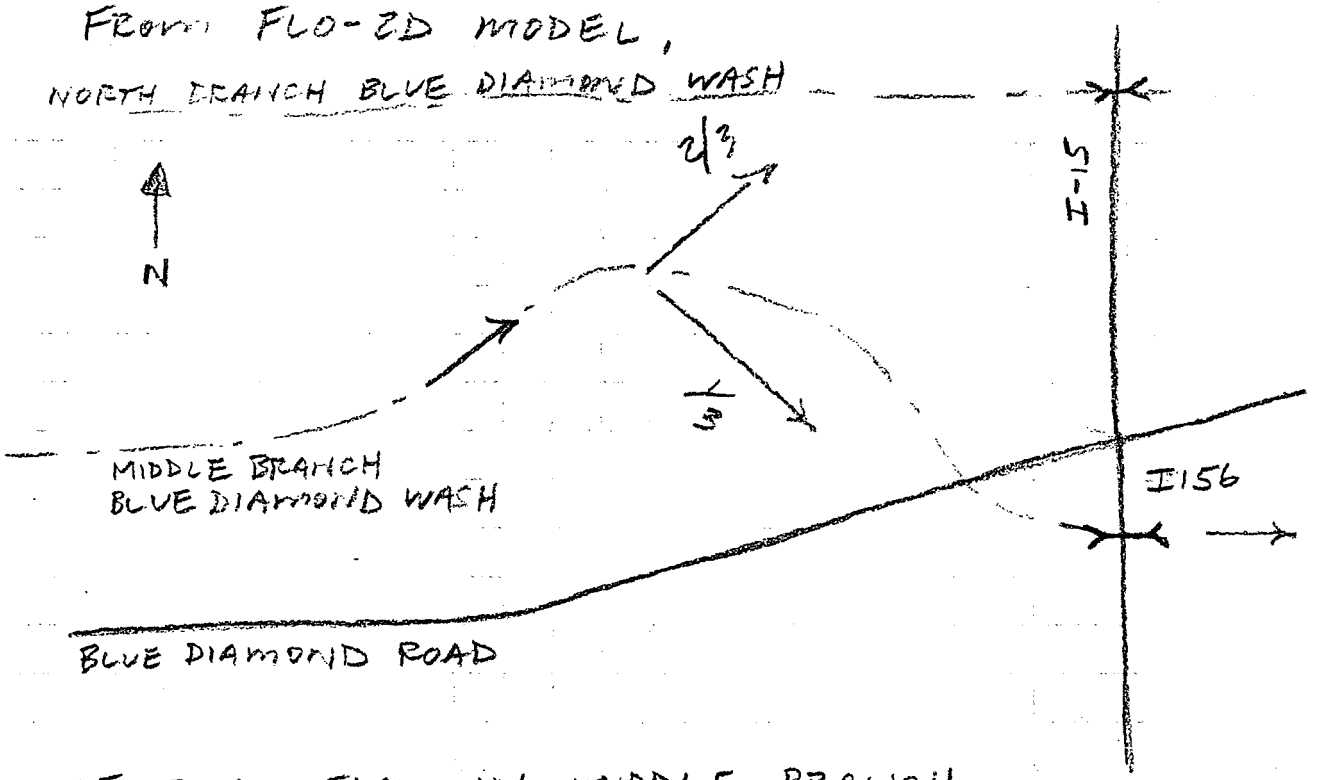
BY MJL JOB NO. 550.039

DVBD7

DIVERSION AT MIDDLE BRANCH OF BLUE DIAMOND WASH NEAR FUTURE INTERSECTION OF HINSON STREET AND WINDMILL LANE

DIVERSION DATA REFERENCED FROM BLUE DIAMOND/ I-15 INTERCHANGE REPORT BY PBS&J, 9/2000. SEE "REFERENCES" SECTION

FROM FLO-2D MODEL,




OF TOTAL FLOW IN MIDDLE BRANCH, 2/3 WILL BE DIVERTED NE TO NORTH BRANCH. THE REMAINING 1/3 CONTINUES IN MIDDLE BRANCH.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| D1 | 0 | 1200 | 1500 | 1800 | 2100 | 2400 | 2700 | 3000 |
| DQ | 0 | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 |

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

DATE 7/6/01 SUBJECT DIVERSIONS SHEET NO. 1 OF 1
BY MJL JOB NO. 550.039

CHANNEL ROUGHNESS I-15 CHANNEL

$n = (n_0 + n_1 + n_2 + n_3 + n_4)\, m_5$

$n_0 = 0.020$ MATERIAL = EARTH

$n_1 = 0.005$ DEGREE OF IRREGULARITY = MINOR

$n_2 = 0.005$ VARIATION OF CHANNEL CROSS SECTION = ALTERNATING OCCASIONALLY

$n_3 = 0.000$ RELATIVE EFFECT OF OBSTRUCTIONS = NEGLIGIBLE

$n_4 = 0.005$ VEGETATION = LOW

$m_5 = 1.000$ DEGREE OF MEANDERING = MINOR

$n = (0.020 + 0.005 + 0.005 + 0.005)\, 1.0$

$= \boxed{0.035}$

FOR USE IN CHANNEL CAPACITY CALCULATIONS DOWNSTREAM OF WEIR SECTIONS.

- METHOD REFERENCED FROM CHOW, OPEN CHANNEL HYDRAULICS

# SLOPE CALCULATIONS FOR CHANNEL ON WEST SIDE OF I-15

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

DATE _____ SUBJECT DIVERSIONS SHEET NO. _____ OF _____

BY MJL JOB NO. _____

# SLOPE CALCULATIONS – I-15 CHANNEL

- I151 TO I152

$$\frac{2282.80 - 2279.55 \text{ FT}}{1288 \text{ FT}} = 0.0025 \Rightarrow \boxed{0.3\%}$$

- I152 TO I153

$$\frac{2279.55 - 2278.71 \text{ FT}}{1852 \text{ FT}} = 0.00045 \Rightarrow \boxed{0.05\%}$$

- I153 TO I154

$$\frac{2278.71 - 2272.47 \text{ FT}}{4253 \text{ FT}} = 0.0015 \Rightarrow \boxed{0.15\%}$$

- I154 TO I155

$$\frac{2272.47 - 2264.49 \text{ FT}}{2186 \text{ FT}} = 0.0037 \Rightarrow \boxed{0.37\%}$$

- I155 TO I156

$$\frac{2264.49 - 2262.60 \text{ FT}}{5820 \text{ FT}} = 0.0003 \Rightarrow \boxed{0.03\%}$$

# REFERENCED SURVEY POINT DATA FOR WEIRS/ CHANNELS

# BLUE DIAMOND SURVEY POINTS/CULVERTS

| POINT | NORTHING | EASTING | ELEVATION | DESCRIPTION |
|---|---|---|---|---|
| DESCRIPTION | | | (m) | |
| 391 | 8140028.5970 | 236283.7430 | 696.3270 | NG |
| 392 | 8140015.8690 | 236285.0880 | 696.0700 | NG |
| 393 | 8140002.0900 | 236285.1640 | 696.1930 | NG |
| 394 | 8140021.9520 | 236296.4100 | 696.1480 | NG |
| ✓395 | 8140042.5710 | 236283.3270 | 697.7870 | TOP-BANK |
| ✓396 | 8140045.0680 | 236297.1880 | 697.6060 | TOP-BANK |
| 397 | 8140047.1270 | 236311.4480 | 697.3870 | TOP-BANK |
| 398 | 8140043.8790 | 236315.5950 | 697.3780 | TOP-BANK |
| 399 | 8140054.2130 | 236321.9300 | 697.5610 | EDGE-ASPHALT * |
| 400 | 8140032.6240 | 236321.4840 | 697.7010 | EDGE-ASPHALT |
| 401 | 8140008.0960 | 236320.9520 | 697.8770 | EDGE-ASPHALT |
| 402 | 8144747.0520 | 236351.0660 | 690.1750 | TOP-WW |
| 403 | 8144746.0420 | 236350.0450 | 690.7220 | TOP-HW |
| 404 | 8144730.9120 | 236350.0320 | 690.6730 | TOP-HW |
| 405 | 8144729.9560 | 236351.2540 | 690.1120 | TOP-WW |
| 406 | 8144728.1120 | 236352.0290 | 690.1750 | TOP-BANK |
| 407 | 8144728.1140 | 236362.0820 | 690.0770 | TOP-BANK |
| 408 | 8144728.6450 | 236371.7730 | 690.1360 | TOP-BANK |
| 409 | 8144734.2280 | 236369.5360 | 688.6210 | TOE-BANK |
| 410 | 8144732.7890 | 236359.6410 | 688.7910 | TOE-BANK |
| 411 | 8144731.5670 | 236353.4980 | 688.9550 | TOE-BANK |
| 412 | 8144744.2230 | 236353.9350 | 688.6980 | TOE-BANK |
| 413 | 8144742.6670 | 236362.5520 | 688.6820 | TOE-BANK |
| 414 | 8144741.4110 | 236369.3140 | 688.6720 | TOE-BANK |
| 415 | 8144747.5150 | 236369.6330 | 689.9410 | TOP-BANK |
| 416 | 8144747.1910 | 236362.6340 | 690.2210 | TOP-BANK |
| 417 | 8144748.9470 | 236351.4830 | 690.4720 | TOP-BANK |
| 418 | 8144753.5770 | 236342.2860 | 691.0500 | EDGE-ASPHALT |
| 419 | 8144738.6630 | 236341.9250 | 691.0510 | EDGE-ASPHALT |
| 420 | 8144723.3390 | 236341.5940 | 691.0660 | EDGE-ASPHALT |
| 421 | 8144711.8610 | 236372.1440 | 691.4230 | WALL-TOP |
| 422 | 8144727.7680 | 236372.5620 | 691.4670 | FENCE |
| 423 | 8144746.1350 | 236372.9670 | 691.8060 | FENCE |
| 424 | 8144761.9260 | 236373.3730 | 691.8940 | WALL-TOP |
| 426 | 8144746.8670 | 236277.3750 | 690.7830 | TOP-WW |
| ✓427 | 8144745.9170 | 236278.4970 | 691.3380 | TOP-HW |
| ✓428 | 8144730.7600 | 236278.5380 | 691.3570 | TOP-HW |
| 429 | 8144729.7540 | 236277.4220 | 690.8020 | TOP-WW |
| 430 | 8144728.2680 | 236280.0570 | 691.1680 | RIPRAP-EDGE |
| 431 | 8144724.2540 | 236278.2730 | 691.0830 | RIPRAP-EDGE |
| 432 | 8144722.0850 | 236270.8650 | 689.9820 | RIPRAP-EDGE |
| 433 | 8144717.3840 | 236261.9400 | 690.7280 | RIPRAP-EDGE |
| 434 | 8144715.5430 | 236256.9080 | 691.1630 | RIPRAP-EDGE |
| 435 | 8144714.3270 | 236255.4360 | 691.2280 | SIDEWALK |
| 436 | 8144723.3500 | 236255.0490 | 691.0440 | SIDEWALK |
| 437 | 8144731.2180 | 236254.7600 | 690.8660 | SIDEWALK |
| 438 | 8144739.1310 | 236254.5110 | 690.8070 | SIDEWALK |
| 439 | 8144746.6080 | 236254.2280 | 690.8310 | SIDEWALK |
| 440 | 8144754.1760 | 236254.0060 | 690.8530 | SIDEWALK |
| 441 | 8144762.2240 | 236253.7100 | 690.9060 | SIDEWALK |

# BLUE DIAMOND SURVEY POINTS/CULVERTS

| POINT | NORTHING | EASTING | ELEVATION | DESCRIPTION |
|---|---|---|---|---|
| DESCRIPTION | | | (m) | |
| 241 | 8144830.2280 | 235787.6940 | 696.2140 | RIPRAP-TOP |
| 242 | 8144833.1920 | 235801.3580 | 696.4750 | RIPRAP-TOP |
| 243 | 8144840.1140 | 235811.8880 | 696.5390 | TOP-BANK |
| 244 | 8144832.0600 | 235815.8030 | 694.1730 | TBC |
| 245 | 8144827.8900 | 235807.6440 | 694.3090 | TBC<P |
| 246 | 8144827.7530 | 235804.5810 | 694.3640 | TBCE |
| 247 | 8144828.8650 | 235803.3010 | 694.5930 | RIPRAP-TOE |
| 248 | 8144826.9840 | 235787.4960 | 694.8400 | RIPRAP-TOE |
| 249 | 8144813.3540 | 235760.3630 | 695.4350 | RIPRAP-TOE |
| 250 | 8144806.2700 | 235749.7110 | 695.4720 | TOE-BANK |
| 251 | 8144800.2670 | 235739.5920 | 695.5650 | TOE-BANK |
| 252 | 8144802.9720 | 235737.7680 | 696.5510 | TOP-BANK |
| 253 | 8144796.9280 | 235740.9810 | 695.6590 | TOE-BANK |
| 254 | 8144795.6360 | 235741.2180 | 696.4110 | TBC |
| 255 | 8144801.7660 | 235752.2190 | 696.0690 | TBC |
| 256 | 8144802.8930 | 235751.2820 | 695.5430 | TOE-BANK |
| 257 | 8144808.6350 | 235764.5040 | 695.6740 | TBC |
| 258 | 8144809.7780 | 235763.2390 | 695.3380 | TOE-BANK |
| 259 | 8144815.9130 | 235777.4790 | 695.2590 | TBC |
| 260 | 8144821.2470 | 235787.0930 | 694.9860 | TBCE |
| 261 | 8144823.4340 | 235787.9050 | 694.7290 | 111 |
| 262 | 8144823.6020 | 235796.8720 | 694.4340 | EDGE-ASPHALT |
| 263 | 8144818.1670 | 235801.6050 | 694.5360 | TBC<P |
| 264 | 8144821.8710 | 235788.1870 | 694.9530 | TBC<P |
| 265 | 8144806.3380 | 235785.3400 | 695.3380 | TBC<P |
| 266 | 8142957.8260 | 236298.4980 | 691.5290 | TOP-WW |
| ✓267 | 8142959.1710 | 236299.7510 | 692.2390 | TOP-HW |
| ✓ 268 | 8142970.4770 | 236299.4960 | 692.2170 | TOP-HW |
| 269 | 8142971.7230 | 236298.1010 | 691.4580 | TOP-WW |
| 270 | 8142973.0120 | 236296.6840 | 691.9210 | TOP-BANK |
| 271 | 8142974.9590 | 236293.9110 | 692.0290 | TOP-BANK |
| 272 | 8142982.8550 | 236292.9250 | 691.8250 | TOP-BANK |
| ✓273 | 8142988.7420 | 236292.0220 | 691.4890 | TOP-BANK |
| 274 | 8142988.9180 | 236289.0720 | 690.4540 | TOE-BANK |
| 275 | 8142980.5640 | 236289.5650 | 690.3560 | TOE-BANK |
| 276 | 8142972.7270 | 236291.2000 | 690.3480 | TOE-BANK |
| 277 | 8142970.5060 | 236296.2390 | 690.3390 | TOE-BANK |
| 278 | 8142987.8360 | 236286.7600 | 690.5840 | TOE-BANK |
| 279 | 8142987.3810 | 236281.3080 | 691.9180 | TOP-BANK |
| 280 | 8142974.2600 | 236281.6980 | 692.0990 | TOP-BANK |
| 281 | 8142974.7480 | 236287.9870 | 690.4680 | TOE-BANK |
| 282 | 8142963.8110 | 236287.3750 | 690.7730 | TOE-BANK |
| 283 | 8142960.7840 | 236281.9860 | 692.0360 | TOP-BANK |
| 284 | 8142948.6810 | 236285.4230 | 690.0430 | TOE-BANK |
| 285 | 8142957.3110 | 236295.9260 | 690.2110 | TOE-BANK |
| 286 | 8142951.8590 | 236291.4300 | 690.2640 | TOE-BANK |
| 287 | 8142942.5440 | 236291.8220 | 690.7910 | TOE-BANK |
| 288 | 8142931.9510 | 236292.7240 | 690.9490 | TOE-BANK |
| 289 | 8142928.7520 | 236287.8930 | 691.0780 | TOE-BANK |
| 290 | 8142928.2440 | 236282.9390 | 692.0470 | TOP-BANK |

# BLUE DIAMOND SURVEY POINTS/CULVERTS

| POINT | NORTHING | EASTING | ELEVATION | DESCRIPTION |
|---|---|---|---|---|
| DESCRIPTION | | | (m) | |
| 291 | 8142942.8750 | 236282.7220 | 691.3970 | TOP-BANK |
| 292 | 8142945.9430 | 236287.8570 | 690.5470 | TOE-BANK |
| 293 | 8142933.9290 | 236295.9030 | 691.6900 | TOP-BANK |
| 294 | 8142942.7800 | 236294.3490 | 692.2560 | TOP-BANK |
| 295 | 8142952.2590 | 236294.4720 | 692.2480 | TOP-BANK |
| ✓296 | 8142952.6700 | 236306.0400 | 692.4240 | EDGE-ASPHALT |
| ✓297 | 8142964.4500 | 236305.7540 | 692.3990 | EDGE-ASPHALT |
| 298 | 8142976.3300 | 236305.4240 | 692.3940 | EDGE-ASPHALT |
| 299 | 8142275.2970 | 236315.3770 | 693.8420 | TOP-WW |
| 300 | 8142276.3280 | 236316.4830 | 694.3990 | TOP-HW |
| 301 | 8142283.8670 | 236316.3270 | 694.3150 | TOP-HW |
| 302 | 8142284.8790 | 236315.1660 | 693.7570 | TOP-WW |
| 303 | 8142287.6530 | 236316.5390 | 694.3730 | TOP-BANK |
| 304 | 8142292.9140 | 236313.1220 | 694.3200 | TOP-BANK |
| 305 | 8142296.5270 | 236305.9830 | 693.9800 | TOP-BANK |
| 306 | 8142293.8760 | 236305.1490 | 692.9260 | TOE-BANK |
| 307 | 8142290.7800 | 236311.1560 | 692.6180 | TOE-BANK |
| 308 | 8142285.4070 | 236313.4410 | 692.5740 | TOE-BANK |
| 309 | 8142277.1410 | 236314.5670 | 692.5240 | TOE-BANK |
| 310 | 8142275.6670 | 236307.8150 | 692.5850 | TOE-BANK |
| 311 | 8142271.9750 | 236305.8970 | 692.9340 | TOE-BANK |
| 312 | 8142265.1180 | 236307.1900 | 693.1640 | TOE-BANK |
| 313 | 8142265.6490 | 236310.5630 | 693.7670 | TOP-BANK |
| 314 | 8142270.9300 | 236308.6040 | 694.0800 | TOP-BANK |
| 315 | 8142273.8270 | 236314.8970 | 694.1780 | TOP-BANK |
| 316 | 8142263.5830 | 236304.5560 | 692.9860 | TOE-BANK |
| 317 | 8142262.3620 | 236299.1140 | 694.0120 | TOP-BANK |
| 318 | 8142270.8890 | 236300.4100 | 694.0890 | TOP-BANK |
| 319 | 8142271.1200 | 236304.0040 | 693.0300 | TOE-BANK |
| 320 | 8142266.5210 | 236322.5950 | 694.8010 | EDGE-ASPHALT |
| 321 | 8142280.9880 | 236322.2790 | 694.7720 | EDGE-ASPHALT |
| 322 | 8142295.5660 | 236321.8980 | 694.7630 | EDGE-ASPHALT |
| 323 | 8140988.0860 | 236333.8430 | 695.7470 | TOP-WW |
| ✓324 | 8140989.1050 | 236334.9310 | 696.2760 | TOP-HW |
| ✓325 | 8141000.4310 | 236335.1520 | 696.2370 | TOP-HW |
| 326 | 8141001.5390 | 236334.0960 | 695.6720 | TOP-WW |
| 327 | 8141003.5560 | 236333.1240 | 695.7900 | TOP-BANK |
| 328 | 8141003.9310 | 236322.5660 | 695.5480 | TOP-BANK |
| 329 | 8140999.8600 | 236312.3390 | 695.6680 | TOP-BANK |
| 330 | 8140993.8070 | 236304.3470 | 695.7330 | TOP-BANK |
| 331 | 8140986.2470 | 236299.5980 | 695.5800 | TOP-BANK |
| 332 | 8140984.9590 | 236300.7480 | 694.6770 | TOE-BANK |
| 333 | 8140991.9720 | 236306.4800 | 694.3460 | TOE-BANK |
| 334 | 8140998.3200 | 236313.8100 | 694.2440 | TOE-BANK |
| 335 | 8141001.4870 | 236320.9650 | 694.2220 | TOE-BANK |
| 336 | 8141000.3360 | 236330.8210 | 694.2940 | TOE-BANK |
| 337 | 8140989.5250 | 236331.9430 | 694.4660 | TOE-BANK |
| 338 | 8140986.9790 | 236325.9080 | 694.6000 | TOE-BANK |
| 339 | 8140975.4800 | 236324.5170 | 694.7480 | TOE-BANK |
| 340 | 8140963.3300 | 236324.5260 | 694.7360 | TOE-BANK |

# BLUE DIAMOND SURVEY POINTS/CULVERTS

| POINT | NORTHING | EASTING | ELEVATION | DESCRIPTION |
|---|---|---|---|---|
| DESCRIPTION | | | (m) | |
| 341 | 8140961.5790 | 236307.5740 | 694.7850 | TOE-BANK |
| 342 | 8140961.2790 | 236299.1720 | 695.8340 | TOP-BANK |
| 343 | 8140973.0440 | 236301.3660 | 695.7460 | TOP-BANK |
| 344 | 8140977.9350 | 236307.9870 | 694.6510 | TOE-BANK |
| 345 | 8140962.6820 | 236326.9550 | 695.6760 | TOP-BANK |
| 346 | 8140975.8520 | 236327.5000 | 695.6600 | TOP-BANK |
| 347 | 8140984.5120 | 236328.8510 | 695.7640 | TOP-BANK |
| 348 | 8140986.1560 | 236332.9620 | 695.8410 | TOP-BANK |
| ✓ 349 | 8140977.4710 | 236340.9270 | 696.3550 | EDGE-ASPHALT |
| ✓ 350 | 8140994.8260 | 236341.2370 | 696.3590 | EDGE-ASPHALT |
| ✓ 351 | 8141011.6770 | 236341.5010 | 696.3290 | EDGE-ASPHALT |
| 352 | 8140406.3940 | 236321.9010 | 695.9970 | TOP-WW |
| ✓ 353 | 8140407.4070 | 236323.0580 | 696.5100 | TOP-HW |
| ✓ 354 | 8140414.9290 | 236323.2250 | 696.5180 | TOP-HW |
| 355 | 8140415.9700 | 236322.1260 | 695.9710 | TOP-WW |
| 356 | 8140417.2090 | 236323.2020 | 696.3220 | TOP-BANK |
| ✓ 357 | 8140429.3200 | 236317.7760 | 696.1540 | TOP-BANK |
| 358 | 8140440.9510 | 236317.5150 | 696.1030 | TOP-BANK |
| 359 | 8140441.9270 | 236314.7440 | 694.8700 | TOE-BANK |
| ✓ 360 | 8140429.7650 | 236315.3600 | 694.9220 | TOE-BANK |
| 361 | 8140416.4930 | 236320.6460 | 694.8410 | TOE-BANK |
| 362 | 8140406.3460 | 236320.6820 | 694.8180 | TOE-BANK |
| 363 | 8140395.0930 | 236314.2830 | 694.7710 | TOE-BANK |
| 364 | 8140382.2210 | 236312.0640 | 694.8460 | TOE-BANK |
| 365 | 8140383.3700 | 236290.5460 | 694.9000 | NG |
| 366 | 8140396.0850 | 236290.7490 | 694.9590 | NG |
| 367 | 8140408.5580 | 236291.2520 | 695.1150 | NG |
| 368 | 8140421.0280 | 236290.9580 | 695.1120 | NG |
| 369 | 8140432.1720 | 236291.0180 | 695.0410 | NG |
| 370 | 8140411.7400 | 236302.1920 | 694.8940 | NG |
| 371 | 8140381.8330 | 236314.9480 | 695.9940 | TOP-BANK |
| 372 | 8140393.8950 | 236316.4320 | 696.0180 | TOP-BANK |
| 373 | 8140405.4840 | 236323.0060 | 696.2760 | TOP-BANK |
| ✓ 374 | 8140396.8880 | 236328.8220 | 696.5570 | EDGE-ASPHALT |
| ✓ 375 | 8140411.4440 | 236329.0790 | 696.5590 | EDGE-ASPHALT |
| ✓ 376 | 8140427.6480 | 236329.4170 | 696.5400 | EDGE-ASPHALT |
| 377 | 8140041.3910 | 236314.2290 | 696.7600 | TOP-WW |
| 378 | 8140041.8260 | 236315.5330 | 697.4760 | TOP-HW |
| 379 | 8140033.5050 | 236315.3630 | 697.5050 | TOP-HW |
| 380 | 8140022.2760 | 236315.0760 | 697.5260 | TOP-HW |
| 381 | 8140020.9820 | 236313.9470 | 697.2910 | TOP-BANK |
| 382 | 8140014.3760 | 236307.7220 | 697.1260 | TOP-BANK |
| 383 | 8140003.3530 | 236306.0740 | 696.8700 | TOP-BANK |
| 384 | 8140002.3480 | 236302.4250 | 696.0020 | TOE-BANK |
| 385 | 8140016.3740 | 236304.3860 | 695.8040 | TOE-BANK |
| 386 | 8140023.6930 | 236313.3870 | 695.9200 | TOE-BANK |
| 387 | 8140041.0670 | 236312.6720 | 695.9400 | TOE-BANK |
| 388 | 8140044.0380 | 236310.1670 | 696.2590 | TOE-BANK |
| 389 | 8140040.9680 | 236298.5200 | 696.0750 | TOE-BANK |
| 390 | 8140038.2690 | 236283.9190 | 696.4970 | TOE-BANK |

# DIVERSION DVI151

DVI151

## SUMMARY OF DIVERSION CALCULATIONS

| | | | | "DQ" | | | | "DI" |
|---|---|---|---|---|---|---|---|---|
| WSE (FT) | DEPTH (FT) | EAST Qcvt (CFS) | EAST Qweir (CFS) | EAST Qdivert (CFS) | NORTH Qweir (CFS) | NORTH Qchan (CFS) | NORTH Qcontrol (CFS) | INFLOW Qtotal (CFS) |
| 2282.8 | 0.0 | 0 | | | | | | 0 |
| 2287.4 | 4.6 | 992 | 0 | 992 | 1 | 3915 | 1 | 993 |
| 2287.8 | 5.0 | 1100 | 0 | 1100 | 205 | 4507 | 205 | 1305 |
| 2288.2 | 5.4 | 1200 | 0 | 1200 | 578 | 5208 | 578 | 1778 |
| 2288.6 | 5.8 | 1298 | 0 | 1298 | 1102 | 6023 | 1102 | 2400 |
| 2289.0 | 6.2 | 1389 | 0 | 1389 | 1757 | 6957 | 1757 | 3146 |

WSE = GIVEN
DEPTH = WSE-UPSTREAM CULVERT INLET
EAST Qcvt = INLET CONTROL CALCULATION ATTACHED
EAST Qweir = FROM SUM OF "EAST Qweir" FOR EACH DEPTH
EAST Qdivert = EAST Qcvt + EAST Qweir
NORTH Qweir = FROM SUM OF "NORTH Qweir" FOR EACH DEPTH
NORTH Qchan = CHANNEL CAPACITY, NORMAL DEPTH CALCULATION ATTACHED
NORTH Qcontrol = SMALLER FLOW OF "NORTH Qweir" AND "NORTH Qchan"
INFLOW Qtotal = "EAST Qdivert" + "NORTH Qcontrol"

D= 4.6 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2295.40 | 2287.4 | 0.0 | | | |
| B | 262 | 262 | 2290.40 | 2287.4 | 0.0 | 0.0 | 0 | |
| X | 426 | 164 | 2287.40 | 2287.4 | 0.0 | 0.0 | 0 | |
| Y | 590 | 164 | 2287.37 | 2287.4 | 0.0 | 0.0 | 1 | |
| C | 689 | 99 | 2289.40 | 2287.4 | 0.0 | 0.0 | 1 | |
| D | 735 | 46 | 2288.80 | 2287.4 | 0.0 | 0.0 | 0 | |
| E | 781 | 46 | 2288.02 | 2287.4 | 0.0 | 0.0 | 0 | |
| F | 888 | 107 | 2290.30 | 2287.4 | 0.0 | 0.0 | 0 | |
| G | 966 | 78 | 2290.87 | 2287.4 | 0.0 | 0.0 | | 0 |
| H | 1340 | 374 | 2295.40 | 2287.4 | 0.0 | 0.0 | | 0 |
| | | | | | | | 1 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 5 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2295.40 | 2287.8 | 0.0 | | | |
| B | 262 | 262 | 2290.40 | 2287.8 | 0.0 | 0.0 | 0 | |
| X | 426 | 164 | 2287.40 | 2287.8 | 0.4 | 0.2 | 44 | |
| Y | 590 | 164 | 2287.37 | 2287.8 | 0.4 | 0.4 | 132 | |
| C | 689 | 99 | 2289.40 | 2287.8 | 0.0 | 0.2 | 30 | |
| D | 735 | 46 | 2288.80 | 2287.8 | 0.0 | 0.0 | 0 | |
| E | 781 | 46 | 2288.02 | 2287.8 | 0.0 | 0.0 | 0 | |
| F | 888 | 107 | 2290.30 | 2287.8 | 0.0 | 0.0 | 0 | |
| G | 966 | 78 | 2290.87 | 2287.8 | 0.0 | 0.0 | | 0 |
| H | 1340 | 374 | 2295.40 | 2287.8 | 0.0 | 0.0 | | 0 |
| | | | | | | | 205 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 5.4 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2295.40 | 2288.2 | 0.0 | | | |
| B | 262 | 262 | 2290.40 | 2288.2 | 0.0 | 0.0 | 0 | |
| X | 426 | 164 | 2287.40 | 2288.2 | 0.8 | 0.4 | 124 | |
| Y | 590 | 164 | 2287.37 | 2288.2 | 0.8 | 0.8 | 362 | |
| C | 689 | 99 | 2289.40 | 2288.2 | 0.0 | 0.4 | 79 | |
| D | 735 | 46 | 2288.80 | 2288.2 | 0.0 | 0.0 | 0 | |
| E | 781 | 46 | 2288.02 | 2288.2 | 0.2 | 0.1 | 4 | |
| F | 888 | 107 | 2290.30 | 2288.2 | 0.0 | 0.1 | 9 | |
| G | 966 | 78 | 2290.87 | 2288.2 | 0.0 | 0.0 | | 0 |
| H | 1340 | 374 | 2295.40 | 2288.2 | 0.0 | 0.0 | | 0 |
| | | | | | | | 578 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 5.8 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2295.40 | 2288.6 | 0.0 | | | |
| B | 262 | 262 | 2290.40 | 2288.6 | 0.0 | 0.0 | 0 | |
| X | 426 | 164 | 2287.40 | 2288.6 | 1.2 | 0.6 | 229 | |
| Y | 590 | 164 | 2287.37 | 2288.6 | 1.2 | 1.2 | 659 | |
| C | 689 | 99 | 2289.40 | 2288.6 | 0.0 | 0.6 | 143 | |
| D | 735 | 46 | 2288.80 | 2288.6 | 0.0 | 0.0 | 0 | |
| E | 781 | 46 | 2288.02 | 2288.6 | 0.6 | 0.3 | 22 | |
| F | 888 | 107 | 2290.30 | 2288.6 | 0.0 | 0.3 | 50 | |
| G | 966 | 78 | 2290.87 | 2288.6 | 0.0 | 0.0 | | 0 |
| H | 1340 | 374 | 2295.40 | 2288.6 | 0.0 | 0.0 | | 0 |
| | | | | | | | 1102 | 0 |

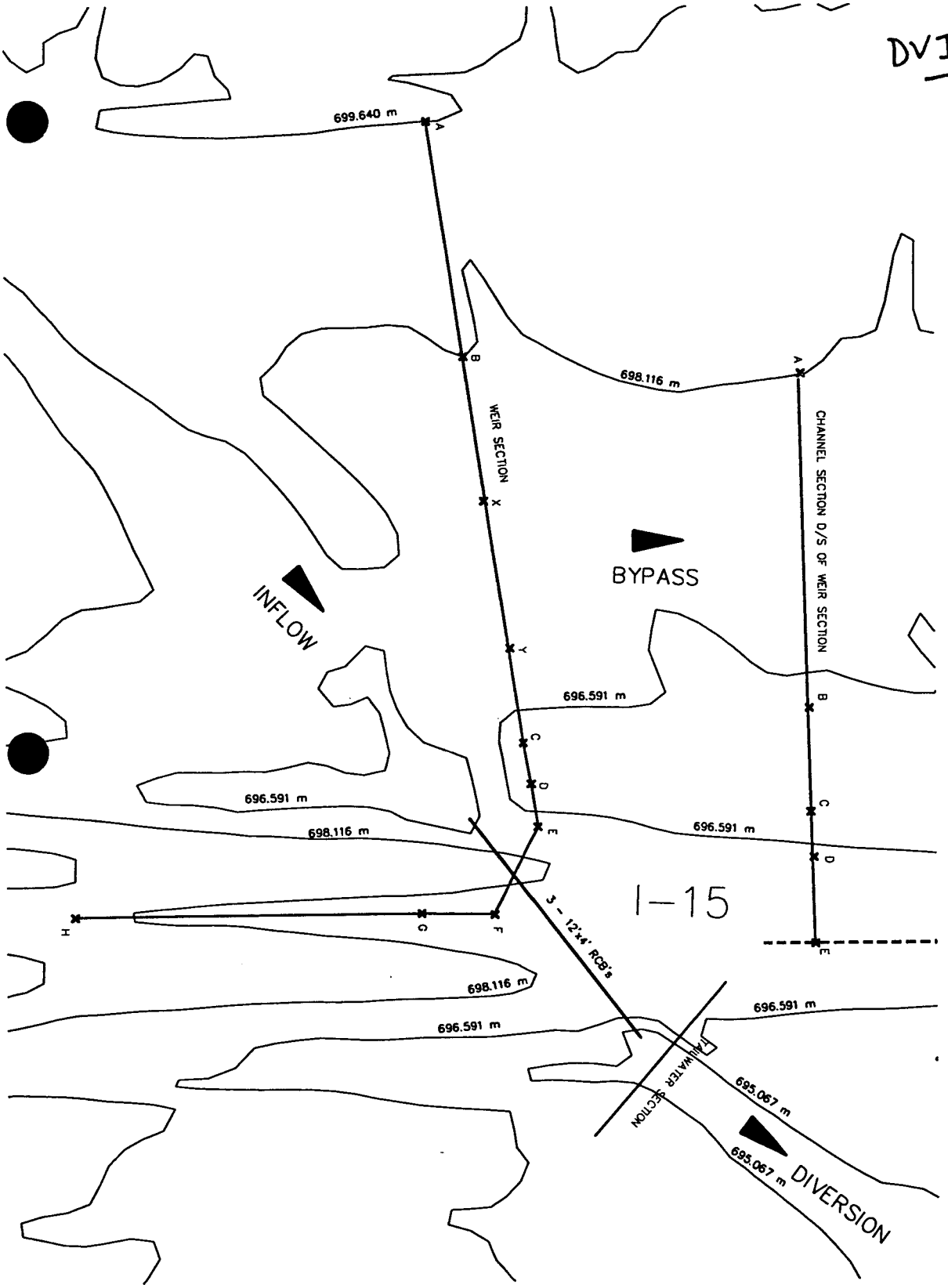
PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 6.2 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2295.40 | 2289.0 | 0.0 | | | |
| B | 262 | 262 | 2290.40 | 2289.0 | 0.0 | 0.0 | 0 | |
| X | 426 | 164 | 2287.40 | 2289.0 | 1.6 | 0.8 | 352 | |
| Y | 590 | 164 | 2287.37 | 2289.0 | 1.6 | 1.6 | 1010 | |
| C | 689 | 99 | 2289.40 | 2289.0 | 0.0 | 0.8 | 219 | |
| D | 735 | 46 | 2288.80 | 2289.0 | 0.2 | 0.1 | 4 | |
| E | 781 | 46 | 2288.02 | 2289.0 | 1.0 | 0.6 | 63 | |
| F | 888 | 107 | 2290.30 | 2289.0 | 0.0 | 0.5 | 110 | |
| G | 966 | 78 | 2290.87 | 2289.0 | 0.0 | 0.0 | | 0 |
| H | 1340 | 374 | 2295.40 | 2289.0 | 0.0 | 0.0 | | 0 |
| | | | | | | | 1757 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

DVI151


699.640 m
A
B
698.116 m
A
WEIR SECTION
X
CHANNEL SECTION D/S OF WEIR SECTION
BYPASS
INFLOW
Y
696.591 m
B
C
D
696.591 m
696.591 m
698.116 m
E
C
696.591 m
D
I-15
3 - 12'x4' RCB's
H
G
F
E
698.116 m
696.591 m
696.591 m
TAILWATER SECTION
695.067 m
695.067 m
DIVERSION

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

DATE 8/8/01 SUBJECT

BY MJL

SHEET NO. 1 OF 1

JOB NO. 550.039

DVI151

WEIR SECTION

| PT | STA (FT) | ELEV (m) | ELEV (FT) | DATA SOURCE/ EXPLANATION |
|---|---|---|---|---|
| A | 0 | 699.640 | 2295.40 | NDOT TOPO |
| B | 262 | 698.116 | 2290.40 | NDOT TOPO |
| X | 426 | 697.200 | 2287.40 | NDOT TOPO |
| Y | 590 | 697.190 | 2287.40 | NDOT TOPO |
| C | 689 | 697.787 | 2289.40 | SURVEY #395 |
| D | 735 | 697.606 | 2288.80 | SURVEY #396 |
| E | 781 | 697.387 | 2288.02 | SURVEY #397 |
| F | 888 | – | 2290.30 | CALC CROWN FROM SURVEY #400 |
| G | 966 | – | 2290.87 | CALC CROWN FROM SURVEY #401 |
| H | 1340 | 699.640 | 2295.40 | NDOT TOPO |

DETAILED POINT DESCRIPTIONS

PT F: #400 (EDGE) + 19 m @ 2% = CROWN

19 m (0.02) = 0.38 m ⇒ 1.25 FT

2289.05 FT + 1.25 FT = 2290.30 FT

PT G: #401 (EDGE) + 19 m @ 2% = CROWN

19 m (0.02) = 0.38 m ⇒ 1.25 FT

2289.62 FT + 1.25 FT = 2290.87 FT

# BOX CULVERT

Inlet control and outlet control.

I151

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 4.30 ft |
| Slope | 0.63 % | 45 degree bevels | 4.60 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 4.97 ft |
| Number of boxes | 3 | | |
| Culvert length | 280 ft | | |
| Discharge | 992 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 3.49 ft |
| | | Velocity | 6.89 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 2.87 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I151

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 4.61 ft |
| Slope | 0.63 % | 45 degree bevels | 5.00 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 5.41 ft |
| Number of boxes | 3 | | |
| Culvert length | 280 ft | | |
| Discharge | 1100 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 4.01 ft |
| | | Velocity | 7.64 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.08 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I151

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 4.90 ft |
| Slope | 0.63 % | 45 degree bevels | 5.40 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 5.85 ft |
| Number of boxes | 3 | | |
| Culvert length | 280 ft | | |
| Discharge | 1200 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 4.53 ft |
| | | Velocity | 8.33 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.26 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I151

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 5.18 ft |
| Slope | 0.63 % | 45 degree bevels | 5.80 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 6.31 ft |
| Number of boxes | 3 | | |
| Culvert length | 280 ft | | |
| Discharge | 1298 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 5.07 ft |
| | | Velocity | 9.01 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.44 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I151

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 5.44 ft |
| Slope | 0.63 % | 45 degree bevels | 6.20 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 6.75 ft |
| Number of boxes | 3 | | |
| Culvert length | 280 ft | | |
| Discharge | 1389 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 5.60 ft |
| | | Velocity | 9.65 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.60 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

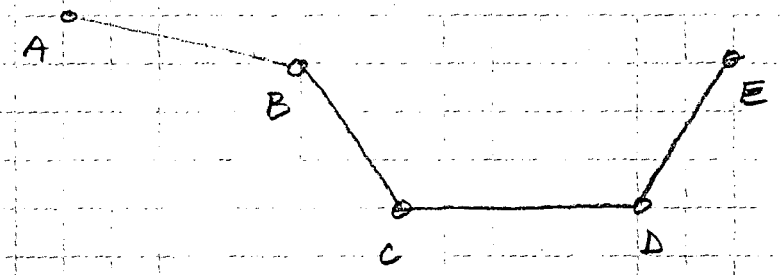
DATE _____ SUBJECT DIVERSIONS SHEET NO. _____ OF _____

BY _____ JOB NO. 550.039

DVI 151

CHANNEL SECTION

| PT | STA (m) | STA (FT) | ELEV (m) | ELEV (FT) | HEIGHT (FT) | DATA SOURCE/ EXPLANATION |
|---|---|---|---|---|---|---|
| A | 0 | 0 | 698.116 | 2290.40 | 8.73 | NDOT TOPO |
| B | 100 | 328 | 696.591 | 2285.40 | 3.73 | NDOT TOPO |
| C | | 364 | — | 2281.67 | 0 | NDOT TOPO |
| D | | 476 | — | 2281.67 | 0 | NDOT TOPO |
| E | | 512 | — | 2289.05 | 7.38 | SURVEY #399 |




$$S = \frac{2282.80 - 2279.55 \text{ FT}}{1288 \text{ FT}} = 0.0025 \Rightarrow 0.3\%$$

# Table
## Rating Table for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI151C |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 0.30 % |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Attribute | Minimum | Maximum | Increment |
|---|---|---|---|
| Water Surface Elevation (ft | 4.60 | 6.20 | 0.40 |

| Water Surface Elevation (ft) | Discharge (cfs) | Velocity (ft/s) | Flow Area ($ft^2$) | Wetted Perimeter (ft) | Top Width (ft) |
|---|---|---|---|---|---|
| 4.60 | 3,915.34 | 5.67 | 690.1 | 228.18 | 227.51 |
| 5.00 | 4,506.71 | 5.73 | 786.7 | 256.41 | 255.70 |
| 5.40 | 5,207.85 | 5.82 | 894.7 | 284.65 | 283.89 |
| 5.80 | 6,022.91 | 5.94 | 1,013.9 | 312.88 | 312.08 |
| 6.20 | 6,956.90 | 6.08 | 1,144.3 | 341.12 | 340.28 |

# DVI151
## Worksheet for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI151C |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | | |
|---|---|---|
| Slope | 0.30 | % |
| Water Surface Elevation | 4.13 | ft |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.030 | |
| Elevation Range | 0.00 to 8.73 | |
| Discharge | 3,356.00 | cfs |
| Flow Area | 590.7 | ft² |
| Wetted Perimeter | 194.91 | ft |
| Top Width | 194.30 | ft |
| Actual Depth | 4.13 | ft |
| Critical Elevation | 2.84 | ft |
| Critical Slope | 0.98 | % |
| Velocity | 5.68 | ft/s |
| Velocity Head | 0.50 | ft |
| Specific Energy | 4.63 | ft |
| Froude Number | 0.57 | |
| Flow Type | Subcritical | |

| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00.0 | 5+12.0 | 0.030 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00.0 | 8.73 |
| 3+28.0 | 3.73 |
| 3+64.0 | 0.00 |
| 4+76.0 | 0.00 |
| 5+12.0 | 7.38 |

# Table
## Rating Table for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI151C |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

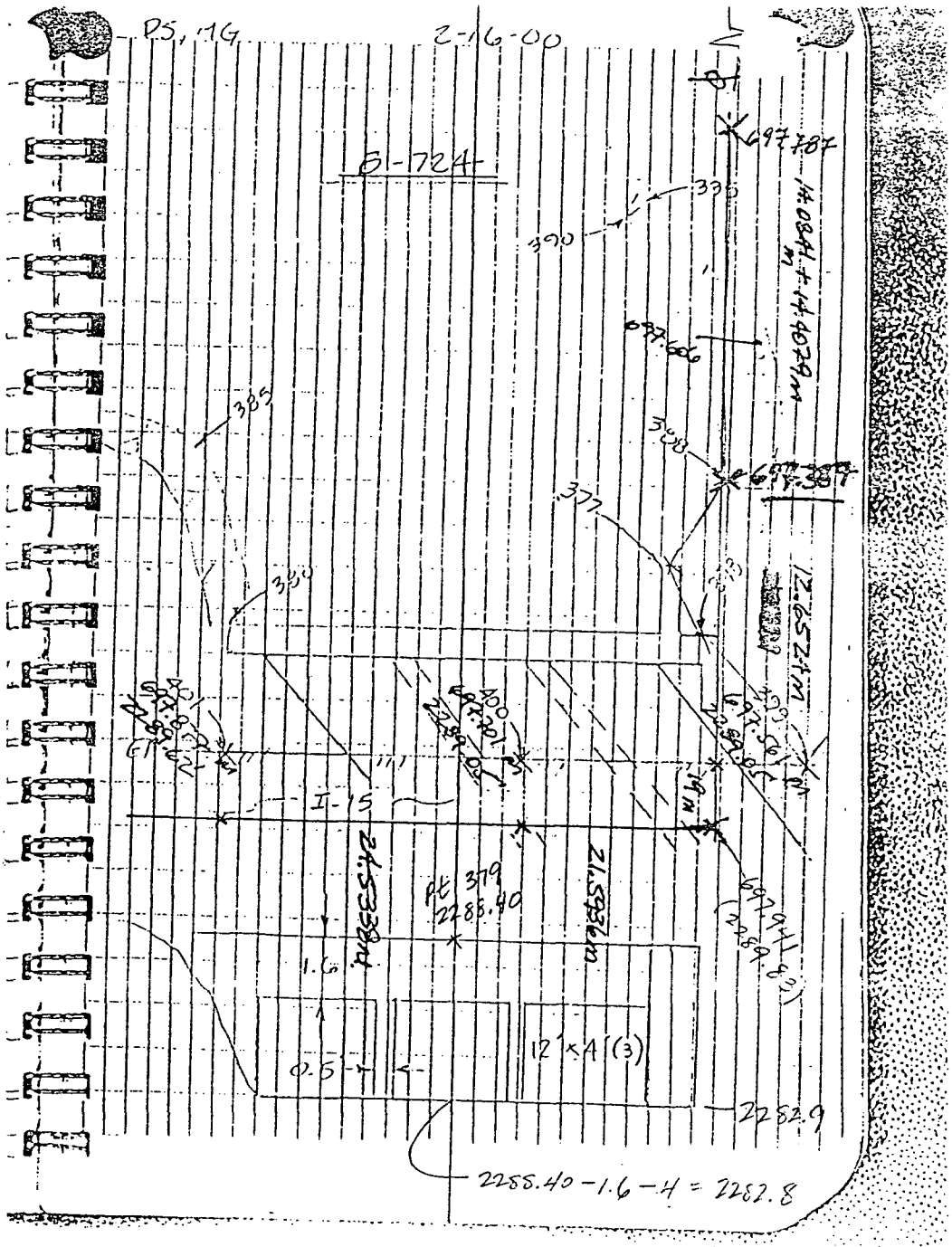
| Input Data | |
|---|---|
| Slope | 0.30 % |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Attribute | Minimum | Maximum | Increment |
|---|---|---|---|
| Water Surface Elevation (ft | 4.60 | 6.20 | 0.20 |

| Water Surface Elevation (ft) | Discharge (cfs) | Velocity (ft/s) | Flow Area ($ft^2$) | Wetted Perimeter (ft) | Top Width (ft) |
|---|---|---|---|---|---|
| 4.60 | 3,915.34 | 5.67 | 690.1 | 228.18 | 227.51 |
| 4.80 | 4,197.52 | 5.70 | 737.0 | 242.29 | 241.61 |
| 5.00 | 4,506.71 | 5.73 | 786.7 | 256.41 | 255.70 |
| 5.20 | 4,843.33 | 5.77 | 839.3 | 270.53 | 269.80 |
| 5.40 | 5,207.85 | 5.82 | 894.7 | 284.65 | 283.89 |
| 5.60 | 5,600.84 | 5.88 | 952.8 | 298.76 | 297.99 |
| 5.80 | 6,022.91 | 5.94 | 1,013.9 | 312.88 | 312.08 |
| 6.00 | 6,474.70 | 6.01 | 1,077.7 | 327.00 | 326.18 |
| 6.20 | 6,956.90 | 6.08 | 1,144.3 | 341.12 | 340.28 |

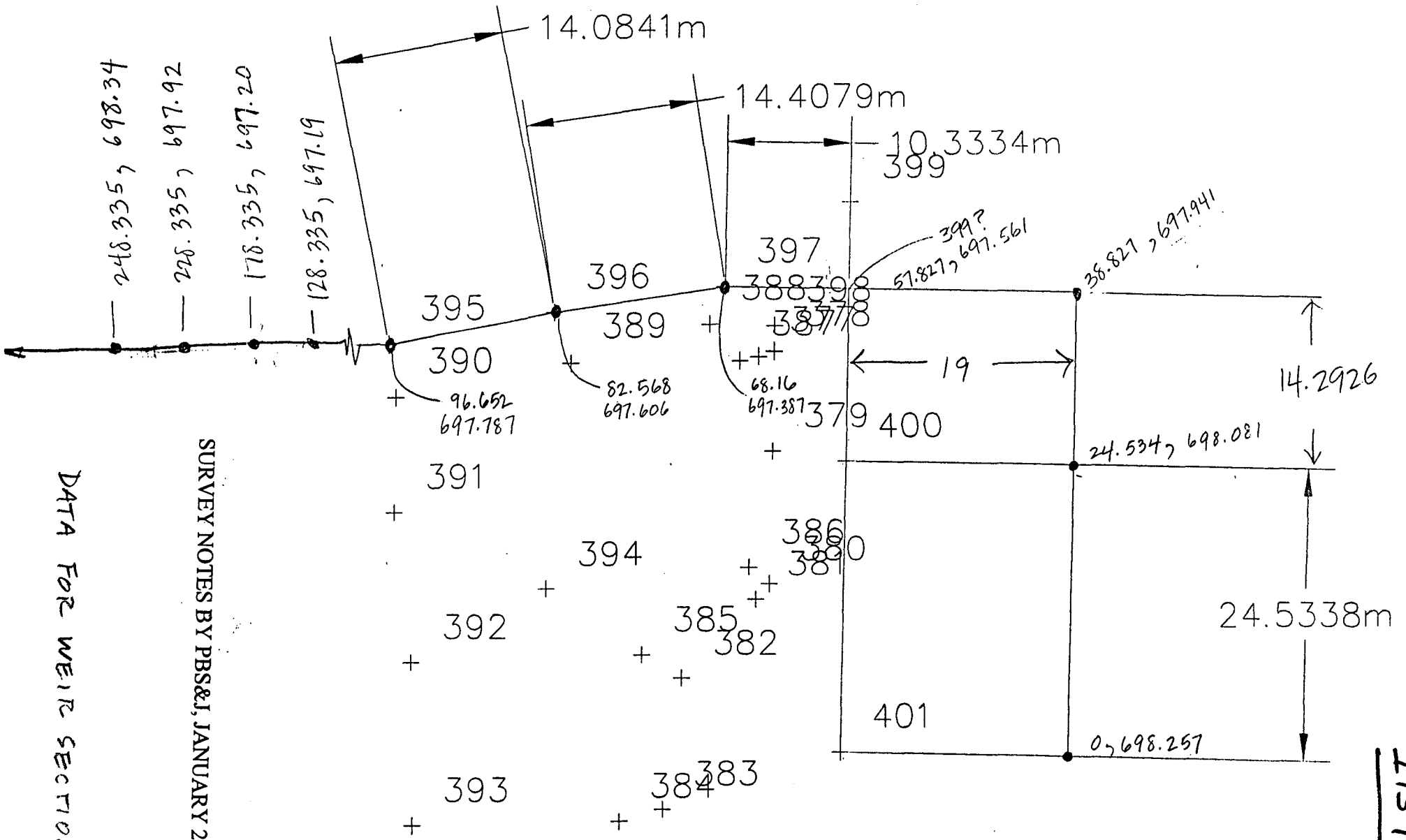
I151




SURVEY NOTES BY PBS&J, JANUARY 2001

DATA FOR CULVERT AND WEIR SECTION

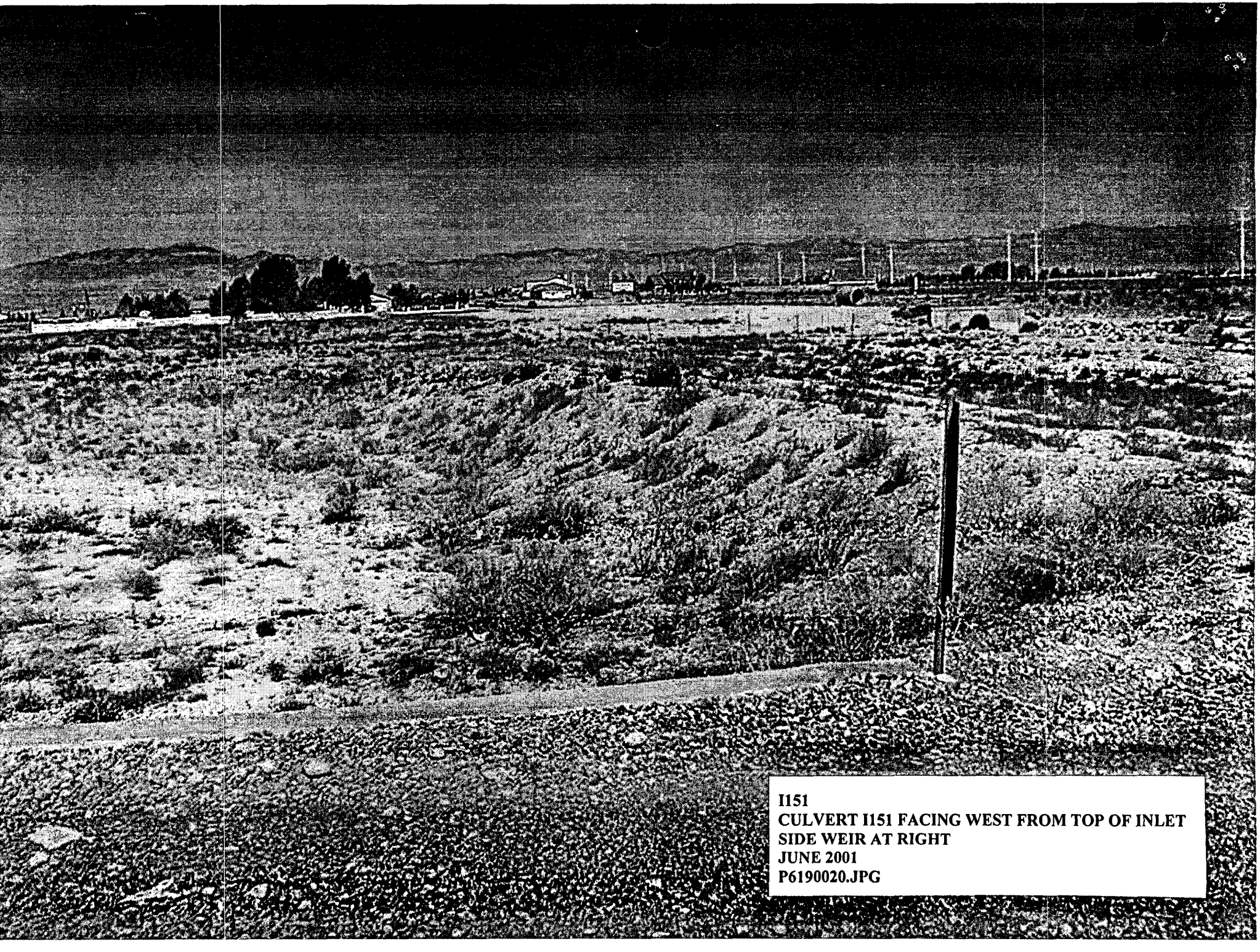
B-724



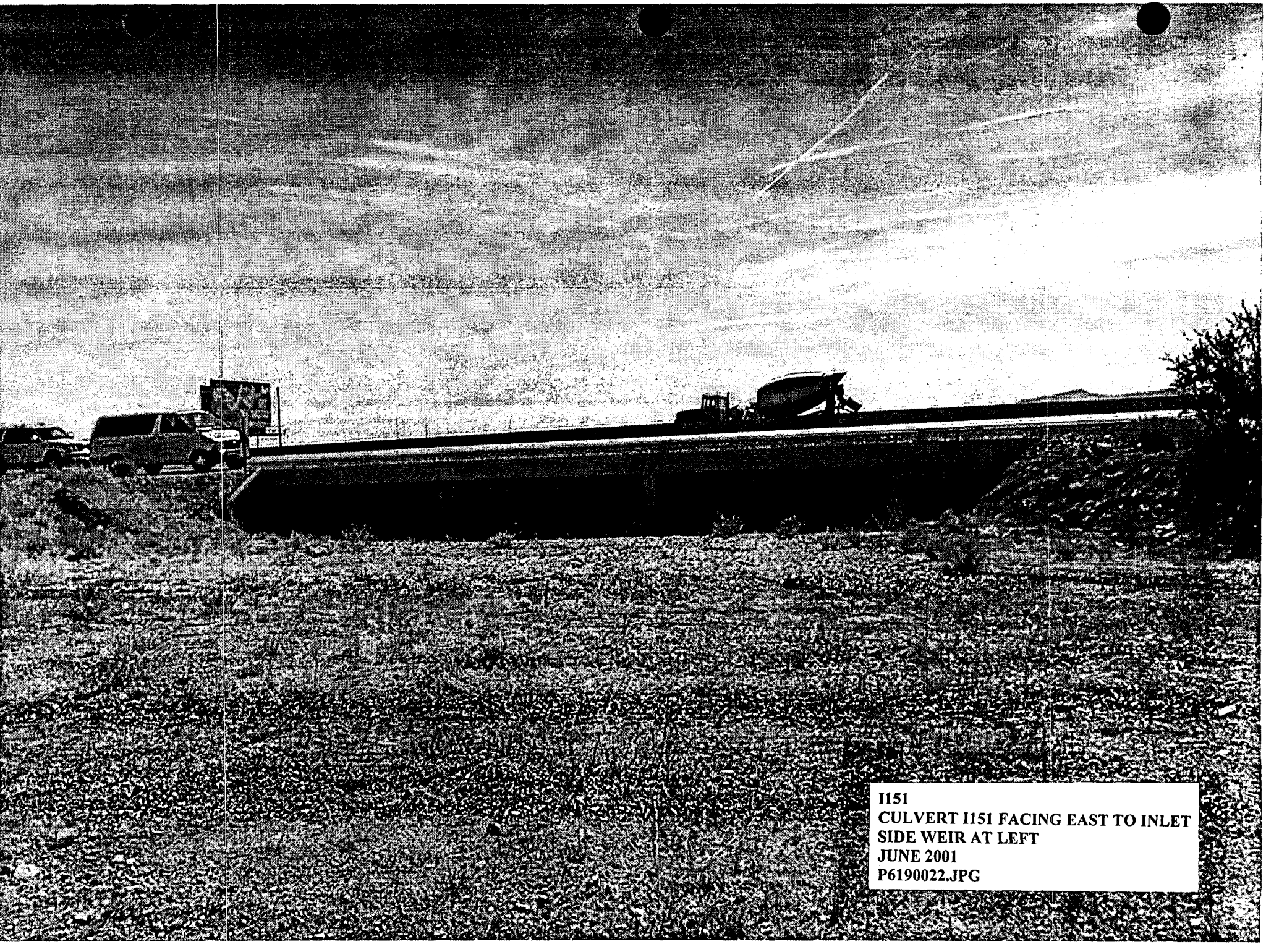

SURVEY NOTES BY PBS&J, JANUARY 2001

DATA FOR WEIR SECTION

I51



I151
CULVERT I151 FACING WEST FROM TOP OF INLET
SIDE WEIR AT RIGHT
JUNE 2001
P6190020.JPG



I151
CULVERT I151 FACING EAST TO INLET
SIDE WEIR AT LEFT
JUNE 2001
P6190022.JPG

# DIVERSION DVI152

DVI152

## SUMMARY OF DIVERSION CALCULATIONS

| WSE (FT) | DEPTH (FT) | EAST Qcvt (CFS) | EAST Qweir (CFS) | "DQ" EAST Qdivert (CFS) | NORTH Qweir (CFS) | NORTH Qchan (CFS) | NORTH Qcontrol (CFS) | "DI" INFLOW Qtotal (CFS) |
|---|---|---|---|---|---|---|---|---|
| 2279.55 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2280.6 | 1.0 | 47 | 0 | 47 | 256 | 81 | 81 | 128 |
| 2281.6 | 2.0 | 190 | 0 | 190 | 708 | 276 | 276 | 466 |
| 2282.6 | 3.0 | 362 | 0 | 362 | 1366 | 567 | 567 | 929 |
| 2283.6 | 4.0 | 550 | 0 | 550 | 2201 | 956 | 956 | 1506 |
| 2284.6 | 5.0 | 733 | 0 | 733 | 3280 | 1535 | 1535 | 2268 |
| 2285.6 | 6.0 | 896 | 0 | 896 | 4700 | 2237 | 2237 | 3133 |
| 2286.6 | 7.0 | 1040 | 0 | 1040 | 6860 | 2775 | 2775 | 3815 |

WSE = GIVEN
DEPTH = WSE-UPSTREAM CULVERT INLET
EAST Qcvt = INLET CONTROL CALCULATION ATTACHED
EAST Qweir = FROM SUM OF "EAST Qweir" FOR EACH DEPTH
EAST Qdivert = EAST Qcvt + EAST Qweir
NORTH Qweir = FROM SUM OF "NORTH Qweir" FOR EACH DEPTH
NORTH Qchan = CHANNEL CAPACITY, NORMAL DEPTH CALCULATION ATTACHED
NORTH Qcontrol = SMALLER FLOW OF "NORTH Qweir" AND "NORTH Qchan"
INFLOW Qtotal = "EAST Qdivert" + "NORTH Qcontrol"

D= 1.0 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2290.40 | 2280.6 | 0.0 | | | |
| B | 409 | 409 | 2285.40 | 2280.6 | 0.0 | 0.0 | 0 | |
| C | 424 | 15 | 2280.95 | 2280.6 | 0.0 | 0.0 | 0 | |
| D | 444 | 20 | 2279.55 | 2280.6 | 1.0 | 0.5 | 23 | |
| E | 514 | 70 | 2279.55 | 2280.6 | 1.0 | 1.0 | 226 | |
| F | 520 | 6 | 2282.95 | 2280.6 | 0.0 | 0.5 | 7 | |
| G | 585 | 65 | 2284.25 | 2280.6 | 0.0 | 0.0 | 0 | |
| H | 585 | 0 | 2286.92 | 2280.6 | 0.0 | 0.0 | 0 | |
| | | | | | | | 256 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 2.0 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2290.40 | 2281.6 | 0.0 | | | |
| B | 409 | 409 | 2285.40 | 2281.6 | 0.0 | 0.0 | 0 | |
| C | 424 | 15 | 2280.95 | 2281.6 | 0.6 | 0.3 | 7 | |
| D | 444 | 20 | 2279.55 | 2281.6 | 2.0 | 1.3 | 89 | |
| E | 514 | 70 | 2279.55 | 2281.6 | 2.0 | 2.0 | 594 | |
| F | 520 | 6 | 2282.95 | 2281.6 | 0.0 | 1.0 | 18 | |
| G | 585 | 65 | 2284.25 | 2281.6 | 0.0 | 0.0 | 0 | |
| H | 585 | 0 | 2286.92 | 2281.6 | 0.0 | 0.0 | 0 | |
| | | | | | | | 708 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 3.0 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2290.40 | 2282.6 | 0.0 | | | |
| B | 409 | 409 | 2285.40 | 2282.6 | 0.0 | 0.0 | 0 | |
| C | 424 | 15 | 2280.95 | 2282.6 | 1.6 | 0.8 | 32 | |
| D | 444 | 20 | 2279.55 | 2282.6 | 3.0 | 2.3 | 209 | |
| E | 514 | 70 | 2279.55 | 2282.6 | 3.0 | 3.0 | 1091 | |
| F | 520 | 6 | 2282.95 | 2282.6 | 0.0 | 1.5 | 33 | |
| G | 585 | 65 | 2284.25 | 2282.6 | 0.0 | 0.0 | 0 | |
| H | 585 | 0 | 2286.92 | 2282.6 | 0.0 | 0.0 | 0 | |
| | | | | | | | 1366 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 4.0 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2290.40 | 2283.6 | 0.0 | | | |
| B | 409 | 409 | 2285.40 | 2283.6 | 0.0 | 0.0 | 0 | |
| C | 424 | 15 | 2280.95 | 2283.6 | 2.6 | 1.3 | 67 | |
| D | 444 | 20 | 2279.55 | 2283.6 | 4.0 | 3.3 | 360 | |
| E | 514 | 70 | 2279.55 | 2283.6 | 4.0 | 4.0 | 1680 | |
| F | 520 | 6 | 2282.95 | 2283.6 | 0.6 | 2.3 | 63 | |
| G | 585 | 65 | 2284.25 | 2283.6 | 0.0 | 0.3 | 32 | |
| H | 585 | 0 | 2286.92 | 2283.6 | 0.0 | 0.0 | 0 | |
| | | | | | | | 2201 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 5.0 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2290.40 | 2284.6 | 0.0 | | | |
| B | 409 | 409 | 2285.40 | 2284.6 | 0.0 | 0.0 | 0 | |
| C | 424 | 15 | 2280.95 | 2284.6 | 3.6 | 1.8 | 109 | |
| D | 444 | 20 | 2279.55 | 2284.6 | 5.0 | 4.3 | 535 | |
| E | 514 | 70 | 2279.55 | 2284.6 | 5.0 | 5.0 | 2348 | |
| F | 520 | 6 | 2282.95 | 2284.6 | 1.6 | 3.3 | 108 | |
| G | 585 | 65 | 2284.25 | 2284.6 | 0.3 | 1.0 | 181 | |
| H | 585 | 0 | 2286.92 | 2284.6 | 0.0 | 0.2 | 0 | |
| | | | | | | | 3280 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 6.0 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2290.40 | 2285.6 | 0.0 | | | |
| B | 409 | 409 | 2285.40 | 2285.6 | 0.2 | 0.1 | 25 | |
| C | 424 | 15 | 2280.95 | 2285.6 | 4.6 | 2.4 | 165 | |
| D | 444 | 20 | 2279.55 | 2285.6 | 6.0 | 5.3 | 732 | |
| E | 514 | 70 | 2279.55 | 2285.6 | 6.0 | 6.0 | 3086 | |
| F | 520 | 6 | 2282.95 | 2285.6 | 2.6 | 4.3 | 161 | |
| G | 585 | 65 | 2284.25 | 2285.6 | 1.3 | 2.0 | 531 | |
| H | 585 | 0 | 2286.92 | 2285.6 | 0.0 | 0.7 | 0 | |
| | | | | | | | 4700 | 0 |

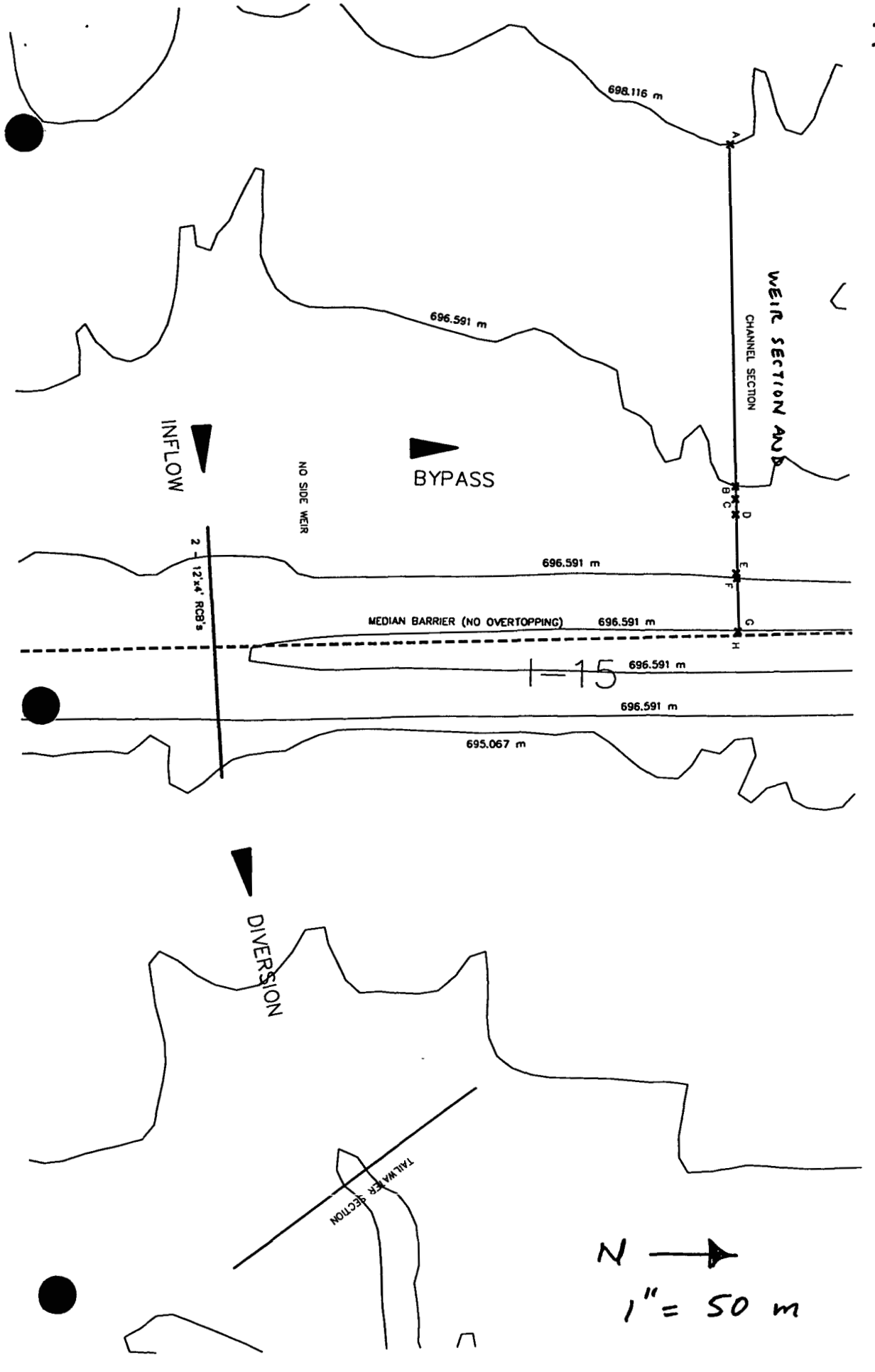
PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 7.0 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2290.40 | 2286.6 | 0.0 | | | |
| B | 409 | 409 | 2285.40 | 2286.6 | 1.2 | 0.6 | 535 | |
| C | 424 | 15 | 2280.95 | 2286.6 | 5.6 | 3.4 | 279 | |
| D | 444 | 20 | 2279.55 | 2286.6 | 7.0 | 6.3 | 949 | |
| E | 514 | 70 | 2279.55 | 2286.6 | 7.0 | 7.0 | 3889 | |
| F | 520 | 6 | 2282.95 | 2286.6 | 3.6 | 5.3 | 220 | |
| G | 585 | 65 | 2284.25 | 2286.6 | 2.3 | 3.0 | 988 | |
| H | 585 | 0 | 2286.92 | 2286.6 | 0.0 | 1.2 | 0 | |
| | | | | | | | 6860 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

I152


698.116 m
A
WEIR SECTION AND
CHANNEL SECTION
696.591 m
INFLOW
NO SIDE WEIR
BYPASS
B
C
D
2 - 12'x4' RCB's
696.591 m
E
F
MEDIAN BARRIER (NO OVERTOPPING)
696.591 m
G
H
I-15
696.591 m
696.591 m
695.067 m
DIVERSION
TAILWATER SECTION
N
1" = 50 m

# BOX CULVERT

Inlet control and outlet control.

I152

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 0.88 ft |
| Slope | 1.00 % | 45 degree bevels | 1.00 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 0.96 ft |
| Number of boxes | 2 | | |
| Culvert length | 192 ft | | |
| Discharge | 47 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 0.33 ft |
| | | Velocity | 0.49 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 0.49 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I152

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 1.86 ft |
| Slope | 1.00 % | 45 degree bevels | 2.00 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 2.14 ft |
| Number of boxes | 2 | | |
| Culvert length | 192 ft | | |
| Discharge | 190 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 0.84 ft |
| | | Velocity | 1.98 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 1.25 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I152

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 2.86 ft |
| Slope | 1.00 % | 45 degree bevels | 3.00 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 3.25 ft |
| Number of boxes | 2 | | |
| Culvert length | 192 ft | | |
| Discharge | 362 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 1.51 ft |
| | | Velocity | 3.77 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 1.92 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I152

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 3.80 ft |
| Slope | 1.00 % | 45 degree bevels | 4.00 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 4.32 ft |
| Number of boxes | 2 | | |
| Culvert length | 192 ft | | |
| Discharge | 550 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 2.44 ft |
| | | Velocity | 5.73 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 2.54 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I152

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 4.61 ft |
| Slope | 1.00 % | 45 degree bevels | 5.00 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 5.41 ft |
| Number of boxes | 2 | | |
| Culvert length | 192 ft | | |
| Discharge | 733 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 3.55 ft |
| | | Velocity | 7.64 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.08 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I152

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 5.31 ft |
| Slope | 1.00 % | 45 degree bevels | 6.00 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 6.53 ft |
| Number of boxes | 2 | | |
| Culvert length | 192 ft | | |
| Discharge | 896 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 4.72 ft |
| | | Velocity | 9.33 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.52 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I152

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 5.93 ft |
| Slope | 1.00 % | 45 degree bevels | 7.00 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 7.65 ft |
| Number of boxes | 2 | | |
| Culvert length | 192 ft | | |
| Discharge | 1040 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 5.91 ft |
| | | Velocity | 10.83 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.89 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I152

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 6.52 ft |
| Slope | 1.00 % | 45 degree bevels | 8.00 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 8.78 ft |
| Number of boxes | 2 | | |
| Culvert length | 192 ft | | |
| Discharge | 1169 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 6.99 ft |
| | | Velocity | 12.18 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

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Engineers/Planners/Surveyors

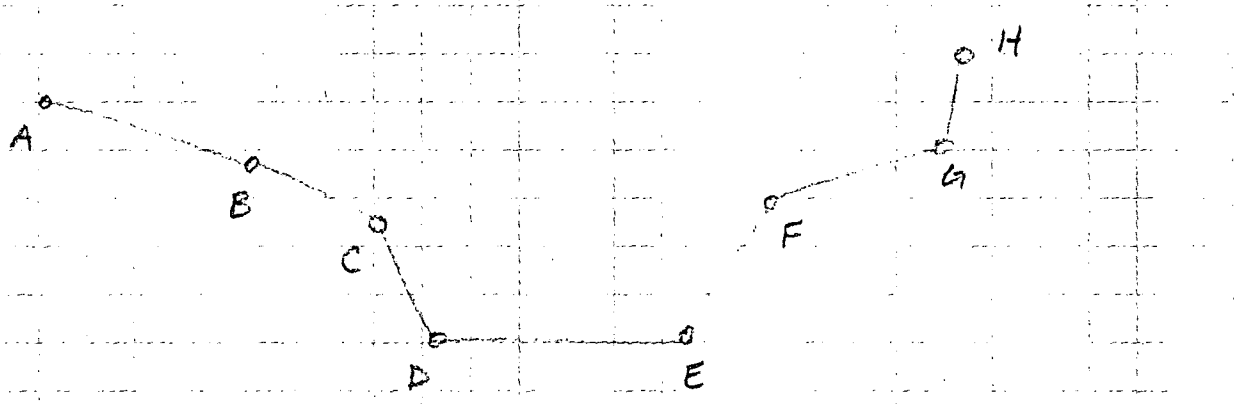
DATE _____ SUBJECT DIVERSIONS SHEET NO. _____ OF _____

BY _____ JOB NO. _____

DVI152

CHANNEL SECTION

| PT | STA (FT) | D (FT) | ELEVATION (m) | ELEVATION (FT) | DATA SOURCE/ EXPLANATION |
|---|---|---|---|---|---|
| A | 0 | 10.85 | 698.116 | 2290.40 | NDOT TOPO |
| B | 409 | 5.85 | 696.591 | 2285.40 | NDOT TOPO |
| C | 424 | 1.40 | — | 2280.95 | GCW SURVEY |
| D | 444 | 0 | — | 2279.55 | SURVEY — INVERT |
| E | 514 | 0 | — | 2279.55 | SURVEY - INVERT |
| F | 520 | 3.40 | — | 2282.95 | GCW SURVEY |
| G | 585 | 4.70 | — | 2284.25 | CALC 2% TO BARRIER |
| H | 585.1 | 7.37 | — | 2286.92 | BARRIER |




$$S = \frac{2279.55 - 2278.71 \text{ FT}}{1852 \text{ FT}} = 0.00045 \Rightarrow \boxed{0.05\ \%}$$

# Table DVI152

## Rating Table for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI152C |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 0.05 % |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Attribute | Minimum | Maximum | Increment |
|---|---|---|---|
| Water Surface Elevation (ft | 0.00 | 11.00 | 1.00 |

| Water Surface Elevation (ft) | Discharge (cfs) | Velocity (ft/s) | Flow Area ($ft^2$) | Wetted Perimeter (ft) | Top Width (ft) |
|---|---|---|---|---|---|
| 0.00 | N/A | N/A | N/A | N/A | N/A |
| 1.00 | 80.77 | 1.04 | 78.0 | 86.35 | 86.05 |
| 2.00 | 275.54 | 1.62 | 170.1 | 96.22 | 95.55 |
| 3.00 | 566.97 | 2.11 | 268.3 | 101.76 | 100.69 |
| 4.00 | 955.89 | 2.51 | 380.2 | 136.09 | 134.76 |
| 5.00 | 1,534.96 | 2.85 | 539.4 | 174.92 | 173.15 |
| 6.00 | 2,237.48 | 3.13 | 715.1 | 191.18 | 188.32 |
| 7.00 | 2,775.12 | 2.94 | 944.4 | 273.98 | 270.16 |
| 8.00 | 3,828.25 | 3.05 | 1,255.4 | 356.79 | 351.97 |
| 9.00 | 5,324.56 | 3.23 | 1,648.3 | 439.60 | 433.77 |
| 10.00 | 7,272.79 | 3.43 | 2,123.0 | 522.40 | 515.57 |
| 11.00 | 9,796.08 | 3.66 | 2,678.5 | 593.09 | 585.10 |

# DVI152
## Worksheet for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI152C |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | | |
|---|---|---|
| Slope | 0.05 | % |
| Water Surface Elevation | 3.24 | ft |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.030 | |
| Elevation Range | 0.00 to 10.85 | |
| Discharge | 651.00 | cfs |
| Flow Area | 293.0 | ft² |
| Wetted Perimeter | 103.11 | ft |
| Top Width | 101.94 | ft |
| Actual Depth | 3.24 | ft |
| Critical Elevation | 1.32 | ft |
| Critical Slope | 1.25 | % |
| Velocity | 2.22 | ft/s |
| Velocity Head | 0.08 | ft |
| Specific Energy | 3.32 | ft |
| Froude Number | 0.23 | |
| Flow Type | Subcritical | |

Roughness Segments

| Start Station | End Station | Mannings Coefficient |
|---|---|---|
| 0+00.0 | 5+20.0 | 0.030 |
| 5+20.0 | 5+85.0 | 0.016 |
| 5+85.0 | 5+85.1 | 0.015 |

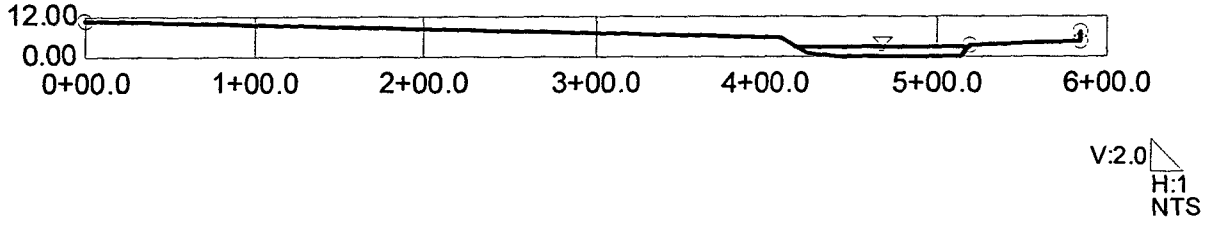
Natural Channel Points

| Station (ft) | Elevation (ft) |
|---|---|
| 0+00.0 | 10.85 |
| 4+09.0 | 5.85 |
| 4+24.0 | 1.40 |
| 4+44.0 | 0.00 |
| 5+14.0 | 0.00 |
| 5+20.0 | 3.40 |
| 5+85.0 | 4.70 |
| 5+85.1 | 7.37 |

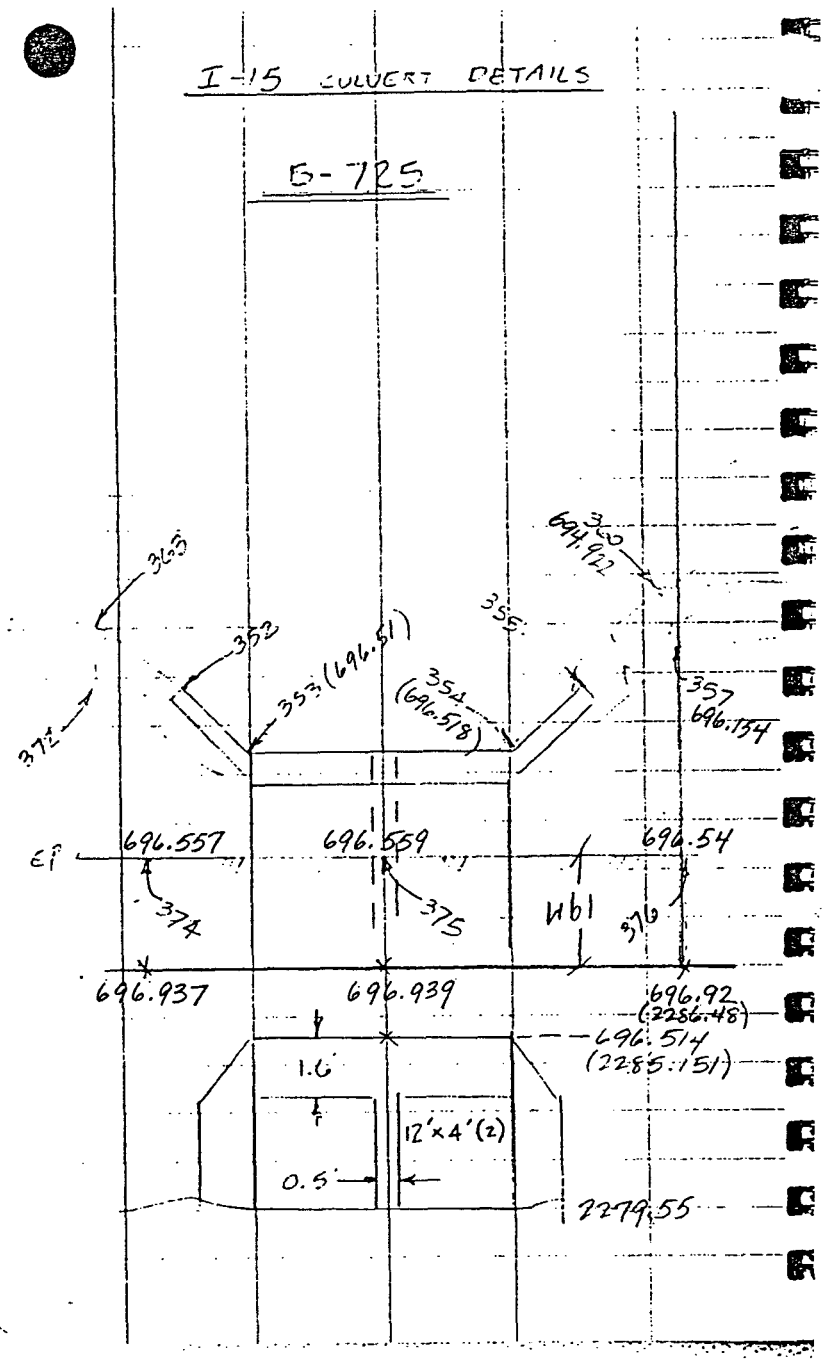
# DVI152
## Cross Section for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI152C |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Section Data | | |
|---|---|---|
| Mannings Coefficient | 0.030 | |
| Slope | 0.05 | % |
| Water Surface Elevation | 3.24 | ft |
| Elevation Range | 0.00 to 10.85 | |
| Discharge | 651.00 | cfs |

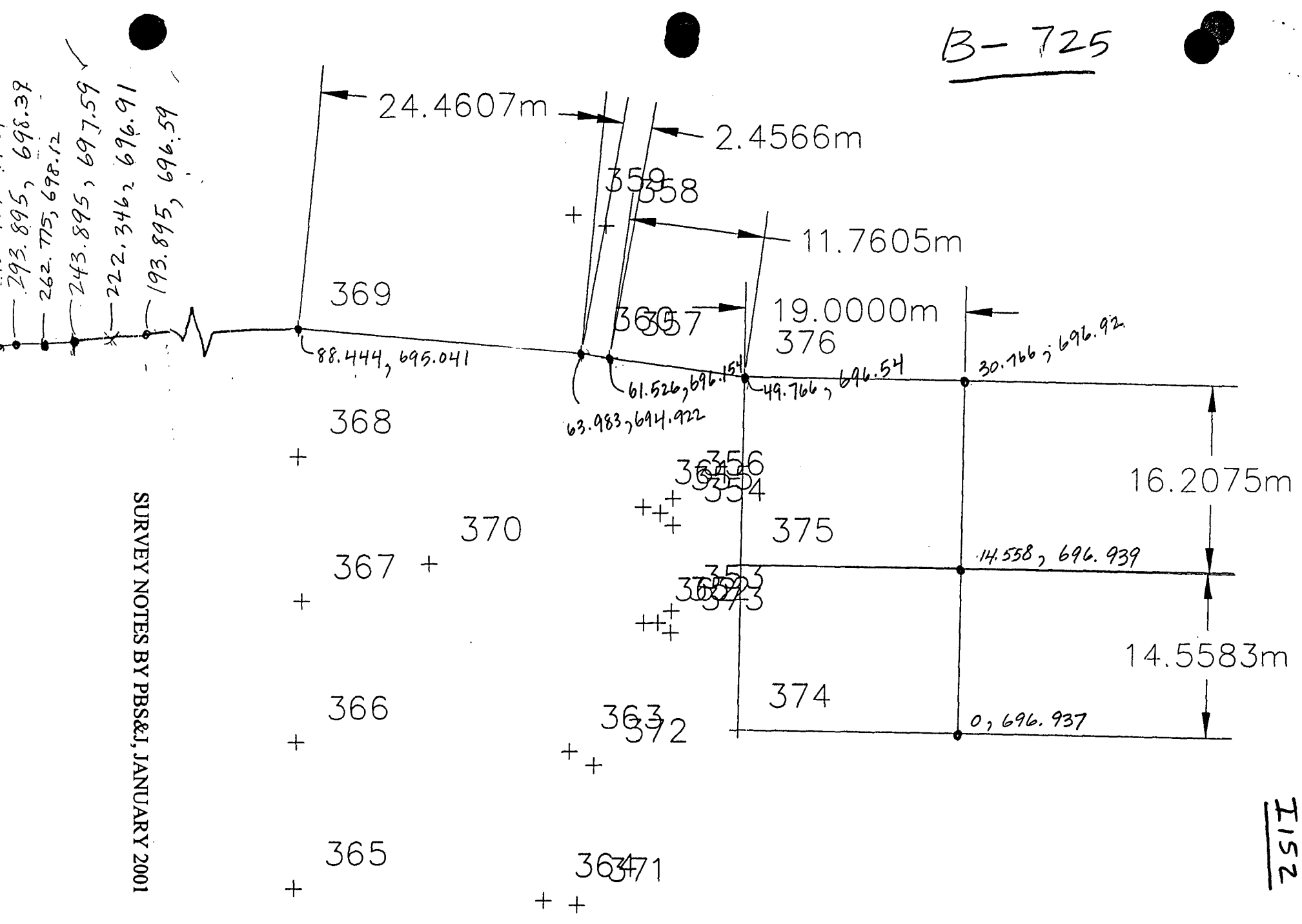


I152



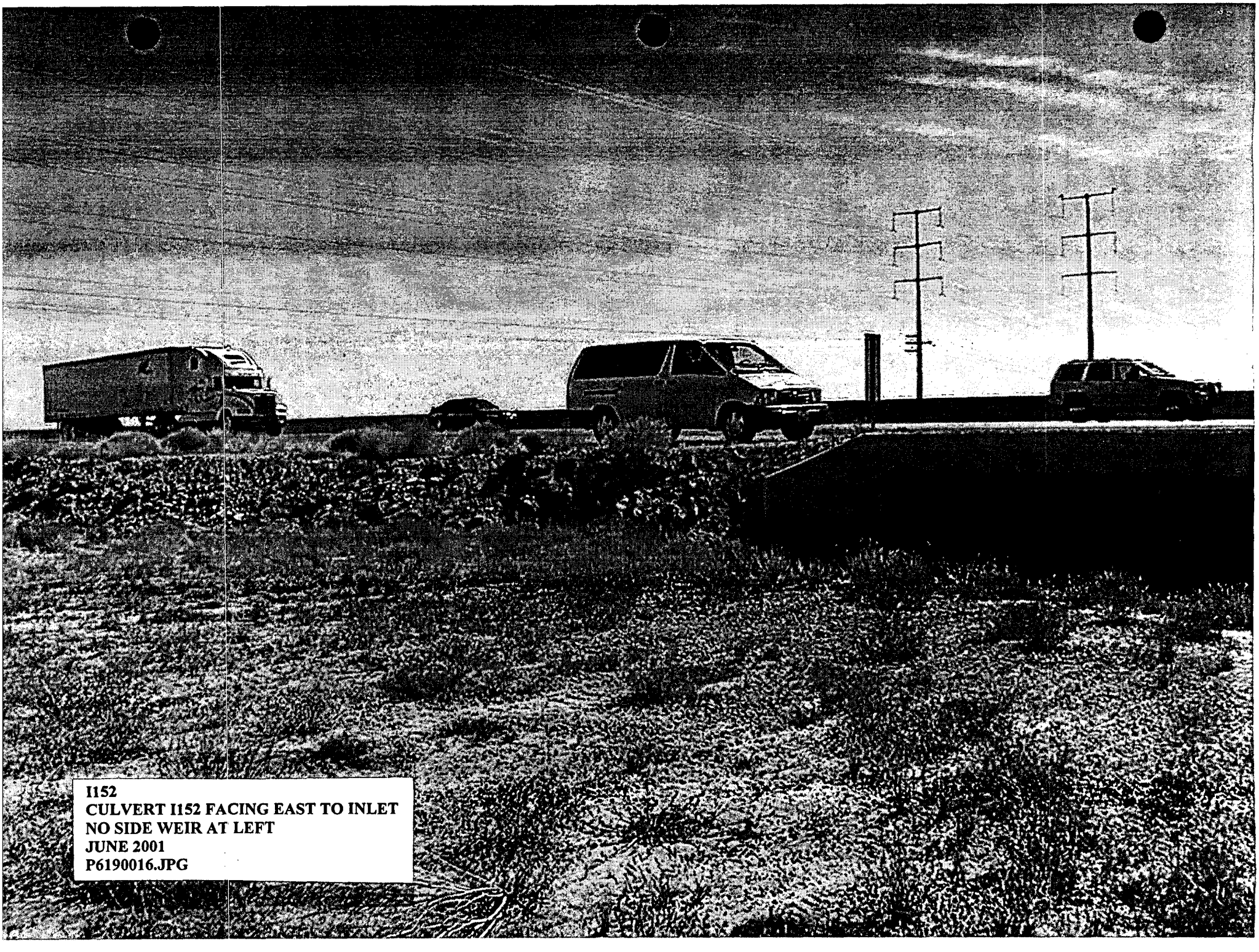

SURVEY NOTES BY PBS&J, JANUARY 2001

B-725

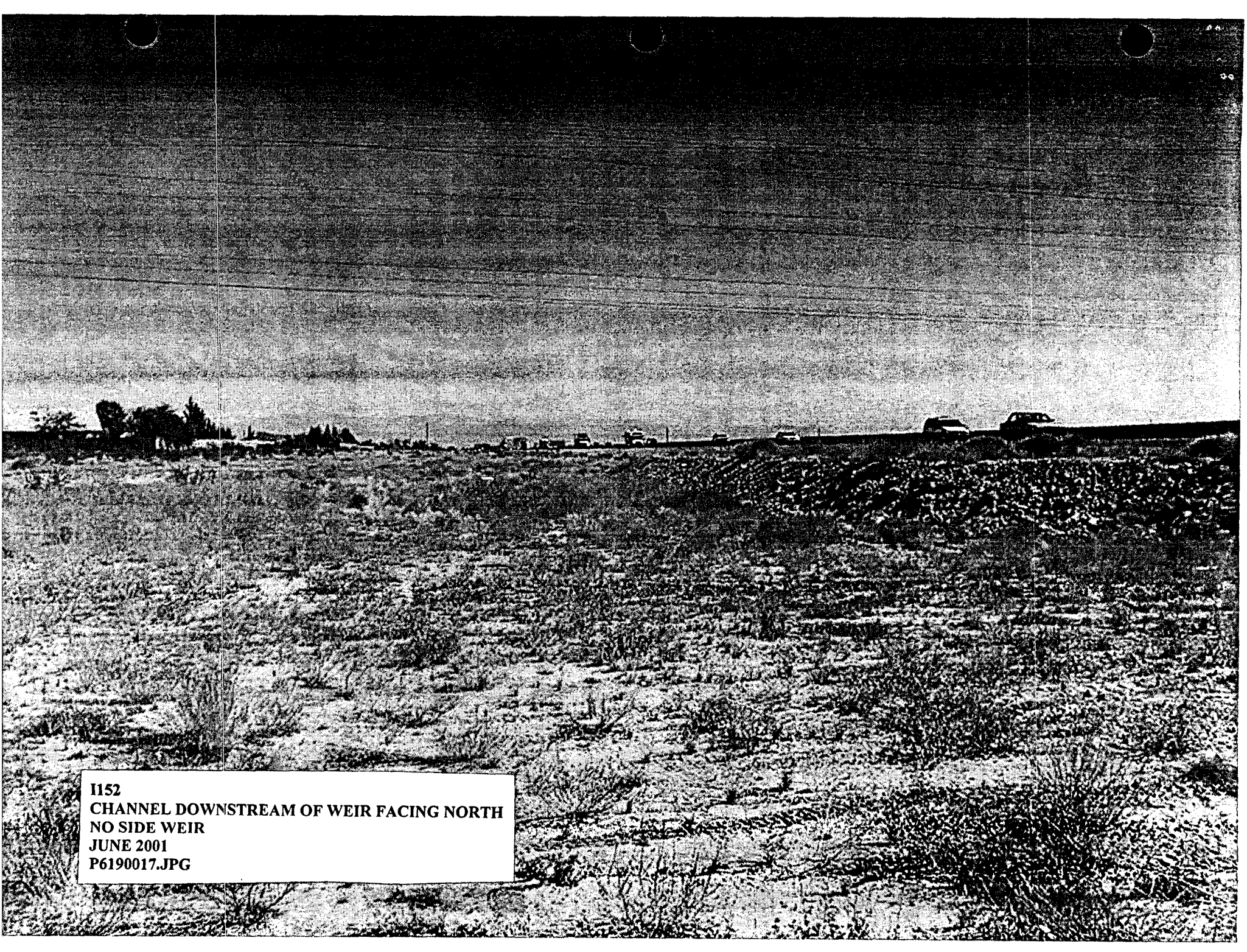



SURVEY NOTES BY PBS&J, JANUARY 2001

I152



I152
CULVERT I152 FACING EAST TO INLET
NO SIDE WEIR AT LEFT
JUNE 2001
P6190016.JPG



I152
CHANNEL DOWNSTREAM OF WEIR FACING NORTH
NO SIDE WEIR
JUNE 2001
P6190017.JPG

# DIVERSION DVI153

550.039

# MEMORANDUM

**To:** File

**From:** Calvin L. Black, P.E. CB

**Date:** January 18, 2002

**Subject:** **Duck Creek/Blue Diamond Washes FIS Restudy - Flow Split at I-15 (Diversion DVI153)**

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At the request of the Clark County Regional Flood Control District (CCRFCD), GCW has made a more detailed analysis of the subject flow split to establish a rating curve for approximating the amount of storm runoff directed to the east and north. Flows directed to the east eventually discharge into the Lower Duck Creek Detention Basin. The remainder of the storm runoff will continue north along the west side of I-15.

The general slope of the area is to the east. I-15 runs north-south, almost perpendicular to the natural drainage. Storm flows generated west of I-15 approach the roadway as shallow sheet flow. The construction of I-15 has created a channel along the west side of the roadway. This channel collects the runoff and directs it north along the west side of the road. Several culverts were constructed with the roadway to allow some of the storm flows trapped on the west side to continue east. Containment dikes were constructed across the channel at several of the culverts to force storm flows into the culverts. When the capacity of these culverts are exceeded, runoff overtops the containment dikes and/or overtops the I-15 roadway. Flows that overtop the containment dikes will continue to the north and flows that overtop the roadway will combine with the flow through the culverts and continue east to the Lower Duck Creek Detention Basin.

In some locations Barrier Rail has been placed in the I-15 median island for traffic control purposes. The Barrier Rail also prevents flows from overtopping the roadway. A 1,000-foot opening in the Barrier Rail is assumed at the subject flow split based on the effective floodway width. This is based on coordination with NDOT.

In the vicinity of the subject flow split, there is an existing three (3) barrel 12-foot wide by 4-foot high reinforced concrete box (RCB) culvert. The invert elevation of the RCB inlet is 2278.7 feet. The culvert has a containment dike with a minimum crest elevation of 2282.0 feet. A schematic layout of the culvert in relation to the dike, channel and roadway is shown on attached Figure 1.

Approximately 9,500 cfs approaches the culvert from the south and west during the peak of the 100-year storm event. A rating curve was developed to estimate how much flow is directed to

the east and how much will be directed to the north during a storm event. The rating curve was then inserted in the HEC-1 model. Figure 2 shows the routes that storm water flows use to exit the pond in front of the culvert. Low flows will be directed to the culvert by the containment dike and will flow east under I-15. As the ponding depth exceeds the height of the containment dike, flows will spill over the dike and flow north in the channel. When the ponding depth exceeds the elevation of the roadway, flows will weir flow over the roadway to the east within the limits of the Barrier Rail opening. The weir flow over the roadway is divided into two sections. The first is the 600 feet south of the containment dike and the second is the 400 feet north of the containment dike. The ponding depth in the first section will be controlled by the backwater impacts of the containment dike. The ponding depth for the second section will be controlled by the depth of flow in the channel along the west side of I-15, north of the containment dike.

Several methods were considered for establishing a hydraulic relationship between the depth in the channel north of the containment dike and the ponding depth south of the containment dike. The most efficient method of overflow is weir flow. When water weir flows over a crest it goes through critical depth. As the flow increases and the depth in the downstream channel increases, the backwater in the channel begins to submerge the weir flow over the dike and the weir becomes less efficient. Eventually, the relationship should be calculated by the energy losses using the Bernoulli Equation.

The culvert has a relatively steep slope of 1.3 percent; therefore, inlet control of the culvert was assumed. The maximum ponding depth before the overtopping of the containment dike is 3.3 feet. Except for the very front and tail of the inflow hydrograph, the inlet will be submerged . Therefore, the Submerged Inlet Equation from the *Hydraulic Design Series No. 5* was used to define the culvert flow.

$$HWi/D = c\,(Q/A*D^{0.5})^2 + Y - 0.5S$$

Where: $c = 0.0309$
$Y = 0.80$

The flow over the I-15 roadway was based on the weir equation:

$$Q = c\,L\,H^{1.5}$$

Where: $c = 2.7$

L for the south roadway weir was set at 600 feet with a crest elevation of 2285.0 feet. The north roadway weir length is 400 feet at a crest elevation of 2284.9 feet.

The depth of the flow in the channel downstream from the containment dike was calculated using Manning's Equation:

$$Q = 1.486/n * A * S^{0.5}\,R^{2/3}$$

Where: $S = 0.0015$
$n = 0.030$

The channel section used for the channel calculations is located approximately 400 feet north from the containment dike. The actual cross-section was based on field survey data provided by Pentacore Engineers. The initial work was compiled using 4-foot contour interval aerial topographic data. The cross-sectional data for the crest of the containment dike was also provided by Pentacore Engineers.

The flow regime was based on the water depth over the containment dike. When the ponding depth south of the containment dike was less than or equal to 2282.0 feet, all of the flow was assumed to be directed to the culvert by the containment dike. The culvert flow was calculated using: HWi = WSE - 2278.7 feet.

For ponding depth elevations above 2282.0 feet at the culvert, the culvert flow was calculated using HWi = WSE - 2278.7 feet and the flow to the north in the channel was established as the flow over the containment dike. The total containment dike overflow was set equal to the sum of the incremental flow over each section of containment dike cross-section (see attached Figure 3). When the incremental section was totally submerged, the flow was calculated using the weir equation based on the average depth over the section. When the water surface elevation did not totally submerge an incremental section, the flow was calculated using Manning's Equation with the incremental end area, wetted perimeter, and average channel slope (0.0015 feet/foot).

When the ponding depth above the culvert reaches an elevation greater than 2285.0 feet, flow will overtop the roadway. The southern roadway weir will discharge flow to the east based on a weir depth of H = WSE - 2285.0 feet.

As noted above, the depth of flow in the channel north of the containment dike is calculated using the Manning's Equation. The channel is assumed to convey all of the flow that overtops the containment dike until the normal depth in the channel exceeds a water surface elevation of 2284.9 feet. Above that elevation, water begins to flow over the roadway north of the containment dike with a weir depth set by H = WSE - 2284.9 feet.

The rating curve is developed by setting a water surface elevation upstream of the containment dike. The outflow from the culvert, south roadway overflow, and dike overflow were then calculated and added together to get the total inflow. The water surface in the downstream channel was then determined by iterative approximations of the channel and north roadway overflow to match the dike overflow.

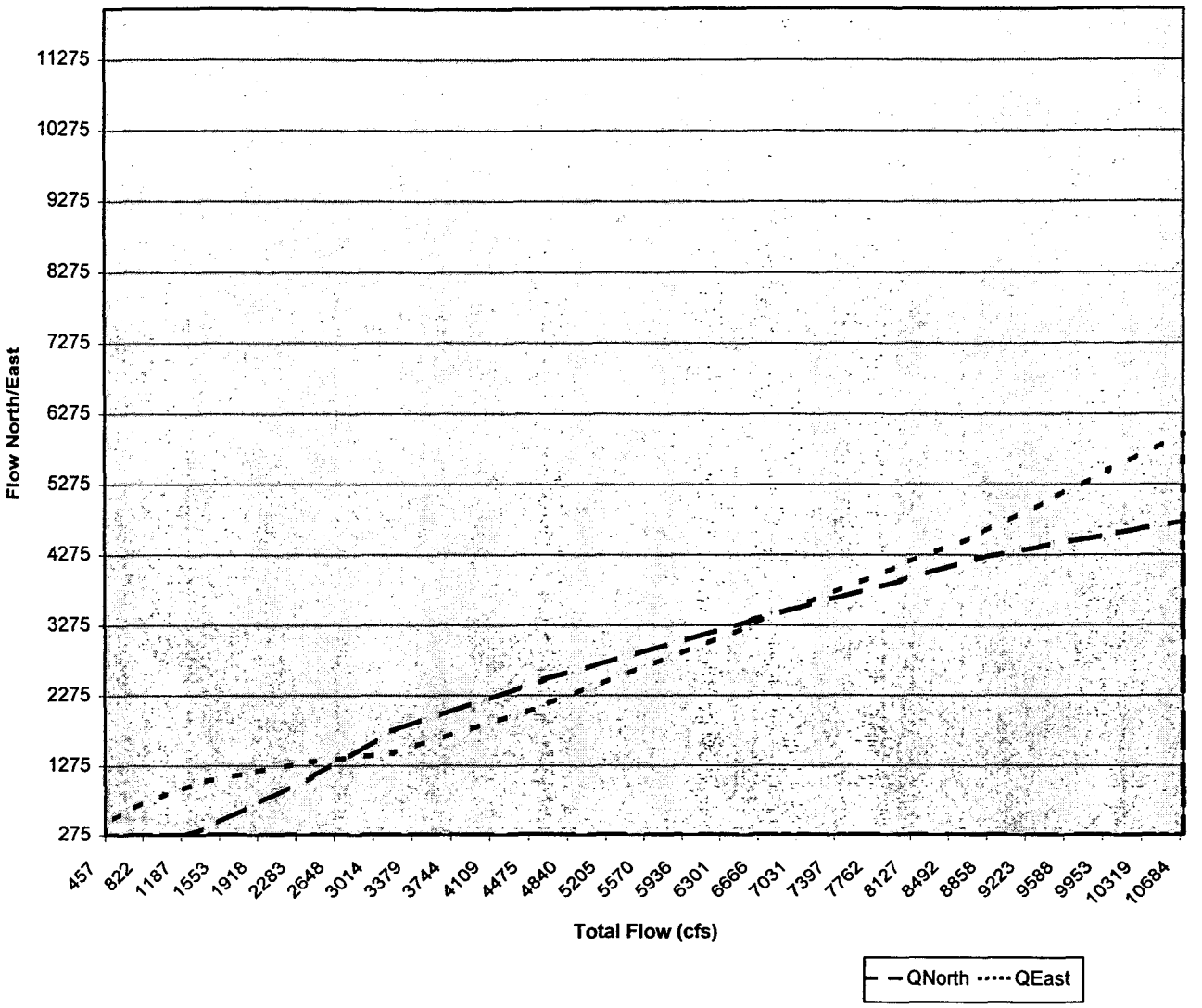
The flow in the downstream channel is sub-critical. As the water depth goes up with the increased flow it begins to affect the flow over the containment dike. The rating curve assumes that when the water surface elevation in the channel reaches 2285.5 feet it will submerge the containment dike weir. When the weir is submerged, an energy calculation is used to establish the upstream ponding depth for the culvert and south roadway overflow. The energy equation assumes that the water surface elevation on the dike is equal to the water surface in the channel. The area of flow over the dike can be determined from the water surface elevation. The velocity over the dike is calculated by dividing the end area into the total flow over the dike. The total flow over the dike is the sum of the channel flow and the north roadway weir flow. The velocity head ($V^2/2g$) is added to the downstream water surface elevation to establish the ponding depth for the culvert calculations and the south roadway weir calculations. Friction and

other energy losses were determined to be insignificant and, therefore, were removed from the approximation.

The basic assumptions of the approximation are:

- There is a 1,000-foot barrier rail opening.
- There is a level pool south of the containment dike.
- There is a level pool north of the containment dike.
- The inflow is the sum of outflows.
- Friction and other energy losses are negligible.

The resulting rating curve is shown in both tabular and graphical format below. A copy of the spreadsheet used to calculate the rating curve is attached.




Manning's n: 0.030

| $H_{Pond}$ | $H_{Channel}$ | $Q_{North}$ | $Q_{East}$ | $Q_{Total}$ |
|---|---|---|---|---|
| 82.0 | 79.6 | 0 | 460 | 460 |
| 82.5 | 80.0 | 60 | 650 | 710 |
| 83.0 | 80.4 | 190 | 870 | 1060 |
| 83.5 | 80.8 | 370 | 1040 | 1410 |
| 84.0 | 81.4 | 720 | 1190 | 1910 |
| 84.5 | 81.9 | 1110 | 1330 | 2440 |
| 85.0 | 82.7 | 1770 | 1450 | 3220 |
| 85.5 | 84.2 | 2500 | 2130 | 4630 |
| 86.0 | 84.9 | 3340 | 3280 | 6620 |
| 86.3 | 85.2 | 3910 | 4130 | 8040 |
| 86.3 | 85.5 | 4220 | 4550 | 8770 |
| 86.4 | 85.6 | 4390 | 5000 | 9390 |
| 86.5 | 85.7 | 4560 | 5470 | 10030 |
| 86.6 | 85.8 | 4750 | 5990 | 10740 |

Calculate Unsubmerged Weir

Calculate Submerged Weir

DATE _____

CLIENT _____ JOB NO _____ CALC. BY _____

DESCRIPTION _____ CHECKED BY _____

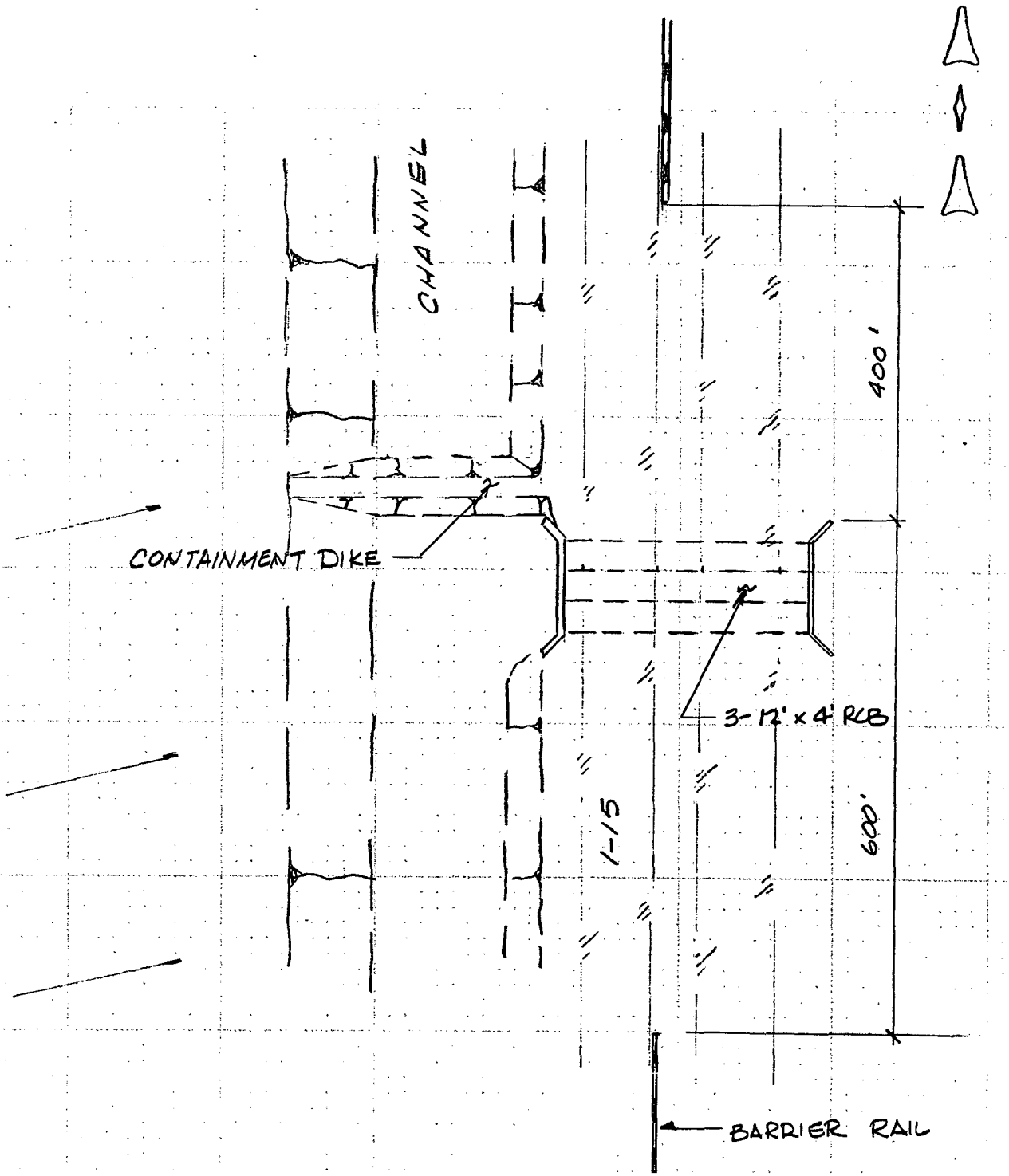



FIGURE 1

EN-3-N
3/66

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SHEET ____ OF ____

DATE _____

CLIENT _____ JOB NO. _____ CALC. BY _____

DESCRIPTION _____ CHECKED BY _____

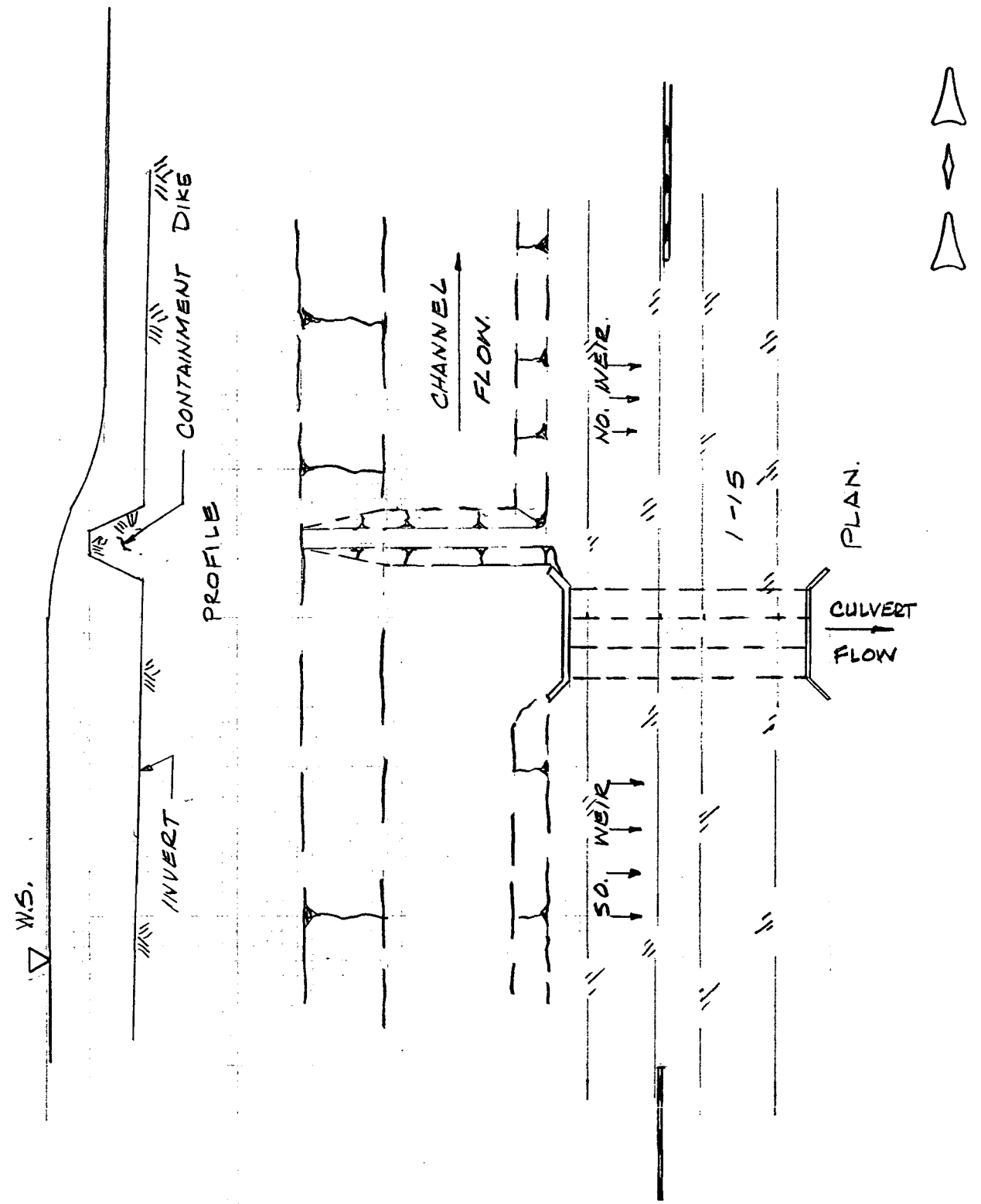



FIGURE 2

EN-3-N
3/66

SHEET ____ OF ____

G.C. WALLACE, INC.
Engineering/Architecture

DATE _____

CLIENT _____ JOB NO _____ CALC. BY _____

DESCRIPTION _____ CHECKED BY _____




CONTAINMENT DIKE CREST.

FIGURE 3

EN-3-N
3/66

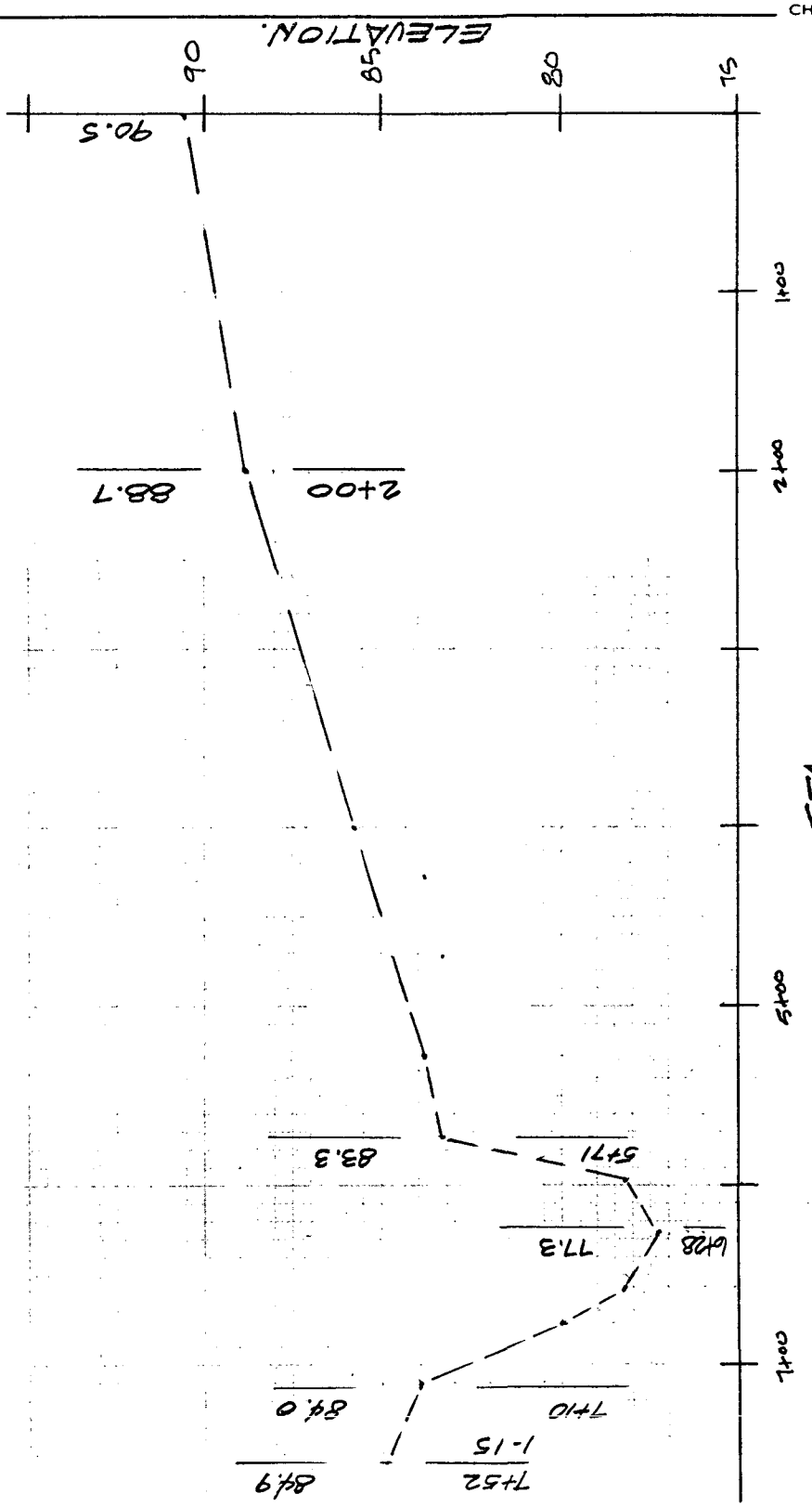
SHEET ____ OF ____

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DATE _____

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DESCRIPTION _____ CHECKED BY _____



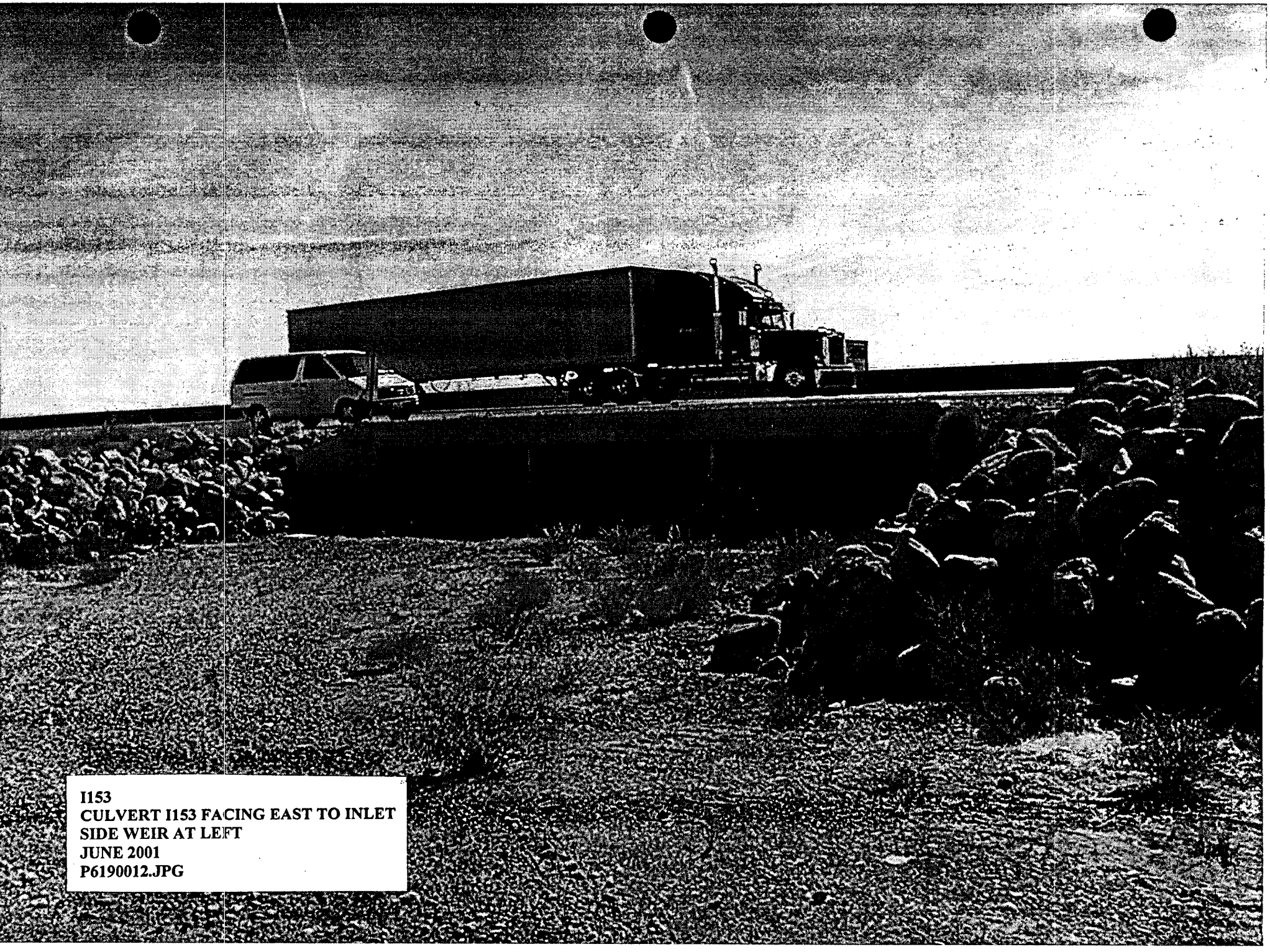

CHANNEL SECTION.

FIGURE 4

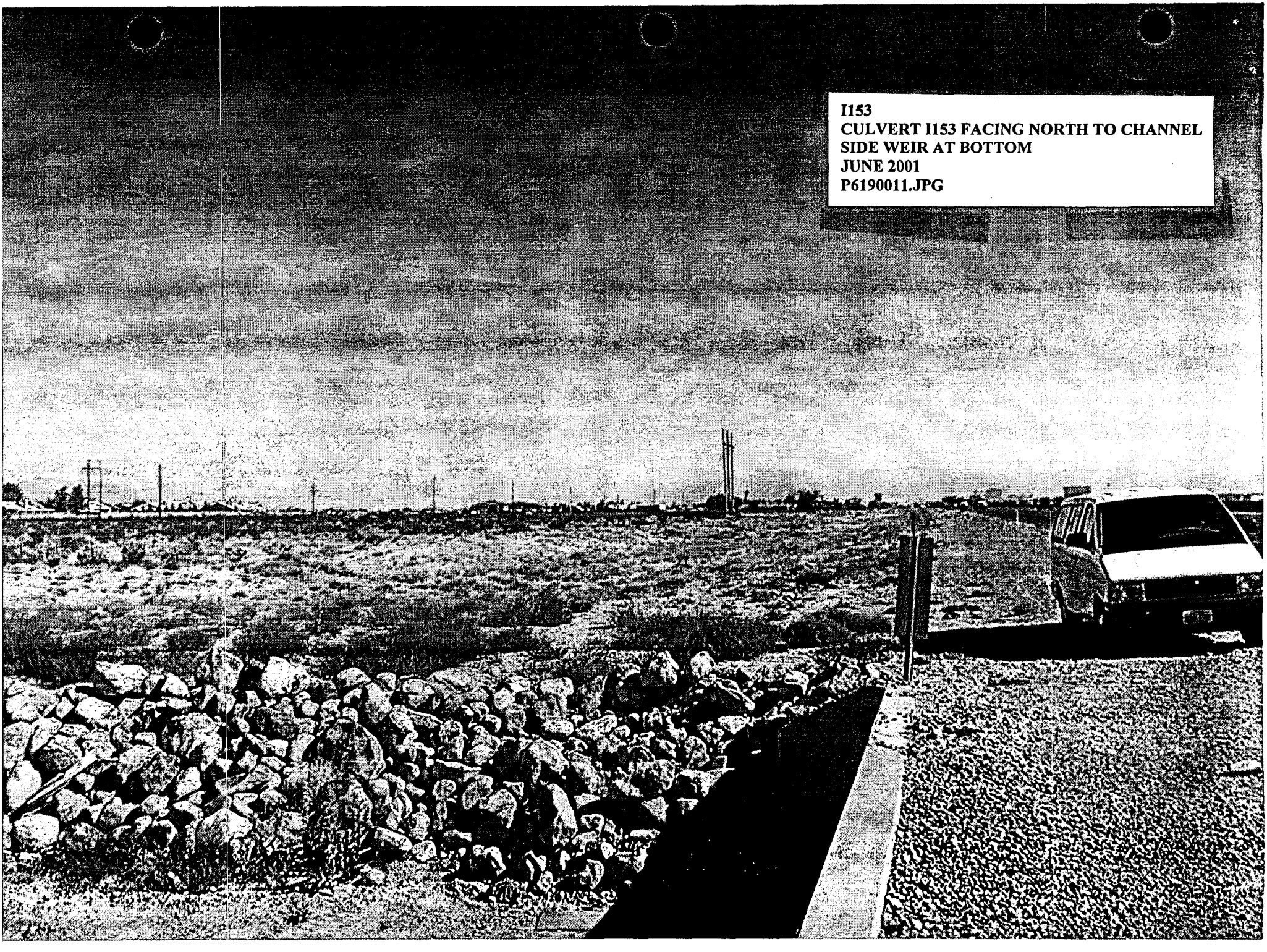
EN-3-N
3/66

SHEET ____ OF ____

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I153
CULVERT I153 FACING EAST TO INLET
SIDE WEIR AT LEFT
JUNE 2001
P6190012.JPG


I153
CULVERT I153 FACING NORTH TO CHANNEL
SIDE WEIR AT BOTTOM
JUNE 2001
P6190011.JPG

# DIVERSION DVI154

DVI154

## SUMMARY OF DIVERSION CALCULATIONS

| WSE (FT) | DEPTH (FT) | EAST Qcvt (CFS) | EAST Qweir (CFS) | "DQ" EAST Qdivert (CFS) | NORTH Qweir (CFS) | NORTH Qchan (CFS) | NORTH Qcontrol (CFS) | "DI" INFLOW Qtotal (CFS) |
|---|---|---|---|---|---|---|---|---|
| 2272.5 | 0.0 | 0 | | | | | | 0 |
| 2279.5 | 7.0 | 1040 | 0 | 1040 | 1278 | 3167 | 1278 | 2318 |
| 2280.8 | 8.3 | 1205 | 0 | 1205 | 2923 | 4609 | 2923 | 4128 |
| 2281.2 | 8.7 | 1252 | 0 | 1252 | 4022 | 5039 | 4022 | 5274 |
| 2281.6 | 9.1 | 1297 | 0 | 1297 | 5155 | 5681 | 5155 | 6452 |
| 2281.9 | 9.5 | 1341 | 0 | 1341 | 6295 | 6508 | 6295 | 7636 |
| 2282.3 | 9.8 | 1373 | 0 | 1373 | 7380 | 7244 | 7244 | 8617 |
| 2282.6 | 10.1 | 1404 | 0 | 1404 | 8489 | 8075 | 8075 | 9479 |

WSE = GIVEN
DEPTH = WSE-UPSTREAM CULVERT INLET
EAST Qcvt = INLET CONTROL CALCULATION ATTACHED
EAST Qweir = FROM SUM OF "EAST Qweir" FOR EACH DEPTH
EAST Qdivert = EAST Qcvt + EAST Qweir
NORTH Qweir = FROM SUM OF "NORTH Qweir" FOR EACH DEPTH
NORTH Qchan = CHANNEL CAPACITY, NORMAL DEPTH CALCULATION ATTACHED
NORTH Qcontrol = SMALLER FLOW OF "NORTH Qweir" AND "NORTH Qchan"
INFLOW Qtotal = "EAST Qdivert" + "NORTH Qcontrol"

D= 7.0 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2285.40 | 2279.5 | 0.0 | | | |
| B | 299 | 299 | 2280.40 | 2279.5 | 0.0 | 0.0 | 0 | |
| C | 525 | 226 | 2276.90 | 2279.5 | 2.6 | 1.3 | 1005 | |
| D | 551 | 26 | 2278.10 | 2279.5 | 1.4 | 2.0 | 221 | |
| E | 581 | 30 | 2279.50 | 2279.5 | 0.0 | 0.7 | 53 | |
| F | 643 | 62 | 2280.80 | 2279.5 | 0.0 | 0.0 | 0 | |
| G | 643 | 0 | 2283.47 | 2279.5 | 0.0 | 0.0 | 0 | |
| | | | | | | | 1278 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 8.3 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2285.40 | 2280.8 | 0.0 | | | |
| B | 299 | 299 | 2280.40 | 2280.8 | 0.3 | 0.2 | 66 | |
| C | 525 | 226 | 2276.90 | 2280.8 | 3.8 | 2.1 | 2063 | |
| D | 551 | 26 | 2278.10 | 2280.8 | 2.7 | 3.3 | 457 | |
| E | 581 | 30 | 2279.50 | 2280.8 | 1.3 | 2.0 | 245 | |
| F | 643 | 62 | 2280.80 | 2280.8 | 0.0 | 0.6 | 92 | |
| G | 643 | 0 | 2283.47 | 2280.8 | 0.0 | 0.0 | 0 | |
| | | | | | | | 2923 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 8.7 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2285.40 | 2281.2 | 0.0 | | | |
| B | 299 | 299 | 2280.40 | 2281.2 | 0.8 | 0.4 | 218 | |
| C | 525 | 226 | 2276.90 | 2281.2 | 4.3 | 2.5 | 2728 | |
| D | 551 | 26 | 2278.10 | 2281.2 | 3.1 | 3.7 | 551 | |
| E | 581 | 30 | 2279.50 | 2281.2 | 1.7 | 2.4 | 330 | |
| F | 643 | 62 | 2280.80 | 2281.2 | 0.4 | 1.0 | 194 | |
| G | 643 | 0 | 2283.47 | 2281.2 | 0.0 | 0.2 | 0 | |
| | | | | | | | 4022 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 9.1 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2285.40 | 2281.6 | 0.0 | | | |
| B | 299 | 299 | 2280.40 | 2281.6 | 1.2 | 0.6 | 401 | |
| C | 525 | 226 | 2276.90 | 2281.6 | 4.7 | 2.9 | 3383 | |
| D | 551 | 26 | 2278.10 | 2281.6 | 3.5 | 4.1 | 640 | |
| E | 581 | 30 | 2279.50 | 2281.6 | 2.1 | 2.8 | 415 | |
| F | 643 | 62 | 2280.80 | 2281.6 | 0.8 | 1.4 | 315 | |
| G | 643 | 0 | 2283.47 | 2281.6 | 0.0 | 0.4 | 0 | |
| | | | | | | | 5155 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 9.5 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2285.40 | 2281.9 | 0.0 | | | |
| B | 299 | 299 | 2280.40 | 2281.9 | 1.5 | 0.8 | 600 | |
| C | 525 | 226 | 2276.90 | 2281.9 | 5.0 | 3.3 | 4028 | |
| D | 551 | 26 | 2278.10 | 2281.9 | 3.8 | 4.4 | 727 | |
| E | 581 | 30 | 2279.50 | 2281.9 | 2.4 | 3.1 | 498 | |
| F | 643 | 62 | 2280.80 | 2281.9 | 1.1 | 1.8 | 442 | |
| G | 643 | 0 | 2283.47 | 2281.9 | 0.0 | 0.6 | 0 | |
| | | | | | | | 6295 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 9.8 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2285.40 | 2282.3 | 0.0 | | | |
| B | 299 | 299 | 2280.40 | 2282.3 | 1.8 | 0.9 | 798 | |
| C | 525 | 226 | 2276.90 | 2282.3 | 5.3 | 3.6 | 4631 | |
| D | 551 | 26 | 2278.10 | 2282.3 | 4.2 | 4.8 | 807 | |
| E | 581 | 30 | 2279.50 | 2282.3 | 2.8 | 3.5 | 577 | |
| F | 643 | 62 | 2280.80 | 2282.3 | 1.4 | 2.1 | 566 | |
| G | 643 | 0 | 2283.47 | 2282.3 | 0.0 | 0.7 | 0 | |
| | | | | | | | 7380 | 0 |

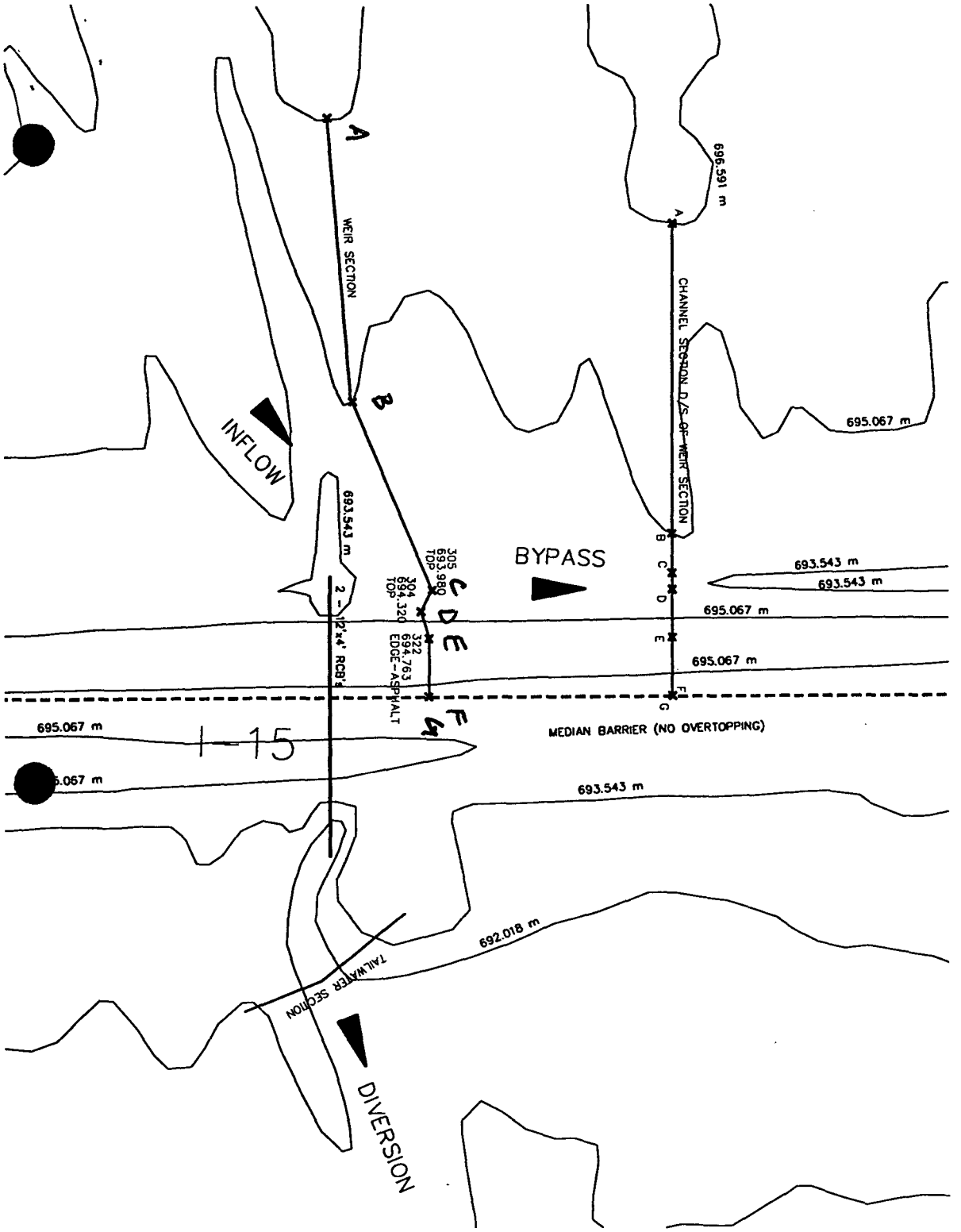
PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 10.1 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2285.40 | 2282.6 | 0.0 | | | |
| B | 299 | 299 | 2280.40 | 2282.6 | 2.2 | 1.1 | 1007 | |
| C | 525 | 226 | 2276.90 | 2282.6 | 5.7 | 3.9 | 5242 | |
| D | 551 | 26 | 2278.10 | 2282.6 | 4.5 | 5.1 | 888 | |
| E | 581 | 30 | 2279.50 | 2282.6 | 3.1 | 3.8 | 656 | |
| F | 643 | 62 | 2280.80 | 2282.6 | 1.8 | 2.4 | 696 | |
| G | 643 | 0 | 2283.47 | 2282.6 | 0.0 | 0.9 | 0 | |
| | | | | | | | 8489 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

I154


A
WEIR SECTION
B
INFLOW
696.591 m
A
CHANNEL SECTION D/S OF WEIR SECTION
695.067 m
693.543 m
305
693.980
TOP
304
694.320
TOP
BYPASS
B
C
D
E
F
G
693.543 m
693.543 m
695.067 m
695.067 m
2 - 12'x4' RCB's
322
694.763
EDGE-ASPHALT
MEDIAN BARRIER (NO OVERTOPPING)
695.067 m
I-15
693.543 m
692.018 m
TAILWATER SECTION
DIVERSION

N

1" = 50 m

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

DATE _____ SUBJECT DIVERSIONS SHEET NO. _____ OF _____

BY _____ JOB NO. 550.039

# DVI154

## WEIR SECTION

| PT | STA (m) | STA (FT) | ELEVATION (m) | ELEVATION (FT) | DATA SOURCE/ EXPLANATION |
|---|---|---|---|---|---|
| A | 0 | 0 | 696.591 | 2285.40 | NDOT TOPO |
| B | – | 299 | 695.067 | 2280.40 | NDOT TOPO |
| C | – | 525 | 693.980 | 2276.90 | SURVEY # 305 |
| D | – | 551 | 694.320 | 2278.10 | SURVEY # 304 |
| E | – | 581 | 694.763 | 2279.50 | SURVEY # 322 |
| F | – | 643 | 695.143 | 2280.80 | 2% TO BARRIER |
| G | – | 643.1 | – | 2283.47 | TOP BARRIER |

CULVERT INVERT = 2272.47 FT

# BOX CULVERT

Inlet control and outlet control.

I154

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 5.93 ft |
| Slope | 0.86 % | 45 degree bevels | 7.00 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 7.65 ft |
| Number of boxes | 2 | | |
| Culvert length | 194 ft | | |
| Discharge | 1040 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 6.17 ft |
| | | Velocity | 10.83 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.89 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I154

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 6.69 ft |
| Slope | 0.86 % | 45 degree bevels | 8.30 ft |
| Manning's 'n' | 0.015 | Sq. edge headwall | 9.11 ft |
| Number of boxes | 2 | | |
| Culvert length | 194 ft | | |
| Discharge | 1205 cfs | OUTLET CONTROL HWo: | |
| | | HWo depth | 7.56 ft |
| | | Velocity | 12.55 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I154

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 6.91 ft |
| Slope | 0.86 % | 45 degree bevels | 8.70 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 9.56 ft |
| Number of boxes | 2 | | |
| Culvert length | 194 ft | | |
| Discharge | 1252 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 7.98 ft |
| | | Velocity | 13.04 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I154

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 7.13 ft |
| Slope | 0.86 % | 45 degree bevels | 9.10 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 10.00 ft |
| Number of boxes | 2 | | |
| Culvert length | 194 ft | | |
| Discharge | 1297 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 8.39 ft |
| | | Velocity | 13.51 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I154

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 7.36 ft |
| Slope | 0.86 % | 45 degree bevels | 9.50 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 10.43 ft |
| Number of boxes | 2 | | |
| Culvert length | 194 ft | | |
| Discharge | 1341 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 8.81 ft |
| | | Velocity | 13.97 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I154

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 7.52 ft |
| Slope | 0.86 % | 45 degree bevels | 9.80 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 10.76 ft |
| Number of boxes | 2 | | |
| Culvert length | 194 ft | | |
| Discharge | 1373 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 9.12 ft |
| | | Velocity | 14.30 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I154

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 7.69 ft |
| Slope | 0.86 % | 45 degree bevels | 10.10 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 11.07 ft |
| Number of boxes | 2 | | |
| Culvert length | 194 ft | | |
| Discharge | 1404 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 9.43 ft |
| | | Velocity | 14.63 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

G. C. WALLACE, INC.
Engineers/Planners/Surveyors

DATE _____ SUBJECT

BY _____

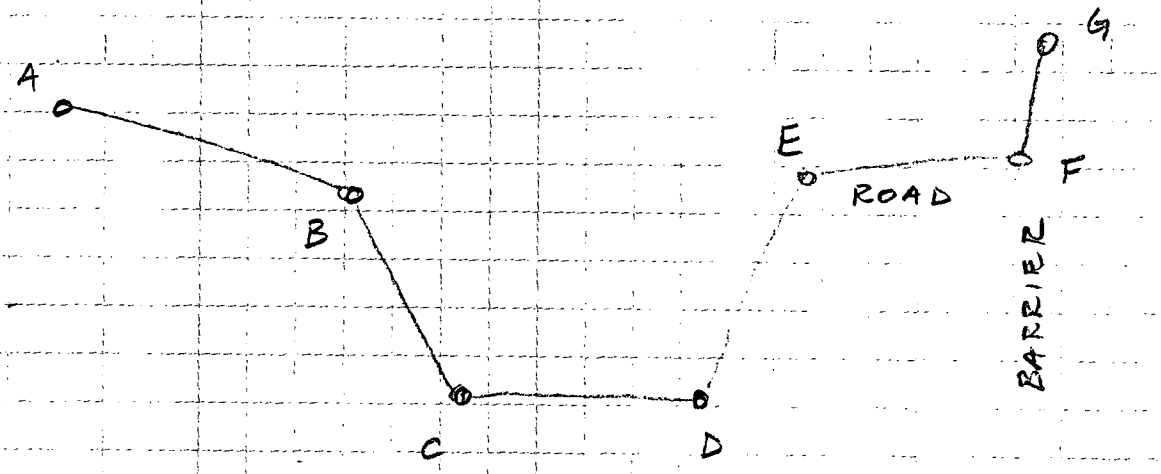
SHEET NO. _____ OF _____

JOB NO. 550.039

DVI154

CHANNEL SECTION

| PT | STA (m) | STA (FT) | ELEVATION (m) | ELEVATION (FT) | DEPTH (FT) | DATA SOURCE/ EXPLANATION |
|---|---|---|---|---|---|---|
| A | 0 | 0 | 696.591 | 2285.40 | 12.93 | NDOT TOPO |
| B | 101.4 | 333 | 695.067 | 2280.40 | 7.93 | NDOT TOPO |
| C | 114.2 | 375 | 693.543 | 2272.47 | 0 | NDOT TOPO |
| D | 118.8 | 390 | 693.543 | 2272.47 | 0 | NDOT TOPO |
| E | 134.6 | 442 | 694.763 | 2279.40 | 6.93 | ± SURVEY # 322 |
| F | 153.9 | 504.9 | 695.143 | 2280.65 | 8.18 | 2% TO BARRIER |
| G | 154.0 | 505 | – | 2283.32 | 10.85 | TOP BARRIER |




$$S = \frac{2272.47 - 2264.49 \text{ FT}}{2186 \text{ FT}} = 0.0037 \Rightarrow \boxed{0.37\%}$$

# Table
## Rating Table for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI154C |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 0.37 % |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Attribute | Minimum | Maximum | Increment |
|---|---|---|---|
| Water Surface Elevation (ft | 7.00 | 10.10 | 0.10 |

| Water Surface Elevation (ft) | Discharge (cfs) | Velocity (ft/s) | Flow Area ($ft^2$) | Wetted Perimeter (ft) | Top Width (ft) |
|---|---|---|---|---|---|
| 7.00 | 3,166.91 | 7.56 | 418.7 | 108.71 | 107.60 |
| 7.10 | 3,289.06 | 7.65 | 429.7 | 114.28 | 113.16 |
| 7.20 | 3,414.46 | 7.74 | 441.3 | 119.86 | 118.72 |
| 7.30 | 3,543.55 | 7.81 | 453.5 | 125.43 | 124.28 |
| 7.40 | 3,676.72 | 7.89 | 466.2 | 131.00 | 129.84 |
| 7.50 | 3,814.32 | 7.96 | 479.5 | 136.57 | 135.40 |
| 7.60 | 3,956.67 | 8.02 | 493.3 | 142.14 | 140.97 |
| 7.70 | 4,104.09 | 8.08 | 507.6 | 147.72 | 146.53 |
| 7.80 | 4,256.88 | 8.15 | 522.6 | 153.29 | 152.09 |
| 7.90 | 4,415.30 | 8.21 | 538.1 | 158.86 | 157.65 |
| 8.00 | 4,469.78 | 8.06 | 554.3 | 168.72 | 167.50 |
| 8.10 | 4,494.80 | 7.86 | 571.6 | 180.41 | 179.20 |
| 8.20 | 4,540.05 | 7.69 | 590.1 | 191.12 | 189.88 |
| 8.30 | 4,609.47 | 7.56 | 609.4 | 197.88 | 196.55 |
| 8.40 | 4,695.03 | 7.46 | 629.4 | 204.64 | 203.21 |
| 8.50 | 4,795.75 | 7.38 | 650.1 | 211.40 | 209.87 |
| 8.60 | 4,910.79 | 7.31 | 671.4 | 218.16 | 216.54 |
| 8.70 | 5,039.48 | 7.27 | 693.4 | 224.92 | 223.20 |
| 8.80 | 5,181.25 | 7.24 | 716.0 | 231.68 | 229.87 |
| 8.90 | 5,335.62 | 7.22 | 739.3 | 238.44 | 236.53 |
| 9.00 | 5,502.19 | 7.21 | 763.3 | 245.20 | 243.19 |
| 9.10 | 5,680.63 | 7.21 | 788.0 | 251.97 | 249.86 |
| 9.20 | 5,870.67 | 7.22 | 813.3 | 258.73 | 256.52 |
| 9.30 | 6,072.06 | 7.23 | 839.3 | 265.49 | 263.18 |
| 9.40 | 6,284.62 | 7.26 | 865.9 | 272.25 | 269.85 |
| 9.50 | 6,508.18 | 7.29 | 893.2 | 279.01 | 276.51 |
| 9.60 | 6,742.61 | 7.32 | 921.2 | 285.77 | 283.18 |
| 9.70 | 6,987.81 | 7.36 | 949.9 | 292.53 | 289.84 |
| 9.80 | 7,243.68 | 7.40 | 979.2 | 299.29 | 296.50 |
| 9.90 | 7,510.16 | 7.44 | 1,009.2 | 306.05 | 303.17 |
| 10.00 | 7,787.20 | 7.49 | 1,039.8 | 312.81 | 309.83 |
| 10.10 | 8,074.75 | 7.54 | 1,071.1 | 319.57 | 316.49 |

# DVI154
## Worksheet for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI154C |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 0.37 % |
| Water Surface Elevation | 10.10 ft |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.027 | |
| Elevation Range | 0.00 to 12.93 | |
| Discharge | 8,074.75 | cfs |
| Flow Area | 1,071.1 | ft² |
| Wetted Perimeter | 319.57 | ft |
| Top Width | 316.49 | ft |
| Actual Depth | 10.10 | ft |
| Critical Elevation | 9.15 | ft |
| Critical Slope | 0.72 | % |
| Velocity | 7.54 | ft/s |
| Velocity Head | 0.88 | ft |
| Specific Energy | 10.98 | ft |
| Froude Number | 0.72 | |
| Flow Type | Subcritical | |

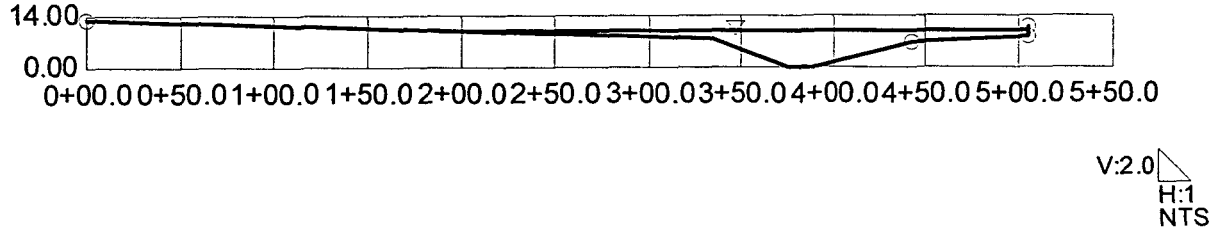
| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00.0 | 4+42.0 | 0.030 |
| 4+42.0 | 5+04.9 | 0.016 |
| 5+04.9 | 5+05.0 | 0.015 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00.0 | 12.93 |
| 3+33.0 | 7.93 |
| 3+75.0 | 0.00 |
| 3+90.0 | 0.00 |
| 4+42.0 | 6.93 |
| 5+04.9 | 8.18 |
| 5+05.0 | 10.85 |

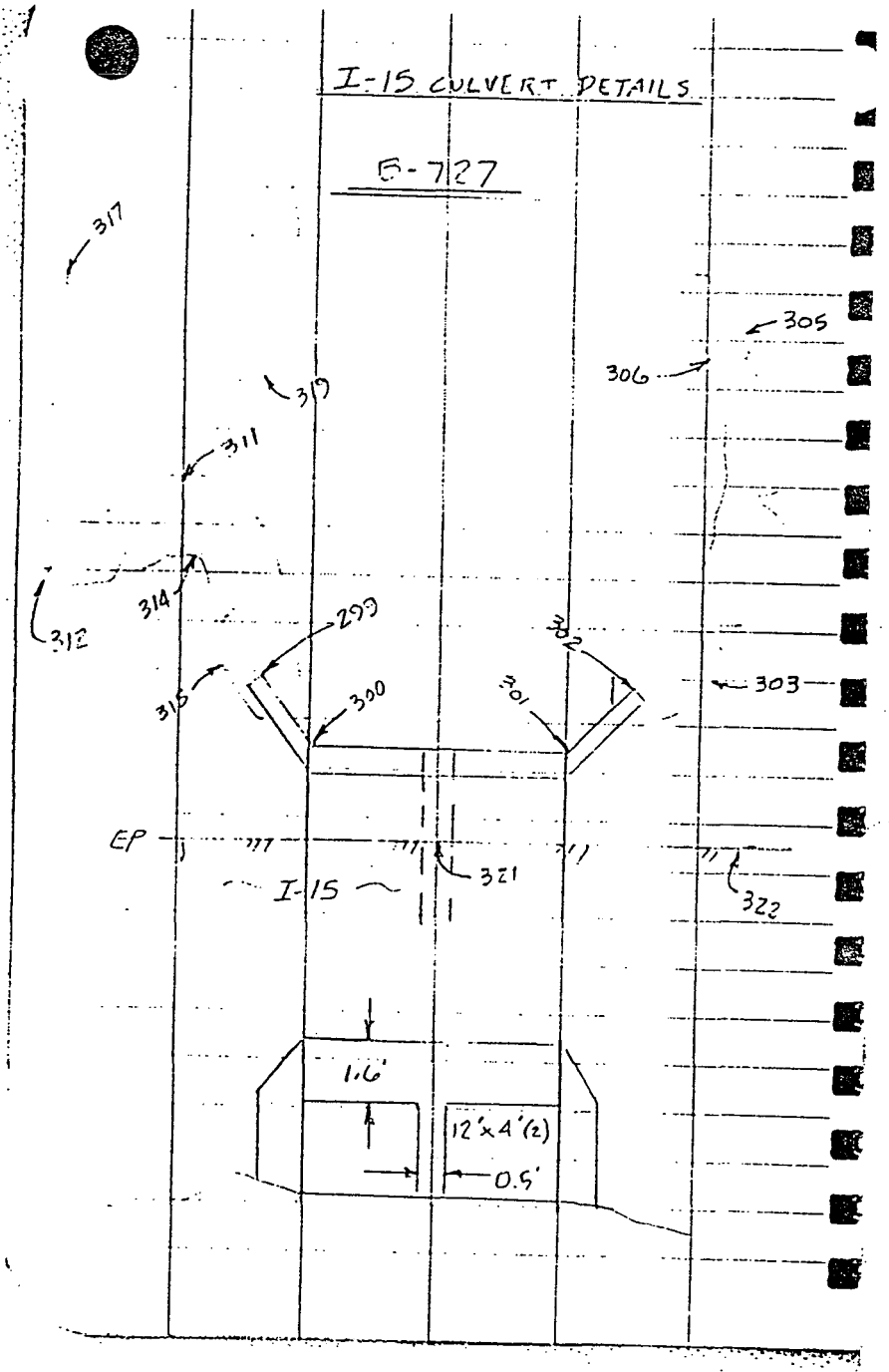
# DVI154
## Cross Section for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI154C |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Section Data | | |
|---|---|---|
| Mannings Coefficient | 0.027 | |
| Slope | 0.37 | % |
| Water Surface Elevation | 10.10 | ft |
| Elevation Range | 0.00 to 12.93 | |
| Discharge | 8,074.75 | cfs |

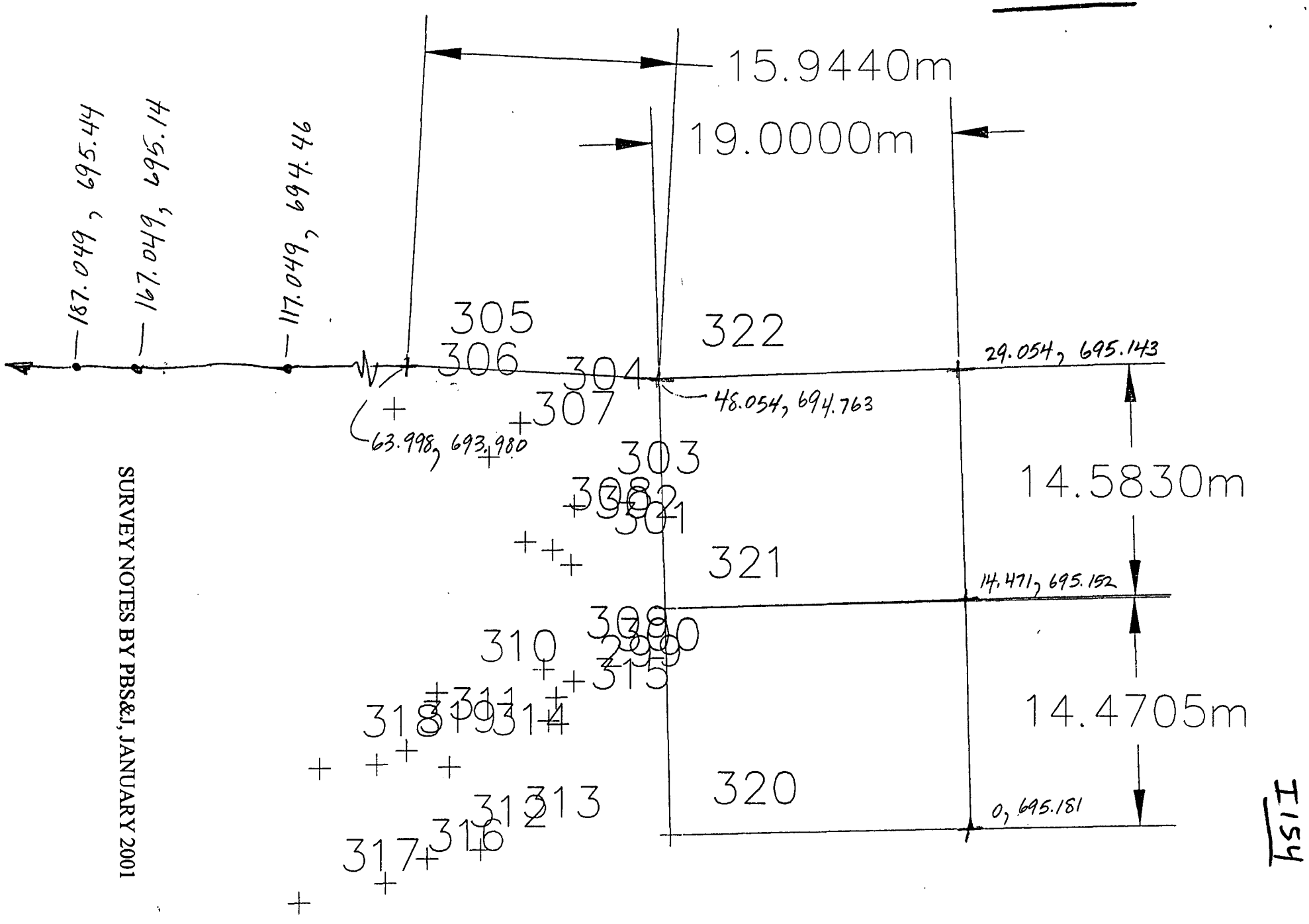


I154



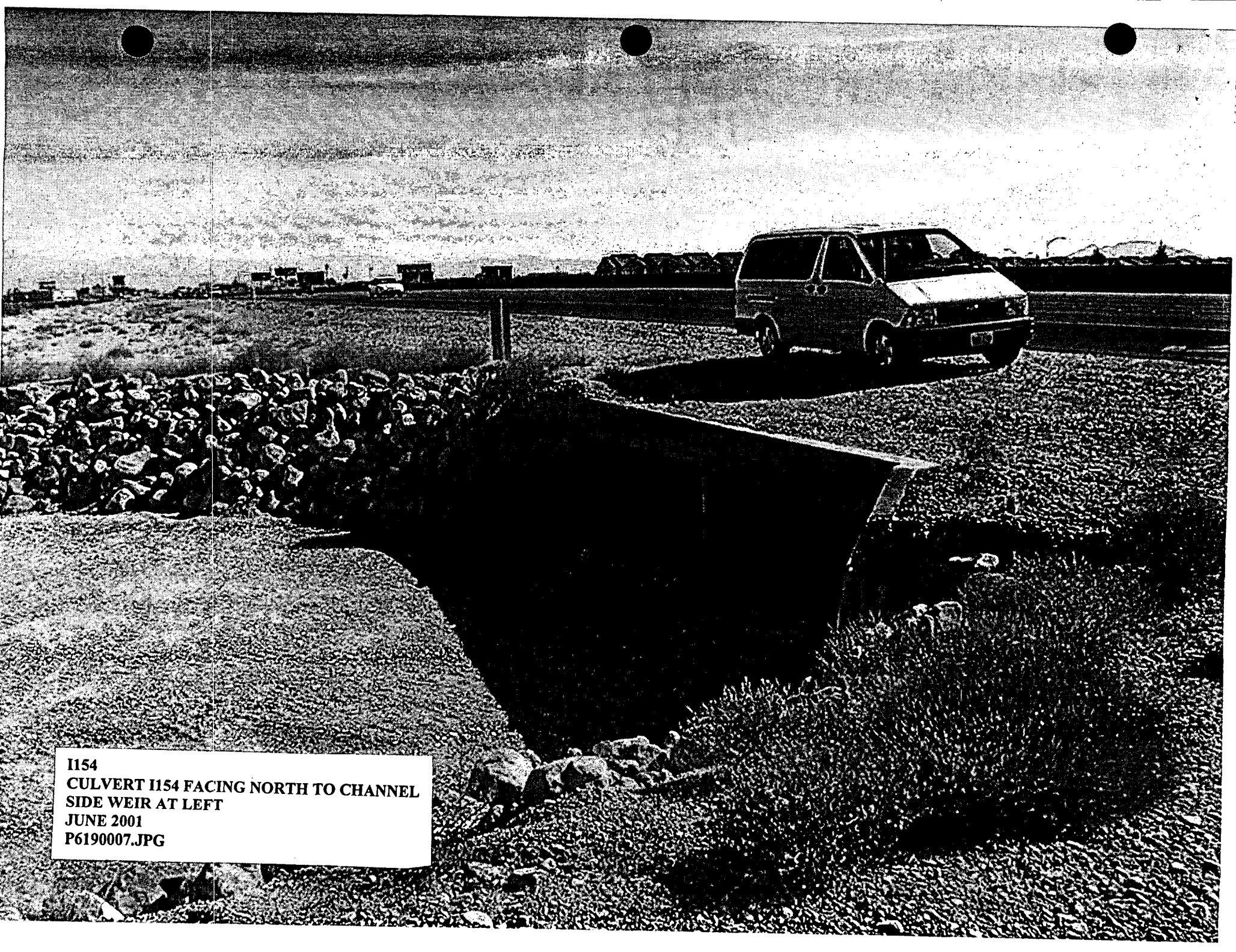

SURVEY NOTES BY PBS&J, JANUARY 2001

B-727

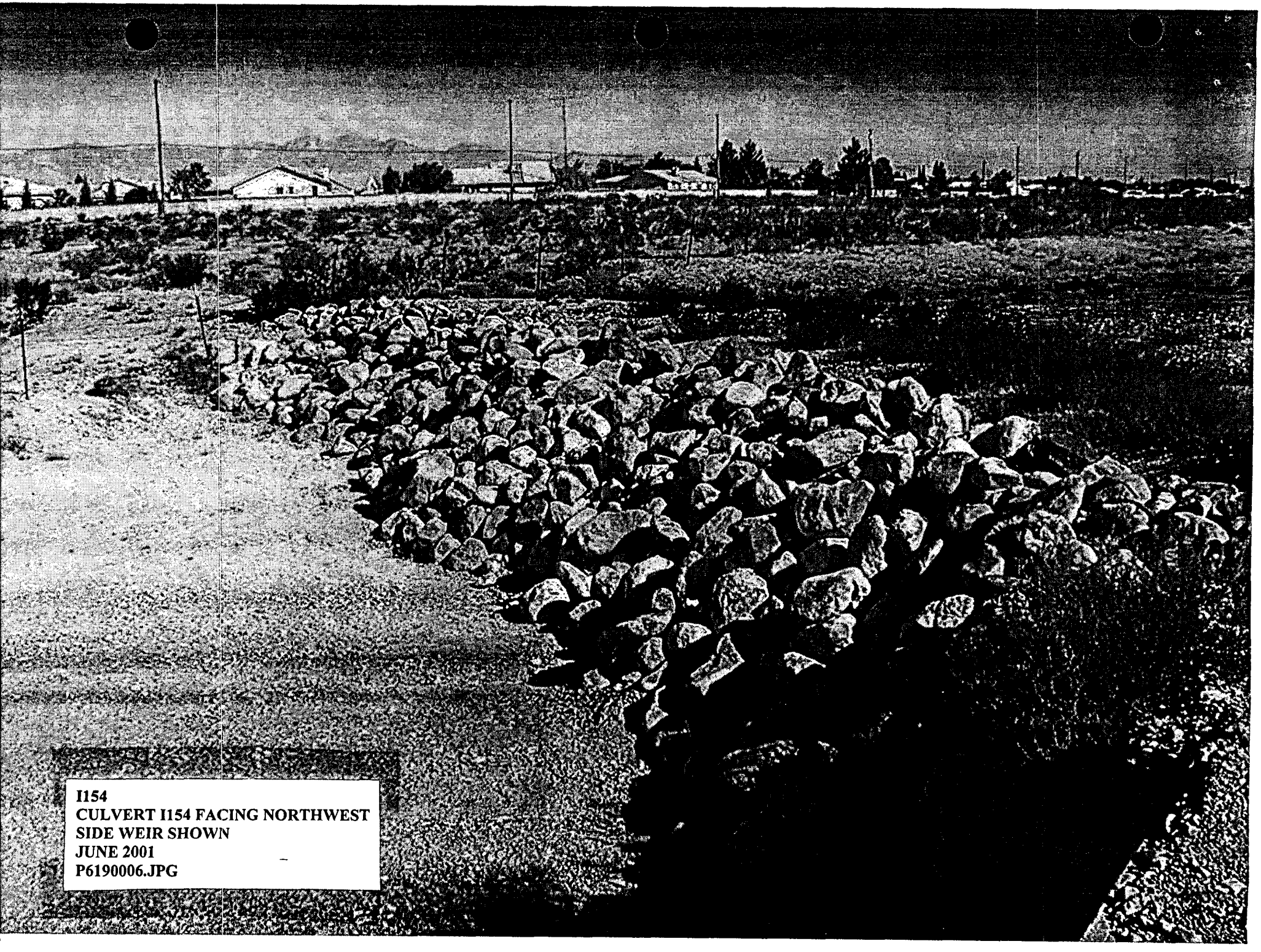



SURVEY NOTES BY PBS&J, JANUARY 2001

I 15H



I154
CULVERT I154 FACING NORTH TO CHANNEL
SIDE WEIR AT LEFT
JUNE 2001
P6190007.JPG



I154
CULVERT I154 FACING NORTHWEST
SIDE WEIR SHOWN
JUNE 2001
P6190006.JPG

# DIVERSION DVI155

DVI155

## SUMMARY OF DIVERSION CALCULATIONS

| WSE (FT) | DEPTH (FT) | EAST Qcvt (CFS) | EAST Qweir (CFS) | "DQ" EAST Qdivert (CFS) | NORTH Qweir (CFS) | NORTH Qchan (CFS) | NORTH Qcontrol (CFS) | "DI" INFLOW Qtotal (CFS) |
|---|---|---|---|---|---|---|---|---|
| 2264.5 | 0.0 | 0 | | | | | | 0 |
| 2267.9 | 3.4 | 650 | 0 | 650 | 411 | 99 | 99 | 749 |
| 2269.8 | 5.3 | 1250 | 0 | 1250 | 799 | 243 | 243 | 1493 |
| 2271.3 | 6.8 | 1691 | 0 | 1691 | 1348 | 437 | 437 | 2128 |
| 2272.4 | 7.9 | 1980 | 0 | 1980 | 2032 | 736 | 736 | 2716 |
| 2273.3 | 8.8 | 2192 | 0 | 2192 | 2902 | 1186 | 1186 | 3378 |
| 2274.1 | 9.6 | 2367 | 0 | 2367 | 3866 | 1716 | 1716 | 4083 |
| 2274.9 | 10.4 | 2531 | 0 | 2531 | 5141 | 2017 | 2017 | 4548 |
| 2275.4 | 10.9 | 2630 | 21 | 2651 | 6305 | 2309 | 2309 | 4960 |
| 2275.8 | 11.3 | 2708 | 435 | 3141 | 7366 | 2650 | 2650 | 6791 |
| 2276.1 | 11.8 | 2761 | 1129 | 3890 | 8227 | 2953 | 2953 | 6843 |

WSE = GIVEN
DEPTH = WSE-UPSTREAM CULVERT INLET,
EAST Qcvt = INLET CONTROL CALCULATION ATTACHED
EAST Qweir = FROM SUM OF "EAST Qweir" FOR EACH DEPTH
EAST Qdivert = EAST Qcvt + EAST Qweir
NORTH Qweir = FROM SUM OF "NORTH Qweir" FOR EACH DEPTH
NORTH Qchan = CHANNEL CAPACITY, NORMAL DEPTH CALCULATION ATTACHED
NORTH Qcontrol = SMALLER FLOW OF "NORTH Qweir" AND "NORTH Qchan"
INFLOW Qtotal = "EAST Qdivert" + "NORTH Qcontrol"

D= 3.4 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2280.40 | 2267.9 | 0.0 | | | |
| B | 650 | 650 | 2274.49 | 2267.9 | 0.0 | 0.0 | 0 | |
| C | 657 | 7 | 2270.49 | 2267.9 | 0.0 | 0.0 | 0 | |
| D | 677 | 20 | 2264.49 | 2267.9 | 3.4 | 1.7 | 134 | |
| E | 689 | 12 | 2264.49 | 2267.9 | 3.4 | 3.4 | 217 | |
| F | 698 | 9 | 2270.49 | 2267.9 | 0.0 | 1.7 | 60 | |
| G | 804 | 107 | 2272.59 | 2267.9 | 0.0 | 0.0 | 0 | |
| H | 804 | 0 | 2275.29 | 2267.9 | 0.0 | 0.0 | 0 | |
| I | 1350 | 546 | 2275.57 | 2267.9 | 0.0 | 0.0 | | 0 |
| J | 1914 | 564 | 2277.66 | 2267.9 | 0.0 | 0.0 | | 0 |
| | | | | | | | 411 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 5.3 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2280.40 | 2269.8 | 0.0 | | | |
| B | 650 | 650 | 2274.49 | 2269.8 | 0.0 | 0.0 | 0 | |
| C | 657 | 7 | 2270.49 | 2269.8 | 0.0 | 0.0 | 0 | |
| D | 677 | 20 | 2264.49 | 2269.8 | 5.3 | 2.7 | 260 | |
| E | 689 | 12 | 2264.49 | 2269.8 | 5.3 | 5.3 | 422 | |
| F | 698 | 9 | 2270.49 | 2269.8 | 0.0 | 2.7 | 117 | |
| G | 804 | 107 | 2272.59 | 2269.8 | 0.0 | 0.0 | 0 | |
| H | 804 | 0 | 2275.29 | 2269.8 | 0.0 | 0.0 | 0 | |
| I | 1350 | 546 | 2275.57 | 2269.8 | 0.0 | 0.0 | | 0 |
| J | 1914 | 564 | 2277.66 | 2269.8 | 0.0 | 0.0 | | 0 |
| | | | | | | | 799 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 6.8 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2280.40 | 2271.3 | 0.0 | | | |
| B | 650 | 650 | 2274.49 | 2271.3 | 0.0 | 0.0 | 0 | |
| C | 657 | 7 | 2270.49 | 2271.3 | 0.8 | 0.4 | 5 | |
| D | 677 | 20 | 2264.49 | 2271.3 | 6.8 | 3.8 | 446 | |
| E | 689 | 12 | 2264.49 | 2271.3 | 6.8 | 6.8 | 613 | |
| F | 698 | 9 | 2270.49 | 2271.3 | 0.8 | 3.8 | 201 | |
| G | 804 | 107 | 2272.59 | 2271.3 | 0.0 | 0.4 | 82 | |
| H | 804 | 0 | 2275.29 | 2271.3 | 0.0 | 0.0 | 0 | |
| I | 1350 | 546 | 2275.57 | 2271.3 | 0.0 | 0.0 | | 0 |
| J | 1914 | 564 | 2277.66 | 2271.3 | 0.0 | 0.0 | | 0 |
| | | | | | | | 1348 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 7.9 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2280.40 | 2272.4 | 0.0 | | | |
| B | 650 | 650 | 2274.49 | 2272.4 | 0.0 | 0.0 | 0 | |
| C | 657 | 7 | 2270.49 | 2272.4 | 1.9 | 1.0 | 20 | |
| D | 677 | 20 | 2264.49 | 2272.4 | 7.9 | 4.9 | 653 | |
| E | 689 | 12 | 2264.49 | 2272.4 | 7.9 | 7.9 | 768 | |
| F | 698 | 9 | 2270.49 | 2272.4 | 1.9 | 4.9 | 294 | |
| G | 804 | 107 | 2272.59 | 2272.4 | 0.0 | 1.0 | 298 | |
| H | 804 | 0 | 2275.29 | 2272.4 | 0.0 | 0.0 | 0 | |
| I | 1350 | 546 | 2275.57 | 2272.4 | 0.0 | 0.0 | | 0 |
| J | 1914 | 564 | 2277.66 | 2272.4 | 0.0 | 0.0 | | 0 |
| | | | | | | | 2032 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 8.8 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2280.40 | 2273.3 | 0.0 | | | |
| B | 650 | 650 | 2274.49 | 2273.3 | 0.0 | 0.0 | 0 | |
| C | 657 | 7 | 2270.49 | 2273.3 | 2.8 | 1.4 | 35 | |
| D | 677 | 20 | 2264.49 | 2273.3 | 8.8 | 5.8 | 840 | |
| E | 689 | 12 | 2264.49 | 2273.3 | 8.8 | 8.8 | 902 | |
| F | 698 | 9 | 2270.49 | 2273.3 | 2.8 | 5.8 | 378 | |
| G | 804 | 107 | 2272.59 | 2273.3 | 0.7 | 1.8 | 746 | |
| H | 804 | 0 | 2275.29 | 2273.3 | 0.0 | 0.4 | 0 | |
| I | 1350 | 546 | 2275.57 | 2273.3 | 0.0 | 0.0 | | 0 |
| J | 1914 | 564 | 2277.66 | 2273.3 | 0.0 | 0.0 | | 0 |
| | | | | | | | 2902 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 9.6 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2280.40 | 2274.1 | 0.0 | | | |
| B | 650 | 650 | 2274.49 | 2274.1 | 0.0 | 0.0 | 0 | |
| C | 657 | 7 | 2270.49 | 2274.1 | 3.6 | 1.8 | 51 | |
| D | 677 | 20 | 2264.49 | 2274.1 | 9.6 | 6.6 | 1020 | |
| E | 689 | 12 | 2264.49 | 2274.1 | 9.6 | 9.6 | 1026 | |
| F | 698 | 9 | 2270.49 | 2274.1 | 3.6 | 6.6 | 459 | |
| G | 804 | 107 | 2272.59 | 2274.1 | 1.5 | 2.6 | 1309 | |
| H | 804 | 0 | 2275.29 | 2274.1 | 0.0 | 0.8 | 0 | |
| I | 1350 | 546 | 2275.57 | 2274.1 | 0.0 | 0.0 | | 0 |
| J | 1914 | 564 | 2277.66 | 2274.1 | 0.0 | 0.0 | | 0 |
| | | | | | | | 3888 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 10.4 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2280.40 | 2274.9 | 0.0 | | | |
| B | 650 | 650 | 2274.49 | 2274.9 | 0.4 | 0.2 | 181 | |
| C | 657 | 7 | 2270.49 | 2274.9 | 4.4 | 2.4 | 79 | |
| D | 677 | 20 | 2264.49 | 2274.9 | 10.4 | 7.4 | 1210 | |
| E | 689 | 12 | 2264.49 | 2274.9 | 10.4 | 10.4 | 1159 | |
| F | 698 | 9 | 2270.49 | 2274.9 | 4.4 | 7.4 | 545 | |
| G | 804 | 107 | 2272.59 | 2274.9 | 2.3 | 3.4 | 1968 | |
| H | 804 | 0 | 2275.29 | 2274.9 | 0.0 | 1.2 | 0 | |
| I | 1350 | 546 | 2275.57 | 2274.9 | 0.0 | 0.0 | | 0 |
| J | 1914 | 564 | 2277.66 | 2274.9 | 0.0 | 0.0 | | 0 |
| | | | | | | | 5141 | 0 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 10.9 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2280.40 | 2275.4 | 0.0 | | | |
| B | 650 | 650 | 2274.49 | 2275.4 | 0.9 | 0.5 | 598 | |
| C | 657 | 7 | 2270.49 | 2275.4 | 4.9 | 2.9 | 104 | |
| D | 677 | 20 | 2264.49 | 2275.4 | 10.9 | 7.9 | 1335 | |
| E | 689 | 12 | 2264.49 | 2275.4 | 10.9 | 10.9 | 1243 | |
| F | 698 | 9 | 2270.49 | 2275.4 | 4.9 | 7.9 | 601 | |
| G | 804 | 107 | 2272.59 | 2275.4 | 2.8 | 3.9 | 2423 | |
| H | 804 | 0 | 2275.29 | 2275.4 | 0.1 | 1.5 | 1 | |
| I | 1350 | 546 | 2275.57 | 2275.4 | 0.0 | 0.1 | | 21 |
| J | 1914 | 564 | 2277.66 | 2275.4 | 0.0 | 0.0 | | 0 |
| | | | | | | | 6305 | 21 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 11.3 FT

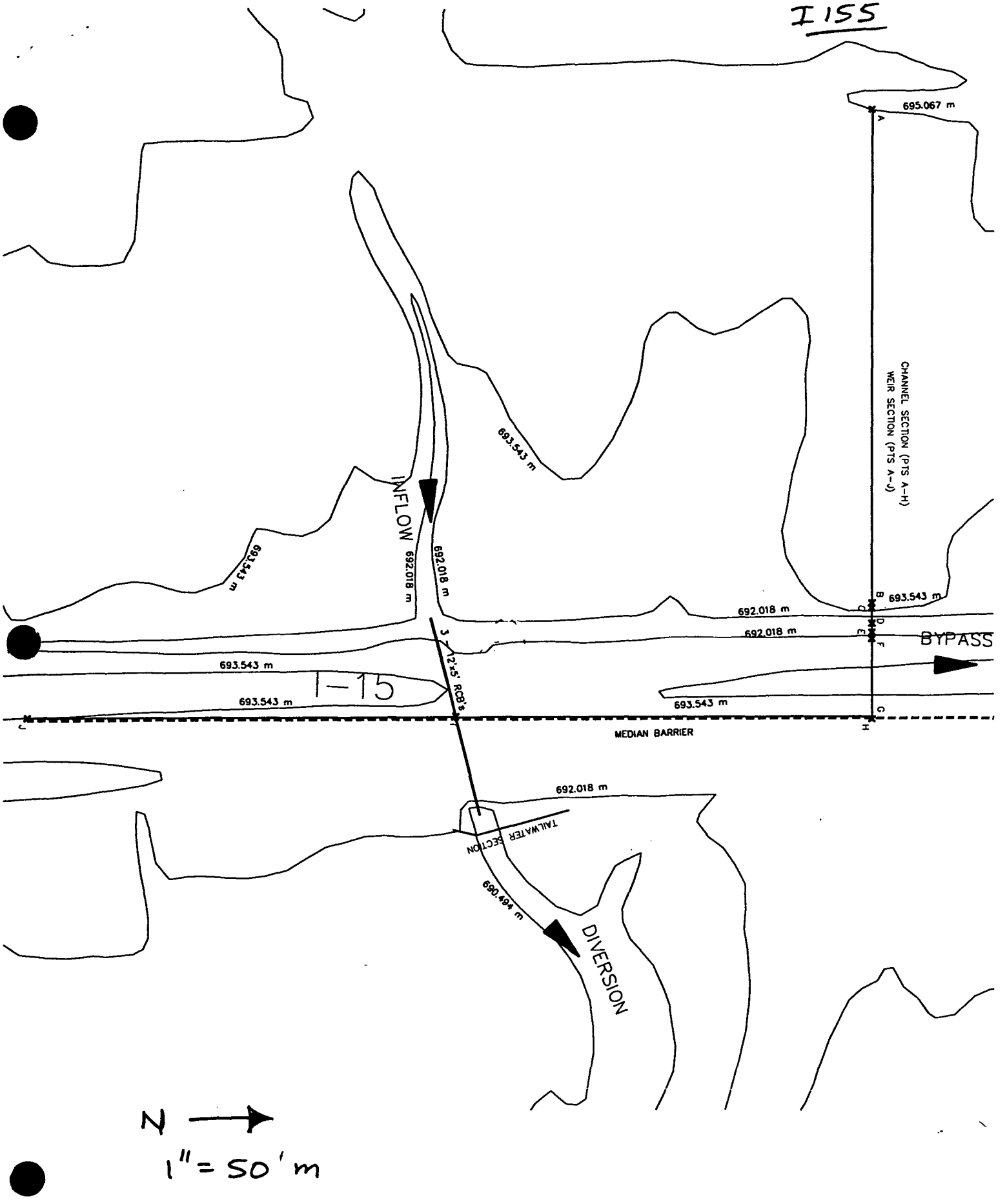
| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2280.40 | 2275.8 | 0.0 | | | |
| B | 650 | 650 | 2274.49 | 2275.8 | 1.3 | 0.7 | 1034 | |
| C | 657 | 7 | 2270.49 | 2275.8 | 5.3 | 3.3 | 126 | |
| D | 677 | 20 | 2264.49 | 2275.8 | 11.3 | 8.3 | 1437 | |
| E | 689 | 12 | 2264.49 | 2275.8 | 11.3 | 11.3 | 1312 | |
| F | 698 | 9 | 2270.49 | 2275.8 | 5.3 | 8.3 | 647 | |
| G | 804 | 107 | 2272.59 | 2275.8 | 3.2 | 4.3 | 2609 | |
| H | 804 | 0 | 2275.29 | 2275.8 | 0.5 | 1.9 | 1 | |
| I | 1350 | 546 | 2275.57 | 2275.8 | 0.2 | 0.4 | | 369 |
| J | 1914 | 564 | 2277.66 | 2275.8 | 0.0 | 0.1 | | 66 |
| | | | | | | | 7366 | 435 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3

D= 11.8 FT

| PT | STA (FT) | L (FT) | GR (FT) | WSE (FT) | H (FT) | Havg (FT) | NORTH Qweir (CFS) | EAST Qweir (CFS) |
|---|---|---|---|---|---|---|---|---|
| A | 0 | | 2280.40 | 2276.1 | 0.0 | | | |
| B | 650 | 650 | 2274.49 | 2276.1 | 1.6 | 0.8 | 1408 | |
| C | 657 | 7 | 2270.49 | 2276.1 | 5.6 | 3.6 | 144 | |
| D | 677 | 20 | 2264.49 | 2276.1 | 11.6 | 8.6 | 1516 | |
| E | 689 | 12 | 2264.49 | 2276.1 | 11.6 | 11.6 | 1385 | |
| F | 698 | 9 | 2270.49 | 2276.1 | 5.6 | 8.6 | 682 | |
| G | 804 | 107 | 2272.59 | 2276.1 | 3.5 | 4.6 | 3111 | |
| H | 804 | 0 | 2275.29 | 2276.1 | 0.8 | 2.2 | 1 | |
| I | 1350 | 546 | 2275.57 | 2276.1 | 0.5 | 0.7 | | 898 |
| J | 1914 | 564 | 2277.66 | 2276.1 | 0.0 | 0.3 | | 231 |
| | | | | | | | 8227 | 1129 |

PT = WEIR SECTION POINT, SEE ATTACHED EXHIBIT
L = DISTANCE BETWEEN WEIR SECTION POINTS
GR = GROUND ELEVATION AT WEIR SECTION POINT
WSE = WATER SURFACE ELEVATION AT CORRESPONDING DEPTH
H = DEPTH OF WATER OVER WEIR SECTION POINT
Havg = AVERAGE DEPTH OF WATER OVER WEIR SECTION POINT
NORTH Qweir = C*L*Havg^1.5, WHERE C=3
EAST Qweir = C*L*Havg^1.5, WHERE C=3


I155
695.067 m
A
CHANNEL SECTION (PTS A–H)
WEIR SECTION (PTS A–J)
693.543 m
INFLOW
692.018 m
692.018 m
693.543 m
692.018 m
B
693.543 m
D
692.018 m
E
F
BYPASS
693.543 m
I-15
693.543 m
693.543 m
12'x5' RCB's
J
I
H
G
MEDIAN BARRIER
692.018 m
TAILWATER SECTION
690.494 m
DIVERSION
N
1" = 50' m

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DATE _____ SUBJECT

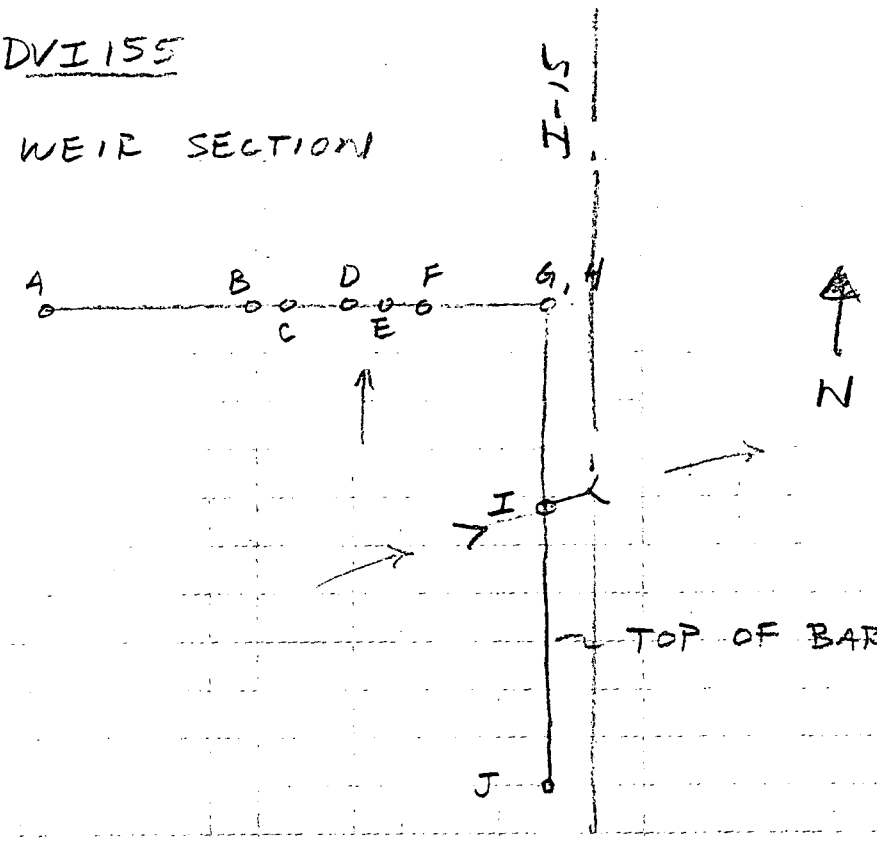
BY _____

SHEET NO. _____ OF _____

JOB NO. _____

DVI 155

WEIR SECTION




A–H : SAME POINTS AS CHANNEL SECTION

| PT | STA (FT) | ELEV (FT) | DEPTH (FT) | DATA SOURCE / EXPLANATION |
|---|---|---|---|---|
| A | 0 | 2280.40 | 15.9 | NDOT TOPO |
| B | 650 | 2274.49 | 10 | GCW SURVEY |
| C | 657 | 2270.49 | 6 | GCW SURVEY |
| D | 677 | 2264.49 | 0 | SURVEY - INVERT |
| E | 688.5 | 2264.49 | 0 | SURVEY - INVERT |
| F | 697.5 | 2270.49 | 6 | GCW SURVEY |
| G | 804 | 2272.59 | 8.1 | CALC 2% TO BARRIER |
| H | 804.1 | 2275.29 | 10.8 | TOP BARRIER |
| I | 1350 | 2275.57 | 11.1 | TOP BARRIER @ CVT |
| J | 1914 | 2277.66 | 13.2 | TOP BARRIER |

# BOX CULVERT

Inlet control and outlet control.

I155

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 3.22 ft |
| Slope | 1.20 % | 45 degree bevels | 3.39 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 3.67 ft |
| Number of boxes | 3 | | |
| Culvert length | 190 ft | | |
| Discharge | 650 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 1.71 ft |
| | | Velocity | 3.61 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 2.17 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I155

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 5.01 ft |
| Slope | 1.20 % | 45 degree bevels | 5.30 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 5.73 ft |
| Number of boxes | 3 | | |
| Culvert length | 190 ft | | |
| Discharge | 1250 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 3.38 ft |
| | | Velocity | 6.94 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.35 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I155

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 6.16 ft |
| Slope | 1.20 % | 45 degree bevels | 6.80 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 7.37 ft |
| Number of boxes | 3 | | |
| Culvert length | 190 ft | | |
| Discharge | 1691 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 4.99 ft |
| | | Velocity | 9.39 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.10 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I155

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 6.90 ft |
| Slope | 1.20 % | 45 degree bevels | 7.90 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 8.61 ft |
| Number of boxes | 3 | | |
| Culvert length | 190 ft | | |
| Discharge | 1980 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 6.22 ft |
| | | Velocity | 11.00 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.56 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I155

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 7.45 ft |
| Slope | 1.20 % | 45 degree bevels | 8.80 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 9.63 ft |
| Number of boxes | 3 | | |
| Culvert length | 190 ft | | |
| Discharge | 2192 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 7.22 ft |
| | | Velocity | 12.18 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.88 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I155

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 7.92 ft |
| Slope | 1.20 % | 45 degree bevels | 9.60 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 10.53 ft |
| Number of boxes | 3 | | |
| Culvert length | 190 ft | | |
| Discharge | 2367 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 8.04 ft |
| | | Velocity | 13.15 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 5.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I155

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 8.37 ft |
| Slope | 1.20 % | 45 degree bevels | 10.40 ft |
| Manning's 'n' | 0.015 | Sq. edge headwall | 11.42 ft |
| Number of boxes | 3 | | |
| Culvert length | 190 ft | | |
| Discharge | 2531 cfs | OUTLET CONTROL HWo: | |
| | | HWo depth | 8.81 ft |
| | | Velocity | 14.06 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 5.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I155

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 8.65 ft |
| Slope | 1.20 % | 45 degree bevels | 10.90 ft |
| Manning's 'n' | 0.015 | Sq. edge headwall | 11.98 ft |
| Number of boxes | 3 | | |
| Culvert length | 190 ft | | |
| Discharge | 2630 cfs | OUTLET CONTROL HWo: | |
| | | HWo depth | 9.29 ft |
| | | Velocity | 14.61 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 5.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I155

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 8.88 ft |
| Slope | 1.20 % | 45 degree bevels | 11.30 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 12.42 ft |
| Number of boxes | 3 | | |
| Culvert length | 190 ft | | |
| Discharge | 2706 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 9.68 ft |
| | | Velocity | 15.03 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 5.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

I155

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 9.04 ft |
| Slope | 1.20 % | 45 degree bevels | 11.60 ft ← |
| Manning's 'n' | 0.015 | Sq. edge headwall | 12.74 ft |
| Number of boxes | 3 | | |
| Culvert length | 190 ft | | |
| Discharge | 2761 cfs ← | OUTLET CONTROL HWo: | |
| | | HWo depth | 9.96 ft |
| | | Velocity | 15.34 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 5.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

**G. C. WALLACE, INC.**
Engineers/Planners/Surveyors

DATE _____ SUBJECT

BY _____

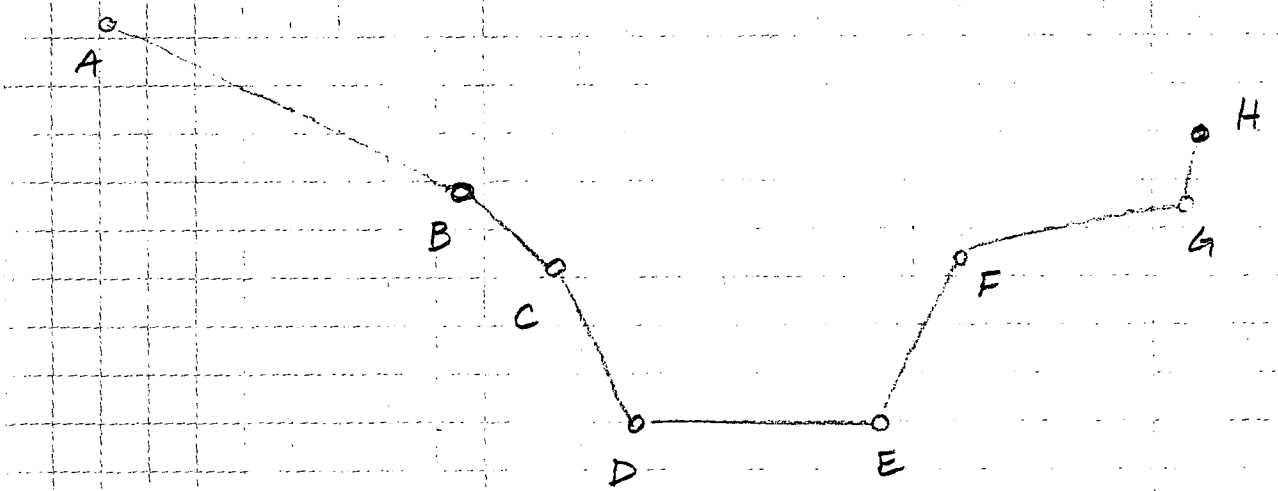
SHEET NO. _____ OF _____

JOB NO. _____

DVI155

CHANNEL SECTION

| PT | STA (FT) | ELEV (FT) | DEPTH (FT) | DATA SOURCE / EXPLANATION |
|---|---|---|---|---|
| A | 0 | 2280.40 | 15.9 | NDOT TOPO |
| B | 650 | 2274.49 | 10 | GCW SURVEY |
| C | 657 | 2270.49 | 6 | GCW SURVEY |
| D | 677 | 2264.49 | 0 | SURVEY - INVERT |
| E | 688.5 | 2264.49 | 0 | SURVEY - INVERT |
| F | 697.5 | 2270.49 | 6 | GCW SURVEY |
| G | 804 | 2272.59 | 8.1 | CALC 2% TO BARRIER |
| H | 804.1 | 2275.29 | 10.8 | TOP BARRIER |




$$S = \frac{2264.49 - 2262.60 \text{ FT}}{5820 \text{ FT}} = 0.0003 \rightarrow \boxed{0.03\ \%}$$

DVI155

# Table
# Rating Table for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI155D |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 0.03 % |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Attribute | Minimum | Maximum | Increment |
|---|---|---|---|
| Water Surface Elevation (ft | 3.40 | 11.60 | 0.10 |

| Water Surface Elevation (ft) | Discharge (cfs) | Velocity (ft/s) | Flow Area ($ft^2$) | Wetted Perimeter (ft) | Top Width (ft) |
|---|---|---|---|---|---|
| 3.40 | 99.49 | 1.48 | 67.0 | 29.46 | 27.93 |
| 3.50 | 105.30 | 1.51 | 69.9 | 29.99 | 28.42 |
| 3.60 | 111.30 | 1.53 | 72.7 | 30.52 | 28.90 |
| 3.70 | 117.48 | 1.55 | 75.6 | 31.05 | 29.38 |
| 3.80 | 123.85 | 1.58 | 78.6 | 31.57 | 29.87 |
| 3.90 | 130.40 | 1.60 | 81.6 | 32.10 | 30.35 |
| 4.00 | 137.15 | 1.62 | 84.7 | 32.63 | 30.83 |
| 4.10 | 144.09 | 1.64 | 87.8 | 33.16 | 31.32 |
| 4.20 | 151.23 | 1.66 | 90.9 | 33.69 | 31.80 |
| 4.30 | 158.56 | 1.68 | 94.1 | 34.22 | 32.28 |
| 4.40 | 166.09 | 1.71 | 97.4 | 34.74 | 32.77 |
| 4.50 | 173.82 | 1.73 | 100.7 | 35.27 | 33.25 |
| 4.60 | 181.75 | 1.75 | 104.0 | 35.80 | 33.73 |
| 4.70 | 189.89 | 1.77 | 107.4 | 36.33 | 34.22 |
| 4.80 | 198.23 | 1.79 | 110.9 | 36.86 | 34.70 |
| 4.90 | 206.78 | 1.81 | 114.4 | 37.39 | 35.18 |
| 5.00 | 215.54 | 1.83 | 117.9 | 37.91 | 35.67 |
| 5.10 | 224.51 | 1.85 | 121.5 | 38.44 | 36.15 |
| 5.20 | 233.69 | 1.87 | 125.1 | 38.97 | 36.63 |
| 5.30 | 243.09 | 1.89 | 128.8 | 39.50 | 37.12 |
| 5.40 | 252.70 | 1.91 | 132.6 | 40.03 | 37.60 |
| 5.50 | 262.53 | 1.93 | 136.4 | 40.56 | 38.08 |
| 5.60 | 272.58 | 1.94 | 140.2 | 41.08 | 38.57 |
| 5.70 | 282.85 | 1.96 | 144.1 | 41.61 | 39.05 |
| 5.80 | 293.35 | 1.98 | 148.0 | 42.14 | 39.53 |
| 5.90 | 304.07 | 2.00 | 152.0 | 42.67 | 40.02 |
| 6.00 | 315.02 | 2.02 | 156.0 | 43.20 | 40.50 |
| 6.10 | 327.83 | 2.04 | 160.3 | 48.47 | 45.75 |
| 6.20 | 341.11 | 2.07 | 165.1 | 53.75 | 50.99 |
| 6.30 | 354.98 | 2.08 | 170.5 | 59.02 | 56.24 |
| 6.40 | 369.59 | 2.10 | 176.4 | 64.29 | 61.49 |
| 6.50 | 385.02 | 2.11 | 182.8 | 69.57 | 66.73 |

# Table
## Rating Table for Irregular Channel

| Water Surface Elevation (ft) | Discharge (cfs) | Velocity (ft/s) | Flow Area ($ft^2$) | Wetted Perimeter (ft) | Top Width (ft) |
|---|---|---|---|---|---|
| 6.60 | 401.39 | 2.12 | 189.7 | 74.84 | 71.98 |
| 6.70 | 418.79 | 2.12 | 197.2 | 80.12 | 77.23 |
| 6.80 | 437.30 | 2.13 | 205.2 | 85.39 | 82.47 |
| 6.90 | 457.00 | 2.14 | 213.7 | 90.66 | 87.72 |
| 7.00 | 477.98 | 2.15 | 222.7 | 95.94 | 92.96 |
| 7.10 | 500.31 | 2.15 | 232.3 | 101.21 | 98.21 |
| 7.20 | 524.07 | 2.16 | 242.4 | 106.48 | 103.46 |
| 7.30 | 549.33 | 2.17 | 253.0 | 111.76 | 108.70 |
| 7.40 | 576.16 | 2.18 | 264.1 | 117.03 | 113.95 |
| 7.50 | 604.62 | 2.19 | 275.8 | 122.31 | 119.20 |
| 7.60 | 634.80 | 2.20 | 288.0 | 127.58 | 124.44 |
| 7.70 | 666.74 | 2.22 | 300.7 | 132.85 | 129.69 |
| 7.80 | 700.52 | 2.23 | 313.9 | 138.13 | 134.94 |
| 7.90 | 736.19 | 2.25 | 327.6 | 143.40 | 140.18 |
| 8.00 | 773.83 | 2.26 | 341.9 | 148.68 | 145.43 |
| 8.10 | 813.48 | 2.28 | 356.7 | 153.95 | 150.67 |
| 8.20 | 860.97 | 2.32 | 371.8 | 154.25 | 150.85 |
| 8.30 | 910.45 | 2.35 | 386.9 | 154.55 | 151.03 |
| 8.40 | 961.87 | 2.39 | 402.0 | 154.86 | 151.21 |
| 8.50 | 1,015.17 | 2.43 | 417.1 | 155.16 | 151.39 |
| 8.60 | 1,070.32 | 2.48 | 432.3 | 155.46 | 151.57 |
| 8.70 | 1,127.28 | 2.52 | 447.5 | 155.76 | 151.75 |
| 8.80 | 1,186.00 | 2.56 | 462.6 | 156.06 | 151.93 |
| 8.90 | 1,246.46 | 2.61 | 477.8 | 156.36 | 152.10 |
| 9.00 | 1,308.63 | 2.65 | 493.1 | 156.67 | 152.28 |
| 9.10 | 1,372.46 | 2.70 | 508.3 | 156.97 | 152.46 |
| 9.20 | 1,437.95 | 2.75 | 523.6 | 157.27 | 152.64 |
| 9.30 | 1,505.06 | 2.79 | 538.8 | 157.57 | 152.82 |
| 9.40 | 1,573.76 | 2.84 | 554.1 | 157.87 | 153.00 |
| 9.50 | 1,644.03 | 2.89 | 569.4 | 158.17 | 153.18 |
| 9.60 | 1,715.86 | 2.93 | 584.8 | 158.48 | 153.36 |
| 9.70 | 1,789.22 | 2.98 | 600.1 | 158.78 | 153.53 |
| 9.80 | 1,864.09 | 3.03 | 615.5 | 159.08 | 153.71 |
| 9.90 | 1,940.46 | 3.08 | 630.8 | 159.38 | 153.89 |
| 10.00 | 2,018.30 | 3.12 | 646.2 | 159.68 | 154.07 |
| 10.10 | 1,979.28 | 2.99 | 662.2 | 170.80 | 165.09 |
| 10.20 | 1,972.35 | 2.90 | 679.3 | 181.92 | 176.11 |
| 10.30 | 1,986.95 | 2.85 | 697.4 | 193.03 | 187.13 |
| 10.40 | 2,017.07 | 2.81 | 716.7 | 204.15 | 198.15 |
| 10.50 | 2,059.05 | 2.79 | 737.1 | 215.27 | 209.17 |
| 10.60 | 2,110.53 | 2.78 | 758.5 | 226.39 | 220.19 |
| 10.70 | 2,169.92 | 2.78 | 781.1 | 237.50 | 231.21 |
| 10.80 | 2,236.10 | 2.78 | 804.8 | 248.62 | 242.24 |
| 10.90 | 2,308.66 | 2.78 | 829.5 | 259.74 | 253.25 |
| 11.00 | 2,386.72 | 2.79 | 855.4 | 270.86 | 264.27 |
| 11.10 | 2,469.86 | 2.80 | 882.4 | 281.97 | 275.29 |
| 11.20 | 2,557.76 | 2.81 | 910.5 | 293.09 | 286.30 |
| 11.30 | 2,650.17 | 2.82 | 939.7 | 304.21 | 297.32 |
| 11.40 | 2,746.91 | 2.83 | 969.9 | 315.33 | 308.34 |
| 11.50 | 2,847.85 | 2.84 | 1,001.3 | 326.44 | 319.35 |
| 11.60 | 2,952.89 | 2.86 | 1,033.8 | 337.56 | 330.37 |

# DVI155
## Worksheet for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI155D |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 0.03 % |
| Water Surface Elevation | 11.60 ft |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.019 | |
| Elevation Range | 0.00 to 15.90 | |
| Discharge | 2,952.89 | cfs |
| Flow Area | 1,033.8 | ft² |
| Wetted Perimeter | 337.56 | ft |
| Top Width | 330.37 | ft |
| Actual Depth | 11.60 | ft |
| Critical Elevation | 7.98 | ft |
| Critical Slope | 0.41 | % |
| Velocity | 2.86 | ft/s |
| Velocity Head | 0.13 | ft |
| Specific Energy | 11.73 | ft |
| Froude Number | 0.28 | |
| Flow Type | Subcritical | |

Calculation Messages:
Water elevation exceeds lowest end station by 0.8 ft.

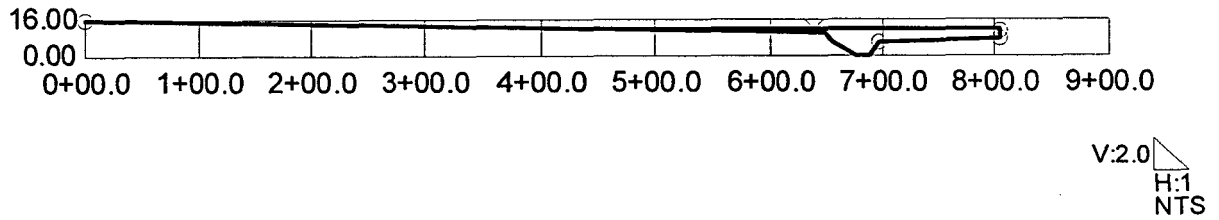
| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00.0 | 6+97.5 | 0.030 |
| 6+97.5 | 8+04.0 | 0.016 |
| 8+04.0 | 8+04.1 | 0.015 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00.0 | 15.90 |
| 6+50.0 | 10.00 |
| 6+57.0 | 6.00 |
| 6+77.0 | 0.00 |
| 6+88.5 | 0.00 |
| 6+97.5 | 6.00 |
| 8+04.0 | 8.10 |
| 8+04.1 | 10.80 |

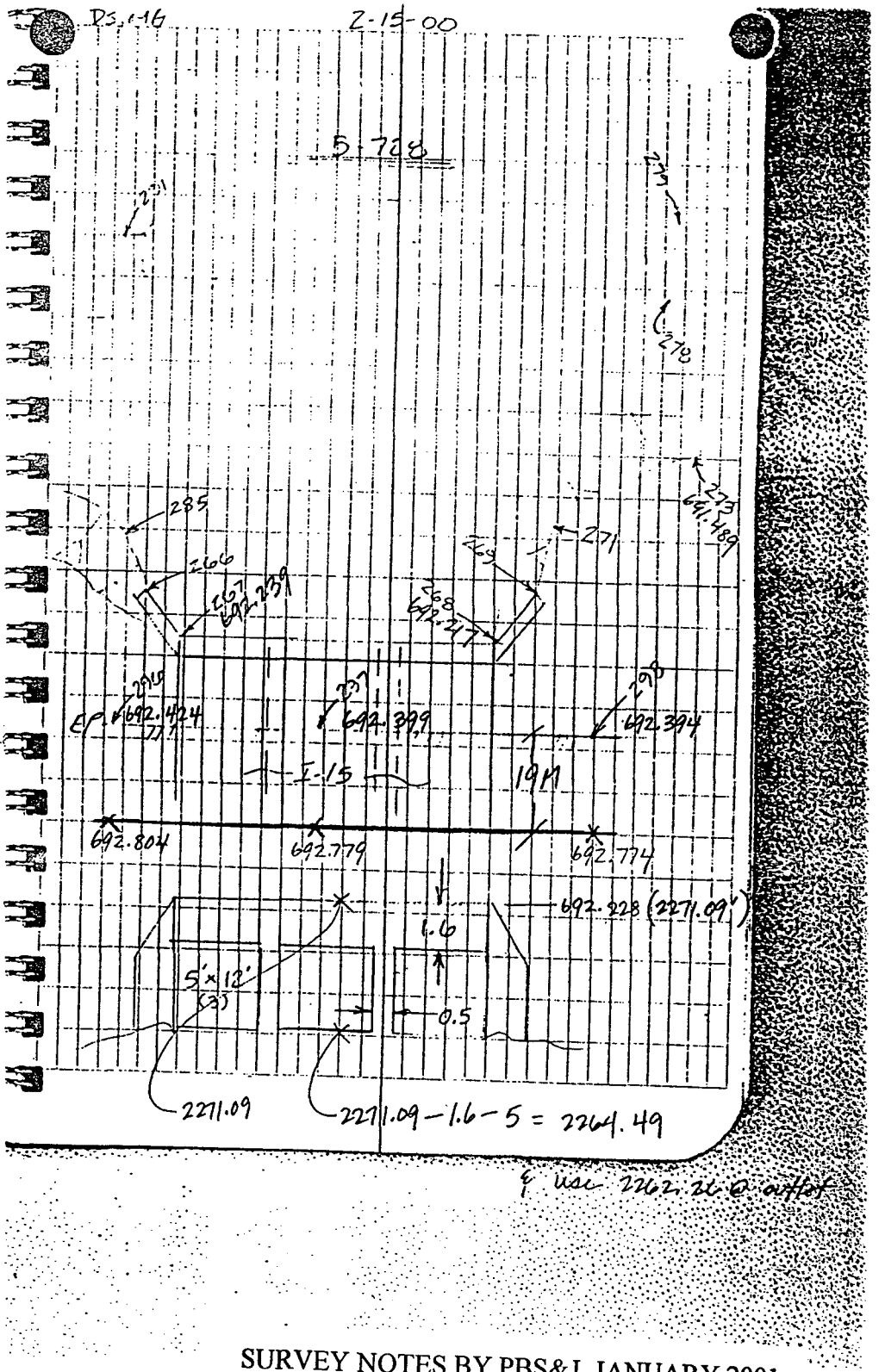
# DVI155
## Cross Section for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DVI155D |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

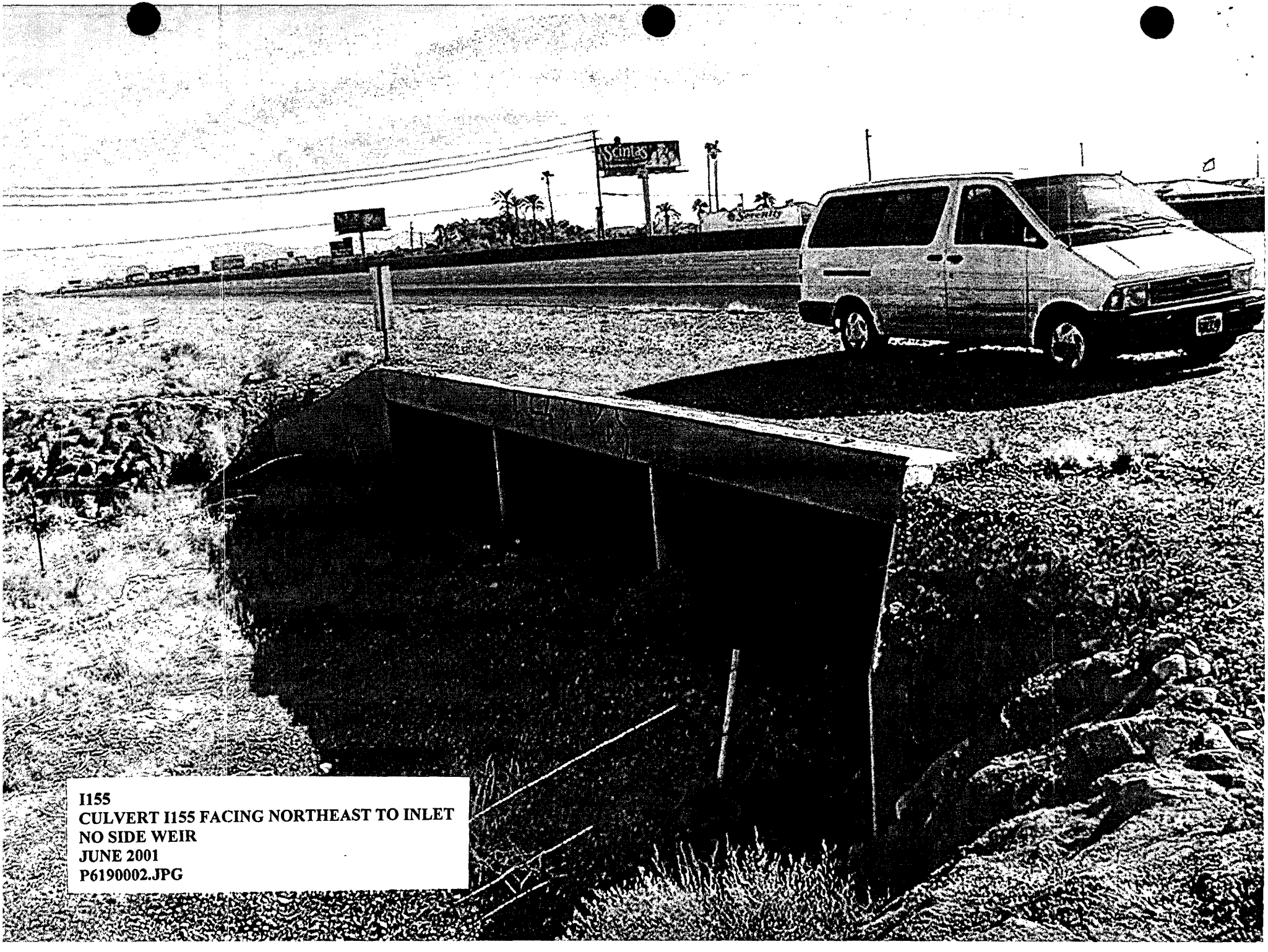
| Section Data | | |
|---|---|---|
| Mannings Coefficient | 0.019 | |
| Slope | 0.03 | % |
| Water Surface Elevation | 11.60 | ft |
| Elevation Range | 0.00 to 15.90 | |
| Discharge | 2,952.89 | cfs |



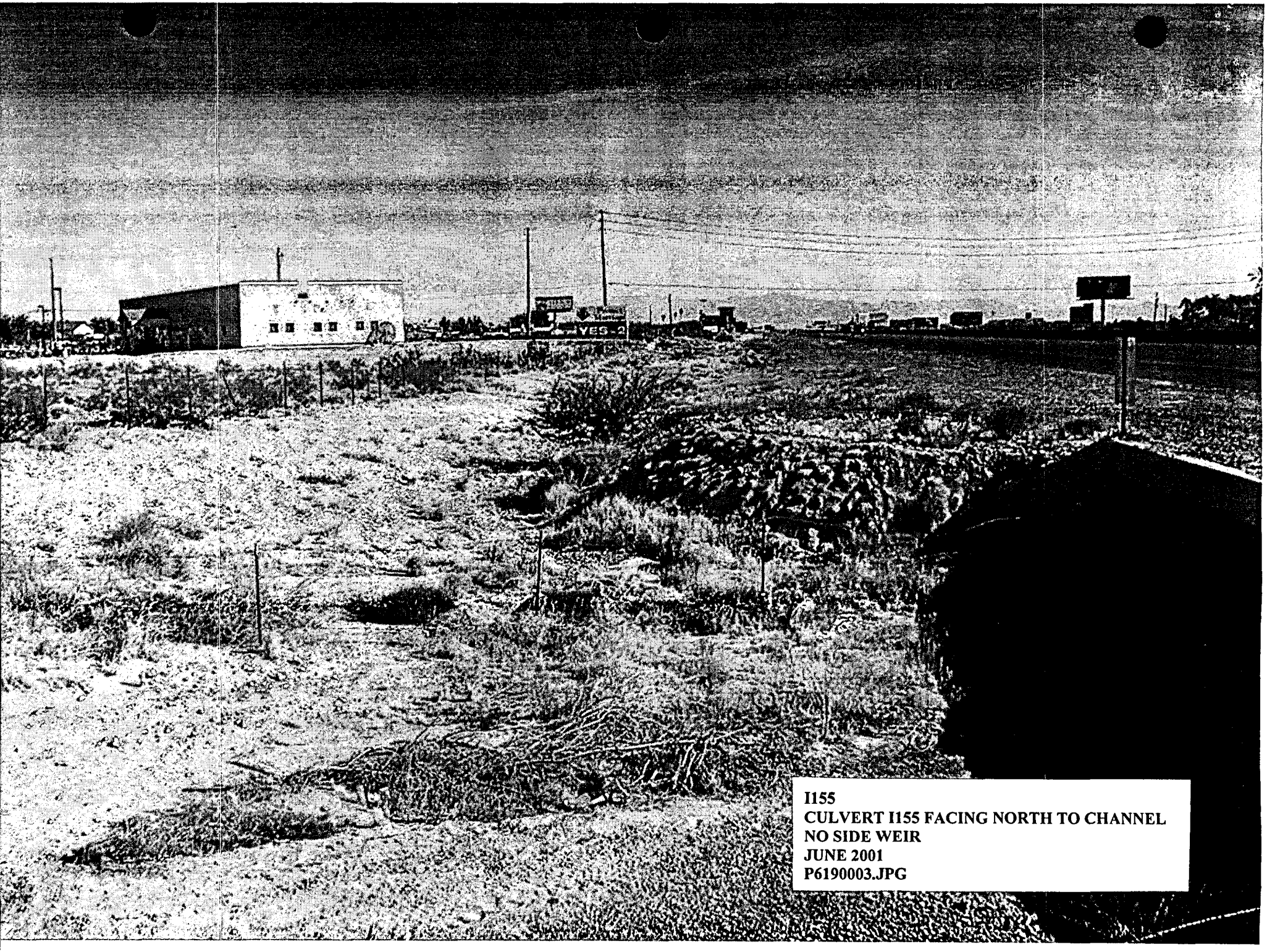
I155




SURVEY NOTES BY PBS&J, JANUARY 2001



I155
CULVERT I155 FACING NORTHEAST TO INLET
NO SIDE WEIR
JUNE 2001
P6190002.JPG



I155
CULVERT I155 FACING NORTH TO CHANNEL
NO SIDE WEIR
JUNE 2001
P6190003.JPG

# DIVERSION DVPITT AND DVROSE

DATE 7/01

CLIENT _____ JOB NO 550.039 CALC BY JEP/mjl

DESCRIPTION DIVERSION CHECKED BY _____

DVPIT

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DI | 0 | 3586 | 3710 | 3835 | 3961 | 5795 | 7737 |
| DQ | 0 | 1554 | 1618 | 1691 | 1747 | 2774 | 3933 |

DV ROSE

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DI | 0 | 1673 | 1721 | 1770 | 2214 | 3021 | 3803 |
| DQ | 0 | 359 | 371 | 384 | 396 | 579 | 771 |

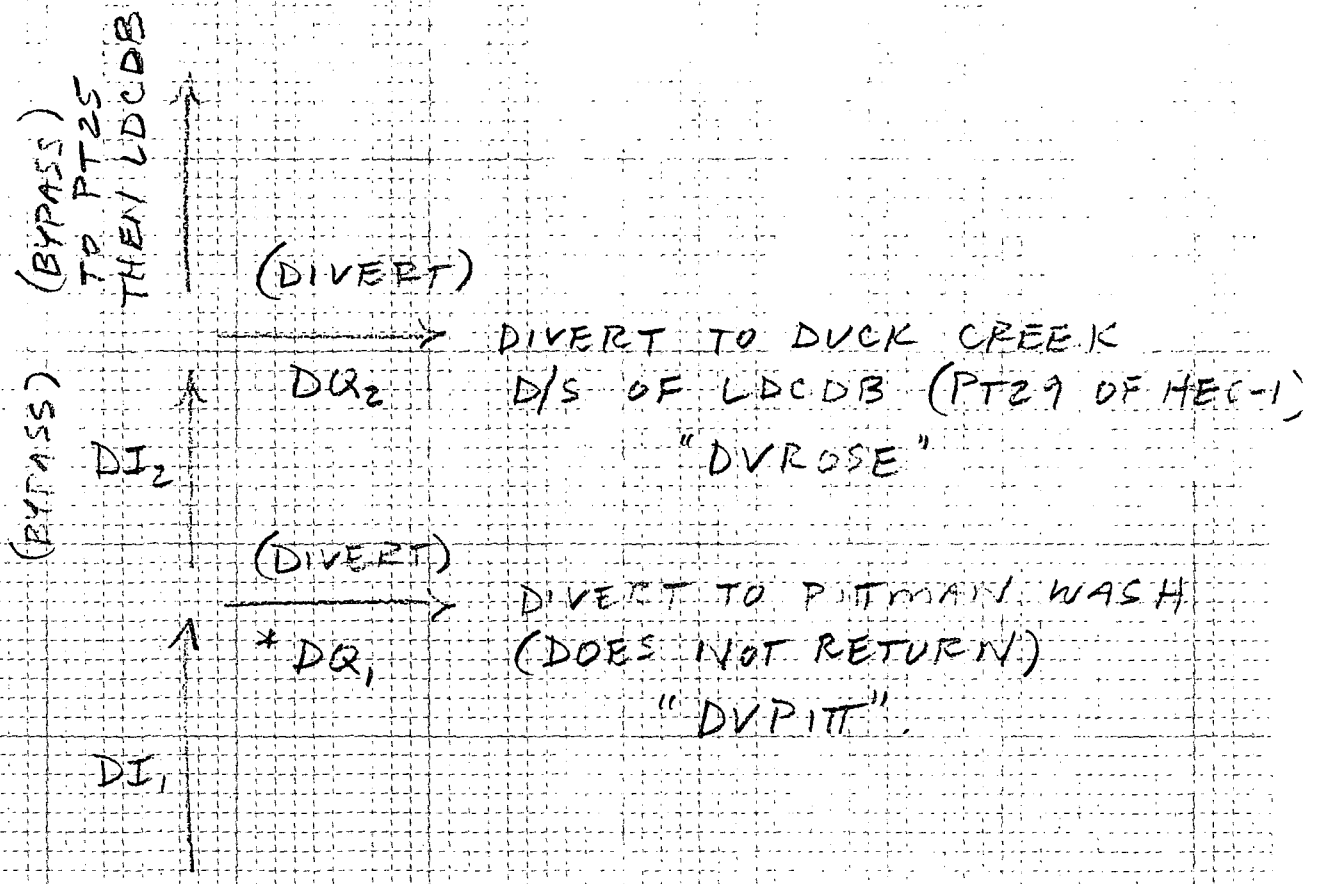


G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD. / LAS VEGAS, NEVADA 89146

DATE 7/01

CLIENT _____ JOB NO 550.039 CALC BY JEP/MJL

DESCRIPTION DIVERSION/ CHECKED BY _____




* 10% OF $DI_1$ IS TAKEN OUT OF $DQ_1$, TO BE DIVERTED IN TABLE 2. THIS WAS DONE TO SIMPLIFY HEC-1 MODELING.



G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD. LAS VEGAS, NEVADA 89146

SHEET ____ OF ____

DATE 7/01

CLIENT _____ JOB NO 550.039 CALC BY JEP/MJL

DESCRIPTION DIVERSION CHECKED BY _____

From 1995

ORIGINAL DIVERSION RATING TABLE

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $DI_0$ | 0 | 3586 | 3710 | 3835 | 3961 | 5795 | 7737 |
| $DQ_0$ | 0 | 1913 | 1989 | 2065 | 2143 | 3353 | 4707 |

"DVPIT" ~ $DQ_1$ TO PT25, THEN ON TO LDCDB

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $DI_1$ | 0 | 3586 | 3710 | 3835 | 3961 | 5795 | 7737 |
| * $DQ_1$ | 0 | 1554 | 1618 | 1681 | 1747 | 2774 | 3933 |

"DVROSE" ~ $DQ_2$ TO PT29, DOES NOT GO TO TO LDCDB

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| $DI_2$ | 0 | 1673 | 1721 | 1770 | 2214 | 3021 | 3803 |
| $DQ_2$ | 0 | 359 | 371 | 384 | 396 | 579 | 774 |

SAMPLE

SAMPLE CALCULATION

$DI_1 = \boxed{5795}$ GIVEN FROM ORIGINAL TABLE

* ASSUME 10% OF $DI_1 = DQ_2$ 10% BASED FROM 1995 FIS RESTUDY 100-YEAR EVENT

$\therefore DQ_2 = 10\%\,(5795) = \boxed{579}$

$DQ_1 = DQ_0 - DQ_2 = 3353 - 579 = \boxed{2774}$

$DI_1 - DQ_1 = DI_2$

$\therefore DI_2 = 5795 - 2774 = \boxed{3021}$

* 10% OF $DI_1$ IS TAKEN OUT OF $DQ_1$, TO BE DIVERTED IN "DVROSE". THIS WAS DONE TO SIMPLIFY HEC-1 MODELING.

# DIVERSION TORAW

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*         SEPTEMBER 1990            *
*          VERSION 4.0              *
*                                   *
*  RUN DATE  01/28/1997  TIME  21:22:12 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X               X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL  LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



```
          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

                    *DIAGRAM
*** FREE ***
               1    ID   HEC1 BASIN PARAMETERS (BA, PB, LS & UD) ARE LINKED
               2    ID   TO FILE: LAG-DUCK.XLS
               3    ID   HEC1 KINEMATIC ROUTING PARAMETERS ARE LINKED
               4    ID   TO FILE: KINEDUCK.XLS
               5    ID
               6    ID   1996 MPU MODEL LOWER DUCK CREEK BASIN
               7    ID   FOR:  CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT
               8    ID   AUGUST 1996
               9    ID   REF. NO. 51876
              10    ID
              11    ID   HEC1 FILE: DCDB&DS5.DAT
              12    ID   DUCK CREEK/BLUE DIAMOND WATERSHED
              13    ID
              14    ID   ULTIMATE DEVELOPMENT
              15    ID   MODEL FOR AREA DOWNSTREAM OF THE LOWER BLUE DIAMOND DETENTION BASIN
              16    ID   (INCLUDES THE DRAINAGE AREA TRIBUTARY TO THE LOWER DUCK CREEK DET. BASIN)
              17    ID
              18    ID   PORTIONS OF WATERSHED MODEL TAKEN FROM COE HYDROLOGY
              19    ID   KINEMATIC SUBBASINS CONVERTED TO SCS UNIT HYDROGRAPH
              20    ID   CHANNEL ROUTING REVISED TO REFLECT NEW EXISTING FACILITIES
              21    ID   SUBBASIN ROUTING REVISED TO REFLECT NEW DEVELOPMENT
              22    ID
              23    ID   THE FOLLOWING CONCENTRATION POINTS-OF-INTEREST HAVE TOTAL
              24    ID   CONTRIBUTING AREAS DIFFERENT FROM THOSE CALCULATED IN THE
              25    ID   HEC-1 OUTPUT DUE TO UPSTREAM DIVERSION(S) AND HAVE BEEN
              26    ID   RECALCULATED TO REPRESENT THE ACTUAL CONTRIBUTING AREAS
              27    ID
              28    ID        NODE ID         CONTRIBUTARY AREA
              29    ID
              30    ID          NB16B                   1.65
              31    ID         B14ADV                   0.41
              32    ID        B14ACNT                   0.95
              33    ID          NB16A                   2.73
              34    ID
              35    ID   100-YEAR, 6-HOUR STORM, SDN5, AMC 2.0
              36    ID   DARF RATIOS FOR AREAS OF 10, 20 AND 50 SQ. MILES
              37    ID   DARFS: 0.86   0.79   0.68
              38    ID
              39    ID   JR CARD RATIOS REPRESENT DEPTH-AREA REDUCTION FACTORS (DARF'S)
              40    ID
                    *
              41    IT       5       0       0     300
              42    IO       5       0       0
              43    IN       5
              44    JR    PREC    0.86    0.79    0.68
                    *

              45    KK     D1C
              46    BA   0.882
              47    PB    3.01
              48    PC   0.000   0.020   0.059   0.080   0.110   0.144   0.150   0.160   0.168   0.171
              49    PC   0.180   0.182   0.187   0.190   0.197   0.202   0.210   0.220   0.230   0.241
              50    PC   0.250   0.259   0.265   0.280   0.290   0.300   0.305   0.309   0.310   0.317
```



```
          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

              51    PC   0.321   0.327   0.333   0.346   0.361   0.381   0.408   0.430   0.477   0.514
              52    PC   0.561   0.630   0.710   0.720   0.731   0.752   0.779   0.790   0.795   0.804
              53    PC   0.810   0.820   0.826   0.840   0.859   0.889   0.910   0.938   0.966   0.970
              54    PC   0.974   0.979   0.981   0.983   0.985   0.989   0.990   0.992   0.993   0.996
              55    PC   0.997   0.999   1.000
              56    LS       0    85.8
              57    UD   0.436
                    *
```

```
             *
319          KK ND9B(b)
320          KM   COMBINE ND9B(a) & ND9A
321          HC       2
             *
322          KKRND9B(b)
323          KM   ROUTE ND9B(b) THRU D10
324          RK    6000    0.02   0.015       0    TRAP      50       2
             *
325          KK     D10
326          BA   2.508
327          PB    2.77
328          LS       0    85.4
329          UD    0.31
             *
1                                        HEC-1 INPUT                                        PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

330          KK    ND10
331          KM   COMBINE ND9B(b) & D10
332          HC       2
             *
333          KK   RND10
334          KM   ROUTE ND10 THRU D12
335          RK    2580   0.016   0.015       0    TRAP      75       2
             *
336          KK     D12
337          BA   0.176
338          PB    2.77
339          LS       0    83.4
340          UD    0.71
             *
341          KK    ND12
342          KM   COMBINE ND10 & D12
343          HC       2
             *
344          KK      MC
345          KM   McCARRAN AREA INCLUDES NUMEROUS SMALL DETENTION FACILITIES
346          KM   AND TWO LARGE DETENTION FACILITIES
347          KM   A PORTION OF THE AREA BYPASSES THE DETENTION BASINS
348          KM   TOTAL BASIN WOULD HAVE LONGER LAG
349          KM   LAG IS SELECTED TO BE COMPARABLE FOR BYPASSED FLOWS
350          BA   3.723
351          PB    2.77
352          LS       0    91.0
353          UD    0.33
             *
354          KK   TODET
355          KM   DIVERT FLOW WHICH BYPASS DETENTION FACILITIES
356          DT   TORAW
357          DI       0     100     500    1000    2000    3000    4000
358          DQ       0      40     100     200     400     570     760
             *
359          KK    DOUT
360          KM   DETENTION BASIN OUTFLOW
361          KM   SIMULATION OF TWO DETENTION BASINS - McCARRAN EAST AND SPENCER
362          RS       1    STOR      -1
363          SV       0       8      40      70     100     160     210     500
364          SQ       0      30      40      55      65      80      85      87
365          SE       0       2       4       6       8      12      15      16
             *
1                                        HEC-1 INPUT                                        PAGE 11

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

366          KK   TORAW
367          DR   TORAW
             *
368          KK RAWHIDE
369          KM   COMBINE DETENTION BASIN OUTFLOW AND BYPASSED FLOW
370          HC       2
             *
371          KKRRAWHIDE
372          KM   ROUTE WITHIN THE RAWHIDE CHANNEL TO NRH
373          RK   15100   0.015   0.015       0    TRAP      15       2
             *
374          KK      RH
375          BA   1.355
376          PB    2.77
377          LS       0    81.5
378          UD    0.34
             *
379          KK     NRH
380          KM   COMBINE RH & MC
381          HC       2
             *
382          KK     B20
383          BA   0.790
```

DIVERSION RATING TABLE FOR "TORAW"

# ROUTING CALCULATIONS

# MUSKINGUM ROUTING TABLE

## MUSKINGUM ROUTING CALCULATIONS

| MUSKINGUM ROUTING PARAMETERS | | | | | | | | | | PHYSICAL DESCRIPTION | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REACH | L | S | n | R | Vwave | DT | NSTPS | K | X | CHANNEL SHAPE | BW (FT) | SS (H:V) | CHANNEL MATERIAL |
| RPT3A | 1,200 | 0.8% | 0.040 | 1.5 | 7.0 | 0.083 | 1 | 0.048 | 0.15 | TRAP | 35 | 3 | NATURAL WASH |
| RPT3B | 3,000 | 0.8% | 0.040 | 1.5 | 7.0 | 0.083 | 1 | 0.119 | 0.15 | TRAP | 35 | 3 | NATURAL WASH |
| RPT4A | 7,300 | 1.4% | 0.040 | 1.5 | 9.2 | 0.083 | 3 | 0.219 | 0.15 | TRAP | 60 | 3 | NATURAL WASH |
| RPT4B | 4,000 | 1.0% | 0.030 | 1.5 | 10.4 | 0.083 | 1 | 0.107 | 0.15 | TRAP | 0 | 10 | EARTH CHANNEL |
| RDVBD7 | 5,100 | 0.9% | 0.040 | 1.5 | 7.2 | 0.083 | 2 | 0.196 | 0.15 | VARIES | NA | NA | VARIES |
| RPT7 | 7,700 | 1.5% | 0.040 | 1.5 | 9.6 | 0.083 | 3 | 0.224 | 0.15 | TRAP | 35 | 10 | NATURAL WASH |
| RPT8 | 16,300 | 1.4% | 0.040 | 1.5 | 9.2 | 0.083 | 6 | 0.490 | 0.15 | TRAP | 75 | 10 | NATURAL WASH |
| RD012A | 750 | 0.7% | 0.040 | 1.5 | 6.5 | 0.083 | 0 | 0.032 | 0.15 | TRAP | 65 | 10 | NATURAL WASH |
| RI151 | 1,100 | 0.3% | 0.040 | 1.5 | 4.3 | 0.083 | 1 | 0.071 | 0.15 | TRAP | 65 | 10 | NATURAL WASH |
| RI152 | 1,900 | 0.3% | 0.040 | 1.5 | 4.3 | 0.083 | 1 | 0.123 | 0.15 | TRAP | 65 | 10 | NATURAL WASH |
| RPT14 | 4,300 | 0.1% | 0.040 | 1.5 | 2.5 | 0.083 | 6 | 0.484 | 0.15 | TRAP | 80 | 10 | NATURAL WASH |
| RPT18 | 2,240 | 0.5% | 0.040 | 1.5 | 5.5 | 0.083 | 1 | 0.113 | 0.15 | TRAP | 60 | 10 | NATURAL WASH |
| RDVI151 | 2,500 | 0.8% | 0.040 | 1.5 | 7.0 | 0.083 | 1 | 0.099 | 0.15 | TRAP | 60 | 10 | NATURAL WASH |
| RDVI152 | 2,500 | 1.0% | 0.040 | 1.5 | 7.8 | 0.083 | 1 | 0.089 | 0.15 | TRAP | 60 | 10 | NATURAL WASH |
| RPT24 | 2,300 | 0.9% | 0.040 | 1.5 | 7.4 | 0.083 | 1 | 0.086 | 0.15 | TRAP | 60 | 10 | NATURAL WASH |
| RDVI153 | 3,300 | 1.1% | 0.040 | 1.5 | 8.2 | 0.083 | 1 | 0.112 | 0.15 | TRAP | 50 | 10 | NATURAL WASH |
| RPT25 | 2,500 | 0.8% | 0.040 | 1.5 | 7.0 | 0.083 | 1 | 0.099 | 0.15 | TRAP | 70 | 10 | NATURAL WASH |
| RPT26 | 1,800 | 0.6% | 0.040 | 1.5 | 6.0 | 0.083 | 1 | 0.083 | 0.15 | TRAP | 100 | 10 | NATURAL WASH |
| RDVI155 | 1,200 | 1.0% | 0.040 | 1.5 | 7.8 | 0.083 | 1 | 0.043 | 0.15 | TRAP | 15 | 2 | NATURAL WASH |
| RD5A | 3,200 | 0.9% | 0.040 | 1.5 | 7.4 | 0.083 | 1 | 0.120 | 0.15 | TRAP | 0 | 50 | NATURAL WASH |
| RPT35 | 1,100 | 0.5% | 0.040 | 1.5 | 5.5 | 0.083 | 1 | 0.055 | 0.15 | TRAP | 20 | 10 | EARTH |
| RPT36 | 8,800 | 1.5% | 0.030 | 1.5 | 12.8 | 0.083 | 2 | 0.192 | 0.15 | TRAP | 20 | 2 | EARTH CHANNEL |
| RD8 | 2,600 | 1.1% | 0.040 | 1.5 | 8.2 | 0.083 | 1 | 0.088 | 0.15 | TRAP | 25 | 2 | GABION |
| RPT44 | 2,600 | 0.6% | 0.040 | 1.5 | 6.0 | 0.083 | 1 | 0.119 | 0.15 | TRAP | 50 | 2 | EARTH |
| RPT45 | 6,550 | 1.6% | 0.040 | 1.5 | 9.9 | 0.083 | 2 | 0.184 | 0.15 | TRAP | 30 | 2 | EARTH |
| RB20 | 1,770 | 1.7% | 0.040 | 1.5 | 10.2 | 0.083 | 1 | 0.048 | 0.15 | TRAP | 30 | 10 | NATURAL WASH |
| RPT48 | 2,600 | 1.9% | 0.040 | 1.5 | 10.8 | 0.083 | 1 | 0.067 | 0.15 | TRAP | 20 | 2 | EARTH |
| RD12 | 1,850 | 2.2% | 0.040 | 1.5 | 11.6 | 0.083 | 1 | 0.044 | 0.15 | TRAP | 50 | 10 | NATURAL WASH |
| RPT49 | 1,050 | 3.8% | 0.040 | 1.5 | 15.2 | 0.083 | 0 | 0.019 | 0.15 | TRAP | 45 | 10 | NATURAL WASH |

L LENGTH, (FEET)
S SLOPE, (%)
n MANNING'S ROUGHNESS
R HYDRAULIC RADIUS, (FEET)
Vwave WAVE VELOCITY, (FEET PER SECOND); V=1.486/n*R2/3*S1/2 THEN Vwave=8/5*V (wide rect.)
DT UNIT TIME INCREMENT, (HOURS)
NSTPS TIME STEPS; NSTPS=K/ DT
K MUSKINGUM STORAGE FACTOR, (HOURS); K=L/3600VWAVE
X MUSKINGUM WEIGHTING FACTOR

# MUSKINGUM-CUNGE ROUTING RDVI154

# RDVI154 - FULL FLOW CAPACITY FOR 2-78" CMP's
## Worksheet for Circular Channel

| Project Description | |
|---|---|
| Worksheet | Circular Channel - 1 |
| Flow Element | Circular Channel |
| Method | Manning's Formula |
| Solve For | Full Flow Capacity |

| Input Data | | |
|---|---|---|
| Mannings Coefficient | 0.013 | |
| Slope | 1.7 | % |
| Diameter | 78 | in |

| Results | | |
|---|---|---|
| Depth | 6.50 | ft |
| Discharge | 683.54 | cfs |
| Flow Area | 33.2 | ft² |
| Wetted Perimeter | 20.42 | ft |
| Top Width | 0.00 | ft |
| Critical Depth | 6.26 | ft |
| Percent Full | 100.0 | % |
| Critical Slope | 1.5 | % |
| Velocity | 20.60 | ft/s |
| Velocity Head | 6.59 | ft |
| Specific Energy | 13.09 | ft |
| Froude Number | 0.00 | |
| Maximum Discharg | 735.28 | cfs |
| Discharge Full | 683.54 | cfs |
| Slope Full | 1.7 | % |
| Flow Type | N/A | |

← DETERMINE BOX SIZE WHICH HAS SIMILAR VELOCITY. THEN USE BOX DIMENSIONS FOR ROUTING IN HEC-1 MODEL.

SEE RDVI154 IN HEC-1

PAGE 1 OF 2

TRAPEZOIDAL CHANNEL

Normal depth calculations by Manning's equation.

RDVI154 - FOR HEC-1 ROUTING.. BOX PRODUCING EQUIVALENT VELOCITY AS 2-78"

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| FLOW (Q) | 1366 cfs (2x683) | VELOCITY | 20.69 ft/sec |
| MANNING's 'n' | 0.015 | DEPTH | 2.37 ft |
| SLOPE | 1.7 % | FREEBOARD | 1.69 ft |
| BOTTOM WIDTH | 28 ft | TOTAL DEPTH | 4.06 ft |
| SIDE SLOPE (Lt) | 0 H:1V | FROUD No. | 2.56 |
| SIDE SLOPE (Rt) | 0 H:1V | Top Width | 28.00 ft |
| | | End Area | 66.36 ft |
| RADIUS | ft | Wetted Perim. | 32.74 ft |
| SUPERELEVATION | 0 ft | | |

Fb= 0.5+V^2/2g (Sub-critical) 1+0.025Vd^(1/3) (Super-critical)
Se=V^2Tw/gR

BOX DIMENSIONS ABOVE PRODUCE EQUIVALENT VELOCITY AS 2-78" CMP AT FULL CAPACITY. REQUIRED SINGLE BARREL SYSTEM EXCEEDED 144". THEREFORE, BOX DIMENSIONS WERE USED TO ROUTE DVI154.

SUMMARY

RD = MUSKINGUM-CUNGE

S = 1.7%

n = 0.015

TRAP
BW = 28 FT
SS = 0

} RECTANGULAR (BOX)

# MUSKINGUM-CUNGE ROUTING RDVI155

# RDVI155 - FULL FLOW CAPACITY FOR 2-96" CMP's
## Worksheet for Circular Channel

| Project Description | |
|---|---|
| Worksheet | Circular Channel - 1 |
| Flow Element | Circular Channel |
| Method | Manning's Formula |
| Solve For | Full Flow Capacity |

| Input Data | | |
|---|---|---|
| Mannings Coefficient | 0.013 | |
| Slope | 0.6 | % |
| Diameter | 96 | in |

| Results | | |
|---|---|---|
| Depth | 8.00 | ft |
| Discharge | 706.45 | cfs |
| Flow Area | 50.3 | ft² |
| Wetted Perimeter | 25.13 | ft |
| Top Width | 0.00 | ft |
| Critical Depth | 6.71 | ft |
| Percent Full | 100.0 | % |
| Critical Slope | 0.6 | % |
| Velocity | 14.05 | ft/s |
| Velocity Head | 3.07 | ft |
| Specific Energy | 11.07 | ft |
| Froude Number | 0.00 | |
| Maximum Discharg | 759.94 | cfs |
| Discharge Full | 706.45 | cfs |
| Slope Full | 0.6 | % |
| Flow Type | N/A | |

DETERMINE BOX SIZE WHICH HAS SIMILAR VELOCITY. THEN USE BOX DIMENSIONS FOR ROUTING IN HEC-1 MODEL.

SEE RDVI155 IN HEC-1

PAGE 1 OF 2

## TRAPEZOIDAL CHANNEL

Normal depth calculations by Manning's equation.

RDVI155 - FOR HEC-1 ROUTING.. BOX PRODUCING EQUIVALENT VELOCITY AS 2-96"

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| FLOW (Q) | 1412 cfs (2x706) | VELOCITY | 14.03 ft/sec |
| MANNING's 'n' | 0.015 | DEPTH | 2.88 ft |
| SLOPE | 0.6 % | FREEBOARD | 1.50 ft |
| BOTTOM WIDTH | 35 ft | TOTAL DEPTH | 4.38 ft |
| SIDE SLOPE (Lt) | 0 H:1V | FROUD No. | 1.57 |
| SIDE SLOPE (Rt) | 0 H:1V | Top Width | 35.00 ft |
| | | End Area | 100.80 ft |
| RADIUS | ft | Wetted Perim. | 40.76 ft |
| SUPERELEVATION | 0 ft | | |

Fb= 0.5+V^2/2g (Sub-critical) 1+0.025Vd^(1/3) (Super-critical)
Se=V^2Tw/gR

BOX DIMENSIONS ABOVE PRODUCE EQUIVALENT VELOCITY AS 2-96" CMP AT FULL CAPACITY. REQUIRED SINGLE BARREL SYSTEM EXCEEDED 144". THEREFORE, BOX DIMENSIONS WERE USED TO ROUTE DVI155.

SUMMARY

RD = MUSKINGUM-CUNGE
S = 0.6 %
n = 0.015

TRAP
BW = 35 FT
SS = 0
} RECTANGULAR (BOX)

# RDVI155 - FULL FLOW CAPACITY FOR 2-84" CMP's
## Worksheet for Circular Channel

| Project Description | |
|---|---|
| Worksheet | Circular Channel - 1 |
| Flow Element | Circular Channel |
| Method | Manning's Formula |
| Solve For | Full Flow Capacity |

| Input Data | | |
|---|---|---|
| Mannings Coefficient | 0.013 | |
| Slope | 1.2 | % |
| Diameter | 84 | in |

| Results | | |
|---|---|---|
| Depth | 7.00 | ft |
| Discharge | 699.77 | cfs |
| Flow Area | 38.5 | ft² |
| Wetted Perimeter | 21.99 | ft |
| Top Width | 0.00 | ft |
| Critical Depth | 6.55 | ft |
| Percent Full | 100.0 | % |
| Critical Slope | 1.0 | % |
| Velocity | 18.18 | ft/s |
| Velocity Head | 5.14 | ft |
| Specific Energy | 12.14 | ft |
| Froude Number | 0.00 | |
| Maximum Discharg | 752.74 | cfs |
| Discharge Full | 699.77 | cfs |
| Slope Full | 1.2 | % |
| Flow Type | N/A | |

DETERMINE BOX SIZE WHICH HAS SIMILAR VELOCITY. THEN USE BOX DIMENSIONS FOR ROUTING IN HEC-1 MODEL.

SEE RDVI154 IN HEC-1

PAGE 1 OF 2

TRAPEZOIDAL CHANNEL

Normal depth calculations by Manning's equation.

RDVI155 - FOR HEC-1 ROUTING.. BOX PRODUCING EQUIVALENT VELOCITY AS 2-84"

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| FLOW (Q) | 1400 cfs (2x700) | VELOCITY | 18.28 ft/sec |
| MANNING's 'n' | 0.015 | DEPTH | 2.56 ft |
| SLOPE | 1.2 % | FREEBOARD | 1.63 ft |
| BOTTOM WIDTH | 30 ft | TOTAL DEPTH | 4.19 ft |
| SIDE SLOPE (Lt) | 0 H:1V | FROUD No. | 2.18 |
| SIDE SLOPE (Rt) | 0 H:1V | Top Width | 30.00 ft |
| | | End Area | 76.80 ft |
| RADIUS | ft | Wetted Perim. | 35.12 ft |
| SUPERELEVATION | 0 ft | | |

Fb= 0.5+V^2/2g (Sub-critical) 1+0.025Vd^(1/3) (Super-critical)
Se=V^2Tw/gR

BOX DIMENSIONS ABOVE PRODUCED EQUIVALENT VELOCITY AS 2-84" CMP AT FULL CAPACITY. REQUIRED SINGLE BARREL SYSTEM EXCEEDED 144". THEREFORE, BOX DIMENSIONS WERE USED TO ROUTE DVI155.

SUMMARY

RD = MUSKINGUM - CUNGE
S = 1.2 %
n = 0.015
TRAP
BW = 30 FT
SS = 0
} RECTANGULAR (BOX)

# RPT27
## Worksheet for Circular Channel

| Project Description | |
|---|---|
| Worksheet | Circular Channel - 3 |
| Flow Element | Circular Channel |
| Method | Manning's Formula |
| Solve For | Full Flow Capacity |

| Input Data | | |
|---|---|---|
| Mannings Coefficient | 0.013 | |
| Slope | 0.91 | % |
| Diameter | 96 | in |

| Results | | |
|---|---|---|
| Depth | 8.00 | ft |
| Discharge | 870.02 | cfs |
| Flow Area | 50.3 | ft² |
| Wetted Perimeter | 25.13 | ft |
| Top Width | 0.00 | ft |
| Critical Depth | 7.25 | ft |
| Percent Full | 100.0 | % |
| Critical Slope | 0.80 | % |
| Velocity | 17.31 | ft/s |
| Velocity Head | 4.66 | ft |
| Specific Energy | 12.66 | ft |
| Froude Number | 0.00 | |
| Maximum Discharg | 935.89 | cfs |
| Discharge Full | 870.02 | cfs |
| Slope Full | 0.91 | % |
| Flow Type | N/A | |

DETERMINE BOX SIZE WHICH HAS SIMILAR VELOCITY. THEN USE BOX DIMENSIONS FOR ROUTING IN HEC-1.

SEE RPT27 IN HEC-1 MODEL.

PAGE 1 OF 2

## TRAPEZOIDAL CHANNEL

Normal depth calculations by Manning's equation.

RPT27 - EQUIVALENT VELOCITY AS 3 - 96 CIPCP

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| FLOW (Q) | 2610 cfs (3x 870) | VELOCITY | 17.27 ft/sec |
| MANNING's 'n' | 0.015 | DEPTH | 2.71 ft |
| SLOPE | 0.91 % | FREEBOARD | 1.60 ft |
| BOTTOM WIDTH | 56 ft | TOTAL DEPTH | 4.31 ft |
| SIDE SLOPE (Lt) | 0 H:1V | FROUD No. | 1.94 |
| SIDE SLOPE (Rt) | 0 H:1V | Top Width | 56.00 ft |
| | | End Area | 151.76 ft |
| RADIUS | ft | Wetted Perim. | 61.42 ft |
| SUPERELEVATION | 0 ft | | |

Fb= 0.5+V^2/2g (Sub-critical) 1+0.025Vd^(1/3) (Super-critical)
Se=V^2Tw/gR

CHANNEL DIMENSIONS ABOVE PRODUCE EQUIVALENT VELOCITY AS 3 - 96" CIPCP'S AT FULL CAPACITY.

SUMMARY

RD = MUSKINGUM - CUNGE

S = 0.91 %

n = 0.015

TRAP

BW = 56 FT

SS = 0

# REFERENCES

# EFFECTIVE HEC-1 MODEL FROM 1991 FIS RESTUDY, BDE100UN

# Clark County Regional Flood Control District

# *Las Vegas Valley Flood Insurance Study Hydrology Report*

September 1991

JMM James M. Montgomery



CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT

# 1991 FLOOD CONTROL MASTER PLAN UPDATE LAS VEGAS VALLEY

## LEGEND

45 SUBAREA DESIGNATION

—— SUBAREA DELINEATION

0 7,500 15,000 22,500

(APPROXIMATE)

## SOUTHWEST BASIN HYDROLOGIC SUBAREAS

FIGURE S-4

JMM James M. Montgomery
Consulting Engineers, Inc.
Las Vegas, Nevada

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            SEPTEMBER 1990         *
*             VERSION 4.0           *
*                                   *
*  RUN DATE  10/15/2001  TIME  10:18:06 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL  LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
          *
          *DIAGRAM
    1     ID    INPUT FILE = BDE100UN
    2     ID    CLARK COUNTY FLOOD CONTROL DISTRICT MASTER PLAN UPDATE
    3     ID    BLUE DIAMOND DUCK CREEK UPPER WATERSHED MODEL
    4     ID    EXISTING DRAINAGE SYSTEM WITH PRESENT DEVELOPMENT
    5     ID    UPPER BLUE DIAMOND AND DUCK CREEK STORMS
    6     ID    100-YEAR 6-HR STORM (SDN#5)
    7     ID    JMM  JANUARY 1991
    8     ID
    9     ID    WATERSHED MODEL TAKEN FROM COE HYDROLOGY
   10     ID    KINEMATIC SUBBASINS CONVERTED TO SCS UNIT HYDROGRAPH
   11     ID    CHANNEL ROUTING CHANGED TO REFLECT NEW EXISTING FACILITIES
   12     ID    SUBBASIN ROUTING CHANGED TO REFLECT NEW DEVELOPMENT
   13     ID
   14     ID    JR CARDS BASED ON THE FOLLOWING DARF AND PT OF CONCENTRATION
   15     ID
   16     ID      POINT OF      AREA    DARF      JR CARD
   17     ID      CONCERN      SQ.MI.              RATIO
   18     ID
   19     ID        D2B         53.6    0.67        1
   20     ID        D3          71.5    0.65        2
   21     ID   B11,B12,B14B     78.4*   0.64        3
   22     ID       B16A         82.5*   0.63        4
   23     ID        D4         119.5    0.58        5
   24     ID
   25     ID    * AREA CONSIDERS UPSTREAM DIVERSIONS
   26     ID
   27     ID    JR CARD RATIOS ARE THE DEPTH AREA REDUCTION FACTORS (DARF)
   28     ID
   29     ID
   30     IT      5       0       0     120
   31     IO      5       0       0
   32     JR    PREC    0.67    0.65    0.64    0.63    0.58

   33     KK    B13A    SUB-BASIN B13A HYDROGRAPH
   34     KM            SCS RUNOFF COMPUTATION
   35     BA    1.34
   36     PB    2.78
   37     PC    0.00    2.00    5.90    8.00   11.00   14.40   15.00   16.00   16.80   17.10
   38     PC   18.00   18.20   18.70   19.00   19.70   20.20   21.00   22.00   23.00   24.00
   39     PC   25.00   25.90   26.50   28.00   29.00   30.00   30.50   30.90   31.00   31.70
   40     PC   32.10   32.71   33.30   34.60   36.10   38.10   40.80   43.00   47.70   51.40
   41     PC   56.10   63.00   71.00   72.00   73.10   75.20   77.90   79.00   79.50   80.40
   42     PC   81.00   82.00   82.60   84.00   85.90   88.90   91.00   93.80   96.60   97.40
   43     PC   97.90   98.10   98.30   98.50   98.90   99.00   99.20   99.30   99.60   99.70
   44     PC   99.90  100.00
   45     LS      0      88
   46     UD    0.68
```



```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

   47     KK   RB13A
   48     KM    ROUTE B13A THRU B13B
   49     RM       7    0.64    0.10

   50     KK    B13B    SUB-BASIN B13B HYDROGRAPH
   51     KM            SCS RUNOFF COMPUTATION
   52     BA    0.65
   53     PB    2.78
   54     LS      0      88
   55     UD    1.44

   56     KK    B13B
   57     KM    COMBINE RB13A & B13B
```

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 58          HC       2

 59          KK   RB13B
 60          KM    ROUTE B13B THRU B17
 61          RM       3    0.28    0.15

 62          KK    B17     SUB-BASIN B17 HYDROGRAPH
 63          KM            SCS RUNOFF COMPUTATION
 64          BA    0.80
 65          PB    2.71
 66          LS       0      88
 67          UD    0.94

 68          KK     B17
 69          KM    COMBINE RB13B & B17
 70          HC       2

 71          KK   B17DV
 72          KM    FLOW SPLIT IN SUB-BASIN B17 AT UPRR
 73          KM    DQ GOES NORTH TO B13C
 74          DT   B17DV
 75          DI       0     150     630    2670    6860
 76          DQ       0       0     160     910    2570

 77          KK    RB17
 78          KM    ROUTE B17 THRU B18B
 79          RM       6    0.52    0.10

 80          KK    B18B    SUB-BASIN B18B HYDROGRAPH
 81          KM            SCS RUNOFF COMPUTATION
 82          BA    1.94
 83          PB    2.77
 84          LS       0    86.4
 85          UD    0.64

 86          KK    B18B
 87          KM   COMBINE RB17 & B18B
 88          HC       2
1                                    HEC-1 INPUT                                    PAGE  3

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


 89          KK   RB18B
 90          KM    ROUTE B18B THRU B18C
 91          RM       5    0.43    0.10

 92          KK    B13C    SUB-BASIN B13C HYDROGRAPH
 93          KM            SCS RUNOFF COMPUTATION
 94          BA    1.92
 95          PB    2.78
 96          LS       0    88.1
 97          UD    0.51

 98          KK   B17DV  RETURN DIVISION OF FLOW
 99          DR   B17DV

100          KK  RB17DV
101          KM    ROUTE B17DV THRU B13C
102          RM       5    0.44    0.10

103          KK    B13C
104          KM   COMBINE RB17DV & B13C
105          HC       2

106          KK  B13CDV
107          KM    FLOW SPLIT IN SUB-BASIN B13C AT UPRR
108          KM    DQ GOES NORTH TO B11
109          DT  B13CDV
110          DI       0     560     910    2110    3970
111          DQ       0       0     300     850    1560

112          KK   RB13C
113          KM    ROUTE B13C THRU B14A
114          RM       6    0.51    0.10

115          KK    B14A    SUB-BASIN B14A HYDROGRAPH
116          KM            SCS RUNOFF COMPUTATION
117          BA    1.34
118          PB    2.77
119          LS       0    88.0
120          UD    0.40

121          KK    B14A
122          KM   COMBINE RB13C &B14A
123          HC       2

124          KK  B14ADV
125          KM    FLOW SPLIT IN SUB-BASIN B14A
126          KM    DQ GOES NORTH TO B16A
127          DT  B14ADV
128          DI       0    1000    3000    5000    7000
129          DQ       0     300     900    1500    2100
1                                    HEC-1 INPUT                                    PAGE  4

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


130          KK   RB14A
131          KM    ROUTE B14A THRU B16B
132          RM       4    0.32    0.10

133          KK    B16B    SUB-BASIN B16B HYDROGRAPH
134          KM            SCS RUNOFF COMPUTATION
135          BA    0.72
```

```
136          PB    2.77
137          LS       0     83.1
138          UD    0.38

139          KK    B16B
140          KM   COMBINE RB14A & B16B
141          HC       2
             *

142          KK    D1A      SUB-BASIN D1A HYDROGRAPH
143          KM             SCS RUNOFF COMPUTATION
144          BA    2.39
145          PB    3.36
146          LS       0      83
147          UD    0.83

148          KK    RD1A
149          KM    ROUTE D1A THRU D1B
150          RM       2    0.17    0.15

151          KK    D1B      SUB-BASIN D1B HYDROGRAPH
152          KM             SCS RUNOFF COMPUTATION
153          BA    0.38
154          PB    2.78
155          LS       0      84
156          UD    1.06

157          KK     D1B
158          KM    COMBINE RD1A & D1B
159          HC       2

160          KK    RD1B
161          KM     ROUTE D1B THRU D1C
162          RM       4    0.33    0.15

163          KK    D1C      SUB-BASIN D1C HYDROGRAPH
164          KM             SCS RUNOFF COMPUTATION
165          BA    0.48
166          PB    2.78
167          LS       0      83
168          UD    1.29
1                                        HEC-1 INPUT                                        PAGE  5

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

169          KK     D1C
170          KM    COMBINE RD1B & D1C
171          HC       2

172          KK    RD1C
173          KM     ROUTE D1C THRU D1F
174          RM       3    0.26    0.15

175          KK    D1D      SUB-BASIN D1D HYDROGRAPH
176          KM             SCS RUNOFF COMPUTATION
177          BA    1.15
178          PB    2.78
179          LS       0      82
180          UD    0.50

181          KK    RD1D
182          KM    ROUTE D1D THRU D1F
183          RM       2    0.16    0.15

184          KK    D1E      SUB-BASIN D1E HYDROGRAPH
185          KM             SCS RUNOFF COMPUTATION
186          BA    0.22
187          PB    2.77
188          LS       0    81.5
189          UD    1.06

190          KK    D1F      SUB-BASIN D1F HYDROGRAPH
191          KM             SCS RUNOFF COMPUTATION
192          BA    0.88
193          PB    2.77
194          LS       0    75.2
195          UD    1.50

196          KK     D1F
197          KM    COMBINE RD1C, RD1D, D1E & D1F
198          HC       4

199          KK    RD1F
200          KM    ROUTE D1F THRU B18A
201          RM       6    0.50    0.10

202          KK    B18A     SUB-BASIN B18A HYDROGRAPH
203          KM             SCS RUNOFF COMPUTATION
204          BA    1.59
205          PB    2.77
206          LS       0    69.4
207          UD    0.70

208          KK    B18A
209          KM    COMBINE RD1F & B18A
210          HC       2
                                         HEC-1 INPUT                                        PAGE  6

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

211          KK   RB18A
212          KM    ROUTE B18A THRU B18C
213          RM       6    0.53    0.10
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```
214          KK    D009     SUB-BASIN D009 HYDROGRAPH
215          KM             SCS RUNOFF COMPUTATION
216          BA    3.67
217          PB    2.73
218          LS       0       83
219          UD    0.51

220          KK   RD009
221          KM    ROUTE D009 THRU D004
222          RM       1    0.10    0.10

223          KK    D004     SUB-BASIN D0004 HYDROGRAPH
224          KM             SCS RUNOFF COMPUTATION
225          BA    2.42
226          PB    3.34
227          LS       0       85
228          UD    0.70

229          KK    D004
230          KM    COMBINE RD009 & D004
231          HC       2

232          KK   RD004
233          KM    ROUTE D004 THRU D08
234          RM       2    0.44    0.15

235          KK    D08      SUB-BASIN D08 HYDROGRAPH
236          KM             SCS RUNOFF COMPUTATION
237          BA   12.11
238          PB    3.36
239          LS       0       85
240          UD    1.65

241          KK     D08
242          KM    COMBINE RD004 & D08
243          HC       2

244          KK    RD08
245          KM    ROUTE D08 THRU D010
246          RM       3    0.81    0.15

247          KK    D010     SUB-BASIN D010 HYDROGRAPH
248          KM             SCS RUNOFF COMPUTATION
249          BA   10.58
250          PB    2.73
251          LS       0       84
252          UD    1.05
1                                   HEC-1 INPUT                                    PAGE  7

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

253          KK    D07      SUB-BASIN D07 HYDROGRAPH
254          KM             SCS RUNOFF COMPUTATION
255          BA    4.29
256          PB    2.73
257          LS       0       84
258          UD    1.10

259          KK    D010
260          KM    COMBINE RD08, D07 & D010
261          HC       3

262          KK   RD010
263          KM    ROUTE D010 THRU D012
264          RM       2    0.58    0.10

265          KK    D012     SUB-BASIN D012 HYDROGRAPH
266          KM             SCS RUNOFF COMPUTATION
267          BA   11.08
268          PB    2.77
269          LS       0       83
270          UD    1.32

271          KK    D012
272          KM    COMBINE RD010 & D012
273          HC       2

274          KK   RD012
275          KM    ROUTE D012 THRU D4
276          RM       1    0.34    0.10

277          KK    D01      SUB-BASIN D01 HYDROGRAPH
278          KM             SCS RUNOFF COMPUTATION
279          BA    9.57
280          PB    3.48
281          LS       0       83
282          UD    1.00

283          KK    RD01
284          KM     ROUTE D01 THRU D005
285          RM       3    0.64    0.15

286          KK    D005     SUB-BASIN D005 HYDROGRAPH
287          KM             SCS RUNOFF COMPUTATION
288          BA    2.60
289          PB    3.36
290          LS       0       82
291          UD    0.75

292          KK    D005
293          KM    COMBINE RD01 & D005
294          HC       2
1                                   HEC-1 INPUT                                    PAGE  8
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 295      KK   RD005
 296      KM     ROUTE D005 THRU D2A
 297      RM       1    0.20    0.15

 298      KK    D02     SUB-BASIN D02 HYDROGRAPH
 299      KM            SCS RUNOFF COMPUTATION
 300      BA    5.90
 301      PB    3.34
 302      LS       0      83
 303      UD    1.03

 304      KK    RD02
 305      KM     ROUTE D02 THRU D006
 306      RM       3    0.62    0.15

 307      KK    D03     SUB-BASIN D03 HYDROGRAPH
 308      KM            SCS RUNOFF COMPUTATION
 309      BA   10.13
 310      PB    3.34
 311      LS       0      83
 312      UD    0.96

 313      KK    D04     SUB-BASIN D04 HYDROGRAPH
 314      KM            SCS RUNOFF COMPUTATION
 315      BA    8.76
 316      PB    3.34
 317      LS       0      84
 318      UD    1.06

 319      KK     D04
 320      KM    COMBINE  D03 & D04
 321      HC       2

 322      KK    RD04
 323      KM    ROUTE D04 THRU D006
 324      RM       3    0.82    0.15

 325      KK    D006    SUB-BASIN D006 HYDROGRAPH
 326      KM            SCS RUNOFF COMPUTATION
 327      BA    8.26
 328      PB    3.36
 329      LS       0      83
 330      UD    0.85

 331      KK    D006
 332      KM    COMBINE RD02, RD04 & D006
 333      HC       3

 334      KK   RD006
 335      KM     ROUTE D006 THRU D2A
 336      RM       1    0.18    0.15
1                                    HEC-1 INPUT                                    PAGE  9

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 337      KK    D2A     SUB-BASIN D2A HYDROGRAPH
 338      KM            SCS RUNOFF COMPUTATION
 339      BA    0.97
 340      PB    2.77
 341      LS       0      84
 342      UD    0.28

 343      KK     D2A
 344      KM    COMBINE RD005, RD006 & D2A
 345      HC       3

 346      KK    RD2A
 347      KM     ROUTE D2A THRU D2B
 348      RM       3    0.83    0.15

 349      KK    D2B     SUB-BASIN D2B HYDROGRAPH
 350      KM            SCS RUNOFF COMPUTATION
 351      BA    7.39
 352      PB    2.77
 353      LS       0    80.1
 354      UD    1.18

 355      KK     D2B
 356      KM    COMBINE RD2A & D2B
 357      HC       2

 358      KK    RD2B
 359      KM    ROUTE D2B THRU D3
 360      RM       4    0.90    0.10

 361      KK    D06     SUB-BASIN D06 HYDROGRAPH
 362      KM            SCS RUNOFF COMPUTATION
 363      BA   11.68
 364      PB    3.36
 365      LS       0      84
 366      UD    1.19

 367      KK    RD06
 368      KM    ROUTE D06 THRU D3
 369      RM       3    0.78    0.15

 370      KK    D3      SUB-BASIN D3 HYDROGRAPH
 371      KM            SCS RUNOFF COMPUTATION
 372      BA    6.22
 373      PB    2.77
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374          LS       0      77
375          UD    1.13

376          KK      D3
377          KM    COMBINE RD2B, RD06 & D3
378          HC       3
1                                        HEC-1 INPUT                                                    PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10


379          KK     RD3
380          KM    ROUTE D3 THRU D4
381          RM       2    0.28    0.10

382          KK    D4       SUB-BASIN D4 HYDROGRAPH
383          KM             SCS RUNOFF COMPUTATION
384          BA    3.83
385          PB    2.77
386          LS       0    83.8
387          UD    0.75

388          KK      D4
389          KM    COMBINE RD012, RD3 & D4
390          HC       3

391          KK     RD4
392          KM    ROUTE D4 THRU B18C
393          RM       1    0.23    0.15

394          KK    B18C     SUB-BASIN B18C HYDROGRAPH
395          KM             SCS RUNOFF COMPUTATION
396          BA    1.19
397          PB    2.77
398          LS       0    75.4
399          UD    0.38

400          KK    B18C
401          KM    COMBINE B16B, RB18B, RB18A, RD4 & B18C
402          HC       5

403          KK   RB18C
404          KM    ROUTE B18C THRU D5B
405          RK    2060    .015    .040            TRAP    85.0     3.0

406          KK   RB18C
407          KM    ROUTE B18C THRU D5B
408          RK     980    .015    .015            TRAP    12.0     3.0

409          KK   RB18C
410          KM    ROUTE B18C THRU D5B
411          RK     480    .015    .040            TRAP    20.0     3.0

412          KK   RB18C
413          KM    ROUTE B18C THRU D5B
414          RM       1    0.33    0.10

415          KK    D5A      SUB-BASIN D5A HYDROGRAPH
416          KM             SCS RUNOFF COMPUTATION
417          BA    1.31
418          PB    2.77
419          LS       0    88.0
420          UD    0.35
1                                        HEC-1 INPUT                                                    PAGE 11

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.....10


421          KK    RD5A
422          KM    ROUTE D5A THRU D5B
423          RM       5    0.48    0.20

424          KK    D5B      SUB-BASIN D5B HYDROGRAPH
425          KM             SCS RUNOFF COMPUTATION
426          BA    0.58
427          PB    2.77
428          LS       0    82.8
429          UD    0.71

430          KK     B71     SUB-BASIN B71 HYDROGRAPH
431          KM             SCS RUNOFF COMPUTATION
432          BA    7.99
433          PB    3.48
434          LS       0      85
435          UD    0.86

436          KK    RB71
437          KM     ROUTE B71 THRU B501
438          RM       4    0.32    0.15

439          KK    B501     SUB-BASIN B501 HYDROGRAPH
440          KM             SCS RUNOFF COMPUTATION
441          BA   10.66
442          PB    3.48
443          LS       0      85
444          UD    0.87

445          KK    B501
446          KM    COMBINE RB71 & B501
447          HC       2

448          KK   RB501
449          KM     ROUTE B501 THRU B72
450          RM       3    0.26    0.15
```

```
451          KK    B72     SUB-BASIN B72 HYDROGRAPH
452          KM            SCS RUNOFF COMPUTATION
453          BA    8.12
454          PB    3.48
455          LS       0      87
456          UD    1.03

457          KK     B72
458          KM    COMBINE RB501 & B72
459          HC       2

460          KK    RB72
461          KM     ROUTE B72 THRU B503
462          RM       4    0.36    0.15
1                                    HEC-1 INPUT                                                    PAGE 12

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


463          KK    B502    SUB-BASIN B502 HYDROGRAPH
464          KM            SCS RUNOFF COMPUTATION
465          BA   27.35
466          PB    3.48
467          LS       0      85
468          UD    1.40

469          KK   RB502
470          KM     ROUTE B502 THRU B503
471          RM       4    0.36    0.15

472          KK    B73     SUB-BASIN B73 HYDROGRAPH
473          KM            SCS RUNOFF COMPUTATION
474          BA    2.69
475          PB    3.34
476          LS       0      86
477          UD    0.52

478          KK    RB73
479          KM     ROUTE B73 THRU B503
480          RM       4    0.36    0.15

481          KK    B503    SUB-BASIN B503 HYDROGRAPH
482          KM            SCS RUNOFF COMPUTATION
483          BA    8.07
484          PB    3.26
485          LS       0      85
486          UD    0.77

487          KK    B503
488          KM    COMBINE RB72, RB502, RB73 & B503
489          HC       4

490          KK   RB503
491          KM     ROUTE B503 THRU B504
492          RM       6    0.47    0.15

493          KK    B504    SUB-BASIN B504 HYDROGRAPH
494          KM            SCS RUNOFF COMPUTATION
495          BA    4.65
496          PB    3.14
497          LS       0      85
498          UD    0.96

499          KK    B504
500          KM    COMBINE RB503 & B504
501          HC       2

502          KK    BDDV
503          KM    DIVERT UP TO 30% OF FLOW TO TROPICANA WASH
504          KM    COE FLOW SPLIT DATA
505          KM    DQ GOES TO TROPICANA WASH
506          DT    TROP
507          DI       0    1000    2770    6350    8190   12000   16000
1                                    HEC-1 INPUT                                                    PAGE 13

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

508          DQ       0     260     750    1840    2400    4080    6240

509          KK   RBDDV
510          KM    ROUTE BDDV (B504) THRU B11
511          RM      10    0.99    0.15

512          KK    B11     SUB-BASIN B11 HYDROGRAPH
513          KM            SCS RUNOFF COMPUTATION
514          BA    2.06
515          PB    2.78
516          LS       0    78.0
517          UD    0.58

518          KK  B13CDV RETURN DIVISION OF FLOW FROM NODEB11
519          DR  B13CDV

520          KK  RB13CD
521          KM    ROUTE B13CDV THRU B11
522          RM       2    0.20    0.10

523          KK     B11
524          KM    COMBINE RBDDV, RB13CDV & B11
525          HC       3

526          KK   B11DV
527          KM    FLOW SPLIT AT UPRR; DQ GOES NORTH TO MNW-B
528          DT   B11DV
529          DI       0    2080    3200    5100    7470
```

```
530          DQ       0       0     300     850    1550

531          KK  B11SPL
532          KM    50% OF UNDIVERTED FLOW AT NODEB12 IS SPLIT TO NODEB16
533          DT  B11SPL
534          DI       0    1000    2000    5000   10000
535          DQ       0     500    1000    2500    5000

536          KK    RB11
537          KM    ROUTE B11 THRU B14B
538          RM       6    0.58    0.15

539          KK    B14B    SUB-BASIN B14B HYDROGRAPH
540          KM            SCS RUNOFF COMPUTATION
541          BA    1.03
542          PB    2.77
543          LS       0    73.4
544          UD    0.42

545          KK    B14B
546          KM    COMBINE RB11 & B14B
547          HC       2
1                                    HEC-1 INPUT                                          PAGE 14

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

548          KK   RB14B
549          KM    ROUTE B14B THRU B15B
550          RM       4    0.30    0.10

551          KK    B15B    SUB-BASIN B15B HYDROGRAPH
552          KM            SCS RUNOFF COMPUTATION
553          BA    0.88
554          PB    2.77
555          LS       0    75.0
556          UD    0.71

557          KK    B15B
558          KM    COMBINE RB14B & B15B
559          HC       2
             *

560          KK  B11SPL  RETURN FLOW DIVISION FROM NODEB12
561          DR  B11SPL

562          KK  RB11SP
563          KM    ROUTE RB11SPL THRU B12
564          RM       8    0.76    0.15

565          KK    B12     SUB-BASIN B12 HYDROGRAPH
566          KM            SCS RUNOFF COMPUTATION
567          BA    1.05
568          PB    2.77
569          LS       0    68.4
570          UD    0.39

571          KK     B12
572          KM    COMBINE RB11SPL & B12
573          HC       2

574          KK    RB12
575          KM    ROUTE B12 THRU B15A
576          RM       4    0.30    0.10

577          KK    B15A    SUB-BASIN B15A HYDROGRAPH
578          KM            SCS RUNOFF COMPUTATION
579          BA    0.94
580          PB    2.77
581          LS       0    77.6
582          UD    0.50

583          KK    B15A
584          KM    COMBINE RB12 & B15A
585          HC       2
1                                    HEC-1 INPUT                                          PAGE 15

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

586          KK  B14ADV   RETURN FLOW DIVISION FROM NODEB14
587          DR  B14ADV

588          KK  RB14AD
589          KM    ROUTE B14ADV THRU B16A
590          RM       6    0.54    0.15

591          KK    B16A    SUB-BASIN B16A HYDROGRAPH
592          KM            SCS RUNOFF COMPUTATION
593          BA    0.99
594          PB    2.77
595          LS       0    78.2
596          UD    0.71

597          KK    B16A
598          KM    COMBINE RB14ADV & B16A
599          HC       4

600          KK     D5B
601          KM    COMBINE RB18C, RD5A, D5B, & B16A
602          HC       4

603          KK    RD5B
604          KM    ROUTE D5B THRU D6
605          RK    1800    .006    .015            TRAP    70.0     2.0
```

```
606         KK    RD5B
607         KM    ROUTE D5B THRU D6
608         RM       2    0.17    0.20

609         KK    D6       SUB-BASIN D6 HYDROGRAPH
610         KM             SCS RUNOFF COMPUTATION
611         BA    1.56
612         PB    2.77
613         LS       0    78.3
614         UD    0.50

615         KK      D6
616         KM    COMBINE RD5B & D6
617         HC       2

618         KK     RD6
619         KM    ROUTE D6 THRU D7
620         RM       1    0.08    0.20

621         KK     RD6
622         KM    ROUTE D6 THRU D7
623         RK    2200    .007    .040           TRAP    10.0     1.0
1                                  HEC-1 INPUT                                    PAGE 16

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

624         KK    D7       SUB-BASIN D7 HYDROGRAPH
625         KM             SCS RUNOFF COMPUTATION
626         BA    0.73
627         PB    2.77
628         LS       0    77.3
629         UD    0.71

630         KK      D7
631         KM    COMBINE RD6 & D7
632         HC       2

633         KK     RD7
634         KM    ROUTE D7 THRU D9B
635         RK    1060    .017    .040           TRAP    50.0     2.0

636         KK     RD7
637         KM    ROUTE D7 THRU D9B
638         RK    5800    .012    .015           TRAP    28.0     2.0

639         KK     RD7
640         KM    ROUTE D7 THRU D9B
641         RK    5020    .012    .040           TRAP    15.0     4.0

642         KK    D8       SUB-BASIN D8 HYDROGRAPH
643         KM             SCS RUNOFF COMPUTATION
644         BA    1.35
645         PB    2.77
646         LS       0    77.8
647         UD    0.23

648         KK     RD8
649         KM    ROUTE D8 THRU D9B
650         RM       4    0.30    0.10
            *
651         KK   B11DV   RETURN FLOW DIVISION FROM NODEB12
652         DR   B11DV

653         KK  RB11DV
654         KM    ROUTE B11DV THRU MNWB
655         RM       8    0.71    0.10

656         KK    MNWB   SUB-BASIN MNWB HYDROGRAPH
657         KM             SCS RUNOFF COMPUTATION
658         BA    0.68
659         PB    2.77
660         LS       0    85.0
661         UD    1.71
1                                  HEC-1 INPUT                                    PAGE 17

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

662         KK    MNWB
663         KM    COMBINE RB11DV & MNWB
664         HC       2

665         KK   RMNWB
666         KM    ROUTE MNWB THRU B10
667         RM       8    0.69    0.10

668         KK    MNWC   SUB-BASIN MNWC HYDROGRAPH
669         KM             SCS RUNOFF COMPUTATION
670         BA    0.69
671         PB    2.77
672         LS       0    85.0
673         UD    0.97

674         KK   RMNWC
675         KM    ROUTE MNWC THRU B10
676         RM       9    0.72    0.10

677         KK    B10      SUB-BASIN B10 HYDROGRAPH
678         KM             SCS RUNOFF COMPUTATION
679         BA    2.89
680         PB    2.77
681         LS       0    74.9
```

```
682          UD    0.42

683          KK     B10
684          KM    COMBINE RMNWB, RMNWC & B10
685          HC       3

686          KK    RB10
687          KM    ROUTE B10 THRU D9A
688          RM       6    0.46    0.10

689          KK    D9A      SUB-BASIN D9A HYDROGRAPH
690          KM             SCS RUNOFF COMPUTATION
691          BA    0.82
692          PB    2.77
693          LS       0    72.8
694          UD    1.10

695          KK     D9A
696          KM    COMBINE RB10 & D9A
697          HC       2

698          KK    RD9A
699          KM    ROUTE D9A THRU D9B
700          RM       7    0.58    0.10
1                                        HEC-1 INPUT                                                    PAGE 18

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

701          KK    D9B      SUB-BASIN D9B HYDROGRAPH
702          KM             SCS RUNOFF COMPUTATION
703          BA    1.55
704          PB    2.77
705          LS       0    77.8
706          UD    0.41

707          KK     D9B
708          KM    COMBINE RD8, RD7, RD9A & D9B
709          HC       4

710          KK    RD9B
711          KM    ROUTE D9B THRU D10
712          RM       2    0.19    0.20

713          KK    D10      SUB-BASIN D10 HYDROGRAPH
714          KM             SCS RUNOFF COMPUTATION
715          BA    2.51
716          PB    2.77
717          LS       0    79.0
718          UD    0.44

719          KK     D10
720          KM    COMBINE RD9B & D10
721          HC       2

722          KK    RD10
723          KM    ROUTE D10 THRU D12
724          RK    2580    .016    .030            TRAP    75.0     2.0

725          KK    D12      SUB-BASIN D12 HYDROGRAPH
726          KM             SCS RUNOFF COMPUTATION
727          BA    0.18
728          PB    2.77
729          LS       0    77.8
730          UD    0.71

731          KK    RH       SUB-BASIN RH HYDROGRAPH
732          KM             SCS RUNOFF COMPUTATION
733          BA    3.88
734          PB    2.77
735          LS       0      72
736          UD    0.34

737          KK    B20      SUB-BASIN B20 HYDROGRAPH
738          KM             SCS RUNOFF COMPUTATION
739          BA    0.81
740          PB    2.77
741          LS       0    82.4
742          UD    0.71
1                                        HEC-1 INPUT                                                    PAGE 19

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

743          KK     D12
744          KM    COMBINE RD10, RH, B20 & D12
745          HC       4

746          KK    RD12
747          KM    ROUTE D12 THRU D11B
748          RK    3960    .018    .030            TRAP    20.0     2.0

749          KK    RD12
750          KM    ROUTE D12 THRU D11B
751          RK    2800    .015    .035            TRAP    40.0     2.5

752          KK    D11A     SUB-BASIN D11A HYDROGRAPH
753          KM             SCS RUNOFF COMPUTATION
754          BA    0.15
755          PB    2.77
756          LS       0    77.3
757          UD    0.16

758          KK   RD11A
759          KM    ROUTE D11A THRU D11B
```

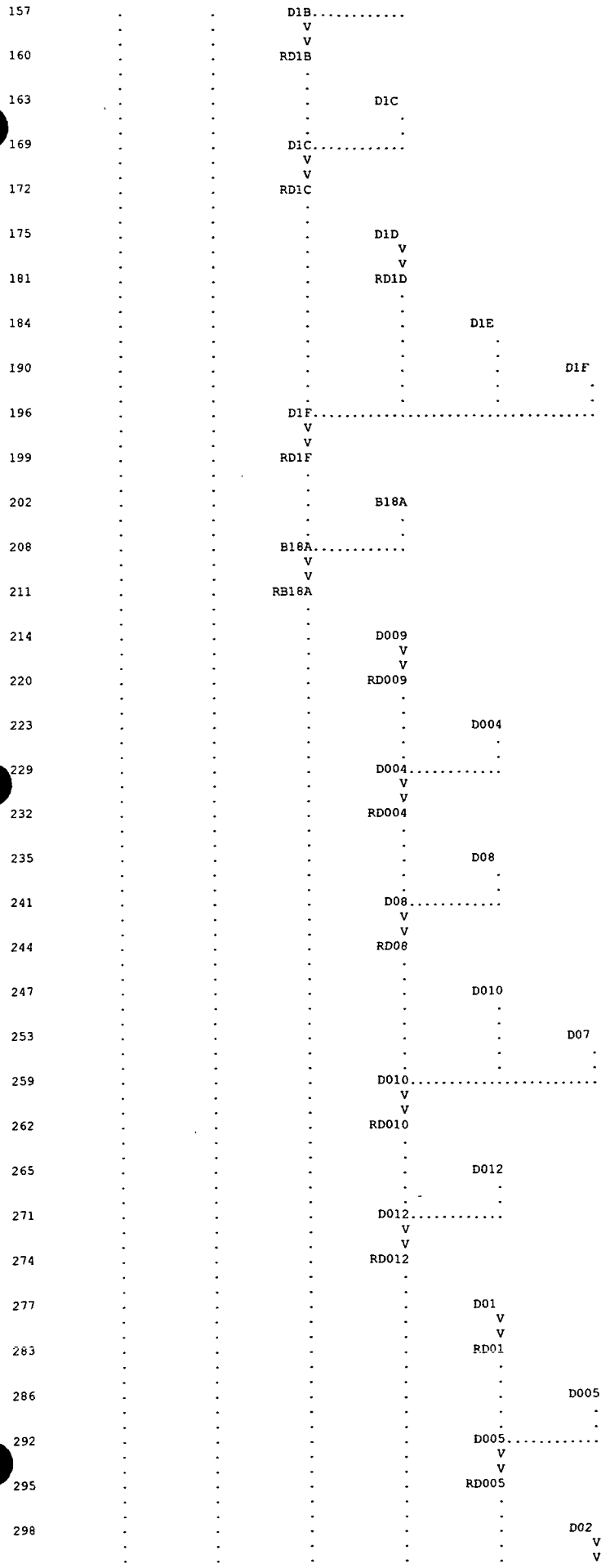
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760          RM       4    0.35    0.20

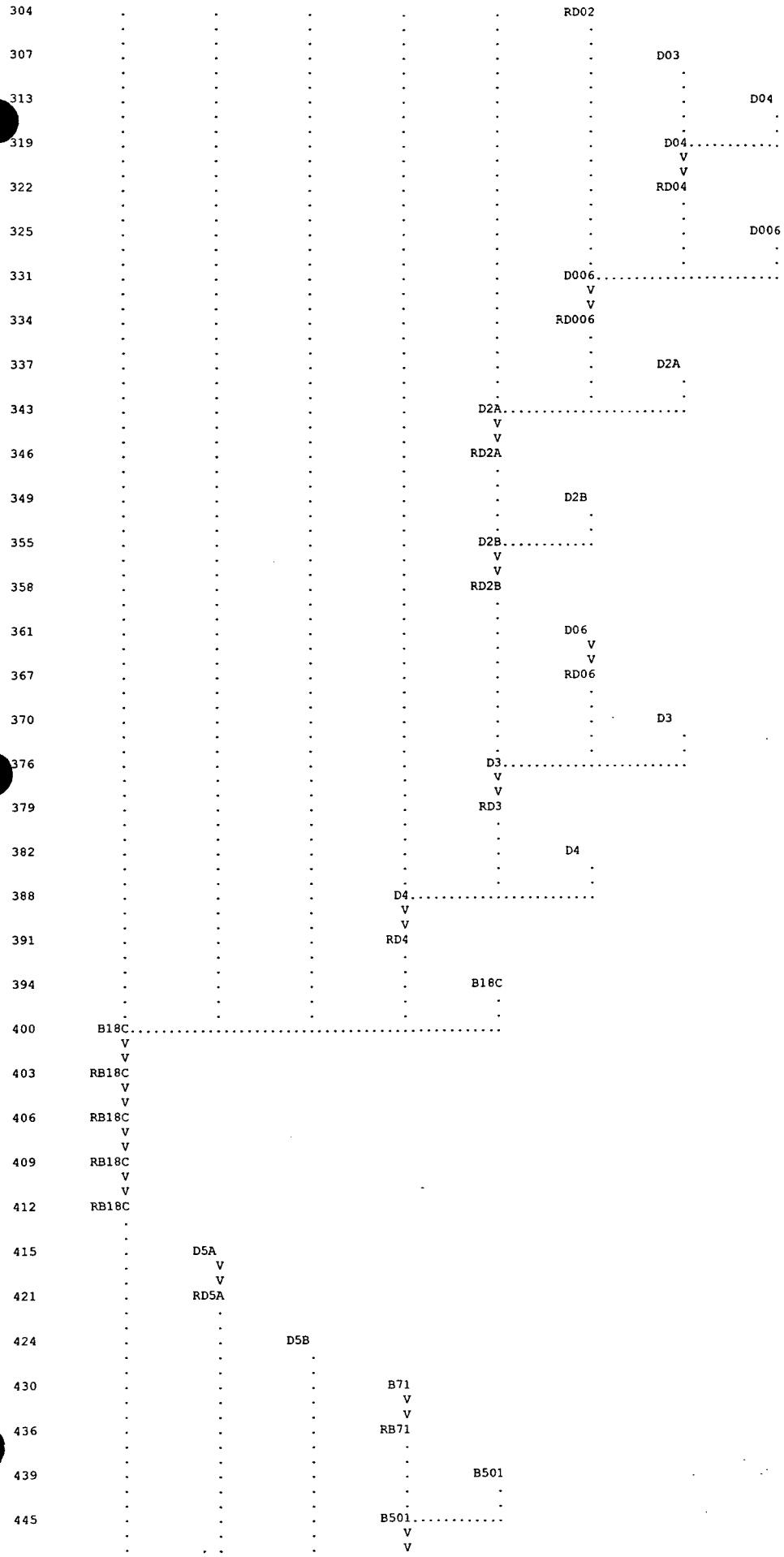
761          KK    D11B    SUB-BASIN D11B HYDROGRAPH
762          KM            SCS RUNOFF COMPUTATION
763          BA    1.04
764          PB    2.77
765          LS       0    82.2
766          UD    0.22

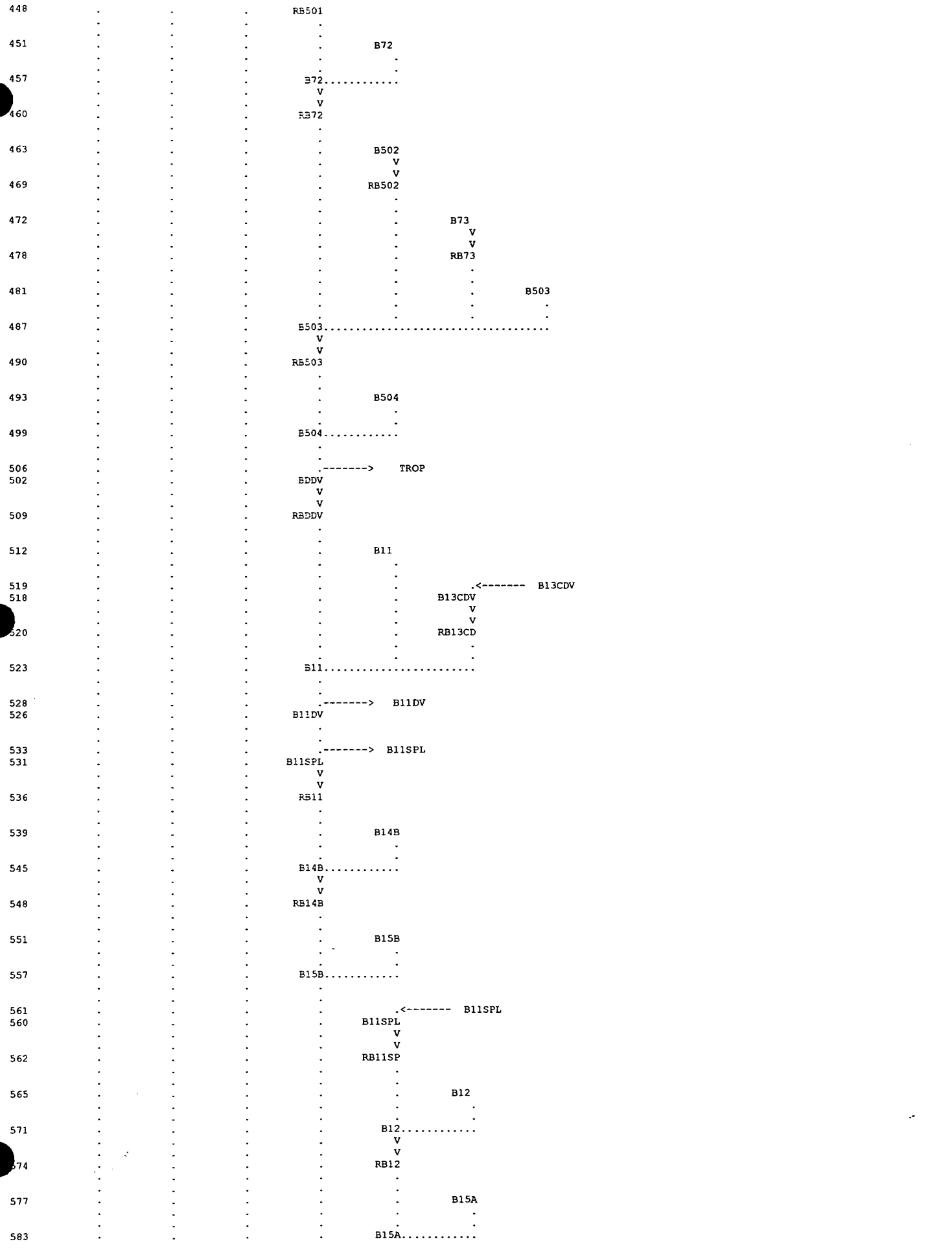
767          KK    D11B
768          KM    COMBINE RD12, RD11A & D11B
769          HC       3
770          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

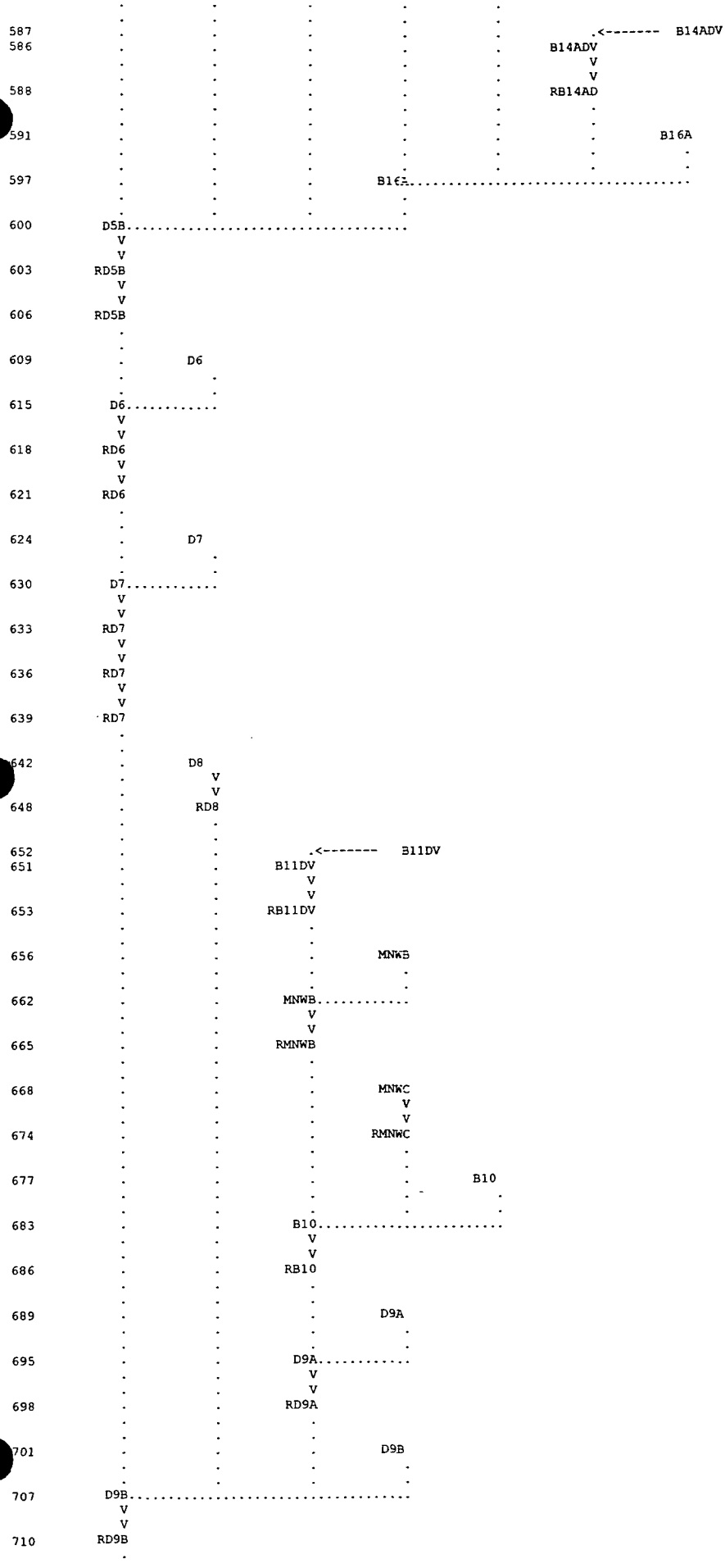
   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

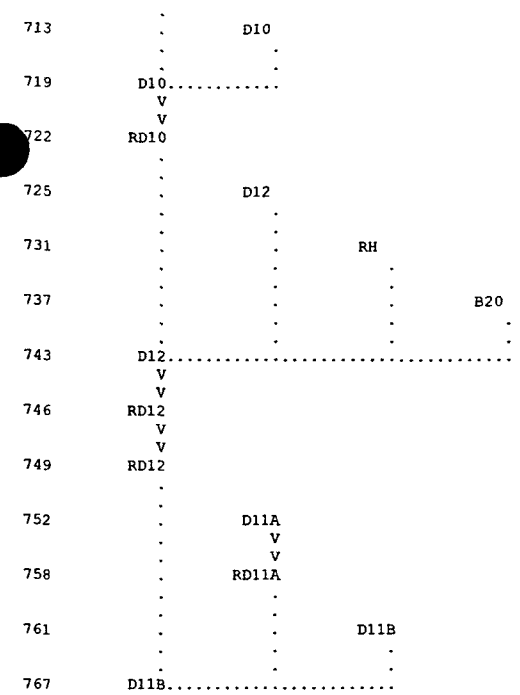
    33        B13A
              V
              V
    47       RB13A
             .
             .
    50       .        B13B
             .          .
             .          .
    56        B13B.............
              V
              V
    59       RB13B
             .
             .
    62       .        B17
             .          .
             .          .
    68        B17.............
             .
             .
    74       .-------->   B17DV
    71       B17DV
             V
             V
    77        RB17
             .
             .
    80       .        B18B
             .          .
             .          .
    86        B18B.............
              V
              V
    89       RB18B
             .
             .
    92       .        B13C
             .          .
             .          .
    99       .          .           .<-------   B17DV
    98       .          .       B17DV
             .          .          V
             .          .          V
   100       .          .      RB17DV
             .          .          .
             .          .          .
   103       .        B13C.............
             .          .
             .          .
   109       .          .-------->  B13CDV
   106       .      B13CDV
             .          V
             .          V
   112       .       RB13C
             .          .
             .          .
   115       .          .        B14A
             .          .          .
             .          .          .
   121       .        B14A.............
             .          .
             .          .
   127       .          .-------->  B14ADV
   124       .      B14ADV
             .          V
             .          V
   130       .       RB14A
             .          .
             .          .
   133       .          .        B16B
             .          .          .
             .          .          .
   139       .        B16B.............
             .          .
             .          .
   142       .          .        D1A
             .          .          V
             .          .          V
   148       .          .        RD1A
             .          .          .
             .          .          .
   151       .          .          .        D1B
             .          .          .          .
             .          .          .          .
```


157
D1B
160
RD1B
163
D1C
169
D1C
172
RD1C
175
D1D
181
RD1D
184
D1E
190
D1F
196
D1F
199
RD1F
202
B18A
208
B18A
211
RB18A
214
D009
220
RD009
223
D004
229
D004
232
RD004
235
D08
241
D08
244
RD08
247
D010
253
D07
259
D010
262
RD010
265
D012
271
D012
274
RD012
277
D01
283
RD01
286
D005
292
D005
295
RD005
298
D02


304
RD02
307
D03
313
D04
319
D04
322
RD04
325
D006
331
D006
334
RD006
337
D2A
343
D2A
346
RD2A
349
D2B
355
D2B
358
RD2B
361
D06
367
RD06
370
D3
376
D3
379
RD3
382
D4
388
D4
391
RD4
394
B18C
400
B18C
403
RB18C
406
RB18C
409
RB18C
412
RB18C
415
D5A
421
RD5A
424
D5B
430
B71
436
RB71
439
B501
445
B501


448 RB501
451 B72
457 B72
460 RB72
463 B502
469 RB502
472 B73
478 RB73
481 B503
487 B503
490 RB503
493 B504
499 B504
506 TROP
502 BDDV
509 RBDDV
512 B11
519 B13CDV
518 B13CDV
520 RB13CD
523 B11
528 B11DV
526 B11DV
533 B11SPL
531 B11SPL
536 RB11
539 B14B
545 B14B
548 RB14B
551 B15B
557 B15B
561 B11SPL
560 B11SPL
562 RB11SP
565 B12
571 B12
574 RB12
577 B15A
583 B15A


587 .<------- B14ADV
586 B14ADV
V
V
588 RB14AD
591 B16A
597 B16A
600 D5B
603 RD5B
606 RD5B
609 D6
615 D6
618 RD6
621 RD6
624 D7
630 D7
633 RD7
636 RD7
639 RD7
642 D8
648 RD8
652 .<------- B11DV
651 B11DV
653 RB11DV
656 MNWB
662 MNWB
665 RMNWB
668 MNWC
674 RMNWC
677 B10
683 B10
686 RB10
689 D9A
695 D9A
698 RD9A
701 D9B
707 D9B
710 RD9B




(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*          SEPTEMBER 1990               *
*           VERSION 4.0                 *
*                                       *
* RUN DATE  10/15/2001  TIME  10:18:06  *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
INPUT FILE = BDE100UN
CLARK COUNTY FLOOD CONTROL DISTRICT MASTER PLAN UPDATE
BLUE DIAMOND DUCK CREEK UPPER WATERSHED MODEL
EXISTING DRAINAGE SYSTEM WITH PRESENT DEVELOPMENT
UPPER BLUE DIAMOND AND DUCK CREEK STORMS
100-YEAR 6-HR STORM (SDN#5)
JMM  JANUARY 1991

WATERSHED MODEL TAKEN FROM COE HYDROLOGY
KINEMATIC SUBBASINS CONVERTED TO SCS UNIT HYDROGRAPH
CHANNEL ROUTING CHANGED TO REFLECT NEW EXISTING FACILITIES
SUBBASIN ROUTING CHANGED TO REFLECT NEW DEVELOPMENT

JR CARDS BASED ON THE FOLLOWING DARF AND PT OF CONCENTRATION

  POINT OF      AREA     DARF      JR CARD
  CONCERN      SQ.MI.              RATIO

     D2B         53.6    0.67         1
     D3          71.5    0.65         2
B11,B12,B14B     78.4*   0.64         3
     B16A        82.5*   0.63         4
     D4         119.5    0.58         5

* AREA CONSIDERS UPSTREAM DIVERSIONS

JR CARD RATIOS ARE THE DEPTH AREA REDUCTION FACTORS (DARF)


31 IO          OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL           0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                    NMIN            5  MINUTES IN COMPUTATION INTERVAL
                    IDATE       1   0  STARTING DATE
                    ITIME          0000  STARTING TIME
                      NQ           120  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE       1   0  ENDING DATE
                   NDTIME          0955  ENDING TIME
                   ICENT           19  CENTURY MARK

              COMPUTATION INTERVAL      .08 HOURS
                  TOTAL TIME BASE     9.92 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
```

FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

JP MULTI-PLAN OPTION
NPLAN 1 NUMBER OF PLANS

JR MULTI-RATIO OPTION
RATIOS OF PRECIPITATION
.67 .65 .64 .63 .58

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

| OPERATION | STATION | AREA | PLAN | | RATIOS APPLIED TO PRECIPITATION RATIO 1 .67 | RATIO 2 .65 | RATIO 3 .64 | RATIO 4 .63 | RATIO 5 .58 |
|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | | | |
| + | B13A | 1.34 | 1 | FLOW | 355. | 337. | 328. | 319. | 276. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | |
| + | RB13A | 1.34 | 1 | FLOW | 326. | 310. | 301. | 293. | 254. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B13B | .65 | 1 | FLOW | 116. | 110. | 108. | 105. | 91. |
| | | | | TIME | 5.25 | 5.33 | 5.33 | 5.33 | 5.33 |
| 2 COMBINED AT | | | | | | | | | |
| + | B13B | 1.99 | 1 | FLOW | 435. | 413. | 402. | 391. | 339. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.83 | 4.83 |
| ROUTED TO | | | | | | | | | |
| + | RB13B | 1.99 | 1 | FLOW | 426. | 405. | 394. | 384. | 332. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B17 | .80 | 1 | FLOW | 169. | 160. | 156. | 152. | 131. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| 2 COMBINED AT | | | | | | | | | |
| + | B17 | 2.79 | 1 | FLOW | 565. | 537. | 523. | 510. | 442. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| DIVERSION TO | | | | | | | | | |
| | B17DV | 2.79 | 1 | FLOW | 138. | 129. | 124. | 120. | 97. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B17DV | 2.79 | 1 | FLOW | 427. | 408. | 399. | 390. | 344. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| ROUTED TO | | | | | | | | | |
| + | RB17 | 2.79 | 1 | FLOW | 418. | 399. | 390. | 381. | 338. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.67 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B18B | 1.94 | 1 | FLOW | 474. | 449. | 437. | 424. | 363. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| 2 COMBINED AT | | | | | | | | | |
| + | B18B | 4.73 | 1 | FLOW | 724. | 692. | 676. | 660. | 581. |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 |
| ROUTED TO | | | | | | | | | |
| + | RB18B | 4.73 | 1 | FLOW | 702. | 671. | 655. | 640. | 563. |
| | | | | TIME | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B13C | 1.92 | 1 | FLOW | 593. | 564. | 549. | 535. | 463. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B17DV | .00 | 1 | FLOW | 138. | 129. | 124. | 120. | 97. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| ROUTED TO | | | | | | | | | |
| + | RB17DV | .00 | 1 | FLOW | 134. | 125. | 121. | 116. | 94. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.58 |
| 2 COMBINED AT | | | | | | | | | |
| + | B13C | 1.92 | 1 | FLOW | 593. | 564. | 549. | 535. | 463. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| DIVERSION TO | | | | | | | | | |
| + | B13CDV | 1.92 | 1 | FLOW | 29. | 3. | 0. | 0. | 0. |
| | | | | TIME | 3.92 | 3.92 | .08 | .08 | .08 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B13CDV | 1.92 | 1 | FLOW | 565. | 561. | 549. | 535. | 463. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| ROUTED TO | | | | | | | | | |
| + | RB13C | 1.92 | 1 | FLOW | 529. | 513. | 500. | 486. | 420. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B14A | 1.34 | 1 | FLOW | 458. | 435. | 423. | 412. | 356. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 COMBINED AT | | | | | | | | | |
| + | B14A | 3.26 | 1 | FLOW | 747. | 718. | 699. | 681. | 589. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| DIVERSION TO | | | | | | | | | |
| + | B14ADV | 3.26 | 1 | FLOW | 224. | 215. | 210. | 204. | 177. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| [redacted]ROGRAPH AT | | | | | | | | | |
| + | B14ADV | 3.26 | 1 | FLOW | 523. | 502. | 490. | 477. | 412. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | | |
| + | RB14A | 3.26 | 1 | FLOW | 514. | 493. | 481. | 468. | 405. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B16B | .72 | 1 | FLOW | 180. | 169. | 163. | 158. | 131. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | | | |
| + | B16B | 3.98 | 1 | FLOW | 601. | 574. | 560. | 545. | 473. |
| | | | | TIME | 5.00 | 4.92 | 4.92 | 4.92 | 5.00 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D1A | 2.39 | 1 | FLOW | 578. | 546. | 530. | 514. | 437. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.33 |
| ROUTED TO | | | | | | | | | |
| + | RD1A | 2.39 | 1 | FLOW | 570. | 538. | 522. | 507. | 431. |
| | | | | TIME | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D1B | .38 | 1 | FLOW | 59. | 56. | 54. | 52. | 44. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| 2 COMBINED AT | | | | | | | | | |
| + | D1B | 2.77 | 1 | FLOW | 628. | 593. | 576. | 559. | 474. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | | |
| + | RD1B | 2.77 | 1 | FLOW | 613. | 579. | 562. | 545. | 463. |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D1C | .48 | 1 | FLOW | 65. | 61. | 59. | 57. | 49. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.33 | 5.33 |
| 2 COMBINED AT | | | | | | | | | |
| + | D1C | 3.25 | 1 | FLOW | 676. | 638. | 619. | 601. | 509. |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 |
| [redacted]TED TO | | | | | | | | | |
| + | RD1C | 3.25 | 1 | FLOW | 665. | 627. | 609. | 591. | 500. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D1D | 1.15 | 1 | FLOW | 233. | 218. | 211. | 203. | 168. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| ROUTED TO | | | | | | | | | |
| + | RD1D | 1.15 | 1 | FLOW | 227. | 212. | 205. | 198. | 163. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D1E | .22 | 1 | FLOW | 28. | 26. | 25. | 24. | 21. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 5.42 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D1F | .88 | 1 | FLOW | 64. | 59. | 57. | 54. | 43. |
| | | | | TIME | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 |
| 4 COMBINED AT | | | | | | | | | |
| + | D1F | 5.50 | 1 | FLOW | 910. | 859. | 833. | 808. | 684. |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.25 |
| ROUTED TO | | | | | | | | | |
| + | RD1F | 5.50 | 1 | FLOW | 886. | 835. | 810. | 786. | 665. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.75 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B18A | 1.59 | 1 | FLOW | 96. | 88. | 84. | 80. | 61. |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 |
| 2 COMBINED AT | | | | | | | | | |
| + | B18A | 7.09 | 1 | FLOW | 960. | 903. | 876. | 848. | 713. |
| | | | | TIME | 5.58 | 5.67 | 5.67 | 5.67 | 5.67 |
| ROUTED TO | | | | | | | | | |
| + | RB18A | 7.09 | 1 | FLOW | 937. | 881. | 854. | 827. | 694. |
| | | | | TIME | 6.17 | 6.17 | 6.17 | 6.17 | 6.17 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D009 | 3.67 | 1 | FLOW | 766. | 718. | 695. | 671. | 557. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| [redacted]TED TO | | | | | | | | | |
| | RD009 | 3.67 | 1 | FLOW | 746. | 700. | 677. | 655. | 545. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D004 | 2.42 | 1 | FLOW | 718. | 680. | 662. | 644. | 554. |
| | | | | TIME | 4.08 | 4.08 | 4.17 | 4.17 | 4.17 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 COMBINED AT | | | | | | | | | |
| + | D004 | 6.09 | 1 | FLOW | 1463. | 1380. | 1339. | 1298. | 1098. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| ROUTED TO | | | | | | | | | |
| + | RD004 | 6.09 | 1 | FLOW | 1288. | 1214. | 1178. | 1142. | 964. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| [redacted]DROGRAPH AT | | | | | | | | | |
| | D08 | 12.11 | 1 | FLOW | 2377. | 2260. | 2202. | 2144. | 1858. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 |
| 2 COMBINED AT | | | | | | | | | |
| + | D08 | 18.20 | 1 | FLOW | 3396. | 3229. | 3146. | 3064. | 2659. |
| | | | | TIME | 5.50 | 5.50 | 5.58 | 5.58 | 5.58 |
| ROUTED TO | | | | | | | | | |
| + | RD08 | 18.20 | 1 | FLOW | 3272. | 3108. | 3026. | 2944. | 2544. |
| | | | | TIME | 6.17 | 6.17 | 6.17 | 6.17 | 6.25 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D010 | 10.58 | 1 | FLOW | 1598. | 1503. | 1456. | 1410. | 1182. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D07 | 4.29 | 1 | FLOW | 633. | 595. | 577. | 558. | 468. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 |
| 3 COMBINED AT | | | | | | | | | |
| + | D010 | 33.07 | 1 | FLOW | 5014. | 4751. | 4621. | 4491. | 3852. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 |
| ROUTED TO | | | | | | | | | |
| + | RD010 | 33.07 | 1 | FLOW | 4817. | 4563. | 4437. | 4312. | 3697. |
| | | | | TIME | 6.25 | 6.25 | 6.25 | 6.25 | 6.25 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D012 | 11.08 | 1 | FLOW | 1477. | 1393. | 1351. | 1310. | 1108. |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.33 | 5.42 |
| 2 COMBINED AT | | | | | | | | | |
| + | D012 | 44.15 | 1 | FLOW | 6011. | 5688. | 5527. | 5368. | 4589. |
| | | | | TIME | 6.00 | 6.00 | 6.00 | 6.00 | 6.08 |
| ROUTED TO | | | | | | | | | |
| + | RD012 | 44.15 | 1 | FLOW | 5869. | 5552. | 5395. | 5239. | 4477. |
| | | | | TIME | 6.33 | 6.33 | 6.33 | 6.33 | 6.42 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D01 | 9.57 | 1 | FLOW | 2215. | 2095. | 2035. | 1976. | 1684. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| [redacted]TED TO | | | | | | | | | |
| | RD01 | 9.57 | 1 | FLOW | 2057. | 1946. | 1892. | 1837. | 1570. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D005 | 2.60 | 1 | FLOW | 626. | 590. | 572. | 554. | 468. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.25 |
| 2 COMBINED AT | | | | | | | | | |
| + | D005 | 12.17 | 1 | FLOW | 2549. | 2415. | 2349. | 2282. | 1956. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 |
| ROUTED TO | | | | | | | | | |
| + | RD005 | 12.17 | 1 | FLOW | 2512. | 2379. | 2314. | 2248. | 1929. |
| | | | | TIME | 5.42 | 5.42 | 5.42 | 5.42 | 5.50 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D02 | 5.90 | 1 | FLOW | 1244. | 1175. | 1141. | 1106. | 939. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.58 |
| ROUTED TO | | | | | | | | | |
| + | RD02 | 5.90 | 1 | FLOW | 1169. | 1105. | 1073. | 1042. | 888. |
| | | | | TIME | 5.25 | 5.25 | 5.33 | 5.33 | 5.33 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D03 | 10.13 | 1 | FLOW | 2227. | 2103. | 2041. | 1980. | 1679. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D04 | 8.76 | 1 | FLOW | 1930. | 1827. | 1775. | 1725. | 1474. |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 |
| 2 COMBINED AT | | | | | | | | | |
| + | D04 | 18.89 | 1 | FLOW | 4142. | 3916. | 3804. | 3692. | 3144. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| ROUTED TO | | | | | | | | | |
| + | RD04 | 18.89 | 1 | FLOW | 3752. | 3554. | 3456. | 3359. | 2883. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.67 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D006 | 8.26 | 1 | FLOW | 1972. | 1863. | 1809. | 1755. | 1492. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| [redacted]3 COMBINED AT | | | | | | | | | |
| | D006 | 33.05 | 1 | FLOW | 6477. | 6136. | 5967. | 5800. | 4978. |
| | | | | TIME | 5.33 | 5.33 | 5.42 | 5.42 | 5.42 |
| ROUTED TO | | | | | | | | | |
| + | RD006 | 33.05 | 1 | FLOW | 6408. | 6073. | 5907. | 5741. | 4926. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 |
| HYDROGRAPH AT | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| + | D2A | .97 | 1 | FLOW | 301. | 283. | 275. | 266. | 224. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| 3 COMBINED AT | | | | | | | | | |
| + | D2A | 46.19 | 1 | FLOW | 8959. | 8487. | 8253. | 8020. | 6876. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.58 |
| [redacted]UTED TO | | | | | | | | | |
| | RD2A | 46.19 | 1 | FLOW | 8454. | 8009. | 7788. | 7569. | 6497. |
| | | | | TIME | 6.33 | 6.33 | 6.33 | 6.42 | 6.42 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D2B | 7.39 | 1 | FLOW | 826. | 775. | 751. | 726. | 606. |
| | | | | TIME | 5.33 | 5.42 | 5.42 | 5.42 | 5.50 |
| 2 COMBINED AT | | | | | | | | | |
| + | D2B | 53.58 | 1 | FLOW | 9005. | 8524. | 8286. | 8049. | 6892. |
| | | | | TIME | 6.25 | 6.25 | 6.25 | 6.25 | 6.33 |
| ROUTED TO | | | | | | | | | |
| + | RD2B | 53.58 | 1 | FLOW | 8573. | 8116. | 7888. | 7664. | 6563. |
| | | | | TIME | 7.17 | 7.17 | 7.17 | 7.25 | 7.25 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D06 | 11.68 | 1 | FLOW | 2450. | 2320. | 2255. | 2191. | 1677. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.83 |
| ROUTED TO | | | | | | | | | |
| + | RD06 | 11.68 | 1 | FLOW | 2332. | 2212. | 2153. | 2094. | 1605. |
| | | | | TIME | 5.75 | 5.83 | 5.83 | 5.83 | 5.83 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D3 | 6.22 | 1 | FLOW | 567. | 529. | 511. | 492. | 402. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 |
| 3 COMBINED AT | | | | | | | | | |
| + | D3 | 71.48 | 1 | FLOW | 10211. | 9664. | 9393. | 9123. | 7798. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 | 7.00 |
| ROUTED TO | | | | | | | | | |
| + | RD3 | 71.48 | 1 | FLOW | 10129. | 9585. | 9316. | 9049. | 7738. |
| | | | | TIME | 7.17 | 7.17 | 7.25 | 7.25 | 7.25 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D4 | 3.83 | 1 | FLOW | 713. | 671. | 650. | 629. | 528. |
| | | | | TIME | 4.17 | 4.25 | 4.25 | 4.25 | 4.25 |
| 3 COMBINED AT | | | | | | | | | |
| + | D4 | 119.46 | 1 | FLOW | 15390. | 14564. | 14155. | 13747. | 11746. |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 6.92 | 6.92 |
| [redacted]UTED TO | | | | | | | | | |
| | RD4 | 119.46 | 1 | FLOW | 15273. | 14449. | 14040. | 13635. | 11652. |
| | | | | TIME | 7.08 | 7.08 | 7.08 | 7.17 | 7.17 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B18C | 1.19 | 1 | FLOW | 148. | 134. | 128. | 122. | 101. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 5.00 | 5.08 |
| 5 COMBINED AT | | | | | | | | | |
| + | B18C | 136.45 | 1 | FLOW | 16477. | 15589. | 15148. | 14710. | 12565. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 |
| ROUTED TO | | | | | | | | | |
| + | RB18C | 136.45 | 1 | FLOW | 16473. | 15584. | 15143. | 14705. | 12564. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 |
| ROUTED TO | | | | | | | | | |
| + | RB18C | 136.45 | 1 | FLOW | 16472. | 15583. | 15142. | 14703. | 12563. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 |
| ROUTED TO | | | | | | | | | |
| + | RB18C | 136.45 | 1 | FLOW | 16471. | 15582. | 15141. | 14702. | 12563. |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.08 | 7.08 |
| ROUTED TO | | | | | | | | | |
| + | RB18C | 136.45 | 1 | FLOW | 16223. | 15346. | 14911. | 14479. | 12363. |
| | | | | TIME | 7.33 | 7.33 | 7.33 | 7.33 | 7.42 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D5A | 1.31 | 1 | FLOW | -477. | 454. | 442. | 430. | 372. |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 |
| ROUTED TO | | | | | | | | | |
| + | RD5A | 1.31 | 1 | FLOW | 420. | 399. | 389. | 378. | 327. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D5B | .58 | 1 | FLOW | 104. | 97. | 94. | 91. | 75. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B71 | 7.99 | 1 | FLOW | 2266. | 2151. | 2094. | 2038. | 1758. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| ROUTED TO | | | | | | | | | |
| + | RB71 | 7.99 | 1 | FLOW | 2211. | 2099. | 2044. | 1989. | 1716. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 |
| [redacted]YDROGRAPH AT | | | | | | | | | |
| + | B501 | 10.66 | 1 | FLOW | 3006. | 2854. | 2778. | 2703. | 2331. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| 2 COMBINED AT | | | | | | | | | |
| + | B501 | 18.65 | 1 | FLOW | 5046. | 4788. | 4660. | 4533. | 3910. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 |
| ROUTED TO | | | | | | | | | |
| + | RB501 | 18.65 | 1 | FLOW | 4961. | 4710. | 4586. | 4461. | 3848. |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 |
| HYDROGRAPH AT | | | | | | | | | |
| | B72 | 8.12 | 1 | FLOW | 2309. | 2200. | 2146. | 2091. | 1823. |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 |
| 2 COMBINED AT | | | | | | | | | |
| + | B72 | 26.77 | 1 | FLOW | 7187. | 6830. | 6652. | 6475. | 5602. |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 |
| ROUTED TO | | | | | | | | | |
| + | RB72 | 26.77 | 1 | FLOW | 7047. | 6699. | 6526. | 6354. | 5502. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B502 | 27.35 | 1 | FLOW | 6036. | 5742. | 5595. | 5449. | 4732. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.33 |
| ROUTED TO | | | | | | | | | |
| + | RB502 | 27.35 | 1 | FLOW | 6013. | 5719. | 5573. | 5427. | 4709. |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.67 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B73 | 2.69 | 1 | FLOW | 987. | 938. | 914. | 890. | 770. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| ROUTED TO | | | | | | | | | |
| + | RB73 | 2.69 | 1 | FLOW | 923. | 878. | 855. | 832. | 721. |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B503 | 8.07 | 1 | FLOW | 2176. | 2062. | 2005. | 1949. | 1674. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.25 | 4.25 |
| 4 COMBINED AT | | | | | | | | | |
| + | B503 | 64.88 | 1 | FLOW | 14978. | 14247. | 13883. | 13521. | 11730. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 |
| ROUTED TO | | | | | | | | | |
| + | RB503 | 64.88 | 1 | FLOW | 14818. | 14097. | 13738. | 13380. | 11614. |
| | | | | TIME | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B504 | 4.65 | 1 | FLOW | 1034. | 979. | 951. | 924. | 790. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 |
| 2 COMBINED AT | | | | | | | | | |
| | B504 | 69.53 | 1 | FLOW | 15591. | 14828. | 14448. | 14070. | 12206. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.75 |
| DIVERSION TO | | | | | | | | | |
| + | TROP | 69.53 | 1 | FLOW | 6019. | 5607. | 5402. | 5198. | 4191. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.75 |
| HYDROGRAPH AT | | | | | | | | | |
| + | BDDV | 69.53 | 1 | FLOW | 9572. | 9221. | 9046. | 8872. | 8015. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.75 |
| ROUTED TO | | | | | | | | | |
| + | RBDDV | 69.53 | 1 | FLOW | 9381. | 9039. | 8869. | 8701. | 7854. |
| | | | | TIME | 6.67 | 6.67 | 6.75 | 6.75 | 6.75 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B11 | 2.06 | 1 | FLOW | 275. | 254. | 243. | 233. | 184. |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B13CDV | .00 | 1 | FLOW | 29. | 3. | 0. | 0. | 0. |
| | | | | TIME | 3.92 | 3.92 | .08 | .08 | .08 |
| ROUTED TO | | | | | | | | | |
| + | RB13CD | .00 | 1 | FLOW | 17. | 1. | 0. | 0. | 0. |
| | | | | TIME | 4.08 | 4.08 | .08 | .08 | .08 |
| 3 COMBINED AT | | | | | | | | | |
| + | B11 | 71.59 | 1 | FLOW | 9400. | 9057. | 8886. | 8715. | 7866. |
| | | | | TIME | 6.67 | 6.67 | 6.67 | 6.67 | 6.75 |
| DIVERSION TO | | | | | | | | | |
| + | B11DV | 71.59 | 1 | FLOW | 2120. | 2019. | 1968. | 1918. | 1667. |
| | | | | TIME | 6.67 | 6.67 | 6.67 | 6.67 | 6.75 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B11DV | 71.59 | 1 | FLOW | 7280. | 7038. | 6918. | 6798. | 6199. |
| | | | | TIME | 6.67 | 6.67 | 6.67 | 6.67 | 6.75 |
| DIVERSION TO | | | | | | | | | |
| + | B11SPL | 71.59 | 1 | FLOW | 3640. | 3519. | 3459. | 3399. | 3099. |
| | | | | TIME | 6.67 | 6.67 | 6.67 | 6.67 | 6.75 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B11SPL | 71.59 | 1 | FLOW | 3640. | 3519. | 3459. | 3399. | 3099. |
| | | | | TIME | 6.67 | 6.67 | 6.67 | 6.67 | 6.75 |
| UTED TO | | | | | | | | | |
| | RB11 | 71.59 | 1 | FLOW | 3605. | 3486. | 3427. | 3368. | 3068. |
| | | | | TIME | 7.25 | 7.25 | 7.33 | 7.33 | 7.33 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B14B | 1.03 | 1 | FLOW | 103. | 96. | 93. | 90. | 73. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 COMBINED AT | | | | | | | | | |
| + | B14B | 72.62 | 1 | FLOW | 3606. | 3486. | 3427. | 3368. | 3069. |
| | | | | TIME | 7.25 | 7.25 | 7.33 | 7.33 | 7.33 |
| ROUTED TO | | | | | | | | | |
| + | RB14B | 72.62 | 1 | FLOW | 3591. | 3473. | 3414. | 3354. | 3054. |
| | | | | TIME | 7.58 | 7.58 | 7.58 | 7.58 | 7.67 |
| [redacted]ROGRAPH AT | | | | | | | | | |
| + | B15B | .88 | 1 | FLOW | 81. | 75. | 72. | 70. | 57. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.33 |
| 2 COMBINED AT | | | | | | | | | |
| + | B15B | 73.50 | 1 | FLOW | 3593. | 3474. | 3415. | 3356. | 3055. |
| | | | | TIME | 7.58 | 7.58 | 7.58 | 7.58 | 7.67 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B11SPL | .00 | 1 | FLOW | 3640. | 3519. | 3459. | 3399. | 3099. |
| | | | | TIME | 6.67 | 6.67 | 6.67 | 6.67 | 6.75 |
| ROUTED TO | | | | | | | | | |
| + | RB11SP | .00 | 1 | FLOW | 3596. | 3478. | 3419. | 3360. | 3060. |
| | | | | TIME | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B12 | 1.05 | 1 | FLOW | 75. | 69. | 65. | 62. | 48. |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 |
| 2 COMBINED AT | | | | | | | | | |
| + | B12 | 1.05 | 1 | FLOW | 3596. | 3478. | 3419. | 3360. | 3060. |
| | | | | TIME | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 |
| ROUTED TO | | | | | | | | | |
| + | RB12 | 1.05 | 1 | FLOW | 3582. | 3463. | 3404. | 3345. | 3046. |
| | | | | TIME | 7.75 | 7.75 | 7.75 | 7.83 | 7.83 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B15A | .94 | 1 | FLOW | 129. | 119. | 114. | 109. | 85. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| 2 COMBINED AT | | | | | | | | | |
| + | B15A | 1.99 | 1 | FLOW | 3582. | 3463. | 3404. | 3345. | 3046. |
| | | | | TIME | 7.75 | 7.75 | 7.75 | 7.83 | 7.83 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B14ADV | .00 | 1 | FLOW | 224. | 215. | 210. | 204. | 177. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 |
| ROUTED TO | | | | | | | | | |
| + | RB14AD | .00 | 1 | FLOW | 218. | 209. | 204. | 198. | 172. |
| | | | | TIME | 4.75 | 4.83 | 4.83 | 4.83 | 4.83 |
| [redacted]ROGRAPH AT | | | | | | | | | |
| + | B16A | .99 | 1 | FLOW | 120. | 110. | 106. | 102. | 82. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 5.25 |
| 4 COMBINED AT | | | | | | | | | |
| + | B16A | 76.48 | 1 | FLOW | 7195. | 6956. | 6837. | 6717. | 6110. |
| | | | | TIME | 7.67 | 7.67 | 7.67 | 7.67 | 7.75 |
| 4 COMBINED AT | | | | | | | | | |
| + | D5B | 214.82 | 1 | FLOW | 23293. | 22183. | 21634. | 21089. | 18383. |
| | | | | TIME | 7.42 | 7.50 | 7.50 | 7.50 | 7.50 |
| ROUTED TO | | | | | | | | | |
| + | RD5B | 214.82 | 1 | FLOW | 23288. | 22183. | 21634. | 21087. | 18379. |
| | | | | TIME | 7.42 | 7.50 | 7.50 | 7.50 | 7.50 |
| ROUTED TO | | | | | | | | | |
| + | RD5B | 214.82 | 1 | FLOW | 23247. | 22144. | 21595. | 21050. | 18344. |
| | | | | TIME | 7.67 | 7.67 | 7.67 | 7.67 | 7.67 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D6 | 1.56 | 1 | FLOW | 228. | 211. | 202. | 194. | 153. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| 2 COMBINED AT | | | | | | | | | |
| + | D6 | 216.38 | 1 | FLOW | 23247. | 22144. | 21596. | 21050. | 18344. |
| | | | | TIME | 7.67 | 7.67 | 7.67 | 7.67 | 7.67 |
| ROUTED TO | | | | | | | | | |
| + | RD6 | 216.38 | 1 | FLOW | 23229. | 22126. | 21578. | 21033. | 18330. |
| | | | | TIME | 7.67 | 7.75 | 7.75 | 7.75 | 7.75 |
| ROUTED TO | | | | | | | | | |
| + | RD6 | 216.38 | 1 | FLOW | 23228. | 22125. | 21576. | 21030. | 18323. |
| | | | | TIME | 7.75 | 7.75 | 7.75 | 7.75 | 7.75 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D7 | .73 | 1 | FLOW | 81. | 74. | 71. | 68. | 57. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 5.25 |
| 2 COMBINED AT | | | | | | | | | |
| + | D7 | 217.11 | 1 | FLOW | 23229. | 22126. | 21577. | 21031. | 18324. |
| | | | | TIME | 7.75 | 7.75 | 7.75 | 7.75 | 7.75 |
| [redacted]TED TO | | | | | | | | | |
| | RD7 | 217.11 | 1 | FLOW | 23228. | 22125. | 21575. | 21029. | 18321. |
| | | | | TIME | 7.75 | 7.75 | 7.75 | 7.75 | 7.83 |
| ROUTED TO | | | | | | | | | |
| + | RD7 | 217.11 | 1 | FLOW | 23226. | 22120. | 21570. | 21023. | 18321. |
| | | | | TIME | 7.75 | 7.75 | 7.75 | 7.75 | 7.83 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | | | |
| + | RD7 | 217.11 | 1 | FLOW | 23216. | 22107. | 21556. | 21013. | 18316. |
| | | | | TIME | 7.75 | 7.75 | 7.83 | 7.83 | 7.83 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D8 | 1.35 | 1 | FLOW | 274. | 253. | 243. | 233. | 183. |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 |
| [redacted]UTED TO | | | | | | | | | |
| | RD8 | 1.35 | 1 | FLOW | 230. | 212. | 204. | 195. | 154. |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B11DV | .00 | 1 | FLOW | 2120. | 2019. | 1968. | 1918. | 1667. |
| | | | | TIME | 6.67 | 6.67 | 6.67 | 6.67 | 6.75 |
| ROUTED TO | | | | | | | | | |
| + | RB11DV | .00 | 1 | FLOW | 2084. | 1984. | 1935. | 1885. | 1633. |
| | | | | TIME | 7.42 | 7.42 | 7.42 | 7.42 | 7.42 |
| HYDROGRAPH AT | | | | | | | | | |
| + | MNWB | .68 | 1 | FLOW | 94. | 89. | 87. | 84. | 72. |
| | | | | TIME | 5.67 | 5.67 | 5.75 | 5.75 | 5.75 |
| 2 COMBINED AT | | | | | | | | | |
| + | MNWB | .68 | 1 | FLOW | 2124. | 2023. | 1972. | 1921. | 1664. |
| | | | | TIME | 7.42 | 7.42 | 7.42 | 7.42 | 7.42 |
| ROUTED TO | | | | | | | | | |
| + | RMNWB | .68 | 1 | FLOW | 2092. | 1991. | 1940. | 1890. | 1634. |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.08 | 8.17 |
| HYDROGRAPH AT | | | | | | | | | |
| + | MNWC | .69 | 1 | FLOW | 121. | 114. | 110. | 107. | 91. |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 |
| ROUTED TO | | | | | | | | | |
| + | RMNWC | .69 | 1 | FLOW | 116. | 109. | 106. | 103. | 87. |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 |
| HYDROGRAPH AT | | | | | | | | | |
| + | B10 | 2.89 | 1 | FLOW | 324. | 299. | 289. | 279. | 230. |
| | | | | TIME | 3.92 | 5.08 | 5.08 | 5.08 | 5.08 |
| 3 COMBINED AT | | | | | | | | | |
| + | B10 | 4.26 | 1 | FLOW | 2103. | 2002. | 1951. | 1900. | 1642. |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.08 | 8.17 |
| ROUTED TO | | | | | | | | | |
| + | RB10 | 4.26 | 1 | FLOW | 2084. | 1983. | 1933. | 1883. | 1626. |
| | | | | TIME | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 |
| [redacted]DROGRAPH AT | | | | | | | | | |
| | D9A | .82 | 1 | FLOW | 55. | 50. | 48. | 46. | 36. |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.58 |
| 2 COMBINED AT | | | | | | | | | |
| + | D9A | 5.08 | 1 | FLOW | 2086. | 1985. | 1935. | 1884. | 1627. |
| | | | | TIME | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 |
| ROUTED TO | | | | | | | | | |
| + | RD9A | 5.08 | 1 | FLOW | 2061. | 1961. | 1911. | 1861. | 1604. |
| | | | | TIME | 9.17 | 9.17 | 9.17 | 9.17 | 9.17 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D9B | 1.55 | 1 | FLOW | 238. | 219. | 210. | 201. | 157. |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.92 |
| 4 COMBINED AT | | | | | | | | | |
| + | D9B | 225.09 | 1 | FLOW | 24289. | 23116. | 22532. | 21951. | 19079. |
| | | | | TIME | 7.92 | 7.92 | 7.92 | 7.92 | 8.00 |
| ROUTED TO | | | | | | | | | |
| + | RD9B | 225.09 | 1 | FLOW | 24241. | 23067. | 22482. | 21901. | 19042. |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.17 | 8.17 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D10 | 2.51 | 1 | FLOW | 415. | 384. | 370. | 355. | 283. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | | | |
| + | D10 | 227.60 | 1 | FLOW | 24241. | 23067. | 22482. | 21901. | 19042. |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.17 | 8.17 |
| ROUTED TO | | | | | | | | | |
| + | RD10 | 227.60 | 1 | FLOW | 24235. | 23060. | 22477. | 21901. | 19038. |
| | | | | TIME | 8.08 | 8.08 | 8.17 | 8.17 | 8.17 |
| HYDROGRAPH AT | | | | | | | | | |
| + | D12 | .18 | 1 | FLOW | 21. | 19. | 19. | 18. | 14. |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 5.25 |
| HYDROGRAPH AT | | | | | | | | | |
| + | RH | 3.88 | 1 | FLOW | 384. | 357. | 343. | 330. | 266. |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| [redacted]HYDROGRAPH AT | | | | | | | | | |
| | B20 | .81 | 1 | FLOW | 140. | 131. | 127. | 123. | 101. |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 |
| 4 COMBINED AT | | | | | | | | | |
| + | D12 | 232.47 | 1 | FLOW | 24236. | 23061. | 22478. | 21902. | 19038. |
| | | | | TIME | 8.08 | 8.08 | 8.17 | 8.17 | 8.17 |
| ROUTED TO | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| + | RD12 | 232.47 | 1 | FLOW | 24228. | 23058. | 22477. | 21900. | 19032. |
| | | | | TIME | 8.08 | 8.17 | 8.17 | 8.17 | 8.17 |

ROUTED TO

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| + | RD12 | 232.47 | 1 | FLOW | 24224. | 23057. | 22475. | 21897. | 19026. |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.25 |

HYDROGRAPH AT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | D11A | .15 | 1 | FLOW | 35. | 32. | 31. | 30. | 23. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 |

ROUTED TO

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| + | RD11A | .15 | 1 | FLOW | 27. | 25. | 23. | 22. | 17. |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 |

HYDROGRAPH AT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| + | D11B | 1.04 | 1 | FLOW | 307. | 287. | 278. | 268. | 223. |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.67 | 3.67 |

3 COMBINED AT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| + | D11B | 233.66 | 1 | FLOW | 24224. | 23057. | 22475. | 21897. | 19026. |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 6.25 |

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

| ISTAQ | ELEMENT | DT | PEAK | TIME TO PEAK | VOLUME | INTERPOLATED TO COMPUTATION INTERVAL DT | PEAK | TIME TO PEAK | VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| | | (MIN) | (CFS) | (MIN) | (IN) | (MIN) | (CFS) | (MIN) | (IN) |
| FOR PLAN = 1 RATIO= .67 | | | | | | | | | |
| RB18C | MANE | .53 | 16475.76 | 420.86 | .72 | 5.00 | 16473.40 | 420.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5224E+04 EXCESS= .0000E+00 OUTFLOW= .5213E+04 BASIN STORAGE= .1066E+02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .65 | | | | | | | | | |
| RB18C | MANE | .57 | 15587.23 | 421.30 | .68 | 5.00 | 15584.21 | 420.00 | .68 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4927E+04 EXCESS= .0000E+00 OUTFLOW= .4916E+04 BASIN STORAGE= .1035E+02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .64 | | | | | | | | | |
| RB18C | MANE | .48 | 15147.30 | 420.83 | .66 | 5.00 | 15143.15 | 420.00 | .66 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4780E+04 EXCESS= .0000E+00 OUTFLOW= .4772E+04 BASIN STORAGE= .1014E+02 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .63 | | | | | | | | | |
| RB18C | MANE | .51 | 14709.51 | 421.05 | .64 | 5.00 | 14704.52 | 420.00 | .64 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4635E+04 EXCESS= .0000E+00 OUTFLOW= .4627E+04 BASIN STORAGE= .9982E+01 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .58 | | | | | | | | | |
| RB18C | MANE | .49 | 12564.74 | 425.76 | .54 | 5.00 | 12564.00 | 425.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3926E+04 EXCESS= .0000E+00 OUTFLOW= .3918E+04 BASIN STORAGE= .9182E+01 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .67 | | | | | | | | | |
| RB18C | MANE | .22 | 16472.88 | 420.26 | .72 | 5.00 | 16472.24 | 420.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5213E+04 EXCESS= .0000E+00 OUTFLOW= .5211E+04 BASIN STORAGE= .1512E+01 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .65 | | | | | | | | | |
| RB18C | MANE | .21 | 15583.82 | 420.23 | .68 | 5.00 | 15582.87 | 420.00 | .68 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4916E+04 EXCESS= .0000E+00 OUTFLOW= .4915E+04 BASIN STORAGE= .1515E+01 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .64 | | | | | | | | | |
| RB18C | MANE | .14 | 15143.02 | 420.31 | .66 | 5.00 | 15141.89 | 420.00 | .66 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4770E+04 EXCESS= .0000E+00 OUTFLOW= .4767E+04 BASIN STORAGE= .1782E+01 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .63 | | | | | | | | | |
| RB18C | MANE | .18 | 14704.39 | 420.48 | .64 | 5.00 | 14702.96 | 420.00 | .64 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4624E+04 EXCESS= .0000E+00 OUTFLOW= .4623E+04 BASIN STORAGE= .1658E+01 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .58 | | | | | | | | | |
| RB18C | MANE | .19 | 12563.55 | 425.06 | .54 | 5.00 | 12563.45 | 425.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3916E+04 EXCESS= .0000E+00 OUTFLOW= .3914E+04 BASIN STORAGE= .1520E+01 PERCENT ERROR= .0

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .67 | | | | | | | | | |
| RB18C | MANE | .23 | 16471.66 | 420.18 | .72 | 5.00 | 16471.08 | 420.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5210E+04 EXCESS= .0000E+00 OUTFLOW= .5208E+04 BASIN STORAGE= .1461E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .65

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB18C | MANE | .22 | 15582.52 | 420.24 | .68 | 5.00 | 15581.65 | 420.00 | .67 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4914E+04 EXCESS= .0000E+00 OUTFLOW= .4913E+04 BASIN STORAGE= .1466E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .64

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB18C | MANE | .19 | 15141.69 | 420.33 | .65 | 5.00 | 15140.56 | 420.00 | .65 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4767E+04 EXCESS= .0000E+00 OUTFLOW= .4765E+04 BASIN STORAGE= .1603E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .63

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB18C | MANE | .13 | 14702.95 | 420.35 | .63 | 5.00 | 14702.35 | 425.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4622E+04 EXCESS= .0000E+00 OUTFLOW= .4621E+04 BASIN STORAGE= .1772E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .58

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB18C | MANE | .16 | 12563.07 | 425.22 | .54 | 5.00 | 12562.90 | 425.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3914E+04 EXCESS= .0000E+00 OUTFLOW= .3912E+04 BASIN STORAGE= .1655E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .67

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD5B | MANE | .30 | 23292.82 | 445.62 | .63 | 5.00 | 23288.17 | 445.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7243E+04 EXCESS= .0000E+00 OUTFLOW= .7232E+04 BASIN STORAGE= .9921E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .65

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD5B | MANE | .23 | 22182.74 | 450.10 | .60 | 5.00 | 22182.68 | 450.00 | .60 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6861E+04 EXCESS= .0000E+00 OUTFLOW= .6852E+04 BASIN STORAGE= .9638E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .64

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD5B | MANE | .36 | 21633.62 | 450.02 | .58 | 5.00 | 21633.59 | 450.00 | .58 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6671E+04 EXCESS= .0000E+00 OUTFLOW= .6664E+04 BASIN STORAGE= .9571E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .63

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD5B | MANE | .34 | 21087.71 | 450.19 | .57 | 5.00 | 21087.38 | 450.00 | .57 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6484E+04 EXCESS= .0000E+00 OUTFLOW= .6477E+04 BASIN STORAGE= .9810E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .58

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD5B | MANE | .31 | 18381.87 | 450.47 | .48 | 5.00 | 18379.31 | 450.00 | .48 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5561E+04 EXCESS= .0000E+00 OUTFLOW= .5554E+04 BASIN STORAGE= .8669E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .67

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD6 | MANE | .44 | 23228.71 | 461.02 | .61 | 5.00 | 23227.88 | 465.00 | .61 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7086E+04 EXCESS= .0000E+00 OUTFLOW= .7073E+04 BASIN STORAGE= .1697E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .65

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD6 | MANE | .41 | 22125.18 | 465.64 | .58 | 5.00 | 22124.71 | 465.00 | .58 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6710E+04 EXCESS= .0000E+00 OUTFLOW= .6693E+04 BASIN STORAGE= .1652E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .64

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD6 | MANE | .50 | 21576.62 | 465.61 | .56 | 5.00 | 21575.95 | 465.00 | .56 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6523E+04 EXCESS= .0000E+00 OUTFLOW= .6506E+04 BASIN STORAGE= .1710E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .63

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD6 | MANE | .41 | 21031.83 | 465.50 | .55 | 5.00 | 21030.19 | 465.00 | .55 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6338E+04 EXCESS= .0000E+00 OUTFLOW= .6323E+04 BASIN STORAGE= .1601E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .58

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD6 | MANE | .43 | 18328.93 | 465.75 | .47 | 5.00 | 18323.01 | 465.00 | .47 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5430E+04 EXCESS= .0000E+00 OUTFLOW= .5418E+04 BASIN STORAGE= .1471E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .67

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | .19 | 23228.58 | 465.12 | .61 | 5.00 | 23228.42 | 465.00 | .61 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7082E+04 EXCESS= .0000E+00 OUTFLOW= .7073E+04 BASIN STORAGE= .8256E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .65

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | .17 | 22125.42 | 465.30 | .58 | 5.00 | 22124.61 | 465.00 | .58 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6705E+04 EXCESS= .0000E+00 OUTFLOW= .6699E+04 BASIN STORAGE= .8021E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .64

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | .25 | 21576.18 | 465.26 | .56 | 5.00 | 21575.47 | 465.00 | .56 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6519E+04 EXCESS= .0000E+00 OUTFLOW= .6511E+04 BASIN STORAGE= .7910E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .63

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | .19 | 21030.57 | 465.29 | .55 | 5.00 | 21029.37 | 465.00 | .55 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6333E+04 EXCESS= .0000E+00 OUTFLOW= .6325E+04 BASIN STORAGE= .7804E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .58

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | .22 | 18323.70 | 465.52 | .47 | 5.00 | 18321.09 | 470.00 | .47 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5424E+04 EXCESS= .0000E+00 OUTFLOW= .5417E+04 BASIN STORAGE= .7216E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .67

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | .58 | 23226.91 | 465.42 | .61 | 5.00 | 23226.03 | 465.00 | .61 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7074E+04 EXCESS= .0000E+00 OUTFLOW= .7051E+04 BASIN STORAGE= .2409E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .65

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | .64 | 22122.31 | 465.93 | .58 | 5.00 | 22120.32 | 465.00 | .58 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6697E+04 EXCESS= .0000E+00 OUTFLOW= .6675E+04 BASIN STORAGE= .2338E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .64

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | .60 | 21573.68 | 466.09 | .56 | 5.00 | 21570.31 | 465.00 | .56 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6511E+04 EXCESS= .0000E+00 OUTFLOW= .6489E+04 BASIN STORAGE= .2328E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .63

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | .60 | 21027.89 | 466.14 | .54 | 5.00 | 21023.23 | 465.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6325E+04 EXCESS= .0000E+00 OUTFLOW= .6301E+04 BASIN STORAGE= .2279E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .58

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | .53 | 18320.94 | 470.25 | .47 | 5.00 | 18320.90 | 470.00 | .47 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5417E+04 EXCESS= .0000E+00 OUTFLOW= .5394E+04 BASIN STORAGE= .2104E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .67

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | 1.11 | 23222.65 | 466.61 | .61 | 5.00 | 23216.22 | 465.00 | .60 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7047E+04 EXCESS= .0000E+00 OUTFLOW= .7009E+04 BASIN STORAGE= .4513E+02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .65

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | 1.10 | 22117.50 | 467.49 | .57 | 5.00 | 22106.72 | 465.00 | .57 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6672E+04 EXCESS= .0000E+00 OUTFLOW= .6628E+04 BASIN STORAGE= .4398E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .64

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | 1.05 | 21569.34 | 467.02 | .56 | 5.00 | 21556.48 | 470.00 | .56 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6485E+04 EXCESS= .0000E+00 OUTFLOW= .6446E+04 BASIN STORAGE= .4346E+02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .63

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | 1.10 | 21020.44 | 467.85 | .54 | 5.00 | 21013.07 | 470.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6300E+04 EXCESS= .0000E+00 OUTFLOW= .6253E+04 BASIN STORAGE= .4278E+02 PERCENT ERROR= .1

FOR PLAN = 1 RATIO= .58

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD7 | MANE | 1.22 | 18318.45 | 471.45 | .46 | 5.00 | 18315.82 | 470.00 | .46 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5394E+04 EXCESS= .0000E+00 OUTFLOW= .5352E+04 BASIN STORAGE= .3926E+02 PERCENT ERROR= .1

FOR PLAN = 1 RATIO= .67

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD10 | MANE | .46 | 24238.99 | 485.68 | .60 | 5.00 | 24235.39 | 485.00 | .60 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7348E+04 EXCESS= .0000E+00 OUTFLOW= .7327E+04 BASIN STORAGE= .2389E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .65

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD10 | MANE | .48 | 23065.53 | 486.25 | .57 | 5.00 | 23060.21 | 485.00 | .57 |

TINUITY SUMMARY (AC-FT) - INFLOW= .6947E+04 EXCESS= .0000E+00 OUTFLOW= .6925E+04 BASIN STORAGE= .2305E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .64

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD10 | MANE | .45 | 22481.97 | 485.93 | .55 | 5.00 | 22477.32 | 490.00 | .55 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6748E+04 EXCESS= .0000E+00 OUTFLOW= .6726E+04 BASIN STORAGE= .2360E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .63

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD10 | MANE | .48 | 21901.27 | 490.02 | .54 | 5.00 | 21901.27 | 490.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6551E+04 EXCESS= .0000E+00 OUTFLOW= .6528E+04 BASIN STORAGE= .2267E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .58

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD10 | MANE | .46 | 19040.21 | 490.57 | .46 | 5.00 | 19037.83 | 490.00 | .46 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5584E+04 EXCESS= .0000E+00 OUTFLOW= .5563E+04 BASIN STORAGE= .2179E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .67

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | .59 | 24234.45 | 486.40 | .60 | 5.00 | 24228.04 | 485.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7400E+04 EXCESS= .0000E+00 OUTFLOW= .7379E+04 BASIN STORAGE= .2727E+02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .65

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | .50 | 23060.73 | 486.12 | .56 | 5.00 | 23057.94 | 490.00 | .56 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6993E+04 EXCESS= .0000E+00 OUTFLOW= .6970E+04 BASIN STORAGE= .2659E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .64

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | .60 | 22477.44 | 489.96 | .55 | 5.00 | 22477.43 | 490.00 | .55 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6792E+04 EXCESS= .0000E+00 OUTFLOW= .6764E+04 BASIN STORAGE= .2621E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .63

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | .45 | 21901.19 | 490.54 | .53 | 5.00 | 21900.34 | 490.00 | .53 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6592E+04 EXCESS= .0000E+00 OUTFLOW= .6569E+04 BASIN STORAGE= .2583E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .58

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | .54 | 19037.47 | 491.16 | .45 | 5.00 | 19032.12 | 490.00 | .45 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5613E+04 EXCESS= .0000E+00 OUTFLOW= .5592E+04 BASIN STORAGE= .2366E+02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .67

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | .44 | 24227.82 | 485.87 | .59 | 5.00 | 24223.85 | 490.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7370E+04 EXCESS= .0000E+00 OUTFLOW= .7342E+04 BASIN STORAGE= .2602E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .65

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | .49 | 23057.03 | 490.21 | .56 | 5.00 | 23056.78 | 490.00 | .56 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6964E+04 EXCESS= .0000E+00 OUTFLOW= .6942E+04 BASIN STORAGE= .2654E+02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .64

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | .41 | 22476.79 | 490.61 | .54 | 5.00 | 22475.43 | 490.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6764E+04 EXCESS= .0000E+00 OUTFLOW= .6740E+04 BASIN STORAGE= .2507E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .63

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | .55 | 21898.60 | 490.42 | .53 | 5.00 | 21897.32 | 490.00 | .53 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6564E+04 EXCESS= .0000E+00 OUTFLOW= .6540E+04 BASIN STORAGE= .2459E+02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .58

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RD12 | MANE | .44 | 19032.01 | 490.89 | .45 | 5.00 | 19025.57 | 495.00 | .45 |

NTINUITY SUMMARY (AC-FT) - INFLOW= .5587E+04 EXCESS= .0000E+00 OUTFLOW= .5569E+04 BASIN STORAGE= .2256E+02 PERCENT ERROR= -.1

*** NORMAL END OF HEC-1 ***

# CLOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND DB

RECEIVED
00 FEB 24 PM 4:06

# CLOMR FOR
# AREA DOWNSTREAM OF
# UPPER BLUE DIAMOND DETENTION BASIN
# BASED ON POST DETENTION BASIN FLOWS

**Prepared for:**
**Clark County Regional Flood Control District**
600 S. Grand Central Parkway
Las Vegas, NV 89121

**Prepared by:**
**PBS&J**
901 North Green Valley Parkway Suite #100
Henderson, Nevada 89014

Reference Number 511186

February 23, 2000

PBS&J

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

March 23, 2001

Office of the Chief
Design Branch

Mr. Gale Fraser, II., P.E.
General Manager/Chief Engineer
Clark County Regional Flood Control District
600 South Grand Central Parkway, Suite 300
Las Vegas, Nevada 89106-4511

Dear Mr. Fraser:

On March 21, 2001, two copies of the as-built drawings for Blue Diamond Detention Basin were hand-carried to Mr. Steve Roberts of your office. This letter is to formalize that transmittal and to advise you that the structure was built in substantial conformance to the design drawings and specifications.

If you have any questions on these drawings, or the Blue Diamond Detention Basin, please feel free to contact Mr. Tom Sage, Chief of our Design Branch, at (213) 452-3707.

Sincerely,

Robert E. Koplin, P.E.
Chief, Engineering Division

CCRFCD
2001 MAR 26 PM 1:26

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             SEPTEMBER 1990            *
*              VERSION 4.0              *
*                                       *
*  RUN DATE  01/16/2001  TIME  11:07:45 *
*                                       *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL  LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
   1          ID       File: BD.DAT
   2          ID
   3          ID   Post, Buckley, Schuh & Jernigan, Inc.
   4          ID
   5          ID    EXISTING DRAINAGE CONDITIONS RUN
   6          ID
   7          ID   ********************************
   8          ID   ********************************
   9          ID   *                              *
  10          ID   *           'CLOMR             *
  11          ID   *                              *
  12          ID   *                              *
  13          ID   *           02/19/00           *
  14          ID   *                              *
  15          ID   *   FILE : BD.DAT              *
  16          ID   *                              *
  17          ID   *                              *
  18          ID   *                              *
  19          ID   *                              *
  20          ID   *          EXISTING            *
  21          ID   *                              *
  22          ID   *        CONDITIONS            *
  23          ID   ********************************
  24          ID   ********************************
  25          ID
  26          ID   THIS ANALYSIS IS TO SIMULATE A 55%/45% FLOW SPLIT
  27          ID
              *DIAGRAM
  28          IT       5       0       0     300
  29          IO       5       0       0
  30          IN       5       0       0
  31          JR    PREC    1.00    0.98    0.57
              *
  32          ID   * BLUE DIAMOND DETENTION BASINS REFRENCED FROM MPU BASIN DELINEATION BY COE
  33          ID   ********************************************************************************
  34          ID    BLUE DIAMOND DETENTION BASIN DESIGN.....................FILE = BDDB.LA1
  35          ID    SOURCE OF FILE= NEWBDDB1.LA1.....................................
  36          ID    ================================================================
  37          ID    MODEL CREATED TO DUPLICATE THE BLUE DIAMOND DETENTION BASIN DESIGN
  38          ID    AS OF JAN 31 1996.
  39          ID    FILE NEWBDDB1.LA1 DATED 6-23-96 WAS USED, AND RAINFALL & PATTERN ADJUSTED
  40          ID    RAIN = 1.76 (CURVE) X 1.26 (TF) = 2.22 IN.  AS STATED IN TROP. DM DRAFT
  41          ID    PATTERN # = 4.95     DA =68.25    DARF =
  42          ID                            JLF  2/1/96
  43          ID                     ****************************************
  44          ID    (A REVISED EL-VOL-STO IS COMING SOON.  THIS DOES NOT INCLUDE IT)
  45          ID    ELEVATIONS ARE NGVD
  46          ID                     ****************************************
  47          ID    COMMENTS BELOW THIS POINT WERE IN FILE NEWBDDB1.LA1 AND THEREFORE
  48          ID    RAIN, DARF & PATTERNS BELOW THIS POINT ARE NOT APPLICABLE TO THIS FILE
  49          ID    ================================================================
  50          ID
  51          ID    REVISED TO ESTIMATE RUNOFF FROM 0.6 SQ.MI. AREA CONTRIBUTING TO A CP AT
  52          ID    BLUE DIAMOND ROAD, JUST U/S OF BLUE DIAMOND DB.
  53          ID
```



```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
  54          ID    DEPTH-AREA AND PATTERN FOR AREA ABOVE BLUE DIAMOND DB.
  55          ID    DA = 68.25 MI2.  DARF = . PATTERN # = 4.9.
  56          ID    RAIN =  1.75 (CURVE) X  1.26 (TF) =  2.20 IN.
  57          ID
  58          ID                                  HN 6/22/95
  59          ID   ================================================================
  60          ID
```

```
61          KK     71
62          KM   RUNOFF FROM SCS SUBAREA 71
63          BA     6.9
64          KM   LAS VEGAS STANDARD PROJECT SUMMER THUNDERSTORM
65          PB    2.22
66          PI    .533   1.039    .559    .786    .891    .165    .261    .204    .077    .232
67          PI    .055    .131    .081    .185    .139    .212    .264    .268    .293    .237
68          PI    .233    .157    .386    .270    .268    .140    .109    .029    .188    .105
69          PI    .157    .174    .344    .388    .514    .718    .589   1.256   1.023   1.255
70          PI   1.842   2.158    .282    .302    .574    .710    .293    .135    .233    .161
71          PI    .258    .168    .373    .514    .789    .554    .735    .741    .108    .108
72          PI    .132    .053    .053    .053    .105    .025    .053    .027    .080    .025
73          PI    .053    .027
74          LU      0    0.50       0
75          UD    0.42

76          KK     71R
77          KM   ROUTE 71 THRU 501
78          RM       5    0.39    0.15

79          KK     501
80          KM   RUNOFF FROM SCS SUBAREA 501
81          BA   11.28
82          KM   LAS VEGAS STANDARD PROJECT SUMMER THUNDERSTORM
83          PB    2.22
84          PI    .533   1.039    .559    .786    .891    .165    .261    .204    .077    .232
85          PI    .055    .131    .081    .185    .139    .212    .264    .268    .293    .237
86          PI    .233    .157    .386    .270    .268    .140    .109    .029    .188    .105
87          PI    .157    .174    .344    .388    .514    .718    .589   1.256   1.023   1.255
88          PI   1.842   2.158    .282    .302    .574    .710    .293    .135    .233    .161
89          PI    .258    .168    .373    .514    .789    .554    .735    .741    .108    .108
90          PI    .132    .053    .053    .053    .105    .025    .053    .027    .080    .025
91          PI    .053    .027
92          LU      0    0.50       0
93          UD    0.45

94          KK     501C
95          KM   COMBINE 71 AND 501
96          HC       2

97          KK     501R
98          KM   ROUTE 501C THRU 502
99          RM       5    0.40    0.15
```



```
LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

100         KK     502
101         KM   RUNOFF FROM SCS SUBAREA 502
102         KM   DRAINAGE AREA CORRECTED BY JP 2/21/92
103         BA   27.40
104         KM   LAS VEGAS STANDARD PROJECT SUMMER THUNDERSTORM
105         PB    2.22
106         PI    .533   1.039    .559    .786    .891    .165    .261    .204    .077    .232
107         PI    .055    .131    .081    .185    .139    .212    .264    .268    .293    .237
108         PI    .233    .157    .386    .270    .268    .140    .109    .029    .188    .105
109         PI    .157    .174    .344    .388    .514    .718    .589   1.256   1.023   1.255
110         PI   1.842   2.158    .282    .302    .574    .710    .293    .135    .233    .161
111         PI    .258    .168    .373    .514    .789    .554    .735    .741    .108    .108
112         PI    .132    .053    .053    .053    .105    .025    .053    .027    .080    .025
113         PI    .053    .027
114         LU      0    0.50       0
115         UD    0.95

116         KK     502C
117         KM   COMBINE 501R AND 502
118         HC       2

119         KK     72
120         KM   RUNOFF FROM SCS SUBAREA 72
121         BA    6.58
122         KM   LAS VEGAS STANDARD PROJECT SUMMER THUNDERSTORM
123         PB    2.22
124         PI    .533   1.039    .559    .786    .891    .165    .261    .204    .077    .232
125         PI    .055    .131    .081    .185    .139    .212    .264    .268    .293    .237
126         PI    .233    .157    .386    .270    .268    .140    .109    .029    .188    .105
127         PI    .157    .174    .344    .388    .514    .718    .589   1.256   1.023   1.255
128         PI   1.842   2.158    .282    .302    .574    .710    .293    .135    .233    .161
129         PI    .258    .168    .373    .514    .789    .554    .735    .741    .108    .108
130         PI    .132    .053    .053    .053    .105    .025    .053    .027    .080    .025
131         PI    .053    .027
132         LU      0    0.50       0
133         UD    0.46

134         KK     502CC
135         KM   COMBINE 72 AND 502C
136         HC       2

137         KK     502R
138         KM   ROUTE 502CC THRU 503
139         RM       4    0.36    0.15

140         KK     73
141         KM   RUNOFF FROM SCS SUBAREA 73
142         BA    4.02
143         KM   LAS VEGAS STANDARD PROJECT SUMMER THUNDERSTORM
144         PB    2.22
145         PI    .533   1.039    .559    .786    .891    .165    .261    .204    .077    .232
146         PI    .055    .131    .081    .185    .139    .212    .264    .268    .293    .237
147         PI    .233    .157    .386    .270    .268    .140    .109    .029    .188    .105
148         PI    .157    .174    .344    .388    .514    .718    .589   1.256   1.023   1.255
```



```
LINE        ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
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```
149          PI   1.842   2.158    .282    .302    .574    .710    .293    .135    .233    .161
150          PI    .258    .168    .373    .514    .789    .554    .735    .741    .108    .108
151          PI    .132    .053    .053    .053    .105    .025    .053    .027    .080    .025
152          PI    .053    .027
153          LU       0    0.50       0
154          UD    0.47

155          KK     73R
156          KM    ROUTE 73 THRU 503
157          RM        4    0.36    0.15

158          KK     503
159          KM    RUNOFF FROM SCS SUBAREA 503
160          BA     5.54
161          KM    LAS VEGAS STANDARD PROJECT SUMMER THUNDERSTORM
162          PB     2.22
163          PI    .533   1.039    .559    .786    .891    .165    .261    .204    .077    .232
164          PI    .055    .131    .081    .185    .139    .212    .264    .268    .293    .237
165          PI    .233    .157    .386    .270    .268    .140    .109    .029    .188    .105
166          PI    .157    .174    .344    .388    .514    .718    .589   1.256   1.023   1.255
167          PI   1.842   2.158    .282    .302    .574    .710    .293    .135    .233    .161
168          PI    .258    .168    .373    .514    .789    .554    .735    .741    .108    .108
169          PI    .132    .053    .053    .053    .105    .025    .053    .027    .080    .025
170          PI    .053    .027
171          LU       0    0.50       0
172          UD    0.94

173          KK     503C
174          KM    COMBINE 502R, 73, AND 503
175          HC        3

176          KK     503R
177          KM    ROUTE 503 THRU 504
178          RM        4    0.36    0.15

179          KK     504
180          KM    RUNOFF FROM SCS SUBAREA 504
181          BA     6.53
182          KM    LAS VEGAS STANDARD PROJECT SUMMER THUNDERSTORM
183          PB     2.22
184          PI    .533   1.039    .559    .786    .891    .165    .261    .204    .077    .232
185          PI    .055    .131    .081    .185    .139    .212    .264    .268    .293    .237
186          PI    .233    .157    .386    .270    .268    .140    .109    .029    .188    .105
187          PI    .157    .174    .344    .388    .514    .718    .589   1.256   1.023   1.255
188          PI   1.842   2.158    .282    .302    .574    .710    .293    .135    .233    .161
189          PI    .258    .168    .373    .514    .789    .554    .735    .741    .108    .108
190          PI    .132    .053    .053    .053    .105    .025    .053    .027    .080    .025
191          PI    .053    .027
192          LU       0    0.50       0
193          UD    0.91
1                                        HEC-1 INPUT                                        PAGE  5

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

194          KK     INBD
195          KM    COMBINE 503R AND 504 - FLOW ABOVE BLUE DIAMOND
196          KM    CHANNEL CAPACITY = 12300 CFS
197          HC        2
             * =======

198          KK       BD
199          KM    BLUE DIAMOND DETENTION BASIN
200          KM    100YR COMPUTED PROBABILITY DETENTION DESIGN ... ON-LINE
201          KM    BROAD-CRESTED WEIR SPILLWAY - 1000 FT LONG
202          KM    30" DIA OUTLET
203          KM    SPILLWAY CREST = 2915 FT NGVD
204          KM    TOP OF DAM = 2930 FT NGVD
205          RS        1    STOR      -1
206          SV        0     1.6    12.8    37.2    79.3   150.8   264.7   433.2   668.8   973.4
207          SV   1340.8  1775.1  2281.8  2398.2  2514.5  2630.9  2747.2  2863.6  3444.8  4026.3
208          SQ        0      38      74      97     116     132     147     160     172     183
209          SQ      194     204     214    3716   10117   18406   28221   39354  110911  203572
210          SE     2857    2860    2865    2870    2875    2880    2885    2890    2895    2900
211          SE     2905    2910    2915    2916    2917    2918    2919    2920    2925    2930
             * =======
             *    END      OF -    COE  BASINS   BEGIN   CLOMR  BASINS

212          KK    OFFSITE BASIN
213          KM    EXISTING OFFSITE BASIN
214          BA   0.5953
215          PB     2.77
216          LS        0      88
217          UD    0.307
             *

218          KK    COMB-1
219          KM    COMBINED BD AND OFFSITE BASIN
220          HC        2
             *

221          KK    R0
222          KM    ROUTE BD THROUGH BASIN-40
223          RK    11200    0.014   0.030       0    TRAP     100
             *

224          KK    BASIN-40
225          KM    EXISTING BASIN BASIN-40
226          BA   0.8775
227          PB     2.77
228          PC     .000    .020    .057    .070    .087    .108    .124    .130    .130    .130
229          PC     .130    .130    .130    .133    .140    .142    .148    .158    .172    .181
230          PC     .190    .197    .199    .200    .201    .204    .214    .229    .241    .249
231          PC     .251    .256    .270    .278    .281    .283    .295    .322    .352    .409
```

```
232          PC    .499    .590    .710    .744    .781    .812    .819    .835    .851    .856
233          PC    .860    .868    .876    .888    .910    .926    .937    .950    .970    .976
234          PC    .982    .985    .987    .989    .990    .993    .993    .994    .995    .998
235          PC    .998    .999   1.00
236          LS      0      84
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

237          UD   0.451
             *

238          KK   C-0
239          KM   COMBINED R0 AND BASIN-40
240          HC      2
             *

241          KK   SPLIT1
242          KM   45% FLOW DIVERTED FROM BASIN 38 TO BASIN 34
243          DT  SPLIT1
244          DI      0     288     577    1153
245          DQ      0     131     262     523
             *

246          KK   BASIN-38
247          KM   EXISTING BASIN-38
248          BA  0.1326
249          PB   2.77
250          LS      0      73
251          UD   0.472
             *

252          KK   BASIN-36
253          KM   EXISTING BASIN-36
254          BA  0.0585
255          PB   2.77
256          LS      0      88
257          UD   0.294
             *

258          KK   C-1A
259          KM   COMBINED BASIN-36 AND BASIN-38
260          HC      2
             *

261          KK   C-1
262          KM   COMBINED C-1A AND C-0
263          HC      2
             *

264          KK   R2
265          KM   ROUTE C-1 THROUGH BASIN-26
266          RK    6100   0.017   0.030       0    TRAP     100
             *

267          KK   BASIN-26
268          KM   EXISTING BASIN-26
269          BA  0.1432
270          PB   2.77
271          LS      0      66
272          UD   0.589
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

273          KK   C-2
274          KM   COMBINED R2 AND BASIN-26
275          HC      2
             *

276          KK   R3
277          KM   ROUTE C-2 THROUGH BASIN-17
278          RK    6400   0.017   0.030       0    TRAP     100
             *

279          KK   BASIN-17
280          KM   EXISTING BASIN-17
281          BA  0.2861
282          PB   2.77
283          LS      0      66
284          UD   0.602
             *

285          KK   C-3
286          KM   COMBINED R3 AND BASIN-17
287          HC      2
             *

288          KK   R4
289          KM   ROUTE C-3 THROUGH BASIN-13
290          RK    6400   0.015   0.030       0    TRAP     100
             *

291          KK   BASIN-13
292          KM   EXISTING BASIN-13
293          BA  0.2241
294          PB   2.77
295          LS      0      73
296          UD   0.533
             *

297          KK   C-27
298          KM   COMBINED R4 AND BASIN-13
```

```
299          HC       2
             *

300          KK   BASIN-28
301          KM   EXISTING BASIN-28
302          BA  0.0648
303          PB    2.77
304          LS       0      63
305          UD   0.527
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

306          KK   R7
307          KM   ROUTE BASIN-28 THROUGH BASIN-19
308          RK    5900    0.017    0.030        0    TRAP      100
             *

309          KK   BASIN-19
310          KM   EXISTING BASIN-19
311          BA  0.1372
312          PB    2.77
313          LS       0      63
314          UD   0.640
             *

315          KK   C-7
316          KM   COMBINED R7 AND BASIN-19
317          HC       2
             *

318          KK   R8
319          KM   ROUTE C-7 THROUGH BASIN-3
320          RK    4200    0.016    0.030        0    TRAP      100
             *

321          KK   BASIN-3
322          KM   EXISTING BASIN-3
323          BA  0.1105
324          PB    2.77
325          LS       0      63
326          UD   0.595
             *

327          KK   C-8
328          KM   COMBINED R8 AND BASIN-3
329          HC       2
             *

330          KK   BASIN-27
331          KM   EXISTING BASIN-27
332          BA  0.1462
333          PB    2.77
334          LS       0      63
335          UD   0.795
             *

336          KK   R9
337          KM   ROUTE BASIN 27 THROUGH BASIN-18
338          RK    5900    0.017    0.030        0    TRAP      100
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

339          KK   BASIN-18
340          KM   EXISTING BASIN-18
341          BA  0.1838
342          PB    2.77
343          LS       0      63
344          UD   0.683
             *

345          KK   C-9
346          KM   COMBINED R9 AND BASIN-18
347          HC       2
             *

348          KK   R10
349          KM   ROUTE C-9 THROUGH BASIN-2
350          RK    2000    0.016    0.030        0    TRAP      100
             *

351          KK   BASIN-2
352          KM   EXISTING BASIN-2
353          BA  0.0872
354          PB    2.77
355          LS       0      63
356          UD   0.479
             *

357          KK   C-10
358          KM   COMBINED R10 AND BASIN-2
359          HC       2
             *

360          KK   C-29
361          KM   COMBINED C-10 AND C-8
362          HC       2
             *

363          KK   R18
```

```
364          KM   ROUTE C-27 THROUGH BASIN-22
365          RK    4200   0.015   0.030       0    TRAP     100
             *

366          KK   BASIN-22
367          KM   EXISTING BASIN-22
368          BA  0.2131
369          PB    2.77
370          LS       0      69
371          UD   0.489
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

372          KK   C-18
373          KM   COMBINED R18 AND BASIN-22
374          HC       2
             *

375          KK   BASIN-37
376          KM   EXISTING BASIN-37
377          BA  0.1229
378          PB    2.77
379          LS       0      83
380          UD   0.396
             *

381          KK   R22
382          KM   ROUTE BASIN 37 THROUGH BASIN-25
383          RK    6100   0.017   0.030       0    TRAP     100
             *

384          KK   BASIN-25
385          KM   EXISTING BASIN-25
386          BA  0.1428
387          PB    2.77
388          LS       0      83
389          UD   0.373
             *

390          KK   C-22
391          KM   COMBINED R22 AND BASIN-25
392          HC       2
             *

393          KK   R23
394          KM   ROUTE C-22 THROUGH BASIN-15
395          RK    4900   0.017   0.030       0    TRAP     100
             *

396          KK   BASIN-15
397          KM   EXISTING BASIN-15
398          BA  0.0883
399          PB    2.77
400          LS       0      78
401          UD   0.406
             *

402          KK   C-23
403          KM   COMBINED R23 AND BASIN-15
404          HC       2
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

405          KK   R28
406          KM   ROUTE C-23 THROUGH BASIN-1
407          RK    7900   0.014   0.030       0    TRAP     100
             *

408          KK   BASIN-1
409          KM   EXISTING BASIN-1
410          BA  0.2419
411          PB    2.77
412          LS       0      83
413          UD   0.444
             *

414          KK   C-28
415          KM   COMBINED R28 AND BASIN-1
416          HC       2
             *

417          KK   C-25
418          KM   COMBINED C-28, C-18, C-27
419          HC       3
             *

420          KK   R33
421          KM   ROUTE C-25 THROUGH BASIN-33
422          RK    2500   0.015   0.030       0    TRAP     100
             *

423          KK   BASIN-33
424          KM   EXISTING BASIN-33
425          BA  0.0954
426          PB    2.77
427          LS       0      82
428          UD   0.310
             *
```

```
429          KK   C-33
430          KM   COMBINED C-25 AND BASIN-33
431          HC       2
             *

432          KK   BASIN-29
433          KM   EXISTING BASIN-29
434          BA  0.0422
435          PB    2.77
436          LS       0      63
437          UD   0.533
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

438          KK   R14
439          KM   ROUTE BASIN 29 THROUGH BASIN-20
440          RK    6100   0.018   0.030       0    TRAP     100
             *

441          KK   BASIN-20
442          KM   EXISTING BASIN-20
443          BA  0.0812
444          PB    2.77
445          LS       0      63
446          UD   0.675
             *

447          KK   C-14
448          KM   COMBINED R14 AND BASIN-20
449          HC       2
             *

450          KK   R15
451          KM   ROUTE C-14 THROUGH BASIN-4
452          RK    6000   0.016   0.030       0    TRAP     100
             *

453          KK   BASIN-4
454          KM   EXISTING BASIN-4
455          BA  0.1402
456          PB    2.77
457          LS       0      63
458          UD   0.600
             *

459          KK   C-15
460          KM   COMBINED R15 AND BASIN-4
461          HC       2
             *

462          KK   R19
463          KM   ROUTE C-15 THROUGH BASIN-30
464          RK    4300   0.012   0.030       0    TRAP     100
             *

465          KK   BASIN-30
466          KM   EXISTING BASIN-30
467          BA  0.2100
468          PB    2.77
469          LS       0      74
470          UD   0.448
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

471          KK   C-19
472          KM   COMBINED R19 AND BASIN-30
473          HC       2
             *

474          KK   C-34
475          KM   COMBINED C-19 AND C-34
476          HC       2
             *

477          KK   BASIN-24
478          KM   EXISTING BASIN-24
479          BA  0.0875
480          PB    2.77
481          LS       0      63
482          UD   0.713
             *

483          KK   R11
484          KM   ROUTE BASIN 33 THROUGH BASIN-11
485          RK    7850   0.016   0.030       0    TRAP     100
             *

486          KK   BASIN-11
487          KM   EXISTING BASIN-11
488          BA  0.2885
489          PB    2.77
490          LS       0      63
491          UD   0.729
             *

492          KK   C-11
493          KM   COMBINED R11 AND BASIN-11
494          KO       1       2
495          HC       2
```

```
                *
          496   KK   BASIN-21
          497   KM   EXISTING BASIN-21
          498   BA  0.3303
          499   PB    2.77
          500   LS       0      63
          501   UD   0.687
                *

          502   KK   R12
          503   KM   ROUTE BASIN 21 THROUGH BASIN-6
          504   RK    5500   0.017   0.030       0    TRAP     100
                *
1                                        HEC-1 INPUT                                                    PAGE 14

        LINE    ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

          505   KK   BASIN-6
          506   KM   EXISTING BASIN-6
          507   BA  0.4666
          508   PB    2.77
          509   LS       0      63
          510   UD   0.564
                *

          511   KK   C-12
          512   KM   COMBINED R12 AND BASIN-6
          513   HC       2
                *

          514   KK   R13
          515   KM   ROUTE C-12 THROUGH BASIN-5
          516   RK    5700   0.016   0.030       0    TRAP     100
                *

          517   KK   BASIN-5
          518   KM   EXISTING BASIN-5
          519   BA  0.5443
          520   PB    2.77
          521   LS       0      65
          522   UD   0.537
                *

          523   KK   C-13
          524   KM   COMBINED R13 AND BASIN-5
          525   HC       2
                *

          526   KK   BASIN-32
          527   KM   EXISTING BASIN-32
          528   BA  0.0378
          529   PB    2.77
          530   LS       0      63
          531   UD   0.489
                *

          532   KK   R16
          533   KM   ROUTE BASIN 32 THROUGH BASIN-23
          534   RK    5350   0.017   0.030       0    TRAP     100
                *

          535   KK   BASIN-23
          536   KM   EXISTING BASIN-23
          537   BA  0.1472
          538   PB    2.77
          539   LS       0      63
          540   UD   0.612
                *
1                                        HEC-1 INPUT                                                    PAGE 15

        LINE    ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

          541   KK   C-16
          542   KM   COMBINED R16 AND BASIN-23
          543   HC       2
                *

          544   KK   R17
          545   KM   ROUTE C-16 THROUGH BASIN-7
          546   RK    4400   0.016   0.030       0    TRAP     100
                *

          547   KK   BASIN-7
          548   KM   EXISTING BASIN-7
          549   BA  0.1380
          550   PB    2.77
          551   LS       0      63
          552   UD   0.584
                *

          553   KK   C-17
          554   KM   COMBINED R17 AND BASIN-7
          555   HC       2
                *

          556   KK   BASIN-10
          557   KM   EXISTING BASIN-10
          558   BA  0.1594
          559   PB    2.77
          560   LS       0      63
          561   UD   0.801
                *
```

```
          562          KK   BASIN-8
          563          KM   EXISTING BASIN-8
          564          BA  0.0536
          565          PB    2.77
          566          LS       0       63
          567          UD   0.569
                       *

          568          KK   BASIN-9
          569          KM   EXISTING BASIN-9
          570          BA  0.0490
          571          PB    2.77
          572          LS       0       63
          573          UD   0.527
                       *

          574          KK   C-26
          575          KM   COMBINED C-11, C-13, C-17, C-19, BASINS 8, 9, 10
          576          HC       7
                       *
1                                                HEC-1 INPUT                                                PAGE 16

        LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          577          KK   BASIN-34
          578          KM   EXISTING BASIN-34
          579          BA  0.1932
          580          PB    2.77
          581          LS       0       69
          582          UD   0.654
                       *

          583          KK   SPLIT1
          584          KM   RETREIVE FLOW SPLIT FROM BASIN 38
          585          DR  SPLIT1
                       *

          586          KK   BASIN-35
          587          KM   EXISTING BASIN-35
          588          BA  0.1091
          589          PB    2.77
          590          LS       0       78
          591          UD   0.657
                       *

          592          KK   C-1B
          593          KM   COMBINED SPLIT1, BASIN-35, AND BASIN-34
          594          HC       3
                       *

          595          KK   R5
          596          KM   ROUTE C-1B THROUGH BASIN-12
          597          RK    7100   0.018   0.030       0    TRAP     100
                       *

          598          KK   BASIN-12
          599          KM   EXISTING BASIN-12
          600          BA  0.3271
          601          PB    2.77
          602          LS       0       64
          603          UD   0.646
                       *

          604          KK   C-5
          605          KM   COMBINED R5 AND BASIN-12
          606          KO       1       2
          607          HC       2
                       *

          608          KK   BASIN-14
          609          KM   EXISTING BASIN-14
          610          BA  0.2730
          611          PB    2.77
          612          LS       0       88
          613          UD   0.578
                       *
1                                                HEC-1 INPUT                                                PAGE 17

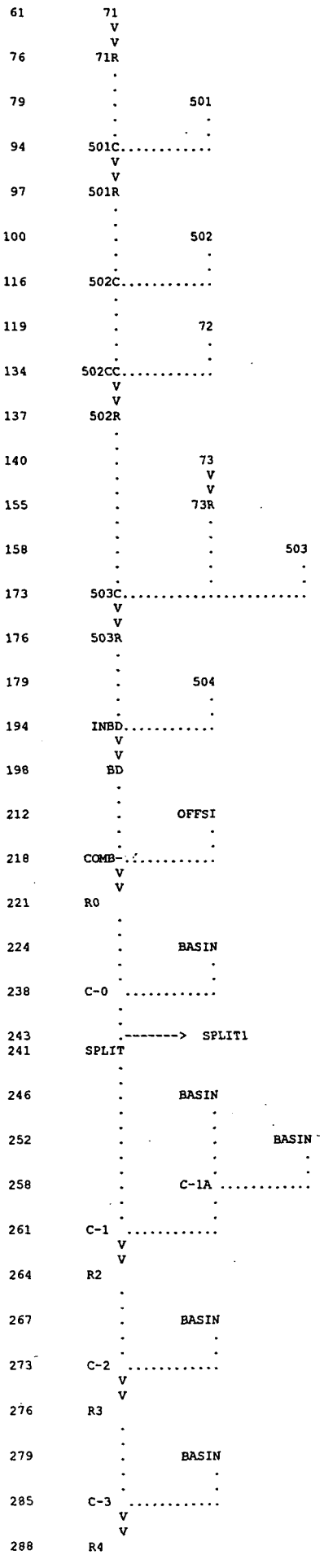
        LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

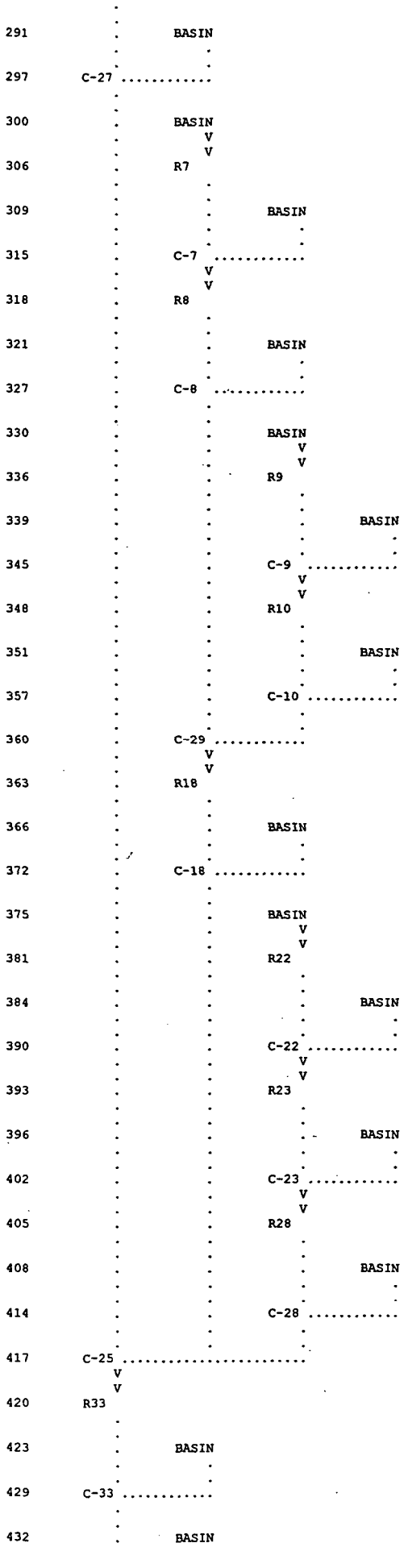
          614          KK   BASIN-16
          615          KM   EXISTING BASIN-16
          616          BA  0.2562
          617          PB    2.77
          618          LS       0       88
          619          UD   0.542
                       *

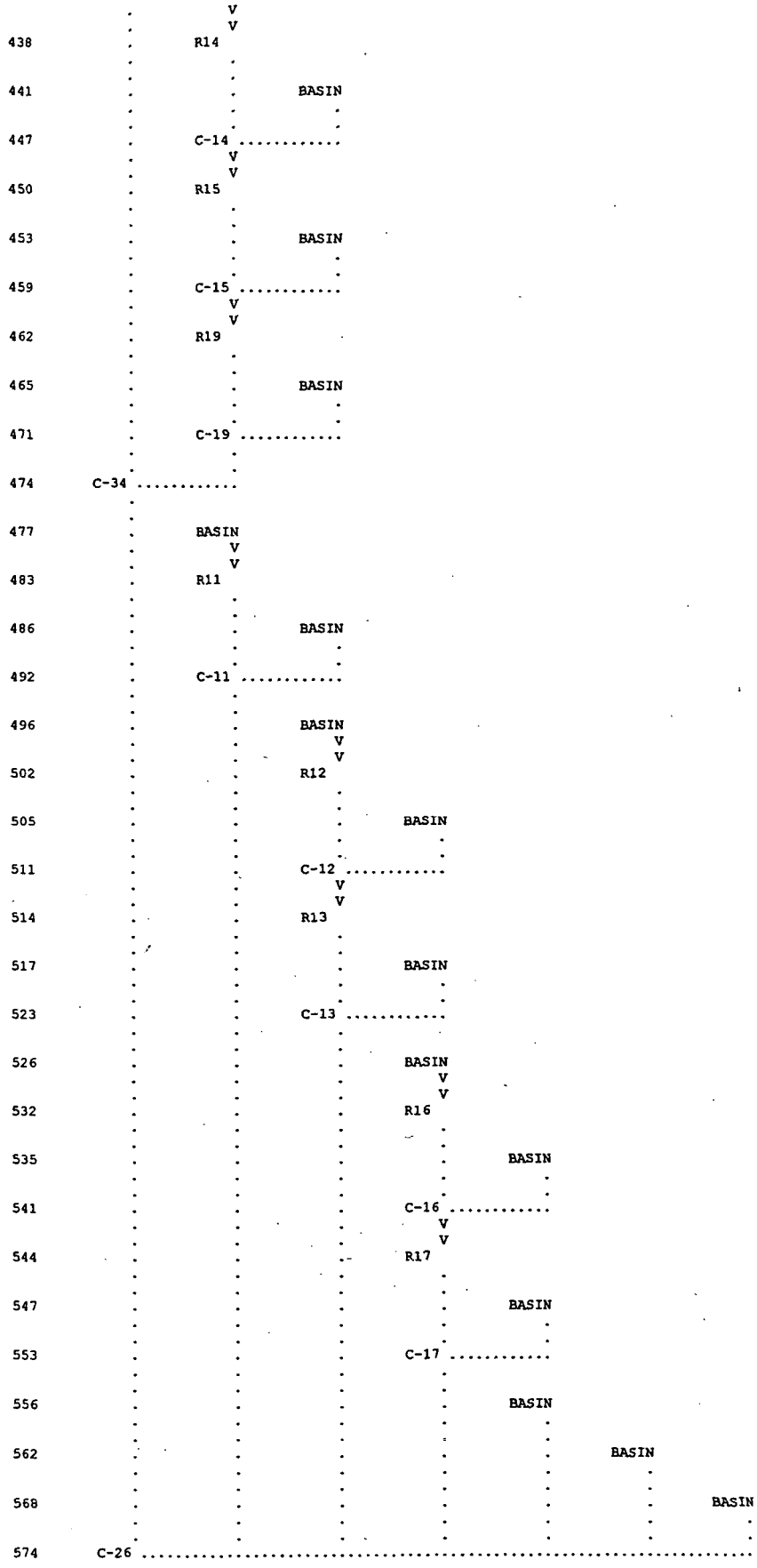
          620          KK   BASIN-31
          621          KM   EXISTING BASIN-31
          622          BA  0.1536
          623          PB    2.77
          624          LS       0       88
          625          UD   0.291
                       *
          626          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK

 INPUT
  LINE       (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

    NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW
```


61
71
76
71R
79
501
94
501C
97
501R
100
502
116
502C
119
72
134
502CC
137
502R
140
73
155
73R
158
503
173
503C
176
503R
179
504
194
INBD
198
BD
212
OFFSI
218
COMB
221
R0
224
BASIN
238
C-0
243
SPLIT1
241
SPLIT
246
BASIN
252
BASIN
258
C-1A
261
C-1
264
R2
267
BASIN
273
C-2
276
R3
279
BASIN
285
C-3
288
R4


291 BASIN
297 C-27
300 BASIN
306 R7
309 BASIN
315 C-7
318 R8
321 BASIN
327 C-8
330 BASIN
336 R9
339 BASIN
345 C-9
348 R10
351 BASIN
357 C-10
360 C-29
363 R18
366 BASIN
372 C-18
375 BASIN
381 R22
384 BASIN
390 C-22
393 R23
396 BASIN
402 C-23
405 R28
408 BASIN
414 C-28
417 C-25
420 R33
423 BASIN
429 C-33
432 BASIN


438 R14
441 BASIN
447 C-14
450 R15
453 BASIN
459 C-15
462 R19
465 BASIN
471 C-19
474 C-34
477 BASIN
483 R11
486 BASIN
492 C-11
496 BASIN
502 R12
505 BASIN
511 C-12
514 R13
517 BASIN
523 C-13
526 BASIN
532 R16
535 BASIN
541 C-16
544 R17
547 BASIN
553 C-17
556 BASIN
562 BASIN
568 BASIN
574 C-26
577 BASIN
585 SPLIT1
583 SPLIT

```
586          .          .          .      BASIN
             .          .          .        .
             .          .          .        .
592          .      C-1B ..........................
             .          V
             .          V
595          .      R5
             .          .
             .          .
598          .          .      BASIN
             .          .          .
             .          .          .
604          .      C-5  ............
             .          .
             .          .
608          .          .      BASIN
             .          .          .
             .          .          .
614          .          .          .      BASIN
             .          .          .        .
             .          .          .        .
620          .          .          .        .      BASIN
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             SEPTEMBER 1990            *
*              VERSION 4.0              *
*                                       *
*  RUN DATE  01/16/2001  TIME  11:07:45 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*        DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104              *
*                                       *
*****************************************
```

File: BD.DAT

Post, Buckley, Schuh & Jernigan, Inc.

EXISTING DRAINAGE CONDITIONS RUN

```
**********************************
**********************************
*                                *
*             CLOMR              *
*                                *
*                                *
*           02/19/00             *
*                                *
*   FILE : BD.DAT                *
*                                *
*                                *
*                                *
*                                *
*          EXISTING              *
*                                *
*         CONDITIONS             *
**********************************
**********************************
```

THIS ANALYSIS IS TO SIMULATE A 55%/45% FLOW SPLIT

```
29 IO          OUTPUT CONTROL VARIABLES
                    IPRNT         5  PRINT CONTROL
                    IPLOT         0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                  * BLUE DIAMOND DETENTION BASINS REFRENCED FROM MPU BASIN DELINEATION BY COE
                  ********************************************************************************
                   BLUE DIAMOND DETENTION BASIN DESIGN.....................FILE = BDDB.LA1
                   SOURCE OF FILE= NEWBDDB1.LA1.....................................
                   ================================================================================
                   MODEL CREATED TO DUPLICATE THE BLUE DIAMOND DETENTION BASIN DESIGN
                   AS OF JAN 31 1996.
                   FILE NEWBDDB1:LA1 DATED 6-23-96 WAS USED, AND RAINFALL & PATTERN ADJUSTED
                   RAIN = 1.76 (CURVE) X 1.26 (TF) = 2.22 IN.  AS STATED IN TROP. DM DRAFT
                   PATTERN # = 4.95     DA =68.25    DARF =
                                           JLF  2/1/96
                              ****************************************
                   (A REVISED EL-VOL-STO IS COMING SOON.  THIS DOES NOT INCLUDE IT)
                   ELEVATIONS ARE NGVD
                              ****************************************
                   COMMENTS BELOW THIS POINT WERE IN FILE NEWBDDB1.LA1 AND THEREFORE
                   RAIN, DARF & PATTERNS BELOW THIS POINT ARE NOT APPLICABLE TO THIS FILE
                   ================================================================================

                   REVISED TO ESTIMATE RUNOFF FROM 0.6 SQ.MI. AREA CONTRIBUTING TO A CP AT
                   BLUE DIAMOND ROAD, JUST U/S OF BLUE DIAMOND DB.

                   DEPTH-AREA AND PATTERN FOR AREA ABOVE BLUE DIAMOND DB.
                   DA = 68.25 MI2.  DARF = .  PATTERN # = 4.9.
                   RAIN =  1.75 (CURVE) X  1.26 (TF) =  2.20 IN.

                                                  HN 6/22/95
                  ================================================================================

IT             HYDROGRAPH TIME DATA
                    NMIN          5  MINUTES IN COMPUTATION INTERVAL
                   IDATE      1   0  STARTING DATE
                   ITIME       0000  STARTING TIME
                      NQ        300  NUMBER OF HYDROGRAPH ORDINATES
```

```
                NDDATE      2    0  ENDING DATE
                NDTIME           0055  ENDING TIME
                ICENT              19  CENTURY MARK

             COMPUTATION INTERVAL      .08 HOURS
                TOTAL TIME BASE    24.92 HOURS

      ENGLISH UNITS
           DRAINAGE AREA          SQUARE MILES
           PRECIPITATION DEPTH    INCHES
           LENGTH, ELEVATION      FEET
           FLOW                   CUBIC FEET PER SECOND
           STORAGE VOLUME         ACRE-FEET
           SURFACE AREA           ACRES
           TEMPERATURE            DEGREES FAHRENHEIT

JP         MULTI-PLAN OPTION
                NPLAN              1  NUMBER OF PLANS

JR         MULTI-RATIO OPTION
              RATIOS OF PRECIPITATION
             1.00       .98       .57

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
492 KK    *     C-11   *
          *            *
          **************

494 KO         OUTPUT CONTROL VARIABLES
                    IPRNT              1  PRINT CONTROL
                    IPLOT              2  PLOT CONTROL
                    QSCAL              0.  HYDROGRAPH PLOT SCALE

495 HC         HYDROGRAPH COMBINATION
                    ICOMP              2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

*****************************************************************************************************************************************

                                        HYDROGRAPH AT STATION    C-11
                                          SUM OF  2 HYDROGRAPHS
                                          PLAN 1,   RATIO =  1.00

*****************************************************************************************************************************************

 DA MON HRMN   ORD      FLOW      DA MON HRMN   ORD      FLOW      DA MON HRMN   ORD      FLOW      DA MON HRMN   ORD      FLOW
  1     0000     1        0.       1     0615    76       16.       1     1230   151        0.       1     1845   226        0.
  1     0005     2        0.       1     0620    77       15.       1     1235   152        0.       1     1850   227        0.
  1     0010     3        0.       1     0625    78       14.       1     1240   153        0.       1     1855   228        0.
  1     0015     4        0.       1     0630    79       13.       1     1245   154        0.       1     1900   229        0.
  1     0020     5        0.       1     0635    80       12.       1     1250   155        0.       1     1905   230        0.
  1     0025     6        0.       1     0640    81       11.       1     1255   156        0.       1     1910   231        0.
  1     0030     7        0.       1     0645    82       10.       1     1300   157        0.       1     1915   232        0.
  1     0035     8        0.       1     0650    83        9.       1     1305   158        0.       1     1920   233        0.
  1     0040     9        0.       1     0655    84        8.       1     1310   159        0.       1     1925   234        0.
  1     0045    10        0.       1     0700    85        8.       1     1315   160        0.       1     1930   235        0.
  1     0050    11        0.       1     0705    86        7.       1     1320   161        0.       1     1935   236        0.
  1     0055    12        0.       1     0710    87        6.       1     1325   162        0.       1     1940   237        0.
  1     0100    13        0.       1     0715    88        6.       1     1330   163        0.       1     1945   238        0.
  1     0105    14        0.       1     0720    89        5.       1     1335   164        0.       1     1950   239        0.
  1     0110    15        0.       1     0725    90        5.       1     1340   165        0.       1     1955   240        0.
  1     0115    16        0.       1     0730    91        4.       1     1345   166        0.       1     2000   241        0.
  1     0120    17        0.       1     0735    92        4.       1     1350   167        0.       1     2005   242        0.
  1     0125    18        0.       1     0740    93        4.       1     1355   168        0.       1     2010   243        0.
  1     0130    19        0.       1     0745    94        3.       1     1400   169        0.       1     2015   244        0.
  1     0135    20        0.       1     0750    95        3.       1     1405   170        0.       1     2020   245        0.
  1     0140    21        0.       1     0755    96        3.       1     1410   171        0.       1     2025   246        0.
  1     0145    22        0.       1     0800    97        3.       1     1415   172        0.       1     2030   247        0.
  1     0150    23        0.       1     0805    98        3.       1     1420   173        0.       1     2035   248        0.
  1     0155    24        0.       1     0810    99        2.       1     1425   174        0.       1     2040   249        0.
  1     0200    25        0.       1     0815   100        2.       1     1430   175        0.       1     2045   250        0.
  1     0205    26        0.       1     0820   101        2.       1     1435   176        0.       1     2050   251        0.
  1     0210    27        0.       1     0825   102        2.       1     1440   177        0.       1     2055   252        0.
  1     0215    28        0.       1     0830   103        2.       1     1445   178        0.       1     2100   253        0.
  1     0220    29        0.       1     0835   104        2.       1     1450   179        0.       1     2105   254        0.
  1     0225    30        0.       1     0840   105        2.       1     1455   180        0.       1     2110   255        0.
  1     0230    31        0.       1     0845   106        2.       1     1500   181        0.       1     2115   256        0.
  1     0235    32        0.       1     0850   107        1.       1     1505   182        0.       1     2120   257        0.
  1     0240    33        0.       1     0855   108        1.       1     1510   183        0.       1     2125   258        0.
  1     0245    34        0.       1     0900   109        1.       1     1515   184        0.       1     2130   259        0.
  1     0250    35        0.       1     0905   110        1.       1     1520   185        0.       1     2135   260        0.
  1     0255    36        0.       1     0910   111        1.       1     1525   186        0.       1     2140   261        0.
  1     0300    37        0.       1     0915   112        1.       1     1530   187        0.       1     2145   262        0.
  1     0305    38        0.       1     0920   113        1.       1     1535   188        0.       1     2150   263        0.
  1     0310    39        0.       1     0925   114        1.       1     1540   189        0.       1     2155   264        0.
  1     0315    40        0.       1     0930   115        1.       1     1545   190        0.       1     2200   265        0.
  1     0320    41        0.       1     0935   116        1.       1     1550   191        0.       1     2205   266        0.
  1     0325    42        0.       1     0940   117        1.       1     1555   192        0.       1     2210   267        0.
  1     0330    43        1.       1     0945   118        1.       1     1600   193        0.       1     2215   268        0.
  1     0335    44        3.       1     0950   119        1.       1     1605   194        0.       1     2220   269        0.
  1     0340    45        5.       1     0955   120        1.       1     1610   195        0.       1     2225   270        0.
  1     0345    46        9.       1     1000   121        1.       1     1615   196        0.       1     2230   271        0.
  1     0350    47       14.       1     1005   122        1.       1     1620   197        0.       1     2235   272        0.
  1     0355    48       19.       1     1010   123        1.       1     1625   198        0.       1     2240   273        0.
  1     0400    49       23.       1     1015   124        1.       1     1630   199        0.       1     2245   274        0.
  1     0405    50       27.       1     1020   125        1.       1     1635   200        0.       1     2250   275        0.
  1     0410    51       30.       1     1025   126        1.       1     1640   201        0.       1     2255   276        0.
```

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0415 | 52 | 32. | * | 1 | 1030 | 127 | 1. | * | 1 | 1645 | 202 | 0. | * | 1 | 2300 | 277 | 0. |
| 1 | 0420 | 53 | 33. | * | 1 | 1035 | 128 | 0. | * | 1 | 1650 | 203 | 0. | * | 1 | 2305 | 278 | 0. |
| 1 | 0425 | 54 | 33. | * | 1 | 1040 | 129 | 0. | * | 1 | 1655 | 204 | 0. | * | 1 | 2310 | 279 | 0. |
| 1 | 0430 | 55 | 32. | * | 1 | 1045 | 130 | 0. | * | 1 | 1700 | 205 | 0. | * | 1 | 2315 | 280 | 0. |
| 1 | 0435 | 56 | 31. | * | 1 | 1050 | 131 | 0. | * | 1 | 1705 | 206 | 0. | * | 1 | 2320 | 281 | 0. |
| 1 | 0440 | 57 | 29. | * | 1 | 1055 | 132 | 0. | * | 1 | 1710 | 207 | 0. | * | 1 | 2325 | 282 | 0. |
| 1 | 0445 | 58 | 28. | * | 1 | 1100 | 133 | 0. | * | 1 | 1715 | 208 | 0. | * | 1 | 2330 | 283 | 0. |
| 1 | 0450 | 59 | 27. | * | 1 | 1105 | 134 | 0. | * | 1 | 1720 | 209 | 0. | * | 1 | 2335 | 284 | 0. |
| 1 | 0455 | 60 | 27. | * | 1 | 1110 | 135 | 0. | * | 1 | 1725 | 210 | 0. | * | 1 | 2340 | 285 | 0. |
| 1 | 0500 | 61 | 27. | * | 1 | 1115 | 136 | 0. | * | 1 | 1730 | 211 | 0. | * | 1 | 2345 | 286 | 0. |
| 1 | 0505 | 62 | 27. | * | 1 | 1120 | 137 | 0. | * | 1 | 1735 | 212 | 0. | * | 1 | 2350 | 287 | 0. |
| 1 | 0510 | 63 | 32. | * | 1 | 1125 | 138 | 0. | * | 1 | 1740 | 213 | 0. | * | 1 | 2355 | 288 | 0. |
| 1 | 0515 | 64 | 36. | * | 1 | 1130 | 139 | 0. | * | 1 | 1745 | 214 | 0. | * | 2 | 0000 | 289 | 0. |
| 1 | 0520 | 65 | 36. | * | 1 | 1135 | 140 | 0. | * | 1 | 1750 | 215 | 0. | * | 2 | 0005 | 290 | 0. |
| 1 | 0525 | 66 | 35. | * | 1 | 1140 | 141 | 0. | * | 1 | 1755 | 216 | 0. | * | 2 | 0010 | 291 | 0. |
| 1 | 0530 | 67 | 33. | * | 1 | 1145 | 142 | 0. | * | 1 | 1800 | 217 | 0. | * | 2 | 0015 | 292 | 0. |
| 1 | 0535 | 68 | 31. | * | 1 | 1150 | 143 | 0. | * | 1 | 1805 | 218 | 0. | * | 2 | 0020 | 293 | 0. |
| 1 | 0540 | 69 | 29. | * | 1 | 1155 | 144 | 0. | * | 1 | 1810 | 219 | 0. | * | 2 | 0025 | 294 | 0. |
| 1 | 0545 | 70 | 26. | * | 1 | 1200 | 145 | 0. | * | 1 | 1815 | 220 | 0. | * | 2 | 0030 | 295 | 0. |
| 1 | 0550 | 71 | 24. | * | 1 | 1205 | 146 | 0. | * | 1 | 1820 | 221 | 0. | * | 2 | 0035 | 296 | 0. |
| 1 | 0555 | 72 | 22. | * | 1 | 1210 | 147 | 0. | * | 1 | 1825 | 222 | 0. | * | 2 | 0040 | 297 | 0. |
| 1 | 0600 | 73 | 20. | * | 1 | 1215 | 148 | 0. | * | 1 | 1830 | 223 | 0. | * | 2 | 0045 | 298 | 0. |
| 1 | 0605 | 74 | 19. | * | 1 | 1220 | 149 | 0. | * | 1 | 1835 | 224 | 0. | * | 2 | 0050 | 299 | 0. |
| 1 | 0610 | 75 | 17. | * | 1 | 1225 | 150 | 0. | * | 1 | 1840 | 225 | 0. | * | 2 | 0055 | 300 | 0. |
| | | | | * | | | | | * | | | | | * | | | | |

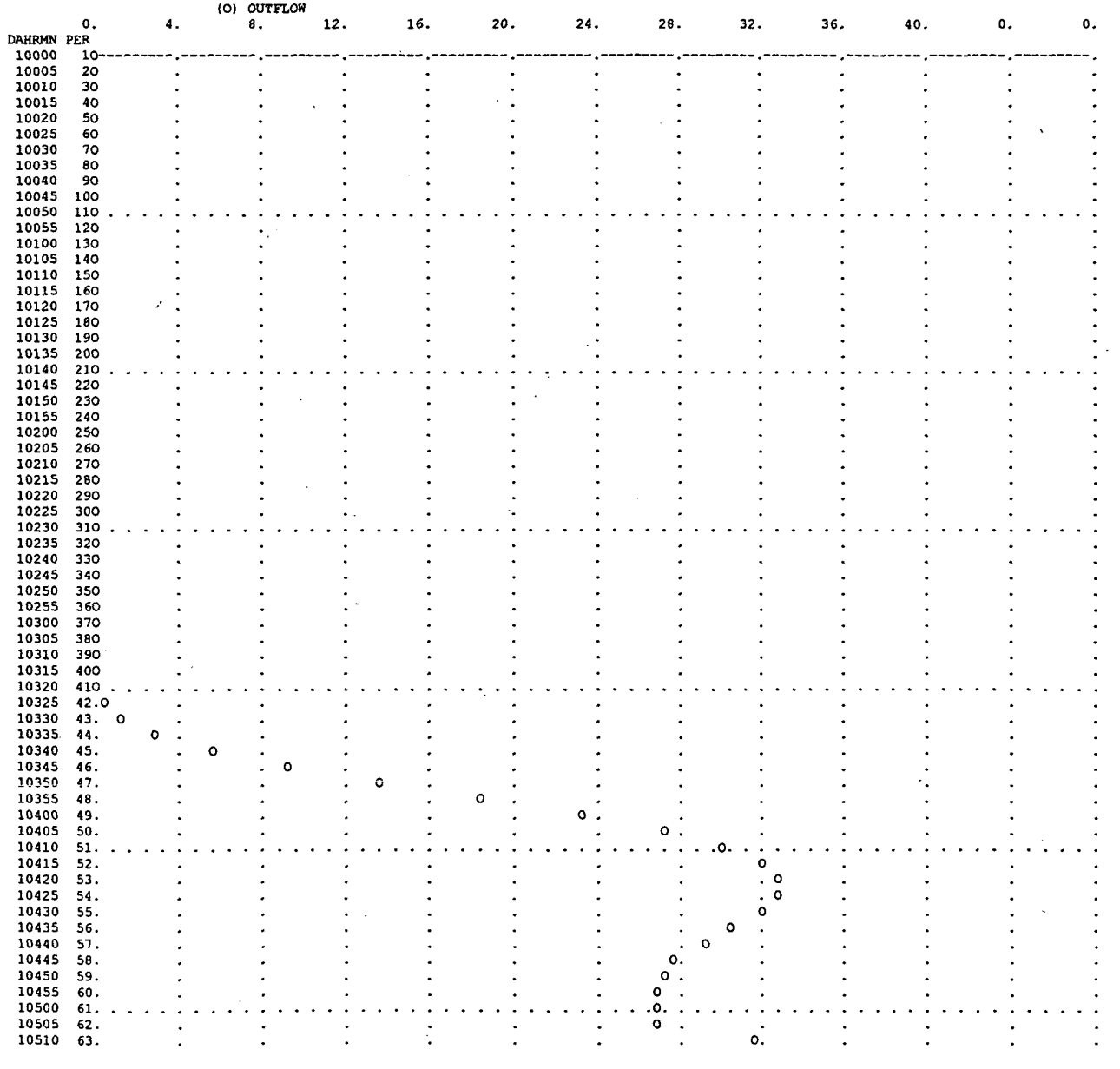
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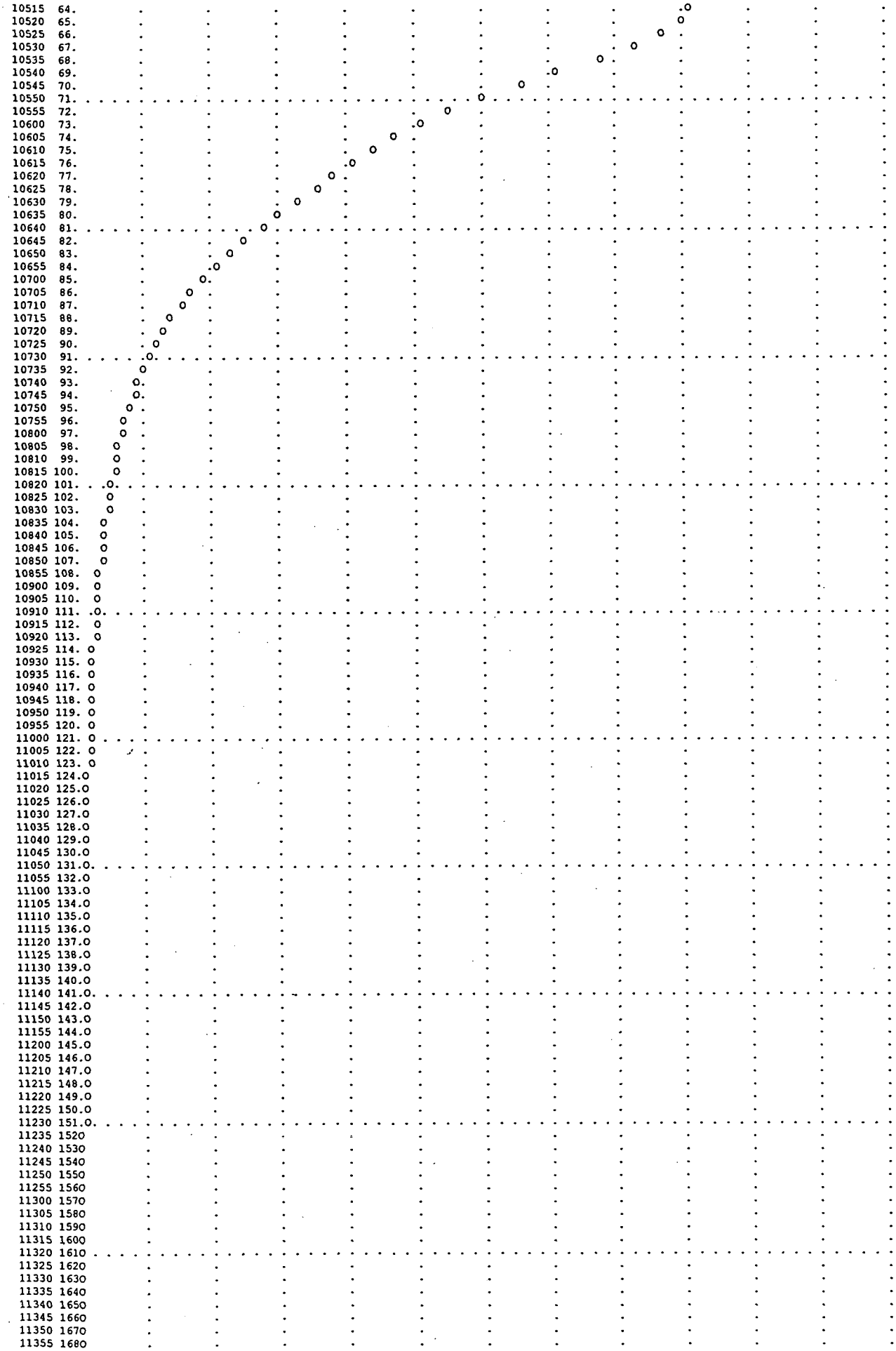
| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 24.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 36. | 5.25 | | 14. | 4. | 3. | 3. |
| | | (INCHES) | .348 | .357 | .357 | .357 |
| | | (AC-FT) | 7. | 7. | 7. | 7. |

CUMULATIVE AREA = .38 SQ MI

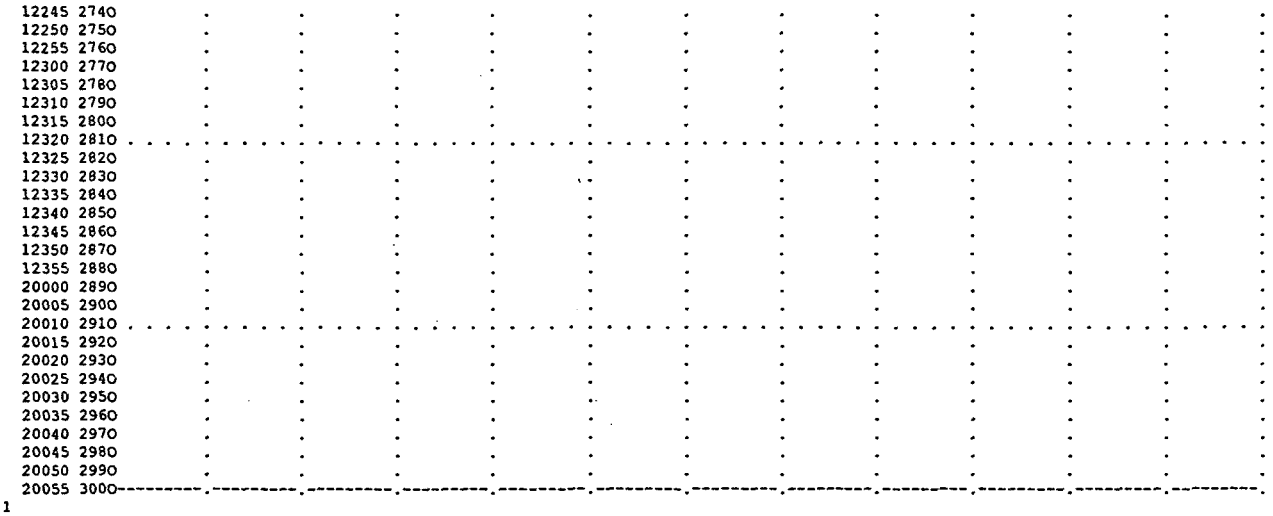
1 STATION C-11

(O) OUTFLOW




10515 64.
10520 65.
10525 66.
10530 67.
10535 68.
10540 69.
10545 70.
10550 71.
10555 72.
10600 73.
10605 74.
10610 75.
10615 76.
10620 77.
10625 78.
10630 79.
10635 80.
10640 81.
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10650 83.
10655 84.
10700 85.
10705 86.
10710 87.
10715 88.
10720 89.
10725 90.
10730 91.
10735 92.
10740 93.
10745 94.
10750 95.
10755 96.
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10805 98.
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10945 118.
10950 119.
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11005 122.
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11055 132.0
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11135 140.0
11140 141.0.
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11150 143.0
11155 144.0
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12220 2690
12225 2700
12230 2710
12235 2720
12240 2730



1

HYDROGRAPH AT STATION C-11
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .98

"HYDRO2"

| DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | 1 | | 0615 | 76 | 16. | 1 | | 1230 | 151 | 0. | 1 | | 1845 | 226 | 0. |
| 1 | | 0005 | 2 | 0. | 1 | | 0620 | 77 | 15. | 1 | | 1235 | 152 | 0. | 1 | | 1850 | 227 | 0. |
| 1 | | 0010 | 3 | 0. | 1 | | 0625 | 78 | 14. | 1 | | 1240 | 153 | 0. | 1 | | 1855 | 228 | 0. |
| 1 | | 0015 | 4 | 0. | 1 | | 0630 | 79 | 13. | 1 | | 1245 | 154 | 0. | 1 | | 1900 | 229 | 0. |
| 1 | | 0020 | 5 | 0. | 1 | | 0635 | 80 | 12. | 1 | | 1250 | 155 | 0. | 1 | | 1905 | 230 | 0. |
| 1 | | 0025 | 6 | 0. | 1 | | 0640 | 81 | 11. | 1 | | 1255 | 156 | 0. | 1 | | 1910 | 231 | 0. |
| 1 | | 0030 | 7 | 0. | 1 | | 0645 | 82 | 10. | 1 | | 1300 | 157 | 0. | 1 | | 1915 | 232 | 0. |
| 1 | | 0035 | 8 | 0. | 1 | | 0650 | 83 | 9. | 1 | | 1305 | 158 | 0. | 1 | | 1920 | 233 | 0. |
| 1 | | 0040 | 9 | 0. | 1 | | 0655 | 84 | 8. | 1 | | 1310 | 159 | 0. | 1 | | 1925 | 234 | 0. |
| 1 | | 0045 | 10 | 0. | 1 | | 0700 | 85 | 7. | 1 | | 1315 | 160 | 0. | 1 | | 1930 | 235 | 0. |
| 1 | | 0050 | 11 | 0. | 1 | | 0705 | 86 | 7. | 1 | | 1320 | 161 | 0. | 1 | | 1935 | 236 | 0. |
| 1 | | 0055 | 12 | 0. | 1 | | 0710 | 87 | 6. | 1 | | 1325 | 162 | 0. | 1 | | 1940 | 237 | 0. |
| 1 | | 0100 | 13 | 0. | 1 | | 0715 | 88 | 5. | 1 | | 1330 | 163 | 0. | 1 | | 1945 | 238 | 0. |
| 1 | | 0105 | 14 | 0. | 1 | | 0720 | 89 | 5. | 1 | | 1335 | 164 | 0. | 1 | | 1950 | 239 | 0. |
| 1 | | 0110 | 15 | 0. | 1 | | 0725 | 90 | 5. | 1 | | 1340 | 165 | 0. | 1 | | 1955 | 240 | 0. |
| 1 | | 0115 | 16 | 0. | 1 | | 0730 | 91 | 4. | 1 | | 1345 | 166 | 0. | 1 | | 2000 | 241 | 0. |
| 1 | | 0120 | 17 | 0. | 1 | | 0735 | 92 | 4. | 1 | | 1350 | 167 | 0. | 1 | | 2005 | 242 | 0. |
| 1 | | 0125 | 18 | 0. | 1 | | 0740 | 93 | 4. | 1 | | 1355 | 168 | 0. | 1 | | 2010 | 243 | 0. |
| 1 | | 0130 | 19 | 0. | 1 | | 0745 | 94 | 3. | 1 | | 1400 | 169 | 0. | 1 | | 2015 | 244 | 0. |
| 1 | | 0135 | 20 | 0. | 1 | | 0750 | 95 | 3. | 1 | | 1405 | 170 | 0. | 1 | | 2020 | 245 | 0. |
| 1 | | 0140 | 21 | 0. | 1 | | 0755 | 96 | 3. | 1 | | 1410 | 171 | 0. | 1 | | 2025 | 246 | 0. |
| 1 | | 0145 | 22 | 0. | 1 | | 0800 | 97 | 3. | 1 | | 1415 | 172 | 0. | 1 | | 2030 | 247 | 0. |
| 1 | | 0150 | 23 | 0. | 1 | | 0805 | 98 | 2. | 1 | | 1420 | 173 | 0. | 1 | | 2035 | 248 | 0. |
| 1 | | 0155 | 24 | 0. | 1 | | 0810 | 99 | 2. | 1 | | 1425 | 174 | 0. | 1 | | 2040 | 249 | 0. |
| 1 | | 0200 | 25 | 0. | 1 | | 0815 | 100 | 2. | 1 | | 1430 | 175 | 0. | 1 | | 2045 | 250 | 0. |
| 1 | | 0205 | 26 | 0. | 1 | | 0820 | 101 | 2. | 1 | | 1435 | 176 | 0. | 1 | | 2050 | 251 | 0. |
| 1 | | 0210 | 27 | 0. | 1 | | 0825 | 102 | 2. | 1 | | 1440 | 177 | 0. | 1 | | 2055 | 252 | 0. |
| 1 | | 0215 | 28 | 0. | 1 | | 0830 | 103 | 2. | 1 | | 1445 | 178 | 0. | 1 | | 2100 | 253 | 0. |
| 1 | | 0220 | 29 | 0. | 1 | | 0835 | 104 | 2. | 1 | | 1450 | 179 | 0. | 1 | | 2105 | 254 | 0. |
| 1 | | 0225 | 30 | 0. | 1 | | 0840 | 105 | 2. | 1 | | 1455 | 180 | 0. | 1 | | 2110 | 255 | 0. |
| 1 | | 0230 | 31 | 0. | 1 | | 0845 | 106 | 1. | 1 | | 1500 | 181 | 0. | 1 | | 2115 | 256 | 0. |
| 1 | | 0235 | 32 | 0. | 1 | | 0850 | 107 | 1. | 1 | | 1505 | 182 | 0. | 1 | | 2120 | 257 | 0. |
| 1 | | 0240 | 33 | 0. | 1 | | 0855 | 108 | 1. | 1 | | 1510 | 183 | 0. | 1 | | 2125 | 258 | 0. |
| 1 | | 0245 | 34 | 0. | 1 | | 0900 | 109 | 1. | 1 | | 1515 | 184 | 0. | 1 | | 2130 | 259 | 0. |
| 1 | | 0250 | 35 | 0. | 1 | | 0905 | 110 | 1. | 1 | | 1520 | 185 | 0. | 1 | | 2135 | 260 | 0. |
| 1 | | 0255 | 36 | 0. | 1 | | 0910 | 111 | 1. | 1 | | 1525 | 186 | 0. | 1 | | 2140 | 261 | 0. |
| 1 | | 0300 | 37 | 0. | 1 | | 0915 | 112 | 1. | 1 | | 1530 | 187 | 0. | 1 | | 2145 | 262 | 0. |
| 1 | | 0305 | 38 | 0. | 1 | | 0920 | 113 | 1. | 1 | | 1535 | 188 | 0. | 1 | | 2150 | 263 | 0. |
| 1 | | 0310 | 39 | 0. | 1 | | 0925 | 114 | 1. | 1 | | 1540 | 189 | 0. | 1 | | 2155 | 264 | 0. |
| 1 | | 0315 | 40 | 0. | 1 | | 0930 | 115 | 1. | 1 | | 1545 | 190 | 0. | 1 | | 2200 | 265 | 0. |
| 1 | | 0320 | 41 | 0. | 1 | | 0935 | 116 | 1. | 1 | | 1550 | 191 | 0. | 1 | | 2205 | 266 | 0. |
| 1 | | 0325 | 42 | 0. | 1 | | 0940 | 117 | 1. | 1 | | 1555 | 192 | 0. | 1 | | 2210 | 267 | 0. |
| 1 | | 0330 | 43 | 1. | 1 | | 0945 | 118 | 1. | 1 | | 1600 | 193 | 0. | 1 | | 2215 | 268 | 0. |
| 1 | | 0335 | 44 | 3. | 1 | | 0950 | 119 | 1. | 1 | | 1605 | 194 | 0. | 1 | | 2220 | 269 | 0. |
| 1 | | 0340 | 45 | 5. | 1 | | 0955 | 120 | 1. | 1 | | 1610 | 195 | 0. | 1 | | 2225 | 270 | 0. |
| 1 | | 0345 | 46 | 8. | 1 | | 1000 | 121 | 1. | 1 | | 1615 | 196 | 0. | 1 | | 2230 | 271 | 0. |
| 1 | | 0350 | 47 | 12. | 1 | | 1005 | 122 | 1. | 1 | | 1620 | 197 | 0. | 1 | | 2235 | 272 | 0. |
| 1 | | 0355 | 48 | 17. | 1 | | 1010 | 123 | 1. | 1 | | 1625 | 198 | 0. | 1 | | 2240 | 273 | 0. |
| 1 | | 0400 | 49 | 21. | 1 | | 1015 | 124 | 1. | 1 | | 1630 | 199 | 0. | 1 | | 2245 | 274 | 0. |
| 1 | | 0405 | 50 | 25. | 1 | | 1020 | 125 | 1. | 1 | | 1635 | 200 | 0. | 1 | | 2250 | 275 | 0. |
| 1 | | 0410 | 51 | 28. | 1 | | 1025 | 126 | 1. | 1 | | 1640 | 201 | 0. | 1 | | 2255 | 276 | 0. |
| 1 | | 0415 | 52 | 30. | 1 | | 1030 | 127 | 1. | 1 | | 1645 | 202 | 0. | 1 | | 2300 | 277 | 0. |
| 1 | | 0420 | 53 | 30. | 1 | | 1035 | 128 | 0. | 1 | | 1650 | 203 | 0. | 1 | | 2305 | 278 | 0. |
| 1 | | 0425 | 54 | 30. | 1 | | 1040 | 129 | 0. | 1 | | 1655 | 204 | 0. | 1 | | 2310 | 279 | 0. |
| 1 | | 0430 | 55 | 30. | 1 | | 1045 | 130 | 0. | 1 | | 1700 | 205 | 0. | 1 | | 2315 | 280 | 0. |
| 1 | | 0435 | 56 | 29. | 1 | | 1050 | 131 | 0. | 1 | | 1705 | 206 | 0. | 1 | | 2320 | 281 | 0. |
| 1 | | 0440 | 57 | 27. | 1 | | 1055 | 132 | 0. | 1 | | 1710 | 207 | 0. | 1 | | 2325 | 282 | 0. |
| 1 | | 0445 | 58 | 26. | 1 | | 1100 | 133 | 0. | 1 | | 1715 | 208 | 0. | 1 | | 2330 | 283 | 0. |
| 1 | | 0450 | 59 | 25. | 1 | | 1105 | 134 | 0. | 1 | | 1720 | 209 | 0. | 1 | | 2335 | 284 | 0. |
| 1 | | 0455 | 60 | 25. | 1 | | 1110 | 135 | 0. | 1 | | 1725 | 210 | 0. | 1 | | 2340 | 285 | 0. |
| 1 | | 0500 | 61 | 25. | 1 | | 1115 | 136 | 0. | 1 | | 1730 | 211 | 0. | 1 | | 2345 | 286 | 0. |
| 1 | | 0505 | 62 | 25. | 1 | | 1120 | 137 | 0. | 1 | | 1735 | 212 | 0. | 1 | | 2350 | 287 | 0. |
| 1 | | 0510 | 63 | 25. | 1 | | 1125 | 138 | 0. | 1 | | 1740 | 213 | 0. | 1 | | 2355 | 288 | 0. |
| 1 | | 0515 | 64 | 34. | 1 | | 1130 | 139 | 0. | 1 | | 1745 | 214 | 0. | 2 | | 0000 | 289 | 0. |
| 1 | | 0520 | 65 | 34. | 1 | | 1135 | 140 | 0. | 1 | | 1750 | 215 | 0. | 2 | | 0005 | 290 | 0. |
| 1 | | 0525 | 66 | 33. | 1 | | 1140 | 141 | 0. | 1 | | 1755 | 216 | 0. | 2 | | 0010 | 291 | 0. |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0530 | 67 | 31. | * | 1 | 1145 | 142 | 0. | * | 1 | 1800 | 217 | 0. | * | 2 | 0015 | 292 | 0. |
| 1 | 0535 | 68 | 29. | * | 1 | 1150 | 143 | 0. | * | 1 | 1805 | 218 | 0. | * | 2 | 0020 | 293 | 0. |
| 1 | 0540 | 69 | 27. | * | 1 | 1155 | 144 | 0. | * | 1 | 1810 | 219 | 0. | * | 2 | 0025 | 294 | 0. |
| 1 | 0545 | 70 | 25. | * | 1 | 1200 | 145 | 0. | * | 1 | 1815 | 220 | 0. | * | 2 | 0030 | 295 | 0. |
| 1 | 0550 | 71 | 23. | * | 1 | 1205 | 146 | 0. | * | 1 | 1820 | 221 | 0. | * | 2 | 0035 | 296 | 0. |
| 1 | 0555 | 72 | 21. | * | 1 | 1210 | 147 | 0. | * | 1 | 1825 | 222 | 0. | * | 2 | 0040 | 297 | 0. |
| 1 | 0600 | 73 | 19. | * | 1 | 1215 | 148 | 0. | * | 1 | 1830 | 223 | 0. | * | 2 | 0045 | 298 | 0. |
| 1 | 0605 | 74 | 18. | * | 1 | 1220 | 149 | 0. | * | 1 | 1835 | 224 | 0. | * | 2 | 0050 | 299 | 0. |
| 1 | 0610 | 75 | 17. | * | 1 | 1225 | 150 | 0. | * | 1 | 1840 | 225 | 0. | * | 2 | 0055 | 300 | 0. |
| | | | | * | | | | | * | | | | | * | | | | |

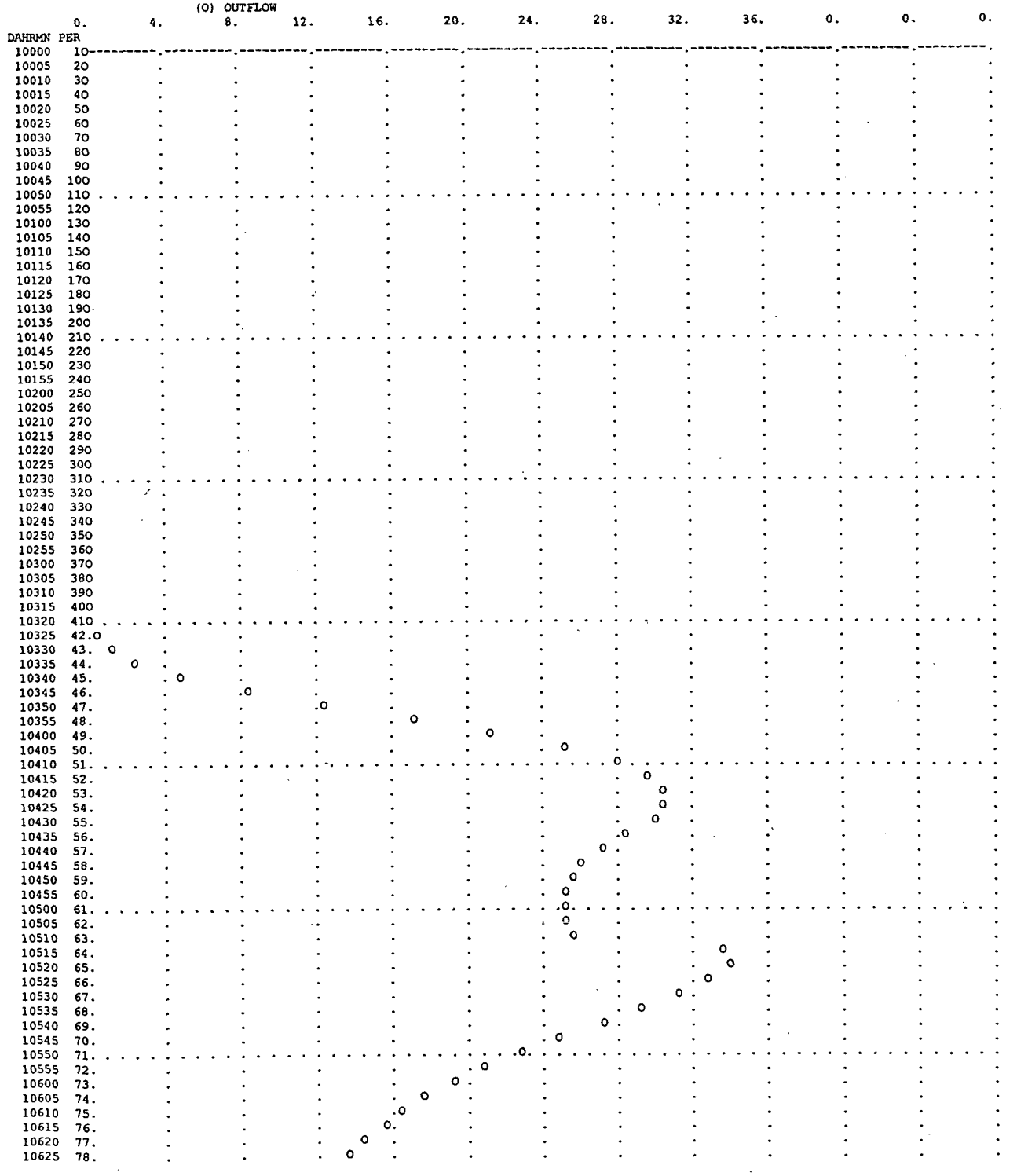
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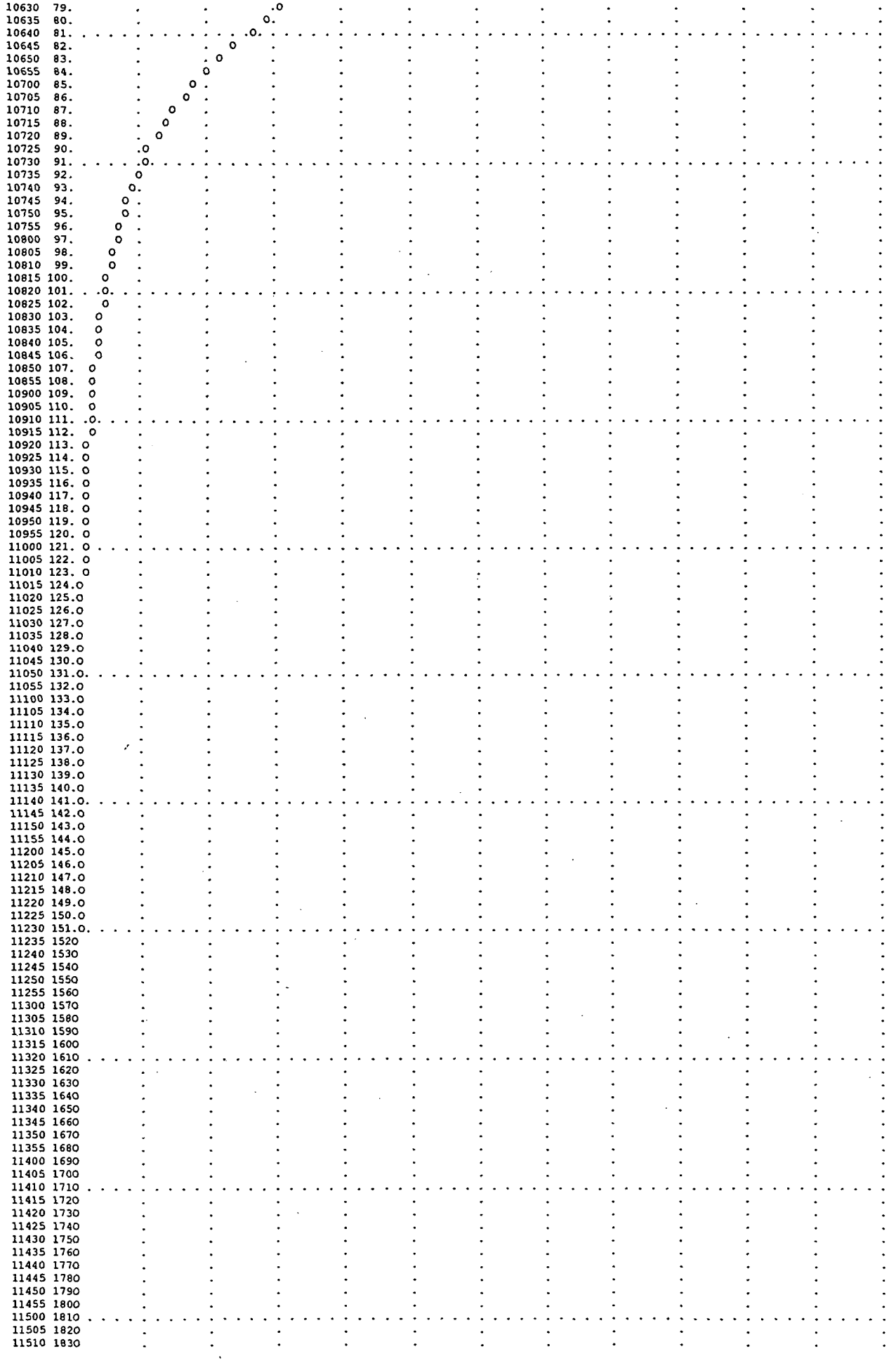
| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 24.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 34. | 5.33 | | 13. | 3. | 3. | 3. |
| | | (INCHES) | .326 | .335 | .335 | .335 |
| | | (AC-FT) | 7. | 7. | 7. | 7. |

CUMULATIVE AREA = .38 SQ MI

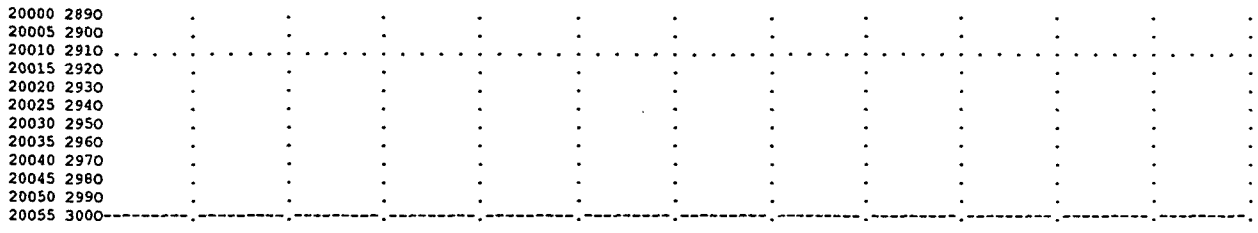
1 STATION C-11

(O) OUTFLOW




10630 79.
10635 80.
10640 81.
10645 82.
10650 83.
10655 84.
10700 85.
10705 86.
10710 87.
10715 88.
10720 89.
10725 90.
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10800 97.
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10900 109.
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1

HYDROGRAPH AT STATION C-11
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .57

| DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | 1 | | 0615 | 76 | 1. | 1 | | 1230 | 151 | 0. | 1 | | 1845 | 226 | 0. |
| 1 | | 0005 | 2 | 0. | 1 | | 0620 | 77 | 1. | 1 | | 1235 | 152 | 0. | 1 | | 1850 | 227 | 0. |
| 1 | | 0010 | 3 | 0. | 1 | | 0625 | 78 | 1. | 1 | | 1240 | 153 | 0. | 1 | | 1855 | 228 | 0. |
| 1 | | 0015 | 4 | 0. | 1 | | 0630 | 79 | 1. | 1 | | 1245 | 154 | 0. | 1 | | 1900 | 229 | 0. |
| 1 | | 0020 | 5 | 0. | 1 | | 0635 | 80 | 1. | 1 | | 1250 | 155 | 0. | 1 | | 1905 | 230 | 0. |
| 1 | | 0025 | 6 | 0. | 1 | | 0640 | 81 | 1. | 1 | | 1255 | 156 | 0. | 1 | | 1910 | 231 | 0. |
| 1 | | 0030 | 7 | 0. | 1 | | 0645 | 82 | 1. | 1 | | 1300 | 157 | 0. | 1 | | 1915 | 232 | 0. |
| 1 | | 0035 | 8 | 0. | 1 | | 0650 | 83 | 0. | 1 | | 1305 | 158 | 0. | 1 | | 1920 | 233 | 0. |
| 1 | | 0040 | 9 | 0. | 1 | | 0655 | 84 | 0. | 1 | | 1310 | 159 | 0. | 1 | | 1925 | 234 | 0. |
| 1 | | 0045 | 10 | 0. | 1 | | 0700 | 85 | 0. | 1 | | 1315 | 160 | 0. | 1 | | 1930 | 235 | 0. |
| 1 | | 0050 | 11 | 0. | 1 | | 0705 | 86 | 0. | 1 | | 1320 | 161 | 0. | 1 | | 1935 | 236 | 0. |
| 1 | | 0055 | 12 | 0. | 1 | | 0710 | 87 | 0. | 1 | | 1325 | 162 | 0. | 1 | | 1940 | 237 | 0. |
| 1 | | 0100 | 13 | 0. | 1 | | 0715 | 88 | 0. | 1 | | 1330 | 163 | 0. | 1 | | 1945 | 238 | 0. |
| 1 | | 0105 | 14 | 0. | 1 | | 0720 | 89 | 0. | 1 | | 1335 | 164 | 0. | 1 | | 1950 | 239 | 0. |
| 1 | | 0110 | 15 | 0. | 1 | | 0725 | 90 | 0. | 1 | | 1340 | 165 | 0. | 1 | | 1955 | 240 | 0. |
| 1 | | 0115 | 16 | 0. | 1 | | 0730 | 91 | 0. | 1 | | 1345 | 166 | 0. | 1 | | 2000 | 241 | 0. |
| 1 | | 0120 | 17 | 0. | 1 | | 0735 | 92 | 0. | 1 | | 1350 | 167 | 0. | 1 | | 2005 | 242 | 0. |
| 1 | | 0125 | 18 | 0. | 1 | | 0740 | 93 | 0. | 1 | | 1355 | 168 | 0. | 1 | | 2010 | 243 | 0. |
| 1 | | 0130 | 19 | 0. | 1 | | 0745 | 94 | 0. | 1 | | 1400 | 169 | 0. | 1 | | 2015 | 244 | 0. |
| 1 | | 0135 | 20 | 0. | 1 | | 0750 | 95 | 0. | 1 | | 1405 | 170 | 0. | 1 | | 2020 | 245 | 0. |
| 1 | | 0140 | 21 | 0. | 1 | | 0755 | 96 | 0. | 1 | | 1410 | 171 | 0. | 1 | | 2025 | 246 | 0. |
| 1 | | 0145 | 22 | 0. | 1 | | 0800 | 97 | 0. | 1 | | 1415 | 172 | 0. | 1 | | 2030 | 247 | 0. |
| 1 | | 0150 | 23 | 0. | 1 | | 0805 | 98 | 1. | 1 | | 1420 | 173 | 0. | 1 | | 2035 | 248 | 0. |
| 1 | | 0155 | 24 | 0. | 1 | | 0810 | 99 | 1. | 1 | | 1425 | 174 | 0. | 1 | | 2040 | 249 | 0. |
| 1 | | 0200 | 25 | 0. | 1 | | 0815 | 100 | 1. | 1 | | 1430 | 175 | 0. | 1 | | 2045 | 250 | 0. |
| 1 | | 0205 | 26 | 0. | 1 | | 0820 | 101 | 1. | 1 | | 1435 | 176 | 0. | 1 | | 2050 | 251 | 0. |
| 1 | | 0210 | 27 | 0. | 1 | | 0825 | 102 | 1. | 1 | | 1440 | 177 | 0. | 1 | | 2055 | 252 | 0. |
| 1 | | 0215 | 28 | 0. | 1 | | 0830 | 103 | 1. | 1 | | 1445 | 178 | 0. | 1 | | 2100 | 253 | 0. |
| 1 | | 0220 | 29 | 0. | 1 | | 0835 | 104 | 1. | 1 | | 1450 | 179 | 0. | 1 | | 2105 | 254 | 0. |
| 1 | | 0225 | 30 | 0. | 1 | | 0840 | 105 | 1. | 1 | | 1455 | 180 | 0. | 1 | | 2110 | 255 | 0. |
| 1 | | 0230 | 31 | 0. | 1 | | 0845 | 106 | 1. | 1 | | 1500 | 181 | 0. | 1 | | 2115 | 256 | 0. |
| 1 | | 0235 | 32 | 0. | 1 | | 0850 | 107 | 1. | 1 | | 1505 | 182 | 0. | 1 | | 2120 | 257 | 0. |
| 1 | | 0240 | 33 | 0. | 1 | | 0855 | 108 | 1. | 1 | | 1510 | 183 | 0. | 1 | | 2125 | 258 | 0. |
| 1 | | 0245 | 34 | 0. | 1 | | 0900 | 109 | 1. | 1 | | 1515 | 184 | 0. | 1 | | 2130 | 259 | 0. |
| 1 | | 0250 | 35 | 0. | 1 | | 0905 | 110 | 1. | 1 | | 1520 | 185 | 0. | 1 | | 2135 | 260 | 0. |
| 1 | | 0255 | 36 | 0. | 1 | | 0910 | 111 | 1. | 1 | | 1525 | 186 | 0. | 1 | | 2140 | 261 | 0. |
| 1 | | 0300 | 37 | 0. | 1 | | 0915 | 112 | 1. | 1 | | 1530 | 187 | 0. | 1 | | 2145 | 262 | 0. |
| 1 | | 0305 | 38 | 0. | 1 | | 0920 | 113 | 1. | 1 | | 1535 | 188 | 0. | 1 | | 2150 | 263 | 0. |
| 1 | | 0310 | 39 | 0. | 1 | | 0925 | 114 | 1. | 1 | | 1540 | 189 | 0. | 1 | | 2155 | 264 | 0. |
| 1 | | 0315 | 40 | 0. | 1 | | 0930 | 115 | 1. | 1 | | 1545 | 190 | 0. | 1 | | 2200 | 265 | 0. |
| 1 | | 0320 | 41 | 0. | 1 | | 0935 | 116 | 0. | 1 | | 1550 | 191 | 0. | 1 | | 2205 | 266 | 0. |
| 1 | | 0325 | 42 | 0. | 1 | | 0940 | 117 | 0. | 1 | | 1555 | 192 | 0. | 1 | | 2210 | 267 | 0. |
| 1 | | 0330 | 43 | 0. | 1 | | 0945 | 118 | 0. | 1 | | 1600 | 193 | 0. | 1 | | 2215 | 268 | 0. |
| 1 | | 0335 | 44 | 0. | 1 | | 0950 | 119 | 0. | 1 | | 1605 | 194 | 0. | 1 | | 2220 | 269 | 0. |
| 1 | | 0340 | 45 | 0. | 1 | | 0955 | 120 | 0. | 1 | | 1610 | 195 | 0. | 1 | | 2225 | 270 | 0. |
| 1 | | 0345 | 46 | 0. | 1 | | 1000 | 121 | 0. | 1 | | 1615 | 196 | 0. | 1 | | 2230 | 271 | 0. |
| 1 | | 0350 | 47 | 0. | 1 | | 1005 | 122 | 0. | 1 | | 1620 | 197 | 0. | 1 | | 2235 | 272 | 0. |
| 1 | | 0355 | 48 | 0. | 1 | | 1010 | 123 | 0. | 1 | | 1625 | 198 | 0. | 1 | | 2240 | 273 | 0. |
| 1 | | 0400 | 49 | 0. | 1 | | 1015 | 124 | 0. | 1 | | 1630 | 199 | 0. | 1 | | 2245 | 274 | 0. |
| 1 | | 0405 | 50 | 0. | 1 | | 1020 | 125 | 0. | 1 | | 1635 | 200 | 0. | 1 | | 2250 | 275 | 0. |
| 1 | | 0410 | 51 | 0. | 1 | | 1025 | 126 | 0. | 1 | | 1640 | 201 | 0. | 1 | | 2255 | 276 | 0. |
| 1 | | 0415 | 52 | 1. | 1 | | 1030 | 127 | 0. | 1 | | 1645 | 202 | 0. | 1 | | 2300 | 277 | 0. |
| 1 | | 0420 | 53 | 1. | 1 | | 1035 | 128 | 0. | 1 | | 1650 | 203 | 0. | 1 | | 2305 | 278 | 0. |
| 1 | | 0425 | 54 | 1. | 1 | | 1040 | 129 | 0. | 1 | | 1655 | 204 | 0. | 1 | | 2310 | 279 | 0. |
| 1 | | 0430 | 55 | 1. | 1 | | 1045 | 130 | 0. | 1 | | 1700 | 205 | 0. | 1 | | 2315 | 280 | 0. |
| 1 | | 0435 | 56 | 1. | 1 | | 1050 | 131 | 0. | 1 | | 1705 | 206 | 0. | 1 | | 2320 | 281 | 0. |
| 1 | | 0440 | 57 | 1. | 1 | | 1055 | 132 | 0. | 1 | | 1710 | 207 | 0. | 1 | | 2325 | 282 | 0. |
| 1 | | 0445 | 58 | 2. | 1 | | 1100 | 133 | 0. | 1 | | 1715 | 208 | 0. | 1 | | 2330 | 283 | 0. |
| 1 | | 0450 | 59 | 2. | 1 | | 1105 | 134 | 0. | 1 | | 1720 | 209 | 0. | 1 | | 2335 | 284 | 0. |
| 1 | | 0455 | 60 | 2. | 1 | | 1110 | 135 | 0. | 1 | | 1725 | 210 | 0. | 1 | | 2340 | 285 | 0. |
| 1 | | 0500 | 61 | 2. | 1 | | 1115 | 136 | 0. | 1 | | 1730 | 211 | 0. | 1 | | 2345 | 286 | 0. |
| 1 | | 0505 | 62 | 3. | 1 | | 1120 | 137 | 0. | 1 | | 1735 | 212 | 0. | 1 | | 2350 | 287 | 0. |
| 1 | | 0510 | 63 | 3. | 1 | | 1125 | 138 | 0. | 1 | | 1740 | 213 | 0. | 1 | | 2355 | 288 | 0. |
| 1 | | 0515 | 64 | 3. | 1 | | 1130 | 139 | 0. | 1 | | 1745 | 214 | 0. | 2 | | 0000 | 289 | 0. |
| 1 | | 0520 | 65 | 3. | 1 | | 1135 | 140 | 0. | 1 | | 1750 | 215 | 0. | 2 | | 0005 | 290 | 0. |
| 1 | | 0525 | 66 | 3. | 1 | | 1140 | 141 | 0. | 1 | | 1755 | 216 | 0. | 2 | | 0010 | 291 | 0. |
| 1 | | 0530 | 67 | 3. | 1 | | 1145 | 142 | 0. | 1 | | 1800 | 217 | 0. | 2 | | 0015 | 292 | 0. |
| 1 | | 0535 | 68 | 3. | 1 | | 1150 | 143 | 0. | 1 | | 1805 | 218 | 0. | 2 | | 0020 | 293 | 0. |
| 1 | | 0540 | 69 | 3. | 1 | | 1155 | 144 | 0. | 1 | | 1810 | 219 | 0. | 2 | | 0025 | 294 | 0. |
| 1 | | 0545 | 70 | 2. | 1 | | 1200 | 145 | 0. | 1 | | 1815 | 220 | 0. | 2 | | 0030 | 295 | 0. |
| 1 | | 0550 | 71 | 2. | 1 | | 1205 | 146 | 0. | 1 | | 1820 | 221 | 0. | 2 | | 0035 | 296 | 0. |
| 1 | | 0555 | 72 | 2. | 1 | | 1210 | 147 | 0. | 1 | | 1825 | 222 | 0. | 2 | | 0040 | 297 | 0. |
| 1 | | 0600 | 73 | 2. | 1 | | 1215 | 148 | 0. | 1 | | 1830 | 223 | 0. | 2 | | 0045 | 298 | 0. |
| 1 | | 0605 | 74 | 2. | 1 | | 1220 | 149 | 0. | 1 | | 1835 | 224 | 0. | 2 | | 0050 | 299 | 0. |
| 1 | | 0610 | 75 | 1. | 1 | | 1225 | 150 | 0. | 1 | | 1840 | 225 | 0. | 2 | | 0055 | 300 | 0. |

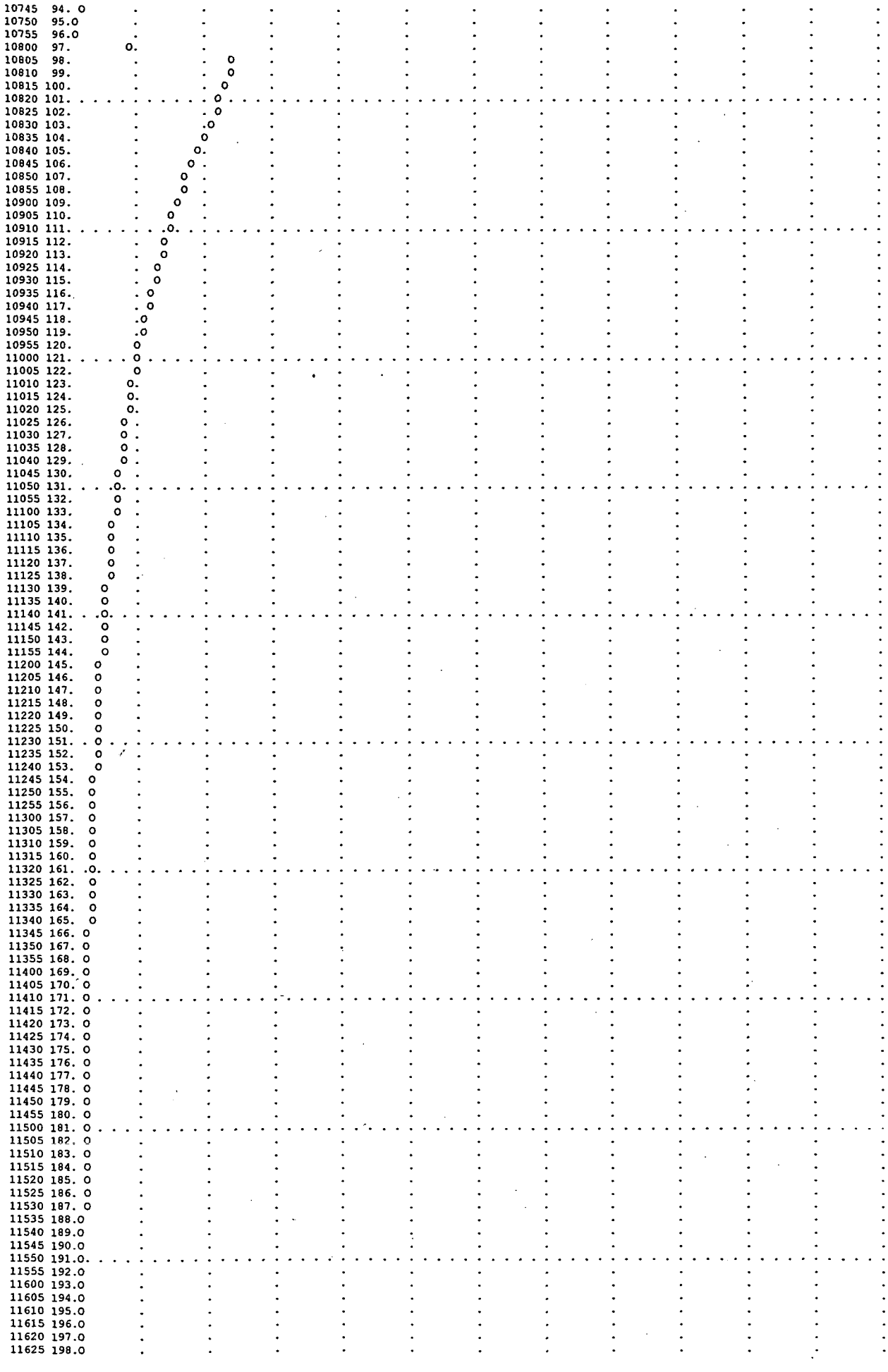
| PEAK FLOW | TIME | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 24.92-HR |
| (CFS) | (HR) | | | | |

```
                    (CFS)
+       3.    5.42                1.          0.          0.          0.
                  (INCHES)        .025        .030        .030        .030
                  (AC-FT)           1.          1.          1.          1.

                  CUMULATIVE AREA =     .38 SQ MI

1                                                  STATION    C-11

                    (O) OUTFLOW
          .0        .4        .8       1.2       1.6       2.0       2.4       2.8       3.2        .0        .0        .0        .0
DAHRMN PER
 10000   10-------------------------------------------------------------------------------------------------------------------------.
 10005   20          .         .         .         .         .         .         .         .         .         .         .         .
 10010   30          .         .         .         .         .         .         .         .         .         .         .         .
 10015   40          .         .         .         .         .         .         .         .         .         .         .         .
 10020   50          .         .         .         .         .         .         .         .         .         .         .         .
 10025   60          .         .         .         .         .         .         .         .         .         .         .         .
 10030   70          .         .         .         .         .         .         .         .         .         .         .         .
 10035   80          .         .         .         .         .         .         .         .         .         .         .         .
 10040   90          .         .         .         .         .         .         .         .         .         .         .         .
 10045  100          .         .         .         .         .         .         .         .         .         .         .         .
 10050  110 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 10055  120          .         .         .         .         .         .         .         .         .         .         .         .
 10100  130          .         .         .         .         .         .         .         .         .         .         .         .
 10105  140          .         .         .         .         .         .         .         .         .         .         .         .
 10110  150          .         .         .         .         .         .         .         .         .         .         .         .
 10115  160          .         .         .         .         .         .         .         .         .         .         .         .
 10120  170          .         .         .         .         .         .         .         .         .         .         .         .
 10125  180          .         .         .         .         .         .         .         .         .         .         .         .
 10130  190          .         .         .         .         .         .         .         .         .         .         .         .
 10135  200          .         .         .         .         .         .         .         .         .         .         .         .
 10140  210 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 10145  220          .         .         .         .         .         .         .         .         .         .         .         .
 10150  230          .         .         .         .         .         .         .         .         .         .         .         .
 10155  240          .         .         .         .         .         .         .         .         .         .         .         .
 10200  250          .         .         .         .         .         .         .         .         .         .         .         .
 10205  260          .         .         .         .         .         .         .         .         .         .         .         .
 10210  270          .         .         .         .         .         .         .         .         .         .         .         .
 10215  280          .         .         .         .         .         .         .         .         .         .         .         .
 10220  290          .         .         .         .         .         .         .         .         .         .         .         .
 10225  300          .         .         .         .         .         .         .         .         .         .         .         .
 10230  310 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 10235  320          .         .         .         .         .         .         .         .         .         .         .         .
 10240  330          .         .         .         .         .         .         .         .         .         .         .         .
 10245  340          .         .         .         .         .         .         .         .         .         .         .         .
 10250  350          .         .         .         .         .         .         .         .         .         .         .         .
 10255  360          .         .         .         .         .         .         .         .         .         .         .         .
 10300  370          .         .         .         .         .         .         .         .         .         .         .         .
 10305  380          .         .         .         .         .         .         .         .         .         .         .         .
 10310  390          .         .         .         .         .         .         .         .         .         .         .         .
 10315  400          .         .         .         .         .         .         .         .         .         .         .         .
 10320  410 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 10325  420          .         .         .         .         .         .         .         .         .         .         .         .
 10330  430          .         .         .         .         .         .         .         .         .         .         .         .
 10335  440          .         .         .         .         .         .         .         .         .         .         .         .
 10340  450          .         .         .         .         .         .         .         .         .         .         .         .
 10345  46.O         .         .         .         .         .         .         .         .         .         .         .         .
 10350  47.O         .         .         .         .         .         .         .         .         .         .         .         .
 10355  48.  O       .         .         .         .         .         .         .         .         .         .         .         .
 10400  49.    O     .         .         .         .         .         .         .         .         .         .         .         .
 10405  50.      O   .         .         .         .         .         .         .         .         .         .         .         .
 10410  51. . . . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 10415  52.        O  .         .         .         .         .         .         .         .         .         .         .         .
 10420  53.         O.         .         .         .         .         .         .         .         .         .         .         .
 10425  54.          O         .         .         .         .         .         .         .         .         .         .         .
 10430  55.           O        .         .         .         .         .         .         .         .         .         .         .
 10435  56.            O       .         .         .         .         .         .         .         .         .         .         .
 10440  57.             O      .         .         .         .         .         .         .         .         .         .         .
 10445  58.              O.    .         .         .         .         .         .         .         .         .         .         .
 10450  59.                O   .         .         .         .         .         .         .         .         .         .         .
 10455  60.                 O  .         .         .         .         .         .         .         .         .         .         .
 10500  61. . . . . . . . . . O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 10505  62.                   O.         .         .         .         .         .         .         .         .         .         .
 10510  63.                    O         .         .         .         .         .         .         .         .         .         .
 10515  64.                     O        .         .         .         .         .         .         .         .         .         .
 10520  65.                      O       .         .         .         .         .         .         .         .         .         .
 10525  66.                      O       .         .         .         .         .         .         .         .         .         .
 10530  67.                     O        .         .         .         .         .         .         .         .         .         .
 10535  68.                    O         .         .         .         .         .         .         .         .         .         .
 10540  69.                   O          .         .         .         .         .         .         .         .         .         .
 10545  70.                  O           .         .         .         .         .         .         .         .         .         .
 10550  71. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 10555  72.                            O.         .         .         .         .         .         .         .         .         .
 10600  73.                             O         .         .         .         .         .         .         .         .         .
 10605  74.                              O        .         .         .         .         .         .         .         .         .
 10610  75.                               O       .         .         .         .         .         .         .         .         .
 10615  76.                                O      .         .         .         .         .         .         .         .         .
 10620  77.                                 O     .         .         .         .         .         .         .         .         .
 10625  78.                                  O    .         .         .         .         .         .         .         .         .
 10630  79.                                   O   .         .         .         .         .         .         .         .         .
 10635  80.                                  O.   .         .         .         .         .         .         .         .         .
 10640  81. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 10645  82.                                    O  .         .         .         .         .         .         .         .         .
 10650  83.                                     O.         .         .         .         .         .         .         .         .
 10655  84.                                      O         .         .         .         .         .         .         .         .
 10700  85.                                       O        .         .         .         .         .         .         .         .
 10705  86.                                        O       .         .         .         .         .         .         .         .
 10710  87.                                         O      .         .         .         .         .         .         .         .
 10715  88.                                          O     .         .         .         .         .         .         .         .
 10720  89.                                           O    .         .         .         .         .         .         .         .
 10725  90.                                            O   .         .         .         .         .         .         .         .
 10730  91. .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 10735  92. O       .         .         .         .         .         .         .         .         .         .         .         .
 10740  93. O       .         .         .         .         .         .         .         .         .         .         .         .
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10745 94.
10750 95.
10755 96.
10800 97.
10805 98.
10810 99.
10815 100.
10820 101.
10825 102.
10830 103.
10835 104.
10840 105.
10845 106.
10850 107.
10855 108.
10900 109.
10905 110.
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10915 112.
10920 113.
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10930 115.
10935 116.
10940 117.
10945 118.
10950 119.
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11005 122.
11010 123.
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11605 194.0
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11945 238.0
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12025 246.0
12030 247.0
12035 248.0
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12105 2540
12110 2550
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12120 2570
12125 2580
12130 2590
12135 2600
12140 2610
12145 2620
12150 2630
12155 2640
12200 2650
12205 2660
12210 2670
12215 2680
12220 2690
12225 2700
12230 2710
12235 2720
12240 2730
12245 2740
12250 2750
12255 2760
12300 2770
12305 2780
12310 2790
12315 2800
12320 2810
12325 2820
12330 2830
12335 2840
12340 2850
12345 2860
12350 2870
12355 2880
20000 2890
20005 2900
20010 2910
20015 2920
20020 2930
20025 2940
20030 2950
20035 2960
20040 2970
20045 2980
20050 2990
20055 3000

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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          **************
          *            *
604 KK    *     C-5    *
          *            *
          **************

606 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          2  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

607 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
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HYDROGRAPH AT STATION C-5
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = 1.00

**********

| DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | 1 | | 0615 | 76 | 152. | 1 | | 1230 | 151 | 97. | 1 | | 1845 | 226 | 96. |
| 1 | | 0005 | 2 | 0. | 1 | | 0620 | 77 | 145. | 1 | | 1235 | 152 | 96. | 1 | | 1850 | 227 | 96. |
| 1 | | 0010 | 3 | 0. | 1 | | 0625 | 78 | 139. | 1 | | 1240 | 153 | 96. | 1 | | 1855 | 228 | 96. |
| 1 | | 0015 | 4 | 0. | 1 | | 0630 | 79 | 133. | 1 | | 1245 | 154 | 96. | 1 | | 1900 | 229 | 95. |
| 1 | | 0020 | 5 | 0. | 1 | | 0635 | 80 | 128. | 1 | | 1250 | 155 | 96. | 1 | | 1905 | 230 | 95. |
| 1 | | 0025 | 6 | 0. | 1 | | 0640 | 81 | 124. | 1 | | 1255 | 156 | 96. | 1 | | 1910 | 231 | 95. |
| 1 | | 0030 | 7 | 0. | 1 | | 0645 | 82 | 119. | 1 | | 1300 | 157 | 96. | 1 | | 1915 | 232 | 95. |
| 1 | | 0035 | 8 | 0. | 1 | | 0650 | 83 | 115. | 1 | | 1305 | 158 | 96. | 1 | | 1920 | 233 | 95. |
| 1 | | 0040 | 9 | 0. | 1 | | 0655 | 84 | 111. | 1 | | 1310 | 159 | 96. | 1 | | 1925 | 234 | 95. |
| 1 | | 0045 | 10 | 0. | 1 | | 0700 | 85 | 108. | 1 | | 1315 | 160 | 96. | 1 | | 1930 | 235 | 95. |
| 1 | | 0050 | 11 | 0. | 1 | | 0705 | 86 | 106. | 1 | | 1320 | 161 | 96. | 1 | | 1935 | 236 | 95. |
| 1 | | 0055 | 12 | 0. | 1 | | 0710 | 87 | 103. | 1 | | 1325 | 162 | 96. | 1 | | 1940 | 237 | 95. |
| 1 | | 0100 | 13 | 0. | 1 | | 0715 | 88 | 102. | 1 | | 1330 | 163 | 96. | 1 | | 1945 | 238 | 95. |
| 1 | | 0105 | 14 | 0. | 1 | | 0720 | 89 | 101. | 1 | | 1335 | 164 | 96. | 1 | | 1950 | 239 | 95. |
| 1 | | 0110 | 15 | 0. | 1 | | 0725 | 90 | 100. | 1 | | 1340 | 165 | 96. | 1 | | 1955 | 240 | 95. |
| 1 | | 0115 | 16 | 0. | 1 | | 0730 | 91 | 99. | 1 | | 1345 | 166 | 96. | 1 | | 2000 | 241 | 95. |
| 1 | | 0120 | 17 | 0. | 1 | | 0735 | 92 | 99. | 1 | | 1350 | 167 | 96. | 1 | | 2005 | 242 | 95. |
| 1 | | 0125 | 18 | 0. | 1 | | 0740 | 93 | 98. | 1 | | 1355 | 168 | 96. | 1 | | 2010 | 243 | 95. |
| 1 | | 0130 | 19 | 0. | 1 | | 0745 | 94 | 98. | 1 | | 1400 | 169 | 96. | 1 | | 2015 | 244 | 95. |
| 1 | | 0135 | 20 | 0. | 1 | | 0750 | 95 | 98. | 1 | | 1405 | 170 | 96. | 1 | | 2020 | 245 | 95. |
| 1 | | 0140 | 21 | 0. | 1 | | 0755 | 96 | 98. | 1 | | 1410 | 171 | 96. | 1 | | 2025 | 246 | 95. |
| 1 | | 0145 | 22 | 1. | 1 | | 0800 | 97 | 98. | 1 | | 1415 | 172 | 96. | 1 | | 2030 | 247 | 95. |
| 1 | | 0150 | 23 | 2. | 1 | | 0805 | 98 | 97. | 1 | | 1420 | 173 | 96. | 1 | | 2035 | 248 | 95. |
| 1 | | 0155 | 24 | 8. | 1 | | 0810 | 99 | 97. | 1 | | 1425 | 174 | 96. | 1 | | 2040 | 249 | 95. |
| 1 | | 0200 | 25 | 18. | 1 | | 0815 | 100 | 97. | 1 | | 1430 | 175 | 96. | 1 | | 2045 | 250 | 95. |
| 1 | | 0205 | 26 | 34. | 1 | | 0820 | 101 | 97. | 1 | | 1435 | 176 | 96. | 1 | | 2050 | 251 | 95. |
| 1 | | 0210 | 27 | 50. | 1 | | 0825 | 102 | 97. | 1 | | 1440 | 177 | 96. | 1 | | 2055 | 252 | 95. |
| 1 | | 0215 | 28 | 64. | 1 | | 0830 | 103 | 97. | 1 | | 1445 | 178 | 96. | 1 | | 2100 | 253 | 95. |
| 1 | | 0220 | 29 | 73. | 1 | | 0835 | 104 | 97. | 1 | | 1450 | 179 | 96. | 1 | | 2105 | 254 | 95. |
| 1 | | 0225 | 30 | 80. | 1 | | 0840 | 105 | 97. | 1 | | 1455 | 180 | 96. | 1 | | 2110 | 255 | 95. |
| 1 | | 0230 | 31 | 84. | 1 | | 0845 | 106 | 97. | 1 | | 1500 | 181 | 96. | 1 | | 2115 | 256 | 95. |
| 1 | | 0235 | 32 | 88. | 1 | | 0850 | 107 | 97. | 1 | | 1505 | 182 | 96. | 1 | | 2120 | 257 | 95. |
| 1 | | 0240 | 33 | 93. | 1 | | 0855 | 108 | 97. | 1 | | 1510 | 183 | 96. | 1 | | 2125 | 258 | 95. |
| 1 | | 0245 | 34 | 97. | 1 | | 0900 | 109 | 97. | 1 | | 1515 | 184 | 96. | 1 | | 2130 | 259 | 95. |
| 1 | | 0250 | 35 | 101. | 1 | | 0905 | 110 | 97. | 1 | | 1520 | 185 | 96. | 1 | | 2135 | 260 | 95. |
| 1 | | 0255 | 36 | 103. | 1 | | 0910 | 111 | 97. | 1 | | 1525 | 186 | 96. | 1 | | 2140 | 261 | 95. |
| 1 | | 0300 | 37 | 103. | 1 | | 0915 | 112 | 97. | 1 | | 1530 | 187 | 96. | 1 | | 2145 | 262 | 95. |
| 1 | | 0305 | 38 | 102. | 1 | | 0920 | 113 | 97. | 1 | | 1535 | 188 | 96. | 1 | | 2150 | 263 | 95. |
| 1 | | 0310 | 39 | 102. | 1 | | 0925 | 114 | 97. | 1 | | 1540 | 189 | 96. | 1 | | 2155 | 264 | 95. |
| 1 | | 0315 | 40 | 102. | 1 | | 0930 | 115 | 97. | 1 | | 1545 | 190 | 96. | 1 | | 2200 | 265 | 95. |
| 1 | | 0320 | 41 | 105. | 1 | | 0935 | 116 | 97. | 1 | | 1550 | 191 | 96. | 1 | | 2205 | 266 | 95. |
| 1 | | 0325 | 42 | 112. | 1 | | 0940 | 117 | 97. | 1 | | 1555 | 192 | 96. | 1 | | 2210 | 267 | 95. |
| 1 | | 0330 | 43 | 131. | 1 | | 0945 | 118 | 97. | 1 | | 1600 | 193 | 96. | 1 | | 2215 | 268 | 95. |
| 1 | | 0335 | 44 | 169. | 1 | | 0950 | 119 | 97. | 1 | | 1605 | 194 | 96. | 1 | | 2220 | 269 | 95. |
| 1 | | 0340 | 45 | 235. | 1 | | 0955 | 120 | 97. | 1 | | 1610 | 195 | 96. | 1 | | 2225 | 270 | 95. |
| 1 | | 0345 | 46 | 331. | 1 | | 1000 | 121 | 97. | 1 | | 1615 | 196 | 96. | 1 | | 2230 | 271 | 95. |
| 1 | | 0350 | 47 | 448. | 1 | | 1005 | 122 | 97. | 1 | | 1620 | 197 | 96. | 1 | | 2235 | 272 | 95. |
| 1 | | 0355 | 48 | 559. | 1 | | 1010 | 123 | 97. | 1 | | 1625 | 198 | 96. | 1 | | 2240 | 273 | 95. |
| 1 | | 0400 | 49 | 628. | 1 | | 1015 | 124 | 97. | 1 | | 1630 | 199 | 96. | 1 | | 2245 | 274 | 95. |
| 1 | | 0405 | 50 | 647. | 1 | | 1020 | 125 | 97. | 1 | | 1635 | 200 | 96. | 1 | | 2250 | 275 | 95. |
| 1 | | 0410 | 51 | 627. | 1 | | 1025 | 126 | 97. | 1 | | 1640 | 201 | 96. | 1 | | 2255 | 276 | 95. |
| 1 | | 0415 | 52 | 588. | 1 | | 1030 | 127 | 97. | 1 | | 1645 | 202 | 96. | 1 | | 2300 | 277 | 95. |
| 1 | | 0420 | 53 | 542. | 1 | | 1035 | 128 | 97. | 1 | | 1650 | 203 | 96. | 1 | | 2305 | 278 | 95. |
| 1 | | 0425 | 54 | 495. | 1 | | 1040 | 129 | 97. | 1 | | 1655 | 204 | 96. | 1 | | 2310 | 279 | 95. |
| 1 | | 0430 | 55 | 450. | 1 | | 1045 | 130 | 97. | 1 | | 1700 | 205 | 96. | 1 | | 2315 | 280 | 95. |
| 1 | | 0435 | 56 | 408. | 1 | | 1050 | 131 | 97. | 1 | | 1705 | 206 | 96. | 1 | | 2320 | 281 | 95. |
| 1 | | 0440 | 57 | 372. | 1 | | 1055 | 132 | 97. | 1 | | 1710 | 207 | 96. | 1 | | 2325 | 282 | 95. |
| 1 | | 0445 | 58 | 344. | 1 | | 1100 | 133 | 97. | 1 | | 1715 | 208 | 96. | 1 | | 2330 | 283 | 95. |
| 1 | | 0450 | 59 | 325. | 1 | | 1105 | 134 | 97. | 1 | | 1720 | 209 | 96. | 1 | | 2335 | 284 | 95. |
| 1 | | 0455 | 60 | 315. | 1 | | 1110 | 135 | 97. | 1 | | 1725 | 210 | 96. | 1 | | 2340 | 285 | 95. |
| 1 | | 0500 | 61 | 313. | 1 | | 1115 | 136 | 97. | 1 | | 1730 | 211 | 96. | 1 | | 2345 | 286 | 95. |
| 1 | | 0505 | 62 | 319. | 1 | | 1120 | 137 | 97. | 1 | | 1735 | 212 | 96. | 1 | | 2350 | 287 | 95. |
| 1 | | 0510 | 63 | 331. | 1 | | 1125 | 138 | 97. | 1 | | 1740 | 213 | 96. | 1 | | 2355 | 288 | 95. |
| 1 | | 0515 | 64 | 343. | 1 | | 1130 | 139 | 97. | 1 | | 1745 | 214 | 96. | 2 | | 0000 | 289 | 95. |
| 1 | | 0520 | 65 | 346. | 1 | | 1135 | 140 | 97. | 1 | | 1750 | 215 | 96. | 2 | | 0005 | 290 | 95. |
| 1 | | 0525 | 66 | 338. | 1 | | 1140 | 141 | 97. | 1 | | 1755 | 216 | 96. | 2 | | 0010 | 291 | 95. |
| 1 | | 0530 | 67 | 320. | 1 | | 1145 | 142 | 97. | 1 | | 1800 | 217 | 96. | 2 | | 0015 | 292 | 95. |
| 1 | | 0535 | 68 | 295. | 1 | | 1150 | 143 | 97. | 1 | | 1805 | 218 | 96. | 2 | | 0020 | 293 | 95. |
| 1 | | 0540 | 69 | 269. | 1 | | 1155 | 144 | 97. | 1 | | 1810 | 219 | 96. | 2 | | 0025 | 294 | 95. |
| 1 | | 0545 | 70 | 244. | 1 | | 1200 | 145 | 97. | 1 | | 1815 | 220 | 96. | 2 | | 0030 | 295 | 95. |
| 1 | | 0550 | 71 | 221. | 1 | | 1205 | 146 | 97. | 1 | | 1820 | 221 | 96. | 2 | | 0035 | 296 | 95. |
| 1 | | 0555 | 72 | 201. | 1 | | 1210 | 147 | 97. | 1 | | 1825 | 222 | 96. | 2 | | 0040 | 297 | 95. |
| 1 | | 0600 | 73 | 186. | 1 | | 1215 | 148 | 97. | 1 | | 1830 | 223 | 96. | 2 | | 0045 | 298 | 95. |
| 1 | | 0605 | 74 | 172. | 1 | | 1220 | 149 | 97. | 1 | | 1835 | 224 | 96. | 2 | | 0050 | 299 | 95. |
| 1 | | 0610 | 75 | 161. | 1 | | 1225 | 150 | 97. | 1 | | 1840 | 225 | 96. | 2 | | 0055 | 300 | 95. |

| PEAK FLOW (CFS) | TIME (HR) | | MAXIMUM AVERAGE FLOW 6-HR | 24-HR | 72-HR | 24.92-HR |
|---|---|---|---|---|---|---|
| 647. | 4.08 | (CFS) | 220. | 122. | 117. | 117. |
| | | (INCHES) | 3.252 | 7.199 | 7.199 | 7.199 |
| | | (AC-FT) | 109. | 242. | 242. | 242. |

CUMULATIVE AREA = .63 SQ MI

1 STATION C-5

(O) OUTFLOW

| DAHRMN | PER | 0. | 100. | 200. | 300. | 400. | 500. | 600. | 700. | 0. | 0. | 0. | 0. | 0. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10000 | 10 | | | | | | | | | | | | | |
| 10005 | 20 | | | | | | | | | | | | | |
| 10010 | 30 | | | | | | | | | | | | | |
| 10015 | 40 | | | | | | | | | | | | | |
| 10020 | 50 | | | | | | | | | | | | | |
| 10025 | 60 | | | | | | | | | | | | | |
| 10030 | 70 | | | | | | | | | | | | | |
| 10035 | 80 | | | | | | | | | | | | | |
| 10040 | 90 | | | | | | | | | | | | | |
| 10045 | 100 | | | | | | | | | | | | | |
| 10050 | 110 | | | | | | | | | | | | | |
| 10055 | 120 | | | | | | | | | | | | | |
| 10100 | 130 | | | | | | | | | | | | | |
| 10105 | 140 | | | | | | | | | | | | | |
| 10110 | 150 | | | | | | | | | | | | | |
| 10115 | 160 | | | | | | | | | | | | | |
| 10120 | 170 | | | | | | | | | | | | | |
| 10125 | 180 | | | | | | | | | | | | | |
| 10130 | 190 | | | | | | | | | | | | | |
| 10135 | 200 | | | | | | | | | | | | | |
| 10140 | 210 | | | | | | | | | | | | | |
| 10145 | 220 | | | | | | | | | | | | | |
| 10150 | 230 | | | | | | | | | | | | | |
| 10155 | 24.O | | | | | | | | | | | | | |
| 10200 | 25. O | | | | | | | | | | | | | |
| 10205 | 26. O | | | | | | | | | | | | | |
| 10210 | 27. O | | | | | | | | | | | | | |
| 10215 | 28. O | | | | | | | | | | | | | |
| 10220 | 29. O | | | | | | | | | | | | | |
| 10225 | 30. O | | | | | | | | | | | | | |
| 10230 | 31. O | | | | | | | | | | | | | |
| 10235 | 32. O | | | | | | | | | | | | | |
| 10240 | 33. O | | | | | | | | | | | | | |
| 10245 | 34. O | | | | | | | | | | | | | |
| 10250 | 35. O | | | | | | | | | | | | | |
| 10255 | 36. O | | | | | | | | | | | | | |
| 10300 | 37. O | | | | | | | | | | | | | |
| 10305 | 38. O | | | | | | | | | | | | | |
| 10310 | 39. O | | | | | | | | | | | | | |
| 10315 | 40. O | | | | | | | | | | | | | |
| 10320 | 41. O | | | | | | | | | | | | | |
| 10325 | 42. O | | | | | | | | | | | | | |
| 10330 | 43. O | | | | | | | | | | | | | |
| 10335 | 44. O | | | | | | | | | | | | | |
| 10340 | 45. O | | | | | | | | | | | | | |
| 10345 | 46. O | | | | | | | | | | | | | |
| 10350 | 47. O | | | | | | | | | | | | | |
| 10355 | 48. O | | | | | | | | | | | | | |
| 10400 | 49. O | | | | | | | | | | | | | |
| 10405 | 50. O | | | | | | | | | | | | | |
| 10410 | 51. O | | | | | | | | | | | | | |
| 10415 | 52. O | | | | | | | | | | | | | |
| 10420 | 53. O | | | | | | | | | | | | | |
| 10425 | 54. O | | | | | | | | | | | | | |
| 10430 | 55. O | | | | | | | | | | | | | |
| 10435 | 56. O | | | | | | | | | | | | | |
| 10440 | 57. O | | | | | | | | | | | | | |
| 10445 | 58. O | | | | | | | | | | | | | |
| 10450 | 59. O | | | | | | | | | | | | | |
| 10455 | 60. O | | | | | | | | | | | | | |
| 10500 | 61. O | | | | | | | | | | | | | |
| 10505 | 62. O | | | | | | | | | | | | | |
| 10510 | 63. O | | | | | | | | | | | | | |
| 10515 | 64. O | | | | | | | | | | | | | |
| 10520 | 65. O | | | | | | | | | | | | | |
| 10525 | 66. O | | | | | | | | | | | | | |
| 10530 | 67. O | | | | | | | | | | | | | |
| 10535 | 68. O | | | | | | | | | | | | | |
| 10540 | 69. O | | | | | | | | | | | | | |
| 10545 | 70. O | | | | | | | | | | | | | |
| 10550 | 71. O | | | | | | | | | | | | | |
| 10555 | 72. O | | | | | | | | | | | | | |
| 10600 | 73. O | | | | | | | | | | | | | |
| 10605 | 74. O | | | | | | | | | | | | | |
| 10610 | 75. O | | | | | | | | | | | | | |
| 10615 | 76. O | | | | | | | | | | | | | |
| 10620 | 77. O | | | | | | | | | | | | | |
| 10625 | 78. O | | | | | | | | | | | | | |
| 10630 | 79. O | | | | | | | | | | | | | |
| 10635 | 80. O | | | | | | | | | | | | | |
| 10640 | 81. O | | | | | | | | | | | | | |
| 10645 | 82. O | | | | | | | | | | | | | |
| 10650 | 83. O | | | | | | | | | | | | | |
| 10655 | 84. O | | | | | | | | | | | | | |
| 10700 | 85. O | | | | | | | | | | | | | |
| 10705 | 86. O | | | | | | | | | | | | | |
| 10710 | 87. O | | | | | | | | | | | | | |

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10715  88.        o
10720  89.        o
10725  90.        o
10730  91.        o
10735  92.        o
10740  93.        o
10745  94.        o
10750  95.        o
10755  96.        o
10800  97.        o
10805  98.        o
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10815 100.        o
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10830 103.        o
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10850 107.        o
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11535 188.        o
11540 189.        o
11545 190.        o
11550 191.        o
11555 192.        o
```

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11605 194. o
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11640 201. o
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11710 207. o
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12230 271. o.
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12245 274. o.
12250 275. o.
12255 276. o.
12300 277. o.
12305 278. o.
12310 279. o.
12315 280. o.
12320 281. o.
12325 282. o.
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12335 284. o.
12340 285. o.
12345 286. o.
12350 287. o.
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20000 289. o.
20005 290. o.
20010 291. o.
20015 292. o.
20020 293. o.
20025 294. o.
20030 295. o.
20035 296. o.
20040 297. o.

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20050 299.        O.
20055 300.--------O.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
1
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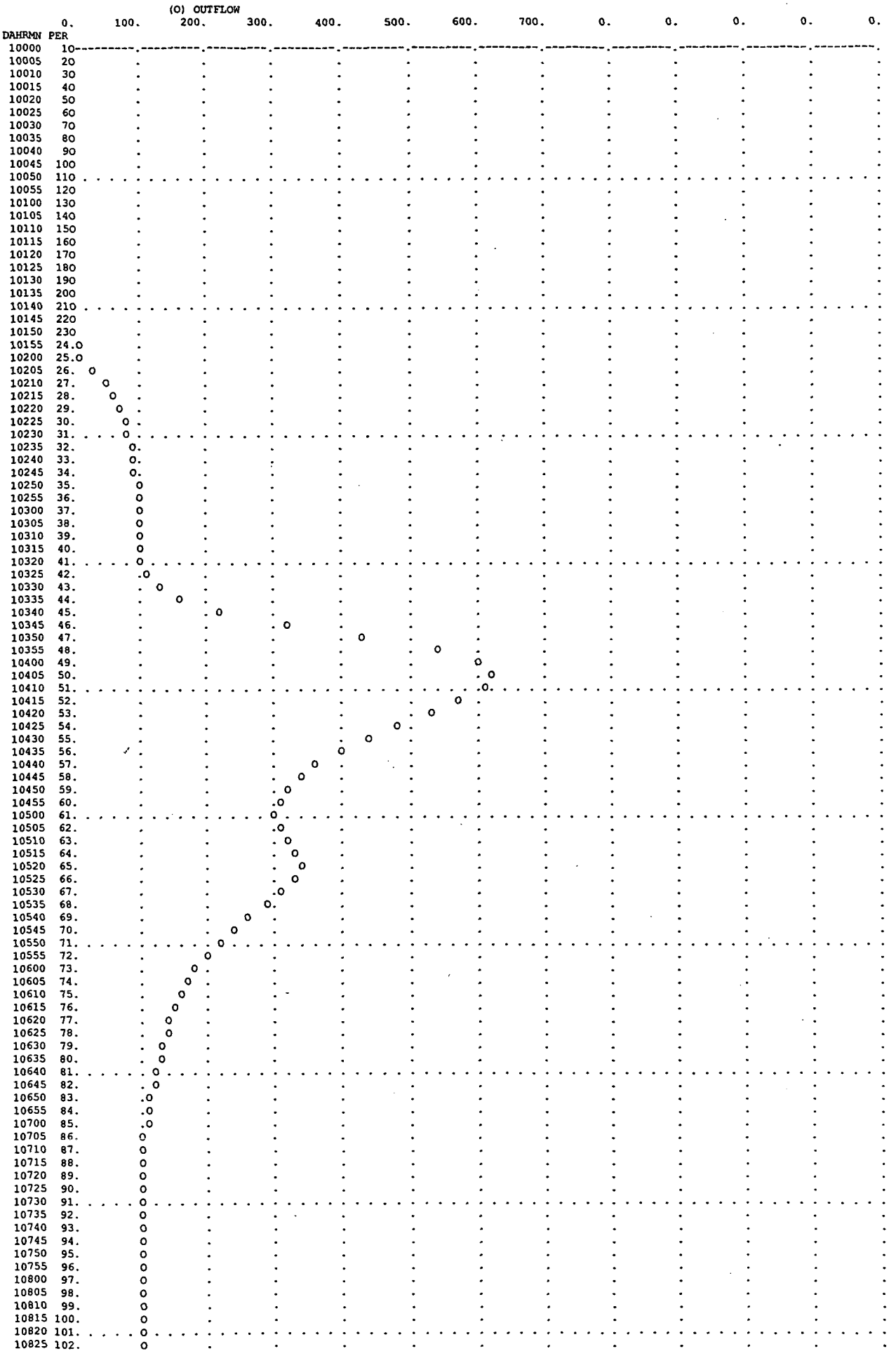
HYDROGRAPH AT STATION C-5
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .98

"HYDRO1"

| DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | 1 | | 0615 | 76 | 150. | 1 | | 1230 | 151 | 96. | 1 | | 1845 | 226 | 95. |
| 1 | | 0005 | 2 | 0. | 1 | | 0620 | 77 | 143. | 1 | | 1235 | 152 | 96. | 1 | | 1850 | 227 | 95. |
| 1 | | 0010 | 3 | 0. | 1 | | 0625 | 78 | 137. | 1 | | 1240 | 153 | 96. | 1 | | 1855 | 228 | 95. |
| 1 | | 0015 | 4 | 0. | 1 | | 0630 | 79 | 131. | 1 | | 1245 | 154 | 96. | 1 | | 1900 | 229 | 95. |
| 1 | | 0020 | 5 | 0. | 1 | | 0635 | 80 | 127. | 1 | | 1250 | 155 | 96. | 1 | | 1905 | 230 | 95. |
| 1 | | 0025 | 6 | 0. | 1 | | 0640 | 81 | 122. | 1 | | 1255 | 156 | 95. | 1 | | 1910 | 231 | 95. |
| 1 | | 0030 | 7 | 0. | 1 | | 0645 | 82 | 118. | 1 | | 1300 | 157 | 95. | 1 | | 1915 | 232 | 95. |
| 1 | | 0035 | 8 | 0. | 1 | | 0650 | 83 | 114. | 1 | | 1305 | 158 | 95. | 1 | | 1920 | 233 | 94. |
| 1 | | 0040 | 9 | 0. | 1 | | 0655 | 84 | 110. | 1 | | 1310 | 159 | 95. | 1 | | 1925 | 234 | 94. |
| 1 | | 0045 | 10 | 0. | 1 | | 0700 | 85 | 107. | 1 | | 1315 | 160 | 95. | 1 | | 1930 | 235 | 94. |
| 1 | | 0050 | 11 | 0. | 1 | | 0705 | 86 | 104. | 1 | | 1320 | 161 | 95. | 1 | | 1935 | 236 | 94. |
| 1 | | 0055 | 12 | 0. | 1 | | 0710 | 87 | 102. | 1 | | 1325 | 162 | 95. | 1 | | 1940 | 237 | 94. |
| 1 | | 0100 | 13 | 0. | 1 | | 0715 | 88 | 101. | 1 | | 1330 | 163 | 95. | 1 | | 1945 | 238 | 94. |
| 1 | | 0105 | 14 | 0. | 1 | | 0720 | 89 | 100. | 1 | | 1335 | 164 | 95. | 1 | | 1950 | 239 | 94. |
| 1 | | 0110 | 15 | 0. | 1 | | 0725 | 90 | 99. | 1 | | 1340 | 165 | 95. | 1 | | 1955 | 240 | 94. |
| 1 | | 0115 | 16 | 0. | 1 | | 0730 | 91 | 98. | 1 | | 1345 | 166 | 95. | 1 | | 2000 | 241 | 94. |
| 1 | | 0120 | 17 | 0. | 1 | | 0735 | 92 | 98. | 1 | | 1350 | 167 | 95. | 1 | | 2005 | 242 | 94. |
| 1 | | 0125 | 18 | 0. | 1 | | 0740 | 93 | 97. | 1 | | 1355 | 168 | 95. | 1 | | 2010 | 243 | 94. |
| 1 | | 0130 | 19 | 0. | 1 | | 0745 | 94 | 97. | 1 | | 1400 | 169 | 95. | 1 | | 2015 | 244 | 94. |
| 1 | | 0135 | 20 | 0. | 1 | | 0750 | 95 | 97. | 1 | | 1405 | 170 | 95. | 1 | | 2020 | 245 | 94. |
| 1 | | 0140 | 21 | 0. | 1 | | 0755 | 96 | 97. | 1 | | 1410 | 171 | 95. | 1 | | 2025 | 246 | 94. |
| 1 | | 0145 | 22 | 0. | 1 | | 0800 | 97 | 97. | 1 | | 1415 | 172 | 95. | 1 | | 2030 | 247 | 94. |
| 1 | | 0150 | 23 | 1. | 1 | | 0805 | 98 | 96. | 1 | | 1420 | 173 | 95. | 1 | | 2035 | 248 | 94. |
| 1 | | 0155 | 24 | 7. | 1 | | 0810 | 99 | 96. | 1 | | 1425 | 174 | 95. | 1 | | 2040 | 249 | 94. |
| 1 | | 0200 | 25 | 14. | 1 | | 0815 | 100 | 96. | 1 | | 1430 | 175 | 95. | 1 | | 2045 | 250 | 94. |
| 1 | | 0205 | 26 | 29. | 1 | | 0820 | 101 | 96. | 1 | | 1435 | 176 | 95. | 1 | | 2050 | 251 | 94. |
| 1 | | 0210 | 27 | 45. | 1 | | 0825 | 102 | 96. | 1 | | 1440 | 177 | 95. | 1 | | 2055 | 252 | 94. |
| 1 | | 0215 | 28 | 58. | 1 | | 0830 | 103 | 96. | 1 | | 1445 | 178 | 95. | 1 | | 2100 | 253 | 94. |
| 1 | | 0220 | 29 | 69. | 1 | | 0835 | 104 | 96. | 1 | | 1450 | 179 | 95. | 1 | | 2105 | 254 | 94. |
| 1 | | 0225 | 30 | 76. | 1 | | 0840 | 105 | 96. | 1 | | 1455 | 180 | 95. | 1 | | 2110 | 255 | 94. |
| 1 | | 0230 | 31 | 82. | 1 | | 0845 | 106 | 96. | 1 | | 1500 | 181 | 95. | 1 | | 2115 | 256 | 94. |
| 1 | | 0235 | 32 | 86. | 1 | | 0850 | 107 | 96. | 1 | | 1505 | 182 | 95. | 1 | | 2120 | 257 | 94. |
| 1 | | 0240 | 33 | 90. | 1 | | 0855 | 108 | 96. | 1 | | 1510 | 183 | 95. | 1 | | 2125 | 258 | 94. |
| 1 | | 0245 | 34 | 94. | 1 | | 0900 | 109 | 96. | 1 | | 1515 | 184 | 95. | 1 | | 2130 | 259 | 94. |
| 1 | | 0250 | 35 | 99. | 1 | | 0905 | 110 | 96. | 1 | | 1520 | 185 | 95. | 1 | | 2135 | 260 | 94. |
| 1 | | 0255 | 36 | 100. | 1 | | 0910 | 111 | 96. | 1 | | 1525 | 186 | 95. | 1 | | 2140 | 261 | 94. |
| 1 | | 0300 | 37 | 101. | 1 | | 0915 | 112 | 96. | 1 | | 1530 | 187 | 95. | 1 | | 2145 | 262 | 94. |
| 1 | | 0305 | 38 | 100. | 1 | | 0920 | 113 | 96. | 1 | | 1535 | 188 | 95. | 1 | | 2150 | 263 | 94. |
| 1 | | 0310 | 39 | 100. | 1 | | 0925 | 114 | 96. | 1 | | 1540 | 189 | 95. | 1 | | 2155 | 264 | 94. |
| 1 | | 0315 | 40 | 100. | 1 | | 0930 | 115 | 96. | 1 | | 1545 | 190 | 95. | 1 | | 2200 | 265 | 94. |
| 1 | | 0320 | 41 | 102. | 1 | | 0935 | 116 | 96. | 1 | | 1550 | 191 | 95. | 1 | | 2205 | 266 | 94. |
| 1 | | 0325 | 42 | 109. | 1 | | 0940 | 117 | 96. | 1 | | 1555 | 192 | 95. | 1 | | 2210 | 267 | 94. |
| 1 | | 0330 | 43 | 126. | 1 | | 0945 | 118 | 96. | 1 | | 1600 | 193 | 95. | 1 | | 2215 | 268 | 94. |
| 1 | | 0335 | 44 | 161. | 1 | | 0950 | 119 | 96. | 1 | | 1605 | 194 | 95. | 1 | | 2220 | 269 | 94. |
| 1 | | 0340 | 45 | 223. | 1 | | 0955 | 120 | 96. | 1 | | 1610 | 195 | 95. | 1 | | 2225 | 270 | 94. |
| 1 | | 0345 | 46 | 318. | 1 | | 1000 | 121 | 96. | 1 | | 1615 | 196 | 95. | 1 | | 2230 | 271 | 94. |
| 1 | | 0350 | 47 | 430. | 1 | | 1005 | 122 | 96. | 1 | | 1620 | 197 | 95. | 1 | | 2235 | 272 | 94. |
| 1 | | 0355 | 48 | 538. | 1 | | 1010 | 123 | 96. | 1 | | 1625 | 198 | 95. | 1 | | 2240 | 273 | 94. |
| 1 | | 0400 | 49 | 604. | 1 | | 1015 | 124 | 96. | 1 | | 1630 | 199 | 95. | 1 | | 2245 | 274 | 94. |
| 1 | | 0405 | 50 | 623. | 1 | | 1020 | 125 | 96. | 1 | | 1635 | 200 | 95. | 1 | | 2250 | 275 | 94. |
| 1 | | 0410 | 51 | 607. | 1 | | 1025 | 126 | 96. | 1 | | 1640 | 201 | 95. | 1 | | 2255 | 276 | 94. |
| 1 | | 0415 | 52 | 569. | 1 | | 1030 | 127 | 96. | 1 | | 1645 | 202 | 95. | 1 | | 2300 | 277 | 94. |
| 1 | | 0420 | 53 | 525. | 1 | | 1035 | 128 | 96. | 1 | | 1650 | 203 | 95. | 1 | | 2305 | 278 | 94. |
| 1 | | 0425 | 54 | 480. | 1 | | 1040 | 129 | 96. | 1 | | 1655 | 204 | 95. | 1 | | 2310 | 279 | 94. |
| 1 | | 0430 | 55 | 437. | 1 | | 1045 | 130 | 96. | 1 | | 1700 | 205 | 95. | 1 | | 2315 | 280 | 94. |
| 1 | | 0435 | 56 | 397. | 1 | | 1050 | 131 | 96. | 1 | | 1705 | 206 | 95. | 1 | | 2320 | 281 | 94. |
| 1 | | 0440 | 57 | 363. | 1 | | 1055 | 132 | 96. | 1 | | 1710 | 207 | 95. | 1 | | 2325 | 282 | 94. |
| 1 | | 0445 | 58 | 335. | 1 | | 1100 | 133 | 96. | 1 | | 1715 | 208 | 95. | 1 | | 2330 | 283 | 94. |
| 1 | | 0450 | 59 | 316. | 1 | | 1105 | 134 | 96. | 1 | | 1720 | 209 | 95. | 1 | | 2335 | 284 | 94. |
| 1 | | 0455 | 60 | 306. | 1 | | 1110 | 135 | 96. | 1 | | 1725 | 210 | 95. | 1 | | 2340 | 285 | 94. |
| 1 | | 0500 | 61 | 304. | 1 | | 1115 | 136 | 96. | 1 | | 1730 | 211 | 95. | 1 | | 2345 | 286 | 94. |
| 1 | | 0505 | 62 | 310. | 1 | | 1120 | 137 | 96. | 1 | | 1735 | 212 | 95. | 1 | | 2350 | 287 | 94. |
| 1 | | 0510 | 63 | 321. | 1 | | 1125 | 138 | 96. | 1 | | 1740 | 213 | 95. | 1 | | 2355 | 288 | 94. |
| 1 | | 0515 | 64 | 333. | 1 | | 1130 | 139 | 96. | 1 | | 1745 | 214 | 95. | 2 | | 0000 | 289 | 94. |
| 1 | | 0520 | 65 | 339. | 1 | | 1135 | 140 | 96. | 1 | | 1750 | 215 | 95. | 2 | | 0005 | 290 | 94. |
| 1 | | 0525 | 66 | 332. | 1 | | 1140 | 141 | 96. | 1 | | 1755 | 216 | 95. | 2 | | 0010 | 291 | 94. |
| 1 | | 0530 | 67 | 314. | 1 | | 1145 | 142 | 96. | 1 | | 1800 | 217 | 95. | 2 | | 0015 | 292 | 94. |
| 1 | | 0535 | 68 | 289. | 1 | | 1150 | 143 | 96. | 1 | | 1805 | 218 | 95. | 2 | | 0020 | 293 | 94. |
| 1 | | 0540 | 69 | 264. | 1 | | 1155 | 144 | 96. | 1 | | 1810 | 219 | 95. | 2 | | 0025 | 294 | 94. |
| 1 | | 0545 | 70 | 239. | 1 | | 1200 | 145 | 96. | 1 | | 1815 | 220 | 95. | 2 | | 0030 | 295 | 94. |
| 1 | | 0550 | 71 | 217. | 1 | | 1205 | 146 | 96. | 1 | | 1820 | 221 | 95. | 2 | | 0035 | 296 | 94. |
| 1 | | 0555 | 72 | 198. | 1 | | 1210 | 147 | 96. | 1 | | 1825 | 222 | 95. | 2 | | 0040 | 297 | 94. |
| 1 | | 0600 | 73 | 182. | 1 | | 1215 | 148 | 96. | 1 | | 1830 | 223 | 95. | 2 | | 0045 | 298 | 94. |
| 1 | | 0605 | 74 | 169. | 1 | | 1220 | 149 | 96. | 1 | | 1835 | 224 | 95. | 2 | | 0050 | 299 | 94. |
| 1 | | 0610 | 75 | 159. | 1 | | 1225 | 150 | 96. | 1 | | 1840 | 225 | 95. | 2 | | 0055 | 300 | 94. |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 24.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 623. | 4.08 | | 215. | 120. | 115. | 115. |
| | | (INCHES) | 3.169 | 7.070 | 7.070 | 7.070 |
| | | (AC-FT) | 106. | 237. | 237. | 237. |

CUMULATIVE AREA = .63 SQ MI


(O) OUTFLOW
0. 100. 200. 300. 400. 500. 600. 700. 0. 0. 0. 0. 0.
DAHRMN PER

```
10830 103.        o
10835 104.        o
10840 105.        o
10845 106.        o
10850 107.        o
10855 108.        o
10900 109.        o
10905 110.        o
10910 111.        o
10915 112.        o
10920 113.        o
10925 114.        o
10930 115.        o
10935 116.        o
10940 117.        o
10945 118.        o
10950 119.        o
10955 120.        o
11000 121.        o
11005 122.        o
11010 123.        o
11015 124.        o
11020 125.        o
11025 126.        o
11030 127.        o
11035 128.        o
11040 129.        o
11045 130.        o
11050 131.        o
11055 132.        o
11100 133.        o
11105 134.        o
11110 135.        o
11115 136.        o
11120 137.        o
11125 138.        o
11130 139.        o
11135 140.        o
11140 141.        o
11145 142.        o
11150 143.        o
11155 144.        o
11200 145.        o
11205 146.        o
11210 147.        o
11215 148.        o
11220 149.        o
11225 150.        o
11230 151.        o
11235 152.        o
11240 153.        o
11245 154.        o
11250 155.        o
11255 156.        o
11300 157.        o
11305 158.        o
11310 159.        o
11315 160.        o
11320 161.        o
11325 162.        o
11330 163.        o
11335 164.        o
11340 165.        o
11345 166.        o
11350 167.        o
11355 168.        o
11400 169.        o
11405 170.        o
11410 171.        o
11415 172.        o
11420 173.        o
11425 174.        o
11430 175.        o
11435 176.        o
11440 177.        o
11445 178.        o
11450 179.        o
11455 180.        o
11500 181.        o
11505 182.        o
11510 183.        o
11515 184.        o
11520 185.        o
11525 186.        o
11530 187.        o
11535 188.        o
11540 189.        o
11545 190.        o
11550 191.        o
11555 192.        o
11600 193.        o
11605 194.       O.
11610 195.       O.
11615 196.       O.
11620 197.       O.
11625 198.       O.
11630 199.       O.
11635 200.       O.
11640 201.       O.
11645 202.       O.
11650 203.       O.
11655 204.       O.
11700 205.       O.
11705 206.       O.
11710 207.       O.
```

```
11715 208.        0.
11720 209.        0.
11725 210.        0.
11730 211.        0.
11735 212.        0.
11740 213.        0.
11745 214.        0.
11750 215.        0.
11755 216.        0.
11800 217.        0.
11805 218.        0.
11810 219.        0.
11815 220.        0.
11820 221.        0.
11825 222.        0.
11830 223.        0.
11835 224.        0.
11840 225.        0.
11845 226.        0.
11850 227.        0.
11855 228.        0.
11900 229.        0.
11905 230.        0.
11910 231.        0.
11915 232.        0.
11920 233.        0.
11925 234.        0.
11930 235.        0.
11935 236.        0.
11940 237.        0.
11945 238.        0.
11950 239.        0.
11955 240.        0.
12000 241.        0.
12005 242.        0.
12010 243.        0.
12015 244.        0.
12020 245.        0.
12025 246.        0.
12030 247.        0.
12035 248.        0.
12040 249.        0.
12045 250.        0.
12050 251.        0.
12055 252.        0.
12100 253.        0.
12105 254.        0.
12110 255.        0.
12115 256.        0.
12120 257.        0.
12125 258.        0.
12130 259.        0.
12135 260.        0.
12140 261.        0.
12145 262.        0.
12150 263.        0.
12155 264.        0.
12200 265.        0.
12205 266.        0.
12210 267.        0.
12215 268.        0.
12220 269.        0.
12225 270.        0.
12230 271.        0.
12235 272.        0.
12240 273.        0.
12245 274.        0.
12250 275.        0.
12255 276.        0.
12300 277.        0.
12305 278.        0.
12310 279.        0.
12315 280.        0.
12320 281.        0.
12325 282.        0.
12330 283.        0.
12335 284.        0.
12340 285.        0.
12345 286.        0.
12350 287.        0.
12355 288.        0.
20000 289.        0.
20005 290.        0.
20010 291.        0.
20015 292.        0.
20020 293.        0.
20025 294.        0.
20030 295.        0.
20035 296.        0.
20040 297.        0.
20045 298.        0.
20050 299.        0.
20055 300.--------0.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
1
```

**********

HYDROGRAPH AT STATION C-5
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .57

**********

| DA MON HRMN | ORD | FLOW | DA MON HRMN | ORD | FLOW | DA MON HRMN | ORD | FLOW | DA MON HRMN | ORD | FLOW |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0000 | 1 | 0. | * | 1 | 0615 | 76 | 98. | * | 1 | 1230 | 151 | 73. | * | 1 | 1845 | 226 | 71. |
| 1 | 0005 | 2 | 0. | * | 1 | 0620 | 77 | 95. | * | 1 | 1235 | 152 | 73. | * | 1 | 1850 | 227 | 71. |
| 1 | 0010 | 3 | 0. | * | 1 | 0625 | 78 | 92. | * | 1 | 1240 | 153 | 73. | * | 1 | 1855 | 228 | 71. |
| 1 | 0015 | 4 | 0. | * | 1 | 0630 | 79 | 90. | * | 1 | 1245 | 154 | 73. | * | 1 | 1900 | 229 | 71. |
| 1 | 0020 | 5 | 0. | * | 1 | 0635 | 80 | 88. | * | 1 | 1250 | 155 | 73. | * | 1 | 1905 | 230 | 71. |
| 1 | 0025 | 6 | 0. | * | 1 | 0640 | 81 | 86. | * | 1 | 1255 | 156 | 73. | * | 1 | 1910 | 231 | 71. |
| 1 | 0030 | 7 | 0. | * | 1 | 0645 | 82 | 85. | * | 1 | 1300 | 157 | 73. | * | 1 | 1915 | 232 | 70. |
| 1 | 0035 | 8 | 0. | * | 1 | 0650 | 83 | 83. | * | 1 | 1305 | 158 | 73. | * | 1 | 1920 | 233 | 70. |
| 1 | 0040 | 9 | 0. | * | 1 | 0655 | 84 | 82. | * | 1 | 1310 | 159 | 73. | * | 1 | 1925 | 234 | 70. |
| 1 | 0045 | 10 | 0. | * | 1 | 0700 | 85 | 80. | * | 1 | 1315 | 160 | 73. | * | 1 | 1930 | 235 | 70. |
| 1 | 0050 | 11 | 0. | * | 1 | 0705 | 86 | 79. | * | 1 | 1320 | 161 | 73. | * | 1 | 1935 | 236 | 70. |
| 1 | 0055 | 12 | 0. | * | 1 | 0710 | 87 | 78. | * | 1 | 1325 | 162 | 73. | * | 1 | 1940 | 237 | 70. |
| 1 | 0100 | 13 | 0. | * | 1 | 0715 | 88 | 77. | * | 1 | 1330 | 163 | 73. | * | 1 | 1945 | 238 | 70. |
| 1 | 0105 | 14 | 0. | * | 1 | 0720 | 89 | 76. | * | 1 | 1335 | 164 | 73. | * | 1 | 1950 | 239 | 70. |
| 1 | 0110 | 15 | 0. | * | 1 | 0725 | 90 | 76. | * | 1 | 1340 | 165 | 73. | * | 1 | 1955 | 240 | 70. |
| 1 | 0115 | 16 | 0. | * | 1 | 0730 | 91 | 76. | * | 1 | 1345 | 166 | 73. | * | 1 | 2000 | 241 | 70. |
| 1 | 0120 | 17 | 0. | * | 1 | 0735 | 92 | 75. | * | 1 | 1350 | 167 | 73. | * | 1 | 2005 | 242 | 70. |
| 1 | 0125 | 18 | 0. | * | 1 | 0740 | 93 | 75. | * | 1 | 1355 | 168 | 73. | * | 1 | 2010 | 243 | 70. |
| 1 | 0130 | 19 | 0. | * | 1 | 0745 | 94 | 75. | * | 1 | 1400 | 169 | 73. | * | 1 | 2015 | 244 | 70. |
| 1 | 0135 | 20 | 0. | * | 1 | 0750 | 95 | 75. | * | 1 | 1405 | 170 | 73. | * | 1 | 2020 | 245 | 70. |
| 1 | 0140 | 21 | 0. | * | 1 | 0755 | 96 | 75. | * | 1 | 1410 | 171 | 73. | * | 1 | 2025 | 246 | 70. |
| 1 | 0145 | 22 | 0. | * | 1 | 0800 | 97 | 75. | * | 1 | 1415 | 172 | 73. | * | 1 | 2030 | 247 | 70. |
| 1 | 0150 | 23 | 0. | * | 1 | 0805 | 98 | 75. | * | 1 | 1420 | 173 | 73. | * | 1 | 2035 | 248 | 70. |
| 1 | 0155 | 24 | 0. | * | 1 | 0810 | 99 | 75. | * | 1 | 1425 | 174 | 73. | * | 1 | 2040 | 249 | 70. |
| 1 | 0200 | 25 | 0. | * | 1 | 0815 | 100 | 75. | * | 1 | 1430 | 175 | 73. | * | 1 | 2045 | 250 | 70. |
| 1 | 0205 | 26 | 0. | * | 1 | 0820 | 101 | 75. | * | 1 | 1435 | 176 | 73. | * | 1 | 2050 | 251 | 70. |
| 1 | 0210 | 27 | 0. | * | 1 | 0825 | 102 | 75. | * | 1 | 1440 | 177 | 73. | * | 1 | 2055 | 252 | 70. |
| 1 | 0215 | 28 | 0. | * | 1 | 0830 | 103 | 75. | * | 1 | 1445 | 178 | 73. | * | 1 | 2100 | 253 | 70. |
| 1 | 0220 | 29 | 0. | * | 1 | 0835 | 104 | 75. | * | 1 | 1450 | 179 | 72. | * | 1 | 2105 | 254 | 70. |
| 1 | 0225 | 30 | 0. | * | 1 | 0840 | 105 | 74. | * | 1 | 1455 | 180 | 72. | * | 1 | 2110 | 255 | 70. |
| 1 | 0230 | 31 | 1. | * | 1 | 0845 | 106 | 74. | * | 1 | 1500 | 181 | 72. | * | 1 | 2115 | 256 | 70. |
| 1 | 0235 | 32 | 3. | * | 1 | 0850 | 107 | 74. | * | 1 | 1505 | 182 | 72. | * | 1 | 2120 | 257 | 70. |
| 1 | 0240 | 33 | 7. | * | 1 | 0855 | 108 | 74. | * | 1 | 1510 | 183 | 72. | * | 1 | 2125 | 258 | 70. |
| 1 | 0245 | 34 | 14. | * | 1 | 0900 | 109 | 74. | * | 1 | 1515 | 184 | 72. | * | 1 | 2130 | 259 | 69. |
| 1 | 0250 | 35 | 22. | * | 1 | 0905 | 110 | 74. | * | 1 | 1520 | 185 | 72. | * | 1 | 2135 | 260 | 69. |
| 1 | 0255 | 36 | 30. | * | 1 | 0910 | 111 | 74. | * | 1 | 1525 | 186 | 72. | * | 1 | 2140 | 261 | 69. |
| 1 | 0300 | 37 | 36. | * | 1 | 0915 | 112 | 74. | * | 1 | 1530 | 187 | 72. | * | 1 | 2145 | 262 | 69. |
| 1 | 0305 | 38 | 40. | * | 1 | 0920 | 113 | 74. | * | 1 | 1535 | 188 | 72. | * | 1 | 2150 | 263 | 69. |
| 1 | 0310 | 39 | 41. | * | 1 | 0925 | 114 | 74. | * | 1 | 1540 | 189 | 72. | * | 1 | 2155 | 264 | 69. |
| 1 | 0315 | 40 | 41. | * | 1 | 0930 | 115 | 74. | * | 1 | 1545 | 190 | 72. | * | 1 | 2200 | 265 | 69. |
| 1 | 0320 | 41 | 41. | * | 1 | 0935 | 116 | 74. | * | 1 | 1550 | 191 | 72. | * | 1 | 2205 | 266 | 69. |
| 1 | 0325 | 42 | 42. | * | 1 | 0940 | 117 | 74. | * | 1 | 1555 | 192 | 72. | * | 1 | 2210 | 267 | 69. |
| 1 | 0330 | 43 | 42. | * | 1 | 0945 | 118 | 74. | * | 1 | 1600 | 193 | 72. | * | 1 | 2215 | 268 | 69. |
| 1 | 0335 | 44 | 45. | * | 1 | 0950 | 119 | 74. | * | 1 | 1605 | 194 | 72. | * | 1 | 2220 | 269 | 69. |
| 1 | 0340 | 45 | 51. | * | 1 | 0955 | 120 | 74. | * | 1 | 1610 | 195 | 72. | * | 1 | 2225 | 270 | 69. |
| 1 | 0345 | 46 | 65. | * | 1 | 1000 | 121 | 74. | * | 1 | 1615 | 196 | 72. | * | 1 | 2230 | 271 | 69. |
| 1 | 0350 | 47 | 89. | * | 1 | 1005 | 122 | 74. | * | 1 | 1620 | 197 | 72. | * | 1 | 2235 | 272 | 69. |
| 1 | 0355 | 48 | 121. | * | 1 | 1010 | 123 | 74. | * | 1 | 1625 | 198 | 72. | * | 1 | 2240 | 273 | 69. |
| 1 | 0400 | 49 | 156. | * | 1 | 1015 | 124 | 74. | * | 1 | 1630 | 199 | 72. | * | 1 | 2245 | 274 | 69. |
| 1 | 0405 | 50 | 188. | * | 1 | 1020 | 125 | 74. | * | 1 | 1635 | 200 | 72. | * | 1 | 2250 | 275 | 69. |
| 1 | 0410 | 51 | 212. | * | 1 | 1025 | 126 | 74. | * | 1 | 1640 | 201 | 72. | * | 1 | 2255 | 276 | 69. |
| 1 | 0415 | 52 | 217. | * | 1 | 1030 | 127 | 74. | * | 1 | 1645 | 202 | 72. | * | 1 | 2300 | 277 | 69. |
| 1 | 0420 | 53 | 209. | * | 1 | 1035 | 128 | 74. | * | 1 | 1650 | 203 | 72. | * | 1 | 2305 | 278 | 69. |
| 1 | 0425 | 54 | 194. | * | 1 | 1040 | 129 | 74. | * | 1 | 1655 | 204 | 72. | * | 1 | 2310 | 279 | 69. |
| 1 | 0430 | 55 | 180. | * | 1 | 1045 | 130 | 74. | * | 1 | 1700 | 205 | 71. | * | 1 | 2315 | 280 | 69. |
| 1 | 0435 | 56 | 167. | * | 1 | 1050 | 131 | 74. | * | 1 | 1705 | 206 | 71. | * | 1 | 2320 | 281 | 69. |
| 1 | 0440 | 57 | 156. | * | 1 | 1055 | 132 | 74. | * | 1 | 1710 | 207 | 71. | * | 1 | 2325 | 282 | 69. |
| 1 | 0445 | 58 | 147. | * | 1 | 1100 | 133 | 74. | * | 1 | 1715 | 208 | 71. | * | 1 | 2330 | 283 | 69. |
| 1 | 0450 | 59 | 140. | * | 1 | 1105 | 134 | 74. | * | 1 | 1720 | 209 | 71. | * | 1 | 2335 | 284 | 69. |
| 1 | 0455 | 60 | 136. | * | 1 | 1110 | 135 | 74. | * | 1 | 1725 | 210 | 71. | * | 1 | 2340 | 285 | 69. |
| 1 | 0500 | 61 | 134. | * | 1 | 1115 | 136 | 74. | * | 1 | 1730 | 211 | 71. | * | 1 | 2345 | 286 | 68. |
| 1 | 0505 | 62 | 135. | * | 1 | 1120 | 137 | 74. | * | 1 | 1735 | 212 | 71. | * | 1 | 2350 | 287 | 68. |
| 1 | 0510 | 63 | 139. | * | 1 | 1125 | 138 | 74. | * | 1 | 1740 | 213 | 71. | * | 1 | 2355 | 288 | 68. |
| 1 | 0515 | 64 | 145. | * | 1 | 1130 | 139 | 74. | * | 1 | 1745 | 214 | 71. | * | 2 | 0000 | 289 | 68. |
| 1 | 0520 | 65 | 152. | * | 1 | 1135 | 140 | 74. | * | 1 | 1750 | 215 | 71. | * | 2 | 0005 | 290 | 68. |
| 1 | 0525 | 66 | 158. | * | 1 | 1140 | 141 | 74. | * | 1 | 1755 | 216 | 71. | * | 2 | 0010 | 291 | 68. |
| 1 | 0530 | 67 | 161. | * | 1 | 1145 | 142 | 74. | * | 1 | 1800 | 217 | 71. | * | 2 | 0015 | 292 | 68. |
| 1 | 0535 | 68 | 157. | * | 1 | 1150 | 143 | 74. | * | 1 | 1805 | 218 | 71. | * | 2 | 0020 | 293 | 68. |
| 1 | 0540 | 69 | 149. | * | 1 | 1155 | 144 | 73. | * | 1 | 1810 | 219 | 71. | * | 2 | 0025 | 294 | 68. |
| 1 | 0545 | 70 | 139. | * | 1 | 1200 | 145 | 73. | * | 1 | 1815 | 220 | 71. | * | 2 | 0030 | 295 | 68. |
| 1 | 0550 | 71 | 129. | * | 1 | 1205 | 146 | 73. | * | 1 | 1820 | 221 | 71. | * | 2 | 0035 | 296 | 68. |
| 1 | 0555 | 72 | 121. | * | 1 | 1210 | 147 | 73. | * | 1 | 1825 | 222 | 71. | * | 2 | 0040 | 297 | 68. |
| 1 | 0600 | 73 | 114. | * | 1 | 1215 | 148 | 73. | * | 1 | 1830 | 223 | 71. | * | 2 | 0045 | 298 | 68. |
| 1 | 0605 | 74 | 107. | * | 1 | 1220 | 149 | 73. | * | 1 | 1835 | 224 | 71. | * | 2 | 0050 | 299 | 68. |
| 1 | 0610 | 75 | 102. | * | 1 | 1225 | 150 | 73. | * | 1 | 1840 | 225 | 71. | * | 2 | 0055 | 300 | 68. |
| | | | | * | | | | | * | | | | | * | | | | |

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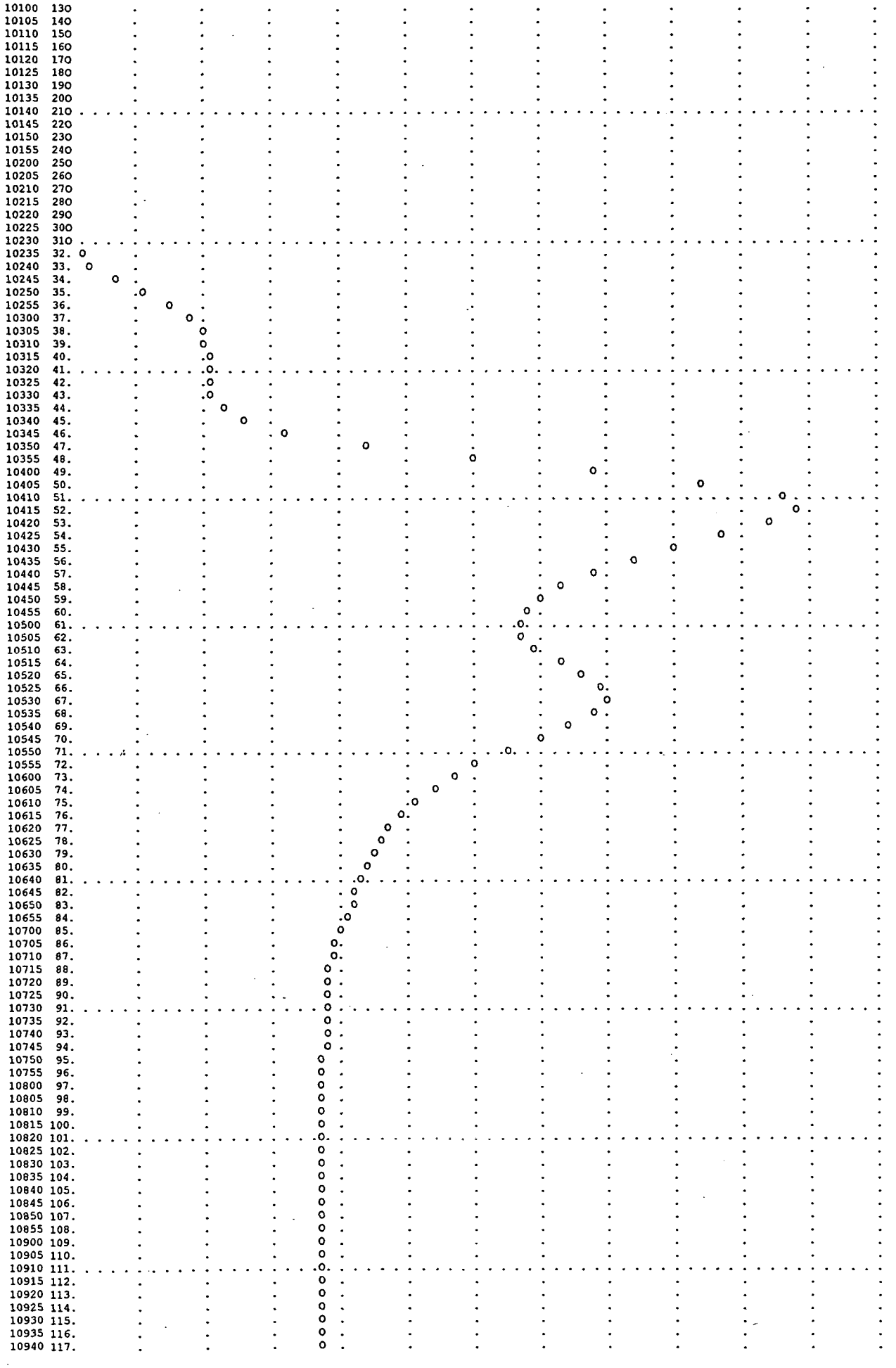
| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 24.92-HR |
| + (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| + 217. | 4.25 | | 107. | 73. | 71. | 71. |
| | | (INCHES) | 1.580 | 4.341 | 4.341 | 4.341 |
| | | (AC-FT) | 53. | 146. | 146. | 146. |

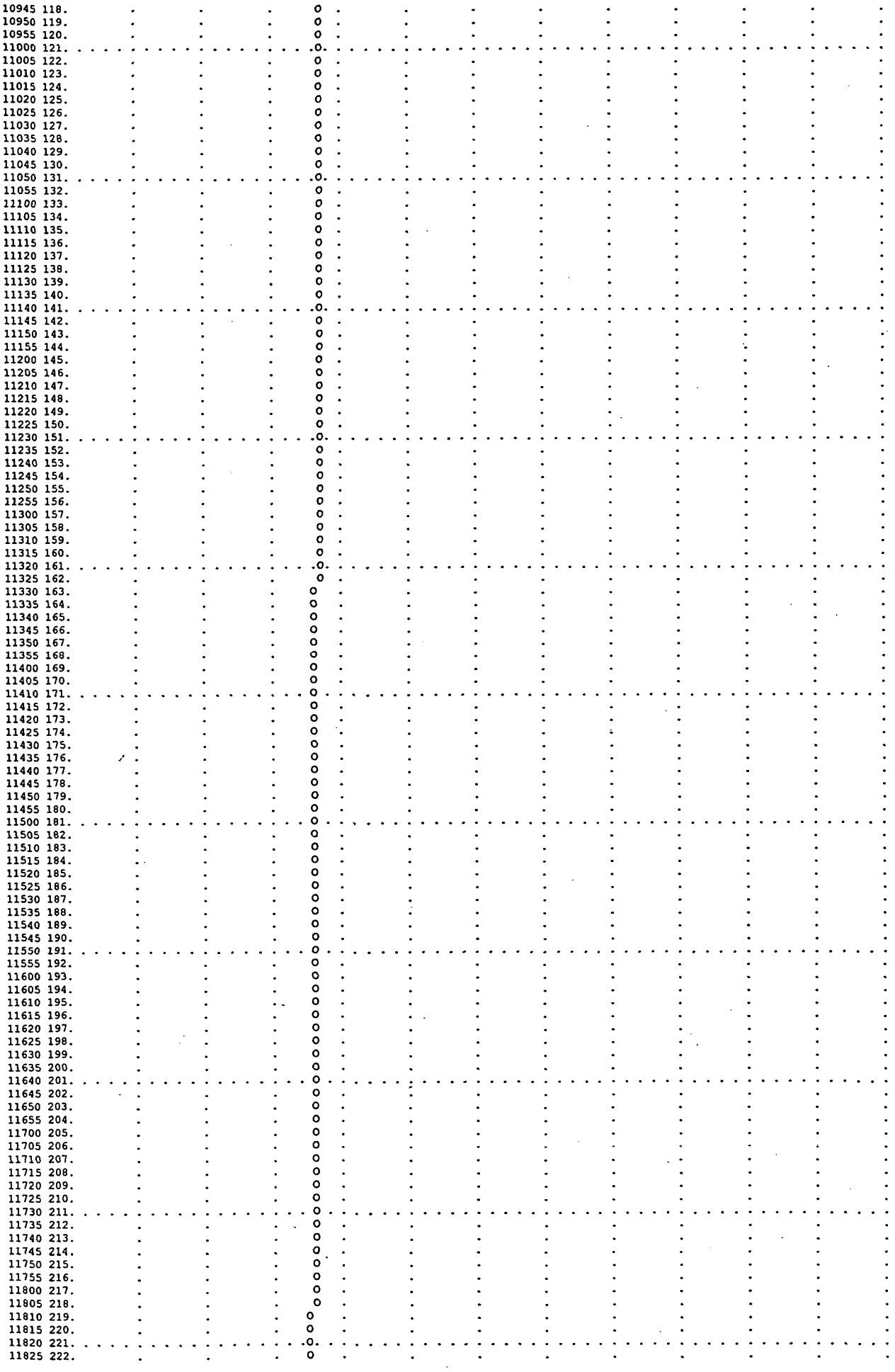
CUMULATIVE AREA = .63 SQ MI

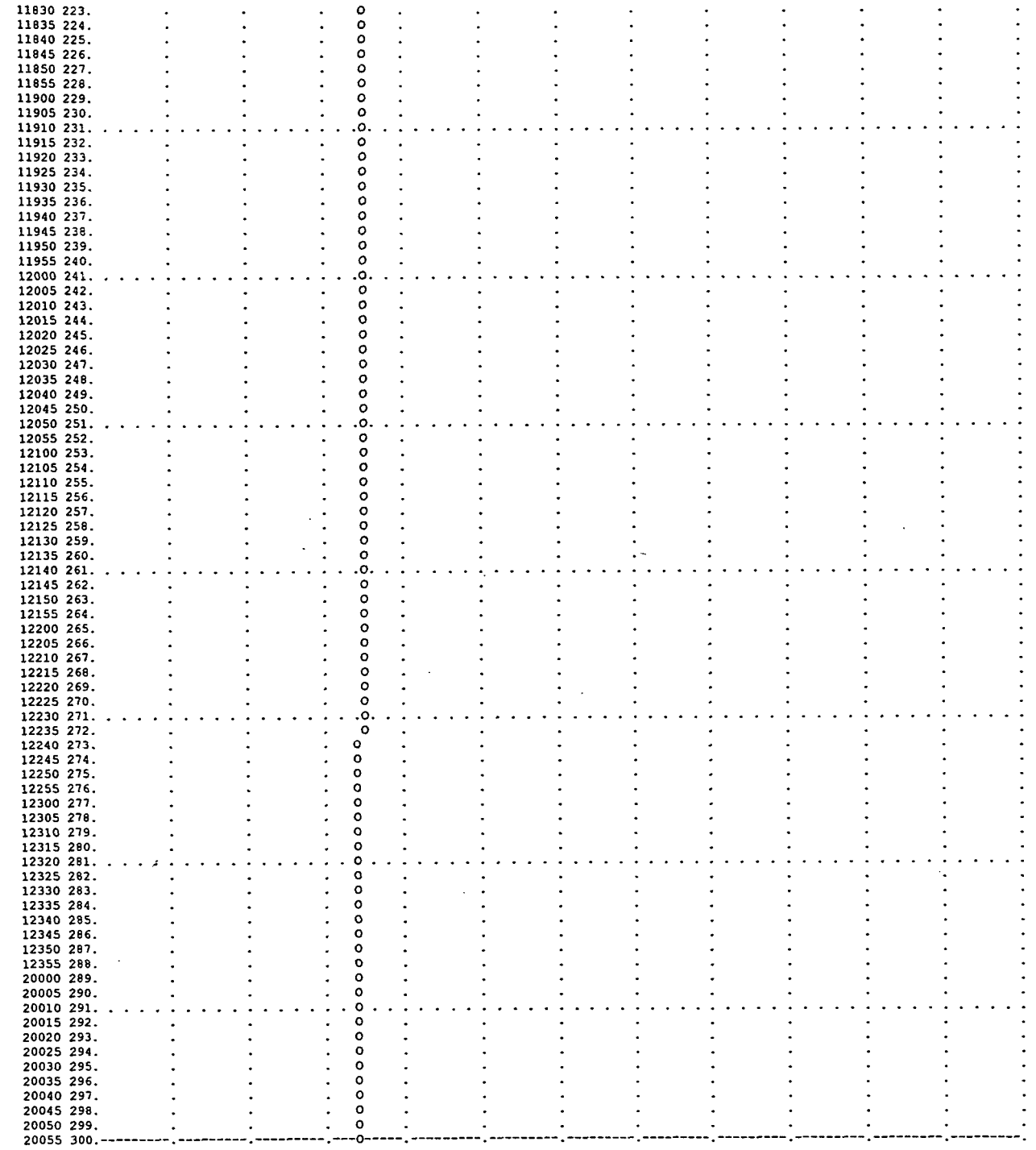
1 STATION C-5

(O) OUTFLOW

| | 0. | 20. | 40. | 60. | 80. | 100. | 120. | 140. | 160. | 180. | 200. | 220. | 0. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAHRMN | PER | | | | | | | | | | | | |
| 10000 | 10 | | | | | | | | | | | | |
| 10005 | 20 | | | | | | | | | | | | |
| 10010 | 30 | | | | | | | | | | | | |
| 10015 | 40 | | | | | | | | | | | | |
| 10020 | 50 | | | | | | | | | | | | |
| 10025 | 60 | | | | | | | | | | | | |
| 10030 | 70 | | | | | | | | | | | | |
| 10035 | 80 | | | | | | | | | | | | |
| 10040 | 90 | | | | | | | | | | | | |
| 10045 | 100 | | | | | | | | | | | | |
| 10050 | 110 | | | | | | | | | | | | |
| 10055 | 120 | | | | | | | | | | | | |


10100 130
10105 140
10110 150
10115 160
10120 170
10125 180
10130 190
10135 200
10140 210
10145 220
10150 230
10155 240
10200 250
10205 260
10210 270
10215 280
10220 290
10225 300
10230 310
10235 32.
10240 33.
10245 34.
10250 35.
10255 36.
10300 37.
10305 38.
10310 39.
10315 40.
10320 41.
10325 42.
10330 43.
10335 44.
10340 45.
10345 46.
10350 47.
10355 48.
10400 49.
10405 50.
10410 51.
10415 52.
10420 53.
10425 54.
10430 55.
10435 56.
10440 57.
10445 58.
10450 59.
10455 60.
10500 61.
10505 62.
10510 63.
10515 64.
10520 65.
10525 66.
10530 67.
10535 68.
10540 69.
10545 70.
10550 71.
10555 72.
10600 73.
10605 74.
10610 75.
10615 76.
10620 77.
10625 78.
10630 79.
10635 80.
10640 81.
10645 82.
10650 83.
10655 84.
10700 85.
10705 86.
10710 87.
10715 88.
10720 89.
10725 90.
10730 91.
10735 92.
10740 93.
10745 94.
10750 95.
10755 96.
10800 97.
10805 98.
10810 99.
10815 100.
10820 101.
10825 102.
10830 103.
10835 104.
10840 105.
10845 106.
10850 107.
10855 108.
10900 109.
10905 110.
10910 111.
10915 112.
10920 113.
10925 114.
10930 115.
10935 116.
10940 117.


10945 118.
10950 119.
10955 120.
11000 121.
11005 122.
11010 123.
11015 124.
11020 125.
11025 126.
11030 127.
11035 128.
11040 129.
11045 130.
11050 131.
11055 132.
11100 133.
11105 134.
11110 135.
11115 136.
11120 137.
11125 138.
11130 139.
11135 140.
11140 141.
11145 142.
11150 143.
11155 144.
11200 145.
11205 146.
11210 147.
11215 148.
11220 149.
11225 150.
11230 151.
11235 152.
11240 153.
11245 154.
11250 155.
11255 156.
11300 157.
11305 158.
11310 159.
11315 160.
11320 161.
11325 162.
11330 163.
11335 164.
11340 165.
11345 166.
11350 167.
11355 168.
11400 169.
11405 170.
11410 171.
11415 172.
11420 173.
11425 174.
11430 175.
11435 176.
11440 177.
11445 178.
11450 179.
11455 180.
11500 181.
11505 182.
11510 183.
11515 184.
11520 185.
11525 186.
11530 187.
11535 188.
11540 189.
11545 190.
11550 191.
11555 192.
11600 193.
11605 194.
11610 195.
11615 196.
11620 197.
11625 198.
11630 199.
11635 200.
11640 201.
11645 202.
11650 203.
11655 204.
11700 205.
11705 206.
11710 207.
11715 208.
11720 209.
11725 210.
11730 211.
11735 212.
11740 213.
11745 214.
11750 215.
11755 216.
11800 217.
11805 218.
11810 219.
11815 220.
11820 221.
11825 222.




1
1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

| OPERATION | STATION | AREA | PLAN | | RATIOS APPLIED TO PRECIPITATION RATIO 1 1.00 | RATIO 2 .98 | RATIO 3 .57 |
|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | | | |
| + | 71 | 6.90 | 1 | FLOW | 2790. | 2699. | 984. |
| | | | | TIME | 3.75 | 3.75 | 3.83 |
| ROUTED TO | | | | | | | |
| + | 71R | 6.90 | 1 | FLOW | 2456. | 2375. | 843. |
| | | | | TIME | 4.17 | 4.17 | 4.17 |
| HYDROGRAPH AT | | | | | | | |
| + | 501 | 11.28 | 1 | FLOW | 4356. | 4215. | 1534. |
| | | | | TIME | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | |
| + | 501C | 18.18 | 1 | FLOW | 5713. | 5518. | 1934. |
| | | | | TIME | 3.92 | 3.92 | 3.92 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | |
| + | 501R | 18.18 | 1 | FLOW | 5324. | 5139. | 1785. |
| | | | | TIME | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | |
| + | 502 | 27.40 | 1 | FLOW | 5951. | 5737. | 1956. |
| | | | | TIME | 4.33 | 4.33 | 4.33 |
| 2 COMBINED AT | | | | | | | |
| + | 502C | 45.58 | 1 | FLOW | 11275. | 10876. | 3741. |
| | | | | TIME | 4.33 | 4.33 | 4.33 |
| HYDROGRAPH AT | | | | | | | |
| + | 72 | 6.58 | 1 | FLOW | 2511. | 2429. | 880. |
| | | | | TIME | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | |
| + | 502CC | 52.16 | 1 | FLOW | 12220. | 11783. | 4015. |
| | | | | TIME | 4.25 | 4.25 | 4.33 |
| ROUTED TO | | | | | | | |
| + | 502R | 52.16 | 1 | FLOW | 11697. | 11278. | 3848. |
| | | | | TIME | 4.67 | 4.67 | 4.67 |
| HYDROGRAPH AT | | | | | | | |
| + | 73 | 4.02 | 1 | FLOW | 1513. | 1464. | 528. |
| | | | | TIME | 3.83 | 3.83 | 3.83 |
| ROUTED TO | | | | | | | |
| + | 73R | 4.02 | 1 | FLOW | 1336. | 1291. | 459. |
| | | | | TIME | 4.17 | 4.17 | 4.25 |
| HYDROGRAPH AT | | | | | | | |
| + | 503 | 5.54 | 1 | FLOW | 1212. | 1169. | 399. |
| | | | | TIME | 4.33 | 4.33 | 4.33 |
| 3 COMBINED AT | | | | | | | |
| + | 503C | 61.72 | 1 | FLOW | 13507. | 13020. | 4423. |
| | | | | TIME | 4.58 | 4.58 | 4.58 |
| ROUTED TO | | | | | | | |
| + | 503R | 61.72 | 1 | FLOW | 13013. | 12542. | 4243. |
| | | | | TIME | 4.92 | 4.92 | 4.92 |
| HYDROGRAPH AT | | | | | | | |
| + | 504 | 6.53 | 1 | FLOW | 1470. | 1418. | 484. |
| | | | | TIME | 4.25 | 4.25 | 4.25 |
| 2 COMBINED AT | | | | | | | |
| + | INBD | 68.25 | 1 | FLOW | 13818. | 13313. | 4489. |
| | | | | TIME | 4.92 | 4.92 | 4.92 |
| ROUTED TO | | | | | | | |
| + | BD | 68.25 | 1 | FLOW | 213. | 211. | 164. |
| | | | | TIME | 8.00 | 7.92 | 6.92 |
| | | | ** PEAK STAGES IN FEET ** | | | | |
| | | | 1 | STAGE | 2914.67 | 2913.62 | 2891.70 |
| | | | | TIME | 8.00 | 8.00 | 7.00 |
| HYDROGRAPH AT | | | | | | | |
| + | OFFSI | .60 | 1 | FLOW | 431. | 419. | 175. |
| | | | | TIME | 3.67 | 3.67 | 3.67 |
| 2 COMBINED AT | | | | | | | |
| + | COMB- | 68.85 | 1 | FLOW | 586. | 572. | 253. |
| | | | | TIME | 3.67 | 3.67 | 5.00 |
| ROUTED TO | | | | | | | |
| + | RO | 68.85 | 1 | FLOW | 578. | 560. | 250. |
| | | | | TIME | 3.92 | 3.92 | 5.33 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .88 | 1 | FLOW | 613. | 593. | 211. |
| | | | | TIME | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | |
| + | C-0 | 69.72 | 1 | FLOW | 1191. | 1153. | 450. |
| | | | | TIME | 3.92 | 3.92 | 4.00 |
| DIVERSION TO | | | | | | | |
| + | SPLIT1 | 69.72 | 1 | FLOW | 540. | 523. | 204. |
| | | | | TIME | 3.92 | 3.92 | 4.00 |
| HYDROGRAPH AT | | | | | | | |
| + | SPLIT | 69.72 | 1 | FLOW | 651. | 630. | 245. |
| | | | | TIME | 3.92 | 3.92 | 4.00 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .13 | 1 | FLOW | 48. | 46. | 9. |
| | | | | TIME | 4.00 | 4.00 | 4.08 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .06 | 1 | FLOW | 60. | 59. | 25. |
| | | | | TIME | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | |
| + | C-1A | .19 | 1 | FLOW | 99. | 95. | 29. |
| | | | | TIME | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | |
| + | C-1 | 69.91 | 1 | FLOW | 745. | 721. | 270. |
| | | | | TIME | 3.92 | 3.92 | 4.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ROUTED TO | | | | | | | |
| + | R2 | 69.91 | 1 | FLOW | 738. | 715. | 269. |
| | | | | TIME | 4.00 | 4.00 | 4.17 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .14 | 1 | FLOW | 25. | 24. | 3. |
| | | | | TIME | 4.17 | 4.17 | 5.17 |
| 2 COMBINED AT | | | | | | | |
| + | C-2 | 70.06 | 1 | FLOW | 761. | 737. | 270. |
| | | | | TIME | 4.00 | 4.00 | 4.17 |
| ROUTED TO | | | | | | | |
| + | R3 | 70.06 | 1 | FLOW | 751. | 725. | 266. |
| | | | | TIME | 4.08 | 4.17 | 4.33 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .29 | 1 | FLOW | 50. | 47. | 6. |
| | | | | TIME | 4.17 | 4.17 | 5.25 |
| 2 COMBINED AT | | | | | | | |
| + | C-3 | 70.34 | 1 | FLOW | 800. | 772. | 270. |
| | | | | TIME | 4.08 | 4.17 | 4.33 |
| ROUTED TO | | | | | | | |
| + | R4 | 70.34 | 1 | FLOW | 798. | 770. | 267. |
| | | | | TIME | 4.25 | 4.25 | 4.50 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .22 | 1 | FLOW | 75. | 71. | 13. |
| | | | | TIME | 4.00 | 4.08 | 4.17 |
| 2 COMBINED AT | | | | | | | |
| + | C-27 | 70.57 | 1 | FLOW | 863. | 833. | 277. |
| | | | | TIME | 4.25 | 4.25 | 4.50 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .06 | 1 | FLOW | 9. | 8. | 1. |
| | | | | TIME | 4.08 | 4.08 | 5.17 |
| ROUTED TO | | | | | | | |
| + | R7 | .06 | 1 | FLOW | 9. | 8. | 1. |
| | | | | TIME | 4.92 | 4.92 | 7.33 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .14 | 1 | FLOW | 17. | 16. | 2. |
| | | | | TIME | 4.25 | 4.25 | 5.33 |
| 2 COMBINED AT | | | | | | | |
| + | C-7 | .20 | 1 | FLOW | 22. | 20. | 2. |
| | | | | TIME | 4.92 | 4.92 | 5.33 |
| ROUTED TO | | | | | | | |
| + | R8 | .20 | 1 | FLOW | 21. | 20. | 2. |
| | | | | TIME | 5.25 | 5.33 | 6.42 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .11 | 1 | FLOW | 14. | 13. | 1. |
| | | | | TIME | 4.17 | 4.17 | 5.25 |
| 2 COMBINED AT | | | | | | | |
| + | C-8 | .31 | 1 | FLOW | 32. | 30. | 2. |
| | | | | TIME | 5.25 | 5.25 | 6.42 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .15 | 1 | FLOW | 16. | 15. | 1. |
| | | | | TIME | 4.42 | 4.50 | 5.42 |
| ROUTED TO | | | | | | | |
| + | R9 | .15 | 1 | FLOW | 16. | 15. | 1. |
| | | | | TIME | 5.08 | 5.08 | 7.08 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .18 | 1 | FLOW | 22. | 20. | 2. |
| | | | | TIME | 4.33 | 4.33 | 5.33 |
| 2 COMBINED AT | | | | | | | |
| + | C-9 | .33 | 1 | FLOW | 33. | 31. | 2. |
| | | | | TIME | 5.08 | 5.08 | 5.33 |
| ROUTED TO | | | | | | | |
| + | R10 | .33 | 1 | FLOW | 33. | 31. | 2. |
| | | | | TIME | 5.17 | 5.25 | 5.75 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .09 | 1 | FLOW | 13. | 12. | 1. |
| | | | | TIME | 4.08 | 4.08 | 5.17 |
| 2 COMBINED AT | | | | | | | |
| + | C-10 | .42 | 1 | FLOW | 41. | 38. | 3. |
| | | | | TIME | 5.17 | 5.25 | 5.67 |
| 2 COMBINED AT | | | | | | | |
| + | C-29 | .73 | 1 | FLOW | 72. | 68. | 4. |
| | | | | TIME | 5.25 | 5.25 | 5.58 |
| ROUTED TO | | | | | | | |
| + | R18 | .73 | 1 | FLOW | 71. | 67. | 4. |
| | | | | TIME | 5.42 | 5.42 | 6.42 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .21 | 1 | FLOW | 56. | 53. | 7. |
| | | | | TIME | 4.00 | 4.00 | 5.08 |
| 2 COMBINED AT | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| + | C-18 | .94 | 1 | FLOW | 92. | 86. | 7. |
| | | | | TIME | 5.42 | 5.42 | 5.08 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .12 | 1 | FLOW | 88. | 85. | 29. |
| | | | | TIME | 3.83 | 3.83 | 3.92 |
| ROUTED TO | | | | | | | |
| + | R22 | .12 | 1 | FLOW | 85. | 83. | 29. |
| | | | | TIME | 4.17 | 4.08 | 4.33 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .14 | 1 | FLOW | 105. | 102. | 35. |
| | | | | TIME | 3.83 | 3.83 | 3.83 |
| 2 COMBINED AT | | | | | | | |
| + | C-22 | .27 | 1 | FLOW | 161. | 156. | 45. |
| | | | | TIME | 4.08 | 4.08 | 4.33 |
| ROUTED TO | | | | | | | |
| + | R23 | .27 | 1 | FLOW | 157. | 154. | 42. |
| | | | | TIME | 4.17 | 4.25 | 4.67 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .09 | 1 | FLOW | 47. | 45. | 12. |
| | | | | TIME | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | |
| + | C-23 | .35 | 1 | FLOW | 191. | 182. | 48. |
| | | | | TIME | 4.17 | 4.17 | 4.67 |
| ROUTED TO | | | | | | | |
| + | R28 | .35 | 1 | FLOW | 185. | 182. | 46. |
| | | | | TIME | 4.42 | 4.50 | 5.25 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .24 | 1 | FLOW | 162. | 157. | 54. |
| | | | | TIME | 3.92 | 3.92 | 3.92 |
| 2 COMBINED AT | | | | | | | |
| + | C-28 | .60 | 1 | FLOW | 260. | 251. | 66. |
| | | | | TIME | 4.42 | 4.42 | 5.25 |
| 3 COMBINED AT | | | | | | | |
| + | C-25 | 72.11 | 1 | FLOW | 1159. | 1110. | 316. |
| | | | | TIME | 4.25 | 4.33 | 4.67 |
| ROUTED TO | | | | | | | |
| + | R33 | 72.11 | 1 | FLOW | 1159. | 1108. | 314. |
| | | | | TIME | 4.33 | 4.33 | 4.75 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .10 | 1 | FLOW | 73. | 71. | 23. |
| | | | | TIME | 3.75 | 3.75 | 3.75 |
| 2 COMBINED AT | | | | | | | |
| + | C-33 | 72.20 | 1 | FLOW | 1181. | 1130. | 322. |
| | | | | TIME | 4.33 | 4.33 | 4.75 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .04 | 1 | FLOW | 6. | 5. | 1. |
| | | | | TIME | 4.17 | 4.17 | 5.17 |
| ROUTED TO | | | | | | | |
| + | R14 | .04 | 1 | FLOW | 6. | 5. | 1. |
| | | | | TIME | 5.08 | 5.08 | 7.75 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .08 | 1 | FLOW | 10. | 9. | 1. |
| | | | | TIME | 4.33 | 4.33 | 5.33 |
| 2 COMBINED AT | | | | | | | |
| + | C-14 | .12 | 1 | FLOW | 13. | 13. | 1. |
| | | | | TIME | 5.08 | 5.08 | 5.33 |
| ROUTED TO | | | | | | | |
| + | R15 | .12 | 1 | FLOW | 13. | 13. | 1. |
| | | | | TIME | 5.75 | 5.83 | 7.42 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .14 | 1 | FLOW | 18. | 17. | 2. |
| | | | | TIME | 4.17 | 4.25 | 5.25 |
| 2 COMBINED AT | | | | | | | |
| + | C-15 | .26 | 1 | FLOW | 23. | 21. | 2. |
| | | | | TIME | 5.08 | 5.08 | 5.25 |
| ROUTED TO | | | | | | | |
| + | R19 | .26 | 1 | FLOW | 23. | 21. | 2. |
| | | | | TIME | 5.50 | 5.50 | 6.58 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .21 | 1 | FLOW | 83. | 80. | 16. |
| | | | | TIME | 3.92 | 3.92 | 4.00 |
| 2 COMBINED AT | | | | | | | |
| + | C-19 | .47 | 1 | FLOW | 83. | 80. | 16. |
| | | | | TIME | 3.92 | 3.92 | 4.00 |
| 2 COMBINED AT | | | | | | | |
| + | C-34 | 72.68 | 1 | FLOW | 1232. | 1178. | 332. |
| | | | | TIME | 4.33 | 4.33 | 4.75 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .09 | 1 | FLOW | 10. | 9. | 1. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | TIME | 4.33 | 4.33 | 5.33 |
| ROUTED TO | | | | | | | |
| + | R11 | .09 | 1 | FLOW | 10. | 9. | 1. |
| | | | | TIME | 5.33 | 5.42 | 8.08 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .29 | 1 | FLOW | 33. | 30. | 3. |
| | | | | TIME | 4.33 | 4.33 | 5.42 |
| 2 COMBINED AT | | | | | | | |
| + | C-11 | .38 | 1 | FLOW | 36. | 34. | 3. |
| | | | | TIME | 5.25 | 5.33 | 5.42 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .33 | 1 | FLOW | 39. | 36. | 4. |
| | | | | TIME | 4.33 | 4.33 | 5.33 |
| ROUTED TO | | | | | | | |
| + | R12 | .33 | 1 | FLOW | 39. | 36. | 4. |
| | | | | TIME | 4.67 | 4.67 | 6.42 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .47 | 1 | FLOW | 63. | 58. | 6. |
| | | | | TIME | 4.17 | 4.17 | 5.25 |
| 2 COMBINED AT | | | | | | | |
| + | C-12 | .80 | 1 | FLOW | 83. | 76. | 6. |
| | | | | TIME | 4.58 | 4.67 | 5.25 |
| ROUTED TO | | | | | | | |
| + | R13 | .80 | 1 | FLOW | 81. | 76. | 6. |
| | | | | TIME | 4.83 | 4.92 | 6.17 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .54 | 1 | FLOW | 93. | 87. | 10. |
| | | | | TIME | 4.08 | 4.08 | 5.17 |
| 2 COMBINED AT | | | | | | | |
| + | C-13 | 1.34 | 1 | FLOW | 139. | 131. | 10. |
| | | | | TIME | 4.92 | 5.00 | 5.17 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .04 | 1 | FLOW | 6. | 5. | 0. |
| | | | | TIME | 4.08 | 4.08 | 5.17 |
| ROUTED TO | | | | | | | |
| + | R16 | .04 | 1 | FLOW | 5. | 5. | 0. |
| | | | | TIME | 4.92 | 4.92 | 7.58 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .15 | 1 | FLOW | 19. | 17. | 2. |
| | | | | TIME | 4.25 | 4.25 | 5.25 |
| 2 COMBINED AT | | | | | | | |
| + | C-16 | .19 | 1 | FLOW | 19. | 18. | 2. |
| | | | | TIME | 5.00 | 5.00 | 5.25 |
| ROUTED TO | | | | | | | |
| + | R17 | .19 | 1 | FLOW | 19. | 18. | 2. |
| | | | | TIME | 5.42 | 5.50 | 6.42 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .14 | 1 | FLOW | 18. | 17. | 2. |
| | | | | TIME | 4.17 | 4.17 | 5.25 |
| 2 COMBINED AT | | | | | | | |
| + | C-17 | .32 | 1 | FLOW | 32. | 29. | 2. |
| | | | | TIME | 4.58 | 4.67 | 6.42 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .16 | 1 | FLOW | 17. | 16. | 2. |
| | | | | TIME | 4.50 | 4.50 | 5.42 |
| HYDROGRAPH AT | | | | | | | |
| • | BASIN | .05 | 1 | FLOW | 7. | 7. | 1. |
| | | | | TIME | 4.17 | 4.17 | 5.25 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .05 | 1 | FLOW | 7. | 6. | 1. |
| | | | | TIME | 4.08 | 4.08 | 5.17 |
| 7 COMBINED AT | | | | | | | |
| + | C-26 | 74.98 | 1 | FLOW | 1442. | 1370. | 342. |
| | | | | TIME | 4.33 | 4.33 | 4.75 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .19 | 1 | FLOW | 42. | 39. | 6. |
| | | | | TIME | 4.17 | 4.25 | 5.25 |
| HYDROGRAPH AT | | | | | | | |
| + | SPLIT | .00 | 1 | FLOW | 540. | 523. | 204. |
| | | | | TIME | 3.92 | 3.92 | 4.00 |
| HYDROGRAPH AT | | | | | | | |
| + | BASIN | .11 | 1 | FLOW | 44. | 42. | 11. |
| | | | | TIME | 4.17 | 4.17 | 4.25 |
| 3 COMBINED AT | | | | | | | |
| + | C-1B | .30 | 1 | FLOW | 609. | 588. | 217. |
| | | | | TIME | 3.92 | 3.92 | 4.00 |
| ROUTED TO | | | | | | | |
| + | R5 | .30 | 1 | FLOW | 605. | 584. | 215. |
| | | | | TIME | 4.08 | 4.08 | 4.25 |

```
 HYDROGRAPH AT
+                BASIN       .33     1   FLOW          45.      42.       5.
                                         TIME          4.25     4.25      5.25

  2 COMBINED AT
+                C-5         .63     1   FLOW         647.     623.     217.
                                         TIME          4.08     4.08      4.25

 HYDROGRAPH AT
+                BASIN       .27     1   FLOW         197.     192.      79.
                                         TIME          4.00     4.00      4.08

 HYDROGRAPH AT
+                BASIN       .26     1   FLOW         193.     187.      78.
                                         TIME          4.00     4.00      4.00

 HYDROGRAPH AT
+                BASIN       .15     1   FLOW         159.     155.      65.
                                         TIME          3.75     3.75      3.75
1
                                SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                    (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                          INTERPOLATED TO
                                                                        COMPUTATION INTERVAL
          ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO     VOLUME
                                                    PEAK                                     PEAK

                                (MIN)     (CFS)     (MIN)      (IN)    (MIN)      (CFS)     (MIN)      (IN)

          FOR PLAN = 1  RATIO= 1.00
             R0     MANE         4.90    581.70    235.69       .12     5.00    578.13    235.00       .12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4484E+03 EXCESS= .0000E+00 OUTFLOW= .4394E+03 BASIN STORAGE= .9989E+01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .98
             R0     MANE         4.87    563.83    237.49       .12     5.00    560.09    235.00       .12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4429E+03 EXCESS= .0000E+00 OUTFLOW= .4340E+03 BASIN STORAGE= .9930E+01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .57
             R0     MANE         5.00    252.10    241.64       .08     5.00    250.21    320.00       .08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3074E+03 EXCESS= .0000E+00 OUTFLOW= .2991E+03 BASIN STORAGE= .8802E+01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO= 1.00
             R2     MANE         2.97    738.00    239.35       .08     5.00    737.86    240.00       .07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2829E+03 EXCESS= .0000E+00 OUTFLOW= .2804E+03 BASIN STORAGE= .3116E+01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .98
             R2     MANE         3.09    718.63    240.85       .07     5.00    714.81    240.00       .07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2784E+03 EXCESS= .0000E+00 OUTFLOW= .2754E+03 BASIN STORAGE= .3098E+01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .57
             R2     MANE         4.50    268.74    249.98       .05     5.00    268.71    250.00       .05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1775E+03 EXCESS= .0000E+00 OUTFLOW= .1747E+03 BASIN STORAGE= .2556E+01 PERCENT ERROR=    .1

          FOR PLAN = 1  RATIO= 1.00
             R3     MANE         3.21    755.42    245.65       .07     5.00    750.95    245.00       .07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2828E+03 EXCESS= .0000E+00 OUTFLOW= .2793E+03 BASIN STORAGE= .3271E+01 PERCENT ERROR=    .1

          FOR PLAN = 1  RATIO=  .98
             R3     MANE         3.13    733.99    247.08       .07     5.00    725.43    250.00       .07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2782E+03 EXCESS= .0000E+00 OUTFLOW= .2751E+03 BASIN STORAGE= .3251E+01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .57
             R3     MANE         4.80    267.37    258.43       .05     5.00    266.22    260.00       .05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1751E+03 EXCESS= .0000E+00 OUTFLOW= .1727E+03 BASIN STORAGE= .2684E+01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO= 1.00
             R4     MANE         3.29    799.55    252.30       .08     5.00    797.84    255.00       .08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2859E+03 EXCESS= .0000E+00 OUTFLOW= .2825E+03 BASIN STORAGE= .3397E+01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .98
             R4     MANE         3.31    770.83    256.28       .07     5.00    770.43    255.00       .07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2810E+03 EXCESS= .0000E+00 OUTFLOW= .2775E+03 BASIN STORAGE= .3376E+01 PERCENT ERROR=    .0
```

```
          FOR PLAN = 1  RATIO=  .57
             R4      MANE          4.87    268.34    268.85       .05      5.00    267.23    270.00         .05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1731E+03 EXCESS= .0000E+00 OUTFLOW= .1708E+03 BASIN STORAGE= .2789E+01 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO= 1.00
             R7      MANE          5.00      9.01    292.34       .40      5.00      8.95    295.00         .40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1178E+01 EXCESS= .0000E+00 OUTFLOW= .1382E+01 BASIN STORAGE= .5064E-02 PERCENT ERROR= -17.8

          FOR PLAN = 1  RATIO=  .98
             R7      MANE          5.00      8.36    294.76       .38      5.00      8.36    295.00         .38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1106E+01 EXCESS= .0000E+00 OUTFLOW= .1300E+01 BASIN STORAGE= .5093E-02 PERCENT ERROR= -18.0

          FOR PLAN = 1  RATIO=  .57
             R7      MANE          5.00       .80    438.67       .04      5.00       .80    440.00         .04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8999E-01 EXCESS= .0000E+00 OUTFLOW= .1464E+00 BASIN STORAGE= .4877E-02 PERCENT ERROR= -68.1

          FOR PLAN = 1  RATIO= 1.00
             R8      MANE          5.00     21.50    313.77       .36      5.00     21.48    315.00         .36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3875E+01 EXCESS= .0000E+00 OUTFLOW= .3911E+01 BASIN STORAGE= .1027E-01 PERCENT ERROR=  -1.2

          FOR PLAN = 1  RATIO=  .98
             R8      MANE          5.00     20.28    316.42       .34      5.00     20.24    320.00         .34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3642E+01 EXCESS= .0000E+00 OUTFLOW= .3692E+01 BASIN STORAGE= .1093E-01 PERCENT ERROR=  -1.7

          FOR PLAN = 1  RATIO=  .57
             R8      MANE          4.97      1.57    389.03       .03      5.00      1.56    385.00         .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3369E+00 EXCESS= .0000E+00 OUTFLOW= .3596E+00 BASIN STORAGE= .1170E-01 PERCENT ERROR= -10.2

          FOR PLAN = 1  RATIO= 1.00
             R9      MANE          5.00     15.74    303.59       .34      5.00     15.69    305.00         .34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2657E+01 EXCESS= .0000E+00 OUTFLOW= .2680E+01 BASIN STORAGE= .5574E-02 PERCENT ERROR=  -1.1

          FOR PLAN = 1  RATIO=  .98
             R9      MANE          5.00     14.66    306.15       .32      5.00     14.65    305.00         .32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2495E+01 EXCESS= .0000E+00 OUTFLOW= .2516E+01 BASIN STORAGE= .5477E-02 PERCENT ERROR=  -1.1

          FOR PLAN = 1  RATIO=  .57
             R9      MANE          5.00      1.49    425.03       .03      5.00      1.49    425.00         .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2030E+00 EXCESS= .0000E+00 OUTFLOW= .2603E+00 BASIN STORAGE= .5422E-02 PERCENT ERROR= -30.9

          FOR PLAN = 1  RATIO= 1.00
             R10     MANE          3.50     32.78    311.37       .34      5.00     32.76    310.00         .34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6021E+01 EXCESS= .0000E+00 OUTFLOW= .6016E+01 BASIN STORAGE= .3565E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .98
             R10     MANE          3.65     30.78    314.39       .32      5.00     30.75    315.00         .32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5650E+01 EXCESS= .0000E+00 OUTFLOW= .5651E+01 BASIN STORAGE= .3749E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .57
             R10     MANE          5.00      2.04    347.20       .03      5.00      2.03    345.00         .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5156E+00 EXCESS= .0000E+00 OUTFLOW= .5169E+00 BASIN STORAGE= .4346E-02 PERCENT ERROR=  -1.1

          FOR PLAN = 1  RATIO= 1.00
             R18     MANE          5.00     71.43    324.31       .35      5.00     71.31    325.00         .35

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1352E+02 EXCESS= .0000E+00 OUTFLOW= .1351E+02 BASIN STORAGE= .1980E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .98
             R18     MANE          5.00     67.34    327.38       .33      5.00     66.78    325.00         .33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1271E+02 EXCESS= .0000E+00 OUTFLOW= .1272E+02 BASIN STORAGE= .1817E-01 PERCENT ERROR=   -.3
```

FOR PLAN = 1 RATIO= .57

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R18 | MANE | 4.95 | 3.51 | 384.91 | .03 | 5.00 | 3.51 | 385.00 | .03 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1150E+01 EXCESS= .0000E+00 OUTFLOW= .1125E+01 BASIN STORAGE= .2628E-01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= 1.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R22 | MANE | 5.00 | 87.04 | 247.39 | 1.28 | 5.00 | 85.36 | 250.00 | 1.27 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8283E+01 EXCESS= .0000E+00 OUTFLOW= .8362E+01 BASIN STORAGE= .5664E-02 PERCENT ERROR= -1.0

FOR PLAN = 1 RATIO= .98

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R22 | MANE | 5.00 | 83.71 | 249.17 | 1.23 | 5.00 | 82.95 | 245.00 | 1.23 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8000E+01 EXCESS= .0000E+00 OUTFLOW= .8067E+01 BASIN STORAGE= .5337E-02 PERCENT ERROR= -.9

FOR PLAN = 1 RATIO= .57

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R22 | MANE | 4.70 | 28.89 | 262.53 | .46 | 5.00 | 28.65 | 260.00 | .46 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2785E+01 EXCESS= .0000E+00 OUTFLOW= .3039E+01 BASIN STORAGE= .5811E-02 PERCENT ERROR= -9.3

FOR PLAN = 1 RATIO= 1.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R23 | MANE | 4.47 | 160.29 | 252.69 | 1.27 | 5.00 | 157.41 | 250.00 | 1.27 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1798E+02 EXCESS= .0000E+00 OUTFLOW= .1798E+02 BASIN STORAGE= .1135E-01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .98

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R23 | MANE | 4.54 | 155.13 | 254.52 | 1.23 | 5.00 | 153.98 | 255.00 | 1.23 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1737E+02 EXCESS= .0000E+00 OUTFLOW= .1740E+02 BASIN STORAGE= .1054E-01 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .57

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R23 | MANE | 5.00 | 42.77 | 278.81 | .46 | 5.00 | 42.23 | 280.00 | .46 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6273E+01 EXCESS= .0000E+00 OUTFLOW= .6457E+01 BASIN STORAGE= .1143E-01 PERCENT ERROR= -3.1

FOR PLAN = 1 RATIO= 1.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R28 | MANE | 5.00 | 188.26 | 268.39 | 1.19 | 5.00 | 185.36 | 265.00 | 1.19 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2253E+02 EXCESS= .0000E+00 OUTFLOW= .2252E+02 BASIN STORAGE= .4503E-01 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .98

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R28 | MANE | 5.00 | 181.86 | 270.33 | 1.15 | 5.00 | 181.63 | 270.00 | 1.15 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2179E+02 EXCESS= .0000E+00 OUTFLOW= .2178E+02 BASIN STORAGE= .4023E-01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .57

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R28 | MANE | 5.00 | 46.87 | 313.57 | .44 | 5.00 | 46.32 | 315.00 | .44 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7731E+01 EXCESS= .0000E+00 OUTFLOW= .8352E+01 BASIN STORAGE= .4980E-01 PERCENT ERROR= -8.7

FOR PLAN = 1 RATIO= 1.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R33 | MANE | 1.07 | 1158.92 | 257.24 | .09 | 5.00 | 1158.55 | 260.00 | .09 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3495E+03 EXCESS= .0000E+00 OUTFLOW= .3485E+03 BASIN STORAGE= .1328E+01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .98

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R33 | MANE | 1.15 | 1108.80 | 261.21 | .09 | 5.00 | 1107.75 | 260.00 | .09 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3417E+03 EXCESS= .0000E+00 OUTFLOW= .3406E+03 BASIN STORAGE= .1320E+01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .57

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R33 | MANE | 1.88 | 314.71 | 284.59 | .05 | 5.00 | 314.02 | 285.00 | .05 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1881E+03 EXCESS= .0000E+00 OUTFLOW= .1870E+03 BASIN STORAGE= .1091E+01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= 1.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R14 | MANE | 5.00 | 5.82 | 303.46 | .42 | 5.00 | 5.80 | 305.00 | .42 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7670E+00 EXCESS= .0000E+00 OUTFLOW= .9516E+00 BASIN STORAGE= .5482E-02 PERCENT ERROR= -24.8

FOR PLAN = 1 RATIO= .98

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R14 | MANE | 4.93 | 5.41 | 304.61 | .40 | 5.00 | 5.40 | 305.00 | .40 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7200E+00 EXCESS= .0000E+00 OUTFLOW= .9072E+00 BASIN STORAGE= .5442E-02 PERCENT ERROR= -26.7

```
          FOR PLAN = 1  RATIO=  .57
             R14    MANE         5.00       .52    468.25       .05      5.00       .52    470.00         .05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5861E-01 EXCESS= .0000E+00 OUTFLOW= .1054E+00 BASIN STORAGE= .4953E-02 PERCENT ERROR= -88.2

          FOR PLAN = 1  RATIO= 1.00
             R15    MANE         5.00     13.33    344.84       .40      5.00     13.32    345.00         .40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2427E+01 EXCESS= .0000E+00 OUTFLOW= .2633E+01 BASIN STORAGE= .1885E-01 PERCENT ERROR=  -9.2

          FOR PLAN = 1  RATIO=  .98
             R15    MANE         5.00     12.55    347.54       .38      5.00     12.51    350.00         .38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2292E+01 EXCESS= .0000E+00 OUTFLOW= .2492E+01 BASIN STORAGE= .1887E-01 PERCENT ERROR=  -9.5

          FOR PLAN = 1  RATIO=  .57
             R15    MANE         5.00       .90    444.62       .04      5.00       .90    445.00         .04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2181E+00 EXCESS= .0000E+00 OUTFLOW= .2639E+00 BASIN STORAGE= .2020E-01 PERCENT ERROR= -30.3

          FOR PLAN = 1  RATIO= 1.00
             R19    MANE         4.74     22.80    329.14       .37      5.00     22.76    330.00         .37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5182E+01 EXCESS= .0000E+00 OUTFLOW= .5270E+01 BASIN STORAGE= .2544E-01 PERCENT ERROR=  -2.2

          FOR PLAN = 1  RATIO=  .98
             R19    MANE         4.91     21.37    327.75       .35      5.00     21.37    330.00         .35

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4880E+01 EXCESS= .0000E+00 OUTFLOW= .4961E+01 BASIN STORAGE= .2515E-01 PERCENT ERROR=  -2.2

          FOR PLAN = 1  RATIO=  .57
             R19    MANE         5.00      1.66    390.67       .03      5.00      1.65    395.00         .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4581E+00 EXCESS= .0000E+00 OUTFLOW= .4772E+00 BASIN STORAGE= .2995E-01 PERCENT ERROR= -10.7

          FOR PLAN = 1  RATIO= 1.00
             R11    MANE         5.00     10.06    322.70       .41      5.00     10.03    320.00         .41

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1590E+01 EXCESS= .0000E+00 OUTFLOW= .1908E+01 BASIN STORAGE= .1120E-01 PERCENT ERROR= -20.7

          FOR PLAN = 1  RATIO=  .98
             R11    MANE         5.00      9.34    325.75       .38      5.00      9.33    325.00         .38

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1493E+01 EXCESS= .0000E+00 OUTFLOW= .1796E+01 BASIN STORAGE= .1102E-01 PERCENT ERROR= -21.0

          FOR PLAN = 1  RATIO=  .57
             R11    MANE         5.00       .94    488.38       .04      5.00       .94    485.00         .04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1215E+00 EXCESS= .0000E+00 OUTFLOW= .2049E+00 BASIN STORAGE= .1054E-01 PERCENT ERROR= -77.3

          FOR PLAN = 1  RATIO= 1.00
             R12    MANE         5.00     38.88    277.89       .34      5.00     38.82    280.00         .34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6004E+01 EXCESS= .0000E+00 OUTFLOW= .6044E+01 BASIN STORAGE= .5619E-02 PERCENT ERROR=  -.8

          FOR PLAN = 1  RATIO=  .98
             R12    MANE         5.00     36.23    279.69       .32      5.00     36.21    280.00         .32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5636E+01 EXCESS= .0000E+00 OUTFLOW= .5662E+01 BASIN STORAGE= .4580E-02 PERCENT ERROR=  -.5

          FOR PLAN = 1  RATIO=  .57
             R12    MANE         5.00      3.65    382.10       .03      5.00      3.63    385.00         .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4587E+00 EXCESS= .0000E+00 OUTFLOW= .4777E+00 BASIN STORAGE= .4449E-02 PERCENT ERROR=  -5.1

          FOR PLAN = 1  RATIO= 1.00
             R13    MANE         5.00     81.60    294.04       .34      5.00     81.47    290.00         .34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1452E+02 EXCESS= .0000E+00 OUTFLOW= .1459E+02 BASIN STORAGE= .1499E-01 PERCENT ERROR=  -.6

          FOR PLAN = 1  RATIO=  .98
             R13    MANE         5.00     75.94    296.59       .32      5.00     75.89    295.00         .32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1363E+02 EXCESS= .0000E+00 OUTFLOW= .1368E+02 BASIN STORAGE= .1679E-01 PERCENT ERROR=  -.5
```

```
          FOR PLAN = 1  RATIO=  .57
             R13     MANE          5.00      5.66     368.44        .03       5.00       5.64     370.00          .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1125E+01 EXCESS= .0000E+00 OUTFLOW= .1165E+01 BASIN STORAGE= .1799E-01 PERCENT ERROR=  -5.2

          FOR PLAN = 1  RATIO= 1.00
             R16     MANE          5.00      5.51     296.47        .41       5.00       5.49     295.00          .41

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6871E+00 EXCESS= .0000E+00 OUTFLOW= .8355E+00 BASIN STORAGE= .4265E-02 PERCENT ERROR= -22.2

          FOR PLAN = 1  RATIO=  .98
             R16     MANE          5.00      5.10     299.12        .39       5.00       5.07     295.00          .39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6450E+00 EXCESS= .0000E+00 OUTFLOW= .7861E+00 BASIN STORAGE= .3883E-02 PERCENT ERROR= -22.5

          FOR PLAN = 1  RATIO=  .57
             R16     MANE          5.00       .48     452.08        .05       5.00        .48     455.00          .05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5249E-01 EXCESS= .0000E+00 OUTFLOW= .9222E-01 BASIN STORAGE= .3684E-02 PERCENT ERROR= -82.7

          FOR PLAN = 1  RATIO= 1.00
             R17     MANE          4.76     19.03     323.72        .36       5.00      18.99     325.00          .36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3511E+01 EXCESS= .0000E+00 OUTFLOW= .3512E+01 BASIN STORAGE= .1006E-01 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .98
             R17     MANE          4.83     17.99     326.25        .33       5.00      17.87     330.00          .33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3298E+01 EXCESS= .0000E+00 OUTFLOW= .3297E+01 BASIN STORAGE= .9974E-02 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .57
             R17     MANE          5.00      1.72     384.33        .03       5.00       1.72     385.00          .03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2965E+00 EXCESS= .0000E+00 OUTFLOW= .3115E+00 BASIN STORAGE= .1093E-01 PERCENT ERROR=  -8.7

          FOR PLAN = 1  RATIO= 1.00
             R5      MANE          3.68    607.03     243.65      14.63       5.00     605.05     245.00        14.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2386E+03 EXCESS= .0000E+00 OUTFLOW= .2359E+03 BASIN STORAGE= .3199E+01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .98
             R5      MANE          3.90    586.30     243.87      14.38       5.00     584.46     245.00        14.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2347E+03 EXCESS= .0000E+00 OUTFLOW= .2318E+03 BASIN STORAGE= .3180E+01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .57
             R5      MANE          5.00    215.98     254.43       9.03       5.00     215.06     255.00         9.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1480E+03 EXCESS= .0000E+00 OUTFLOW= .1456E+03 BASIN STORAGE= .2623E+01 PERCENT ERROR=   -.2

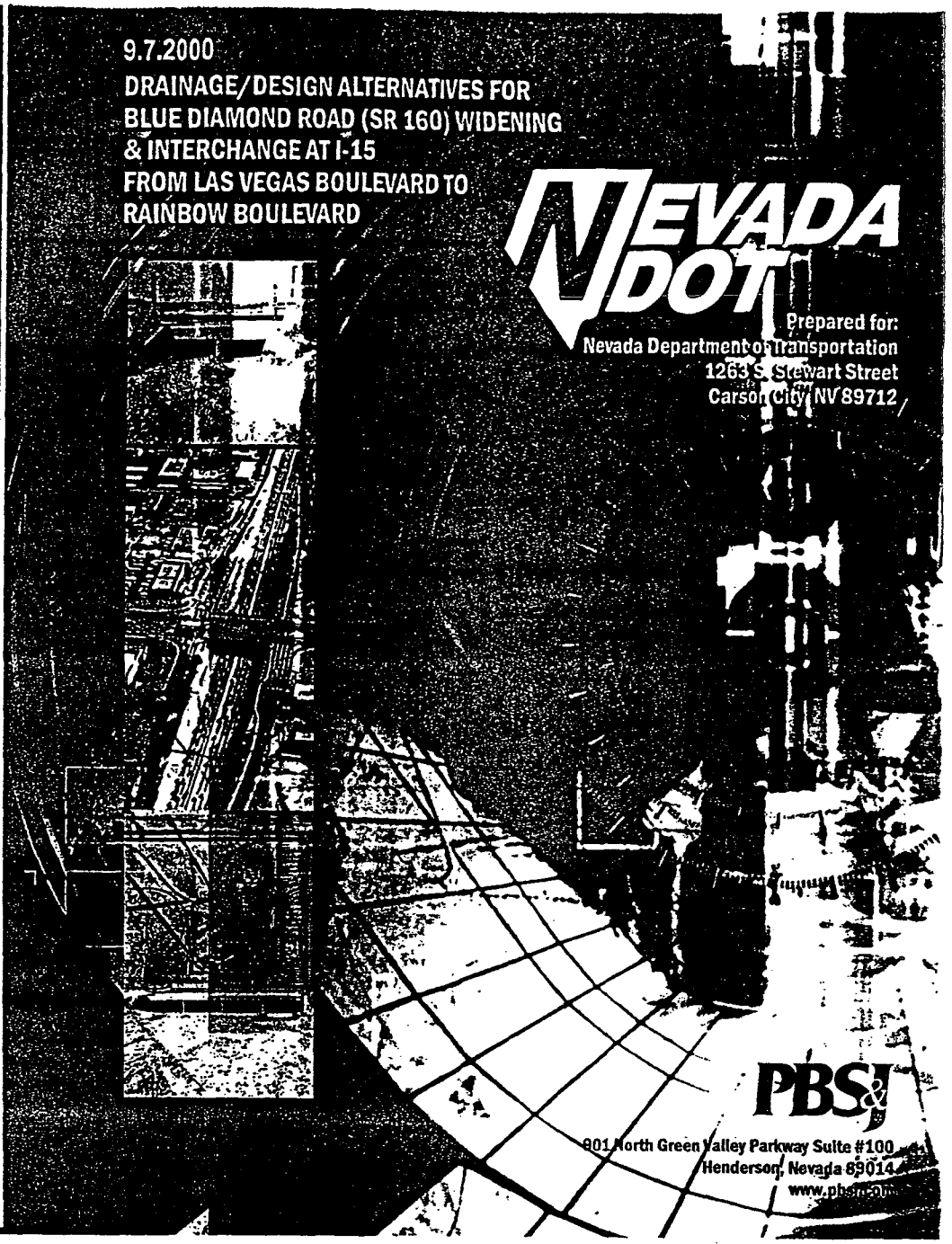

*** NORMAL END OF HEC-1 ***
```

# BLUE DIAMOND/ I-15 INTERCHANGE REPORT

# TECHNICAL APPENDIX VOLUME 2 OF 3

9.7.2000

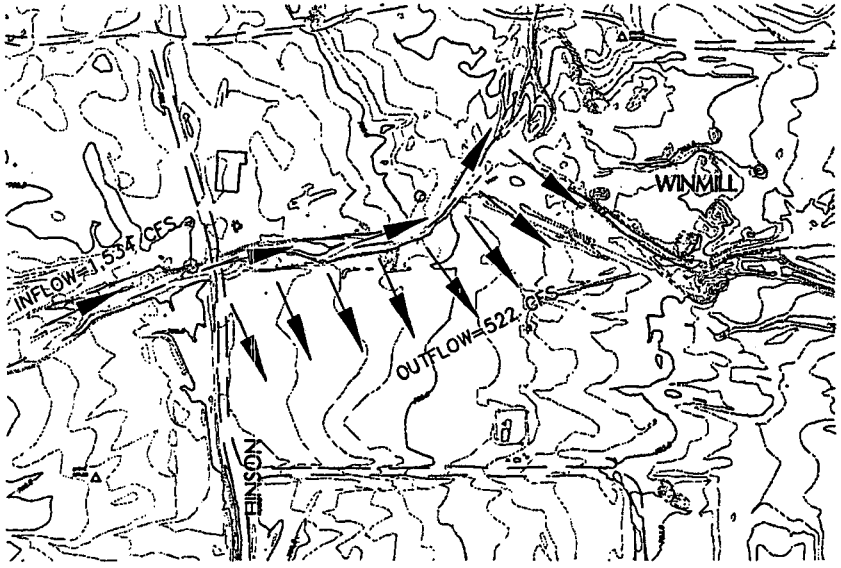
# DRAINAGE/DESIGN ALTERNATIVES FOR BLUE DIAMOND ROAD (SR 160) WIDENING & INTERCHANGE AT I-15 FROM LAS VEGAS BOULEVARD TO RAINBOW BOULEVARD



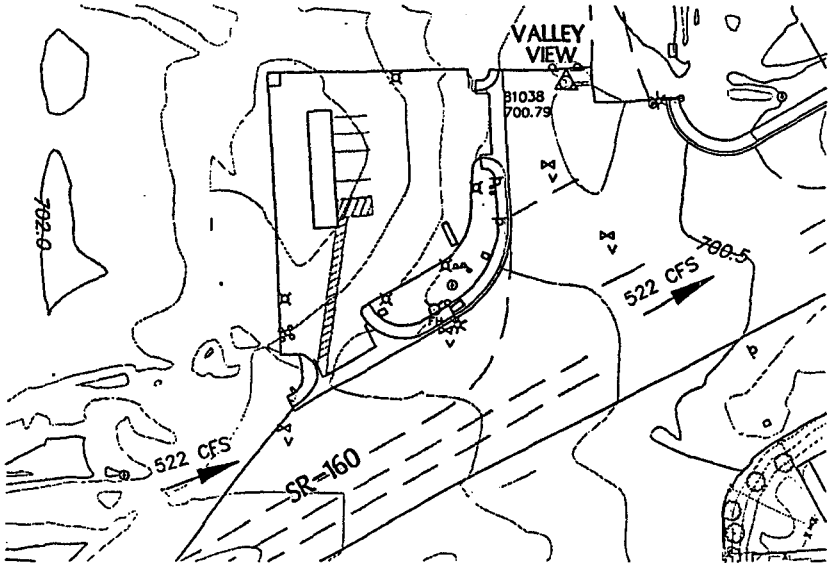
NEVADA DOT

Prepared for:
Nevada Department of Transportation
1263 S. Stewart Street
Carson City, NV 89712

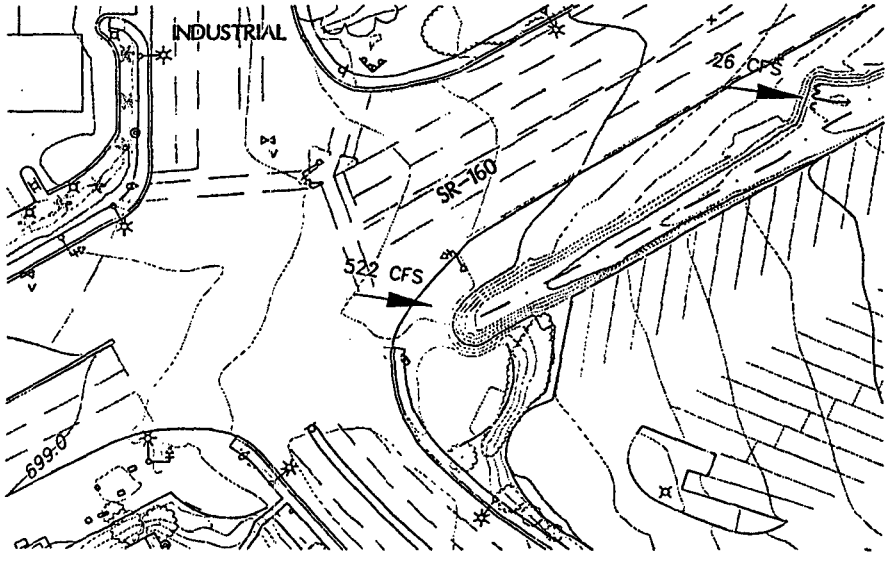
PBS&J
901 North Green Valley Parkway Suite #100
Henderson, Nevada 89014
www.pbsj.com




SPLIT FLOW NEAR HINSON/WINMILL




FLOWS AT SR-160/VALLEY VIEW




FLOWS AT SR160/INDUSTRIAL

SPLIT FLOWS
FIGURE 12

PBSJ

Blue Diamond FLO-2D Introduction

Description

A FLO-2D Model was run on the area west of the southbound ramp (see Figure 12) for an area of approximately 25 acres. This model was created to determine the magnitude of the flow split occurring naturally within the modeled area. As can be seen on Figure 12 an existing wash conveys flows northeast. As the wash fans out and the cross sectional area decreases, a flow split occurs whereby flows travel northeast to the proposed Lower Blue Diamond Detention Basin and southeast to the Silverton Hotel & Casino. Additionally some flows travel east through the 76 Truck Stop eventually impacting the southbound ramp. The FLO-2D model was created to determine the magnitude and direction of flows at this flow split and to determine the peak flows impacting the southbound ramp. The flow split ratio was input in the HEC-1 models for existing, proposed and future conditions at diversion card DIVHINW. To better determine this ratio, three FLO-2D Models (Model 1, 2 and 3) were created. These three models are described below.

General Input

This area was divided into 1026, 20 meter by 20 meter grids and elevations for each grid were based on 0.5 m contour interval topography. Two inflow hydrographs were added on the grid system. These hydrographs represent peak flows from HEC-1 model BDEX1SDN3. OUT. Combination HINWIN and subbasin A5 were incorporated into the FLO-2D grid system at grids 191 and 761 respectively.

Inflow hydrograph at grid 191 enters the system at an existing wash. Due to the grid size (20m x 20m) the resolution of this wash was not automatically interpolated. Therefore, channel cross sections were input in the grids along the existing wash alignment.

Rainfall was simulated on the grid using the CCRFCD Storm Distribution 3 (SDN3) time and percentages and the average 100-year precipitation of 2.45 inches (converted to mm for the FLO-2D model). HEC-1 models for the area show that the direct runoff is approximately 0.64 inches resulting in an abstraction of 1.81 inches. This information was input in the FLO-2D model in mm.

Three buildings fall within the grid system and are blocked out using the area reduction factor (ARF) option in the FLO-2D model. These grids are indicated in blue on Figure 12.

Significant high points and levees (as seen on Figure 12) were not directly input in the FLO-2D models as the interpolation of the contours in these areas generated grid elevations higher than surrounding grids thus representing these high points.

Model 1

Model 1 represents the entire grid system and the outflow grids are highlighted in yellow on Figure 12. This model was created to determine the peak flows as they exit the grid system including the flows to the proposed Lower Blue Diamond Detention Basin, the Silverton Hotel and Casino and the 76 Truck Stop. Output files BASE.OUT and OUTNQ.OUT are included in Appendix B. BASE.OUT includes max velocity, depth and time for each grid within the system. OUTNQ.OUT includes the peak flow and outflow hydrograph for each outflow grid. Note that these peaks occur at varying times and the sum of these outflows do not equal the total inflow to the grid. The typical time to peak for these outflow grids is approximately 6 hours. Therefore, the peak flow at every outflow grid for 6.0 hours was obtained and used for downstream analysis. Table B1 summarizes the findings of Model 1.

Model 2

Model 2 is setup similar to Model 1 but with different outflow grids (to the east). Additionally only the channel inflow hydrograph was input in Model 2 to determine the flow split due to channel flow and rainfall. As can be seen on Figure 12 the eastern outflow grids for Model 2 are indicated in purple. This model was created to determine the flow split ratio at the outlet of the existing wash. Outflow grids 1 through 14 and 52 through 394 combine for a total of 424 cfs (6.0 hour peak). This flow drains southeast toward the Silverton Hotel & Casino. The remaining 827 cfs (of the channel inflow hydrograph) drains northeast towards the proposed Lower Blue Diamond Detention Basin. The total flow in the channel prior to the split at 6.0 hours is approximately 1251 cfs. Therefore, approximately 34 % (424/1251) splits south while 66% (827/1251) splits north. Model 2 was created just to determine this flow split and the remaining outflow grids within the model are to be ignored. The BASE.OUT and OUTNQ.OUT files are included in Appendix B. Table B1 summarizes the findings of Model 2.

Model 3

Model 3 is also setup similar to Model 1 and was created to verify the output seen in Model 2 with respect to the flow split. The outflow grids for Model 3 can be seen on Figure 12 and are indicated in pink. The BASE.OUT and OUTNQ.OUT files are included in Appendix B. The findings are summarized in Table B1.

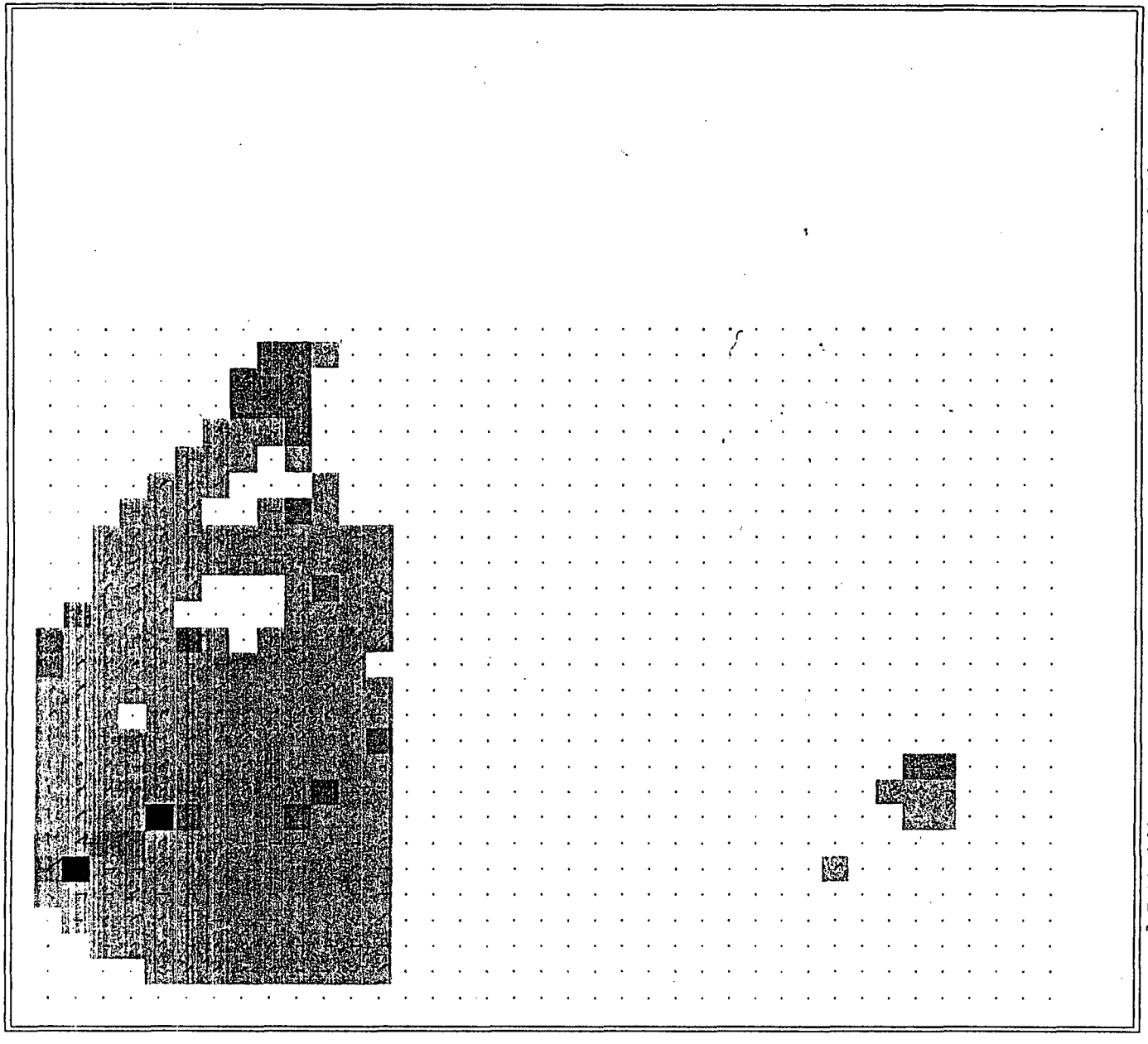
The following table includes the findings of the three FLO-2D models. Note that peak flows for outflow grids were based on a typical time to peak of 6.0 hours.

**Table B1: FLO-2D Findings**

| FLO-2D Model | Flow Direction | Outflow Grids | Peak Flow (cfs) |
|---|---|---|---|
| Model 1 | South/ Southeast Silverton H&C | 1 through 342 | 363 |
| Model 1 | East/ 76 Truck Stop | 380 through 646 | 79 |
| Model 1 | Northeast/ Industrial Road | 649 through 988 | 69 |
| Model 1 | North/Northeast Lower Blue Diamond Detention Basin | 989 through 1013 | 1176 |
| Model 2 | South/Southeast Silverton H&C | 1 through 14<br>52 through 394 ← | 424 |
| Model 2 | North/Northeast Lower Blue Diamond Detention Basin | 432 through 964 ← | 827 |
| Model 3 | South/Southeast Silverton H&C | 1 through 25<br>63 through 405 | 451 |
| Model 3 | North/Northeast Lower Blue Diamond Detention Basin | 989 through 1012 | 1130 |
| Model 3 | East/76 Truck Stop and Industrial Road | 443 through 975 | 56 |

SPLIT
SOUTH
NORTH

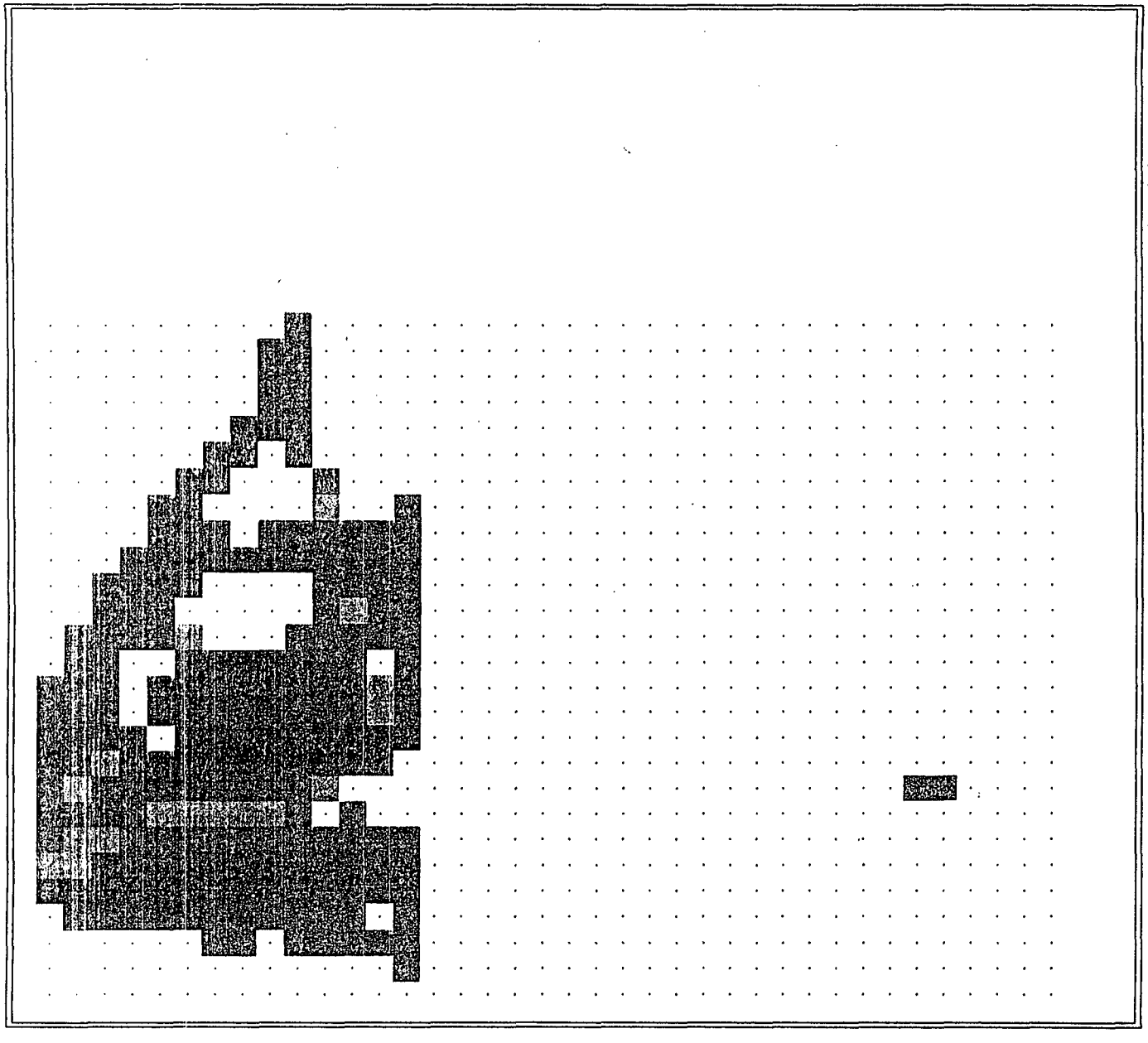
*Model 2*



Combined Channel and Floodplain Maximum Velocities (mps)

Velocity Legend

2.0 < VELOCITY < 2.5
1.5 < VELOCITY < 2.0
1.0 < VELOCITY < 1.5
0.5 < VELOCITY < 1.0
TOL < VELOCITY < 0.5
VELOCITY < TOL



Combined Channel and Floodplain Maximum Flow Depths (m)

Depth Legend

1.0 < DEPTH < 1.5
0.5 < DEPTH < 1.0
TOL < DEPTH < 0.5
DEPTH < TOL

THIS OUTPUT FILE WAS CREATED ON: 9/ 1/2000 AT: 11:49:58

THIS RUN WAS EXECUTED WITH MODEL VERSION 2000.01 CREATED JANUARY, 2000

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THIS FLO-2D COMPUTER SOFTWARE PROGRAM IS PROTECTED BY
U. S. COPYRIGHT LAW. UNAUTHORIZED REPRODUCTION, SALES
OR OTHER USE FOR PROFIT IS PROHIBITED (17 USC 506).

********

INFLOW HYDROGRAPH AT NODE 191

| HOUR | CMS |
|---|---|
| 0.00 | 0. |
| 0.50 | 0. |
| 1.00 | 0. |
| 1.50 | 0. |
| 2.00 | 0. |
| 2.50 | 0. |
| 2.70 | 0. |
| 2.90 | 1. |
| 3.00 | 1. |
| 3.10 | 1. |
| 3.30 | 2. |
| 3.40 | 2. |
| 3.50 | 3. |
| 3.60 | 4. |
| 3.70 | 5. |
| 3.80 | 6. |
| 3.90 | 7. |
| 4.00 | 8. |
| 4.05 | 9. |
| 4.10 | 9. |
| 4.15 | 10. |
| 4.20 | 11. |
| 4.25 | 13. |
| 4.30 | 14. |
| 4.35 | 16. |
| 4.40 | 18. |
| 4.45 | 20. |
| 4.50 | 22. |
| 4.55 | 25. |
| 4.60 | 27. |
| 4.70 | 31. |
| 4.80 | 34. |
| 4.90 | 37. |
| 5.00 | 39. |
| 5.05 | 39. |
| 5.10 | 40. |
| 5.15 | 40. |
| 5.30 | 41. |
| 5.50 | 42. |
| 5.70 | 43. |
| 5.75 | 43. |
| 5.80 | 43. |
| 5.85 | 43. |
| 5.90 | 43. |
| 6.00 | 42. |
| 6.05 | 41. |
| 6.10 | 40. |
| 6.15 | 38. |
| 6.20 | 37. |
| 6.25 | 36. |
| 6.30 | 34. |
| 6.35 | 32. |
| 6.40 | 31. |
| 6.50 | 27. |
| 6.70 | 21. |
| 6.80 | 18. |
| 6.85 | 17. |
| 6.90 | 16. |
| 6.95 | 15. |
| 7.00 | 14. |
| 7.10 | 12. |
| 7.20 | 10. |
| 7.30 | 9. |
| 7.40 | 8. |
| 7.50 | 6. |
| 7.90 | 4. |
| 8.00 | 4. |
| 8.30 | 3. |
| 8.50 | 3. |
| 9.00 | 3. |
| 10.00 | 3. |
| 11.00 | 3. |
| 12.00 | 3. |
| 13.00 | 3. |
| 14.00 | 3. |
| 14.95 | 3. |
| 15.00 | 0. |

MODEL TIME = 1.00 HOURS TOTAL TIMESTEP NUMBER = 929.
EFFECTIVE RAINFALL(MM/HR) = 0.92

***FLOODPLAIN RESULTS***
(POSITIVE VELOCITY REPRESENTS INFLOW TO NODE)

| NODE | ELEVATION | DEPTH | V-N | V-E | V-S | V-W | V-NE | V-SE | V-SW | V-NW |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 231 | 706.79 | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 354 | 704.26 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 393 | 703.97 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 430 | 703.83 | 0.22 | -0.54 | 0.69 | 0.00 | 0.00 | -0.58 | 0.00 | 0.00 | -0.42 |
| 431 | 703.93 | 0.71 | 0.00 | 0.00 | 0.00 | -0.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 467 | 703.61 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 | 0.00 |
| 468 | 703.55 | 0.10 | -0.57 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 | -0.37 |
| 506 | 703.21 | 0.13 | -0.50 | 0.00 | 0.57 | 0.33 | -0.60 | 0.00 | 0.00 | 0.00 |
| 544 | 703.00 | 0.10 | -0.46 | -0.32 | 0.50 | 0.00 | -0.55 | 0.00 | 0.54 | 0.00 |
| 582 | 702.81 | 0.14 | 0.00 | -0.23 | 0.46 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 |
| 583 | 702.72 | 0.12 | 0.00 | -0.49 | 0.33 | 0.23 | 0.00 | -0.42 | 0.55 | 0.00 |
| 621 | 702.70 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | 0.00 |

DISCHARGE FROM OUTFLOW GRID ELEMENTS:

| NODE | OUTFLOW RATE(CMS) |
|---|---|
| 508 | 0.22 |
| 546 | 0.69 |
| 584 | 0.74 |

***CHANNEL RESULTS***

---

INFLOW RATE AT NODE 191 IS EQUAL TO 0.00

| NODE | ELEVATION | DEPTH | VELOCITY OUT | DISCHARGE OUT |
|---|---|---|---|---|
| 469 | 703.05 | 0.24 | 0.81 | 0.48 |

MIN. TIMESTEP(SEC.) = 0.44 MAX. TIMESTEP(SEC.) = 8.86 MEAN TIMESTEP(SEC.) = 6.07

==========

MODEL TIME = 2.00 HOURS TOTAL TIMESTEP NUMBER = 2212.
EFFECTIVE RAINFALL(MM/HR) = 1.20

***FLOODPLAIN RESULTS***
(POSITIVE VELOCITY REPRESENTS INFLOW TO NODE)

| NODE | ELEVATION | DEPTH | V-N | V-E | V-S | V-W | V-NE | V-SE | V-SW | V-NW |
|---|---|---|---|---|---|---|---|---|---|---|
| 230 | 706.72 | 0.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 231 | 706.80 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 354 | 704.25 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 393 | 703.97 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 430 | 703.83 | 0.22 | -0.53 | 0.69 | 0.00 | 0.00 | -0.54 | 0.00 | 0.00 | -0.41 |
| 431 | 703.93 | 0.71 | 0.00 | 0.00 | 0.00 | -0.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 468 | 703.56 | 0.11 | -0.60 | 0.00 | 0.53 | 0.00 | 0.00 | 0.00 | 0.00 | -0.37 |
| 505 | 703.33 | 0.10 | 0.00 | -0.25 | 0.48 | 0.00 | -0.55 | 0.37 | 0.00 | 0.00 |
| 506 | 703.21 | 0.13 | -0.46 | 0.00 | 0.60 | 0.25 | -0.58 | 0.00 | 0.57 | 0.00 |
| 544 | 703.01 | 0.11 | 0.00 | 0.00 | 0.46 | 0.00 | 0.00 | 0.00 | 0.55 | 0.00 |
| 582 | 702.80 | 0.13 | 0.00 | -0.23 | 0.00 | 0.00 | -0.34 | 0.00 | 0.00 | 0.00 |
| 583 | 702.71 | 0.11 | 0.00 | -0.51 | 0.34 | 0.23 | 0.00 | -0.43 | 0.00 | 0.00 |
| 621 | 702.71 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.43 | 0.34 | 0.00 |

DISCHARGE FROM OUTFLOW GRID ELEMENTS:

| NODE | OUTFLOW RATE(CMS) |
|---|---|
| 508 | 0.26 |
| 546 | 0.76 |
| 584 | 1.13 |

***CHANNEL RESULTS***

---

INFLOW RATE AT NODE 191 IS EQUAL TO 0.00

| NODE | ELEVATION | DEPTH | VELOCITY OUT | DISCHARGE OUT |
|---|---|---|---|---|
| 469 | 703.13 | 0.32 | 0.98 | 0.92 |

MIN. TIMESTEP(SEC.) = 0.41 MAX. TIMESTEP(SEC.) = 8.86 MEAN TIMESTEP(SEC.) = 4.68

==========

MODEL TIME = 3.00 HOURS TOTAL TIMESTEP NUMBER = 3719.
EFFECTIVE RAINFALL(MM/HR) = 12.06

***FLOODPLAIN RESULTS***
(POSITIVE VELOCITY REPRESENTS INFLOW TO NODE)

| NODE | ELEVATION | DEPTH | V-N | V-E | V-S | V-W | V-NE | V-SE | V-SW | V-NW |
|---|---|---|---|---|---|---|---|---|---|---|
| 230 | 706.89 | 0.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 231 | 706.93 | 0.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 354 | 704.29 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.39 |
| 391 | 704.10 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.39 | 0.00 | 0.00 |
| 393 | 703.98 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 430 | 703.83 | 0.22 | -0.53 | 0.64 | 0.00 | 0.00 | -0.60 | 0.00 | 0.00 | -0.41 |
| 431 | 703.98 | 0.76 | 0.00 | 0.00 | 0.00 | -0.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 466 | 703.61 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 0.00 | 0.00 |
| 467 | 703.61 | 0.11 | 0.00 | 0.00 | 0.29 | 0.00 | 0.00 | 0.41 | 0.00 | 0.00 |
| 468 | 703.55 | 0.10 | -0.56 | 0.00 | 0.53 | 0.00 | 0.00 | 0.00 | 0.32 | -0.37 |
| 505 | 703.33 | 0.10 | 0.00 | -0.32 | 0.00 | 0.00 | -0.56 | 0.37 | 0.00 | 0.00 |
| 506 | 703.22 | 0.14 | -0.51 | 0.00 | 0.56 | 0.32 | -0.62 | 0.00 | 0.00 | 0.00 |
| 544 | 703.00 | 0.10 | -0.45 | -0.32 | 0.51 | 0.00 | -0.54 | 0.00 | 0.56 | 0.00 |
| 545 | 702.90 | 0.11 | 0.00 | 0.00 | 0.00 | 0.32 | 0.00 | 0.00 | 0.62 | 0.00 |
| 582 | 702.81 | 0.14 | 0.00 | 0.00 | 0.45 | 0.00 | -0.33 | 0.00 | 0.00 | 0.00 |
| 583 | 702.71 | 0.11 | 0.00 | -0.51 | 0.00 | 0.00 | 0.00 | -0.43 | 0.54 | 0.00 |
| 621 | 702.70 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.41 | 0.33 | 0.00 |

DISCHARGE FROM OUTFLOW GRID ELEMENTS:

| NODE | OUTFLOW RATE(CMS) |
|---|---|
| 546 | 0.30 |
| 584 | 0.64 |

***CHANNEL RESULTS***

INFLOW RATE AT NODE 191 IS EQUAL TO 0.68

| NODE | ELEVATION | DEPTH | VELOCITY OUT | DISCHARGE OUT |
|---|---|---|---|---|
| 191 | 707.43 | 0.33 | 0.52 | 0.66 |
| 192 | 707.32 | 0.19 | 0.91 | 0.65 |
| 231 | 706.95 | 0.15 | 0.64 | 0.64 |
| 232 | 706.81 | 0.11 | 0.79 | 0.63 |
| 271 | 706.48 | 0.13 | 1.03 | 0.63 |
| 272 | 705.63 | 0.33 | 0.11 | 0.25 |
| 273 | 705.65 | 0.35 | 0.23 | 0.63 |
| 274 | 705.62 | 0.62 | 0.12 | 0.22 |
| 275 | 705.61 | 0.24 | 0.42 | 0.54 |
| 276 | 705.55 | 0.11 | 1.32 | 0.88 |
| 315 | 704.53 | 0.27 | 0.68 | 0.61 |
| 469 | 703.07 | 0.26 | 0.81 | 0.48 |

MIN. TIMESTEP(SEC.) = 0.24 MAX. TIMESTEP(SEC.) = 8.82 MEAN TIMESTEP(SEC.) = 4.13

MODEL TIME = 4.00 HOURS TOTAL TIMESTEP NUMBER = 7832.
EFFECTIVE RAINFALL(MM/HR) = 4.54

***FLOODPLAIN RESULTS***
(POSITIVE VELOCITY REPRESENTS INFLOW TO NODE)

| NODE | ELEVATION | DEPTH | V-N | V-E | V-S | V-W | V-NE | V-SE | V-SW | V-NW |
|---|---|---|---|---|---|---|---|---|---|---|
| 87 | 704.80 | 0.10 | 0.00 | -0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 88 | 704.51 | 0.11 | 0.00 | -0.51 | 0.00 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 89 | 704.20 | 0.10 | 0.00 | -0.49 | 0.00 | 0.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 117 | 707.29 | 0.10 | 0.00 | -0.32 | 0.00 | 0.00 | -0.23 | 0.00 | 0.00 | 0.39 |
| 122 | 705.75 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 |
| 155 | 707.20 | 0.10 | 0.00 | 0.00 | 0.00 | 0.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 156 | 706.99 | 0.10 | 0.00 | -0.31 | 0.00 | 0.00 | -0.30 | 0.00 | 0.23 | 0.28 |
| 158 | 706.26 | 0.10 | 0.00 | 0.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 | 0.46 |
| 160 | 705.85 | 0.10 | 0.00 | 0.00 | 0.00 | 0.44 | 0.00 | 0.00 | 0.00 | 0.38 |
| 191 | 707.80 | 0.15 | -0.62 | -0.37 | 0.00 | 0.00 | -0.97 | -0.49 | 0.00 | 0.00 |
| 192 | 707.73 | 0.10 | 0.00 | 0.00 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 193 | 707.11 | 0.10 | 0.00 | -0.35 | 0.00 | 0.00 | 0.00 | -0.28 | 0.49 | 0.00 |
| 196 | 706.28 | 0.10 | 0.00 | 0.00 | 0.00 | 0.53 | 0.00 | 0.00 | 0.53 | 0.46 |
| 198 | 705.87 | 0.10 | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 | 0.00 | 0.42 | 0.30 |
| 201 | 705.06 | 0.10 | 0.00 | 0.00 | 0.00 | 0.21 | 0.00 | 0.00 | 0.00 | 0.19 |
| 229 | 707.50 | 0.10 | 0.00 | 0.00 | 0.62 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 230 | 707.14 | 0.94 | -0.41 | 0.00 | 0.00 | 0.00 | -0.25 | 0.00 | 0.97 | -0.44 |
| 231 | 707.04 | 0.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.34 | 0.00 | 0.00 |
| 234 | 706.21 | 0.10 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 | 0.00 | 0.59 | 0.00 |
| 236 | 705.79 | 0.10 | 0.00 | -0.36 | 0.00 | 0.27 | 0.00 | 0.00 | 0.22 | 0.00 |
| 237 | 705.57 | 0.11 | 0.00 | -0.39 | 0.00 | 0.36 | 0.00 | -0.39 | 0.00 | 0.39 |
| 241 | 704.50 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.55 | 0.00 |
| 267 | 706.95 | 0.12 | -0.54 | 0.00 | 0.00 | 0.00 | -0.53 | 0.44 | 0.00 | 0.00 |
| 268 | 706.99 | 0.10 | -0.52 | 0.00 | 0.41 | 0.00 | -0.54 | 0.00 | 0.00 | -0.39 |
| 270 | 706.67 | 0.17 | -0.14 | 0.00 | 0.00 | 0.61 | -0.49 | 0.00 | 0.00 | 0.00 |
| 274 | 705.75 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | -0.42 | -0.39 | 0.30 | 0.14 |
| 305 | 706.70 | 0.20 | -0.37 | 0.00 | 0.54 | 0.00 | -0.30 | 0.39 | 0.00 | 0.00 |
| 306 | 706.68 | 0.41 | 0.00 | 0.00 | 0.52 | 0.00 | -0.47 | 0.51 | 0.53 | 0.00 |
| 307 | 706.66 | 0.16 | -0.33 | 0.00 | 0.61 | 0.00 | -0.44 | 0.00 | 0.54 | 0.00 |
| 308 | 706.57 | 0.19 | 0.00 | 0.00 | 0.14 | 0.00 | -0.52 | 0.00 | 0.69 | 0.00 |
| 311 | 706.00 | 0.10 | 0.00 | -0.11 | 0.00 | 0.00 | -0.12 | -0.14 | 0.00 | 0.32 |
| 312 | 705.88 | 0.10 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.28 |
| 343 | 706.58 | 0.10 | -0.27 | 0.00 | 0.37 | 0.00 | -0.26 | 0.00 | 0.00 | 0.00 |
| 345 | 706.55 | 0.28 | 0.00 | 0.00 | 0.33 | 0.00 | -0.44 | 0.00 | 0.47 | -0.15 |
| 346 | 706.49 | 0.29 | 0.00 | -0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.44 | 0.00 |
| 347 | 706.37 | 0.17 | 0.00 | -0.50 | 0.00 | 0.24 | -0.60 | 0.00 | 0.52 | 0.00 |
| 348 | 706.18 | 0.10 | 0.00 | -0.40 | 0.00 | 0.50 | -0.40 | -0.32 | 0.23 | 0.00 |
| 350 | 705.86 | 0.10 | 0.00 | 0.00 | 0.00 | 0.36 | 0.00 | 0.00 | 0.12 | 0.29 |
| 353 | 704.40 | 0.10 | 0.00 | 0.00 | 0.00 | 0.29 | 0.00 | 0.00 | 0.45 | 0.00 |
| 354 | 704.37 | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.52 |
| 381 | 706.44 | 0.12 | -0.15 | 0.00 | 0.27 | 0.00 | -0.14 | 0.20 | 0.00 | 0.00 |
| 382 | 706.44 | 0.19 | -0.29 | 0.00 | 0.26 | 0.00 | 0.00 | 0.15 | 0.26 | -0.29 |
| 383 | 706.45 | 0.25 | -0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 | -0.25 |
| 384 | 706.44 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | -0.74 | 0.00 | 0.44 | 0.00 |
| 386 | 706.12 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 |
| 391 | 704.13 | 0.13 | -0.59 | 0.00 | 0.00 | 0.00 | -0.59 | 0.52 | 0.45 | -0.34 |
| 393 | 703.99 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 419 | 706.34 | 0.14 | 0.00 | 0.00 | 0.15 | 0.00 | -0.57 | 0.29 | 0.00 | 0.00 |
| 420 | 706.34 | 0.14 | -0.59 | 0.00 | 0.29 | 0.00 | 0.00 | 0.25 | 0.14 | 0.00 |
| 423 | 706.04 | 0.10 | -0.39 | 0.00 | 0.00 | 0.00 | -0.73 | 0.00 | 0.74 | 0.00 |
| 425 | 705.75 | 0.10 | 0.00 | 0.00 | 0.47 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| 426 | 705.47 | 0.10 | 0.00 | 0.00 | 0.47 | 0.00 | 0.00 | 0.00 | 0.69 | 0.00 |
| 427 | 704.78 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.93 | 0.00 |
| 429 | 703.84 | 0.11 | -0.47 | 0.00 | 0.59 | 0.33 | -0.52 | 0.00 | 0.00 | -0.15 |
| 430 | 703.85 | 0.24 | -0.57 | 0.61 | 0.00 | 0.00 | -0.55 | 0.00 | 0.59 | -0.44 |
| 431 | 703.99 | 0.77 | 0.00 | 0.00 | 0.00 | -0.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 458 | 706.09 | 0.19 | -0.44 | 0.00 | 0.59 | 0.00 | -0.52 | 0.00 | 0.57 | 0.00 |
| 461 | 705.87 | 0.10 | 0.00 | 0.00 | 0.39 | 0.00 | 0.00 | 0.28 | 0.00 | 0.00 |
| 462 | 705.50 | 0.11 | -0.32 | 0.00 | 0.35 | 0.00 | -0.55 | 0.00 | 0.73 | 0.00 |
| 463 | 705.40 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.74 | 0.00 |
| 465 | 704.12 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.46 |
| 466 | 703.74 | 0.23 | 0.00 | 0.00 | 0.46 | 0.00 | -0.67 | 0.15 | 0.00 | 0.41 |
| 467 | 703.65 | 0.15 | -0.56 | 0.00 | 0.47 | 0.00 | -0.70 | 0.44 | 0.54 | 0.00 |
| 468 | 703.58 | 0.13 | -0.59 | 0.00 | 0.57 | 0.00 | -0.37 | 0.00 | 0.52 | -0.35 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 496 | 705.95 | 0.17 | 0.00 | 0.00 | 0.44 | 0.00 | -0.38 | 0.00 | 0.00 | 0.00 |
| 497 | 705.90 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | -0.44 | 0.00 | 0.52 | 0.00 |
| 500 | 705.38 | 0.12 | 0.00 | -0.44 | 0.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 501 | 705.20 | 0.14 | 0.00 | -0.86 | 0.00 | 0.44 | 0.00 | -0.27 | 0.55 | 0.16 |
| 502 | 704.56 | 0.10 | 0.00 | -0.72 | 0.00 | 0.86 | -0.46 | -0.46 | 0.00 | 0.00 |
| 503 | 703.96 | 0.16 | 0.00 | 0.00 | 0.00 | 0.72 | -0.36 | -0.41 | 0.00 | 0.00 |
| 505 | 703.44 | 0.21 | -0.40 | -0.41 | 0.56 | 0.00 | -0.73 | 0.35 | 0.67 | 0.00 |
| 506 | 703.32 | 0.24 | -0.61 | 0.00 | 0.59 | 0.41 | -0.73 | 0.00 | 0.70 | 0.00 |
| 535 | 705.82 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 | -0.38 | 0.00 | 0.38 | 0.00 |
| 536 | 705.78 | 0.20 | 0.00 | -0.14 | 0.00 | 0.00 | -0.45 | 0.00 | 0.44 | 0.00 |
| 538 | 705.31 | 0.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.16 | 0.00 | 0.31 |
| 542 | 703.86 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.36 | 0.00 |
| 543 | 703.30 | 0.10 | -0.27 | -0.35 | 0.40 | 0.00 | -0.51 | 0.00 | 0.00 | 0.00 |
| 544 | 703.10 | 0.20 | -0.52 | -0.45 | 0.61 | 0.35 | -0.65 | 0.00 | 0.73 | 0.00 |
| 545 | 702.91 | 0.12 | 0.00 | -0.72 | 0.00 | 0.45 | -0.75 | -0.39 | 0.73 | 0.00 |
| 573 | 705.72 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 |
| 574 | 705.69 | 0.10 | 0.00 | -0.20 | 0.00 | 0.00 | -0.62 | 0.00 | 0.38 | 0.00 |
| 581 | 703.17 | 0.10 | 0.00 | 0.00 | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 582 | 702.93 | 0.26 | 0.00 | -0.19 | 0.52 | 0.00 | -0.50 | 0.00 | 0.51 | 0.28 |
| 583 | 702.83 | 0.23 | 0.00 | -0.68 | 0.00 | 0.19 | 0.00 | -0.57 | 0.65 | 0.10 |
| 613 | 705.27 | 0.10 | -0.15 | -0.14 | 0.43 | 0.00 | -0.15 | 0.00 | 0.62 | 0.00 |
| 614 | 705.10 | 0.10 | 0.00 | 0.00 | 0.00 | 0.14 | -0.63 | 0.00 | 0.59 | 0.00 |
| 619 | 703.05 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.28 | 0.00 | 0.14 |
| 621 | 702.78 | 0.18 | 0.00 | 0.00 | 0.00 | 0.18 | -0.10 | -0.60 | 0.50 | 0.00 |
| 651 | 705.10 | 0.10 | 0.00 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 652 | 705.10 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.00 |
| 654 | 704.07 | 0.10 | 0.00 | -0.65 | 0.00 | 0.67 | -0.54 | 0.00 | 0.00 | 0.50 |
| 657 | 703.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.11 |
| 690 | 704.53 | 0.10 | 0.00 | -0.34 | 0.00 | 0.00 | 0.00 | 0.20 | 0.00 | 0.00 |
| 691 | 704.37 | 0.16 | 0.00 | 0.00 | 0.44 | 0.34 | 0.00 | -0.50 | 0.00 | 0.00 |
| 693 | 703.73 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.54 | 0.00 |
| 694 | 703.17 | 0.10 | 0.00 | -0.15 | 0.11 | 0.00 | -0.21 | -0.11 | 0.45 | 0.00 |
| 695 | 703.00 | 0.10 | 0.00 | -0.38 | 0.00 | 0.15 | 0.00 | 0.00 | 0.23 | 0.00 |
| 696 | 702.80 | 0.11 | 0.00 | -0.56 | 0.00 | 0.38 | 0.00 | -0.27 | 0.00 | 0.21 |
| 697 | 702.51 | 0.15 | 0.00 | 0.00 | 0.32 | 0.56 | -0.65 | 0.00 | 0.00 | 0.00 |
| 733 | 702.91 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.21 | 0.21 | 0.00 |

DISCHARGE FROM OUTFLOW GRID ELEMENTS:

| NODE | OUTFLOW RATE(CMS) |
|---|---|
| 90 | 0.33 |
| 166 | 0.31 |
| 204 | 0.38 |
| 242 | 0.33 |
| 508 | 0.31 |
| 546 | 1.43 |
| 584 | 2.42 |
| 660 | 0.11 |
| 698 | 0.30 |
| 736 | 0.59 |

***CHANNEL RESULTS***

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INFLOW RATE AT NODE 191 IS EQUAL TO 7.87

| NODE | ELEVATION | DEPTH | VELOCITY OUT | DISCHARGE OUT |
|---|---|---|---|---|
| 191 | 707.89 | 0.79 | 0.81 | 3.97 |
| 192 | 707.69 | 0.56 | 1.65 | 4.56 |
| 231 | 707.10 | 0.30 | 1.08 | 2.20 |
| 232 | 706.93 | 0.23 | 1.16 | 2.14 |
| 271 | 706.63 | 0.28 | 1.48 | 2.11 |
| 272 | 705.81 | 0.51 | 0.89 | 2.80 |
| 273 | 705.80 | 0.50 | 0.65 | 2.76 |
| 274 | 705.79 | 0.79 | 0.35 | 2.22 |
| 275 | 705.79 | 0.42 | 0.77 | 1.77 |
| 276 | 705.67 | 0.23 | 1.33 | 1.70 |
| 315 | 704.60 | 0.34 | 0.96 | 1.68 |
| 354 | 704.43 | 0.17 | 0.51 | 0.86 |
| 392 | 704.33 | 0.30 | 0.20 | 0.34 |
| 469 | 703.11 | 0.30 | 0.90 | 0.63 |

MIN. TIMESTEP(SEC.) = 0.10 MAX. TIMESTEP(SEC.) = 4.96 MEAN TIMESTEP(SEC.) = 1.86

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MODEL TIME = 5.00 HOURS TOTAL TIMESTEP NUMBER = 21067.
EFFECTIVE RAINFALL(MM/HR) = 2.66

***FLOODPLAIN RESULTS***
(POSITIVE VELOCITY REPRESENTS INFLOW TO NODE)

| NODE | ELEVATION | DEPTH | V-N | V-E | V-S | V-W | V-NE | V-SE | V-SW | V-NW |
|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 706.90 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 |
| 48 | 705.51 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.35 |
| 50 | 704.82 | 0.10 | 0.00 | 0.00 | 0.00 | 0.51 | 0.00 | 0.00 | 0.00 | 0.26 |
| 51 | 704.55 | 0.10 | -0.09 | -0.16 | 0.00 | 0.00 | -0.29 | -0.36 | 0.00 | 0.29 |
| 80 | 707.22 | 0.10 | 0.00 | -0.05 | 0.00 | 0.00 | -0.08 | -0.06 | 0.00 | 0.38 |
| 81 | 707.03 | 0.10 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.32 |
| 84 | 705.80 | 0.12 | 0.00 | -0.33 | 0.00 | 0.51 | -0.56 | 0.00 | 0.00 | 0.47 |
| 86 | 705.20 | 0.11 | 0.00 | -0.53 | 0.00 | 0.48 | -0.40 | 0.00 | 0.00 | 0.48 |
| 87 | 704.92 | 0.22 | 0.35 | -0.65 | 0.05 | 0.53 | -0.10 | -0.26 | 0.00 | 0.58 |
| 88 | 704.67 | 0.27 | 0.40 | -0.81 | 0.00 | 0.65 | 0.03 | -0.29 | 0.11 | 0.52 |
| 89 | 704.37 | 0.27 | 0.10 | -0.81 | 0.09 | 0.81 | -0.45 | -0.40 | 0.00 | 0.58 |
| 116 | 707.60 | 0.20 | 0.42 | -0.52 | 0.00 | 0.00 | -0.52 | -0.02 | 0.00 | 0.57 |
| 117 | 707.38 | 0.19 | 0.00 | -0.54 | 0.00 | 0.52 | -0.56 | -0.38 | 0.00 | 0.60 |
| 118 | 707.19 | 0.11 | 0.00 | -0.54 | 0.00 | 0.54 | -0.66 | -0.32 | 0.00 | 0.42 |
| 119 | 706.90 | 0.10 | -0.04 | -0.14 | 0.00 | 0.54 | -0.12 | -0.06 | 0.08 | 0.40 |
| 120 | 706.34 | 0.14 | 0.00 | -0.51 | 0.00 | 0.14 | -0.48 | -0.44 | 0.00 | 0.59 |
| 121 | 706.13 | 0.10 | 0.00 | -0.56 | 0.00 | 0.51 | -0.47 | -0.47 | 0.00 | 0.46 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 123 | 705.51 | 0.21 | 0.35 | -0.65 | 0.21 | 0.58 | -0.50 | -0.48 | 0.56 | 0.59 |
| 124 | 705.25 | 0.22 | 0.35 | -0.53 | 0.00 | 0.65 | -0.41 | -0.58 | 0.44 | 0.53 |
| 125 | 705.03 | 0.12 | 0.10 | -0.51 | -0.35 | 0.53 | -0.42 | -0.52 | 0.40 | 0.45 |
| 126 | 704.82 | 0.12 | 0.00 | 0.00 | -0.40 | 0.51 | -0.54 | -0.58 | 0.10 | 0.46 |
| 127 | 704.78 | 0.10 | -0.06 | -0.14 | -0.10 | 0.00 | -0.16 | -0.16 | -0.03 | 0.32 |
| 153 | 707.97 | 0.18 | 0.82 | -0.56 | 0.00 | 0.00 | -0.37 | -0.57 | 0.00 | 0.00 |
| 154 | 707.71 | 0.28 | 0.44 | -0.84 | -0.42 | 0.56 | -0.82 | -0.60 | 0.00 | 1.09 |
| 155 | 707.39 | 0.29 | 0.00 | -0.76 | 0.00 | 0.84 | -0.73 | -0.42 | 0.52 | 0.70 |
| 156 | 707.12 | 0.23 | 0.00 | -0.84 | 0.00 | 0.76 | -0.85 | -0.40 | 0.56 | 0.56 |
| 157 | 706.74 | 0.26 | 0.00 | -0.82 | 0.04 | 0.84 | -0.79 | -0.59 | 0.66 | 0.76 |
| 158 | 706.41 | 0.25 | 0.00 | -0.67 | 0.00 | 0.82 | -0.63 | -0.46 | 0.12 | 0.57 |
| 159 | 706.17 | 0.21 | 0.00 | -0.61 | 0.00 | 0.67 | -0.54 | -0.56 | 0.48 | 0.48 |
| 160 | 705.90 | 0.15 | 0.00 | -0.65 | 0.00 | 0.61 | -0.48 | -0.59 | 0.47 | 0.49 |
| 161 | 705.62 | 0.17 | 0.37 | -0.59 | -0.35 | 0.65 | -0.46 | -0.53 | 0.46 | 0.57 |
| 162 | 705.35 | 0.18 | 0.12 | -0.54 | -0.35 | 0.59 | -0.48 | -0.45 | 0.50 | 0.59 |
| 163 | 705.13 | 0.19 | 0.00 | -0.59 | -0.10 | 0.54 | -0.55 | -0.46 | 0.41 | 0.55 |
| 164 | 704.89 | 0.19 | 0.00 | -0.64 | 0.00 | 0.59 | -0.64 | -0.32 | 0.42 | 0.53 |
| 165 | 704.55 | 0.15 | 0.00 | -0.71 | 0.06 | 0.64 | -0.68 | -0.57 | 0.54 | 0.53 |
| 191 | 708.15 | 0.50 | -1.24 | -1.10 | -0.82 | 0.00 | -1.82 | -1.09 | 0.00 | 0.00 |
| 192 | 707.85 | 0.22 | -0.74 | -0.96 | -0.44 | 1.10 | -0.90 | -0.70 | 0.37 | -0.43 |
| 193 | 707.35 | 0.34 | 0.00 | -0.82 | 0.00 | 0.96 | 0.00 | -0.56 | 0.82 | 0.00 |
| 194 | 707.15 | 0.35 | 0.00 | -1.02 | 0.00 | 0.82 | -0.98 | -0.76 | 0.73 | 0.61 |
| 195 | 706.71 | 0.23 | 0.00 | -0.77 | 0.00 | 1.02 | -0.83 | -0.57 | 0.85 | 0.00 |
| 196 | 706.41 | 0.23 | 0.00 | -0.65 | 0.00 | 0.77 | -0.71 | -0.48 | 0.79 | 0.41 |
| 197 | 706.19 | 0.23 | 0.00 | -0.60 | 0.00 | 0.65 | -0.62 | -0.49 | 0.63 | 0.34 |
| 198 | 705.99 | 0.22 | 0.00 | -0.59 | 0.00 | 0.60 | -0.52 | -0.57 | 0.54 | 0.38 |
| 199 | 705.74 | 0.14 | 0.12 | -0.65 | -0.37 | 0.59 | -0.56 | -0.59 | 0.48 | 0.47 |
| 200 | 705.45 | 0.22 | 0.00 | -0.69 | -0.12 | 0.65 | -0.58 | -0.55 | 0.46 | 0.74 |
| 201 | 705.19 | 0.23 | 0.00 | -0.66 | 0.00 | 0.69 | -0.70 | -0.53 | 0.48 | 0.58 |
| 202 | 704.88 | 0.15 | 0.00 | -0.67 | 0.00 | 0.66 | -0.69 | -0.53 | 0.55 | 0.48 |
| 203 | 704.58 | 0.18 | 0.00 | -0.74 | 0.00 | 0.67 | -0.66 | -0.64 | 0.64 | 0.43 |
| 229 | 707.66 | 0.26 | -1.01 | -0.59 | 1.24 | 0.00 | -0.91 | 0.43 | 0.00 | 0.00 |
| 230 | 707.45 | 1.25 | -1.02 | -0.11 | 0.74 | 0.59 | -1.18 | 0.00 | 1.82 | -0.83 |
| 231 | 707.35 | 1.15 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | -0.61 | 0.90 | 0.00 |
| 233 | 706.63 | 0.13 | 0.00 | -0.60 | 0.00 | 0.00 | -0.79 | -0.41 | 0.98 | 0.00 |
| 234 | 706.32 | 0.21 | -0.42 | -0.53 | 0.00 | 0.60 | 0.00 | -0.34 | 0.83 | 0.00 |
| 235 | 706.14 | 0.23 | 0.00 | -0.55 | 0.00 | 0.53 | -0.40 | -0.38 | 0.71 | 0.00 |
| 236 | 705.98 | 0.29 | 0.00 | -0.58 | 0.00 | 0.55 | 0.00 | -0.47 | 0.62 | 0.00 |
| 237 | 705.84 | 0.38 | 0.00 | -0.88 | -0.12 | 0.58 | 0.00 | -0.74 | 0.52 | 0.58 |
| 238 | 705.52 | 0.22 | 0.00 | -0.67 | 0.00 | 0.88 | -0.60 | -0.58 | 0.56 | 0.00 |
| 239 | 705.19 | 0.13 | 0.00 | -0.66 | 0.00 | 0.67 | -0.65 | -0.48 | 0.58 | 0.00 |
| 240 | 704.84 | 0.17 | 0.00 | -0.58 | 0.00 | 0.66 | -0.54 | -0.43 | 0.70 | 0.19 |
| 241 | 704.55 | 0.15 | 0.00 | -0.59 | 0.00 | 0.58 | -0.62 | -0.55 | 0.69 | 0.26 |
| 267 | 707.20 | 0.37 | -0.94 | 0.00 | 1.01 | 0.00 | -0.88 | 0.83 | 0.00 | 0.00 |
| 268 | 707.18 | 0.29 | -0.86 | 0.00 | 1.02 | 0.00 | -0.89 | 0.00 | 0.91 | -0.59 |
| 269 | 707.19 | 0.29 | -0.85 | -0.85 | 0.00 | 0.00 | -1.10 | 0.00 | 1.18 | -0.70 |
| 270 | 706.85 | 0.35 | -0.26 | 0.00 | 0.00 | 0.85 | -0.72 | 0.00 | 0.00 | 0.00 |
| 272 | 706.18 | 0.18 | 0.47 | 0.00 | 0.42 | 0.00 | 0.00 | 0.00 | 0.79 | 0.62 |
| 274 | 706.02 | 0.42 | -0.31 | 0.00 | 0.00 | 0.00 | -0.90 | -0.58 | 0.40 | 0.00 |
| 278 | 704.80 | 0.10 | 0.00 | -0.25 | 0.00 | 0.28 | -0.41 | -0.26 | 0.65 | 0.00 |
| 305 | 706.94 | 0.44 | -0.77 | 0.00 | 0.94 | 0.00 | -0.64 | 0.59 | 0.00 | 0.00 |
| 306 | 706.89 | 0.62 | -0.62 | 0.00 | 0.86 | 0.00 | -0.90 | 0.70 | 0.88 | -0.06 |
| 307 | 706.85 | 0.35 | -0.52 | -0.13 | 0.85 | 0.00 | -0.82 | 0.00 | 0.89 | 0.00 |
| 308 | 706.75 | 0.37 | 0.00 | -0.60 | 0.26 | 0.13 | -0.87 | 0.00 | 1.10 | 0.00 |
| 309 | 706.59 | 0.22 | 0.00 | -0.59 | 0.00 | 0.60 | -0.70 | -0.62 | 0.72 | 0.00 |
| 310 | 706.32 | 0.14 | 0.00 | -0.56 | -0.47 | 0.59 | -0.56 | 0.00 | 0.00 | 0.50 |
| 311 | 706.11 | 0.21 | 0.00 | -0.50 | 0.00 | 0.56 | -0.50 | 0.00 | 0.00 | 0.43 |
| 312 | 705.93 | 0.15 | 0.00 | -0.52 | 0.31 | 0.50 | -0.81 | 0.00 | 0.00 | 0.34 |
| 313 | 705.68 | 0.17 | -0.62 | -0.90 | 0.00 | 0.52 | -0.97 | 0.00 | 0.90 | 0.30 |
| 314 | 705.12 | 0.12 | -0.55 | 0.00 | 0.00 | 0.90 | -0.81 | 0.00 | 0.00 | 0.42 |
| 316 | 704.80 | 0.10 | -0.07 | -0.08 | 0.00 | 0.00 | -0.43 | -0.03 | 0.62 | 0.00 |
| 343 | 706.78 | 0.30 | -0.64 | 0.00 | 0.77 | 0.00 | -0.54 | 0.06 | 0.00 | 0.00 |
| 344 | 706.77 | 0.27 | -0.56 | 0.00 | 0.62 | 0.00 | -0.57 | 0.00 | 0.64 | -0.44 |
| 345 | 706.74 | 0.47 | -0.46 | 0.00 | 0.52 | 0.00 | -0.74 | 0.00 | 0.90 | -0.49 |
| 346 | 706.65 | 0.45 | 0.00 | -0.57 | 0.00 | 0.00 | -0.40 | 0.00 | 0.82 | 0.00 |
| 347 | 706.53 | 0.33 | 0.00 | -0.73 | 0.00 | 0.57 | -0.85 | -0.50 | 0.87 | 0.00 |
| 348 | 706.29 | 0.21 | -0.35 | -0.57 | 0.00 | 0.73 | -0.58 | -0.43 | 0.70 | 0.00 |
| 349 | 706.08 | 0.18 | 0.00 | -0.56 | 0.00 | 0.57 | -0.72 | -0.34 | 0.56 | 0.28 |
| 350 | 705.86 | 0.10 | -0.33 | -0.67 | 0.00 | 0.56 | -0.79 | -0.30 | 0.50 | 0.24 |
| 351 | 705.38 | 0.11 | -0.45 | -0.75 | 0.62 | 0.67 | -0.93 | -0.42 | 0.81 | 0.35 |
| 352 | 704.84 | 0.15 | -0.65 | -0.71 | 0.55 | 0.75 | -0.92 | 0.00 | 0.97 | 0.18 |
| 353 | 704.51 | 0.21 | -0.57 | 0.00 | 0.00 | 0.71 | -0.44 | 0.00 | 0.81 | 0.00 |
| 354 | 704.50 | 0.40 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | -0.66 |
| 355 | 704.60 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | 0.00 |
| 381 | 706.64 | 0.32 | -0.58 | 0.00 | 0.64 | 0.00 | -0.26 | 0.44 | 0.00 | 0.00 |
| 382 | 706.64 | 0.39 | -0.61 | 0.00 | 0.56 | 0.00 | -0.59 | 0.49 | 0.54 | -0.47 |
| 383 | 706.63 | 0.43 | -0.54 | 0.00 | 0.46 | 0.00 | 0.00 | 0.00 | 0.57 | -0.44 |
| 384 | 706.62 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | -1.04 | 0.00 | 0.74 | 0.00 |
| 385 | 706.53 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 |
| 386 | 706.19 | 0.17 | -0.51 | -0.50 | 0.35 | 0.00 | -0.79 | -0.28 | 0.85 | 0.00 |
| 387 | 705.99 | 0.10 | -0.44 | -0.51 | 0.00 | 0.50 | -0.70 | -0.24 | 0.58 | 0.00 |
| 388 | 705.71 | 0.10 | -0.37 | -0.64 | 0.33 | 0.51 | -0.90 | -0.35 | 0.72 | 0.00 |
| 389 | 705.18 | 0.10 | -0.29 | -0.44 | 0.45 | 0.64 | -0.65 | -0.18 | 0.79 | 0.23 |
| 390 | 704.53 | 0.13 | -0.70 | -0.54 | 0.65 | 0.44 | -0.80 | 0.00 | 0.93 | 0.24 |
| 391 | 704.28 | 0.28 | -0.76 | 0.34 | 0.57 | 0.54 | -0.90 | 0.66 | 0.92 | -0.49 |
| 392 | 704.35 | 0.12 | -0.66 | 0.00 | 0.00 | -0.34 | -0.58 | 0.00 | 0.44 | -0.51 |
| 393 | 703.99 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 419 | 706.52 | 0.32 | -0.41 | 0.00 | 0.58 | 0.00 | -0.68 | 0.47 | 0.00 | 0.00 |
| 420 | 706.53 | 0.33 | -0.77 | 0.00 | 0.61 | 0.00 | -0.53 | 0.44 | 0.26 | -0.35 |
| 421 | 706.52 | 0.27 | -0.51 | 0.00 | 0.54 | 0.00 | -0.55 | 0.00 | 0.59 | -0.54 |
| 423 | 706.14 | 0.20 | -0.52 | -0.38 | 0.00 | 0.00 | -0.89 | 0.00 | 1.04 | 0.11 |
| 424 | 705.99 | 0.10 | -0.54 | -0.42 | 0.51 | 0.38 | -0.69 | 0.00 | 0.00 | -0.17 |
| 425 | 705.76 | 0.11 | -0.42 | -0.39 | 0.44 | 0.42 | -0.71 | 0.00 | 0.79 | -0.13 |
| 426 | 705.47 | 0.10 | -0.38 | -0.61 | 0.37 | 0.39 | -0.92 | -0.23 | 0.70 | 0.00 |
| 427 | 704.78 | 0.10 | -0.57 | -0.65 | 0.29 | 0.61 | -0.78 | -0.24 | 0.90 | 0.44 |
| 428 | 704.13 | 0.23 | -0.60 | -0.39 | 0.70 | 0.65 | -0.72 | 0.49 | 0.65 | 0.27 |
| 429 | 704.03 | 0.30 | -0.70 | 0.00 | 0.76 | 0.39 | -0.85 | 0.51 | 0.80 | 0.00 |
| 430 | 703.94 | 0.33 | -0.74 | 0.37 | 0.66 | 0.00 | -0.76 | 0.00 | 0.90 | -0.40 |
| 431 | 704.08 | 0.86 | 0.00 | 0.00 | 0.00 | -0.37 | 0.00 | 0.00 | 0.58 | 0.00 |
| 457 | 706.41 | 0.14 | -0.37 | -0.15 | 0.41 | 0.00 | -0.54 | 0.35 | 0.00 | 0.00 |
| 458 | 706.31 | 0.41 | -0.72 | 0.00 | 0.77 | 0.15 | -0.81 | 0.54 | 0.68 | 0.00 |
| 459 | 706.37 | 0.17 | -0.55 | 0.00 | 0.51 | 0.00 | -0.58 | 0.00 | 0.53 | -0.40 |
| 460 | 706.30 | 0.10 | -0.16 | -0.35 | 0.00 | 0.00 | -0.39 | -0.11 | 0.55 | -0.12 |
| 461 | 705.89 | 0.12 | 0.00 | -0.53 | 0.52 | 0.35 | -0.61 | 0.17 | 0.00 | 0.28 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 463 | 705.44 | 0.14 | 0.00 | -0.64 | 0.42 | 0.55 | -1.00 | 0.00 | 0.69 | 0.00 |
| 464 | 705.10 | 0.10 | -0.58 | -0.89 | 0.38 | 0.64 | -0.94 | -0.44 | 0.71 | 0.56 |
| 465 | 704.24 | 0.22 | -0.18 | -0.72 | 0.57 | 0.89 | -0.62 | -0.27 | 0.92 | 0.76 |
| 466 | 703.95 | 0.44 | 0.00 | -0.17 | 0.60 | 0.72 | -1.04 | 0.00 | 0.78 | 0.57 |
| 467 | 703.84 | 0.34 | -0.79 | -0.03 | 0.70 | 0.17 | -0.97 | 0.40 | 0.72 | 0.32 |
| 468 | 703.74 | 0.29 | -0.75 | -0.38 | 0.74 | 0.03 | -0.65 | 0.00 | 0.85 | -0.40 |
| 495 | 706.30 | 0.10 | -0.22 | -0.14 | 0.37 | 0.00 | -0.26 | 0.00 | 0.00 | 0.00 |
| 496 | 706.19 | 0.41 | -0.36 | 0.00 | 0.72 | 0.14 | -0.73 | 0.40 | 0.54 | 0.00 |
| 497 | 706.14 | 0.45 | -0.30 | 0.00 | 0.55 | 0.00 | -0.87 | 0.12 | 0.81 | 0.00 |
| 499 | 705.86 | 0.10 | 0.00 | -0.15 | 0.00 | 0.39 | -0.16 | -0.08 | 0.39 | 0.00 |
| 500 | 705.54 | 0.28 | 0.00 | -0.53 | 0.13 | 0.15 | -0.03 | 0.00 | 0.61 | 0.42 |
| 501 | 705.41 | 0.35 | 0.00 | -1.26 | 0.00 | 0.53 | 0.00 | -0.56 | 0.72 | 0.44 |
| 502 | 704.73 | 0.27 | 0.00 | -1.16 | 0.58 | 1.26 | -0.74 | -0.76 | 1.00 | 0.52 |
| 503 | 704.13 | 0.33 | 0.24 | -0.64 | 0.18 | 1.16 | -0.70 | -0.57 | 0.94 | 0.00 |
| 504 | 703.96 | 0.16 | -0.03 | -0.62 | 0.00 | 0.64 | -0.77 | -0.32 | 0.62 | 0.29 |
| 505 | 703.63 | 0.40 | -0.75 | -0.67 | 0.79 | 0.62 | -1.13 | 0.40 | 1.04 | 0.39 |
| 506 | 703.52 | 0.44 | -0.92 | 0.00 | 0.75 | 0.67 | -1.17 | 0.00 | 0.97 | 0.00 |
| 533 | 706.11 | 0.10 | 0.00 | 0.00 | 0.22 | 0.00 | -0.21 | 0.00 | 0.00 | 0.00 |
| 534 | 706.06 | 0.31 | 0.00 | 0.00 | 0.36 | 0.00 | -0.56 | 0.00 | 0.26 | 0.00 |
| 535 | 706.02 | 0.42 | -0.44 | -0.15 | 0.30 | 0.00 | -0.77 | 0.14 | 0.73 | 0.00 |
| 536 | 705.93 | 0.35 | 0.00 | -0.52 | 0.32 | 0.15 | -0.76 | 0.00 | 0.87 | 0.00 |
| 537 | 705.77 | 0.17 | 0.00 | -0.54 | 0.00 | 0.52 | 0.00 | -0.42 | 0.50 | 0.00 |
| 538 | 705.52 | 0.52 | 0.00 | 0.00 | 0.00 | 0.54 | 0.00 | -0.44 | 0.16 | 0.34 |
| 539 | 705.44 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.52 | 0.03 | 0.00 |
| 541 | 704.34 | 0.10 | 0.00 | -0.46 | -0.24 | 0.00 | -0.57 | -0.29 | 0.74 | 0.00 |
| 542 | 703.86 | 0.10 | -0.35 | -0.62 | 0.03 | 0.46 | -0.74 | -0.39 | 0.70 | 0.00 |
| 543 | 703.44 | 0.24 | -0.55 | -0.55 | 0.75 | 0.62 | -0.75 | 0.00 | 0.77 | 0.10 |
| 544 | 703.29 | 0.39 | -0.76 | -0.75 | 0.92 | 0.55 | -1.03 | 0.00 | 1.13 | 0.00 |
| 545 | 703.10 | 0.31 | 0.00 | -1.08 | 0.00 | 0.75 | -1.14 | -0.64 | 1.17 | 0.00 |
| 572 | 706.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | -0.24 | 0.00 | 0.21 | 0.00 |
| 573 | 705.93 | 0.31 | -0.51 | 0.00 | 0.44 | 0.00 | -0.58 | 0.00 | 0.56 | 0.00 |
| 574 | 705.82 | 0.23 | -0.37 | -0.47 | 0.00 | 0.00 | -0.87 | 0.00 | 0.77 | 0.00 |
| 575 | 705.67 | 0.18 | -0.56 | 0.00 | 0.00 | 0.47 | -0.75 | -0.34 | 0.76 | 0.00 |
| 580 | 703.73 | 0.10 | -0.49 | -0.21 | 0.35 | 0.00 | -0.25 | -0.10 | 0.57 | 0.00 |
| 581 | 703.29 | 0.22 | -0.08 | -0.46 | 0.55 | 0.21 | -0.57 | 0.00 | 0.74 | 0.03 |
| 582 | 703.16 | 0.49 | 0.00 | -0.44 | 0.76 | 0.46 | -0.85 | 0.00 | 0.75 | 0.00 |
| 583 | 703.01 | 0.41 | 0.00 | -1.08 | 0.00 | 0.44 | 0.00 | -0.91 | 1.03 | 0.00 |
| 611 | 705.78 | 0.18 | -0.40 | 0.00 | 0.51 | 0.00 | -0.59 | 0.00 | 0.24 | 0.00 |
| 612 | 705.70 | 0.10 | -0.52 | -0.51 | 0.37 | 0.00 | -0.69 | 0.00 | 0.58 | 0.00 |
| 613 | 705.40 | 0.23 | -0.58 | -0.54 | 0.56 | 0.51 | -0.62 | 0.00 | 0.87 | 0.00 |
| 614 | 705.25 | 0.25 | -0.40 | 0.00 | 0.00 | 0.54 | -0.89 | 0.00 | 0.75 | 0.00 |
| 618 | 703.47 | 0.10 | -0.03 | -0.07 | 0.49 | 0.00 | -0.08 | -0.03 | 0.00 | 0.45 |
| 619 | 703.19 | 0.24 | 0.00 | -0.03 | 0.08 | 0.07 | -0.42 | 0.00 | 0.25 | 0.40 |
| 620 | 703.08 | 0.18 | 0.00 | -0.39 | 0.00 | 0.03 | -0.50 | 0.00 | 0.57 | 0.00 |
| 621 | 702.97 | 0.37 | 0.00 | 0.00 | 0.00 | 0.39 | -0.68 | -0.83 | 0.85 | 0.07 |
| 649 | 705.68 | 0.10 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 650 | 705.42 | 0.12 | -0.08 | -0.49 | 0.52 | 0.00 | -0.74 | 0.00 | 0.59 | 0.00 |
| 651 | 705.20 | 0.20 | -0.57 | 0.00 | 0.58 | 0.49 | -0.80 | 0.00 | 0.69 | 0.02 |
| 652 | 705.11 | 0.11 | -0.54 | -0.54 | 0.40 | 0.00 | -0.65 | 0.00 | 0.62 | -0.25 |
| 653 | 704.74 | 0.17 | -0.08 | -0.75 | 0.00 | 0.54 | -0.48 | 0.00 | 0.89 | 0.00 |
| 654 | 704.27 | 0.30 | 0.16 | -1.04 | 0.00 | 0.75 | -0.86 | 0.00 | 0.00 | 0.85 |
| 655 | 703.69 | 0.18 | 0.23 | -0.66 | 0.00 | 1.04 | -0.67 | -0.45 | 0.00 | 0.29 |
| 656 | 703.35 | 0.15 | 0.00 | -0.53 | 0.03 | 0.66 | -0.48 | -0.40 | 0.00 | 0.55 |
| 657 | 703.17 | 0.27 | 0.00 | -0.27 | 0.00 | 0.53 | -0.50 | 0.00 | 0.08 | 0.39 |
| 658 | 703.07 | 0.17 | 0.00 | -0.43 | 0.00 | 0.27 | -0.57 | -0.07 | 0.42 | 0.29 |
| 659 | 702.90 | 0.30 | -0.42 | -0.41 | 0.00 | 0.43 | -0.76 | 0.00 | 0.50 | 0.51 |
| 688 | 705.32 | 0.10 | -0.06 | -0.10 | 0.08 | 0.32 | -0.13 | -0.02 | 0.00 | 0.00 |
| 689 | 704.95 | 0.15 | -0.42 | -0.49 | 0.57 | 0.10 | -0.66 | 0.25 | 0.74 | 0.08 |
| 690 | 704.77 | 0.34 | -0.30 | -0.62 | 0.54 | 0.49 | 0.00 | 0.00 | 0.80 | 0.00 |
| 691 | 704.64 | 0.43 | 0.00 | 0.00 | 0.08 | 0.62 | 0.00 | -0.85 | 0.65 | 0.00 |
| 692 | 704.60 | 0.10 | 0.00 | -0.36 | -0.16 | 0.00 | -0.05 | -0.29 | 0.48 | 0.00 |
| 693 | 703.79 | 0.16 | 0.00 | -0.72 | -0.23 | 0.36 | 0.00 | -0.55 | 0.86 | 0.00 |
| 694 | 703.30 | 0.23 | 0.00 | -0.51 | 0.00 | 0.72 | -0.16 | -0.39 | 0.67 | 0.00 |
| 695 | 703.17 | 0.27 | 0.00 | -0.53 | 0.00 | 0.51 | 0.00 | -0.29 | 0.48 | 0.00 |
| 696 | 703.05 | 0.36 | 0.00 | -0.88 | 0.00 | 0.53 | -0.05 | -0.51 | 0.50 | 0.52 |
| 697 | 702.79 | 0.43 | 0.00 | -0.71 | 0.42 | 0.88 | -1.17 | 0.00 | 0.57 | 0.00 |
| 727 | 704.81 | 0.10 | 0.00 | -0.35 | 0.42 | 0.21 | -0.46 | 0.00 | 0.13 | 0.00 |
| 728 | 704.67 | 0.27 | 0.00 | 0.00 | 0.30 | 0.35 | -0.78 | 0.00 | 0.66 | 0.00 |
| 733 | 703.20 | 0.47 | 0.53 | 0.00 | 0.00 | 0.00 | 0.00 | -0.52 | 0.16 | 0.00 |
| 765 | 704.86 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.47 | 0.00 |
| 767 | 704.34 | 0.21 | -0.33 | 0.00 | 0.00 | 0.35 | -0.74 | 0.00 | 0.78 | 0.00 |
| 771 | 703.32 | 0.35 | 0.00 | 0.00 | -0.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 |
| 805 | 704.23 | 0.10 | 0.00 | -0.42 | 0.33 | 0.00 | -0.53 | 0.00 | 0.47 | 0.00 |
| 806 | 704.01 | 0.21 | -0.03 | 0.00 | 0.00 | 0.42 | -0.66 | 0.00 | 0.74 | 0.00 |
| 808 | 703.52 | 0.32 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 | -0.58 | 0.00 | 0.50 |
| 844 | 703.91 | 0.11 | 0.00 | -0.40 | 0.03 | 0.00 | -0.43 | 0.00 | 0.53 | 0.00 |
| 845 | 703.75 | 0.25 | 0.00 | -0.18 | 0.00 | 0.40 | -0.03 | -0.50 | 0.66 | 0.00 |
| 846 | 703.64 | 0.14 | 0.00 | 0.00 | -0.41 | 0.18 | 0.00 | 0.00 | 0.00 | 0.04 |
| 883 | 703.75 | 0.24 | -0.15 | 0.00 | 0.00 | 0.00 | -0.08 | -0.04 | 0.43 | 0.00 |
| 884 | 703.65 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| 921 | 703.64 | 0.14 | 0.00 | 0.00 | 0.15 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 |
| 922 | 703.64 | 0.14 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.00 |
| 960 | 703.54 | 0.10 | 0.00 | 0.00 | 0.03 | 0.00 | -0.41 | 0.00 | 0.03 | 0.00 |

DISCHARGE FROM OUTFLOW GRID ELEMENTS:

| NODE | OUTFLOW RATE(CMS) |
|---|---|
| 14 | 0.27 |
| 52 | 0.78 |
| 90 | 1.64 |
| 128 | 1.49 |
| 166 | 1.61 |
| 204 | 2.22 |
| 242 | 1.48 |
| 280 | 1.40 |
| 318 | 0.83 |
| 356 | 0.34 |
| 508 | 1.14 |
| 546 | 4.34 |
| 584 | 7.28 |
| 660 | 2.51 |
| 698 | 3.05 |
| 736 | 2.66 |
| 999 | 0.32 |

INFLOW RATE AT NODE 191 IS EQUAL TO 38.60

| NODE | ELEVATION | DEPTH | VELOCITY OUT | DISCHARGE OUT |
|---|---|---|---|---|
| 191 | 708.37 | 1.27 | 1.34 | 11.08 |
| 192 | 707.90 | 0.77 | 1.98 | 9.47 |
| 231 | 707.29 | 0.49 | 1.54 | 6.69 |
| 232 | 707.14 | 0.44 | 1.58 | 6.68 |
| 271 | 706.88 | 0.53 | 2.07 | 6.68 |
| 272 | 706.12 | 0.82 | 1.49 | 9.74 |
| 273 | 706.11 | 0.81 | 1.25 | 9.72 |
| 274 | 706.09 | 1.09 | 0.65 | 6.47 |
| 275 | 706.08 | 0.71 | 1.21 | 5.57 |
| 276 | 705.90 | 0.46 | 1.89 | 5.54 |
| 315 | 704.79 | 0.53 | 1.52 | 5.79 |
| 354 | 704.56 | 0.30 | 0.98 | 4.09 |
| 392 | 704.39 | 0.36 | 0.82 | 1.79 |
| 469 | 703.31 | 0.50 | 1.32 | 1.90 |

MIN. TIMESTEP(SEC.) = 0.10 MAX. TIMESTEP(SEC.) = 2.19 MEAN TIMESTEP(SEC.) = 0.74

MODEL TIME = 6.00 HOURS TOTAL TIMESTEP NUMBER = 36515.

***FLOODPLAIN RESULTS***
(POSITIVE VELOCITY REPRESENTS INFLOW TO NODE)

| NODE | ELEVATION | DEPTH | V-N | V-E | V-S | V-W | V-NE | V-SE | V-SW | V-NW |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 704.82 | 0.10 | 0.00 | 0.00 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.29 |
| 51 | 704.55 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 |
| 79 | 707.50 | 0.10 | -0.05 | -0.13 | 0.00 | 0.00 | -0.14 | 0.00 | 0.00 | 0.24 |
| 81 | 707.03 | 0.10 | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 | 0.00 | 0.00 | 0.34 |
| 82 | 706.60 | 0.10 | -0.06 | -0.13 | 0.00 | 0.00 | -0.11 | -0.26 | 0.08 | 0.28 |
| 83 | 706.10 | 0.10 | 0.00 | -0.51 | 0.00 | 0.13 | -0.49 | 0.00 | 0.23 | 0.48 |
| 84 | 705.81 | 0.13 | 0.00 | -0.36 | 0.00 | 0.51 | -0.57 | 0.00 | 0.00 | 0.50 |
| 85 | 705.70 | 0.10 | -0.08 | -0.23 | 0.00 | 0.36 | -0.20 | -0.07 | 0.00 | 0.34 |
| 86 | 705.20 | 0.11 | 0.00 | -0.52 | 0.00 | 0.23 | -0.39 | 0.00 | 0.00 | 0.51 |
| 87 | 704.94 | 0.24 | 0.37 | -0.66 | 0.12 | 0.52 | -0.35 | -0.29 | 0.00 | 0.61 |
| 88 | 704.69 | 0.29 | 0.41 | -0.85 | 0.00 | 0.66 | 0.00 | -0.33 | 0.28 | 0.54 |
| 89 | 704.39 | 0.29 | 0.00 | -0.85 | 0.00 | 0.85 | -0.49 | -0.44 | 0.00 | 0.60 |
| 116 | 707.60 | 0.20 | 0.45 | -0.52 | 0.00 | 0.00 | -0.52 | -0.24 | 0.00 | 0.60 |
| 117 | 707.40 | 0.21 | 0.00 | -0.49 | 0.05 | 0.52 | -0.60 | -0.35 | 0.00 | 0.62 |
| 118 | 707.20 | 0.12 | 0.00 | -0.56 | 0.00 | 0.49 | -0.70 | -0.34 | 0.14 | 0.44 |
| 119 | 706.91 | 0.11 | -0.21 | -0.58 | 0.00 | 0.56 | -0.53 | -0.28 | 0.45 | 0.44 |
| 120 | 706.37 | 0.17 | 0.00 | -0.56 | 0.06 | 0.58 | -0.45 | -0.48 | 0.00 | 0.62 |
| 121 | 706.15 | 0.12 | 0.00 | -0.60 | 0.00 | 0.56 | -0.48 | -0.50 | 0.11 | 0.48 |
| 122 | 705.83 | 0.18 | 0.08 | -0.62 | 0.00 | 0.60 | -0.49 | -0.34 | 0.49 | 0.57 |
| 123 | 705.53 | 0.23 | 0.37 | -0.69 | 0.08 | 0.62 | -0.53 | -0.51 | 0.57 | 0.55 |
| 124 | 705.27 | 0.24 | 0.08 | -0.56 | 0.00 | 0.69 | -0.45 | -0.61 | 0.20 | 0.55 |
| 125 | 705.04 | 0.13 | 0.03 | -0.54 | -0.37 | 0.56 | -0.43 | -0.54 | 0.39 | 0.48 |
| 126 | 704.83 | 0.13 | 0.00 | 0.00 | -0.41 | 0.54 | -0.59 | -0.60 | 0.35 | 0.47 |
| 127 | 704.78 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 |
| 153 | 707.99 | 0.20 | 0.88 | -0.59 | 0.00 | 0.00 | -0.39 | -0.60 | 0.00 | 0.00 |
| 154 | 707.72 | 0.29 | 0.46 | -0.87 | -0.45 | 0.59 | -0.84 | -0.62 | 0.00 | 1.13 |
| 155 | 707.40 | 0.30 | 0.00 | -0.79 | 0.00 | 0.87 | -0.75 | -0.44 | 0.52 | 0.73 |
| 156 | 707.14 | 0.25 | 0.00 | -0.88 | 0.00 | 0.79 | -0.89 | -0.44 | 0.60 | 0.57 |
| 157 | 706.75 | 0.27 | 0.00 | -0.86 | 0.21 | 0.88 | -0.82 | -0.62 | 0.70 | 0.78 |
| 158 | 706.42 | 0.26 | 0.00 | -0.70 | 0.00 | 0.86 | -0.65 | -0.48 | 0.53 | 0.59 |
| 159 | 706.18 | 0.22 | 0.00 | -0.63 | 0.00 | 0.70 | -0.55 | -0.57 | 0.45 | 0.50 |
| 160 | 705.93 | 0.18 | 0.00 | -0.61 | -0.08 | 0.63 | -0.45 | -0.55 | 0.48 | 0.51 |
| 161 | 705.64 | 0.19 | 0.35 | -0.62 | -0.37 | 0.61 | -0.49 | -0.55 | 0.49 | 0.59 |
| 162 | 705.37 | 0.20 | 0.10 | -0.58 | -0.08 | 0.62 | -0.51 | -0.48 | 0.53 | 0.54 |
| 163 | 705.15 | 0.21 | 0.00 | -0.61 | -0.03 | 0.58 | -0.57 | -0.47 | 0.45 | 0.57 |
| 164 | 704.91 | 0.21 | 0.00 | -0.68 | 0.00 | 0.61 | -0.65 | -0.29 | 0.43 | 0.55 |
| 165 | 704.57 | 0.17 | 0.00 | -0.75 | 0.00 | 0.68 | -0.72 | -0.60 | 0.59 | 0.51 |
| 191 | 708.17 | 0.52 | -1.28 | -1.15 | -0.88 | 0.00 | -1.87 | -1.13 | 0.00 | 0.00 |
| 192 | 707.87 | 0.24 | -0.77 | -1.00 | -0.46 | 1.15 | -0.93 | -0.73 | 0.39 | -0.45 |
| 193 | 707.37 | 0.36 | 0.00 | -0.86 | 0.00 | 1.00 | 0.00 | -0.57 | 0.84 | 0.00 |
| 194 | 707.17 | 0.37 | 0.00 | -1.06 | 0.00 | 0.86 | -1.02 | -0.78 | 0.75 | 0.63 |
| 195 | 706.73 | 0.25 | 0.00 | -0.80 | 0.00 | 1.06 | -0.87 | -0.59 | 0.89 | 0.00 |
| 196 | 706.43 | 0.25 | 0.00 | -0.68 | 0.00 | 0.80 | -0.74 | -0.50 | 0.82 | 0.42 |
| 197 | 706.20 | 0.24 | 0.00 | -0.63 | 0.00 | 0.68 | -0.64 | -0.51 | 0.65 | 0.35 |
| 198 | 706.01 | 0.24 | 0.00 | -0.61 | 0.00 | 0.63 | -0.52 | -0.59 | 0.55 | 0.41 |
| 199 | 705.77 | 0.17 | 0.05 | -0.60 | -0.35 | 0.61 | -0.52 | -0.54 | 0.45 | 0.50 |
| 200 | 705.47 | 0.24 | 0.00 | -0.71 | -0.10 | 0.60 | -0.61 | -0.57 | 0.49 | 0.77 |
| 201 | 705.20 | 0.24 | 0.00 | -0.68 | 0.00 | 0.71 | -0.73 | -0.55 | 0.51 | 0.61 |
| 202 | 704.92 | 0.19 | 0.00 | -0.64 | 0.00 | 0.68 | -0.66 | -0.51 | 0.57 | 0.49 |
| 203 | 704.62 | 0.22 | 0.00 | -0.71 | 0.00 | 0.64 | -0.64 | -0.61 | 0.65 | 0.43 |
| 229 | 707.67 | 0.27 | -1.05 | -0.60 | 1.28 | 0.00 | -0.94 | 0.45 | 0.00 | 0.00 |
| 230 | 707.48 | 1.28 | -1.06 | -0.05 | 0.77 | 0.60 | -1.23 | 0.00 | 1.87 | -0.85 |
| 231 | 707.38 | 1.18 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | -0.63 | 0.93 | 0.00 |
| 233 | 706.64 | 0.14 | 0.00 | -0.62 | 0.00 | 0.00 | -0.81 | -0.42 | 1.02 | 0.00 |
| 234 | 706.33 | 0.22 | -0.43 | -0.55 | 0.00 | 0.62 | 0.00 | -0.35 | 0.87 | 0.00 |
| 235 | 706.17 | 0.26 | 0.00 | -0.59 | 0.00 | 0.55 | -0.31 | -0.41 | 0.74 | 0.00 |
| 236 | 706.00 | 0.31 | 0.00 | -0.60 | 0.00 | 0.59 | 0.00 | -0.50 | 0.64 | 0.00 |
| 237 | 705.87 | 0.41 | 0.00 | -0.93 | -0.05 | 0.60 | 0.00 | -0.77 | 0.52 | 0.58 |
| 238 | 705.54 | 0.24 | 0.00 | -0.71 | 0.00 | 0.93 | -0.63 | -0.61 | 0.52 | 0.00 |
| 239 | 705.20 | 0.14 | 0.00 | -0.71 | 0.00 | 0.71 | -0.69 | -0.49 | 0.61 | 0.00 |
| 240 | 704.86 | 0.19 | 0.00 | -0.62 | 0.00 | 0.71 | -0.58 | -0.43 | 0.73 | 0.27 |
| 241 | 704.56 | 0.16 | 0.00 | -0.64 | 0.00 | 0.62 | -0.66 | -0.60 | 0.66 | 0.08 |
| 267 | 707.21 | 0.38 | -0.98 | 0.00 | 1.05 | 0.00 | -0.90 | 0.85 | 0.00 | 0.00 |
| 268 | 707.19 | 0.30 | -0.89 | 0.00 | 1.06 | 0.00 | -0.91 | 0.00 | 0.94 | -0.60 |
| 269 | 707.20 | 0.30 | -0.86 | -0.87 | 0.00 | 0.00 | -1.14 | 0.00 | 1.23 | -0.71 |
| 270 | 706.87 | 0.37 | -0.08 | 0.00 | 0.00 | 0.87 | -0.75 | 0.00 | 0.00 | 0.00 |
| 272 | 706.21 | 0.21 | 0.42 | 0.00 | 0.43 | 0.00 | 0.00 | 0.00 | 0.81 | 0.64 |
| 274 | 706.04 | 0.44 | -0.33 | 0.00 | 0.00 | 0.00 | -0.92 | -0.58 | 0.31 | 0.00 |
| 277 | 705.21 | 0.10 | -0.38 | -0.41 | 0.00 | 0.00 | -0.42 | -0.27 | 0.63 | 0.00 |
| 278 | 704.80 | 0.10 | 0.00 | -0.08 | 0.00 | 0.41 | -0.15 | -0.08 | 0.69 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 305 | 706.96 | 0.46 | -0.80 | 0.00 | 0.98 | 0.00 | -0.66 | 0.60 | 0.00 | 0.00 |
| 306 | 706.91 | 0.64 | -0.65 | 0.00 | 0.89 | 0.00 | -0.92 | 0.71 | 0.90 | -0.02 |
| 307 | 706.87 | 0.37 | -0.44 | -0.45 | 0.86 | 0.00 | -0.85 | 0.00 | 0.91 | 0.00 |
| 308 | 706.77 | 0.39 | 0.00 | -0.64 | 0.08 | 0.45 | -0.91 | 0.00 | 1.14 | 0.00 |
| 309 | 706.59 | 0.22 | 0.00 | -0.60 | 0.00 | 0.64 | -0.71 | -0.64 | 0.75 | 0.00 |
| 310 | 706.35 | 0.17 | 0.00 | -0.53 | -0.42 | 0.60 | -0.53 | 0.00 | 0.00 | 0.51 |
| 311 | 706.13 | 0.23 | 0.00 | -0.51 | 0.00 | 0.53 | -0.53 | 0.00 | 0.00 | 0.45 |
| 312 | 705.95 | 0.17 | 0.00 | -0.55 | 0.33 | 0.51 | -0.86 | 0.00 | 0.00 | 0.35 |
| 313 | 705.71 | 0.20 | -0.56 | -0.80 | 0.00 | 0.55 | -1.08 | 0.00 | 0.92 | 0.31 |
| 314 | 705.13 | 0.13 | -0.53 | 0.00 | 0.00 | 0.80 | -0.82 | 0.00 | 0.00 | 0.44 |
| 316 | 704.80 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 |
| 343 | 706.80 | 0.32 | -0.68 | 0.00 | 0.80 | 0.00 | -0.58 | 0.02 | 0.00 | 0.00 |
| 344 | 706.79 | 0.29 | -0.60 | 0.00 | 0.65 | 0.00 | -0.60 | 0.00 | 0.66 | -0.46 |
| 345 | 706.77 | 0.50 | -0.33 | 0.00 | 0.44 | 0.00 | -0.79 | 0.00 | 0.92 | -0.39 |
| 346 | 706.67 | 0.47 | 0.00 | -0.60 | 0.00 | 0.00 | -0.45 | 0.00 | 0.85 | 0.00 |
| 347 | 706.55 | 0.35 | 0.00 | -0.75 | 0.00 | 0.60 | -0.88 | -0.51 | 0.91 | 0.00 |
| 348 | 706.31 | 0.23 | -0.22 | -0.60 | 0.00 | 0.75 | -0.61 | -0.45 | 0.71 | 0.12 |
| 349 | 706.09 | 0.19 | -0.05 | -0.58 | 0.00 | 0.60 | -0.75 | -0.35 | 0.53 | 0.29 |
| 350 | 705.87 | 0.11 | -0.36 | -0.69 | 0.00 | 0.58 | -0.81 | -0.31 | 0.53 | 0.27 |
| 351 | 705.39 | 0.12 | -0.47 | -0.76 | 0.56 | 0.69 | -0.98 | -0.44 | 0.86 | 0.39 |
| 352 | 704.87 | 0.18 | -0.61 | -0.69 | 0.53 | 0.76 | -0.89 | 0.00 | 1.08 | 0.16 |
| 353 | 704.53 | 0.23 | -0.59 | 0.00 | 0.00 | 0.69 | -0.47 | 0.00 | 0.82 | 0.00 |
| 354 | 704.51 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.66 |
| 381 | 706.65 | 0.33 | -0.59 | 0.00 | 0.68 | 0.00 | -0.49 | 0.46 | 0.00 | 0.00 |
| 382 | 706.65 | 0.40 | -0.17 | 0.00 | 0.60 | 0.00 | -0.59 | 0.39 | 0.58 | -0.47 |
| 383 | 706.64 | 0.44 | -0.55 | 0.00 | 0.33 | 0.00 | 0.00 | 0.00 | 0.60 | -0.48 |
| 384 | 706.63 | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 | -1.07 | 0.00 | 0.79 | 0.00 |
| 385 | 706.53 | 0.10 | -0.27 | -0.24 | 0.00 | 0.00 | -0.37 | -0.12 | 0.45 | 0.00 |
| 386 | 706.20 | 0.18 | -0.53 | -0.53 | 0.22 | 0.24 | -0.82 | -0.29 | 0.88 | 0.00 |
| 387 | 705.99 | 0.10 | -0.45 | -0.51 | 0.05 | 0.53 | -0.69 | -0.27 | 0.61 | 0.00 |
| 388 | 705.71 | 0.10 | -0.43 | -0.68 | 0.36 | 0.51 | -0.93 | -0.39 | 0.75 | 0.00 |
| 389 | 705.19 | 0.11 | -0.28 | -0.44 | 0.47 | 0.68 | -0.64 | -0.16 | 0.81 | 0.10 |
| 390 | 704.54 | 0.14 | -0.73 | -0.57 | 0.61 | 0.44 | -0.84 | 0.00 | 0.98 | 0.30 |
| 391 | 704.30 | 0.30 | -0.79 | 0.32 | 0.59 | 0.57 | -0.93 | 0.66 | 0.89 | -0.51 |
| 392 | 704.36 | 0.13 | -0.70 | 0.00 | 0.00 | -0.32 | -0.61 | 0.00 | 0.47 | -0.54 |
| 393 | 704.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 419 | 706.54 | 0.34 | -0.43 | 0.00 | 0.59 | 0.00 | -0.69 | 0.47 | 0.00 | 0.00 |
| 420 | 706.54 | 0.34 | -0.74 | 0.00 | 0.17 | 0.00 | -0.57 | 0.48 | 0.49 | -0.37 |
| 421 | 706.54 | 0.29 | -0.54 | 0.00 | 0.55 | 0.00 | -0.59 | 0.00 | 0.59 | -0.56 |
| 423 | 706.15 | 0.21 | -0.54 | -0.40 | 0.27 | 0.00 | -0.92 | 0.00 | 1.07 | 0.20 |
| 424 | 705.99 | 0.10 | -0.57 | -0.47 | 0.53 | 0.40 | -0.69 | 0.00 | 0.37 | 0.00 |
| 425 | 705.76 | 0.11 | -0.54 | -0.52 | 0.45 | 0.47 | -0.80 | 0.00 | 0.82 | -0.23 |
| 426 | 705.47 | 0.10 | -0.17 | -0.31 | 0.43 | 0.52 | -0.52 | -0.10 | 0.69 | 0.00 |
| 427 | 704.78 | 0.10 | -0.65 | -0.73 | 0.28 | 0.31 | -0.86 | -0.30 | 0.93 | 0.47 |
| 428 | 704.15 | 0.25 | -0.62 | -0.34 | 0.73 | 0.73 | -0.76 | 0.51 | 0.64 | 0.13 |
| 429 | 704.05 | 0.32 | -0.73 | 0.00 | 0.79 | 0.34 | -0.88 | 0.54 | 0.84 | 0.00 |
| 430 | 703.97 | 0.36 | -0.78 | 0.37 | 0.70 | 0.00 | -0.81 | 0.00 | 0.93 | -0.04 |
| 431 | 704.10 | 0.88 | 0.00 | 0.00 | 0.00 | -0.37 | 0.00 | 0.00 | 0.61 | 0.00 |
| 457 | 706.43 | 0.16 | -0.41 | -0.28 | 0.43 | 0.00 | -0.48 | 0.37 | 0.00 | 0.00 |
| 458 | 706.33 | 0.43 | -0.73 | 0.00 | 0.74 | 0.28 | -0.84 | 0.56 | 0.69 | 0.00 |
| 459 | 706.39 | 0.19 | -0.58 | 0.00 | 0.54 | 0.00 | -0.62 | 0.00 | 0.57 | -0.41 |
| 460 | 706.30 | 0.10 | -0.29 | -0.53 | 0.00 | 0.00 | -0.58 | -0.20 | 0.59 | -0.20 |
| 461 | 705.90 | 0.13 | 0.00 | -0.55 | 0.54 | 0.53 | -0.62 | 0.00 | 0.00 | 0.00 |
| 462 | 705.66 | 0.27 | -0.05 | -0.56 | 0.57 | 0.55 | -0.74 | 0.23 | 0.92 | 0.26 |
| 463 | 705.47 | 0.17 | 0.00 | -0.70 | 0.54 | 0.56 | -0.91 | 0.00 | 0.69 | 0.00 |
| 464 | 705.11 | 0.11 | -0.62 | -0.96 | 0.17 | 0.70 | -1.01 | -0.47 | 0.80 | 0.57 |
| 465 | 704.25 | 0.23 | -0.44 | -0.75 | 0.65 | 0.96 | -0.66 | -0.13 | 0.52 | 0.79 |
| 466 | 703.97 | 0.46 | 0.00 | -0.46 | 0.62 | 0.75 | -1.09 | 0.00 | 0.86 | 0.58 |
| 467 | 703.86 | 0.36 | -0.81 | -0.26 | 0.73 | 0.46 | -1.00 | 0.04 | 0.76 | 0.32 |
| 468 | 703.76 | 0.31 | -0.77 | -0.43 | 0.78 | 0.26 | -0.69 | 0.00 | 0.88 | -0.40 |
| 495 | 706.30 | 0.10 | -0.14 | -0.05 | 0.41 | 0.00 | -0.17 | 0.00 | 0.00 | 0.00 |
| 496 | 706.20 | 0.42 | -0.50 | 0.00 | 0.73 | 0.05 | -0.75 | 0.41 | 0.48 | 0.00 |
| 497 | 706.15 | 0.46 | -0.35 | 0.00 | 0.58 | 0.00 | -0.89 | 0.20 | 0.84 | 0.00 |
| 498 | 706.13 | 0.10 | 0.00 | 0.00 | 0.29 | 0.00 | 0.00 | 0.00 | 0.62 | 0.00 |
| 500 | 705.55 | 0.29 | 0.00 | -0.55 | 0.05 | 0.46 | -0.37 | 0.00 | 0.62 | 0.44 |
| 501 | 705.42 | 0.36 | 0.00 | -1.29 | 0.00 | 0.55 | 0.00 | -0.57 | 0.74 | 0.46 |
| 502 | 704.74 | 0.28 | 0.00 | -1.20 | 0.62 | 1.29 | -0.77 | -0.79 | 0.91 | 0.60 |
| 503 | 704.15 | 0.35 | 0.00 | -0.68 | 0.44 | 1.20 | -0.75 | -0.58 | 1.01 | 0.00 |
| 504 | 703.98 | 0.18 | -0.17 | -0.64 | 0.00 | 0.68 | -0.80 | -0.32 | 0.66 | 0.00 |
| 505 | 703.66 | 0.43 | -0.79 | -0.69 | 0.81 | 0.64 | -1.17 | 0.40 | 1.09 | 0.41 |
| 506 | 703.54 | 0.46 | -0.95 | 0.00 | 0.77 | 0.69 | -1.22 | 0.00 | 1.00 | 0.00 |
| 533 | 706.11 | 0.10 | 0.00 | 0.00 | 0.14 | 0.00 | -0.21 | 0.00 | 0.00 | 0.00 |
| 534 | 706.07 | 0.32 | 0.00 | 0.00 | 0.50 | 0.00 | -0.58 | 0.00 | 0.17 | 0.00 |
| 535 | 706.04 | 0.44 | -0.40 | -0.13 | 0.35 | 0.00 | -0.80 | 0.00 | 0.75 | 0.00 |
| 536 | 705.94 | 0.36 | -0.36 | -0.54 | 0.00 | 0.13 | -0.79 | 0.00 | 0.89 | 0.00 |
| 537 | 705.78 | 0.18 | 0.00 | -0.56 | 0.00 | 0.54 | 0.00 | -0.44 | 0.00 | 0.00 |
| 538 | 705.54 | 0.54 | 0.00 | 0.00 | 0.00 | 0.56 | 0.00 | -0.46 | 0.47 | 0.34 |
| 539 | 705.44 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.60 | 0.37 | 0.00 |
| 541 | 704.34 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.77 | 0.00 |
| 542 | 703.87 | 0.11 | -0.37 | -0.67 | 0.17 | 0.00 | -0.79 | -0.41 | 0.75 | 0.00 |
| 543 | 703.46 | 0.26 | -0.58 | -0.57 | 0.79 | 0.67 | -0.78 | 0.00 | 0.80 | 0.05 |
| 544 | 703.31 | 0.41 | -0.77 | -0.78 | 0.95 | 0.57 | -1.07 | 0.00 | 1.17 | 0.00 |
| 545 | 703.12 | 0.33 | 0.00 | -1.13 | 0.00 | 0.78 | -1.19 | -0.67 | 1.22 | 0.00 |
| 572 | 706.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | -0.06 | 0.00 | 0.21 | 0.00 |
| 573 | 705.93 | 0.31 | -0.52 | -0.05 | 0.40 | 0.00 | -0.60 | 0.00 | 0.58 | 0.00 |
| 574 | 705.83 | 0.24 | -0.38 | -0.48 | 0.36 | 0.05 | -0.89 | 0.00 | 0.80 | 0.00 |
| 575 | 705.68 | 0.19 | -0.57 | 0.00 | 0.00 | 0.48 | -0.77 | -0.34 | 0.79 | 0.00 |
| 580 | 703.73 | 0.10 | -0.07 | -0.11 | 0.37 | 0.00 | -0.13 | -0.05 | 0.00 | 0.00 |
| 581 | 703.31 | 0.24 | -0.05 | -0.48 | 0.58 | 0.11 | -0.61 | 0.00 | 0.79 | 0.28 |
| 582 | 703.18 | 0.51 | 0.00 | -0.67 | 0.77 | 0.48 | -0.90 | 0.00 | 0.78 | 0.00 |
| 583 | 703.04 | 0.44 | 0.00 | -1.16 | 0.00 | 0.67 | 0.00 | -0.95 | 1.07 | 0.00 |
| 611 | 705.79 | 0.19 | -0.41 | 0.00 | 0.52 | 0.00 | -0.60 | 0.00 | 0.06 | 0.00 |
| 612 | 705.71 | 0.11 | -0.54 | -0.52 | 0.38 | 0.00 | -0.72 | 0.00 | 0.60 | 0.00 |
| 613 | 705.42 | 0.25 | -0.61 | -0.55 | 0.57 | 0.52 | -0.64 | 0.00 | 0.89 | 0.00 |
| 614 | 705.26 | 0.26 | -0.43 | 0.00 | 0.00 | 0.55 | -0.93 | 0.00 | 0.77 | 0.00 |
| 618 | 703.47 | 0.10 | 0.00 | -0.46 | 0.07 | 0.00 | -0.47 | -0.28 | 0.00 | 0.46 |
| 619 | 703.20 | 0.25 | 0.00 | -0.40 | 0.05 | 0.46 | -0.44 | 0.00 | 0.13 | 0.37 |
| 620 | 703.10 | 0.20 | 0.00 | -0.41 | 0.00 | 0.40 | -0.55 | 0.00 | 0.61 | 0.00 |
| 621 | 702.99 | 0.39 | 0.00 | 0.00 | 0.00 | 0.41 | -0.73 | -0.87 | 0.90 | 0.00 |
| 649 | 705.68 | 0.10 | -0.06 | -0.07 | 0.41 | 0.00 | -0.09 | 0.00 | 0.00 | 0.00 |
| 650 | 705.42 | 0.12 | -0.19 | -0.49 | 0.54 | 0.07 | -0.73 | 0.00 | 0.60 | 0.00 |
| 651 | 705.20 | 0.20 | -0.57 | 0.00 | 0.61 | 0.49 | -0.80 | 0.00 | 0.72 | 0.04 |
| 652 | 705.10 | 0.10 | -0.54 | -0.55 | 0.43 | 0.00 | -0.65 | 0.00 | 0.64 | -0.29 |
| 653 | 704.76 | 0.19 | -0.21 | -0.79 | 0.00 | 0.55 | -0.51 | 0.00 | 0.93 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 655 | 703.70 | 0.19 | 0.05 | -0.68 | 0.00 | 1.07 | -0.67 | -0.46 | 0.00 | 0.16 |
| 656 | 703.37 | 0.17 | 0.00 | -0.48 | 0.00 | 0.68 | -0.44 | -0.37 | 0.00 | 0.56 |
| 657 | 703.19 | 0.29 | 0.00 | -0.42 | 0.00 | 0.48 | -0.53 | 0.00 | 0.47 | 0.42 |
| 658 | 703.09 | 0.19 | 0.00 | -0.50 | 0.00 | 0.42 | -0.63 | 0.00 | 0.44 | 0.11 |
| 659 | 702.91 | 0.31 | -0.37 | -0.49 | 0.00 | 0.50 | -0.78 | 0.00 | 0.55 | 0.55 |
| 687 | 705.43 | 0.10 | 0.00 | -0.05 | 0.06 | 0.00 | -0.16 | 0.00 | 0.00 | 0.00 |
| 688 | 705.32 | 0.10 | -0.11 | -0.17 | 0.19 | 0.05 | -0.23 | -0.04 | 0.09 | 0.00 |
| 689 | 704.97 | 0.17 | -0.47 | -0.45 | 0.57 | 0.17 | -0.60 | 0.29 | 0.73 | 0.10 |
| 690 | 704.78 | 0.35 | -0.42 | -0.61 | 0.54 | 0.45 | 0.00 | 0.00 | 0.80 | 0.00 |
| 691 | 704.65 | 0.44 | 0.00 | 0.00 | 0.21 | 0.61 | 0.00 | -0.86 | 0.65 | 0.00 |
| 692 | 704.60 | 0.10 | 0.00 | -0.20 | -0.08 | 0.00 | -0.03 | -0.16 | 0.51 | 0.00 |
| 693 | 703.80 | 0.17 | 0.00 | -0.72 | -0.05 | 0.20 | 0.00 | -0.56 | 0.89 | 0.00 |
| 694 | 703.33 | 0.26 | 0.00 | -0.55 | 0.00 | 0.72 | -0.03 | -0.42 | 0.67 | 0.00 |
| 695 | 703.20 | 0.30 | 0.00 | -0.54 | 0.00 | 0.55 | 0.00 | -0.11 | 0.44 | 0.00 |
| 696 | 703.08 | 0.39 | 0.00 | -0.93 | 0.00 | 0.54 | 0.00 | -0.55 | 0.53 | 0.53 |
| 697 | 702.80 | 0.44 | 0.00 | -0.75 | 0.37 | 0.93 | -1.21 | 0.00 | 0.63 | 0.00 |
| 726 | 705.10 | 0.10 | 0.00 | -0.26 | 0.11 | 0.00 | -0.22 | -0.10 | 0.16 | 0.00 |
| 727 | 704.82 | 0.11 | 0.00 | -0.38 | 0.47 | 0.26 | -0.48 | 0.00 | 0.23 | 0.00 |
| 728 | 704.68 | 0.28 | -0.26 | 0.00 | 0.42 | 0.38 | -0.79 | 0.00 | 0.60 | 0.00 |
| 733 | 703.23 | 0.50 | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | -0.53 | 0.03 | 0.00 |
| 765 | 704.86 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.00 |
| 766 | 704.57 | 0.10 | 0.00 | -0.33 | 0.26 | 0.00 | -0.47 | 0.00 | 0.48 | 0.00 |
| 767 | 704.36 | 0.23 | -0.36 | 0.00 | 0.00 | 0.33 | -0.76 | 0.00 | 0.79 | 0.00 |
| 771 | 703.36 | 0.39 | 0.00 | 0.00 | -0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.62 |
| 805 | 704.24 | 0.11 | 0.00 | -0.44 | 0.36 | 0.00 | -0.55 | 0.00 | 0.47 | 0.00 |
| 806 | 704.04 | 0.24 | -0.35 | 0.00 | 0.00 | 0.44 | -0.69 | 0.00 | 0.76 | 0.00 |
| 808 | 703.56 | 0.36 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | -0.62 | 0.00 | 0.54 |
| 844 | 703.94 | 0.14 | 0.00 | -0.42 | 0.35 | 0.00 | -0.49 | 0.00 | 0.55 | 0.00 |
| 845 | 703.79 | 0.29 | 0.00 | -0.35 | 0.00 | 0.42 | 0.00 | -0.54 | 0.69 | 0.00 |
| 846 | 703.68 | 0.18 | 0.00 | 0.00 | -0.38 | 0.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 883 | 703.76 | 0.25 | -0.03 | 0.00 | 0.00 | 0.00 | -0.22 | 0.00 | 0.49 | 0.00 |
| 884 | 703.69 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 920 | 703.79 | 0.10 | 0.00 | -0.03 | 0.00 | 0.00 | -0.05 | 0.00 | 0.00 | 0.00 |
| 921 | 703.66 | 0.16 | 0.00 | 0.00 | 0.03 | 0.03 | -0.22 | 0.00 | 0.00 | 0.00 |
| 922 | 703.66 | 0.16 | -0.05 | 0.00 | 0.00 | 0.00 | -0.05 | 0.00 | 0.22 | 0.00 |
| 959 | 703.61 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | -0.10 | 0.00 | 0.05 | 0.00 |
| 960 | 703.56 | 0.12 | 0.00 | 0.00 | 0.05 | 0.00 | -0.44 | 0.00 | 0.22 | 0.00 |
| 961 | 703.56 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 |

DISCHARGE FROM OUTFLOW GRID ELEMENTS:

| NODE | OUTFLOW RATE(CMS) |
|---|---|
| 6 | 0.53 |
| 52 | 0.76 |
| 90 | 1.42 |
| 128 | 1.57 |
| 166 | 1.72 |
| 204 | 2.61 |
| 242 | 1.62 |
| 280 | 1.03 |
| 318 | 0.38 |
| 356 | 0.35 |
| 508 | 1.26 |
| 546 | 4.83 |
| 584 | 8.20 |
| 660 | 2.94 |
| 698 | 3.30 |
| 736 | 2.88 |
| 999 | 0.39 |

***CHANNEL RESULTS***

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INFLOW RATE AT NODE 191 IS EQUAL TO 41.74

| NODE | ELEVATION | DEPTH | VELOCITY OUT | DISCHARGE OUT |
|---|---|---|---|---|
| 191 | 708.40 | 1.30 | 1.36 | 11.61 |
| 192 | 707.91 | 0.78 | 2.00 | 9.94 |
| 231 | 707.31 | 0.51 | 1.57 | 7.17 |
| 232 | 707.16 | 0.46 | 1.61 | 7.16 |
| 271 | 706.90 | 0.55 | 2.11 | 7.16 |
| 272 | 706.14 | 0.84 | 1.55 | 10.59 |
| 273 | 706.14 | 0.84 | 1.31 | 10.61 |
| 274 | 706.12 | 1.12 | 0.68 | 6.92 |
| 275 | 706.11 | 0.74 | 1.25 | 5.99 |
| 276 | 705.92 | 0.48 | 1.94 | 5.99 |
| 315 | 704.80 | 0.54 | 1.55 | 6.15 |
| 354 | 704.57 | 0.31 | 1.01 | 4.46 |
| 392 | 704.41 | 0.38 | 0.86 | 1.95 |
| 469 | 703.33 | 0.52 | 1.38 | 2.16 |

MIN. TIMESTEP(SEC.) = 0.10 MAX. TIMESTEP(SEC.) = 0.75 MEAN TIMESTEP(SEC.) = 0.56

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MODEL TIME = 7.00 HOURS TOTAL TIMESTEP NUMBER = 51526.

***FLOODPLAIN RESULTS***

(POSITIVE VELOCITY REPRESENTS INFLOW TO NODE)

| NODE | ELEVATION | DEPTH | V-N | V-E | V-S | V-W | V-NE | V-SE | V-SW | V-NW |
|---|---|---|---|---|---|---|---|---|---|---|
| 84 | 705.78 | 0.10 | 0.00 | 0.00 | 0.00 | 0.42 | -0.44 | 0.00 | 0.00 | 0.16 |
| 86 | 705.19 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 |
| 87 | 704.83 | 0.13 | 0.12 | -0.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 |
| 88 | 704.57 | 0.17 | 0.14 | -0.59 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 | 0.19 |
| 89 | 704.30 | 0.20 | 0.00 | -0.77 | 0.00 | 0.59 | 0.00 | 0.00 | 0.00 | 0.21 |
| 117 | 707.29 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 |
| 120 | 706.30 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.41 |
| 122 | 705.75 | 0.10 | 0.00 | -0.48 | 0.00 | 0.23 | -0.34 | 0.00 | 0.45 | 0.27 |
| 123 | 705.41 | 0.11 | 0.24 | -0.33 | 0.00 | 0.48 | -0.18 | -0.20 | 0.44 | 0.00 |
| 124 | 705.13 | 0.10 | 0.09 | -0.33 | 0.00 | 0.33 | 0.00 | -0.43 | 0.00 | 0.40 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 154 | 707.54 | 0.11 | 0.33 | -0.55 | 0.00 | 0.00 | -0.59 | -0.40 | 0.00 | 0.66 |
| 155 | 707.20 | 0.10 | 0.00 | -0.46 | 0.00 | 0.55 | -0.48 | 0.00 | 0.00 | 0.51 |
| 156 | 706.99 | 0.10 | 0.00 | -0.62 | 0.00 | 0.46 | -0.61 | 0.00 | 0.00 | 0.37 |
| 157 | 706.58 | 0.10 | 0.00 | -0.56 | 0.00 | 0.62 | -0.51 | -0.41 | 0.00 | 0.53 |
| 158 | 706.27 | 0.11 | 0.00 | -0.41 | 0.00 | 0.56 | -0.39 | -0.24 | 0.00 | 0.44 |
| 159 | 706.06 | 0.10 | 0.00 | -0.27 | 0.00 | 0.41 | -0.25 | -0.27 | 0.00 | 0.36 |
| 160 | 705.85 | 0.10 | 0.00 | 0.00 | 0.00 | 0.27 | 0.00 | 0.00 | 0.51 | 0.24 |
| 162 | 705.27 | 0.10 | 0.00 | -0.15 | -0.09 | 0.40 | -0.13 | -0.12 | 0.18 | 0.00 |
| 164 | 704.80 | 0.10 | 0.00 | -0.30 | 0.00 | 0.35 | -0.52 | 0.00 | 0.13 | 0.31 |
| 191 | 707.90 | 0.25 | -0.82 | -0.58 | -0.07 | 0.00 | -1.28 | -0.66 | 0.00 | 0.00 |
| 193 | 707.16 | 0.15 | 0.00 | -0.56 | 0.00 | 0.69 | 0.00 | -0.37 | 0.59 | 0.00 |
| 194 | 706.95 | 0.15 | 0.00 | -0.68 | 0.00 | 0.56 | -0.65 | -0.53 | 0.48 | 0.45 |
| 195 | 706.58 | 0.10 | 0.00 | -0.54 | 0.00 | 0.68 | -0.59 | -0.44 | 0.61 | 0.00 |
| 196 | 706.28 | 0.10 | 0.00 | -0.46 | 0.00 | 0.54 | -0.51 | -0.36 | 0.51 | 0.14 |
| 197 | 706.07 | 0.11 | 0.00 | -0.31 | 0.00 | 0.46 | -0.38 | -0.24 | 0.39 | 0.27 |
| 198 | 705.87 | 0.10 | 0.00 | -0.18 | 0.00 | 0.31 | -0.19 | -0.23 | 0.25 | 0.28 |
| 199 | 705.70 | 0.10 | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 | 0.00 | 0.00 | 0.26 |
| 200 | 705.34 | 0.11 | 0.00 | -0.50 | 0.00 | 0.00 | -0.39 | -0.42 | 0.33 | 0.52 |
| 201 | 705.07 | 0.11 | 0.00 | -0.38 | 0.00 | 0.50 | -0.43 | -0.31 | 0.13 | 0.45 |
| 203 | 704.50 | 0.10 | 0.00 | -0.52 | 0.00 | 0.55 | -0.46 | -0.46 | 0.52 | 0.00 |
| 229 | 707.50 | 0.10 | -0.69 | -0.49 | 0.82 | 0.00 | -0.66 | 0.28 | 0.00 | 0.00 |
| 230 | 707.24 | 1.04 | -0.63 | 0.00 | 0.60 | 0.49 | -0.65 | 0.00 | 1.28 | -0.57 |
| 231 | 707.14 | 0.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.45 | 0.68 | 0.00 |
| 233 | 706.60 | 0.10 | 0.00 | -0.23 | 0.00 | 0.00 | -0.66 | -0.14 | 0.65 | 0.00 |
| 234 | 706.21 | 0.10 | -0.33 | -0.41 | 0.00 | 0.23 | 0.00 | -0.27 | 0.59 | 0.00 |
| 235 | 706.01 | 0.10 | 0.00 | -0.44 | 0.00 | 0.41 | -0.36 | -0.28 | 0.51 | 0.00 |
| 236 | 705.81 | 0.12 | 0.00 | -0.36 | 0.00 | 0.44 | 0.00 | -0.26 | 0.38 | 0.00 |
| 237 | 705.69 | 0.23 | 0.00 | -0.58 | 0.00 | 0.36 | 0.00 | -0.52 | 0.19 | 0.45 |
| 238 | 705.40 | 0.10 | 0.00 | -0.47 | 0.00 | 0.58 | -0.41 | -0.45 | 0.00 | 0.00 |
| 239 | 705.16 | 0.10 | 0.00 | -0.24 | 0.00 | 0.47 | -0.58 | -0.15 | 0.39 | 0.00 |
| 240 | 704.77 | 0.10 | 0.00 | 0.00 | 0.00 | 0.24 | 0.00 | 0.00 | 0.43 | 0.00 |
| 267 | 707.03 | 0.20 | -0.63 | 0.00 | 0.69 | 0.00 | -0.63 | 0.57 | 0.00 | 0.00 |
| 268 | 707.02 | 0.13 | -0.62 | 0.00 | 0.63 | 0.00 | -0.63 | 0.00 | 0.66 | -0.46 |
| 269 | 707.06 | 0.16 | -0.64 | -0.64 | 0.00 | 0.00 | -0.77 | 0.00 | 0.65 | -0.54 |
| 270 | 706.72 | 0.22 | -0.31 | 0.00 | 0.00 | 0.64 | -0.50 | 0.00 | 0.00 | 0.00 |
| 274 | 705.86 | 0.26 | 0.00 | 0.00 | 0.00 | 0.00 | -0.59 | -0.45 | 0.36 | 0.27 |
| 279 | 704.64 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 |
| 305 | 706.77 | 0.27 | -0.49 | 0.00 | 0.63 | 0.00 | -0.43 | 0.46 | 0.00 | 0.00 |
| 306 | 706.73 | 0.46 | -0.25 | 0.00 | 0.62 | 0.00 | -0.65 | 0.54 | 0.63 | -0.14 |
| 307 | 706.72 | 0.22 | -0.16 | -0.24 | 0.64 | 0.00 | -0.56 | 0.00 | 0.63 | 0.00 |
| 308 | 706.62 | 0.24 | 0.00 | -0.40 | 0.31 | 0.24 | -0.60 | 0.00 | 0.77 | 0.00 |
| 309 | 706.48 | 0.11 | 0.00 | -0.44 | 0.00 | 0.40 | -0.53 | -0.50 | 0.50 | 0.00 |
| 311 | 706.00 | 0.10 | 0.00 | -0.34 | 0.00 | 0.50 | -0.35 | -0.27 | 0.00 | 0.38 |
| 313 | 705.61 | 0.10 | -0.32 | -0.56 | 0.00 | 0.41 | -0.77 | 0.00 | 0.59 | 0.00 |
| 343 | 706.63 | 0.15 | -0.43 | 0.00 | 0.49 | 0.00 | -0.40 | 0.14 | 0.00 | 0.00 |
| 344 | 706.62 | 0.12 | -0.37 | 0.00 | 0.25 | 0.00 | -0.38 | 0.00 | 0.43 | -0.30 |
| 345 | 706.62 | 0.35 | -0.28 | 0.00 | 0.16 | 0.00 | -0.55 | 0.00 | 0.65 | -0.20 |
| 346 | 706.54 | 0.34 | 0.00 | -0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.56 | 0.00 |
| 347 | 706.44 | 0.24 | 0.00 | -0.56 | 0.00 | 0.45 | -0.63 | -0.36 | 0.60 | 0.00 |
| 348 | 706.21 | 0.13 | 0.00 | -0.49 | 0.00 | 0.56 | -0.50 | -0.38 | 0.53 | 0.00 |
| 349 | 706.00 | 0.10 | 0.00 | -0.37 | 0.00 | 0.49 | -0.52 | -0.28 | 0.48 | 0.25 |
| 350 | 705.86 | 0.10 | 0.00 | 0.00 | 0.00 | 0.37 | 0.00 | 0.00 | 0.35 | 0.10 |
| 351 | 705.37 | 0.10 | -0.13 | -0.34 | 0.32 | 0.00 | -0.46 | -0.12 | 0.67 | 0.00 |
| 352 | 704.79 | 0.10 | -0.34 | -0.40 | 0.30 | 0.34 | -0.58 | 0.00 | 0.77 | 0.27 |
| 353 | 704.43 | 0.13 | -0.52 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.54 | 0.00 |
| 354 | 704.43 | 0.33 | 0.00 | 0.00 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | -0.59 |
| 381 | 706.51 | 0.19 | -0.36 | 0.00 | 0.43 | 0.00 | -0.34 | 0.30 | 0.00 | 0.00 |
| 382 | 706.51 | 0.26 | -0.18 | 0.00 | 0.37 | 0.00 | -0.16 | 0.20 | 0.40 | -0.11 |
| 383 | 706.51 | 0.31 | -0.39 | 0.00 | 0.28 | 0.00 | 0.00 | 0.00 | 0.38 | -0.14 |
| 384 | 706.51 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | -0.76 | 0.00 | 0.55 | -0.16 |
| 388 | 705.71 | 0.10 | 0.00 | 0.00 | 0.00 | 0.51 | 0.00 | 0.00 | 0.52 | 0.00 |
| 390 | 704.50 | 0.10 | 0.00 | 0.00 | 0.34 | 0.79 | 0.00 | 0.00 | 0.46 | 0.00 |
| 391 | 704.20 | 0.20 | -0.63 | 0.09 | 0.52 | 0.00 | -0.67 | 0.59 | 0.58 | -0.39 |
| 393 | 704.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 419 | 706.40 | 0.20 | 0.00 | 0.00 | 0.36 | 0.00 | -0.56 | 0.11 | 0.00 | 0.00 |
| 420 | 706.40 | 0.20 | -0.57 | 0.00 | 0.18 | 0.00 | 0.00 | 0.14 | 0.34 | 0.00 |
| 421 | 706.40 | 0.15 | -0.36 | 0.00 | 0.39 | 0.00 | -0.35 | 0.16 | 0.16 | -0.41 |
| 423 | 706.06 | 0.12 | -0.43 | 0.00 | 0.00 | 0.00 | -0.79 | 0.00 | 0.76 | 0.00 |
| 425 | 705.75 | 0.10 | 0.00 | 0.00 | 0.24 | 0.47 | 0.00 | 0.00 | 0.59 | 0.00 |
| 427 | 704.78 | 0.10 | 0.00 | 0.00 | 0.61 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 428 | 704.03 | 0.13 | -0.51 | -0.36 | 0.00 | 0.00 | -0.61 | 0.39 | 0.79 | 0.18 |
| 429 | 703.92 | 0.19 | -0.54 | 0.00 | 0.63 | 0.36 | -0.62 | 0.18 | 0.00 | 0.00 |
| 430 | 703.88 | 0.27 | -0.63 | 0.59 | 0.26 | 0.00 | -0.62 | 0.00 | 0.67 | -0.45 |
| 431 | 704.01 | 0.79 | 0.00 | 0.00 | 0.00 | -0.59 | 0.00 | 0.00 | 0.19 | 0.00 |
| 458 | 706.17 | 0.27 | -0.56 | 0.09 | 0.57 | 0.00 | -0.61 | 0.41 | 0.56 | 0.00 |
| 459 | 706.30 | 0.10 | -0.19 | 0.00 | 0.36 | -0.09 | -0.11 | 0.00 | 0.00 | -0.13 |
| 460 | 706.30 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.35 | 0.00 |
| 461 | 705.87 | 0.10 | 0.00 | -0.49 | 0.43 | 0.00 | -0.57 | 0.06 | 0.00 | 0.00 |
| 462 | 705.55 | 0.16 | -0.07 | -0.42 | 0.26 | 0.49 | -0.52 | 0.00 | 0.79 | 0.14 |
| 463 | 705.40 | 0.10 | 0.00 | -0.53 | 0.00 | 0.42 | -0.42 | 0.00 | 0.33 | 0.00 |
| 464 | 705.10 | 0.10 | 0.00 | 0.00 | 0.59 | 0.53 | 0.00 | 0.00 | 0.00 | 0.40 |
| 465 | 704.13 | 0.11 | -0.36 | -0.58 | 0.00 | 0.00 | -0.47 | -0.18 | 0.64 | 0.60 |
| 466 | 703.82 | 0.31 | 0.00 | 0.00 | 0.51 | 0.58 | -0.85 | 0.00 | 0.00 | 0.44 |
| 467 | 703.73 | 0.23 | -0.61 | 0.00 | 0.54 | 0.00 | -0.76 | 0.45 | 0.61 | 0.08 |
| 468 | 703.65 | 0.20 | -0.62 | 0.00 | 0.63 | 0.00 | -0.53 | 0.00 | 0.62 | -0.35 |
| 469 | 703.61 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.62 | 0.00 |
| 496 | 706.02 | 0.24 | -0.20 | 0.00 | 0.56 | 0.00 | -0.44 | 0.13 | 0.00 | 0.00 |
| 497 | 706.00 | 0.31 | 0.00 | 0.00 | 0.19 | 0.00 | -0.64 | 0.00 | 0.61 | 0.00 |
| 498 | 706.13 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 |
| 500 | 705.45 | 0.18 | 0.00 | -0.41 | 0.07 | 0.25 | 0.00 | 0.00 | 0.57 | 0.26 |
| 501 | 705.30 | 0.24 | 0.00 | -0.96 | 0.00 | 0.41 | 0.00 | -0.40 | 0.52 | 0.05 |
| 502 | 704.59 | 0.13 | 0.00 | -0.90 | 0.00 | 0.96 | -0.53 | -0.60 | 0.42 | 0.00 |
| 503 | 704.01 | 0.21 | 0.32 | -0.38 | 0.36 | 0.90 | -0.42 | -0.44 | 0.00 | 0.00 |
| 504 | 703.90 | 0.10 | 0.00 | -0.24 | 0.00 | 0.38 | -0.33 | -0.08 | 0.47 | 0.30 |
| 505 | 703.51 | 0.28 | -0.54 | -0.53 | 0.61 | 0.24 | -0.89 | 0.35 | 0.85 | 0.30 |
| 506 | 703.39 | 0.31 | -0.73 | 0.00 | 0.62 | 0.53 | -0.90 | 0.00 | 0.76 | 0.00 |
| 507 | 703.47 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.53 | 0.00 |
| 534 | 705.92 | 0.17 | 0.00 | 0.00 | 0.20 | 0.00 | -0.35 | 0.00 | 0.00 | 0.00 |
| 535 | 705.90 | 0.30 | -0.07 | 0.00 | 0.00 | 0.00 | -0.54 | 0.00 | 0.44 | 0.00 |
| 536 | 705.83 | 0.25 | -0.23 | -0.36 | 0.00 | 0.00 | -0.55 | 0.00 | 0.64 | 0.00 |
| 537 | 705.70 | 0.10 | -0.16 | -0.38 | 0.10 | 0.36 | 0.00 | -0.26 | 0.00 | 0.00 |
| 538 | 705.41 | 0.41 | 0.00 | 0.00 | 0.00 | 0.38 | 0.00 | -0.05 | 0.27 | 0.35 |
| 543 | 703.33 | 0.13 | -0.43 | -0.45 | 0.54 | 0.53 | -0.64 | 0.00 | 0.33 | 0.17 |
| 544 | 703.17 | 0.27 | -0.62 | -0.57 | 0.73 | 0.45 | -0.79 | 0.00 | 0.89 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 573 | 705.80 | 0.18 | -0.33 | 0.00 | 0.07 | 0.00 | -0.36 | 0.00 | 0.35 | 0.00 |
| 574 | 705.73 | 0.14 | 0.00 | -0.37 | 0.23 | 0.00 | -0.75 | 0.00 | 0.54 | 0.00 |
| 575 | 705.60 | 0.11 | -0.52 | 0.00 | 0.16 | 0.37 | -0.64 | -0.35 | 0.55 | 0.00 |
| 581 | 703.19 | 0.12 | 0.00 | -0.45 | 0.43 | 0.30 | -0.45 | 0.00 | 0.62 | 0.00 |
| 582 | 703.01 | 0.34 | 0.00 | -0.52 | 0.62 | 0.45 | -0.63 | 0.00 | 0.64 | 0.00 |
| 583 | 702.91 | 0.31 | 0.00 | -0.87 | 0.00 | 0.52 | 0.00 | -0.71 | 0.79 | 0.00 |
| 611 | 705.70 | 0.10 | 0.00 | 0.00 | 0.33 | 0.00 | -0.48 | 0.00 | 0.00 | 0.00 |
| 613 | 705.31 | 0.14 | -0.50 | -0.38 | 0.52 | 0.00 | -0.51 | 0.00 | 0.75 | 0.00 |
| 614 | 705.20 | 0.20 | 0.00 | 0.00 | 0.00 | 0.38 | -0.75 | 0.00 | 0.64 | 0.00 |
| 618 | 703.47 | 0.10 | 0.00 | 0.00 | 0.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 |
| 619 | 703.10 | 0.15 | 0.00 | -0.31 | 0.00 | 0.00 | -0.14 | 0.00 | 0.35 | 0.33 |
| 620 | 703.00 | 0.10 | 0.00 | -0.36 | 0.00 | 0.31 | -0.44 | 0.00 | 0.45 | 0.00 |
| 621 | 702.86 | 0.26 | 0.00 | 0.00 | 0.00 | 0.36 | -0.45 | -0.64 | 0.63 | 0.07 |
| 650 | 705.40 | 0.10 | 0.00 | -0.18 | 0.00 | 0.00 | -0.29 | 0.00 | 0.48 | 0.00 |
| 651 | 705.10 | 0.10 | -0.42 | 0.00 | 0.50 | 0.18 | -0.65 | 0.00 | 0.00 | 0.00 |
| 652 | 705.10 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.51 | 0.00 |
| 653 | 704.69 | 0.12 | -0.44 | -0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.75 | 0.00 |
| 654 | 704.19 | 0.22 | 0.00 | -0.82 | 0.00 | 0.72 | -0.69 | 0.00 | 0.00 | 0.63 |
| 655 | 703.62 | 0.11 | 0.30 | -0.57 | 0.00 | 0.82 | -0.62 | -0.30 | 0.00 | 0.00 |
| 656 | 703.30 | 0.10 | -0.27 | -0.43 | 0.00 | 0.57 | -0.41 | -0.33 | 0.00 | 0.50 |
| 657 | 703.10 | 0.20 | 0.00 | 0.00 | 0.00 | 0.43 | -0.43 | 0.00 | 0.00 | 0.30 |
| 659 | 702.79 | 0.19 | -0.37 | 0.00 | 0.00 | 0.13 | -0.52 | 0.00 | 0.44 | 0.44 |
| 689 | 704.90 | 0.10 | 0.00 | -0.43 | 0.42 | 0.00 | -0.53 | 0.00 | 0.29 | 0.00 |
| 690 | 704.63 | 0.20 | -0.28 | -0.42 | 0.00 | 0.43 | 0.00 | 0.00 | 0.65 | 0.00 |
| 691 | 704.50 | 0.29 | 0.00 | 0.00 | 0.44 | 0.42 | 0.00 | -0.63 | 0.00 | 0.00 |
| 694 | 703.20 | 0.13 | 0.00 | -0.39 | 0.27 | 0.67 | -0.39 | -0.30 | 0.62 | 0.00 |
| 695 | 703.09 | 0.19 | 0.00 | -0.43 | 0.00 | 0.39 | 0.00 | 0.00 | 0.41 | 0.00 |
| 696 | 702.96 | 0.27 | 0.00 | -0.76 | 0.00 | 0.43 | 0.00 | -0.44 | 0.43 | 0.44 |
| 697 | 702.68 | 0.32 | 0.00 | -0.48 | 0.37 | 0.76 | -0.91 | 0.00 | 0.20 | 0.00 |
| 728 | 704.53 | 0.13 | 0.00 | 0.00 | 0.28 | 0.00 | -0.57 | 0.00 | 0.53 | 0.00 |
| 733 | 703.10 | 0.37 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | -0.44 | 0.39 | 0.00 |
| 767 | 704.25 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | -0.61 | 0.00 | 0.57 | 0.00 |
| 771 | 703.20 | 0.23 | 0.00 | 0.00 | -0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.44 |
| 806 | 703.94 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | -0.61 | 0.00 | 0.61 | 0.00 |
| 808 | 703.40 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.44 | 0.00 | 0.48 |
| 845 | 703.68 | 0.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.48 | 0.61 | 0.00 |
| 883 | 703.70 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 884 | 703.69 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 921 | 703.64 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 922 | 703.64 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

DISCHARGE FROM OUTFLOW GRID ELEMENTS:

| NODE | OUTFLOW RATE(CMS) |
|---|---|
| 90 | 0.94 |
| 128 | 0.36 |
| 166 | 0.76 |
| 204 | 1.12 |
| 242 | 0.69 |
| 280 | 0.67 |
| 318 | 0.36 |
| 356 | 0.33 |
| 508 | 0.58 |
| 546 | 2.44 |
| 584 | 4.08 |
| 660 | 0.78 |
| 698 | 1.49 |
| 736 | 1.61 |

***CHANNEL RESULTS***

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INFLOW RATE AT NODE 191 IS EQUAL TO 13.84

| NODE | ELEVATION | DEPTH | VELOCITY OUT | DISCHARGE OUT |
|---|---|---|---|---|
| 191 | 708.03 | 0.93 | 1.01 | 5.92 |
| 192 | 707.75 | 0.62 | 1.76 | 5.83 |
| 231 | 707.15 | 0.35 | 1.24 | 3.31 |
| 232 | 706.99 | 0.29 | 1.30 | 3.25 |
| 271 | 706.71 | 0.36 | 1.67 | 3.23 |
| 272 | 705.93 | 0.63 | 1.03 | 4.53 |
| 273 | 705.93 | 0.63 | 0.83 | 4.66 |
| 274 | 705.92 | 0.92 | 0.43 | 1.93 |
| 275 | 705.90 | 0.53 | 0.95 | 3.06 |
| 276 | 705.76 | 0.32 | 1.59 | 3.02 |
| 315 | 704.68 | 0.42 | 1.21 | 3.12 |
| 354 | 704.49 | 0.23 | 0.74 | 1.93 |
| 392 | 704.34 | 0.31 | 0.70 | 1.25 |
| 469 | 703.15 | 0.34 | 0.99 | 0.82 |

MIN. TIMESTEP(SEC.) = 0.36 MAX. TIMESTEP(SEC.) = 1.66 MEAN TIMESTEP(SEC.) = 0.60

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MODEL TIME = 8.00 HOURS TOTAL TIMESTEP NUMBER = 56292.

***FLOODPLAIN RESULTS***

(POSITIVE VELOCITY REPRESENTS INFLOW TO NODE)

| NODE | ELEVATION | DEPTH | V-N | V-E | V-S | V-W | V-NE | V-SE | V-SW | V-NW |
|---|---|---|---|---|---|---|---|---|---|---|
| 165 | 704.50 | 0.10 | 0.00 | 0.00 | 0.00 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 194 | 706.90 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.28 |
| 196 | 706.28 | 0.10 | 0.00 | 0.00 | 0.00 | 0.52 | 0.00 | 0.00 | 0.00 | 0.46 |
| 203 | 704.50 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 | 0.00 |
| 230 | 707.05 | 0.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.31 |
| 231 | 707.01 | 0.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.28 | 0.00 | 0.00 |
| 234 | 706.21 | 0.10 | 0.00 | 0.00 | 0.00 | 0.39 | 0.00 | 0.00 | 0.37 | 0.00 |
| 267 | 706.93 | 0.10 | -0.42 | 0.00 | 0.00 | 0.00 | -0.48 | 0.31 | 0.00 | 0.00 |
| 270 | 706.60 | 0.10 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 274 | 705.71 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | -0.36 | -0.34 | 0.00 | 0.23 |
| 305 | 706.68 | 0.18 | 0.00 | 0.00 | 0.42 | 0.00 | 0.00 | 0.26 | 0.00 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 307 | 706.61 | 0.11 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.60 | 0.00 |
| 308 | 706.50 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | -0.45 | 0.00 | 0.47 | 0.00 |
| 345 | 706.50 | 0.23 | 0.00 | 0.00 | 0.00 | 0.00 | -0.37 | 0.00 | 0.37 | 0.00 |
| 346 | 706.40 | 0.20 | 0.00 | -0.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 347 | 706.31 | 0.11 | 0.00 | -0.34 | 0.00 | 0.23 | -0.42 | 0.00 | 0.45 | 0.00 |
| 350 | 705.86 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | 0.00 |
| 352 | 704.79 | 0.10 | 0.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 353 | 704.40 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 | 0.00 |
| 354 | 704.35 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.51 |
| 382 | 706.40 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 | 0.00 |
| 383 | 706.40 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.22 |
| 384 | 706.38 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | -0.59 | 0.00 | 0.37 | 0.00 |
| 386 | 706.12 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 |
| 391 | 704.12 | 0.12 | -0.55 | 0.00 | 0.00 | 0.00 | -0.54 | 0.51 | 0.00 | -0.29 |
| 393 | 704.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 419 | 706.30 | 0.10 | 0.00 | 0.00 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 420 | 706.30 | 0.10 | -0.51 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.16 | 0.00 |
| 430 | 703.85 | 0.24 | -0.56 | 0.62 | 0.00 | 0.00 | -0.54 | 0.00 | 0.54 | -0.43 |
| 431 | 703.98 | 0.76 | 0.00 | 0.00 | 0.00 | -0.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 458 | 706.00 | 0.10 | -0.33 | 0.00 | 0.51 | 0.00 | -0.44 | 0.00 | 0.00 | 0.00 |
| 462 | 705.49 | 0.10 | -0.27 | -0.31 | 0.00 | 0.00 | -0.49 | 0.00 | 0.65 | 0.00 |
| 465 | 704.12 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 |
| 466 | 703.72 | 0.21 | 0.00 | 0.00 | 0.31 | 0.00 | -0.63 | 0.26 | 0.00 | 0.45 |
| 467 | 703.62 | 0.12 | -0.50 | 0.00 | 0.45 | 0.00 | -0.61 | 0.43 | 0.38 | 0.00 |
| 468 | 703.57 | 0.12 | -0.56 | 0.00 | 0.56 | 0.00 | -0.33 | 0.00 | 0.49 | -0.34 |
| 496 | 705.89 | 0.11 | 0.00 | 0.00 | 0.33 | 0.00 | -0.14 | 0.00 | 0.00 | 0.00 |
| 497 | 705.80 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | -0.33 | 0.00 | 0.44 | 0.00 |
| 500 | 705.36 | 0.10 | 0.00 | -0.40 | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 501 | 705.17 | 0.11 | 0.00 | -0.78 | 0.00 | 0.40 | 0.00 | 0.00 | 0.49 | 0.00 |
| 502 | 704.56 | 0.10 | 0.00 | -0.57 | 0.00 | 0.78 | -0.29 | -0.33 | 0.00 | 0.00 |
| 503 | 703.93 | 0.13 | 0.00 | 0.00 | 0.00 | 0.57 | 0.00 | -0.45 | 0.00 | 0.00 |
| 505 | 703.41 | 0.18 | -0.34 | -0.38 | 0.50 | 0.00 | -0.66 | 0.34 | 0.63 | 0.00 |
| 506 | 703.29 | 0.21 | -0.55 | 0.00 | 0.56 | 0.38 | -0.65 | 0.00 | 0.61 | 0.00 |
| 534 | 705.88 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 535 | 705.79 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 |
| 536 | 705.69 | 0.11 | 0.00 | 0.00 | 0.00 | 0.00 | -0.33 | 0.00 | 0.33 | 0.00 |
| 538 | 705.27 | 0.27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 544 | 703.06 | 0.16 | -0.46 | -0.46 | 0.55 | 0.27 | -0.59 | 0.00 | 0.66 | 0.00 |
| 545 | 702.90 | 0.11 | -0.27 | -0.62 | 0.00 | 0.46 | -0.64 | -0.36 | 0.65 | 0.00 |
| 573 | 705.78 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 575 | 705.59 | 0.10 | 0.00 | 0.00 | 0.00 | 0.31 | 0.00 | 0.00 | 0.33 | 0.00 |
| 582 | 702.88 | 0.21 | 0.00 | -0.38 | 0.46 | 0.00 | -0.40 | 0.00 | 0.40 | 0.33 |
| 583 | 702.77 | 0.17 | 0.00 | -0.69 | 0.27 | 0.38 | 0.00 | -0.57 | 0.59 | 0.00 |
| 619 | 703.05 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.33 | 0.00 | 0.00 |
| 621 | 702.76 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.56 | 0.40 | 0.00 |
| 654 | 704.07 | 0.10 | 0.00 | -0.65 | 0.00 | 0.51 | -0.56 | 0.00 | 0.00 | 0.39 |
| 655 | 703.61 | 0.10 | 0.00 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 691 | 704.31 | 0.10 | 0.00 | 0.00 | 0.36 | 0.00 | 0.00 | -0.39 | 0.00 | 0.00 |
| 697 | 702.46 | 0.10 | 0.00 | 0.00 | 0.00 | 0.54 | -0.55 | 0.00 | 0.00 | 0.00 |
| 733 | 702.89 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -0.11 | 0.00 | 0.00 |
| 883 | 703.70 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 884 | 703.69 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 921 | 703.64 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 922 | 703.64 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

DISCHARGE FROM OUTFLOW GRID ELEMENTS:

| NODE | OUTFLOW RATE(CMS) |
|---|---|
| 508 | 0.28 |
| 546 | 1.14 |
| 584 | 1.99 |
| 736 | 0.41 |

***CHANNEL RESULTS***

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INFLOW RATE AT NODE 191 IS EQUAL TO 3.82

| NODE | ELEVATION | DEPTH | VELOCITY OUT | DISCHARGE OUT |
|---|---|---|---|---|
| 191 | 707.78 | 0.68 | 0.81 | 3.14 |
| 192 | 707.59 | 0.46 | 1.48 | 3.14 |
| 231 | 707.06 | 0.26 | 0.96 | 1.63 |
| 232 | 706.89 | 0.19 | 1.05 | 1.57 |
| 271 | 706.59 | 0.24 | 1.36 | 1.59 |
| 272 | 705.74 | 0.44 | 0.80 | 2.10 |
| 273 | 705.73 | 0.43 | 0.19 | 1.13 |
| 274 | 705.75 | 0.75 | 0.26 | 0.82 |
| 275 | 705.75 | 0.38 | 0.74 | 1.56 |
| 276 | 705.65 | 0.21 | 1.27 | 1.42 |
| 315 | 704.58 | 0.32 | 0.90 | 1.36 |
| 354 | 704.41 | 0.15 | 0.43 | 0.59 |
| 392 | 704.32 | 0.29 | 0.56 | 0.92 |
| 469 | 703.08 | 0.27 | 0.86 | 0.55 |

MIN. TIMESTEP(SEC.) = 0.40 MAX. TIMESTEP(SEC.) = 3.61 MEAN TIMESTEP(SEC.) = 2.09

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MAXIMUM WATER SURFACE VALUES FOR FLOODPLAIN

| NODE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 707.90 | 707.48 | 707.39 | 707.22 | 707.16 | 706.43 | 706.60 | 706.30 | 706.00 | 705.61 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.08 | 0.09 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 6.05 | 5.78 | 5.72 | 6.16 | 5.66 | 5.44 | 5.95 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MAX DEPTH | 0.10 | 0.10 | 0.10 | 0.08 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.55 | 5.85 | 5.85 | 6.03 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| ELEVATION | 702.05 | 701.82 | 701.49 | 701.19 | 701.05 | 700.86 | 700.57 | 700.26 | 699.87 | 698.69 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| ELEVATION | 698.46 | 698.28 | 698.16 | 698.16 | 697.94 | 697.61 | 697.11 | 696.74 | 708.06 | 707.89 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| ELEVATION | 707.66 | 707.40 | 706.90 | 706.60 | 706.50 | 706.05 | 705.85 | 705.51 | 705.10 | 704.82 |
| MAX DEPTH | 0.06 | 0.06 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| VELOCITY | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 |
| TIME | 8.00 | 8.00 | 5.78 | 7.77 | 6.74 | 7.77 | 4.93 | 6.68 | 7.26 | 5.75 |
| MAX VEL | 0.00 | 0.00 | 0.56 | 0.68 | 0.82 | 0.57 | 0.78 | 0.62 | 0.51 | 0.50 |
| DEPTH | 0.00 | 0.00 | 0.10 | 0.10 | 0.10 | 0.10 | 0.09 | 0.09 | 0.10 | 0.10 |
| TIME | 0.00 | 0.00 | 6.69 | 6.57 | 7.00 | 7.77 | 7.25 | 7.26 | 5.13 | 5.30 |
| NODE | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| ELEVATION | 704.55 | 704.23 | 703.90 | 703.56 | 703.54 | 702.96 | 702.70 | 702.36 | 702.06 | 701.95 |
| MAX DEPTH | 0.10 | 0.13 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 6.03 | 5.81 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 4.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| ELEVATION | 701.76 | 701.72 | 700.91 | 700.84 | 700.56 | 700.29 | 699.91 | 699.66 | 699.06 | 698.25 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| ELEVATION | 698.00 | 697.86 | 697.74 | 697.24 | 697.09 | 697.05 | 707.91 | 707.70 | 707.50 | 707.22 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.10 | 0.10 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.22 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 5.84 | 5.80 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.51 | 0.55 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.55 | 6.34 |
| NODE | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| ELEVATION | 707.03 | 706.60 | 706.11 | 705.81 | 705.70 | 705.20 | 704.94 | 704.70 | 704.39 | 703.91 |
| MAX DEPTH | 0.10 | 0.10 | 0.11 | 0.13 | 0.10 | 0.11 | 0.24 | 0.30 | 0.29 | 0.11 |
| VELOCITY | 0.31 | 0.00 | 0.49 | 0.58 | 0.26 | 0.53 | 0.68 | 0.86 | 0.86 | 0.00 |
| TIME | 5.70 | 7.08 | 5.79 | 5.82 | 5.74 | 5.84 | 5.87 | 5.87 | 5.87 | 5.88 |
| MAX VEL | 0.82 | 0.68 | 0.57 | 0.60 | 0.72 | 0.60 | 0.68 | 0.86 | 0.86 | 0.00 |
| DEPTH | 0.10 | 0.10 | 0.10 | 0.10 | 0.09 | 0.09 | 0.24 | 0.30 | 0.29 | 0.00 |
| TIME | 4.49 | 4.55 | 7.77 | 7.44 | 7.25 | 7.91 | 5.87 | 5.87 | 5.87 | 0.00 |
| NODE | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| ELEVATION | 703.56 | 703.28 | 702.97 | 702.92 | 702.66 | 702.36 | 702.06 | 701.98 | 701.76 | 701.63 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 |
| ELEVATION | 701.11 | 700.83 | 700.61 | 700.34 | 699.96 | 699.81 | 699.58 | 699.36 | 698.15 | 697.80 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 |
| ELEVATION | 697.56 | 697.47 | 698.76 | 698.06 | 707.90 | 707.60 | 707.40 | 707.21 | 706.91 | 706.37 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 | 0.20 | 0.21 | 0.13 | 0.11 | 0.17 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.52 | 0.60 | 0.73 | 0.55 | 0.59 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 5.84 | 5.84 | 5.82 | 5.82 | 5.83 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.54 | 0.60 | 0.75 | 0.77 | 0.60 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.21 | 0.10 | 0.09 | 0.17 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.44 | 5.73 | 7.05 | 7.38 | 5.83 |
| NODE | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 |
| ELEVATION | 706.15 | 705.83 | 705.54 | 705.27 | 705.05 | 704.84 | 704.78 | 704.23 | 704.00 | 703.84 |
| MAX DEPTH | 0.12 | 0.18 | 0.24 | 0.24 | 0.14 | 0.14 | 0.10 | 0.13 | 0.06 | 0.06 |
| VELOCITY | 0.62 | 0.63 | 0.71 | 0.62 | 0.55 | 0.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.77 | 5.78 | 5.83 | 5.84 | 5.84 | 5.85 | 5.09 | 5.85 | 8.00 | 8.00 |
| MAX VEL | 0.62 | 0.68 | 0.71 | 0.62 | 0.58 | 0.63 | 0.76 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.12 | 0.15 | 0.24 | 0.24 | 0.09 | 0.09 | 0.10 | 0.00 | 0.00 | 0.00 |

| NODE | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 703.26 | 702.96 | 702.59 | 702.14 | 702.06 | 701.76 | 701.67 | 701.46 | 701.17 | 700.58 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 700.86 | 700.65 | 700.09 | 699.83 | 699.66 | 699.59 | 699.21 | 699.06 | 698.05 | 698.75 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 698.46 | 698.16 | 708.00 | 707.73 | 707.41 | 707.15 | 706.76 | 706.43 | 706.19 | 705.93 |
| MAX DEPTH | 0.06 | 0.06 | 0.21 | 0.30 | 0.31 | 0.26 | 0.28 | 0.27 | 0.23 | 0.18 |
| VELOCITY | 0.00 | 0.00 | 0.62 | 0.89 | 0.80 | 0.90 | 0.88 | 0.72 | 0.64 | 0.62 |
| TIME | 8.00 | 8.00 | 5.79 | 5.79 | 5.84 | 5.85 | 5.80 | 5.82 | 5.83 | 5.84 |
| MAX VEL | 0.00 | 0.00 | 0.62 | 0.89 | 0.80 | 0.90 | 0.88 | 0.72 | 0.64 | 0.66 |
| DEPTH | 0.00 | 0.00 | 0.21 | 0.30 | 0.31 | 0.26 | 0.28 | 0.27 | 0.23 | 0.15 |
| TIME | 0.00 | 0.00 | 5.84 | 5.80 | 5.80 | 5.85 | 5.80 | 5.76 | 5.83 | 5.08 |

| NODE | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 705.64 | 705.38 | 705.15 | 704.91 | 704.57 | 704.17 | 703.65 | 703.56 | 703.26 | 703.02 |
| MAX DEPTH | 0.19 | 0.21 | 0.21 | 0.21 | 0.17 | 0.11 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.63 | 0.59 | 0.62 | 0.69 | 0.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.84 | 5.79 | 5.84 | 5.85 | 5.85 | 5.85 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.65 | 0.60 | 0.62 | 0.72 | 0.76 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.15 | 0.20 | 0.21 | 0.17 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 4.81 | 5.79 | 5.84 | 6.52 | 5.85 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 702.69 | 702.37 | 702.12 | 701.91 | 701.76 | 701.53 | 701.28 | 700.62 | 700.86 | 700.86 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 700.39 | 699.97 | 700.06 | 699.36 | 699.32 | 699.19 | 698.72 | 698.46 | 698.49 | 697.35 |
| MAX DEPTH | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 708.29 | 707.88 | 707.38 | 707.17 | 706.73 | 706.43 | 706.21 | 706.01 | 705.77 | 705.48 |
| MAX DEPTH | 0.64 | 0.25 | 0.37 | 0.37 | 0.25 | 0.25 | 0.25 | 0.24 | 0.17 | 0.25 |
| VELOCITY | 1.89 | 1.03 | 0.88 | 1.08 | 0.88 | 0.75 | 0.65 | 0.62 | 0.61 | 0.72 |
| TIME | 5.88 | 5.74 | 5.79 | 5.80 | 5.80 | 5.81 | 5.82 | 5.80 | 5.82 | 5.78 |
| MAX VEL | 1.91 | 1.03 | 0.88 | 1.08 | 0.88 | 0.75 | 0.65 | 0.62 | 0.67 | 0.73 |
| DEPTH | 0.56 | 0.25 | 0.37 | 0.37 | 0.25 | 0.25 | 0.25 | 0.24 | 0.15 | 0.25 |
| TIME | 5.79 | 5.79 | 5.79 | 5.80 | 5.80 | 5.79 | 5.82 | 5.81 | 5.18 | 5.78 |

| NODE | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 705.20 | 704.92 | 704.63 | 704.22 | 703.86 | 703.56 | 703.26 | 703.00 | 702.96 | 702.61 |
| MAX DEPTH | 0.24 | 0.19 | 0.23 | 0.13 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.74 | 0.67 | 0.72 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.79 | 5.85 | 5.86 | 5.85 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.74 | 0.72 | 0.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.24 | 0.15 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.79 | 6.35 | 5.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 702.36 | 701.97 | 701.76 | 701.46 | 701.28 | 700.86 | 700.86 | 700.79 | 700.45 | 700.90 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 | 0.10 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 3.49 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.74 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.27 |

| NODE | 221 | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 700.62 | 699.64 | 699.66 | 698.89 | 698.76 | 698.35 | 698.07 | 696.06 | 707.68 | 707.49 |
| MAX DEPTH | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.28 | 1.29 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.07 | 1.26 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 5.79 | 5.80 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.07 | 1.26 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.28 | 1.29 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.79 | 5.79 |

| NODE | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 707.40 | 707.31 | 706.64 | 706.34 | 706.18 | 706.01 | 705.87 | 705.54 | 705.20 | 704.86 |
| MAX DEPTH | 1.20 | 0.06 | 0.14 | 0.23 | 0.27 | 0.32 | 0.41 | 0.24 | 0.14 | 0.19 |
| VELOCITY | 0.63 | 0.00 | 0.82 | 0.55 | 0.60 | 0.62 | 0.94 | 0.72 | 0.72 | 0.63 |
| TIME | 5.74 | 8.00 | 5.80 | 5.80 | 5.86 | 5.80 | 5.84 | 5.81 | 5.83 | 5.86 |
| MAX VEL | 0.94 | 0.00 | 0.82 | 0.56 | 0.60 | 0.62 | 0.94 | 0.72 | 0.72 | 0.67 |
| DEPTH | 0.48 | 0.00 | 0.14 | 0.23 | 0.27 | 0.32 | 0.41 | 0.24 | 0.14 | 0.16 |
| TIME | 0.01 | 0.00 | 5.81 | 5.79 | 5.86 | 5.81 | 5.81 | 5.81 | 5.84 | 6.33 |

| NODE | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 704.57 | 704.28 | 704.03 | 703.67 | 703.49 | 703.13 | 702.85 | 702.55 | 702.96 | 702.51 |
| MAX DEPTH | 0.17 | 0.11 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MAX VEL | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 |
| ELEVATION | 702.06 | 701.67 | 701.50 | 700.86 | 700.86 | 700.76 | 700.57 | 700.85 | 700.17 | 699.56 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 | 0.06 | 0.07 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 |
| ELEVATION | 699.37 | 699.08 | 698.65 | 698.46 | 698.10 | 697.67 | 707.22 | 707.20 | 707.22 | 706.88 |
| MAX DEPTH | 0.07 | 0.08 | 0.07 | 0.06 | 0.06 | 0.06 | 0.39 | 0.31 | 0.32 | 0.38 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.99 | 0.93 | 1.16 | 0.76 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 5.77 | 5.80 | 5.88 | 5.78 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.99 | 0.94 | 1.17 | 0.77 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.39 | 0.31 | 0.32 | 0.38 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.80 | 5.79 | 5.74 | 5.78 |
| NODE | 271 | 272 | 273 | 274 | 275 | 276 | 277 | 278 | 279 | 280 |
| ELEVATION | 707.41 | 706.23 | 706.26 | 706.06 | 706.28 | 706.30 | 705.21 | 704.81 | 704.64 | 704.23 |
| MAX DEPTH | 0.06 | 0.23 | 0.06 | 0.46 | 0.06 | 0.06 | 0.10 | 0.11 | 0.10 | 0.09 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.93 | 0.00 | 0.00 | 0.36 | 0.42 | 0.00 | 0.00 |
| TIME | 8.00 | 5.79 | 8.00 | 5.88 | 8.00 | 8.00 | 5.64 | 5.86 | 7.58 | 5.83 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.95 | 0.00 | 0.00 | 0.62 | 0.55 | 0.61 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.45 | 0.00 | 0.00 | 0.10 | 0.10 | 0.10 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 5.79 | 0.00 | 0.00 | 5.87 | 5.86 | 6.85 | 0.00 |
| NODE | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 |
| ELEVATION | 703.98 | 704.16 | 703.86 | 703.86 | 703.49 | 702.66 | 702.63 | 702.36 | 701.97 | 701.96 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 |
| ELEVATION | 701.64 | 701.16 | 701.02 | 700.91 | 700.63 | 699.96 | 699.69 | 699.66 | 699.51 | 699.17 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.10 | 0.10 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 2.59 | 4.74 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.56 | 0.52 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.10 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.74 | 5.74 |
| NODE | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 |
| ELEVATION | 698.66 | 698.21 | 697.86 | 697.63 | 706.97 | 706.92 | 706.89 | 706.78 | 706.60 | 706.35 |
| MAX DEPTH | 0.08 | 0.06 | 0.06 | 0.06 | 0.47 | 0.65 | 0.39 | 0.40 | 0.23 | 0.17 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.81 | 0.93 | 0.88 | 0.93 | 0.73 | 0.54 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 5.78 | 5.81 | 5.75 | 5.78 | 5.78 | 5.78 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.82 | 0.96 | 0.88 | 0.93 | 0.73 | 0.58 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.47 | 0.65 | 0.39 | 0.40 | 0.23 | 0.15 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 5.78 | 5.88 | 5.74 | 5.78 | 5.78 | 5.39 |
| NODE | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 |
| ELEVATION | 706.13 | 705.96 | 705.72 | 705.13 | 705.08 | 704.80 | 704.50 | 704.19 | 703.56 | 703.78 |
| MAX DEPTH | 0.23 | 0.18 | 0.21 | 0.13 | 0.12 | 0.10 | 0.10 | 0.08 | 0.06 | 0.06 |
| VELOCITY | 0.53 | 0.75 | 1.10 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.79 | 5.79 | 5.80 | 5.86 | 7.83 | 3.84 | 7.50 | 5.94 | 8.00 | 8.00 |
| MAX VEL | 0.56 | 0.88 | 1.13 | 0.83 | 0.00 | 0.53 | 0.51 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.19 | 0.18 | 0.16 | 0.13 | 0.00 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 |
| TIME | 4.90 | 5.83 | 4.89 | 5.86 | 0.00 | 7.26 | 6.74 | 0.00 | 0.00 | 0.00 |
| NODE | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 |
| ELEVATION | 703.69 | 703.26 | 702.75 | 702.66 | 702.45 | 702.11 | 702.06 | 701.86 | 701.64 | 701.23 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 331 | 332 | 333 | 334 | 335 | 336 | 337 | 338 | 339 | 340 |
| ELEVATION | 700.86 | 700.82 | 700.46 | 700.26 | 699.47 | 699.70 | 699.48 | 699.41 | 698.56 | 698.46 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 | 0.10 | 0.11 | 0.11 | 0.08 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 3.49 | 2.30 | 2.66 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.75 | 0.74 | 0.83 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.08 | 0.08 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.81 | 4.92 | 5.88 | 0.00 | 0.00 |
| NODE | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | 349 | 350 |
| ELEVATION | 698.16 | 697.58 | 706.81 | 706.80 | 706.78 | 706.68 | 706.55 | 706.31 | 706.09 | 705.87 |
| MAX DEPTH | 0.06 | 0.06 | 0.33 | 0.30 | 0.51 | 0.48 | 0.35 | 0.23 | 0.19 | 0.11 |
| VELOCITY | 0.00 | 0.00 | 0.68 | 0.60 | 0.80 | 0.60 | 0.89 | 0.62 | 0.69 | 0.76 |
| TIME | 8.00 | 8.00 | 5.77 | 5.81 | 5.77 | 5.78 | 5.78 | 5.78 | 5.85 | 5.93 |
| MAX VEL | 0.00 | 0.00 | 0.70 | 0.62 | 0.81 | 0.61 | 0.89 | 0.67 | 0.76 | 0.62 |
| DEPTH | 0.00 | 0.00 | 0.33 | 0.30 | 0.50 | 0.48 | 0.35 | 0.19 | 0.19 | 0.11 |
| TIME | 0.00 | 0.00 | 5.80 | 5.85 | 5.79 | 5.61 | 5.78 | 4.79 | 5.91 | 5.77 |
| NODE | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 |
| ELEVATION | 705.39 | 704.88 | 704.53 | 704.53 | 704.61 | 704.31 | 704.16 | 703.86 | 703.86 | 703.26 |
| MAX DEPTH | 0.12 | 0.19 | 0.23 | 0.43 | 0.11 | 0.10 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 1.00 | 0.91 | 0.60 | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.76 | 5.80 | 5.86 | 5.88 | 3.94 | 6.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 1.00 | 0.94 | 0.60 | 0.67 | 0.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.12 | 0.15 | 0.23 | 0.42 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.76 | 5.06 | 5.86 | 5.79 | 5.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 361 | 362 | 363 | 364 | 365 | 366 | 367 | 368 | 369 | 370 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 371 | 372 | 373 | 374 | 375 | 376 | 377 | 378 | 379 | 380 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 700.56 | 700.06 | 699.33 | 699.09 | 699.10 | 698.88 | 698.71 | 698.46 | 698.11 | 697.68 |
| MAX DEPTH | 0.06 | 0.06 | 0.07 | 0.09 | 0.10 | 0.10 | 0.08 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 4.81 | 4.98 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.45 | 0.43 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 4.98 | 5.70 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 381 | 382 | 383 | 384 | 385 | 386 | 387 | 388 | 389 | 390 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 706.67 | 706.67 | 706.67 | 706.64 | 706.53 | 706.21 | 706.00 | 705.72 | 705.19 | 704.54 |
| MAX DEPTH | 0.35 | 0.42 | 0.47 | 0.38 | 0.10 | 0.19 | 0.11 | 0.11 | 0.11 | 0.14 |
| VELOCITY | 0.54 | 0.62 | 0.60 | 1.07 | 0.28 | 0.84 | 0.65 | 0.81 | 0.00 | 0.85 |
| TIME | 5.83 | 5.74 | 5.68 | 5.81 | 5.81 | 5.78 | 5.68 | 6.04 | 7.30 | 5.77 |
| MAX VEL | 0.63 | 0.65 | 0.63 | 1.07 | 0.71 | 0.84 | 0.71 | 0.94 | 1.05 | 0.86 |
| DEPTH | 0.34 | 0.41 | 0.47 | 0.38 | 0.10 | 0.19 | 0.11 | 0.10 | 0.09 | 0.14 |
| TIME | 5.65 | 5.63 | 5.73 | 5.81 | 6.35 | 5.78 | 5.62 | 6.04 | 4.04 | 5.77 |

| NODE | 391 | 392 | 393 | 394 | 395 | 396 | 397 | 398 | 399 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 704.30 | 704.40 | 704.00 | 704.33 | 703.90 | 703.86 | 703.72 | 703.44 | 703.09 | 702.81 |
| MAX DEPTH | 0.30 | 0.17 | 0.20 | 0.23 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.93 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.84 | 5.88 | 6.40 | 5.97 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.94 | 0.76 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.30 | 0.11 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.85 | 4.88 | 3.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 401 | 402 | 403 | 404 | 405 | 406 | 407 | 408 | 409 | 410 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 702.44 | 702.06 | 701.79 | 701.62 | 701.31 | 701.05 | 700.46 | 700.56 | 700.28 | 700.10 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 411 | 412 | 413 | 414 | 415 | 416 | 417 | 418 | 419 | 420 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 700.26 | 699.96 | 699.25 | 698.96 | 698.76 | 698.53 | 698.04 | 697.77 | 706.55 | 706.56 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.35 | 0.36 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.73 | 0.81 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 5.83 | 5.81 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.73 | 0.81 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.35 | 0.35 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.64 | 5.50 |

| NODE | 421 | 422 | 423 | 424 | 425 | 426 | 427 | 428 | 429 | 430 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 706.54 | 706.57 | 706.16 | 706.00 | 705.76 | 705.48 | 704.79 | 704.16 | 704.06 | 703.98 |
| MAX DEPTH | 0.29 | 0.07 | 0.22 | 0.11 | 0.11 | 0.11 | 0.11 | 0.26 | 0.33 | 0.37 |
| VELOCITY | 0.60 | 0.00 | 0.93 | 0.69 | 0.73 | 0.00 | 0.00 | 0.81 | 0.89 | 0.84 |
| TIME | 5.81 | 8.00 | 5.76 | 6.07 | 5.23 | 7.58 | 7.95 | 5.78 | 5.86 | 5.81 |
| MAX VEL | 0.60 | 0.00 | 0.93 | 0.74 | 0.82 | 1.12 | 0.90 | 0.81 | 0.90 | 0.84 |
| DEPTH | 0.29 | 0.00 | 0.22 | 0.09 | 0.11 | 0.09 | 0.10 | 0.26 | 0.32 | 0.37 |
| TIME | 5.82 | 0.00 | 5.75 | 7.49 | 5.36 | 7.54 | 5.47 | 5.78 | 5.84 | 5.81 |

| NODE | 431 | 432 | 433 | 434 | 435 | 436 | 437 | 438 | 439 | 440 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 704.10 | 703.92 | 703.50 | 704.28 | 703.66 | 703.55 | 703.15 | 702.95 | 702.60 | 702.25 |
| MAX DEPTH | 0.88 | 0.35 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.78 | 3.74 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 441 | 442 | 443 | 444 | 445 | 446 | 447 | 448 | 449 | 450 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 701.91 | 701.72 | 701.29 | 700.95 | 700.56 | 700.56 | 700.38 | 700.26 | 700.23 | 699.96 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 451 | 452 | 453 | 454 | 455 | 456 | 457 | 458 | 459 | 460 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 699.55 | 699.06 | 698.81 | 698.76 | 698.19 | 697.89 | 706.44 | 706.34 | 706.39 | 706.30 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.17 | 0.44 | 0.19 | 0.10 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.86 | 0.63 | 0.33 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 5.74 | 5.88 | 5.82 | 5.85 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.57 | 0.87 | 0.63 | 0.64 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 | 0.44 | 0.19 | 0.10 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.15 | 5.65 | 5.82 | 5.89 |

| NODE | 461 | 462 | 463 | 464 | 465 | 466 | 467 | 468 | 469 | 470 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 705.90 | 705.66 | 705.47 | 705.12 | 704.27 | 703.98 | 703.87 | 703.77 | 703.64 | 703.44 |
| MAX DEPTH | 0.13 | 0.27 | 0.17 | 0.12 | 0.25 | 0.47 | 0.37 | 0.32 | 0.13 | 0.21 |
| VELOCITY | 0.63 | 0.75 | 0.92 | 1.03 | 0.77 | 1.13 | 1.01 | 0.80 | 0.00 | 0.00 |
| TIME | 5.81 | 5.77 | 5.79 | 5.78 | 5.79 | 5.78 | 5.78 | 5.78 | 2.02 | 5.83 |
| MAX VEL | 0.69 | 0.75 | 1.04 | 1.03 | 0.78 | 1.14 | 1.02 | 0.80 | 0.00 | 0.00 |
| DEPTH | 0.10 | 0.27 | 0.15 | 0.12 | 0.24 | 0.47 | 0.37 | 0.32 | 0.00 | 0.00 |
| TIME | 3.78 | 5.79 | 5.24 | 5.78 | 5.82 | 5.90 | 5.84 | 5.90 | 0.00 | 0.00 |

| NODE | 471 | 472 | 473 | 474 | 475 | 476 | 477 | 478 | 479 | 480 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 702.36 | 703.22 | 703.47 | 703.23 | 703.09 | 702.82 | 702.48 | 702.16 | 701.77 | 701.58 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 481 | 482 | 483 | 484 | 485 | 486 | 487 | 488 | 489 | 490 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 701.15 | 700.86 | 700.56 | 700.17 | 699.85 | 699.66 | 699.36 | 699.36 | 699.33 | 699.32 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 491 | 492 | 493 | 494 | 495 | 496 | 497 | 498 | 499 | 500 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 698.78 | 698.76 | 698.27 | 698.10 | 706.30 | 706.21 | 706.16 | 706.13 | 705.86 | 705.56 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.10 | 0.43 | 0.47 | 0.10 | 0.10 | 0.30 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.28 | 0.76 | 0.91 | 0.39 | 0.32 | 0.56 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 5.90 | 5.83 | 5.91 | 5.63 | 5.89 | 5.79 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | 0.77 | 0.91 | 0.63 | 0.50 | 0.56 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.43 | 0.46 | 0.10 | 0.10 | 0.30 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 5.63 | 5.68 | 5.68 | 4.36 | 5.62 | 5.77 |

| NODE | 501 | 502 | 503 | 504 | 505 | 506 | 507 | 508 | 509 | 510 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 705.42 | 704.75 | 704.16 | 703.98 | 703.66 | 703.55 | 703.47 | 702.72 | 702.36 | 703.10 |
| MAX DEPTH | 0.36 | 0.29 | 0.36 | 0.18 | 0.43 | 0.47 | 0.10 | 0.12 | 0.06 | 0.06 |
| VELOCITY | 1.29 | 1.22 | 0.76 | 0.81 | 1.18 | 1.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.77 | 5.78 | 5.81 | 5.88 | 5.80 | 5.80 | 1.93 | 5.88 | 8.00 | 8.00 |
| MAX VEL | 1.29 | 1.22 | 0.76 | 0.88 | 1.18 | 1.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.36 | 0.29 | 0.36 | 0.15 | 0.43 | 0.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.77 | 5.78 | 5.80 | 4.96 | 5.80 | 5.80 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 511 | 512 | 513 | 514 | 515 | 516 | 517 | 518 | 519 | 520 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 703.14 | 702.70 | 702.02 | 701.61 | 702.36 | 702.24 | 701.83 | 701.57 | 701.16 | 700.67 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 521 | 522 | 523 | 524 | 525 | 526 | 527 | 528 | 529 | 530 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 700.47 | 700.26 | 699.96 | 699.81 | 699.45 | 699.16 | 698.86 | 698.76 | 698.93 | 698.76 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 531 | 532 | 533 | 534 | 535 | 536 | 537 | 538 | 539 | 540 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 698.28 | 698.16 | 706.11 | 706.10 | 706.05 | 705.95 | 705.78 | 705.54 | 705.44 | 705.37 |
| MAX DEPTH | 0.06 | 0.06 | 0.10 | 0.35 | 0.45 | 0.37 | 0.18 | 0.54 | 0.10 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.25 | 0.62 | 0.81 | 0.80 | 0.57 | 0.46 | 0.56 | 0.00 |
| TIME | 8.00 | 8.00 | 5.83 | 5.84 | 5.74 | 5.84 | 5.84 | 5.91 | 5.71 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.32 | 0.62 | 0.81 | 0.81 | 0.62 | 0.46 | 0.64 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.10 | 0.34 | 0.45 | 0.37 | 0.15 | 0.54 | 0.10 | 0.00 |
| TIME | 0.00 | 0.00 | 4.86 | 5.86 | 5.74 | 5.85 | 6.48 | 5.92 | 6.21 | 0.00 |

| NODE | 541 | 542 | 543 | 544 | 545 | 546 | 547 | 548 | 549 | 550 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 704.34 | 703.88 | 703.47 | 703.32 | 703.13 | 702.48 | 702.24 | 702.17 | 701.93 | 701.71 |
| MAX DEPTH | 0.10 | 0.12 | 0.27 | 0.42 | 0.34 | 0.18 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.53 | 0.80 | 0.79 | 1.06 | 1.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.77 | 5.79 | 5.84 | 5.80 | 5.80 | 5.81 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.76 | 0.80 | 0.81 | 1.08 | 1.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.10 | 0.09 | 0.26 | 0.42 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.84 | 3.89 | 5.80 | 5.86 | 5.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 551 | 552 | 553 | 554 | 555 | 556 | 557 | 558 | 559 | 560 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 701.17 | 701.16 | 702.21 | 702.06 | 701.79 | 701.56 | 701.16 | 700.81 | 700.51 | 700.27 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 561 | 562 | 563 | 564 | 565 | 566 | 567 | 568 | 569 | 570 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 699.96 | 699.77 | 699.50 | 699.30 | 699.08 | 698.80 | 698.76 | 698.76 | 698.34 | 698.21 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 571 | 572 | 573 | 574 | 575 | 576 | 577 | 578 | 579 | 580 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 706.02 | 706.00 | 705.95 | 705.84 | 705.68 | 705.68 | 705.73 | 705.88 | 704.48 | 703.73 |
| MAX DEPTH | 0.06 | 0.10 | 0.33 | 0.25 | 0.19 | 0.08 | 0.06 | 0.06 | 0.06 | 0.10 |
| VELOCITY | 0.00 | 0.28 | 0.62 | 0.91 | 0.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 5.85 | 5.93 | 5.86 | 5.84 | 8.00 | 8.00 | 8.00 | 8.00 | 7.53 |
| MAX VEL | 0.00 | 0.43 | 0.63 | 0.92 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.79 |
| DEPTH | 0.00 | 0.10 | 0.32 | 0.25 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 |
| TIME | 0.00 | 5.55 | 5.72 | 5.76 | 6.61 | 0.00 | 0.00 | 0.00 | 0.00 | 7.70 |

| NODE | 581 | 582 | 583 | 584 | 585 | 586 | 587 | 588 | 589 | 590 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 703.31 | 703.19 | 703.06 | 702.53 | 702.07 | 701.76 | 701.56 | 701.16 | 701.16 | 701.06 |
| MAX DEPTH | 0.24 | 0.52 | 0.46 | 0.23 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.62 | 0.90 | 1.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.85 | 5.80 | 5.80 | 5.87 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.62 | 0.91 | 1.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.24 | 0.52 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.85 | 5.81 | 5.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 591 | 592 | 593 | 594 | 595 | 596 | 597 | 598 | 599 | 600 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 701.23 | 701.76 | 700.86 | 701.43 | 700.46 | 700.84 | 700.49 | 700.26 | 700.11 | 699.89 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 601 | 602 | 603 | 604 | 605 | 606 | 607 | 608 | 609 | 610 |
| ELEVATION | 699.52 | 699.36 | 699.12 | 699.06 | 698.83 | 698.46 | 698.37 | 698.18 | 706.07 | 705.90 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 611 | 612 | 613 | 614 | 615 | 616 | 617 | 618 | 619 | 620 |
| ELEVATION | 705.80 | 705.71 | 705.42 | 705.26 | 705.56 | 704.86 | 704.46 | 703.47 | 703.21 | 703.11 |
| MAX DEPTH | 0.20 | 0.11 | 0.25 | 0.26 | 0.06 | 0.06 | 0.06 | 0.10 | 0.26 | 0.21 |
| VELOCITY | 0.63 | 0.73 | 0.65 | 0.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.46 | 0.56 |
| TIME | 5.72 | 5.69 | 5.75 | 5.85 | 8.00 | 8.00 | 8.00 | 7.72 | 5.85 | 5.81 |
| MAX VEL | 0.71 | 0.75 | 0.66 | 0.94 | 0.00 | 0.00 | 0.00 | 0.66 | 0.46 | 0.56 |
| DEPTH | 0.18 | 0.10 | 0.20 | 0.26 | 0.00 | 0.00 | 0.00 | 0.09 | 0.26 | 0.21 |
| TIME | 6.31 | 4.27 | 4.68 | 5.85 | 0.00 | 0.00 | 0.00 | 7.93 | 5.85 | 5.81 |
| NODE | 621 | 622 | 623 | 624 | 625 | 626 | 627 | 628 | 629 | 630 |
| ELEVATION | 702.99 | 703.00 | 702.06 | 701.90 | 701.58 | 701.22 | 701.16 | 700.96 | 701.00 | 700.56 |
| MAX DEPTH | 0.39 | 0.23 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.86 | 5.93 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 631 | 632 | 633 | 634 | 635 | 636 | 637 | 638 | 639 | 640 |
| ELEVATION | 700.56 | 701.16 | 700.86 | 700.56 | 700.41 | 700.19 | 699.77 | 699.36 | 699.36 | 699.09 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 641 | 642 | 643 | 644 | 645 | 646 | 647 | 648 | 649 | 650 |
| ELEVATION | 699.06 | 698.94 | 699.19 | 698.46 | 698.29 | 698.16 | 706.26 | 705.94 | 705.68 | 705.42 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.10 | 0.12 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.18 | 0.74 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 5.77 | 5.90 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 | 0.75 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.12 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.87 | 4.79 |
| NODE | 651 | 652 | 653 | 654 | 655 | 656 | 657 | 658 | 659 | 660 |
| ELEVATION | 705.20 | 705.11 | 704.76 | 704.29 | 703.70 | 703.37 | 703.20 | 703.10 | 702.91 | 702.80 |
| MAX DEPTH | 0.20 | 0.11 | 0.19 | 0.32 | 0.19 | 0.17 | 0.30 | 0.20 | 0.31 | 0.22 |
| VELOCITY | 0.81 | 0.61 | 0.80 | 0.71 | 0.68 | 0.48 | 0.54 | 0.63 | 0.78 | 0.00 |
| TIME | 5.54 | 5.54 | 5.86 | 4.57 | 5.88 | 5.82 | 5.78 | 5.86 | 6.14 | 5.86 |
| MAX VEL | 0.81 | 0.73 | 0.83 | 1.07 | 0.74 | 0.55 | 0.54 | 0.63 | 0.78 | 0.00 |
| DEPTH | 0.15 | 0.09 | 0.15 | 0.32 | 0.16 | 0.15 | 0.30 | 0.19 | 0.31 | 0.00 |
| TIME | 4.71 | 7.92 | 6.45 | 5.76 | 4.87 | 6.45 | 5.88 | 5.88 | 5.82 | 0.00 |
| NODE | 661 | 662 | 663 | 664 | 665 | 666 | 667 | 668 | 669 | 670 |
| ELEVATION | 702.36 | 702.04 | 701.76 | 701.92 | 701.46 | 701.23 | 701.14 | 700.76 | 700.56 | 700.84 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 671 | 672 | 673 | 674 | 675 | 676 | 677 | 678 | 679 | 680 |
| ELEVATION | 700.62 | 700.47 | 699.66 | 699.83 | 699.66 | 699.77 | 699.47 | 699.06 | 699.06 | 698.84 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 681 | 682 | 683 | 684 | 685 | 686 | 687 | 688 | 689 | 690 |
| ELEVATION | 698.73 | 698.46 | 698.19 | 698.16 | 706.10 | 705.66 | 705.43 | 705.32 | 704.97 | 704.78 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.10 | 0.10 | 0.17 | 0.35 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.13 | 0.61 | 0.61 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 5.76 | 5.75 | 5.85 | 5.86 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.55 | 0.69 | 0.68 | 0.63 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.15 | 0.35 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.97 | 5.06 | 6.36 | 5.07 |
| NODE | 691 | 692 | 693 | 694 | 695 | 696 | 697 | 698 | 699 | 700 |
| ELEVATION | 704.66 | 704.60 | 703.80 | 703.33 | 703.20 | 703.08 | 702.81 | 702.58 | 702.24 | 701.98 |
| MAX DEPTH | 0.45 | 0.10 | 0.17 | 0.26 | 0.30 | 0.39 | 0.45 | 0.17 | 0.06 | 0.06 |
| VELOCITY | 0.86 | 0.23 | 0.73 | 0.55 | 0.55 | 0.93 | 1.22 | 0.00 | 0.00 | 0.00 |
| TIME | 5.86 | 5.88 | 5.88 | 5.90 | 5.83 | 5.83 | 5.82 | 5.91 | 8.00 | 8.00 |
| MAX VEL | 0.86 | 0.90 | 0.83 | 0.56 | 0.56 | 0.93 | 1.22 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.44 | 0.10 | 0.15 | 0.10 | 0.30 | 0.39 | 0.45 | 0.00 | 0.00 | 0.00 |
| TIME | 5.86 | 4.54 | 4.94 | 3.92 | 5.89 | 5.81 | 5.82 | 0.00 | 0.00 | 0.00 |
| NODE | 701 | 702 | 703 | 704 | 705 | 706 | 707 | 708 | 709 | 710 |
| ELEVATION | 701.76 | 701.87 | 700.80 | 700.17 | 700.17 | 700.56 | 700.34 | 700.56 | 700.50 | 700.11 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 711 | 712 | 713 | 714 | 715 | 716 | 717 | 718 | 719 | 720 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 721 | 722 | 723 | 724 | 725 | 726 | 727 | 728 | 729 | 730 |
| ELEVATION | 698.33 | 698.08 | 705.89 | 705.39 | 705.33 | 705.10 | 704.82 | 704.68 | 704.72 | 705.06 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.10 | 0.11 | 0.28 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.50 | 0.79 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 5.00 | 5.86 | 5.86 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.52 | 0.50 | 0.79 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.11 | 0.28 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.36 | 5.74 | 5.86 | 0.00 | 0.00 |
| NODE | 731 | 732 | 733 | 734 | 735 | 736 | 737 | 738 | 739 | 740 |
| ELEVATION | 704.50 | 703.70 | 703.23 | 704.45 | 702.98 | 702.13 | 702.16 | 701.73 | 701.49 | 701.23 |
| MAX DEPTH | 0.10 | 0.10 | 0.50 | 0.06 | 0.09 | 0.13 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 6.68 | 6.71 | 5.93 | 8.00 | 8.00 | 5.89 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.86 | 0.30 | 0.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.10 | 0.10 | 0.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 6.71 | 6.71 | 5.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 741 | 742 | 743 | 744 | 745 | 746 | 747 | 748 | 749 | 750 |
| ELEVATION | 700.53 | 699.67 | 699.73 | 699.93 | 700.14 | 700.57 | 700.50 | 700.71 | 700.56 | 700.32 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 751 | 752 | 753 | 754 | 755 | 756 | 757 | 758 | 759 | 760 |
| ELEVATION | 700.07 | 699.96 | 699.68 | 699.19 | 698.81 | 698.76 | 698.46 | 698.76 | 698.23 | 698.16 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 761 | 762 | 763 | 764 | 765 | 766 | 767 | 768 | 769 | 770 |
| ELEVATION | 705.70 | 705.36 | 705.36 | 705.06 | 704.86 | 704.58 | 704.36 | 704.94 | 704.76 | 704.49 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.10 | 0.11 | 0.23 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.40 | 0.77 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 5.62 | 5.82 | 5.86 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 | 0.56 | 0.77 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.23 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 4.97 | 6.75 | 5.75 | 0.00 | 0.00 | 0.00 |
| NODE | 771 | 772 | 773 | 774 | 775 | 776 | 777 | 778 | 779 | 780 |
| ELEVATION | 703.36 | 704.28 | 702.65 | 702.21 | 701.89 | 701.60 | 701.29 | 701.16 | 700.56 | 699.66 |
| MAX DEPTH | 0.39 | 0.06 | 0.06 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.94 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 781 | 782 | 783 | 784 | 785 | 786 | 787 | 788 | 789 | 790 |
| ELEVATION | 699.36 | 699.66 | 699.87 | 700.91 | 700.70 | 700.86 | 700.72 | 700.45 | 699.96 | 699.96 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 791 | 792 | 793 | 794 | 795 | 796 | 797 | 798 | 799 | 800 |
| ELEVATION | 699.96 | 699.33 | 698.92 | 699.06 | 698.60 | 699.06 | 698.74 | 698.09 | 705.96 | 705.61 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 801 | 802 | 803 | 804 | 805 | 806 | 807 | 808 | 809 | 810 |
| ELEVATION | 705.29 | 705.06 | 704.76 | 704.50 | 704.24 | 704.04 | 704.16 | 703.56 | 703.84 | 704.14 |
| MAX DEPTH | 0.06 | 0.06 | 0.08 | 0.10 | 0.11 | 0.24 | 0.06 | 0.36 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 | 0.71 | 0.00 | 0.62 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 5.16 | 5.89 | 5.92 | 8.00 | 5.94 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.50 | 0.58 | 0.71 | 0.00 | 0.62 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.10 | 0.11 | 0.24 | 0.00 | 0.36 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 6.34 | 5.75 | 5.75 | 0.00 | 5.95 | 0.00 | 0.00 |
| NODE | 811 | 812 | 813 | 814 | 815 | 816 | 817 | 818 | 819 | 820 |
| ELEVATION | 702.74 | 702.05 | 701.76 | 701.45 | 701.33 | 701.16 | 700.63 | 700.14 | 699.36 | 699.38 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 821 | 822 | 823 | 824 | 825 | 826 | 827 | 828 | 829 | 830 |
| ELEVATION | 699.48 | 699.56 | 700.86 | 700.99 | 700.58 | 700.26 | 700.16 | 699.96 | 699.48 | 699.27 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 831 | 832 | 833 | 834 | 835 | 836 | 837 | 838 | 839 | 840 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 699.36 | 699.36 | 698.76 | 699.05 | 698.76 | 698.58 | 706.26 | 705.66 | 705.36 | 705.27 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 841 | 842 | 843 | 844 | 845 | 846 | 847 | 848 | 849 | 850 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 704.92 | 704.60 | 704.24 | 703.94 | 703.79 | 703.69 | 703.90 | 704.49 | 702.32 | 702.06 |
| MAX DEPTH | 0.06 | 0.06 | 0.10 | 0.14 | 0.29 | 0.19 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.10 | 0.50 | 0.54 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 5.77 | 5.87 | 5.92 | 5.93 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.56 | 0.52 | 0.54 | 0.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.10 | 0.10 | 0.29 | 0.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 5.24 | 4.66 | 5.92 | 6.37 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 851 | 852 | 853 | 854 | 855 | 856 | 857 | 858 | 859 | 860 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 701.60 | 701.42 | 701.03 | 700.86 | 700.56 | 700.54 | 699.26 | 699.09 | 699.06 | 699.28 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 861 | 862 | 863 | 864 | 865 | 866 | 867 | 868 | 869 | 870 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 700.80 | 701.13 | 700.78 | 700.56 | 700.35 | 700.28 | 700.08 | 699.66 | 699.73 | 699.49 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 871 | 872 | 873 | 874 | 875 | 876 | 877 | 878 | 879 | 880 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 698.46 | 699.06 | 698.93 | 698.89 | 706.23 | 705.96 | 705.62 | 705.06 | 704.76 | 704.55 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 881 | 882 | 883 | 884 | 885 | 886 | 887 | 888 | 889 | 890 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 704.16 | 703.90 | 703.76 | 703.69 | 703.59 | 703.75 | 702.66 | 702.08 | 701.76 | 701.59 |
| MAX DEPTH | 0.06 | 0.10 | 0.25 | 0.19 | 0.09 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 6.07 | 5.82 | 5.92 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.33 | 0.38 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.10 | 0.25 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 5.18 | 5.91 | 5.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 891 | 892 | 893 | 894 | 895 | 896 | 897 | 898 | 899 | 900 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 701.10 | 700.86 | 700.66 | 700.55 | 699.26 | 698.91 | 698.88 | 699.06 | 700.86 | 701.30 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 901 | 902 | 903 | 904 | 905 | 906 | 907 | 908 | 909 | 910 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 700.95 | 700.92 | 700.56 | 700.45 | 700.26 | 699.96 | 699.66 | 699.09 | 699.22 | 699.15 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 911 | 912 | 913 | 914 | 915 | 916 | 917 | 918 | 919 | 920 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 699.22 | 699.06 | 705.96 | 705.96 | 705.35 | 705.06 | 704.82 | 704.38 | 704.02 | 703.79 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.10 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 5.50 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.46 |

| NODE | 921 | 922 | 923 | 924 | 925 | 926 | 927 | 928 | 929 | 930 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 703.66 | 703.66 | 703.59 | 703.58 | 703.08 | 704.02 | 702.74 | 701.50 | 701.19 | 700.84 |
| MAX DEPTH | 0.16 | 0.16 | 0.09 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.13 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.71 | 5.73 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.35 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.16 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 5.88 | 5.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 931 | 932 | 933 | 934 | 935 | 936 | 937 | 938 | 939 | 940 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 700.56 | 700.25 | 699.39 | 698.99 | 698.72 | 698.80 | 700.91 | 701.39 | 701.16 | 700.86 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| NODE | 941 | 942 | 943 | 944 | 945 | 946 | 947 | 948 | 949 | 950 |
|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | 700.61 | 700.33 | 700.23 | 699.99 | 699.74 | 699.67 | 699.38 | 699.36 | 699.10 | 698.54 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 951 | 952 | 953 | 954 | 955 | 956 | 957 | 958 | 959 | 960 |
| ELEVATION | 706.24 | 705.79 | 705.29 | 705.06 | 704.76 | 704.46 | 704.15 | 703.86 | 703.61 | 703.56 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.11 | 0.12 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.45 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 5.82 | 5.96 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.30 | 0.45 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.12 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.43 | 5.99 |
| NODE | 961 | 962 | 963 | 964 | 965 | 966 | 967 | 968 | 969 | 970 |
| ELEVATION | 703.56 | 704.08 | 704.57 | 704.70 | 702.99 | 701.42 | 701.16 | 700.89 | 700.63 | 700.42 |
| MAX DEPTH | 0.10 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 6.01 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 6.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 971 | 972 | 973 | 974 | 975 | 976 | 977 | 978 | 979 | 980 |
| ELEVATION | 700.19 | 698.76 | 698.46 | 698.67 | 700.94 | 701.67 | 701.45 | 701.13 | 700.83 | 700.64 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 981 | 982 | 983 | 984 | 985 | 986 | 987 | 988 | 989 | 990 |
| ELEVATION | 700.41 | 700.10 | 699.96 | 699.83 | 699.66 | 699.36 | 698.68 | 698.30 | 706.19 | 705.46 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 991 | 992 | 993 | 994 | 995 | 996 | 997 | 998 | 999 | 1000 |
| ELEVATION | 705.02 | 704.77 | 704.76 | 704.33 | 704.16 | 704.18 | 703.76 | 703.51 | 703.35 | 703.19 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.08 | 0.10 | 0.11 | 0.09 | 0.08 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 6.02 | 5.91 | 5.91 | 5.90 | 6.01 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 1001 | 1002 | 1003 | 1004 | 1005 | 1006 | 1007 | 1008 | 1009 | 1010 |
| ELEVATION | 703.50 | 702.66 | 702.96 | 701.59 | 701.76 | 701.60 | 701.03 | 700.58 | 700.01 | 699.08 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 1011 | 1012 | 1013 | 1014 | 1015 | 1016 | 1017 | 1018 | 1019 | 1020 |
| ELEVATION | 698.46 | 698.90 | 701.14 | 701.67 | 701.35 | 701.07 | 700.86 | 700.60 | 700.23 | 699.96 |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NODE | 1021 | 1022 | 1023 | 1024 | 1025 | 1026 | | | | |
| ELEVATION | 699.81 | 699.73 | 699.49 | 698.97 | 698.64 | 698.25 | | | | |
| MAX DEPTH | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | | | | |
| VELOCITY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| TIME | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | 8.00 | | | | |
| MAX VEL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| DEPTH | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| TIME | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |

MAXIMUM WATER SURFACE VALUES FOR CHANNEL

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NODE | 191 | 192 | 231 | 232 | 271 | 272 | 273 | 274 | 275 | 276 |
| ELEVATION | 708.45 | 707.92 | 707.32 | 707.16 | 706.91 | 706.16 | 706.15 | 706.13 | 706.12 | 705.92 |
| MAX DEPTH | 1.35 | 0.79 | 0.52 | 0.46 | 0.56 | 0.86 | 0.85 | 1.13 | 0.75 | 0.48 |
| TIME | 5.78 | 5.79 | 5.88 | 5.80 | 5.79 | 5.79 | 5.79 | 5.78 | 5.76 | 5.76 |
| MAX VEL | 1.38 | 2.02 | 1.59 | 1.62 | 2.13 | 1.57 | 1.33 | 0.71 | 1.26 | 1.97 |
| TIME | 5.79 | 5.79 | 5.79 | 5.79 | 5.78 | 5.79 | 5.78 | 5.75 | 5.72 | 5.80 |
| NODE | 315 | 354 | 392 | 431 | 469 | 507 | | | | |
| ELEVATION | 704.81 | 704.58 | 704.41 | 0.00 | 703.35 | 0.00 | | | | |
| MAX DEPTH | 0.55 | 0.32 | 0.38 | 0.00 | 0.54 | 0.00 | | | | |
| TIME | 5.82 | 5.84 | 5.79 | 0.00 | 5.78 | 0.00 | | | | |
| MAX VEL | 1.57 | 1.02 | 0.87 | 0.00 | 1.39 | 0.00 | | | | |
| TIME | 5.80 | 5.84 | 5.79 | 0.00 | 5.78 | 0.00 | | | | |

MASS BALANCE INFLOW - OUTFLOW VOLUME

*** INFLOW (CU METERS) ***

OTAL RAINFALL 62.99 MM

WATER

| | |
|---|---|
| RAINFALL VOLUME | 22651.18 |
| INFLOW HYDROGRAPH | 371500.17 |
| INFLOW HYDROGRAPHS + RAINFALL | 394151.34 |

*** OUTFLOW (CU METERS) ***

RAINFALL INTERCEPTION 0.00 MM

| OVERLAND FLOW | WATER |
|---|---|
| WATER LOST TO INTERCEPTION | 0.00 |
| FLOODPLAIN STORAGE | 27087.46 |
| FLOODPLAIN OUTFLOW HYDROGRAPH | 342255.44 |
| FLOODPLAIN OUTFLOW, INTERCEPTION & STORAGE | 369342.91 |

| CHANNEL FLOW | |
|---|---|
| CHANNEL STORAGE | 831.31 |
| CHANNEL OUTFLOW | 0.00 |
| CHANNEL OUTFLOW AND STORAGE | 831.31 |

*** TOTALS ***

| | |
|---|---|
| TOTAL OUTFLOW FROM GRID SYSTEM | 342255.44 |
| TOTAL VOLUME OF OUTFLOW AND STORAGE | 370174.22 |
| THE MAXIMUM INUNDATED AREA IS: | 97528.57 SQ. METERS |
| THE MAXIMUM WETTED FLOODPLAIN AREA IS: | 93811.05 SQ. METERS |
| THE MAXIMUM WETTED CHANNEL AREA IS: | 3735.34 SQ. METERS |

COMPUTER RUN TIME IS : 463.73 SECS

COMMENTS:

THIS OUTPUT FILE WAS TERMINATED ON: 9/ 1/2000 AT: 11:57:42

del 2

THE MAX Q AT OUTFLOW ELEMENT: 1 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 2 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 3 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 4 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 5 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 6 IS: 0.79 CMS AT TIME: 4.83
THE MAX Q AT OUTFLOW ELEMENT: 7 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 8 IS: 0.30 CMS AT TIME: 6.73
THE MAX Q AT OUTFLOW ELEMENT: 9 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 10 IS: 0.33 CMS AT TIME: 6.53
THE MAX Q AT OUTFLOW ELEMENT: 11 IS: 0.30 CMS AT TIME: 6.59
THE MAX Q AT OUTFLOW ELEMENT: 12 IS: 0.30 CMS AT TIME: 6.70
THE MAX Q AT OUTFLOW ELEMENT: 13 IS: 0.34 CMS AT TIME: 6.20
THE MAX Q AT OUTFLOW ELEMENT: 14 IS: 0.28 CMS AT TIME: 6.03
THE MAX Q AT OUTFLOW ELEMENT: 15 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 16 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 17 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 18 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 19 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 20 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 21 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 22 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 23 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 24 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 25 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 26 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 27 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 28 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 29 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 30 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 32 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 33 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 34 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 35 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 36 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 37 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 38 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 52 IS: 1.07 CMS AT TIME: 5.85
THE MAX Q AT OUTFLOW ELEMENT: 76 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 90 IS: 2.19 CMS AT TIME: 5.81
THE MAX Q AT OUTFLOW ELEMENT: 114 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 128 IS: 1.87 CMS AT TIME: 5.90
THE MAX Q AT OUTFLOW ELEMENT: 152 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 166 IS: 2.05 CMS AT TIME: 5.84
THE MAX Q AT OUTFLOW ELEMENT: 190 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 204 IS: 2.70 CMS AT TIME: 5.85
THE MAX Q AT OUTFLOW ELEMENT: 228 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 242 IS: 1.98 CMS AT TIME: 5.84
THE MAX Q AT OUTFLOW ELEMENT: 266 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 280 IS: 1.54 CMS AT TIME: 5.83
THE MAX Q AT OUTFLOW ELEMENT: 304 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 318 IS: 1.21 CMS AT TIME: 5.88
THE MAX Q AT OUTFLOW ELEMENT: 342 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 356 IS: 0.77 CMS AT TIME: 5.80
THE MAX Q AT OUTFLOW ELEMENT: 380 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 394 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 407 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 418 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 432 IS: 0.19 CMS AT TIME: 3.64
THE MAX Q AT OUTFLOW ELEMENT: 456 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 470 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 494 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 508 IS: 1.29 CMS AT TIME: 5.81
THE MAX Q AT OUTFLOW ELEMENT: 532 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 546 IS: 5.07 CMS AT TIME: 5.80
THE MAX Q AT OUTFLOW ELEMENT: 570 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 584 IS: 8.54 CMS AT TIME: 5.87
THE MAX Q AT OUTFLOW ELEMENT: 595 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 608 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 622 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 646 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 660 IS: 2.98 CMS AT TIME: 5.90
THE MAX Q AT OUTFLOW ELEMENT: 684 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 698 IS: 3.33 CMS AT TIME: 5.82
THE MAX Q AT OUTFLOW ELEMENT: 722 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 736 IS: 2.93 CMS AT TIME: 5.82
THE MAX Q AT OUTFLOW ELEMENT: 760 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 774 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 798 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 812 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 836 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 850 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 874 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 888 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 912 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 926 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 950 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 964 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 988 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 989 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 990 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 991 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 992 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 993 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 994 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 995 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 996 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 997 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 998 IS: 0.25 CMS AT TIME: 6.43
THE MAX Q AT OUTFLOW ELEMENT: 999 IS: 0.75 CMS AT TIME: 5.91
THE MAX Q AT OUTFLOW ELEMENT: 1000 IS: 0.39 CMS AT TIME: 6.01
THE MAX Q AT OUTFLOW ELEMENT: 1001 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1002 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1003 IS: 0.00 CMS AT TIME: 0.00

THE MAX Q AT OUTFLOW ELEMENT: 1005 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1006 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1007 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1008 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1009 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1010 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1011 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1012 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1013 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1014 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1015 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1016 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1017 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1018 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1019 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1020 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1021 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1022 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1023 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1024 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1025 IS: 0.00 CMS AT TIME: 0.00
THE MAX Q AT OUTFLOW ELEMENT: 1026 IS: 0.00 CMS AT TIME: 0.00

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 2 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 3 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 4 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 5 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 6 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.53 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 7 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 8 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |

| | | |
|---|---|---|
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 9 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 10 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 11 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 12 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.03 |
| | 6.00 | 0.09 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 13 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 14 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.27 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 15 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 16 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 17 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 18 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 19 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 20 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 21 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 22 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 23 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 24 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 25 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 26 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 27 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |

| | | |
|---|---|---|
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 28 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 29 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 30 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 32 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 33 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 34 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 35 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 36 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 37 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 18 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 19 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 20 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 21 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 22 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 23 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 24 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 25 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 26 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 27 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |

| | | |
|---|---|---|
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 28 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 29 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 30 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 32 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 33 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 34 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 35 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 36 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 37 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 38 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 52 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.78 |
| | 6.00 | 0.76 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 76 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 90 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.33 |
| | 5.00 | 1.64 |
| | 6.00 | 1.42 |
| | 7.00 | 0.94 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 114 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 128 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 1.49 |
| | 6.00 | 1.57 |
| | 7.00 | 0.36 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 152 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 166 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.31 |
| | 5.00 | 1.61 |
| | 6.00 | 1.72 |
| | 7.00 | 0.76 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 190 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 204 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.38 |

| | | |
|---|---|---|
| | 5.00 | 2.61 |
| | 6.00 | 2.61 |
| | 7.00 | 1.12 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 228 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 242 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.33 |
| | 5.00 | 1.48 |
| | 6.00 | 1.62 |
| | 7.00 | 0.69 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 266 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 280 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 1.40 |
| | 6.00 | 1.03 |
| | 7.00 | 0.67 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 304 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 318 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.83 |
| | 6.00 | 0.38 |
| | 7.00 | 0.36 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 342 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 356 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.34 |
| | 6.00 | 0.35 |
| | 7.00 | 0.33 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 380 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|

| | | |
|---|---|---|
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 407 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 418 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 432 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 456 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 470 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 494 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 508 | 0.00 | 0.00 |
| | 1.00 | 0.22 |
| | 2.00 | 0.26 |
| | 3.00 | 0.00 |
| | 4.00 | 0.31 |
| | 5.00 | 1.14 |
| | 6.00 | 1.26 |
| | 7.00 | 0.58 |
| | 8.00 | 0.28 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 532 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 546 | 0.00 | 0.00 |
| | 1.00 | 0.69 |
| | 2.00 | 0.76 |
| | 3.00 | 0.30 |
| | 4.00 | 1.43 |
| | 5.00 | 4.34 |

| | | |
|---|---|---|
| | 7.00 | 2.44 |
| | 8.00 | 1.14 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 570 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 584 | 0.00 | 0.00 |
| | 1.00 | 0.74 |
| | 2.00 | 1.13 |
| | 3.00 | 0.64 |
| | 4.00 | 2.42 |
| | 5.00 | 7.28 |
| | 6.00 | 8.20 |
| | 7.00 | 4.08 |
| | 8.00 | 1.99 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 595 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 608 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 622 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 646 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 660 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.11 |
| | 5.00 | 2.51 |
| | 6.00 | 2.94 |
| | 7.00 | 0.78 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 684 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 698 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.30 |
| | 5.00 | 3.05 |
| | 6.00 | 3.30 |
| | 7.00 | 1.49 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 722 | 0.00 | 0.00 |

| | | |
|---|---|---|
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 736 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.59 |
| | 5.00 | 2.66 |
| | 6.00 | 2.88 |
| | 7.00 | 1.61 |
| | 8.00 | 0.41 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 760 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 774 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 798 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 812 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 836 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 850 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 874 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 888 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |

| | | |
|---|---|---|
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 912 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 926 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 950 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 964 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 988 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 989 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 990 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 991 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 992 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 993 | 0.00 | 0.00 |
| | 1.00 | 0.00 |

| | | |
|---|---|---|
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 994 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 995 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 996 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 997 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.09 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.32 |
| | 6.00 | 0.39 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1000 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1001 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1002 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1005 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1008 | 0.00 | 0.00 |
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1009 | 0.00 | 0.00 |
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1011 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1012 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |

| | | |
|---|---|---|
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1013 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1015 | 0.00 | 0.00 |
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1017 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1018 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1023 | 0.00 | 0.00 |
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1024 | 0.00 | 0.00 |
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

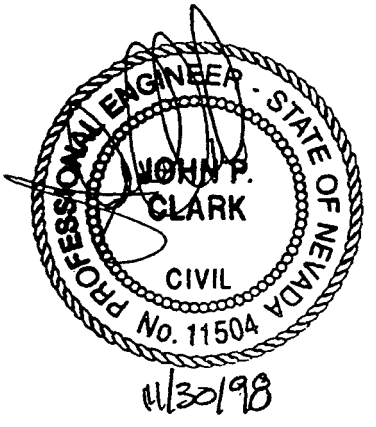
| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
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| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

| ELEMENT | TIME (HRS) | DISCHARGE (CMS) |
|---|---|---|
| 1026 | 0.00 | 0.00 |
| | 1.00 | 0.00 |
| | 2.00 | 0.00 |
| | 3.00 | 0.00 |
| | 4.00 | 0.00 |
| | 5.00 | 0.00 |
| | 6.00 | 0.00 |
| | 7.00 | 0.00 |
| | 8.00 | 0.00 |

# DESIGN MEMORANDUM FOR LOWER DUCK CREEK DB

# LOWER DUCK CREEK DETENTION BASIN

# DESIGN MEMORANDUM




November 1998

Prepared for:
Clark County Department of Public Works
Clark County Regional Flood Control District

Prepared by:
Montgomery Watson
3014 West Charleston Blvd.
Las Vegas, NV 89102

# LOWER DUCK CREEK DETENTION BASIN

## DESIGN SUMMARY

The Lower Duck Creek Detention Basin (LDCDB) is a proposed Clark County Regional Flood Control District (CCRFCD) regional facility located on the Duck Creek Wash between Bermuda Road and Gilespie Street, and between Richmar Avenue and Serene Drive, in Section 21, Township 22 South, Range 61 East, MDM. The 1996 CCRFCD Master Plan Update (MPU) listed the LDCDB as facility number DCWA1216.

The LDCDB will control runoff from approximately 136 square miles of the Duck Creek watershed. It will be the first MPU detention basin constructed in the Duck Creek watershed and is designed to control the existing development Flood Insurance Study (FIS) runoff from the watershed.

Currently, there are limited flood control improvements in the watershed upstream of this proposed facility. Downstream from the detention basin to Las Vegas Wash, there is scattered development in the watershed and improvements along the reach of Duck Creek consisting of concrete lined channels and bridge crossings. Based on information from a previous predesign report (1994), the LDCDB facility will not reduce the peak flows in the Duck Creek Wash at the confluence with Las Vegas Wash. The watershed area downstream of the LDCDB dictates the peak flows at Las Vegas Wash. As a result of the findings in the predesign report, the hydrologic modeling performed for the design of this facility is limited to the tributary area to the detention basin site.

As the construction of the five upstream MPU detention basins progresses in the future, the low level outflow from the LDCDB may be adjusted to maximize the storage volume in the basin and reduce the downstream impacts.

## SUMMARY OF DESIGN PARAMETERS

### DETENTION BASIN PARAMETERS

The LDCDB will be an on-line detention basin with inlets under both Gilespie Street and Richmar Avenue. Included in the design parameters for the LDCDB are: 1) a PMF spillway, 2) a low level outlet, 3) inlets to the basin, 4) grading and earthwork, 5) geotechnical considerations, and 6) sediment transport. Detention basin parameters are located in **Appendix A**.

The LDCDB is L-shaped with the longer leg approximately 2,330 ft long in the east-west direction. The shorter leg is in the north-south direction and is approximately 1,730 ft long. The width of the basin varies from approximately 1,020 to 1,130 ft. The first inlet location is at the northwest corner of the basin site and the other is

along Richmar Avenue, west of Bermuda Road. Both of the inlets include energy dissipaters and are sized for existing (FIS) inflows.

The FIS 100-year peak outflow from the LDCDB will be approximately 7,500 cfs, with a clear-water storage capacity of 810 ac-ft. The MPU 100-year peak outflow from the LDCDB should be approximately 400 cfs, with a clear-water storage capacity of approximately 1,000 ac-ft.

## HYDROLOGIC ANALYSES

The hydrologic analyses for the LDCDB include both existing (FIS) and proposed (1996 MPU) conditions. Both analyses are based on previous analyses using the U. S. Army Corps of Engineers' HEC-1 Flood Hydrograph Package (version 4.0.1E, May 1991) and are in compliance with CCRFCD methodology and criteria. In addition, hydrologic analyses for the probable maximum flood (PMF) and for local runoff tributary to drop inlets were also performed. The following paragraphs briefly describe these analyses. A summary table follows the descriptions.

### Existing Conditions (FIS) Hydrology

The CCRFCD 1991 FIS hydrology model was used for the LDCDB design, with the inclusion of a Pittman Wash diversion and minor revisions to curve number (CN) values to reflect current existing development.

A 1995 FIS restudy for Pittman Wash used the 1991 FIS hydrology model and peak discharges and determined that there is an existing flow split in the South Duck Creek watershed. This flow split is documented in the 1995 FIS report and was used for the analysis of the LDCDB design. The flow split is approximately 60/40, with 40 percent of the flow diverted to Pittman Wash. This flow split reduces the inflow to the LDCDB to 10,100 cfs, instead of the 11,500 cfs without the flow split. The total watershed area (with diversion) is 136 square miles.

In addition to the FIS models with the full 136-square-mile tributary watershed contributing to the LDCDB site, two other models were created with reduced storm areas. One model used a storm centering with a 69-square-mile area and the other with a 28-square-mile area. In each case, a depth-area reduction factor appropriate for the storm area was incorporated into the model. The resulting 100-year discharges at the detention basin site are less than the 10,100 cfs generated by the full-watershed storm.

## Future Condition (MPU) Hydrology

The 1996 MPU HEC-1 hydrologic model includes the area below the proposed Central Duck Creek Detention Basin. This model was used as the basis of design for the MPU condition. The lag times, routing lengths and methods, and CN values in this model were checked and recomputed, where necessary.

Upon checking the CN values, they appeared low for the type of development anticipated immediately upstream from the LDCDB site. The CN values were recomputed using the same land use assumptions in the 1996 MPU. On average, the CN values were adjusted upward approximately 3 to 5 points, from the low 80's to the mid- to high-80's. This change increased the peak runoff into the basin from the MPU value of 4,948 cfs to 6,543 cfs. The higher curve numbers have been used herein for the analysis and design of the LDCDB.

The design FIS and MPU hydrologic models are attached as **Appendix B** to this report and include both conditions -- with and without the flow split in the South Duck Creek watershed. The FIS hydrologic models with reduced storm areas are also included in **Appendix B**, along with figures depicting the storm areas.

## Stage-Storage Data

The proposed detention basin itself was modeled using stage-storage data for the proposed basin and outlet facilities. The following table summarizes this data.

**Lower Duck Creek Detention Basin**
**Stage-Storage Data**

| Stage Elevation | Storage Volume (ac-ft) | Comments |
|---|---|---|
| 2,182 | 0.0 | invert of outlet structure |
| 2,184 | 8.8 | |
| 2,186 | 47.5 | |
| 2,188 | 129.2 | |
| 2,190 | 237.6 | |
| 2,192 | 352.6 | |
| 2,194 | 470.4 | |
| 2,196 | 590.7 | |
| 2,198 | 713.7 | |
| 2,200 | 840.9 | |
| 2,202 | 971.0 | |
| 2,204 | 1,102.0 | spillway crest elevation |
| 2,206 | 1,235.2 | |

## PMF Hydrology

In accordance with requirements of the State Engineer's Office, Montgomery Watson prepared a Probable Maximum Flood (PMF) analysis for the LDCDB site. As input to the PMF analysis, the Probable Maximum Precipitation (PMP) was determined using the methodology outlined in the National Oceanic and Atmospheric Administration/ U.S. Army Corps of Engineers Hydrometeorological Report No. 49 (Probable Maximum Precipitation Estimates, Colorado River and Great Basin Drainages). Both the general and local storm analyses were performed. The local storm PMP generates the critical precipitation at the detention basin site. The local storm PMP depth (8.1 inches) produces a PMF of approximately 120,000 cfs. Two separate PMF hydrology files were analyzed, with and without the flow split in the South Duck Creek watershed (described previously). The analysis with the flow split produced a PMF magnitude of 99,200 cfs, and without the flow split, a PMF magnitude of 121,300 cfs. The recommendation for the PMF spillway design based on this analysis is to use the flow split model with freeboard, and evaluate the PMF without the flow split to ensure the spillway can pass this flow rate without over topping of the dam. This approach was reviewed and approved by the State of Nevada Division of Water Resources, Dam Safety Engineer. The PMF hydrologic models and a copy of the concurrence letter from the Division of Water Resources are attached as **Appendix C**.

## Summary of Hydrologic Analyses

The following is a summary of the design hydrologic analyses.

a. Ultimate conditions peak discharge upstream of LDCDB:

$Q_{100}$ = 6,543 cfs

b. Existing conditions peak discharges upstream of LDCDB:

$Q_{100}$ = 10,100 cfs with diversion to Pittman Wash watershed and
11,500 cfs without diversion to Pittman Wash watershed

c. Probable Maximum Flood peak discharges upstream of LDCDB:

$Q_{PMF}$ = 99,200 cfs with diversion to Pittman Wash watershed and
121,300 cfs without diversion to Pittman Wash watershed

## PMF SPILLWAY

The PMF spillway must be designed to safely pass the PMF event and be cost effective in its design and construction. The spillway for the LDCDB incorporates a seven cycle labyrinth design and will be constructed at the northeast corner of the site.

The PMF hydrologic analysis for this basin used the two models described in the previous section (one using the flow split in the South Duck Creek watershed to the Pittman Wash watershed and one with the entire area tributary to the LDCDB site). The flow split model generated a smaller peak discharge and was used to determine the spillway capacity with freeboard; the model without the flow split generated a larger peak discharge and was used to ensure that the PMF spillway passed this flow with no overtopping of the dam.

The design parameters for the labyrinth PMF spillway are outlined in the following table.

**Lower Duck Creek Detention Basin**
**Labyrinth PMF Spillway Parameters**

| Design Parameter | Labyrinth Spillway |
|---|---|
| Length (ft) | 406 |
| Width (ft) | 150 |
| Design Head (ft) | 7.0 |
| Design Flow with 1-ft freeboard (cfs) | 99,200 |
| Design Flow at top of Dam (cfs) | 120,809* |
| Routed Pool Diversion Model (ft) | 2,210.98 |
| Routed Pool No Diversion Model (ft) | 2,212.03 |
| Spillway Crest Elevation (ft) | 2,204.00 |
| Dam Crest Elevation (ft) | 2,212.00 |

* spillway discharge only; does not include low level outlet discharge

The PMF spillway rating curve is presented in the following table.

**Lower Duck Creek Detention Basin**
**Labyrinth PMF Spillway Rating Curve**

| Elevation (ft) | Discharge (cfs) |
|---|---|
| 2,204 | 0 |
| 2,206 | 17,928 |
| 2,208 | 50,740 |
| 2,210 | 87,244 |
| 2,212 | 120,809 |

PMF spillway calculations are presented in **Appendix D.**

## LOW LEVEL OUTLET

The low level outlet from the LDCDB is located in the northeastern corner and will discharge into the proposed Duck Creek channel to the northeast of the basin. With the FIS event, the low level outlet should pass approximately 7,500 cfs at the maximum 100-year design water surface elevation. This peak outflow is based on the available storage at the site, and the inflow hydrograph volume. In order to maximize the storage volume for the MPU, the low level outlet should pass approximately 400 cfs at the maximum 100-year design pool. This wide variance in design flows necessitates a large outlet structure to be constructed for the FIS event that can be modified at a later date to reduce the peak outflow for the MPU.

The concept for the low level outlet includes the outlet structure constructed within the labyrinth spillway with five (5) 8.0-ft x 8.15-ft orifices in the spillway. The following stage-discharge table summarizes this data.

**Lower Duck Creek Detention Basin**
**Stage-Discharge Data**

| Stage (ft) | Discharge (cfs) |
|---|---|
| 2,182 | 0 |
| 2,184 | 473 |
| 2,186 | 1,510 |
| 2,188 | 2,447 |
| 2,190 | 3,154 |
| 2,192 | 4,109 |
| 2,194 | 4,799 |
| 2,196 | 5,402 |
| 2,198 | 5,943 |
| 2,200 | 6,439 |
| 2,202 | 6,900 |
| 2,204* | 7,332 |
| 2,206 | 7,739 |
| * PMF spillway crest | |

The low level outlet calculations are presented in **Appendix D.**

## INLET STRUCTURE ANALYSIS

An existing dual 8-ft x 8-ft inlet located at the northwest corner of the site will require the construction of an energy dissipater and the extension of this inlet. This location is one of the future inflow locations to the LDCDB. The other location is located along Richmar Avenue, approximately 1,000 ft west of Bermuda Road. This inlet is located in the existing wash and will be designed for a roadway crossing and an energy dissipater in the basin. The inlet structure and the dissipater along Richmar Avenue was designed for the peak MPU inflow and checked with the FIS flow.

The inlet structure analysis is presented in **Appendix E.**

## GRADING AND EARTHWORK

The LDCDB site grading plans were prepared to closely match the proposed footprint recommended in the 1994 predesign report. Several key modifications were necessary due to recent development in the area and some utility conflicts. The ongoing development to the north of the site has modified the existing ground on the northwest portion of the site. This site and Phase 2B of the Southern Segment of the Las Vegas Beltway have used this site as a borrow site for material. This activity has removed material that may have been suitable for the use in RCC and soil cement. However, not enough material has been removed to eliminate the need to dispose of excess material.

FIS Hydrology
With Diversion

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1
 FLOOD HYDROGRAPH PACKAGE (HEC-1)
           JAN  1997
         VERSION 4.1

 RUN DATE  28JUL98  TIME  21:46:00
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U.S. ARMY CORPS OF ENGINEERS
HYDROLOGIC ENGINEERING CENTER
609 SECOND STREET
DAVIS, CALIFORNIA 95616
(916) 756-1104


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X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL  LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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      LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

                    * This model (LDCFIS_DIV.DAT) takes the 1991 CCRFCD FIS model (BDE100UN) and
                    * truncates at B18C for the Lower Duck Creek Detention Basin site; adjusted
                    * areas at B18C and D4 for detention basin; DARF appropriate for 136.8 sq mi
                    * modeled in JR card; diversion to Pittman Wash added at station D010 from
                    * Nimbus Pittman Wash FIS Restudy; updated stage/storage curve added; revised
                    * CN's for subareas along LV Blvd and I-15 where development has occured since
                    * 1991 FIS model was prepared - MW, 1/98
                    *
*** FREE ***
                    *DIAGRAM
         1          ID    INPUT FILE = BDE100UN
         2          ID    CLARK COUNTY FLOOD CONTROL DISTRICT MASTER PLAN UPDATE
         3          ID    BLUE DIAMOND DUCK CREEK UPPER WATERSHED MODEL
         4          ID    EXISTING DRAINAGE SYSTEM WITH PRESENT DEVELOPMENT
         5          ID    UPPER BLUE DIAMOND AND DUCK CREEK STORMS
         6          ID    100-YEAR 6-HR STORM (SDN#5)
         7          ID    JMM  JANUARY 1991
         8          ID
         9          ID    WATERSHED MODEL TAKEN FROM COE HYDROLOGY
        10          ID    KINEMATIC SUBBASINS CONVERTED TO SCS UNIT HYDROGRAPH
        11          ID    CHANNEL ROUTING CHANGED TO REFLECT NEW EXISTING FACILITIES
        12          ID    SUBBASIN ROUTING CHANGED TO REFLECT NEW DEVELOPMENT
        13          ID
        14          ID    JR CARDS BASED ON THE FOLLOWING DARF AND PT OF CONCENTRATION
        15          ID
        16          ID      POINT OF      AREA     DARF      JR CARD
        17          ID      CONCEPN      SQ.MI.              RATIO
        18          ID
        19          ID        D2B         53.6    0.67         1
        20          ID        DJ          71.5    0.65         2
        21          ID        B18C       136.8   0.563
        22          ID    * AREA CONSIDERS UPSTREAM DIVERSIONS
        23          ID
        24          ID    JR CARD RATIOS ARE THE DEPTH AREA REDUCTION FACTORS (DARF)
        25          ID
        26          ID
        27          IT       5       0       0     300
        28          IO       5       0       0
        29          JR    PREC    0.563

        30          KK    B13A   SUB-BASIN B13A HYDROGRAPH
        31          KM             SCS RUNOFF COMPUTATION
        32          BA    1.34
        33          PB    2.78
        34          PC    0.00    2.00    5.90    8.00   11.00   14.40   15.00   16.00   16.80   17.10
        35          PC   18.00   18.20   18.70   19.00   19.70   20.20   21.00   22.00   23.00   24.00
        36          PC   25.00   25.90   26.50   28.00   29.00   30.00   30.50   30.90   31.00   31.70
        37          PC   32.10   32.71   33.30   34.60   36.10   38.10   40.80   43.00   47.70   51.40
        38          PC   56.10   63.00   71.00   72.00   73.10   75.20   77.90   79.00   79.50   80.40
        39          PC   81.00   82.00   82.60   84.00   85.90   88.90   91.00   93.80   96.60   97.40
        40          PC   97.90   98.10   98.30   98.50   98.90   99.00   99.20   99.30   99.60   99.70
        41          PC   99.90  100.00
        42          LS      0      88
        43          UD   0.68
```

1 HEC-1 INPUT PAGE 2

```
      LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

        44          KK   RB13A
        45          KM    ROUTE B13A THRU B13B
        46          RM       7    0.64    0.10

        47          KK    B13B   SUB-BASIN B13B HYDROGRAPH
        48          KM             SCS RUNOFF COMPUTATION
        49          BA    0.65
        50          PB    2.78
        51          LS       0      88
        52          UD    1.44

        53          KK    B13B
        54          KM    COMBINE RB13A & B13B
        55          HC       2

        56          KK   RB13B
        57          KM    ROUTE B13B THRU B17
        58          RM       3    0.28    0.15

        59          KK     B17   SUB-BASIN B17 HYDROGRAPH
        60          KM             SCS RUNOFF COMPUTATION
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 61          BA    0.80
 62          PB    2.71
 63          LS      0      88
 64          UD    0.94

 65          KK     B17
 66          KM    COMBINE RB13B & B17
 67          HC       2

 68          KK   B17DV
 69          KM    FLOW SPLIT IN SUB-BASIN B17 AT UPRR
 70          KM    DQ GOES NORTH TO B13C
 71          DT   B17DV
 72          DI       0     150     630    2670    6860
 73          DQ       0       0     160     910    2570

 74          KK    RB17
 75          KM    ROUTE B17 THRU B18B
 76          RM       6    0.52    0.10

 77          KK    B18B   SUB-BASIN B18B HYDROGRAPH
 78          KM           SCS RUNOFF COMPUTATION
 79          BA    1.94
 80          PB    2.77
             * Adjust CN per existing development - MW, 1/98
             * LS      0    86.4
 81          LS      0      88
 82          UD    0.64
1                                    HEC-1 INPUT                                    PAGE  3

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 83          KK    B18B
 84          KM   COMBINE RB17 & B18B
 85          HC       2

 86          KK   RB18B
 87          KM    ROUTE B18B THRU B18C
 88          RM       5    0.43    0.10

 89          KK    B13C   SUB-BASIN B13C HYDROGRAPH
 90          KM           SCS RUNOFF COMPUTATION
 91          BA    1.92
 92          PB    2.78
 93          LS      0    88.1
 94          UD    0.51

 95          KK   B17DV RETURN DIVISION OF FLOW
 96          DR   B17DV

 97          KK  RB17DV
 98          KM    ROUTE B17DV THRU B13C
 99          RM       5    0.44    0.10

100          KK    B13C
101          KM   COMBINE RB17DV & B13C
102          HC       2

103          KK  B13CDV
104          KM    FLOW SPLIT IN SUB-BASIN B13C AT UPRR
105          KM    DQ GOES NORTH TO B11
106          DT  B13CDV
107          DI       0     560     910    2110    3970
108          DQ       0       0     300     850    1560

109          KK   RB13C
110          KM    ROUTE B13C THRU B14A
111          RM       6    0.51    0.10

112          KK    B14A   SUB-BASIN B14A HYDROGRAPH
113          KM           SCS RUNOFF COMPUTATION
114          BA    1.34
115          PB    2.77
116          LS      0    88.0
117          UD    0.40

118          KK    B14A
119          KM   COMBINE RB13C &B14A
120          HC       2

121          KK  B14ADV
122          KM    FLOW SPLIT IN SUB-BASIN B14A
123          KM    DQ GOES NORTH TO B16A
124          DT  B14ADV
125          DI       0    1000    3000    5000    7000
126          DQ       0     300     900    1500    2100
1                                    HEC-1 INPUT                                    PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

127          KK   RB14A
128          KM    ROUTE B14A THRU B16B
129          RM       4    0.32    0.10

130          KK    B16B   SUB-BASIN B16B HYDROGRAPH
131          KM           SCS RUNOFF COMPUTATION
132          BA    0.72
133          PB    2.77
             * Adjust CN per existing development - MW, 1/98
             * LS      0    83.1
134          LS      0      85
135          UD    0.38

136          KK    B16B
137          KM   COMBINE RB14A & B16B
138          HC       2
             *

139          KK     D1A    SUB-BASIN D1A HYDROGRAPH
140          KM           SCS RUNOFF COMPUTATION
141          BA    2.39
142          PB    3.36
143          LS      0      83
144          UD    0.83

145          KK    RD1A
146          KM    ROUTE D1A THRU D1B
147          RM       2    0.17    0.15
```

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148          KK     D1B    SUB-BASIN D1B HYDROGRAPH
149          KM            SCS RUNOFF COMPUTATION
150          BA    0.38
151          PB    2.78
152          LS       0      84
153          UD    1.06

154          KK     D1B
155          KM    COMBINE RD1A & D1B
156          HC       2

157          KK    RD1B
158          KM     ROUTE D1B THRU D1C
159          RM       4    0.33    0.15

160          KK     D1C    SUB-BASIN D1C HYDROGRAPH
161          KM            SCS RUNOFF COMPUTATION
162          BA    0.48
163          PB    2.78
164          LS       0      83
165          UD    1.29
1                                        HEC-1 INPUT                                        PAGE  5

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

166          KK     D1C
167          KM    COMBINE RD1B & D1C
168          HC       2

169          KK    RD1C
170          KM     ROUTE D1C THRU D1F
171          RM       3    0.26    0.15

172          KK     D1D    SUB-BASIN D1D HYDROGRAPH
173          KM            SCS RUNOFF COMPUTATION
174          BA    1.15
175          PB    2.78
176          LS       0      82
177          UD    0.50

178          KK    RD1D
179          KM    ROUTE D1D THRU D1F
180          RM       2    0.16    0.15

181          KK     D1E    SUB-BASIN D1E HYDROGRAPH
182          KM            SCS RUNOFF COMPUTATION
183          BA    0.22
184          PB    2.77
185          LS       0    81.5
186          UD    1.06

187          KK     D1F    SUB-BASIN D1F HYDROGRAPH
188          KM            SCS RUNOFF COMPUTATION
189          BA    0.88
190          PB    2.77
191          LS       0    75.2
192          UD    1.50

193          KK     D1F
194          KM    COMBINE RD1C, RD1D, D1E & D1F
195          HC       4

196          KK    RD1F
197          KM    ROUTE D1F THRU B18A
198          RM       6    0.50    0.10

199          KK    B18A   SUB-BASIN B18A HYDROGRAPH
200          KM            SCS RUNOFF COMPUTATION
201          BA    1.59
202          PB    2.77
203          LS       0    69.4
204          UD    0.70

205          KK    B18A
206          KM    COMBINE RD1F & B18A
207          HC       2
1                                        HEC-1 INPUT                                        PAGE  6

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

208          KK   RB18A
209          KM    ROUTE B18A THRU B18C
210          RM       6    0.53    0.10

211          KK    D009   SUB-BASIN D009 HYDROGRAPH
212          KM            SCS RUNOFF COMPUTATION
213          BA    3.67
214          PB    2.73
215          LS       0      83
216          UD    0.51

217          KK   RD009
218          KM    ROUTE D009 THRU D004
219          RM       1    0.10    0.10

220          KK    D004   SUB-BASIN D0004 HYDROGRAPH
221          KM            SCS RUNOFF COMPUTATION
222          BA    2.42
223          PB    3.34
224          LS       0      85
225          UD    0.70

226          KK    D004
227          KM    COMBINE RD009 & D004
228          HC       2

229          KK   RD004
230          KM    ROUTE D004 THRU D08
231          RM       2    0.44    0.15

232          KK     D08    SUB-BASIN D08 HYDROGRAPH
233          KM            SCS RUNOFF COMPUTATION
234          BA   12.11
235          PB    3.36
236          LS       0      85
237          UD    1.65
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238          KK     D08
239          KM    COMBINE RD004 & D08
240          HC       2

241          KK    RD08
242          KM    ROUTE D08 THRU D010
243          RM       3    0.81    0.15

244          KK    D010   SUB-BASIN D010 HYDROGRAPH
245          KM            SCS RUNOFF COMPUTATION
246          BA   10.58
247          PB    2.73
248          LS       0      84
249          UD    1.05
1                                        HEC-1 INPUT                                                    PAGE  7

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

250          KK     D07    SUB-BASIN D07 HYDROGRAPH
251          KM            SCS RUNOFF COMPUTATION
252          BA    4.29
253          PB    2.73
254          LS       0      84
255          UD    1.10

256          KK    D010
257          KM    COMBINE RD08, D07 & D010
258          HC       3
             *
             * Insert a diversion to Pittman Wash based on the Nimbus Pittman Wash FIS
             * Restudy (1995); of the 5,795 cfs 100-yr Q approaching Duck Creek along
             * the west side of I-15, the Nimbus report diverts a total of 3,353 cfs
             * to Pittman Wash, leaving 2,443 cfs in the Duck Creek watershed; this
             * diversion is a composite of diversions at several locations; the following
             * DI/DQ data is based on the Nimbus model 406H1-1.OUT; DI data is taken from
             * station D010 (total inflow) and DQ data from station CB PIT (composite
             * diversion to Pittman Wash); the rating curve is based on the various DARFs
             * modeled by Nimbus; area tributary to the diversion is 33.1 sq mi - MW, 1/98

259          KK    PITT
260          DT    PITT
261          DI       0    3586    3710    3835    3961    5795    7737
262          DQ       0    1913    1989    2065    2143    3353    4707
             *

263          KK   RD010
264          KM    ROUTE D010 THRU D012
265          RM       2    0.58    0.10

266          KK    D012   SUB-BASIN D012 HYDROGRAPH
267          KM            SCS RUNOFF COMPUTATION
268          BA   11.08
269          PB    2.77
270          LS       0      83
271          UD    1.32

272          KK    D012
273          KM    COMBINE RD010 & D012
274          HC       2

275          KK   RD012
276          KM    ROUTE D012 THRU D4
277          RM       1    0.34    0.10

278          KK     D01    SUB-BASIN D01 HYDROGRAPH
279          KM            SCS RUNOFF COMPUTATION
280          BA    9.57
281          PB    3.48
282          LS       0      83
283          UD    1.00
1                                        HEC-1 INPUT                                                    PAGE  8

LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

284          KK    RD01
285          KM     ROUTE D01 THRU D005
286          RM       3    0.64    0.15

287          KK    D005   SUB-BASIN D005 HYDROGRAPH
288          KM            SCS RUNOFF COMPUTATION
289          BA    2.60
290          PB    3.36
291          LS       0      82
292          UD    0.75

293          KK    D005
294          KM    COMBINE RD01 & D005
295          HC       2

296          KK   RD005
297          KM     ROUTE D005 THRU D2A
298          RM       1    0.20    0.15

299          KK     D02    SUB-BASIN D02 HYDROGRAPH
300          KM            SCS RUNOFF COMPUTATION
301          BA    5.90
302          PB    3.34
303          LS       0      83
304          UD    1.03

305          KK    RD02
306          KM     ROUTE D02 THRU D006
307          RM       3    0.62    0.15

308          KK     D03    SUB-BASIN D03 HYDROGRAPH
309          KM            SCS RUNOFF COMPUTATION
310          BA   10.13
311          PB    3.34
312          LS       0      83
313          UD    0.96

314          KK     D04    SUB-BASIN D04 HYDROGRAPH
315          KM            SCS RUNOFF COMPUTATION
316          BA    8.76
317          PB    3.34
318          LS       0      84
319          UD    1.06
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320          KK     D04
321          KM     COMBINE  D03 & D04
322          HC       2

323          KK     RD04
324          KM     ROUTE D04 THRU D006
325          RM       3    0.82    0.15
1                                        HEC-1 INPUT                                                    PAGE  9

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


326          KK     D006    SUB-BASIN D006 HYDROGRAPH
327          KM             SCS RUNOFF COMPUTATION
328          BA     8.26
329          PB     3.36
330          LS       0       83
331          UD     0.85

332          KK     D006
333          KM     COMBINE RD02, RD04 & D006
334          HC       3

335          KK    RD006
336          KM     ROUTE D006 THRU D2A
337          RM       1.    0.18    0.15

338          KK     D2A     SUB-BASIN D2A HYDROGRAPH
339          KM             SCS RUNOFF COMPUTATION
340          BA     0.97
341          PB     2.77
342          LS       0       84
343          UD     0.28

344          KK     D2A
345          KM     COMBINE RD005, RD006 & D2A
346          HC       3

347          KK     RD2A
348          KM     ROUTE D2A THRU D2B
349          RM       3     0.83    0.15

350          KK     D2B     SUB-BASIN D2B HYDROGRAPH
351          KM             SCS RUNOFF COMPUTATION
352          BA     7.39
353          PB     2.77
354          LS       0     80.1
355          UD     1.18

356          KK     D2B
357          KM     COMBINE RD2A & D2B
358          HC       2

359          KK     RD2B
360          KM     ROUTE D2B THRU D3
361          RM       4     0.90    0.10

362          KK     D06     SUB-BASIN D06 HYDROGRAPH
363          KM             SCS RUNOFF COMPUTATION
364          BA    11.68
365          PB     3.36
366          LS       0       84
367          UD     1.19
1                                        HEC-1 INPUT                                                    PAGE 10

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


368          KK     RD06
369          KM     ROUTE D06 THRU D3
370          RM       3     0.78    0.15

371          KK       D3     SUB-BASIN D3 HYDROGRAPH
372          KM              SCS RUNOFF COMPUTATION
373          BA     6.22
374          PB     2.77
375          LS       0       77
376          UD     1.13

377          KK       D3
378          KM     COMBINE RD2B, RD06 & D3
379          HC       3

380          KK      RD3
381          KM     ROUTE D3 THRU D4
382          RM       2     0.28    0.10

383          KK       D4     SUB-BASIN D4 HYDROGRAPH
             * increase size of D4 to include portion of subarea D5A which is tributary to
             * det basin
             * BA  3.83
384          BA    4.425
385          PB     2.77
386          LS       0     83.8
387          UD     0.75

388          KK       D4
389          KM     COMBINE RD012, RD3 & D4
390          HC       3

391          KK      RD4
392          KM     ROUTE D4 THRU B18C
393          RM       1     0.23    0.15

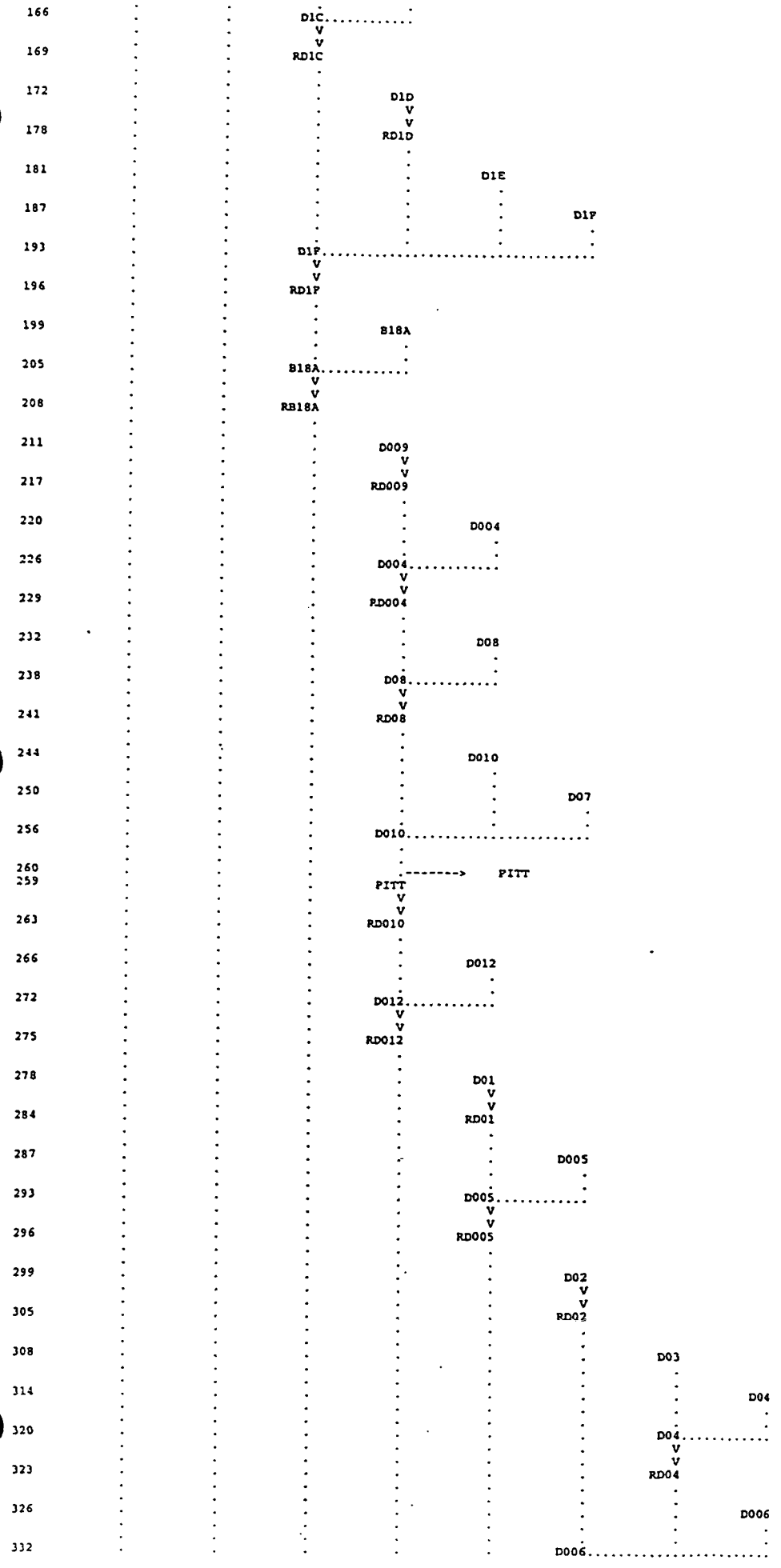
394          KK     B18C    SUB-BASIN B18C HYDROGRAPH
395          KM             SCS RUNOFF COMPUTATION
             * decrease size of B18C to remove portion of subarea not tributary to det basin;
             * no change to CN or lag time - MW, 1/98
             * BA  1.19
396          BA    0.969
397          PB     2.77
             * Adjust CN per existing development - MW, 1/98
             * LS       0    75.4
398          LS       0       80
399          UD     0.38

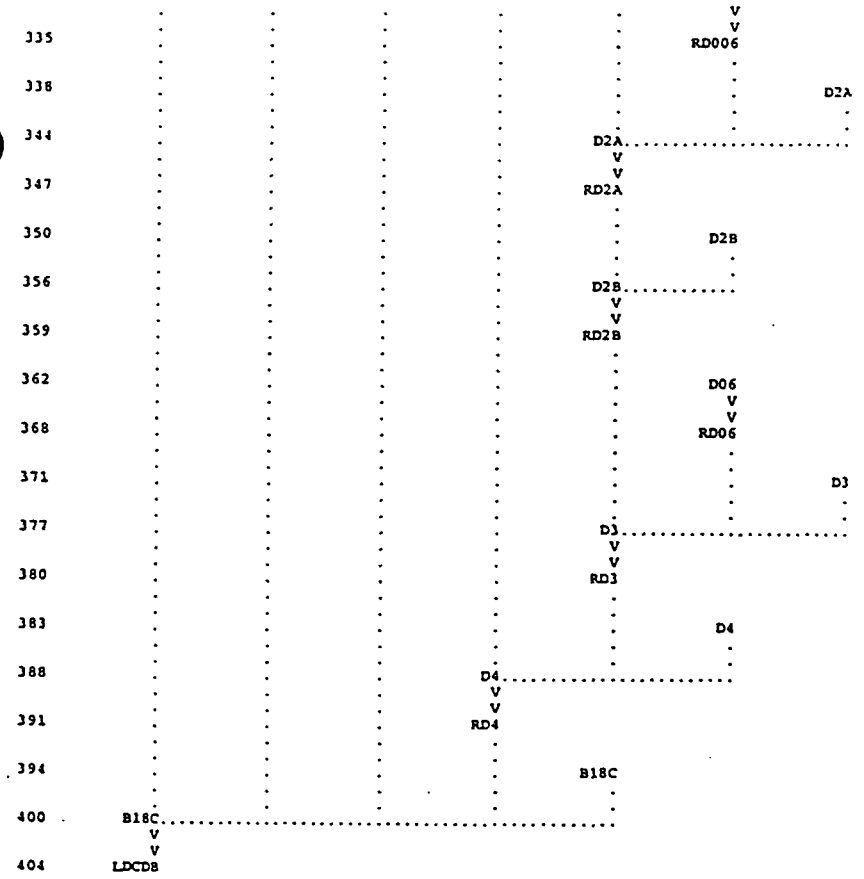
400          KK     B18C
401          KM     COMBINE B16B, RB18B, RB18A, RD4 & B18C
402          HC       5
403          KO       1
```

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          LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

           404          KK   LDCDB
           405          KM    LOWER DUCK CREEK DETENTION BASIN UPDATED STAGE/STORAGE 12/31/97
           406          RS      1     STOR       0
           407          SV    0.0     2.8     37.5    120.3    229.     340.    453.8     570      689      810
           408          SV    934     1061    1190
           409          SE   2183    2184    2186     2188    2190    2192    2194    2196    2198    2200
           410          SE   2202    2204    2206
           411          SQ    0.0     126     654     1825    3310    4310    5118    5815    6437    7004
           412          SQ   7528    8018    8480
           413          SE   2183    2184    2186     2188    2190    2192    2194    2196    2198    2200
           414          SE   2202    2204    2206
           415          KO      1
           416          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING           (--->) DIVERSION OR PUMP FLOW
   NO.      (.) CONNECTOR         (<---) RETURN OF DIVERTED OR PUMPED FLOW

    30        B13A
                V
                V
    44       RB13A
               .
               .
    47          .        B13B
                .          .
                .          .
    53        B13B.............
                V
                V
    56       RB13B
               .
               .
    59          .         B17
                .          .
                .          .
    65         B17.............
               .
               .
    71          .--------->   B17DV
    68       B17DV
                V
                V
    74        RB17
               .
               .
    77          .        B18B
                .          .
                .          .
    83        B18B.............
                V
                V
    86       RB18B
               .
               .
    89          .        B13C
                .          .
                .          .
    96          .            .<--------   B17DV
    95          .       B17DV
                .          V
                .          V
    97          .      RB17DV
                .          .
                .          .
   100          .        B13C.............
                .          .
                .          .
   106          .          .--------->  B13CDV
   103          .       B13CDV
                .          V
                .          V
   109          .       RB13C
                .          .
                .          .
   112          .          .       B14A
                .          .         .
                .          .         .
   118          .        B14A.............
                .          .
                .          .
   124          .          .-------->  B14ADV
   121          .       B14ADV
                .          V
                .          V
   127          .       RB14A
                .          .
                .          .
   130          .          .       B16B
                .          .         .
                .          .         .
   136          .        B16B.............
                .          .
                .          .
   139          .          .        D1A
                .          .         V
                .          .         V
   145          .          .       RD1A
                .          .         .
                .          .         .
   148          .          .          .        D1B
                .          .          .         .
                .          .          .         .
   154          .          .        D1B.............
                .          .         V
                .          .         V
   157          .          .       RD1B
                .          .         .
                .          .         .
   160          .          .          .        D1C
                .          .          .         .
```


166
D1C
169
RD1C
172
D1D
178
RD1D
181
D1E
187
D1F
193
D1F
196
RD1F
199
B18A
205
B18A
208
RB18A
211
D009
217
RD009
220
D004
226
D004
229
RD004
232
D08
238
D08
241
RD08
244
D010
250
D07
256
D010
260
259
PITT
PITT
263
RD010
266
D012
272
D012
275
RD012
278
D01
284
RD01
287
D005
293
D005
296
RD005
299
D02
305
RD02
308
D03
314
D04
320
D04
323
RD04
326
D006
332
D006




(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JAN  1997                 *
*          VERSION 4.1                  *
*                                       *
*  RUN DATE   28JUL98  TIME  21:46:00   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
INPUT FILE = BDE100UN
CLARK COUNTY FLOOD CONTROL DISTRICT MASTER PLAN UPDATE
BLUE DIAMOND DUCK CREEK UPPER WATERSHED MODEL
EXISTING DRAINAGE SYSTEM WITH PRESENT DEVELOPMENT
UPPER BLUE DIAMOND AND DUCK CREEK STORMS
100-YEAR 6-HR STORM (SDN#5)
JMM  JANUARY 1991

WATERSHED MODEL TAKEN FROM COE HYDROLOGY
KINEMATIC SUBBASINS CONVERTED TO SCS UNIT HYDROGRAPH
CHANNEL ROUTING CHANGED TO REFLECT NEW EXISTING FACILITIES
SUBBASIN ROUTING CHANGED TO REFLECT NEW DEVELOPMENT

JR CARDS BASED ON THE FOLLOWING DARF AND PT OF CONCENTRATION

  POINT OF      AREA     DARF      JR CARD
  CONCERN      SQ.MI.               RATIO

    D2B         53.6    0.67         1
    D3          71.5    0.65         2
    B18C       136.8    0.563
* AREA CONSIDERS UPSTREAM DIVERSIONS

JR CARD RATIOS ARE THE DEPTH AREA REDUCTION FACTORS (DARF)


28 IO          OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2   0  ENDING DATE
                   NDTIME       0055  ENDING TIME
                    ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL      .08 HOURS
                     TOTAL TIME BASE    24.92 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
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          SURFACE AREA          ACRES
          TEMPERATURE           DEGREES FAHRENHEIT

   JP         MULTI-PLAN OPTION
                   NPLAN          1  NUMBER OF PLANS

   JR         MULTI-RATIO OPTION
                  RATIOS OF PRECIPITATION
                  .56

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          .............
          .           .
400 KK    .    B18C   .
          .           .
          .............

403 KO         OUTPUT CONTROL VARIABLES
                   IPRNT          1  PRINT CONTROL
                   IPLOT          0  PLOT CONTROL
                   QSCAL          0.  HYDROGRAPH PLOT SCALE

402 HC         HYDROGRAPH COMBINATION
                   ICOMP          5  NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION B18C
SUM OF 5 HYDROGRAPHS
PLAN 1. RATIO = .56

| DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW | DA | MON | HRMN | ORD | FLOW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | 1 | | 0615 | 76 | 8880. | 1 | | 1230 | 151 | 81. | 1 | | 1845 | 226 | 0. |
| 1 | | 0005 | 2 | 0. | 1 | | 0620 | 77 | 9078. | 1 | | 1235 | 152 | 71. | 1 | | 1850 | 227 | 0. |
| 1 | | 0010 | 3 | 0. | 1 | | 0625 | 78 | 9262. | 1 | | 1240 | 153 | 63. | 1 | | 1855 | 228 | 0. |
| 1 | | 0015 | 4 | 0. | 1 | | 0630 | 79 | 9431. | 1 | | 1245 | 154 | 55. | 1 | | 1900 | 229 | 0. |
| 1 | | 0020 | 5 | 0. | 1 | | 0635 | 80 | 9586. | 1 | | 1250 | 155 | 49. | 1 | | 1905 | 230 | 0. |
| 1 | | 0025 | 6 | 0. | 1 | | 0640 | 81 | 9723. | 1 | | 1255 | 156 | 43. | 1 | | 1910 | 231 | 0. |
| 1 | | 0030 | 7 | 0. | 1 | | 0645 | 82 | 9842. | 1 | | 1300 | 157 | 38. | 1 | | 1915 | 232 | 0. |
| 1 | | 0035 | 8 | 0. | 1 | | 0650 | 83 | 9940. | 1 | | 1305 | 158 | 33. | 1 | | 1920 | 233 | 0. |
| 1 | | 0040 | 9 | 0. | 1 | | 0655 | 84 | 10016. | 1 | | 1310 | 159 | 29. | 1 | | 1925 | 234 | 0. |
| 1 | | 0045 | 10 | 0. | 1 | | 0700 | 85 | 10066. | 1 | | 1315 | 160 | 25. | 1 | | 1930 | 235 | 0. |
| 1 | | 0050 | 11 | 0. | 1 | | 0705 | 86 | 10090. | 1 | | 1320 | 161 | 22. | 1 | | 1935 | 236 | 0. |
| 1 | | 0055 | 12 | 0. | 1 | | 0710 | 87 | 10086. | 1 | | 1325 | 162 | 19. | 1 | | 1940 | 237 | 0. |
| 1 | | 0100 | 13 | 0. | 1 | | 0715 | 88 | 10054. | 1 | | 1330 | 163 | 17. | 1 | | 1945 | 238 | 0. |
| 1 | | 0105 | 14 | 0. | 1 | | 0720 | 89 | 9994. | 1 | | 1335 | 164 | 15. | 1 | | 1950 | 239 | 0. |
| 1 | | 0110 | 15 | 0. | 1 | | 0725 | 90 | 9906. | 1 | | 1340 | 165 | 13. | 1 | | 1955 | 240 | 0. |
| 1 | | 0115 | 16 | 0. | 1 | | 0730 | 91 | 9792. | 1 | | 1345 | 166 | 11. | 1 | | 2000 | 241 | 0. |
| 1 | | 0120 | 17 | 0. | 1 | | 0735 | 92 | 9653. | 1 | | 1350 | 167 | 10. | 1 | | 2005 | 242 | 0. |
| 1 | | 0125 | 18 | 0. | 1 | | 0740 | 93 | 9490. | 1 | | 1355 | 168 | 9. | 1 | | 2010 | 243 | 0. |
| 1 | | 0130 | 19 | 1. | 1 | | 0745 | 94 | 9305. | 1 | | 1400 | 169 | 8. | 1 | | 2015 | 244 | 0. |
| 1 | | 0135 | 20 | 1. | 1 | | 0750 | 95 | 9101. | 1 | | 1405 | 170 | 7. | 1 | | 2020 | 245 | 0. |
| 1 | | 0140 | 21 | 2. | 1 | | 0755 | 96 | 8879. | 1 | | 1410 | 171 | 6. | 1 | | 2025 | 246 | 0. |
| 1 | | 0145 | 22 | 3. | 1 | | 0800 | 97 | 8641. | 1 | | 1415 | 172 | 5. | 1 | | 2030 | 247 | 0. |
| 1 | | 0150 | 23 | 5. | 1 | | 0805 | 98 | 8390. | 1 | | 1420 | 173 | 4. | 1 | | 2035 | 248 | 0. |
| 1 | | 0155 | 24 | 8. | 1 | | 0810 | 99 | 8127. | 1 | | 1425 | 174 | 4. | 1 | | 2040 | 249 | 0. |
| 1 | | 0200 | 25 | 12. | 1 | | 0815 | 100 | 7854. | 1 | | 1430 | 175 | 3. | 1 | | 2045 | 250 | 0. |
| 1 | | 0205 | 26 | 16. | 1 | | 0820 | 101 | 7573. | 1 | | 1435 | 176 | 3. | 1 | | 2050 | 251 | 0. |
| 1 | | 0210 | 27 | 22. | 1 | | 0825 | 102 | 7284. | 1 | | 1440 | 177 | 2. | 1 | | 2055 | 252 | 0. |
| 1 | | 0215 | 28 | 29. | 1 | | 0830 | 103 | 6990. | 1 | | 1445 | 178 | 2. | 1 | | 2100 | 253 | 0. |
| 1 | | 0220 | 29 | 36. | 1 | | 0835 | 104 | 6692. | 1 | | 1450 | 179 | 2. | 1 | | 2105 | 254 | 0. |
| 1 | | 0225 | 30 | 43. | 1 | | 0840 | 105 | 6390. | 1 | | 1455 | 180 | 2. | 1 | | 2110 | 255 | 0. |
| 1 | | 0230 | 31 | 51. | 1 | | 0845 | 106 | 6087. | 1 | | 1500 | 181 | 1. | 1 | | 2115 | 256 | 0. |
| 1 | | 0235 | 32 | 60. | 1 | | 0850 | 107 | 5783. | 1 | | 1505 | 182 | 1. | 1 | | 2120 | 257 | 0. |
| 1 | | 0240 | 33 | 68. | 1 | | 0855 | 108 | 5480. | 1 | | 1510 | 183 | 1. | 1 | | 2125 | 258 | 0. |
| 1 | | 0245 | 34 | 77. | 1 | | 0900 | 109 | 5180. | 1 | | 1515 | 184 | 1. | 1 | | 2130 | 259 | 0. |
| 1 | | 0250 | 35 | 87. | 1 | | 0905 | 110 | 4884. | 1 | | 1520 | 185 | 1. | 1 | | 2135 | 260 | 0. |
| 1 | | 0255 | 36 | 99. | 1 | | 0910 | 111 | 4593. | 1 | | 1525 | 186 | 1. | 1 | | 2140 | 261 | 0. |
| 1 | | 0300 | 37 | 115. | 1 | | 0915 | 112 | 4308. | 1 | | 1530 | 187 | 0. | 1 | | 2145 | 262 | 0. |
| 1 | | 0305 | 38 | 135. | 1 | | 0920 | 113 | 4030. | 1 | | 1535 | 188 | 0. | 1 | | 2150 | 263 | 0. |
| 1 | | 0310 | 39 | 163. | 1 | | 0925 | 114 | 3761. | 1 | | 1540 | 189 | 0. | 1 | | 2155 | 264 | 0. |
| 1 | | 0315 | 40 | 202. | 1 | | 0930 | 115 | 3501. | 1 | | 1545 | 190 | 0. | 1 | | 2200 | 265 | 0. |
| 1 | | 0320 | 41 | 257. | 1 | | 0935 | 116 | 3251. | 1 | | 1550 | 191 | 0. | 1 | | 2205 | 266 | 0. |
| 1 | | 0325 | 42 | 332. | 1 | | 0940 | 117 | 3012. | 1 | | 1555 | 192 | 0. | 1 | | 2210 | 267 | 0. |
| 1 | | 0330 | 43 | 435. | 1 | | 0945 | 118 | 2783. | 1 | | 1600 | 193 | 0. | 1 | | 2215 | 268 | 0. |
| 1 | | 0335 | 44 | 568. | 1 | | 0950 | 119 | 2566. | 1 | | 1605 | 194 | 0. | 1 | | 2220 | 269 | 0. |
| 1 | | 0340 | 45 | 724. | 1 | | 0955 | 120 | 2360. | 1 | | 1610 | 195 | 0. | 1 | | 2225 | 270 | 0. |
| 1 | | 0345 | 46 | 887. | 1 | | 1000 | 121 | 2166. | 1 | | 1615 | 196 | 0. | 1 | | 2230 | 271 | 0. |
| 1 | | 0350 | 47 | 1055. | 1 | | 1005 | 122 | 1984. | 1 | | 1620 | 197 | 0. | 1 | | 2235 | 272 | 0. |
| 1 | | 0355 | 48 | 1237. | 1 | | 1010 | 123 | 1813. | 1 | | 1625 | 198 | 0. | 1 | | 2240 | 273 | 0. |
| 1 | | 0400 | 49 | 1429. | 1 | | 1015 | 124 | 1654. | 1 | | 1630 | 199 | 0. | 1 | | 2245 | 274 | 0. |
| 1 | | 0405 | 50 | 1625. | 1 | | 1020 | 125 | 1505. | 1 | | 1635 | 200 | 0. | 1 | | 2250 | 275 | 0. |
| 1 | | 0410 | 51 | 1825. | 1 | | 1025 | 126 | 1368. | 1 | | 1640 | 201 | 0. | 1 | | 2255 | 276 | 0. |
| 1 | | 0415 | 52 | 2030. | 1 | | 1030 | 127 | 1240. | 1 | | 1645 | 202 | 0. | 1 | | 2300 | 277 | 0. |
| 1 | | 0420 | 53 | 2239. | 1 | | 1035 | 128 | 1123. | 1 | | 1650 | 203 | 0. | 1 | | 2305 | 278 | 0. |
| 1 | | 0425 | 54 | 2451. | 1 | | 1040 | 129 | 1015. | 1 | | 1655 | 204 | 0. | 1 | | 2310 | 279 | 0. |
| 1 | | 0430 | 55 | 2671. | 1 | | 1045 | 130 | 916. | 1 | | 1700 | 205 | 0. | 1 | | 2315 | 280 | 0. |
| 1 | | 0435 | 56 | 2904. | 1 | | 1050 | 131 | 825. | 1 | | 1705 | 206 | 0. | 1 | | 2320 | 281 | 0. |
| 1 | | 0440 | 57 | 3152. | 1 | | 1055 | 132 | 742. | 1 | | 1710 | 207 | 0. | 1 | | 2325 | 282 | 0. |
| 1 | | 0445 | 58 | 3417. | 1 | | 1100 | 133 | 667. | 1 | | 1715 | 208 | 0. | 1 | | 2330 | 283 | 0. |
| 1 | | 0450 | 59 | 3701. | 1 | | 1105 | 134 | 598. | 1 | | 1720 | 209 | 0. | 1 | | 2335 | 284 | 0. |
| 1 | | 0455 | 60 | 4005. | 1 | | 1110 | 135 | 536. | 1 | | 1725 | 210 | 0. | 1 | | 2340 | 285 | 0. |
| 1 | | 0500 | 61 | 4324. | 1 | | 1115 | 136 | 480. | 1 | | 1730 | 211 | 0. | 1 | | 2345 | 286 | 0. |
| 1 | | 0505 | 62 | 4652. | 1 | | 1120 | 137 | 429. | 1 | | 1735 | 212 | 0. | 1 | | 2350 | 287 | 0. |
| 1 | | 0510 | 63 | 4985. | 1 | | 1125 | 138 | 383. | 1 | | 1740 | 213 | 0. | 1 | | 2355 | 288 | 0. |
| 1 | | 0515 | 64 | 5325. | 1 | | 1130 | 139 | 341. | 1 | | 1745 | 214 | 0. | 2 | | 0000 | 289 | 0. |
| 1 | | 0520 | 65 | 5669. | 1 | | 1135 | 140 | 304. | 1 | | 1750 | 215 | 0. | 2 | | 0005 | 290 | 0. |
| 1 | | 0525 | 66 | 6016. | 1 | | 1140 | 141 | 271. | 1 | | 1755 | 216 | 0. | 2 | | 0010 | 291 | 0. |
| 1 | | 0530 | 67 | 6362. | 1 | | 1145 | 142 | 241. | 1 | | 1800 | 217 | 0. | 2 | | 0015 | 292 | 0. |
| 1 | | 0535 | 68 | 6703. | 1 | | 1150 | 143 | 214. | 1 | | 1805 | 218 | 0. | 2 | | 0020 | 293 | 0. |
| 1 | | 0540 | 69 | 7033. | 1 | | 1155 | 144 | 190. | 1 | | 1810 | 219 | 0. | 2 | | 0025 | 294 | 0. |
| 1 | | 0545 | 70 | 7349. | 1 | | 1200 | 145 | 168. | 1 | | 1815 | 220 | 0. | 2 | | 0030 | 295 | 0. |
| 1 | | 0550 | 71 | 7649. | 1 | | 1205 | 146 | 149. | 1 | | 1820 | 221 | 0. | 2 | | 0035 | 296 | 0. |
| 1 | | 0555 | 72 | 7931. | 1 | | 1210 | 147 | 132. | 1 | | 1825 | 222 | 0. | 2 | | 0040 | 297 | 0. |
| 1 | | 0600 | 73 | 8195. | 1 | | 1215 | 148 | 117. | 1 | | 1830 | 223 | 0. | 2 | | 0045 | 298 | 0. |
| 1 | | 0605 | 74 | 8440. | 1 | | 1220 | 149 | 103. | 1 | | 1835 | 224 | 0. | 2 | | 0050 | 299 | 0. |
| 1 | | 0610 | 75 | 8668. | 1 | | 1225 | 150 | 91. | 1 | | 1840 | 225 | 0. | 2 | | 0055 | 300 | 0. |

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

| | (CFS) | (HR) | | 6-HR | 24-HR | 72-HR | 24.92-HR |
|---|---|---|---|---|---|---|---|
| * | 10090. | 7.08 | (CFS) | 6438. | 1707. | 1644. | 1644. |
| | | | (INCHES) | .437 | .464 | .464 | .464 |
| | | | (AC-FT) | 3192. | 3386. | 3386. | 3386. |

CUMULATIVE AREA = 136.82 SQ MI

404 KK LDCDB

415 KO OUTPUT CONTROL VARIABLES
IPRNT 1 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

406 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC .00 INITIAL CONDITION
X .00 WORKING R AND D COEFFICIENT

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 407 SV | STORAGE | .0 | 2.8 | 37.5 | 120.3 | 229.0 | 340.0 | 453.8 | 570.0 | 689.0 | 810.0 |
| | | 934.0 | 1061.0 | 1190.0 | | | | | | | |
| 409 SE | ELEVATION | 2183.00 | 2184.00 | 2186.00 | 2188.00 | 2190.00 | 2192.00 | 2194.00 | 2196.00 | 2198.00 | 2200.00 |
| | | 2202.00 | 2204.00 | 2206.00 | | | | | | | |
| 411 SQ | DISCHARGE | 0. | 126. | 654. | 1825. | 3310. | 4310. | 5118. | 5815. | 6437. | 7004. |
| | | 7528. | 8018. | 8480. | | | | | | | |
| 413 SE | ELEVATION | 2183.00 | 2184.00 | 2186.00 | 2188.00 | 2190.00 | 2192.00 | 2194.00 | 2196.00 | 2198.00 | 2200.00 |
| | | 2202.00 | 2204.00 | 2206.00 | | | | | | | |

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| STORAGE | .00 | 2.80 | 37.50 | 120.30 | 229.00 | 340.00 | 453.80 | 570.00 | 689.00 | 810.00 |
| OUTFLOW | .00 | 126.00 | 654.00 | 1825.00 | 3310.00 | 4310.00 | 5118.00 | 5815.00 | 6437.00 | 7004.00 |
| ELEVATION | 2183.00 | 2184.00 | 2186.00 | 2188.00 | 2190.00 | 2192.00 | 2194.00 | 2196.00 | 2198.00 | 2200.00 |
| STORAGE | 934.00 | 1061.00 | 1190.00 | | | | | | | |
| OUTFLOW | 7528.00 | 8018.00 | 8480.00 | | | | | | | |
| ELEVATION | 2202.00 | 2204.00 | 2206.00 | | | | | | | |

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .56

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0820 | 101 | 7501. | 927.6 | 2201.9 | 1 | | 1640 | 201 | 0. | .0 | 2183.0 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0825 | 102 | 7499. | 927.1 | 2201.9 | 1 | | 1645 | 202 | 0. | .0 | 2183.0 |
| 1 | | 0010 | 3 | 0. | .0 | 2183.0 | 1 | | 0830 | 103 | 7489. | 924.7 | 2201.8 | 1 | | 1650 | 203 | 0. | .0 | 2183.0 |
| 1 | | 0015 | 4 | 0. | .0 | 2183.0 | 1 | | 0835 | 104 | 7470. | 920.3 | 2201.8 | 1 | | 1655 | 204 | 0. | .0 | 2183.0 |
| 1 | | 0020 | 5 | 0. | .0 | 2183.0 | 1 | | 0840 | 105 | 7441. | 914.0 | 2201.7 | 1 | | 1700 | 205 | 0. | .0 | 2183.0 |
| 1 | | 0025 | 6 | 0. | .0 | 2183.0 | 1 | | 0845 | 106 | 7409. | 905.8 | 2201.5 | 1 | | 1705 | 206 | 0. | .0 | 2183.0 |
| 1 | | 0030 | 7 | 0. | .0 | 2183.0 | 1 | | 0850 | 107 | 7366. | 895.8 | 2201.4 | 1 | | 1710 | 207 | 0. | .0 | 2183.0 |
| 1 | | 0035 | 8 | 0. | .0 | 2183.0 | 1 | | 0855 | 108 | 7317. | 884.0 | 2201.2 | 1 | | 1715 | 208 | 0. | .0 | 2183.0 |
| 1 | | 0040 | 9 | 0. | .0 | 2183.0 | 1 | | 0900 | 109 | 7260. | 870.5 | 2201.0 | 1 | | 1720 | 209 | 0. | .0 | 2183.0 |
| 1 | | 0045 | 10 | 0. | .0 | 2183.0 | 1 | | 0905 | 110 | 7196. | 855.4 | 2200.7 | 1 | | 1725 | 210 | 0. | .0 | 2183.0 |
| 1 | | 0050 | 11 | 0. | .0 | 2183.0 | 1 | | 0910 | 111 | 7125. | 838.7 | 2200.5 | 1 | | 1730 | 211 | 0. | .0 | 2183.0 |
| 1 | | 0055 | 12 | 0. | .0 | 2183.0 | 1 | | 0915 | 112 | 7049. | 820.6 | 2200.2 | 1 | | 1735 | 212 | 0. | .0 | 2183.0 |
| 1 | | 0100 | 13 | 0. | .0 | 2183.0 | 1 | | 0920 | 113 | 6962. | 801.0 | 2199.9 | 1 | | 1740 | 213 | 0. | .0 | 2183.0 |
| 1 | | 0105 | 14 | 0. | .0 | 2183.0 | 1 | | 0925 | 114 | 6865. | 780.2 | 2199.5 | 1 | | 1745 | 214 | 0. | .0 | 2183.0 |
| 1 | | 0110 | 15 | 0. | .0 | 2183.0 | 1 | | 0930 | 115 | 6762. | 758.3 | 2199.1 | 1 | | 1750 | 215 | 0. | .0 | 2183.0 |
| 1 | | 0115 | 16 | 0. | .0 | 2183.0 | 1 | | 0935 | 116 | 6654. | 735.4 | 2198.8 | 1 | | 1755 | 216 | 0. | .0 | 2183.0 |
| 1 | | 0120 | 17 | 0. | .0 | 2183.0 | 1 | | 0940 | 117 | 6542. | 711.5 | 2198.4 | 1 | | 1800 | 217 | 0. | .0 | 2183.0 |
| 1 | | 0125 | 18 | 0. | .0 | 2183.0 | 1 | | 0945 | 118 | 6426. | 686.8 | 2198.0 | 1 | | 1805 | 218 | 0. | .0 | 2183.0 |
| 1 | | 0130 | 19 | 0. | .0 | 2183.0 | 1 | | 0950 | 119 | 6293. | 661.4 | 2197.5 | 1 | | 1810 | 219 | 0. | .0 | 2183.0 |
| 1 | | 0135 | 20 | 0. | .0 | 2183.0 | 1 | | 0955 | 120 | 6157. | 635.5 | 2197.1 | 1 | | 1815 | 220 | 0. | .0 | 2183.0 |
| 1 | | 0140 | 21 | 1. | .0 | 2183.0 | 1 | | 1000 | 121 | 6020. | 609.2 | 2196.7 | 1 | | 1820 | 221 | 0. | .0 | 2183.0 |
| 1 | | 0145 | 22 | 1. | .0 | 2183.0 | 1 | | 1005 | 122 | 5880. | 582.5 | 2196.2 | 1 | | 1825 | 222 | 0. | .0 | 2183.0 |
| 1 | | 0150 | 23 | 2. | .0 | 2183.0 | 1 | | 1010 | 123 | 5729. | 555.6 | 2195.8 | 1 | | 1830 | 223 | 0. | .0 | 2183.0 |
| 1 | | 0155 | 24 | 3. | .1 | 2183.0 | 1 | | 1015 | 124 | 5567. | 528.6 | 2195.3 | 1 | | 1835 | 224 | 0. | .0 | 2183.0 |
| 1 | | 0200 | 25 | 5. | .1 | 2183.0 | 1 | | 1020 | 125 | 5405. | 501.7 | 2194.8 | 1 | | 1840 | 225 | 0. | .0 | 2183.0 |
| 1 | | 0205 | 26 | 7. | .2 | 2183.1 | 1 | | 1025 | 126 | 5245. | 474.9 | 2194.4 | 1 | | 1845 | 226 | 0. | .0 | 2183.0 |
| 1 | | 0210 | 27 | 11. | .2 | 2183.1 | 1 | | 1030 | 127 | 5079. | 448.4 | 2193.9 | 1 | | 1850 | 227 | 0. | .0 | 2183.0 |
| 1 | | 0215 | 28 | 15. | .3 | 2183.1 | 1 | | 1035 | 128 | 4893. | 422.2 | 2193.4 | 1 | | 1855 | 228 | 0. | .0 | 2183.0 |
| 1 | | 0220 | 29 | 19. | .4 | 2183.2 | 1 | | 1040 | 129 | 4711. | 396.5 | 2193.0 | 1 | | 1900 | 229 | 0. | .0 | 2183.0 |
| 1 | | 0225 | 30 | 25. | .5 | 2183.2 | 1 | | 1045 | 130 | 4532. | 371.3 | 2192.5 | 1 | | 1905 | 230 | 0. | .0 | 2183.0 |
| 1 | | 0230 | 31 | 31. | .7 | 2183.2 | 1 | | 1050 | 131 | 4357. | 346.7 | 2192.1 | 1 | | 1910 | 231 | 0. | .0 | 2183.0 |
| 1 | | 0235 | 32 | 37. | .8 | 2183.3 | 1 | | 1055 | 132 | 4155. | 322.7 | 2191.7 | 1 | | 1915 | 232 | 0. | .0 | 2183.0 |
| 1 | | 0240 | 33 | 45. | 1.0 | 2183.4 | 1 | | 1100 | 133 | 3947. | 299.7 | 2191.3 | 1 | | 1920 | 233 | 0. | .0 | 2183.0 |
| 1 | | 0245 | 34 | 52. | 1.2 | 2183.4 | 1 | | 1105 | 134 | 3747. | 277.6 | 2190.9 | 1 | | 1925 | 234 | 0. | .0 | 2183.0 |
| 1 | | 0250 | 35 | 60. | 1.3 | 2183.5 | 1 | | 1110 | 135 | 3556. | 256.3 | 2190.5 | 1 | | 1930 | 235 | 0. | .0 | 2183.0 |
| 1 | | 0255 | 36 | 69. | 1.5 | 2183.5 | 1 | | 1115 | 136 | 3373. | 236.0 | 2190.1 | 1 | | 1935 | 236 | 0. | .0 | 2183.0 |
| 1 | | 0300 | 37 | 79. | 1.8 | 2183.6 | 1 | | 1120 | 137 | 3141. | 216.6 | 2189.8 | 1 | | 1940 | 237 | 0. | .0 | 2183.0 |
| 1 | | 0305 | 38 | 92. | 2.0 | 2183.7 | 1 | | 1125 | 138 | 2895. | 198.7 | 2189.4 | 1 | | 1945 | 238 | 0. | .0 | 2183.0 |
| 1 | | 0310 | 39 | 107. | 2.4 | 2183.8 | 1 | | 1130 | 139 | 2668. | 182.0 | 2189.1 | 1 | | 1950 | 239 | 0. | .0 | 2183.0 |
| 1 | | 0315 | 40 | 127. | 2.8 | 2184.0 | 1 | | 1135 | 140 | 2457. | 166.6 | 2188.9 | 1 | | 1955 | 240 | 0. | .0 | 2183.0 |
| 1 | | 0320 | 41 | 137. | 3.5 | 2184.0 | 1 | | 1140 | 141 | 2262. | 152.3 | 2188.6 | 1 | | 2000 | 241 | 0. | .0 | 2183.0 |
| 1 | | 0325 | 42 | 152. | 4.5 | 2184.1 | 1 | | 1145 | 142 | 2082. | 139.1 | 2188.3 | 1 | | 2005 | 242 | 0. | .0 | 2183.0 |
| 1 | | 0330 | 43 | 175. | 6.1 | 2184.2 | 1 | | 1150 | 143 | 1915. | 126.9 | 2188.1 | 1 | | 2010 | 243 | 0. | .0 | 2183.0 |
| 1 | | 0335 | 44 | 208. | 8.2 | 2184.3 | 1 | | 1155 | 144 | 1759. | 115.6 | 2187.9 | 1 | | 2015 | 244 | 0. | .0 | 2183.0 |
| 1 | | 0340 | 45 | 252. | 11.1 | 2184.5 | 1 | | 1200 | 145 | 1612. | 105.3 | 2187.6 | 1 | | 2020 | 245 | 0. | .0 | 2183.0 |
| 1 | | 0345 | 46 | 307. | 14.7 | 2184.7 | 1 | | 1205 | 146 | 1477. | 95.7 | 2187.4 | 1 | | 2025 | 246 | 0. | .0 | 2183.0 |
| 1 | | 0350 | 47 | 373. | 19.0 | 2184.9 | 1 | | 1210 | 147 | 1353. | 86.9 | 2187.2 | 1 | | 2030 | 247 | 0. | .0 | 2183.0 |
| 1 | | 0355 | 48 | 450. | 24.1 | 2185.2 | 1 | | 1215 | 148 | 1239. | 78.9 | 2187.0 | 1 | | 2035 | 248 | 0. | .0 | 2183.0 |
| 1 | | 0400 | 49 | 538. | 29.9 | 2185.6 | 1 | | 1220 | 149 | 1134. | 71.5 | 2186.8 | 1 | | 2040 | 249 | 0. | .0 | 2183.0 |
| 1 | | 0405 | 50 | 636. | 36.3 | 2185.9 | 1 | | 1225 | 150 | 1038. | 64.6 | 2186.7 | 1 | | 2045 | 250 | 0. | .0 | 2183.0 |
| 1 | | 0410 | 51 | 739. | 43.5 | 2186.1 | 1 | | 1230 | 151 | 949. | 58.4 | 2186.5 | 1 | | 2050 | 251 | 0. | .0 | 2183.0 |
| 1 | | 0415 | 52 | 849. | 51.3 | 2186.3 | 1 | | 1235 | 152 | 868. | 52.7 | 2186.4 | 1 | | 2055 | 252 | 0. | .0 | 2183.0 |
| 1 | | 0420 | 53 | 968. | 59.7 | 2186.5 | 1 | | 1240 | 153 | 794. | 47.4 | 2186.2 | 1 | | 2100 | 253 | 0. | .0 | 2183.0 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0425 | 54 | 1096. | 68.8 | 2186.8 | * | 1 | 1245 | 154 | 726. | 42.6 | 2186.1 | * | 1 | 2105 | 254 | 0. | .0 | 2183.0 |
| 1 | 0430 | 55 | 1232. | 78.4 | 2187.0 | * | 1 | 1250 | 155 | 663. | 38.1 | 2186.0 | * | 1 | 2110 | 255 | 0. | .0 | 2183.0 |
| 1 | 0435 | 56 | 1377. | 88.6 | 2187.2 | * | 1 | 1255 | 156 | 602. | 34.1 | 2185.8 | * | 1 | 2115 | 256 | 0. | .0 | 2183.0 |
| 1 | 0440 | 57 | 1530. | 99.4 | 2187.5 | * | 1 | 1300 | 157 | 546. | 30.4 | 2185.6 | * | 1 | 2120 | 257 | 0. | .0 | 2183.0 |
| 1 | 0445 | 58 | 1693. | 111.0 | 2187.8 | * | 1 | 1305 | 158 | 495. | 27.1 | 2185.4 | * | 1 | 2125 | 258 | 0. | .0 | 2183.0 |
| 1 | 0450 | 59 | 1865. | 123.2 | 2188.1 | * | 1 | 1310 | 159 | 449. | 24.0 | 2185.2 | * | 1 | 2130 | 259 | 0. | .0 | 2183.0 |
| 1 | 0455 | 60 | 2044. | 136.3 | 2188.3 | * | 1 | 1315 | 160 | 407. | 21.3 | 2185.1 | * | 1 | 2135 | 260 | 0. | .0 | 2183.0 |
| 1 | 0500 | 61 | 2234. | 150.3 | 2188.6 | * | 1 | 1320 | 161 | 369. | 18.8 | 2184.9 | * | 1 | 2140 | 261 | 0. | .0 | 2183.0 |
| 1 | 0505 | 62 | 2437. | 165.1 | 2188.8 | * | 1 | 1325 | 162 | 334. | 16.5 | 2184.8 | * | 1 | 2145 | 262 | 0. | .0 | 2183.0 |
| 1 | 0510 | 63 | 2651. | 180.7 | 2189.1 | * | 1 | 1330 | 163 | 303. | 14.4 | 2184.7 | * | 1 | 2150 | 263 | 0. | .0 | 2183.0 |
| 1 | 0515 | 64 | 2876. | 197.2 | 2189.4 | * | 1 | 1335 | 164 | 274. | 12.5 | 2184.6 | * | 1 | 2155 | 264 | 0. | .0 | 2183.0 |
| 1 | 0520 | 65 | 3111. | 214.5 | 2189.7 | * | 1 | 1340 | 165 | 248. | 10.8 | 2184.5 | * | 1 | 2200 | 265 | 0. | .0 | 2183.0 |
| 1 | 0525 | 66 | 3341. | 232.5 | 2190.1 | * | 1 | 1345 | 166 | 225. | 9.3 | 2184.4 | * | 1 | 2205 | 266 | 0. | .0 | 2183.0 |
| 1 | 0530 | 67 | 3513. | 251.5 | 2190.4 | * | 1 | 1350 | 167 | 203. | 7.9 | 2184.3 | * | 1 | 2210 | 267 | 0. | .0 | 2183.0 |
| 1 | 0535 | 68 | 3694. | 271.7 | 2190.8 | * | 1 | 1355 | 168 | 184. | 6.6 | 2184.2 | * | 1 | 2215 | 268 | 0. | .0 | 2183.0 |
| 1 | 0540 | 69 | 3885. | 292.9 | 2191.2 | * | 1 | 1400 | 169 | 167. | 5.5 | 2184.2 | * | 1 | 2220 | 269 | 0. | .0 | 2183.0 |
| 1 | 0545 | 70 | 4084. | 315.0 | 2191.5 | * | 1 | 1405 | 170 | 151. | 4.4 | 2184.1 | * | 1 | 2225 | 270 | 0. | .0 | 2183.0 |
| 1 | 0550 | 71 | 4290. | 337.8 | 2192.0 | * | 1 | 1410 | 171 | 136. | 3.5 | 2184.0 | * | 1 | 2230 | 271 | 0. | .0 | 2183.0 |
| 1 | 0555 | 72 | 4461. | 361.3 | 2192.4 | * | 1 | 1415 | 172 | 119. | 2.6 | 2183.9 | * | 1 | 2235 | 272 | 0. | .0 | 2183.0 |
| 1 | 0600 | 73 | 4633. | 385.5 | 2192.8 | * | 1 | 1420 | 173 | 88. | 2.0 | 2183.7 | * | 1 | 2240 | 273 | 0. | .0 | 2183.0 |
| 1 | 0605 | 74 | 4809. | 410.3 | 2193.2 | * | 1 | 1425 | 174 | 66. | 1.5 | 2183.5 | * | 1 | 2245 | 274 | 0. | .0 | 2183.0 |
| 1 | 0610 | 75 | 4988. | 435.4 | 2193.7 | * | 1 | 1430 | 175 | 49. | 1.1 | 2183.4 | * | 1 | 2250 | 275 | 0. | .0 | 2183.0 |
| 1 | 0615 | 76 | 5161. | 460.9 | 2194.1 | * | 1 | 1435 | 176 | 37. | .8 | 2183.3 | * | 1 | 2255 | 276 | 0. | .0 | 2183.0 |
| 1 | 0620 | 77 | 5315. | 486.7 | 2194.6 | * | 1 | 1440 | 177 | 27. | .6 | 2183.2 | * | 1 | 2300 | 277 | 0. | .0 | 2183.0 |
| 1 | 0625 | 78 | 5471. | 512.7 | 2195.0 | * | 1 | 1445 | 178 | 21. | .5 | 2183.2 | * | 1 | 2305 | 278 | 0. | .0 | 2183.0 |
| 1 | 0630 | 79 | 5628. | 538.8 | 2195.5 | * | 1 | 1450 | 179 | 16. | .3 | 2183.1 | * | 1 | 2310 | 279 | 0. | .0 | 2183.0 |
| 1 | 0635 | 80 | 5785. | 565.0 | 2195.9 | * | 1 | 1455 | 180 | 12. | .3 | 2183.1 | * | 1 | 2315 | 280 | 0. | .0 | 2183.0 |
| 1 | 0640 | 81 | 5926. | 591.2 | 2196.4 | * | 1 | 1500 | 181 | 9. | .2 | 2183.1 | * | 1 | 2320 | 281 | 0. | .0 | 2183.0 |
| 1 | 0645 | 82 | 6062. | 617.3 | 2196.8 | * | 1 | 1505 | 182 | 7. | .2 | 2183.1 | * | 1 | 2325 | 282 | 0. | .0 | 2183.0 |
| 1 | 0650 | 83 | 6198. | 643.2 | 2197.2 | * | 1 | 1510 | 183 | 5. | .1 | 2183.0 | * | 1 | 2330 | 283 | 0. | .0 | 2183.0 |
| 1 | 0655 | 84 | 6331. | 668.8 | 2197.7 | * | 1 | 1515 | 184 | 4. | .1 | 2183.0 | * | 1 | 2335 | 284 | 0. | .0 | 2183.0 |
| 1 | 0700 | 85 | 6460. | 693.9 | 2198.1 | * | 1 | 1520 | 185 | 3. | .1 | 2183.0 | * | 1 | 2340 | 285 | 0. | .0 | 2183.0 |
| 1 | 0705 | 86 | 6575. | 718.4 | 2198.5 | * | 1 | 1525 | 186 | 3. | .1 | 2183.0 | * | 1 | 2345 | 286 | 0. | .0 | 2183.0 |
| 1 | 0710 | 87 | 6686. | 742.2 | 2198.9 | * | 1 | 1530 | 187 | 2. | .0 | 2183.0 | * | 1 | 2350 | 287 | 0. | .0 | 2183.0 |
| 1 | 0715 | 88 | 6794. | 765.1 | 2199.3 | * | 1 | 1535 | 188 | 2. | .0 | 2183.0 | * | 1 | 2355 | 288 | 0. | .0 | 2183.0 |
| 1 | 0720 | 89 | 6896. | 787.0 | 2199.6 | * | 1 | 1540 | 189 | 1. | .0 | 2183.0 | * | 2 | 0000 | 289 | 0. | .0 | 2183.0 |
| 1 | 0725 | 90 | 6993. | 807.7 | 2200.0 | * | 1 | 1545 | 190 | 1. | .0 | 2183.0 | * | 2 | 0005 | 290 | 0. | .0 | 2183.0 |
| 1 | 0730 | 91 | 7076. | 827.1 | 2200.3 | * | 1 | 1550 | 191 | 1. | .0 | 2183.0 | * | 2 | 0010 | 291 | 0. | .0 | 2183.0 |
| 1 | 0735 | 92 | 7152. | 845.1 | 2200.6 | * | 1 | 1555 | 192 | 1. | .0 | 2183.0 | * | 2 | 0015 | 292 | 0. | .0 | 2183.0 |
| 1 | 0740 | 93 | 7222. | 861.5 | 2200.8 | * | 1 | 1600 | 193 | 1. | .0 | 2183.0 | * | 2 | 0020 | 293 | 0. | .0 | 2183.0 |
| 1 | 0745 | 94 | 7284. | 876.3 | 2201.1 | * | 1 | 1605 | 194 | 0. | .0 | 2183.0 | * | 2 | 0025 | 294 | 0. | .0 | 2183.0 |
| 1 | 0750 | 95 | 7339. | 889.3 | 2201.3 | * | 1 | 1610 | 195 | 0. | .0 | 2183.0 | * | 2 | 0030 | 295 | 0. | .0 | 2183.0 |
| 1 | 0755 | 96 | 7386. | 900.5 | 2201.5 | * | 1 | 1615 | 196 | 0. | .0 | 2183.0 | * | 2 | 0035 | 296 | 0. | .0 | 2183.0 |
| 1 | 0800 | 97 | 7426. | 909.8 | 2201.6 | * | 1 | 1620 | 197 | 0. | .0 | 2183.0 | * | 2 | 0040 | 297 | 0. | .0 | 2183.0 |
| 1 | 0805 | 98 | 7457. | 917.2 | 2201.7 | * | 1 | 1625 | 198 | 0. | .0 | 2183.0 | * | 2 | 0045 | 298 | 0. | .0 | 2183.0 |
| 1 | 0810 | 99 | 7480. | 922.7 | 2201.8 | * | 1 | 1630 | 199 | 0. | .0 | 2183.0 | * | 2 | 0050 | 299 | 0. | .0 | 2183.0 |
| 1 | 0815 | 100 | 7495. | 926.1 | 2201.9 | * | 1 | 1635 | 200 | 0. | .0 | 2183.0 | * | 2 | 0055 | 300 | 0. | .0 | 2183.0 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 24.92-HR |
| (CFS) | (HR) | (CFS) | | | | |
| 7501. | 8.33 | | 5936. | 1707. | 1644. | 1644. |
| | | (INCHES) | .403 | .464 | .464 | .464 |
| | | (AC-FT) | 2944. | 3386. | 3386. | 3386. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 24.92-HR |
| (AC-FT) | (HR) | | | | |
| 928. | 8.33 | 626. | 170. | 164. | 164. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 24.92-HR |
| (FEET) | (HR) | | | | |
| 2201.90 | 8.33 | 2196.86 | 2187.19 | 2187.03 | 2187.03 |

CUMULATIVE AREA = 136.82 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

| OPERATION | STATION | AREA | PLAN | | RATIOS APPLIED TO PRECIPITATION RATIO 1 .56 |
|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | |
| | B13A | 1.34 | 1 | FLOW | 261. |
| | | | | TIME | 4.08 |
| ROUTED TO | | | | | |
| | RB13A | 1.34 | 1 | FLOW | 240. |
| | | | | TIME | 4.75 |
| HYDROGRAPH AT | | | | | |
| | B13B | .65 | 1 | FLOW | 87. |
| | | | | TIME | 5.33 |
| 2 COMBINED AT | | | | | |
| | B13B | 1.99 | 1 | FLOW | 321. |
| | | | | TIME | 4.83 |
| ROUTED TO | | | | | |
| | RB13B | 1.99 | 1 | FLOW | 314. |
| | | | | TIME | 5.08 |
| HYDROGRAPH AT | | | | | |
| | B17 | .80 | 1 | FLOW | 124. |
| | | | | TIME | 4.42 |
| 2 COMBINED AT | | | | | |
| | B17 | 2.79 | 1 | FLOW | 419. |
| | | | | TIME | 5.08 |
| DIVERSION TO | | | | | |
| | B17DV | 2.79 | 1 | FLOW | 90. |
| | | | | TIME | 5.08 |
| HYDROGRAPH AT | | | | | |
| | B17DV | 2.79 | 1 | FLOW | 329. |
| | | | | TIME | 5.08 |
| ROUTED TO | | | | | |
| | RB17 | 2.79 | 1 | FLOW | 323. |
| | | | | TIME | 5.67 |

| | | | | | |
|---|---|---|---|---|---|
| HYDROGRAPH AT | | | | | |
| + | B18B | 1.94 | 1 | FLOW | 389. |
| | | | | TIME | 4.08 |
| 2 COMBINED AT | | | | | |
| + | B18B | 4.73 | 1 | FLOW | 575. |
| | | | | TIME | 5.33 |
| ROUTED TO | | | | | |
| + | RB18B | 4.73 | 1 | FLOW | 557. |
| | | | | TIME | 5.75 |
| HYDROGRAPH AT | | | | | |
| + | B13C | 1.92 | 1 | FLOW | 439. |
| | | | | TIME | 3.92 |
| HYDROGRAPH AT | | | | | |
| + | B17DV | .00 | 1 | FLOW | 90. |
| | | | | TIME | 5.08 |
| ROUTED TO | | | | | |
| + | RB17DV | .00 | 1 | FLOW | 87. |
| | | | | TIME | 5.58 |
| 2 COMBINED AT | | | | | |
| + | B13C | 1.92 | 1 | FLOW | 439. |
| | | | | TIME | 3.92 |
| DIVERSION TO | | | | | |
| + | B13CDV | 1.92 | 1 | FLOW | 0. |
| | | | | TIME | .00 |
| HYDROGRAPH AT | | | | | |
| + | B13CDV | 1.92 | 1 | FLOW | 439. |
| | | | | TIME | 3.92 |
| ROUTED TO | | | | | |
| + | RB13C | 1.92 | 1 | FLOW | 398. |
| | | | | TIME | 4.42 |
| HYDROGRAPH AT | | | | | |
| + | B14A | 1.34 | 1 | FLOW | 337. |
| | | | | TIME | 3.75 |
| 2 COMBINED AT | | | | | |
| + | B14A | 3.26 | 1 | FLOW | 559. |
| | | | | TIME | 4.33 |
| DIVERSION TO | | | | | |
| + | B14ADV | 3.26 | 1 | FLOW | 168. |
| | | | | TIME | 4.33 |
| HYDROGRAPH AT | | | | | |
| + | B14ADV | 3.26 | 1 | FLOW | 391. |
| | | | | TIME | 4.33 |
| ROUTED TO | | | | | |
| + | RB14A | 3.26 | 1 | FLOW | 384. |
| | | | | TIME | 4.58 |
| HYDROGRAPH AT | | | | | |
| + | B16B | .72 | 1 | FLOW | 146. |
| | | | | TIME | 3.75 |
| 2 COMBINED AT | | | | | |
| + | B16B | 3.98 | 1 | FLOW | 460. |
| | | | | TIME | 5.00 |
| HYDROGRAPH AT | | | | | |
| + | D1A | 2.39 | 1 | FLOW | 411. |
| | | | | TIME | 4.33 |
| ROUTED TO | | | | | |
| + | RD1A | 2.39 | 1 | FLOW | 406. |
| | | | | TIME | 4.50 |
| HYDROGRAPH AT | | | | | |
| + | D1B | .38 | 1 | FLOW | 41. |
| | | | | TIME | 4.67 |
| 2 COMBINED AT | | | | | |
| + | D1B | 2.77 | 1 | FLOW | 446. |
| | | | | TIME | 4.50 |
| ROUTED TO | | | | | |
| + | RD1B | 2.77 | 1 | FLOW | 436. |
| | | | | TIME | 4.83 |
| HYDROGRAPH AT | | | | | |
| + | D1C | .48 | 1 | FLOW | 46. |
| | | | | TIME | 5.42 |
| 2 COMBINED AT | | | | | |
| + | D1C | 3.25 | 1 | FLOW | 479. |
| | | | | TIME | 4.83 |
| ROUTED TO | | | | | |
| + | RD1C | 3.25 | 1 | FLOW | 470. |
| | | | | TIME | 5.08 |
| HYDROGRAPH AT | | | | | |
| + | D1D | 1.15 | 1 | FLOW | 156. |
| | | | | TIME | 3.92 |
| ROUTED TO | | | | | |
| + | RD1D | 1.15 | 1 | FLOW | 152. |
| | | | | TIME | 4.08 |
| HYDROGRAPH AT | | | | | |
| + | D1E | .22 | 1 | FLOW | 19. |
| | | | | TIME | 5.42 |
| HYDROGRAPH AT | | | | | |
| + | D1F | .88 | 1 | FLOW | 40. |
| | | | | TIME | 5.83 |
| 4 COMBINED AT | | | | | |
| + | D1F | 5.50 | 1 | FLOW | 643. |
| | | | | TIME | 5.25 |

| | | | | | |
|---|---|---|---|---|---|
| ROUTED TO | | | | | |
| * | RD1F | 5.50 | 1 | FLOW | 625. |
| | | | | TIME | 5.75 |
| HYDROGRAPH AT | | | | | |
| * | B18A | 1.59 | 1 | FLOW | 55. |
| | | | | TIME | 5.33 |
| 2 COMBINED AT | | | | | |
| * | B18A | 7.09 | 1 | FLOW | 668. |
| | | | | TIME | 5.67 |
| ROUTED TO | | | | | |
| * | RB18A | 7.09 | 1 | FLOW | 650. |
| | | | | TIME | 6.25 |
| HYDROGRAPH AT | | | | | |
| * | D009 | 3.67 | 1 | FLOW | 519. |
| | | | | TIME | 3.92 |
| ROUTED TO | | | | | |
| * | RD009 | 3.67 | 1 | FLOW | 509. |
| | | | | TIME | 4.08 |
| HYDROGRAPH AT | | | | | |
| * | D004 | 2.42 | 1 | FLOW | 524. |
| | | | | TIME | 4.17 |
| 2 COMBINED AT | | | | | |
| * | D004 | 6.09 | 1 | FLOW | 1031. |
| | | | | TIME | 4.08 |
| ROUTED TO | | | | | |
| * | RD004 | 6.09 | 1 | FLOW | 906. |
| | | | | TIME | 4.50 |
| HYDROGRAPH AT | | | | | |
| * | D08 | 12.11 | 1 | FLOW | 1763. |
| | | | | TIME | 5.67 |
| 2 COMBINED AT | | | | | |
| * | D08 | 18.20 | 1 | FLOW | 2523. |
| | | | | TIME | 5.58 |
| ROUTED TO | | | | | |
| * | RD08 | 18.20 | 1 | FLOW | 2411. |
| | | | | TIME | 6.25 |
| HYDROGRAPH AT | | | | | |
| * | D010 | 10.58 | 1 | FLOW | 1106. |
| | | | | TIME | 4.58 |
| HYDROGRAPH AT | | | | | |
| * | D07 | 4.29 | 1 | FLOW | 439. |
| | | | | TIME | 4.67 |
| 3 COMBINED AT | | | | | |
| | D010 | 33.07 | 1 | FLOW | 3639. |
| | | | | TIME | 5.67 |
| DIVERSION TO | | | | | |
| * | PITT | 33.07 | 1 | FLOW | 1945. |
| | | | | TIME | 5.67 |
| HYDROGRAPH AT | | | | | |
| * | PITT | 33.07 | 1 | FLOW | 1693. |
| | | | | TIME | 5.67 |
| ROUTED TO | | | | | |
| * | RD010 | 33.07 | 1 | FLOW | 1628. |
| | | | | TIME | 6.33 |
| HYDROGRAPH AT | | | | | |
| * | D012 | 11.08 | 1 | FLOW | 1042. |
| | | | | TIME | 5.42 |
| 2 COMBINED AT | | | | | |
| * | D012 | 44.15 | 1 | FLOW | 2510. |
| | | | | TIME | 5.92 |
| ROUTED TO | | | | | |
| * | RD012 | 44.15 | 1 | FLOW | 2447. |
| | | | | TIME | 6.25 |
| HYDROGRAPH AT | | | | | |
| * | D01 | 9.57 | 1 | FLOW | 1587. |
| | | | | TIME | 4.50 |
| ROUTED TO | | | | | |
| * | RD01 | 9.57 | 1 | FLOW | 1482. |
| | | | | TIME | 5.33 |
| HYDROGRAPH AT | | | | | |
| * | D005 | 2.60 | 1 | FLOW | 440. |
| | | | | TIME | 4.25 |
| 2 COMBINED AT | | | | | |
| * | D005 | 12.17 | 1 | FLOW | 1848. |
| | | | | TIME | 5.25 |
| ROUTED TO | | | | | |
| * | RD005 | 12.17 | 1 | FLOW | 1822. |
| | | | | TIME | 5.50 |
| HYDROGRAPH AT | | | | | |
| * | D02 | 5.90 | 1 | FLOW | 884. |
| | | | | TIME | 4.58 |
| ROUTED TO | | | | | |
| | RD02 | 5.90 | 1 | FLOW | 838. |
| | | | | TIME | 5.42 |
| HYDROGRAPH AT | | | | | |
| * | D03 | 10.13 | 1 | FLOW | 1580. |
| | | | | TIME | 4.42 |
| HYDROGRAPH AT | | | | | |
| * | D04 | 8.76 | 1 | FLOW | 1391. |
| | | | | TIME | 4.58 |

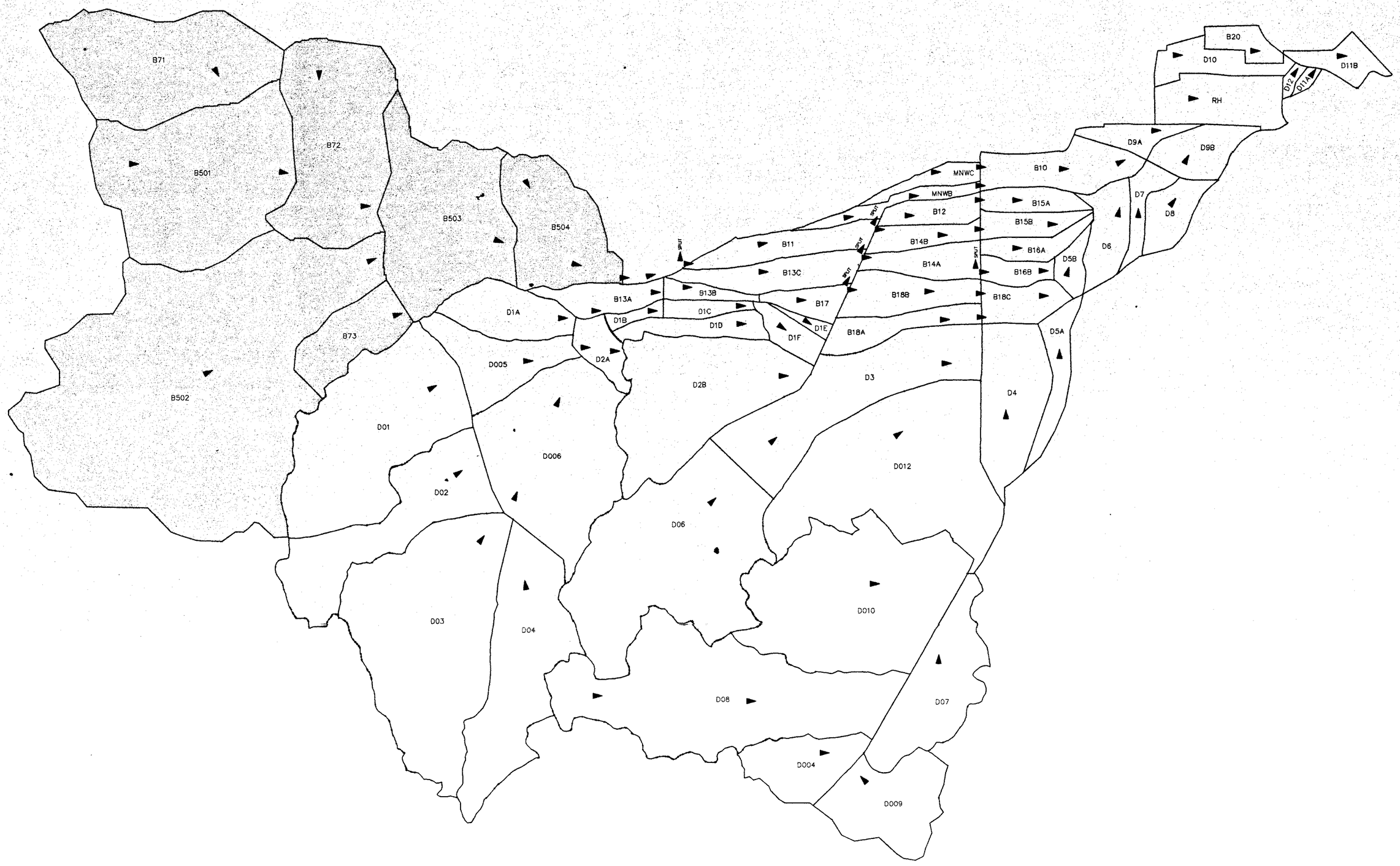
| | | | | | |
|---|---|---|---|---|---|
| 2 COMBINED AT | | | | | |
| * | D04 | 18.89 | 1 | FLOW | 2962. |
| | | | | TIME | 4.50 |
| ROUTED TO | | | | | |
| * | RD04 | 18.89 | 1 | FLOW | 2726. |
| | | | | TIME | 5.75 |
| HYDROGRAPH AT | | | | | |
| * | D006 | 8.26 | 1 | FLOW | 1404. |
| | | | | TIME | 4.33 |
| 3 COMBINED AT | | | | | |
| * | D006 | 33.05 | 1 | FLOW | 4705. |
| | | | | TIME | 5.42 |
| ROUTED TO | | | | | |
| * | RD006 | 33.05 | 1 | FLOW | 4655. |
| | | | | TIME | 5.58 |
| HYDROGRAPH AT | | | | | |
| * | D2A | .97 | 1 | FLOW | 210. |
| | | | | TIME | 3.67 |
| 3 COMBINED AT | | | | | |
| * | D2A | 46.19 | 1 | FLOW | 6498. |
| | | | | TIME | 5.58 |
| ROUTED TO | | | | | |
| * | RD2A | 46.19 | 1 | FLOW | 6140. |
| | | | | TIME | 6.42 |
| HYDROGRAPH AT | | | | | |
| * | D2B | 7.39 | 1 | FLOW | 567. |
| | | | | TIME | 5.50 |
| 2 COMBINED AT | | | | | |
| * | D2B | 53.58 | 1 | FLOW | 6508. |
| | | | | TIME | 6.33 |
| ROUTED TO | | | | | |
| * | RD2B | 53.58 | 1 | FLOW | 6196. |
| | | | | TIME | 7.25 |
| HYDROGRAPH AT | | | | | |
| * | D06 | 11.68 | 1 | FLOW | 1773. |
| | | | | TIME | 4.83 |
| ROUTED TO | | | | | |
| * | RD06 | 11.68 | 1 | FLOW | 1708. |
| | | | | TIME | 5.83 |
| HYDROGRAPH AT | | | | | |
| * | DJ | 6.22 | 1 | FLOW | 373. |
| | | | | TIME | 5.50 |
| 3 COMBINED AT | | | | | |
| | DJ | 71.48 | 1 | FLOW | 7360. |
| | | | | TIME | 7.00 |
| ROUTED TO | | | | | |
| * | RDJ | 71.48 | 1 | FLOW | 7302. |
| | | | | TIME | 7.25 |
| HYDROGRAPH AT | | | | | |
| * | D4 | 4.43 | 1 | FLOW | 571. |
| | | | | TIME | 4.25 |
| 3 COMBINED AT | | | | | |
| * | D4 | 120.06 | 1 | FLOW | 9328. |
| | | | | TIME | 7.00 |
| ROUTED TO | | | | | |
| * | RD4 | 120.06 | 1 | FLOW | 9255. |
| | | | | TIME | 7.25 |
| HYDROGRAPH AT | | | | | |
| * | B18C | .97 | 1 | FLOW | 120. |
| | | | | TIME | 3.83 |
| 5 COMBINED AT | | | | | |
| * | B18C | 136.82 | 1 | FLOW | 10090. |
| | | | | TIME | 7.08 |
| ROUTED TO | | | | | |
| * | LDCDB | 136.82 | 1 | FLOW | 7501. |
| | | | | TIME | 8.33 |

** PEAK STAGES IN FEET **

| | | |
|---|---|---|
| 1 | STAGE | 2201.90 |
| | TIME | 8.33 |

*** NORMAL END OF HEC-1 ***

F:\550-039\dwg\fig\FIG-3.dwg 03-29-02 15:39:43 Mludwig




# DRAINAGE PATTERNS OF EFFECTIVE HEC-1 MODEL, SEPTEMBER 1991

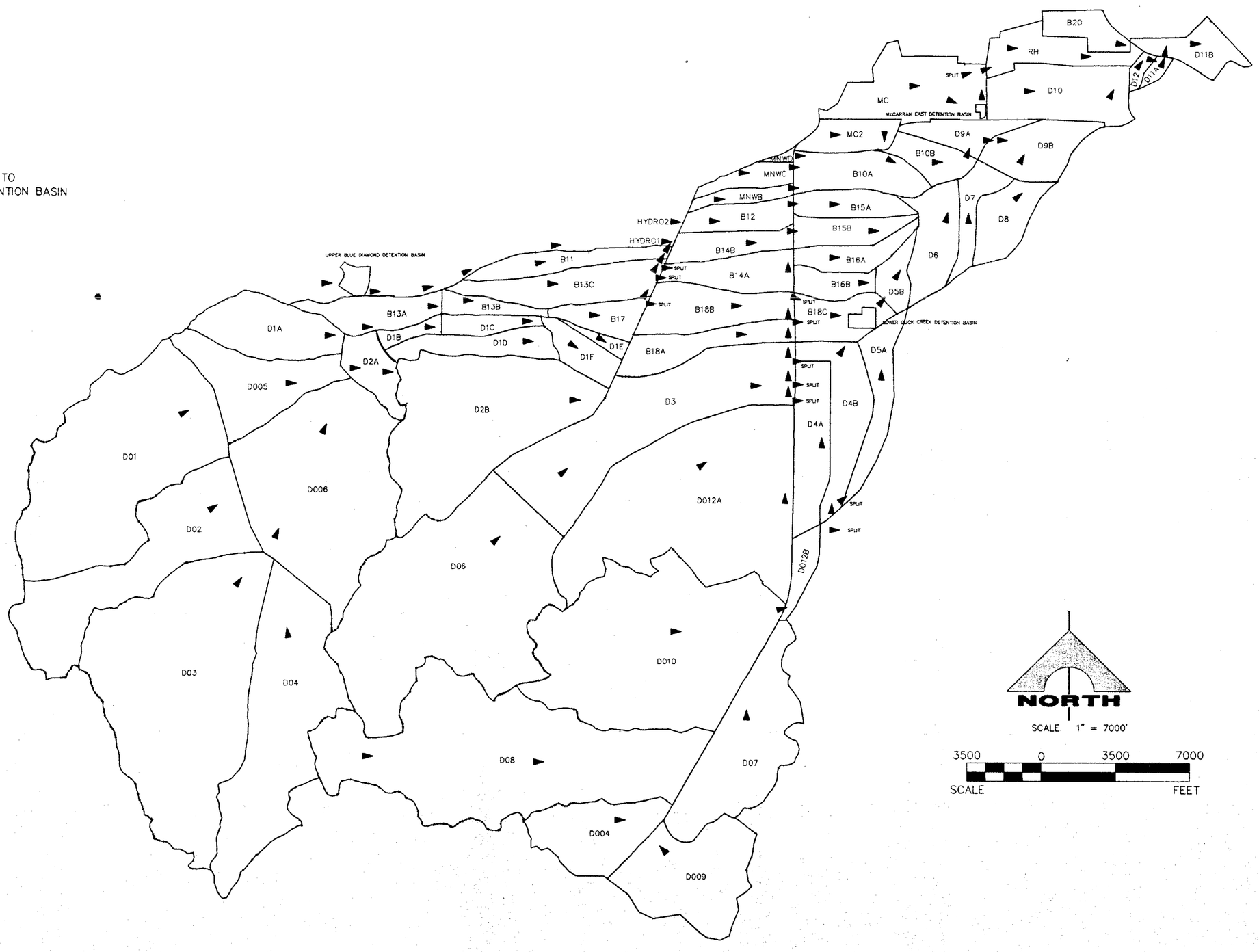
## LEGEND

DRAINAGE BASIN BOUNDARY

D5A DRAINAGE ID

FLOW DIRECTION

DRAINAGE AREA TRIBUTARY TO UPPER BLUE DIAMOND DETENTION BASIN




# DRAINAGE PATTERNS OF HEC-1 MODEL FOR SUBJECT FIS RESTUDY

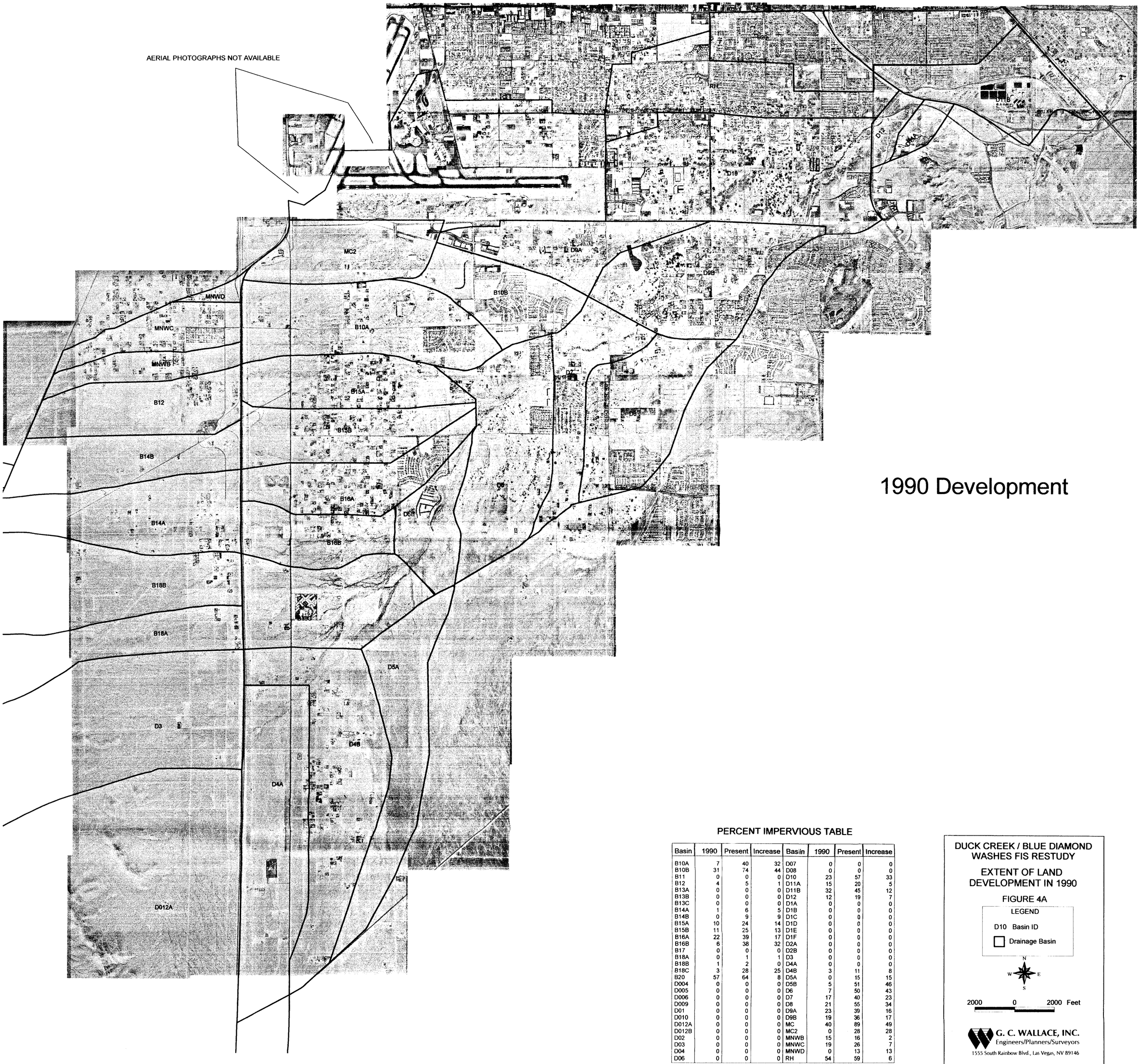
| | | |
|---|---|---|
| 1 OF SHTS SHEET | DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY<br>FIGURE 3<br>**WATERSHED COMPARISON 1991 TO PRESENT** | G.C. WALLACE, INC.<br>Engineers/Planners/Surveyors<br>1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146<br>TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299<br>F:\550-039\dwg\fig\FIG-3.dwg Mludwig |

DESIGN: _____
DRAWN: _____
CHECK: _____
ISSUE DATE: _____
ISSUE EDITOR: _____
PLOT DATE: 03-29-02
PLOT TIME: 15:39:43

| REV | DATE | DESCRIPTION | DATE | AGEN. APP | DATE | GCW. APP |
|---|---|---|---|---|---|---|
| | | | | | | |

DATE: _____

AERIAL PHOTOGRAPHS NOT AVAILABLE




ALL WESTERN DRAINAGE AREAS TRIBUTARY TO DUCK CREEK WERE UNDEVELOPED IN 1990

# 1990 Development

## PERCENT IMPERVIOUS TABLE

| Basin | 1990 | Present | Increase | Basin | 1990 | Present | Increase |
|---|---|---|---|---|---|---|---|
| B10A | 7 | 40 | 32 | D07 | 0 | 0 | 0 |
| B10B | 31 | 74 | 44 | D08 | 0 | 0 | 0 |
| B11 | 0 | 0 | 0 | D10 | 23 | 57 | 33 |
| B12 | 4 | 5 | 1 | D11A | 15 | 20 | 5 |
| B13A | 0 | 0 | 0 | D11B | 32 | 45 | 12 |
| B13B | 0 | 0 | 0 | D12 | 12 | 19 | 7 |
| B13C | 0 | 0 | 0 | D1A | 0 | 0 | 0 |
| B14A | 1 | 6 | 5 | D1B | 0 | 0 | 0 |
| B14B | 0 | 9 | 9 | D1C | 0 | 0 | 0 |
| B15A | 10 | 24 | 14 | D1D | 0 | 0 | 0 |
| B15B | 11 | 25 | 13 | D1E | 0 | 0 | 0 |
| B16A | 22 | 39 | 17 | D1F | 0 | 0 | 0 |
| B16B | 6 | 38 | 32 | D2A | 0 | 0 | 0 |
| B17 | 0 | 0 | 0 | D2B | 0 | 0 | 0 |
| B18A | 0 | 1 | 1 | D3 | 0 | 0 | 0 |
| B18B | 1 | 2 | 0 | D4A | 0 | 0 | 0 |
| B18C | 3 | 28 | 25 | D4B | 3 | 11 | 8 |
| B20 | 57 | 64 | 8 | D5A | 0 | 15 | 15 |
| D004 | 0 | 0 | 0 | D5B | 5 | 51 | 46 |
| D005 | 0 | 0 | 0 | D6 | 7 | 50 | 43 |
| D006 | 0 | 0 | 0 | D7 | 17 | 40 | 23 |
| D009 | 0 | 0 | 0 | D8 | 21 | 55 | 34 |
| D01 | 0 | 0 | 0 | D9A | 23 | 39 | 16 |
| D010 | 0 | 0 | 0 | D9B | 19 | 36 | 17 |
| D012A | 0 | 0 | 0 | MC | 40 | 89 | 49 |
| D012B | 0 | 0 | 0 | MC2 | 0 | 28 | 28 |
| D02 | 0 | 0 | 0 | MNWB | 15 | 16 | 2 |
| D03 | 0 | 0 | 0 | MNWC | 19 | 26 | 7 |
| D04 | 0 | 0 | 0 | MNWD | 0 | 13 | 13 |
| D06 | 0 | 0 | 0 | RH | 54 | 59 | 6 |

DUCK CREEK / BLUE DIAMOND WASHES FIS RESTUDY

EXTENT OF LAND DEVELOPMENT IN 1990

FIGURE 4A

LEGEND

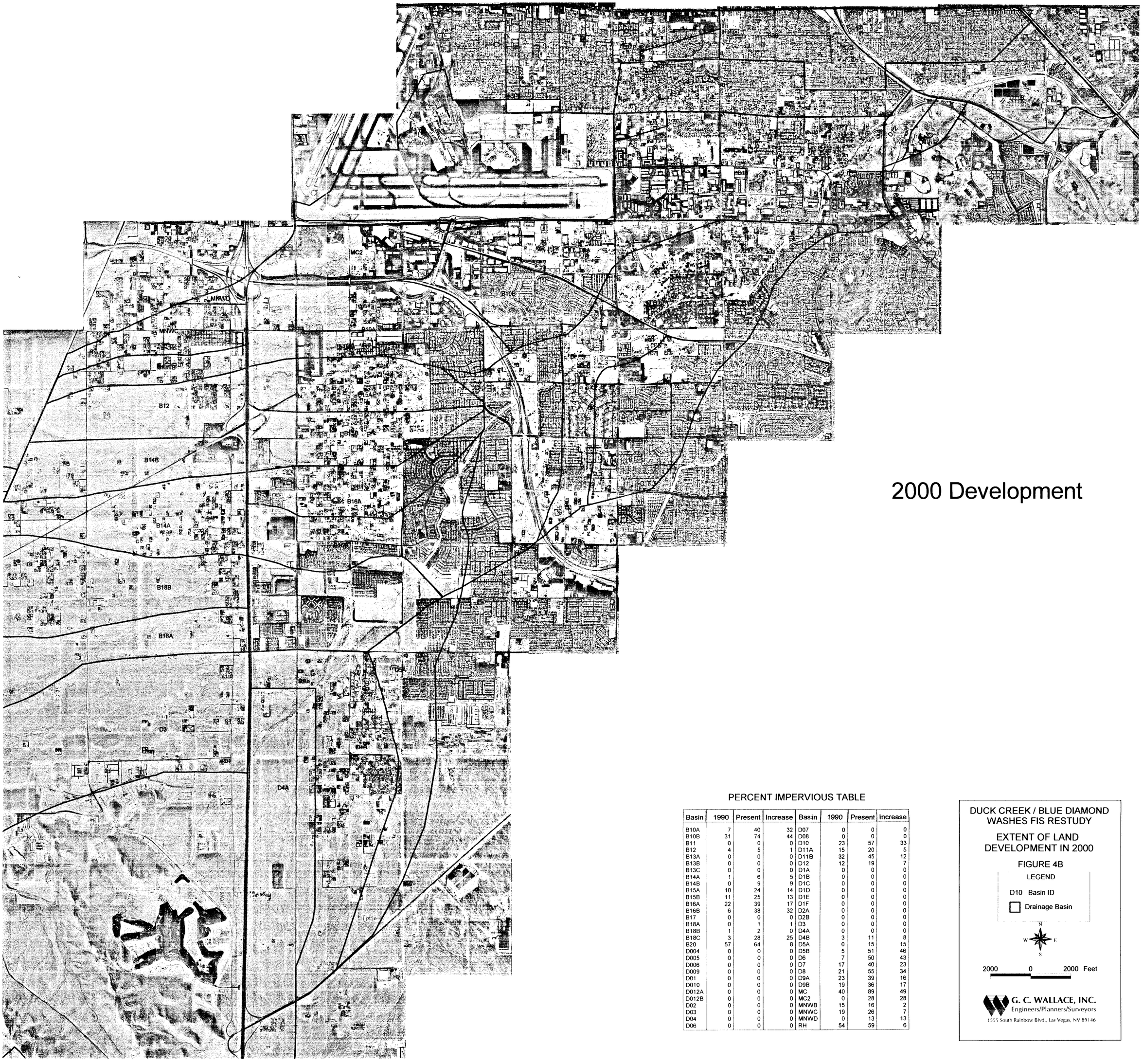
D10 Basin ID

Drainage Basin

N W E S

2000 0 2000 Feet

G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 South Rainbow Blvd., Las Vegas, NV 89146




PERCENT IMPERVIOUS TABLE

| Basin | 1990 | Present | Increase | Basin | 1990 | Present | Increase |
|---|---|---|---|---|---|---|---|
| B10A | 7 | 40 | 32 | D07 | 0 | 0 | 0 |
| B10B | 31 | 74 | 44 | D08 | 0 | 0 | 0 |
| B11 | 0 | 0 | 0 | D10 | 23 | 57 | 33 |
| B12 | 4 | 5 | 1 | D11A | 15 | 20 | 5 |
| B13A | 0 | 0 | 0 | D11B | 32 | 45 | 12 |
| B13B | 0 | 0 | 0 | D12 | 12 | 19 | 7 |
| B13C | 0 | 0 | 0 | D1A | 0 | 0 | 0 |
| B14A | 1 | 6 | 5 | D1B | 0 | 0 | 0 |
| B14B | 0 | 9 | 9 | D1C | 0 | 0 | 0 |
| B15A | 10 | 24 | 14 | D1D | 0 | 0 | 0 |
| B15B | 11 | 25 | 13 | D1E | 0 | 0 | 0 |
| B16A | 22 | 39 | 17 | D1F | 0 | 0 | 0 |
| B16B | 6 | 38 | 32 | D2A | 0 | 0 | 0 |
| B17 | 0 | 0 | 0 | D2B | 0 | 0 | 0 |
| B18A | 0 | 1 | 1 | D3 | 0 | 0 | 0 |
| B18B | 1 | 2 | 0 | D4A | 0 | 0 | 0 |
| B18C | 3 | 28 | 25 | D4B | 3 | 11 | 8 |
| B20 | 57 | 64 | 8 | D5A | 0 | 15 | 15 |
| D004 | 0 | 0 | 0 | D5B | 5 | 51 | 46 |
| D005 | 0 | 0 | 0 | D6 | 7 | 50 | 43 |
| D006 | 0 | 0 | 0 | D7 | 17 | 40 | 23 |
| D009 | 0 | 0 | 0 | D8 | 21 | 55 | 34 |
| D01 | 0 | 0 | 0 | D9A | 23 | 39 | 16 |
| D010 | 0 | 0 | 0 | D9B | 19 | 36 | 17 |
| D012A | 0 | 0 | 0 | MC | 40 | 89 | 49 |
| D012B | 0 | 0 | 0 | MC2 | 0 | 28 | 28 |
| D02 | 0 | 0 | 0 | MNWB | 15 | 16 | 2 |
| D03 | 0 | 0 | 0 | MNWC | 19 | 26 | 7 |
| D04 | 0 | 0 | 0 | MNWD | 0 | 13 | 13 |
| D06 | 0 | 0 | 0 | RH | 54 | 59 | 6 |

DUCK CREEK / BLUE DIAMOND WASHES FIS RESTUDY

EXTENT OF LAND DEVELOPMENT IN 2000

FIGURE 4B

LEGEND

D10 Basin ID

Drainage Basin

N W E S

2000 0 2000 Feet

G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 South Rainbow Blvd., Las Vegas, NV 89146

B20
RH
D11B
D12
D11A
MC
D10
MC2
D9A
D9B
MNWD
MNWC
MNWB
B12
B14B
B10B
B10A
B15A
B15B
B16A
B16B
D7
D8
D6
D5B
B11S
B13C
B14A
B13A
B13B
B17
B18B
B18A
B18C
D1A
D1B
D1C
D1D
D1E
D1F
D2A
D5A
D3
D4B
D4A
D005
D2B
D012A
D01
D006
D02
D012B
D06
D010
D03
D04
D08
D07
D004
D009

Precipitation data referenced from NOAA Atlas 2, Volume VII Nevada, 1973
Precipitation data adjusted by 1.43 for 100 - year storm event, from USACOE, Los Angeles District, 1988

ADJUSTED PRECIPITATION TABLE
PRECIPITATION IN INCHES

| Basin | 1990 | Present | Change | Basin | 1990 | Present | Change |
|---|---|---|---|---|---|---|---|
| B10A | 2.77 | 2.77 | 0.00 | D07 | 2.73 | 3.20 | 0.47 |
| B10B | 2.78 | 2.77 | -0.01 | D08 | 3.36 | 3.28 | -0.08 |
| B11 | 2.77 | 2.82 | 0.05 | D10 | 2.77 | 2.77 | 0.00 |
| B12 | 2.78 | 2.77 | -0.01 | D11A | 2.77 | 2.77 | 0.00 |
| B13A | 2.78 | 3.14 | 0.36 | D11B | 2.77 | 2.77 | 0.00 |
| B13B | 2.78 | 2.96 | 0.18 | D12 | 2.77 | 2.77 | 0.00 |
| B13C | 2.77 | 2.82 | 0.05 | D1A | 3.36 | 3.25 | -0.11 |
| B14A | 2.77 | 2.77 | 0.00 | D1B | 2.78 | 3.10 | 0.32 |
| B14B | 2.77 | 2.77 | 0.00 | D1C | 2.78 | 2.97 | 0.19 |
| B15A | 2.77 | 2.77 | 0.00 | D1D | 2.78 | 2.99 | 0.21 |
| B15B | 2.77 | 2.77 | 0.00 | D1E | 2.77 | 2.83 | 0.06 |
| B16A | 2.77 | 2.77 | 0.00 | D1F | 2.77 | 2.86 | 0.09 |
| B16B | 2.77 | 2.77 | 0.00 | D2A | 2.77 | 3.16 | 0.39 |
| B17 | 2.71 | 2.80 | 0.09 | D2B | 2.77 | 3.06 | 0.29 |
| B18A | 2.77 | 2.79 | 0.02 | D3 | 2.77 | 2.90 | 0.13 |
| B18B | 2.77 | 2.77 | 0.00 | D4A | 2.77 | 2.80 | 0.03 |
| B18C | 2.77 | 2.77 | 0.00 | D4B | 2.77 | 2.80 | 0.03 |
| B20 | 2.77 | 2.77 | 0.00 | D5A | 2.77 | 2.79 | 0.02 |
| D004 | 3.34 | 3.30 | -0.04 | D5B | 2.77 | 2.77 | 0.00 |
| D005 | 3.36 | 3.27 | -0.09 | D6 | 2.77 | 2.77 | 0.00 |
| D006 | 3.36 | 3.24 | -0.12 | D7 | 2.77 | 2.77 | 0.00 |
| D009 | 2.73 | 3.31 | 0.58 | D8 | 2.77 | 2.77 | 0.00 |
| D01 | 3.48 | 3.42 | -0.06 | D9A | 2.77 | 2.77 | 0.00 |
| D010 | 2.73 | 3.15 | 0.42 | D9B | 2.77 | 2.77 | 0.00 |
| D012A | 2.77 | 2.95 | 0.18 | MC | 2.77 | 2.77 | 0.00 |
| D012B | 2.77 | 2.95 | 0.18 | MC2 | 2.77 | 2.77 | 0.00 |
| D02 | 3.34 | 3.44 | 0.10 | MNWB | 2.77 | 2.77 | 0.00 |
| D03 | 3.34 | 3.42 | 0.08 | MNWC | 2.77 | 2.77 | 0.00 |
| D04 | 3.34 | 3.37 | 0.03 | MNWD | 2.77 | 2.77 | 0.00 |
| D06 | 3.36 | 3.21 | -0.15 | RH | 2.77 | 2.77 | 0.00 |

DUCK CREEK / BLUE DIAMOND
WASHES FIS RESTUDY

ADJUSTED PRECIPITATION DATA

FIGURE 5

LEGEND

D1A Basin ID
Drainage Basin
Rainfall Values in Inches
2.77 - 2.86
2.86 - 2.93
2.93 - 3.00
3.00 - 3.075
3.075 - 3.16
3.16 - 3.27
3.27 - 3.38
3.38 - 3.46
3.46 - 3.51
3.51 - 3.60

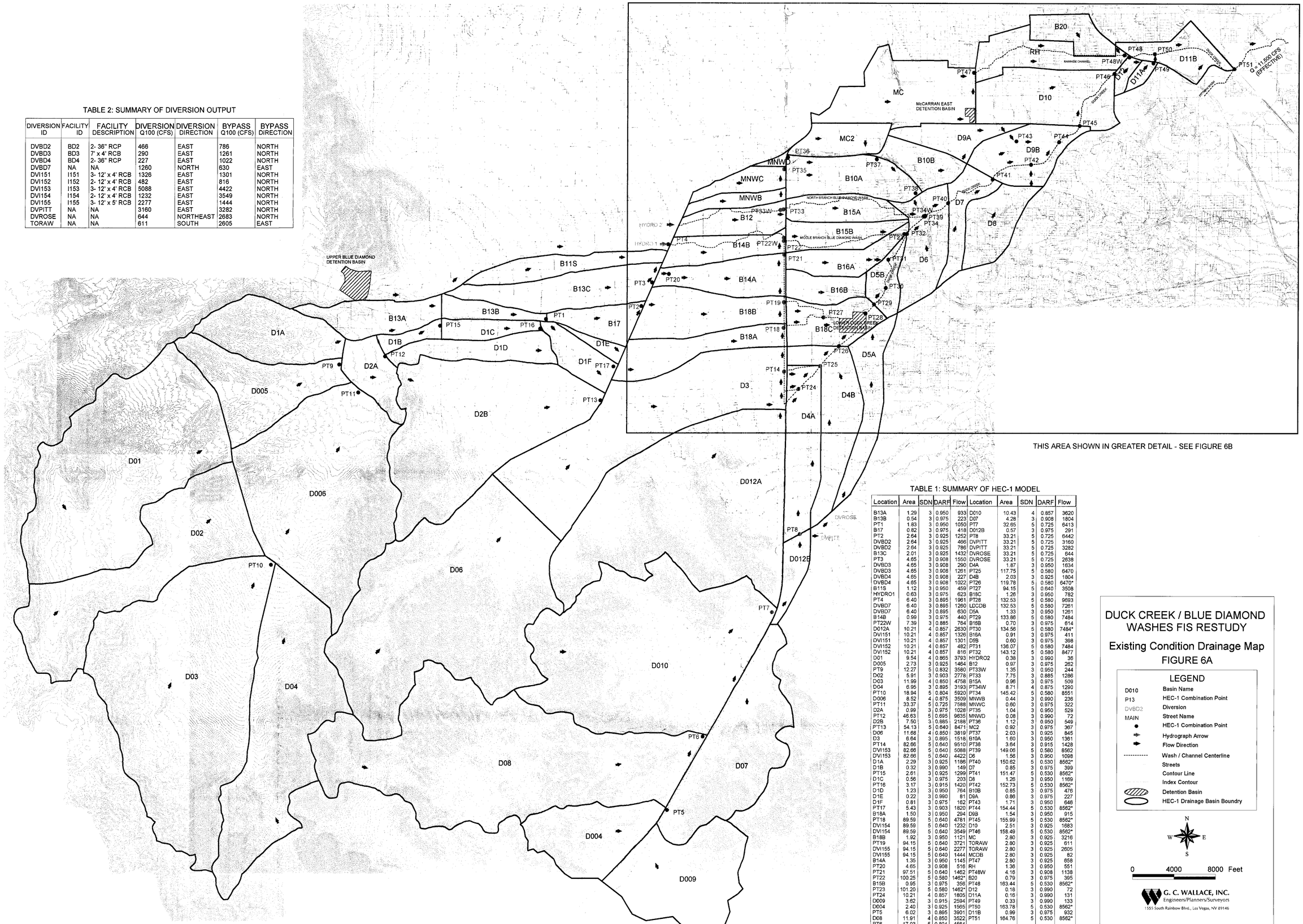
N
W E
S

4000 0 4000 Feet

G. C. WALLACE, INC.
Engineers/Planners/Surveyors
[illegible] South Rainbow Blvd., Las Vegas, NV 89146

TABLE 2: SUMMARY OF DIVERSION OUTPUT

| DIVERSION ID | FACILITY ID | FACILITY DESCRIPTION | DIVERSION Q100 (CFS) | DIVERSION DIRECTION | BYPASS Q100 (CFS) | BYPASS DIRECTION |
|---|---|---|---|---|---|---|
| DVBD2 | BD2 | 2- 36" RCP | 466 | EAST | 786 | NORTH |
| DVBD3 | BD3 | 7' x 4' RCB | 290 | EAST | 1261 | NORTH |
| DVBD4 | BD4 | 2- 36" RCP | 227 | EAST | 1022 | NORTH |
| DVBD7 | NA | NA | 1260 | NORTH | 630 | EAST |
| DVI151 | I151 | 3- 12' x 4' RCB | 1326 | EAST | 1301 | NORTH |
| DVI152 | I152 | 2- 12' x 4' RCB | 482 | EAST | 816 | NORTH |
| DVI153 | I153 | 3- 12' x 4' RCB | 5088 | EAST | 4422 | NORTH |
| DVI154 | I154 | 2- 12' x 4' RCB | 1232 | EAST | 3549 | NORTH |
| DVI155 | I155 | 3- 12' x 5' RCB | 2277 | EAST | 1444 | NORTH |
| DVPITT | NA | NA | 3160 | EAST | 3282 | NORTH |
| DVROSE | NA | NA | 644 | NORTHEAST | 2683 | NORTH |
| TORAW | NA | NA | 611 | SOUTH | 2605 | EAST |




THIS AREA SHOWN IN GREATER DETAIL - SEE FIGURE 6B

TABLE 1: SUMMARY OF HEC-1 MODEL

| Location | Area | SDN | DARF | Flow | Location | Area | SDN | DARF | Flow |
|---|---|---|---|---|---|---|---|---|---|
| B13A | 1.29 | 3 | 0.950 | 933 | D010 | 10.43 | 4 | 0.857 | 3620 |
| B13B | 0.54 | 3 | 0.975 | 223 | D07 | 4.28 | 3 | 0.908 | 1804 |
| PT1 | 1.83 | 3 | 0.950 | 1050 | PT7 | 32.65 | 5 | 0.725 | 6413 |
| B17 | 0.82 | 3 | 0.975 | 418 | D012B | 0.57 | 3 | 0.975 | 291 |
| PT2 | 2.64 | 3 | 0.925 | 1252 | PT8 | 33.21 | 5 | 0.725 | 6442 |
| DVBD2 | 2.64 | 3 | 0.925 | 466 | DVPITT | 33.21 | 5 | 0.725 | 3160 |
| DVBD2 | 2.64 | 3 | 0.925 | 786 | DVPITT | 33.21 | 5 | 0.725 | 3282 |
| B13C | 2.01 | 3 | 0.925 | 1432 | DVROSE | 33.21 | 5 | 0.725 | 644 |
| PT3 | 4.65 | 3 | 0.908 | 1550 | DVROSE | 33.21 | 5 | 0.725 | 2638 |
| DVBD3 | 4.65 | 3 | 0.908 | 290 | D4A | 1.87 | 3 | 0.950 | 1634 |
| DVBD3 | 4.65 | 3 | 0.908 | 1261 | PT25 | 117.75 | 5 | 0.580 | 6470 |
| DVBD4 | 4.65 | 3 | 0.908 | 227 | D4B | 2.03 | 3 | 0.925 | 1804 |
| DVBD4 | 4.65 | 3 | 0.908 | 1022 | PT26 | 119.78 | 5 | 0.580 | 6470* |
| B11S | 1.12 | 3 | 0.950 | 459 | PT27 | 94.15 | 5 | 0.640 | 3508 |
| HYDRO1 | 0.63 | 3 | 0.975 | 623 | B18C | 1.26 | 3 | 0.950 | 782 |
| PT4 | 6.40 | 3 | 0.895 | 1961 | PT28 | 132.53 | 5 | 0.580 | 9693 |
| DVBD7 | 6.40 | 3 | 0.895 | 1260 | LDCDB | 132.53 | 5 | 0.580 | 7261 |
| DVBD7 | 6.40 | 3 | 0.895 | 630 | D5A | 1.33 | 3 | 0.950 | 1261 |
| B14B | 0.99 | 3 | 0.975 | 440 | PT29 | 133.86 | 5 | 0.580 | 7484 |
| PT22W | 7.39 | 3 | 0.885 | 764 | B16B | 0.70 | 3 | 0.975 | 614 |
| D012A | 10.21 | 4 | 0.857 | 2630 | PT30 | 134.56 | 5 | 0.580 | 7484* |
| DVI151 | 10.21 | 4 | 0.857 | 1326 | B16A | 0.91 | 3 | 0.975 | 411 |
| DVI151 | 10.21 | 4 | 0.857 | 1301 | D5B | 0.60 | 3 | 0.975 | 398 |
| DVI152 | 10.21 | 4 | 0.857 | 482 | PT31 | 136.07 | 5 | 0.580 | 7484 |
| DVI152 | 10.21 | 4 | 0.857 | 816 | PT32 | 143.12 | 5 | 0.580 | 8477 |
| D01 | 8.54 | 4 | 0.865 | 3793 | HYDRO2 | 0.38 | 3 | 0.990 | 36 |
| D005 | 2.73 | 3 | 0.925 | 1494 | B12 | 0.97 | 3 | 0.975 | 262 |
| PT9 | 12.27 | 5 | 0.832 | 3580 | PT33W | 1.35 | 3 | 0.950 | 244 |
| D02 | 5.91 | 3 | 0.903 | 2778 | PT33 | 7.75 | 3 | 0.885 | 1286 |
| D03 | 11.99 | 4 | 0.850 | 4758 | B15A | 0.96 | 3 | 0.975 | 509 |
| D04 | 6.95 | 3 | 0.895 | 3193 | PT34W | 8.71 | 4 | 0.875 | 1290 |
| PT10 | 18.94 | 5 | 0.804 | 5920 | PT34 | 145.42 | 5 | 0.580 | 8551 |
| D006 | 8.52 | 4 | 0.875 | 3509 | MNWB | 0.44 | 3 | 0.990 | 236 |
| PT11 | 33.37 | 5 | 0.725 | 7588 | MNWC | 0.60 | 3 | 0.975 | 322 |
| D2A | 0.99 | 3 | 0.975 | 1028 | PT35 | 1.04 | 3 | 0.950 | 529 |
| PT12 | 46.63 | 5 | 0.695 | 9635 | MNWD | 0.08 | 3 | 0.990 | 72 |
| D2B | 7.50 | 3 | 0.885 | 2188 | PT36 | 1.12 | 3 | 0.950 | 549 |
| PT13 | 54.13 | 5 | 0.640 | 8471 | MC2 | 0.92 | 3 | 0.975 | 367 |
| D06 | 11.68 | 4 | 0.850 | 3819 | PT37 | 2.03 | 3 | 0.925 | 845 |
| D3 | 6.64 | 3 | 0.895 | 1518 | B10A | 1.60 | 3 | 0.950 | 1361 |
| PT14 | 82.66 | 5 | 0.640 | 9510 | PT38 | 3.64 | 3 | 0.915 | 1428 |
| DVI153 | 82.66 | 5 | 0.640 | 5088 | PT39 | 149.06 | 5 | 0.580 | 8562 |
| DVI153 | 82.66 | 5 | 0.640 | 4422 | D6 | 1.56 | 3 | 0.950 | 1098 |
| D1A | 2.29 | 3 | 0.925 | 1186 | PT40 | 150.62 | 5 | 0.530 | 8562* |
| D1B | 0.32 | 3 | 0.990 | 149 | D7 | 0.85 | 3 | 0.975 | 399 |
| PT15 | 2.61 | 3 | 0.925 | 1299 | PT41 | 151.47 | 5 | 0.530 | 8562* |
| D1C | 0.56 | 3 | 0.975 | 203 | D8 | 1.26 | 3 | 0.950 | 1169 |
| PT16 | 3.17 | 3 | 0.915 | 1420 | PT42 | 152.73 | 5 | 0.530 | 8562* |
| D1D | 1.23 | 3 | 0.950 | 764 | B10B | 0.85 | 3 | 0.975 | 476 |
| D1E | 0.22 | 3 | 0.990 | 81 | D9A | 0.86 | 3 | 0.975 | 227 |
| D1F | 0.81 | 3 | 0.975 | 162 | PT43 | 1.71 | 3 | 0.950 | 646 |
| PT17 | 5.43 | 3 | 0.903 | 1820 | PT44 | 154.44 | 5 | 0.530 | 8562* |
| B18A | 1.50 | 3 | 0.950 | 294 | D9B | 1.54 | 3 | 0.950 | 915 |
| PT18 | 89.59 | 5 | 0.640 | 4781 | PT45 | 155.99 | 5 | 0.530 | 8562* |
| DVI154 | 89.59 | 5 | 0.640 | 1232 | D10 | 2.51 | 3 | 0.925 | 1683 |
| DVI154 | 89.59 | 5 | 0.640 | 3549 | PT46 | 158.49 | 5 | 0.530 | 8562* |
| B18B | 1.92 | 3 | 0.950 | 1121 | MC | 2.80 | 3 | 0.925 | 3216 |
| PT19 | 94.15 | 5 | 0.640 | 3721 | TORAW | 2.80 | 3 | 0.925 | 611 |
| DVI155 | 94.15 | 5 | 0.640 | 2277 | TORAW | 2.80 | 3 | 0.925 | 2605 |
| DVI155 | 94.15 | 5 | 0.640 | 1444 | MCDB | 2.80 | 3 | 0.925 | 82 |
| B14A | 1.35 | 3 | 0.950 | 1145 | PT47 | 2.80 | 3 | 0.925 | 658 |
| PT20 | 4.65 | 3 | 0.908 | 516 | RH | 1.36 | 3 | 0.950 | 551 |
| PT21 | 97.51 | 5 | 0.640 | 1462 | PT48W | 4.16 | 3 | 0.908 | 1138 |
| PT22 | 100.25 | 5 | 0.580 | 1462* | B20 | 0.79 | 3 | 0.975 | 395 |
| B15B | 0.95 | 3 | 0.975 | 356 | PT48 | 163.44 | 5 | 0.530 | 8562* |
| PT23 | 101.20 | 5 | 0.580 | 1462* | D12 | 0.18 | 3 | 0.990 | 72 |
| PT24 | 10.21 | 4 | 0.857 | 1805 | D11A | 0.16 | 3 | 0.990 | 131 |
| D009 | 3.82 | 3 | 0.915 | 2594 | PT49 | 0.33 | 3 | 0.990 | 133 |
| D004 | 2.40 | 3 | 0.925 | 1565 | PT50 | 163.78 | 5 | 0.530 | 8562* |
| PT5 | 6.02 | 3 | 0.895 | 3901 | D11B | 0.99 | 3 | 0.975 | 932 |
| D08 | 11.91 | 4 | 0.850 | 3522 | PT51 | 164.76 | 5 | 0.530 | 8562* |
| PT6 | 17.93 | 5 | 0.804 | 4564 | | | | | |

* ADOPTED FLOW, UPSTREAM FLOW CONTROLS
AREA IN SQUARE MILES / FLOW IN CFS

NOTE: DATA SOURCE CLARK COUNTY, NEVADA GISMO

# DUCK CREEK / BLUE DIAMOND WASHES FIS RESTUDY

## Existing Condition Drainage Map

## FIGURE 6A

LEGEND

| | |
|---|---|
| D010 | Basin Name |
| P13 | HEC-1 Combination Point |
| DvBD2 | Diversion |
| MAIN | Street Name |
| ● | HEC-1 Combination Point |
| | Hydrograph Arrow |
| | Flow Direction |
| | Wash / Channel Centerline |
| | Streets |
| | Contour Line |
| | Index Contour |
| | Detention Basin |
| | HEC-1 Drainage Basin Boundry |

N W E S

0 4000 8000 Feet


G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 South Rainbow Blvd., Las Vegas, NV 89146

TABLE 2: SUMMARY OF DIVERSION OUTPUT

| DIVERSION ID | FACILITY ID | FACILITY DESCRIPTION | DIVERSION Q100 (CFS) | DIVERSION DIRECTION | BYPASS Q100 (CFS) | BYPASS DIRECTION |
|---|---|---|---|---|---|---|
| DVBD2 | BD2 | 2- 36" RCP | 466 | EAST | 786 | NORTH |
| DVBD3 | BD3 | 7' x 4' RCB | 290 | EAST | 1261 | NORTH |
| DVBD4 | BD4 | 2- 36" RCP | 227 | EAST | 1022 | NORTH |
| DVBD7 | NA | NA | 1260 | NORTH | 630 | EAST |
| DVI151 | I151 | 3- 12' x 4' RCB | 1326 | EAST | 1301 | NORTH |
| DVI152 | I152 | 2- 12' x 4' RCB | 482 | EAST | 816 | NORTH |
| DVI153 | I153 | 3- 12' x 4' RCB | 5088 | EAST | 4422 | NORTH |
| DVI154 | I154 | 2- 12' x 4' RCB | 1232 | EAST | 3549 | NORTH |
| DVI155 | I155 | 3- 12' x 5' RCB | 2277 | EAST | 1444 | NORTH |
| DVPITT | NA | NA | 3160 | EAST | 3282 | NORTH |
| DVROSE | NA | NA | 644 | NORTHEAST | 2683 | NORTH |
| TORAW | NA | NA | 611 | SOUTH | 2605 | EAST |

TABLE 1: SUMMARY OF HEC-1 MODEL

| Location | Area | SDN | DARF | Flow | Location | Area | SDN | DARF | Flow |
|---|---|---|---|---|---|---|---|---|---|
| B13A | 1.29 | 3 | 0.950 | 933 | D010 | 10.43 | 4 | 0.857 | 3620 |
| B13B | 0.54 | 3 | 0.975 | 223 | D07 | 4.28 | 3 | 0.908 | 1804 |
| PT1 | 1.83 | 3 | 0.950 | 1050 | PT7 | 32.65 | 5 | 0.725 | 6413 |
| B17 | 0.82 | 3 | 0.975 | 418 | D012B | 0.57 | 3 | 0.975 | 291 |
| PT2 | 2.64 | 3 | 0.925 | 1252 | PT8 | 33.21 | 5 | 0.725 | 6442 |
| DVBD2 | 2.64 | 3 | 0.925 | 466 | DVPITT | 33.21 | 5 | 0.725 | 3180 |
| DVBD2 | 2.64 | 3 | 0.925 | 786 | DVPITT | 33.21 | 5 | 0.725 | 3262 |
| B13C | 2.01 | 3 | 0.925 | 1432 | DVROSE | 33.21 | 5 | 0.725 | 644 |
| PT3 | 4.65 | 3 | 0.908 | 1550 | DVROSE | 33.21 | 5 | 0.725 | 2638 |
| DVBD3 | 4.65 | 3 | 0.908 | 290 | D4A | 1.87 | 3 | 0.950 | 1634 |
| DVBD3 | 4.65 | 3 | 0.908 | 1261 | PT25 | 117.75 | 5 | 0.580 | 6470 |
| DVBD4 | 4.65 | 3 | 0.908 | 227 | D4B | 2.03 | 3 | 0.925 | 1804 |
| DVBD4 | 4.65 | 3 | 0.908 | 1022 | PT26 | 119.78 | 5 | 0.580 | 6470* |
| B11S | 1.12 | 3 | 0.950 | 459 | PT27 | 94.15 | 5 | 0.640 | 3508 |
| HYDRO1 | 0.83 | 3 | 0.975 | 623 | B18C | 1.26 | 3 | 0.950 | 782 |
| PT4 | 6.40 | 3 | 0.895 | 1961 | PT28 | 132.53 | 5 | 0.580 | 9893 |
| DVBD7 | 6.40 | 3 | 0.895 | 1260 | LDCDB | 132.53 | 5 | 0.580 | 7261 |
| DVBD7 | 6.40 | 3 | 0.895 | 630 | D5A | 1.33 | 3 | 0.950 | 1261 |
| B14B | 0.99 | 3 | 0.975 | 440 | PT29 | 133.88 | 5 | 0.580 | 7484 |
| PT22W | 7.39 | 3 | 0.885 | 764 | B16B | 0.70 | 3 | 0.975 | 614 |
| D012A | 10.21 | 4 | 0.857 | 2630 | PT30 | 134.58 | 5 | 0.580 | 7484* |
| DVI151 | 10.21 | 4 | 0.857 | 1326 | B16A | 0.91 | 3 | 0.975 | 411 |
| DVI151 | 10.21 | 4 | 0.857 | 1301 | D5B | 0.40 | 3 | 0.975 | 398 |
| DVI152 | 10.21 | 4 | 0.857 | 482 | PT31 | 138.07 | 5 | 0.580 | 7484 |
| DVI152 | 10.21 | 4 | 0.857 | 816 | PT32 | 143.12 | 5 | 0.580 | 8477 |
| D01 | 9.54 | 4 | 0.865 | 3793 | HYDRO2 | 0.38 | 3 | 0.990 | 36 |
| D005 | 2.73 | 3 | 0.925 | 1464 | B12 | 0.97 | 3 | 0.975 | 282 |
| PT9 | 12.27 | 5 | 0.832 | 3580 | PT33W | 1.35 | 3 | 0.950 | 244 |
| D02 | 5.91 | 3 | 0.903 | 2778 | PT33 | 7.75 | 3 | 0.885 | 1286 |
| D03 | 11.99 | 4 | 0.850 | 4758 | B15A | 0.98 | 3 | 0.975 | 509 |
| D04 | 6.85 | 3 | 0.895 | 3193 | PT34W | 8.71 | 4 | 0.875 | 1290 |
| PT10 | 18.94 | 5 | 0.804 | 5920 | PT34 | 145.42 | 5 | 0.580 | 8551 |
| D008 | 8.52 | 4 | 0.875 | 3509 | MNWB | 0.44 | 3 | 0.990 | 236 |
| PT11 | 33.37 | 5 | 0.725 | 7588 | MNWC | 0.60 | 3 | 0.975 | 322 |
| D2A | 0.99 | 3 | 0.975 | 1028 | PT35 | 1.04 | 3 | 0.950 | 529 |
| PT12 | 46.63 | 5 | 0.695 | 9635 | MNWD | 0.08 | 3 | 0.990 | 72 |
| D2B | 7.50 | 3 | 0.885 | 2188 | PT36 | 1.12 | 3 | 0.950 | 549 |
| PT13 | 54.13 | 5 | 0.640 | 8471 | MC2 | 0.92 | 3 | 0.975 | 367 |
| D06 | 11.68 | 4 | 0.850 | 3819 | PT37 | 2.03 | 3 | 0.925 | 845 |
| D3 | 6.64 | 3 | 0.895 | 1518 | B10A | 1.80 | 3 | 0.950 | 1361 |
| PT14 | 82.66 | 5 | 0.640 | 9510 | PT38 | 3.64 | 3 | 0.915 | 1428 |
| DVI153 | 82.66 | 5 | 0.640 | 5088 | PT39 | 149.06 | 5 | 0.580 | 8562 |
| DVI153 | 82.66 | 5 | 0.640 | 4422 | D6 | 1.56 | 3 | 0.950 | 1098 |
| D1A | 2.29 | 3 | 0.925 | 1186 | PT40 | 150.82 | 5 | 0.530 | 8562* |
| D1B | 0.32 | 3 | 0.990 | 149 | D7 | 0.85 | 3 | 0.975 | 399 |
| PT15 | 2.61 | 3 | 0.925 | 1299 | PT41 | 151.47 | 5 | 0.530 | 8562* |
| D1C | 0.56 | 3 | 0.975 | 203 | D8 | 1.26 | 3 | 0.950 | 1169 |
| PT16 | 3.17 | 3 | 0.915 | 1420 | PT42 | 152.73 | 5 | 0.530 | 8562* |
| D1D | 1.23 | 3 | 0.950 | 764 | B10B | 0.85 | 3 | 0.975 | 476 |
| D1E | 0.22 | 3 | 0.990 | 81 | D9A | 0.86 | 3 | 0.975 | 227 |
| D1F | 0.81 | 3 | 0.975 | 162 | PT43 | 1.71 | 3 | 0.950 | 646 |
| PT17 | 5.43 | 3 | 0.903 | 1820 | PT44 | 154.44 | 5 | 0.530 | 8562* |
| B18A | 1.50 | 3 | 0.950 | 294 | D9B | 1.54 | 3 | 0.950 | 915 |
| PT18 | 89.59 | 5 | 0.640 | 4781 | PT45 | 155.99 | 5 | 0.530 | 8562* |
| DVI154 | 89.59 | 5 | 0.640 | 1232 | D10 | 2.51 | 3 | 0.925 | 1683 |
| DVI154 | 89.59 | 5 | 0.640 | 3549 | PT46 | 158.49 | 5 | 0.530 | 8562* |
| B18B | 1.92 | 3 | 0.950 | 1121 | MC | 2.80 | 3 | 0.925 | 3216 |
| PT19 | 94.15 | 5 | 0.640 | 3721 | TORAW | 2.80 | 3 | 0.925 | 611 |
| DVI155 | 94.15 | 5 | 0.640 | 2277 | TORAW | 2.80 | 3 | 0.925 | 2605 |
| DVI155 | 94.15 | 5 | 0.640 | 1444 | MCDB | 2.80 | 3 | 0.925 | 82 |
| B14A | 1.35 | 3 | 0.950 | 1145 | PT47 | 2.80 | 3 | 0.925 | 658 |
| PT20 | 4.65 | 3 | 0.908 | 516 | RH | 1.36 | 3 | 0.950 | 551 |
| PT21 | 97.51 | 5 | 0.640 | 1482 | PT48W | 4.16 | 3 | 0.908 | 1138 |
| PT22 | 100.25 | 5 | 0.580 | 1462* | B20 | 0.79 | 3 | 0.975 | 395 |
| B15B | 0.95 | 3 | 0.975 | 356 | PT48 | 163.44 | 5 | 0.530 | 8562* |
| PT23 | 101.20 | 5 | 0.580 | 1462* | D12 | 0.18 | 3 | 0.990 | 72 |
| PT24 | 10.21 | 4 | 0.857 | 1805 | D11A | 0.16 | 3 | 0.990 | 131 |
| D009 | 3.62 | 3 | 0.915 | 2594 | PT49 | 0.33 | 3 | 0.990 | 133 |
| D004 | 2.40 | 3 | 0.925 | 1565 | PT50 | 163.78 | 5 | 0.530 | 8562* |
| PT5 | 6.02 | 3 | 0.895 | 3901 | D11B | 0.99 | 3 | 0.975 | 932 |
| D08 | 11.91 | 4 | 0.850 | 3522 | PT51 | 164.76 | 5 | 0.530 | 8562* |
| PT6 | 17.93 | 5 | 0.804 | 4664 | | | | | |

* ADOPTED FLOW, UPSTREAM FLOW CONTROLS
AREA IN SQUARE MILES / FLOW IN CFS

# DUCK CREEK / BLUE DIAMOND WASHES FIS RESTUDY

## Existing Condition Drainage Map

FIGURE 6B

LEGEND

| | |
|---|---|
| D010 | Basin Name |
| BD2 | Bridge / Culvert ID |
| P13 | HEC-1 Combination Point |
| DVBD2 | Diversion / Inflow Hydrograph |
| MAIN | Street Name |
| ● | HEC-1 Combination Point |
| ■ | Bridge / Culvert Location |
| ➡ | Inflow Hydrograph |
| ➡ | Flow Direction |
| ---------- | Wash / Channel Centerline |
| | Streets |
| | Contour Line |
| | Index Contour |
| | Detention Basin |
| | HEC-1 Drainage Basin Boundry |

N W E S

0 2000 4000 Feet

G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 South Rainbow Blvd., Las Vegas, NV 89146

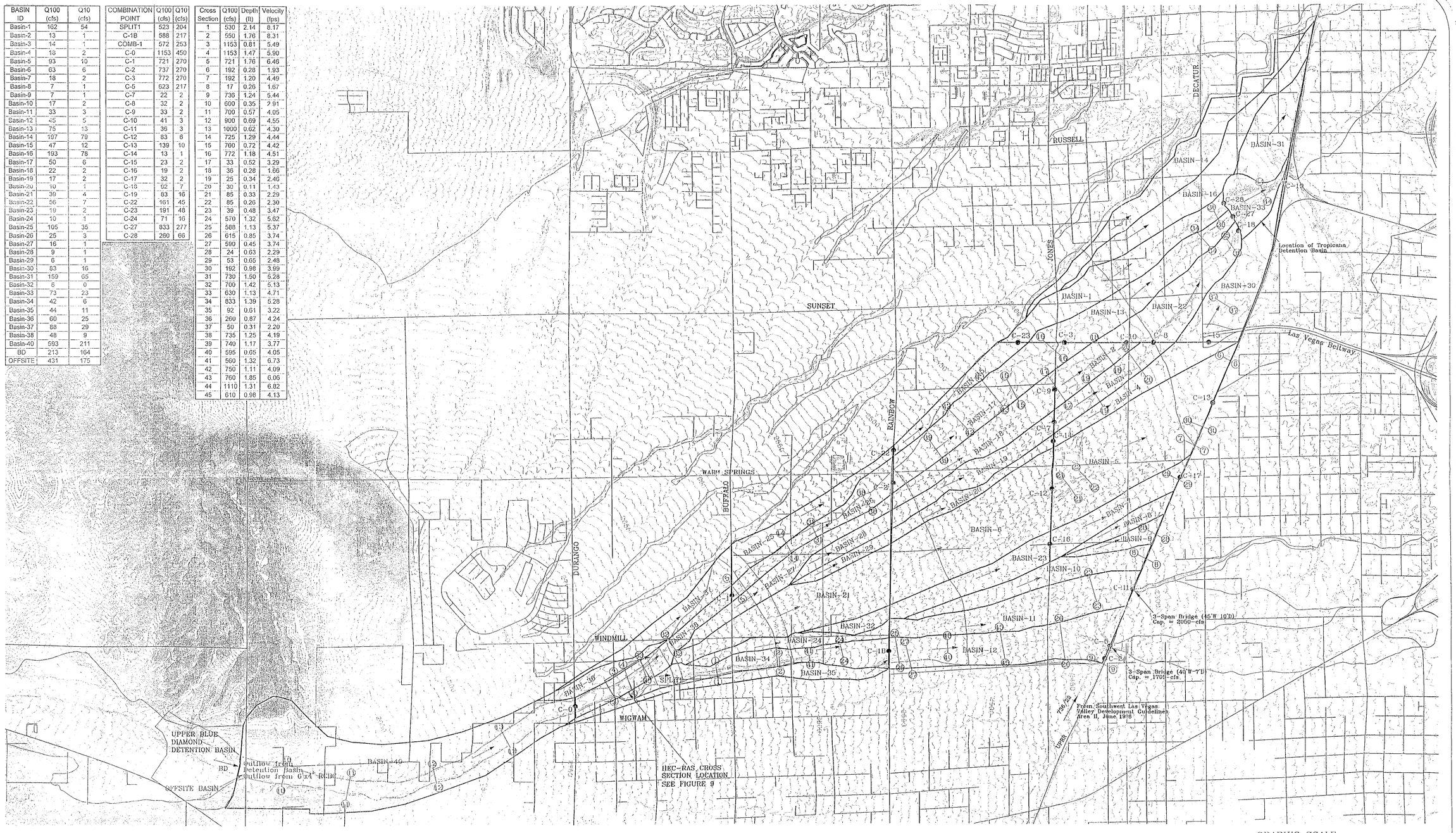
SEE FIGURE 6A

NOTE: DATA SOURCE CLARK COUNTY, NEVADA GISMO

| BASIN ID | Q100 (cfs) | Q10 (cfs) |
|---|---|---|
| Basin-1 | 162 | 54 |
| Basin-2 | 13 | 1 |
| Basin-3 | 14 | 1 |
| Basin-4 | 18 | 2 |
| Basin-5 | 93 | 10 |
| Basin-6 | 63 | 6 |
| Basin-7 | 18 | 2 |
| Basin-8 | 7 | 1 |
| Basin-9 | 7 | 1 |
| Basin-10 | 17 | 2 |
| Basin-11 | 33 | 3 |
| Basin-12 | 45 | 5 |
| Basin-13 | 75 | 13 |
| Basin-14 | 197 | 79 |
| Basin-15 | 47 | 12 |
| Basin-16 | 193 | 78 |
| Basin-17 | 50 | 6 |
| Basin-18 | 22 | 2 |
| Basin-19 | 17 | 2 |
| Basin-20 | 10 | 1 |
| Basin-21 | 39 | 4 |
| Basin-22 | 56 | 7 |
| Basin-23 | 19 | 2 |
| Basin-24 | 10 | 1 |
| Basin-25 | 105 | 35 |
| Basin-26 | 25 | 3 |
| Basin-27 | 16 | 1 |
| Basin-28 | 9 | 1 |
| Basin-29 | 6 | 1 |
| Basin-30 | 63 | 16 |
| Basin-31 | 159 | 65 |
| Basin-32 | 6 | 0 |
| Basin-33 | 73 | 23 |
| Basin-34 | 42 | 6 |
| Basin-35 | 44 | 11 |
| Basin-36 | 60 | 25 |
| Basin-37 | 88 | 29 |
| Basin-38 | 48 | 9 |
| Basin-40 | 593 | 211 |
| BD | 213 | 164 |
| OFFSITE | 431 | 175 |

| COMBINATION POINT | Q100 (cfs) | Q10 (cfs) |
|---|---|---|
| SPLIT1 | 523 | 204 |
| C-1B | 588 | 217 |
| COMB-1 | 572 | 253 |
| C-0 | 1153 | 450 |
| C-1 | 721 | 270 |
| C-2 | 737 | 270 |
| C-3 | 772 | 270 |
| C-5 | 623 | 217 |
| C-7 | 22 | 2 |
| C-8 | 32 | 2 |
| C-9 | 33 | 2 |
| C-10 | 41 | 3 |
| C-11 | 36 | 3 |
| C-12 | 83 | 6 |
| C-13 | 139 | 10 |
| C-14 | 13 | 1 |
| C-15 | 23 | 2 |
| C-16 | 19 | 2 |
| C-17 | 32 | 2 |
| C-18 | 92 | 7 |
| C-19 | 93 | 16 |
| C-22 | 161 | 45 |
| C-23 | 191 | 48 |
| C-24 | 71 | 16 |
| C-27 | 833 | 277 |
| C-28 | 260 | 66 |

| Cross Section | Q100 (cfs) | Depth (ft) | Velocity (fps) |
|---|---|---|---|
| 1 | 530 | 2.14 | 8.17 |
| 2 | 550 | 1.76 | 8.31 |
| 3 | 1153 | 0.81 | 5.49 |
| 4 | 1153 | 1.47 | 5.90 |
| 5 | 721 | 1.76 | 6.46 |
| 6 | 192 | 0.28 | 1.93 |
| 7 | 192 | 1.20 | 4.49 |
| 8 | 17 | 0.26 | 1.67 |
| 9 | 736 | 1.24 | 5.44 |
| 10 | 600 | 0.35 | 7.91 |
| 11 | 700 | 0.57 | 4.05 |
| 12 | 900 | 0.69 | 4.55 |
| 13 | 1000 | 0.62 | 4.30 |
| 14 | 725 | 1.29 | 4.44 |
| 15 | 760 | 0.72 | 4.42 |
| 16 | 772 | 1.18 | 4.51 |
| 17 | 33 | 0.52 | 3.29 |
| 18 | 36 | 0.28 | 1.66 |
| 19 | 25 | 0.34 | 2.46 |
| 20 | 30 | 0.11 | 1.43 |
| 21 | 85 | 0.33 | 2.29 |
| 22 | 85 | 0.26 | 2.30 |
| 23 | 39 | 0.48 | 3.47 |
| 24 | 570 | 1.32 | 5.62 |
| 25 | 588 | 1.13 | 5.37 |
| 26 | 615 | 0.85 | 3.74 |
| 27 | 590 | 0.45 | 3.74 |
| 28 | 24 | 0.63 | 2.29 |
| 29 | 53 | 0.65 | 2.48 |
| 30 | 192 | 0.98 | 3.99 |
| 31 | 730 | 1.50 | 5.28 |
| 32 | 700 | 1.42 | 5.13 |
| 33 | 630 | 1.13 | 4.71 |
| 34 | 833 | 1.39 | 5.28 |
| 35 | 92 | 0.61 | 3.22 |
| 36 | 260 | 0.87 | 4.24 |
| 37 | 50 | 0.31 | 2.20 |
| 38 | 735 | 1.25 | 4.19 |
| 39 | 740 | 1.17 | 3.77 |
| 40 | 595 | 0.65 | 4.05 |
| 41 | 560 | 1.32 | 6.73 |
| 42 | 750 | 1.11 | 4.09 |
| 43 | 760 | 1.85 | 6.06 |
| 44 | 1110 | 1.31 | 6.82 |
| 45 | 610 | 0.98 | 4.13 |




(1)——(1) CROSS SECTION LOCATION

GRAPHIC SCALE

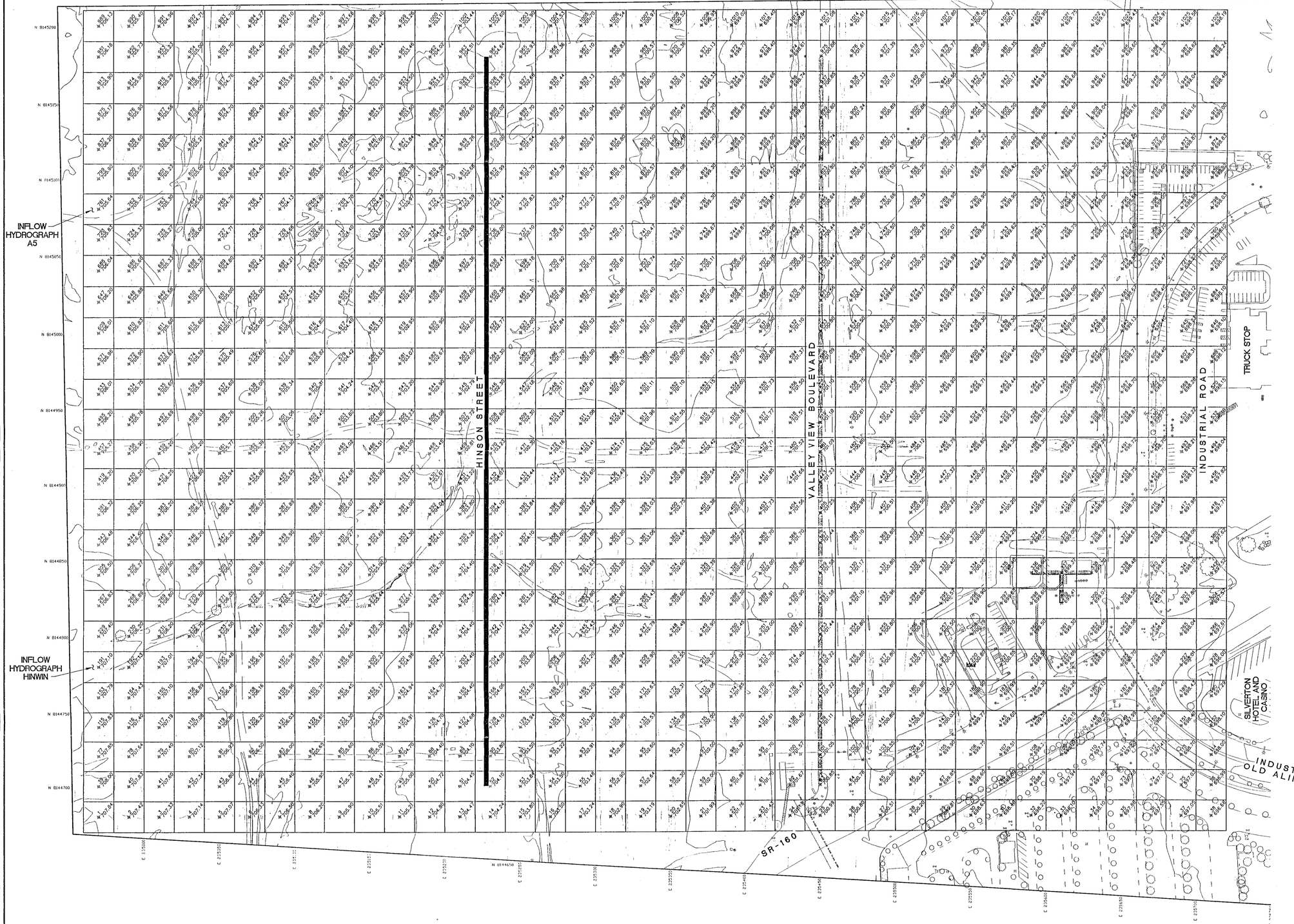
1500 0 750 1500 3000 6000

( IN FEET )
1 inch = 1500 ft.

# FIGURE 4 BASIN AND CROSS SECTION MAP


901 N. Green Valley Pkwy
Suite 100
Henderson, Nevada 89014
Telephone: 702/263-7275
Fax: 702/263-7200


Figure 4




N

SCALE: 1m = 1200m

## LEGEND

- OUTFLOW GRID FOR MODEL 1
- OUTFLOW GRID FOR MODEL 2
- OUTFLOW GRID FOR MODEL 3
- CHANNEL NODES
- BLOCKED NODES

GRID NUMBER

1499.00

GRID ELEVATION

# FIGURE 13
# SR-160 FLO-2D GRID

PBS&J
901 N. Green Valley Pkwy.
Suite 100
Henderson, Nevada 89014
Telephone: 702/263-7275
Fax: 702/263-7200

ENGINEERING • PLANNING • SURVEYING • CONSTRUCTION SERVICES

**DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY**
**ORGANIZATION OF TECHNICAL SUPPORT DATA NOTEBOOKS**

**VOLUME I**

SECTION 1 GENERAL DOCUMENTATION
- 1.1 Special Problem Reports
- 1.2 Meeting Minutes
- 1.3 General Correspondence

SECTION 2 ENGINEERING ANALYSIS
- 2.1 Summary of Design Flows

**VOLUME II**

- 2.2 Hydraulic Analysis
  - 2.2.1 HEC-2 Model Descriptions
  - 2.2.2 Normal Depth Calculations
- 2.3 Supporting Data
  - 2.3.1 Cross Section Plots
  - 2.3.2 Manning's "n" Channel Roughness Calculations
- 2.4 Key to Cross Section Labeling

**VOLUME III**

SECTION 3 DRAFT FIS REPORT
- 3.1 Report Text
- 3.2 FEMA Forms

SECTION 4 MAPPING INFORMATION
- 4.1 Map Index, Effective FIRM, LOMR's
- 4.2 Base Maps
- 4.3 Work Maps
- 4.4 Cross Section Exhibits
- 4.5 Aerial Photographs

**VOLUME IV**

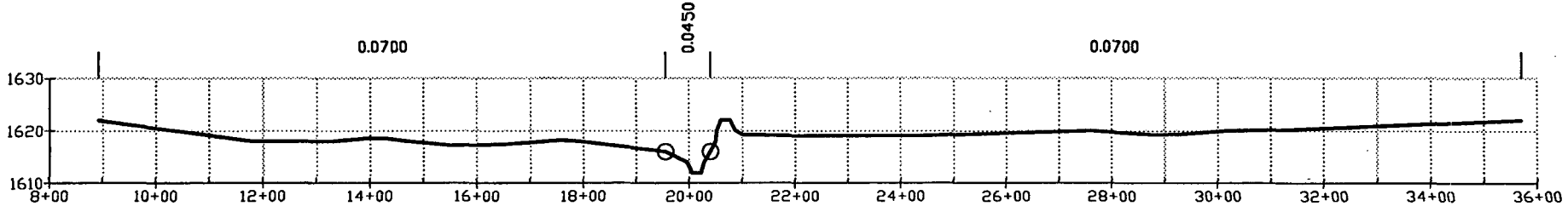
SECTION 5 MISCELLANEOUS REFERENCE MATERIAL
- 5.1 Detailed Field Review
  - 5.1.1 Photograph Location Maps
  - 5.1.2 Field Survey and Photographs
- 5.2 Survey Point Files
- 5.3 Operation and Maintenance Plan
- 5.4 References
- 5.5 Compact Disc

**VOLUME V**

GREEN PARK CLOMR

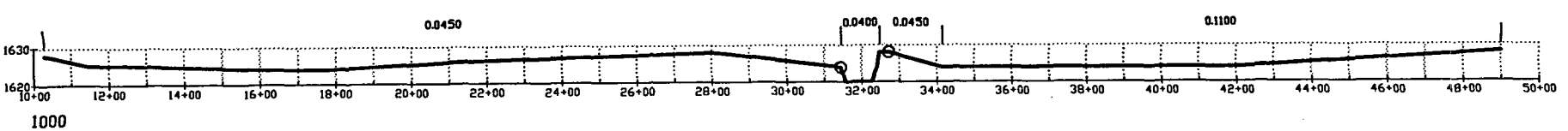
**ATTACHED DESIGN DRAWINGS**

Duck Creek from Tomiyasu Lane to Warm Springs Road
Lower Duck Creek Detention Basin
Duck Creek Channel Phase 1
Duck Creek Crossing at Robindale Road
Aviara Apartments Offsite Channel Improvements
Windmill Lane from Las Vegas Boulevard to Maryland Parkway

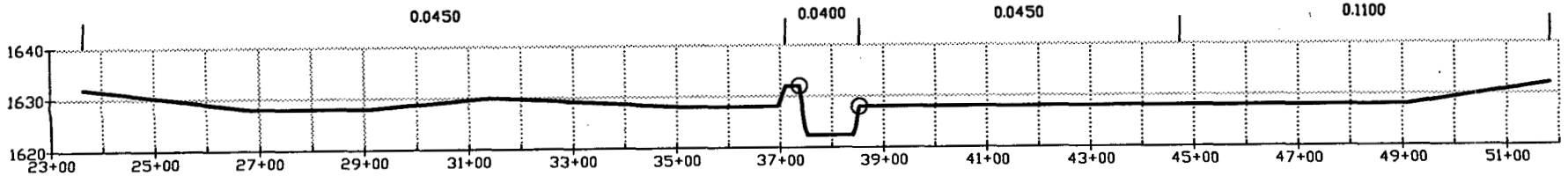



900

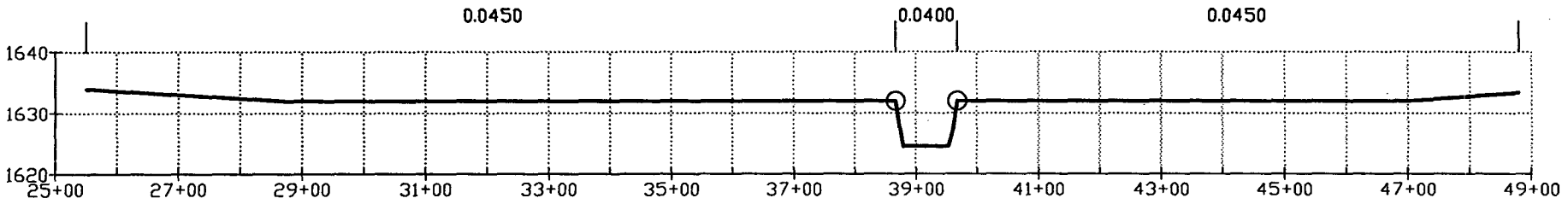
CROSS SECTION C, FROM EFFECTIVE FIRM
SEE SECTION 124 FROM HEC-2 MODEL, BREAK1.OUT
DUCK CREEK FIS RESTUDY BY NIMBUS ENGINEERS, 6/97


0.0450
0.0400
0.0450
0.1100
1630
1620
10+00
12+00
14+00
16+00
18+00
20+00
22+00
24+00
26+00
28+00
30+00
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46+00
48+00
50+00

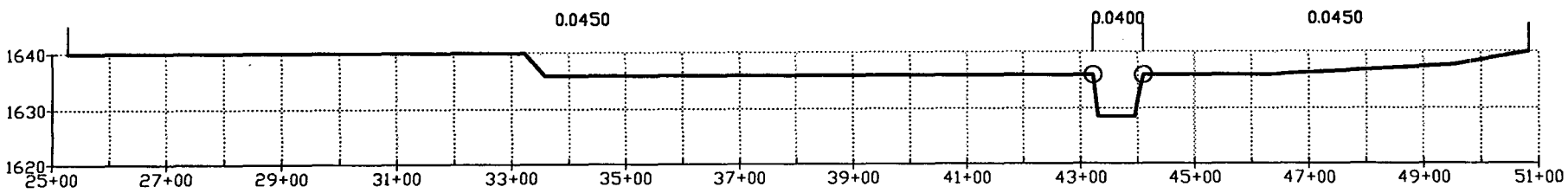
1000


0.0450
0.0400
0.0450
0.1100
1640
1630
1620
23+00
25+00
27+00
29+00
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47+00
49+00
51+00

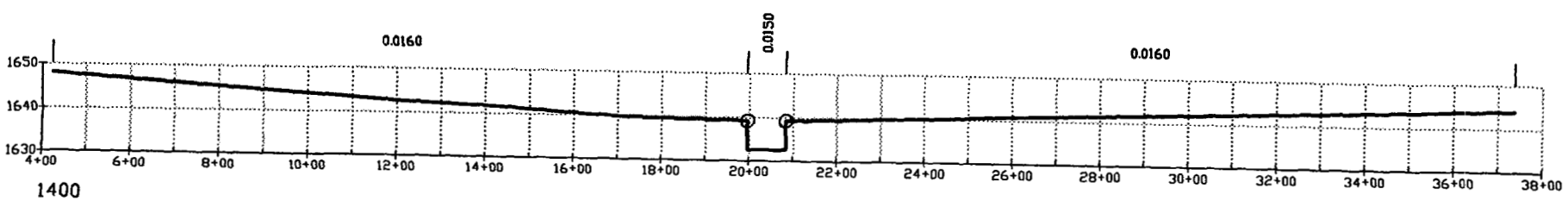
1100


0.0450
0.0400
0.0450
1640
1630
1620
25+00
27+00
29+00
31+00
33+00
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43+00
45+00
47+00
49+00

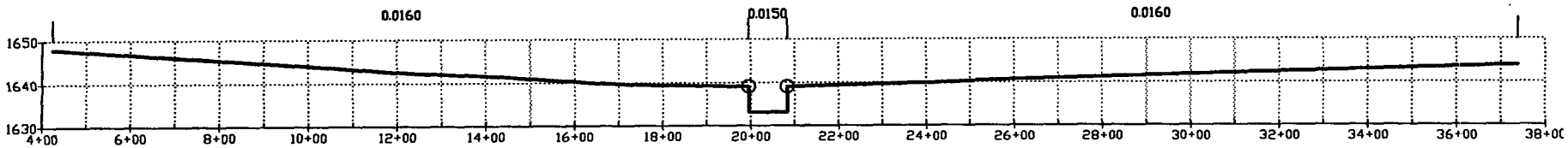
1200


0.0450
0.0400
0.0450
1640
1630
1620
25+00
27+00
29+00
31+00
33+00
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45+00
47+00
49+00
51+00

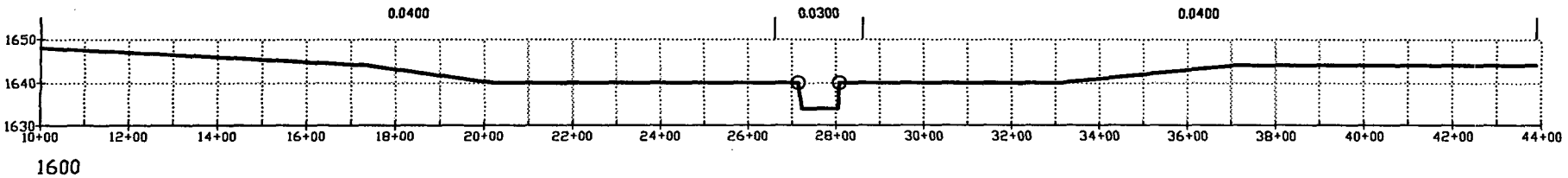
1300


0.0160
0.0150
0.0160
1650
1640
1630
4+00
6+00
8+00
10+00
12+00
14+00
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32+00
34+00
36+00
38+00

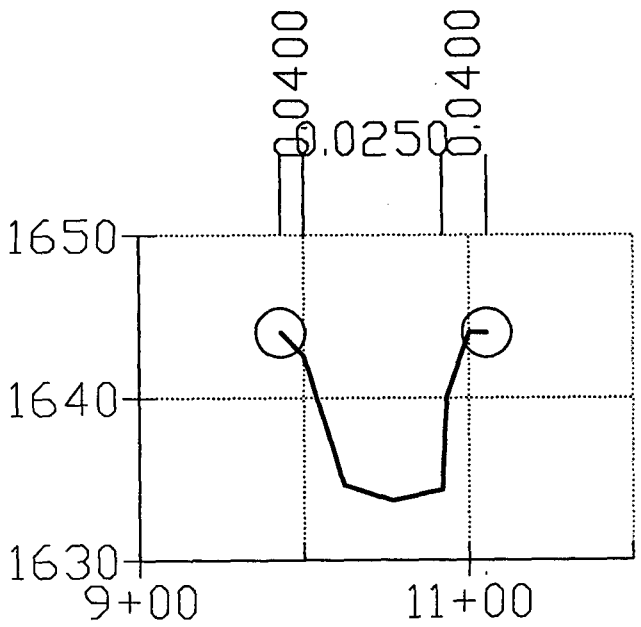
1400


0.0160
0.0150
0.0160
1650
1640
1630
4+00
6+00
8+00
10+00
12+00
14+00
16+00
18+00
20+00
22+00
24+00
26+00
28+00
30+00
32+00
34+00
36+00
38+00

1500


0.0400
0.0300
0.0400
1650
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1600

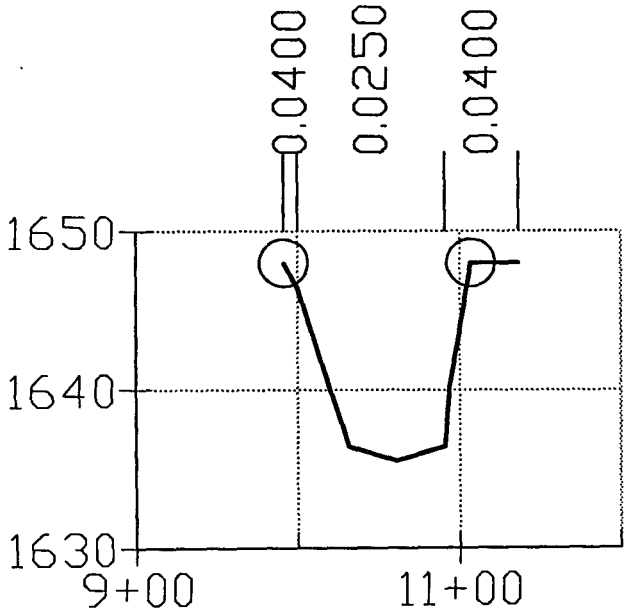



1800

INTERIM CHANNEL, DUCK CREEK CHANNEL PHASE 1

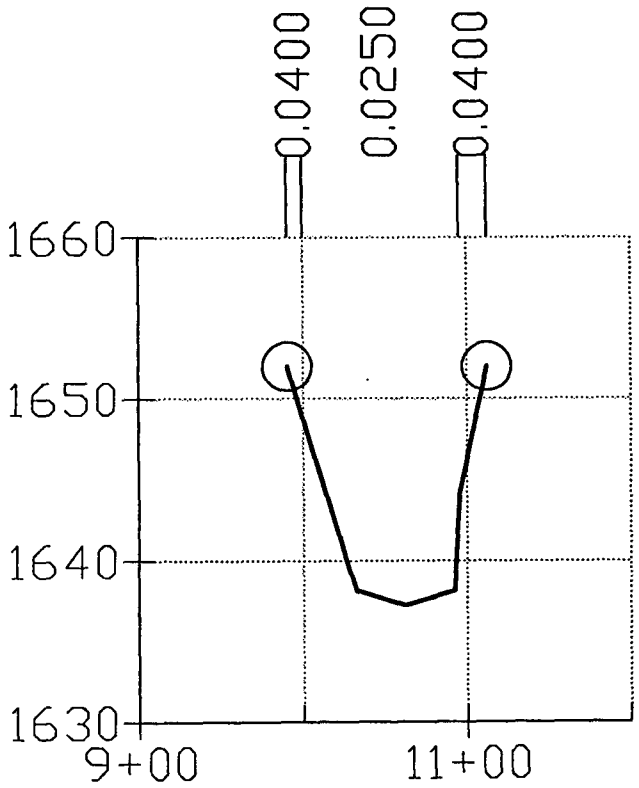
PLANS STA

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



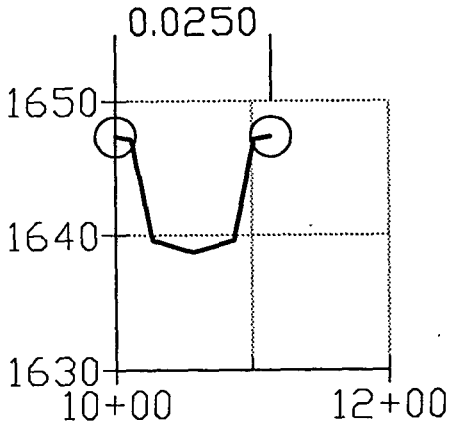

# 1900

PT, INTERIM CHANNEL, DUCK CREEK CHANNEL PHASE 1
PLANS STA 134+96.55
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



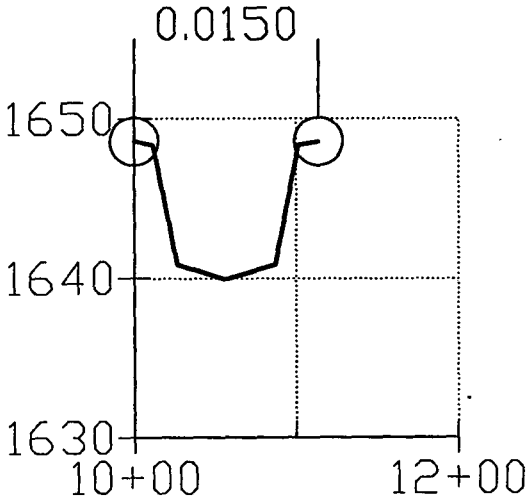

2000

PC, INTERIM CHANNEL, DUCK CREEK CHANNEL PHASE 1
PLANS STA 131+08.73
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



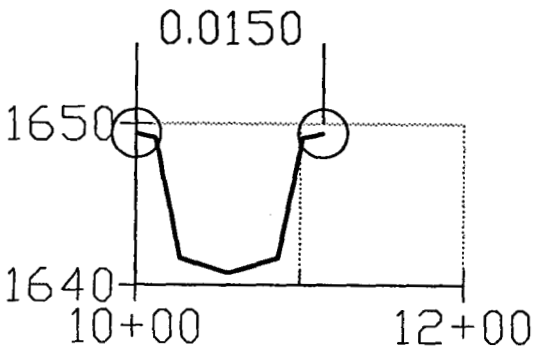

2100

GRADEBREAK, UPSTREAM INTERIM CHANNEL, DUCK CREEK CHANNEL PHASE 1
PLANS STA 127+50.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




2200

GRADE BREAK, DUCK CREEK CHANNEL PHASE 1
PLANS STA 125+77.60
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

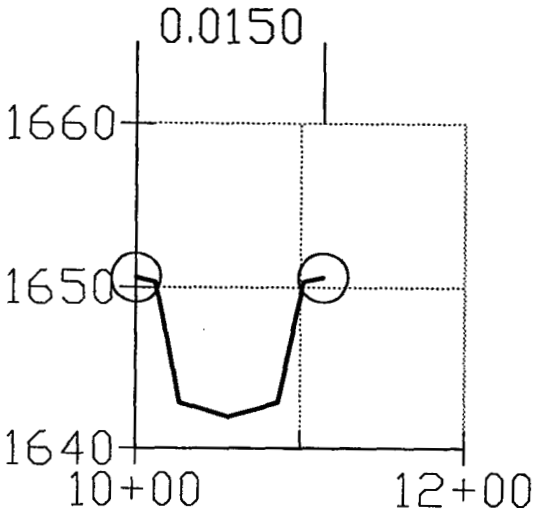



2300

DUCK CREEK CHANNEL PHASE 1

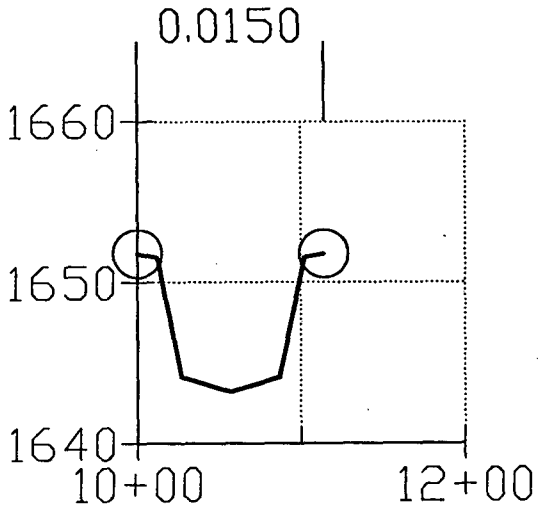
PLANS STA 123+00.00

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



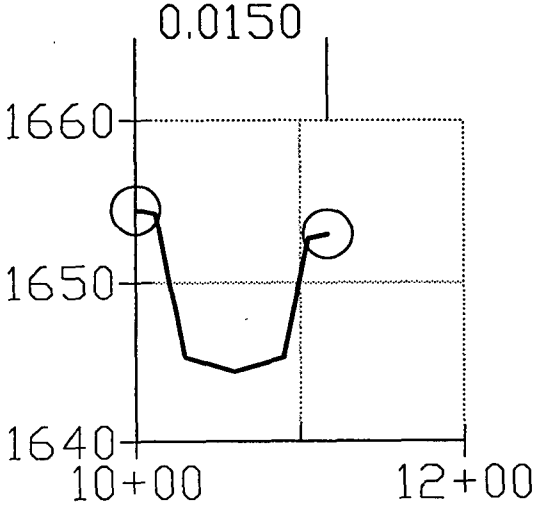

2400

DUCK CREEK CHANNEL PHASE 1
PLANS STA 119+00.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



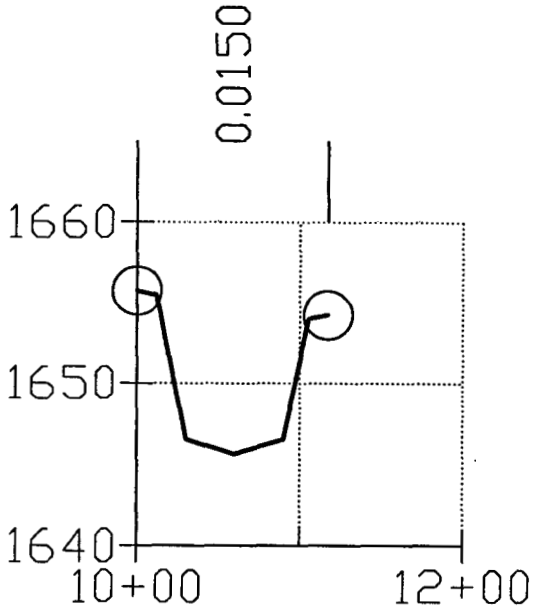

2500

DUCK CREEK CHANNEL PHASE 1
PLANS STA 115+00.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



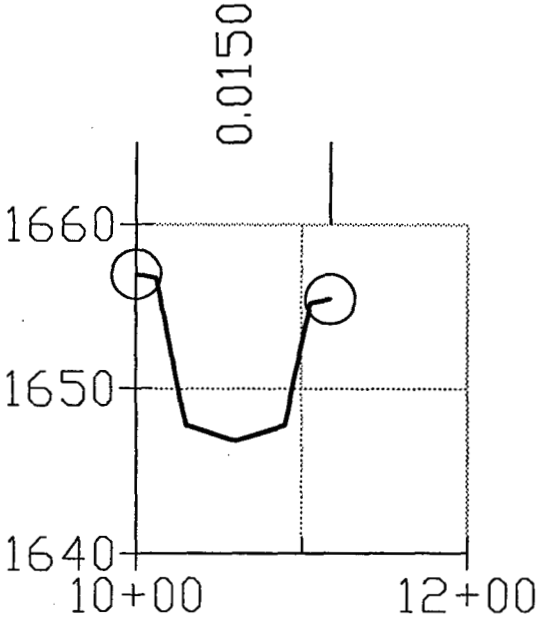

2600

DUCK CREEK CHANNEL PHASE 1
PLANS STA 111+00.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



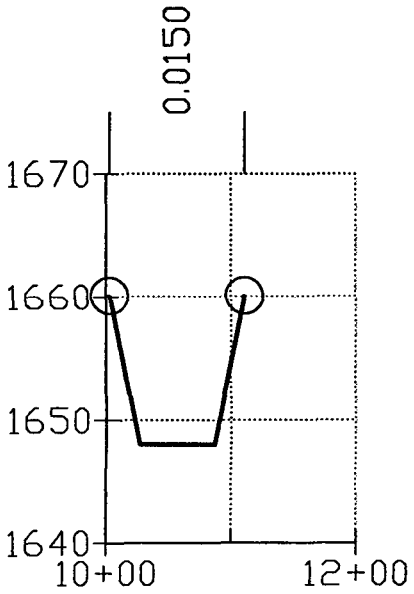

2700

DUCK CREEK CHANNEL PHASE 1
PLANS STA 107+00.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



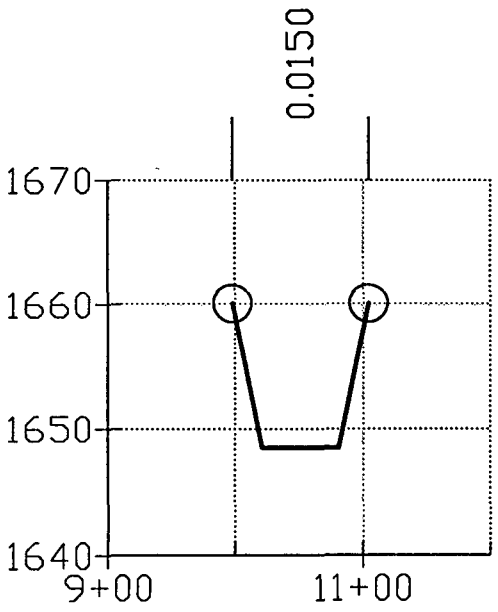

2800

GRADEBREAK, DUCK CREEK CHANNEL PHASE 1
PLANS STA 102+89.60
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



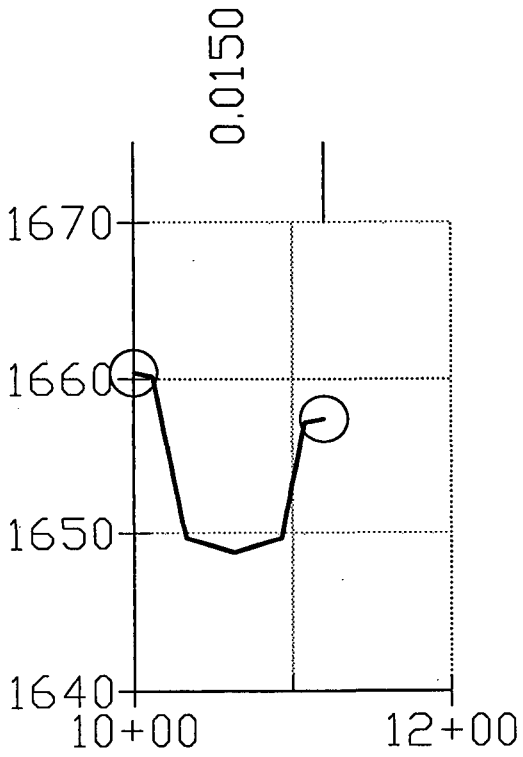

2900

DOWNSTREAM FACE OF STEPHANIE STREET BRIDGE, DUCK CREEK CHANNEL PHASE 1
PLANS STA
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



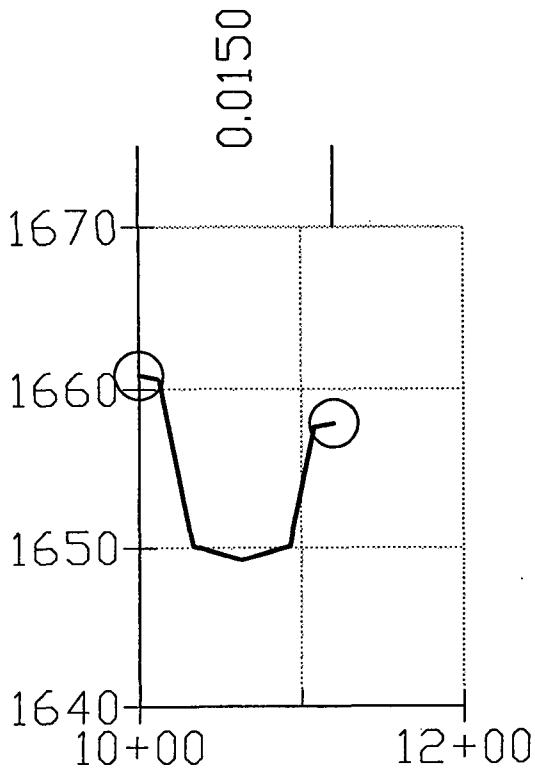

3000

UPSTREAM FACE OF STEPHANIE STREET BRIDGE, DUCK CREEK CHANNEL PHASE 1
PLANS STA 99+57.65
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



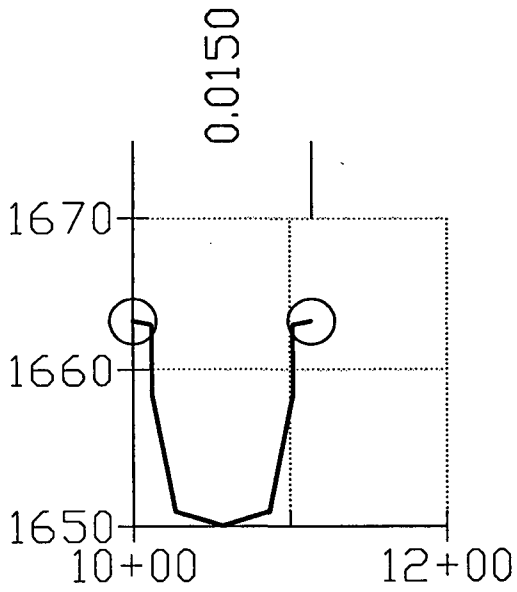

3100

GRADEBREAK, DUCK CREEK CHANNEL PHASE 1
PLANS STA 99+00.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



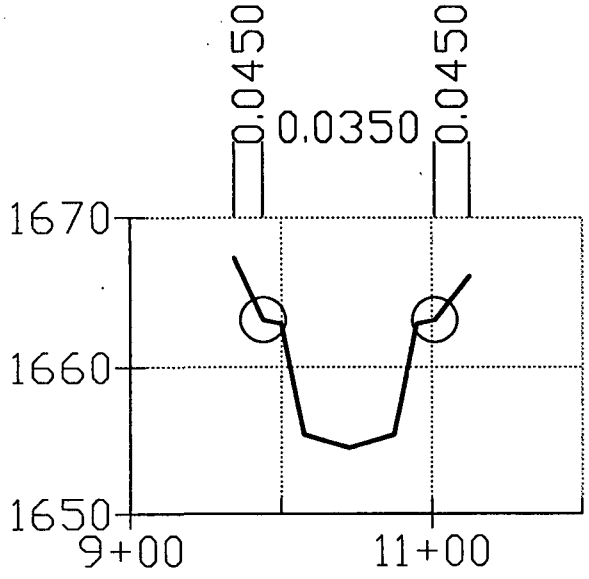

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GRADEBREAK, DUCK CREEK CHANNEL PHASE 1
PLANS STA 98+12.39
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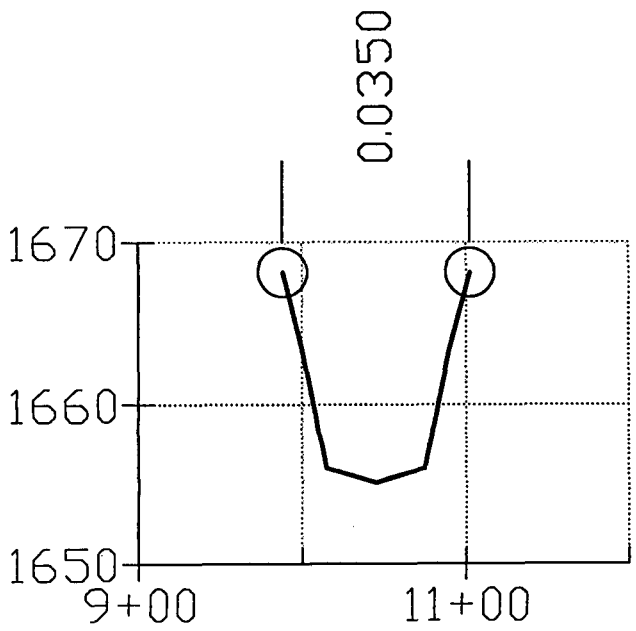

3300

END GABION DROP STRUCTURE, DUCK CREEK CHANNEL PHASE 1
PLANS STA 96+49.99
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



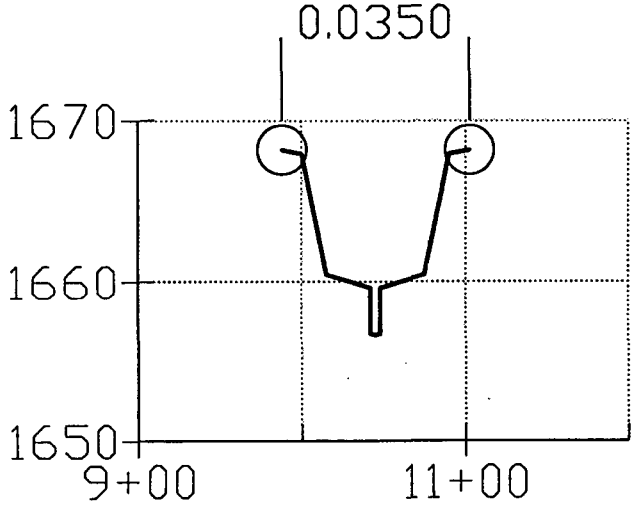

3400

GABION DROP STRUCTURE, DUCK CREEK CHANNEL PHASE 1
PLANS STA 96+50.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



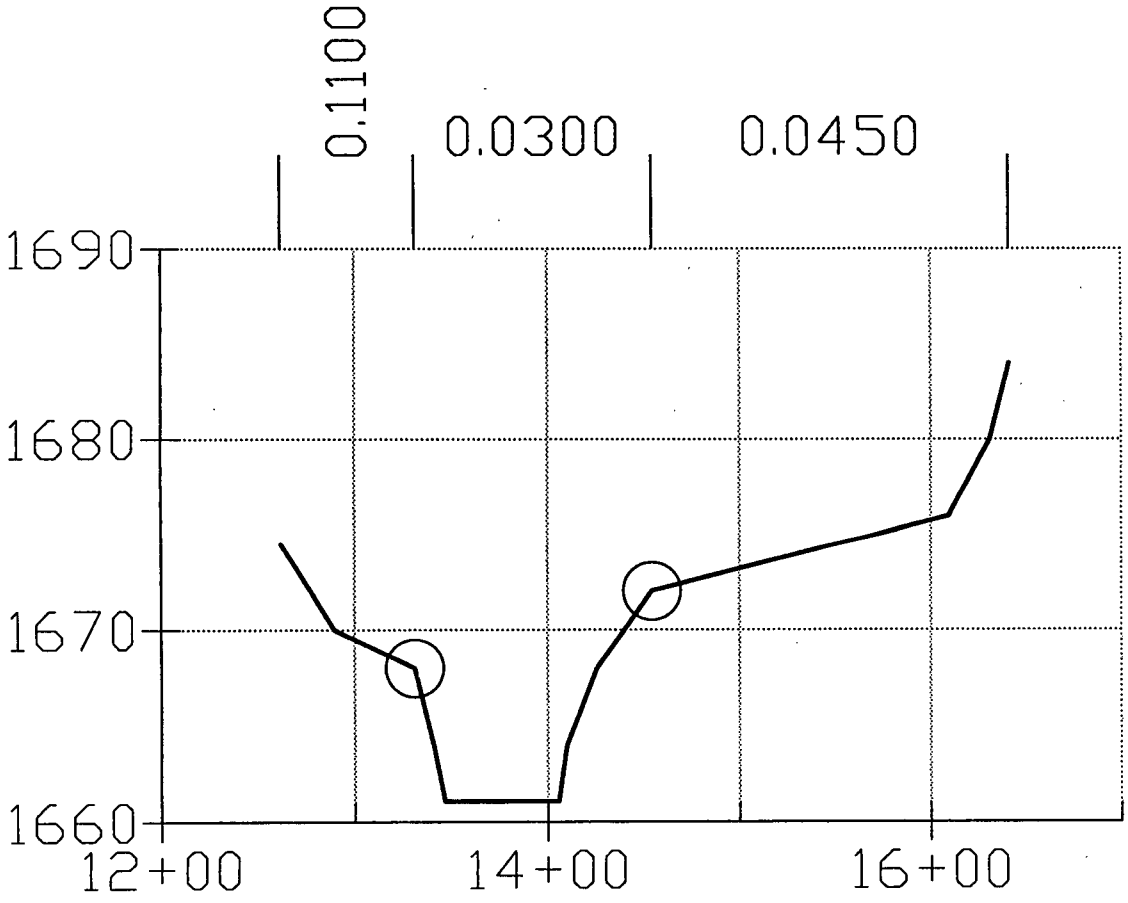

3500

GABION DROP STRUCTURE, DUCK CREEK CHANNEL PHASE 1
PLANS STA 95+49.99
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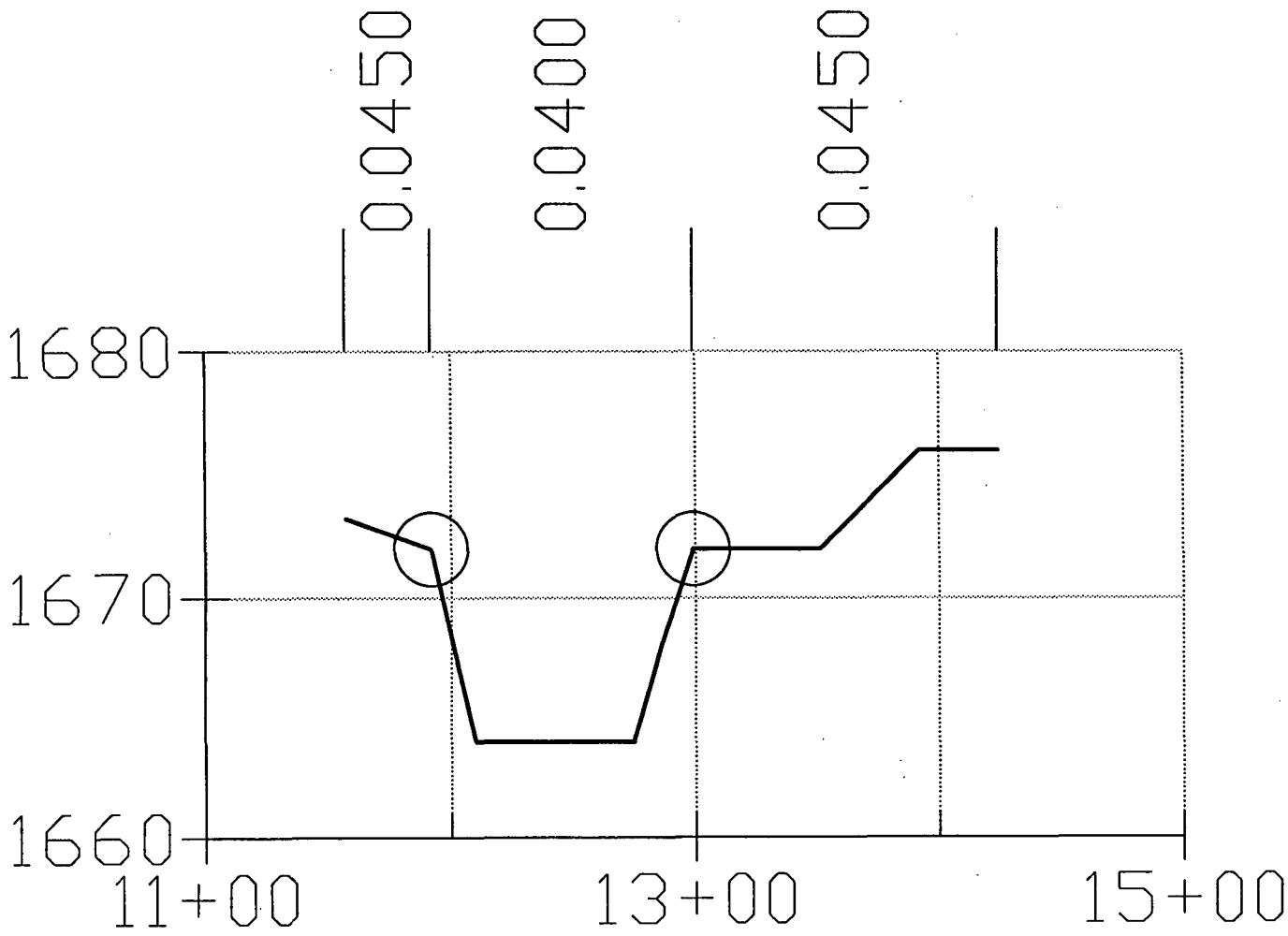



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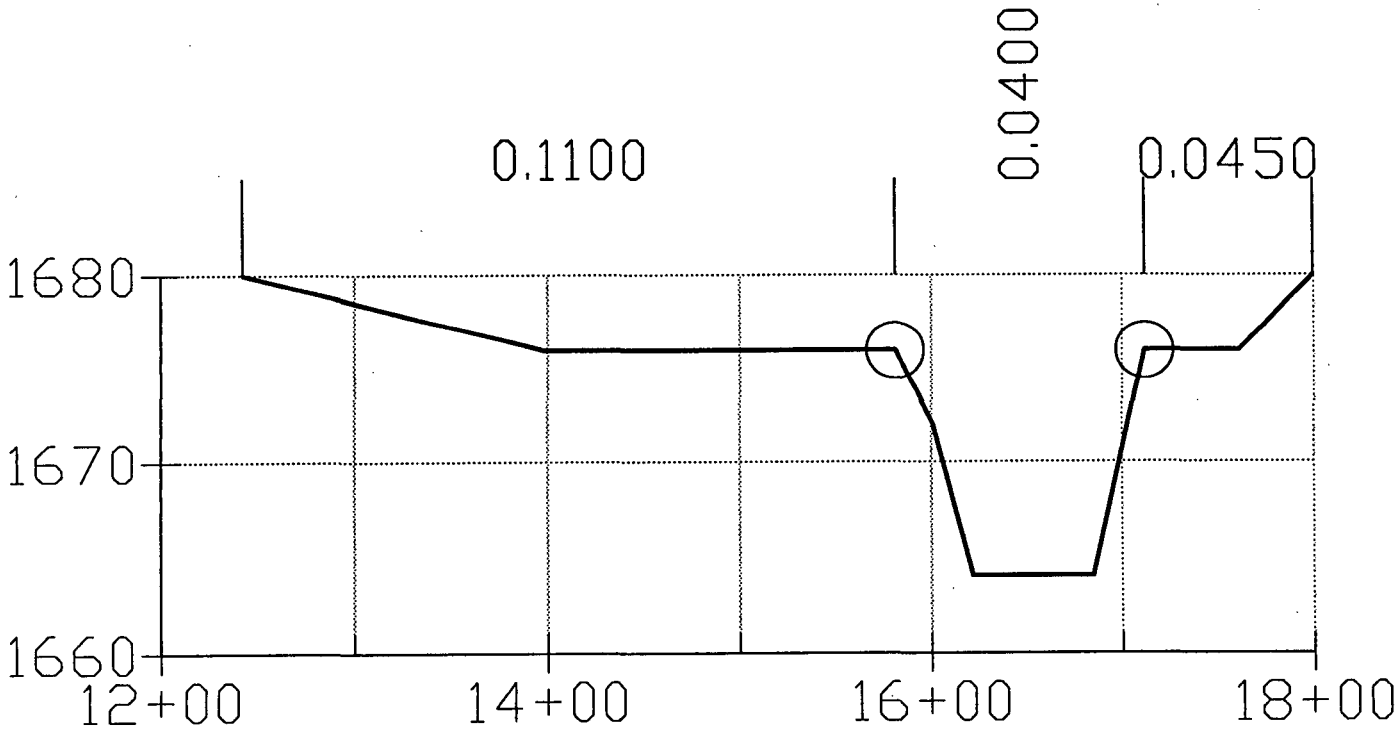
GABION DROP STRUCTURE, DUCK CREEK CHANNEL PHASE 1
PLANS STA 95+50.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



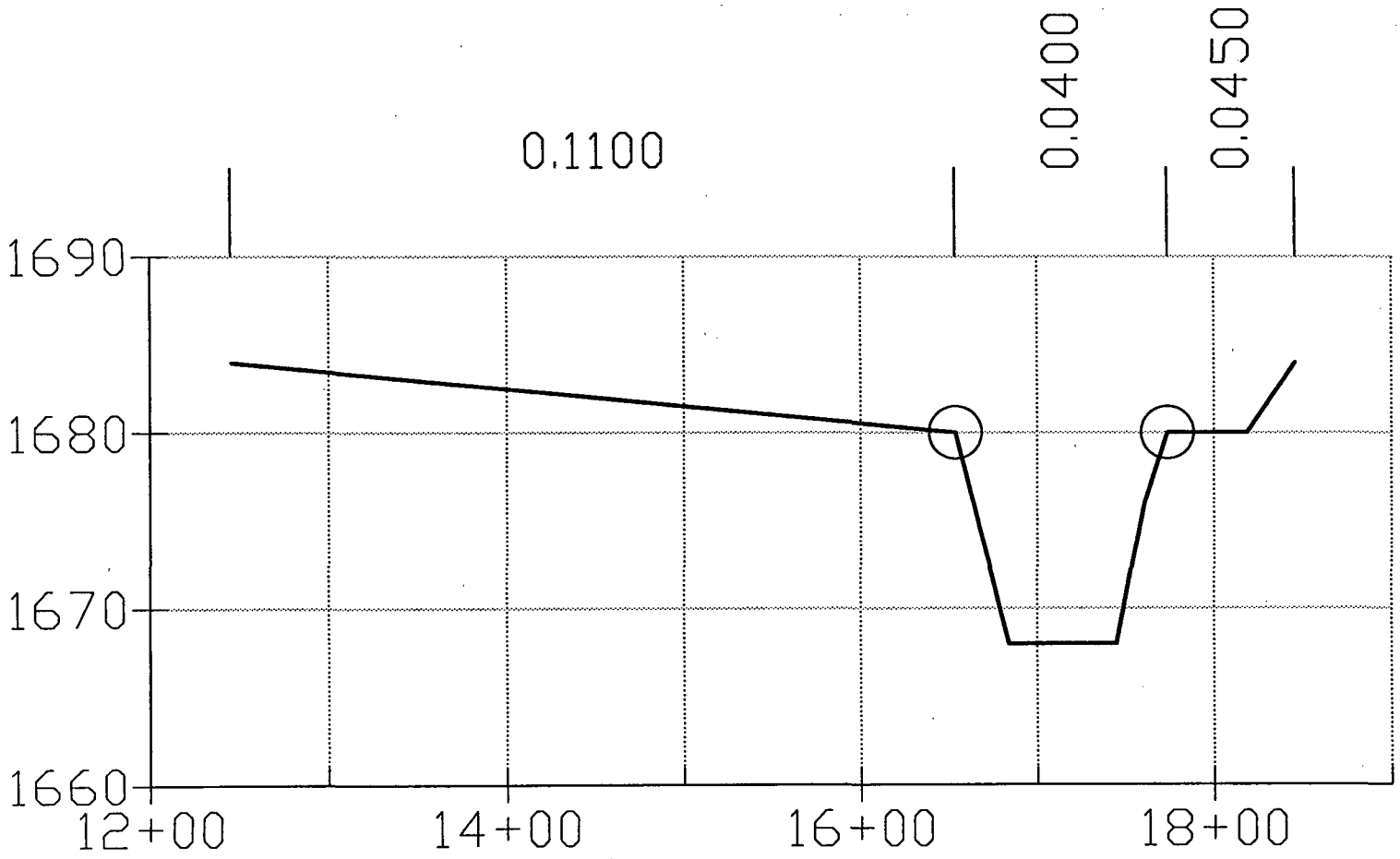

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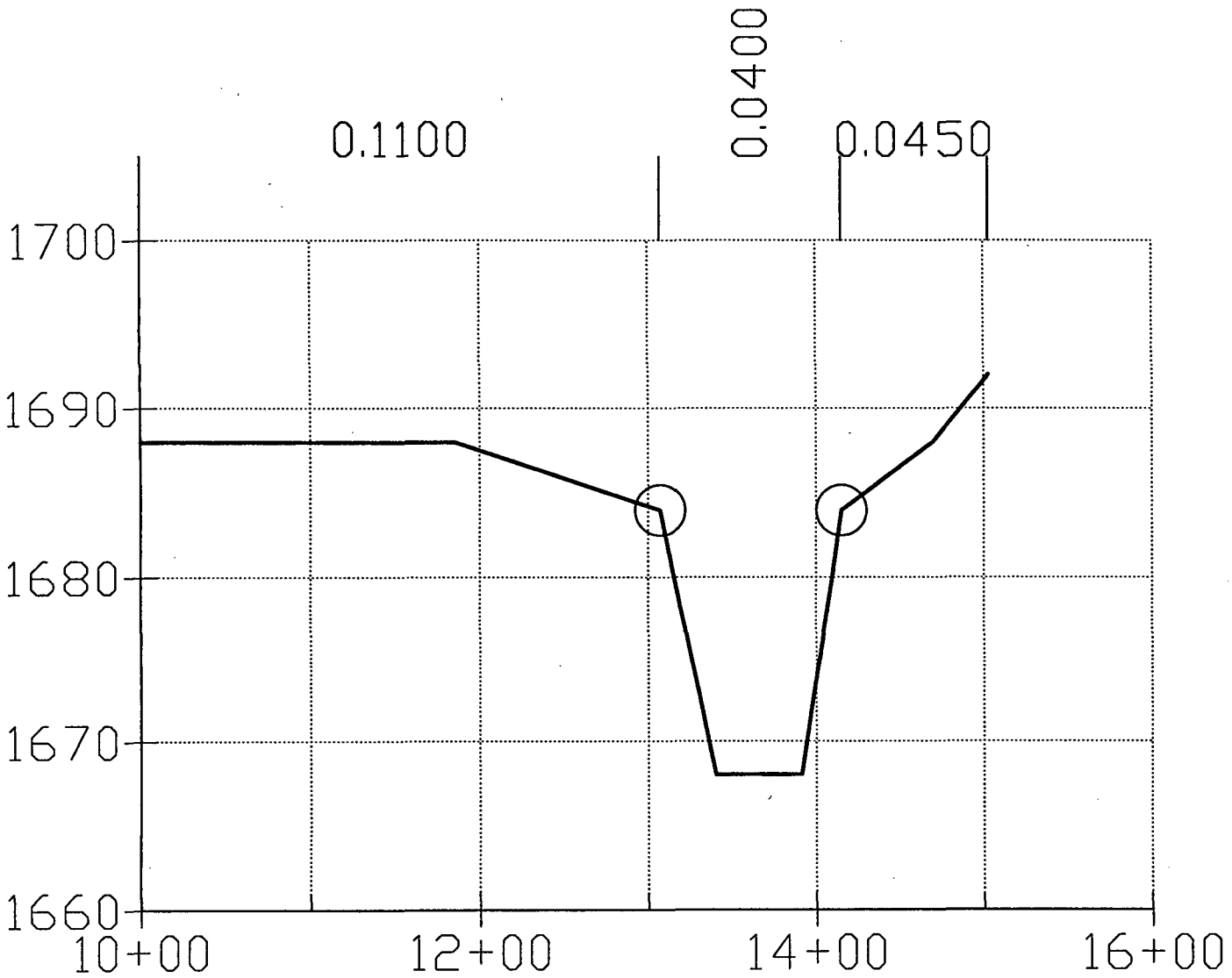

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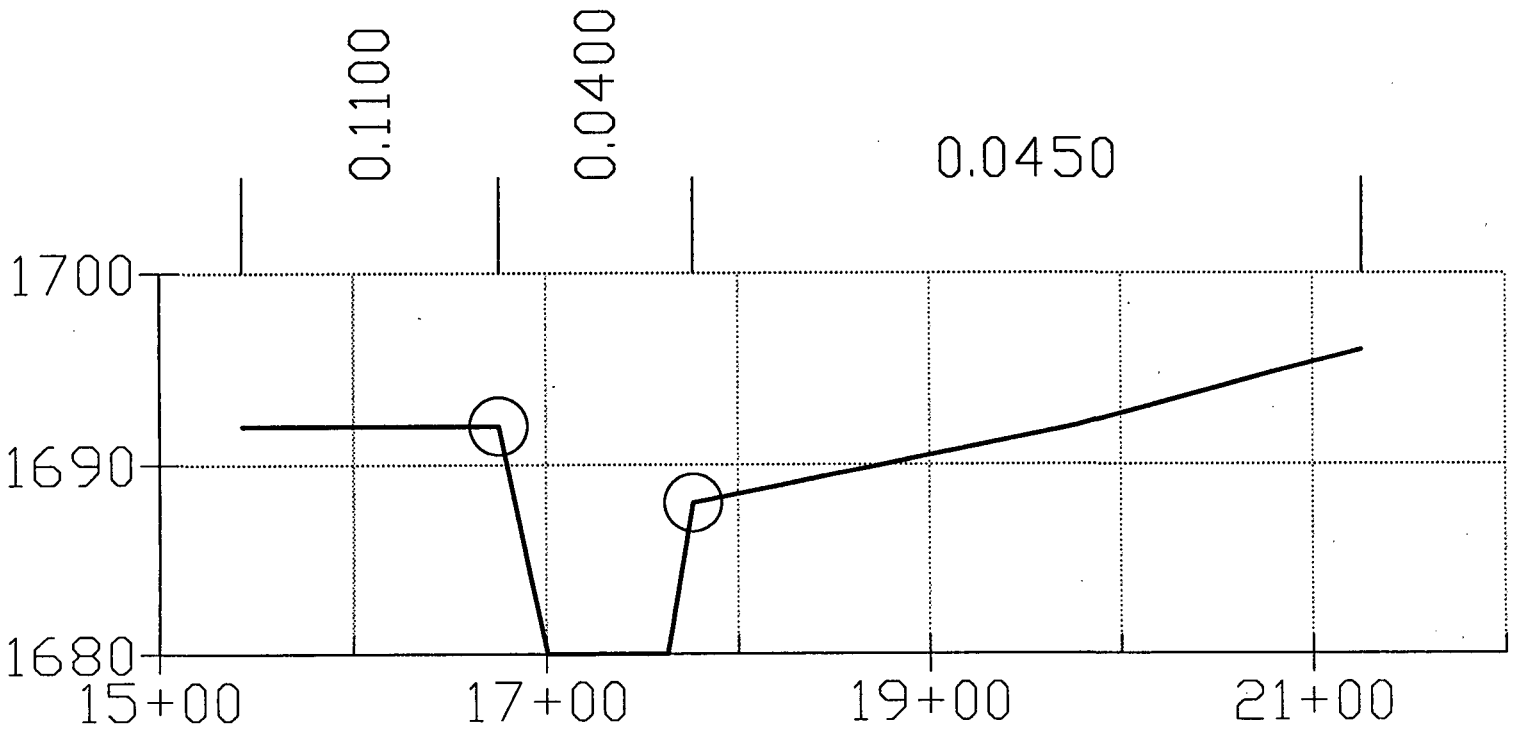

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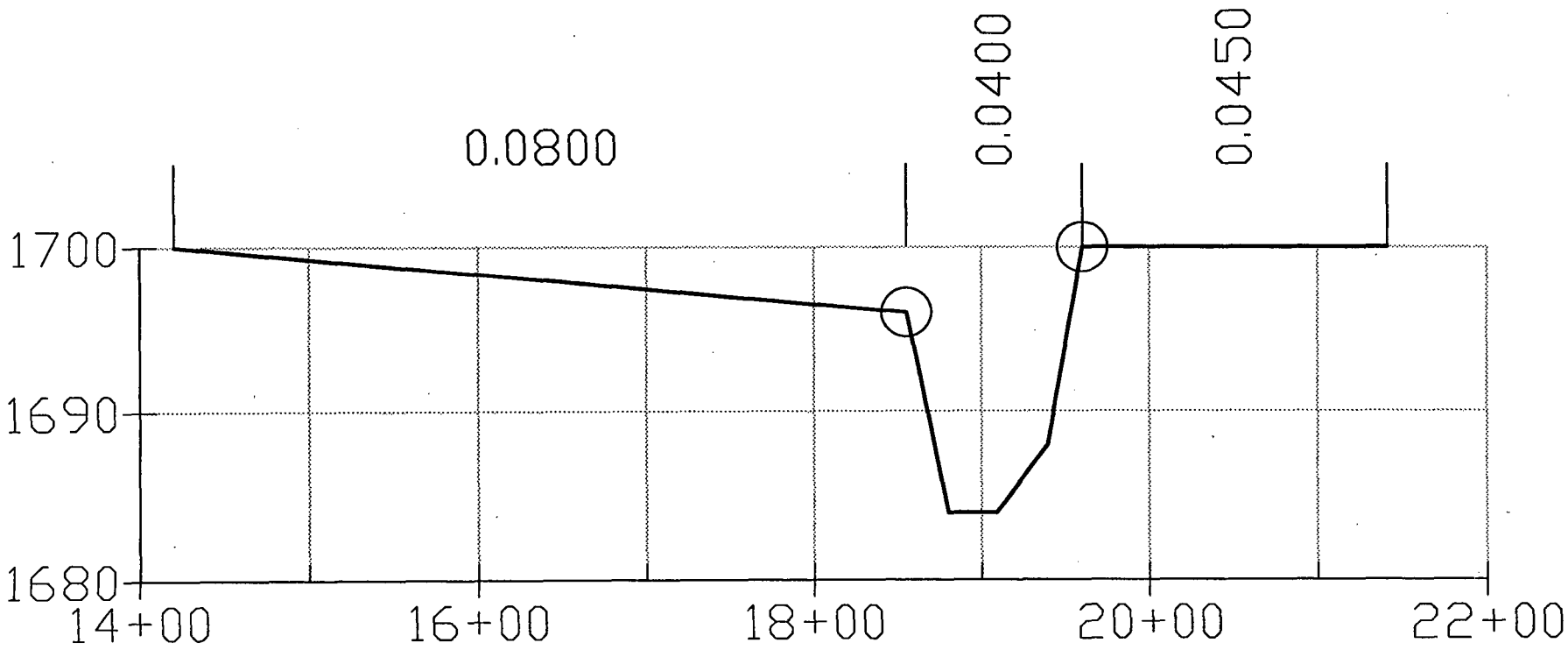

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16+00

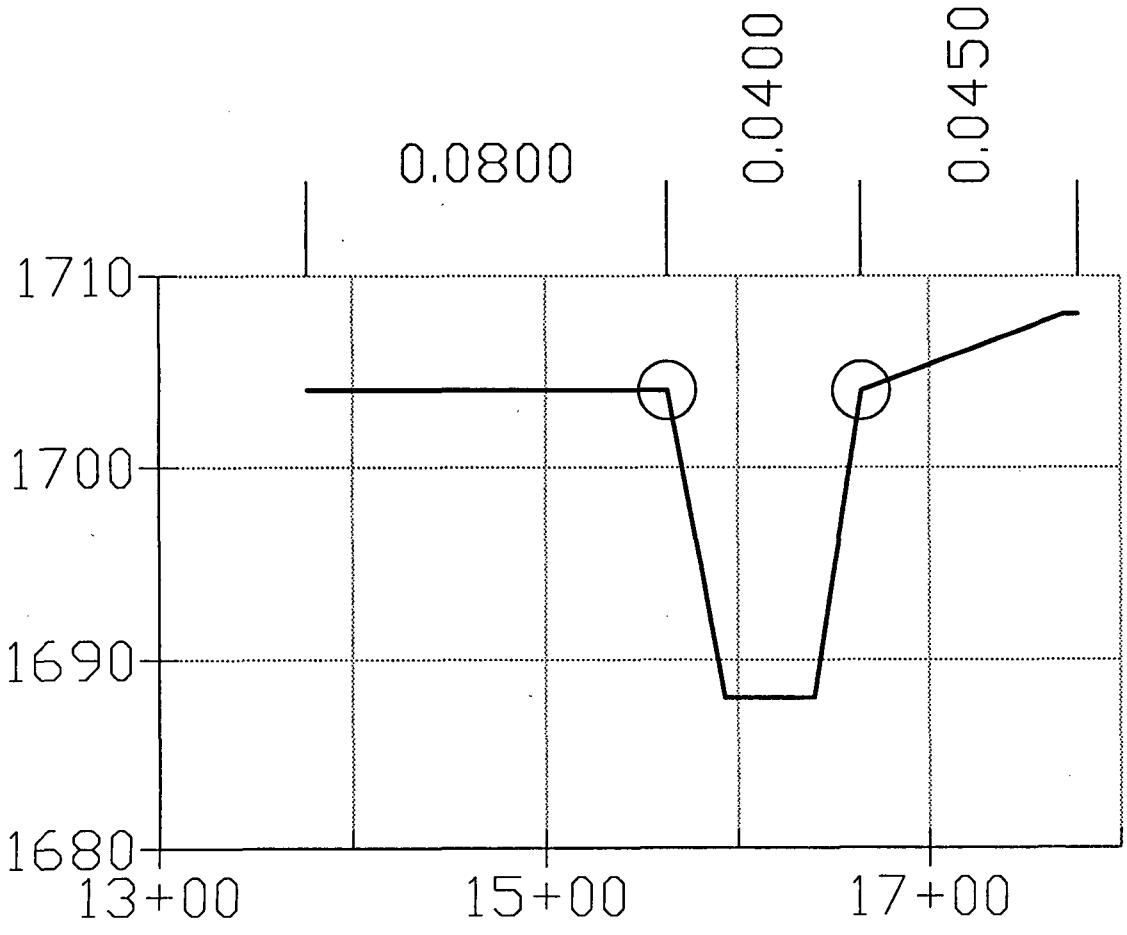
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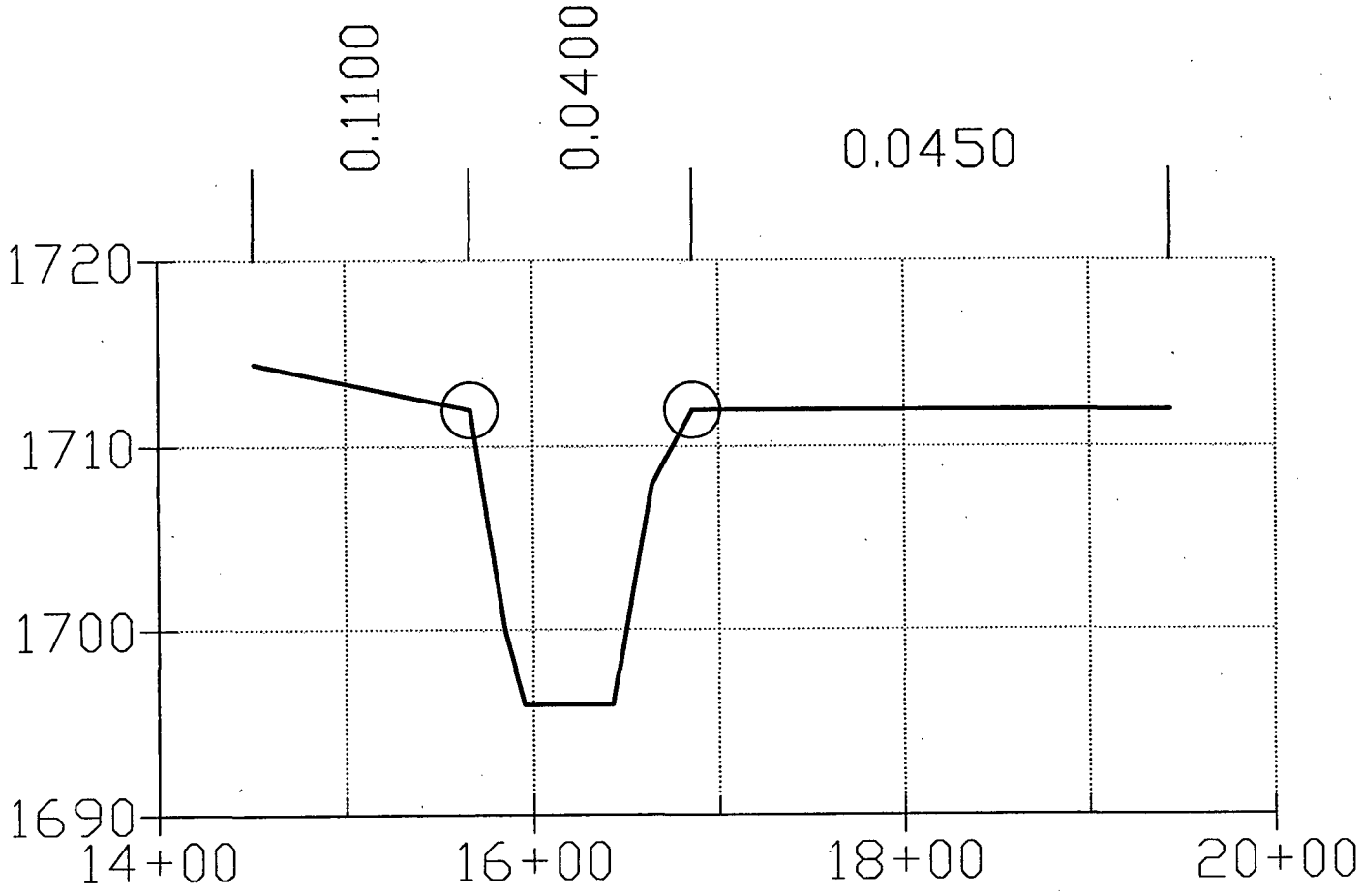

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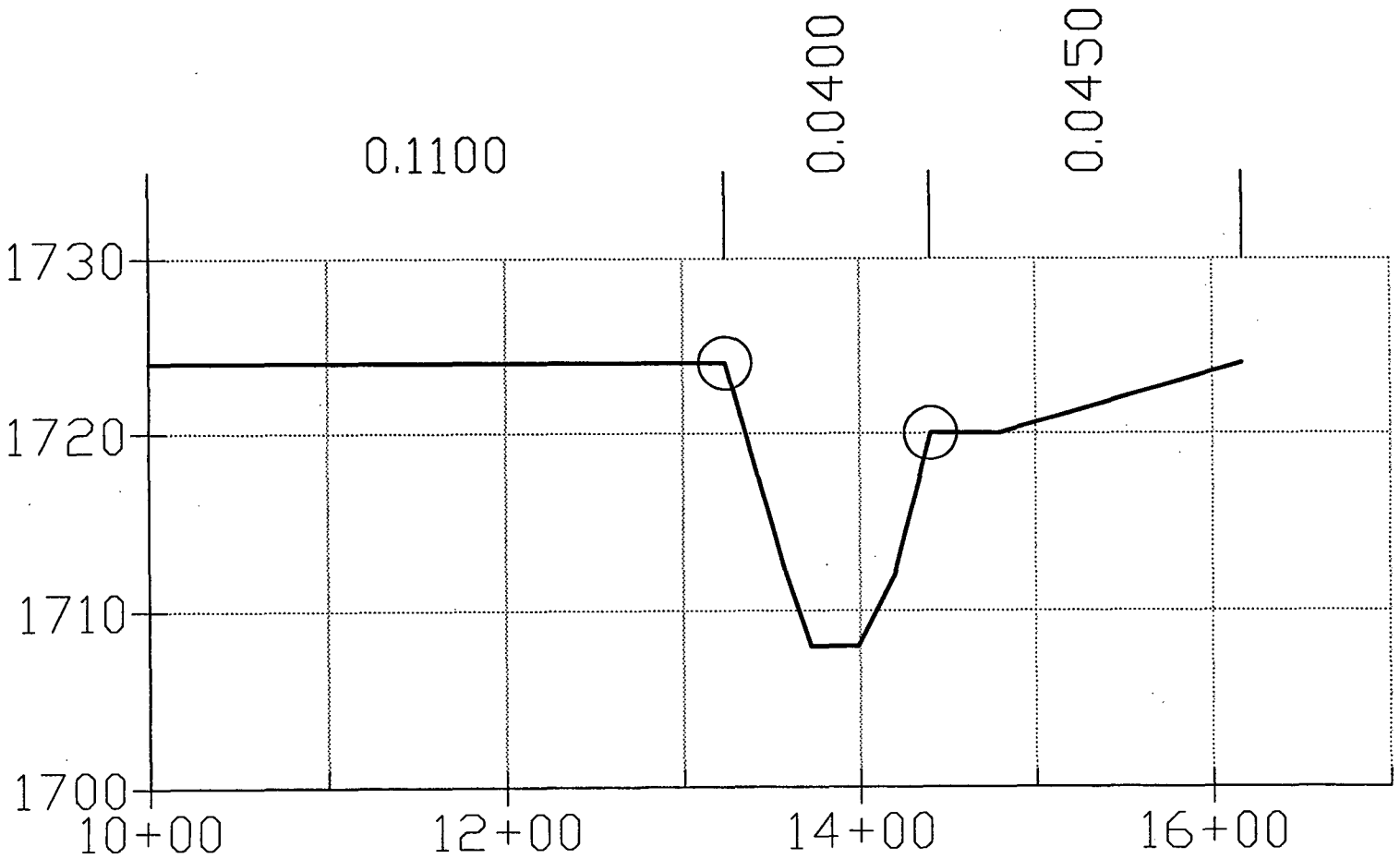

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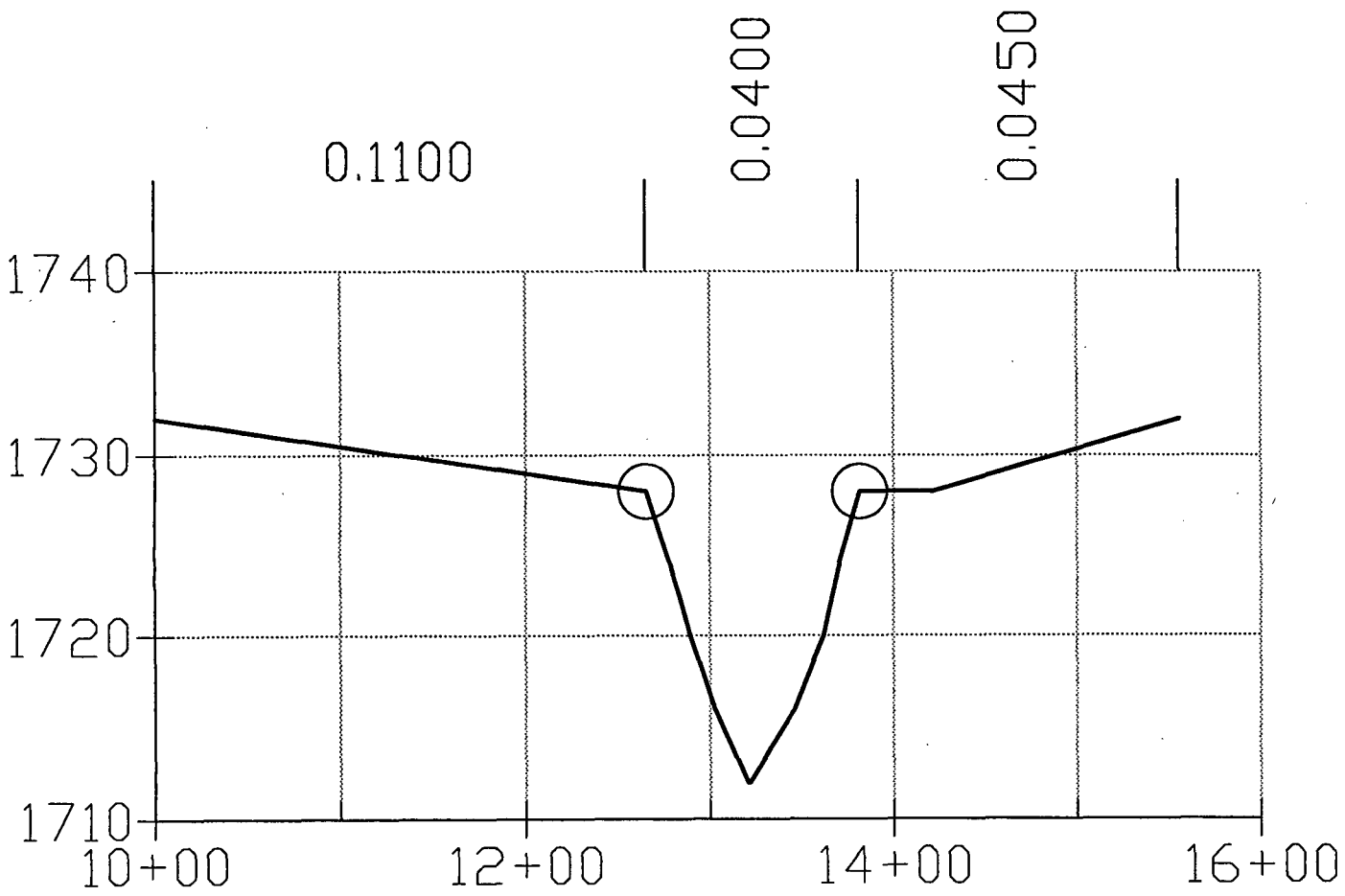

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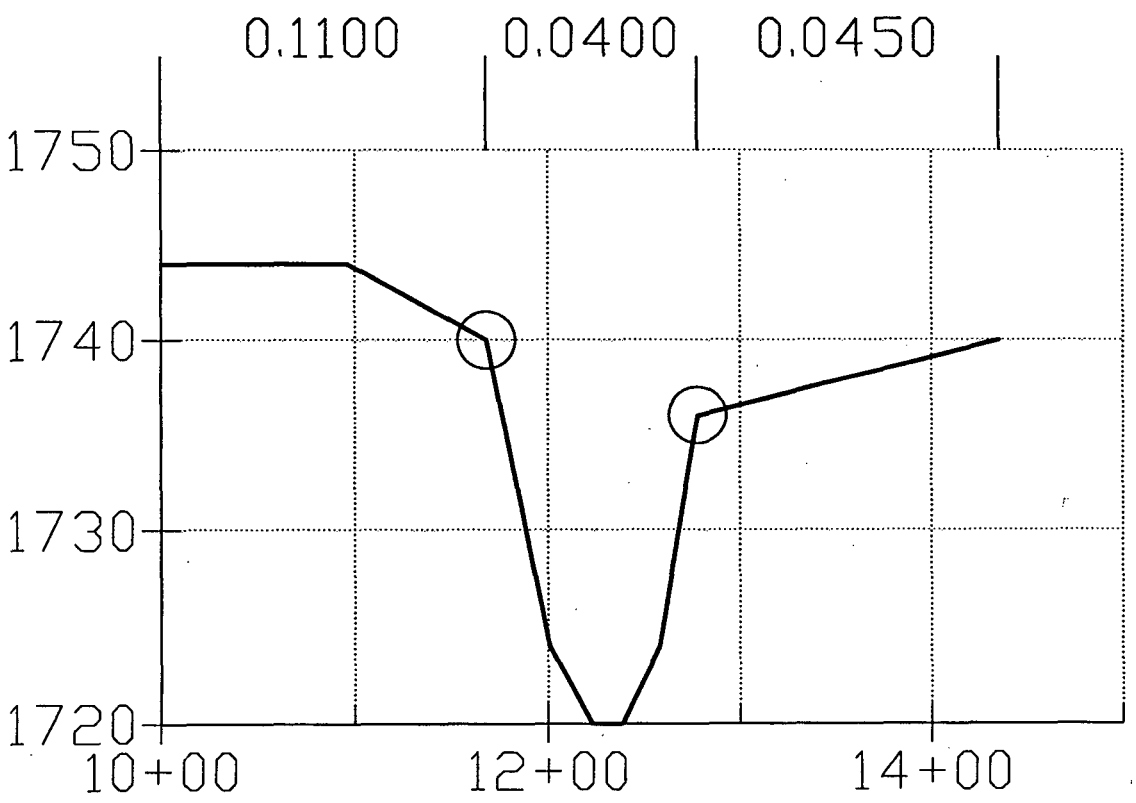

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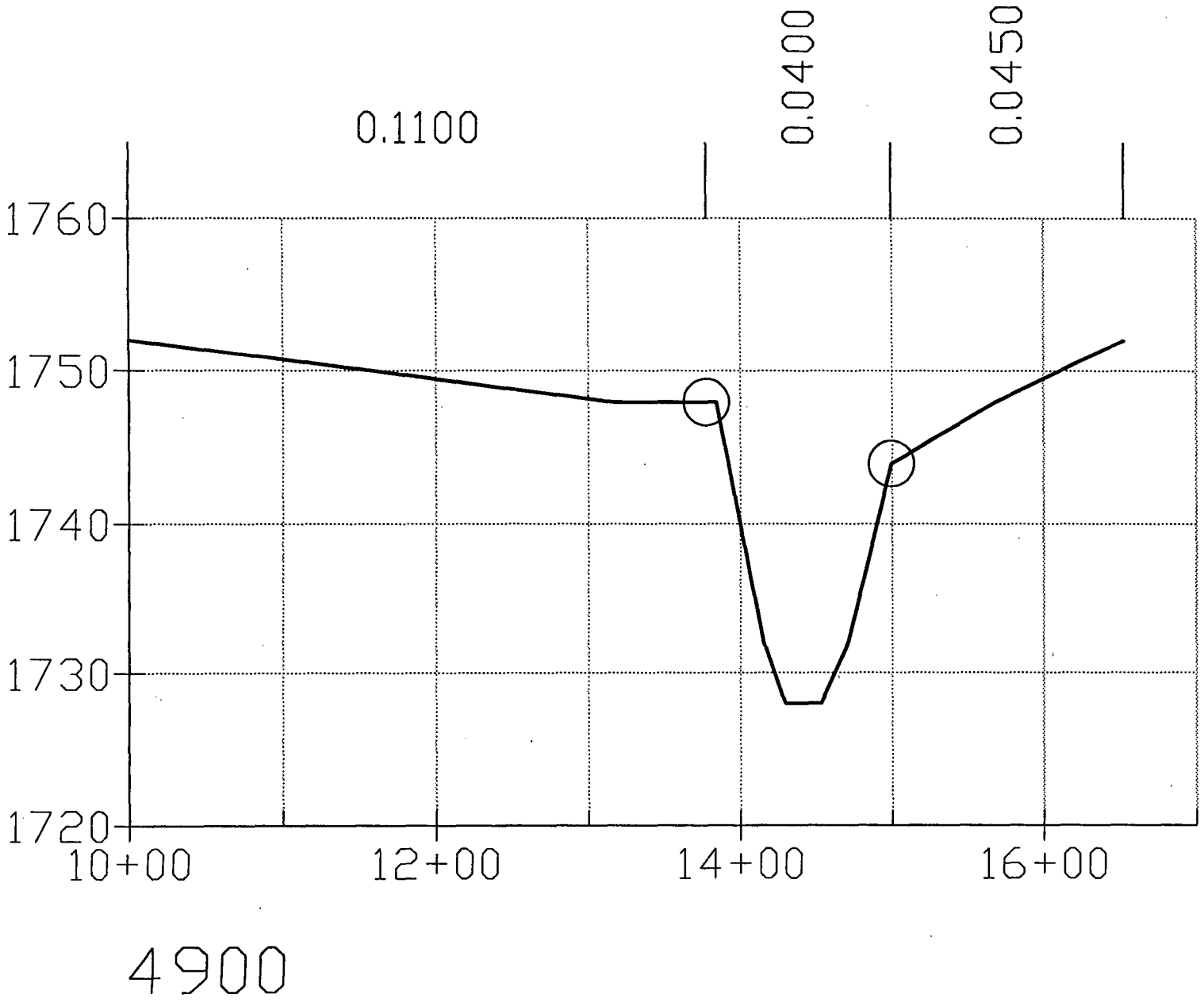

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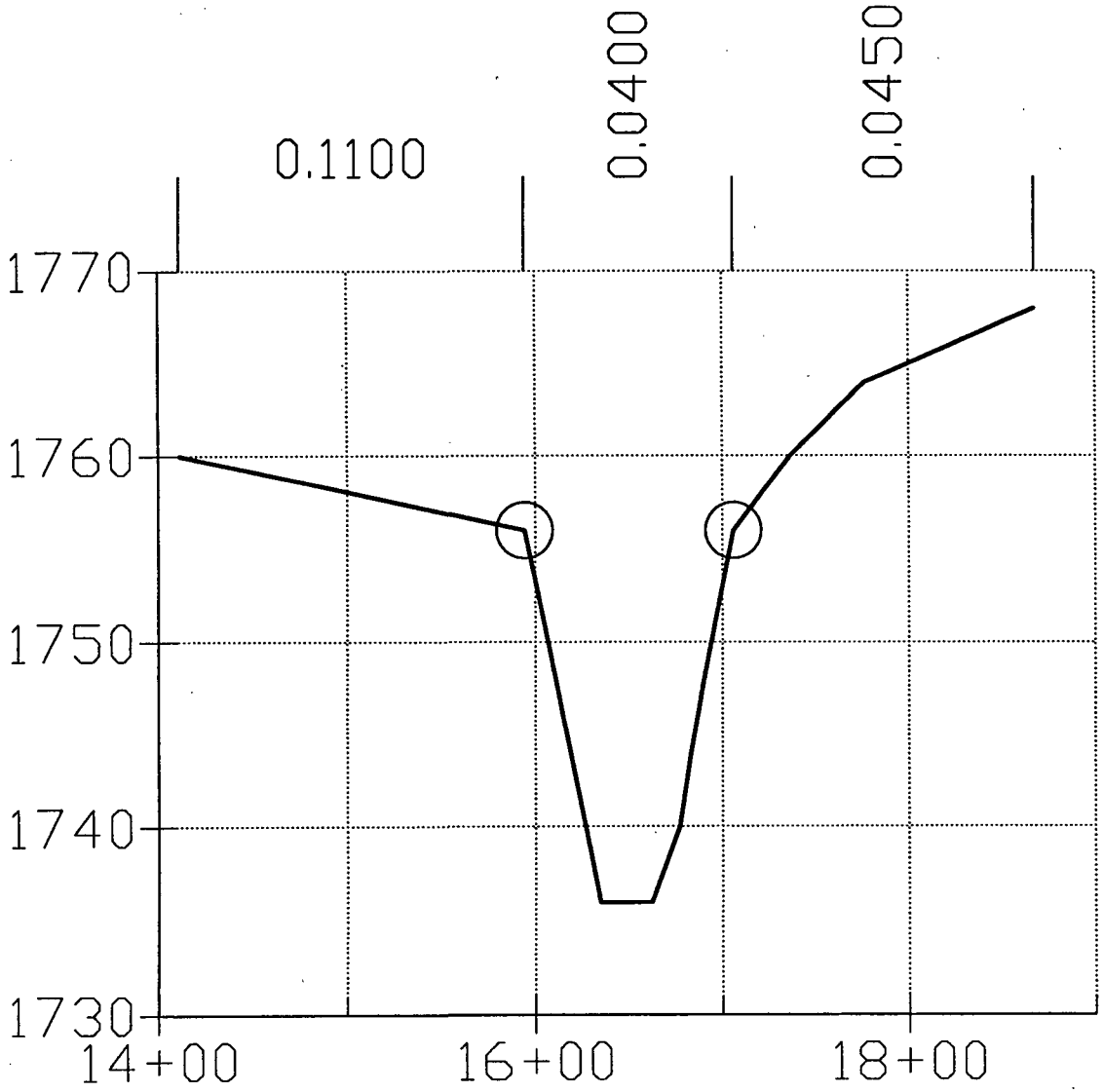

4700



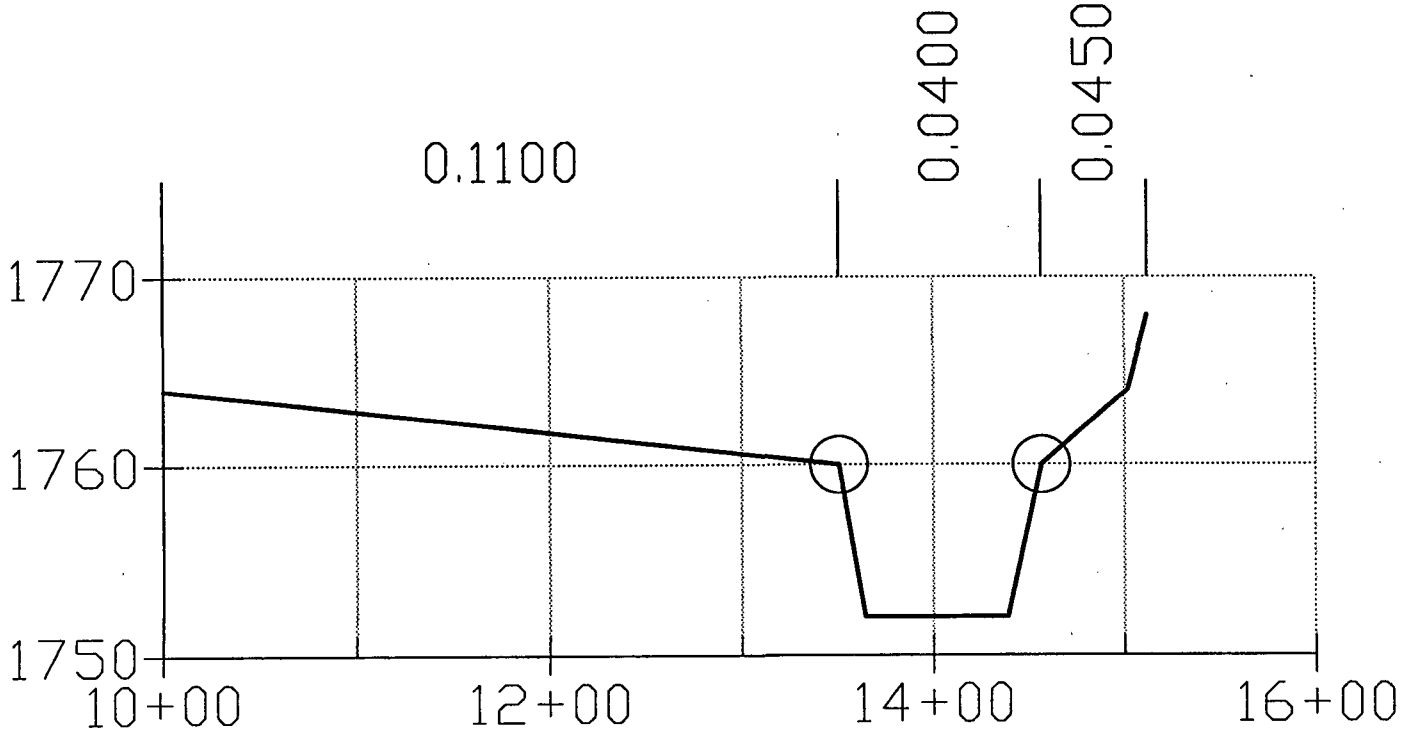

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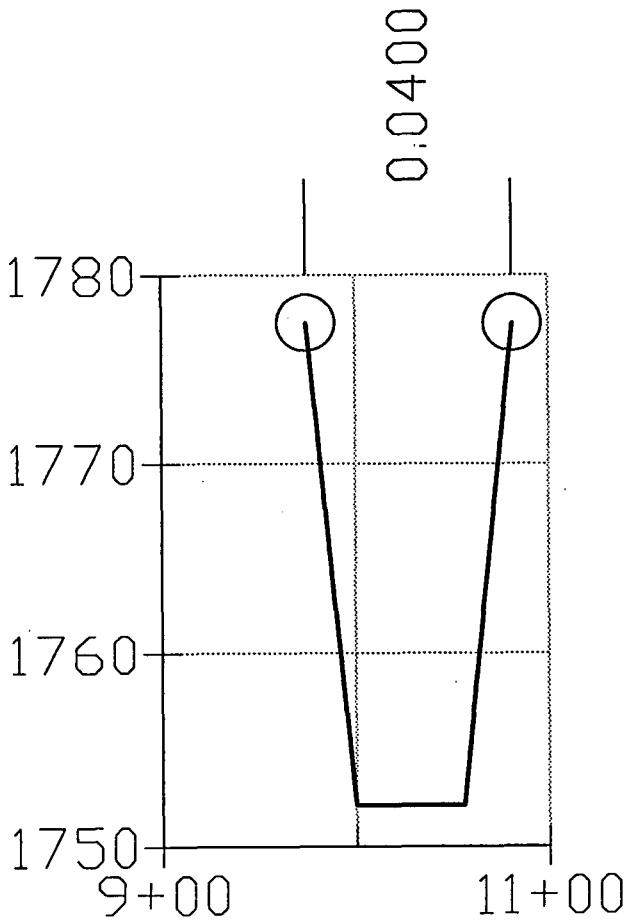
4900




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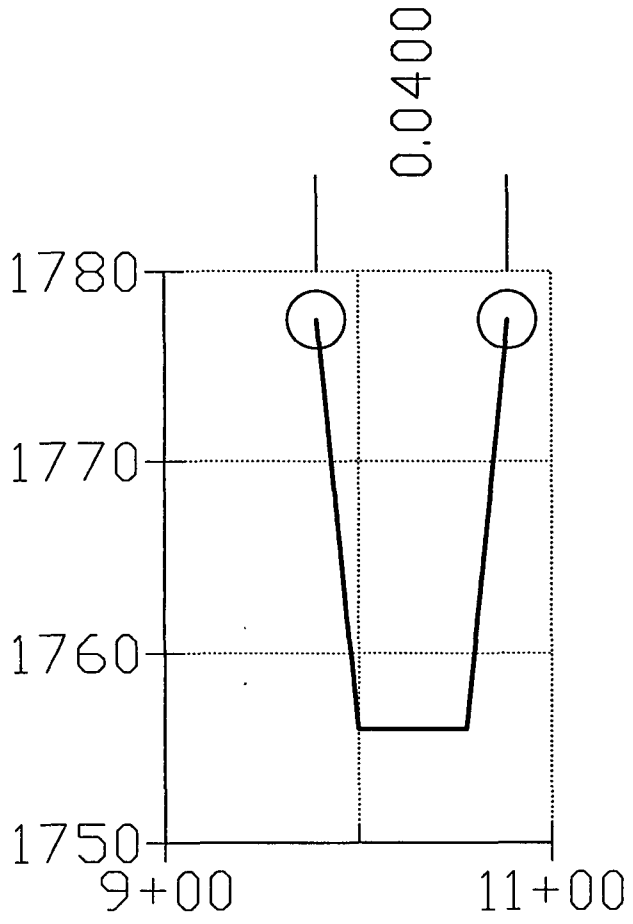



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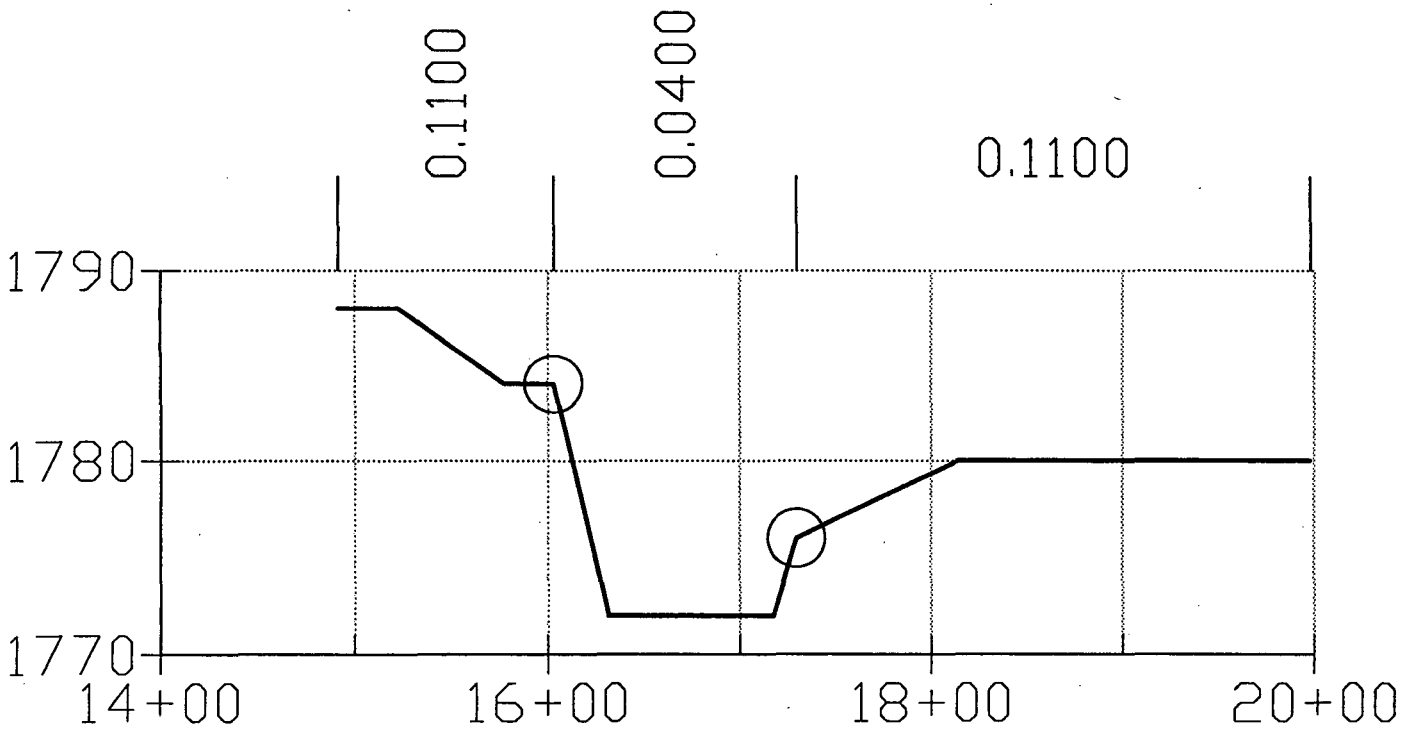

5200

DOWNSTREAM FACE OF I-515 BRIDGE

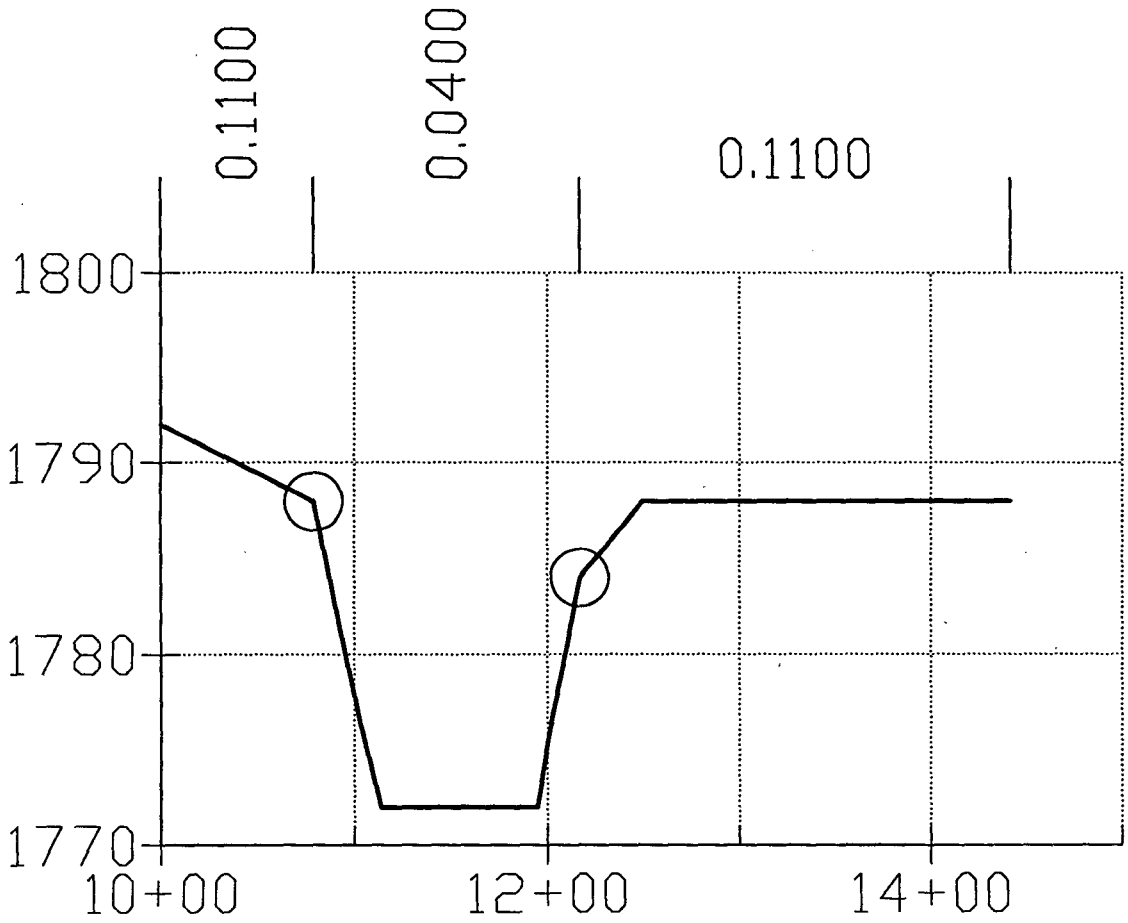



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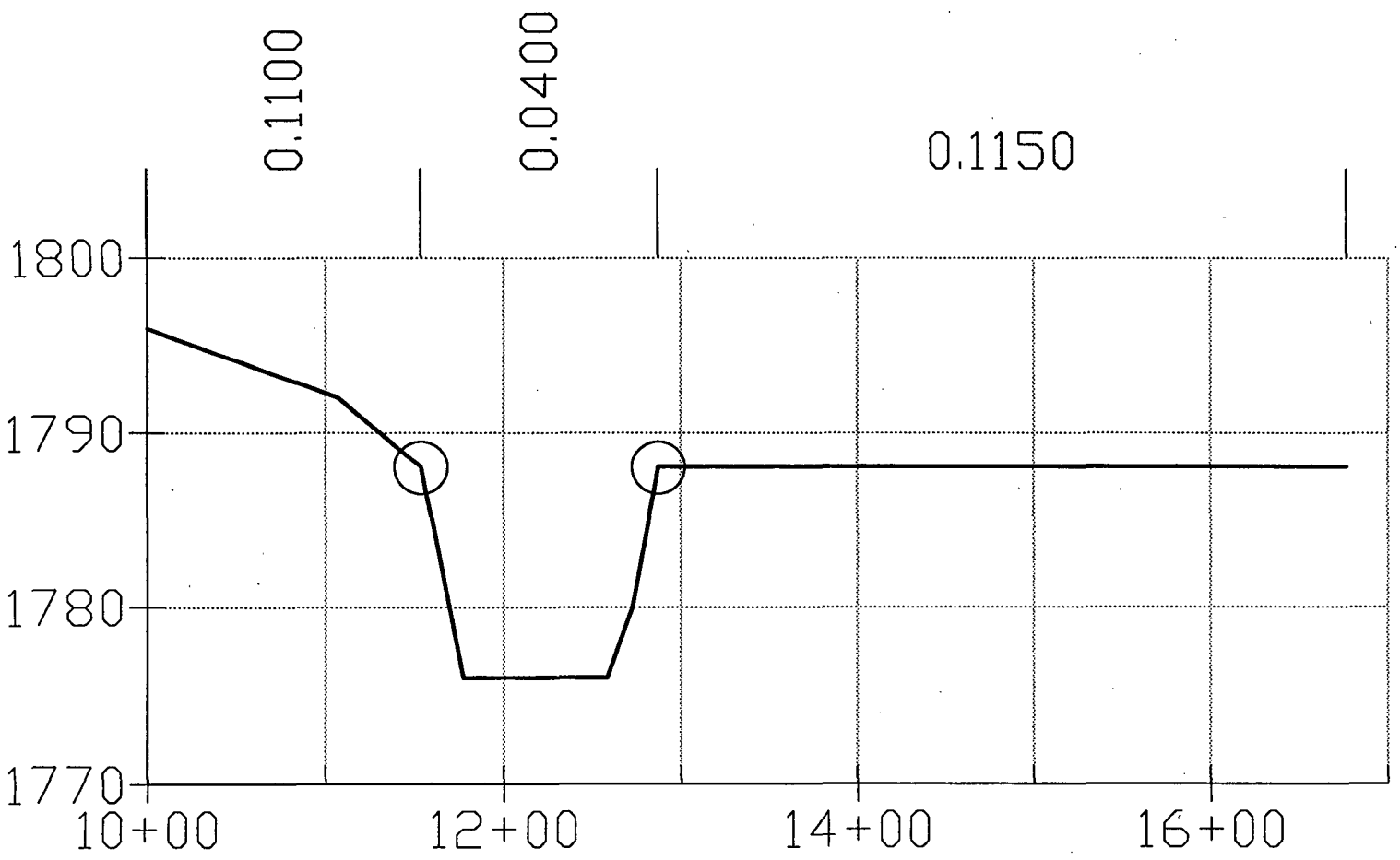
UPSTREAM FACE OF I-515 BRIDGE



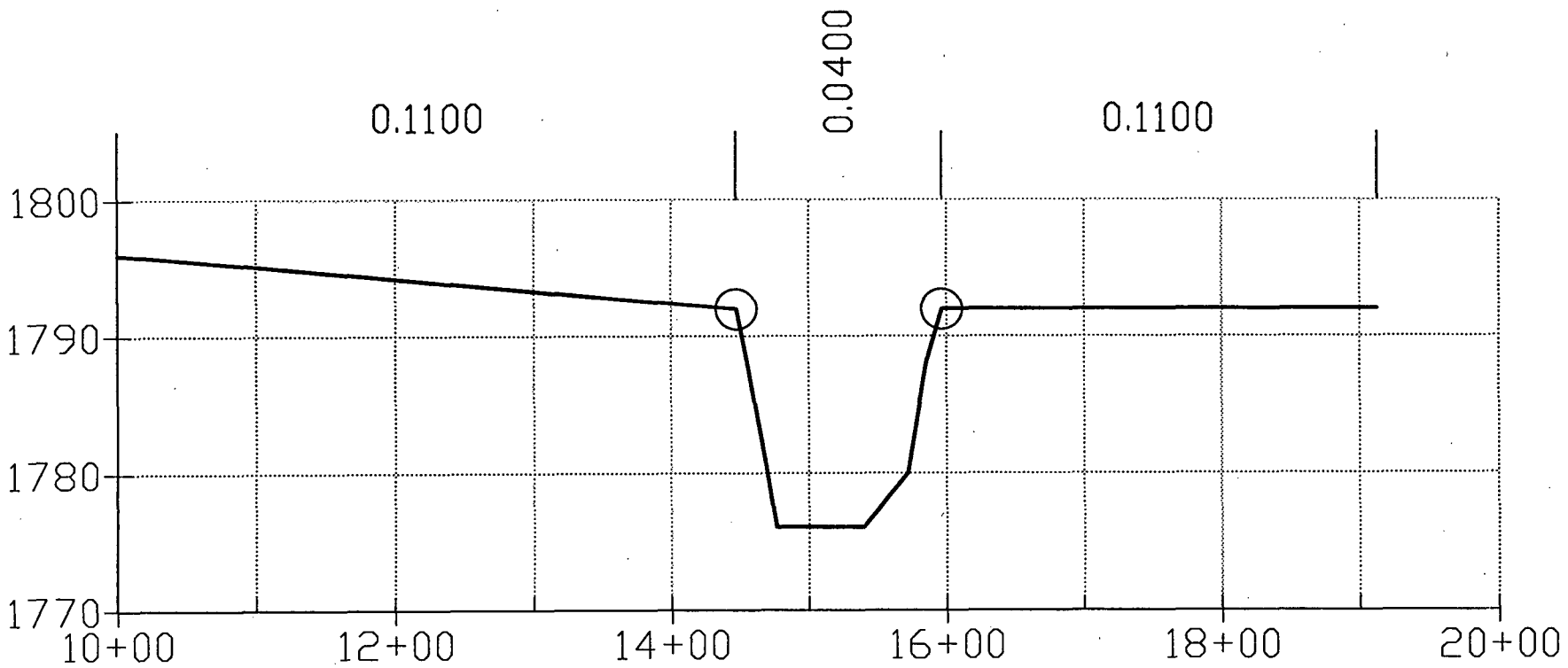

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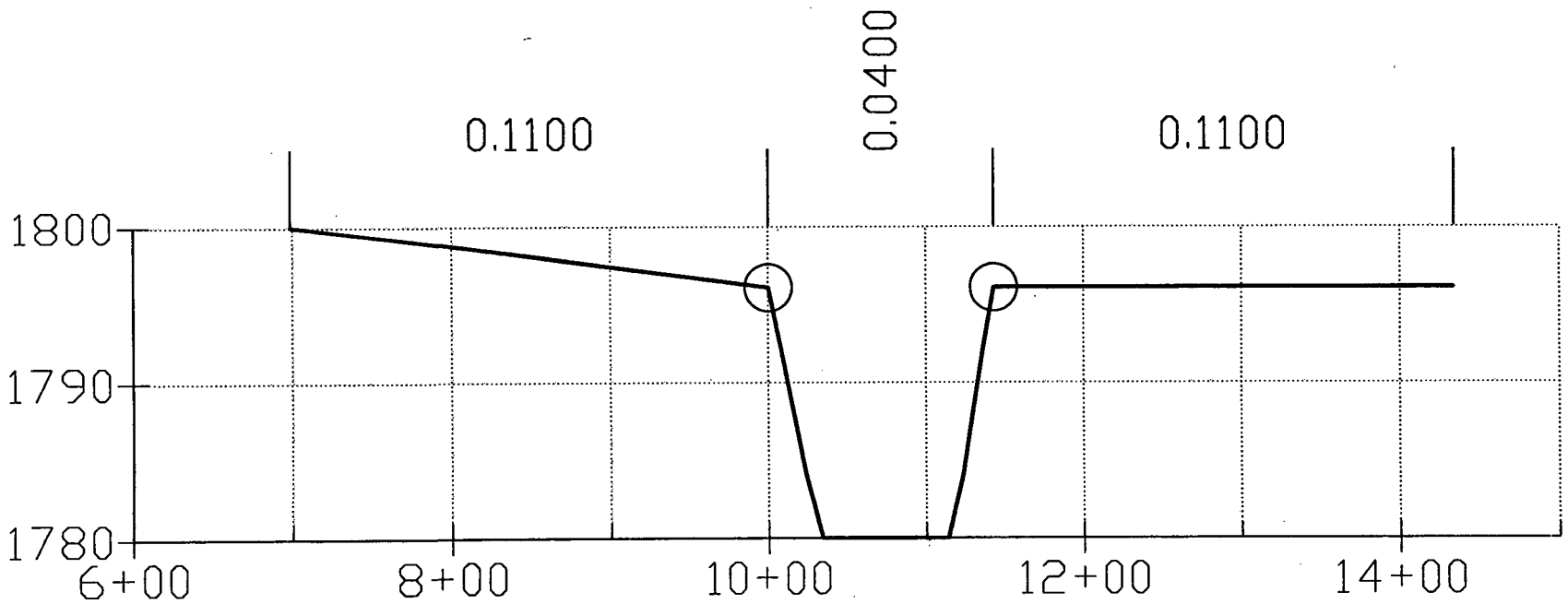

5500



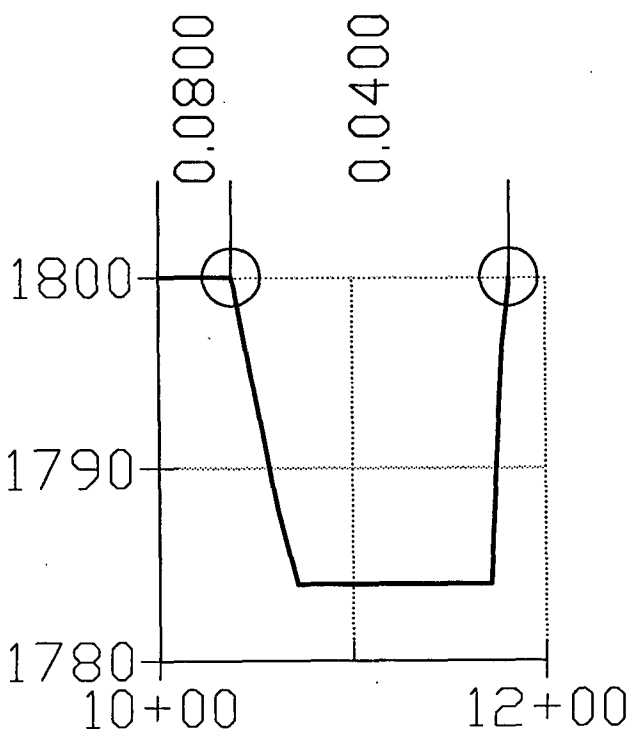

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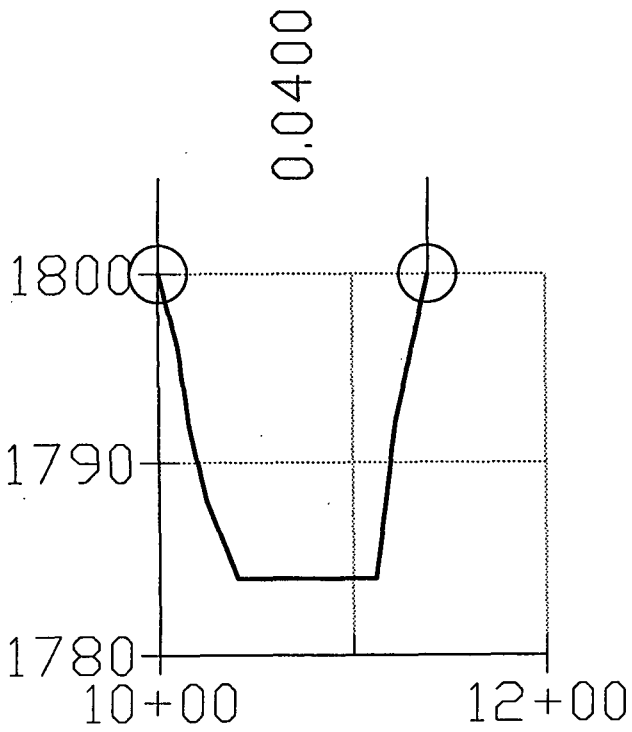
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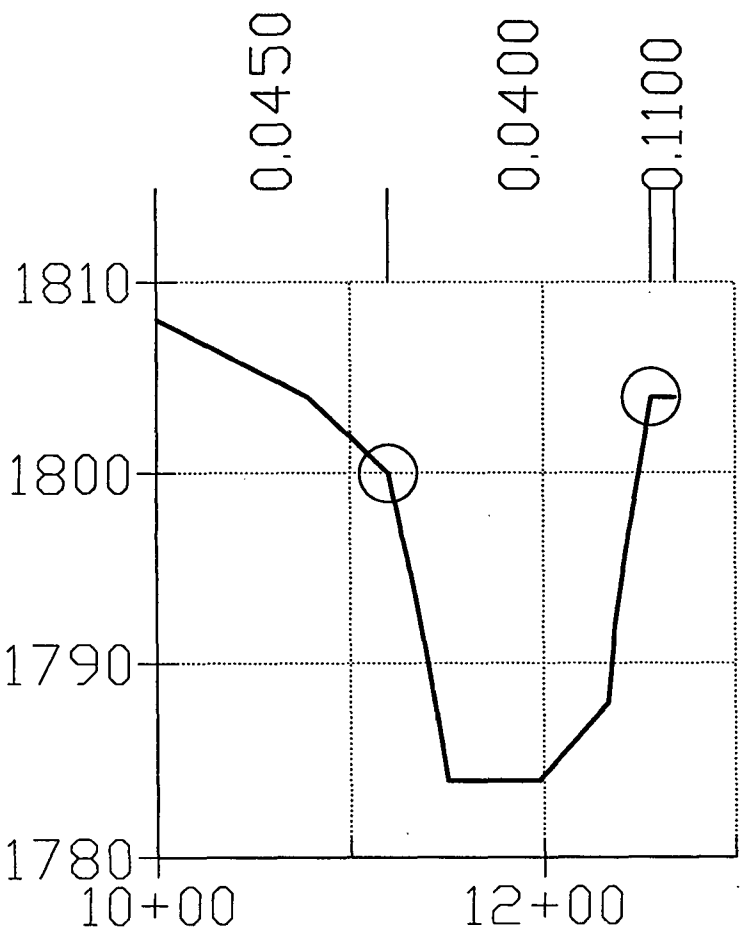

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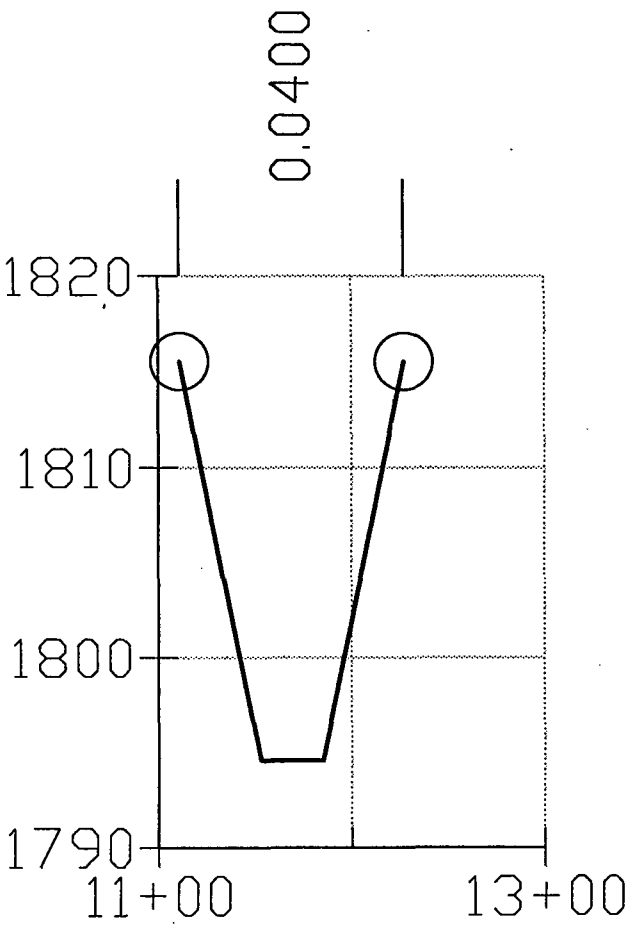

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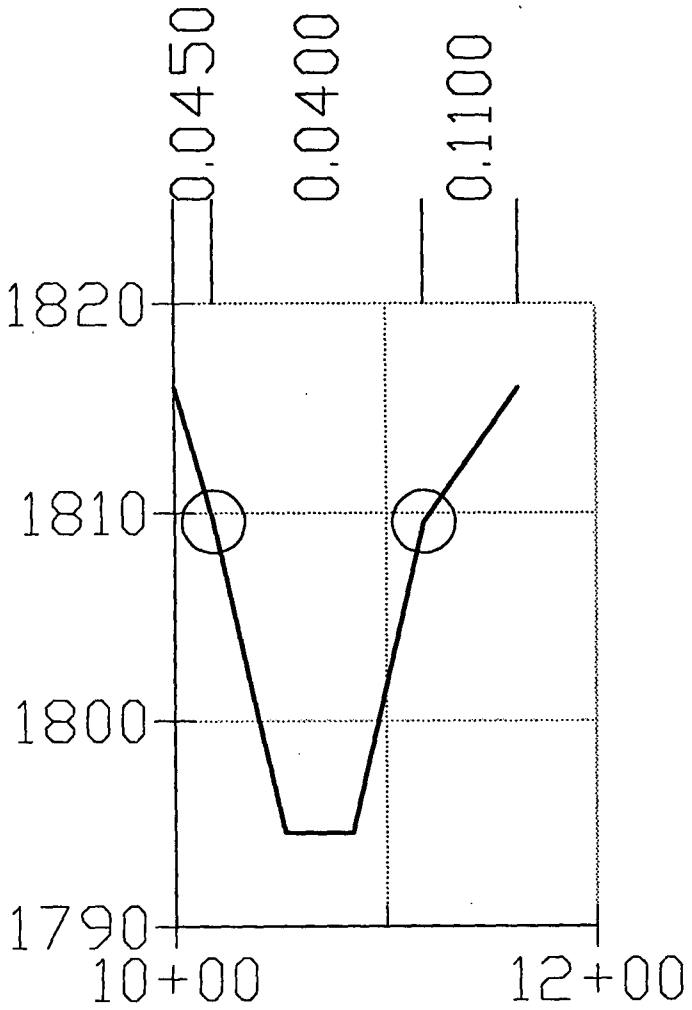

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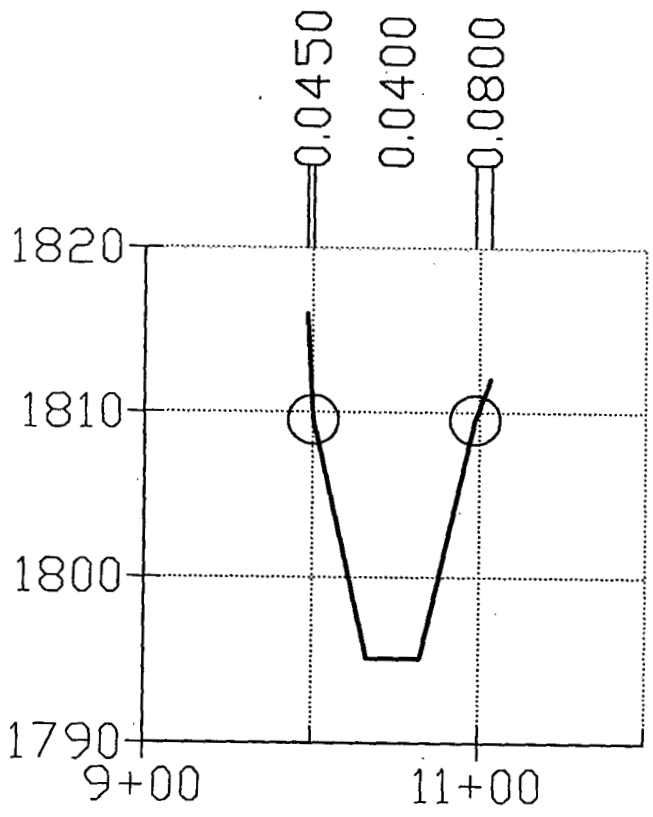



6200



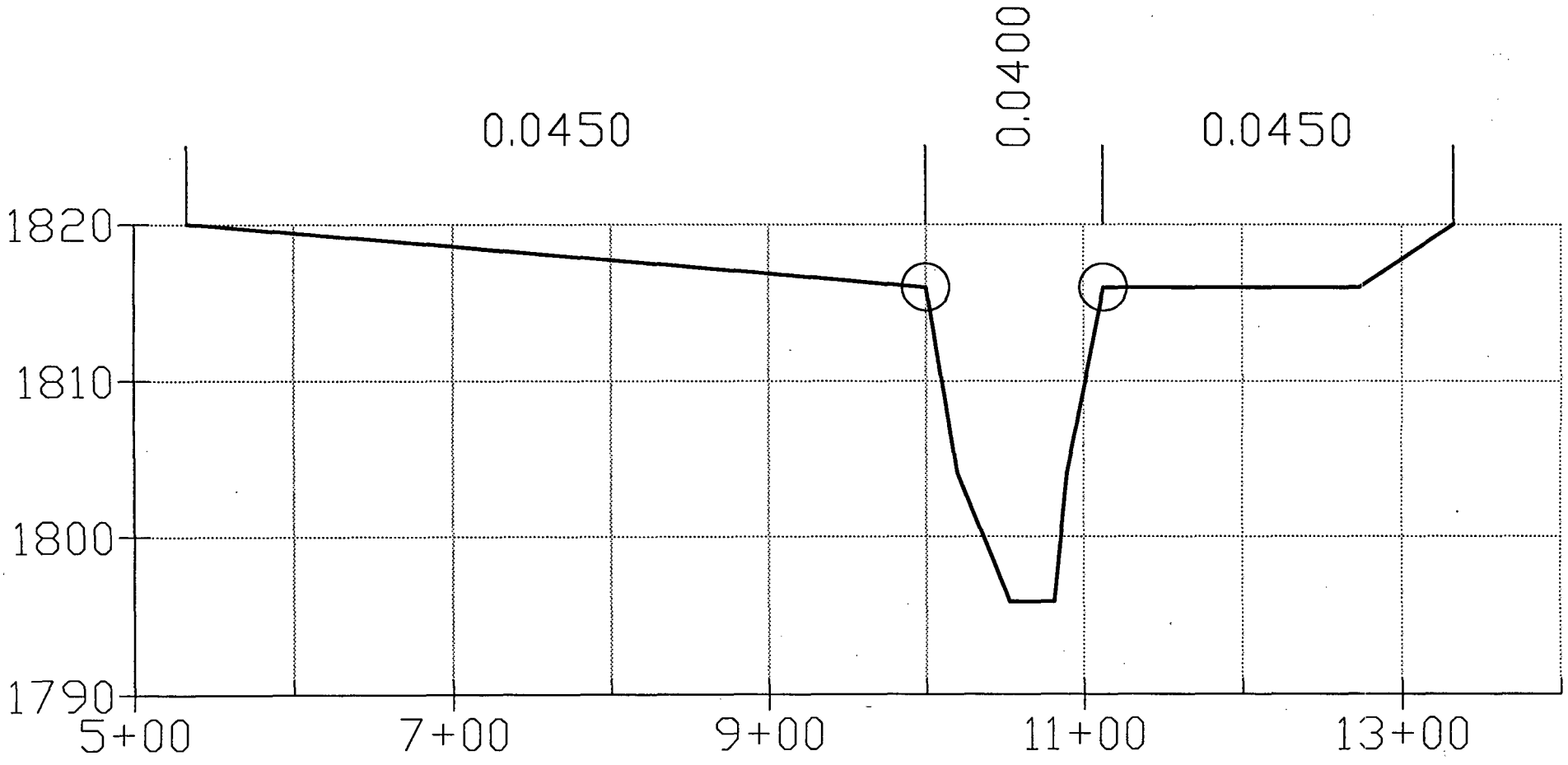

6300

DOWNSTREAM FACE OF RUSSELL ROAD BRIDGE

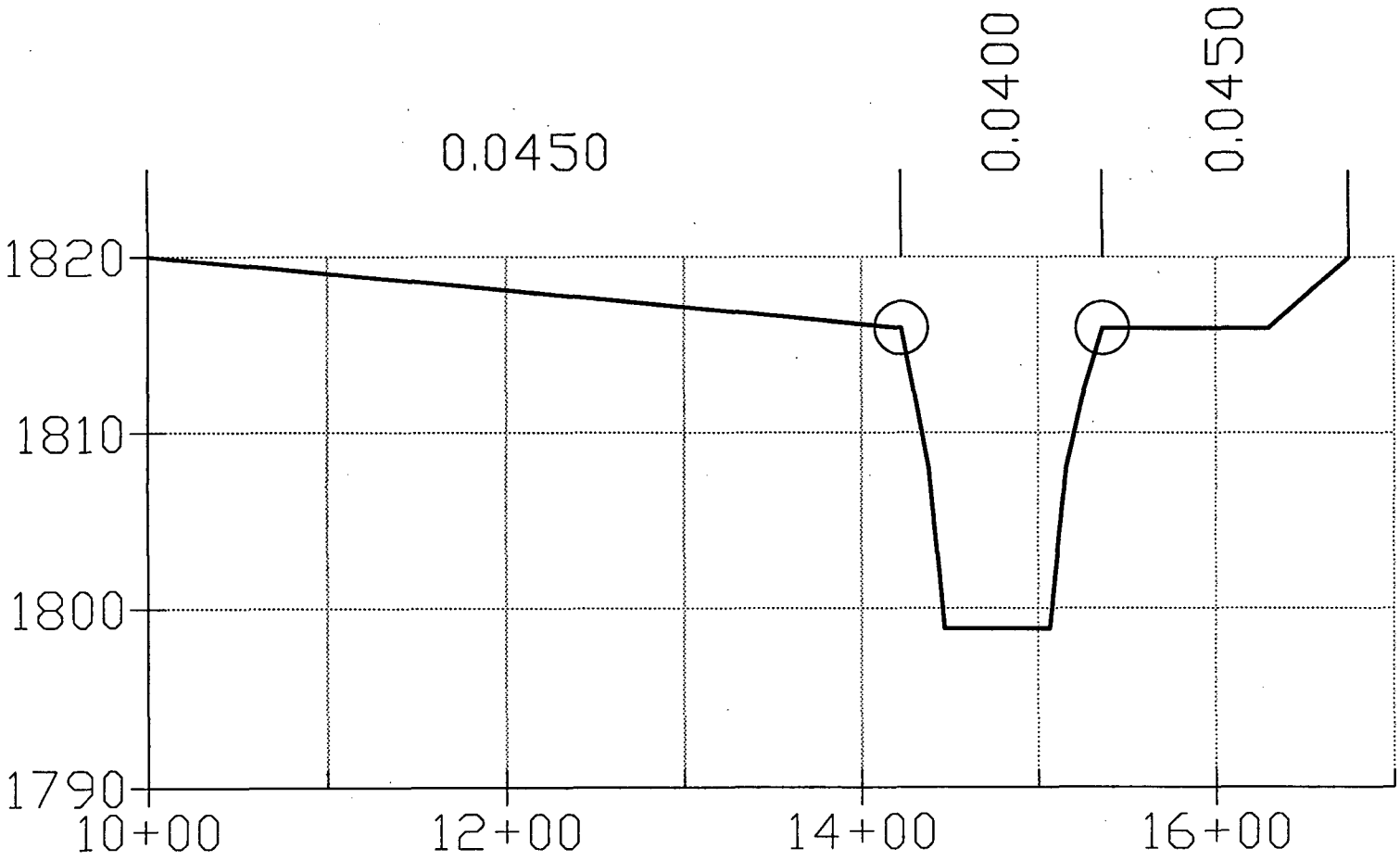



6400

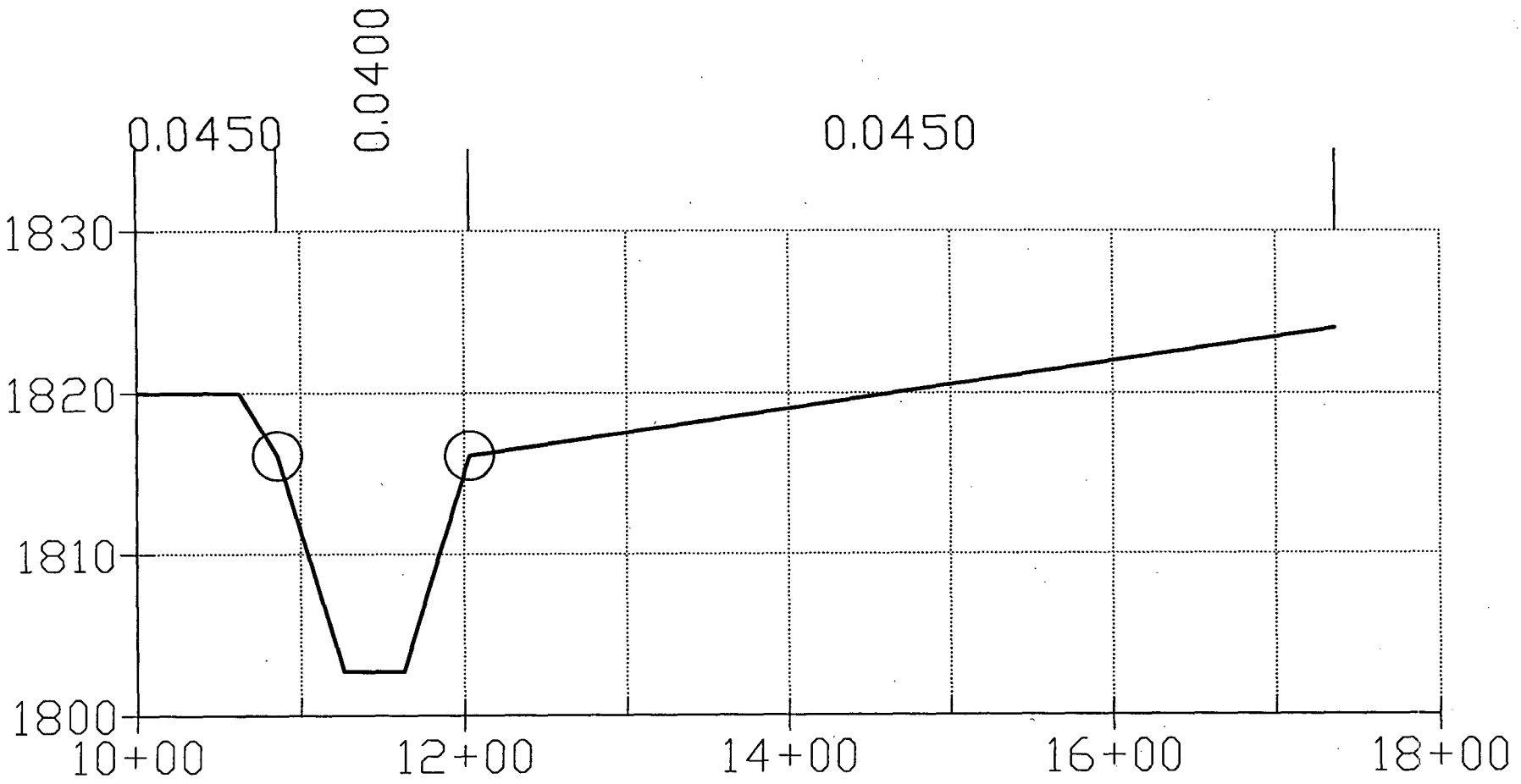
UPSTREAM FACE OF RUSSELL ROAD BRIDGE




6500

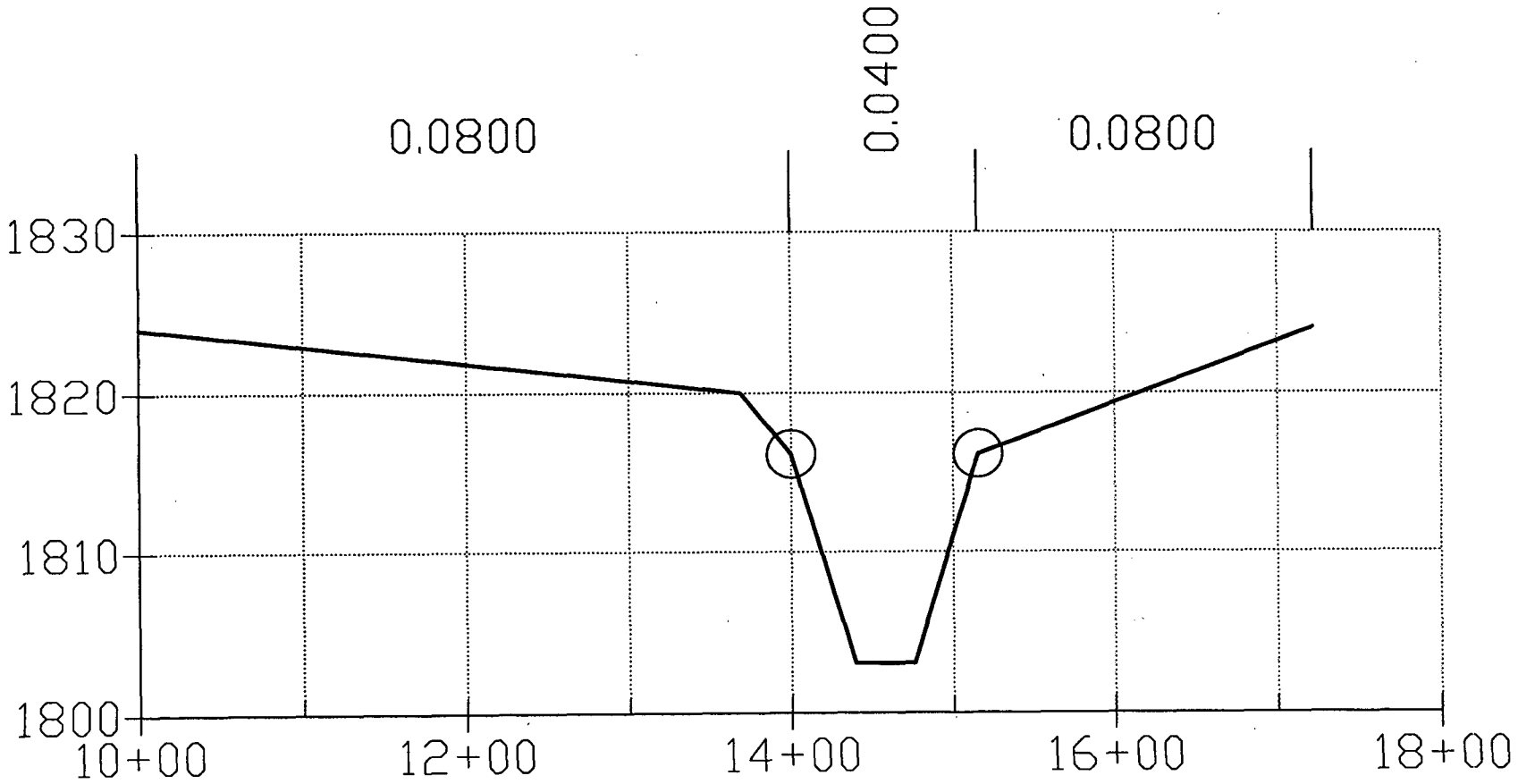



6600



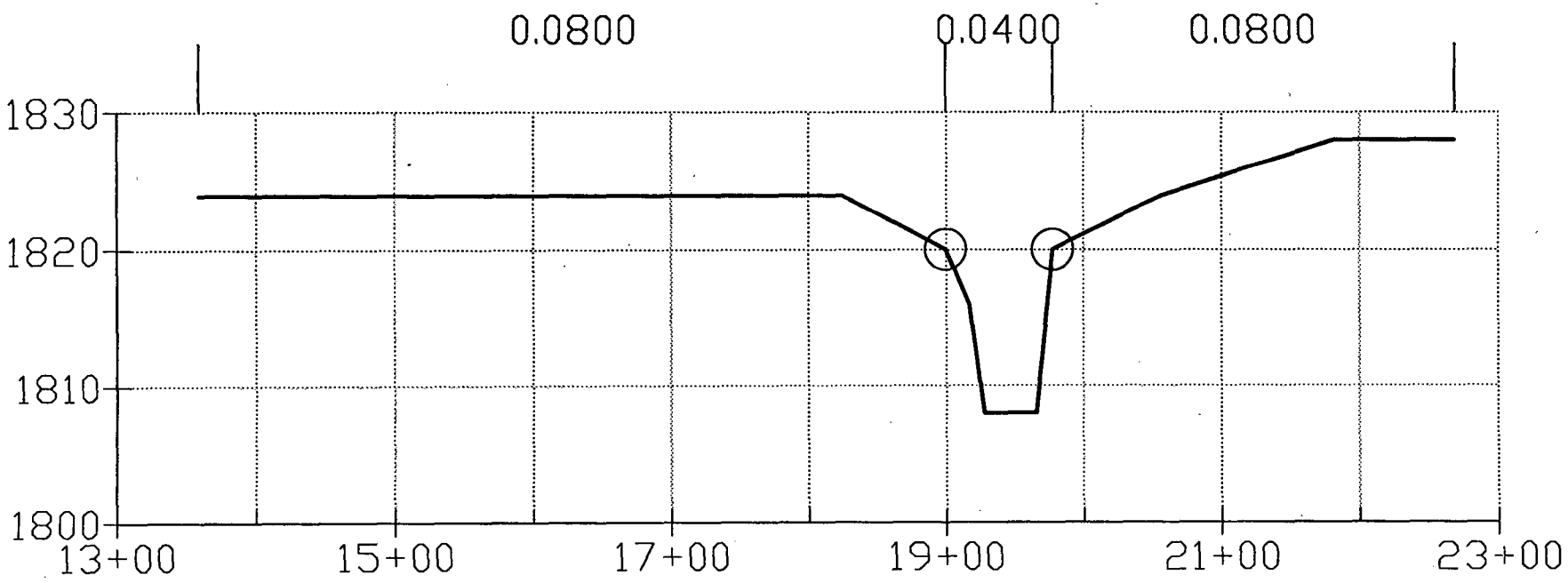

6700

DOWNSTREAM FACE OF MOUNTAIN VISTA STREET BRIDGE

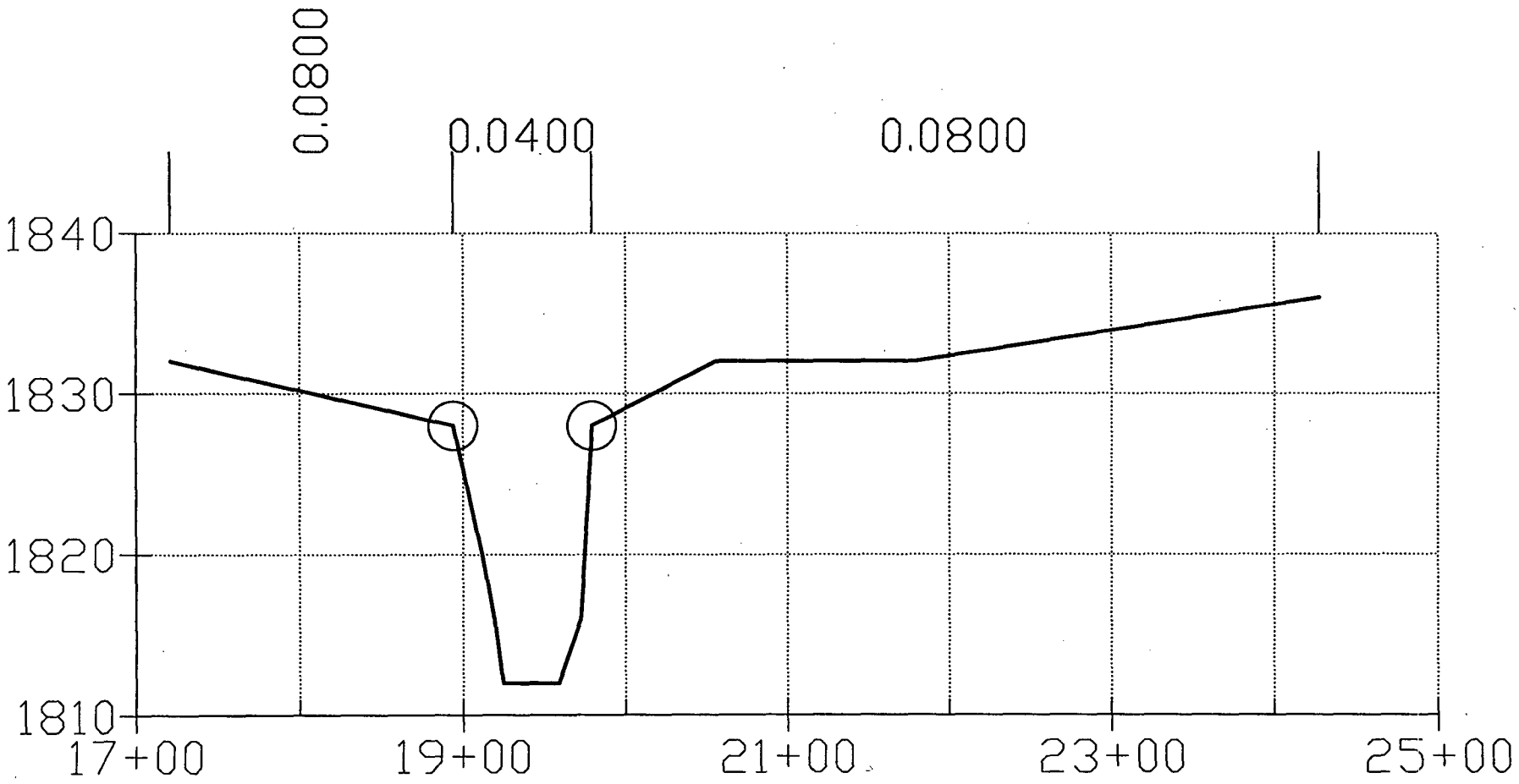



6800

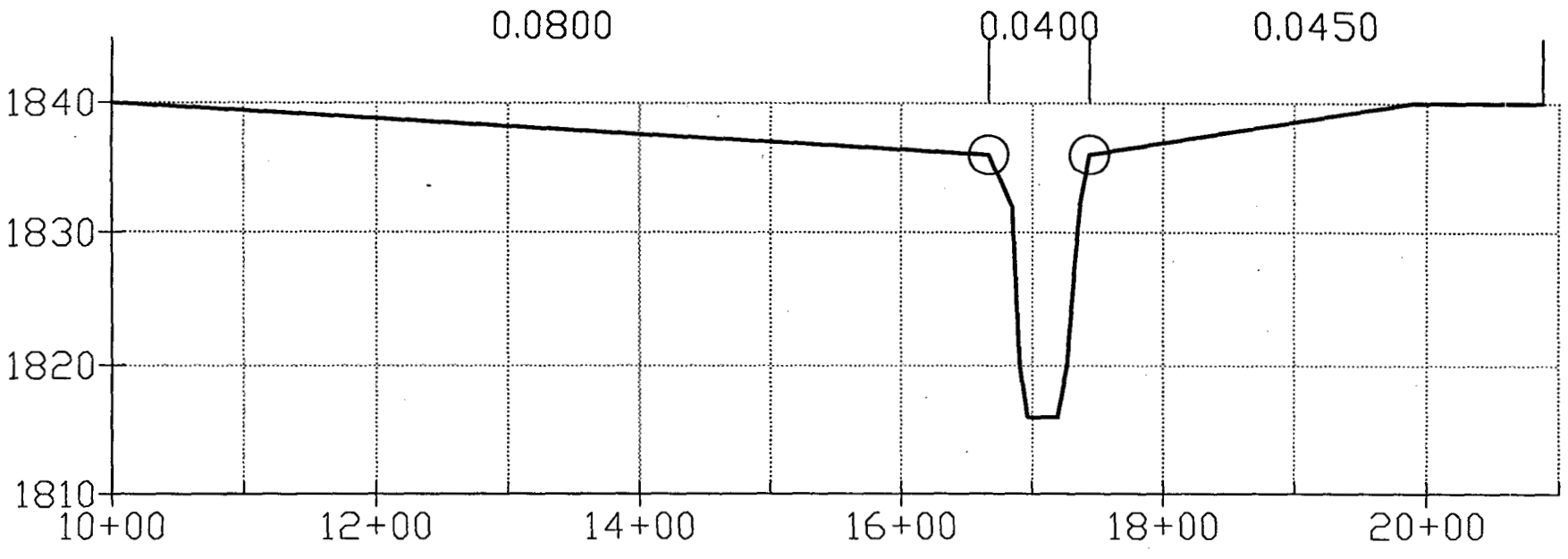
UPSTREAM FACE OF MOUNTAIN VISTA STREET BRIDGE


0.0800
0.0400
0.0800
1830
1820
1810
1800
13+00
15+00
17+00
19+00
21+00
23+00

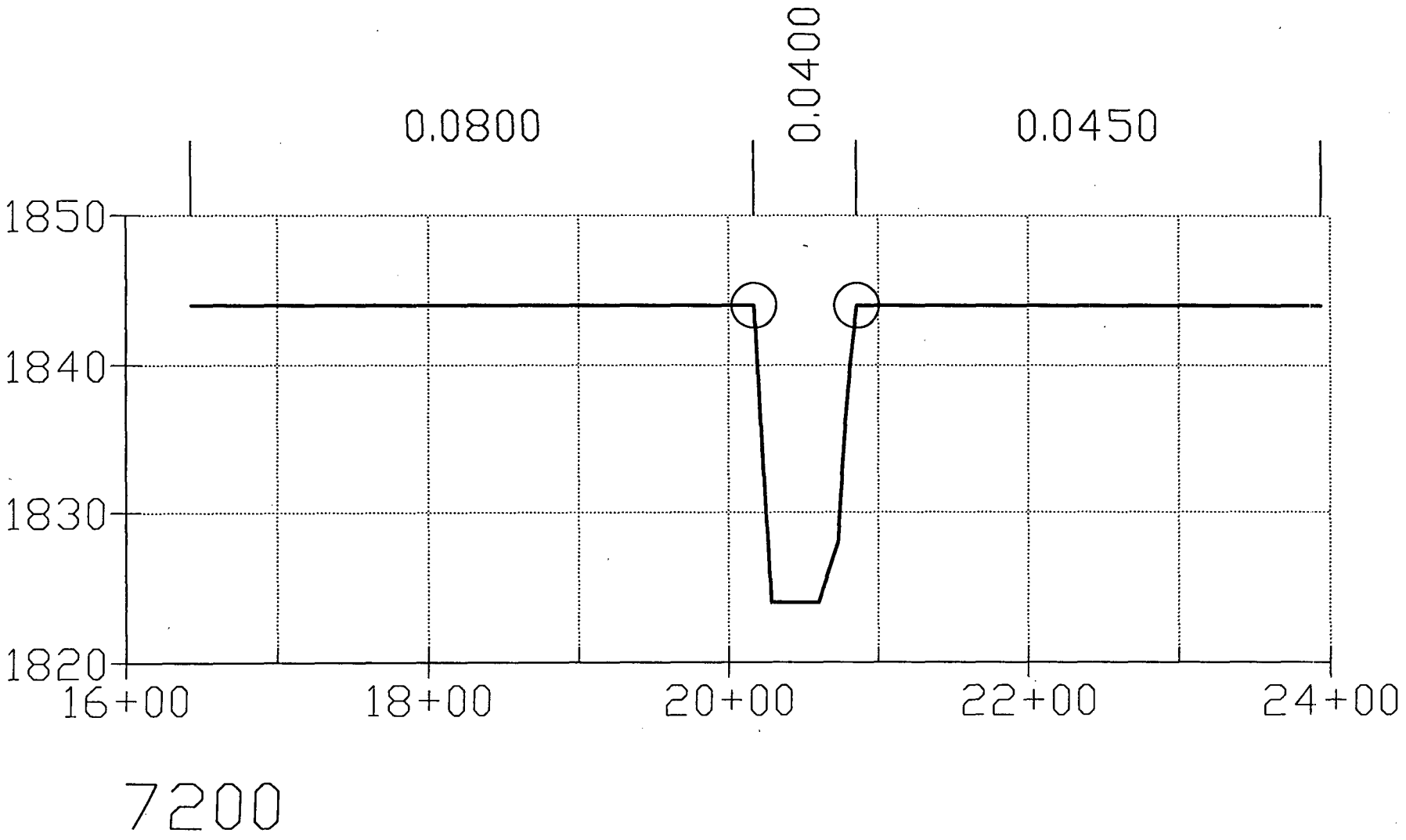
6900


0.0800
0.0400
0.0800
1840
1830
1820
1810
17+00
19+00
21+00
23+00
25+00

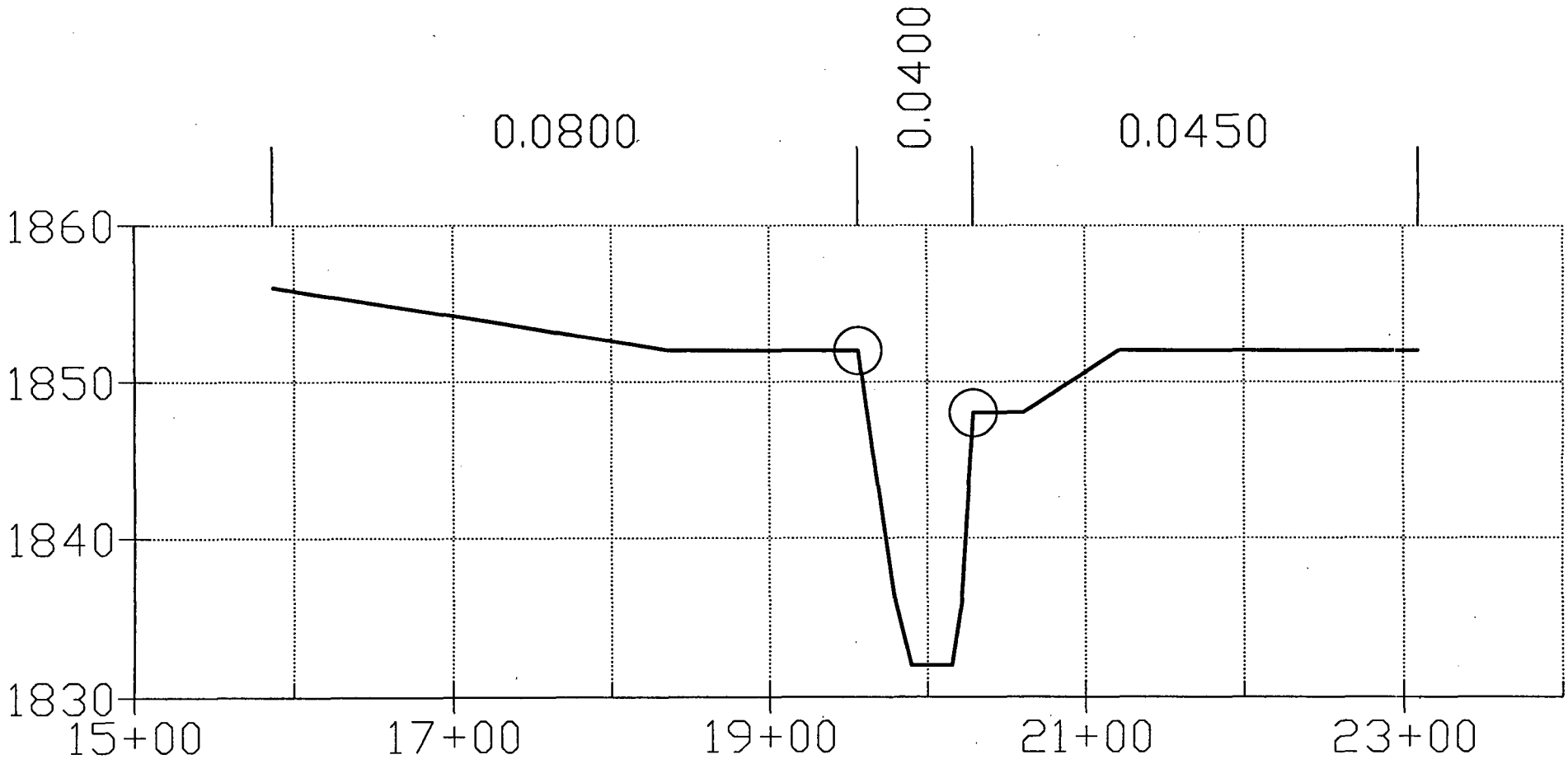
7000


0.0800
0.0400
0.0450
1840
1830
1820
1810
10+00
12+00
14+00
16+00
18+00
20+00

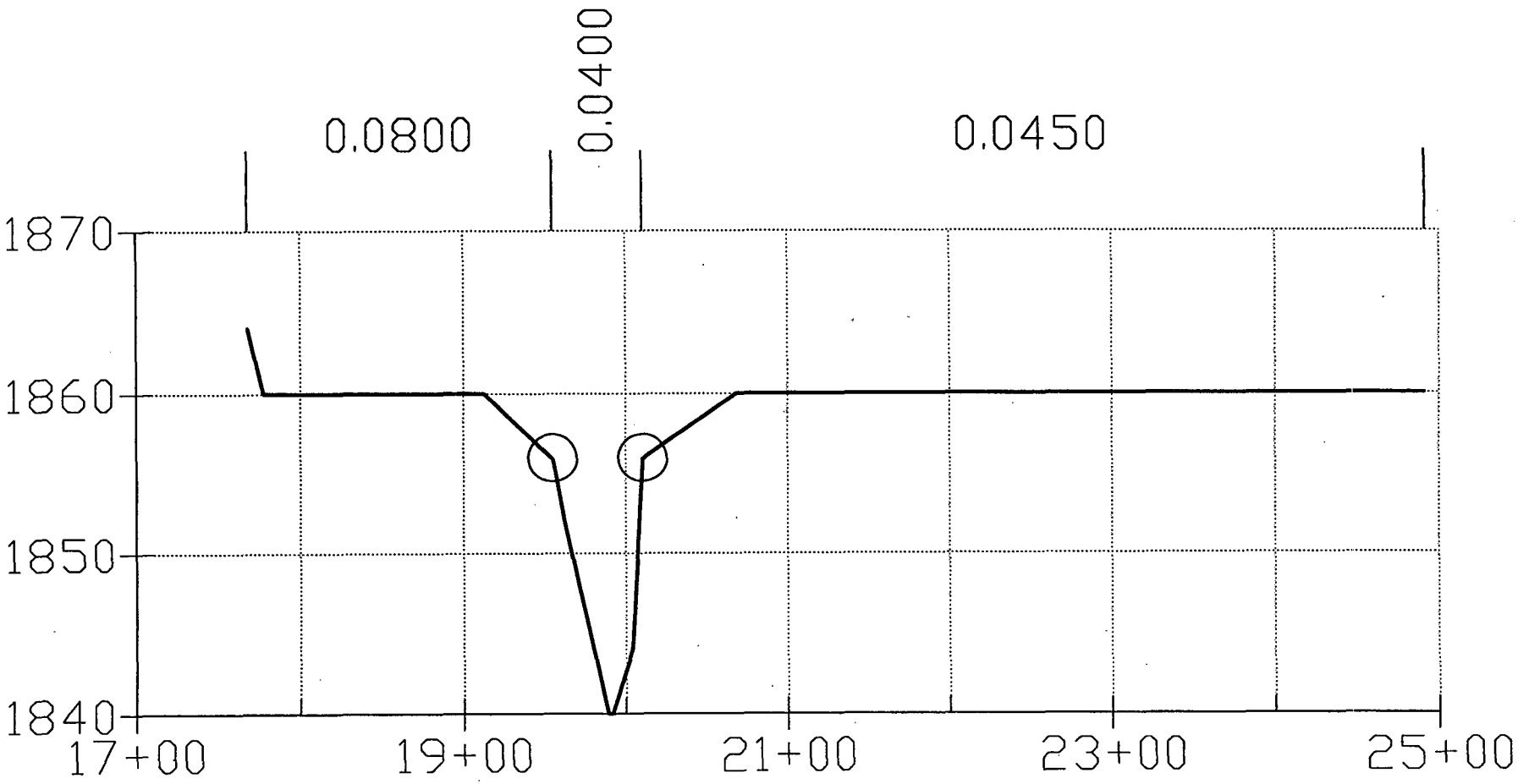
7100


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1850
1840
1830
1820
16+00
18+00
20+00
22+00
24+00

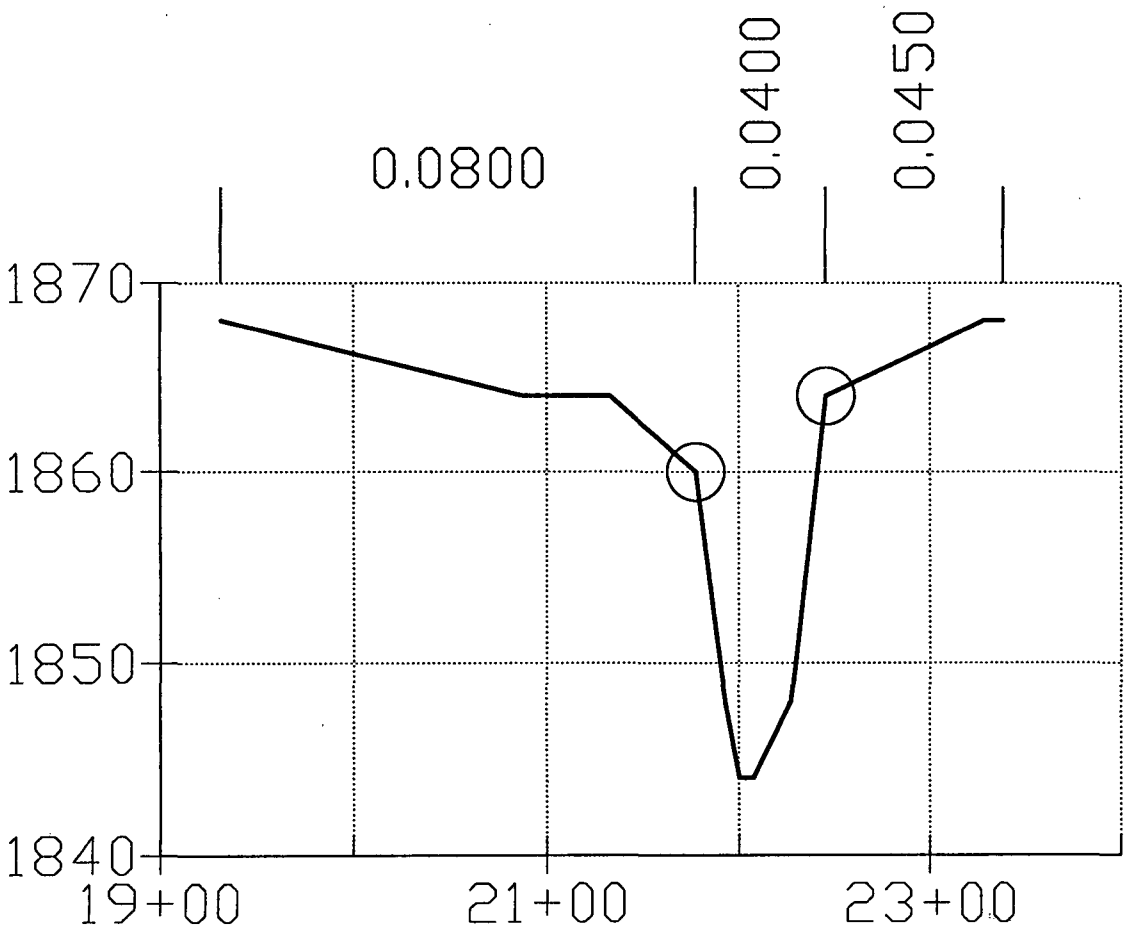
7200


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1850
1840
1830
15+00
17+00
19+00
21+00
23+00

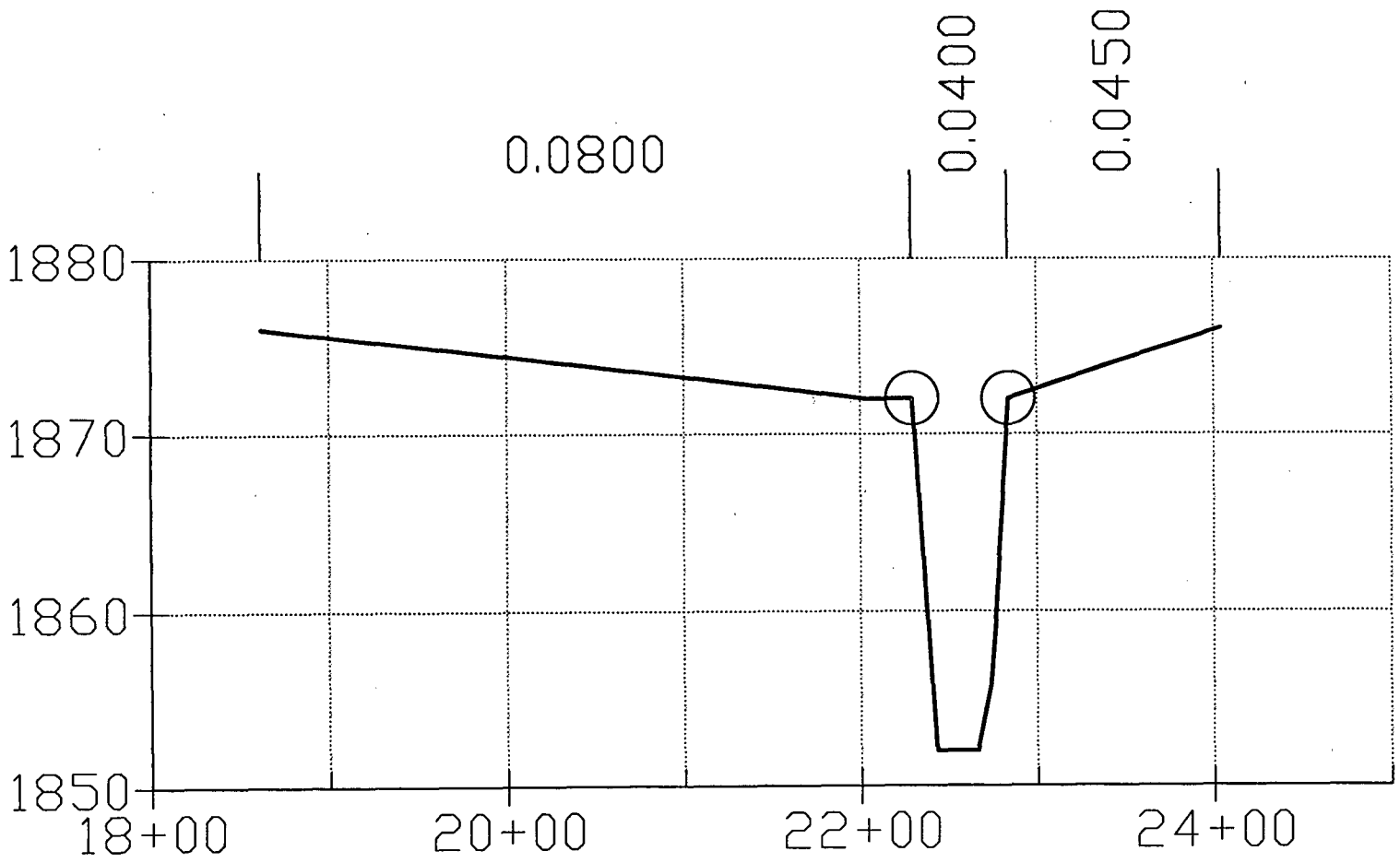
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21+00
23+00
25+00

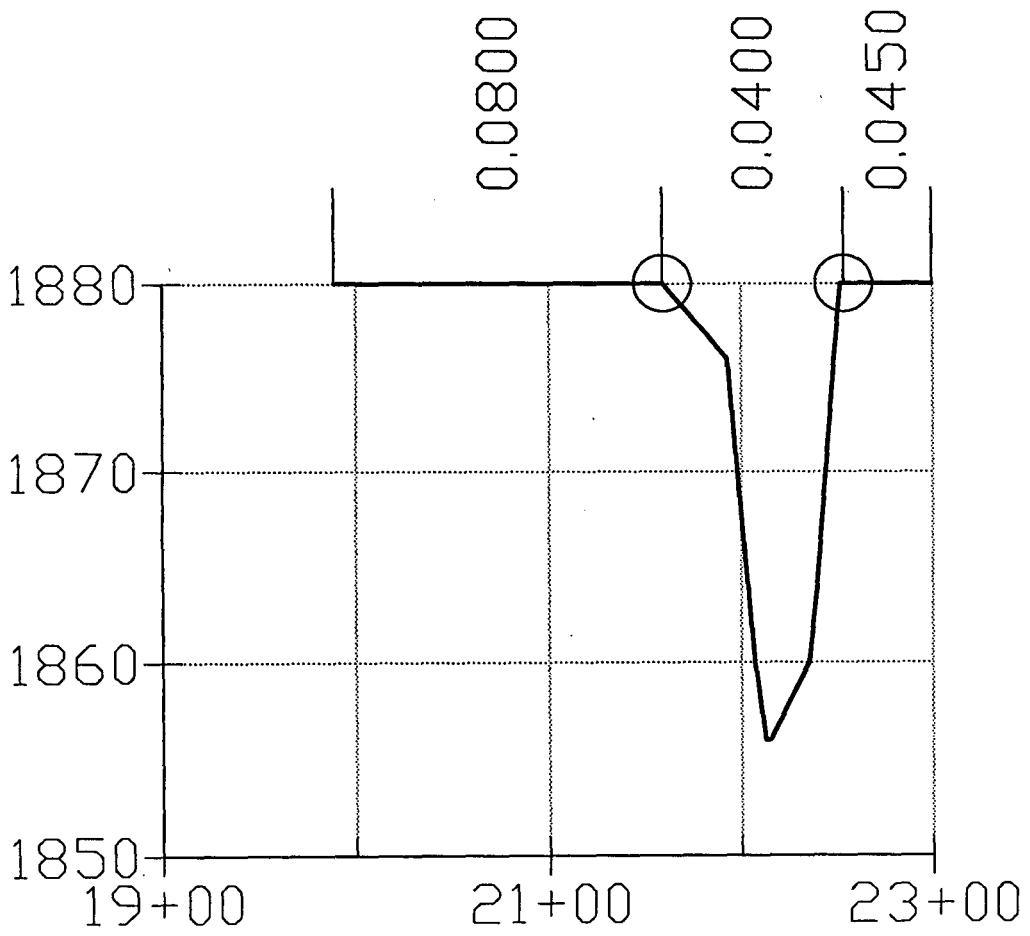
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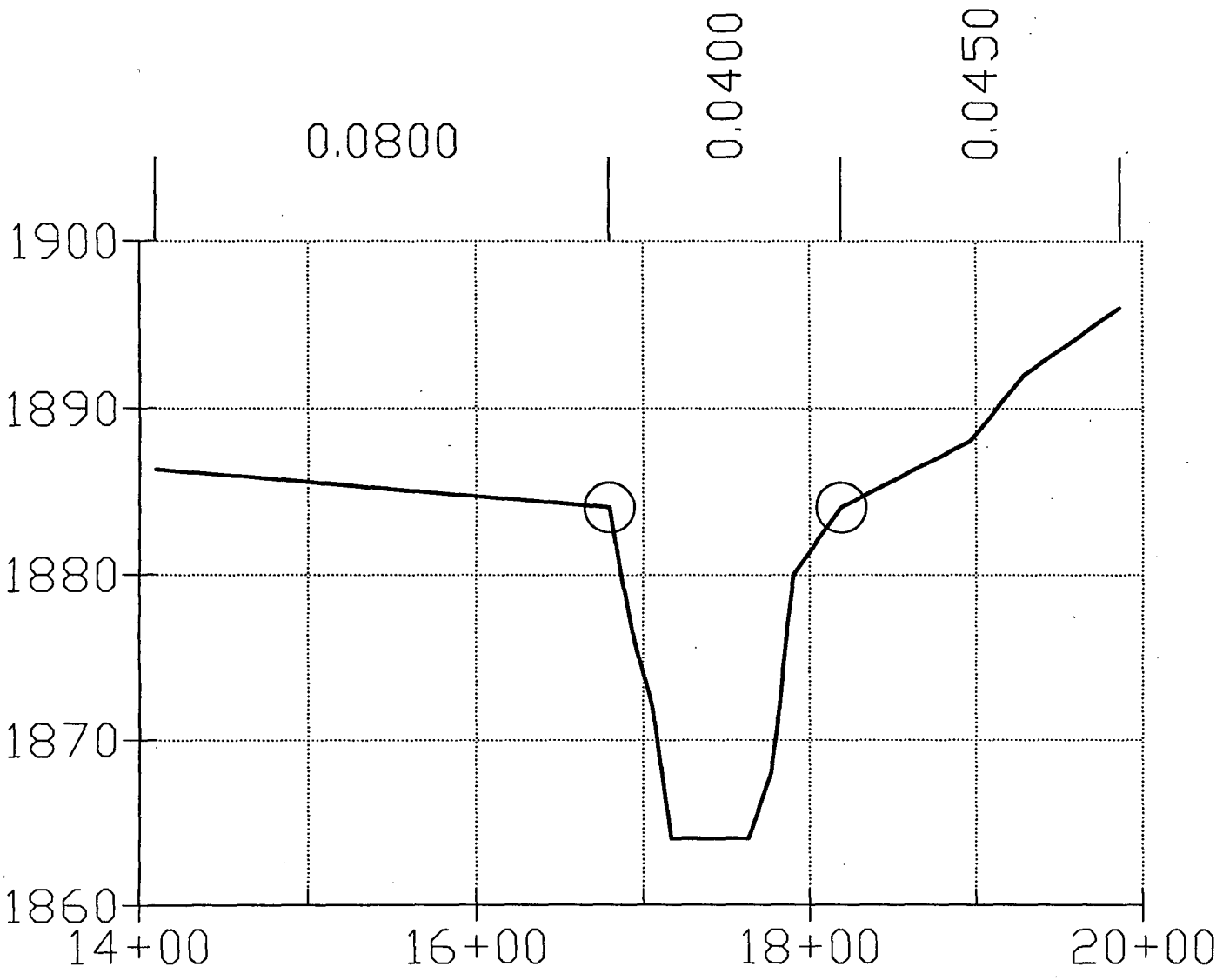

7500



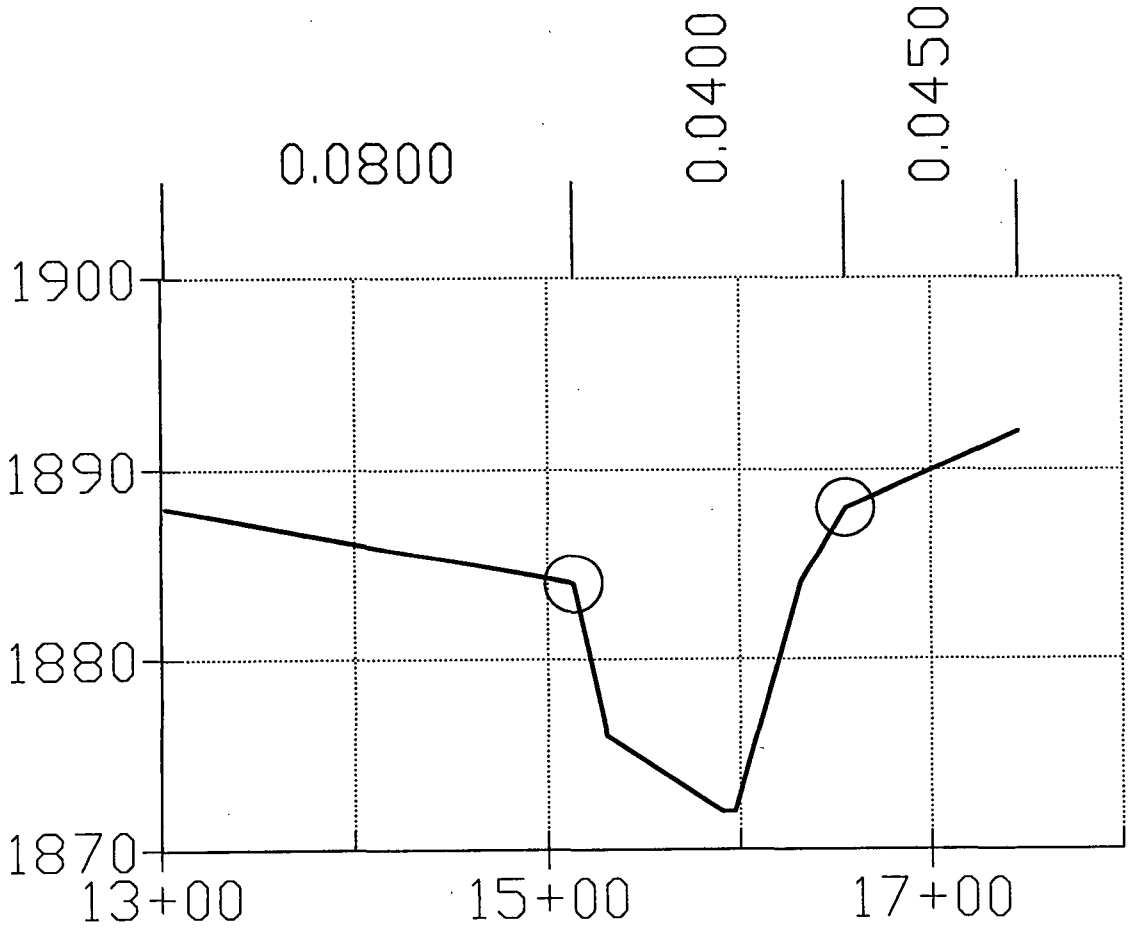

7600



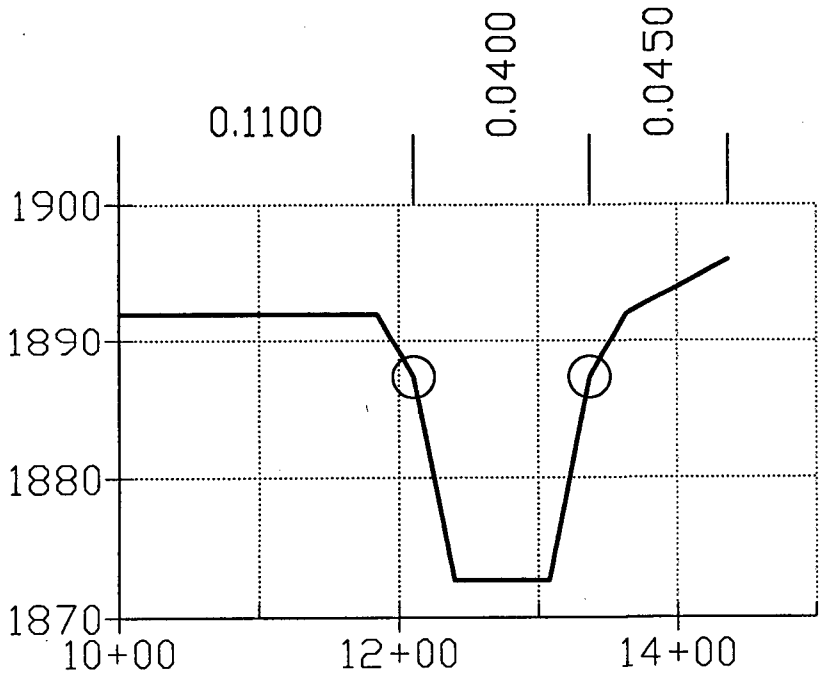

7700


0.0800
0.0400
0.0450
1900
1890
1880
1870
1860
14+00
16+00
18+00
20+00

7800

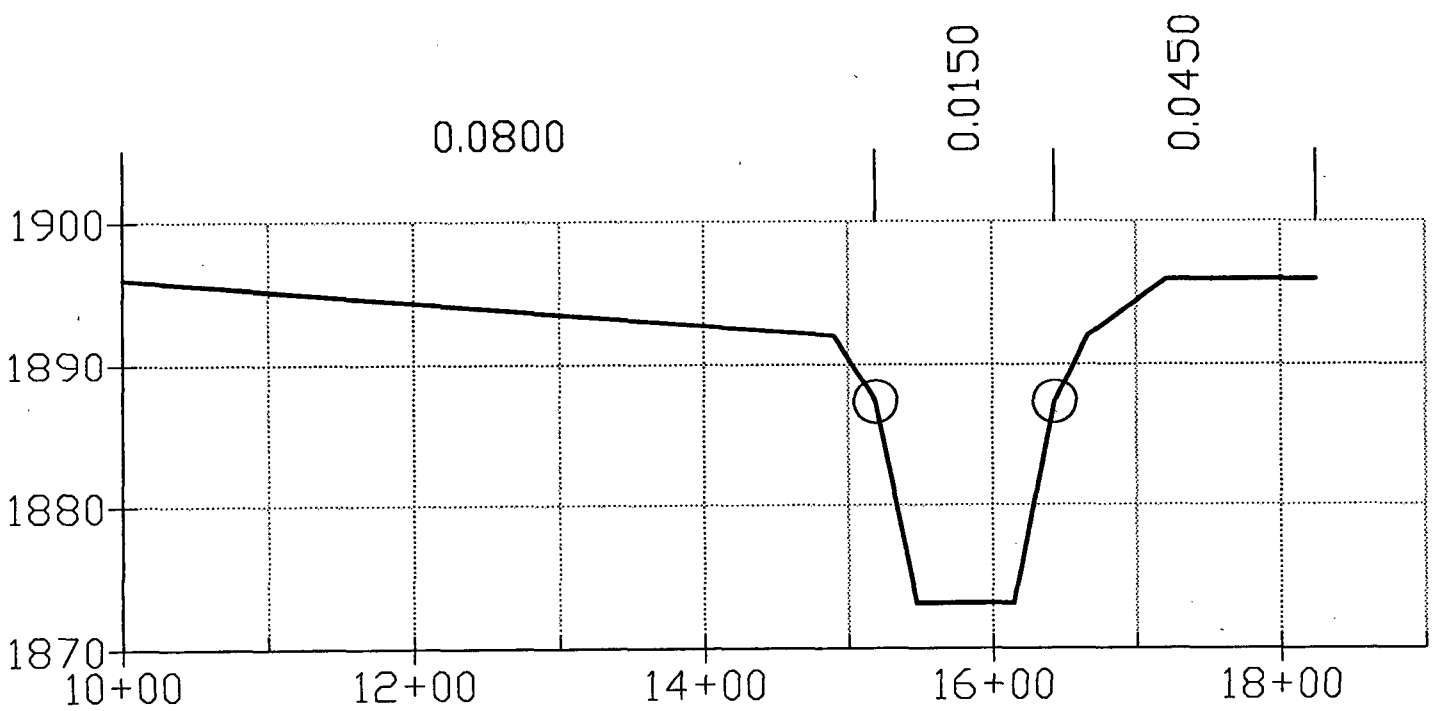



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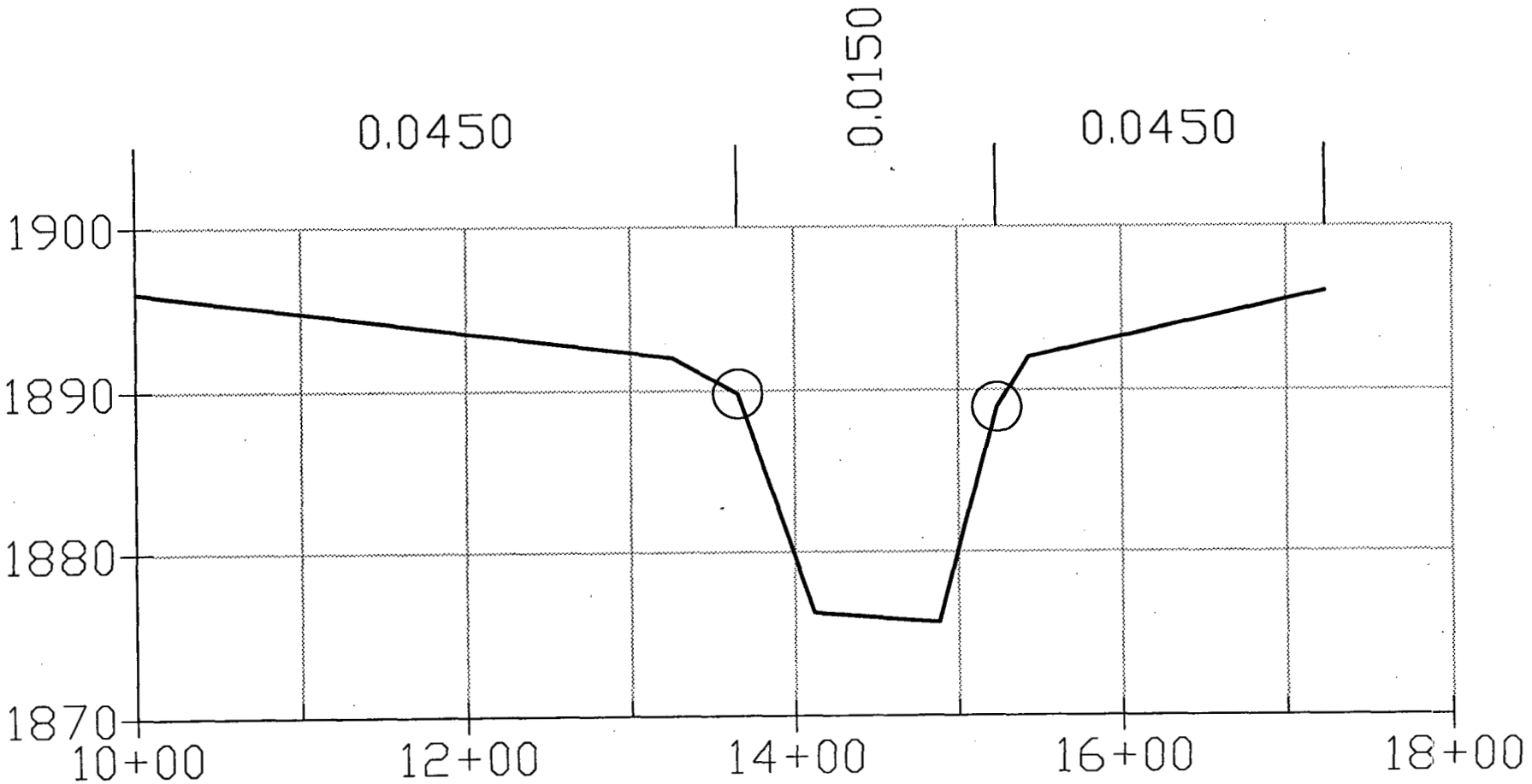

8000

DOWNSTREAM FACE OF PATRICK LANE/GREEN VALLEY PARKWAY BRIDGE

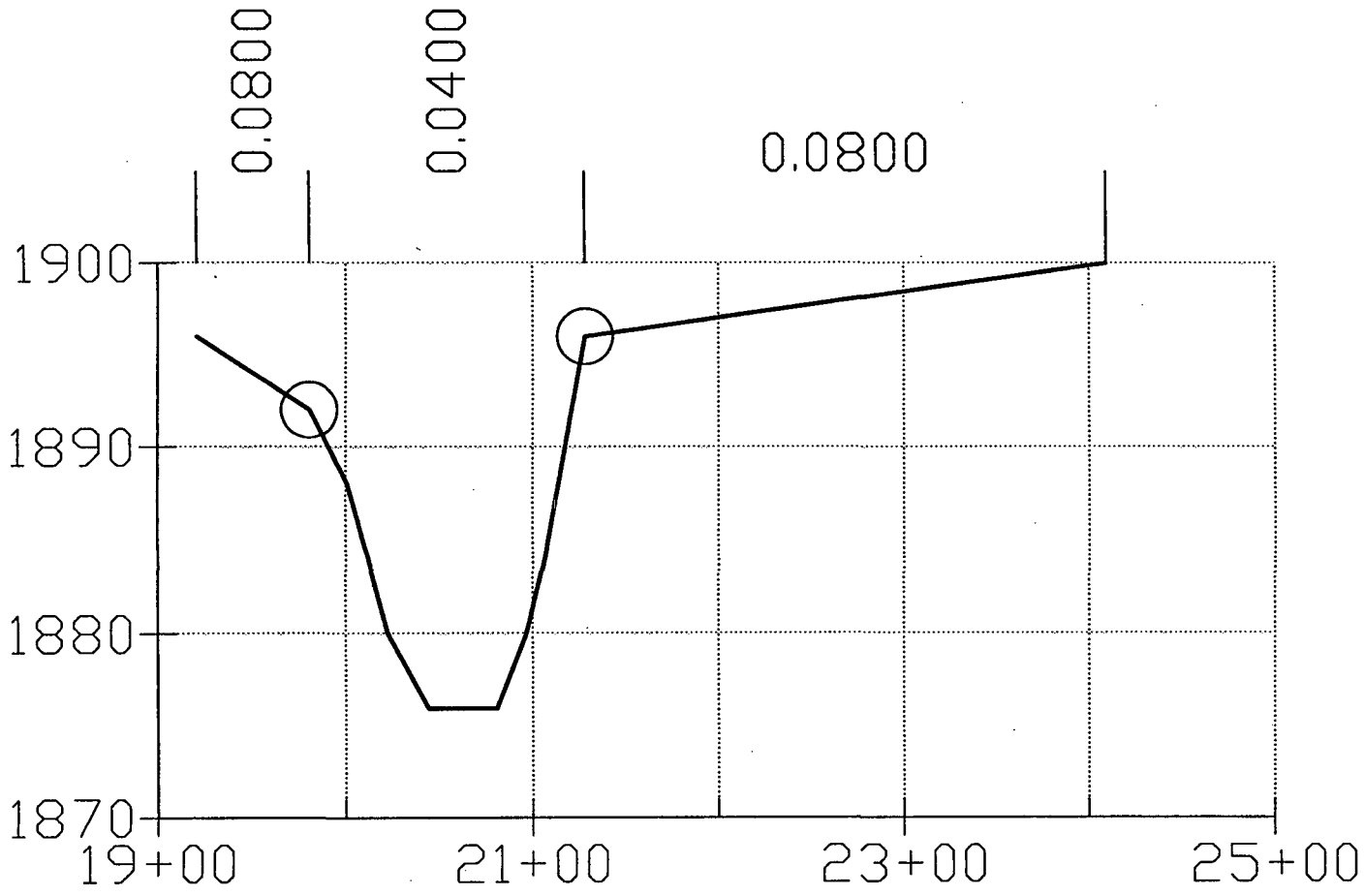



8100

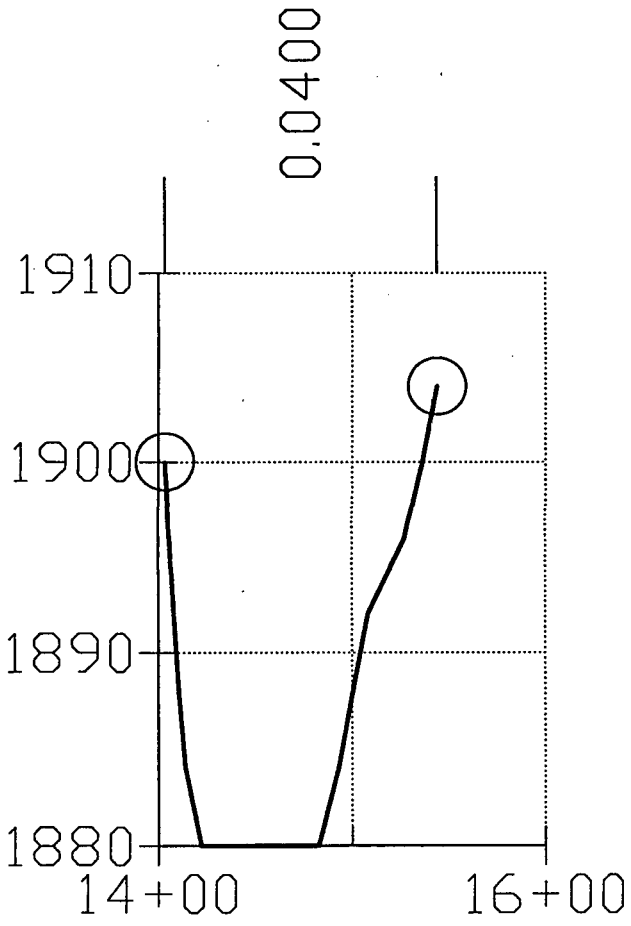
UPSTREAM FACE OF PATRICK LANE/GREEN VALLEY PARKWAY BRIDGE


0.0450
0.0150
0.0450
1900
1890
1880
1870
10+00
12+00
14+00
16+00
18+00

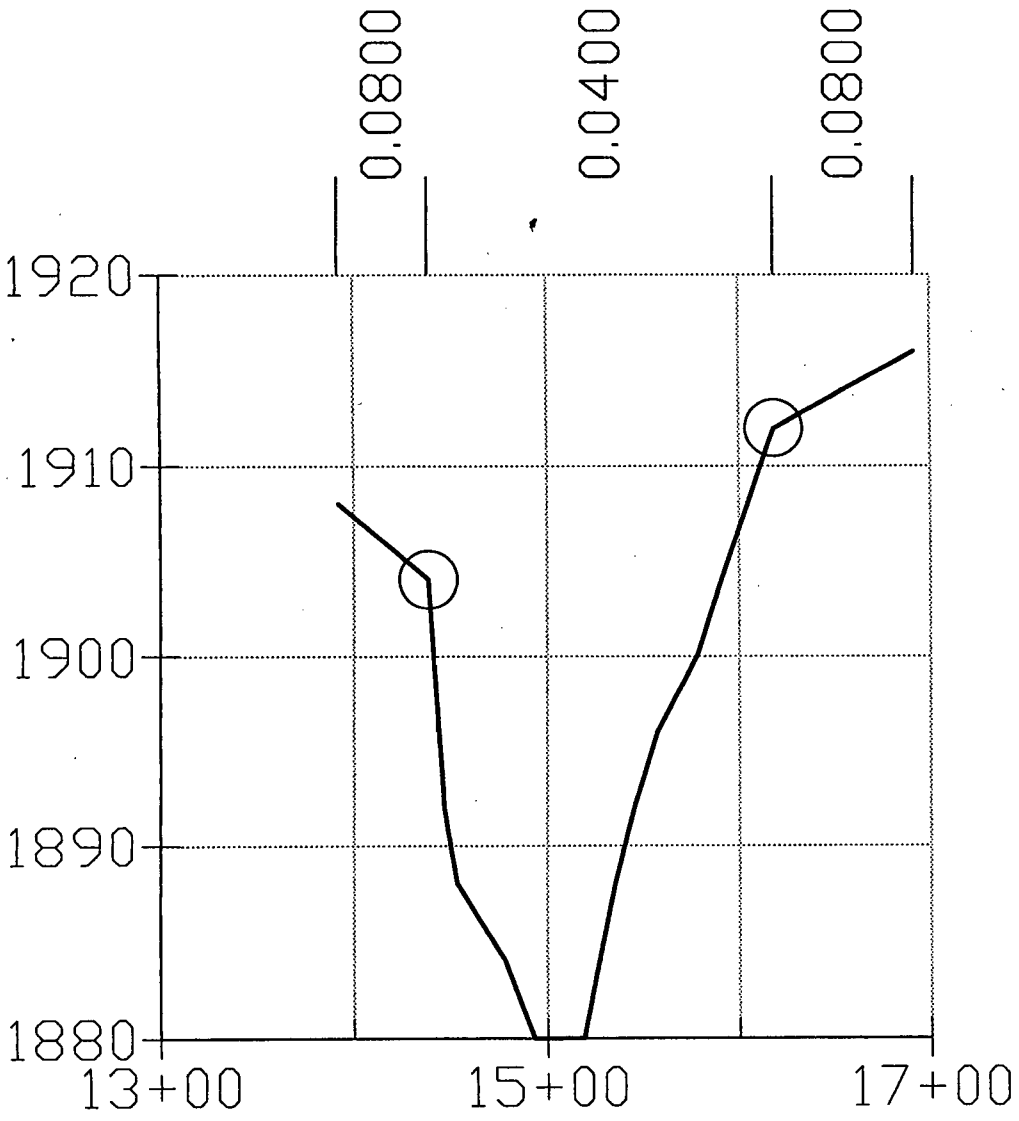
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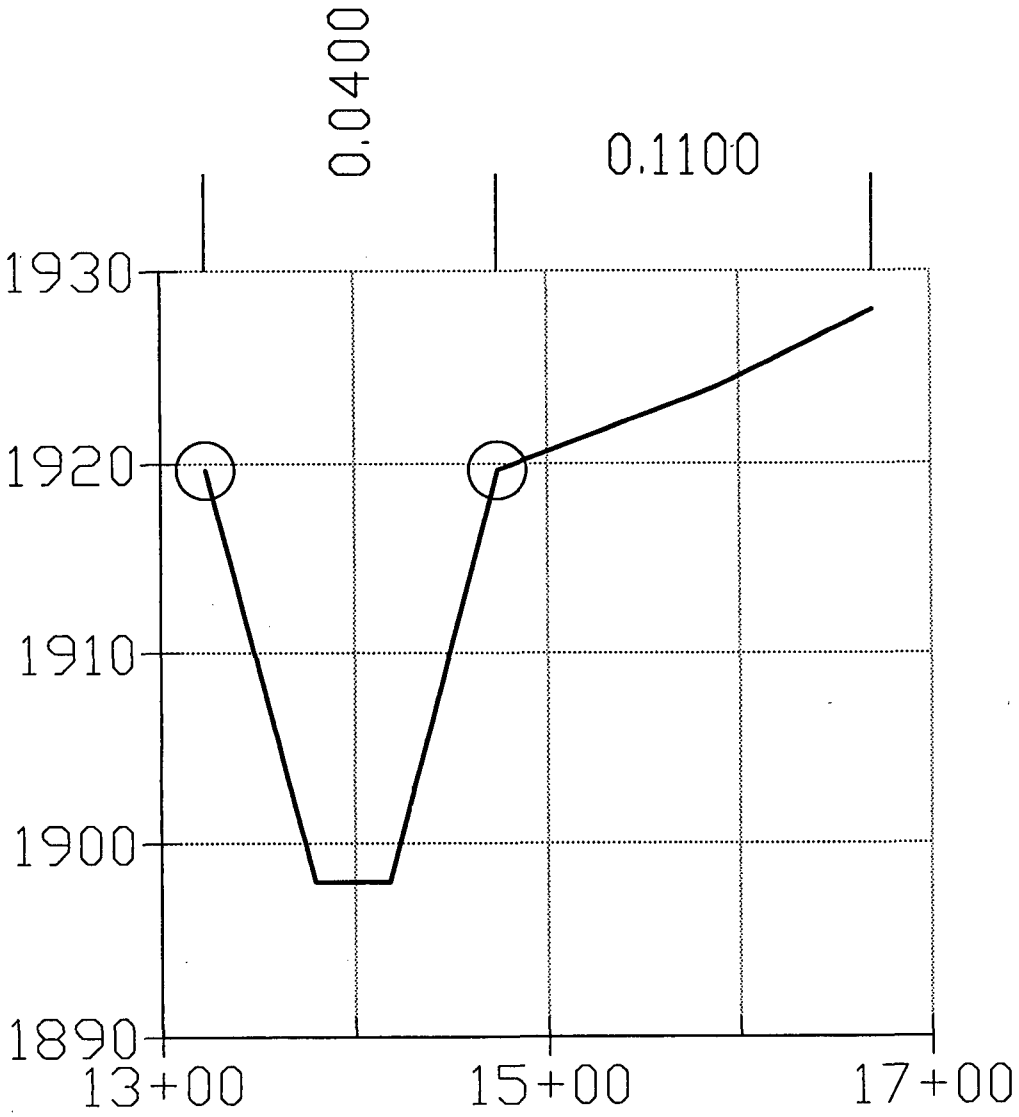

8300




8400

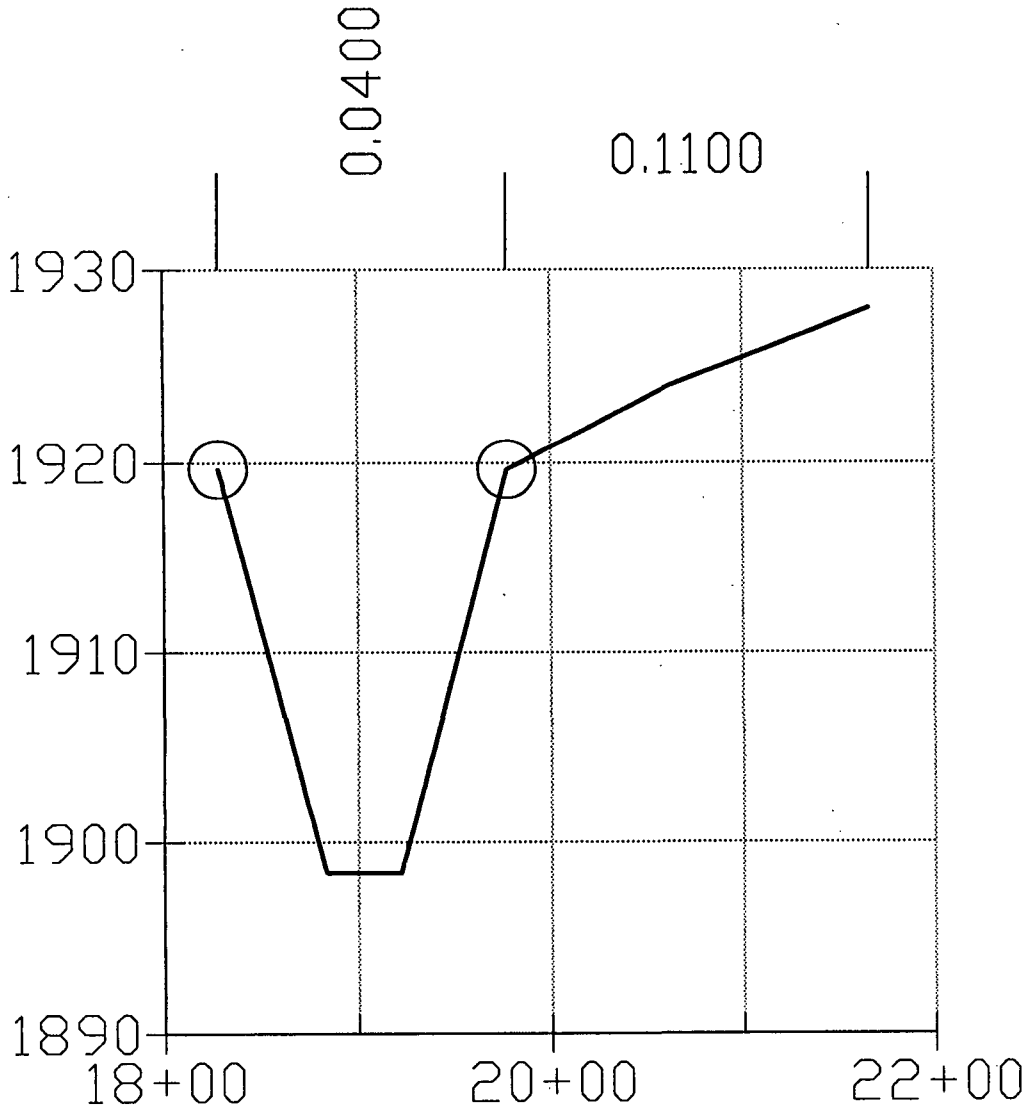



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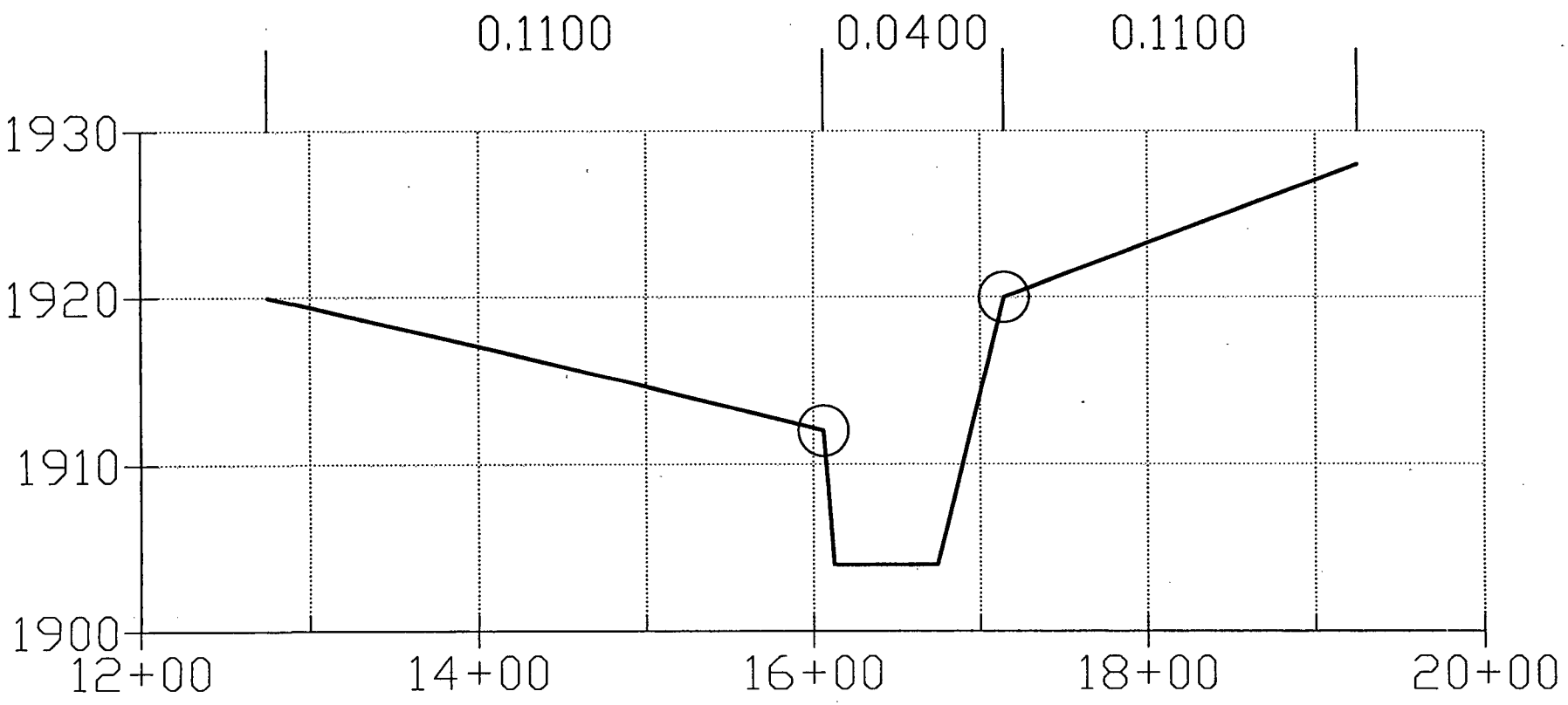

8600

DOWNSTREAM FACE OF BRIDGE AT POST ROAD

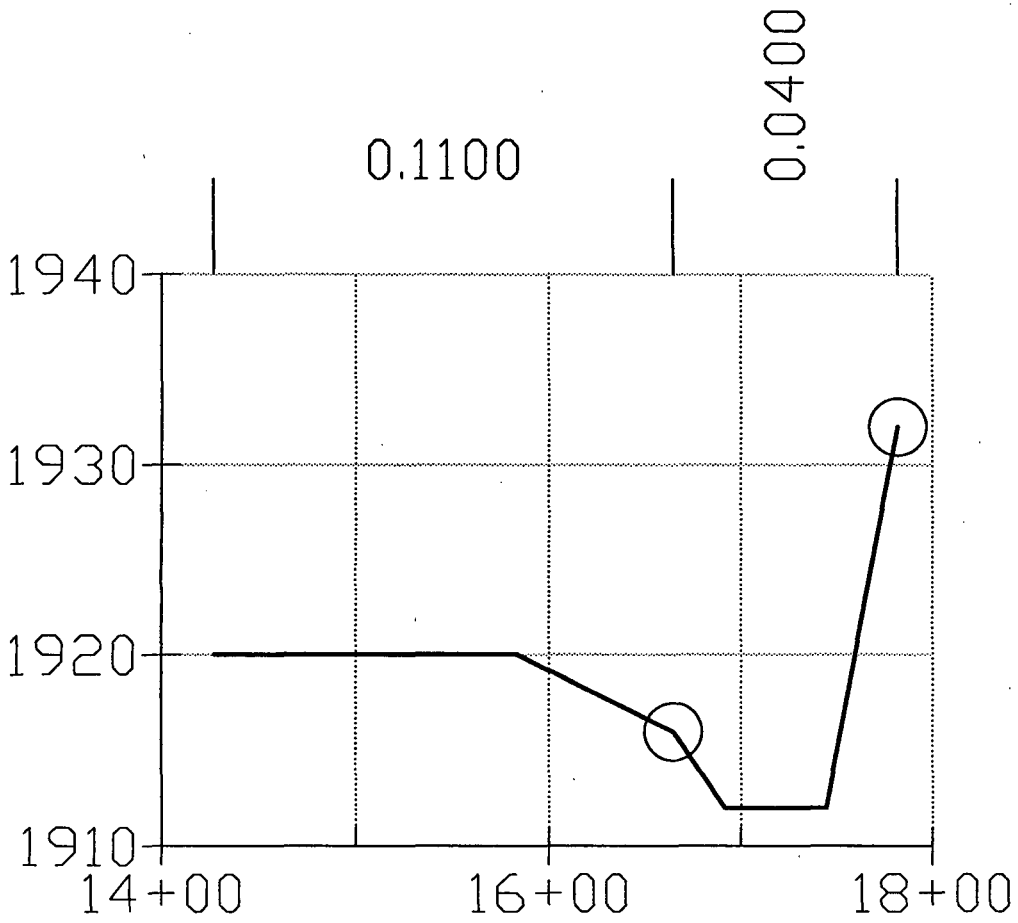



8700

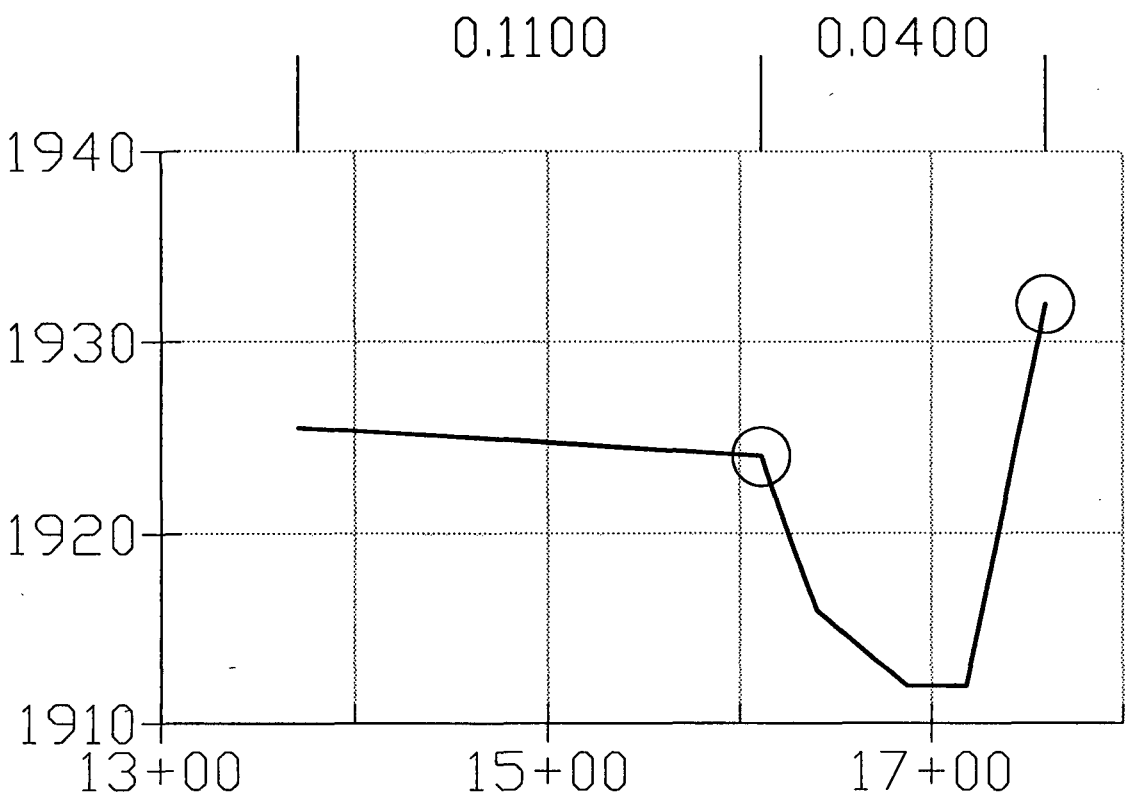
UPSTREAM FACE OF BRIDGE AT POST ROAD


0.1100
0.0400
0.1100
1930
1920
1910
1900
12+00
14+00
16+00
18+00
20+00

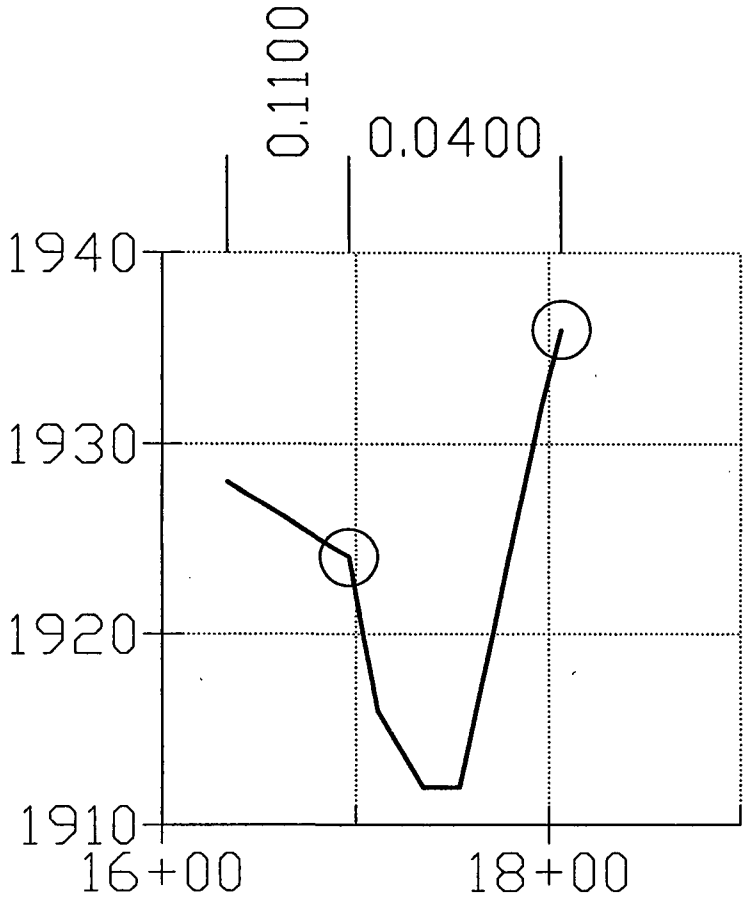
8800



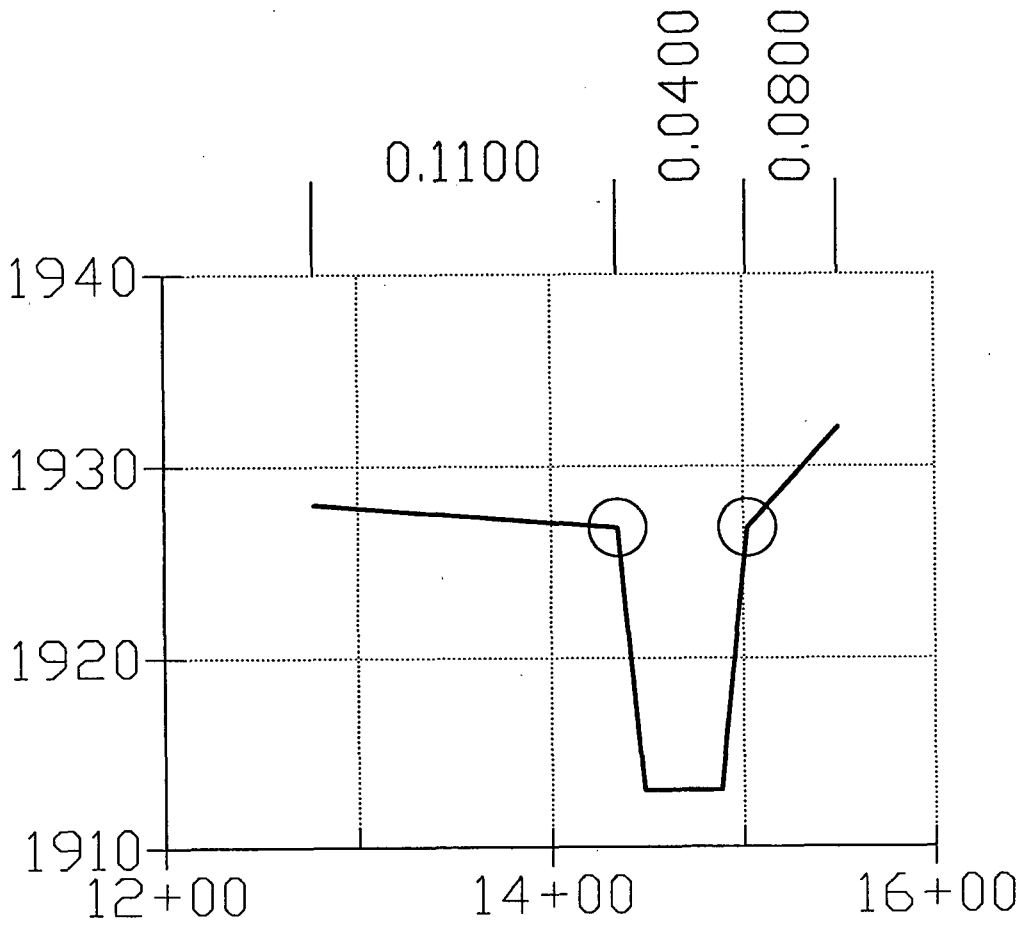

8900




9000

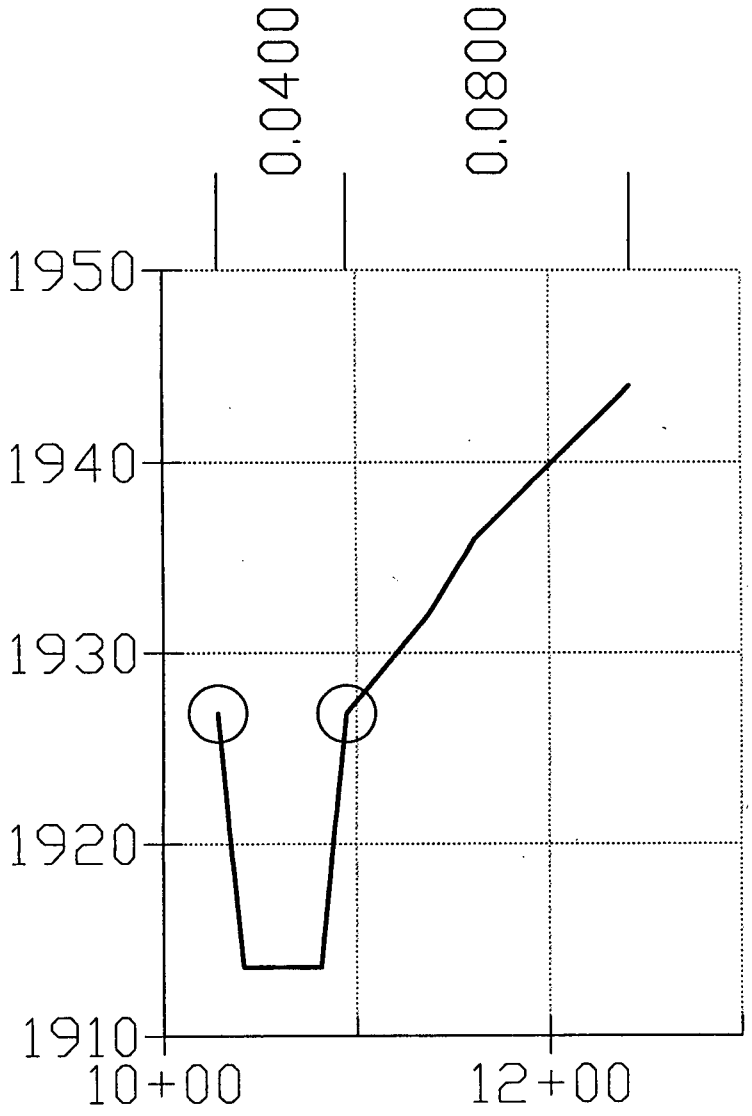



9100



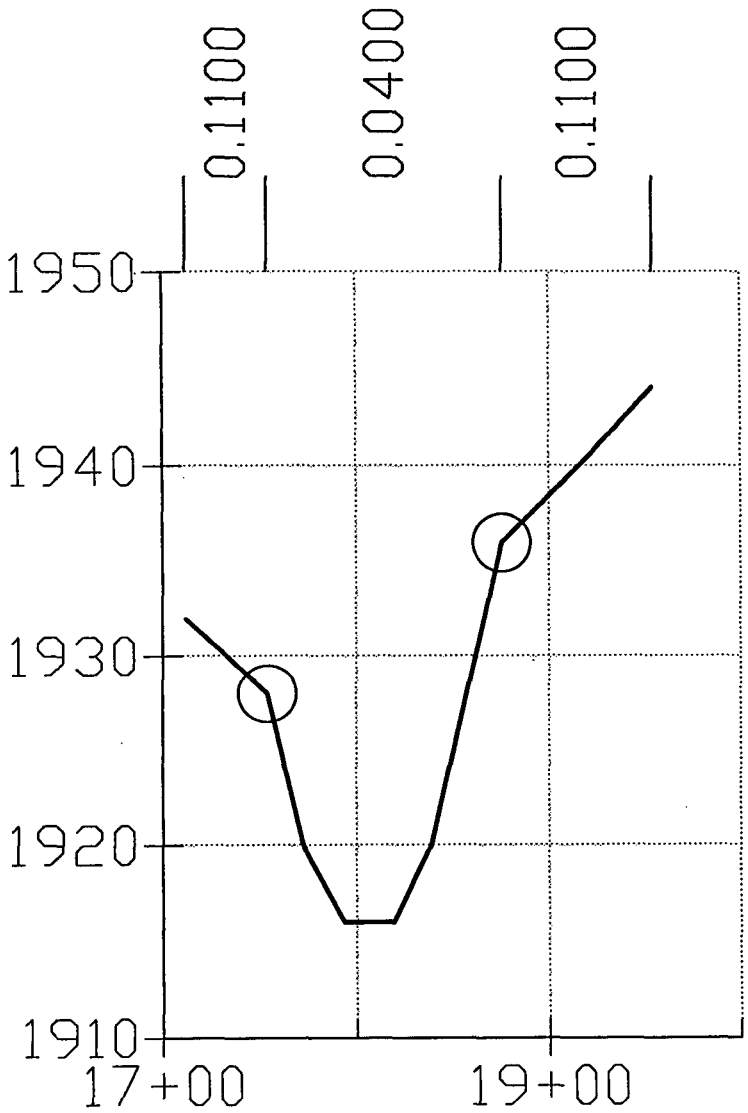

9200

DOWNSTREAM FACE OF SUNSET ROAD BRIDGE

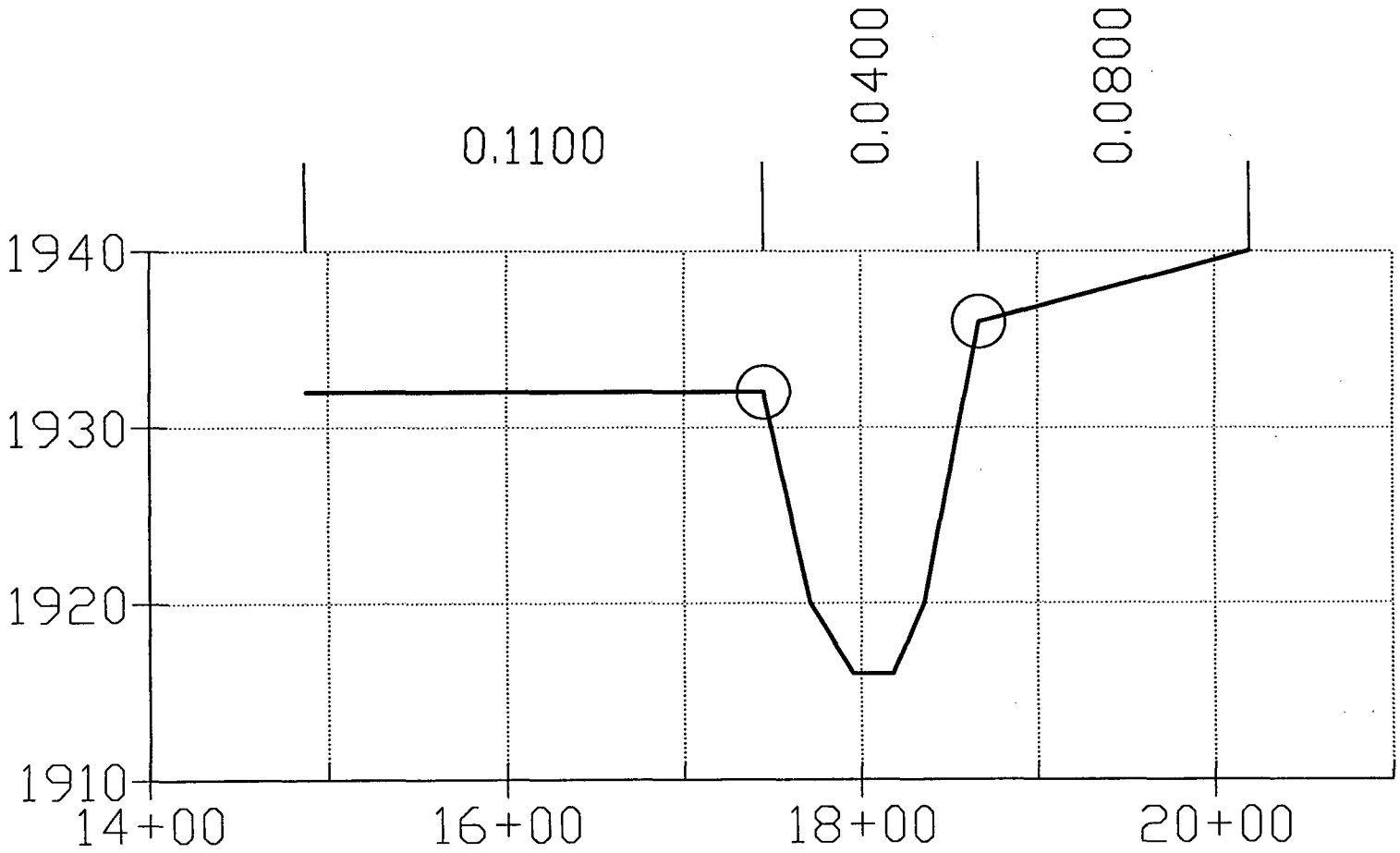



9300

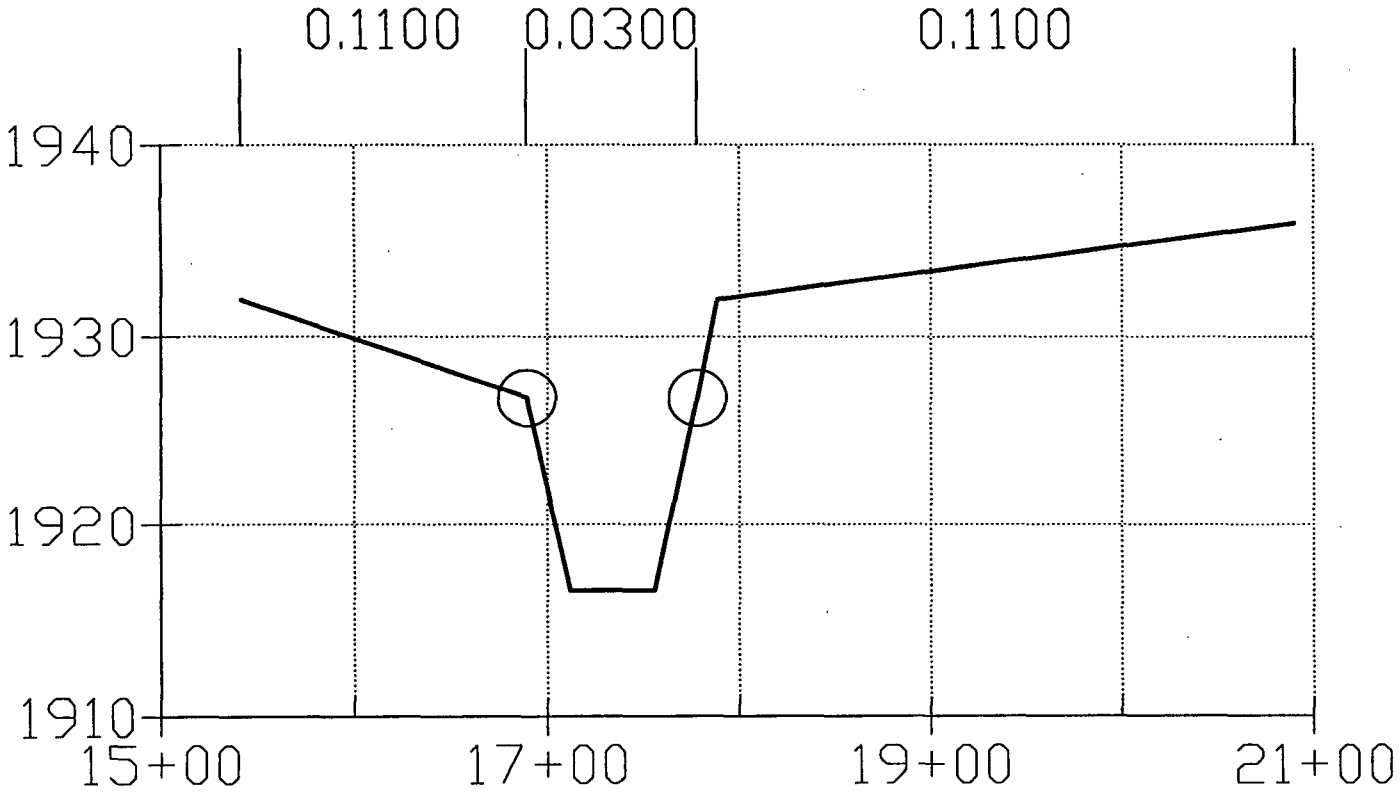
UPSTREAM FACE OF SUNSET ROAD BRIDGE




9400

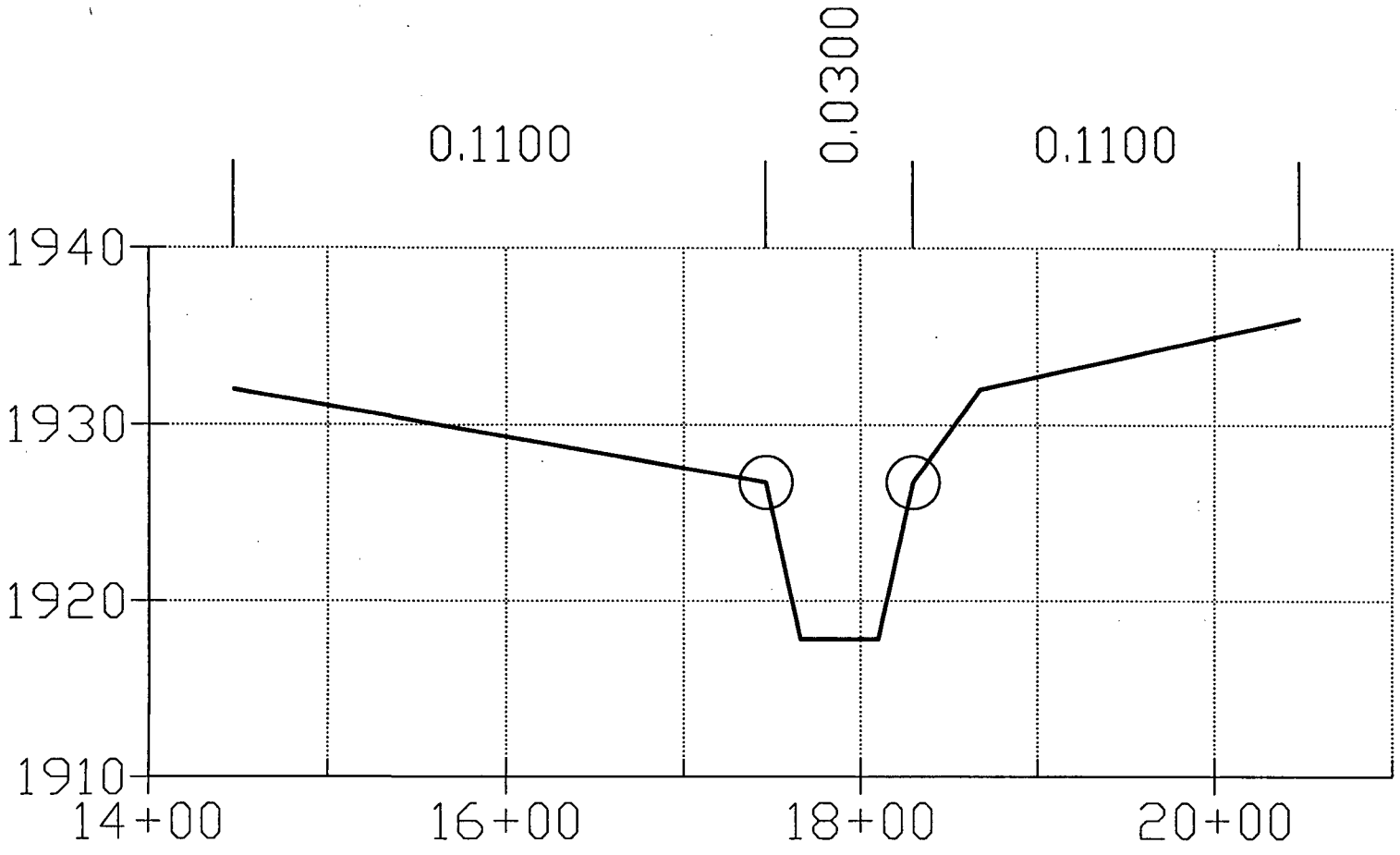



9500



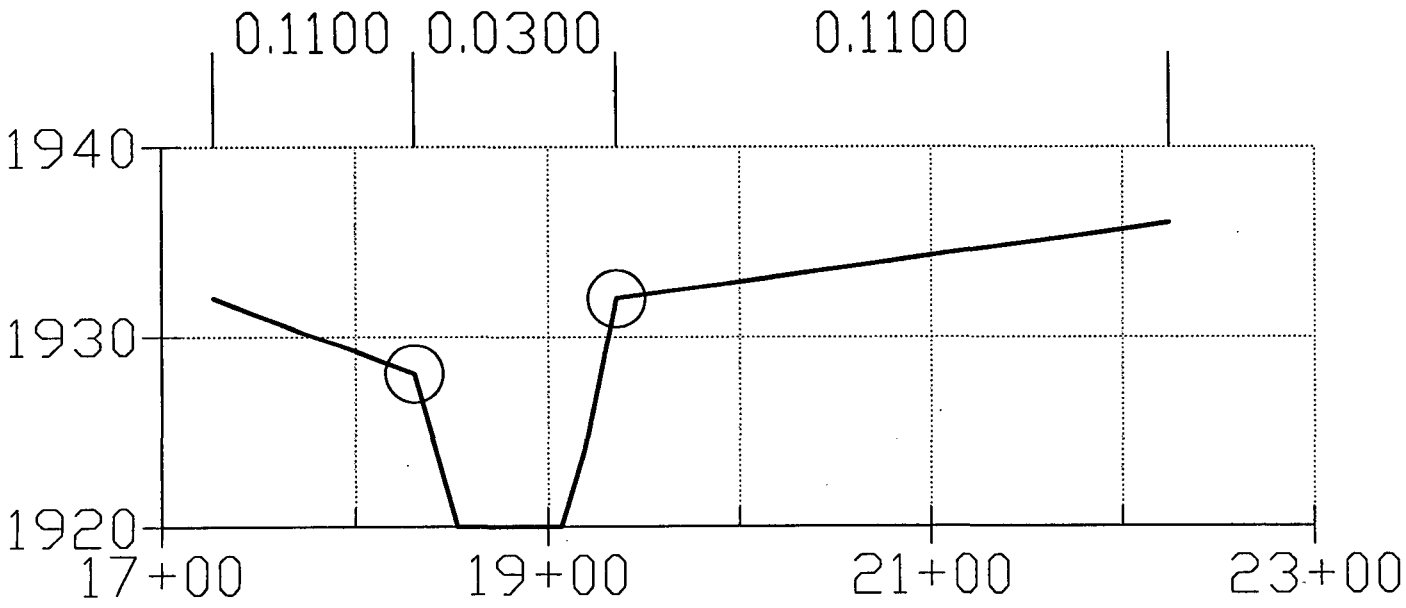

9600

DOWNSTREAM FACE OF SUNFISH DRIVE BRIDGE

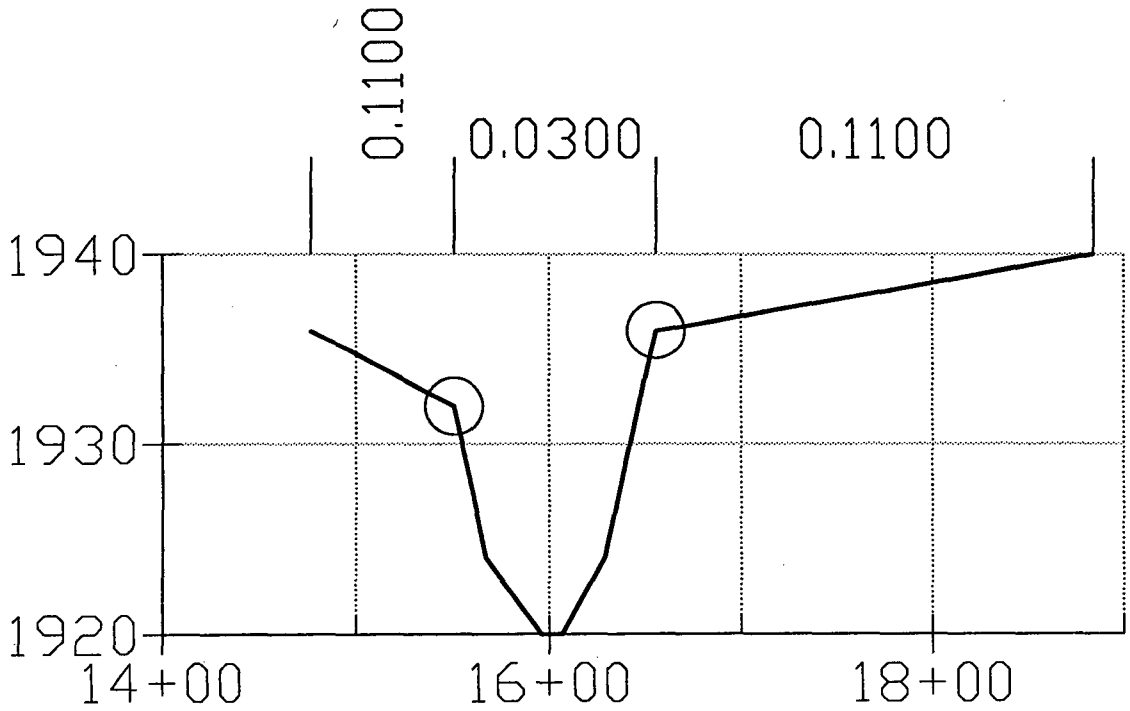



9700

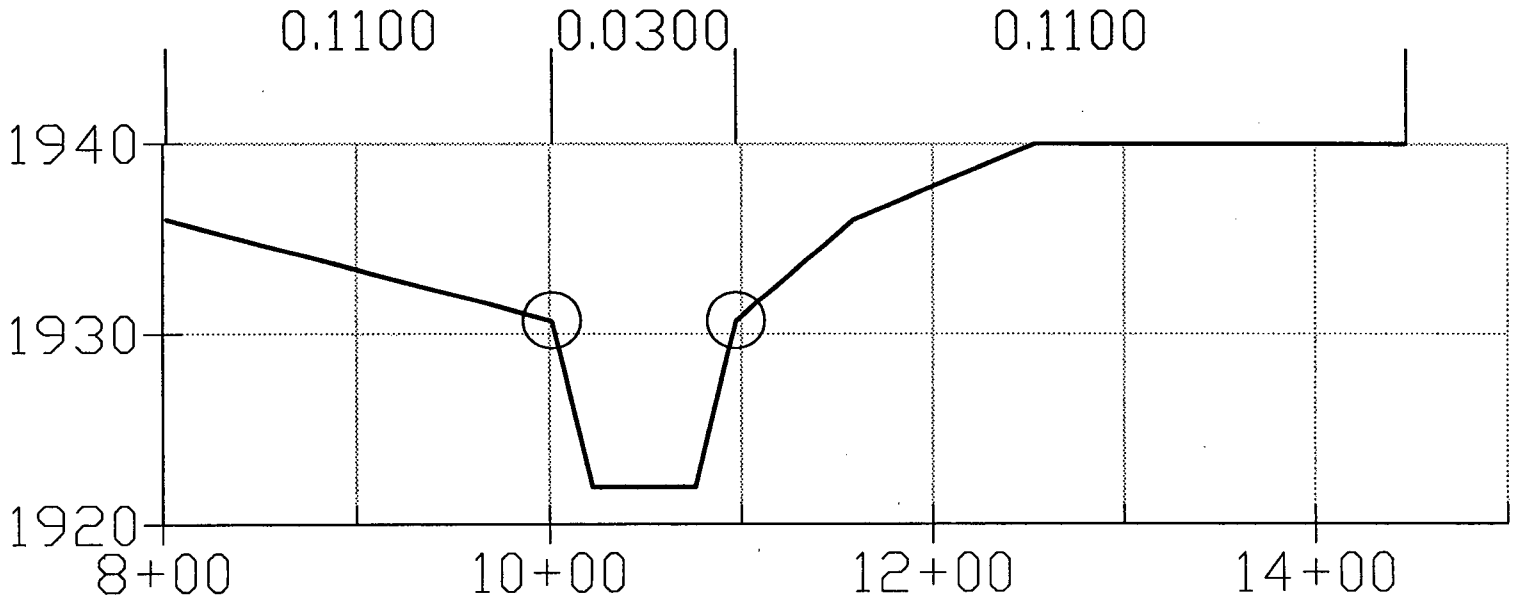
UPSTREAM FACE OF SUNFISH DRIVE BRIDGE




9800

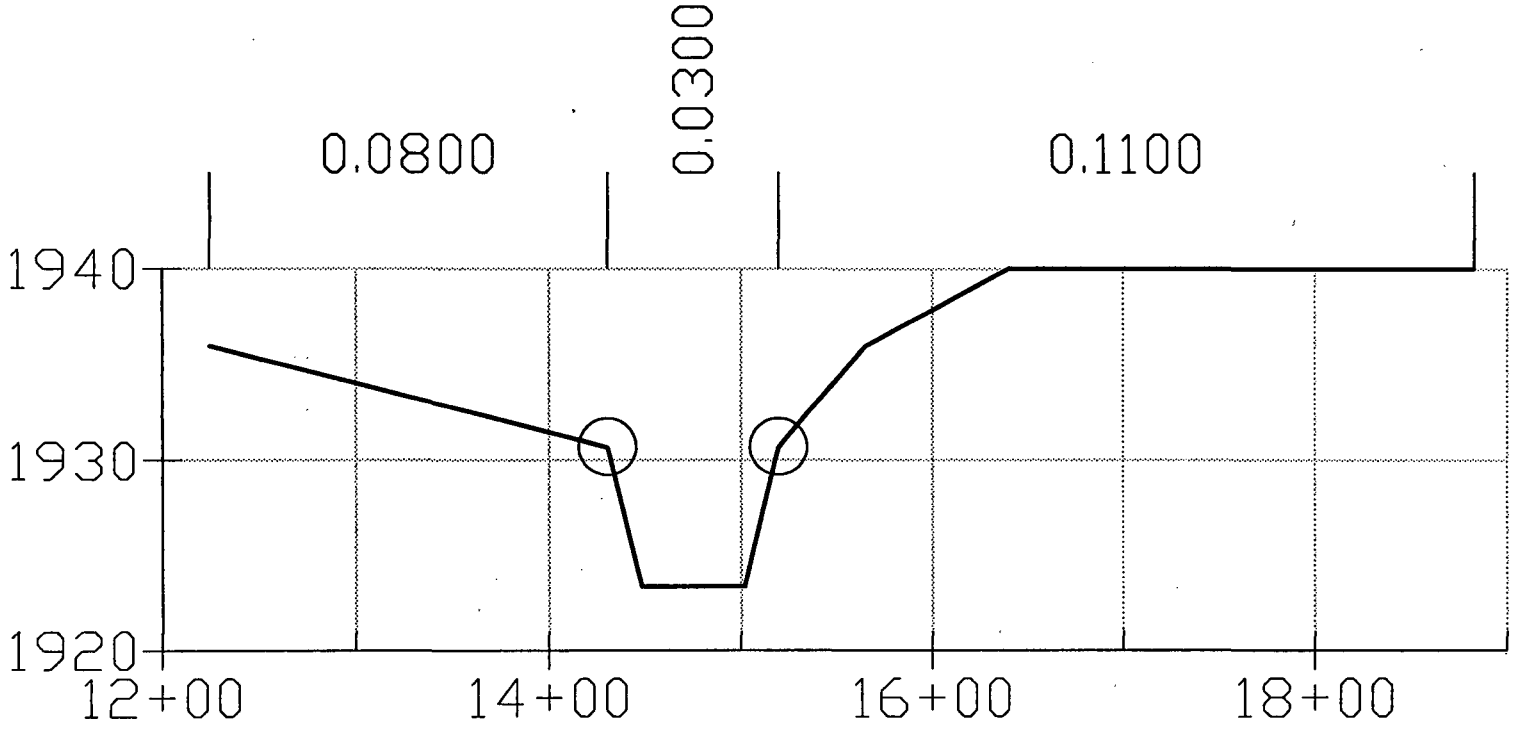



9900



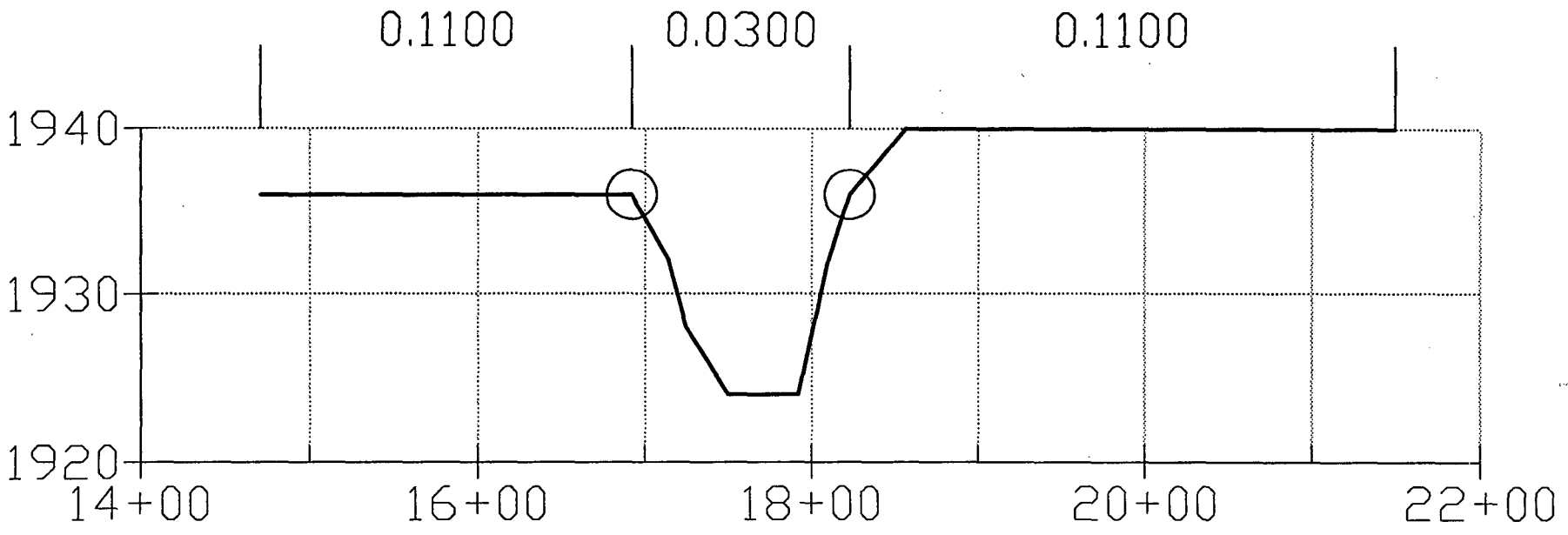

10000

DOWNSTREAM FACE OF APARTMENT CROSSING

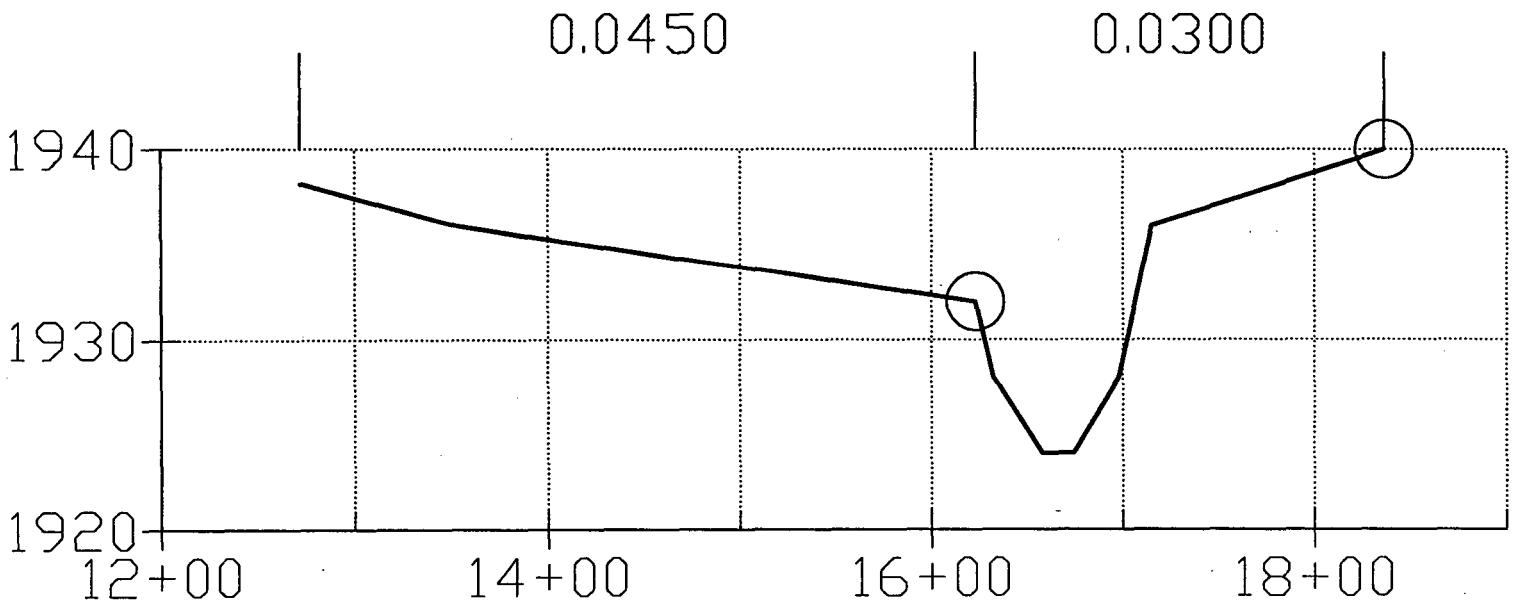



10100

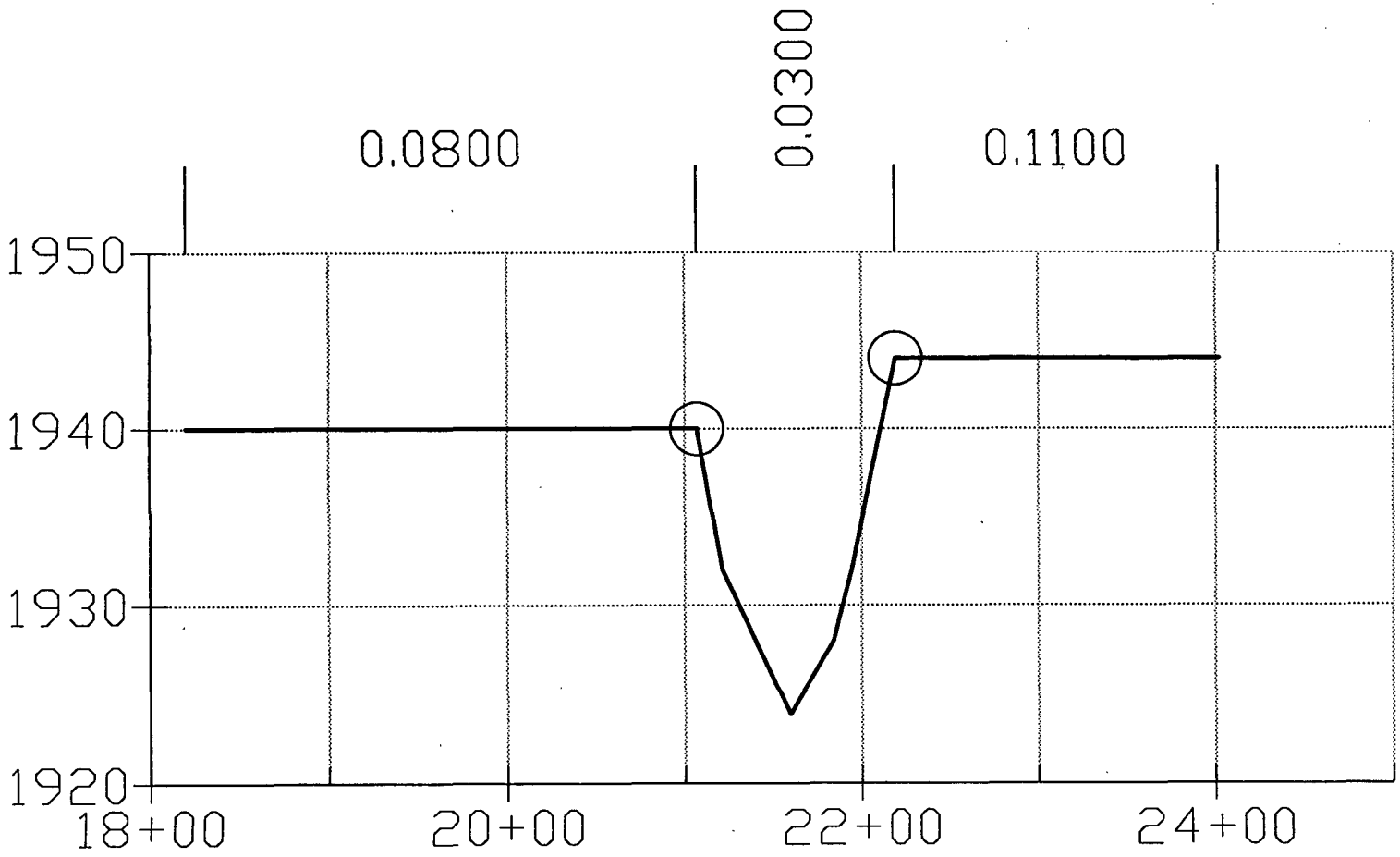
UPSTREAM FACE OF APARTMENT CROSSING



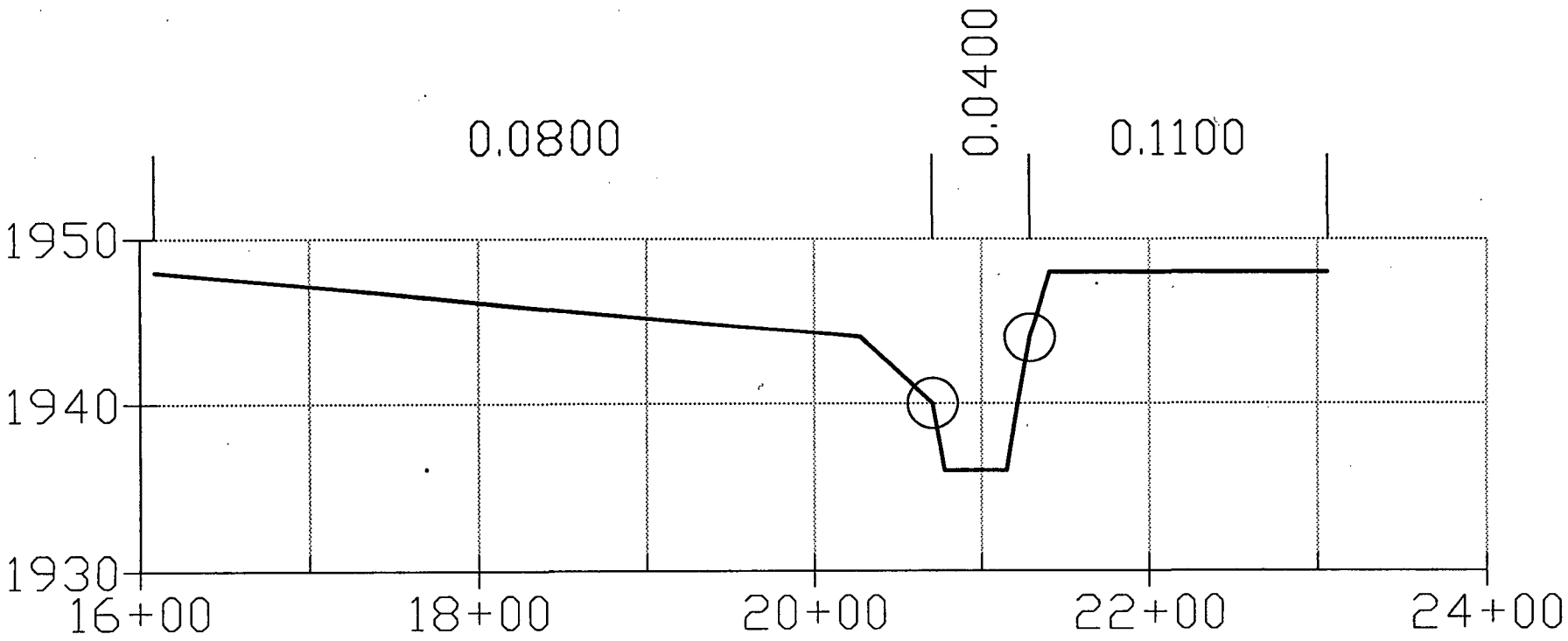

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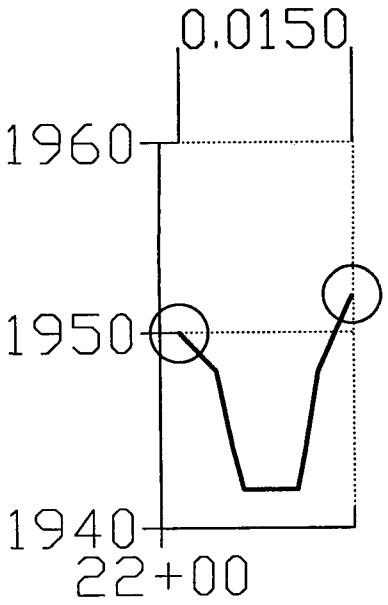

10300



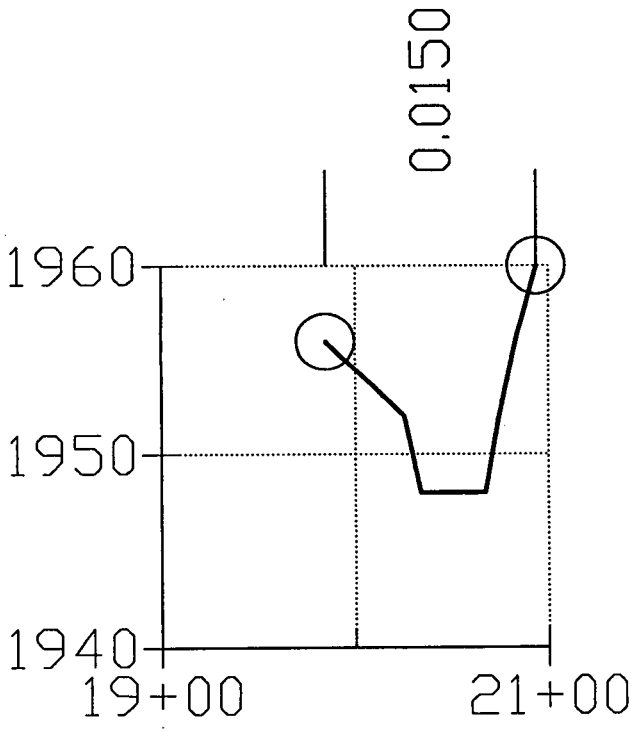

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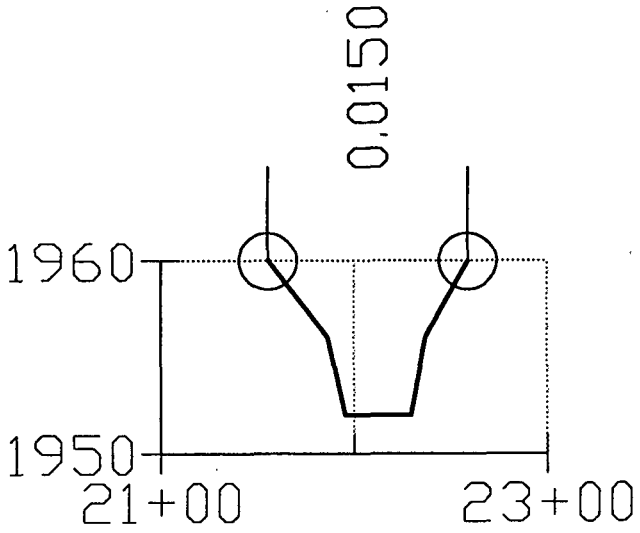

10500



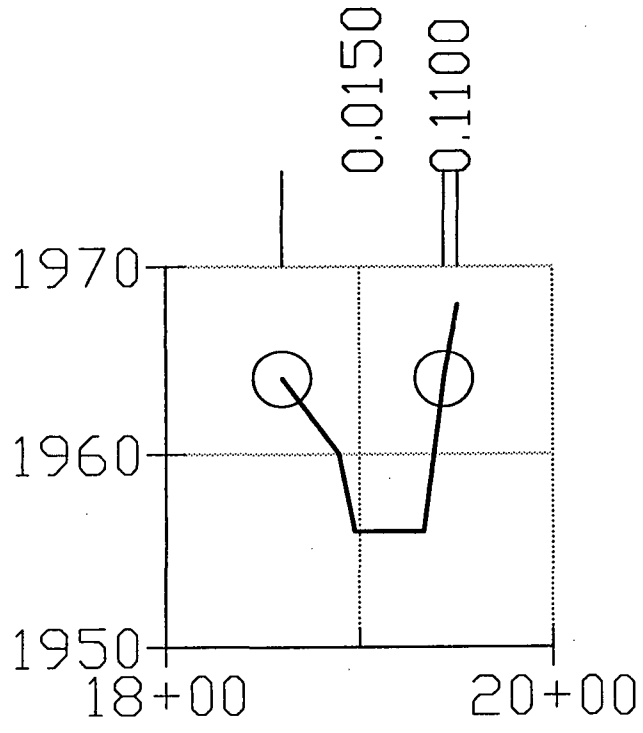

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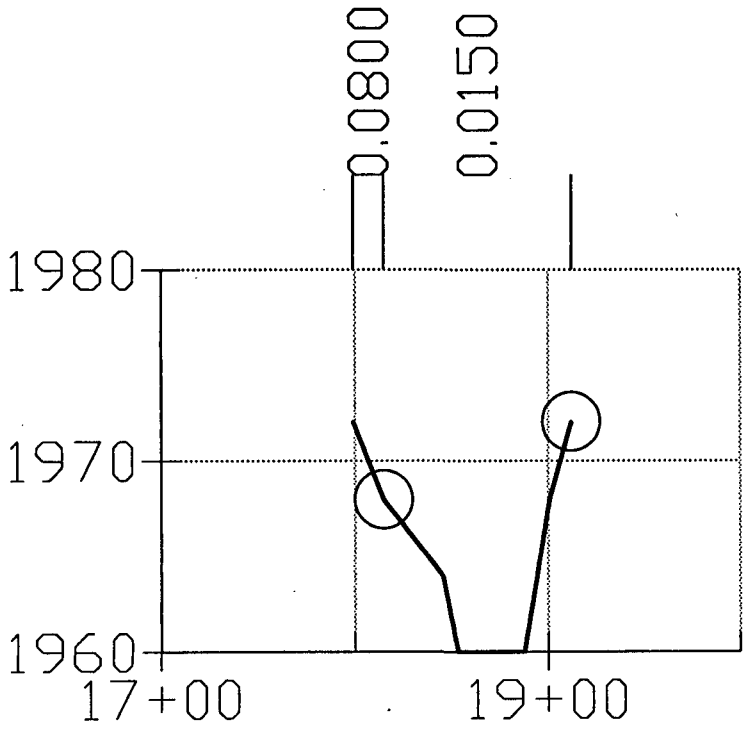

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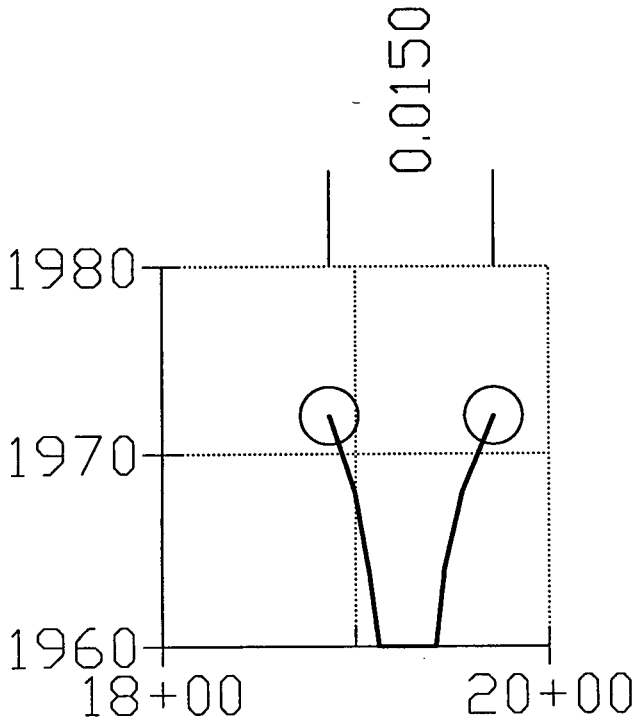

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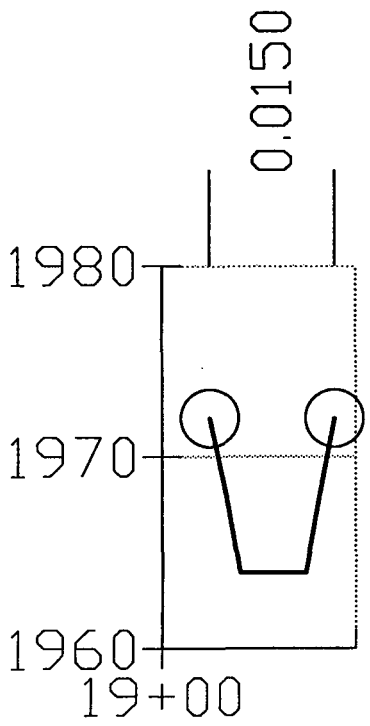

10900



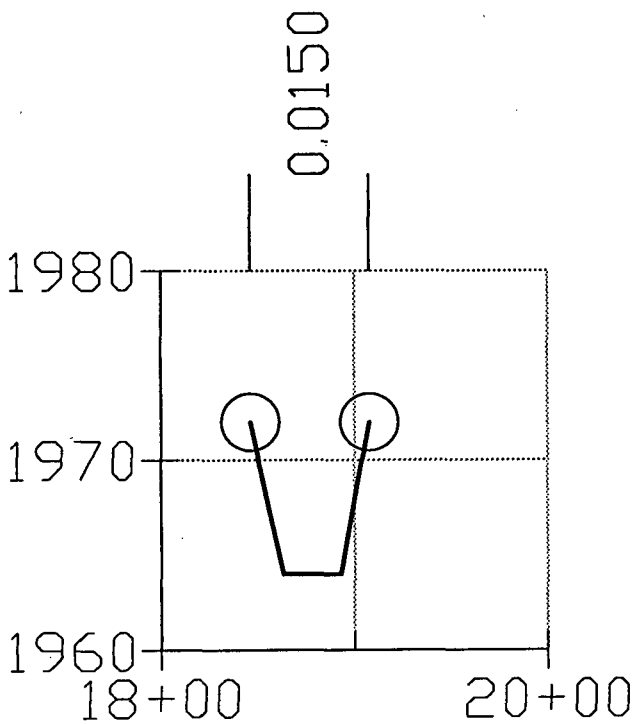

11000



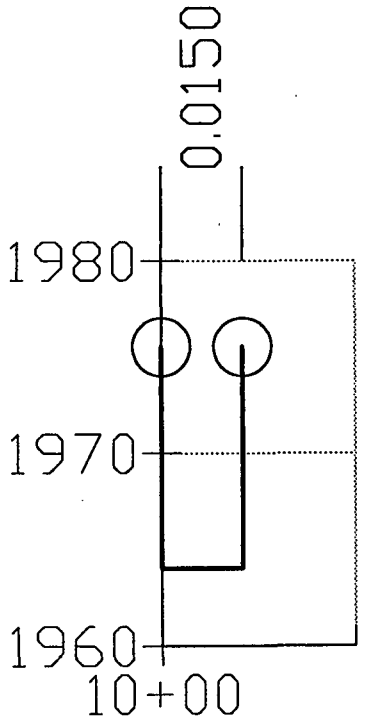

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11200

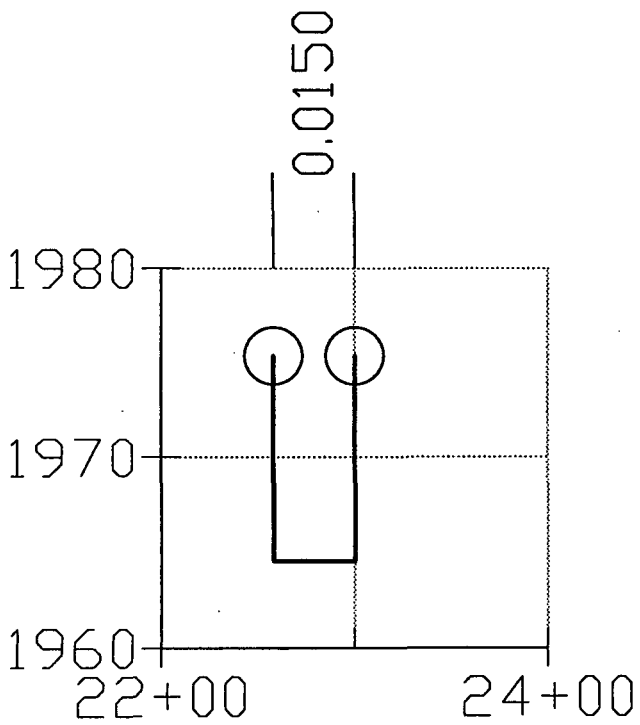



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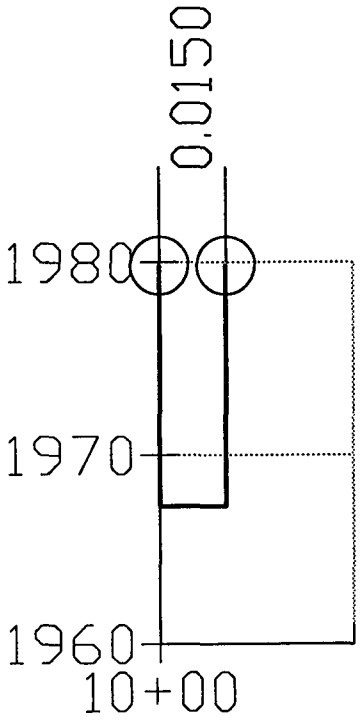

11400

DOWNSTREAM FACE OF PECOS ROAD BRIDGE



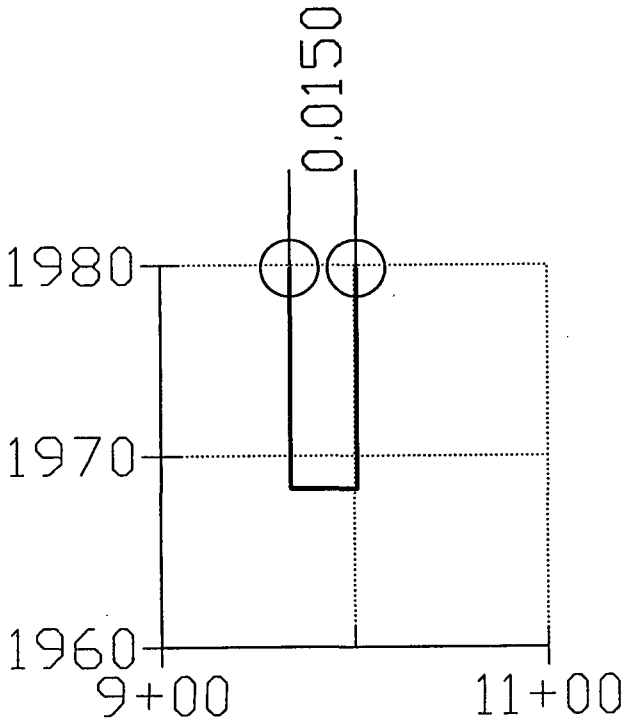

11500

UPSTREAM FACE OF PECOS ROAD BRIDGE



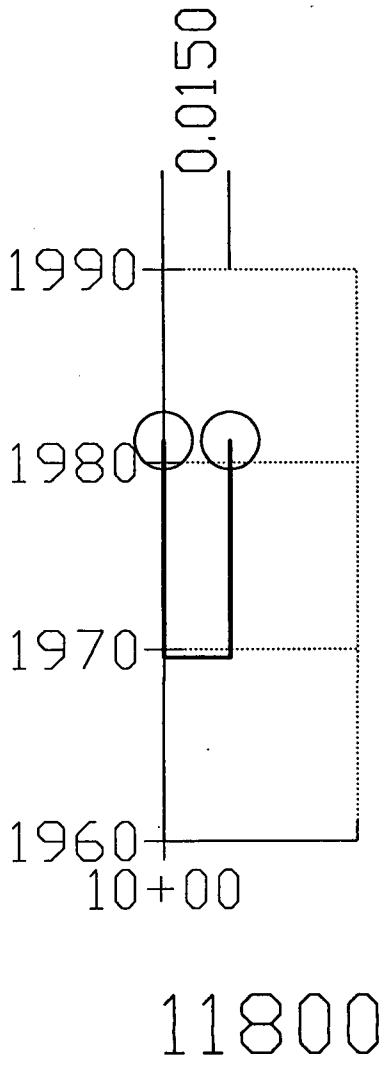

11600

DOWNSTREAM FACE OF CROSSING

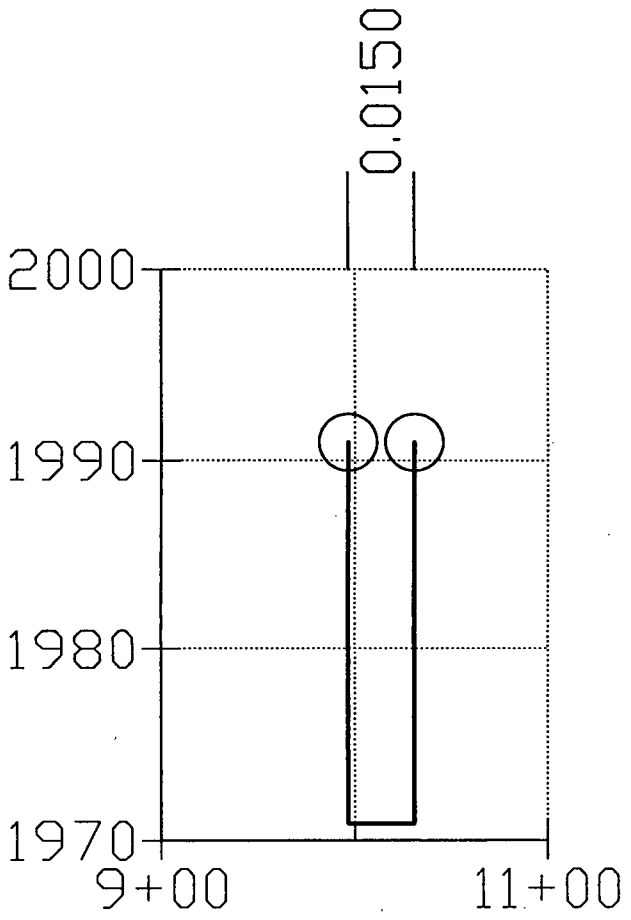



11700

UPSTREAM FACE OF CROSSING

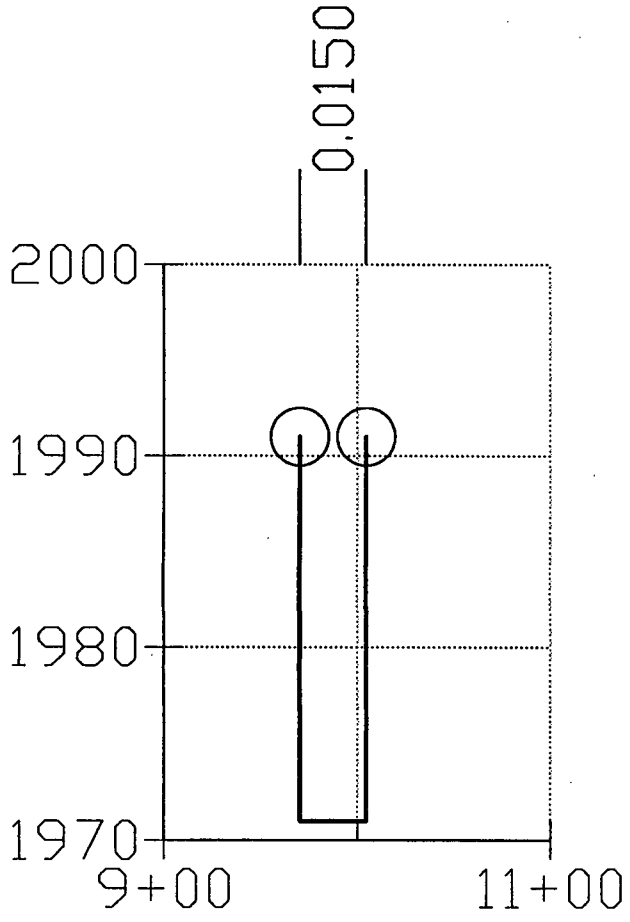



11800



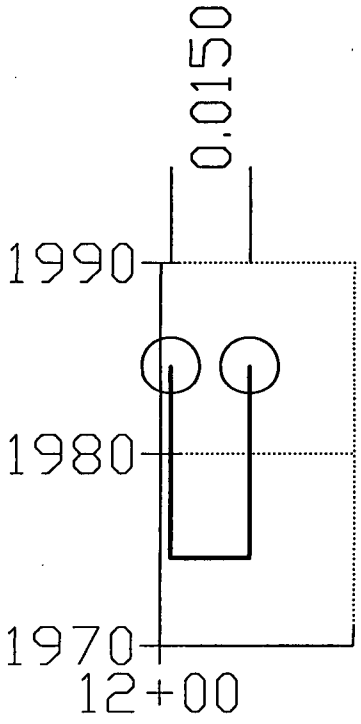

11900

DOWNSTREAM FACE OF CROSSING

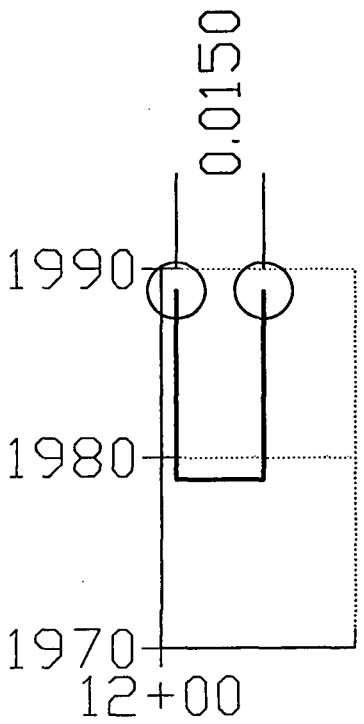



12000

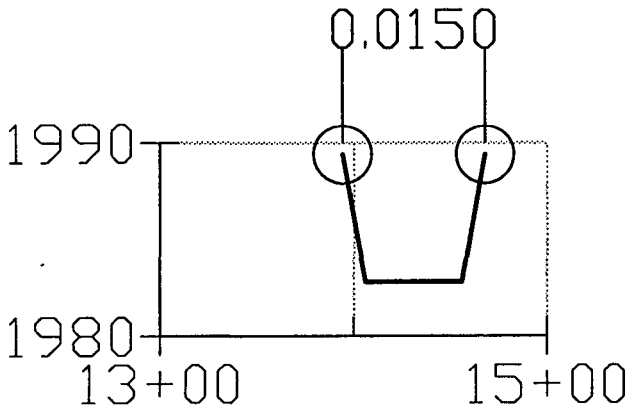
UPSTREAM FACE OF CROSSING




12100

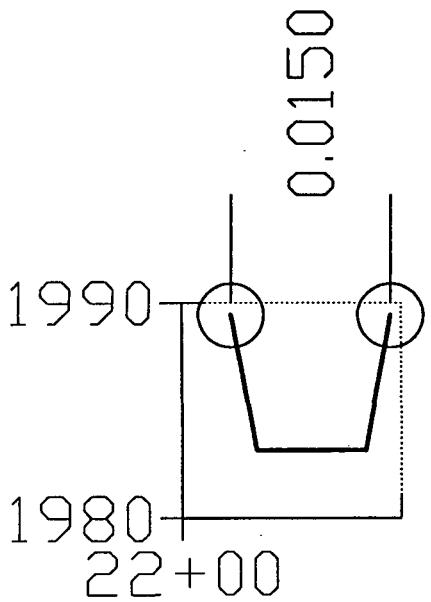



12200



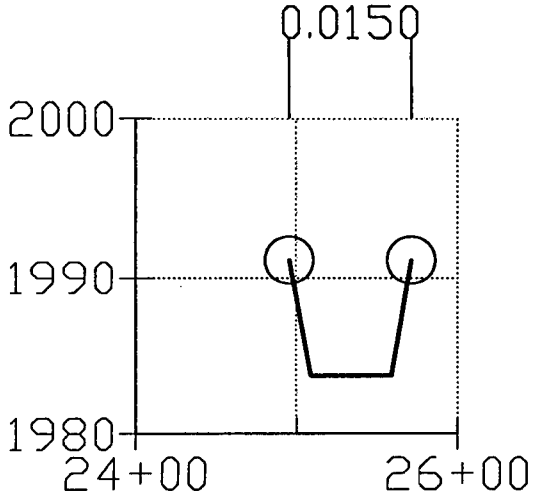

12300

DOWNSTREAM FACE OF TOMIYASU BRIDGE




12400

UPSTREAM FACE OF TOMIYASU LANE BRIDGE

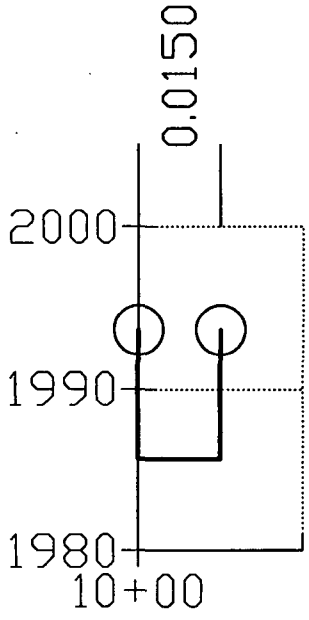



12500

TRANSITION DOWNSTREAM TRAP

PLANS STA 38+89.86

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

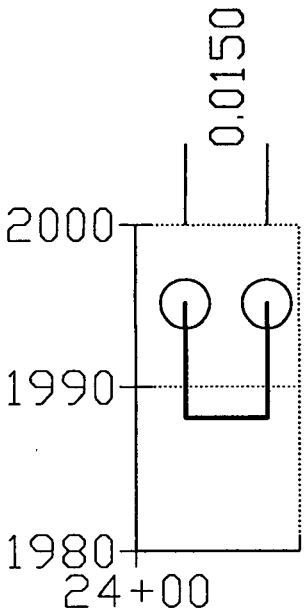



12600

TRANSITION UPSTREAM RECT

PLANS STA 38+14.44

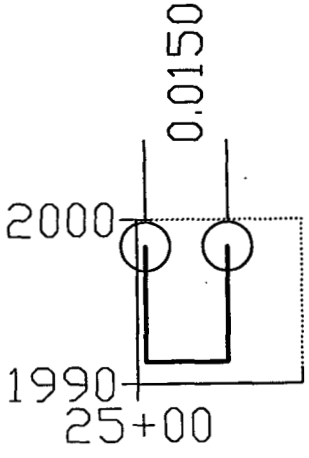
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




12700

PLANS STA 35+00.00

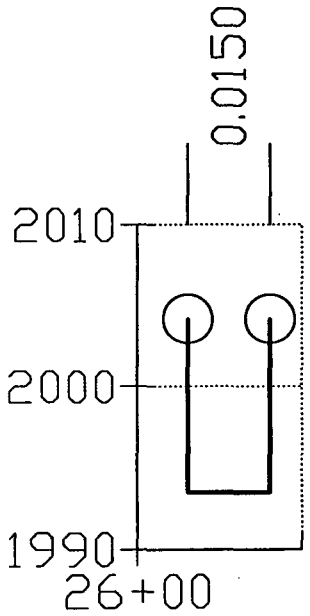
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




12800

PLANS STA 31+00.00

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

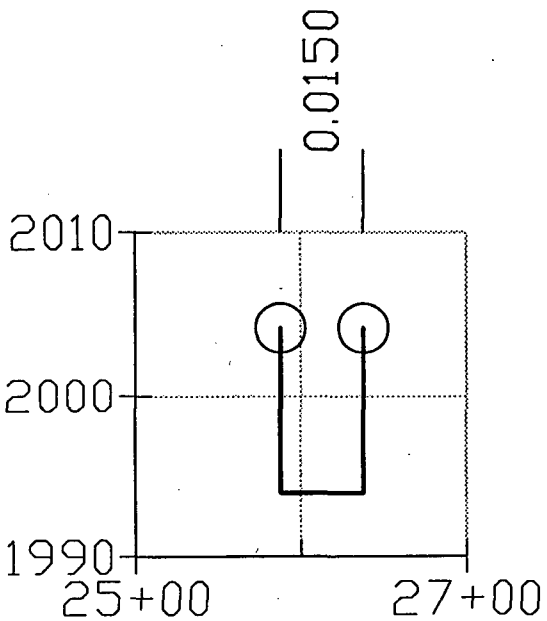



12900

DOWNSTREAM FACE OF MIRA VISTA BRIDGE

PLANS STA 28+43.76

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

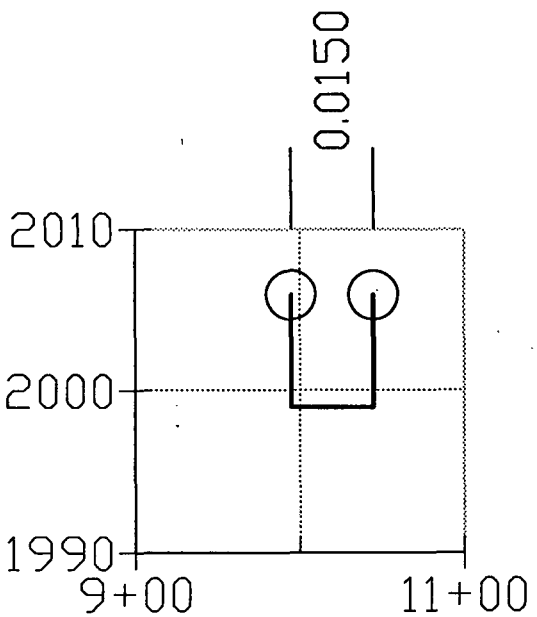



13000

UPSTREAM FACE OF MIRA VISTA STREET BRIDGE

PLANS STA 28+10.59

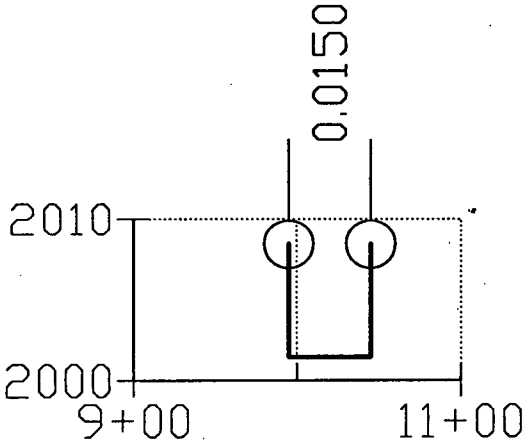
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




13100

PLANS STA 27+00.00

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

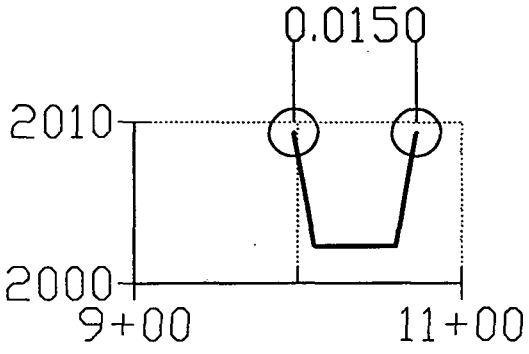



13200

TRANSITION - DOWNSTREAM RECT

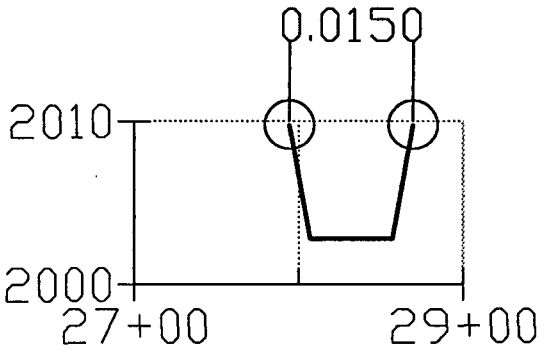
PLANS STA 24+90.00

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



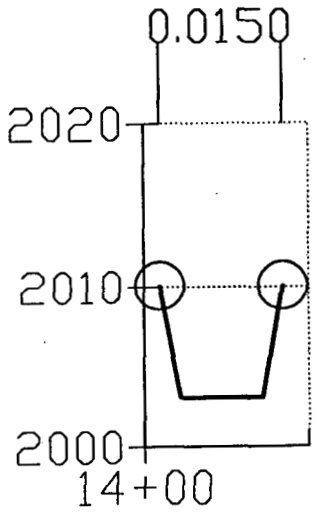

# 13300

TRANSITION - UPSTREAM TRAP
PLANS STA 24+12.75
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



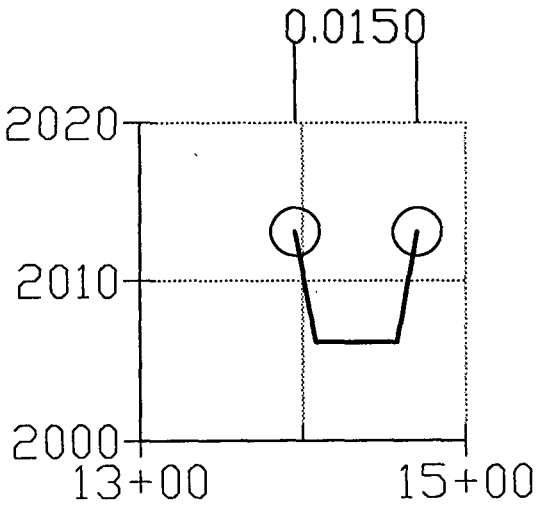

13400

DOWNSTREAM FACE OF PACHUCA BRIDGE
PLANS STA 23+16.50
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




# 13500

UPSTREAM FACE OF PACHUCA STREET BRIDGE
PLANS STA 22+83.50
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

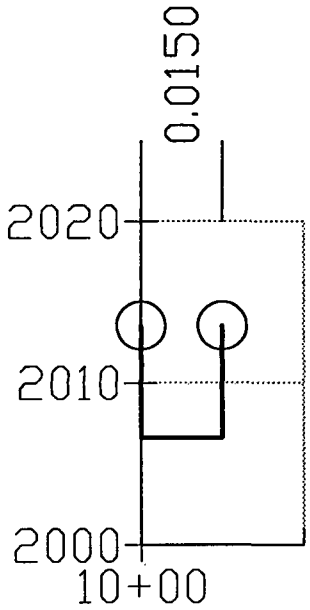



13600

TRANSITION DOWNSTREAM TRAP

PLANS STA 21+81.14

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

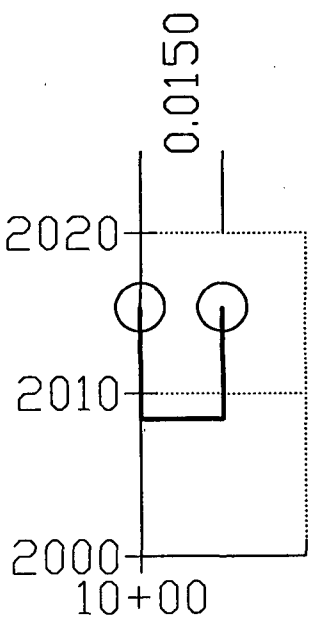



13700

TRANSITION UPSTREAM RECT

PLANS STA 21+06.00

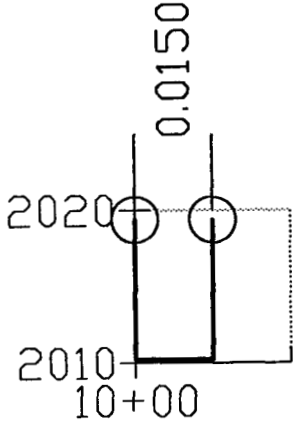
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




13800

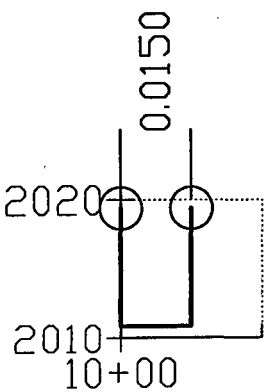
PLANS STA 18+00.00

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




13900

GRADEBREAK AT DOWNSTREAM FACE OF VISTA DEL SOL AVENUE
PLANS STA 15+00.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

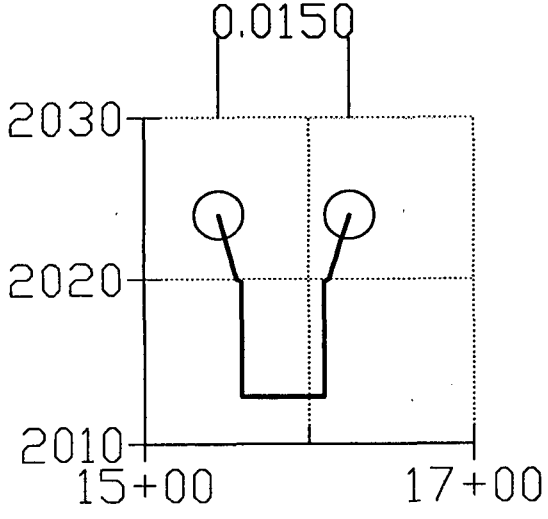



14000

GRADEBREAK NEAR UPSTREAM FACE OF VISTA DEL SOL AVENUE BRIDGE

PLANS STA 14+43.43

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

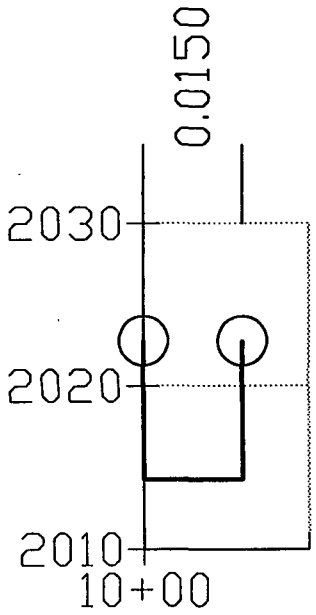



14100

TRANSITION DOWNSTREAM RECT

PLANS STA 13+42.00

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

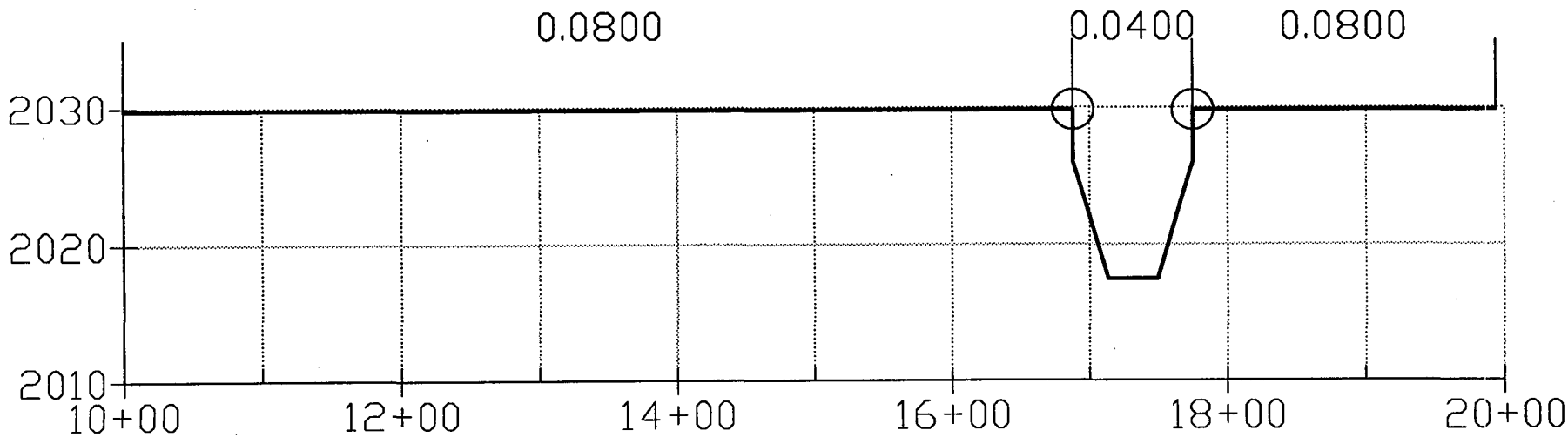



14200

TRANSITION UPSTREAM 60' RECT TO 50' RECT

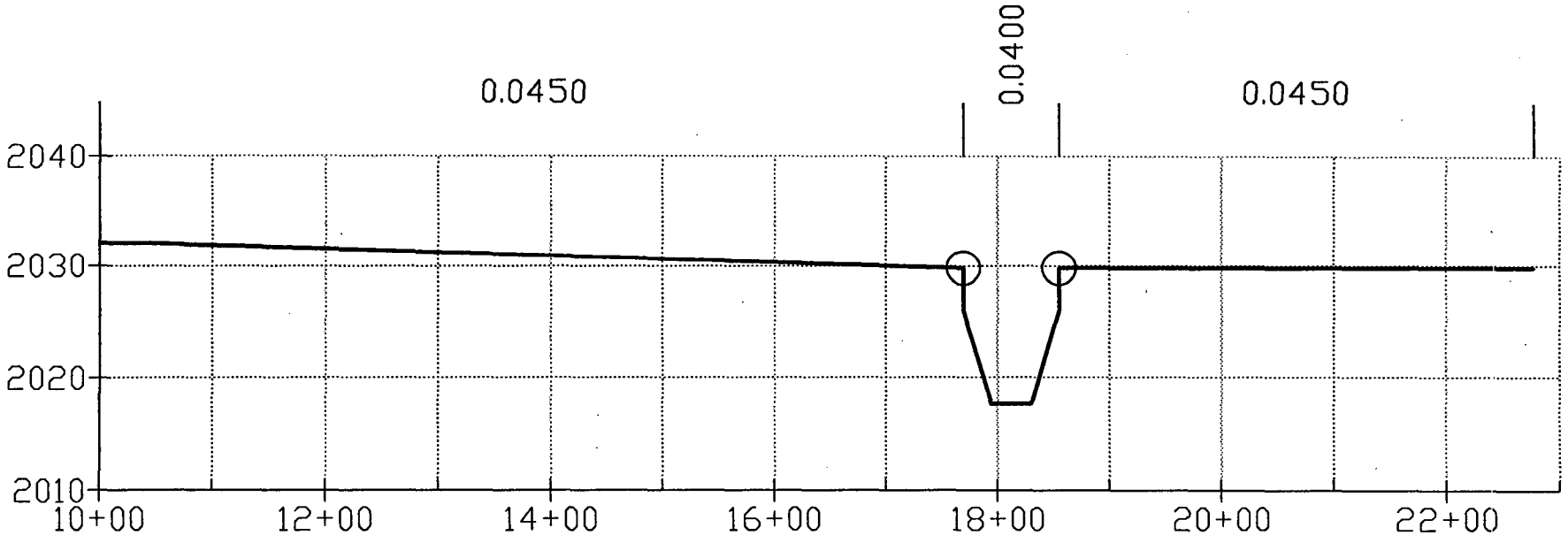
PLANS STA 12+67.00

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



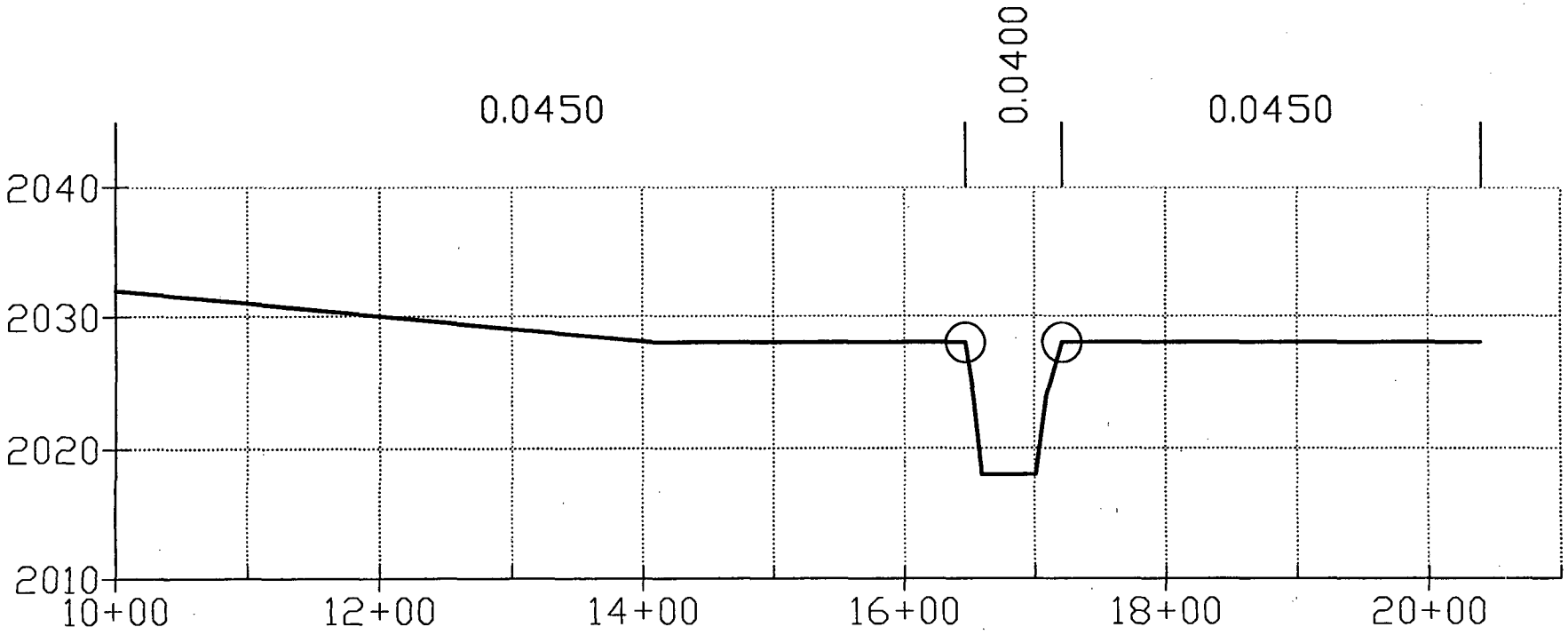

14300

DOWNSTREAM FACE OF UPRR BRIDGE - HENDERSON SPUR

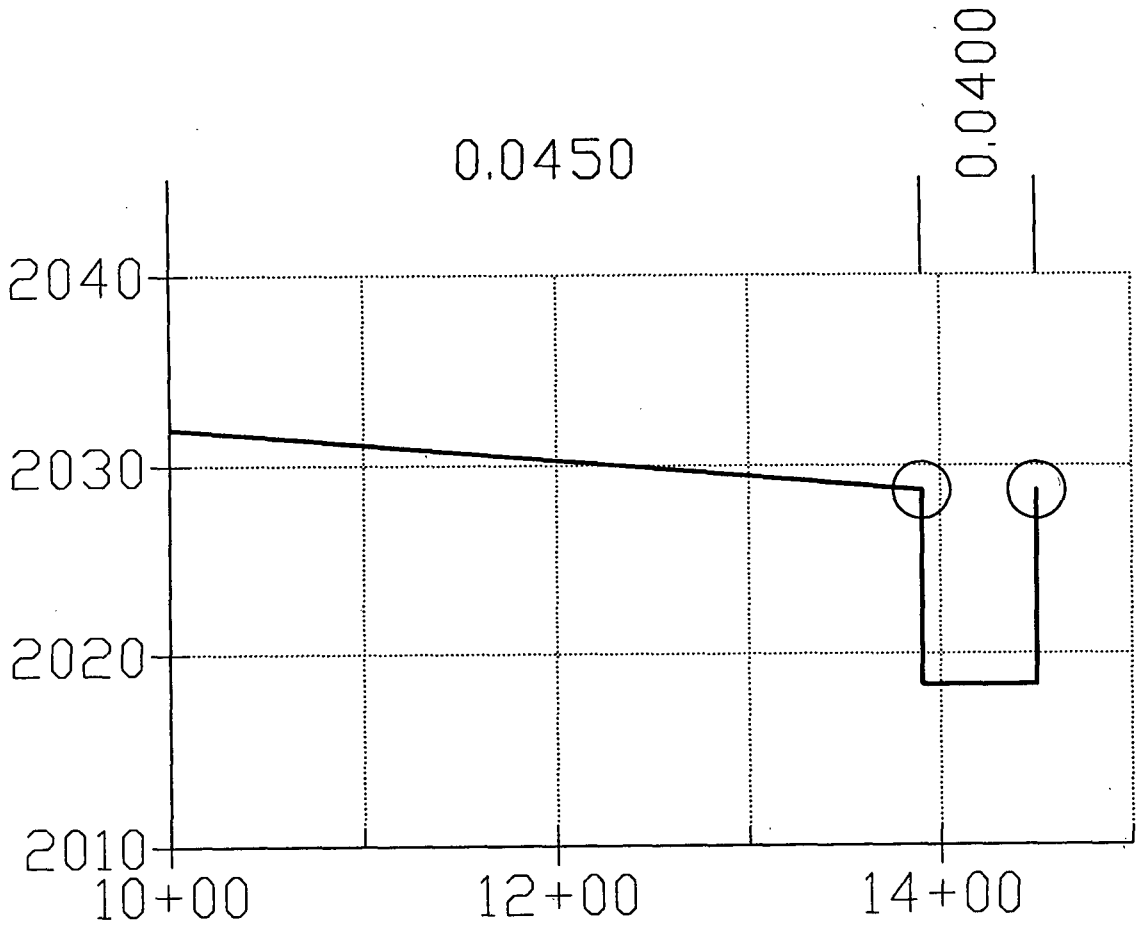



14400

UPSTREAM FACE OF UPRR BRIDGE - HENDERSON SPUR

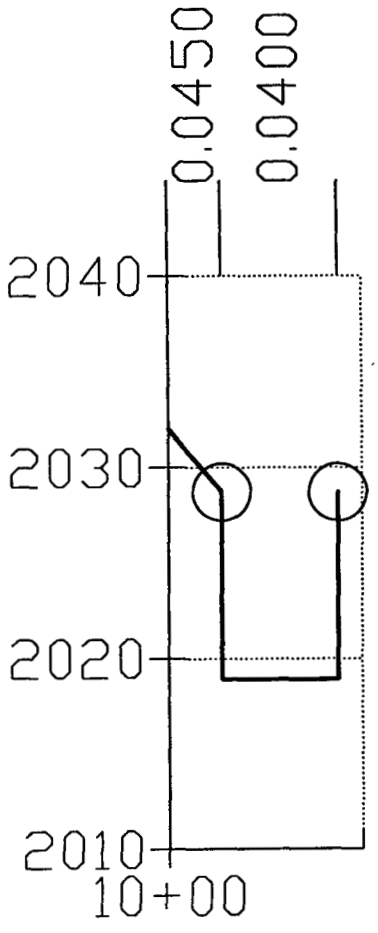

0.0450
0.0400
0.0450
2040
2030
2020
2010
10+00
12+00
14+00
16+00
18+00
20+00

14500



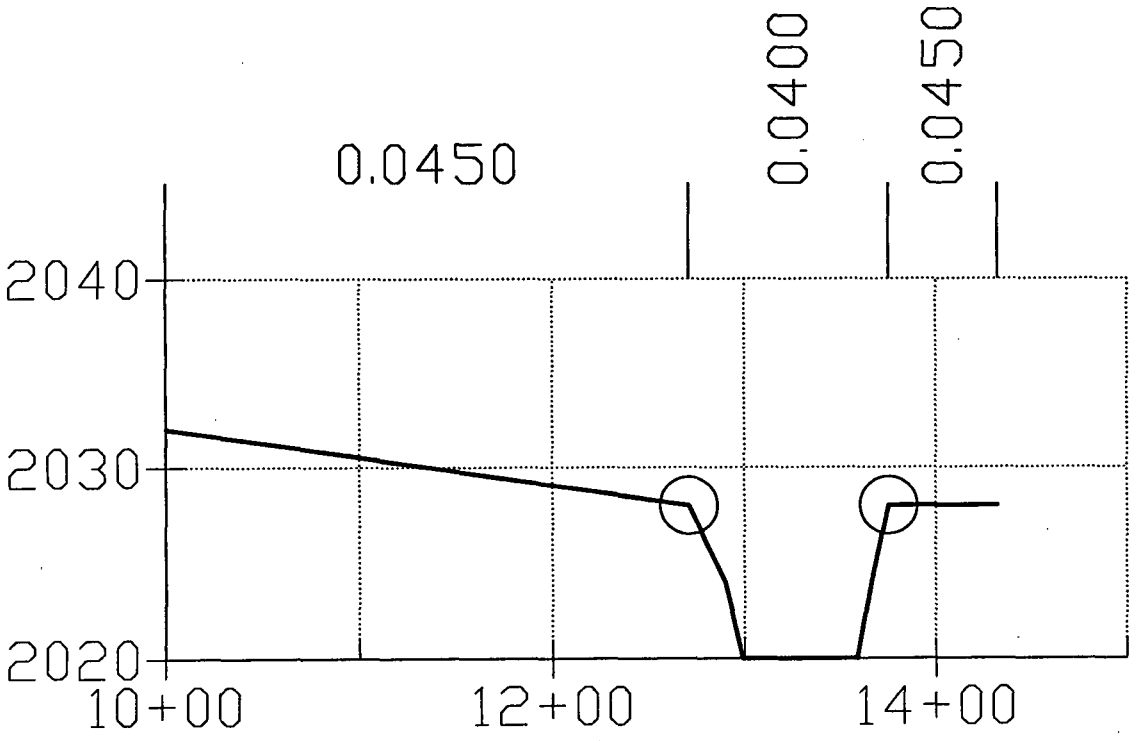

14600

DOWNSTREAM FACE OF WARM SPRINGS ROAD BRIDGE

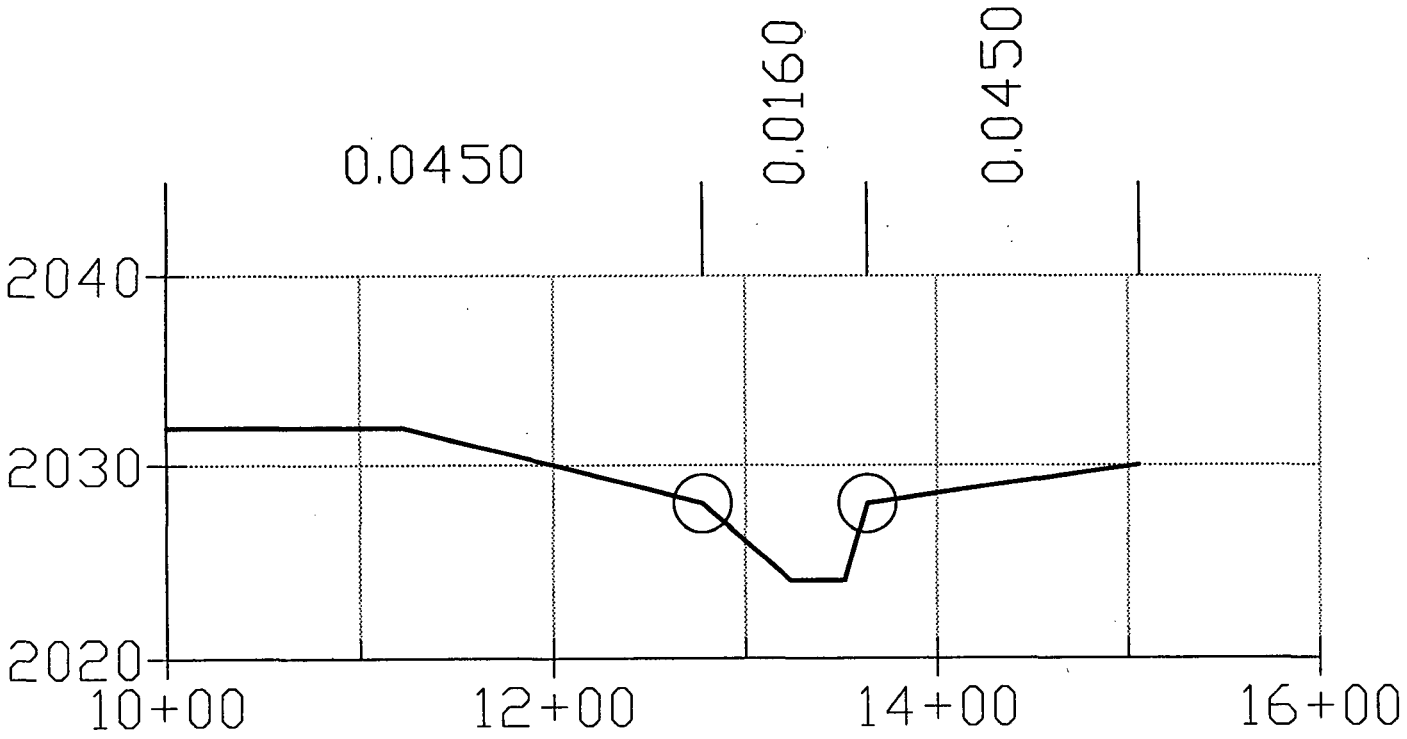



14700

UPSTREAM FACE OF WARM SPRINGS ROAD BRIDGE

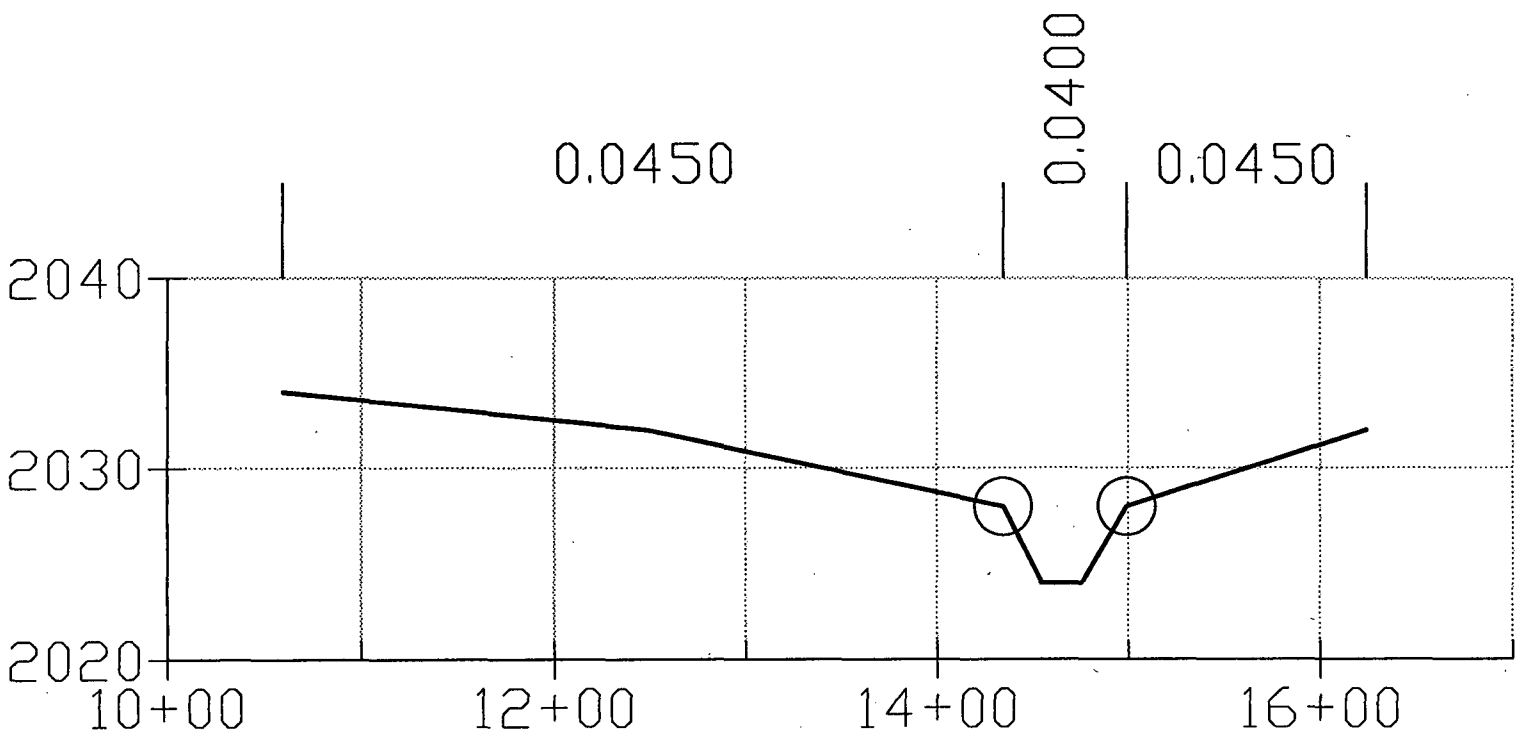



14800

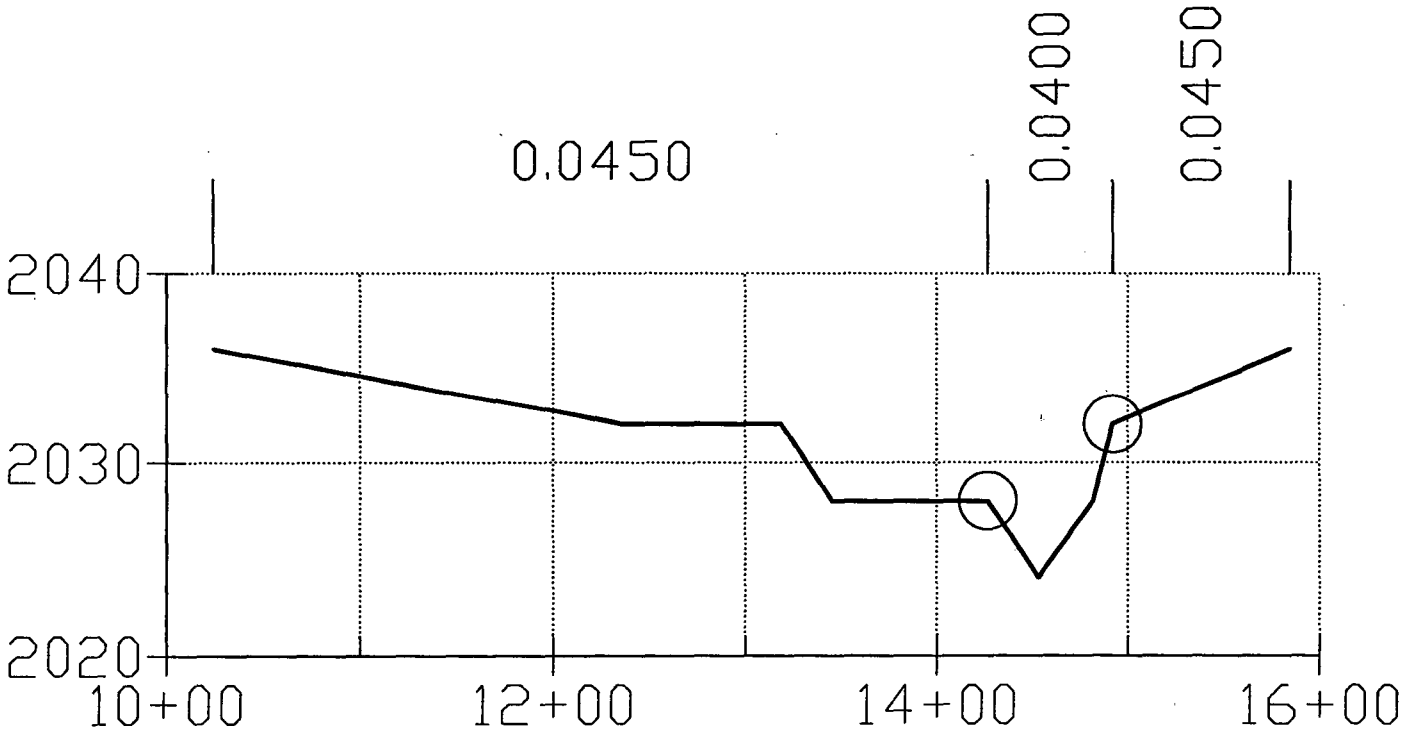



# 14900

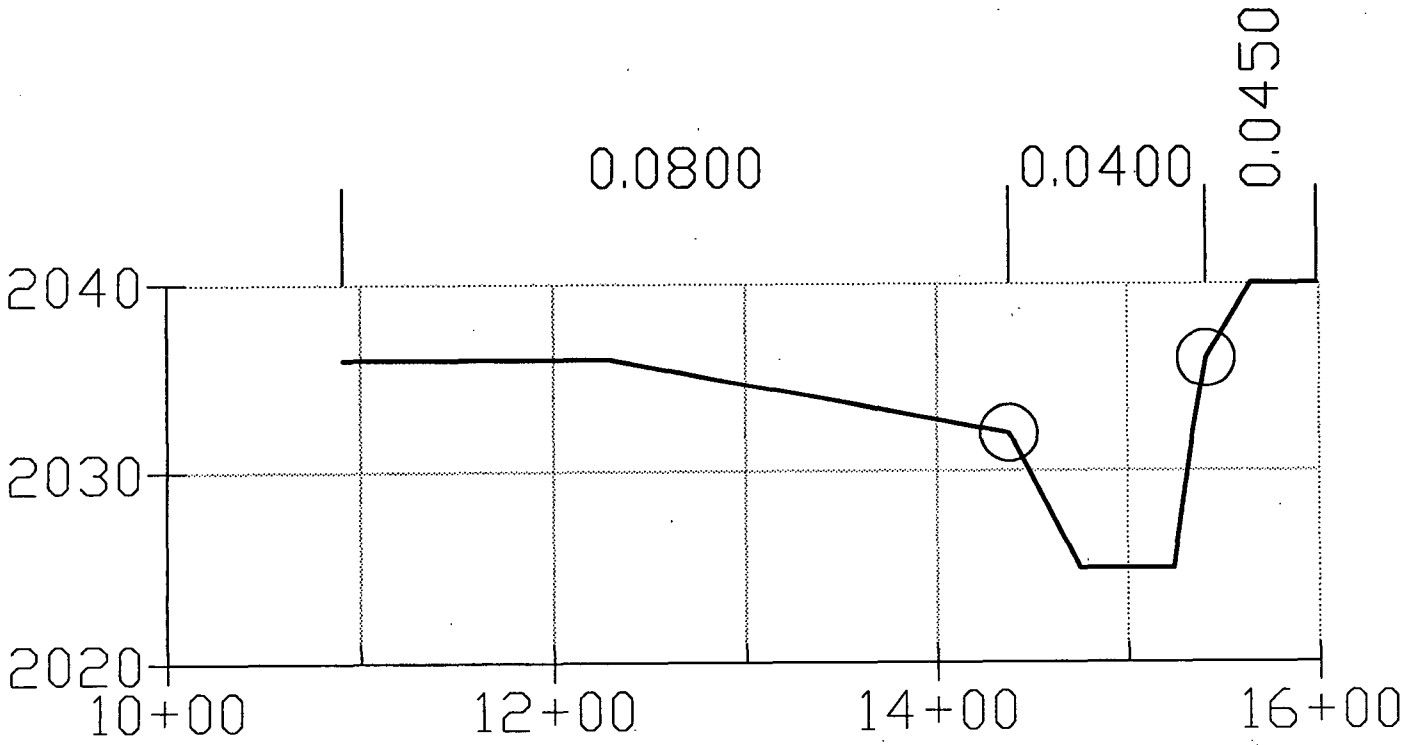
## CROSSING AT TOPAZ STREET



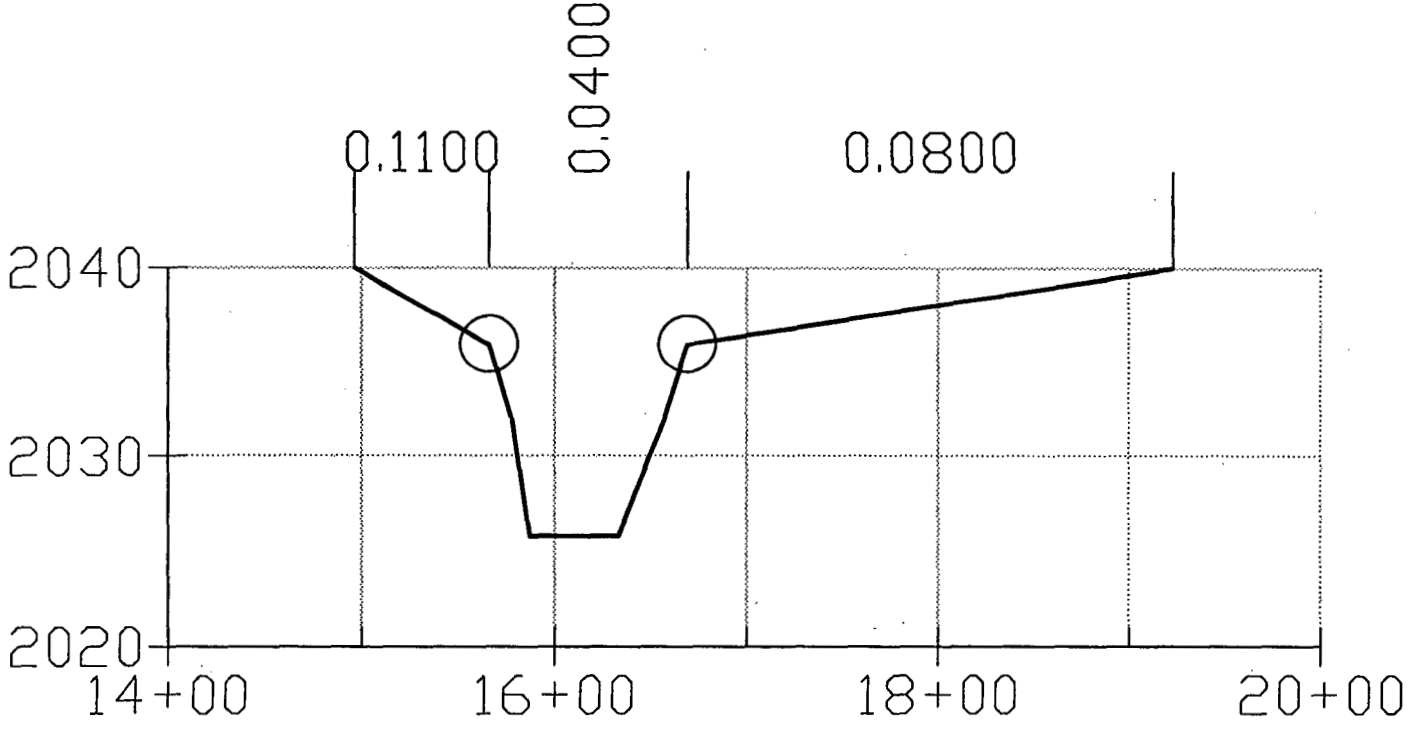

15000



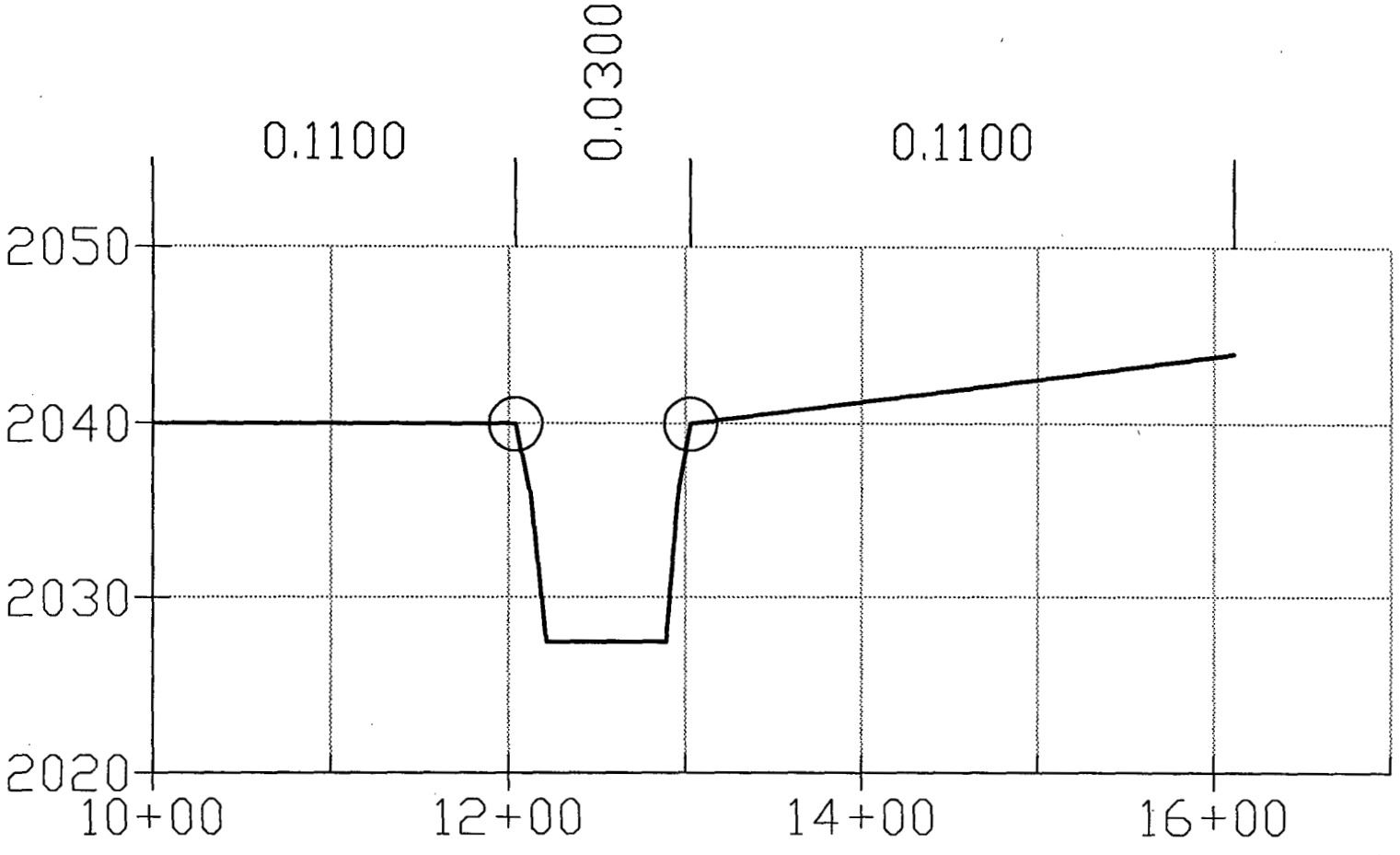

15100



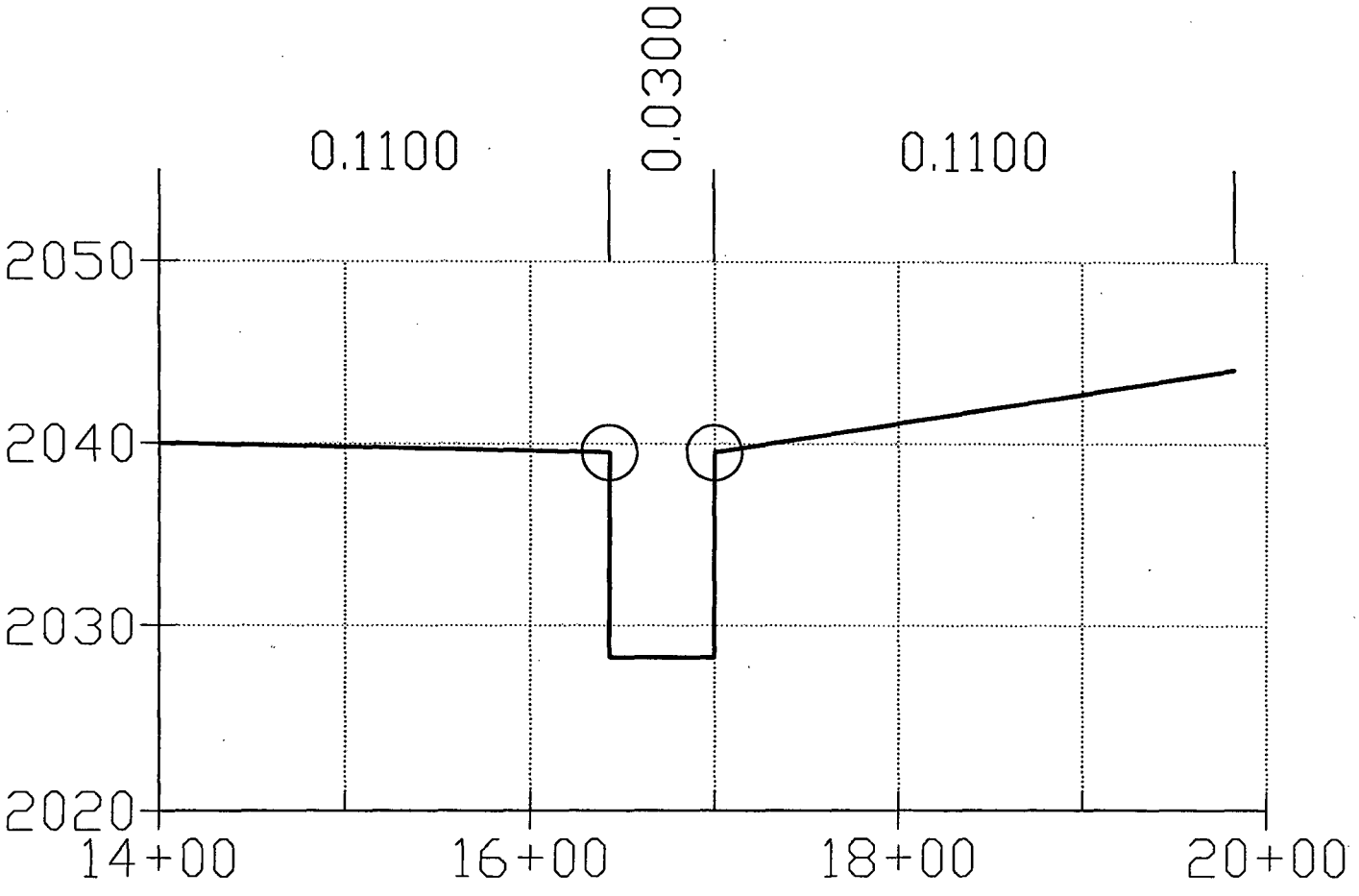

15200




15300

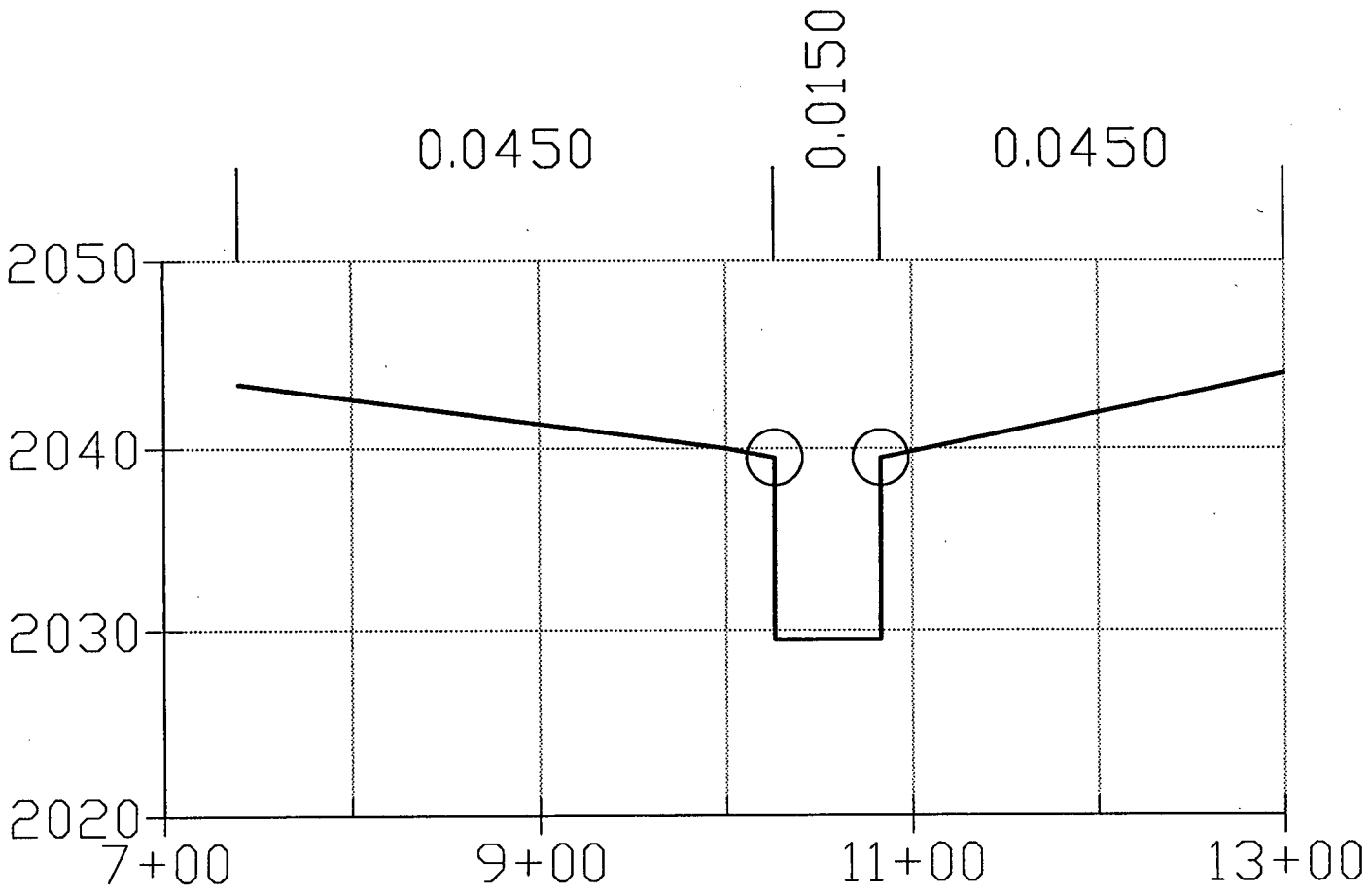



15400



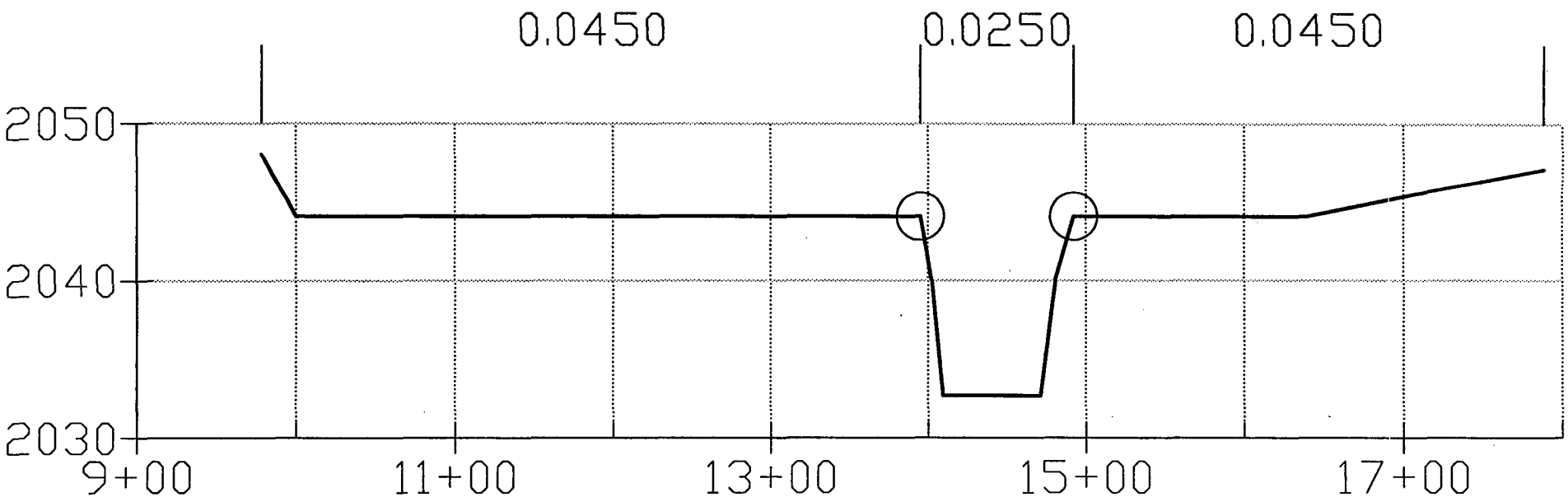

15500

DOWNSTREAM FACE OF EASTERN AVENUE BRIDGE

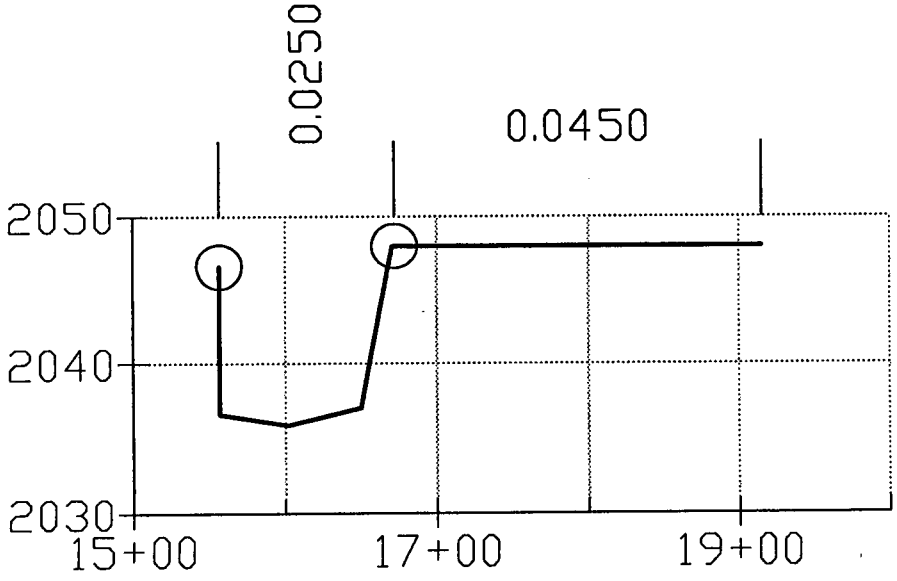



15600

UPSTREAM FACE OF EASTERN AVENUE BRIDGE




15700

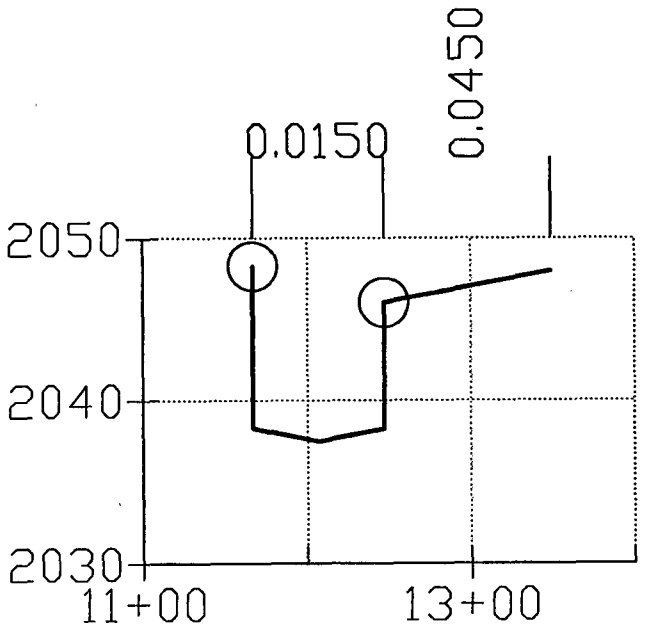



15800

AVIARA APARTMENTS CHANNEL IMPROVEMENTS - DOWNSTREAM END

PLANS STA 17+25

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

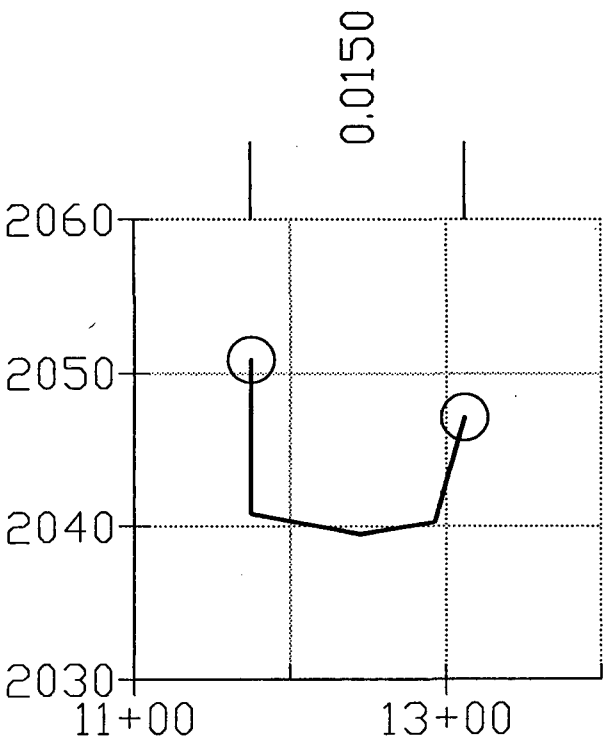



15900

AVIARA APARTMENTS CHANNEL IMPROVEMENTS

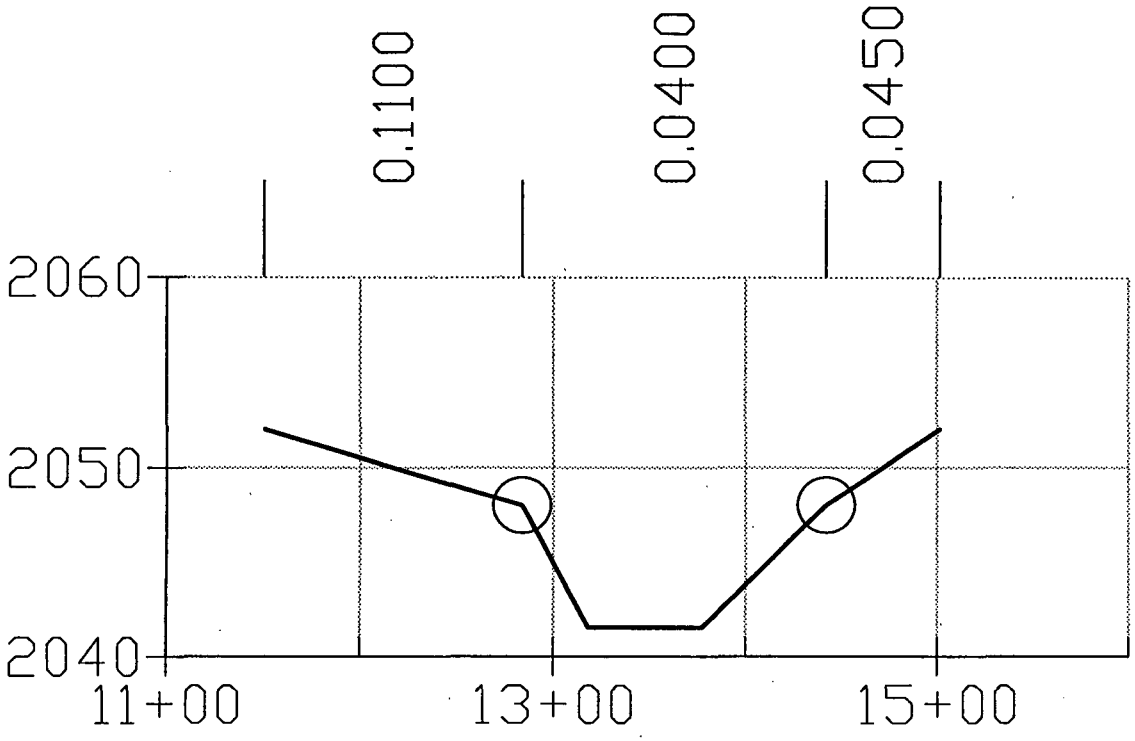
PLANS STA 14+00

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

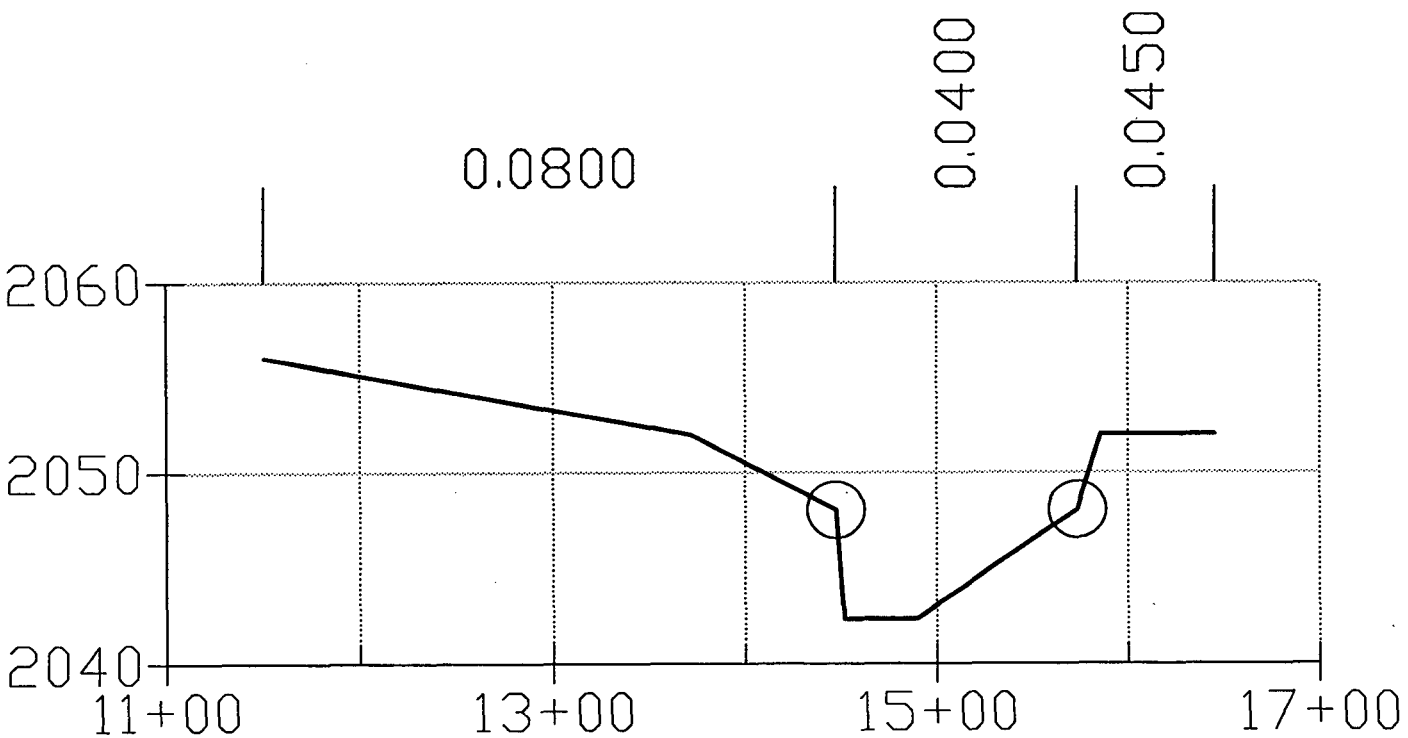



16000

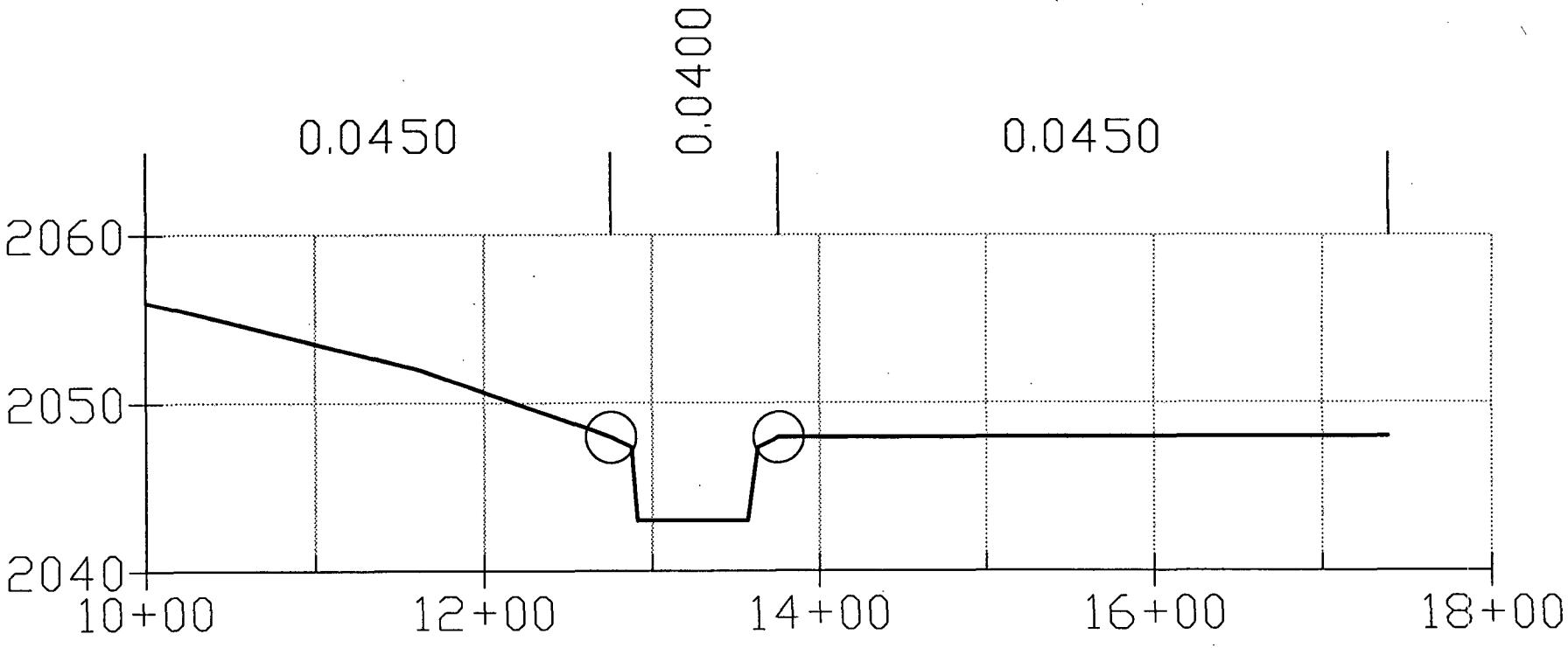
AVIARA APARTMENTS CHANNEL IMPROVEMENTS - UPSTREAM END
PLANS STA 10+50
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



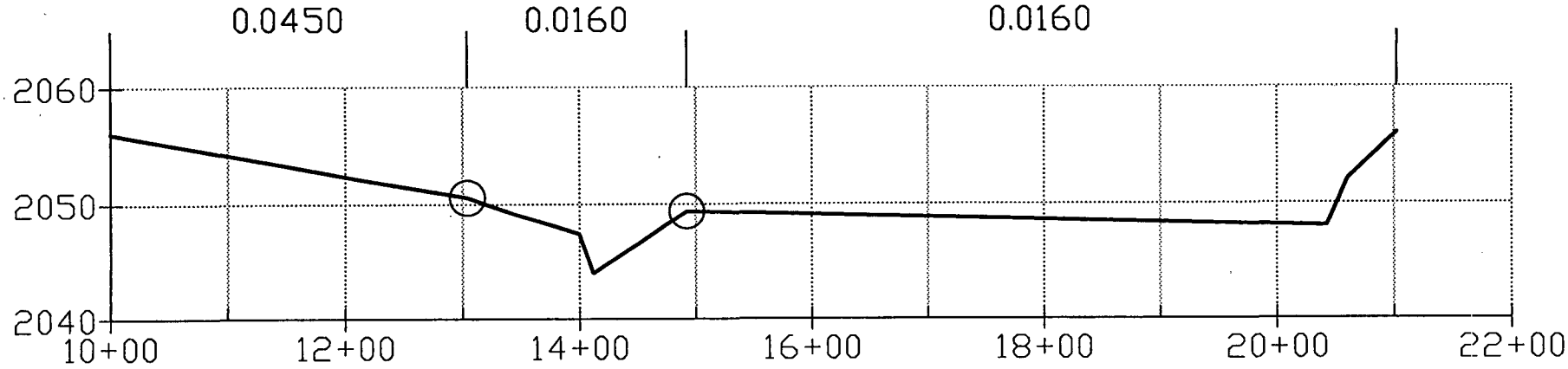

16100




16200

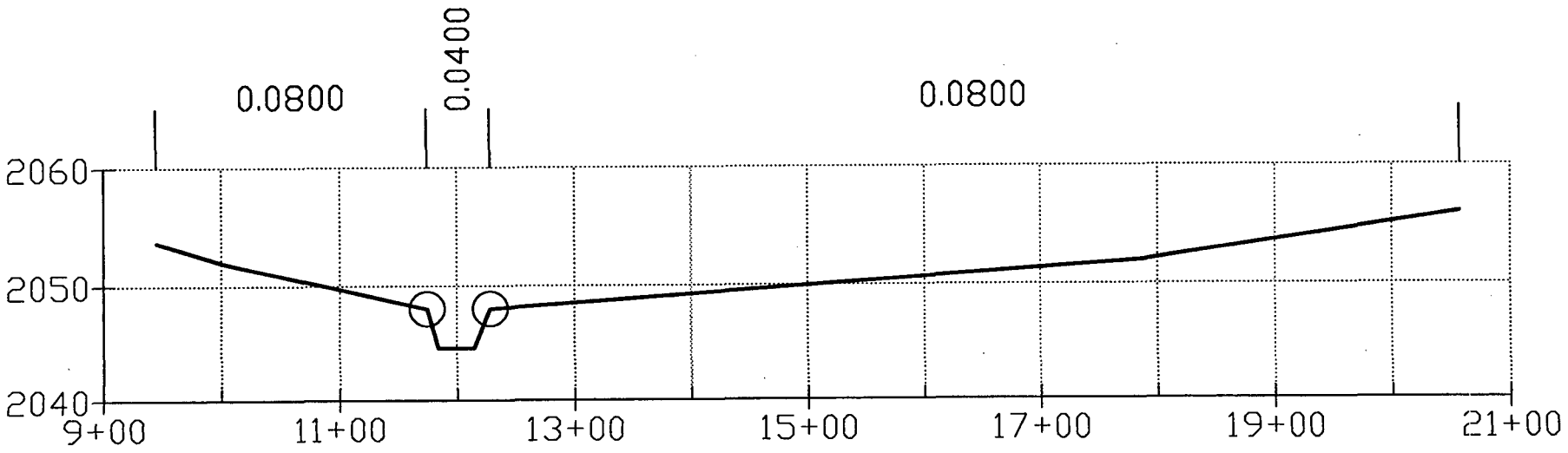



16300

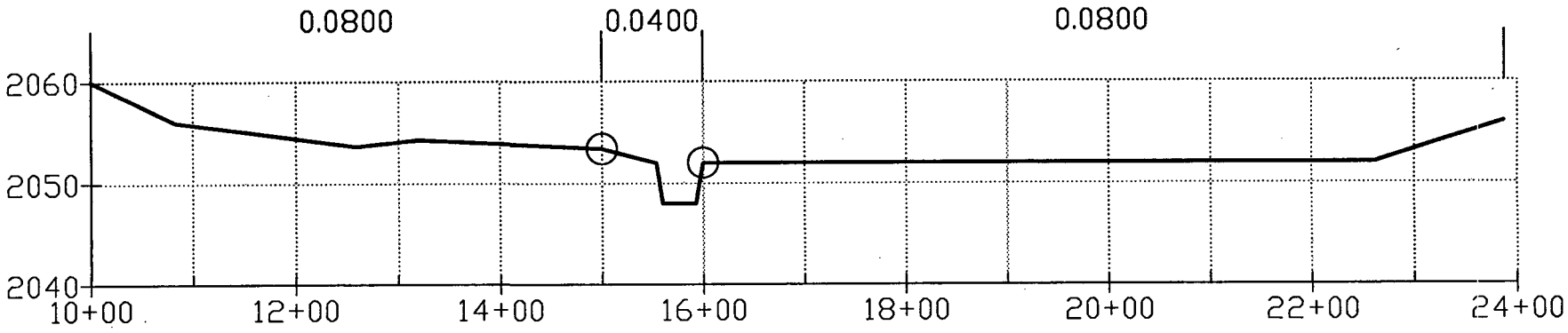



16400

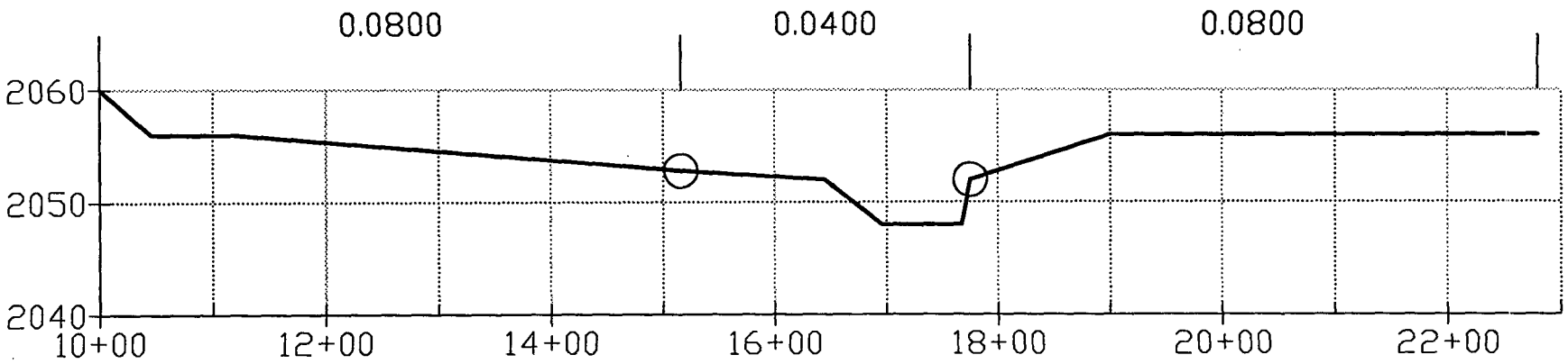
CROSSING AT ELDORADO LANE


0.0800
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2060
2050
2040
9+00
11+00
13+00
15+00
17+00
19+00
21+00

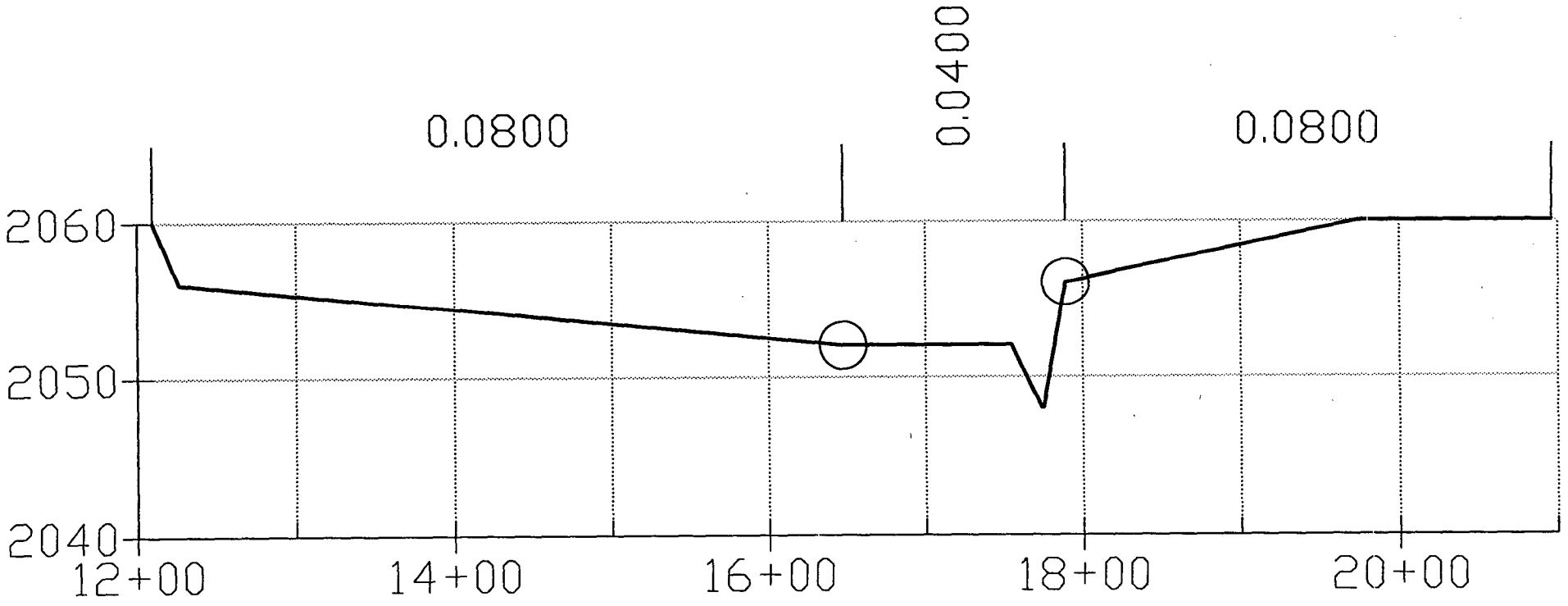
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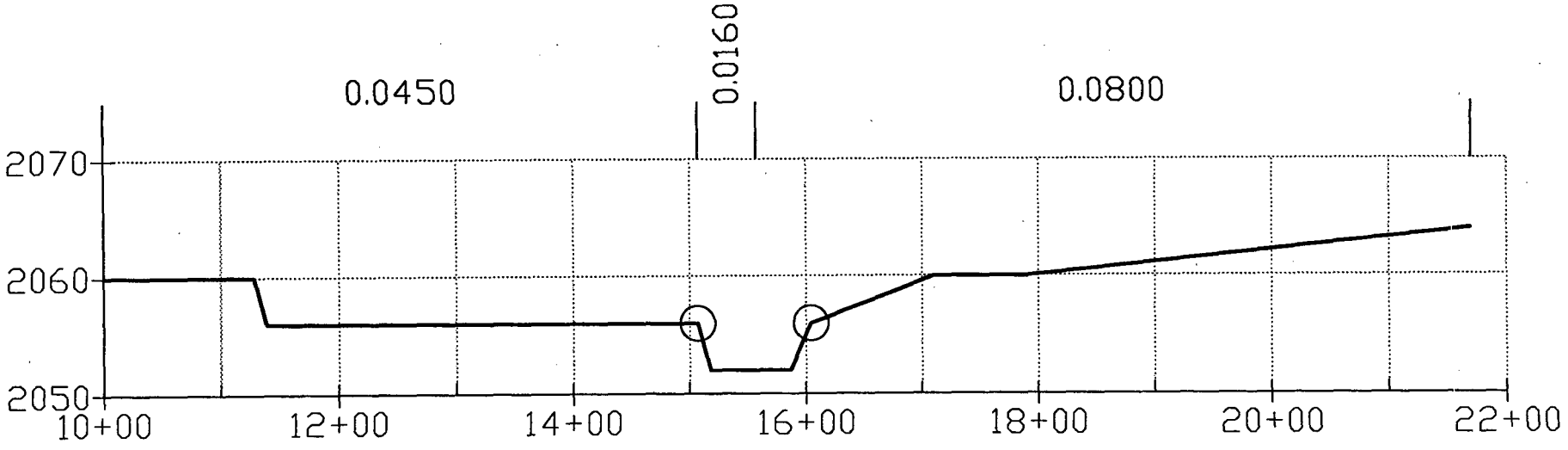
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16700

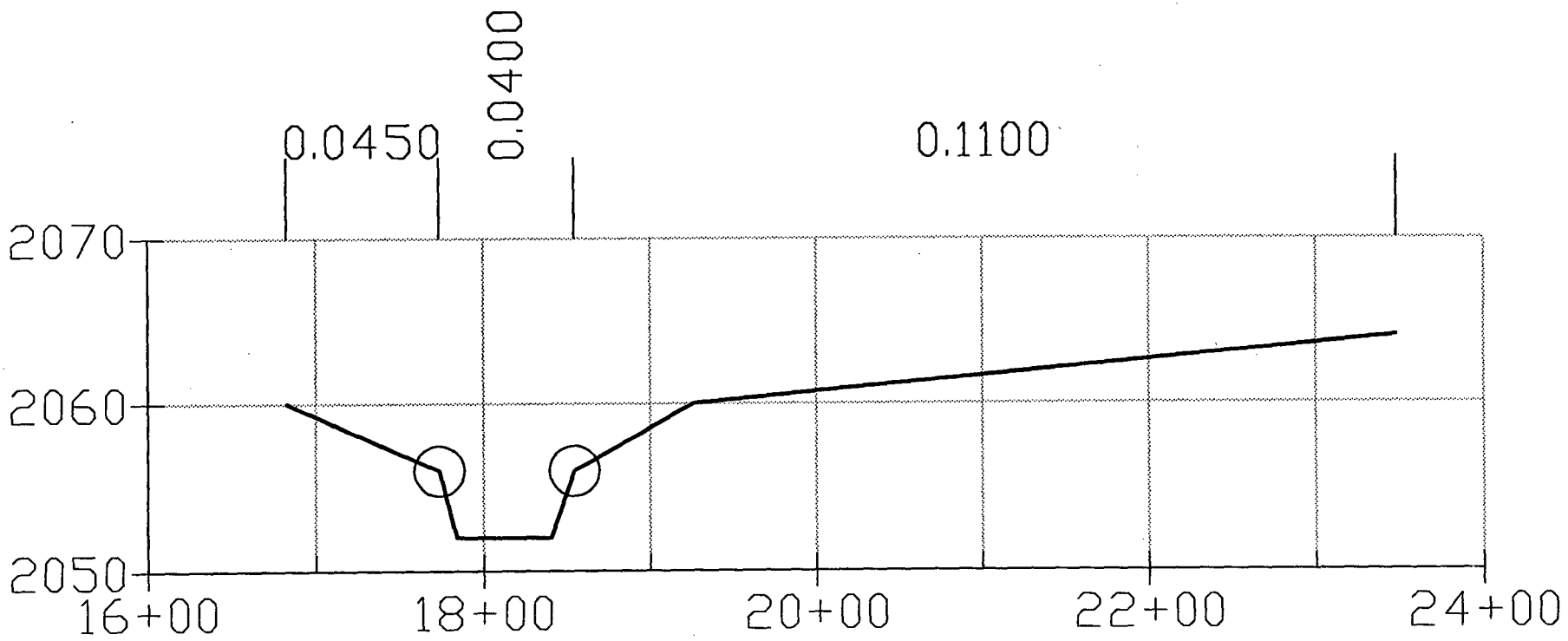



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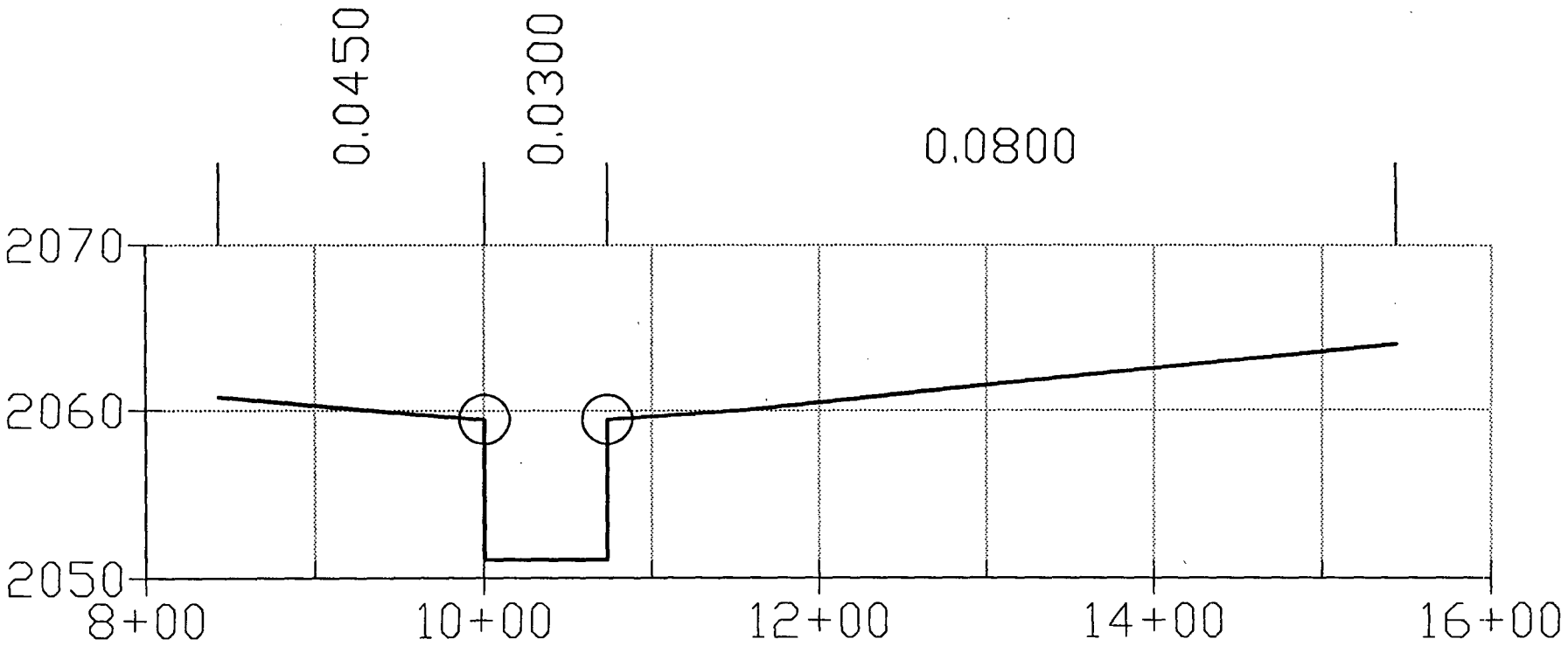



16900

CROSSING AT SURESTE AVENUE

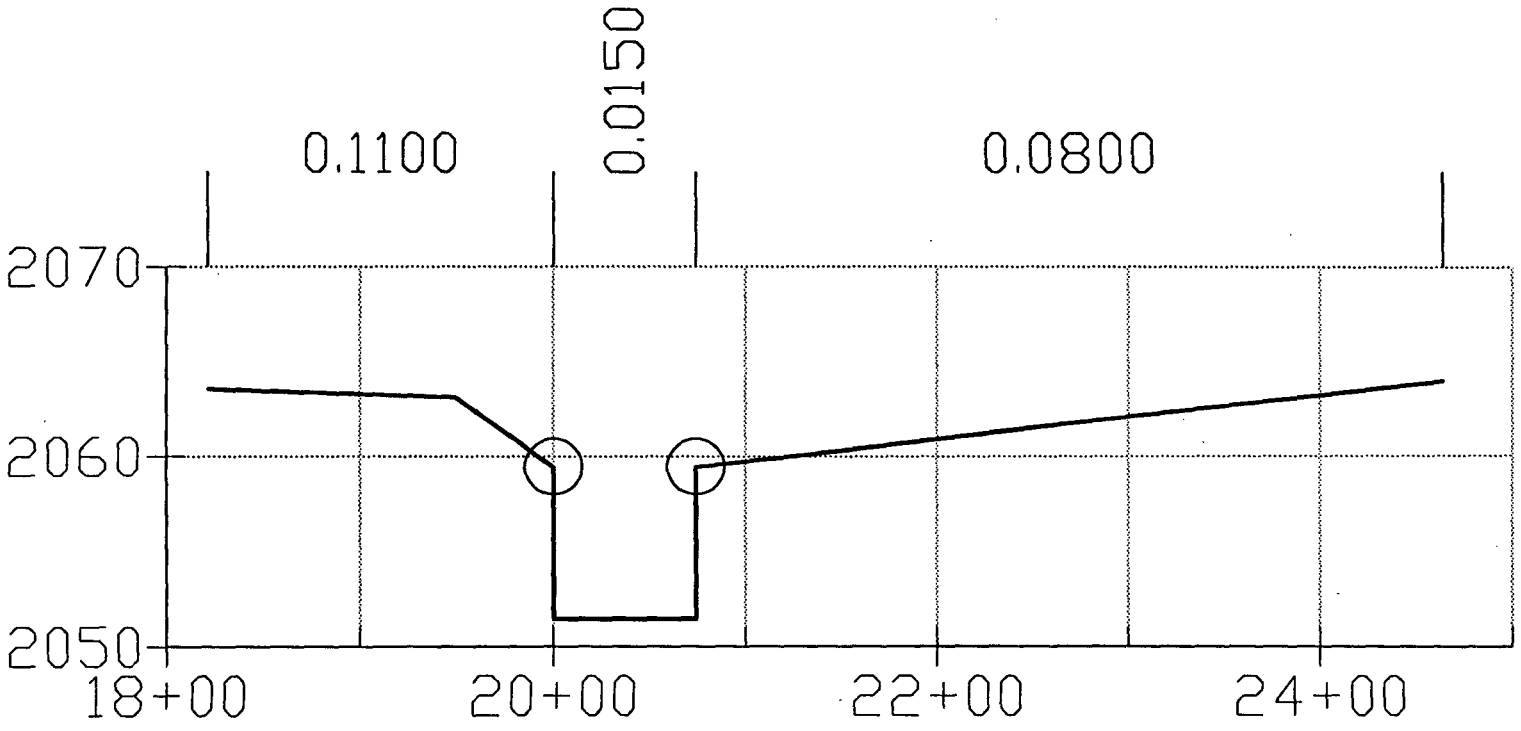



17000



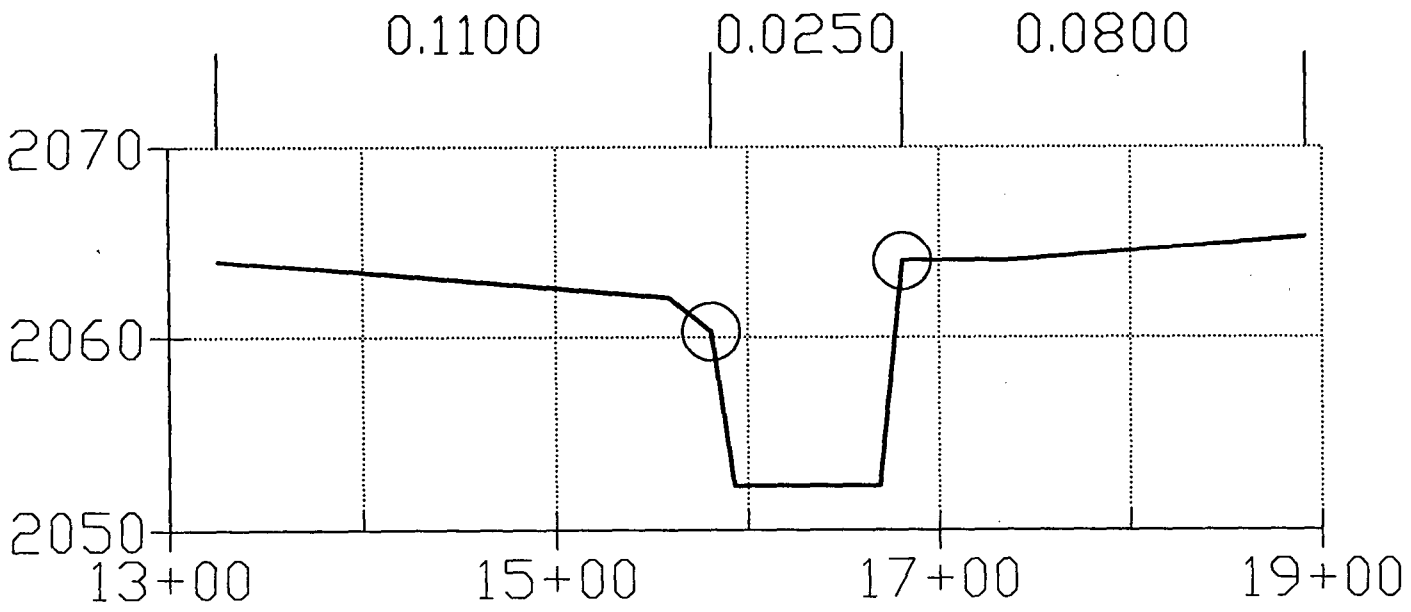

17100

DOWNSTREAM FACE OF SPENCER AVENUE BRIDGE

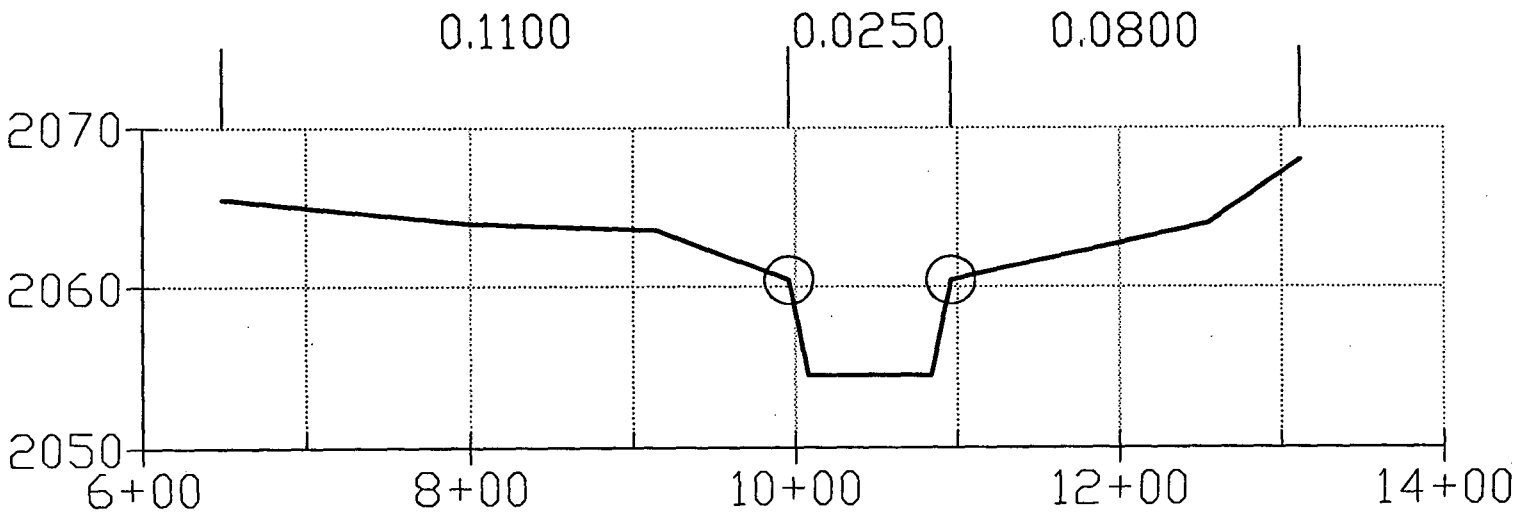



17200

UPSTREAM FACE OF SPENCER AVENUE BRIDGE




17300

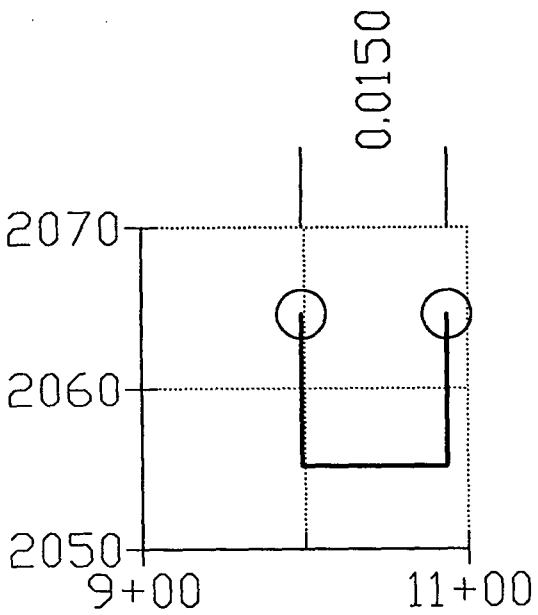



17400

TRANSITION DOWNSTREAM TRAP

PLANS STA 11+71.34

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

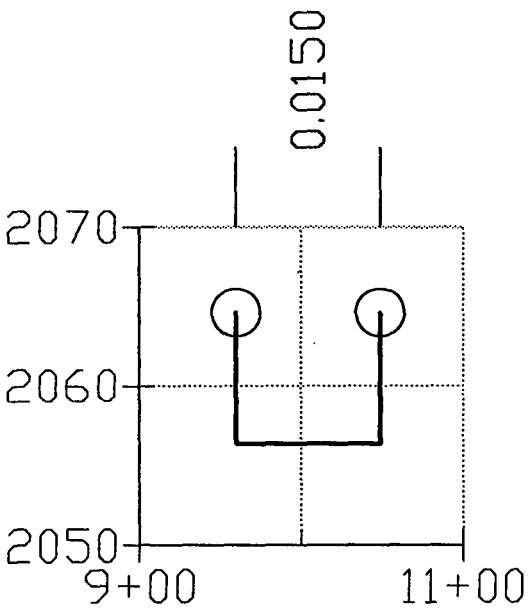



17500

DOWNSTREAM FACE OF ROBINDALE ROAD BRIDGE

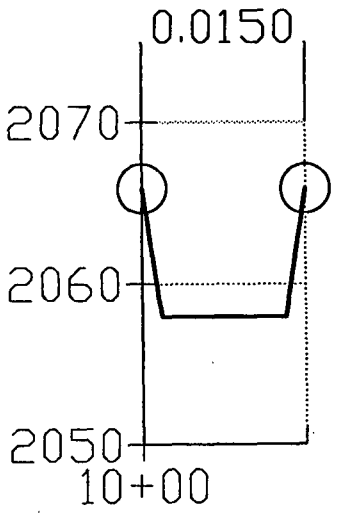
PLANS STA 10+58.14

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




17600

UPSTREAM FACE OF ROBINDALE ROAD BRIDGE
PLANS STA 9+41.87
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

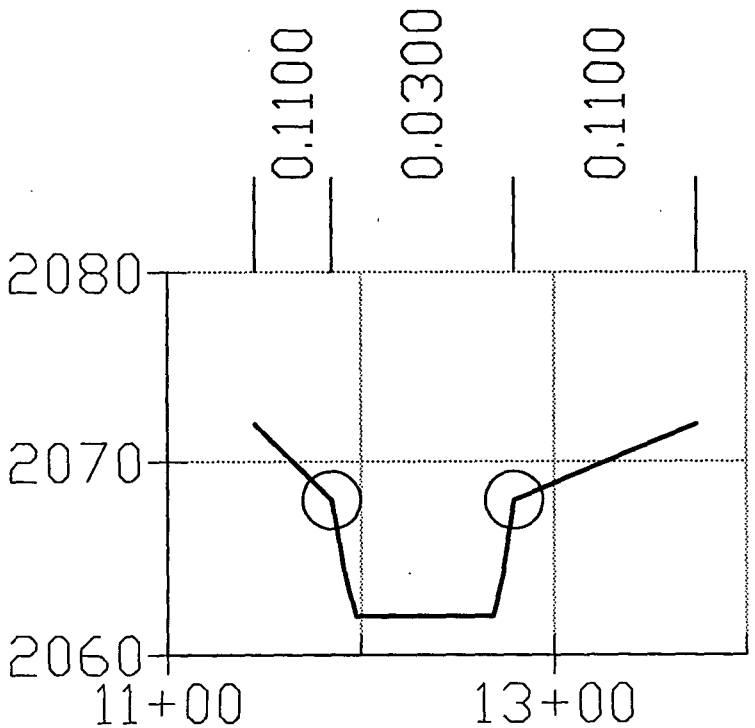



17700

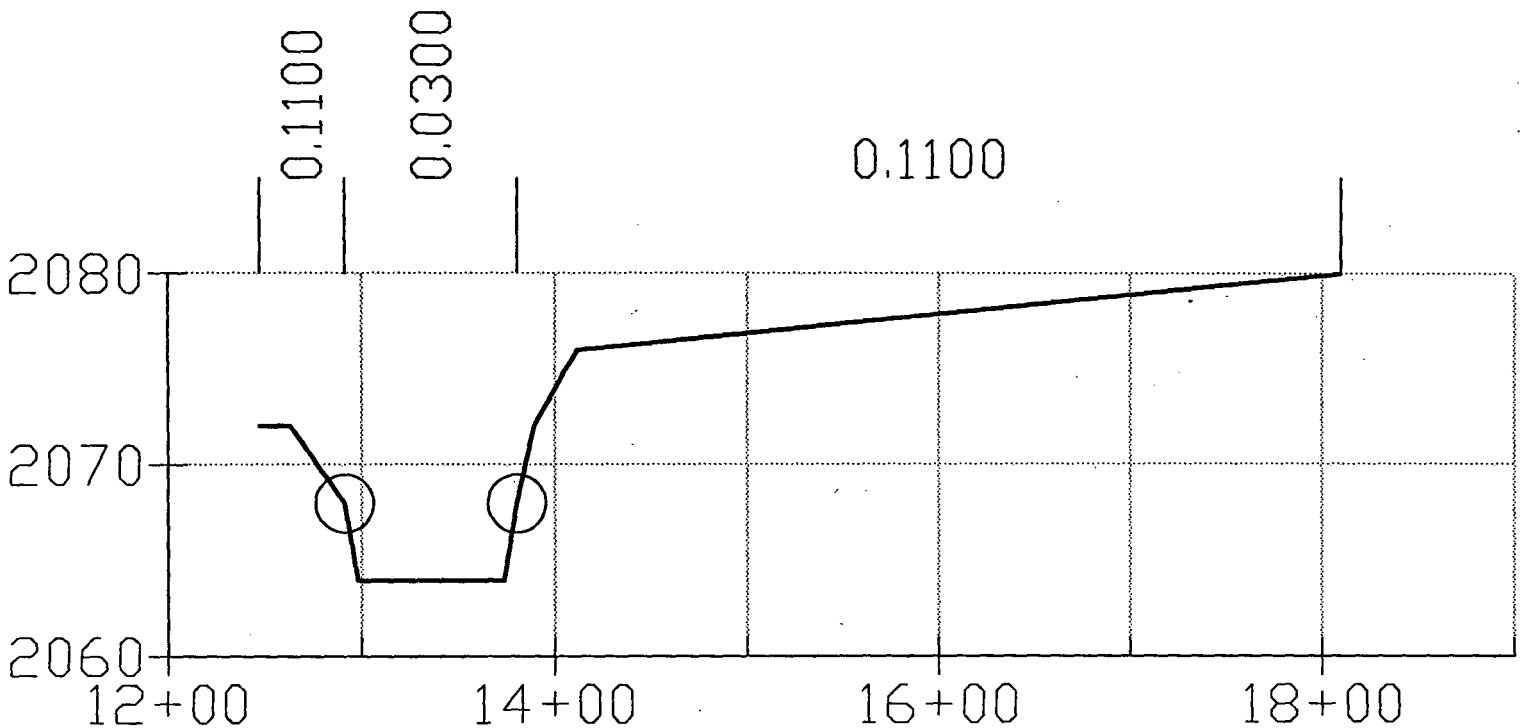
TRANSITION UPSTREAM TRAP

PLANS STA 8+24.89

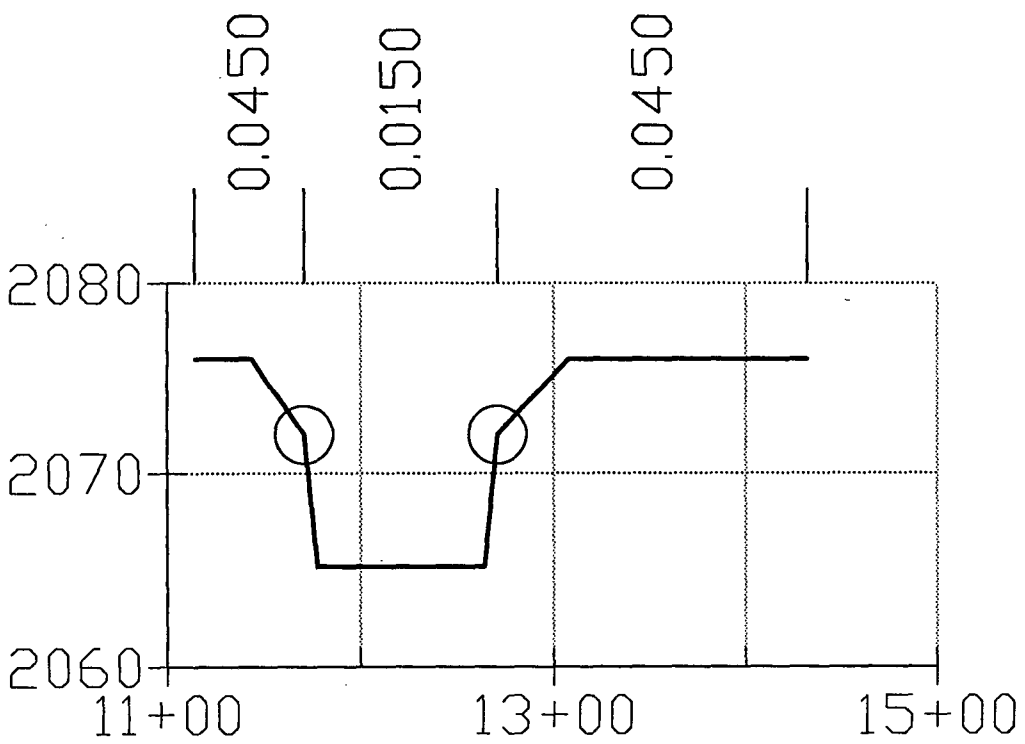
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



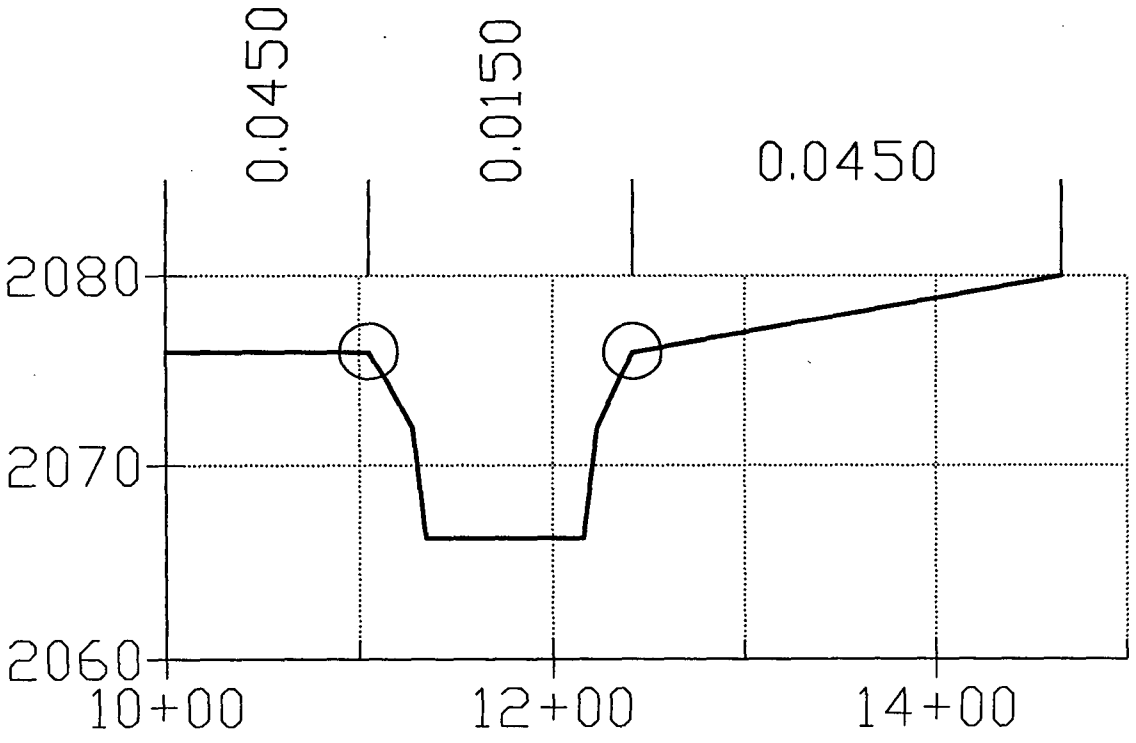

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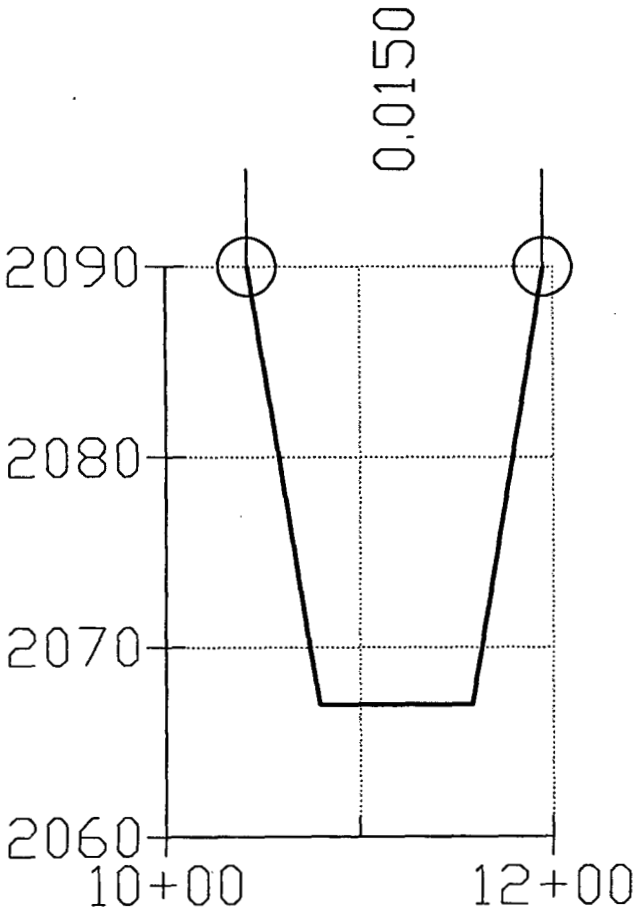

17900




18000

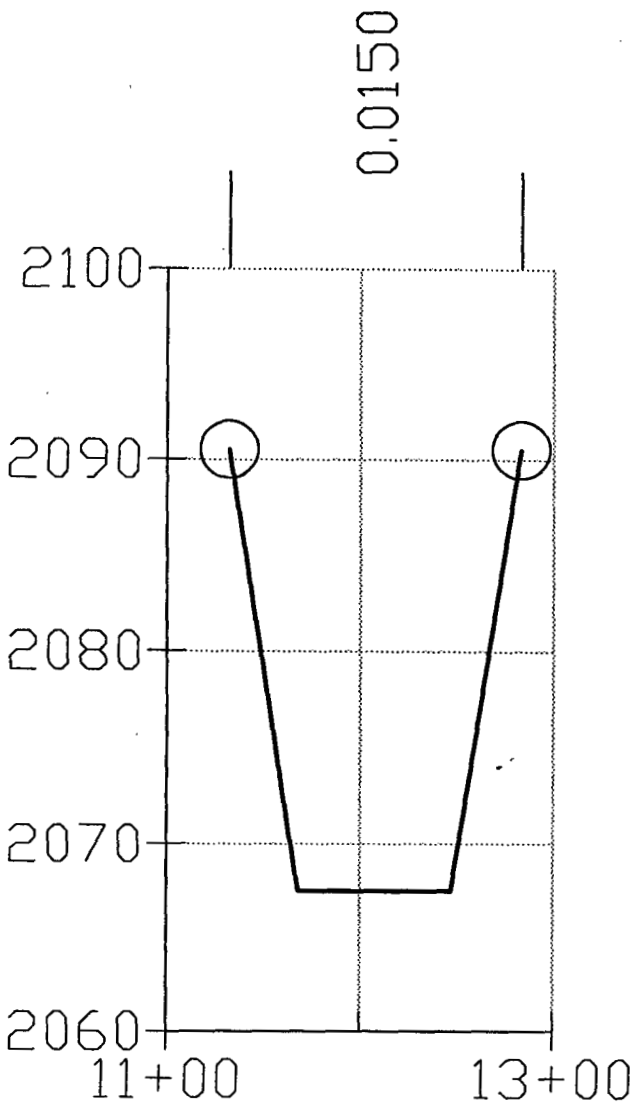



18100



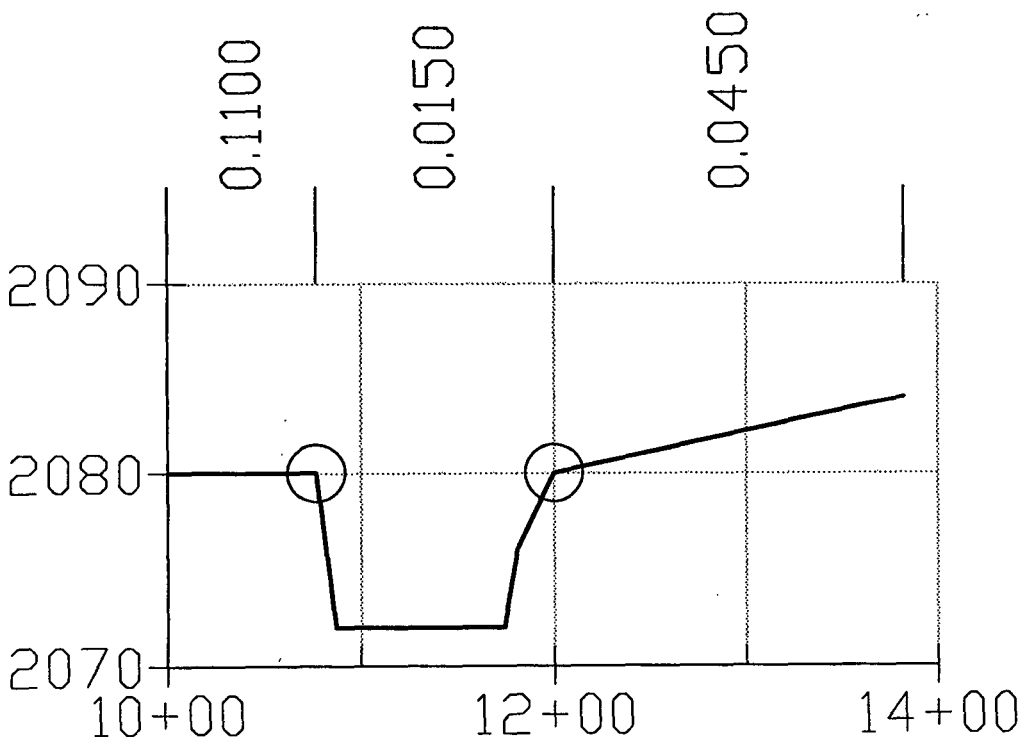

18200

DOWNSTREAM FACE OF I-215 BRIDGE

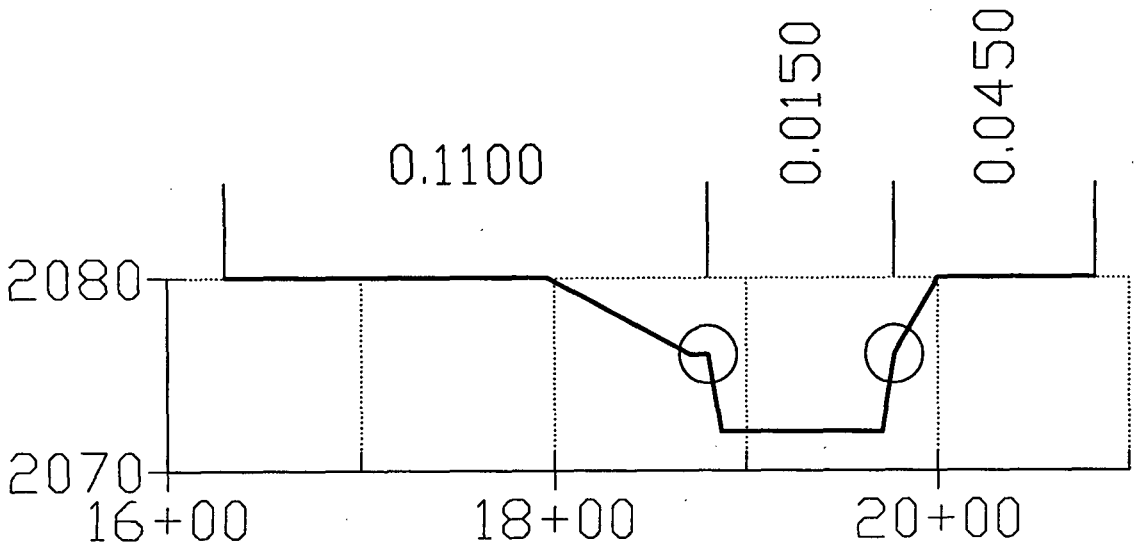



18300

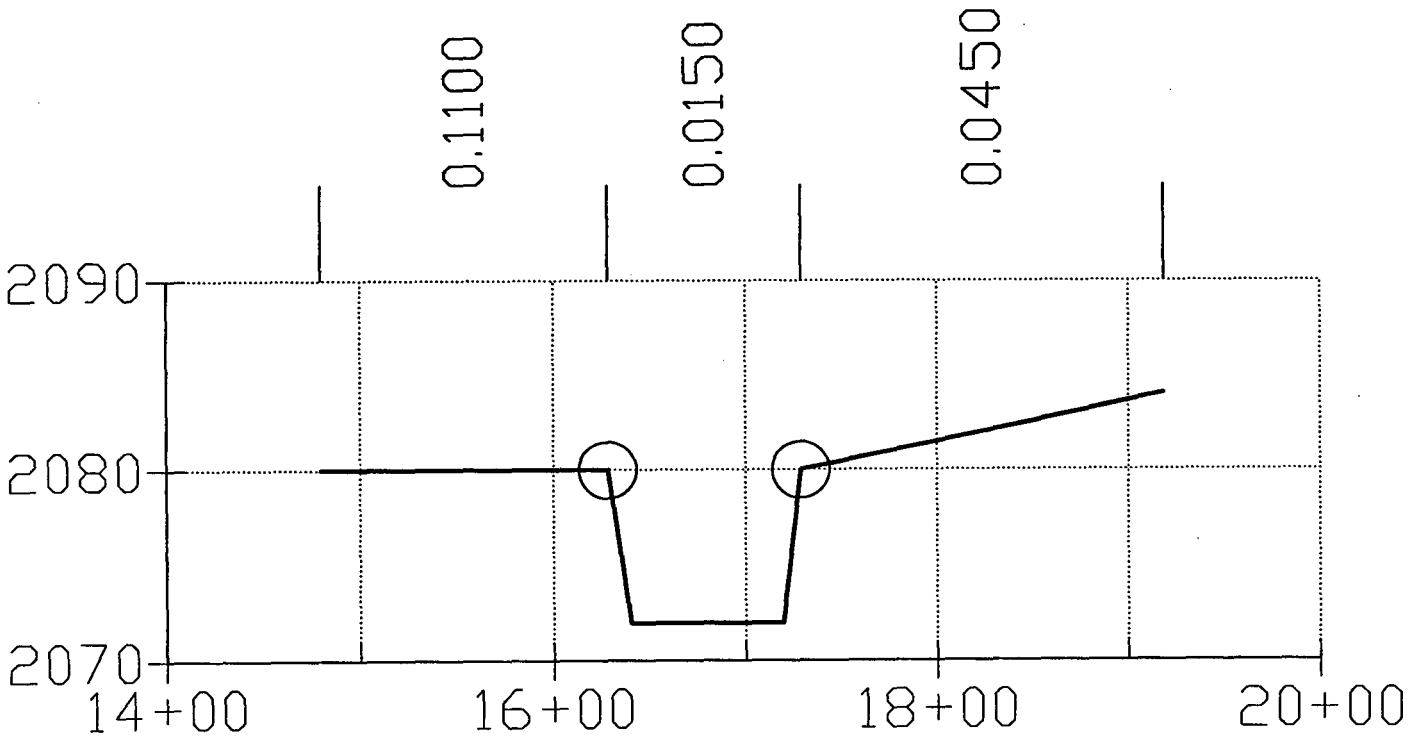
UPSTREAM FACE OF I-215 BRIDGE



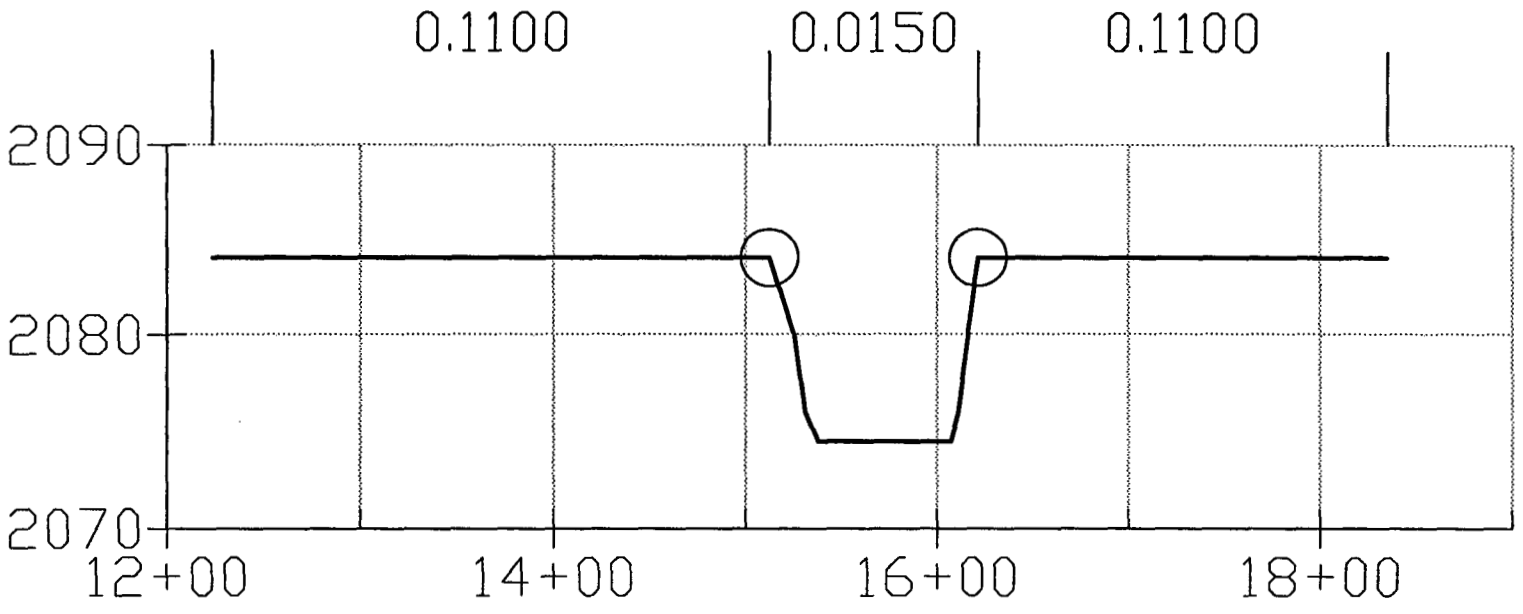

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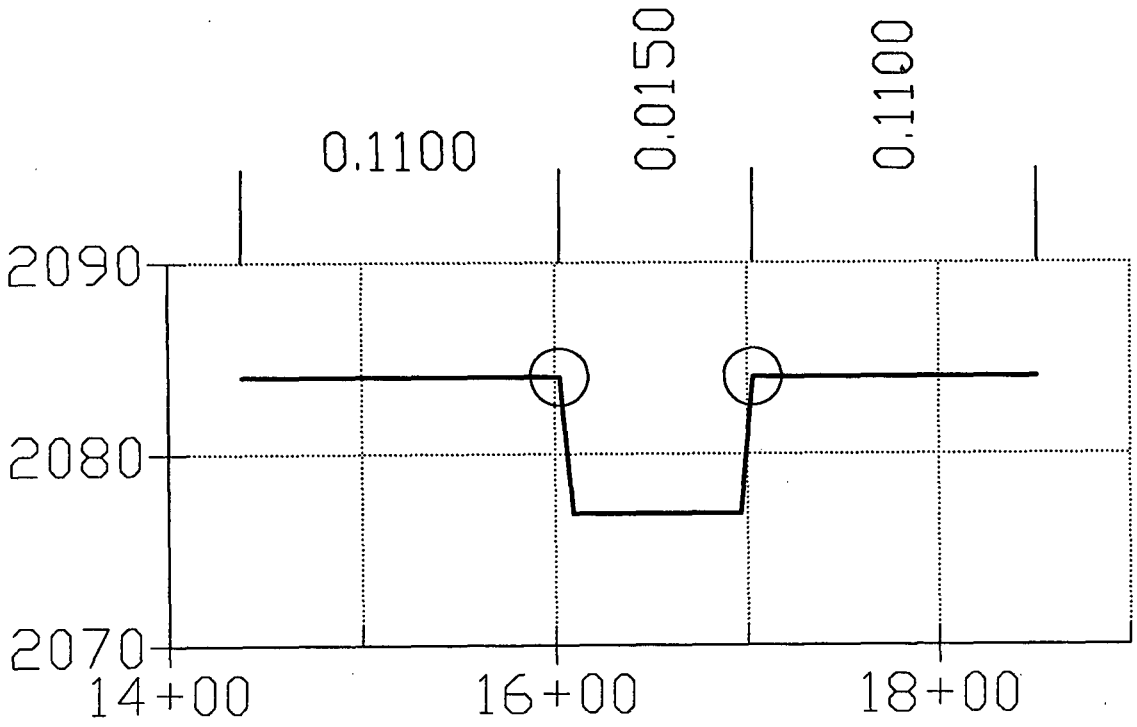

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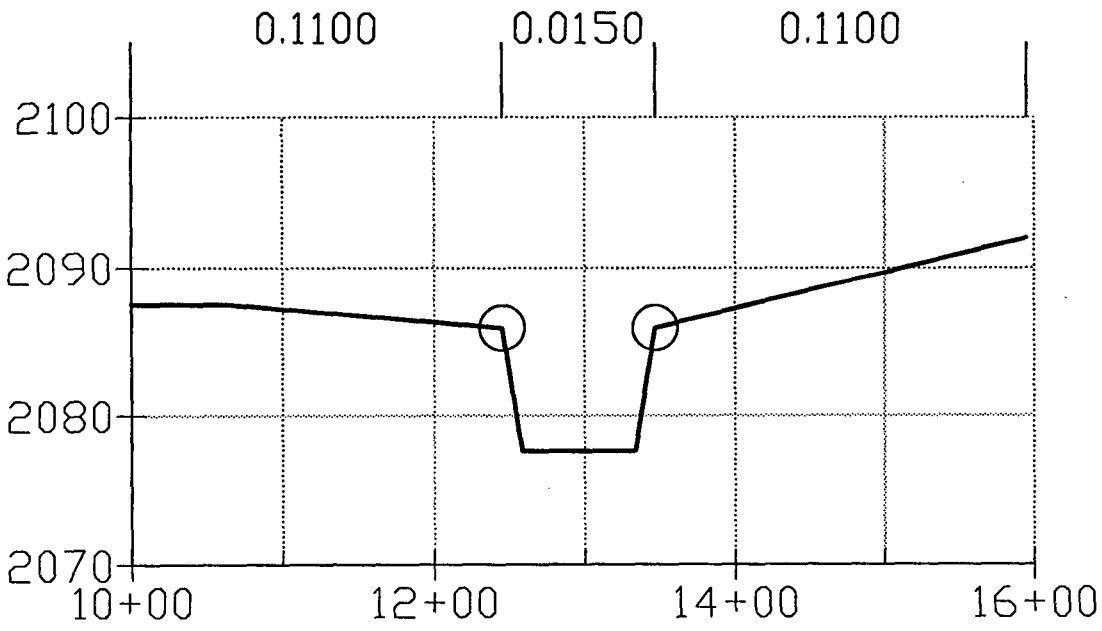

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18700

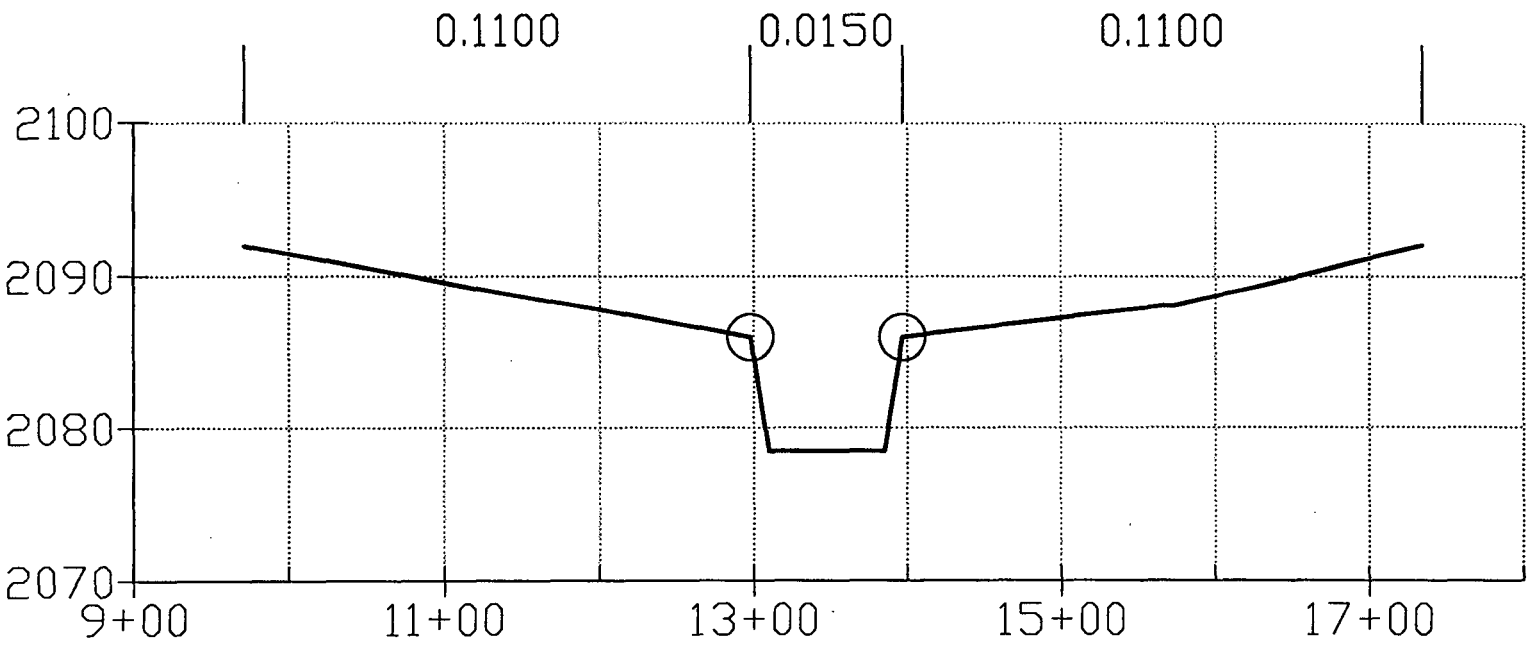



18800



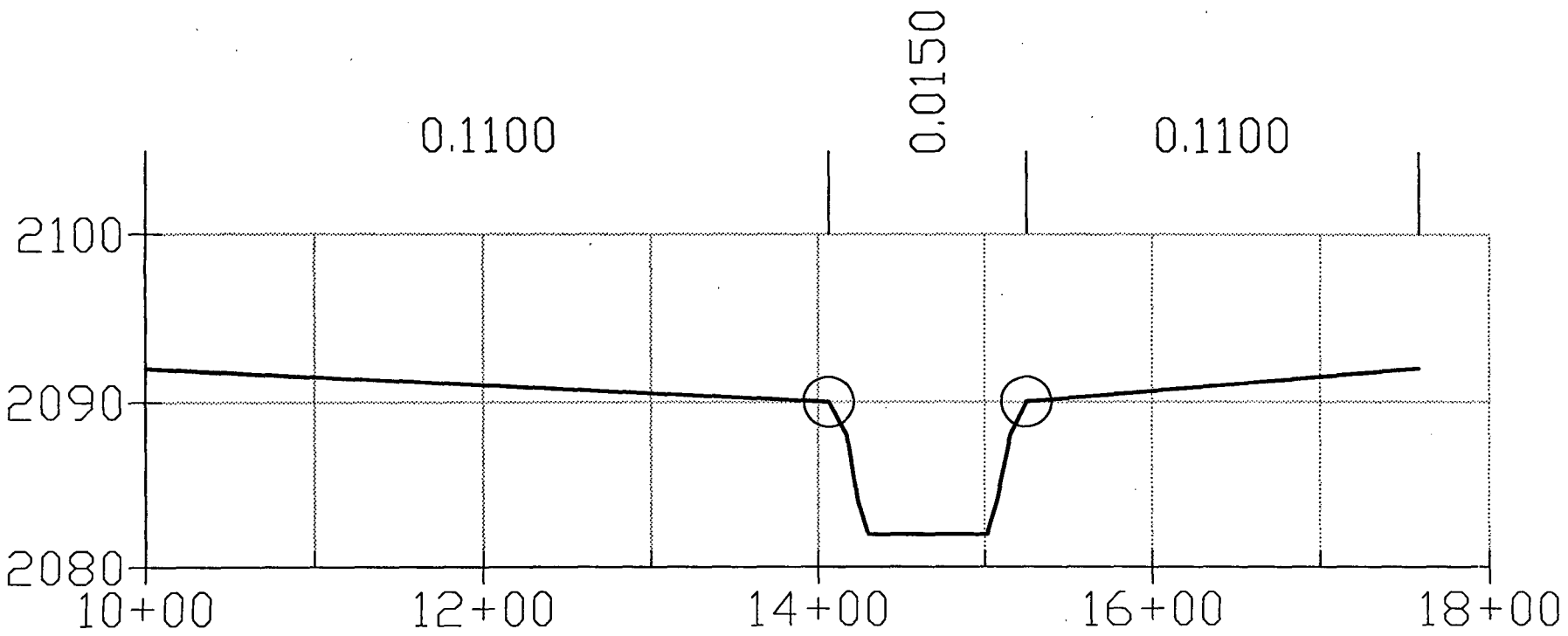

18900

DOWNSTREAM FACE OF PARADISE ROAD/MARYLAND PARKWAY BRIDGE

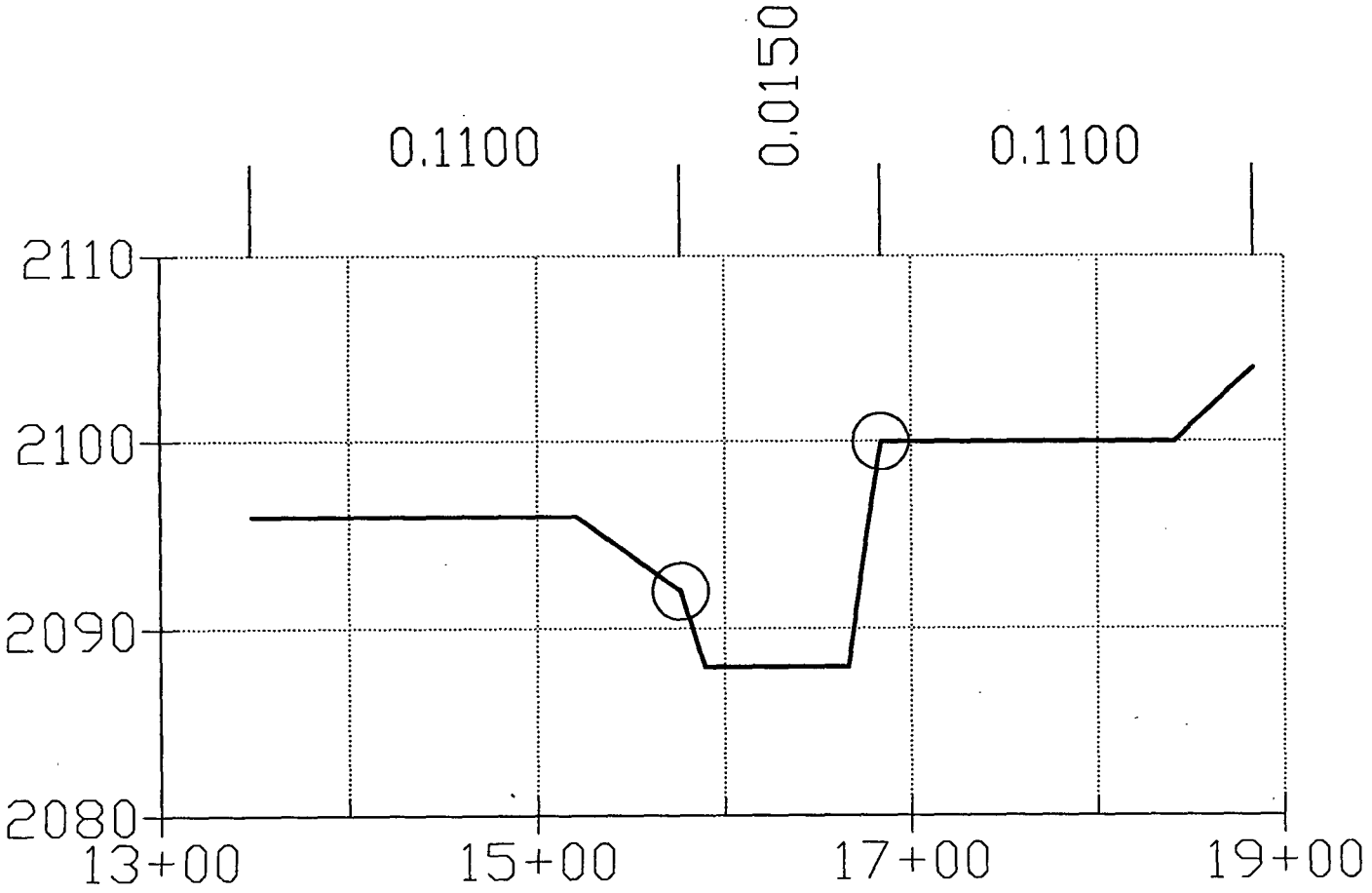



19000

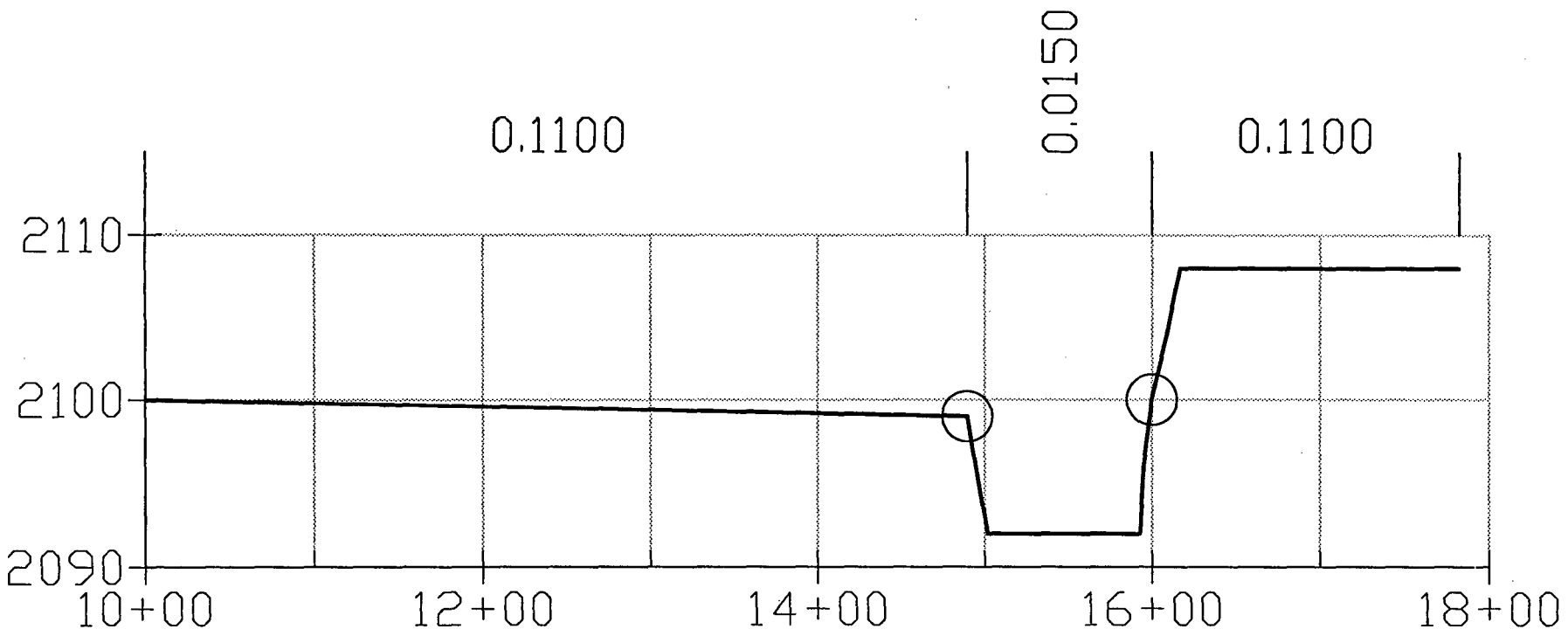
UPSTREAM FACE OF PARADISE ROAD/MARYLAND PARKWAY BRIDGE



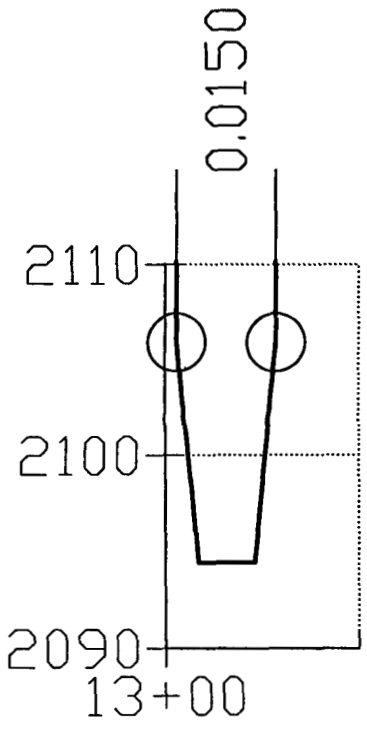

19100




19200

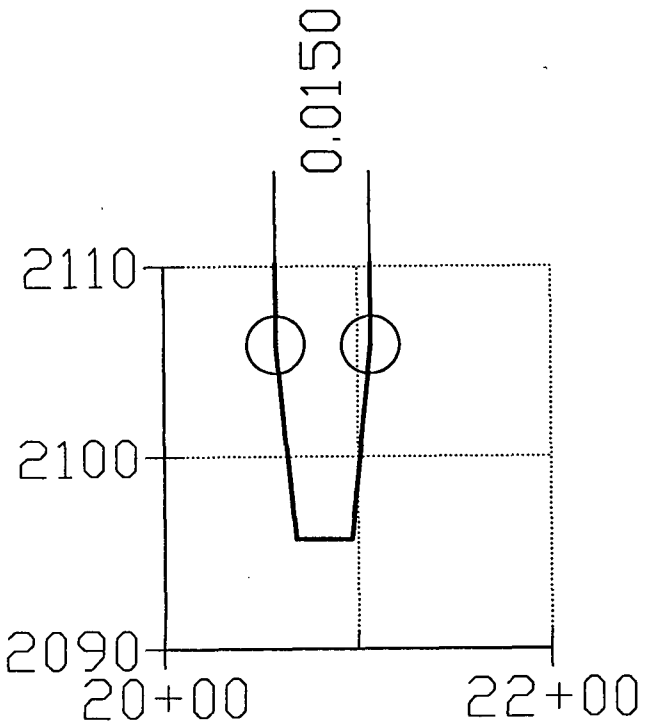



19300



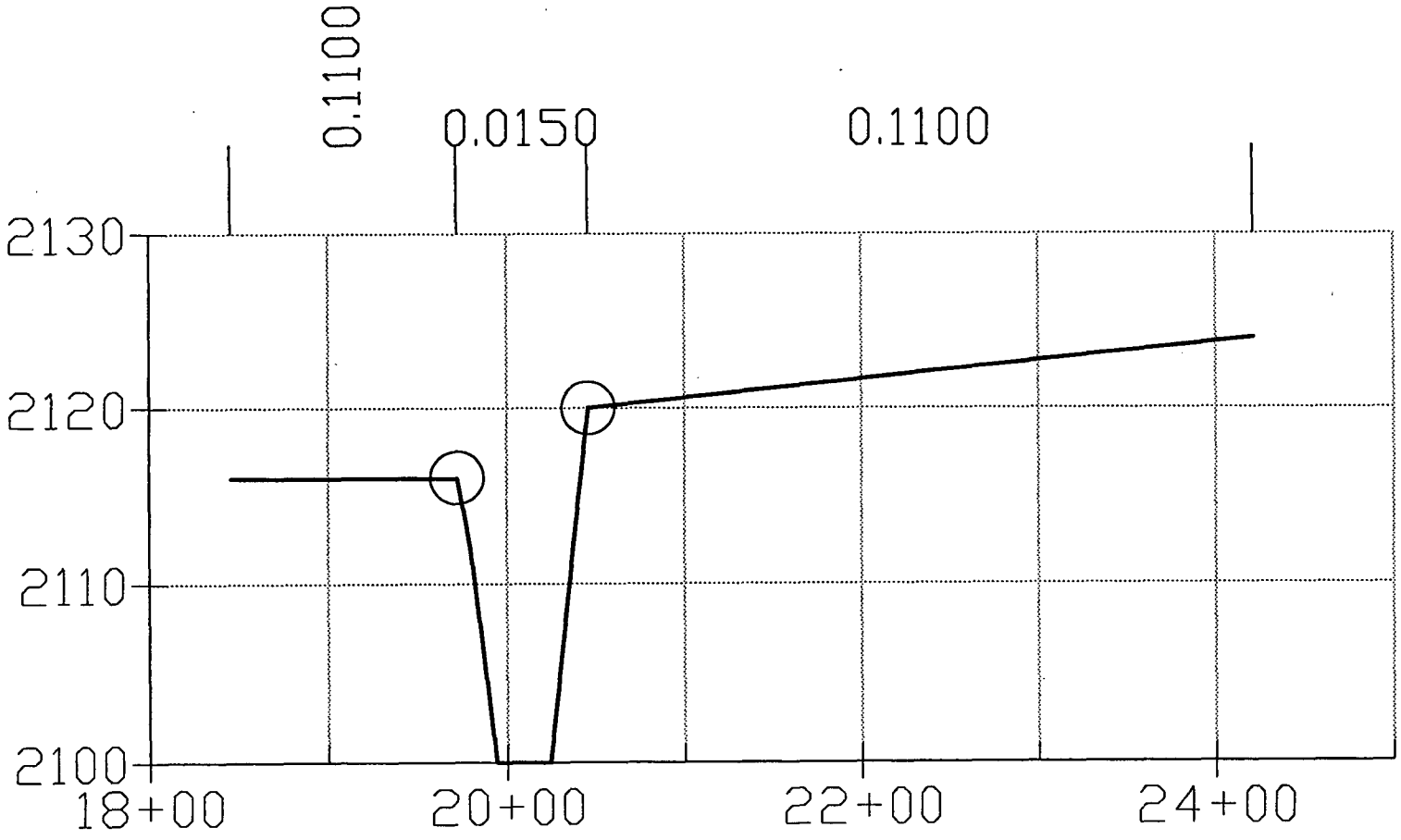

19400

DOWNSTREAM FACE OF WINDMILL LANE BRIDGE

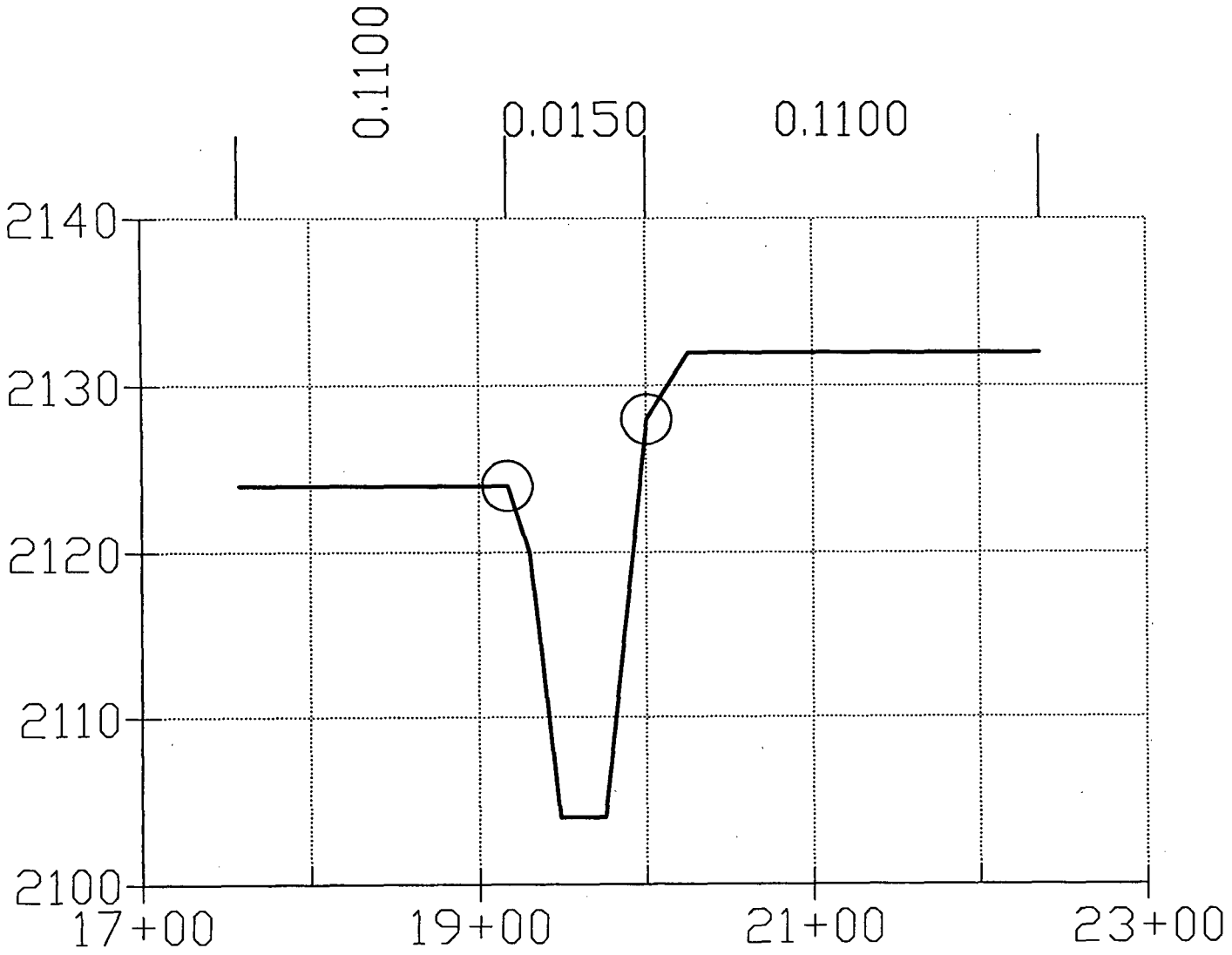



19500

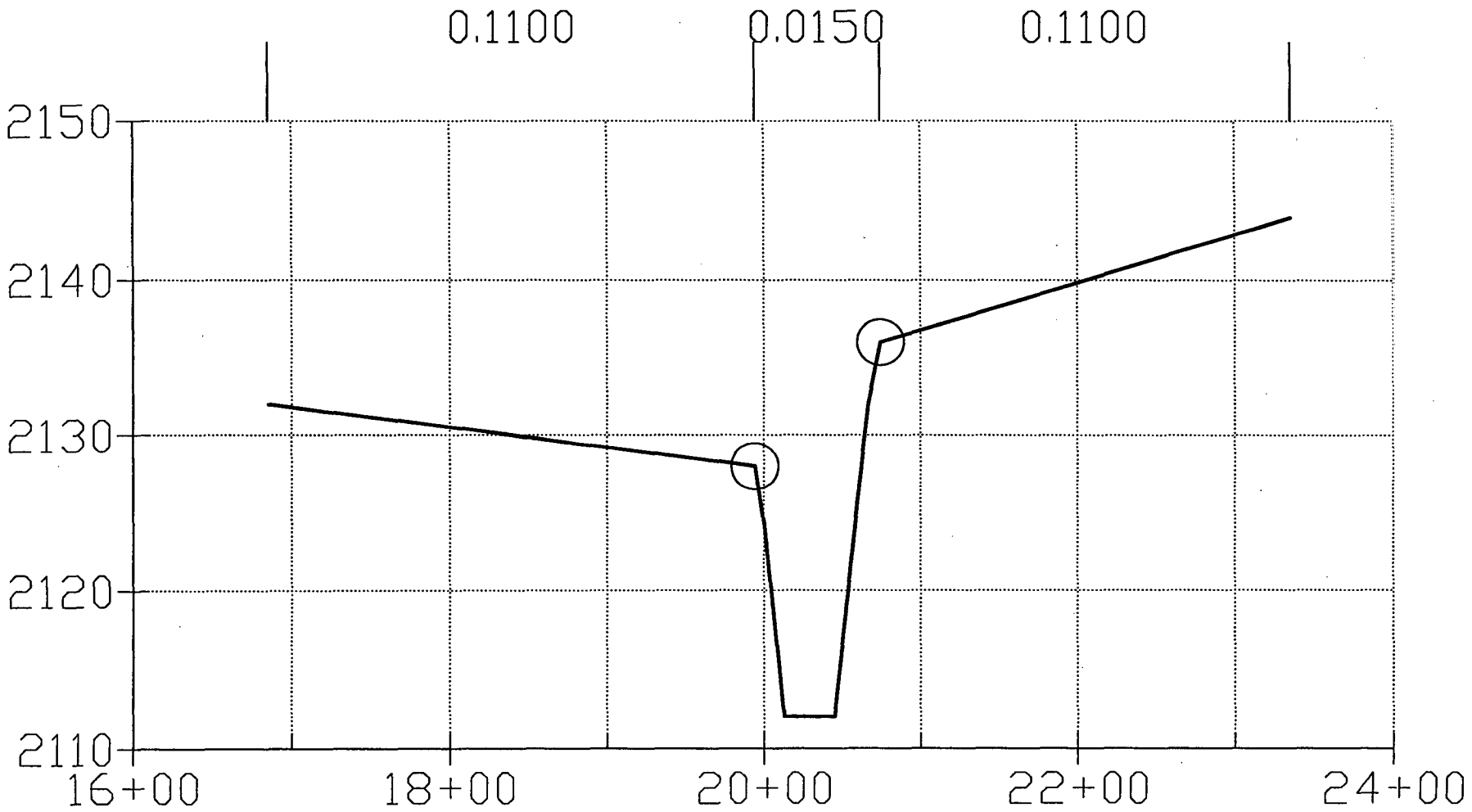
UPSTREAM FACE OF WINDMILL LANE BRIDGE



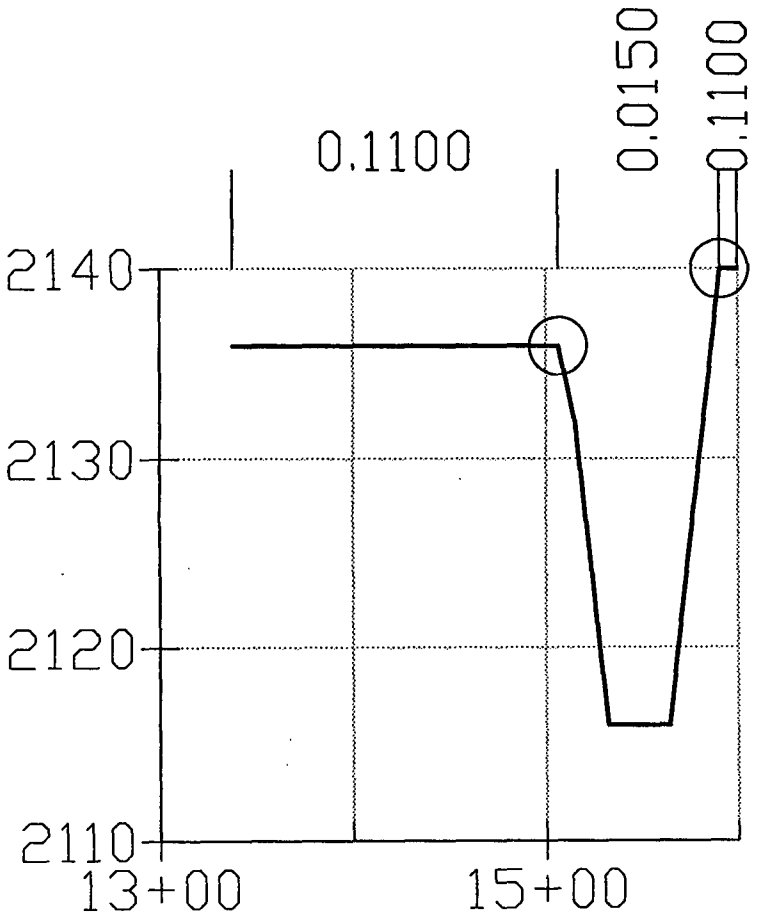

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0.1100
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2130
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2100
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19+00
21+00
23+00

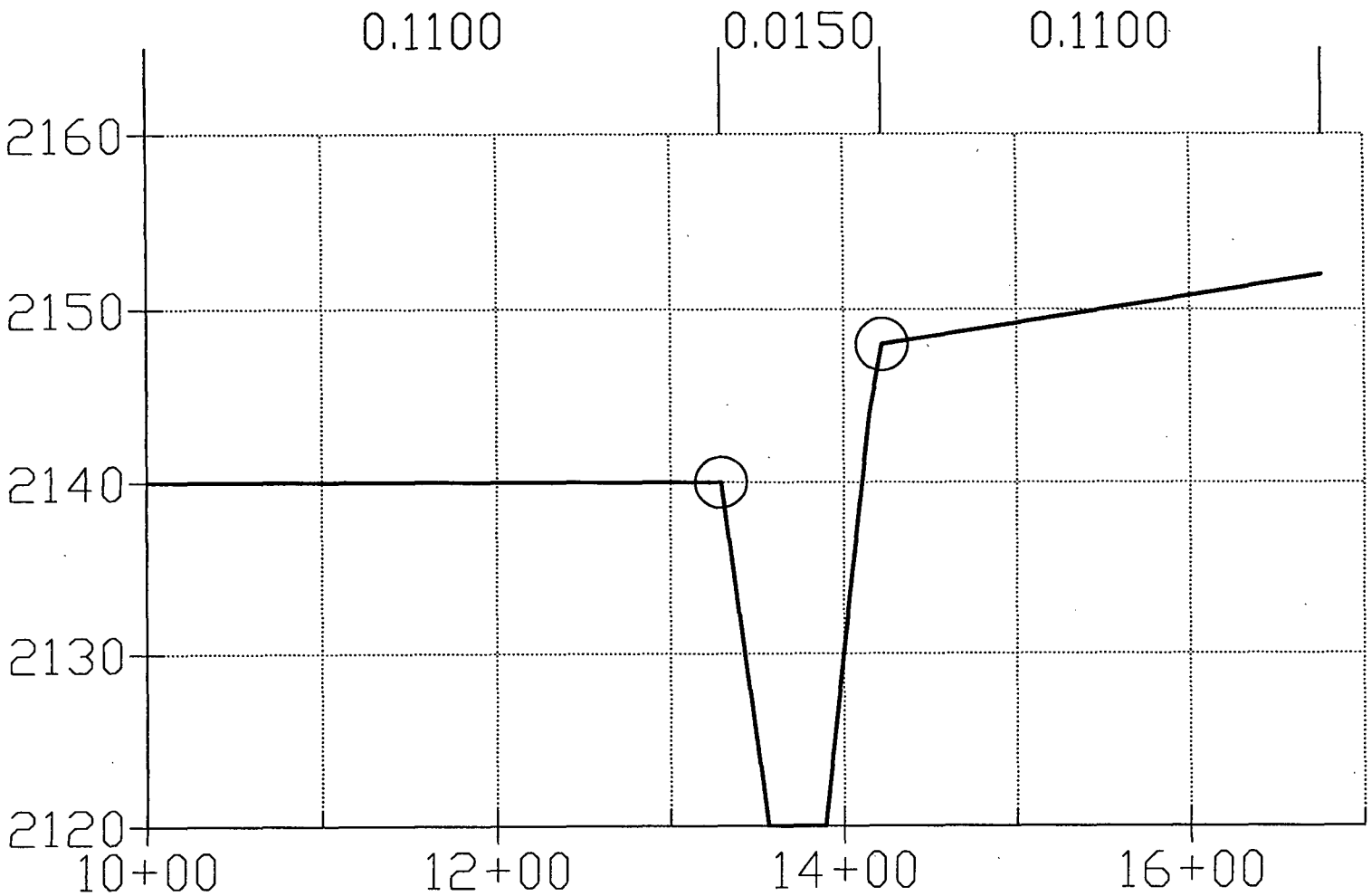
19700


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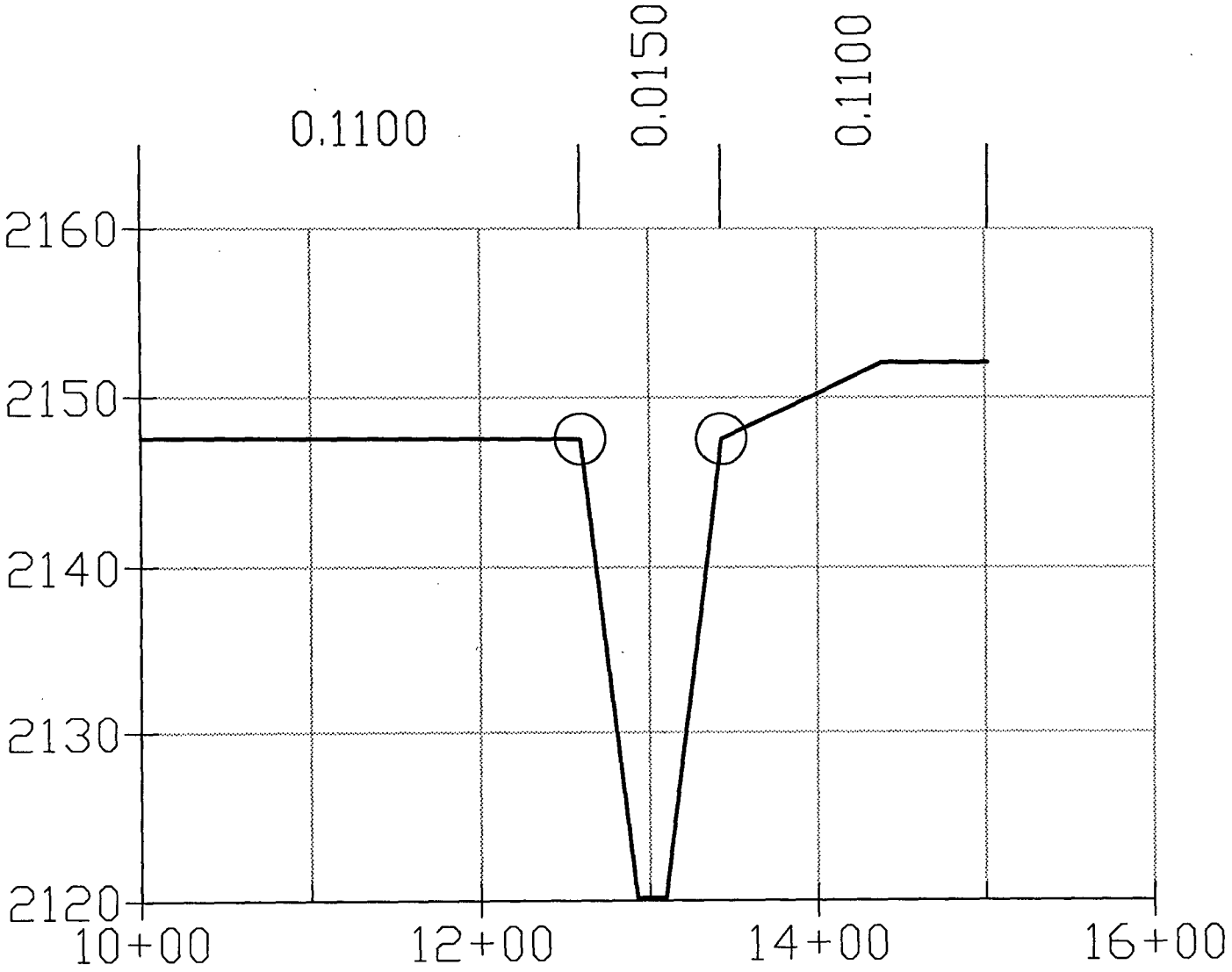
19800




19900

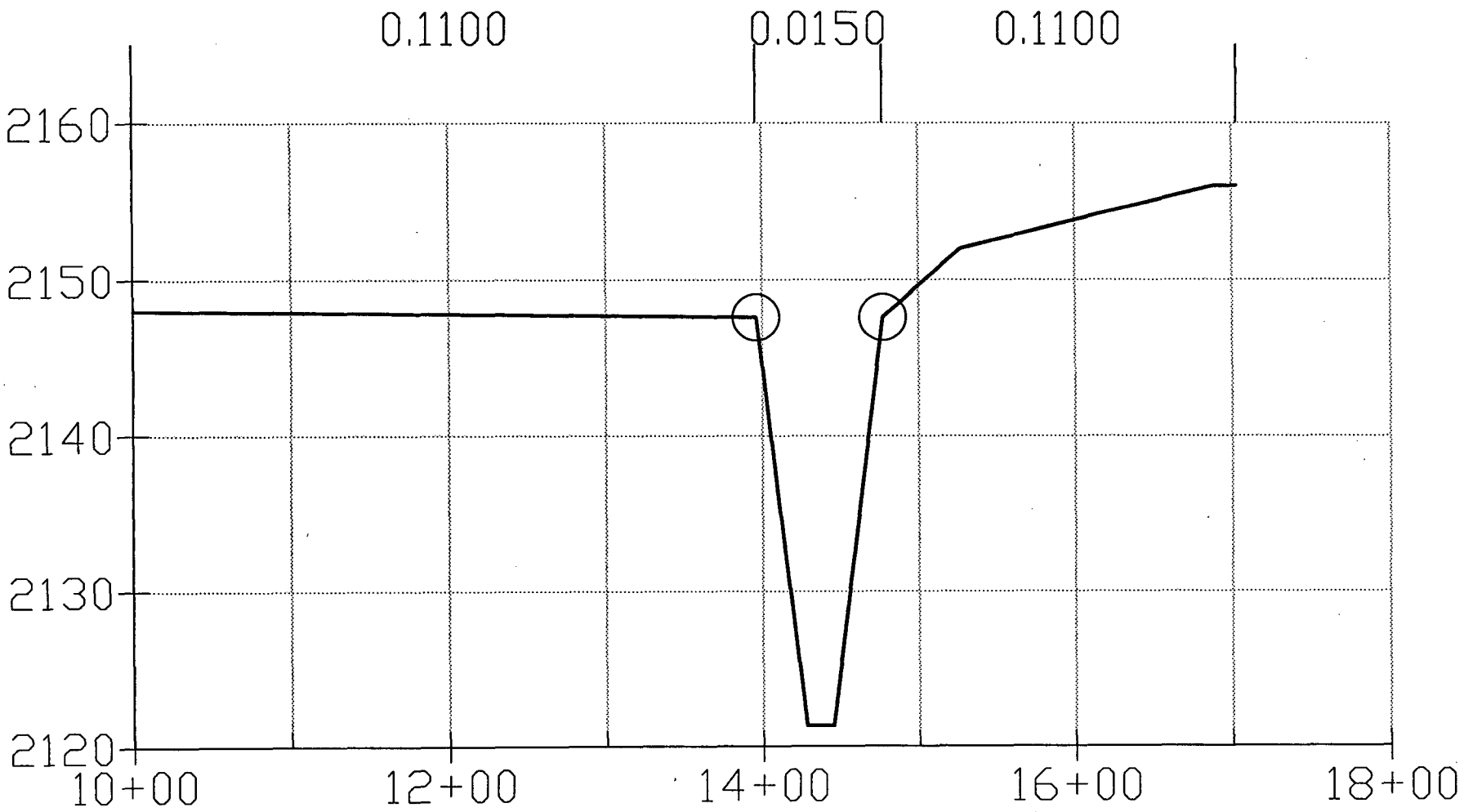

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12+00
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20000



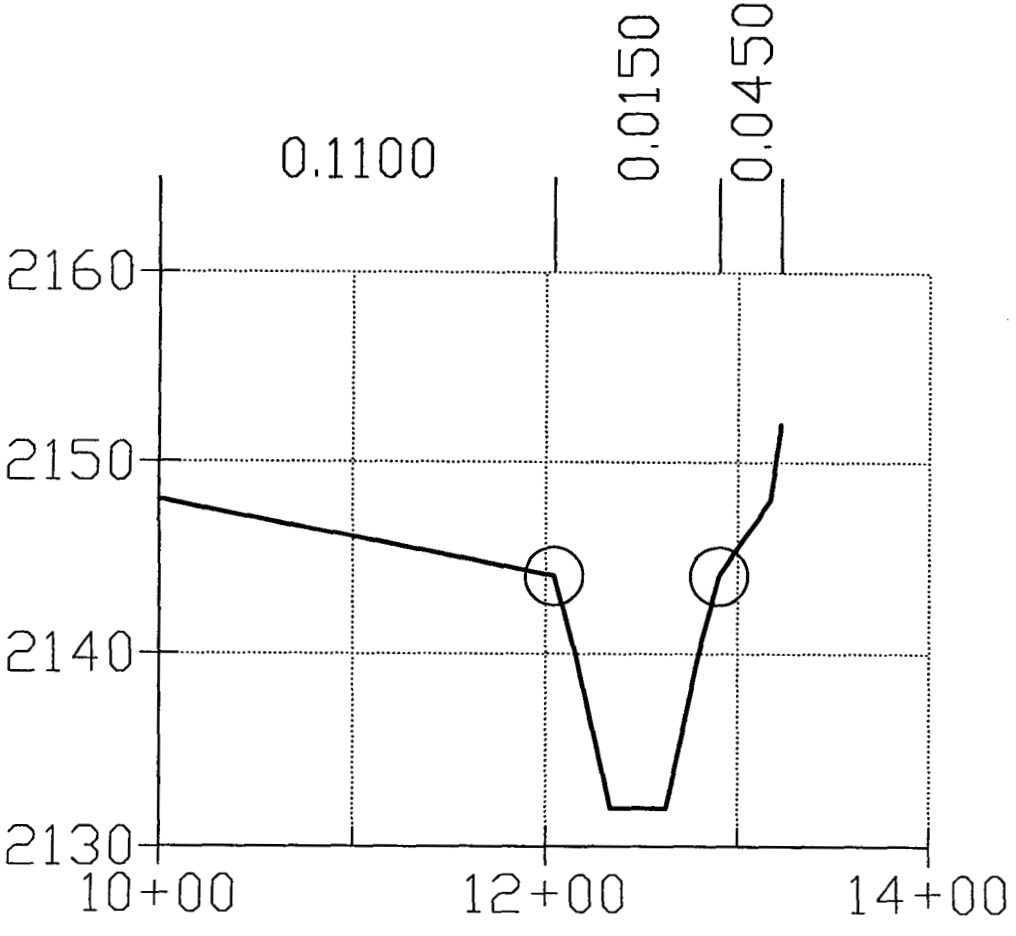

20100

DOWNSTREAM FACE OF POLLOCK DRIVE BRIDGE

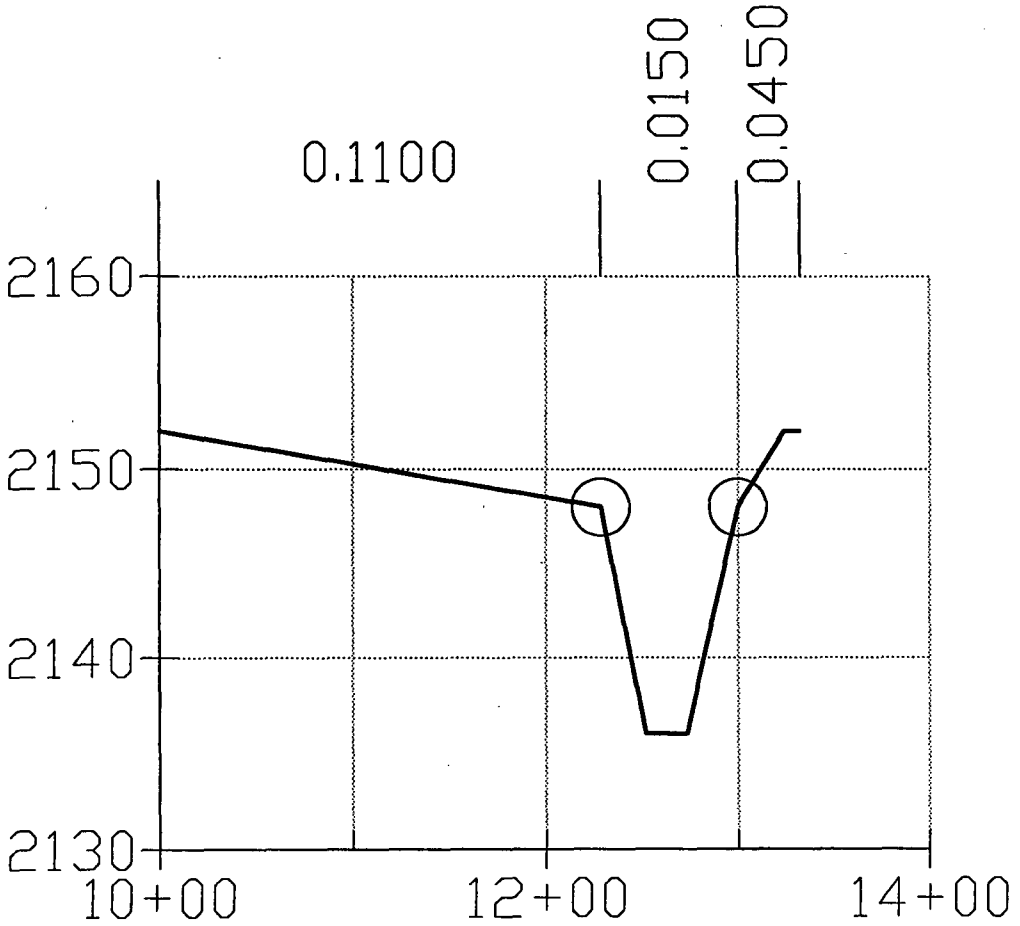



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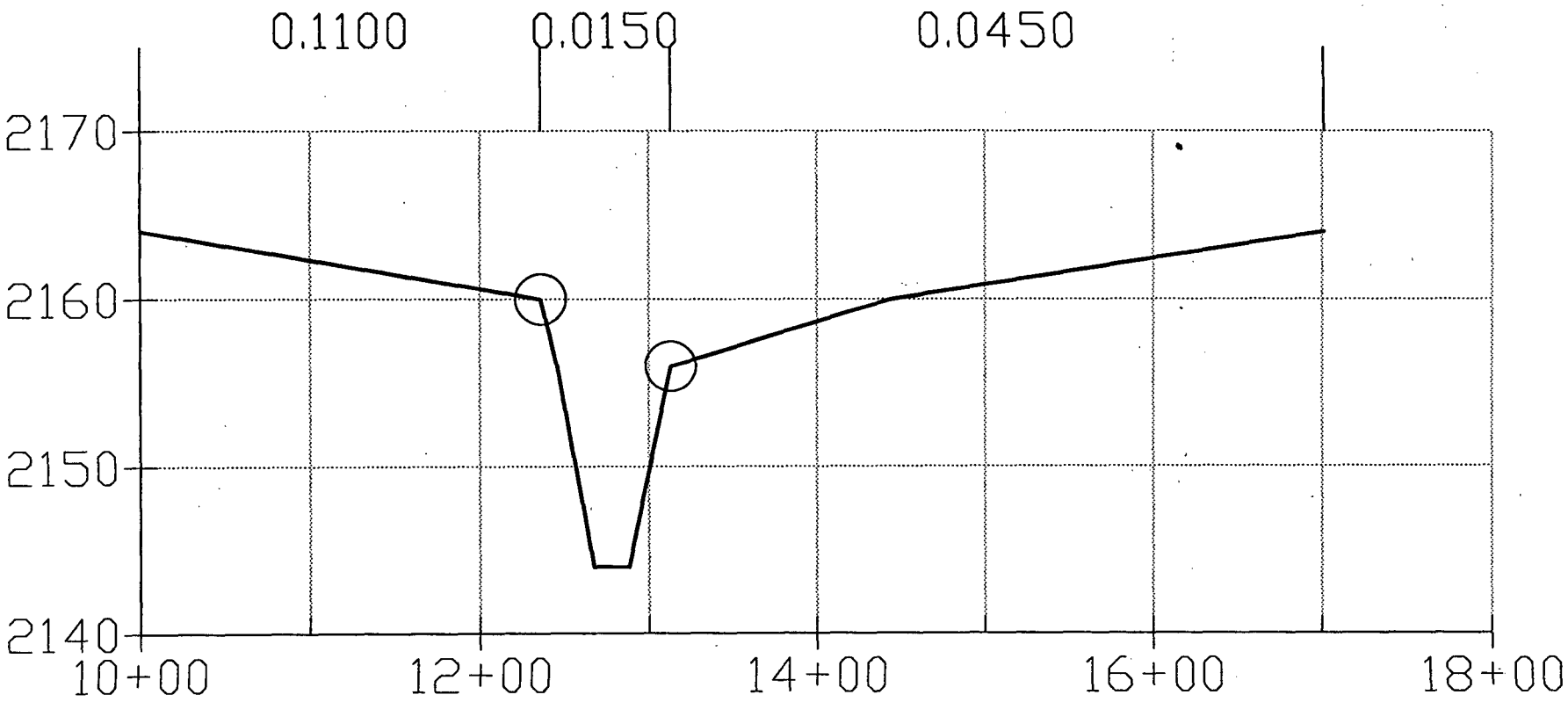
UPSTREAM FACE OF POLLOCK DRIVE BRIDGE



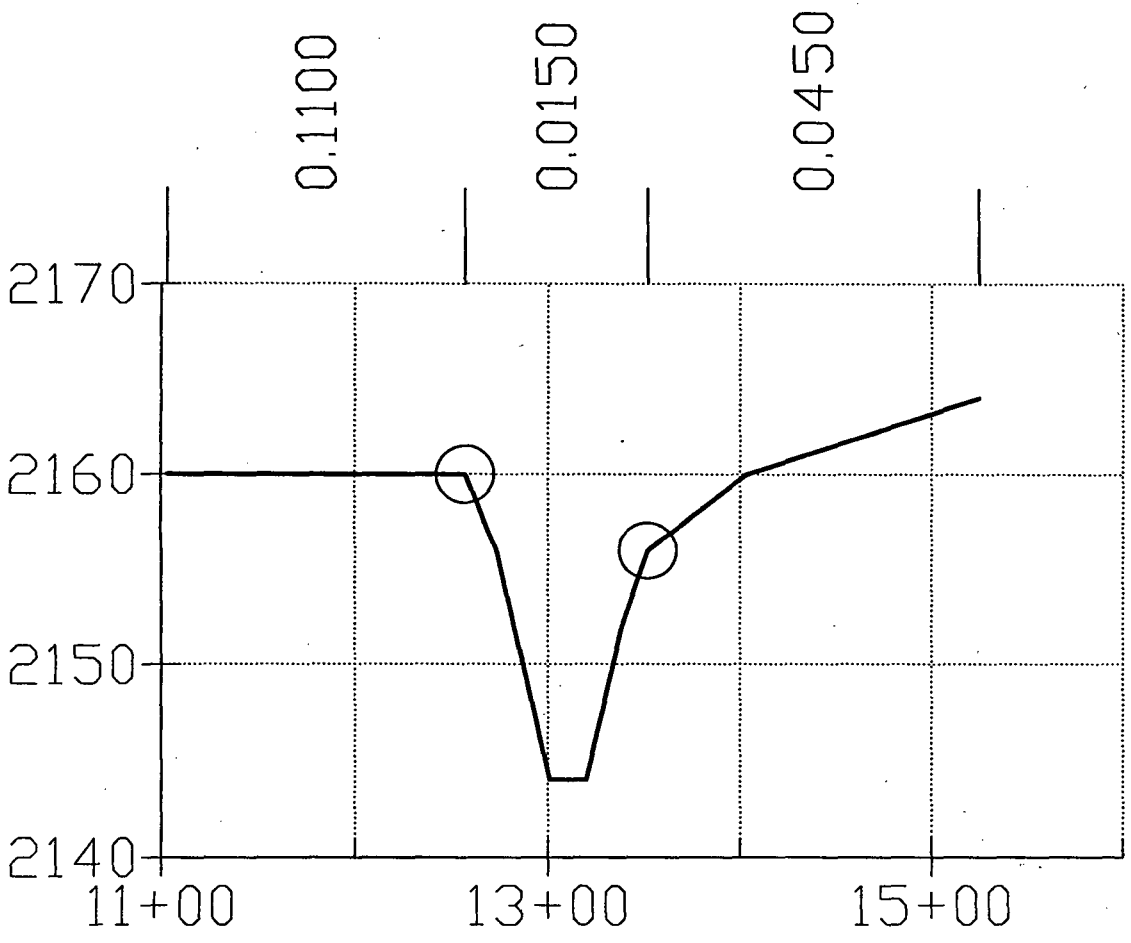

20300



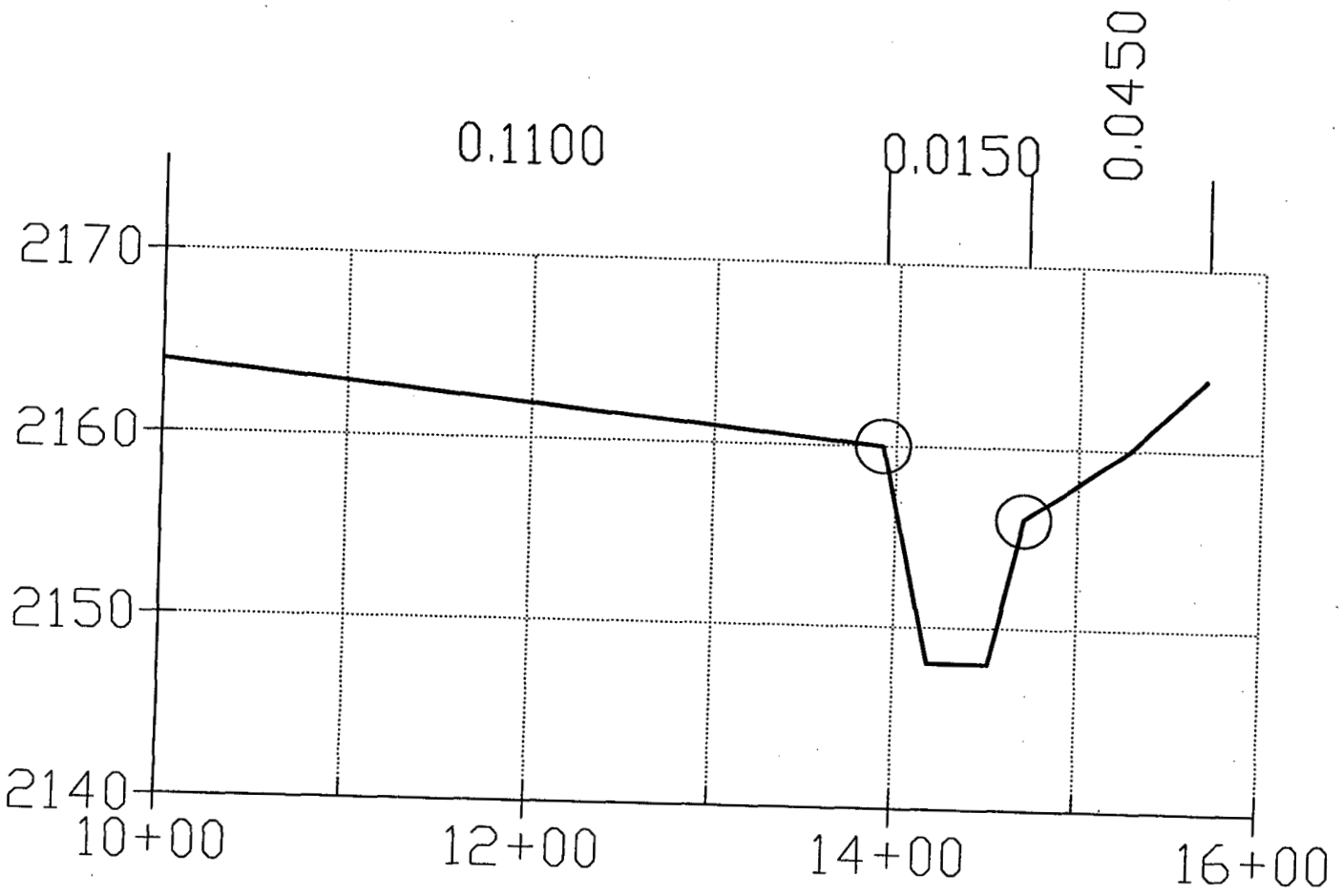

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10+00
12+00
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18+00

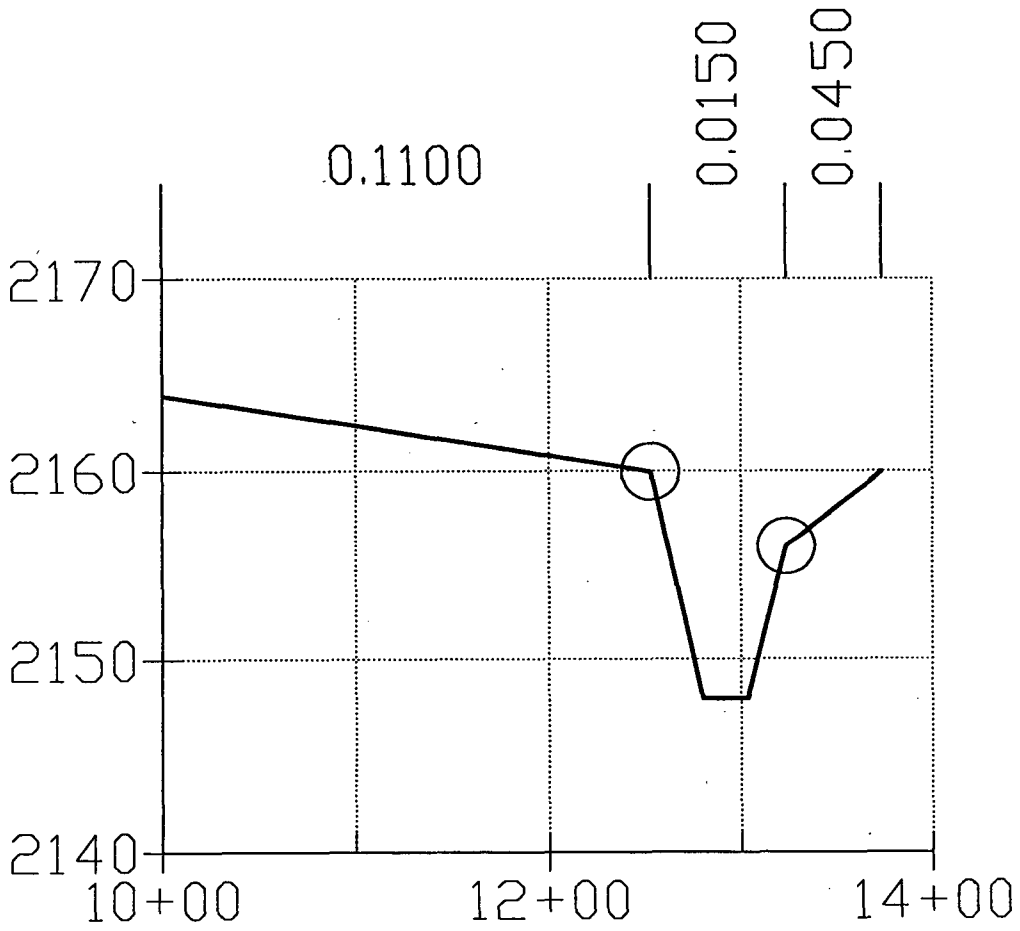
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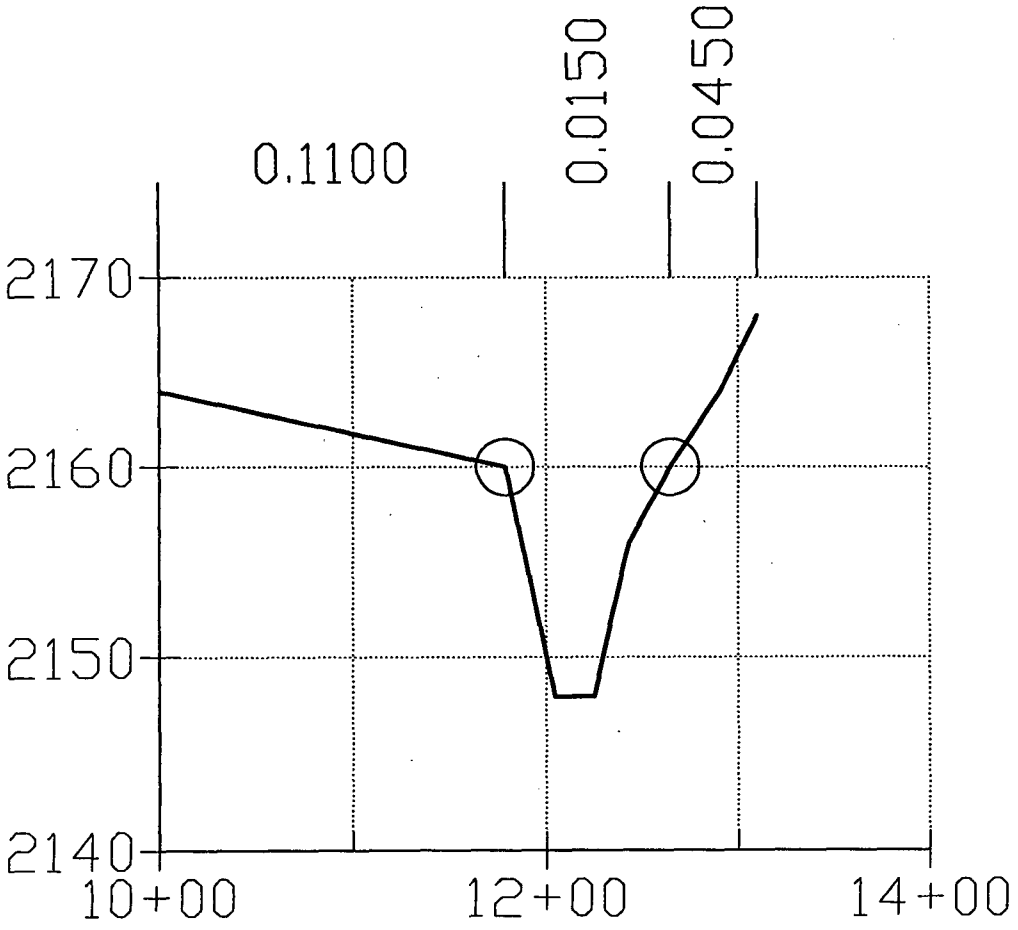

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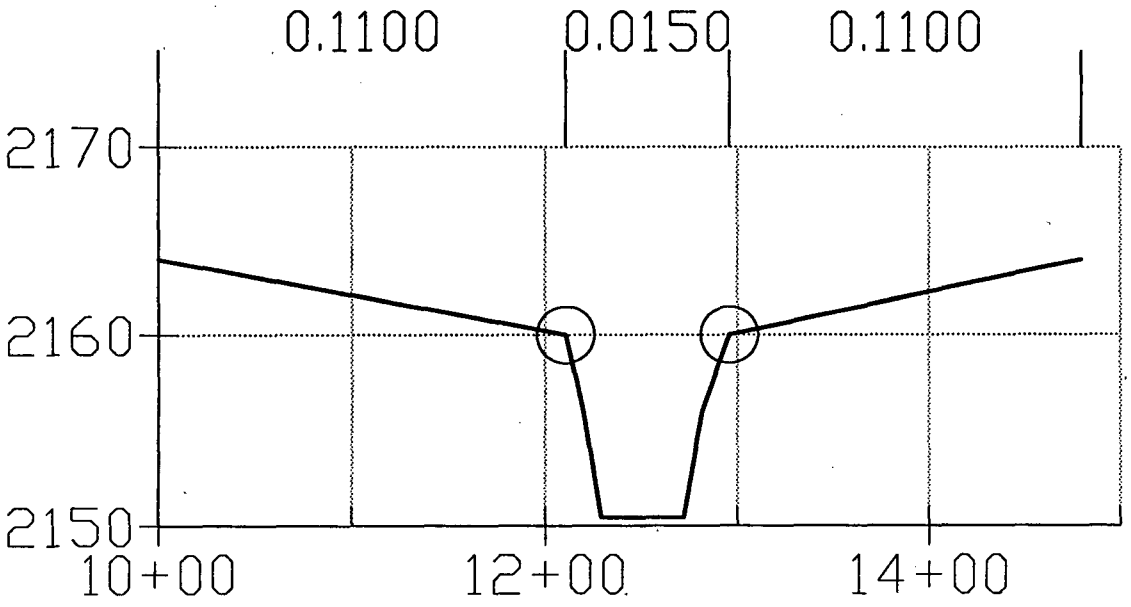

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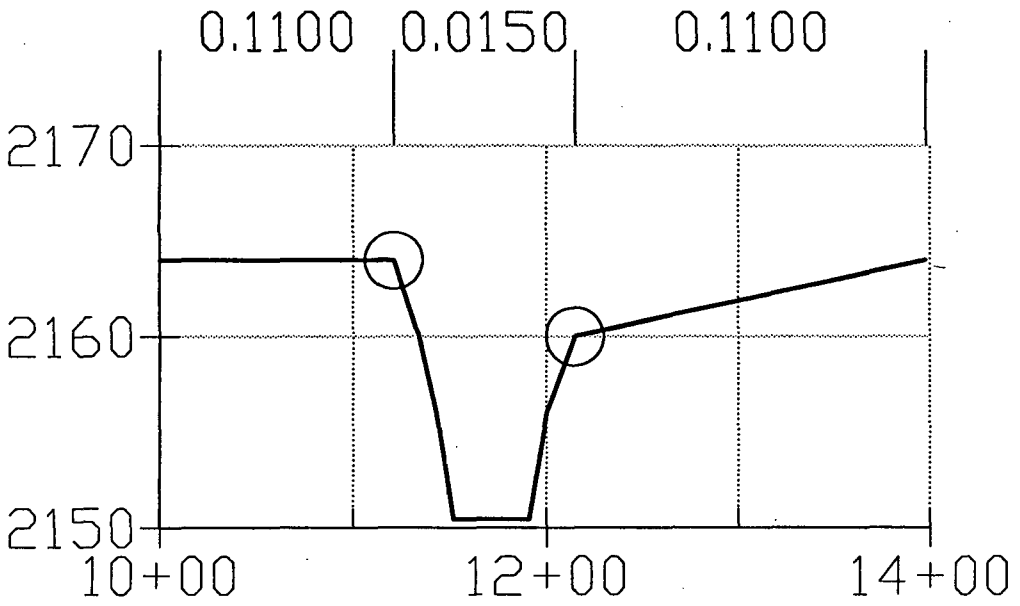

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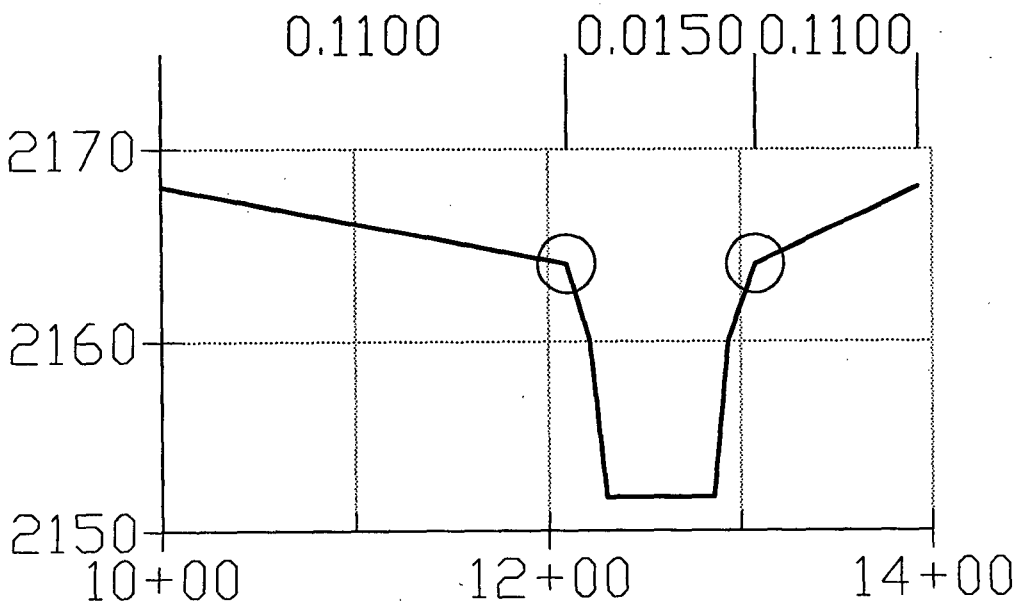

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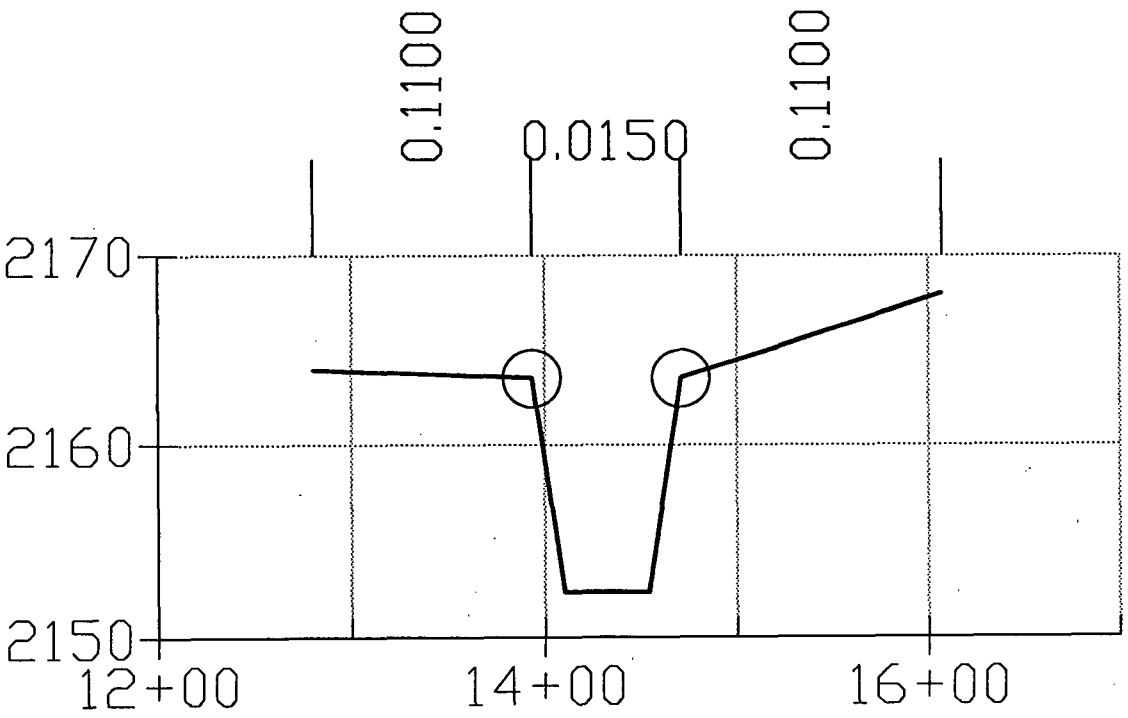

21000




21100

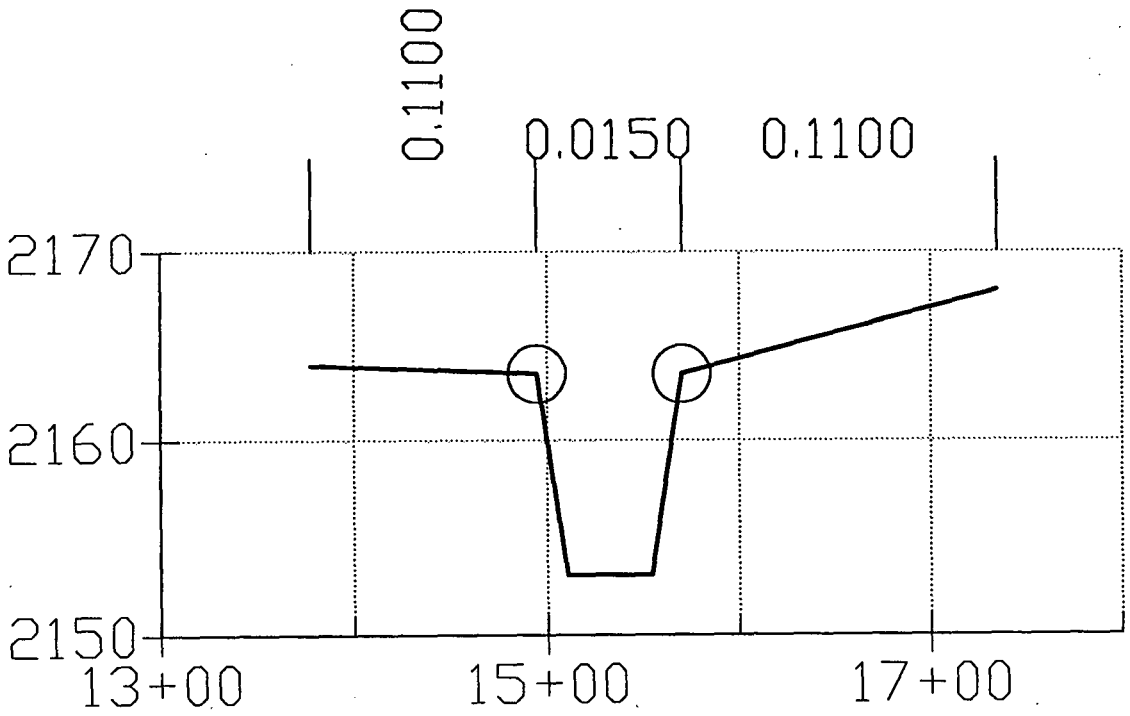



21200



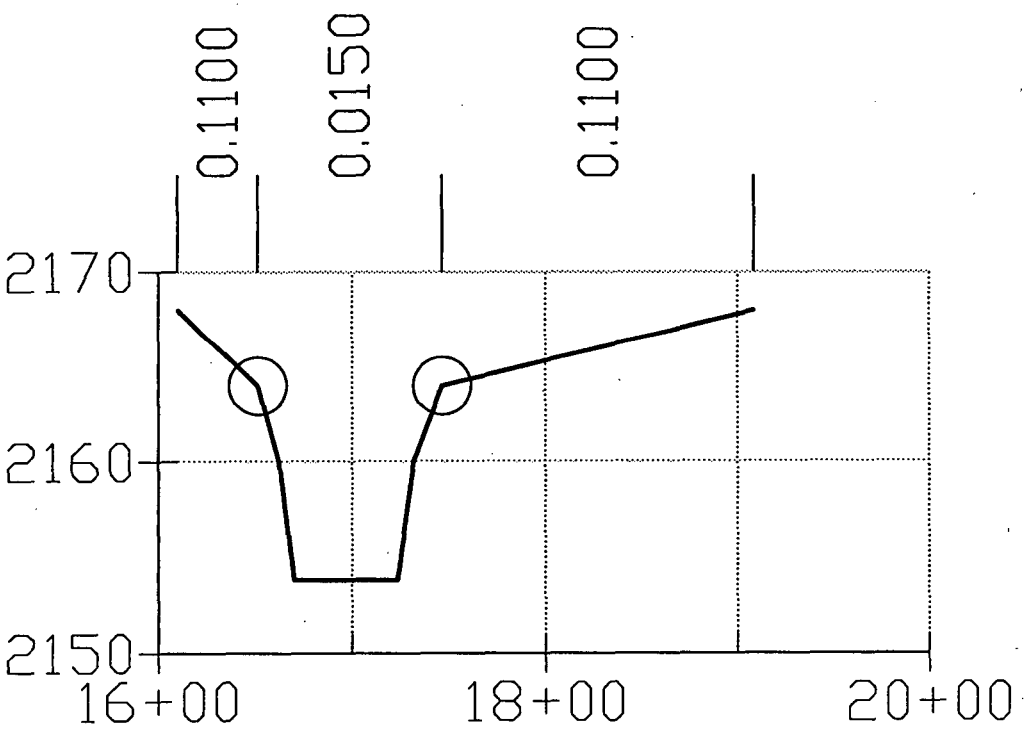

21300

DOWNSTREAM FACE OF PEBBLE ROAD BRIDGE

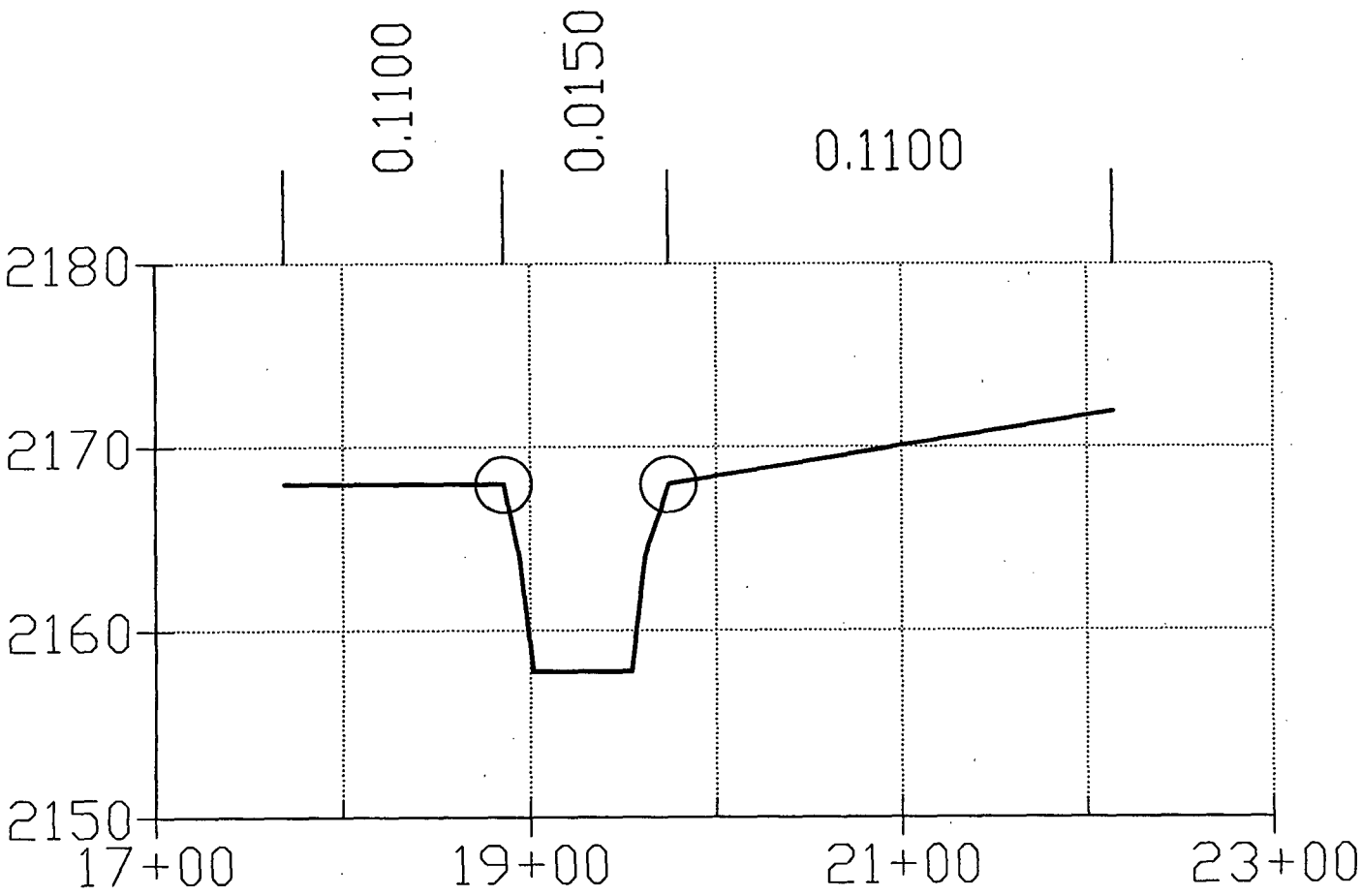



21400

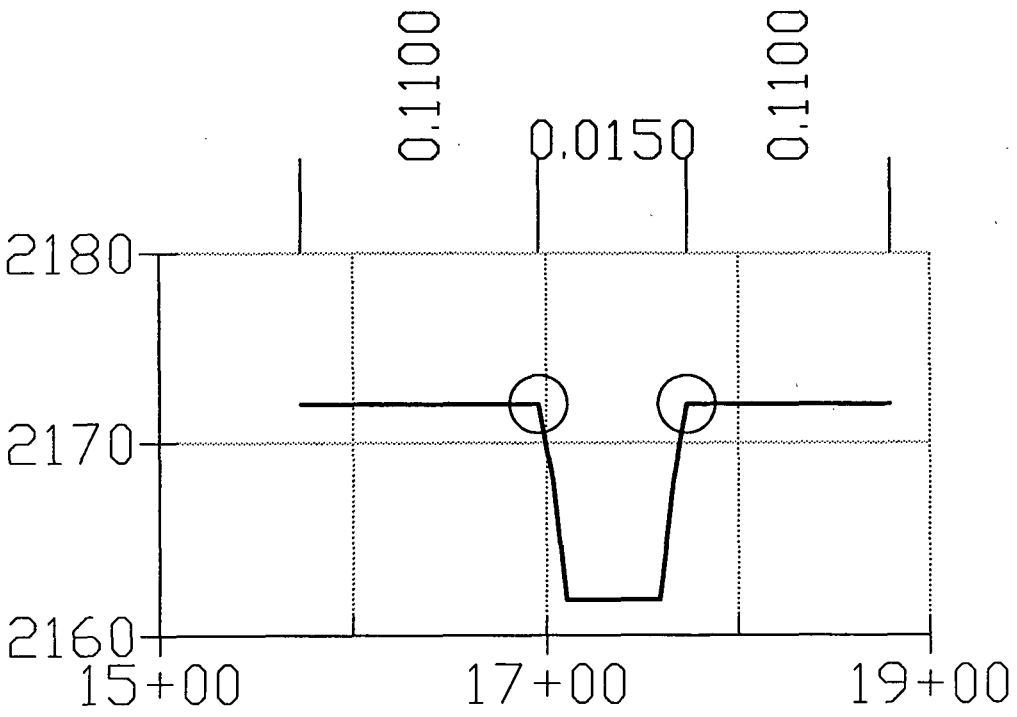
UPSTREAM FACE OF PEBBLE ROAD BRIDGE



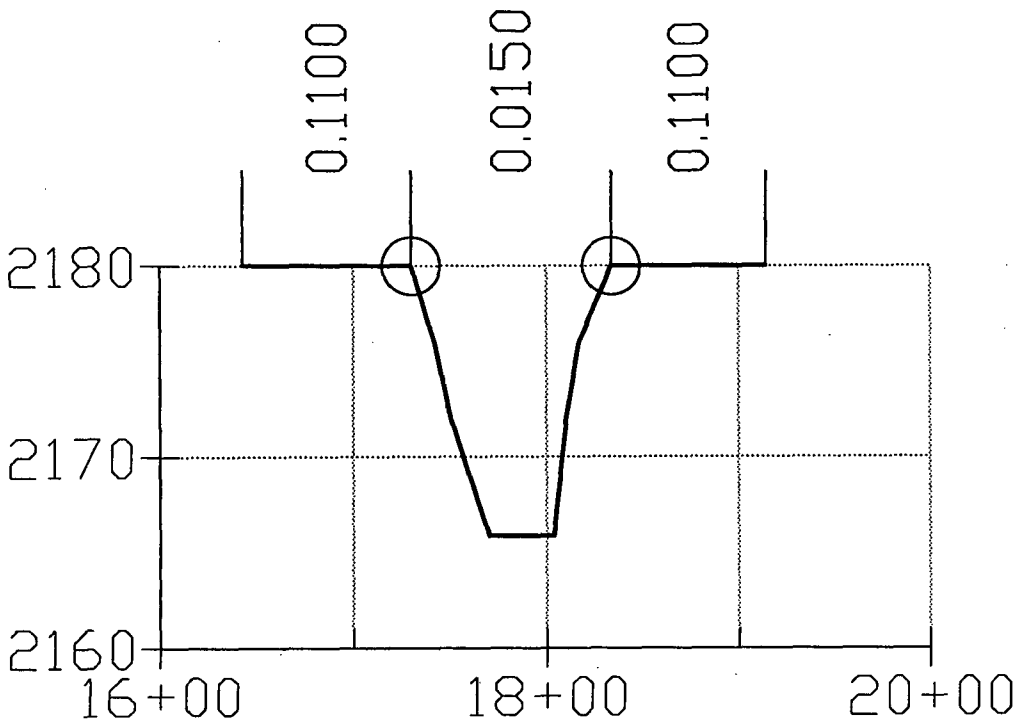

21500



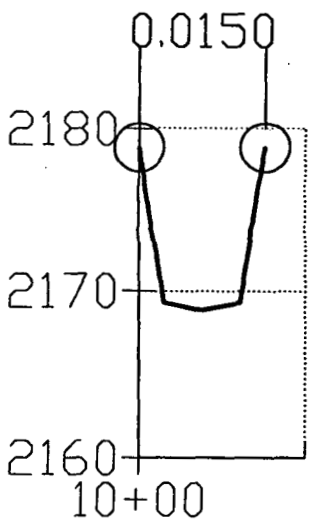

21600




21700



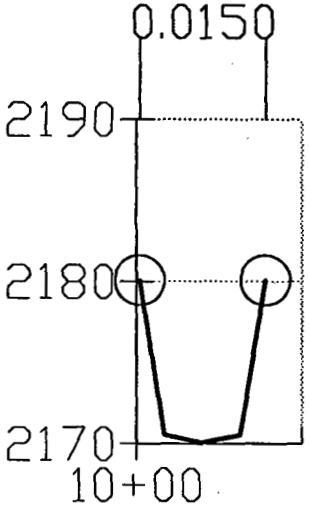

21800




21900

PLANS STA 12+00.00

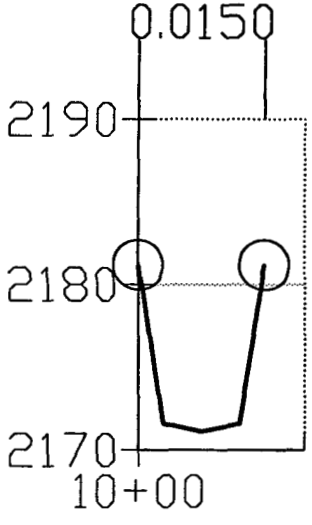
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




22000

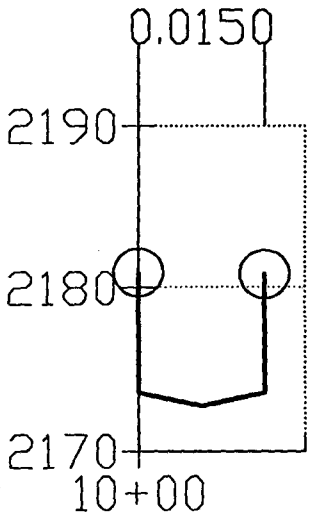
PLANS STA 16+00.00

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




22100

TRANS DOWNSTREAM TRAP, GRADEBREAK
PLAN STA 19+40.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

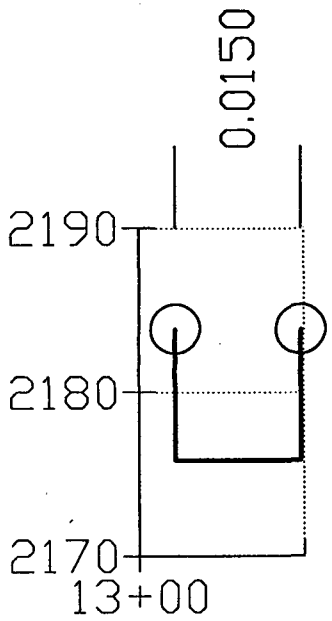



22200

TRANS RECT TO TRAP, GRADE BREAK

PLAN STA 20+90.00

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

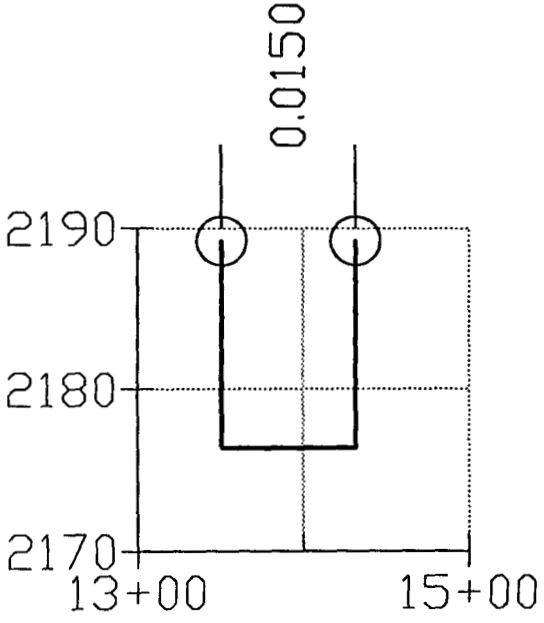



22300

TRANS TO 76 FOOT RECT

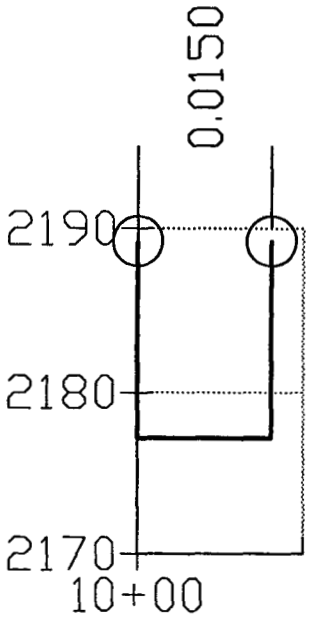
PLANS STA 24+00.00

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



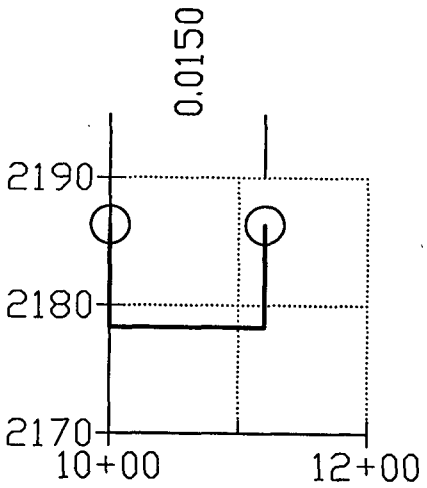

# 22400

DOWNSTREAM FACE OF BERMUDA ROAD BRIDGE
PLANS STA 24+41.20
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




# 22500

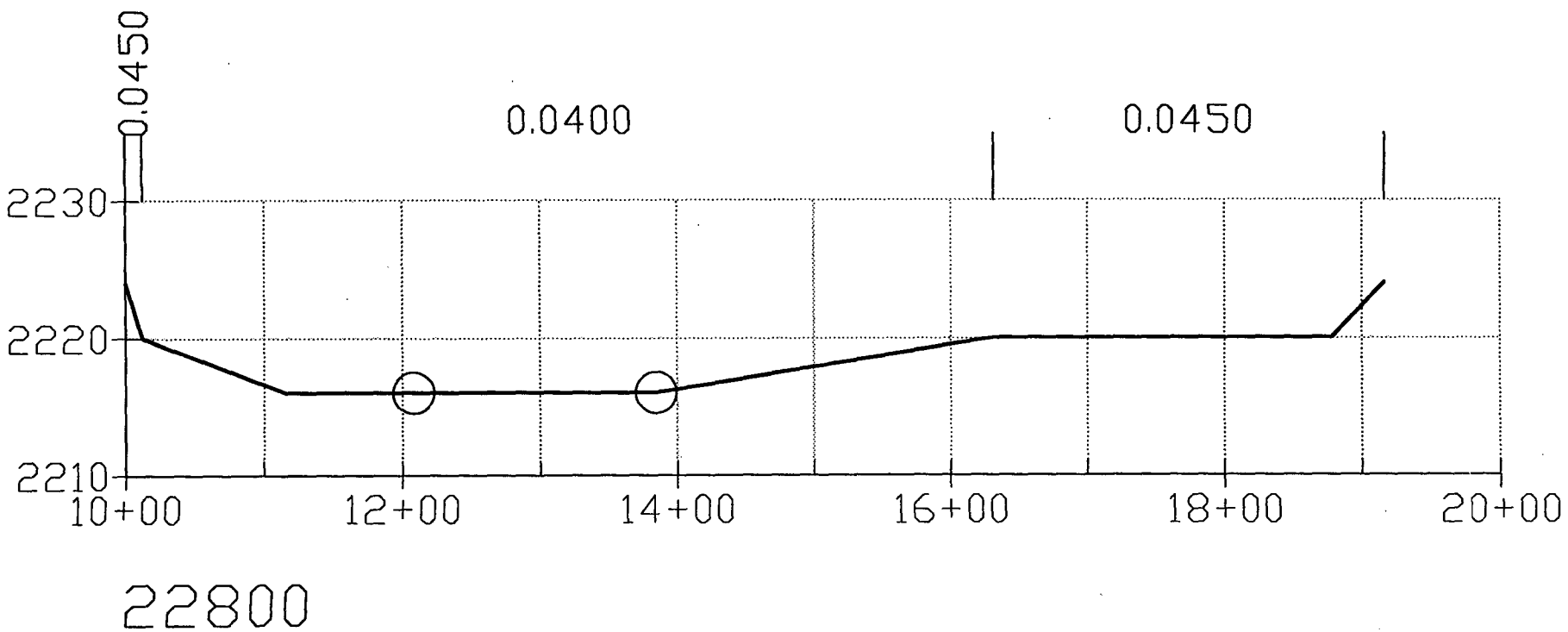
UPSTREAM FACE OF BERMUDA ROAD BRIDGE
PLANS STA 25+55.98
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM



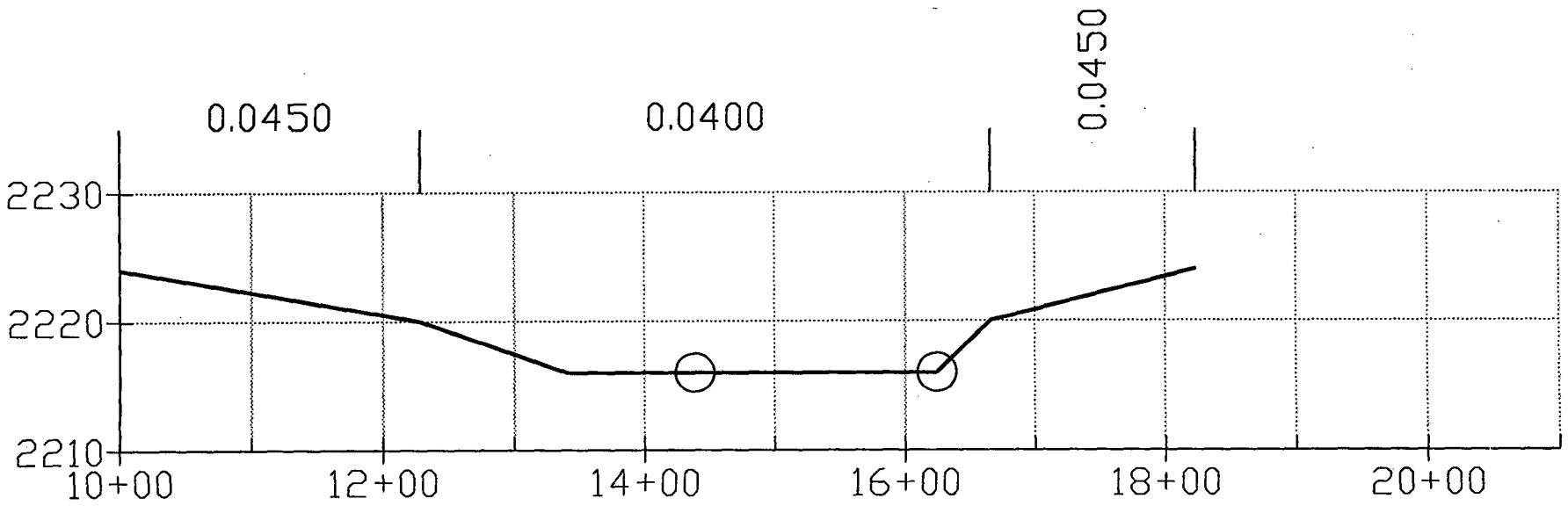

22600

PLANS STA 27+00.00

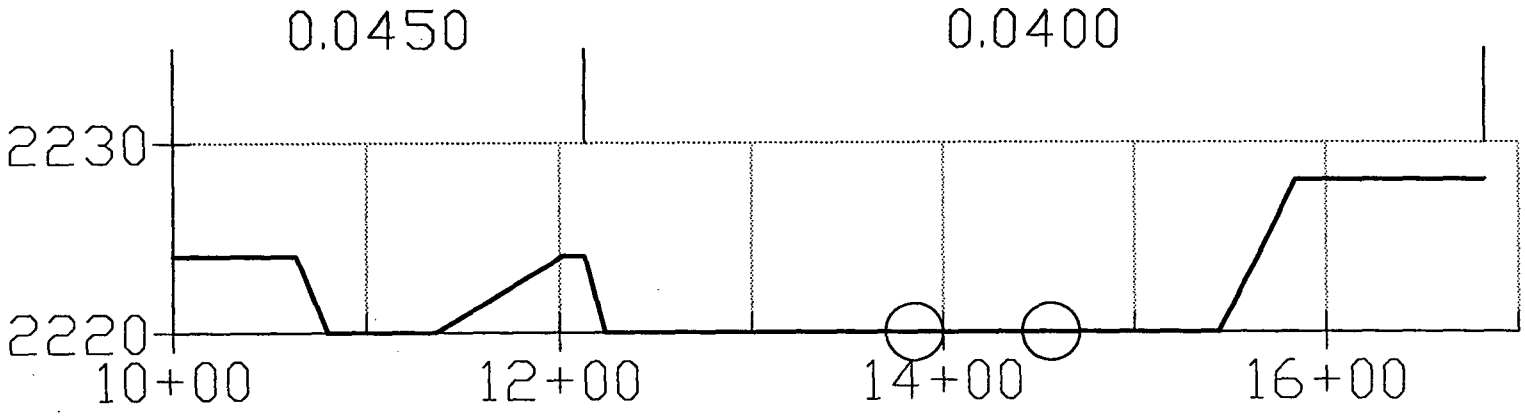
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM


0.0450
0.0400
0.0450
2230
2220
2210
10+00
12+00
14+00
16+00
18+00
20+00

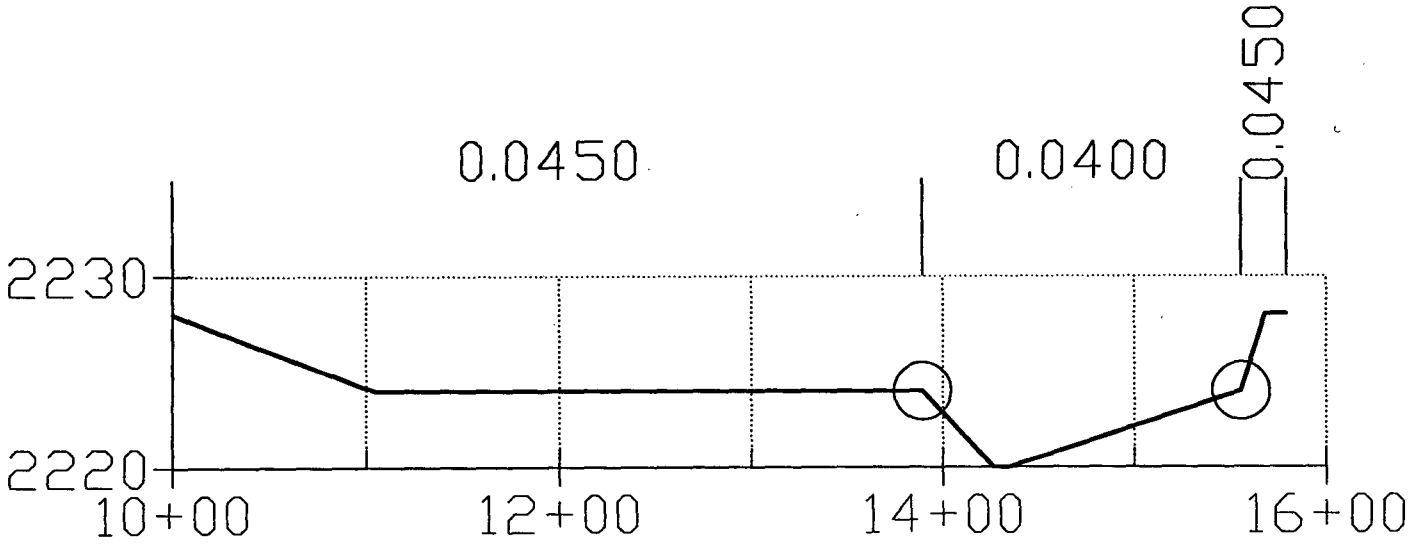
22800


0.0450
0.0400
0.0450
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2220
2210
10+00
12+00
14+00
16+00
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20+00

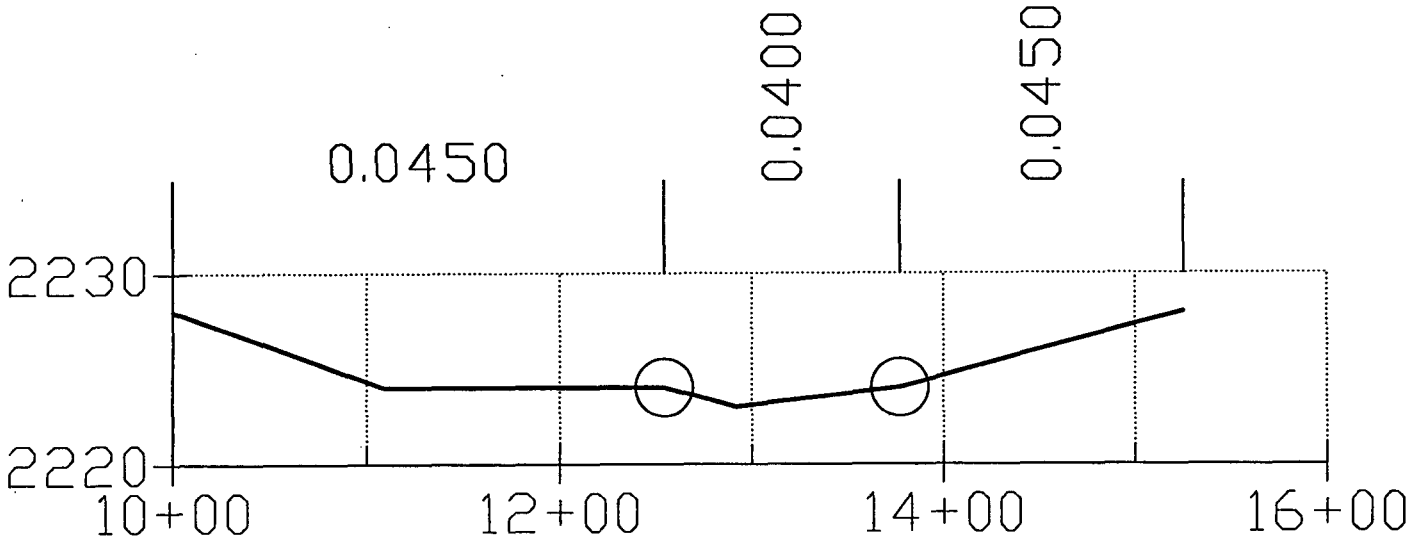
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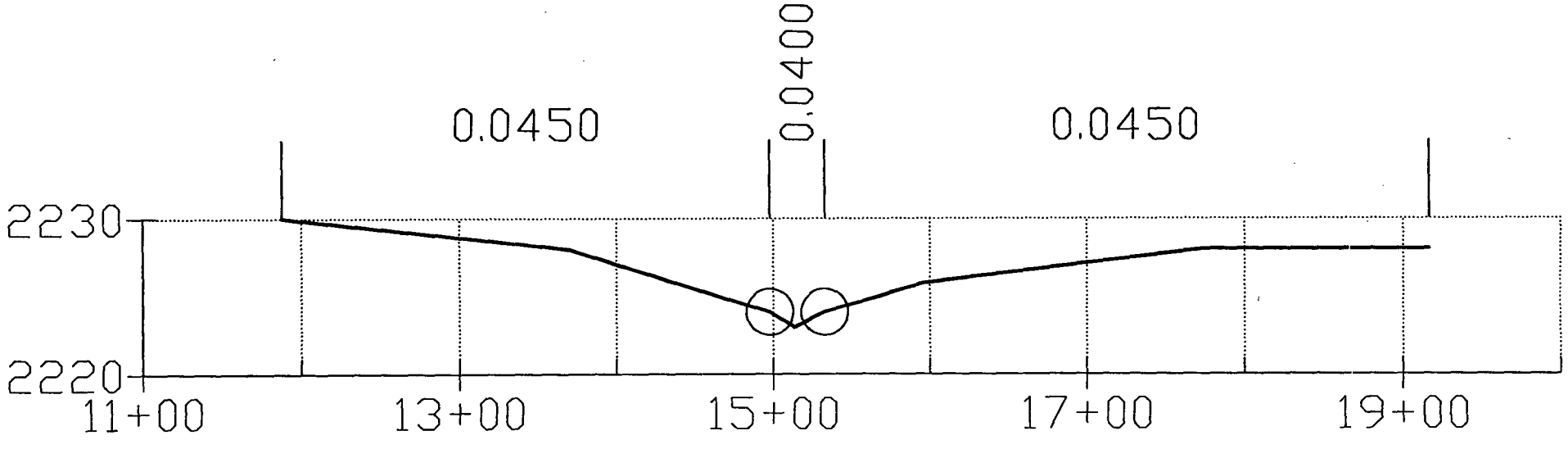

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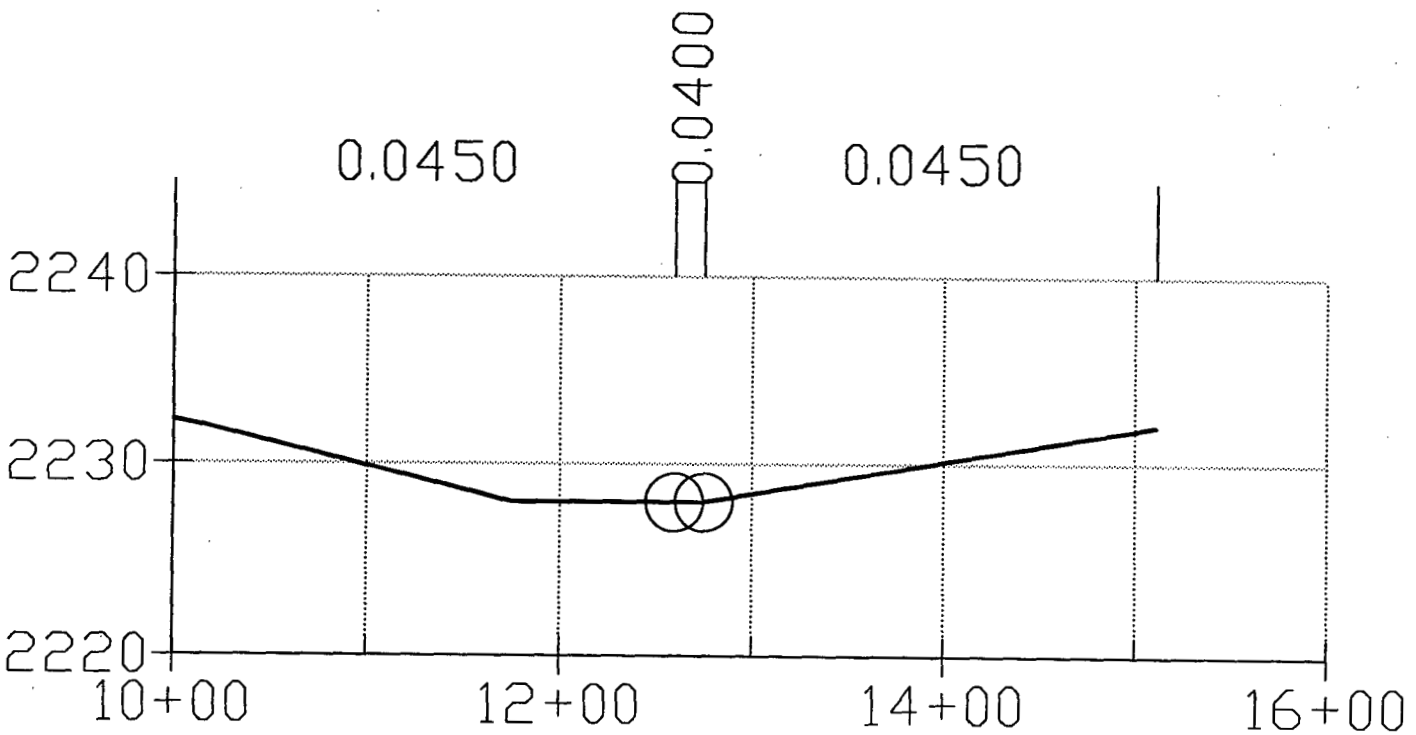

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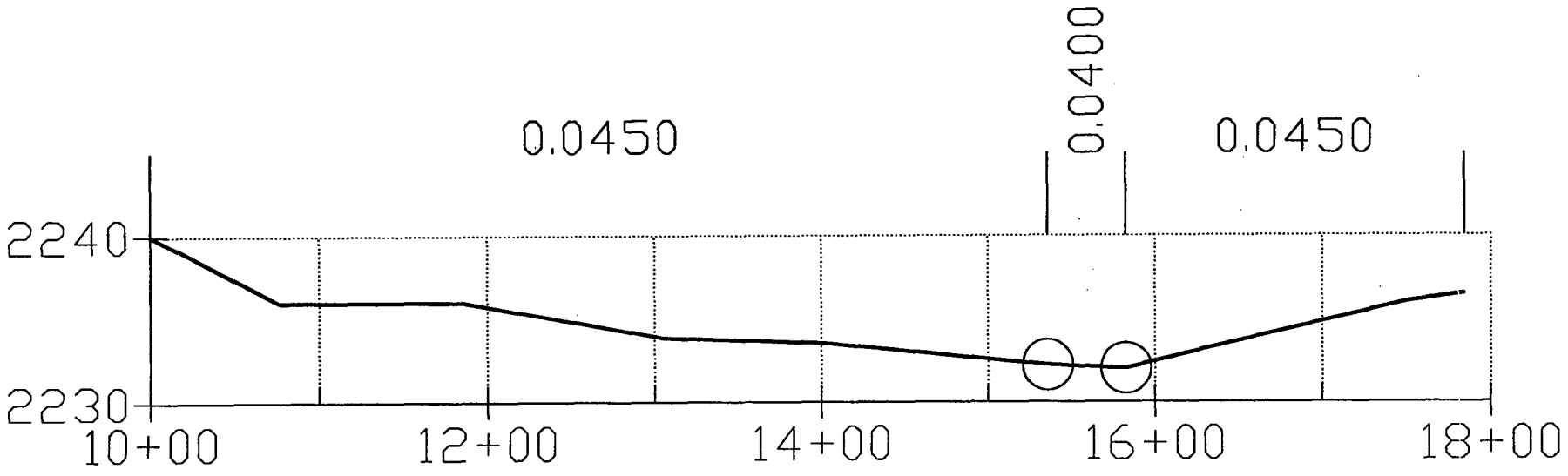

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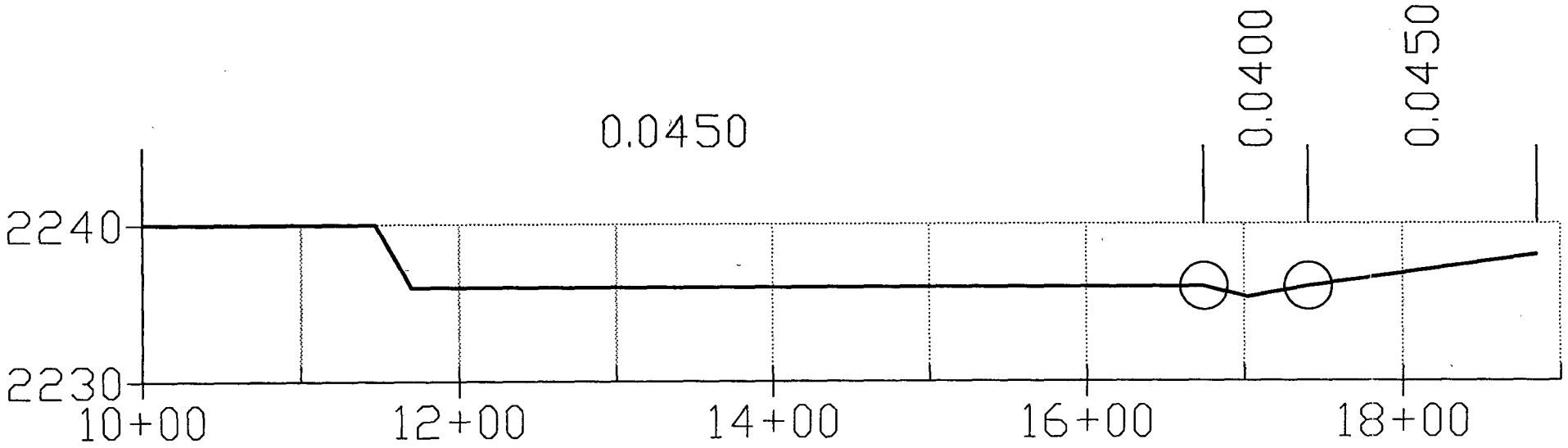

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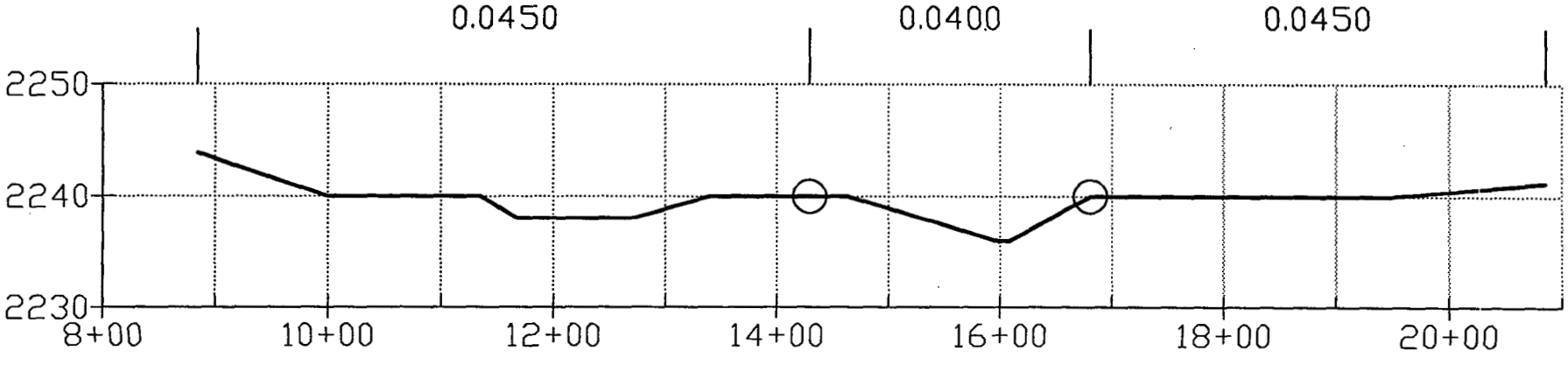

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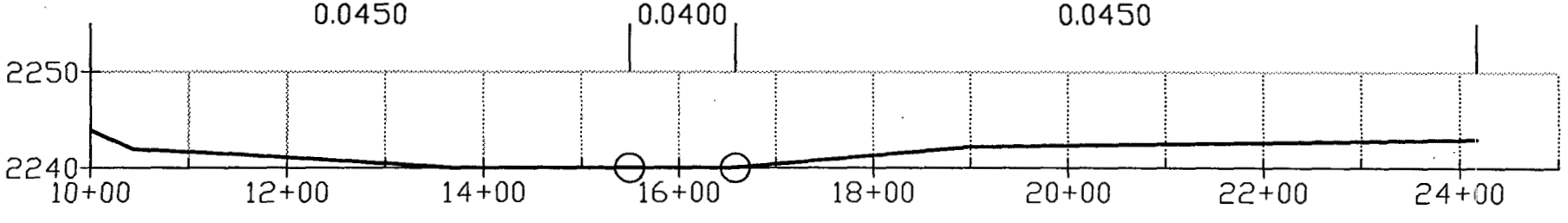

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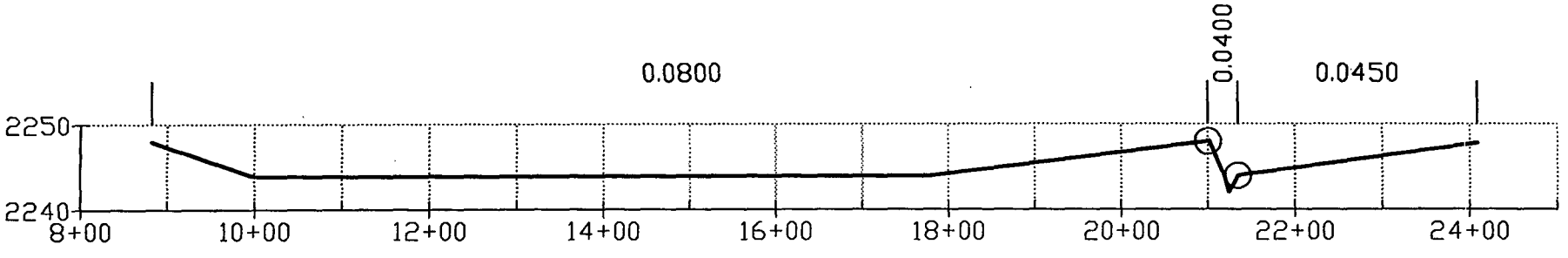

23600


0.0450
0.0400
0.0450
2250
2240
2230
8+00
10+00
12+00
14+00
16+00
18+00
20+00

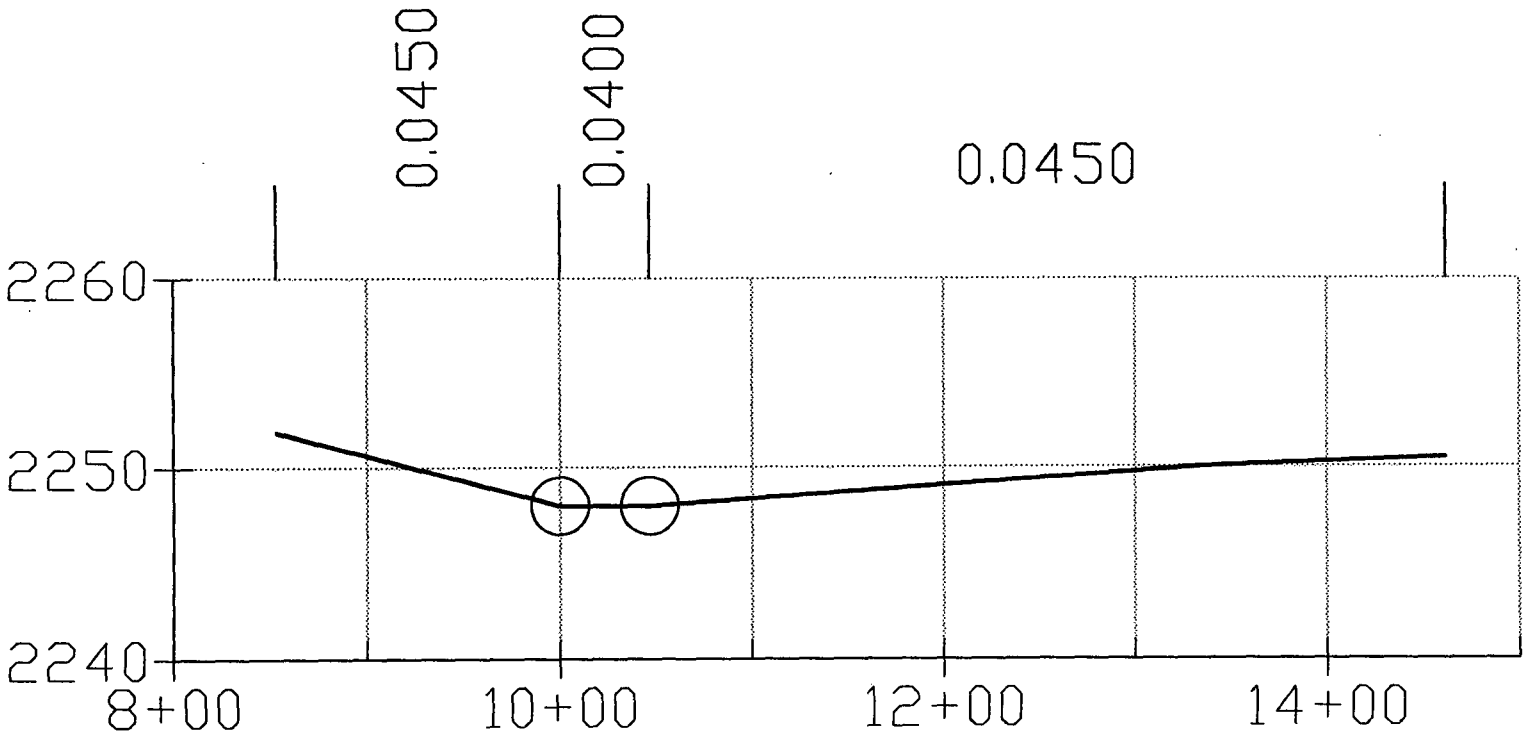
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0.0450
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12+00
14+00
16+00
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22+00
24+00

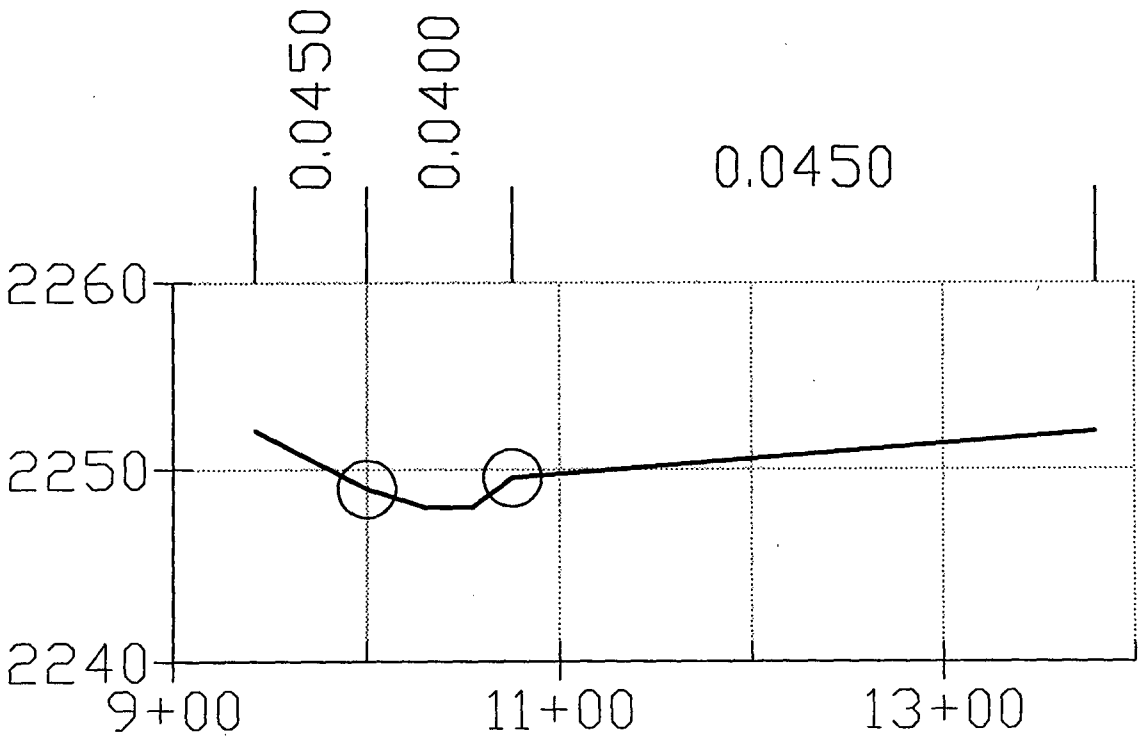
23800


0.0800
0.0400
0.0450
2250
2240
8+00
10+00
12+00
14+00
16+00
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20+00
22+00
24+00

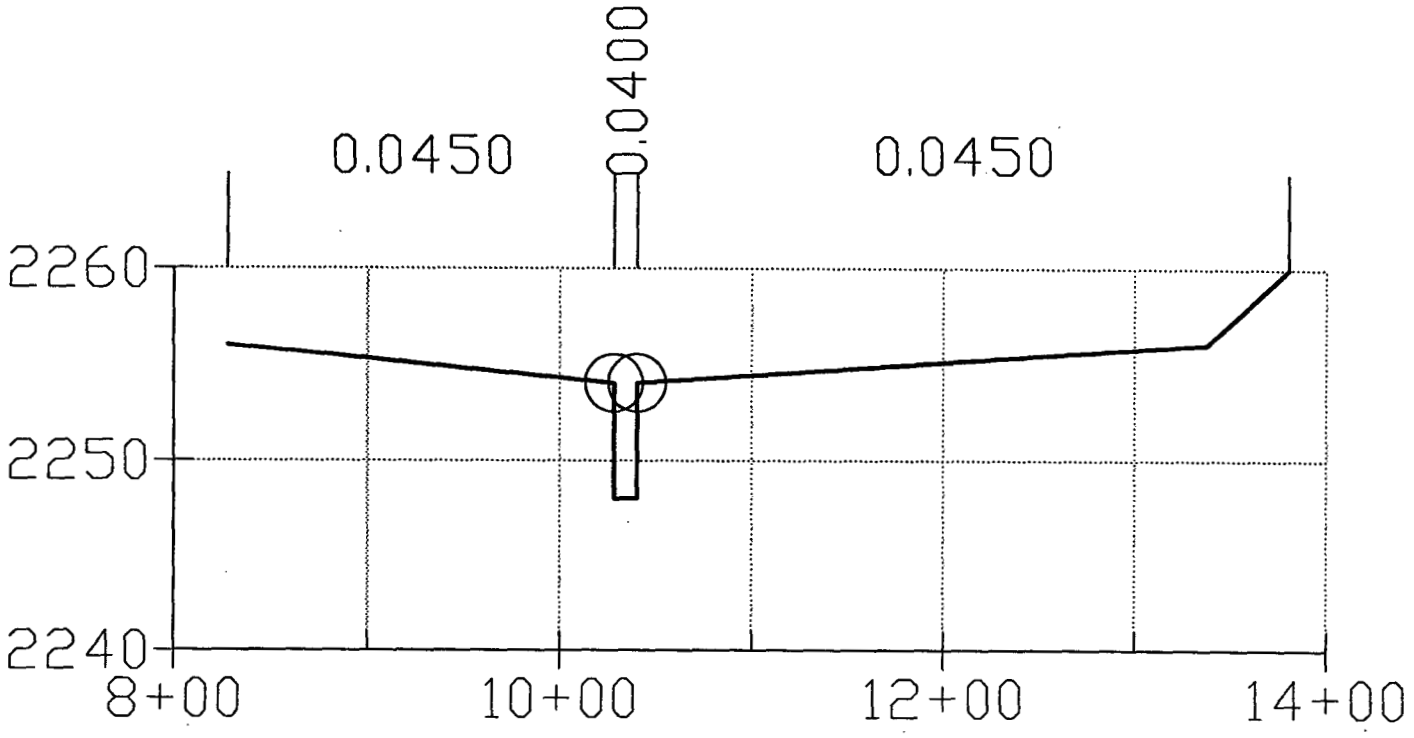
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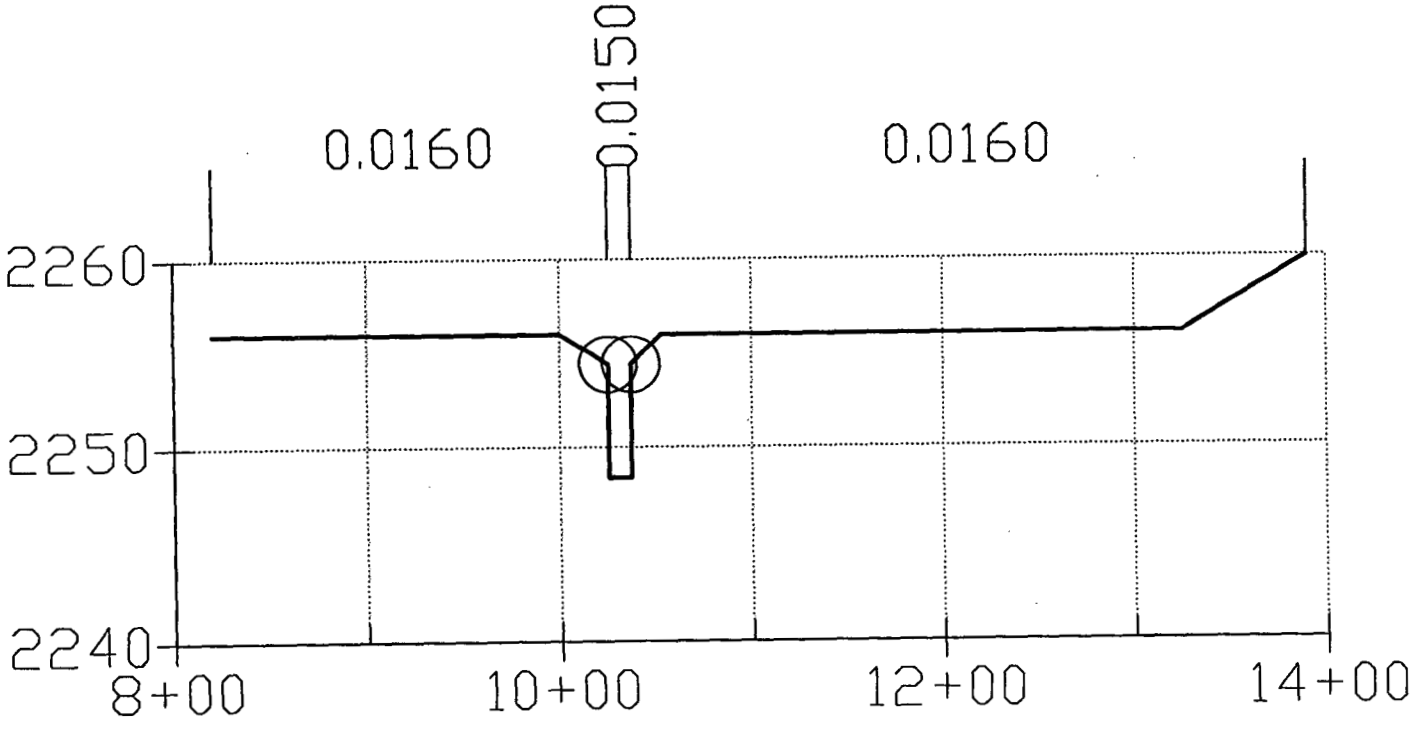

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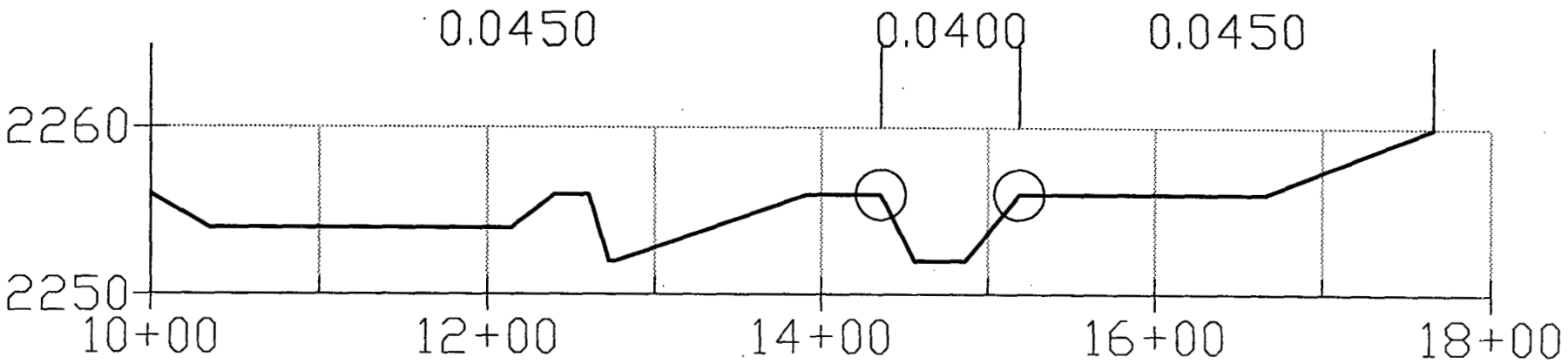

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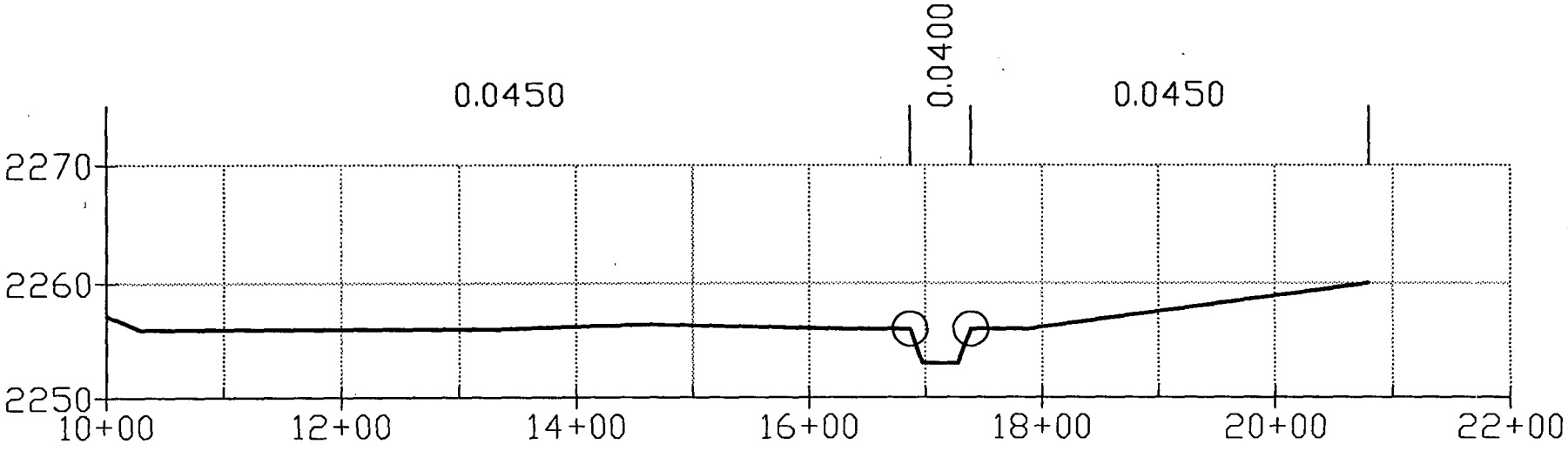

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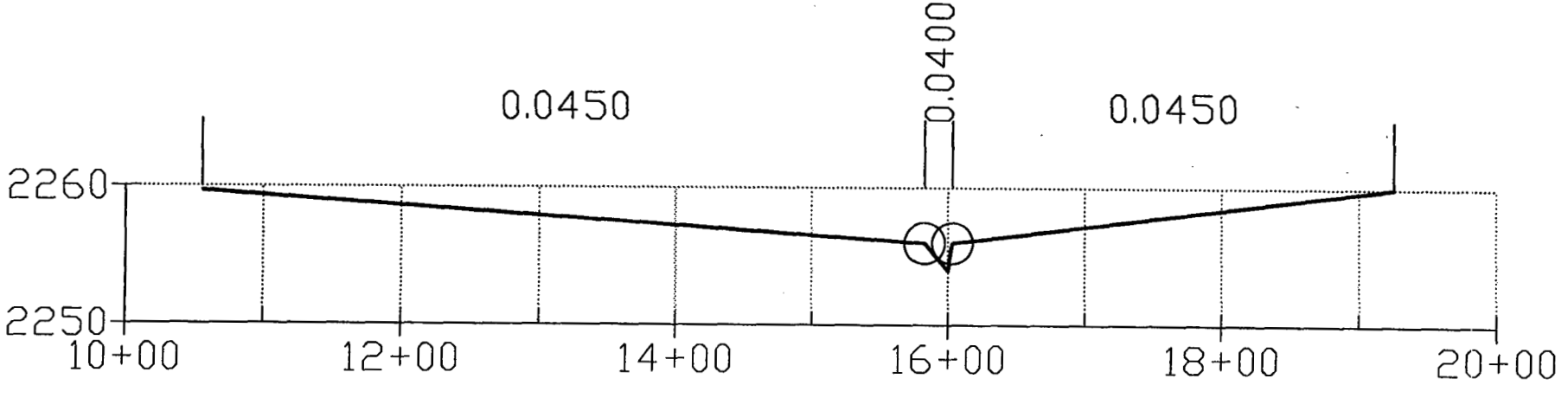

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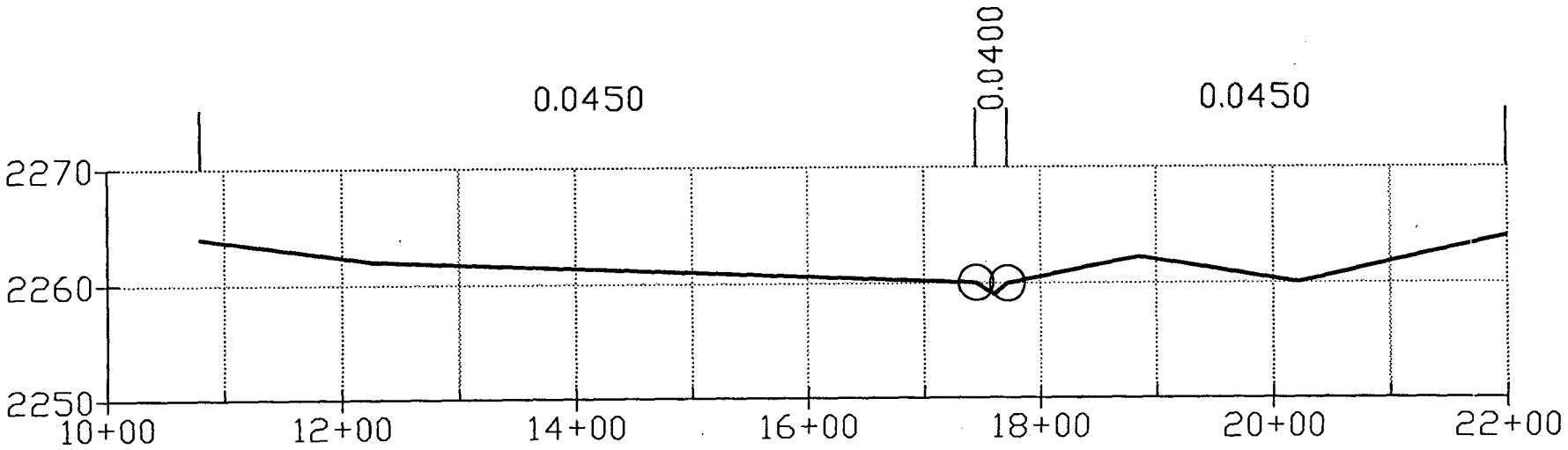

24400


0.0450
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0.0450
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2260
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10+00
12+00
14+00
16+00
18+00
20+00
22+00

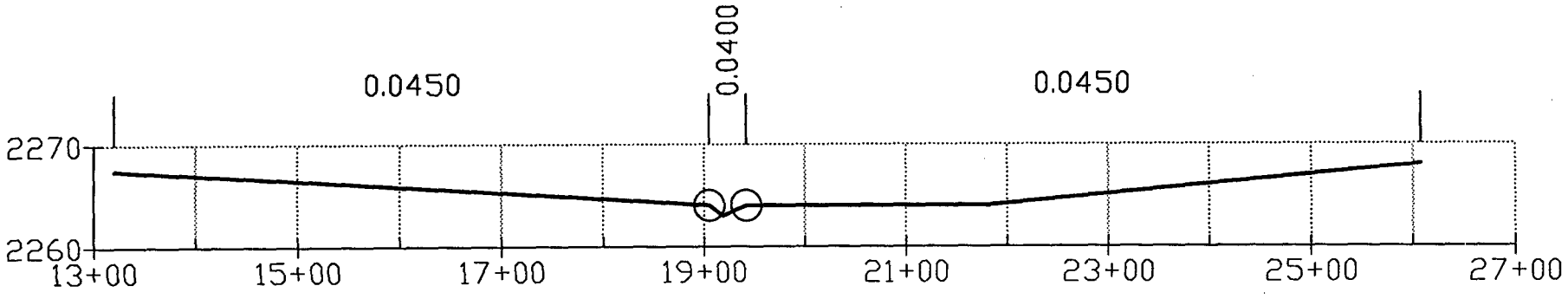
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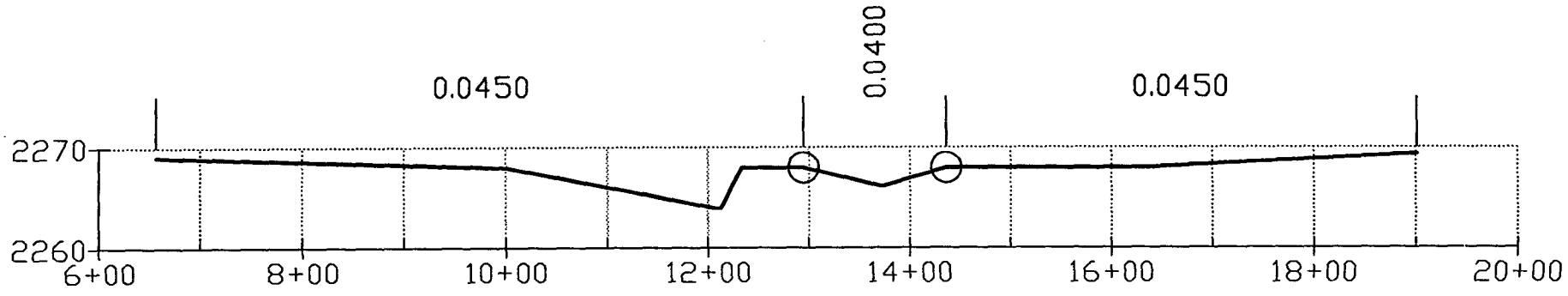

24600


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2260
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10+00
12+00
14+00
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20+00
22+00

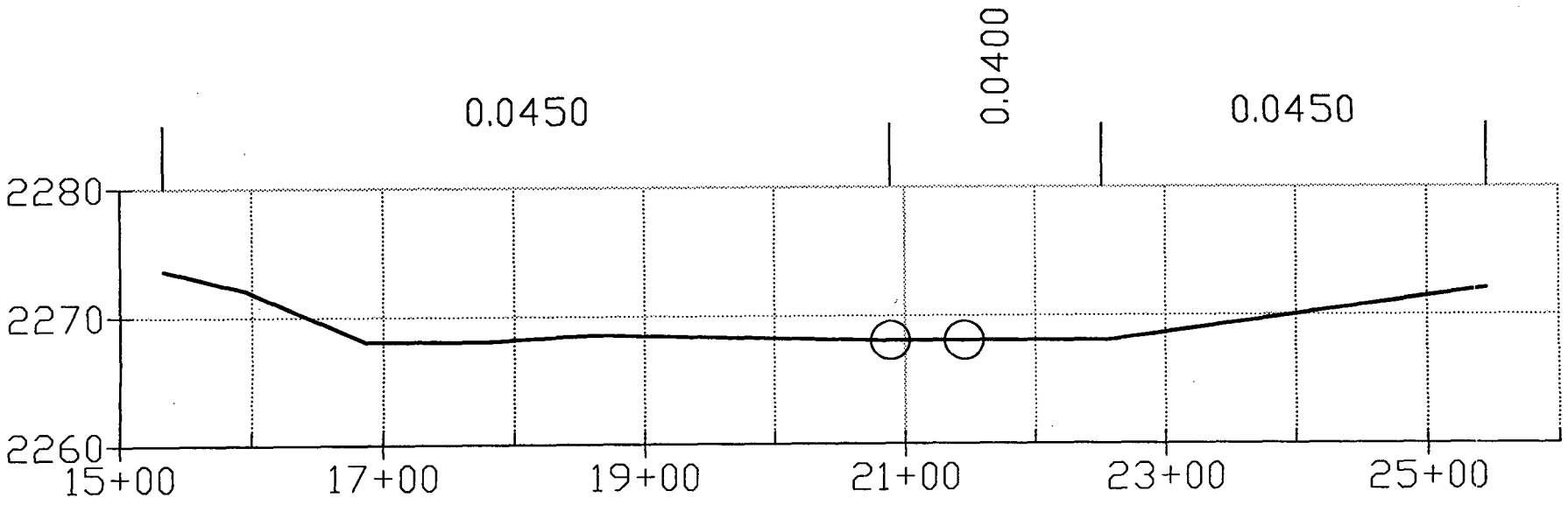
24700


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0.0450
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2260
13+00
15+00
17+00
19+00
21+00
23+00
25+00
27+00

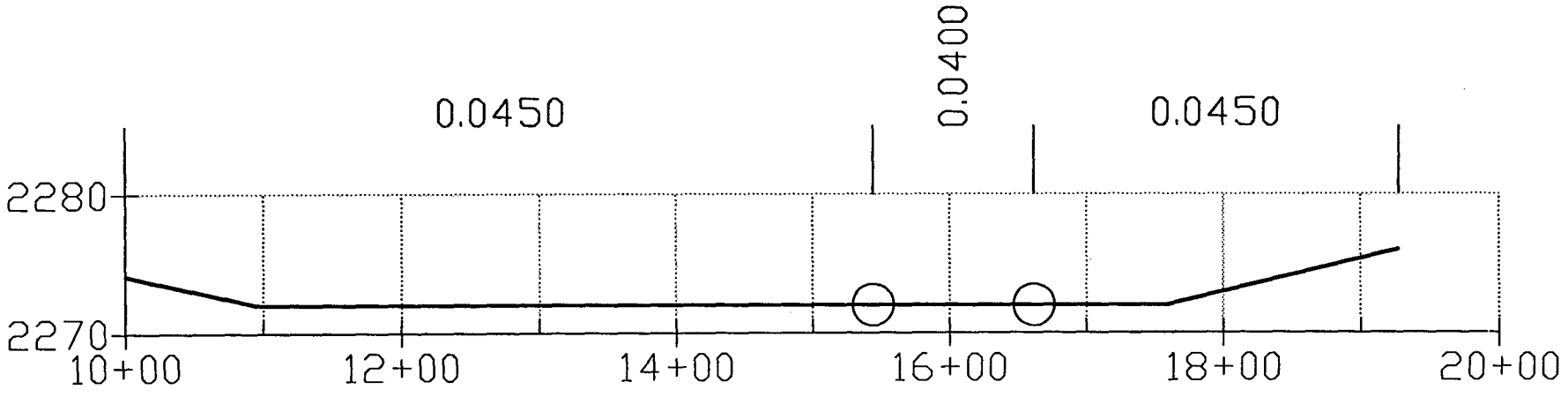
24800


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0.0450
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2260
6+00
8+00
10+00
12+00
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16+00
18+00
20+00

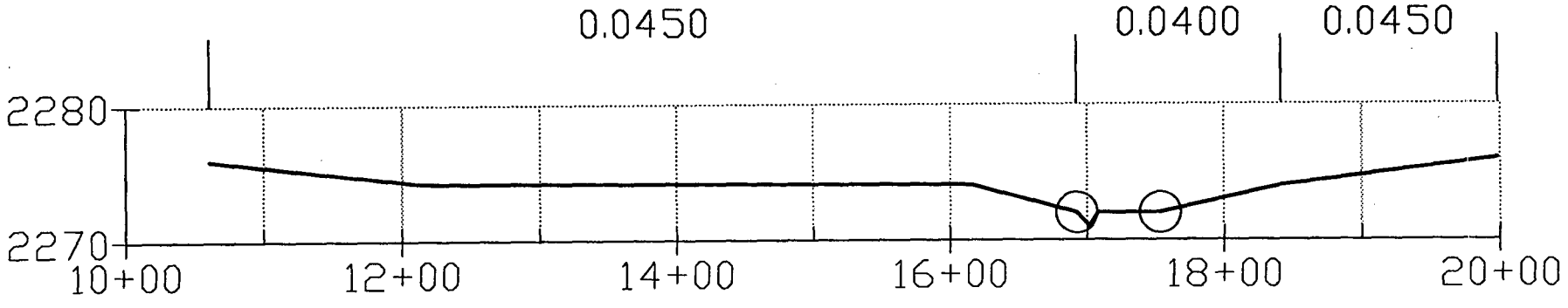
24900


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0.0450
2280
2270
2260
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17+00
19+00
21+00
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25+00

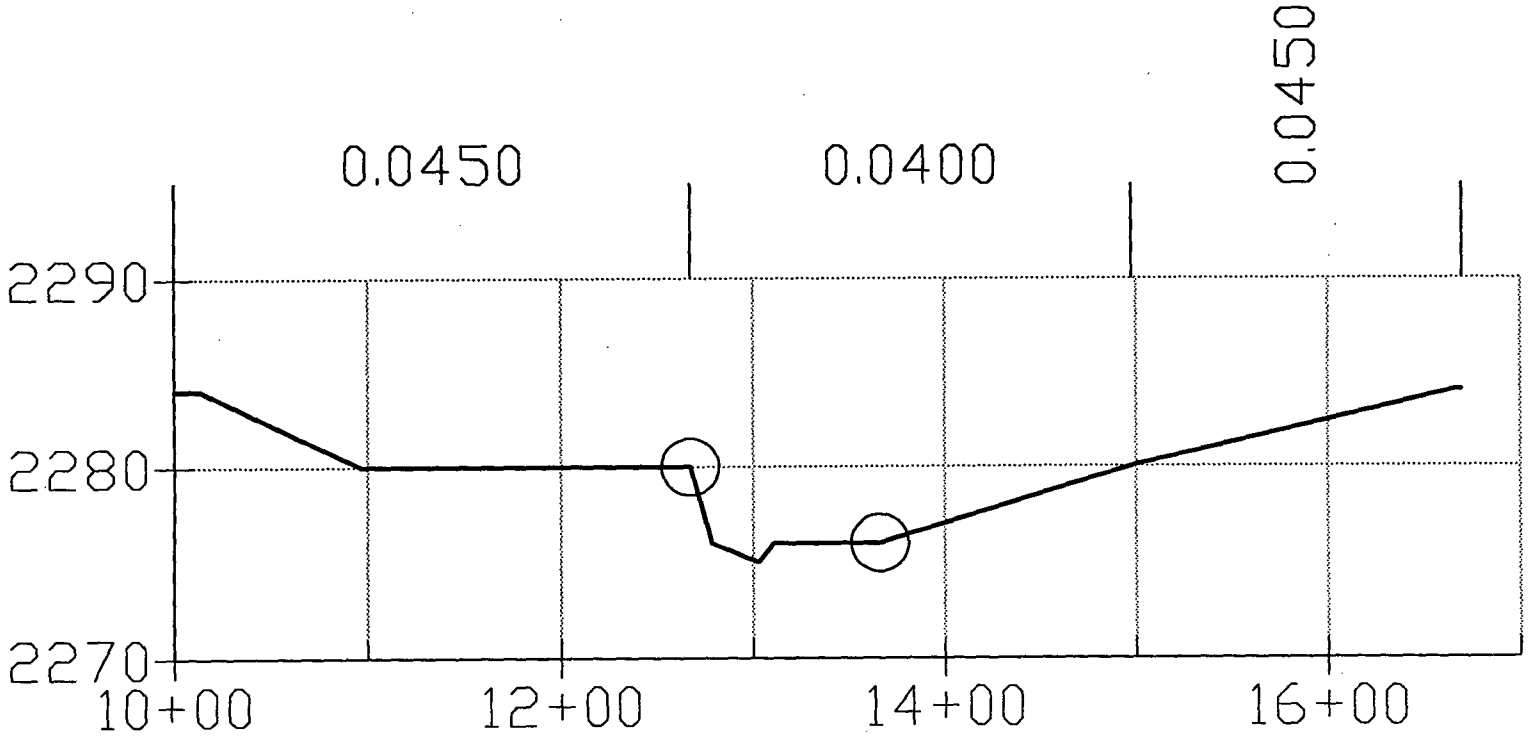
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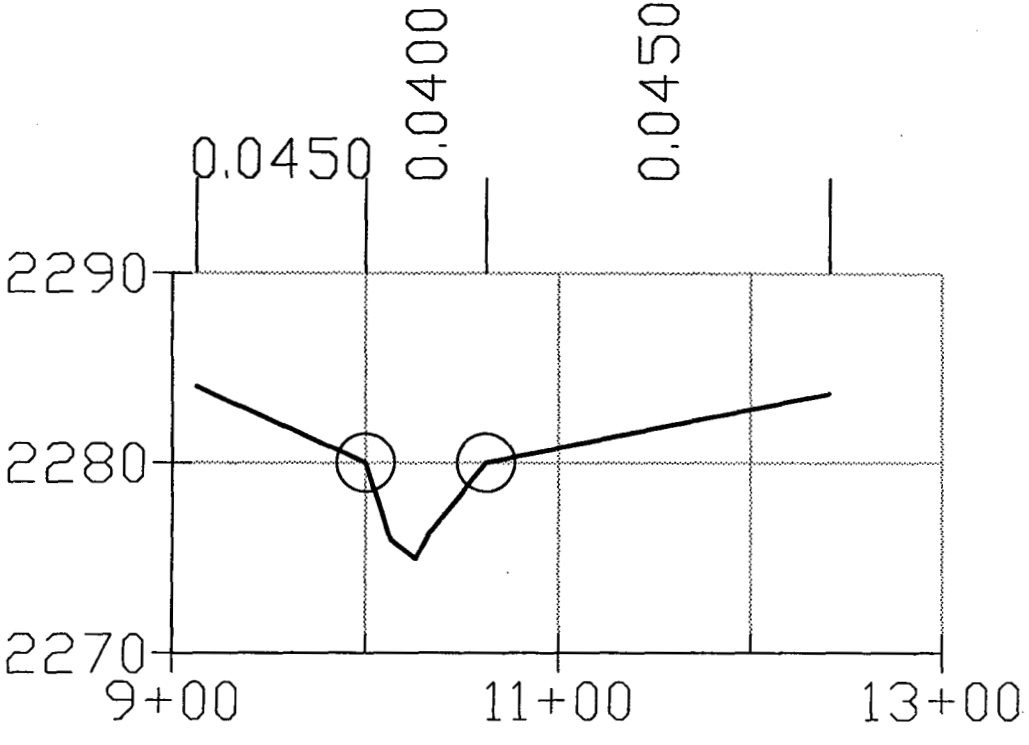

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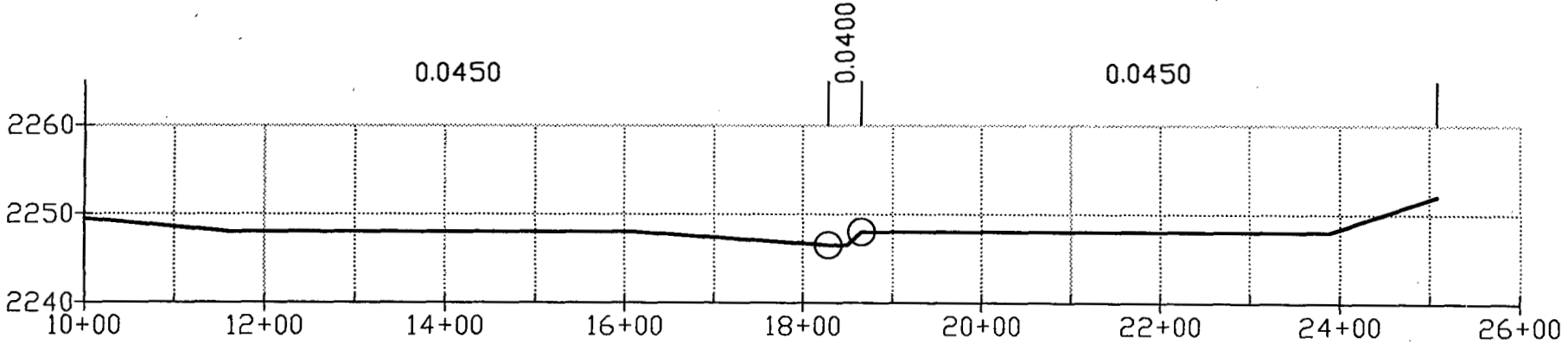

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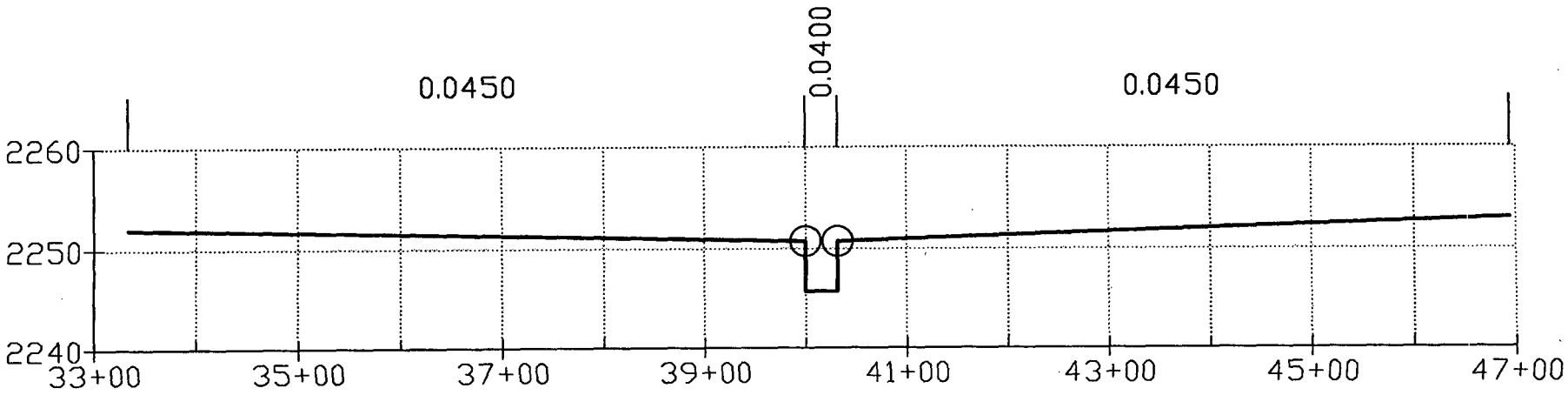

25300



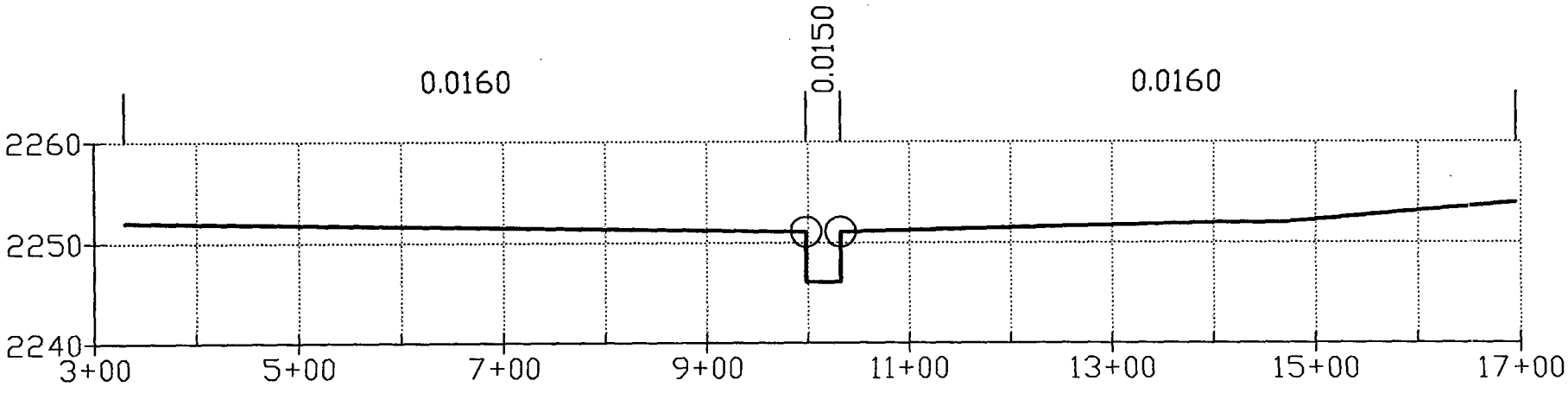

25400


0.0450
0.0400
0.0450
2260
2250
2240
10+00
12+00
14+00
16+00
18+00
20+00
22+00
24+00
26+00

25600

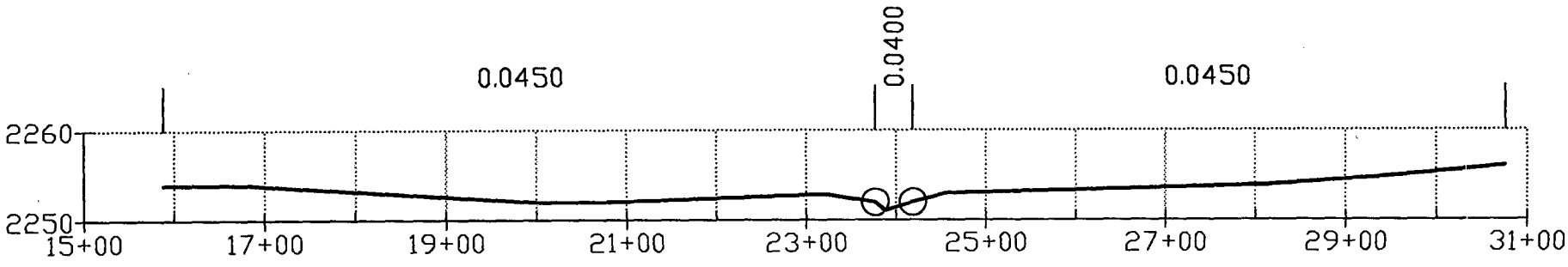

0.0450
0.0400
0.0450
2260
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2240
33+00
35+00
37+00
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41+00
43+00
45+00
47+00

25700



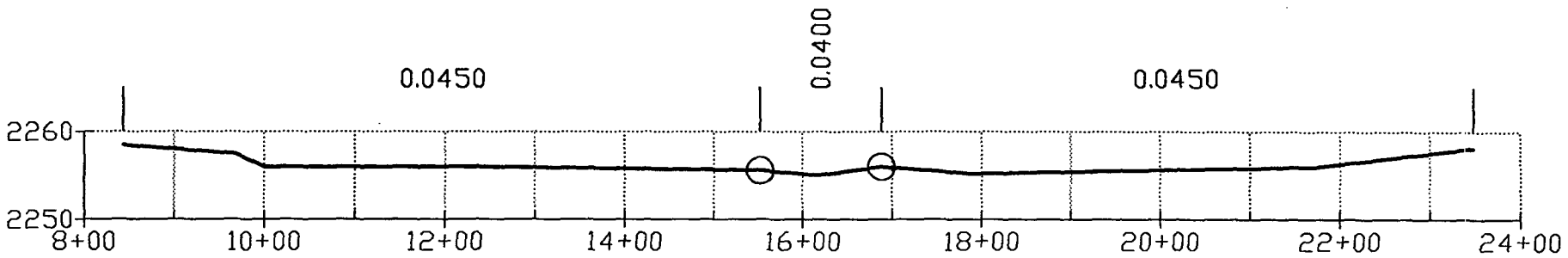

25800

TOTAL FLOW INCLUDES SPLIT FLOW OVER PYLE AVENUE

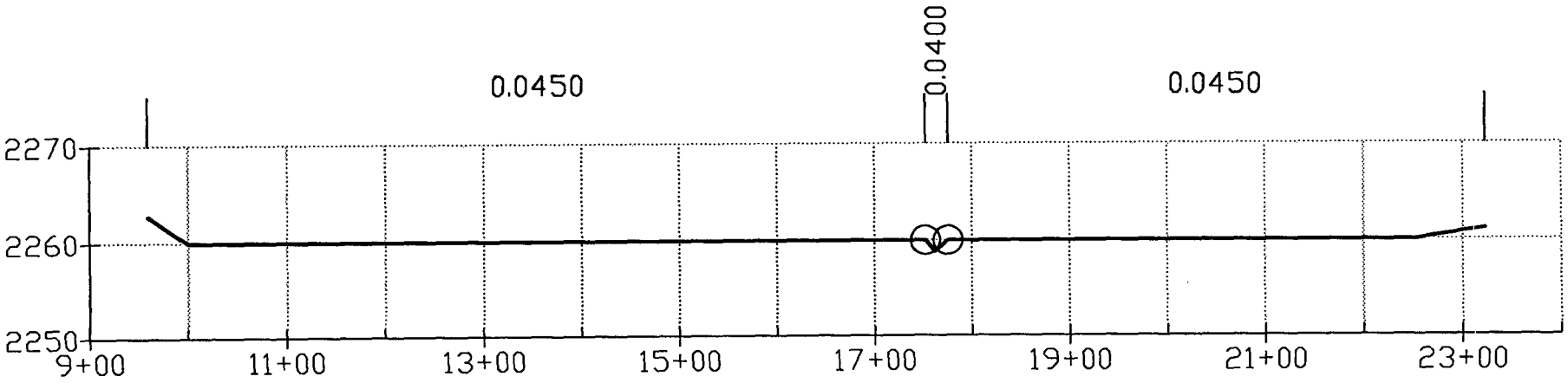



25900

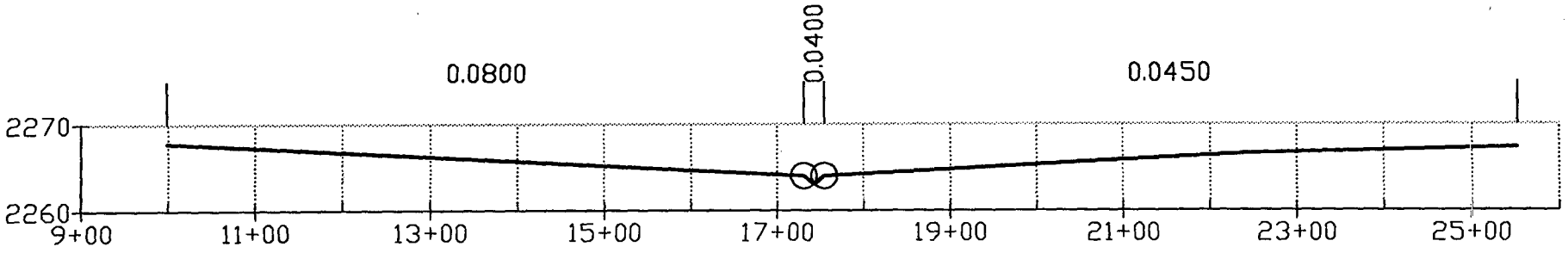
TOTAL FLOW INCLUDES SPLIT FLOW OVER PYLE AVENUE


0.0450
0.0400
0.0450
2260
2250
8+00
10+00
12+00
14+00
16+00
18+00
20+00
22+00
24+00

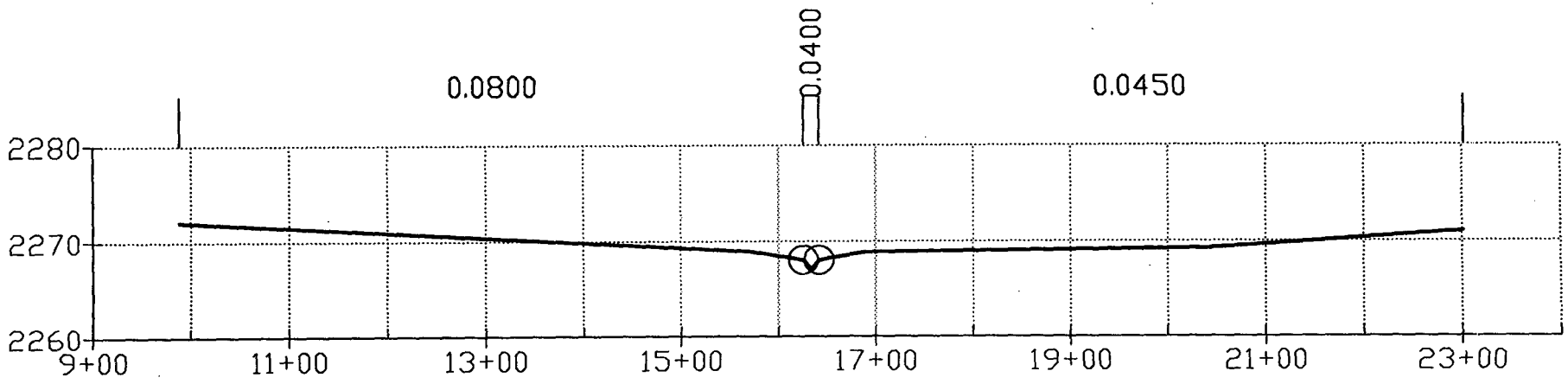
26000


0.0450
0.0400
0.0450
2270
2260
2250
9+00
11+00
13+00
15+00
17+00
19+00
21+00
23+00

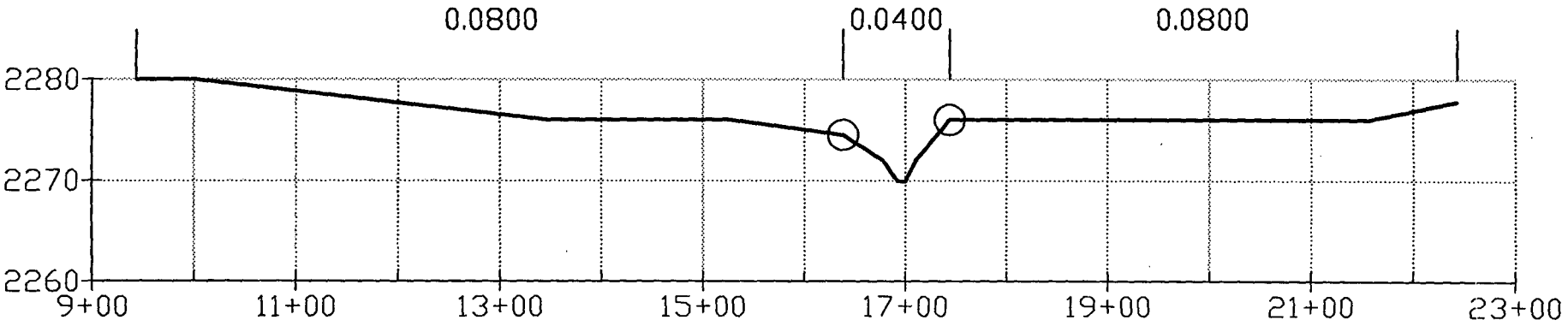
26100


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0.0400
0.0450
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2260
9+00
11+00
13+00
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17+00
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21+00
23+00
25+00

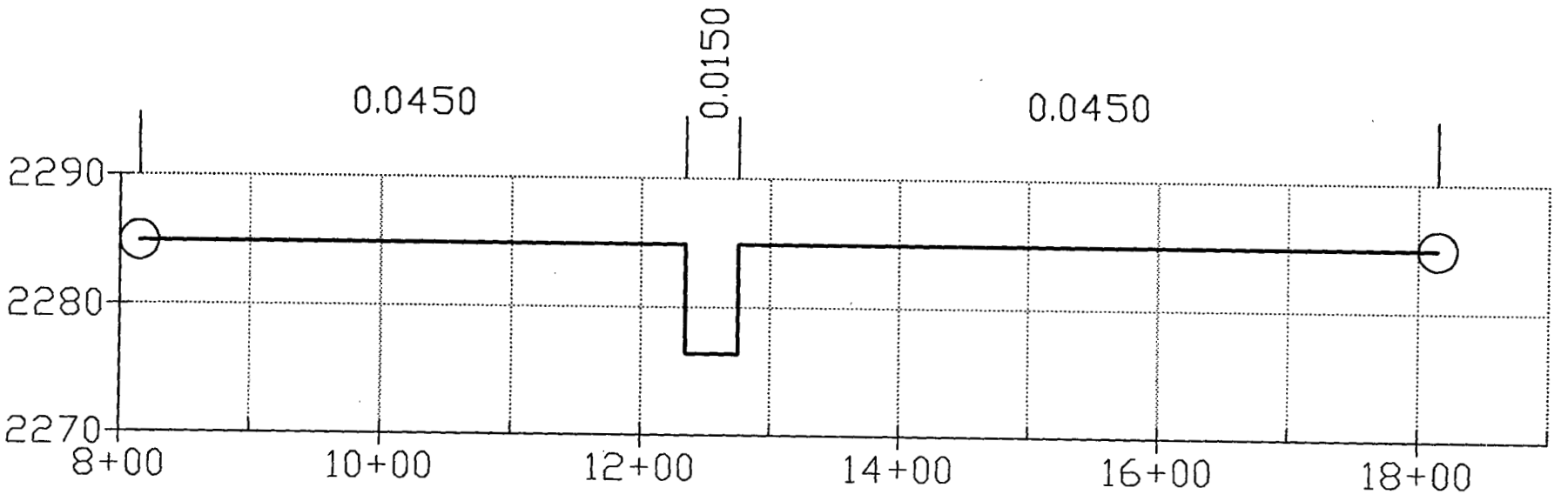
26200


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0.0450
2280
2270
2260
9+00
11+00
13+00
15+00
17+00
19+00
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23+00

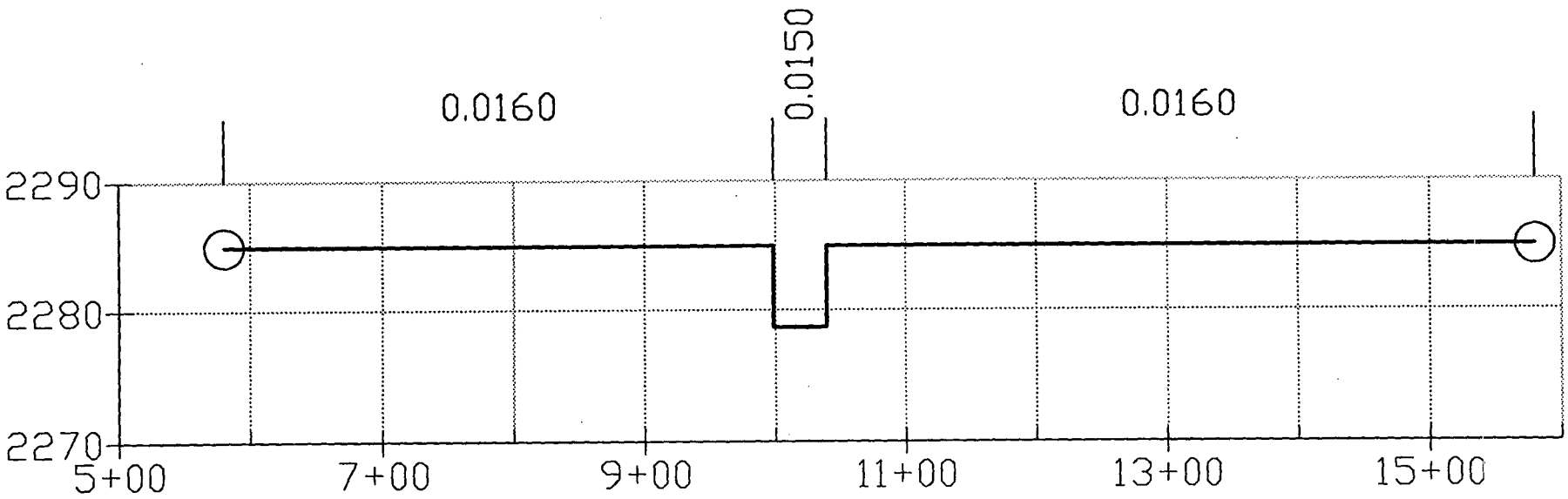
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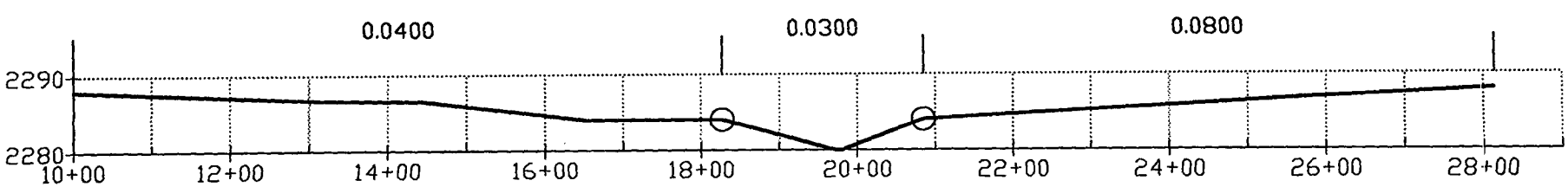
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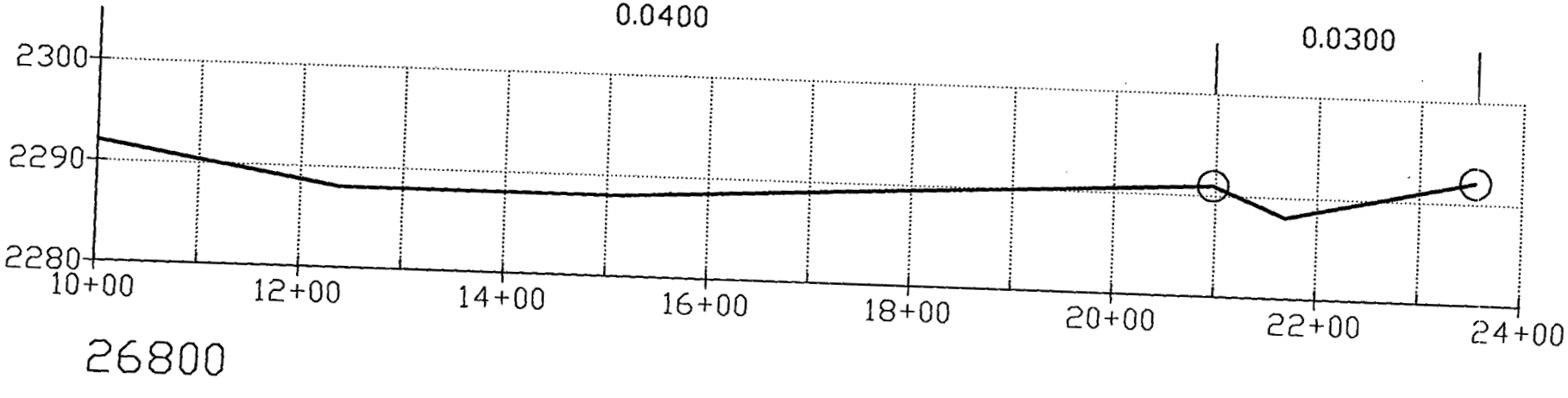
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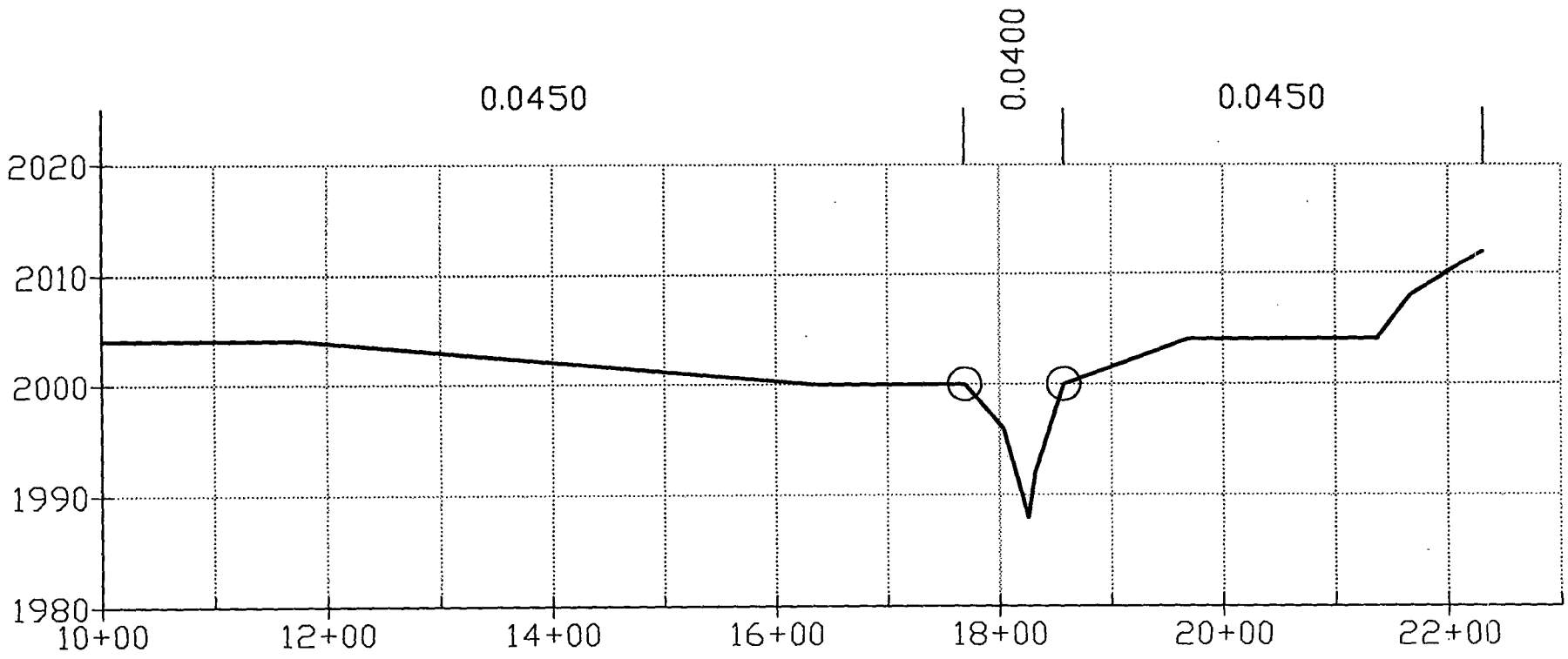

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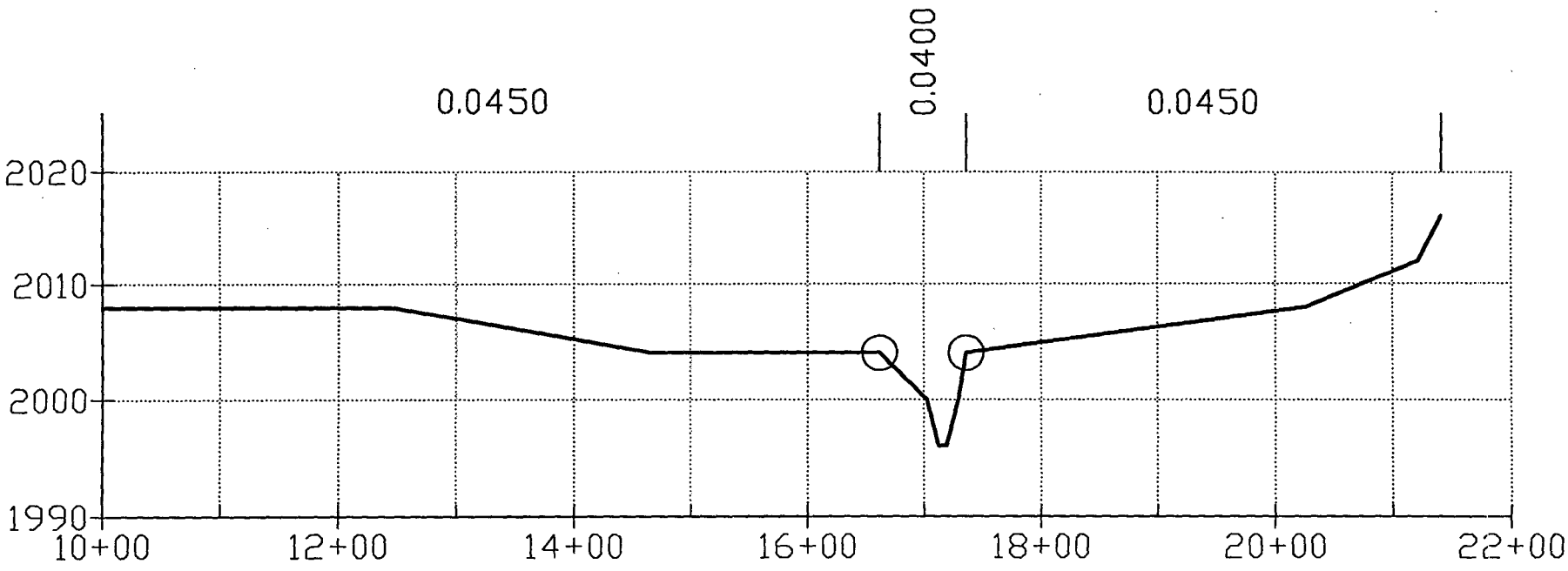
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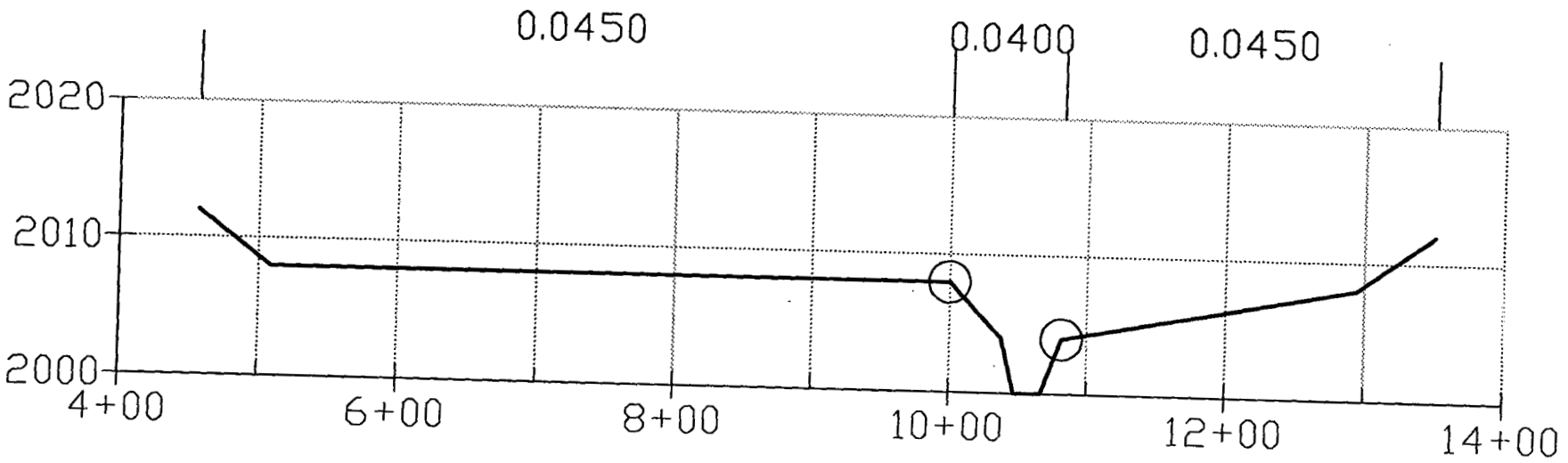
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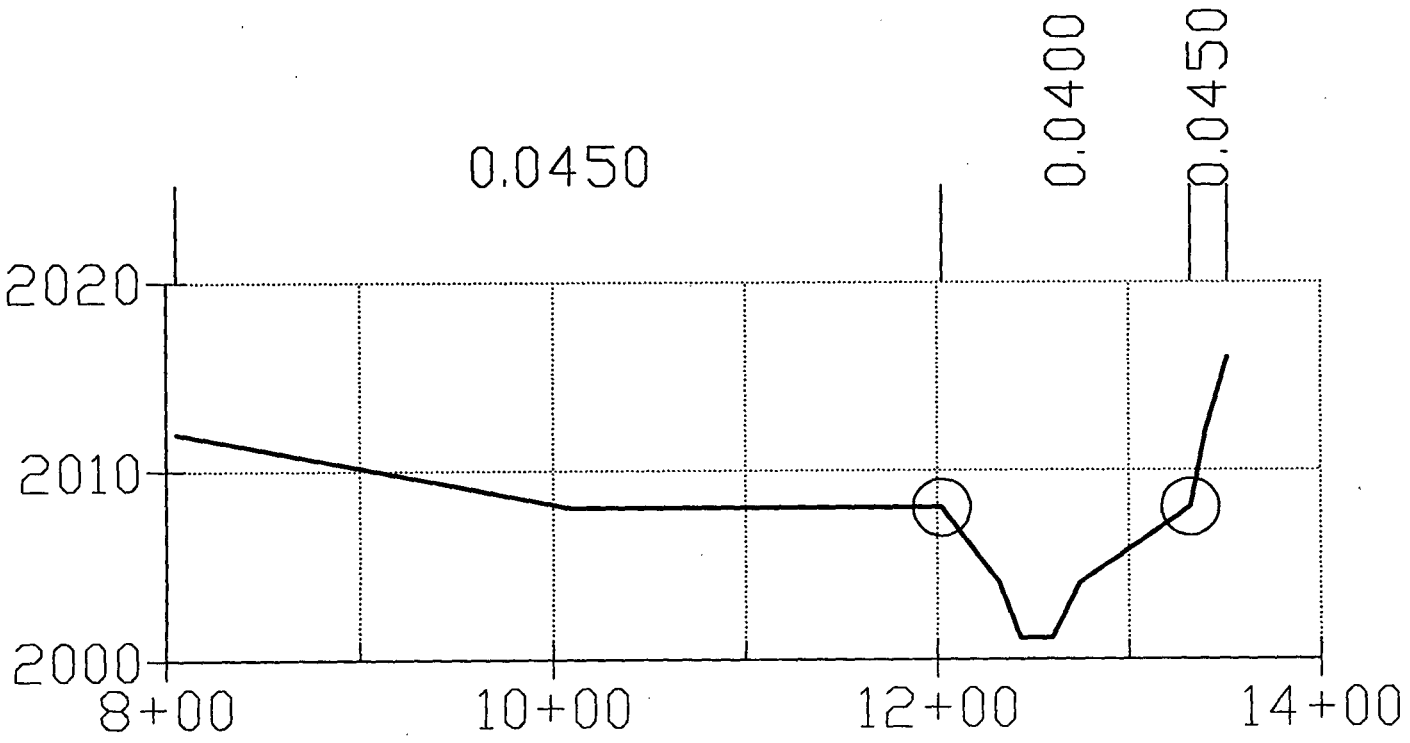
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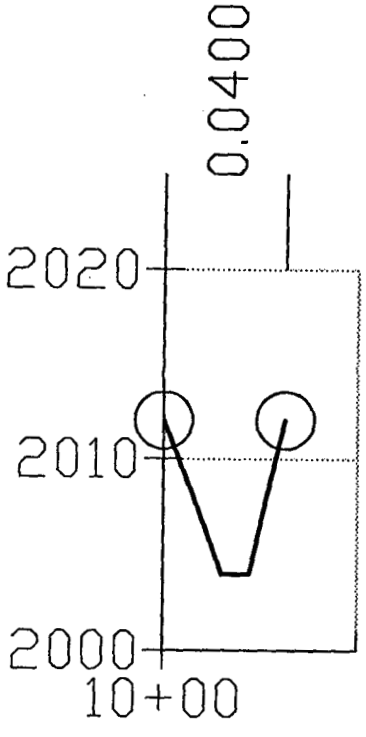
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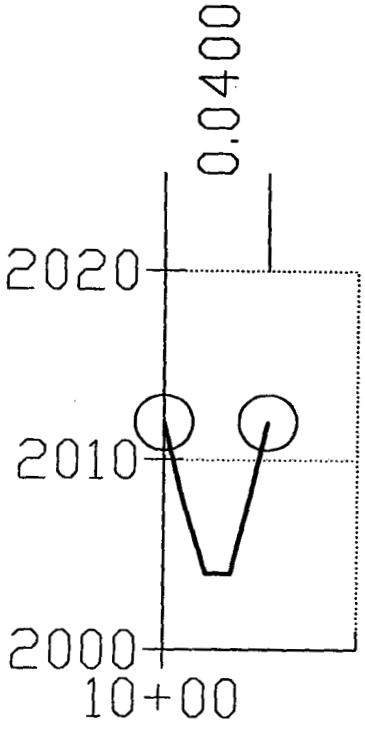

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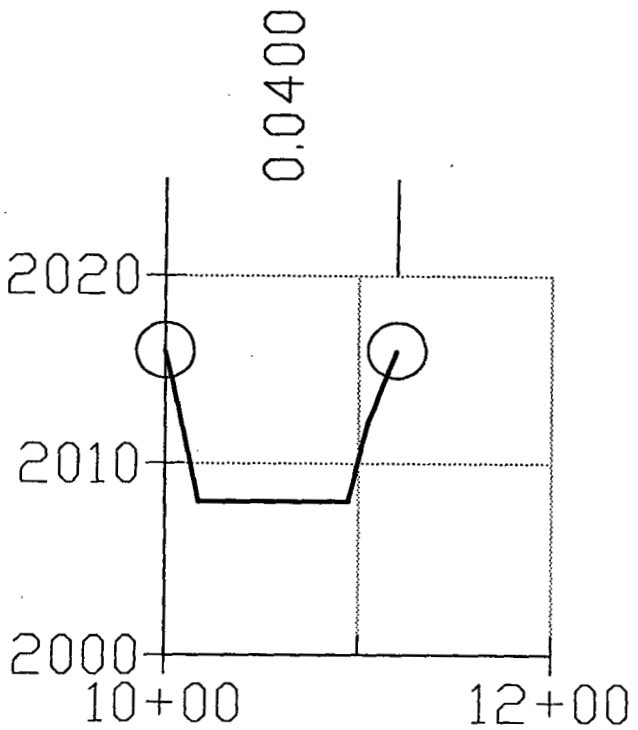

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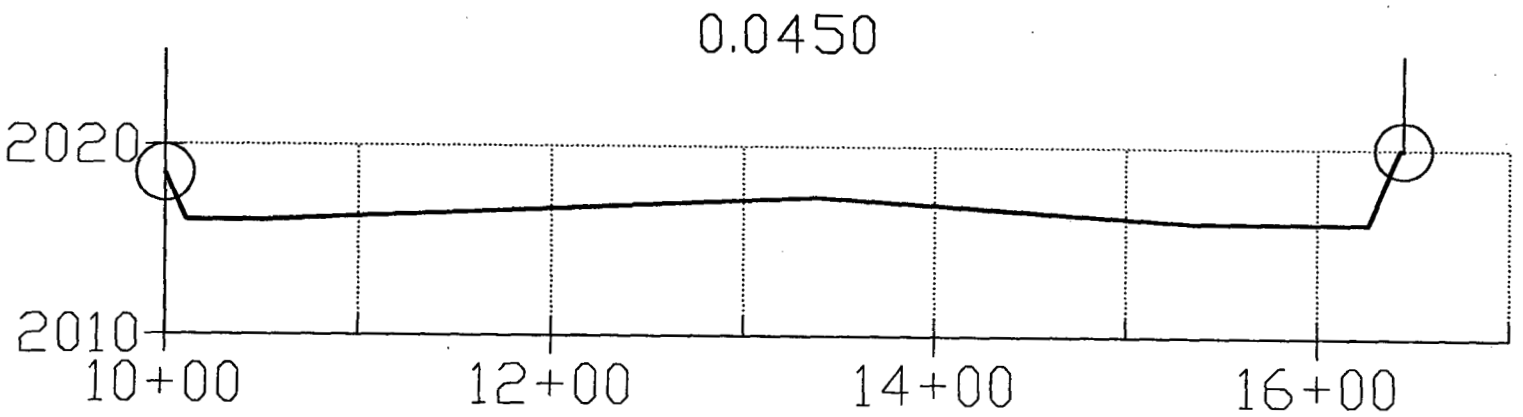

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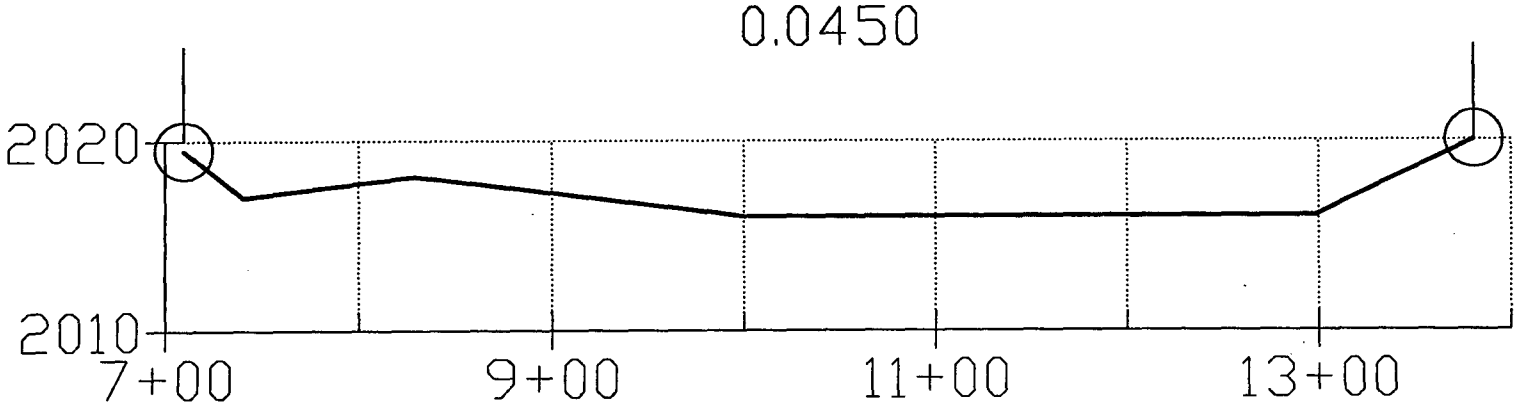

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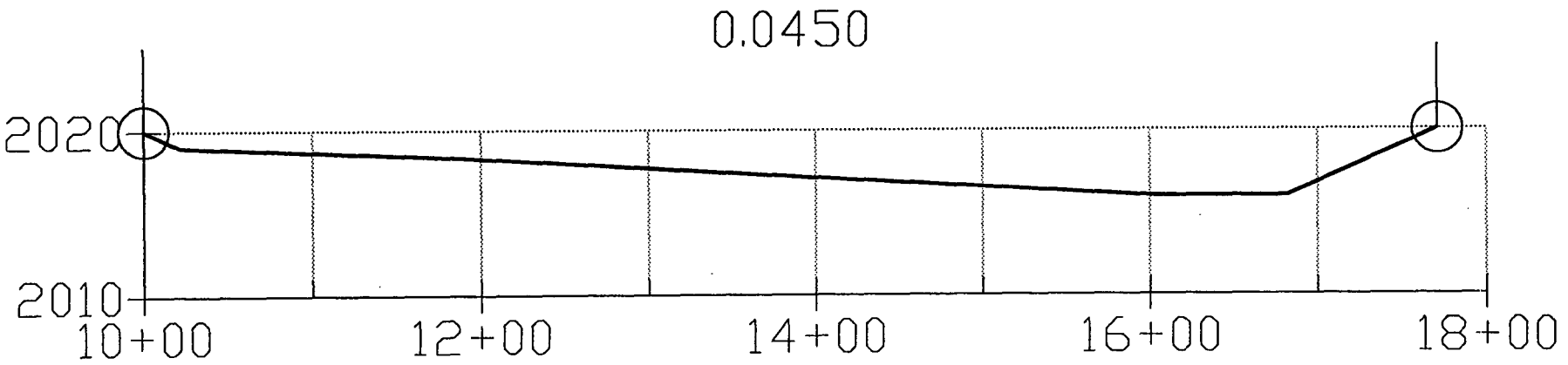

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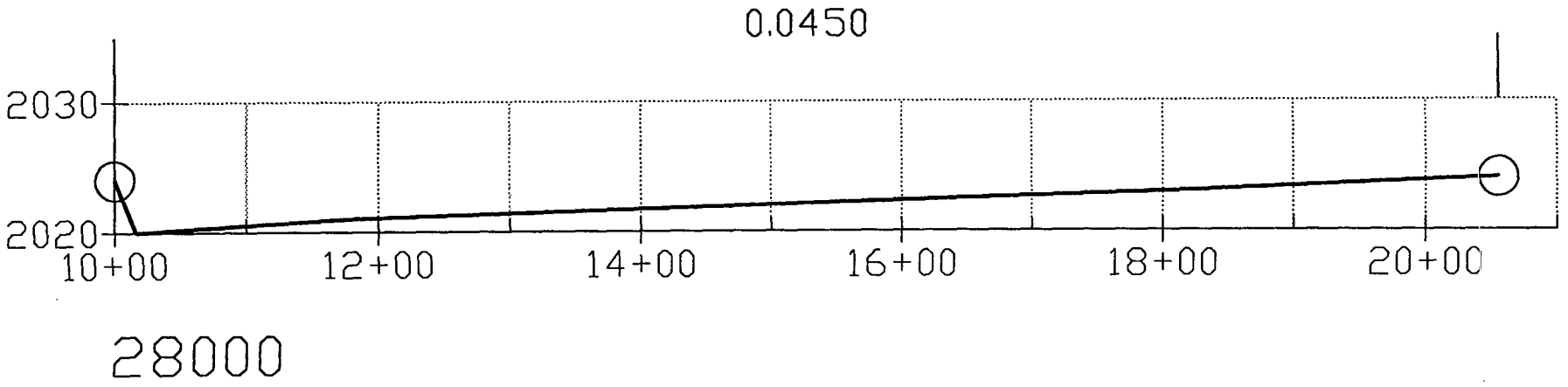

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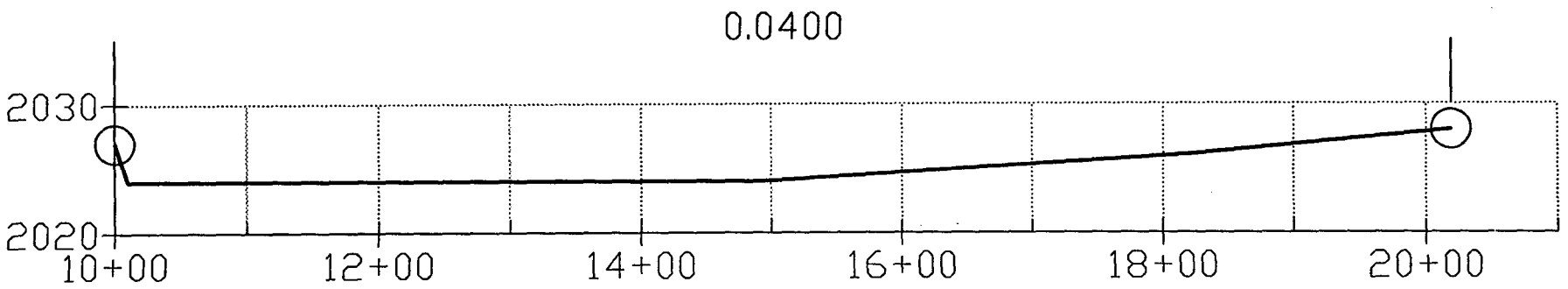

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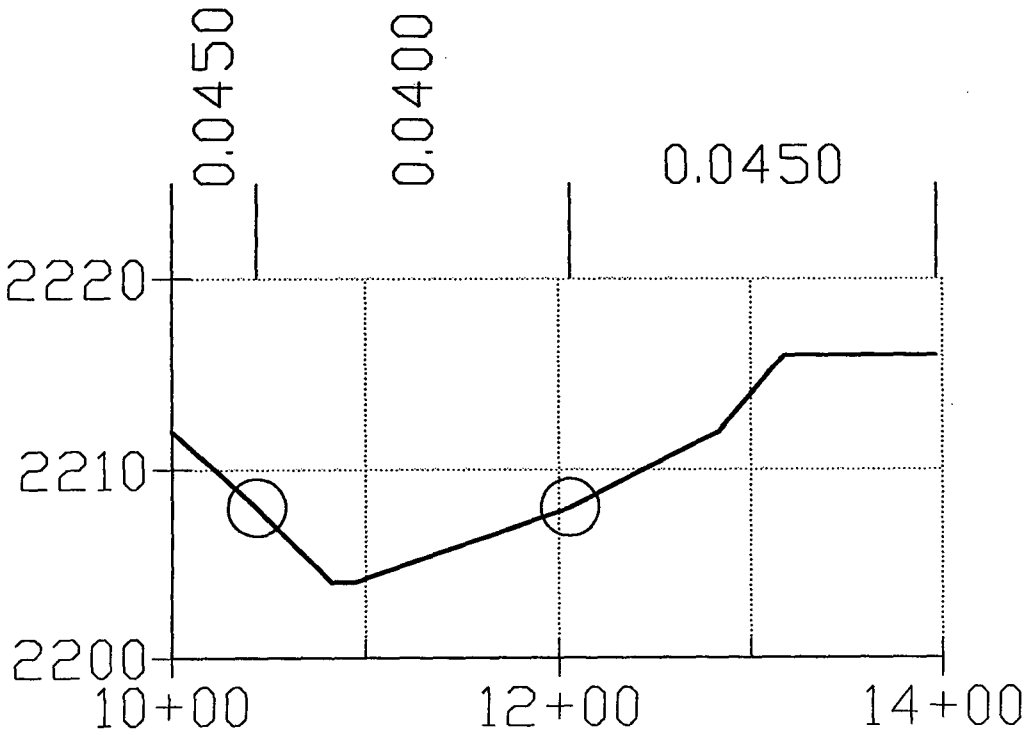

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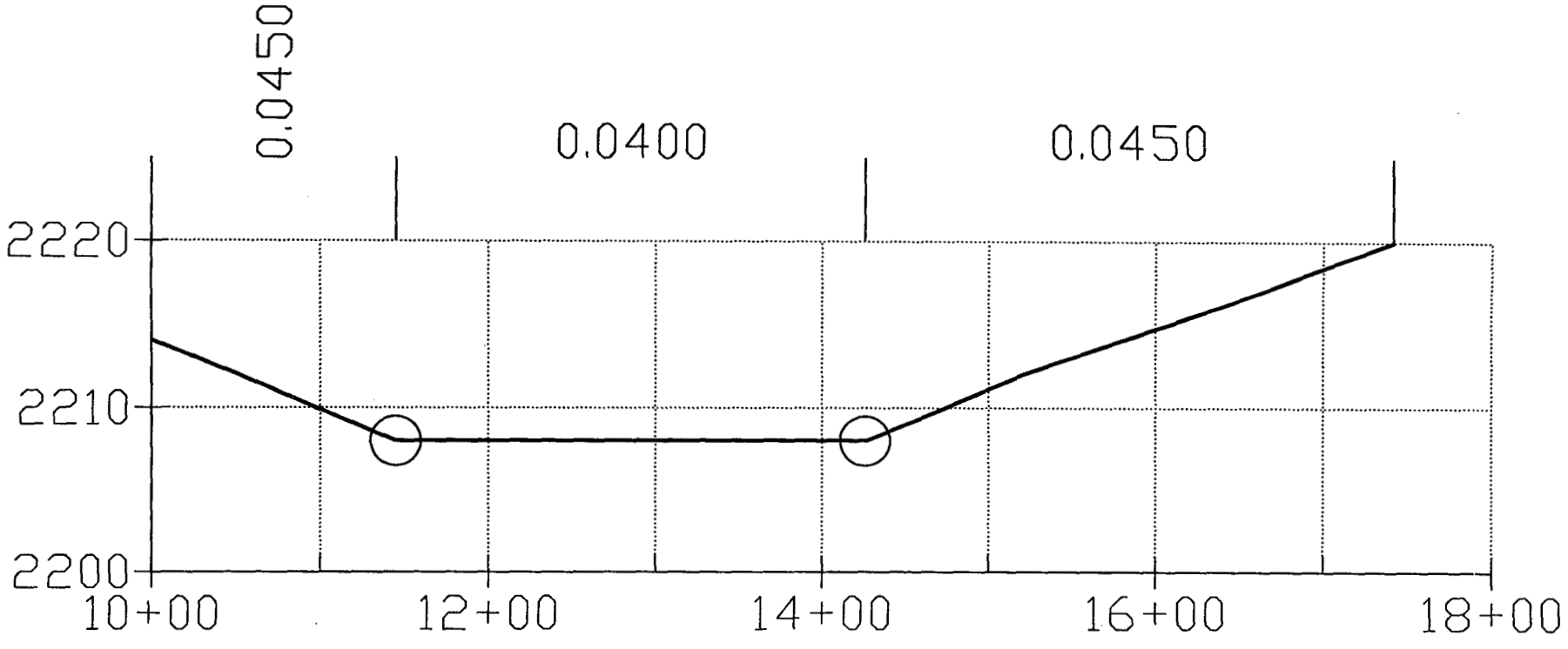

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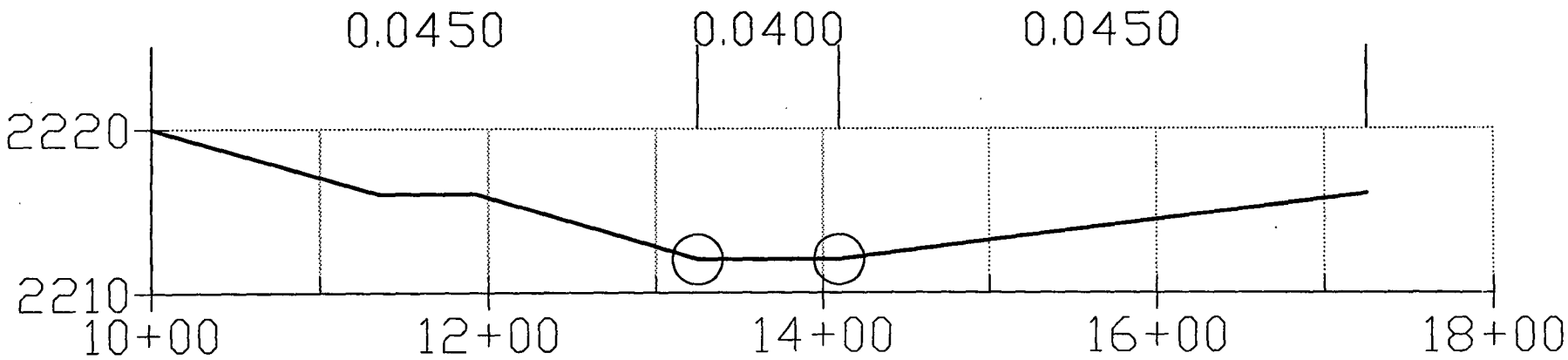

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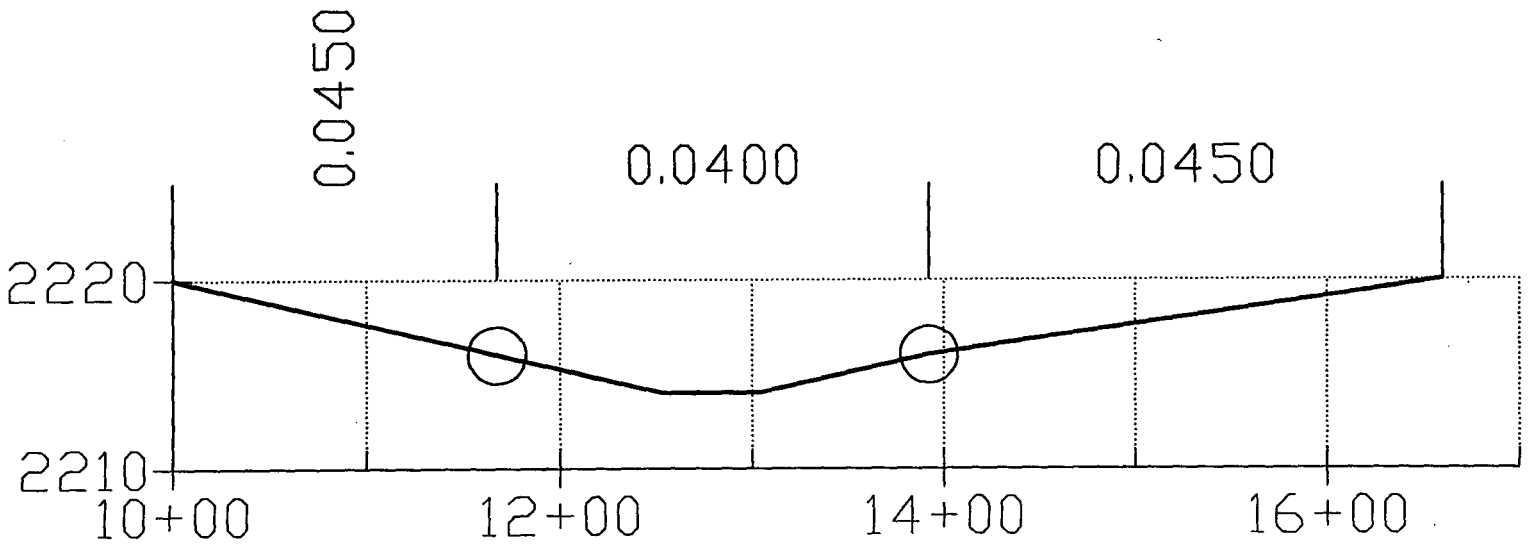

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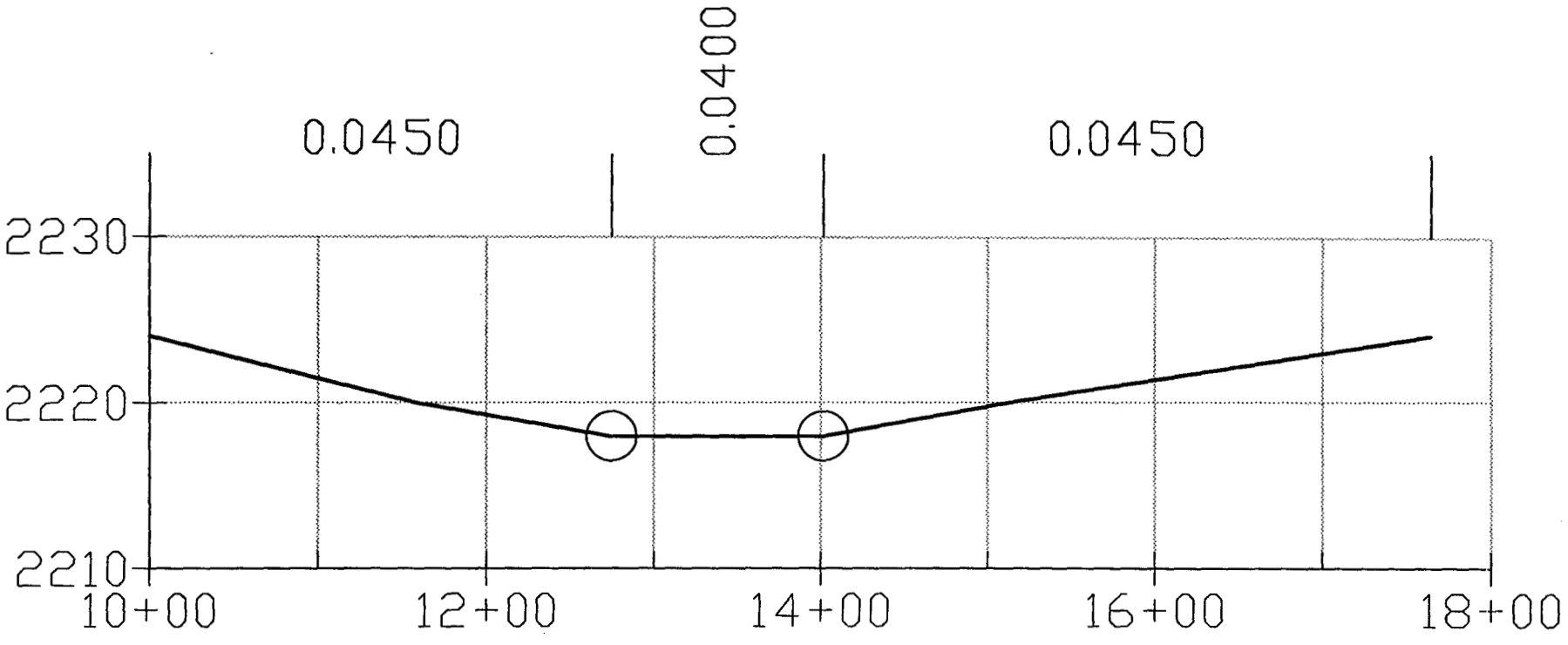

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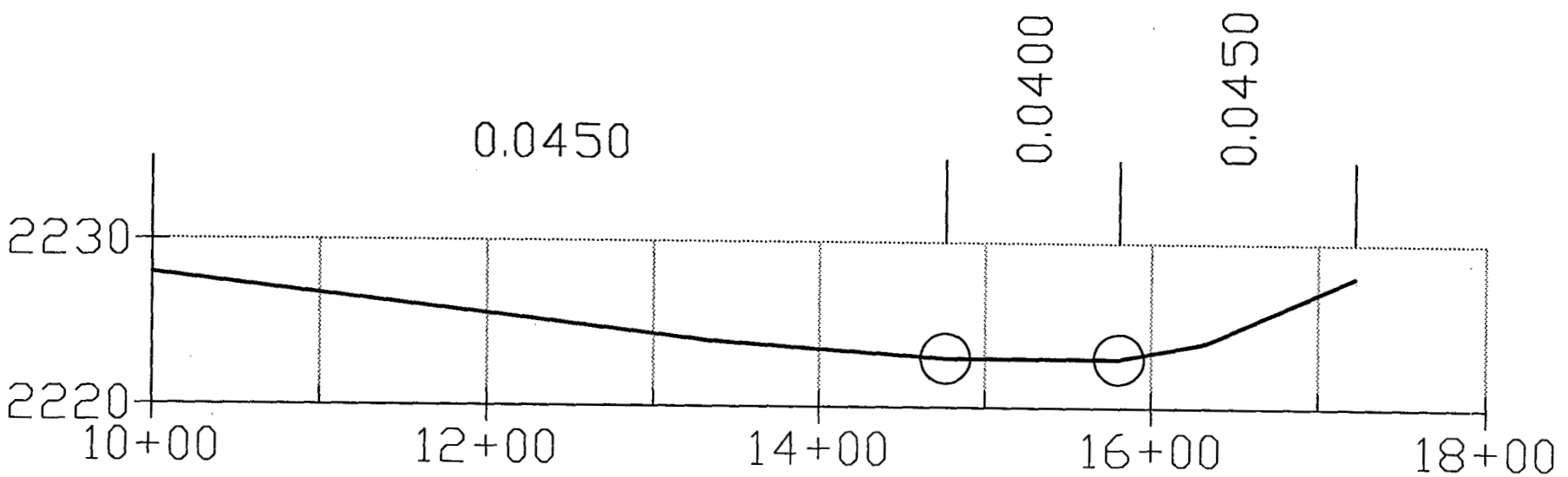

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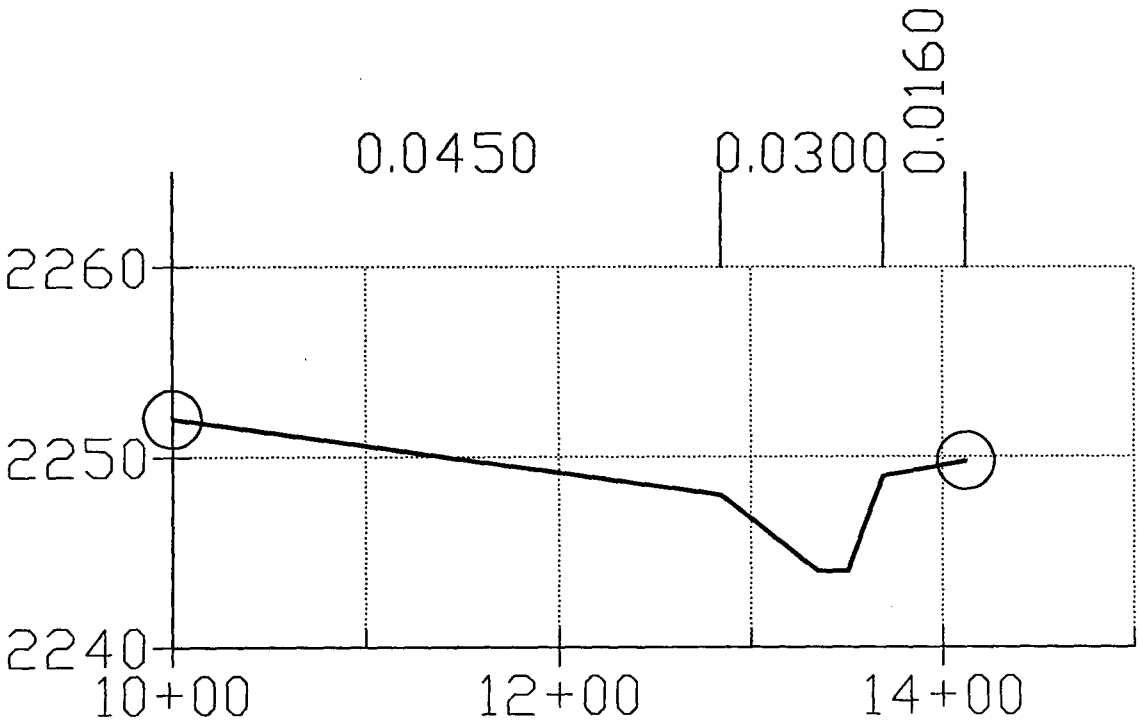

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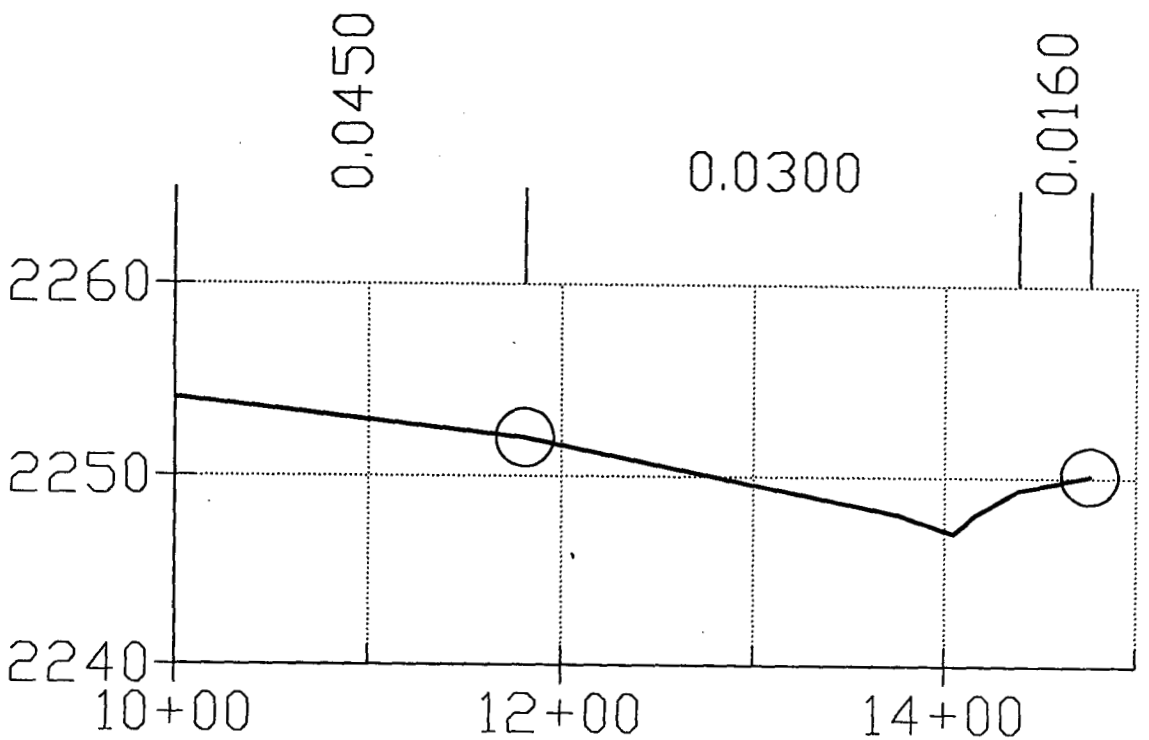

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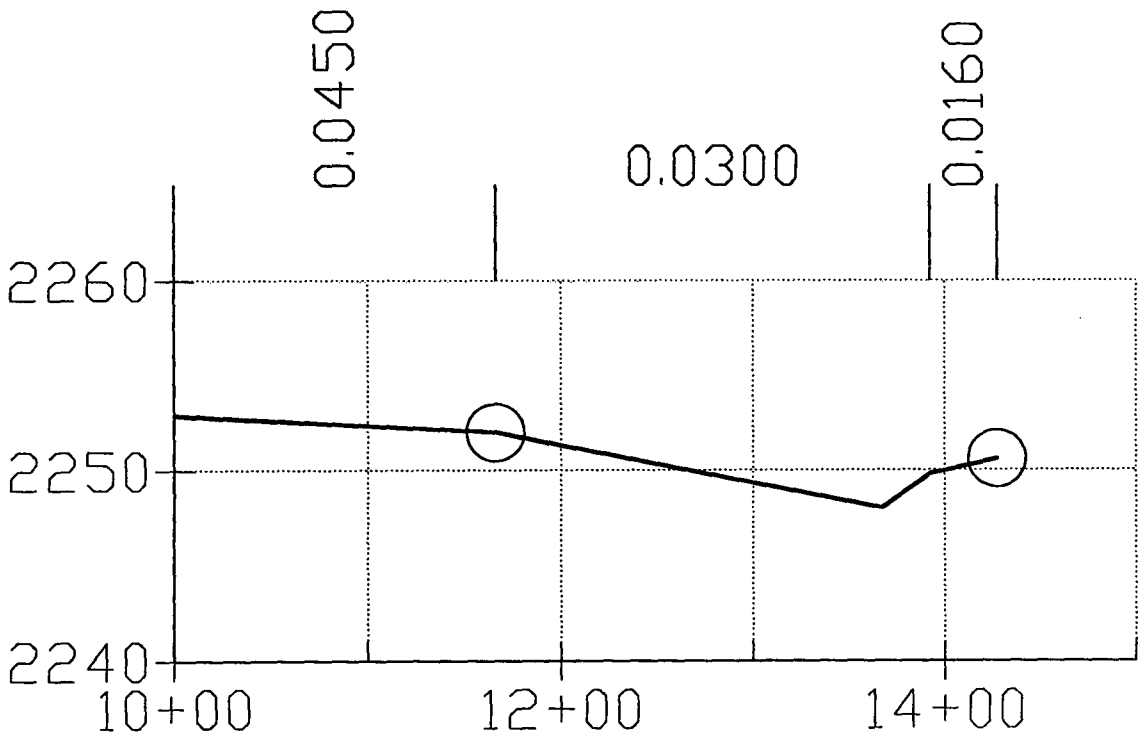

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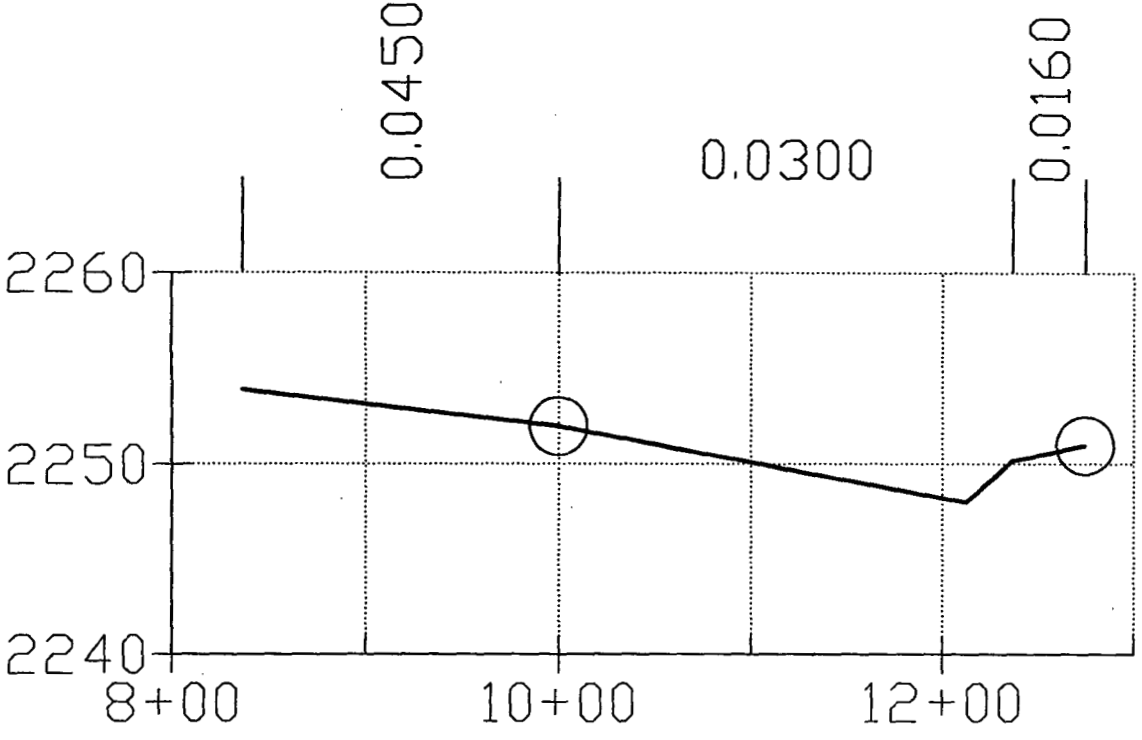

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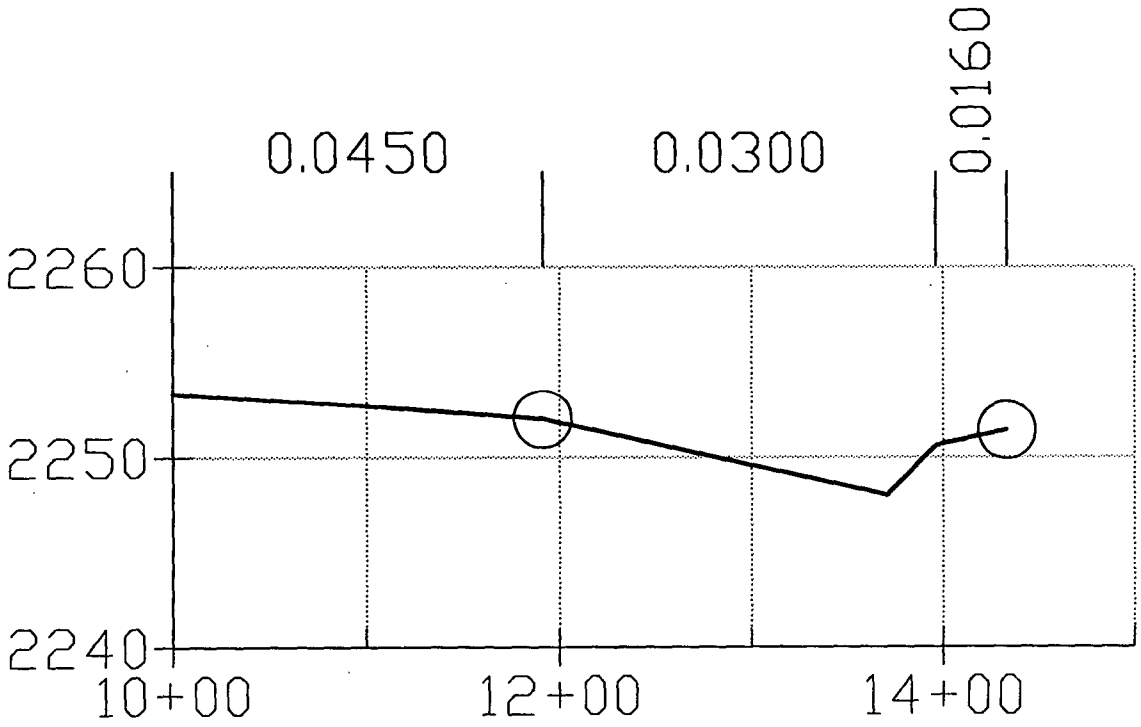

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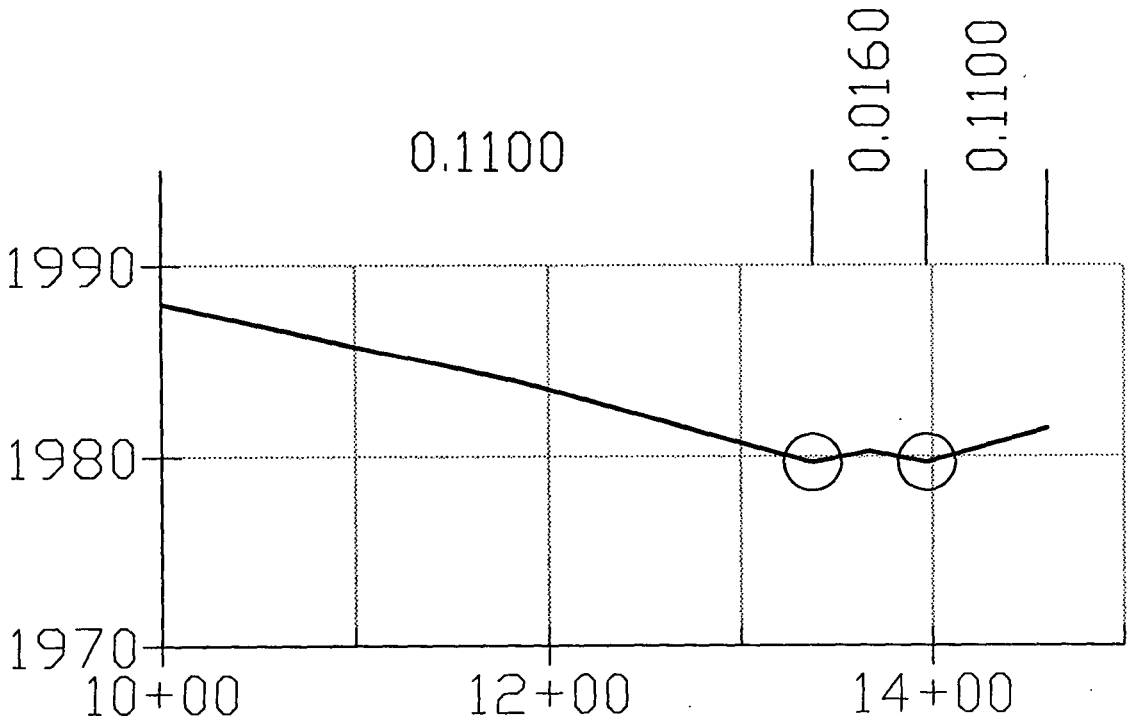

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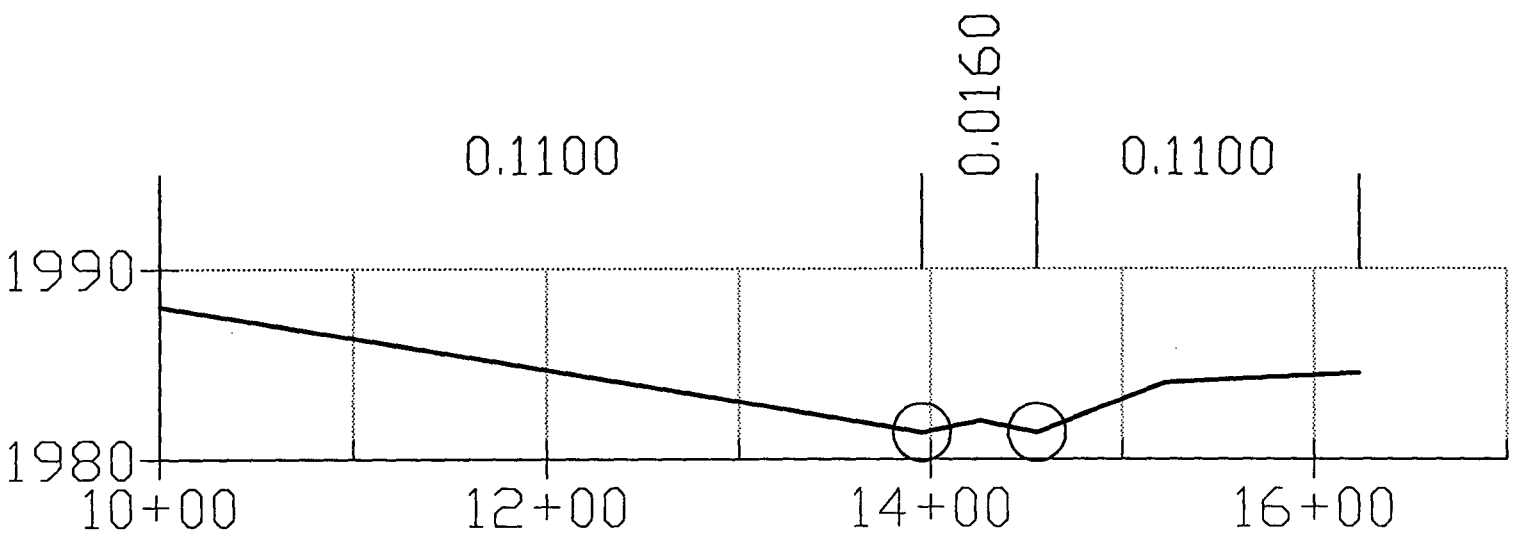

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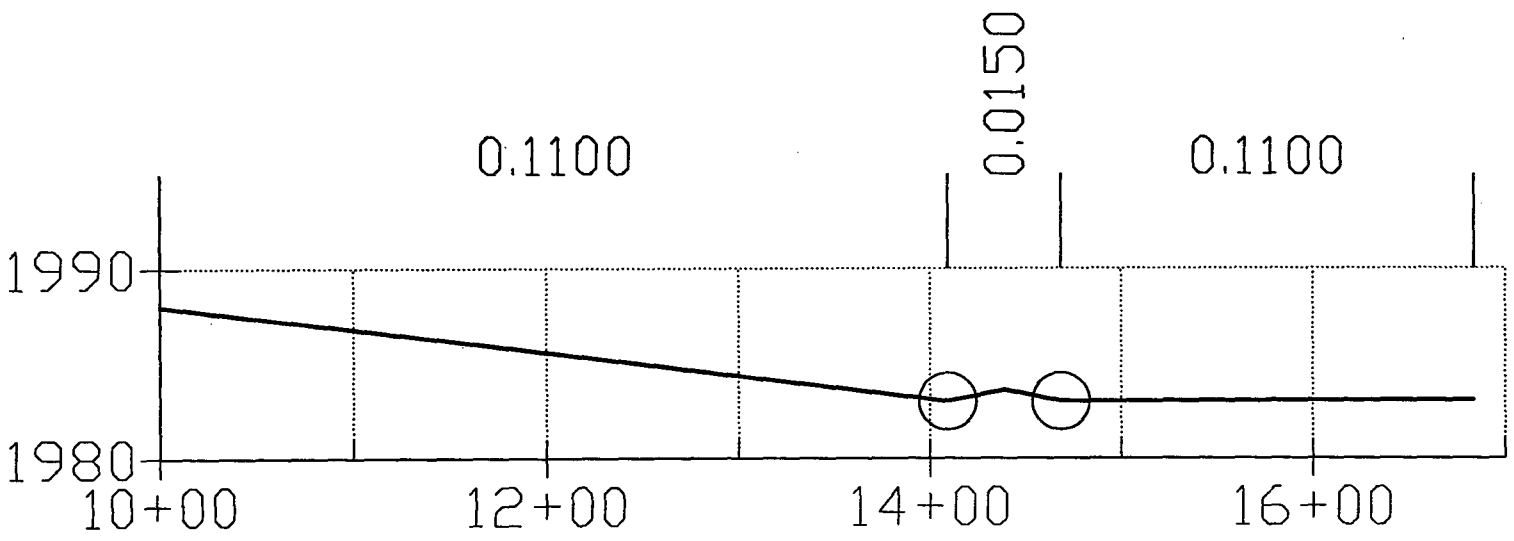

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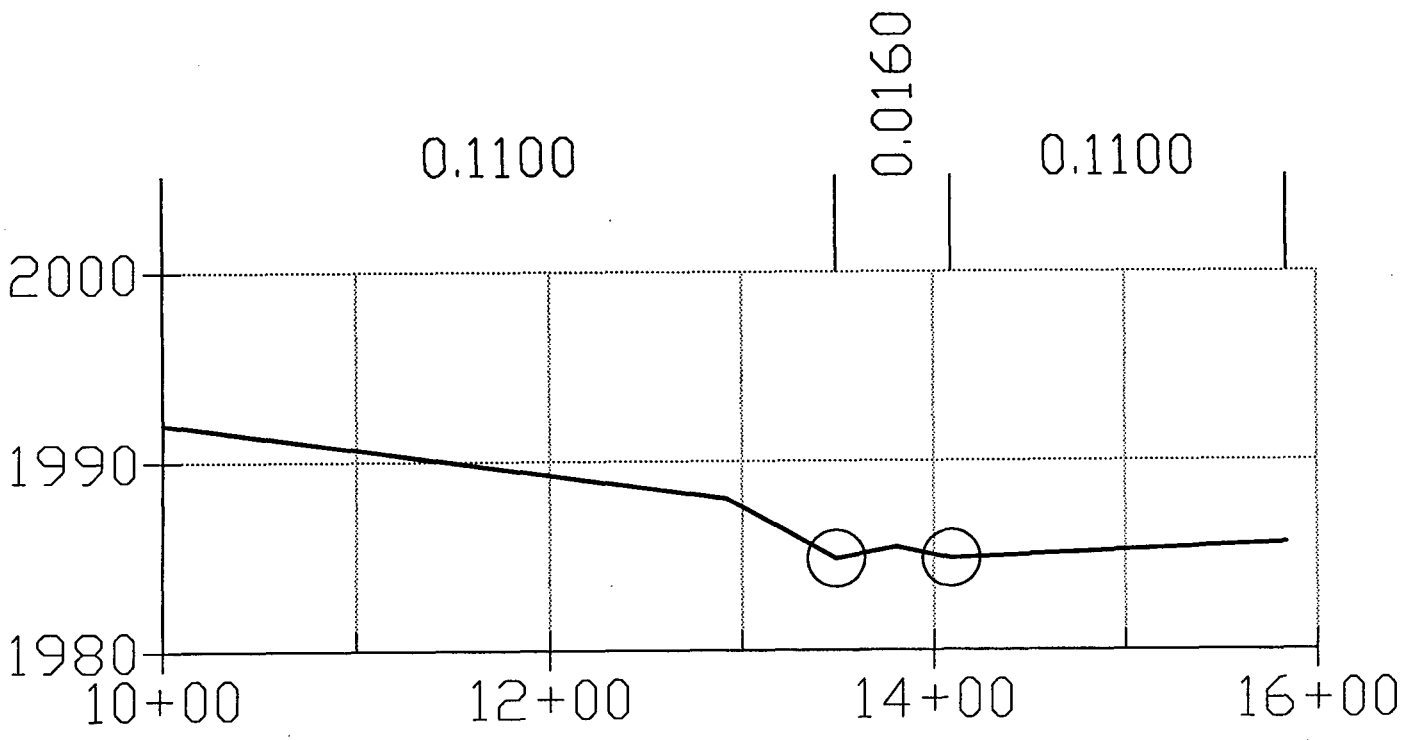

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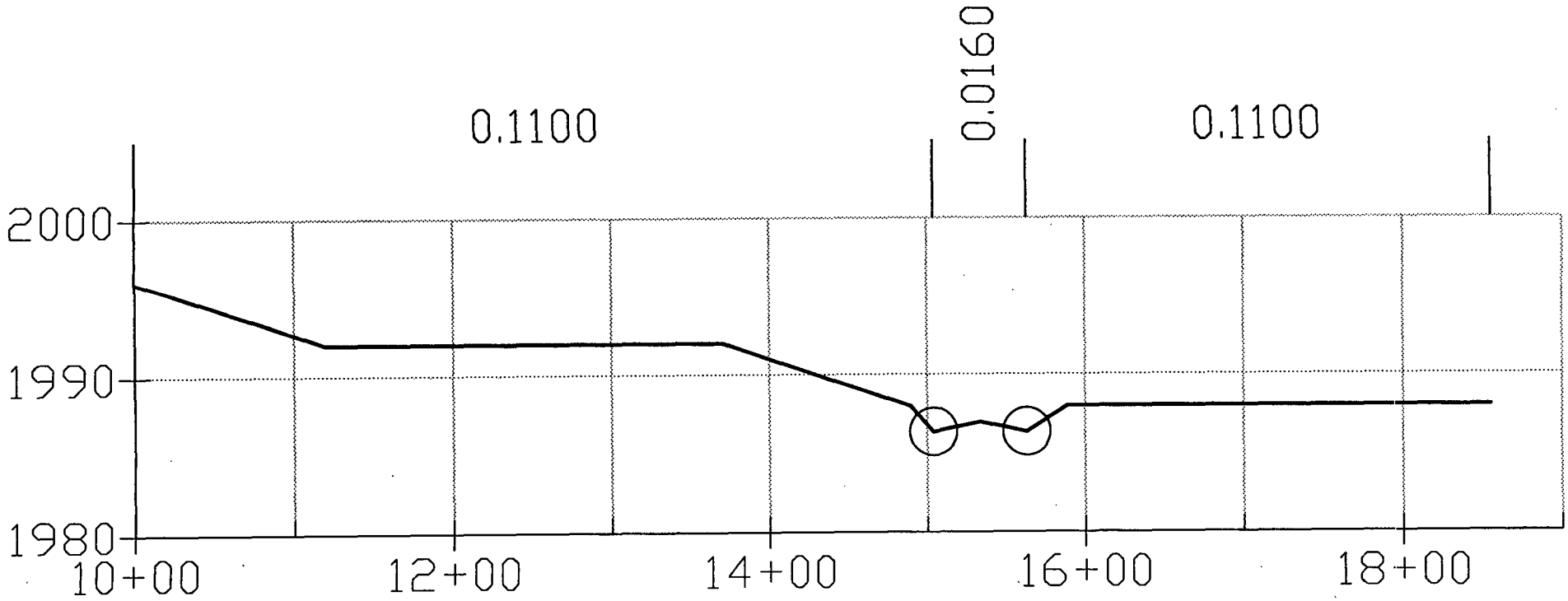

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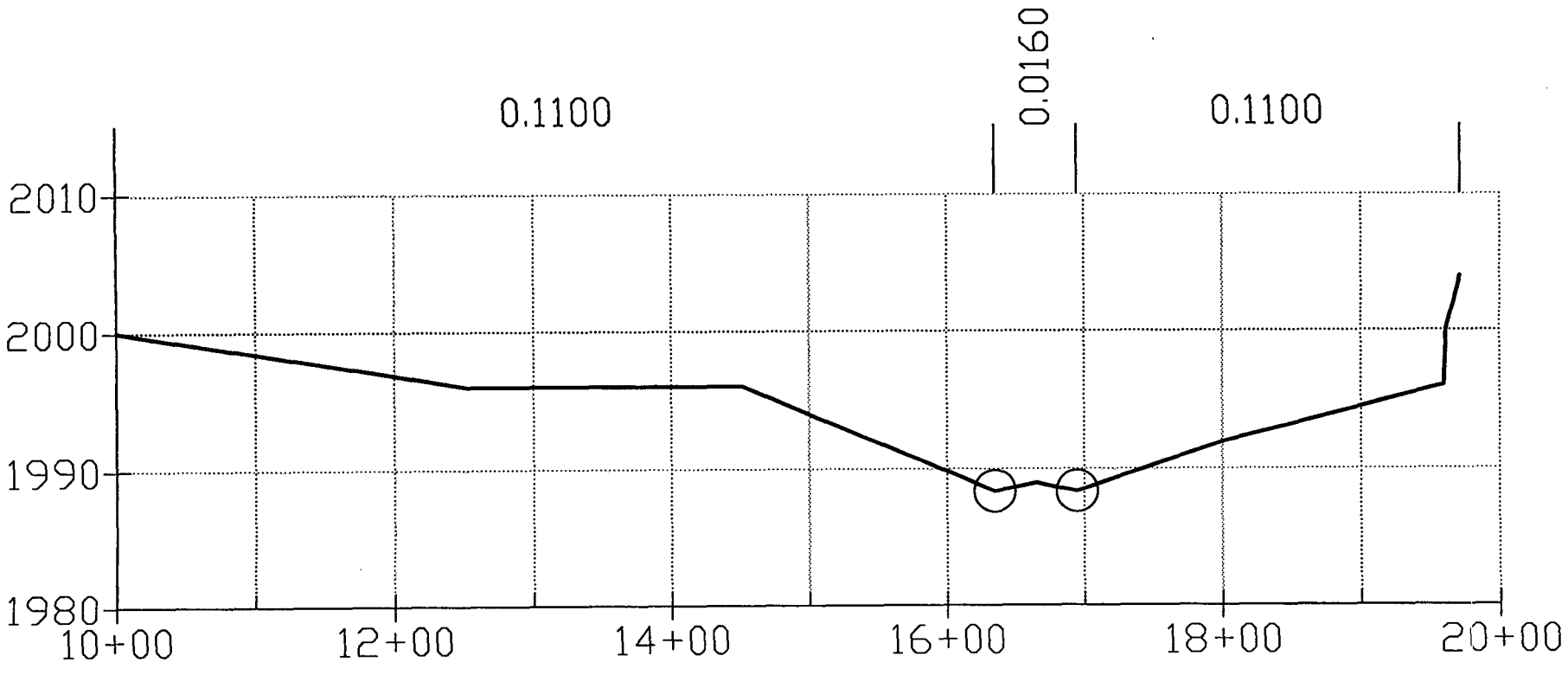

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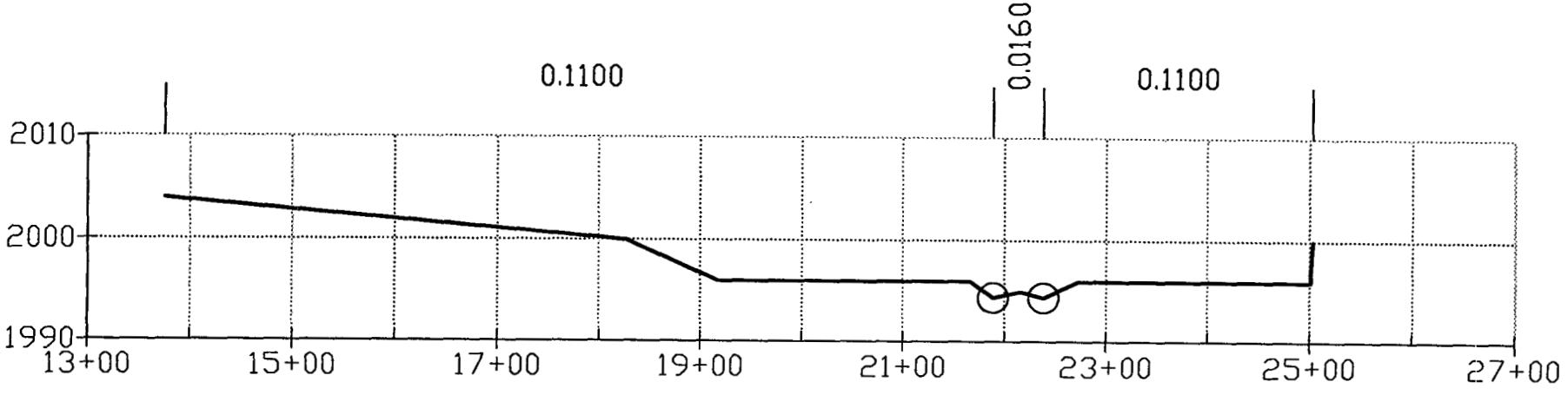

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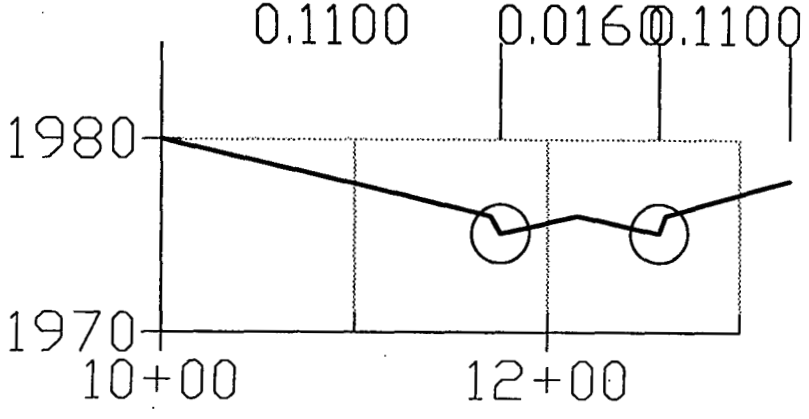

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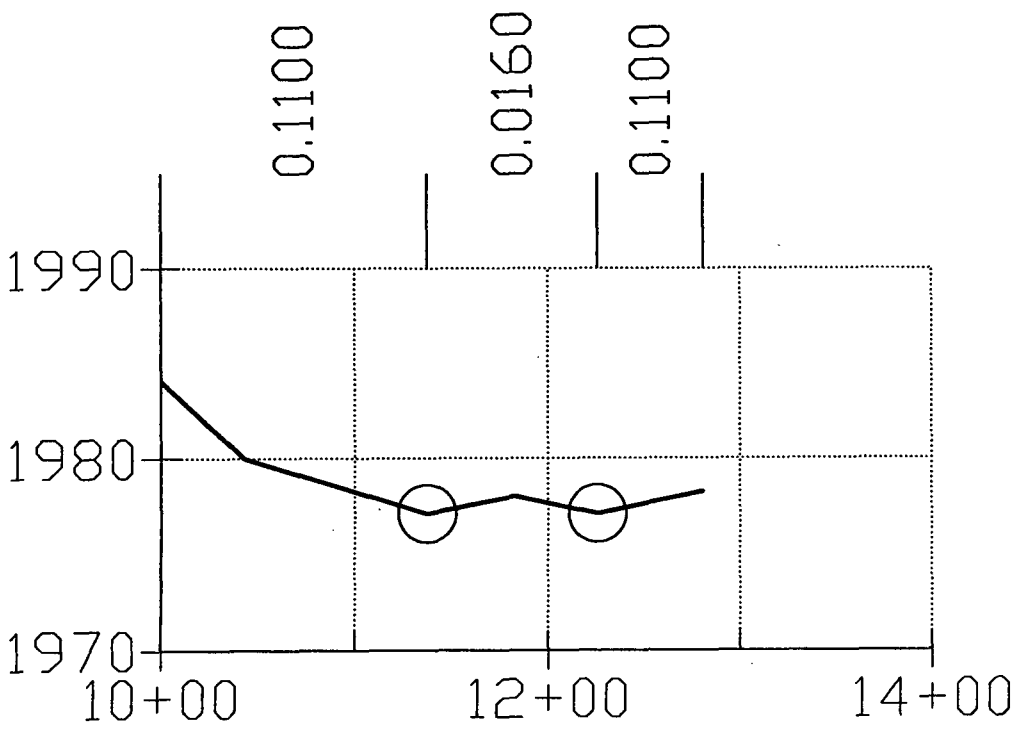
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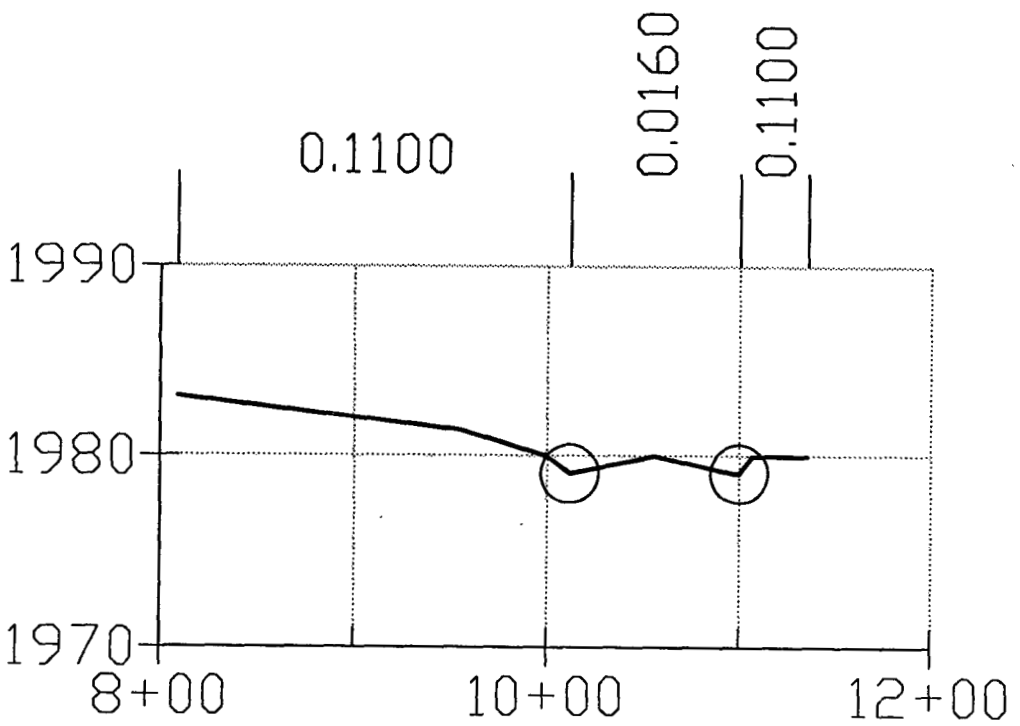
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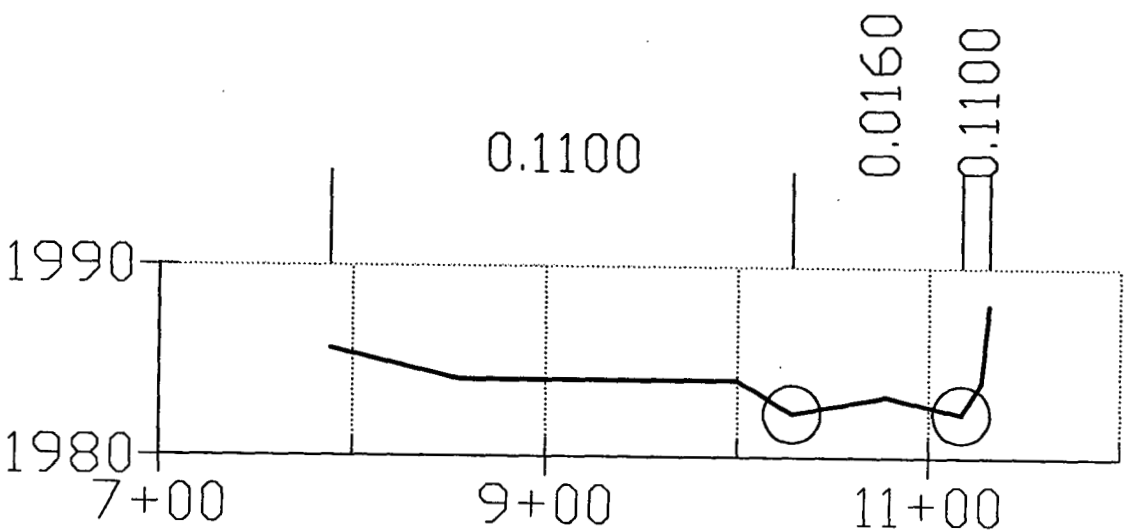

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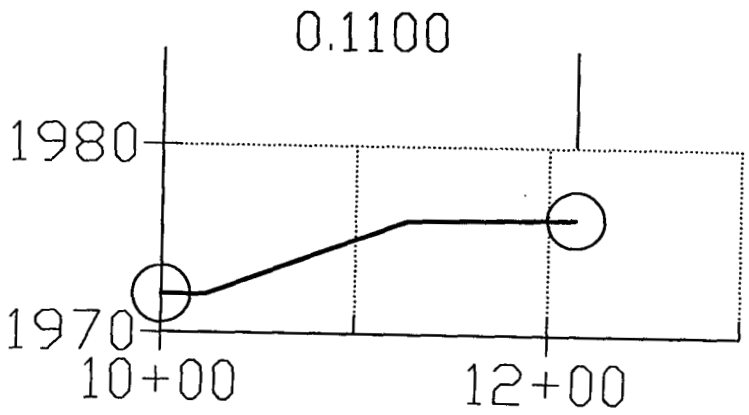

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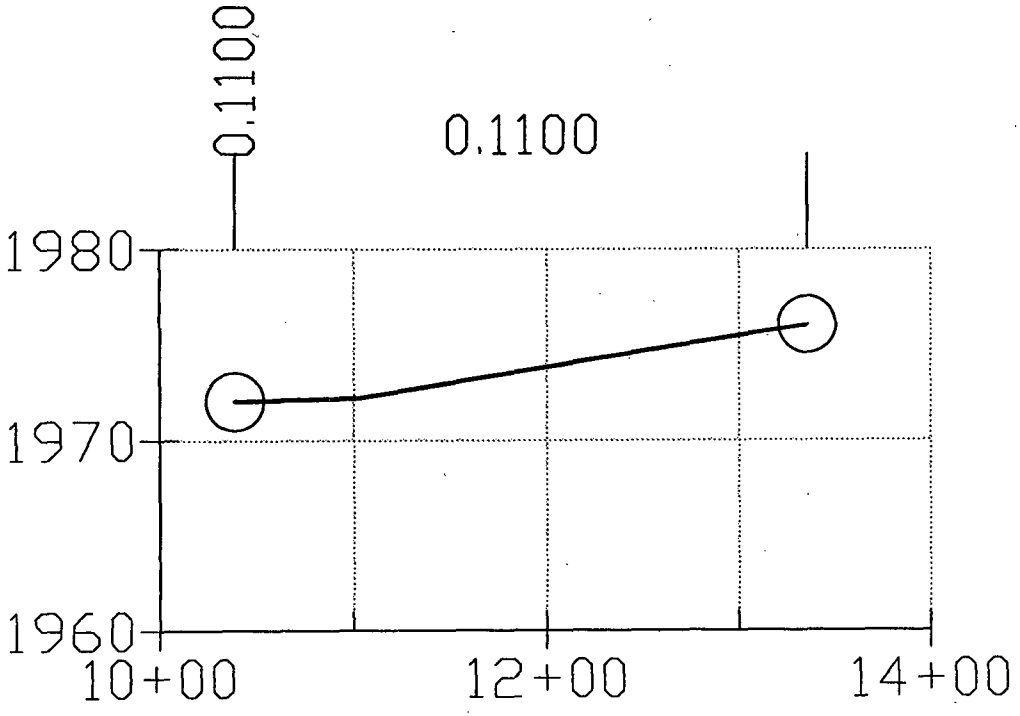

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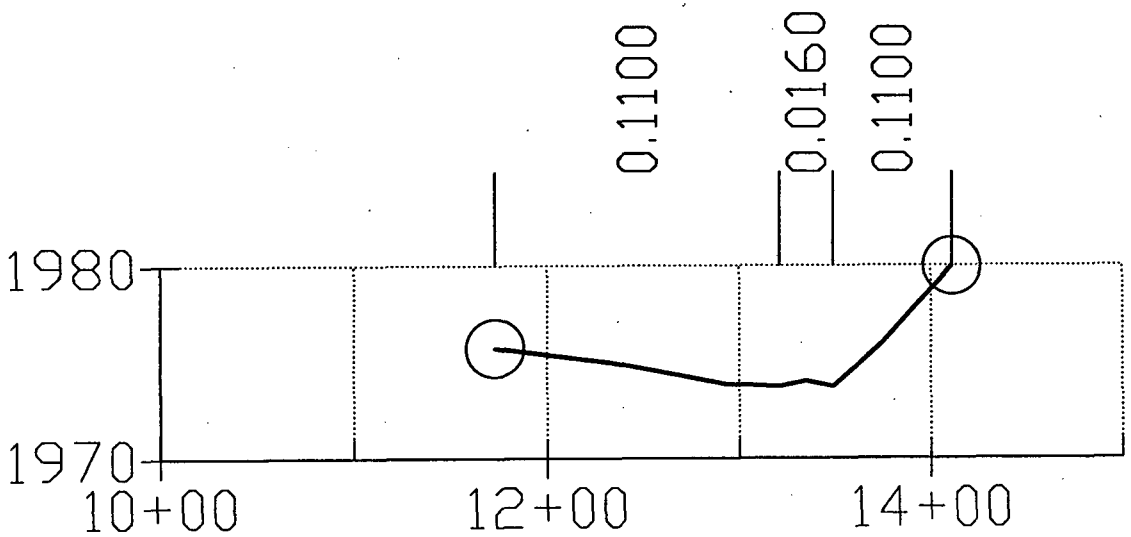

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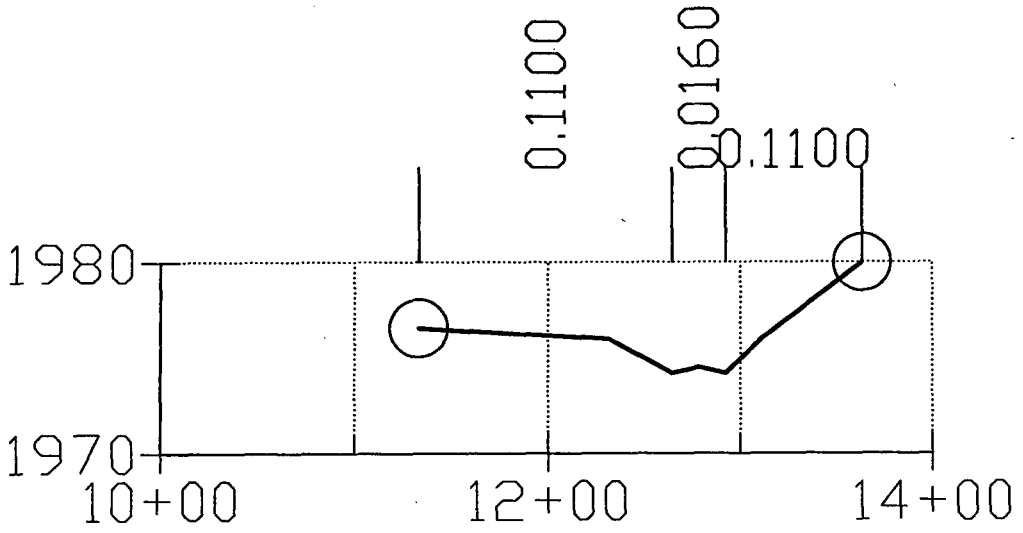

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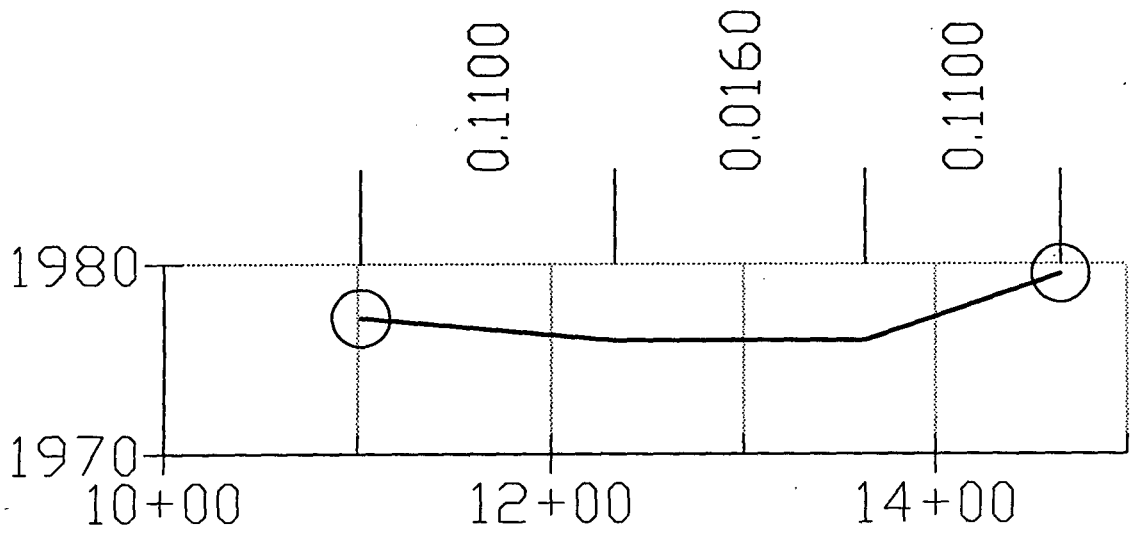

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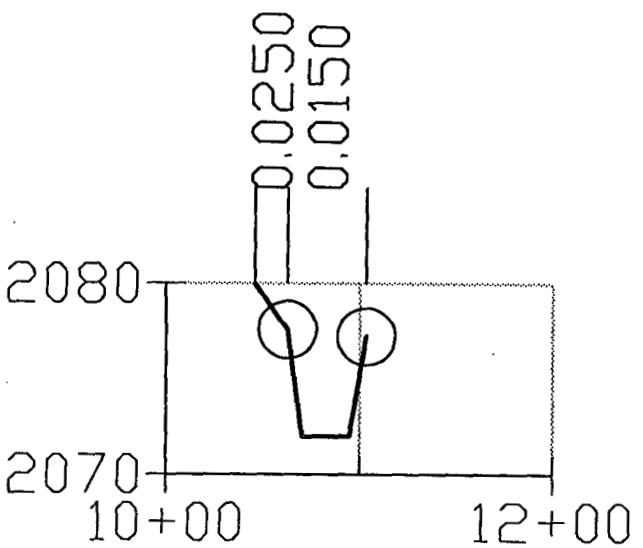

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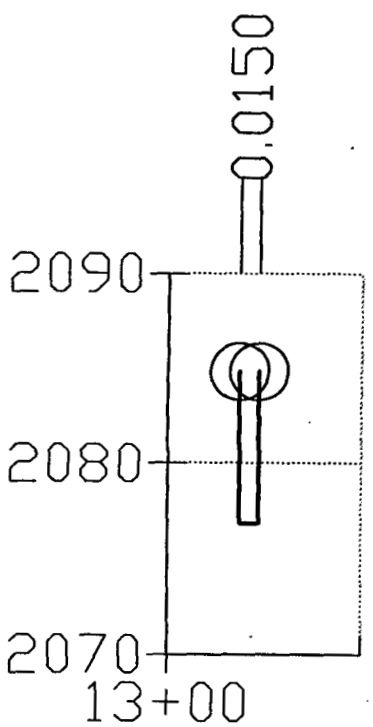



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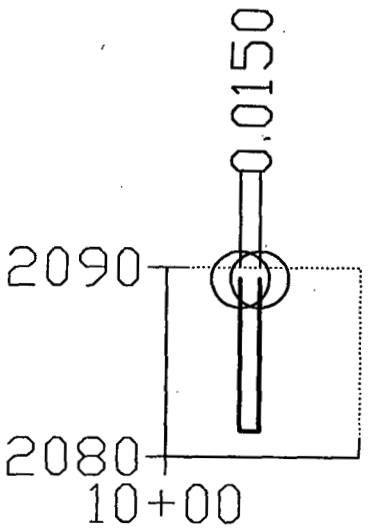



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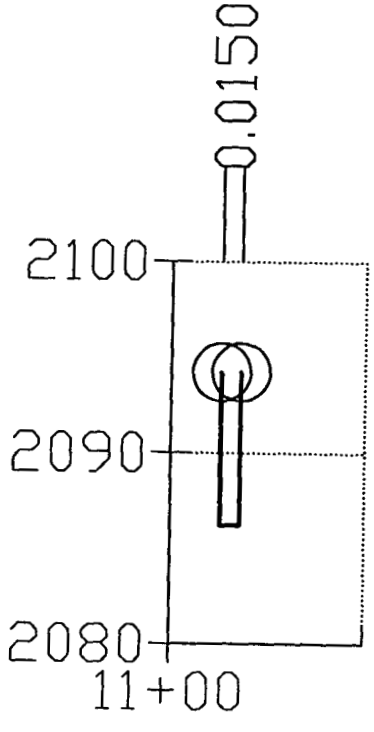
CONFLUENCE WITH DUCK CREEK



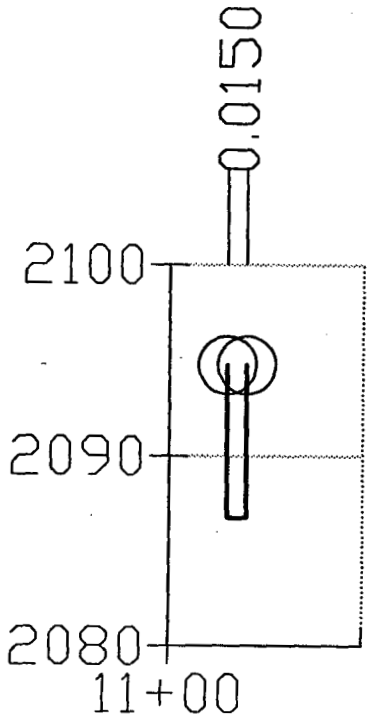

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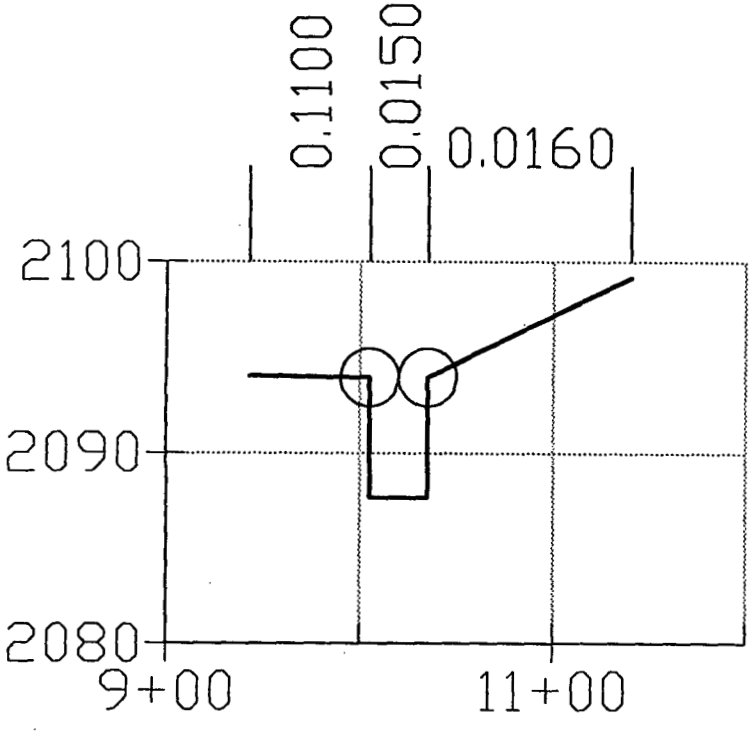

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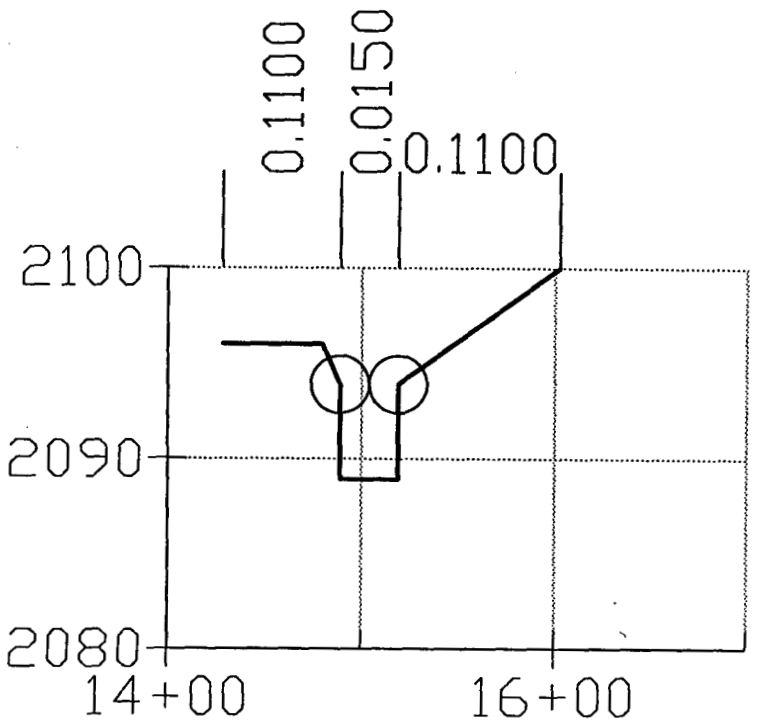



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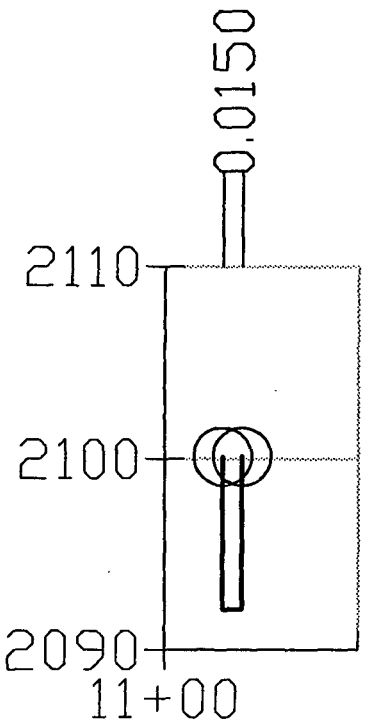

31500

DOWNSTREAM FACE OF PARADISE ROAD

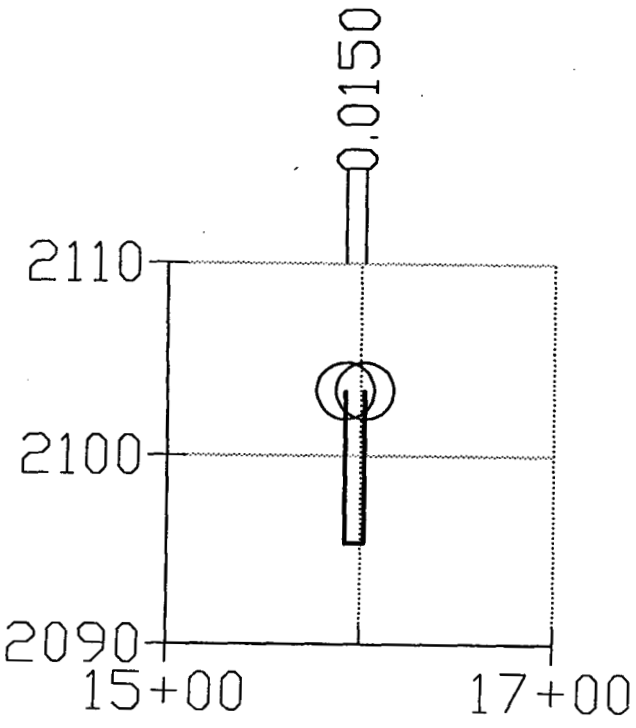



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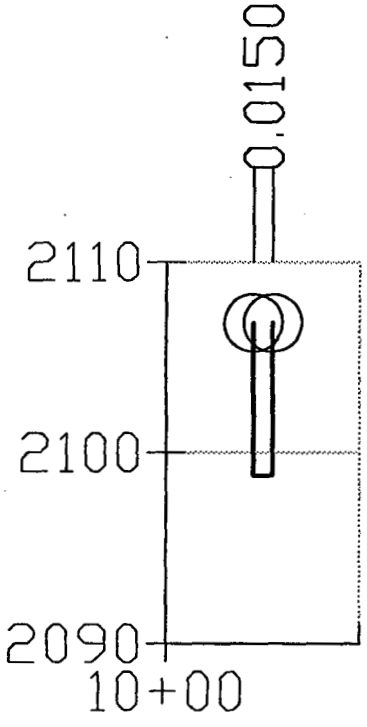
UPSTREAM FACE OF PARADISE ROAD



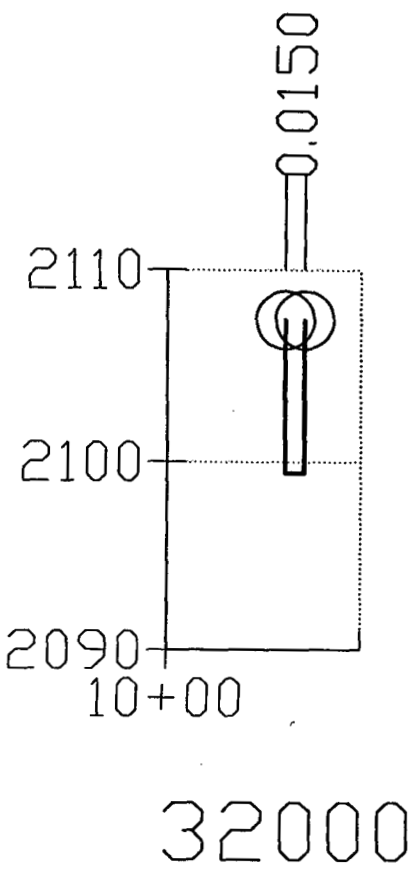

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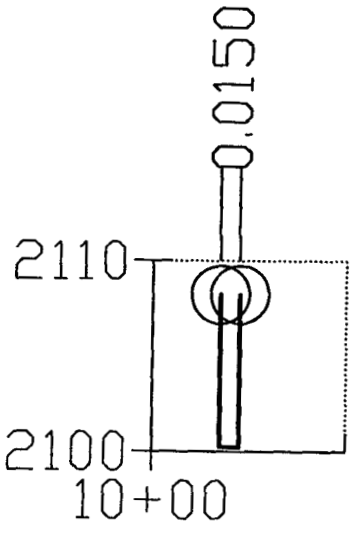

31800



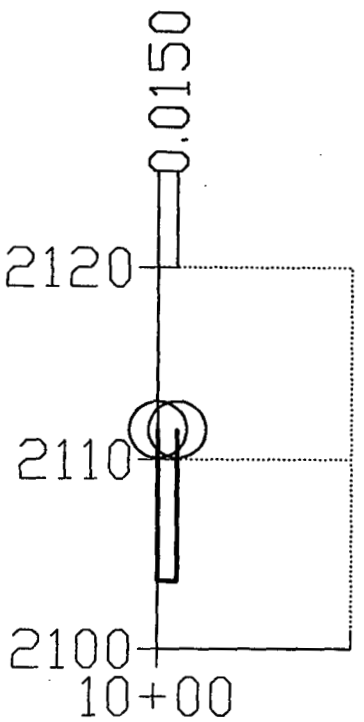

31900



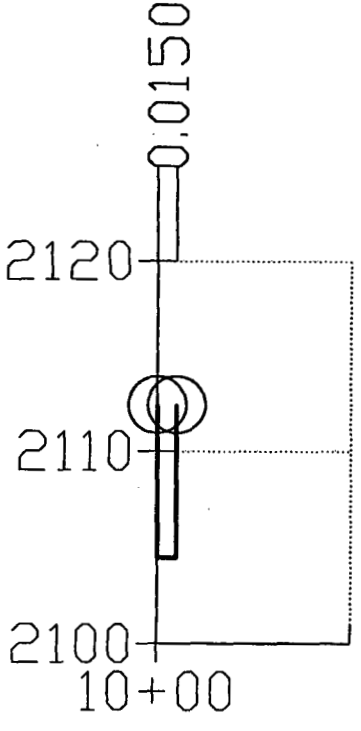

32000



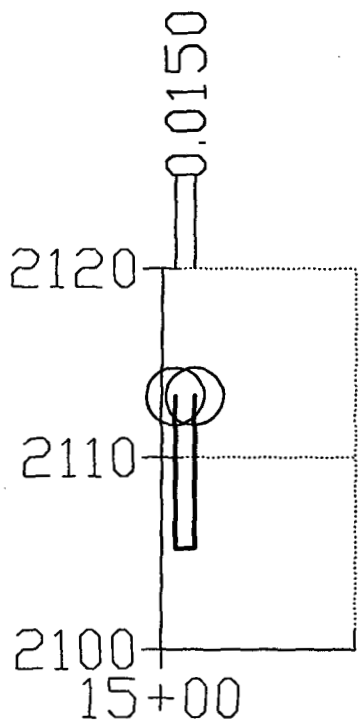

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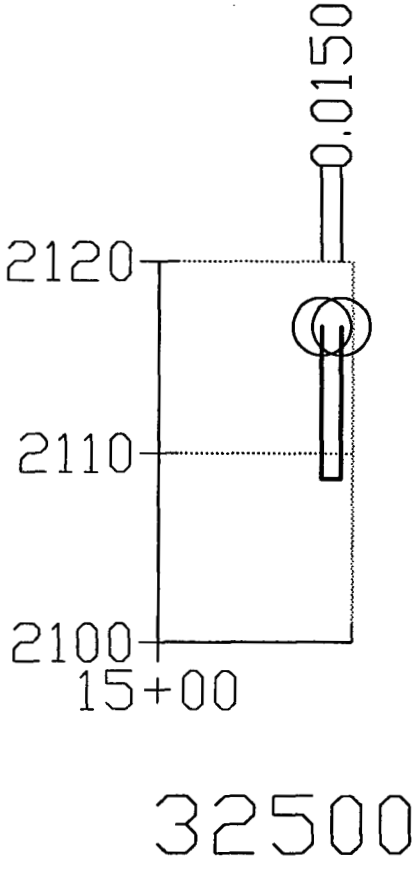

32200



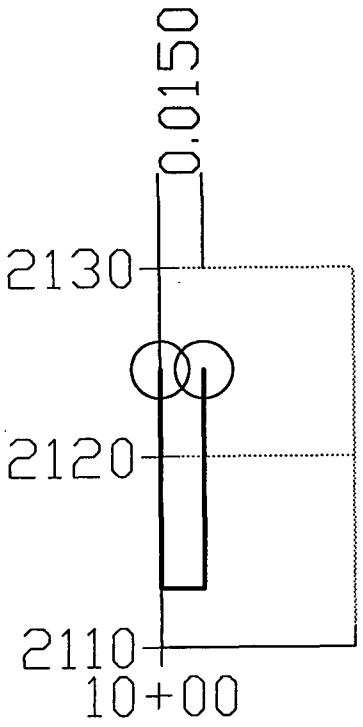

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32400

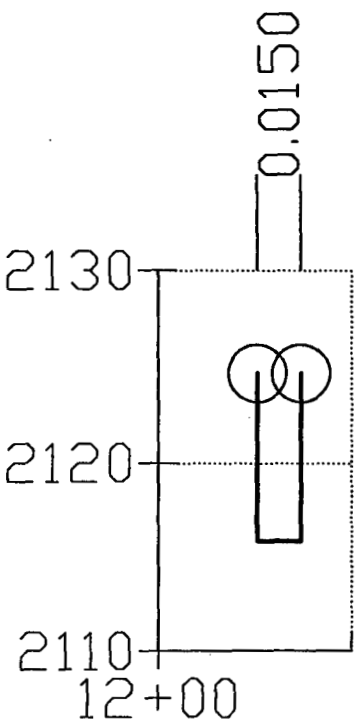



32500



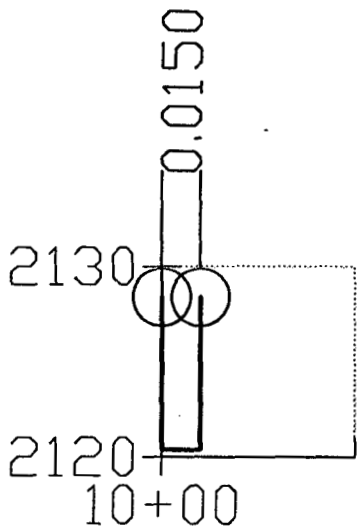

32600

DOWNSTREAM FACE OF ROBINDALE ROAD

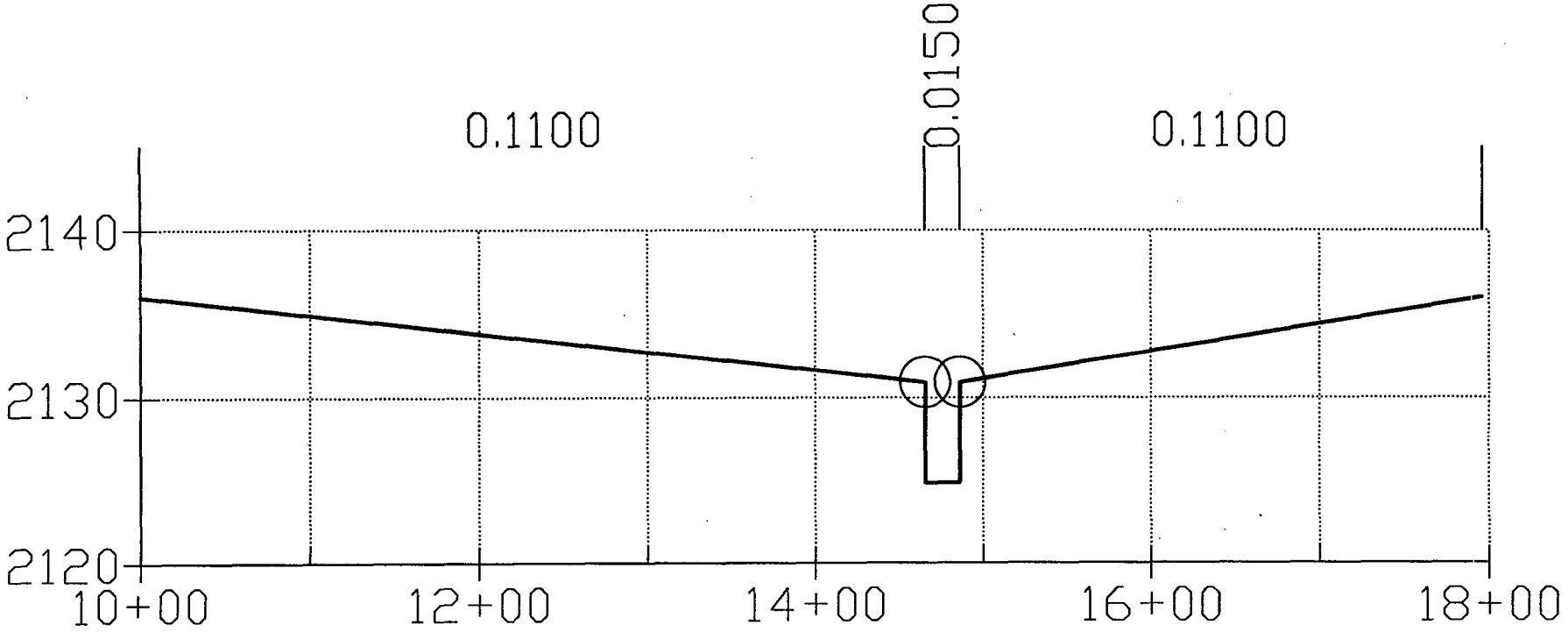



32700

UPSTREAM FACE OF ROBINDALE ROAD

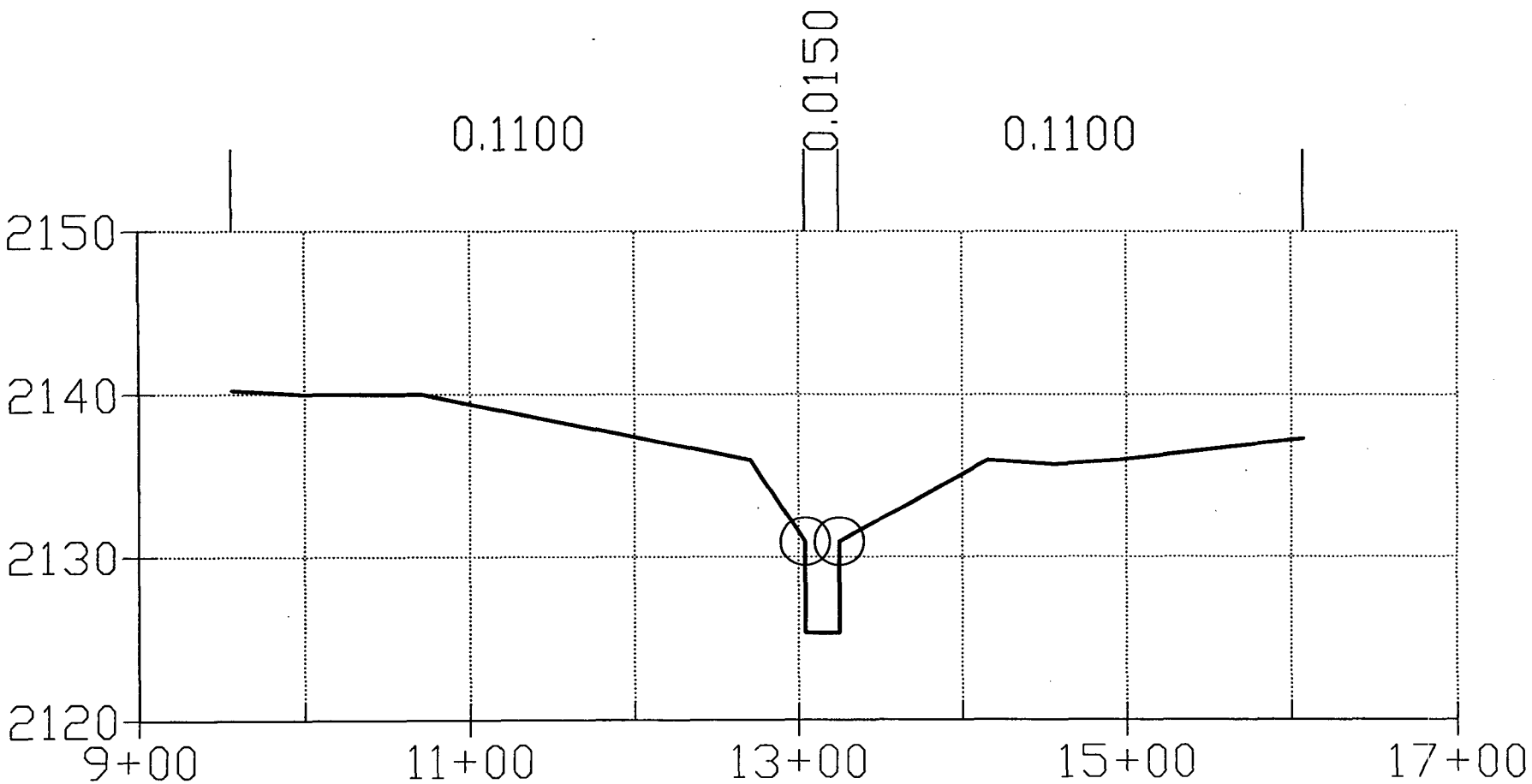



32800



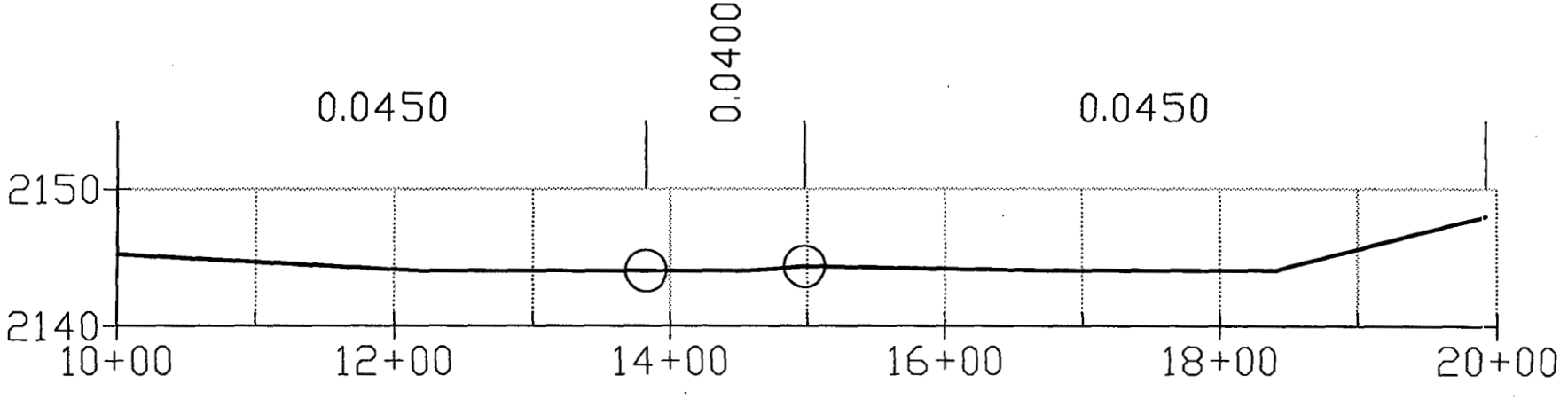

32900

DOWNSTREAM FACE OF AMIGO STREET

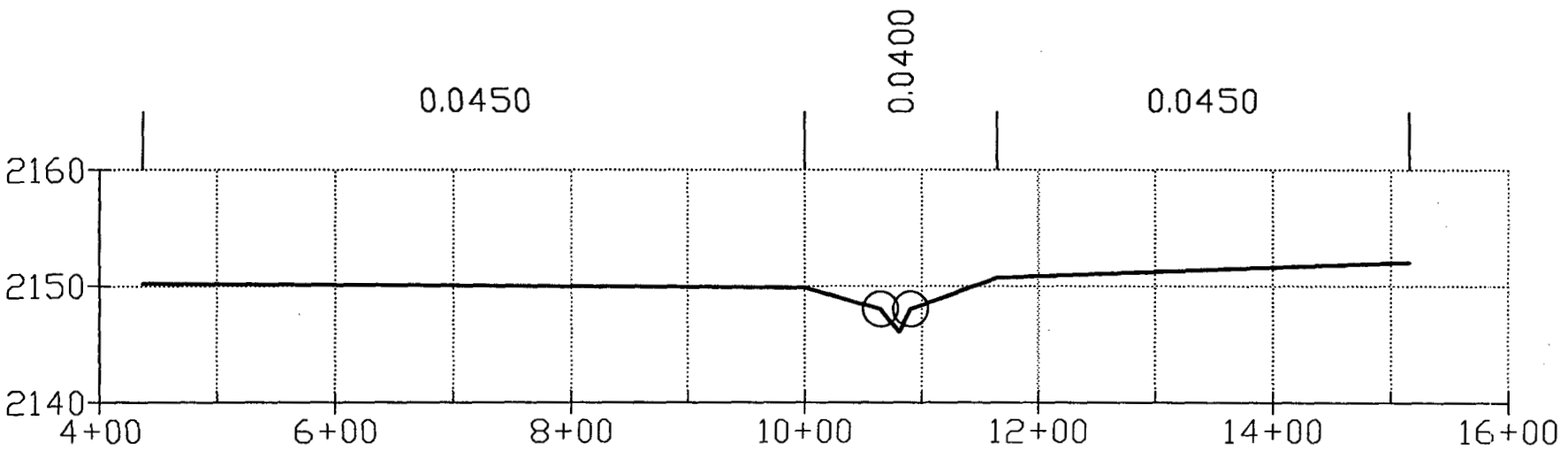



33000

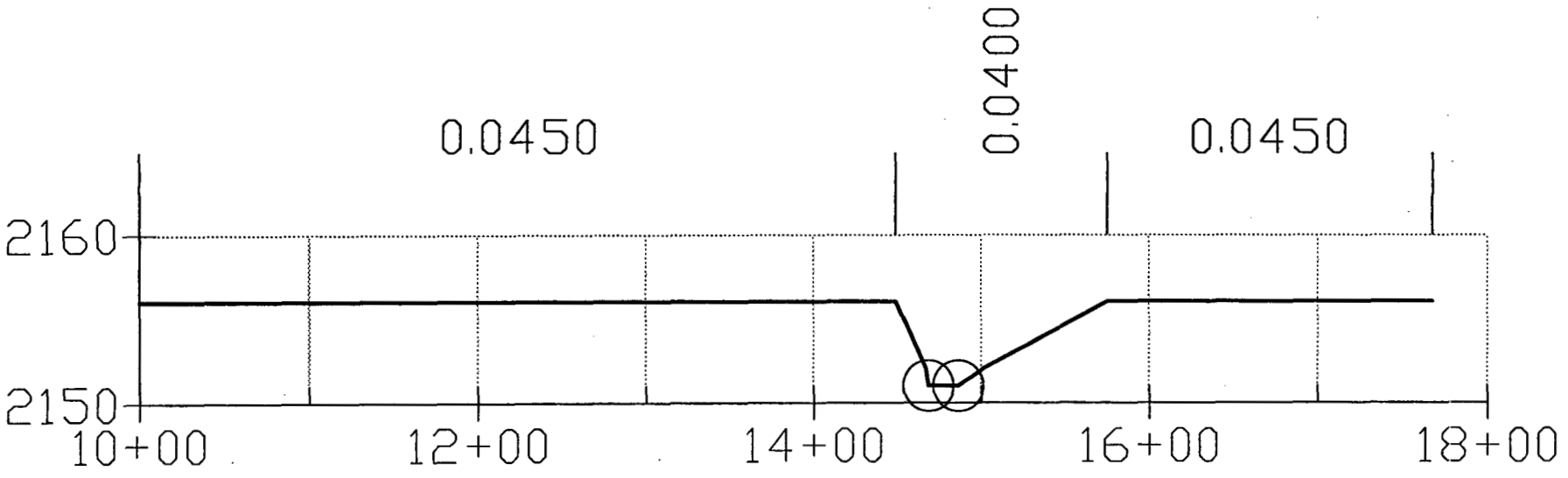
UPSTREAM FACE OF AMIGO STREET



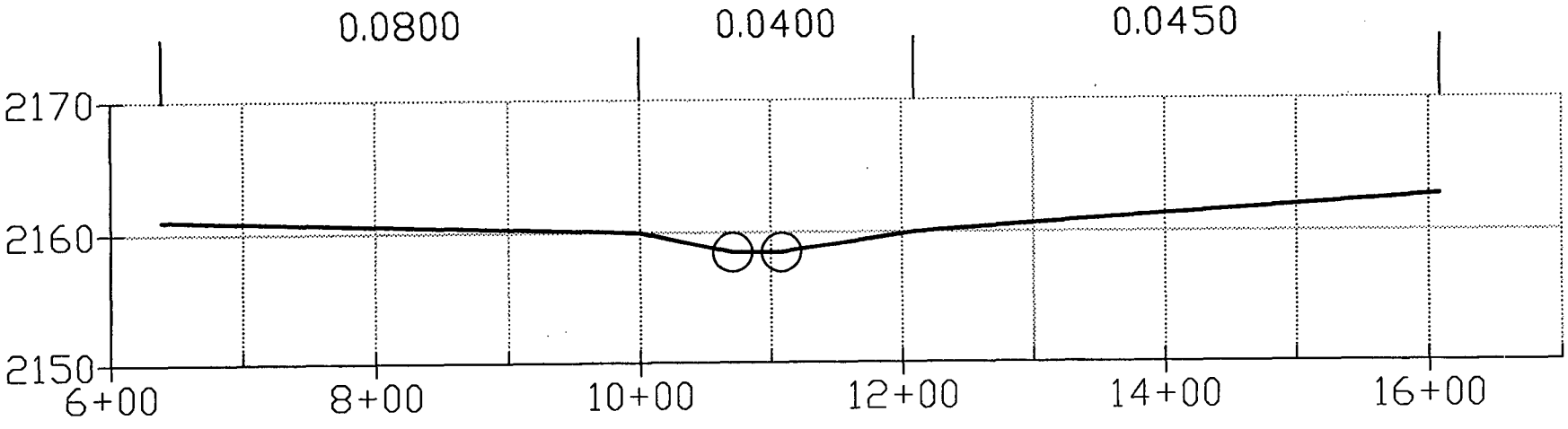

33100


0.0450
0.0400
0.0450
2160
2150
2140
4+00
6+00
8+00
10+00
12+00
14+00
16+00

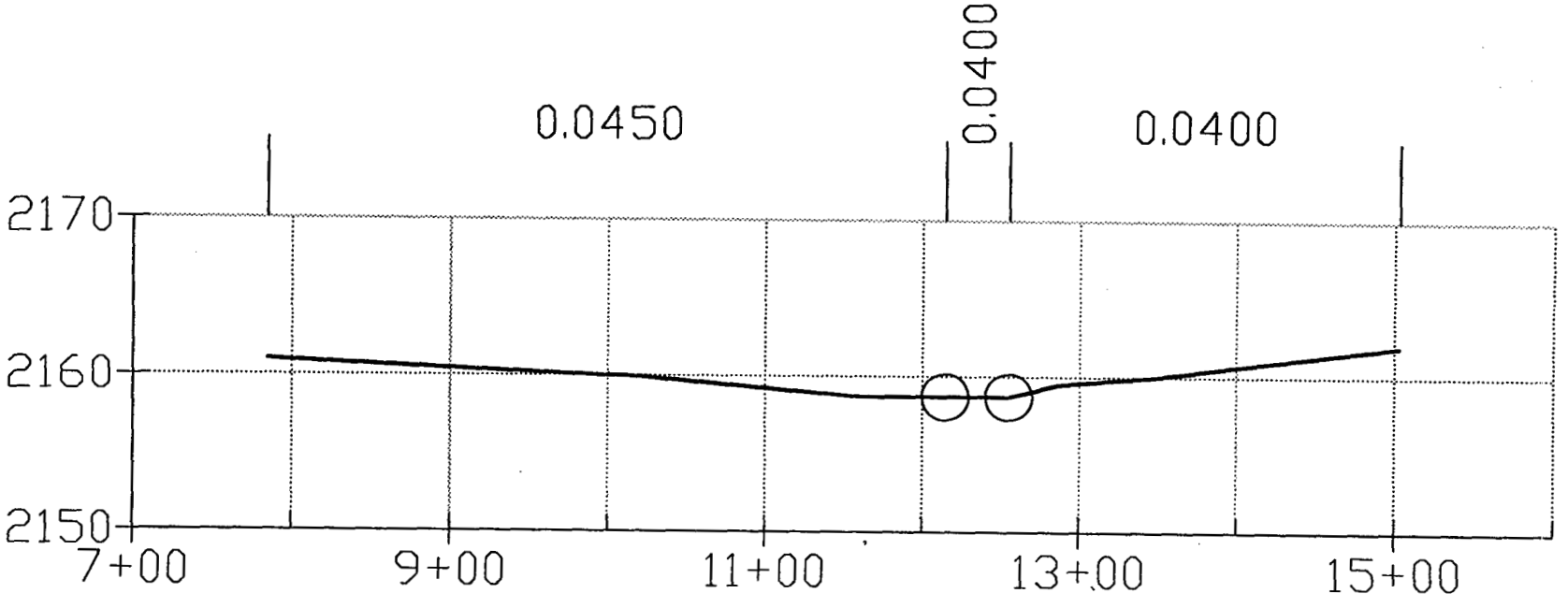
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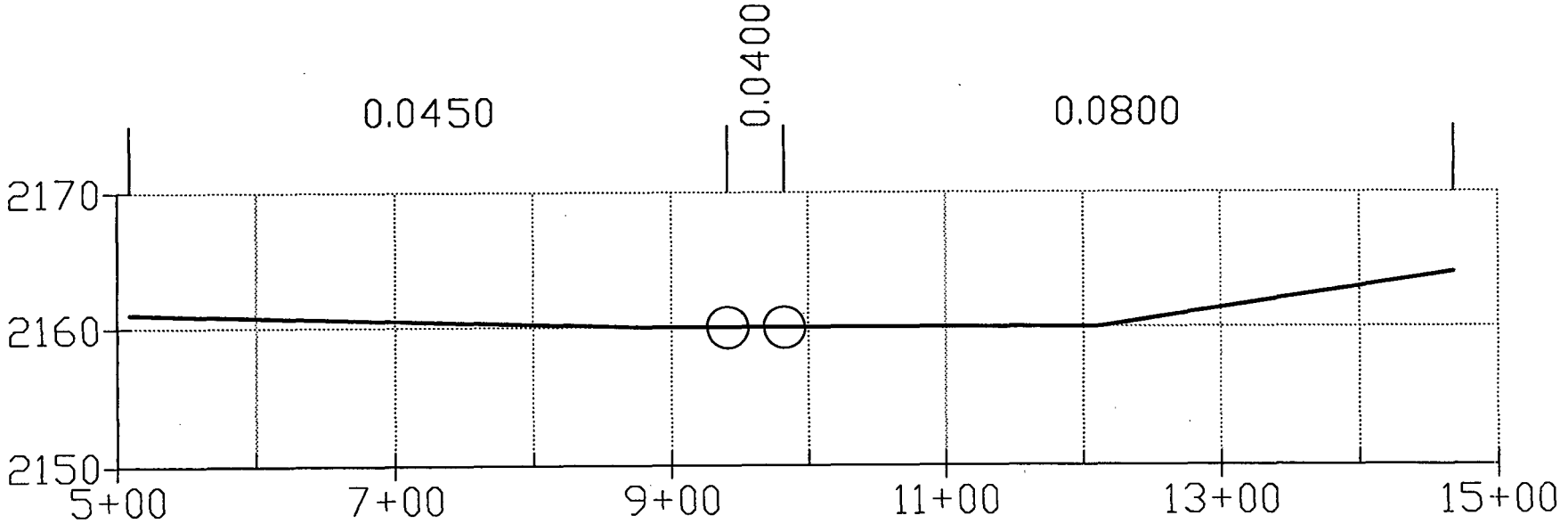



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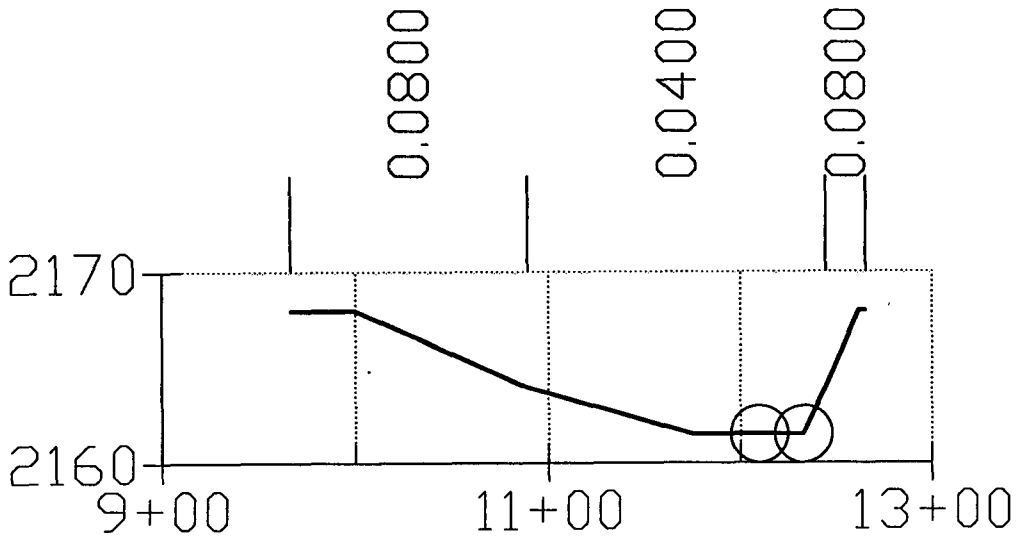



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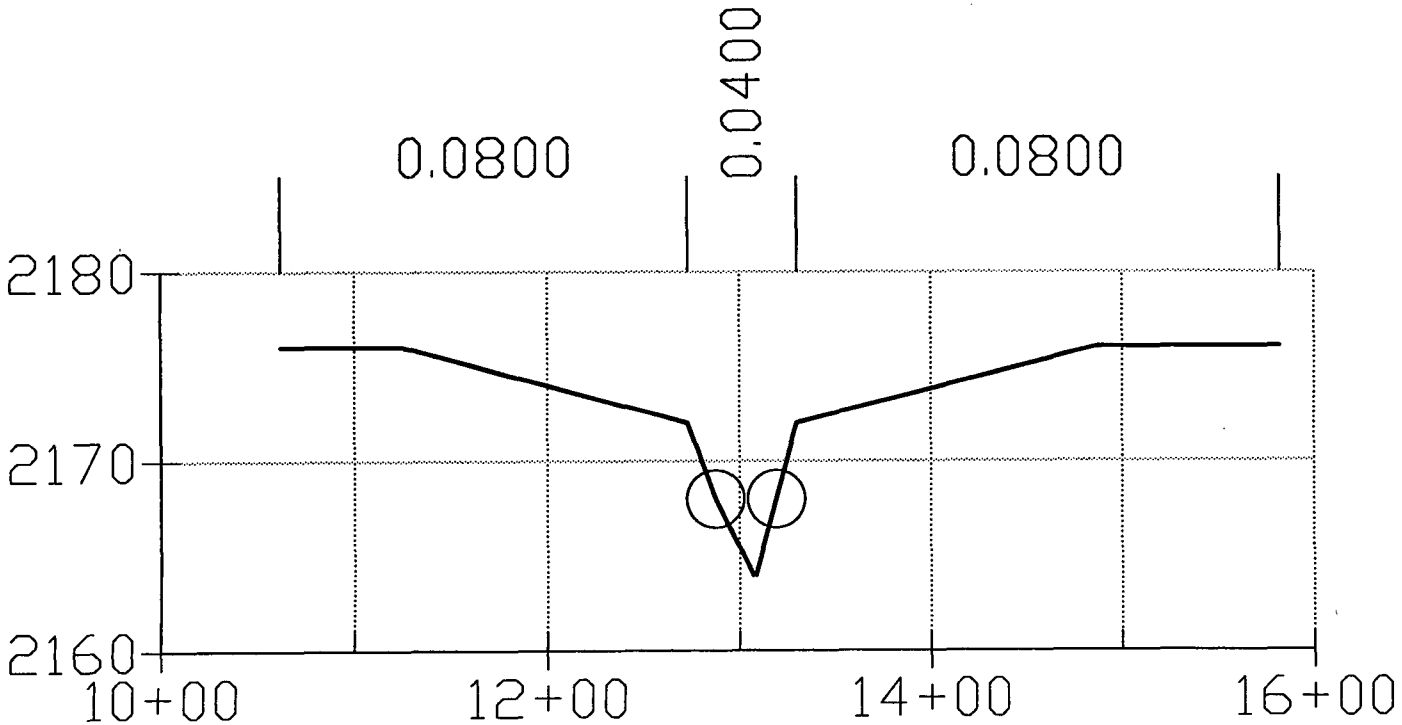
BERMUDA ROAD CROSSING



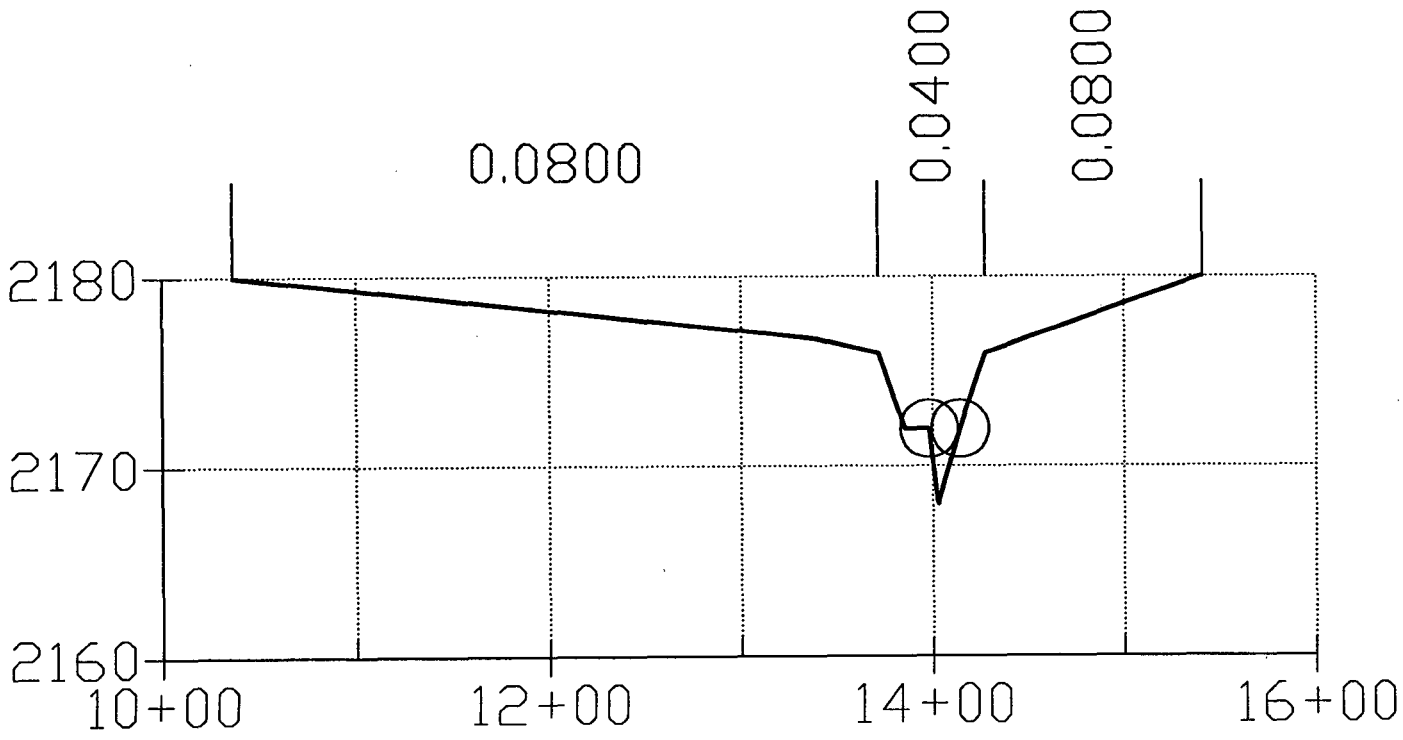

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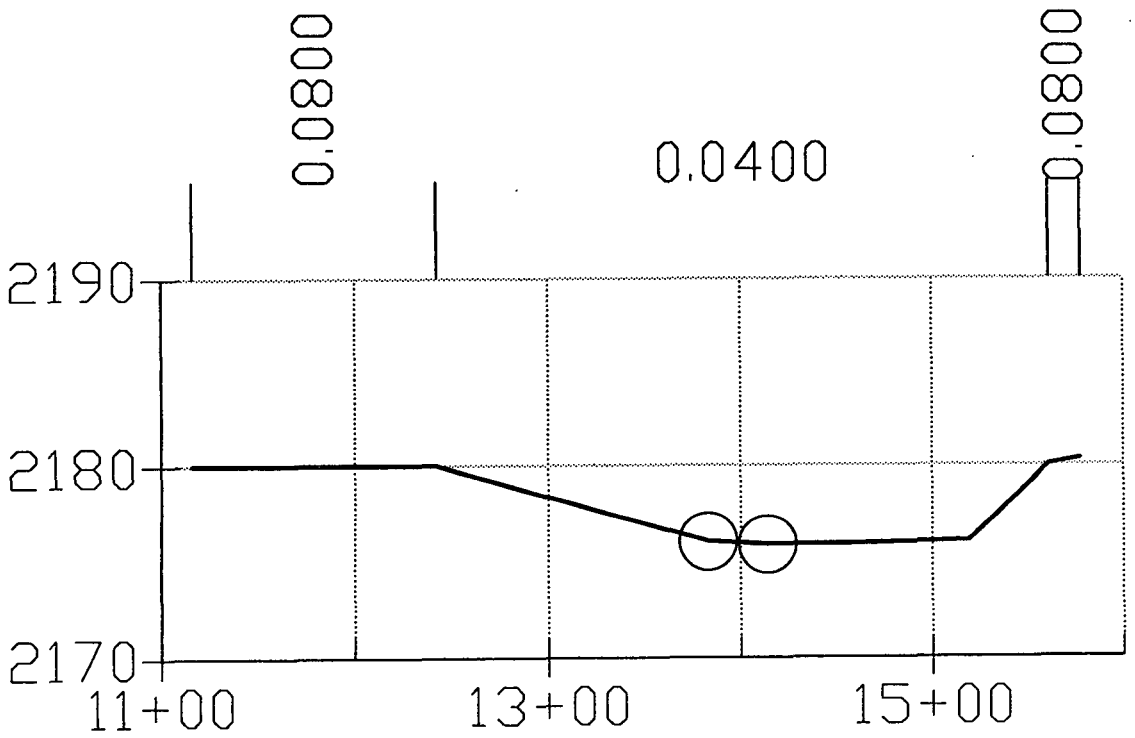

33700



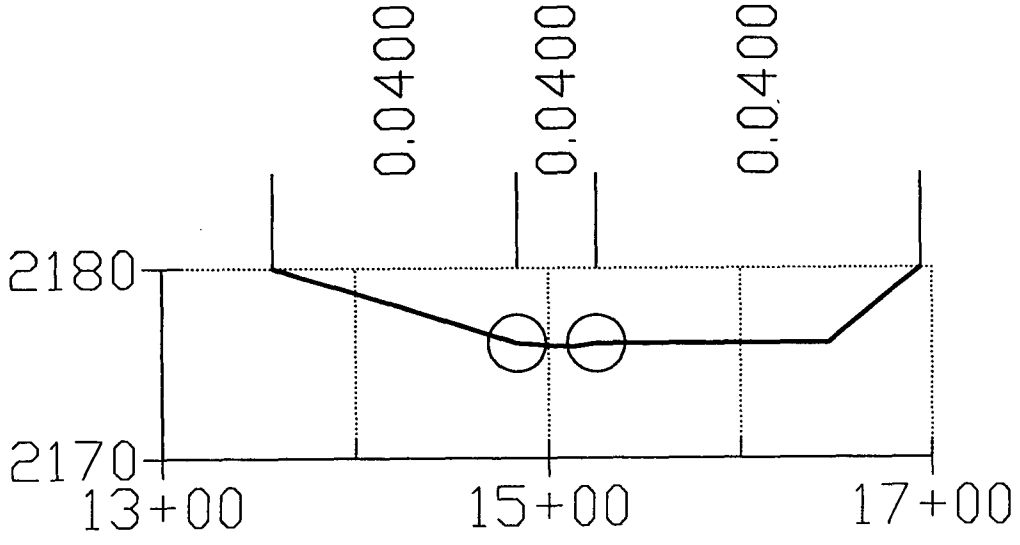

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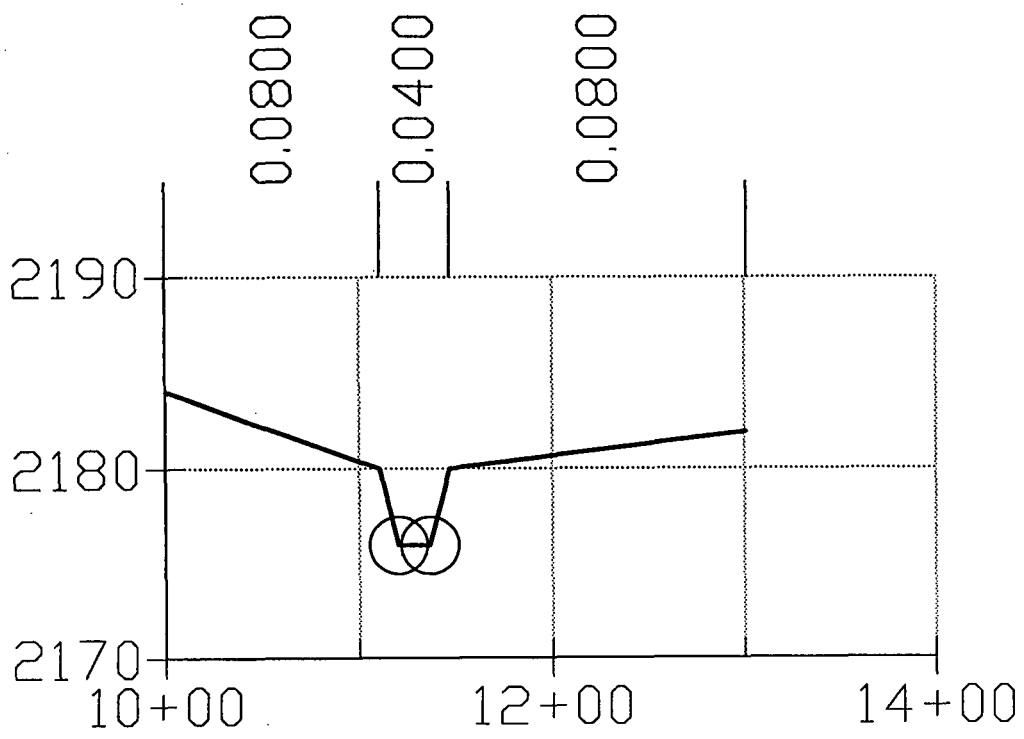

33900



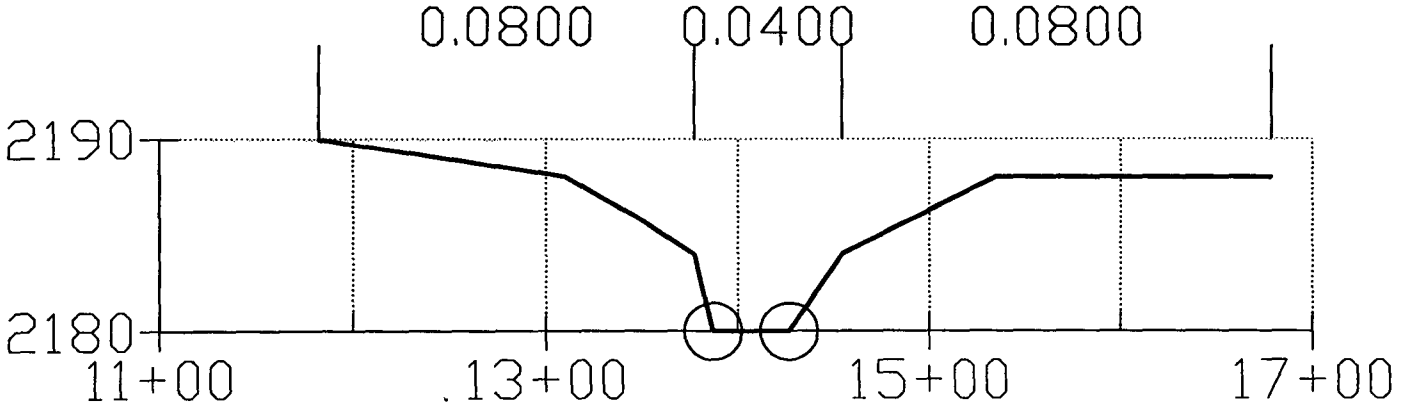

34000



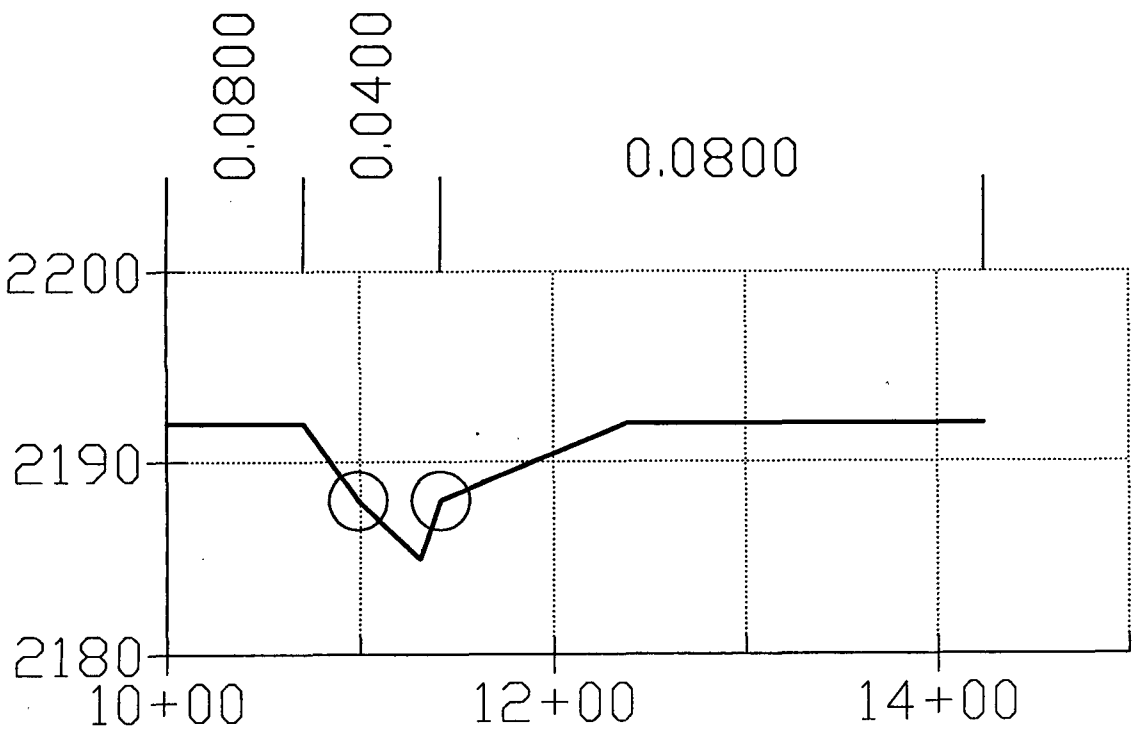

34100



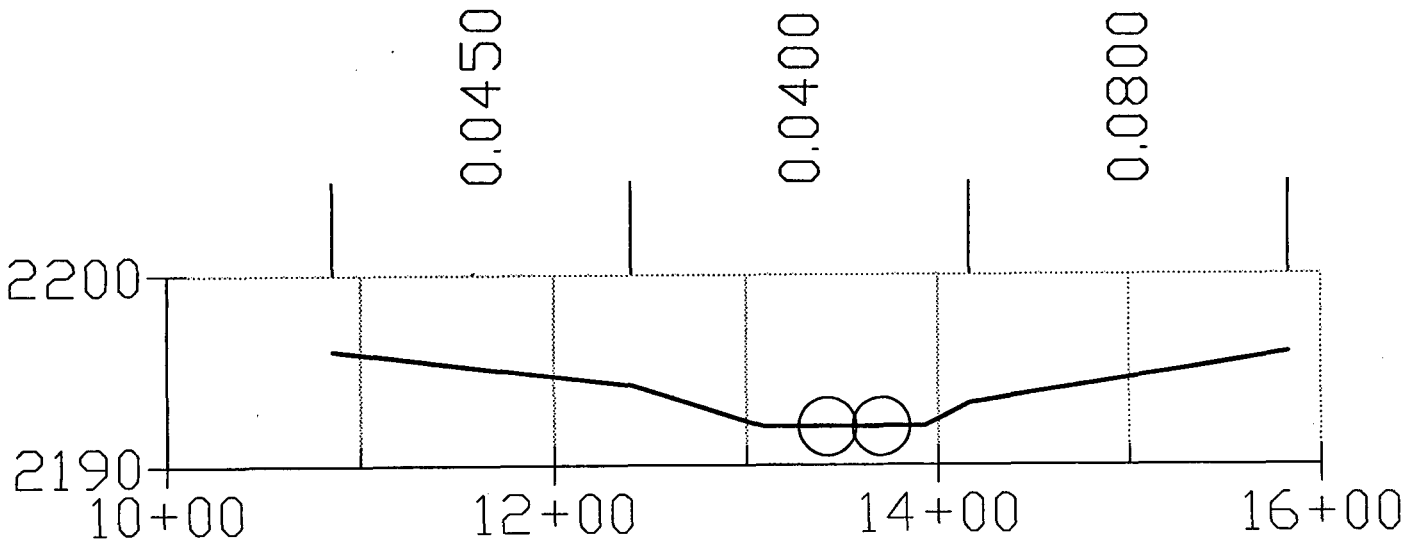

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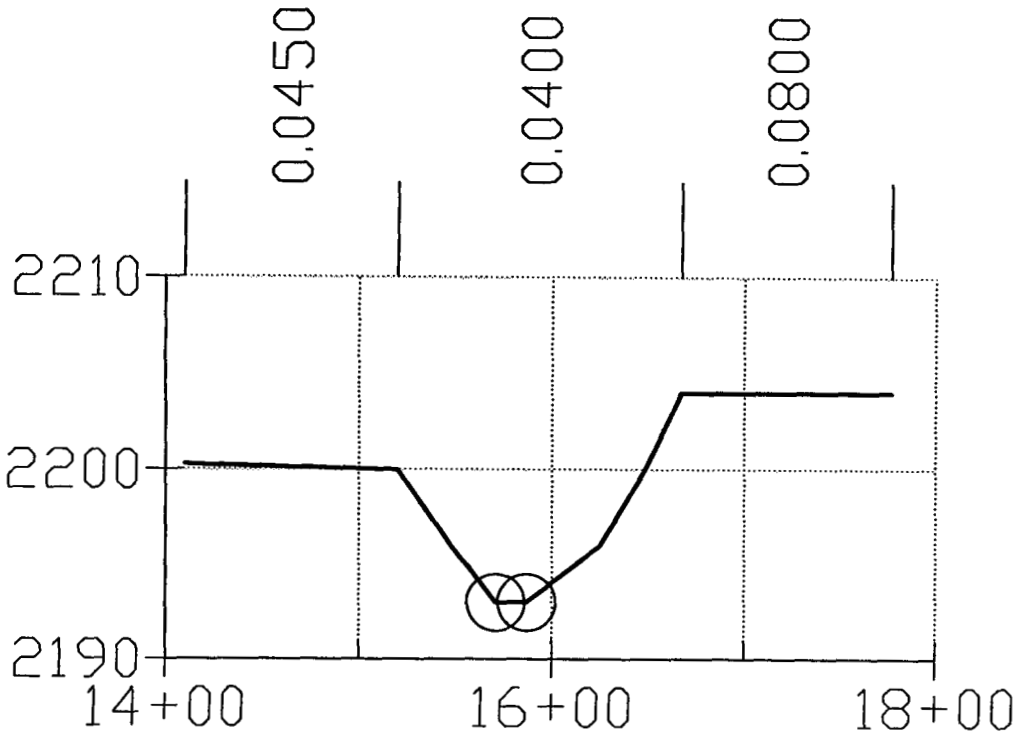

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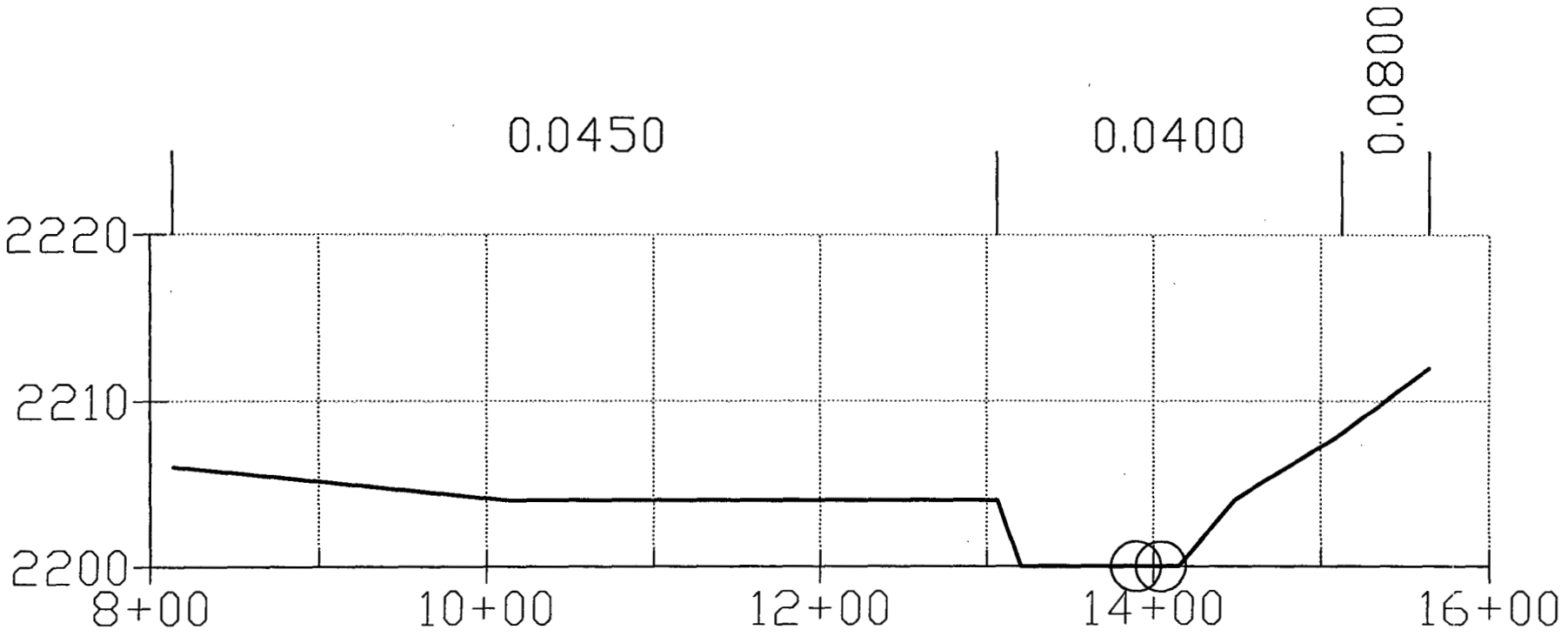

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34500

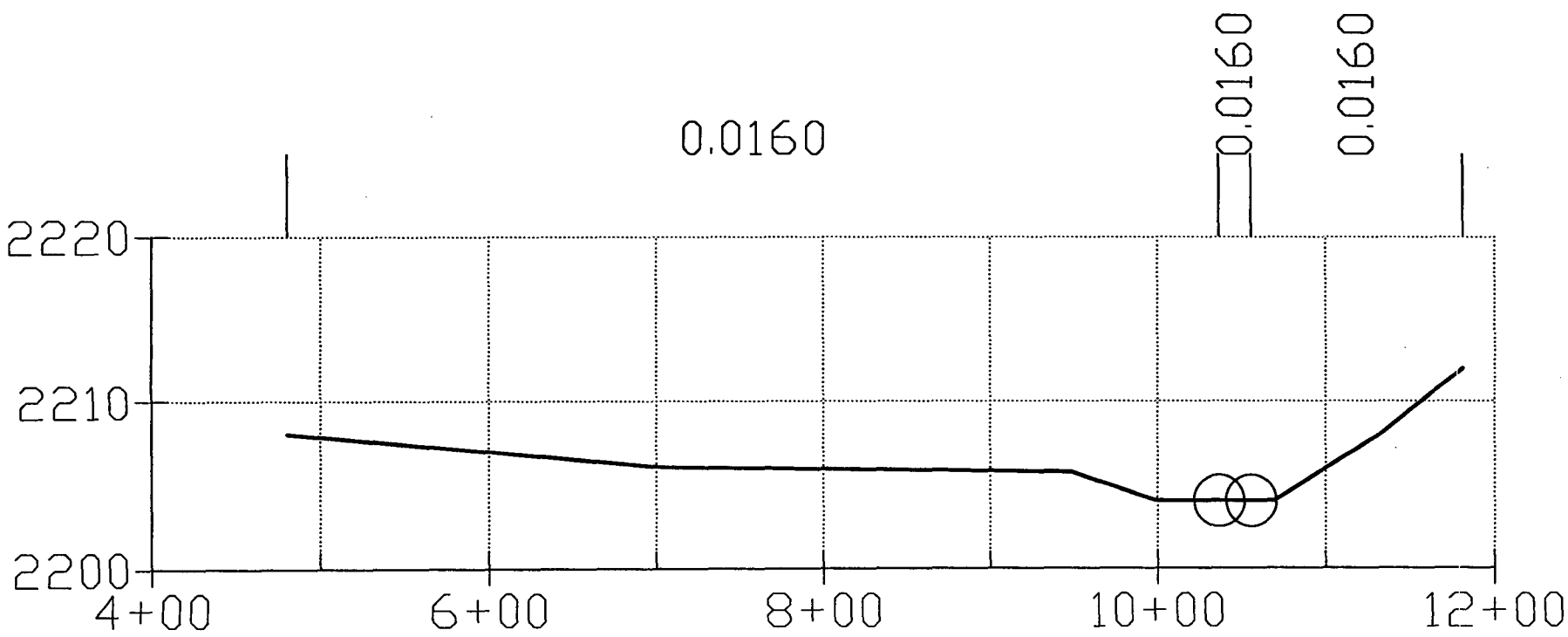



34600



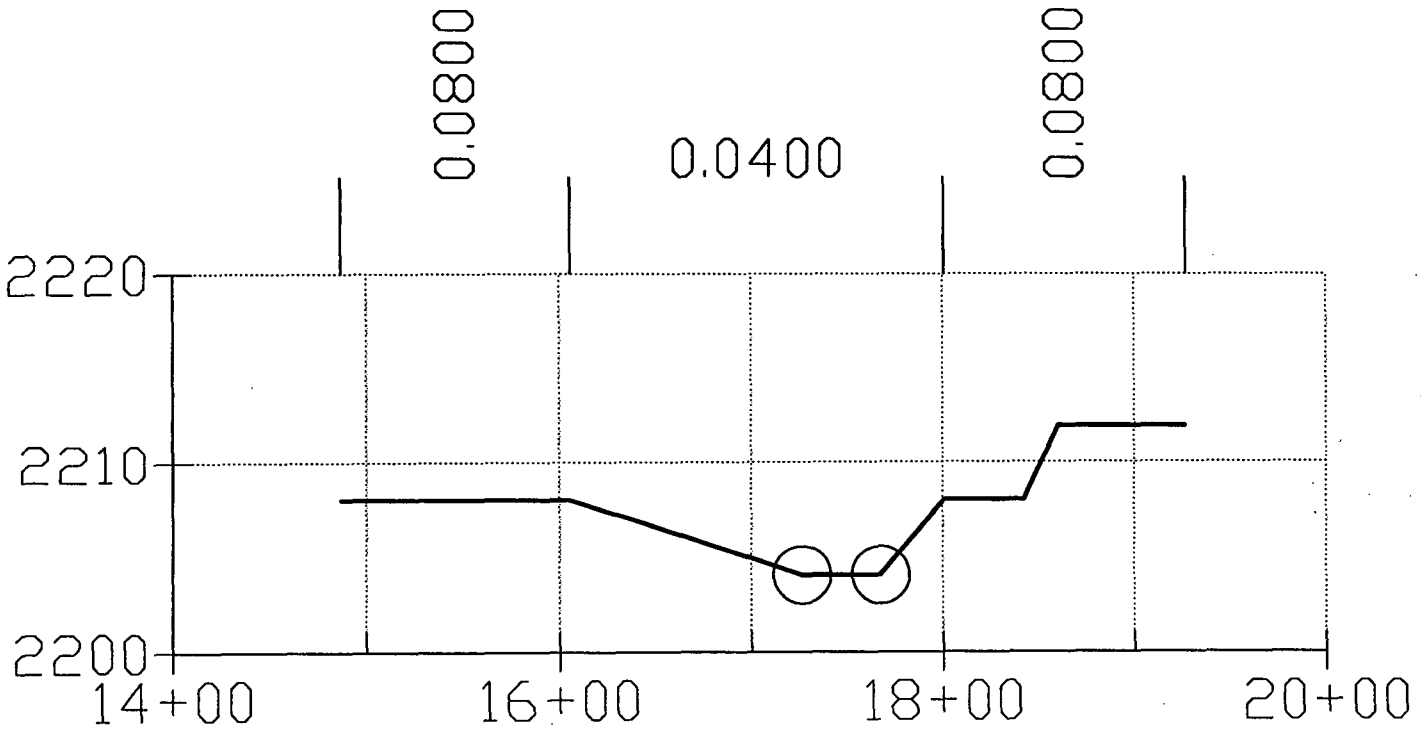

34700

DOWNSTREAM FACE OF RANCHO DESTINO ROAD

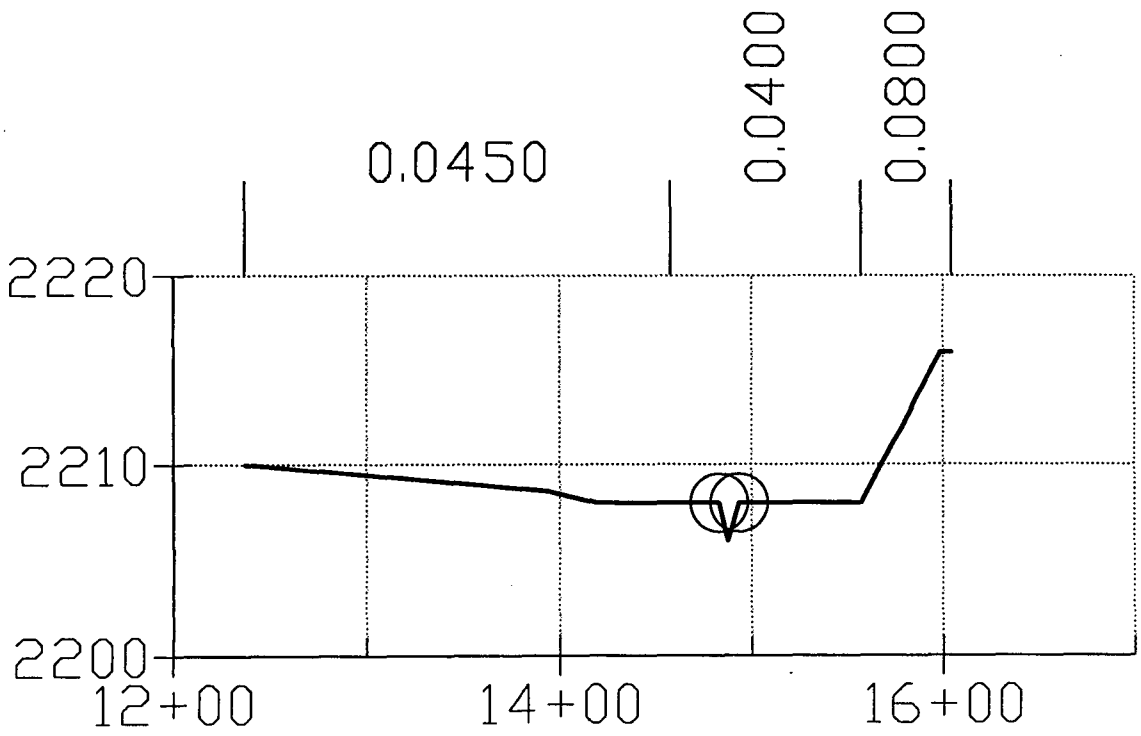



34800

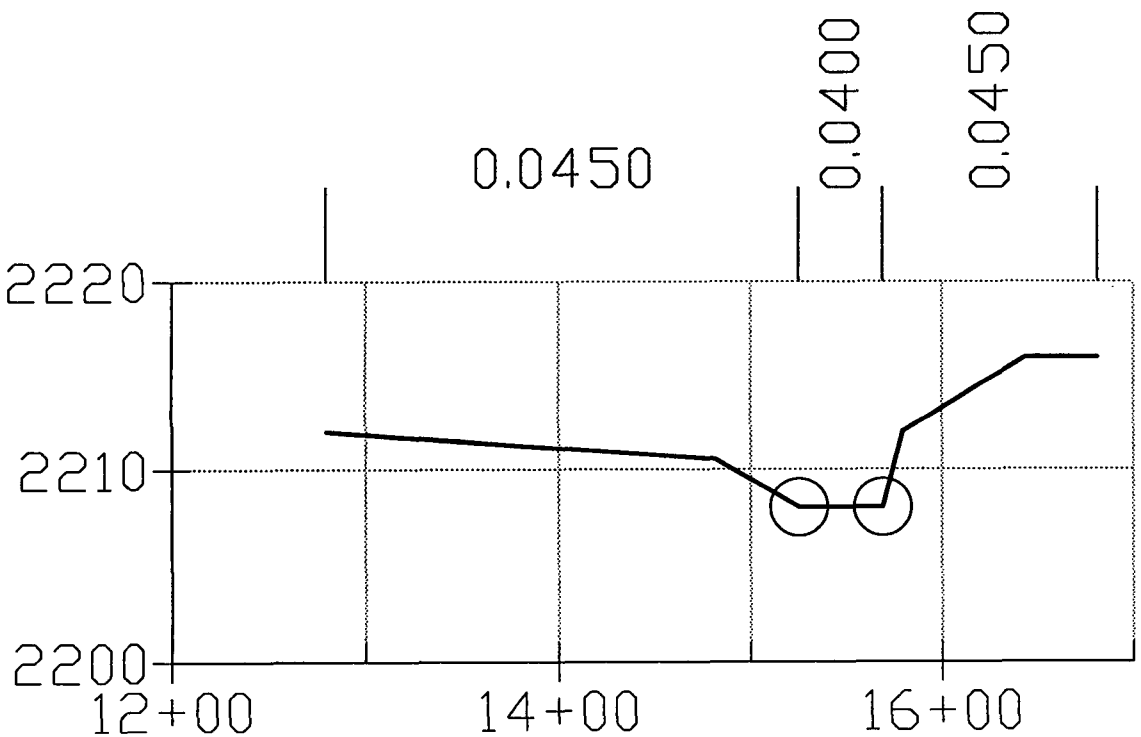
UPSTREAM FACE OF RANCHO DESTINO ROAD



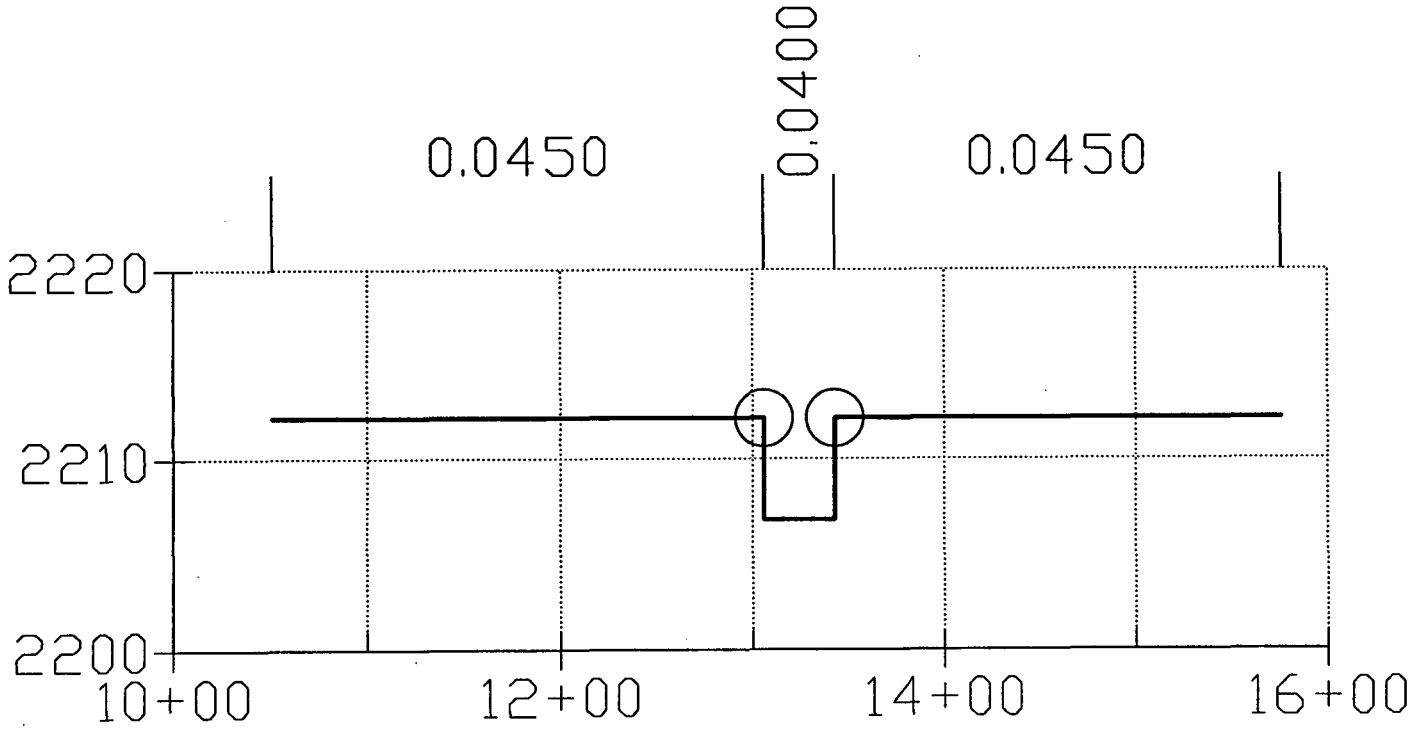

34900




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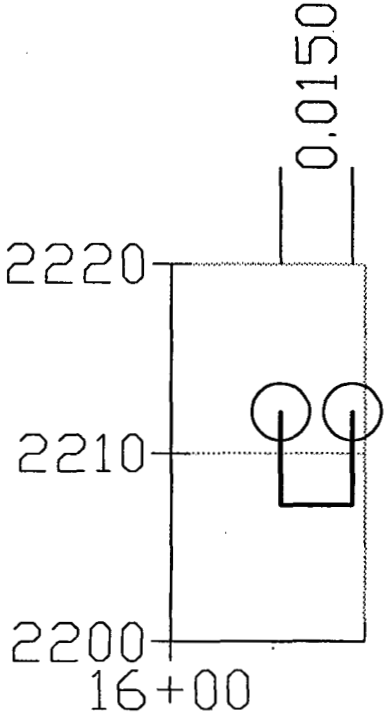



35100



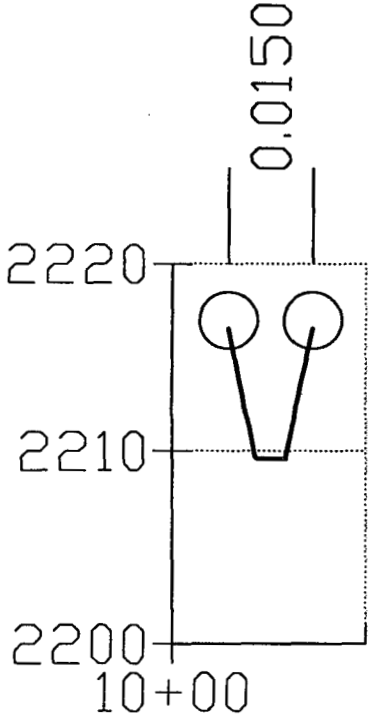

35200

DOWNSTREAM FACE OF HAVEN ROAD

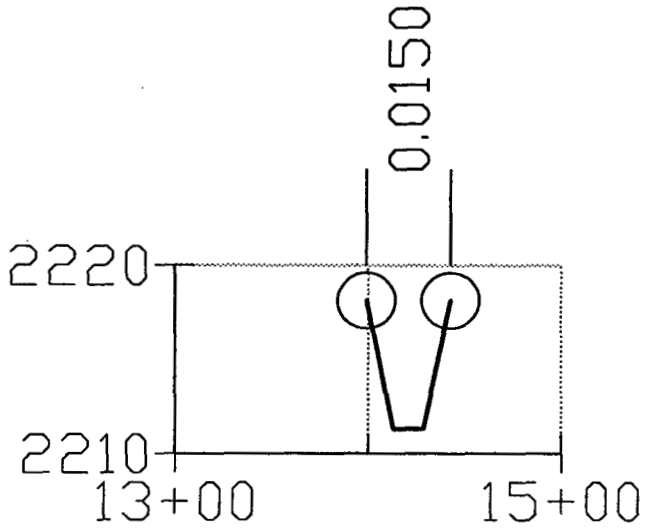



35300

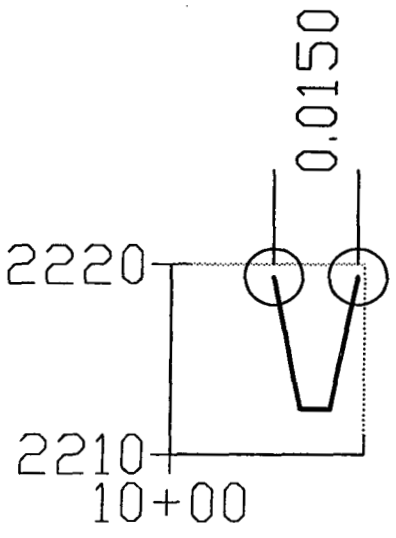
UPSTREAM FACE OF HAVEN ROAD



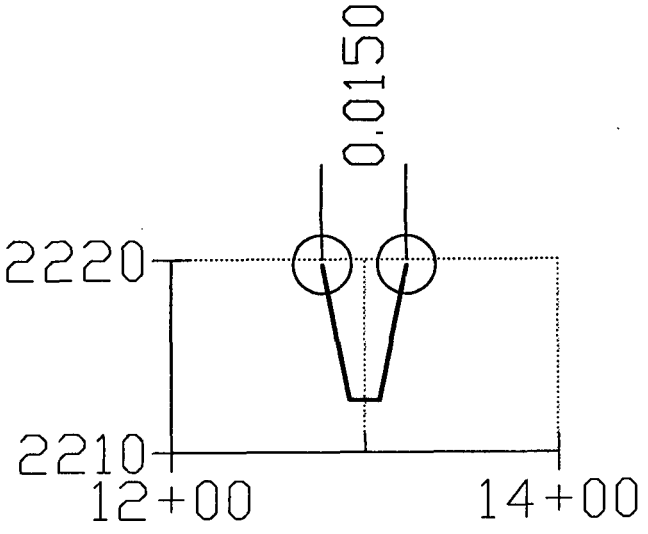

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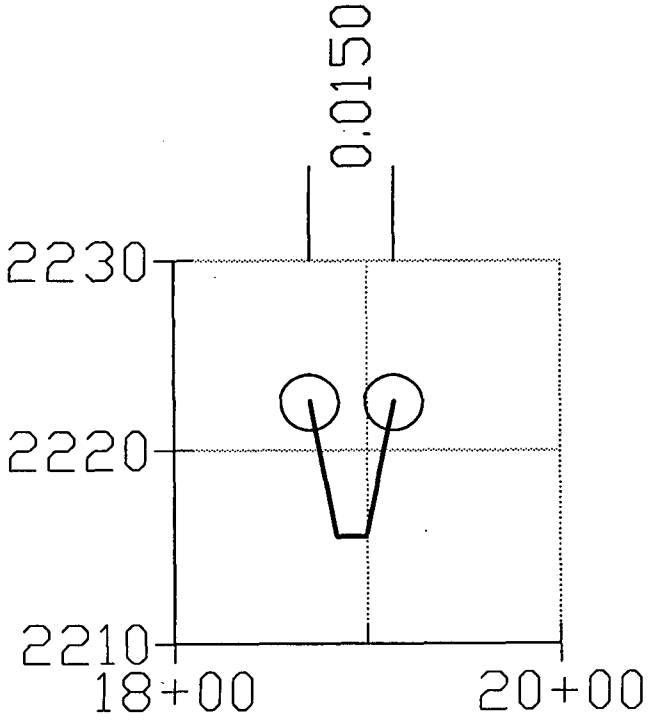

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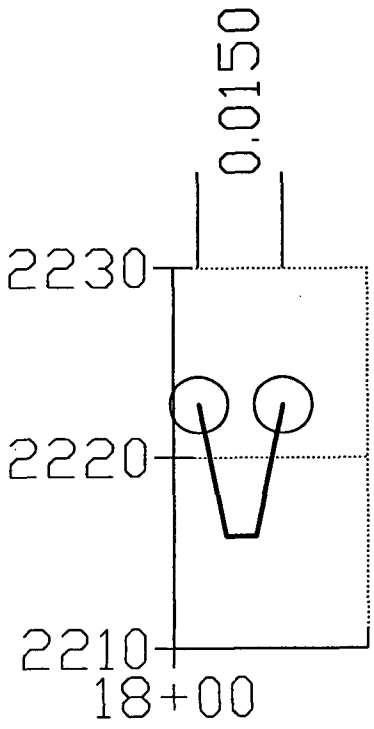

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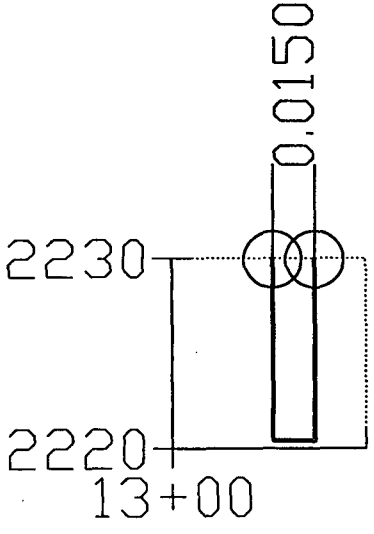

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35800

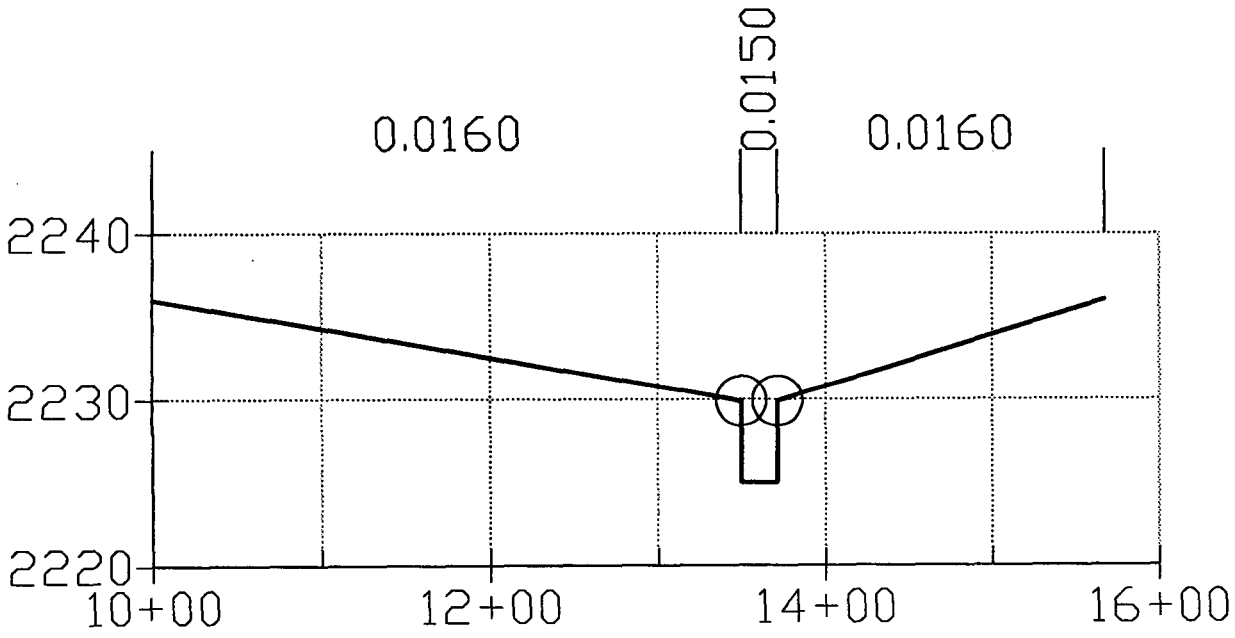



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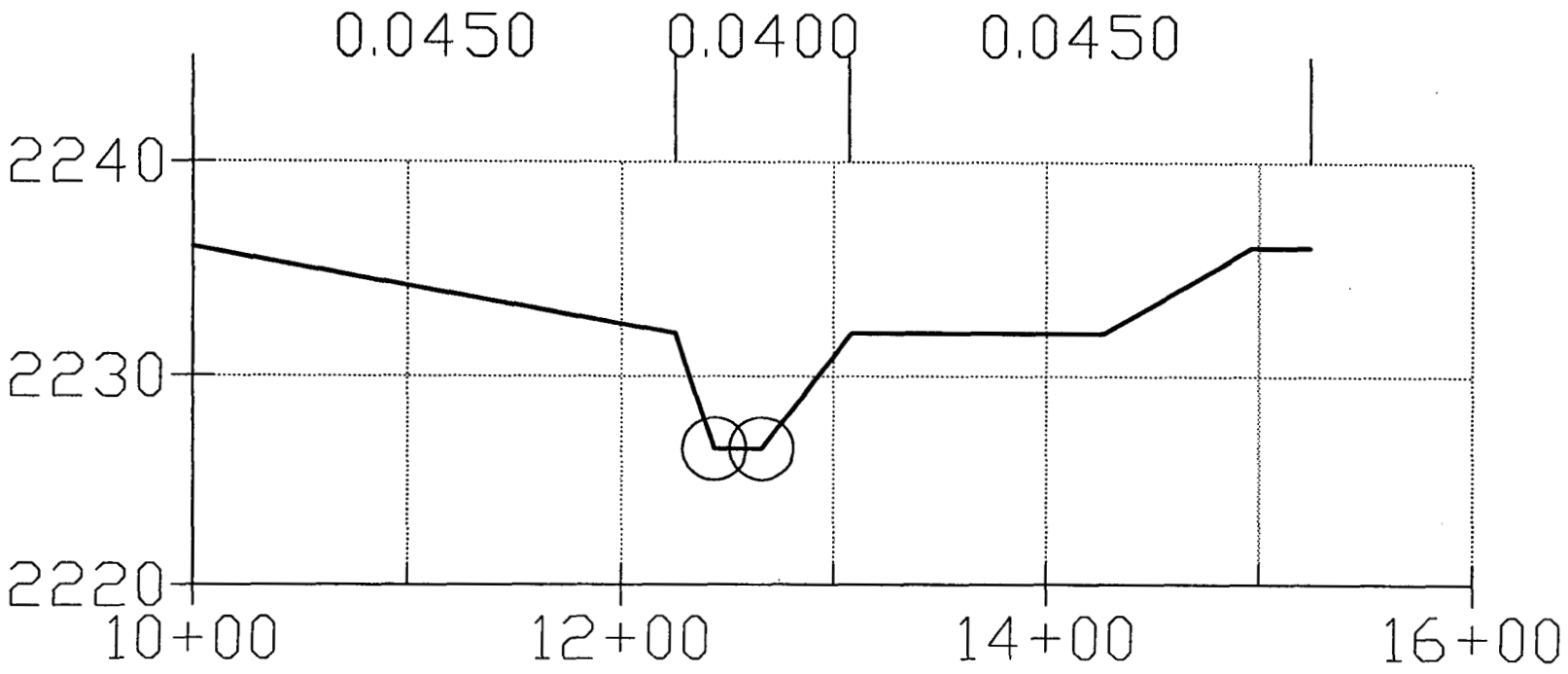

36000

DOWNSTREAM FACE OF LAS VEGAS BOULEVARD

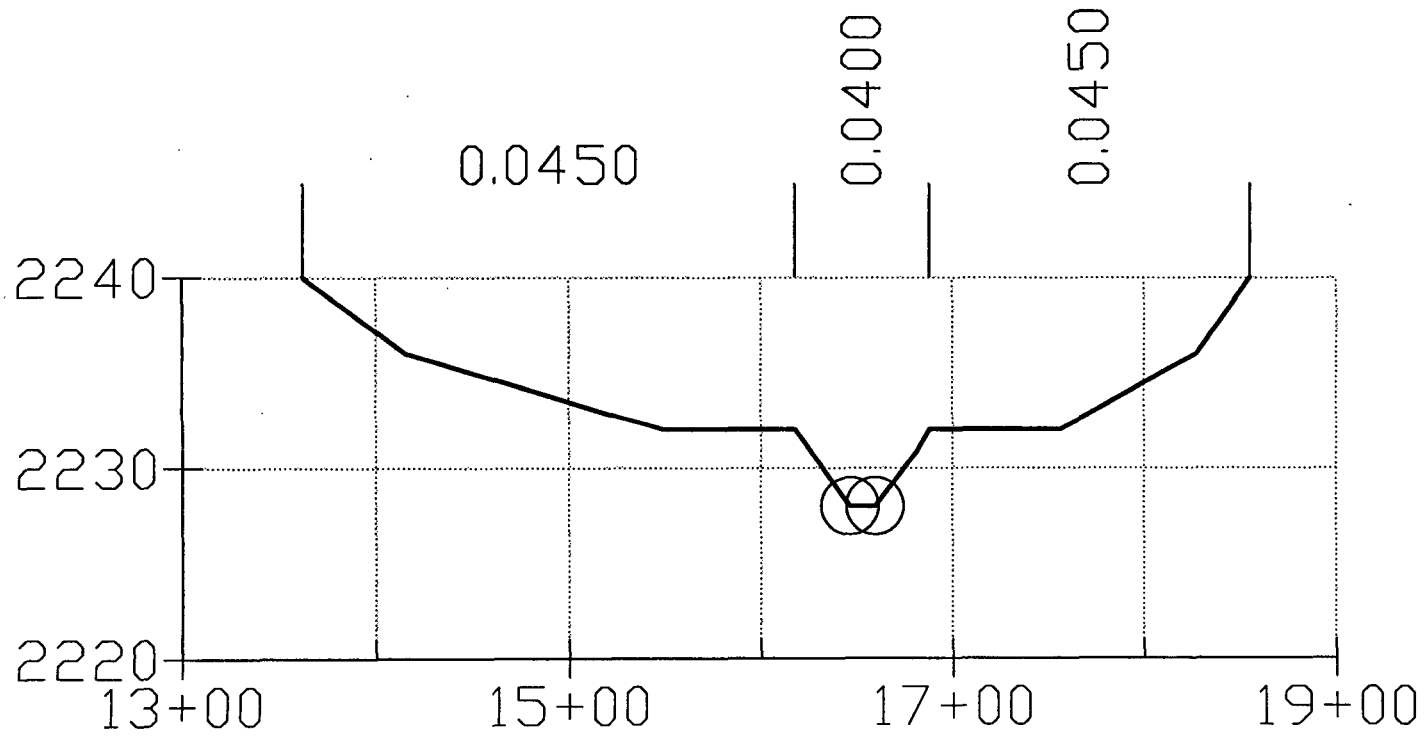



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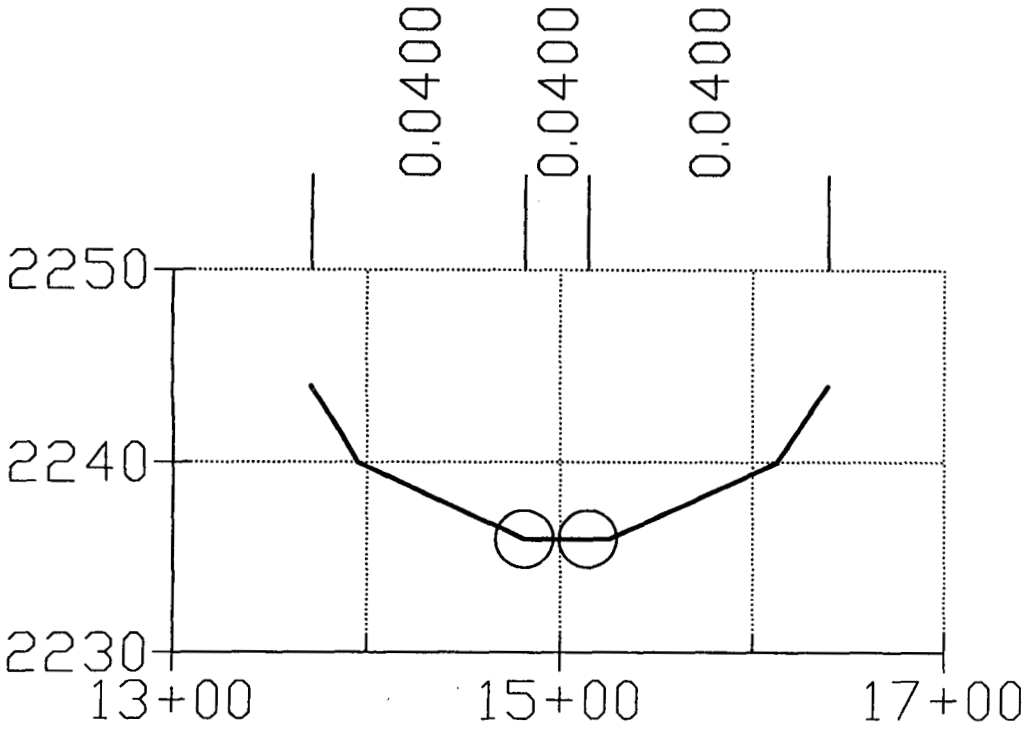
UPSTREAM FACE OF LAS VEGAS BOULEVARD
WATER SURFACE ELEVATION SET AT 2232.1 FEET NGVD
SEE RATING CURVE OF MULTIPLE OPENINGS



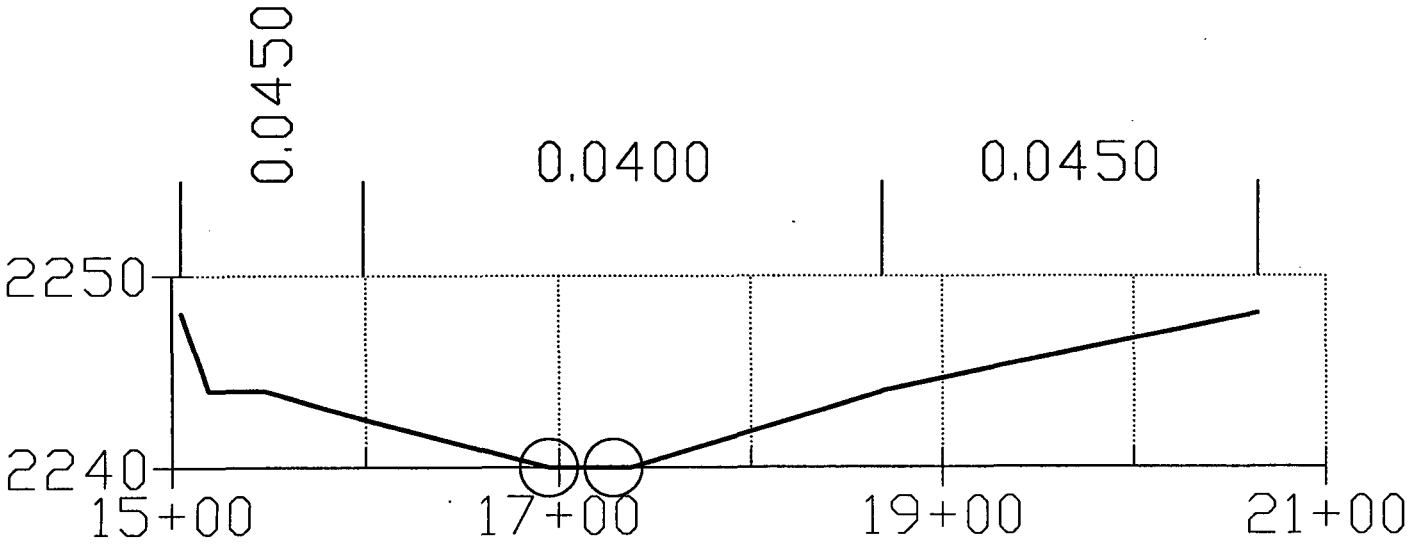

36200



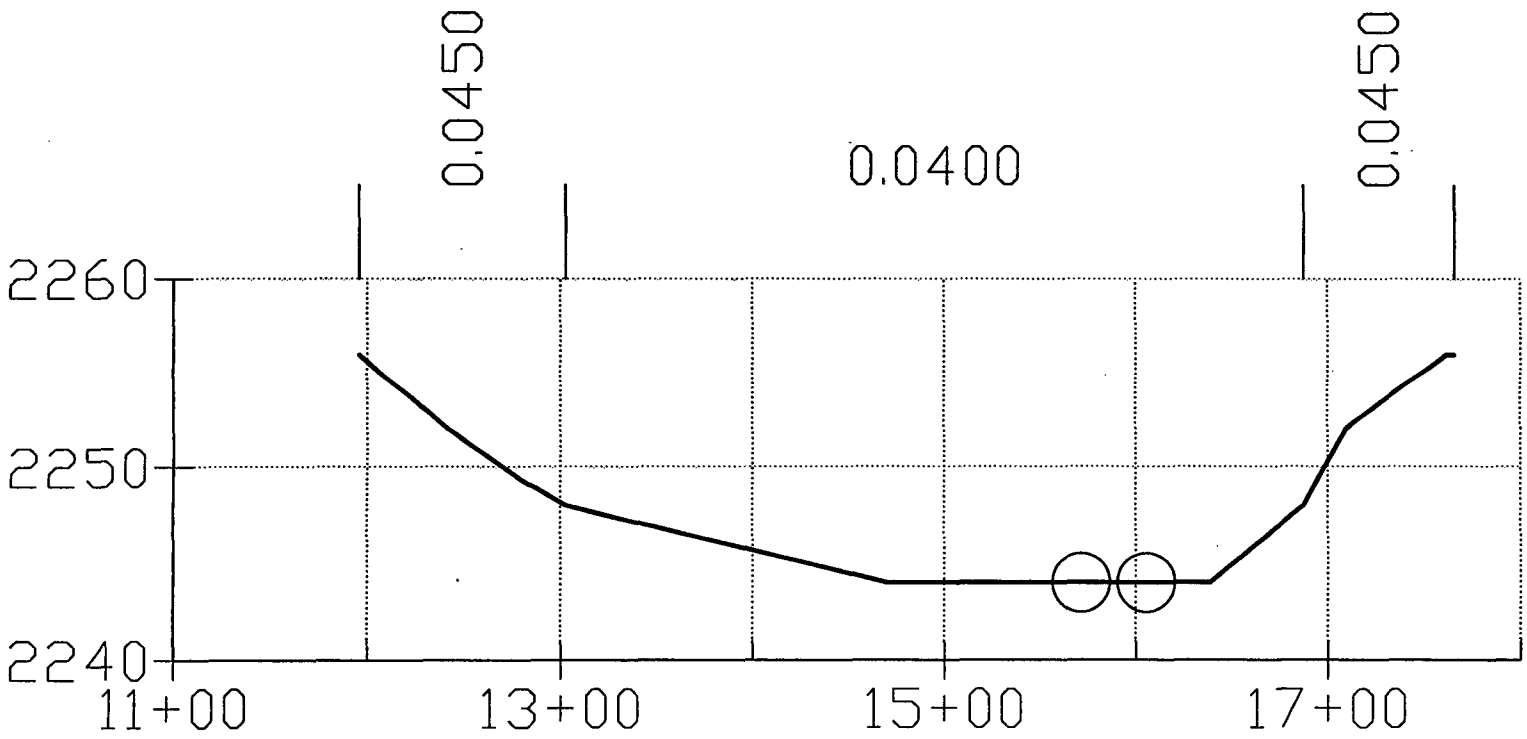

36300



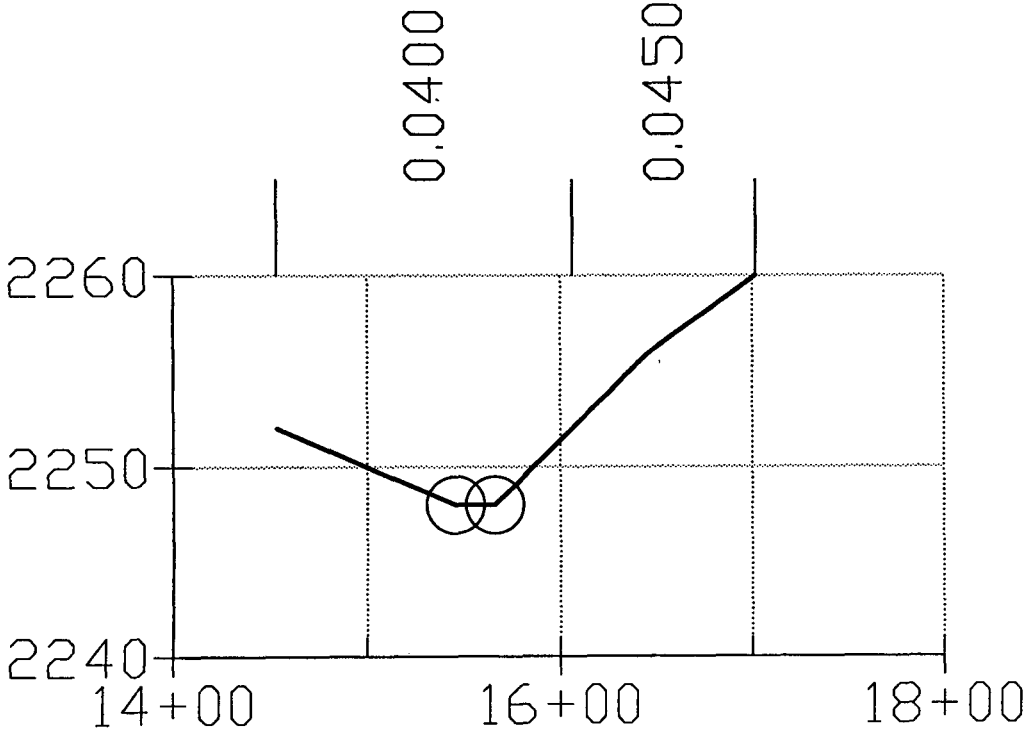

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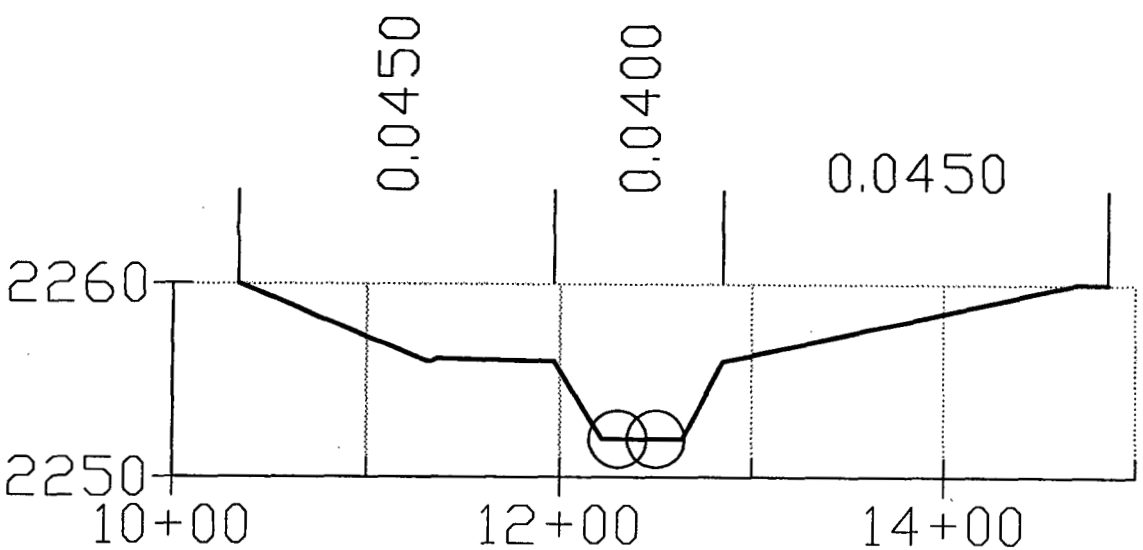

36500



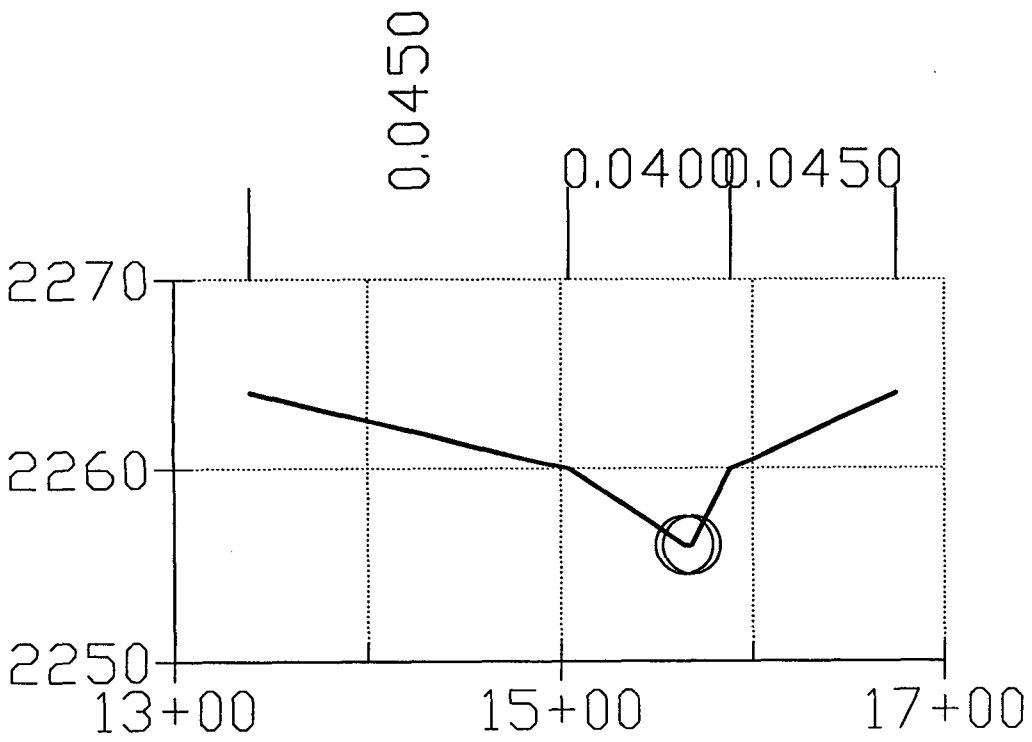

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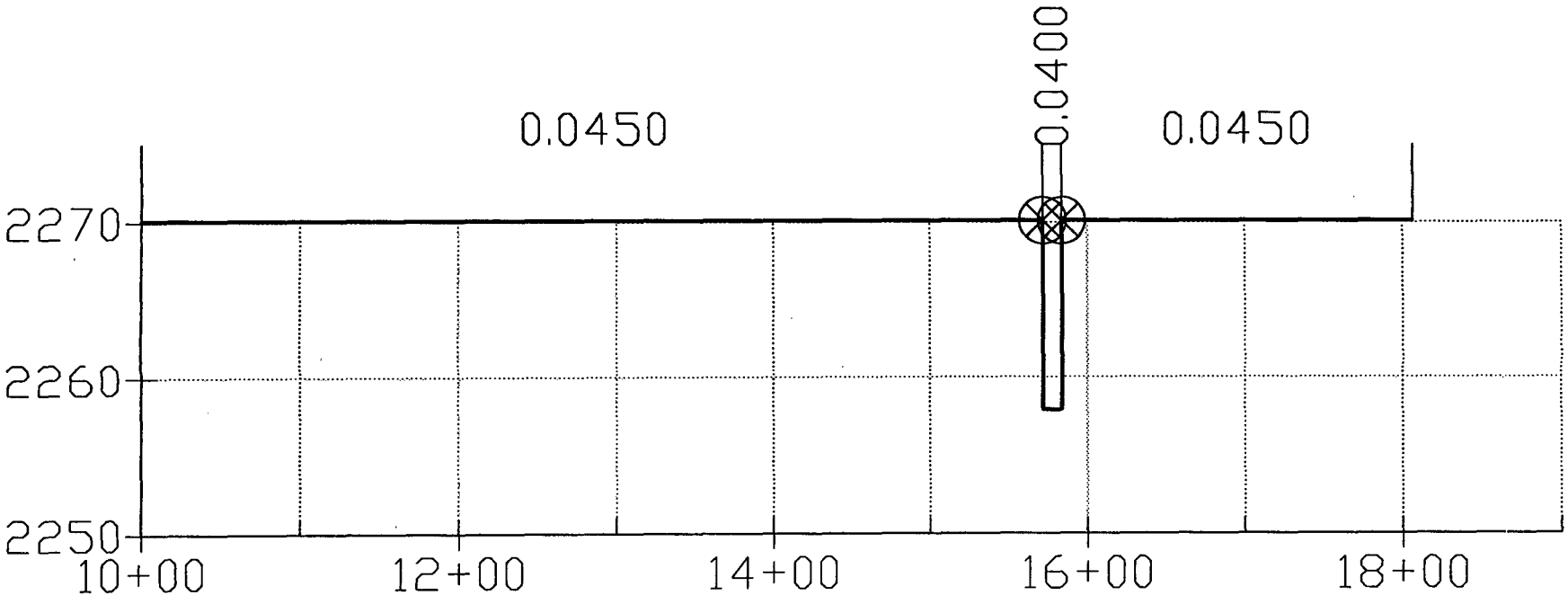

36700




36800

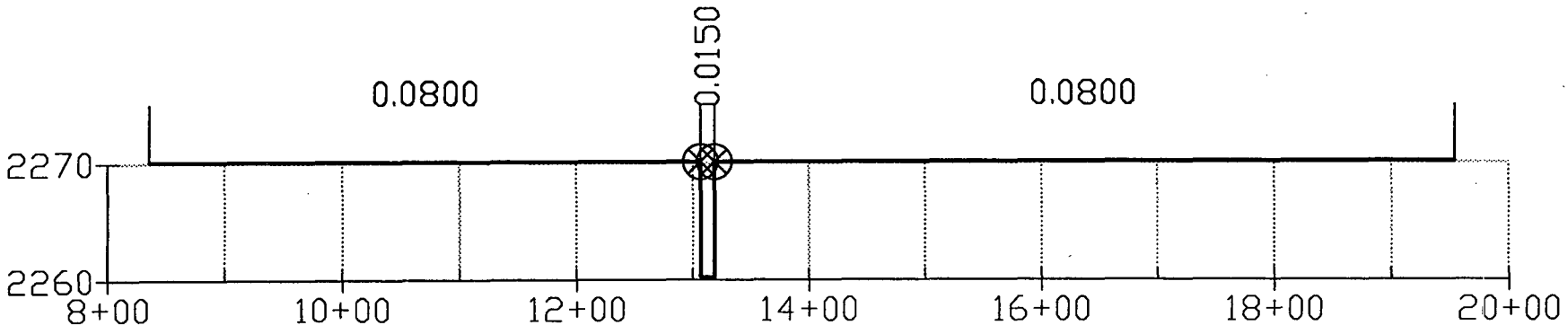



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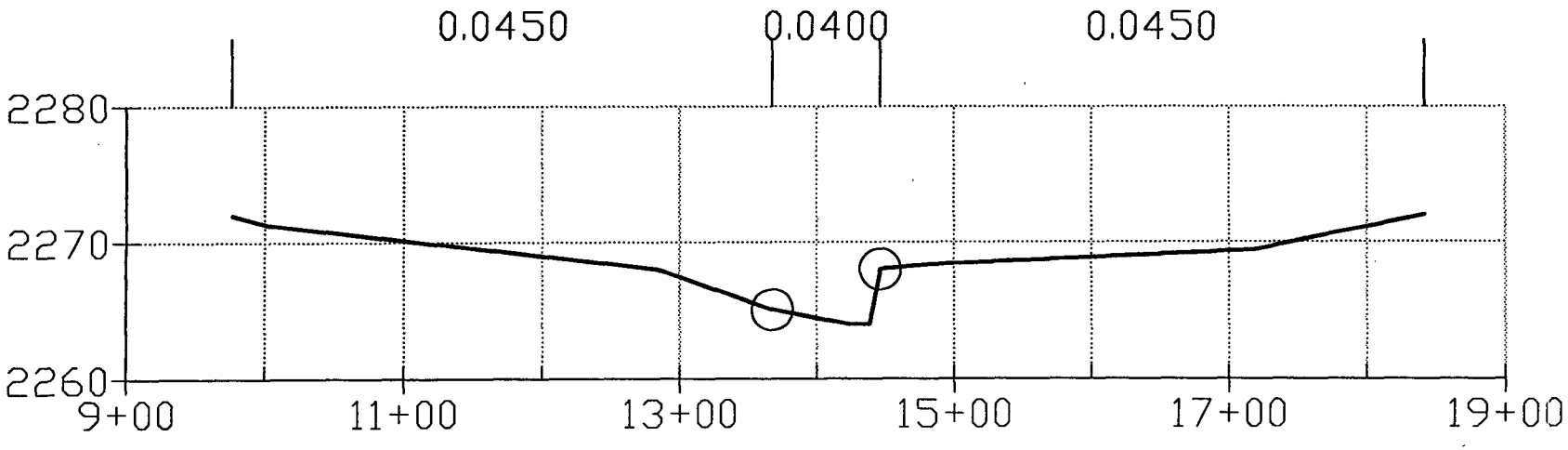

37000

DOWNSTREAM FACE OF I-15

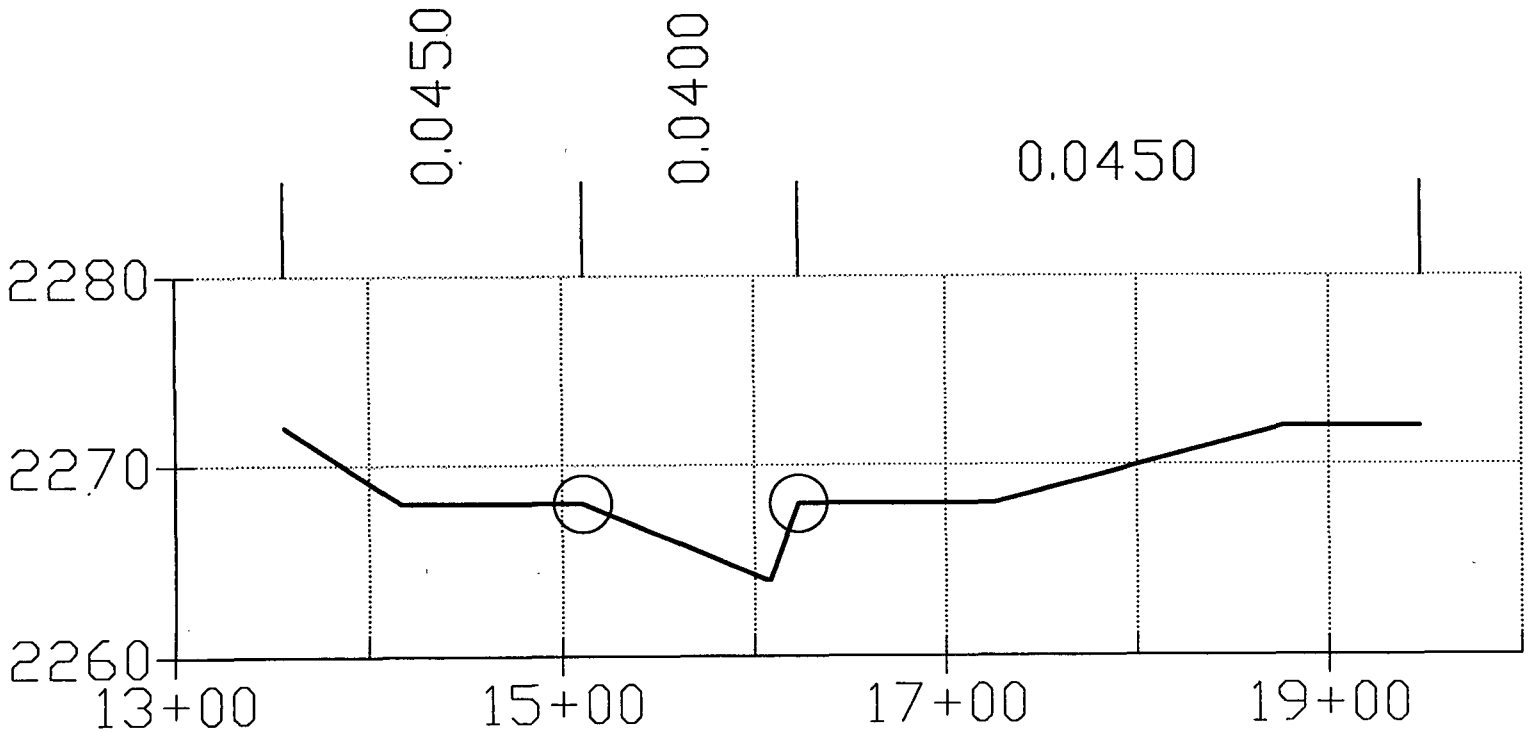



37100

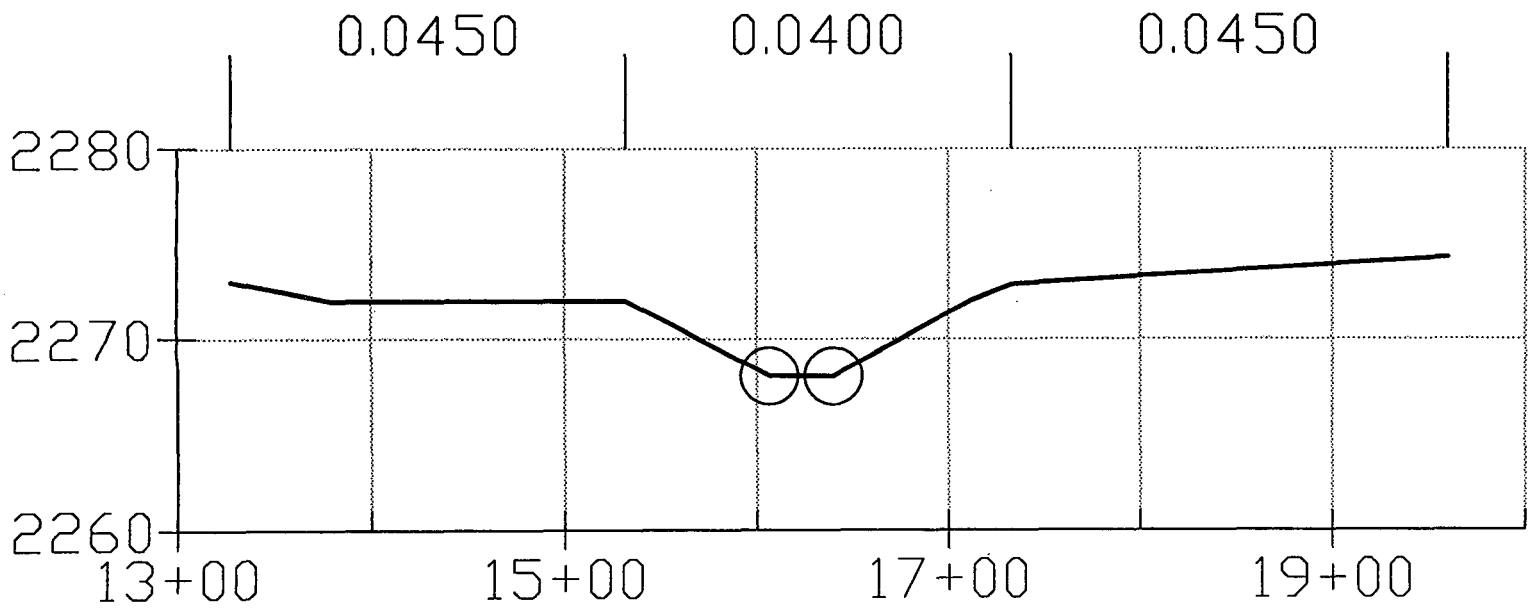
UPSTREAM FACE OF I-15


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0.0400
0.0450
2280
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2260
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11+00
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15+00
17+00
19+00

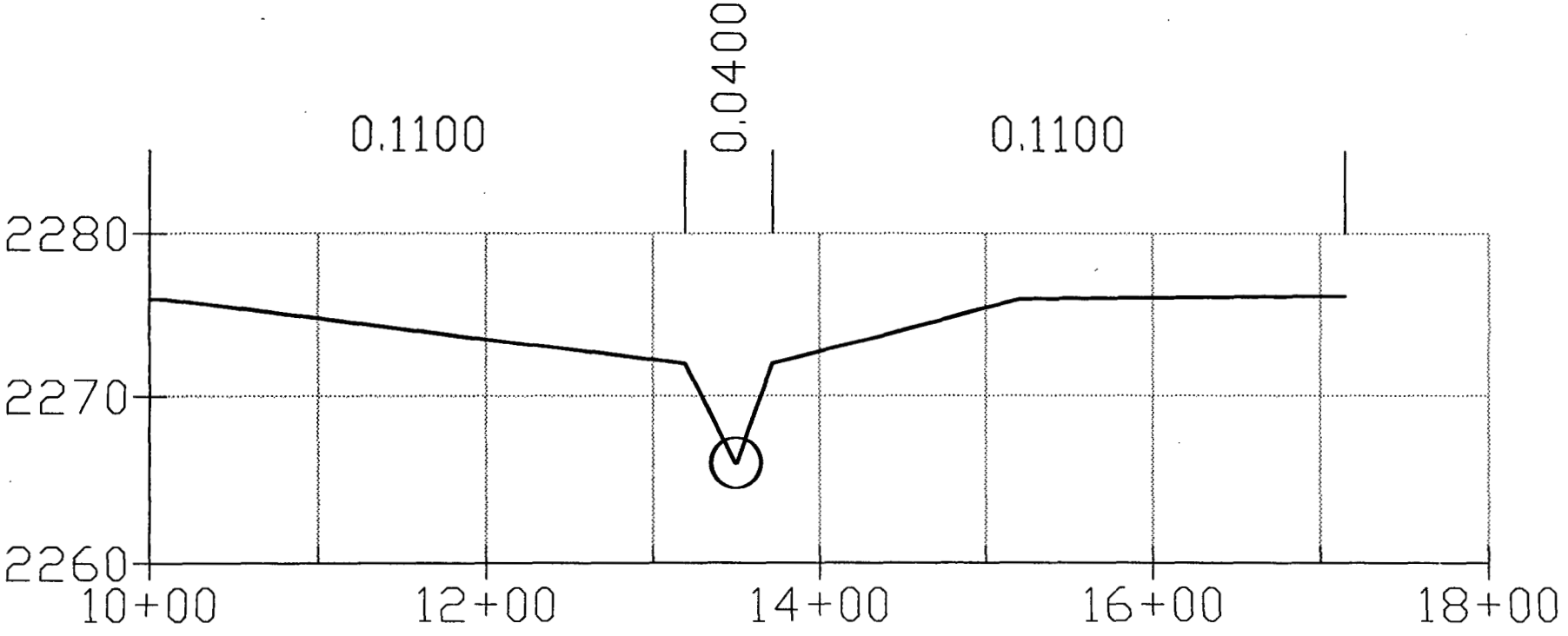
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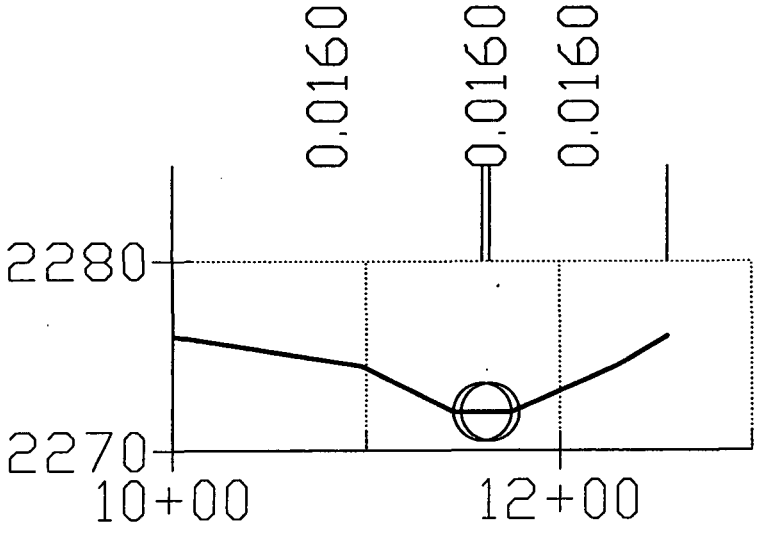

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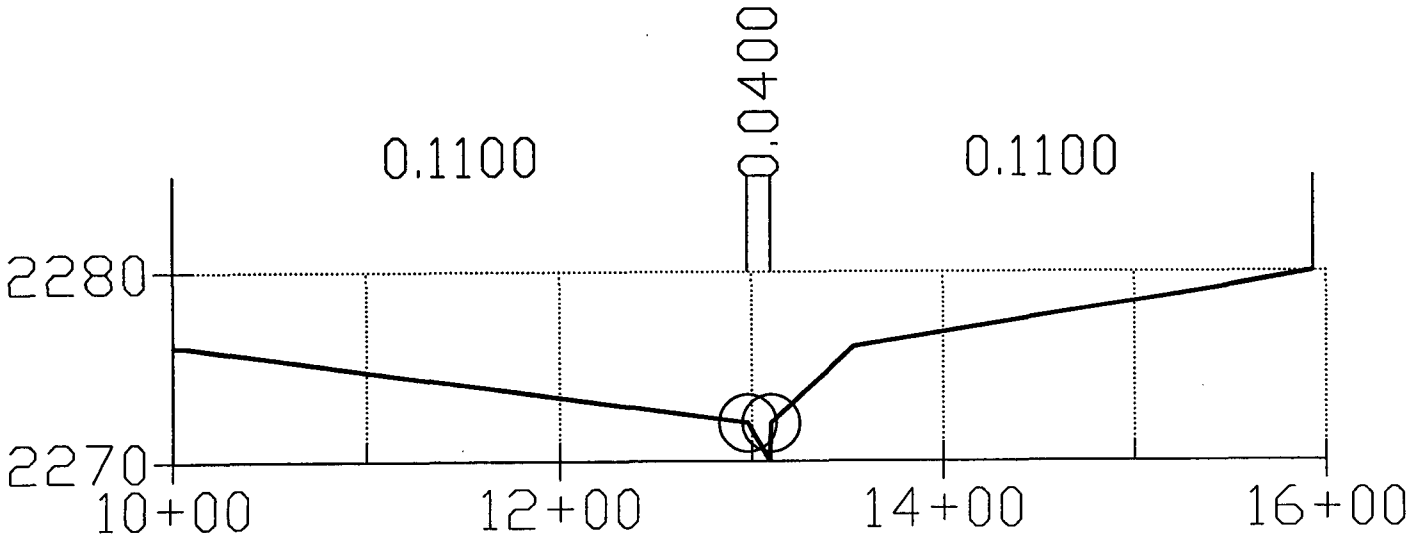



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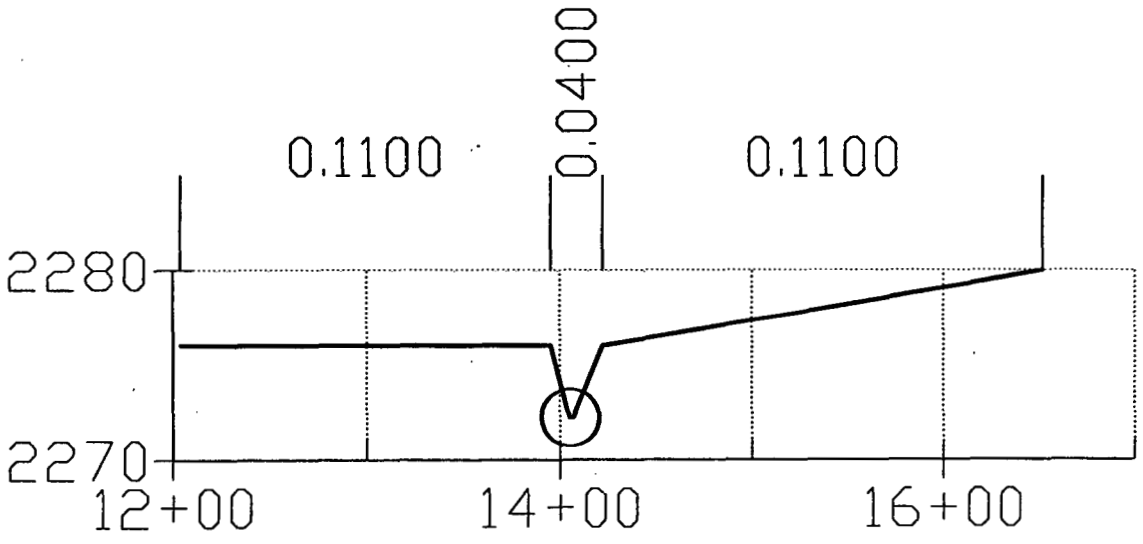

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DOWNSTREAM SIDE INDUSTRIAL ROAD CROSSING

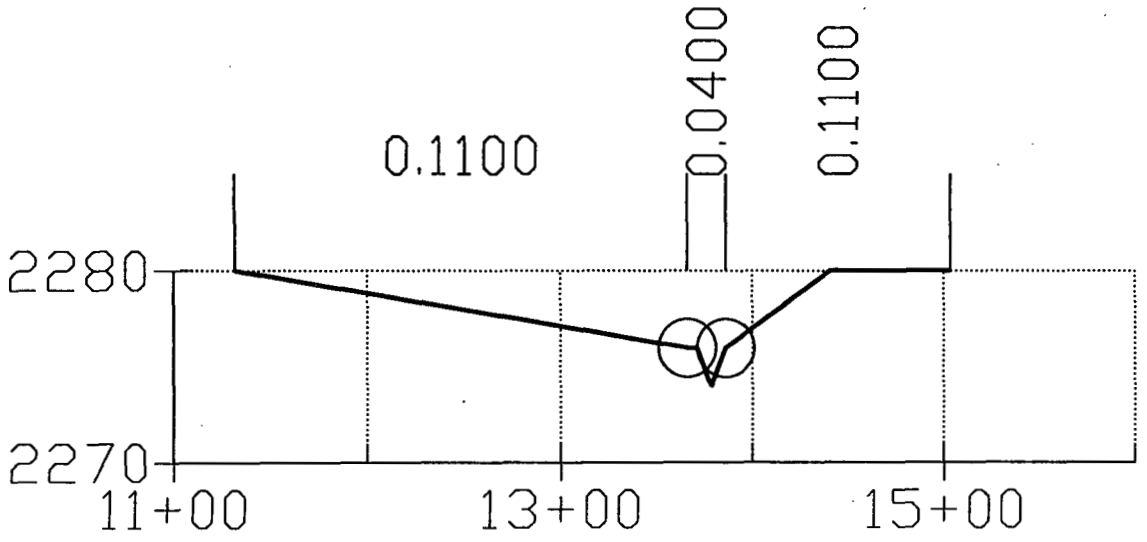



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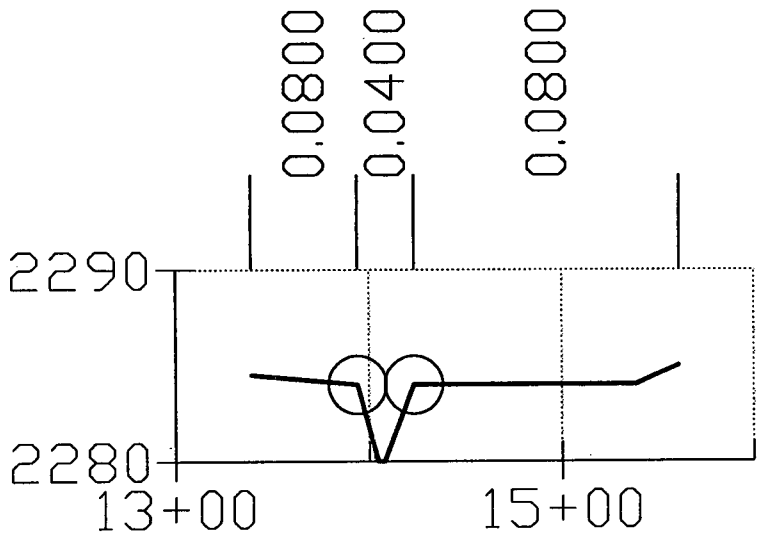
UPSTREAM SIDE INDUSTRIAL ROAD CROSSING



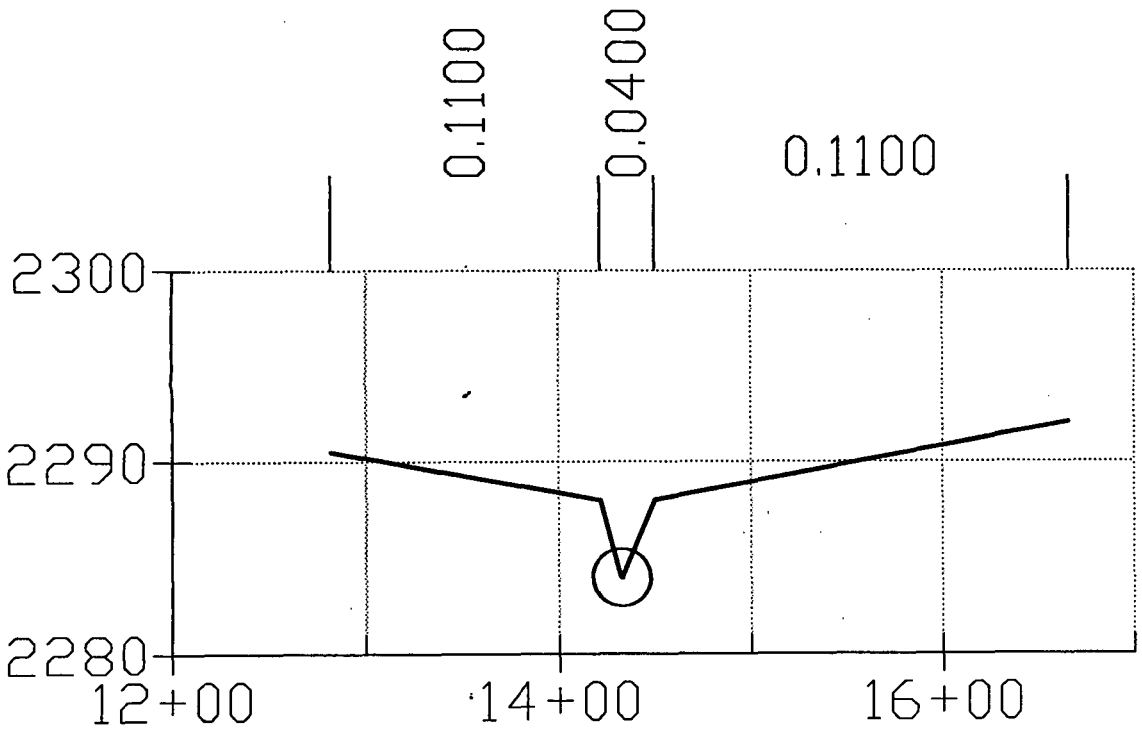

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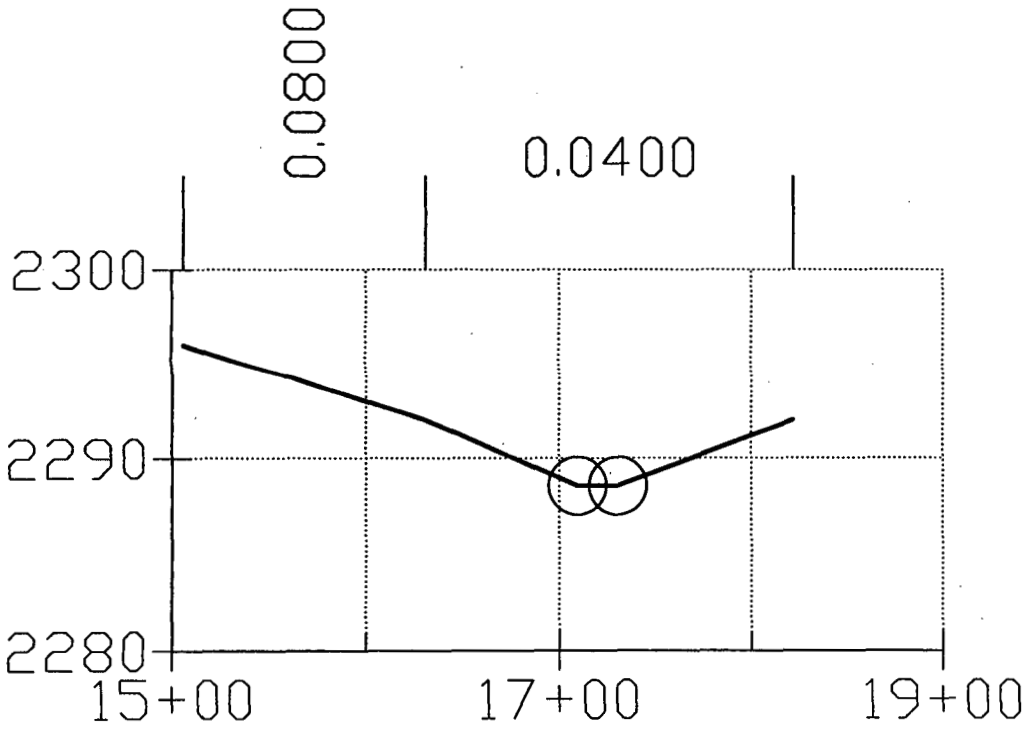

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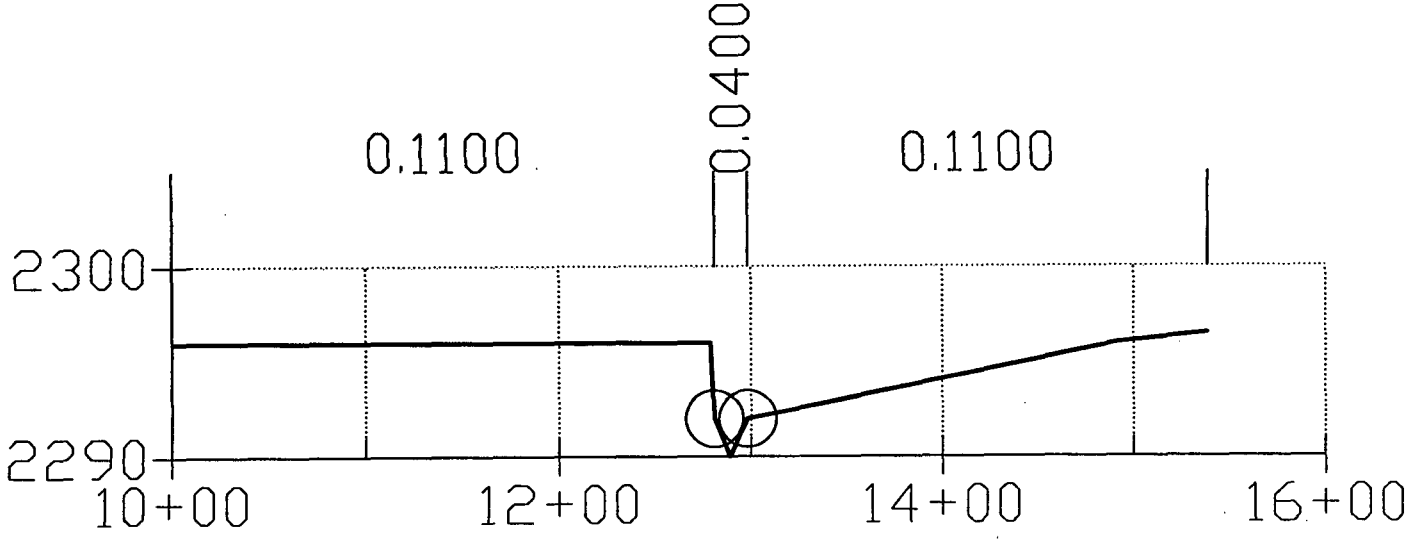

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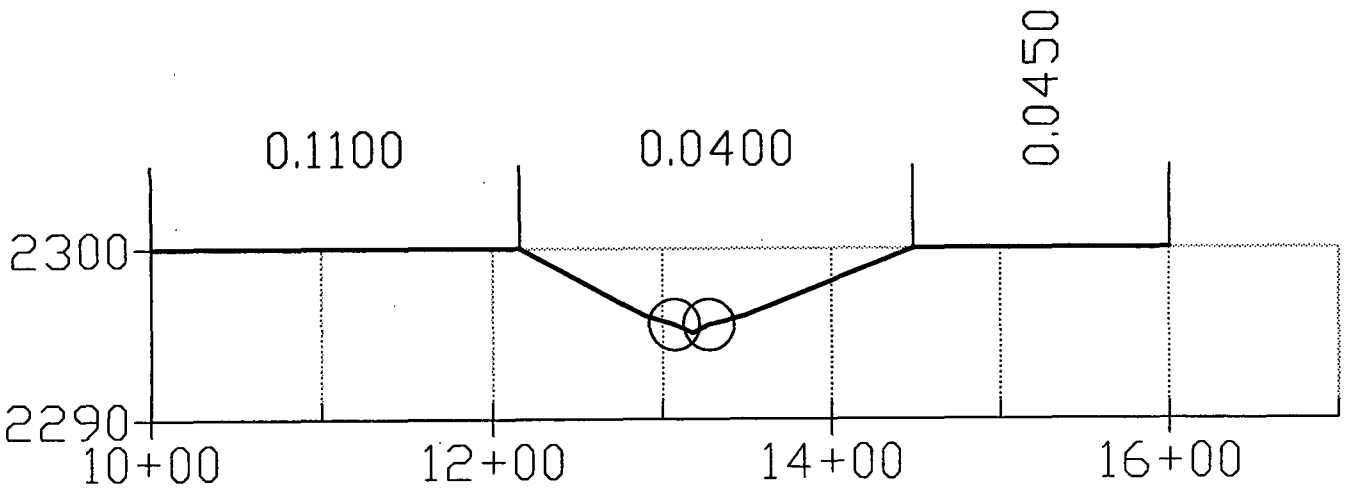

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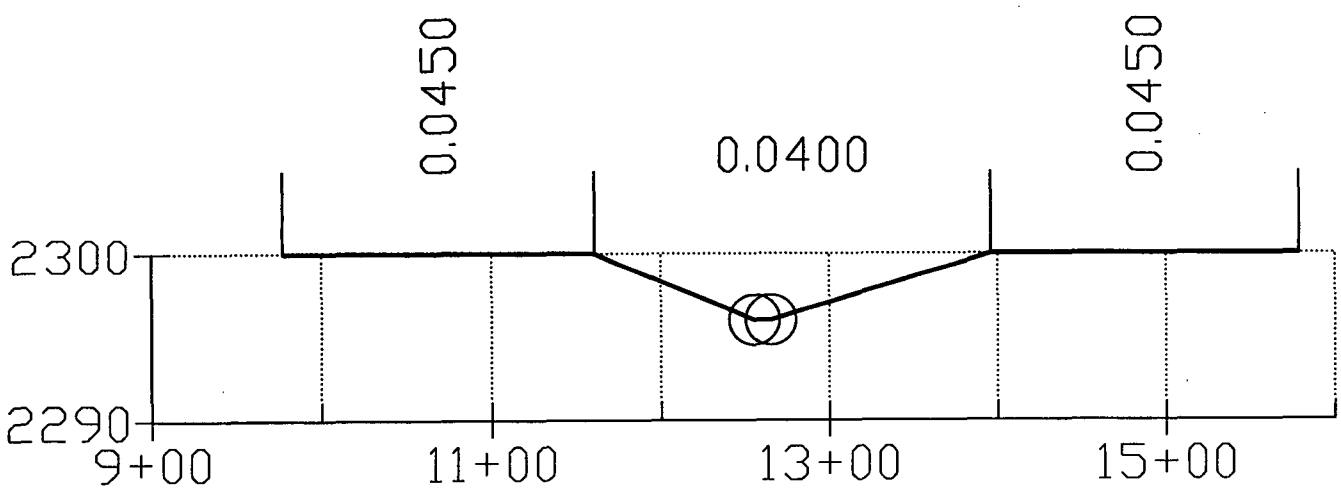



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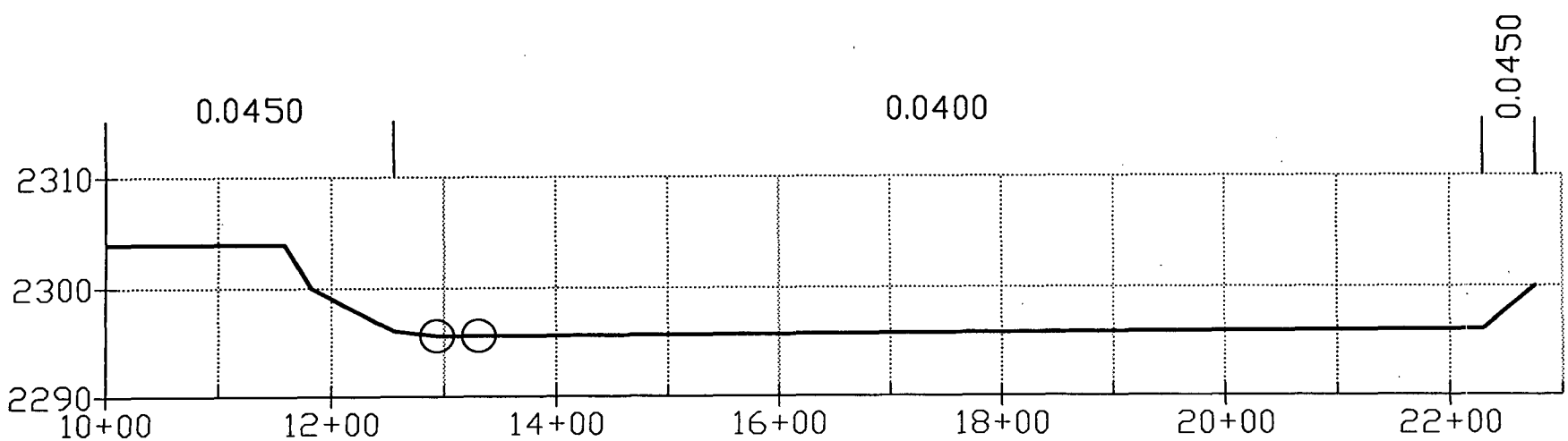

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DOWNSTREAM SIDE VALLEY VIEW BOULEVARD CROSSING

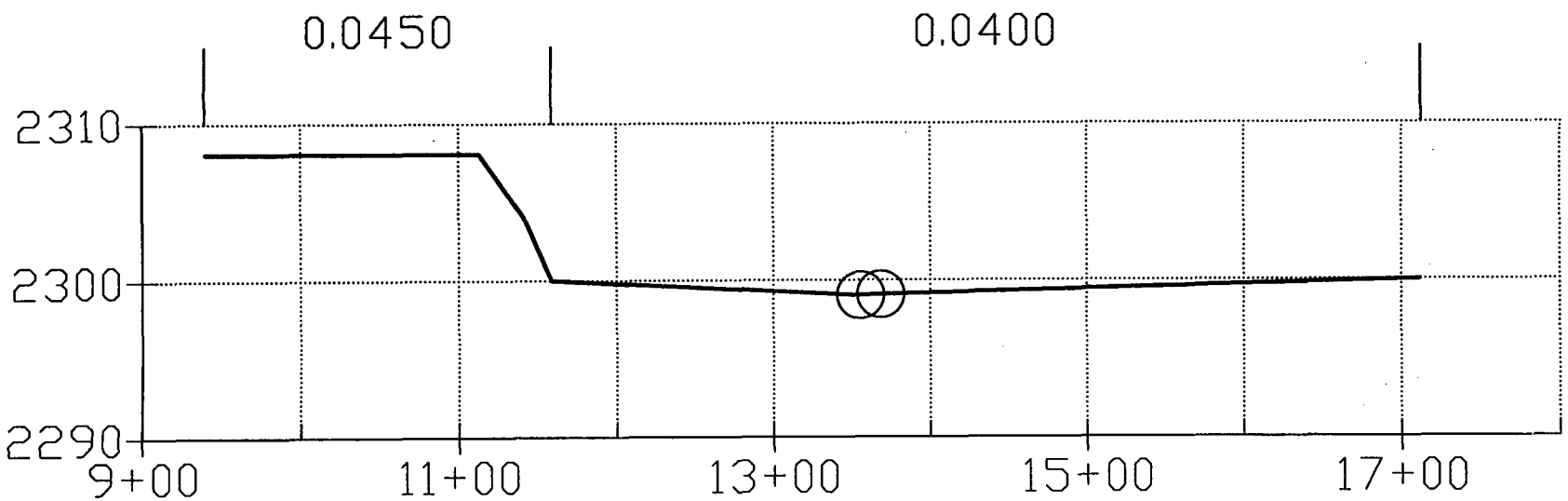



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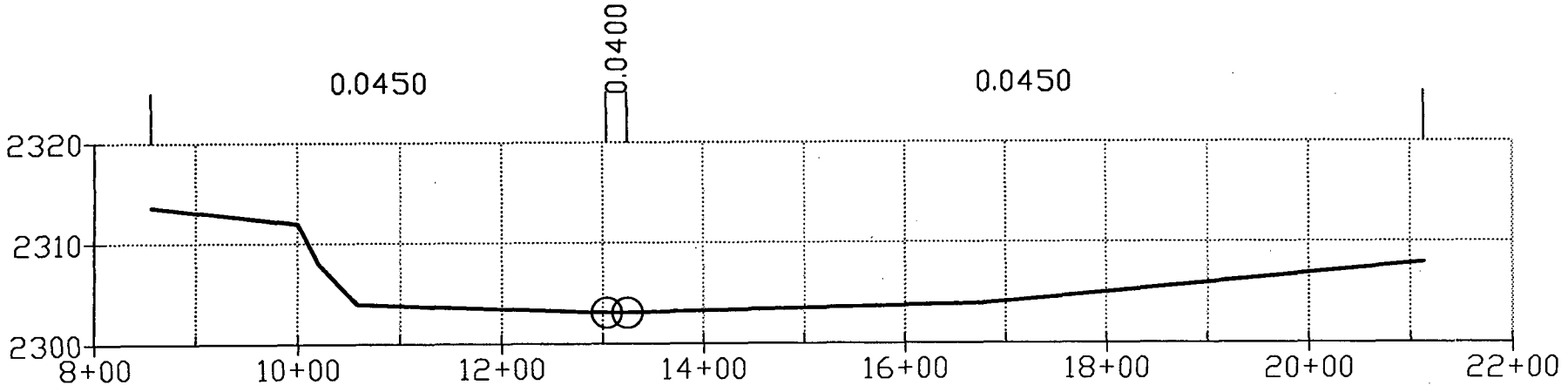
UPSTREAM SIDE VALLEY VIEW BOULEVARD CROSSING


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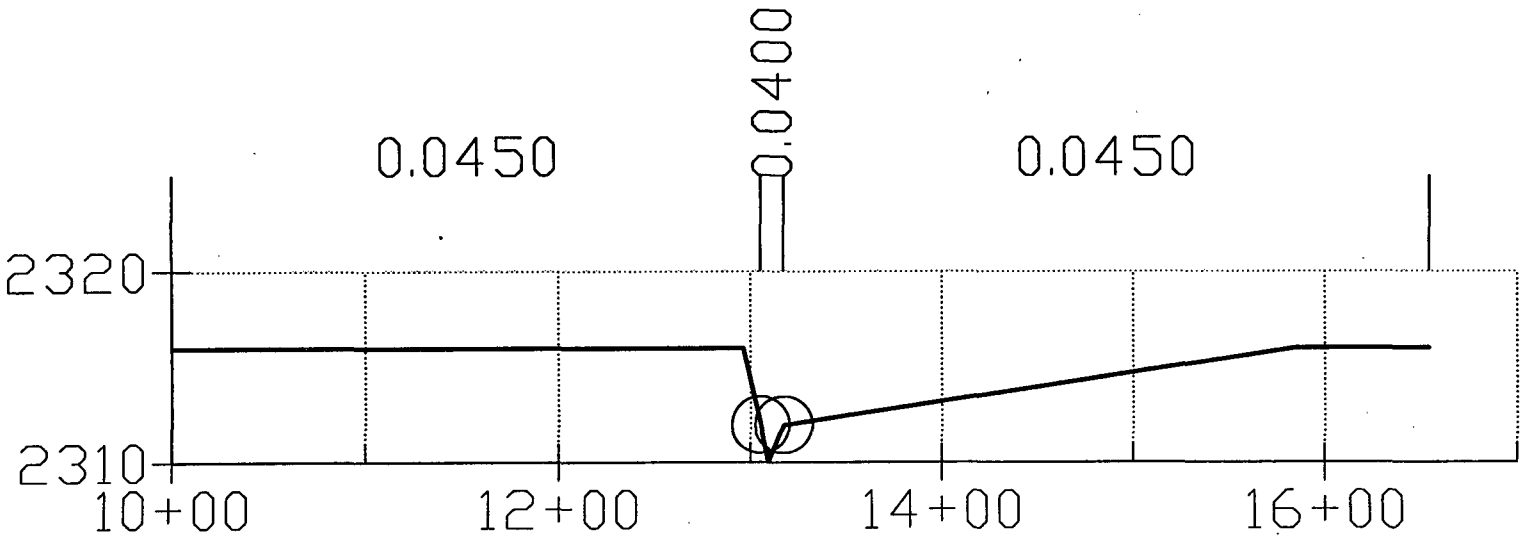
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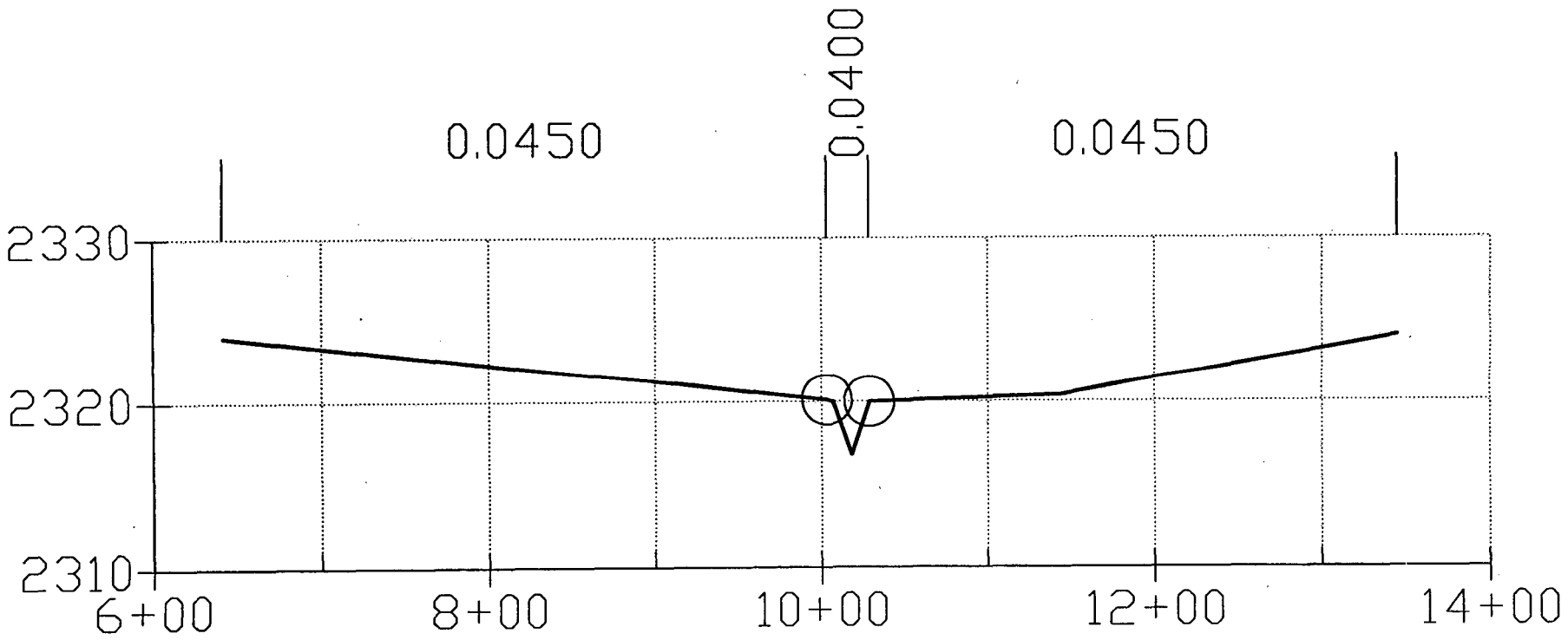

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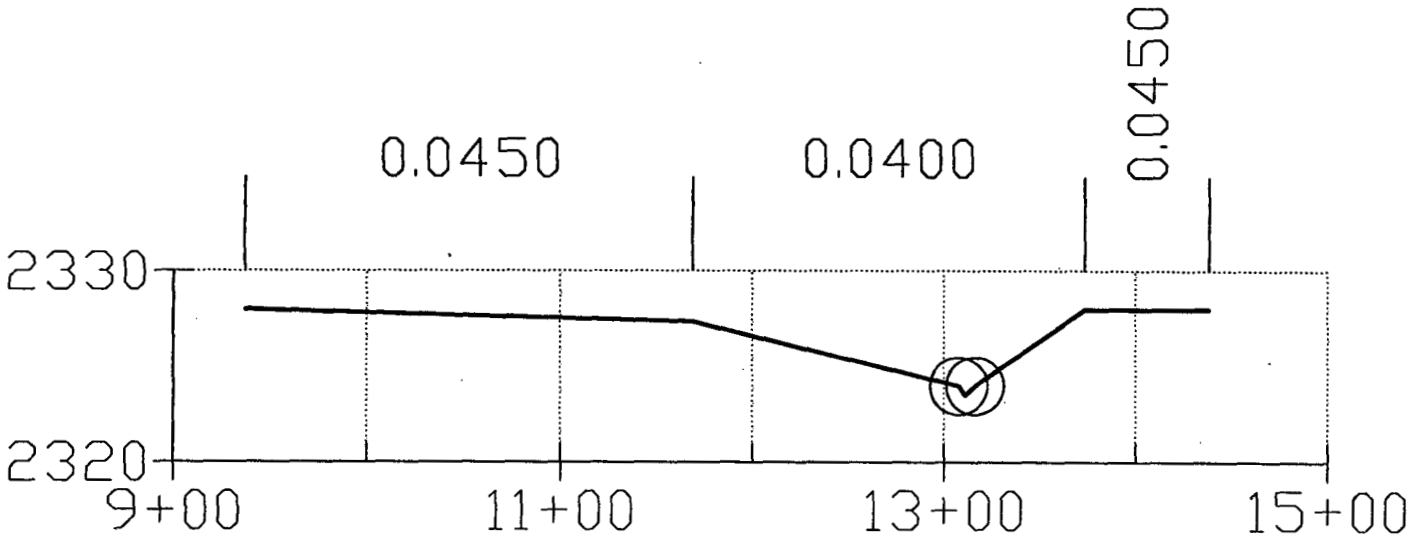
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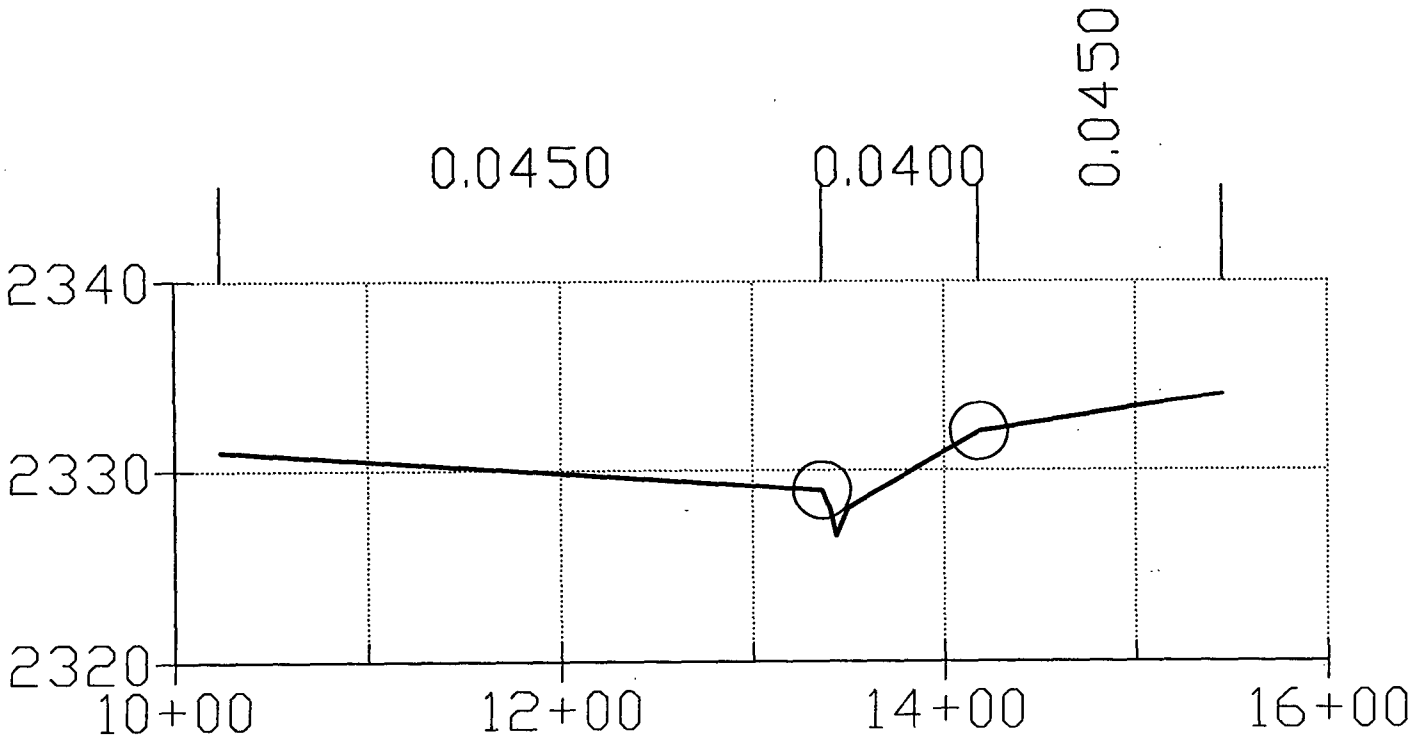

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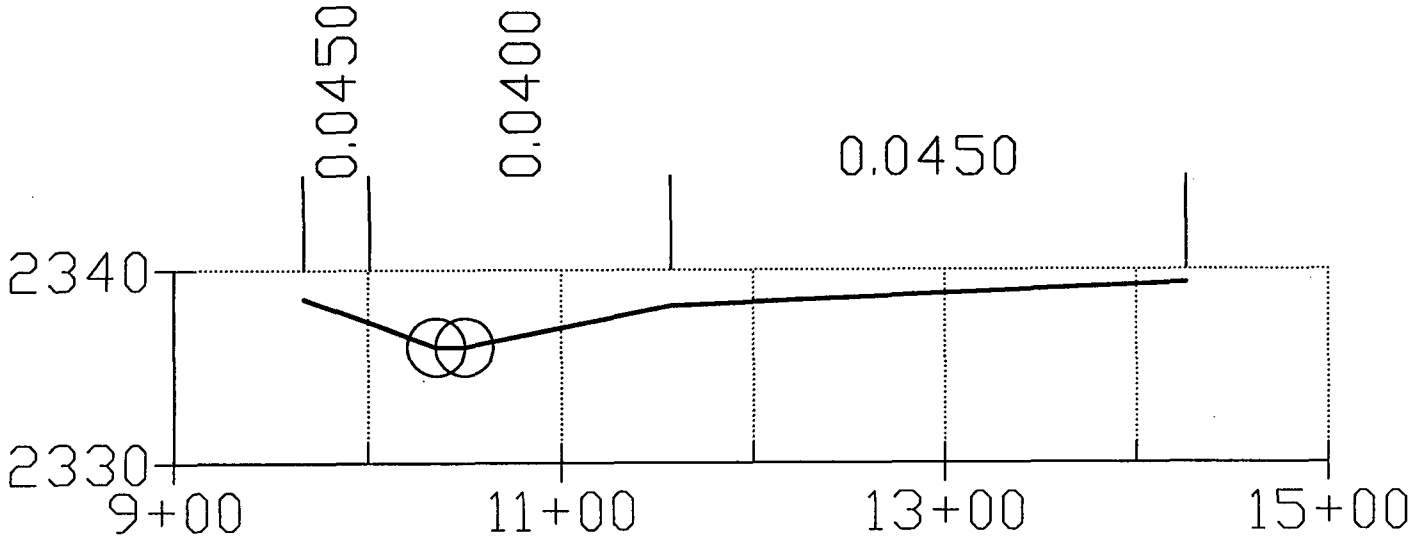

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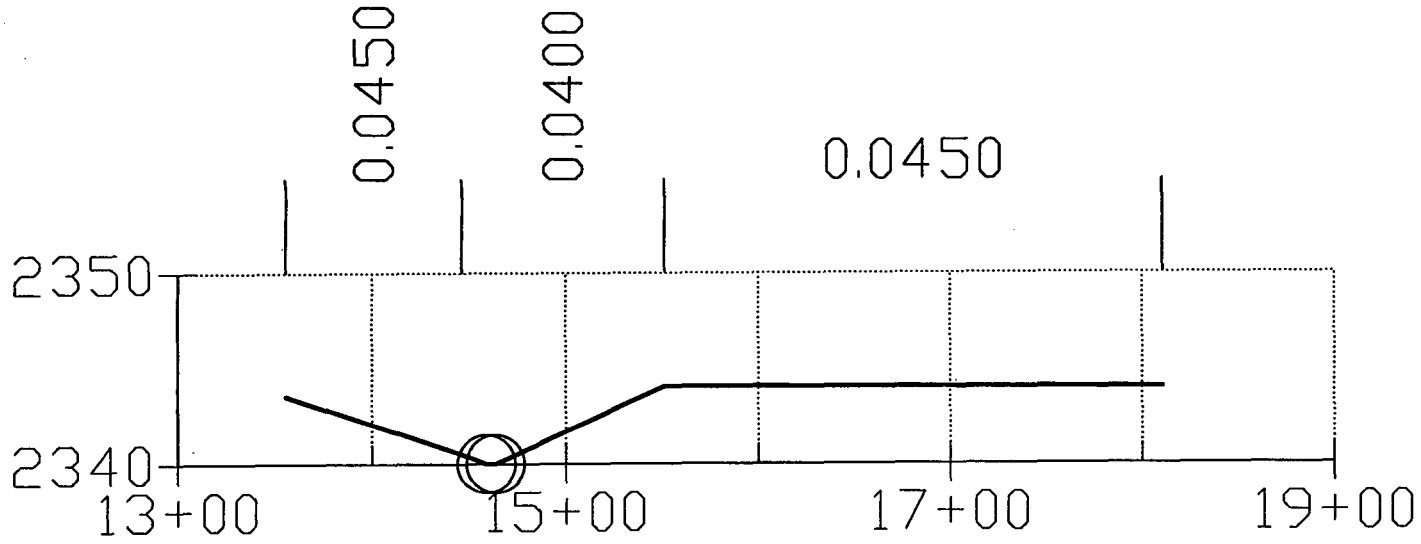

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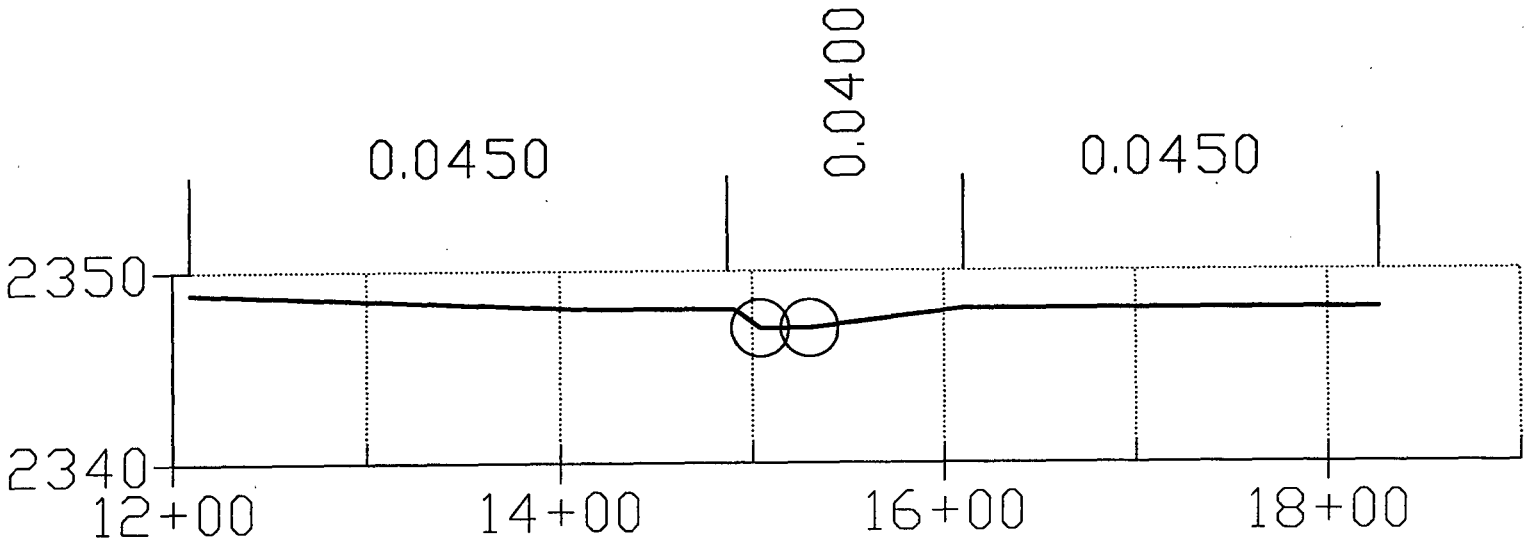

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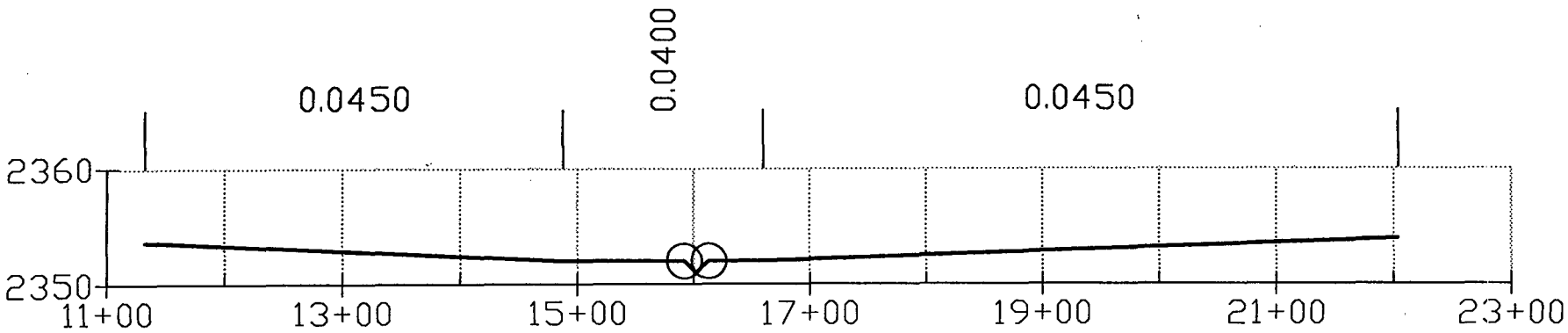

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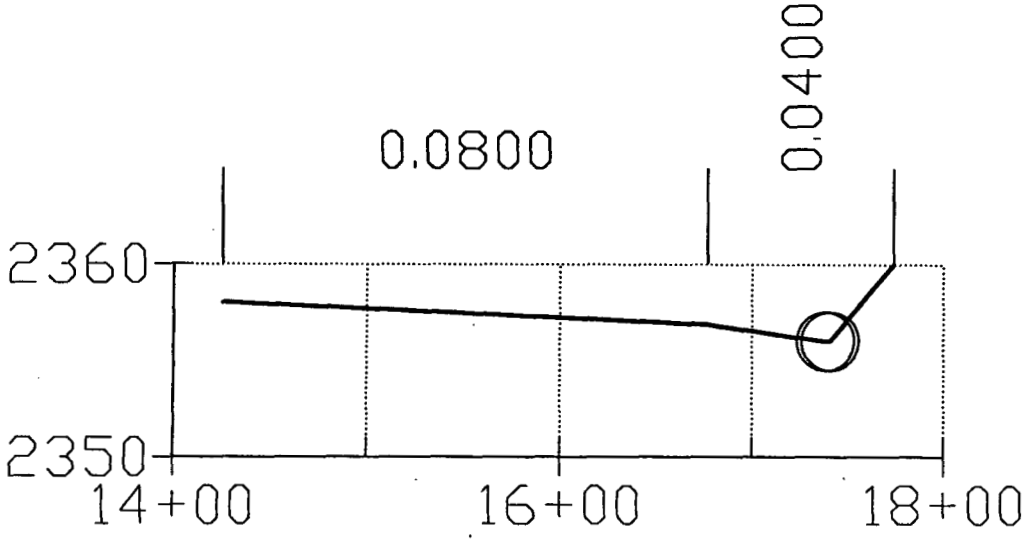

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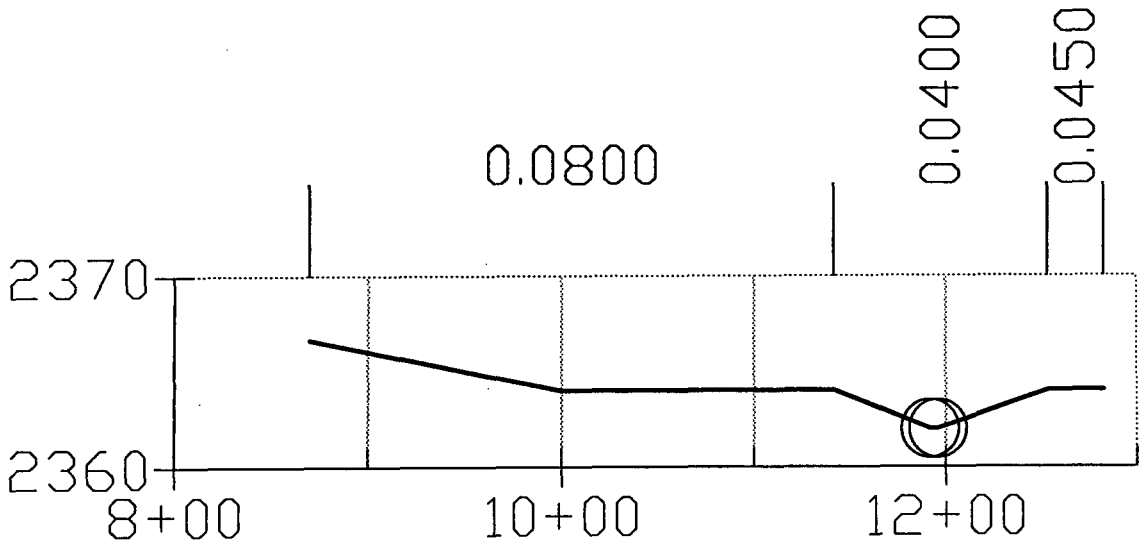

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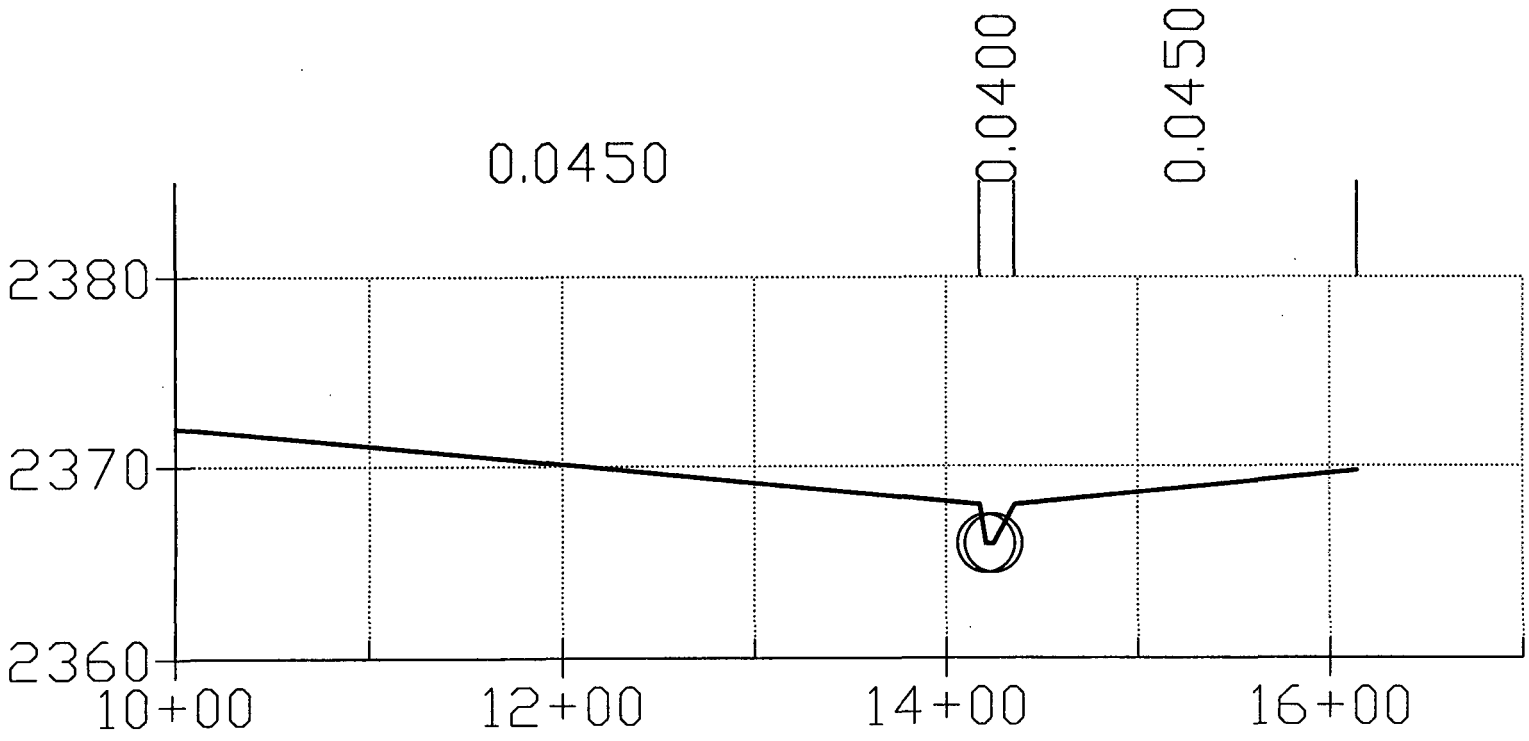
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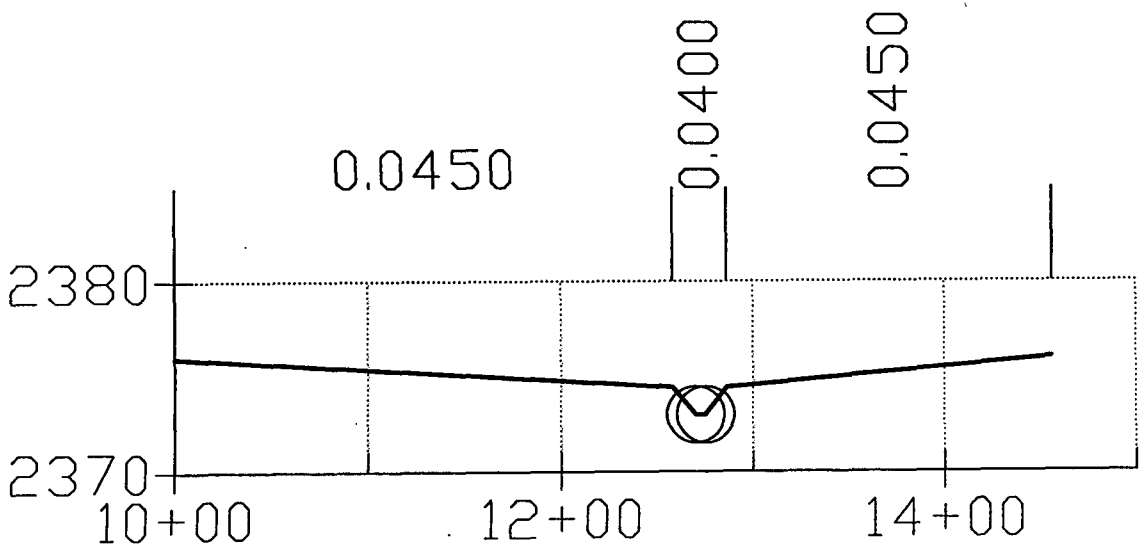

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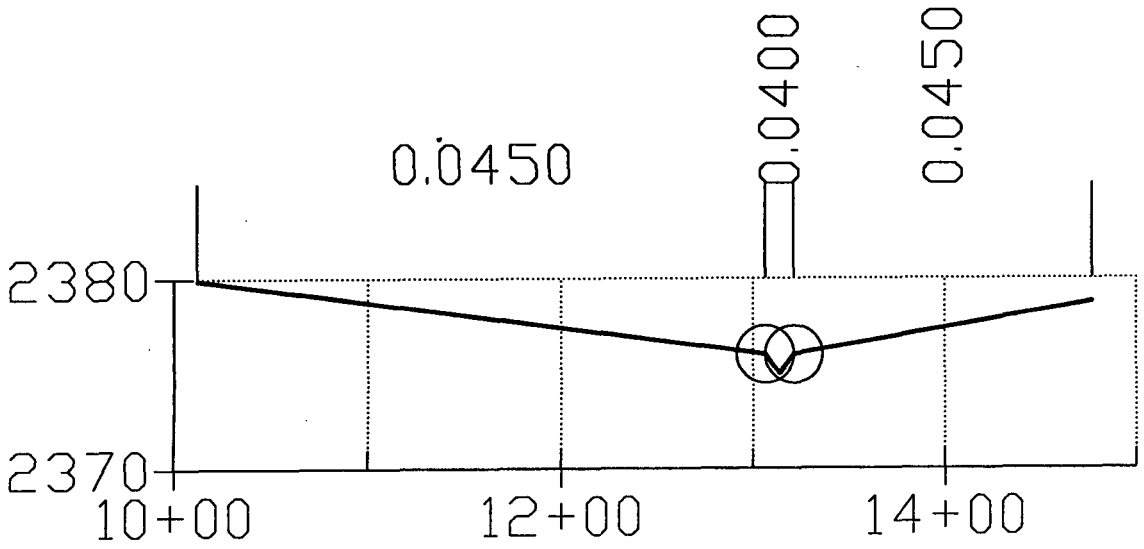

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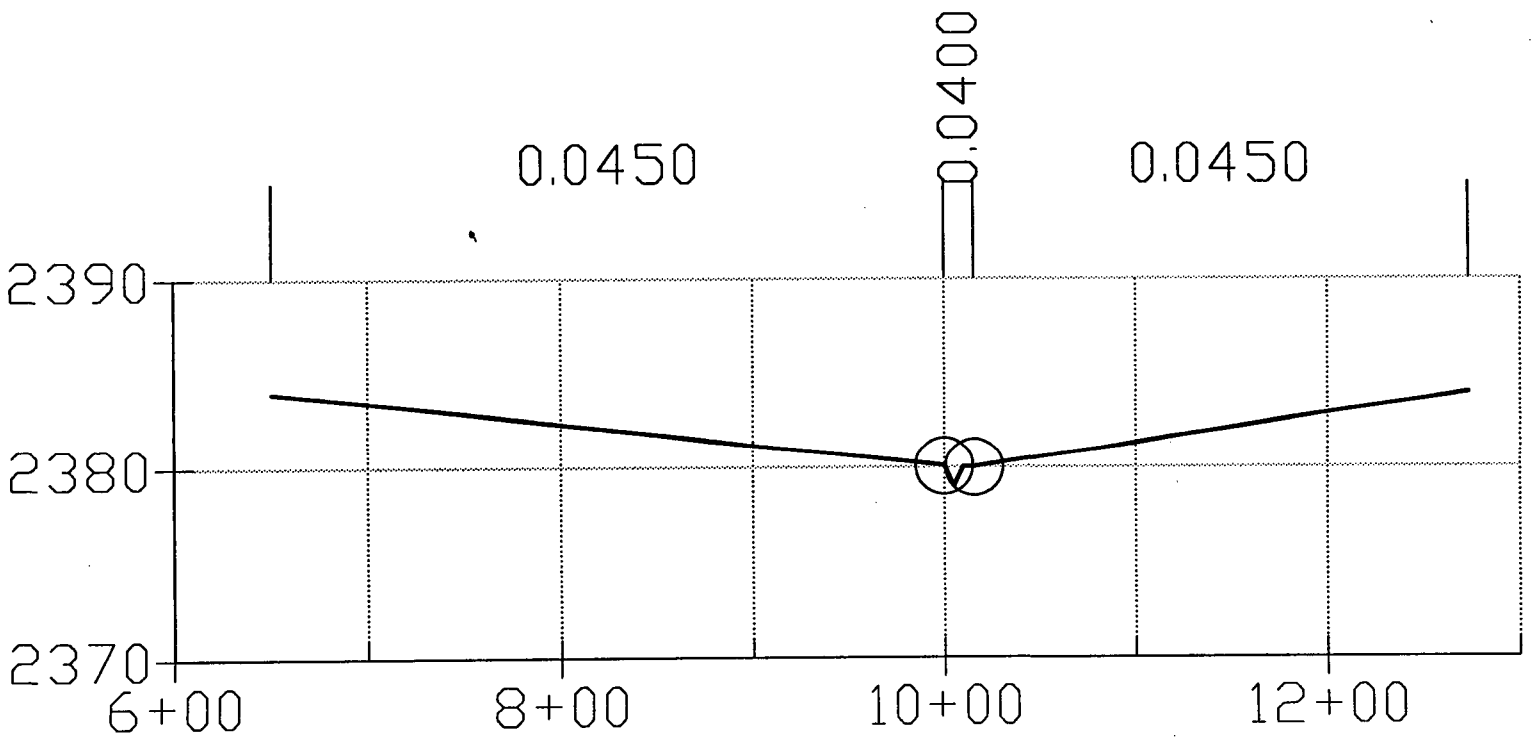

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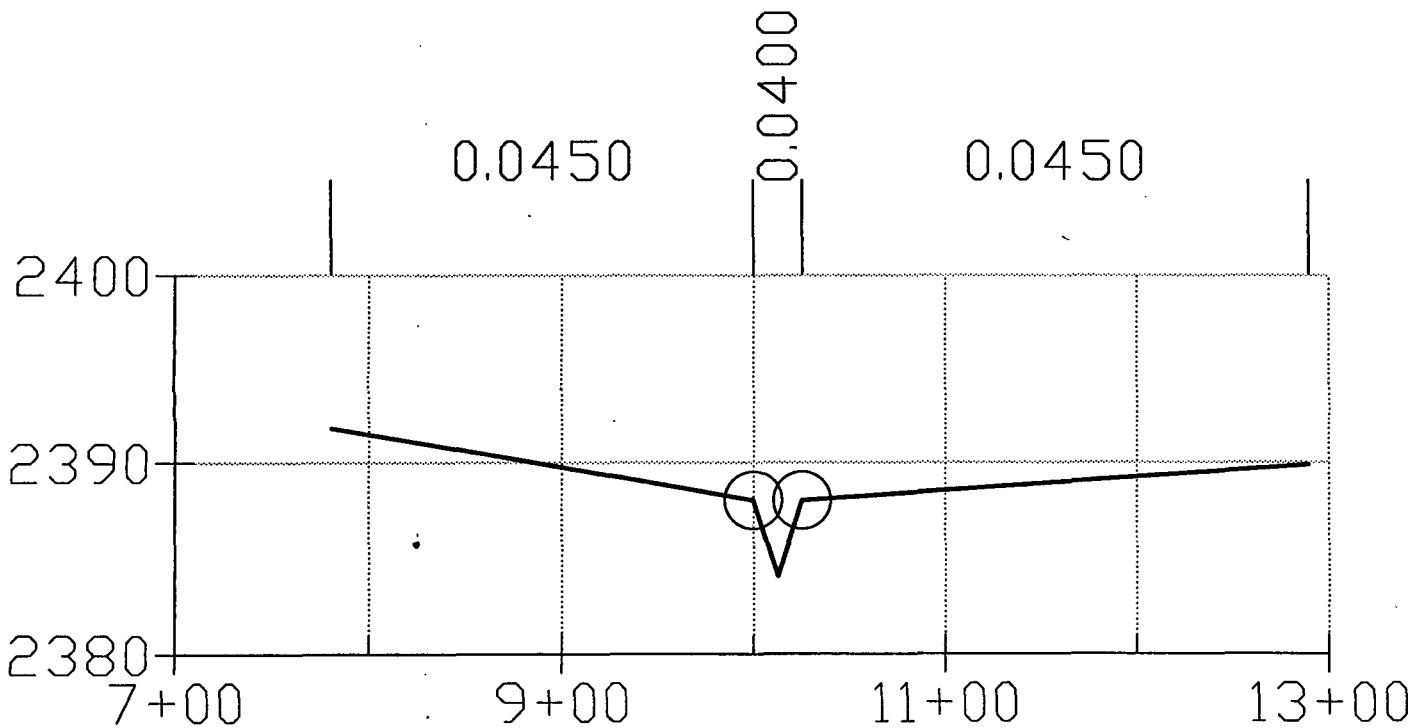

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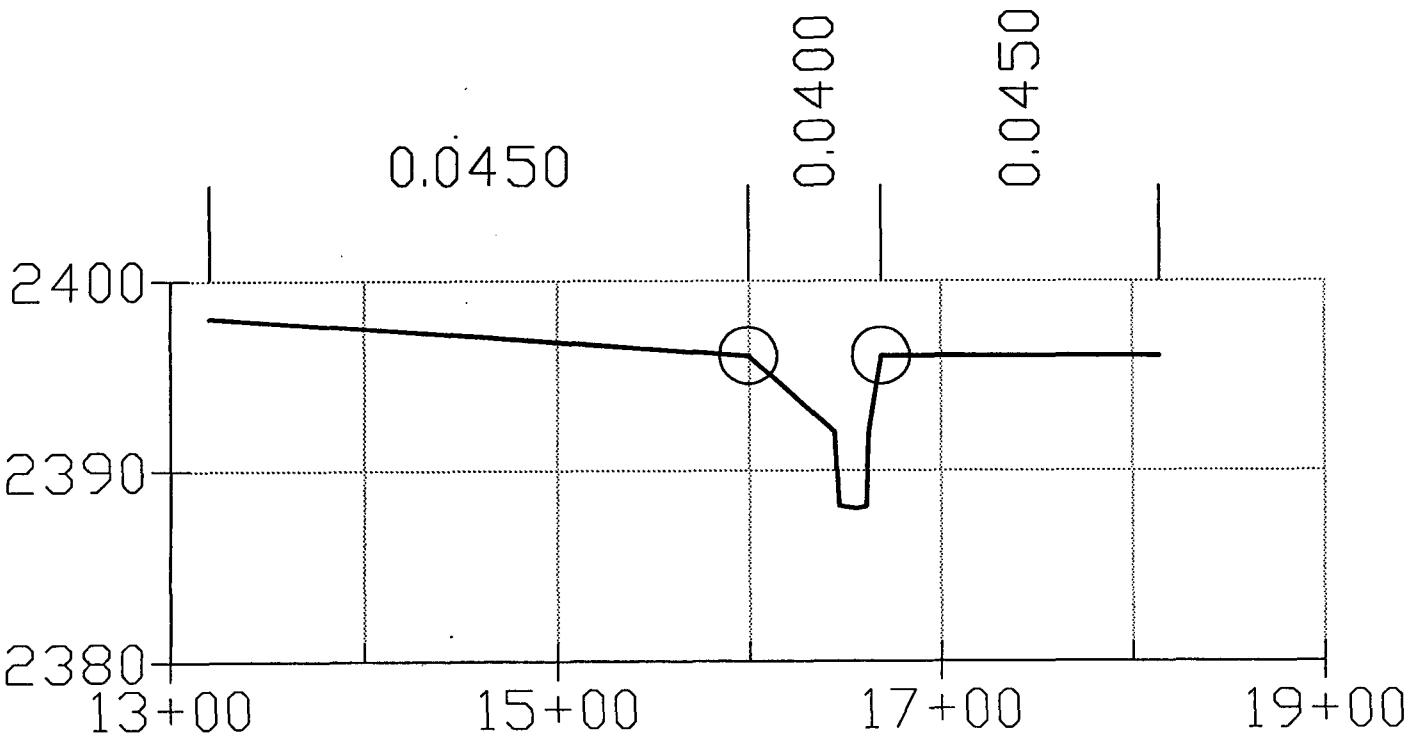

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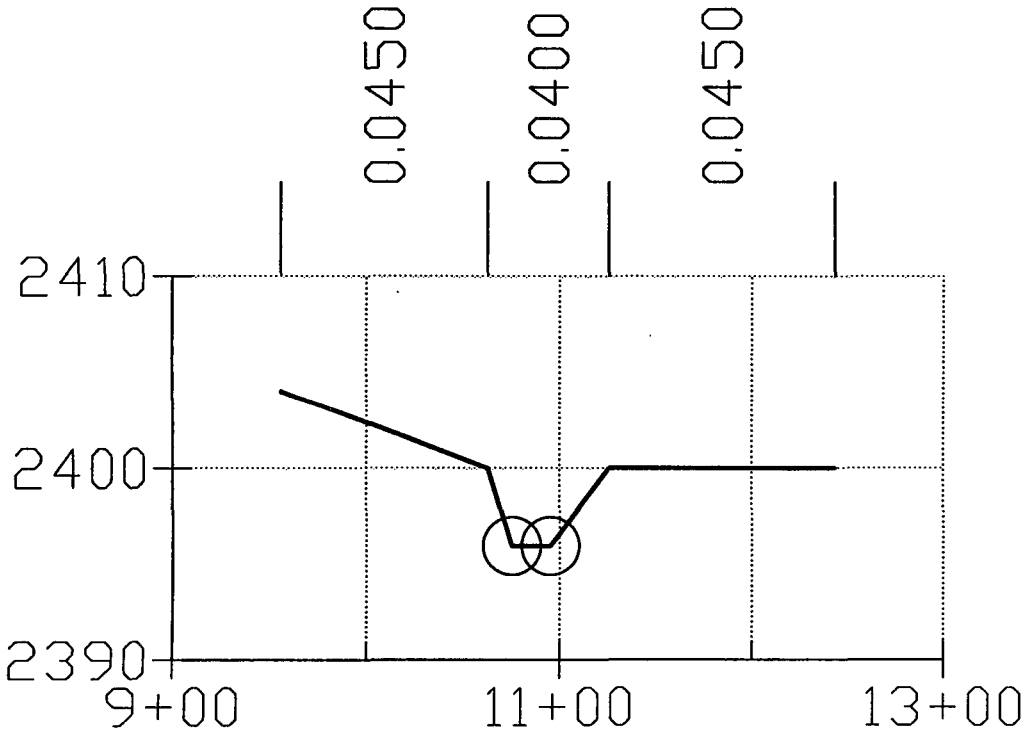

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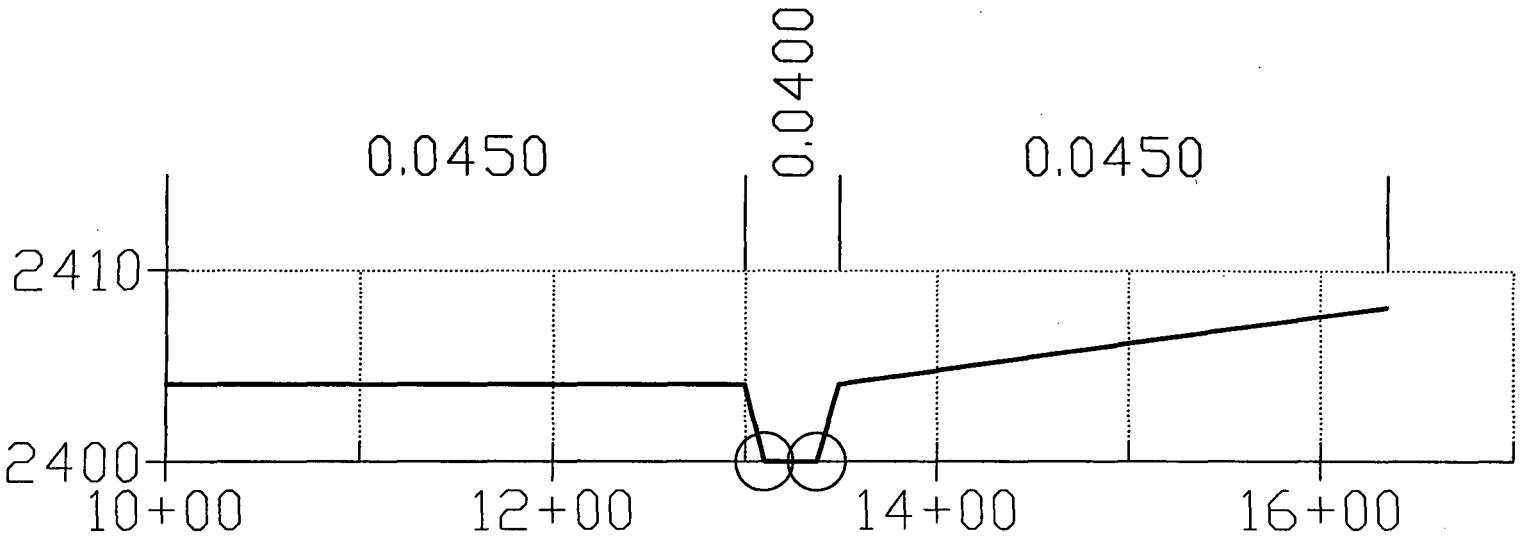

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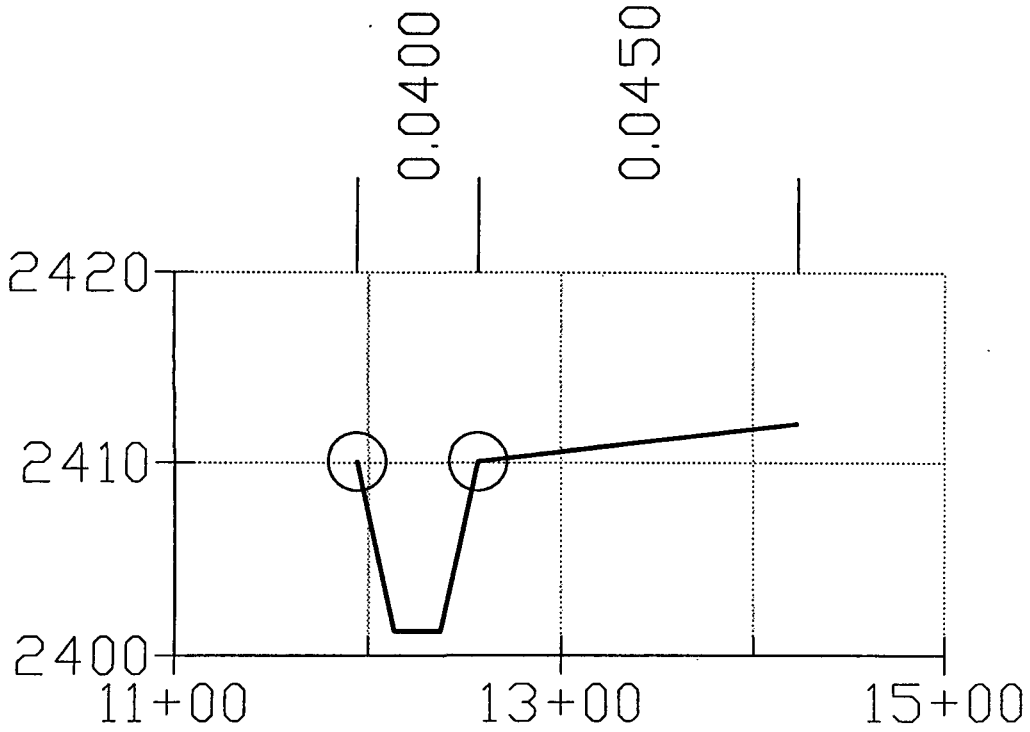

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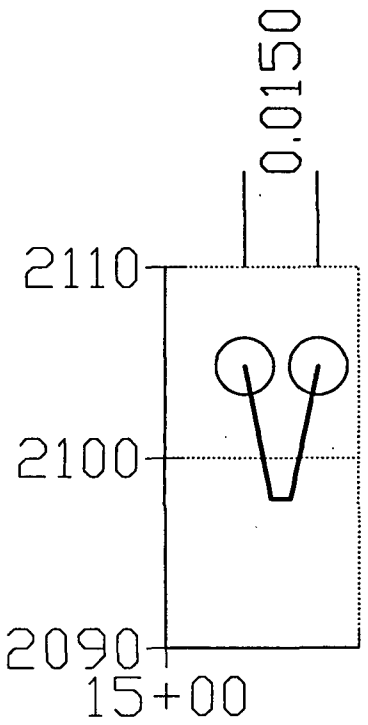

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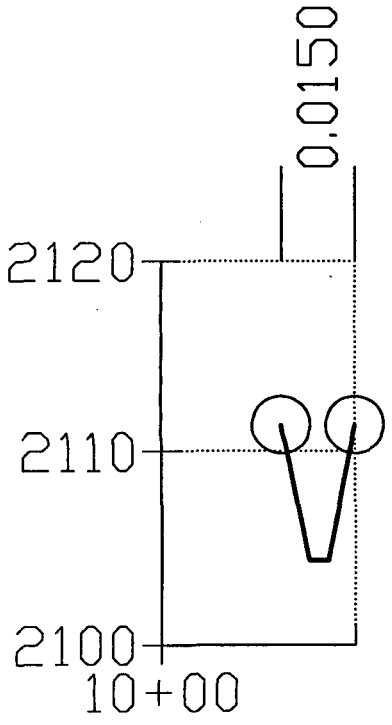

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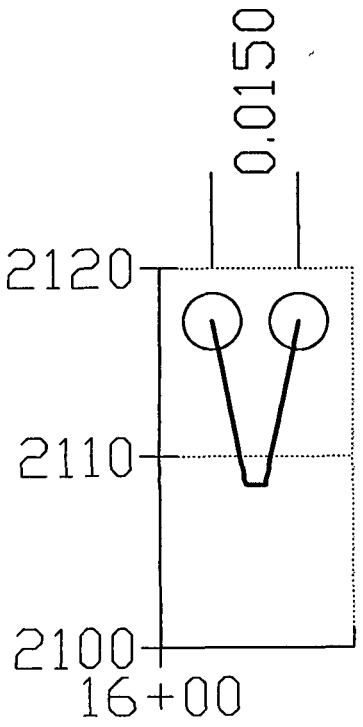

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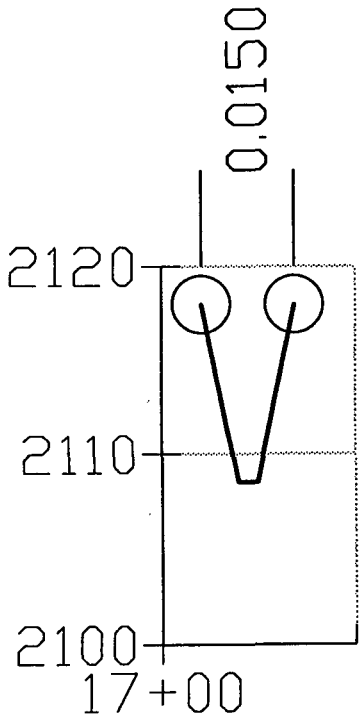

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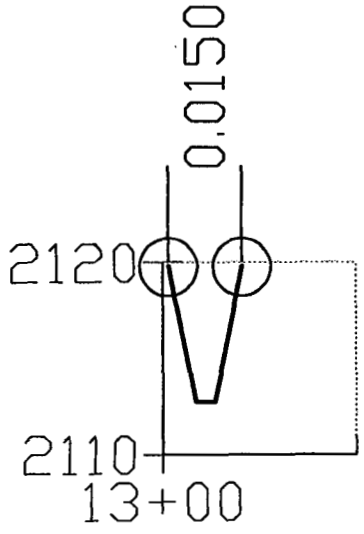

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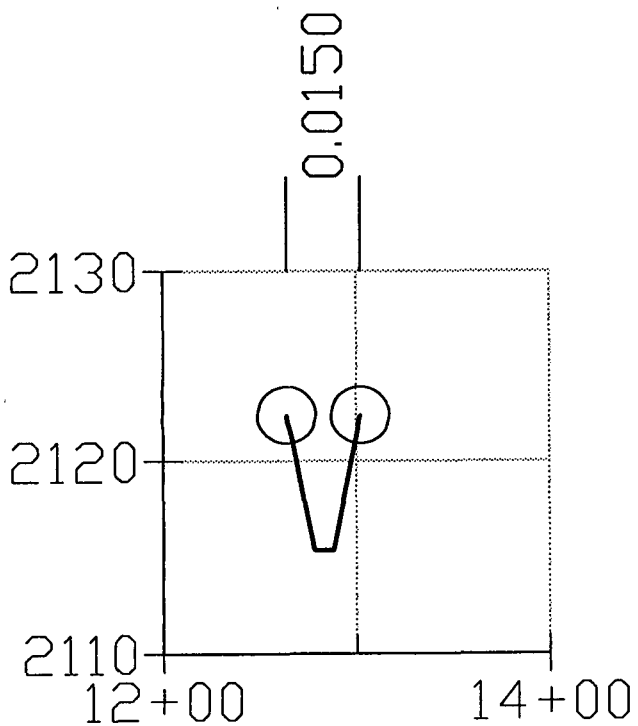

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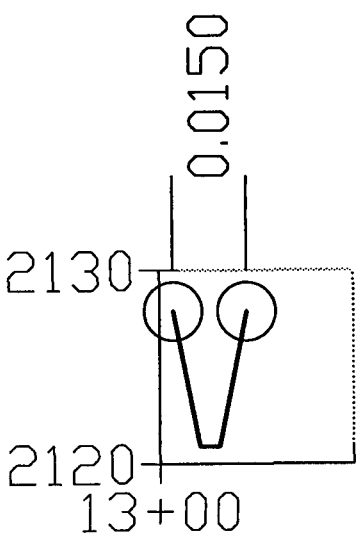

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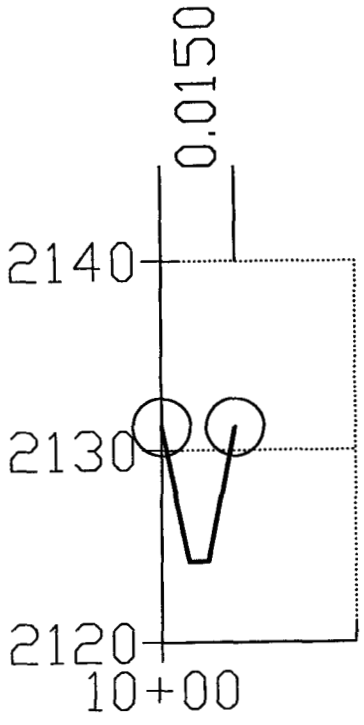

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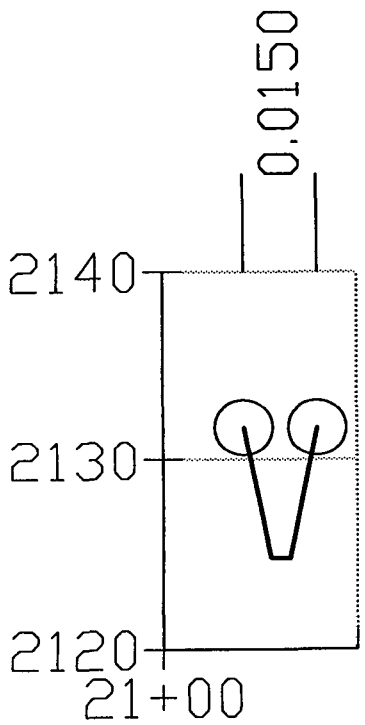

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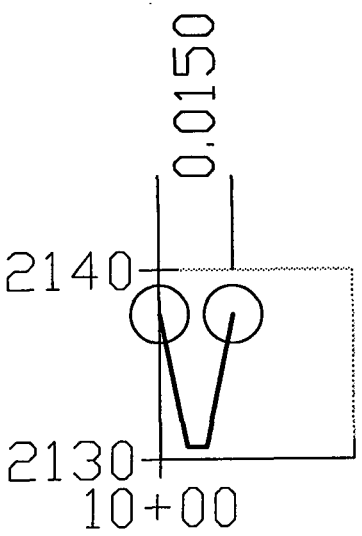

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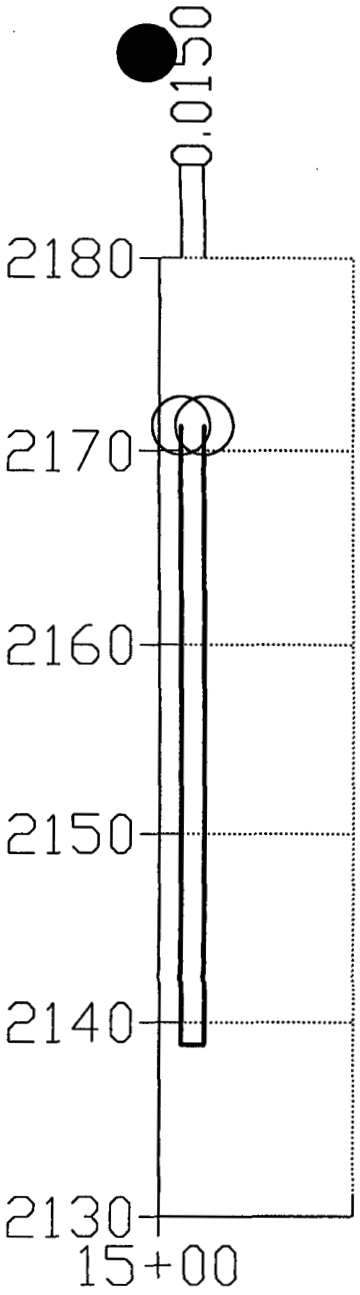

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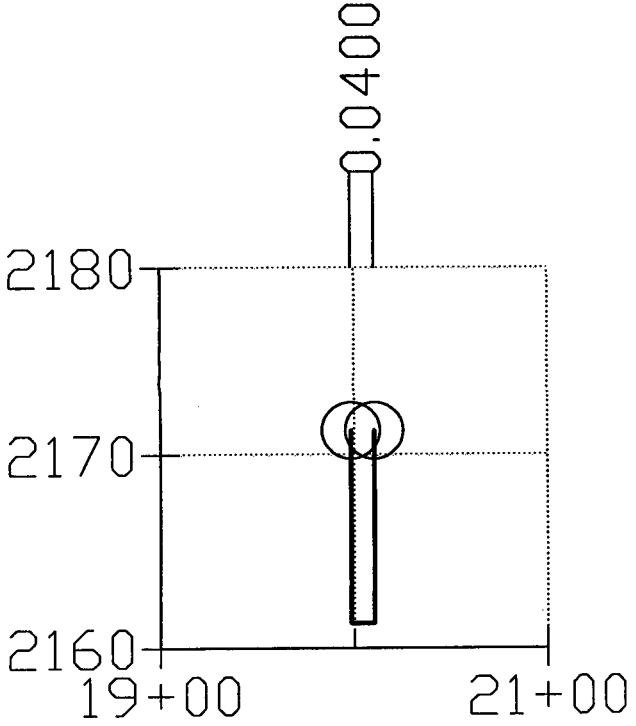

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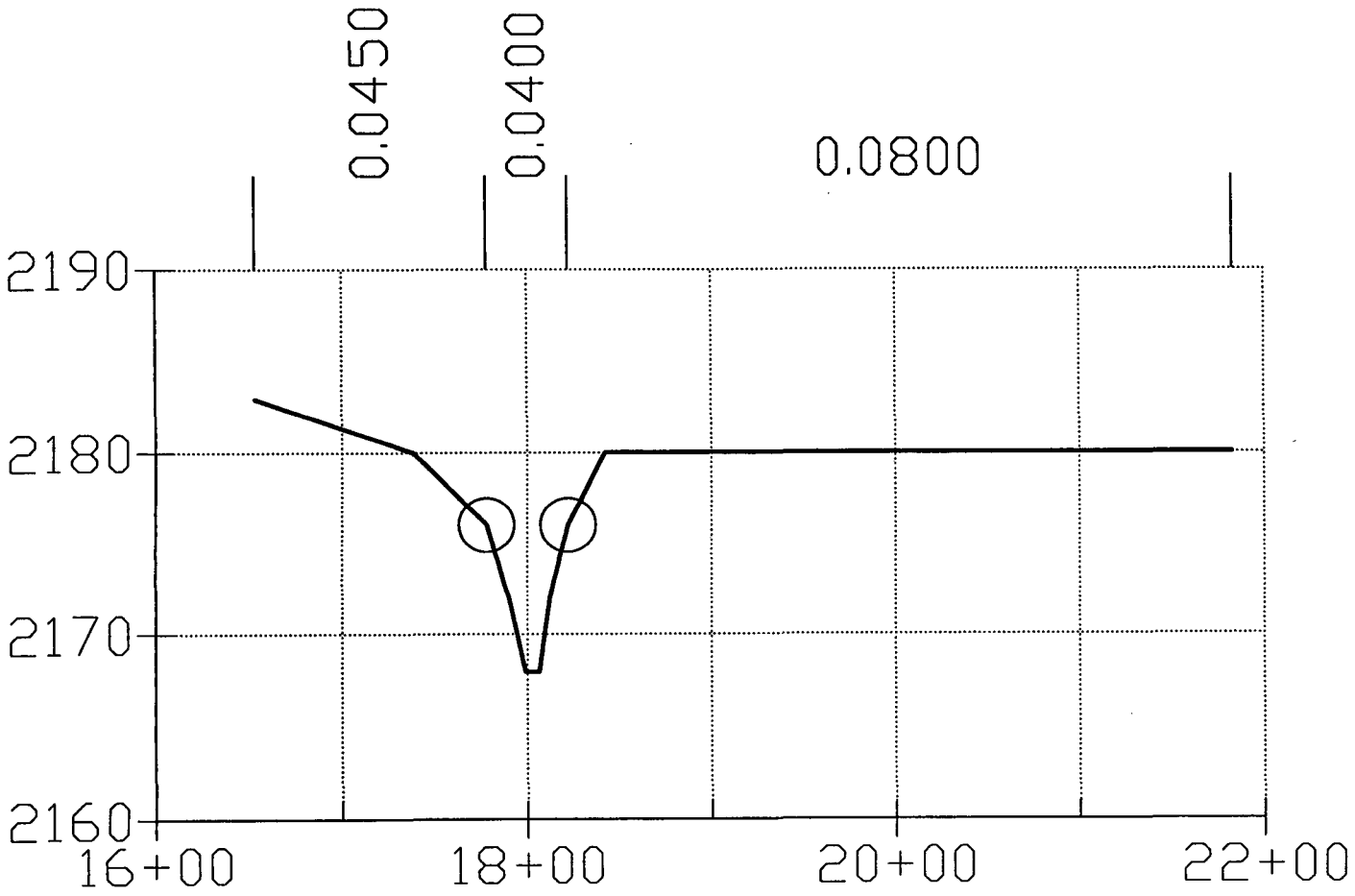

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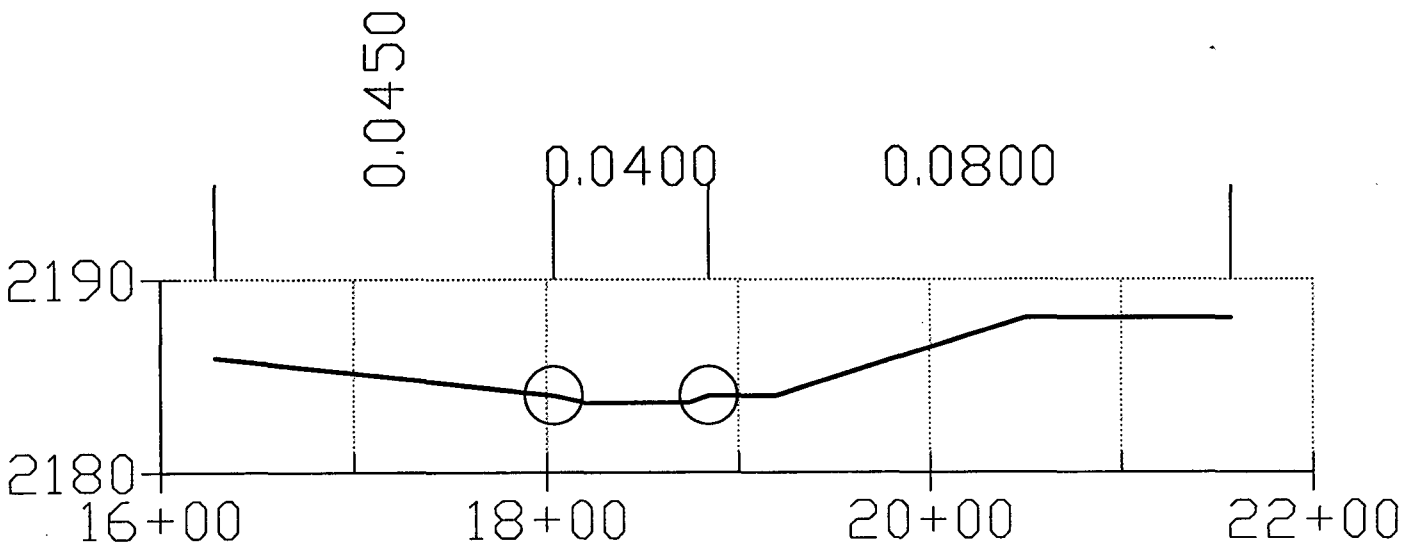

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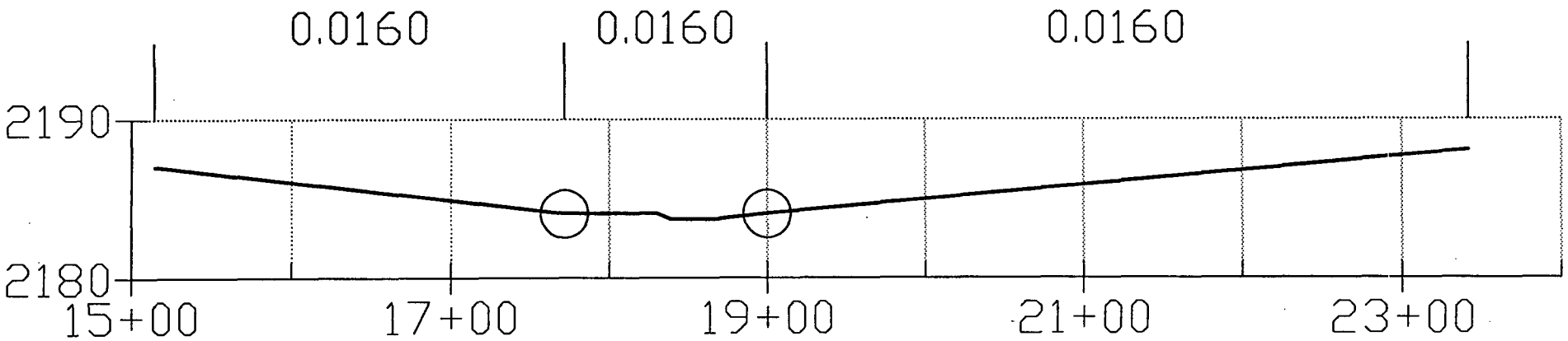

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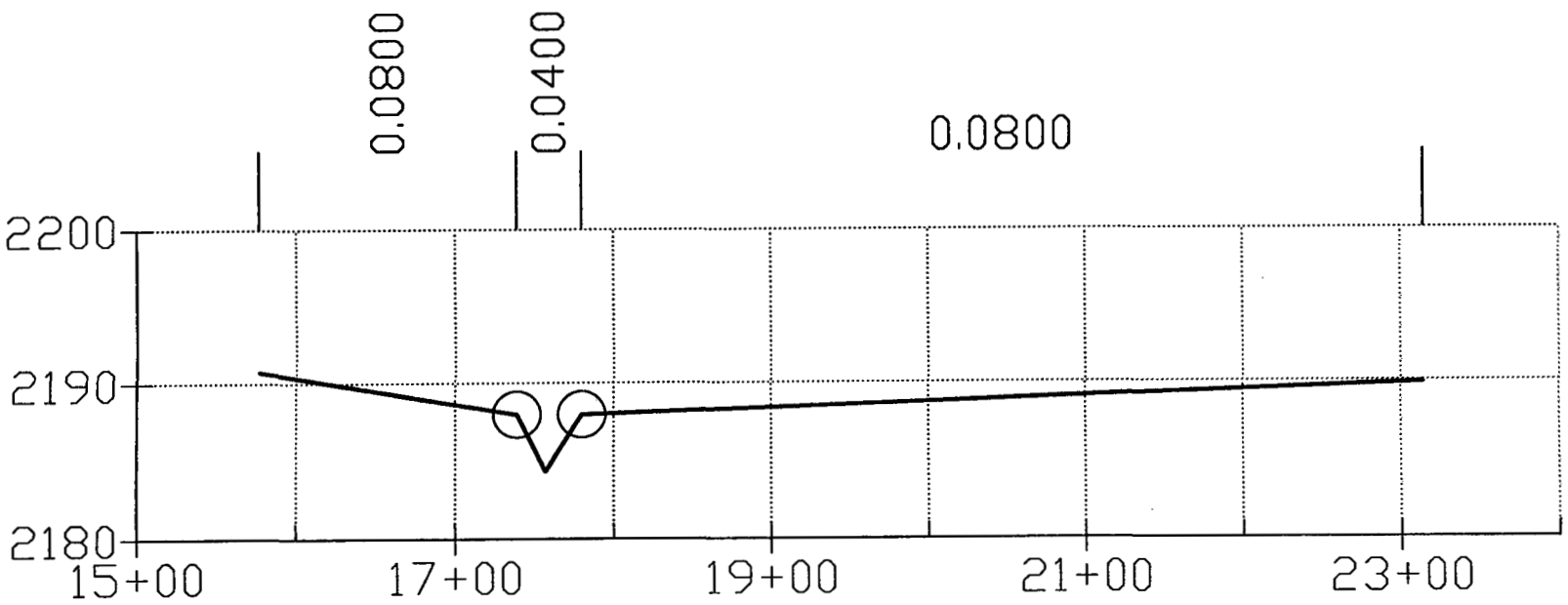

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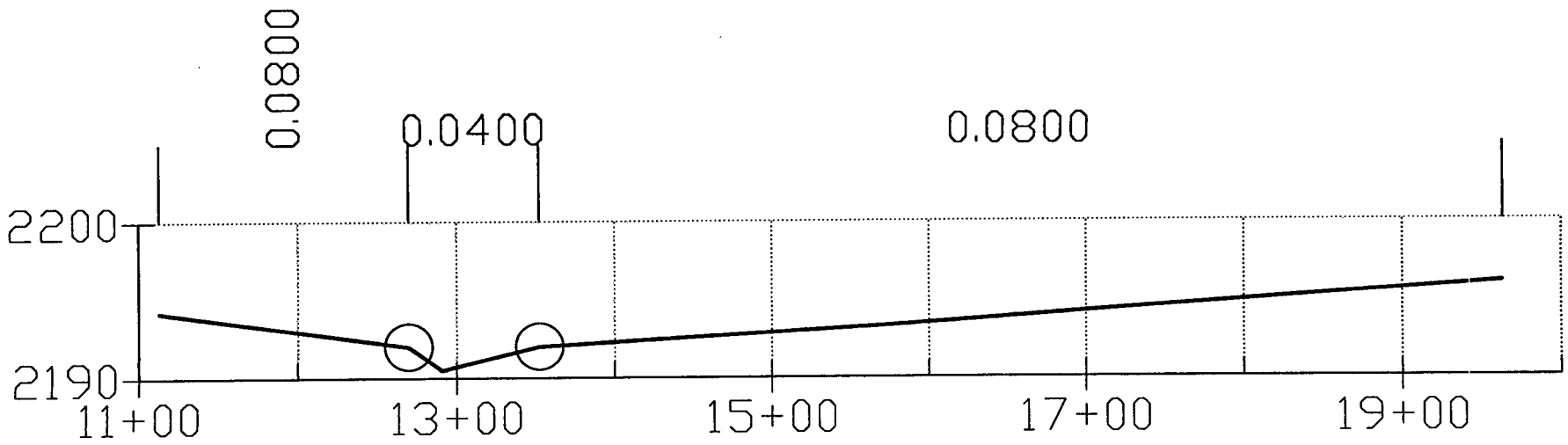

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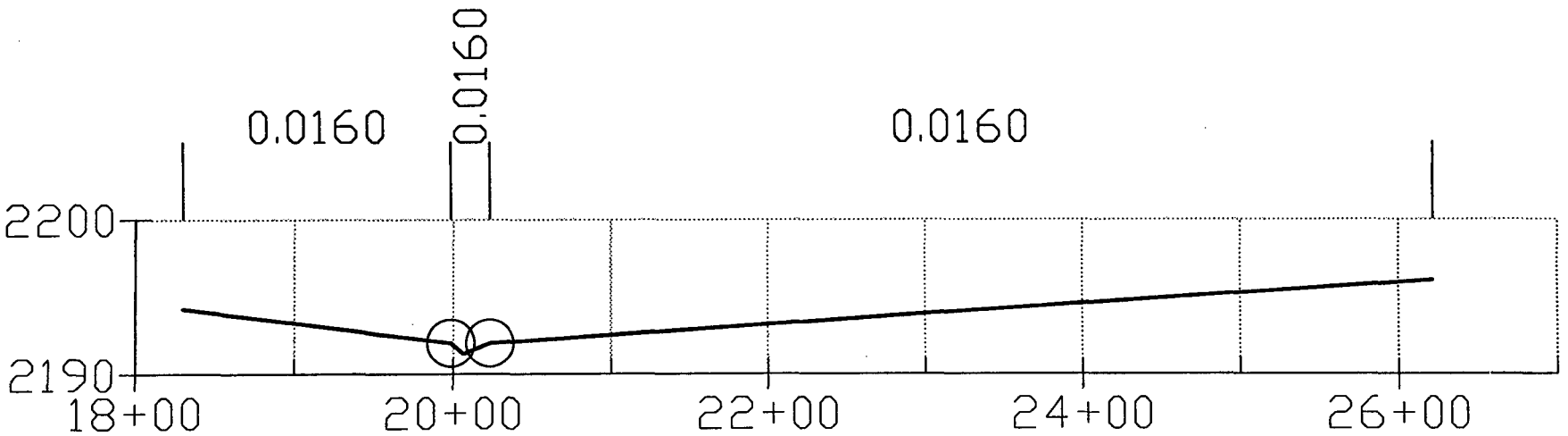

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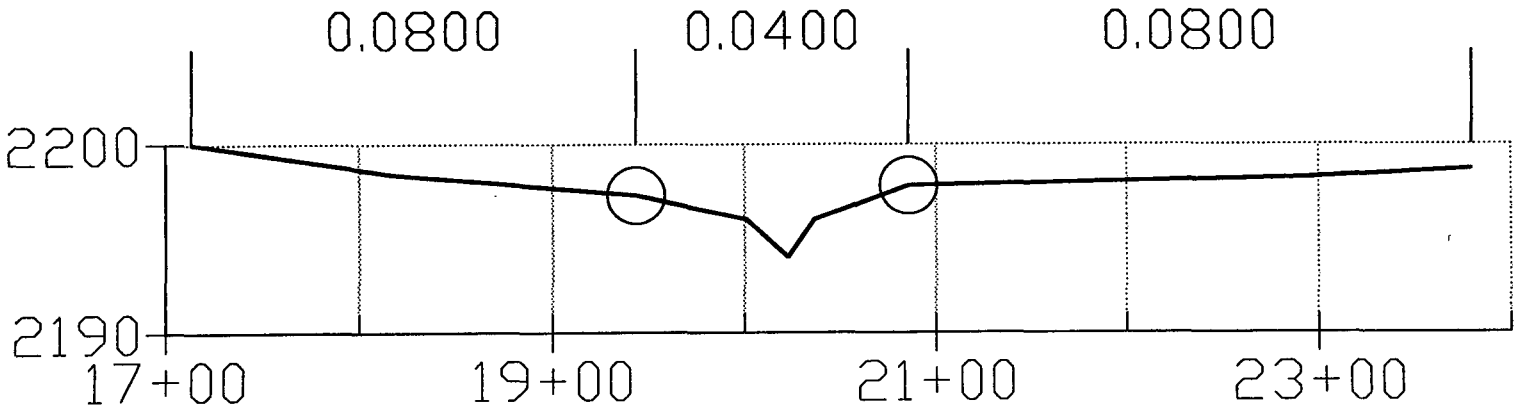



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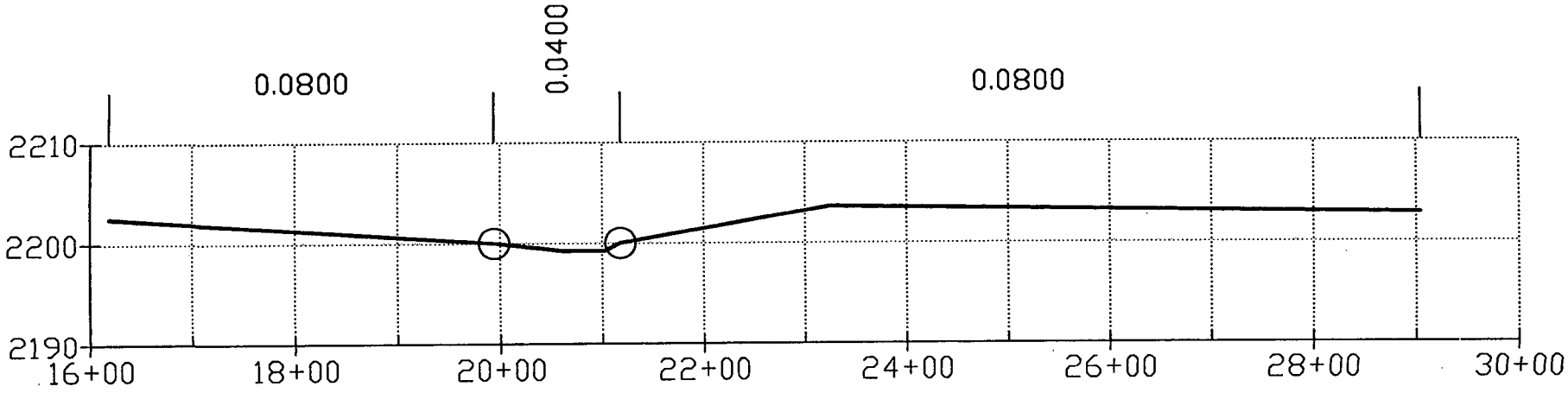



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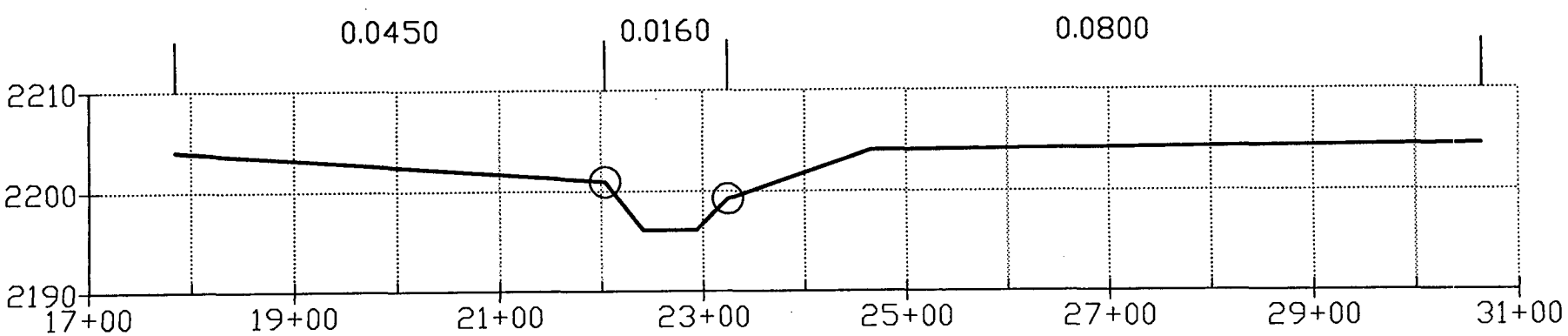
## PLACID STREET



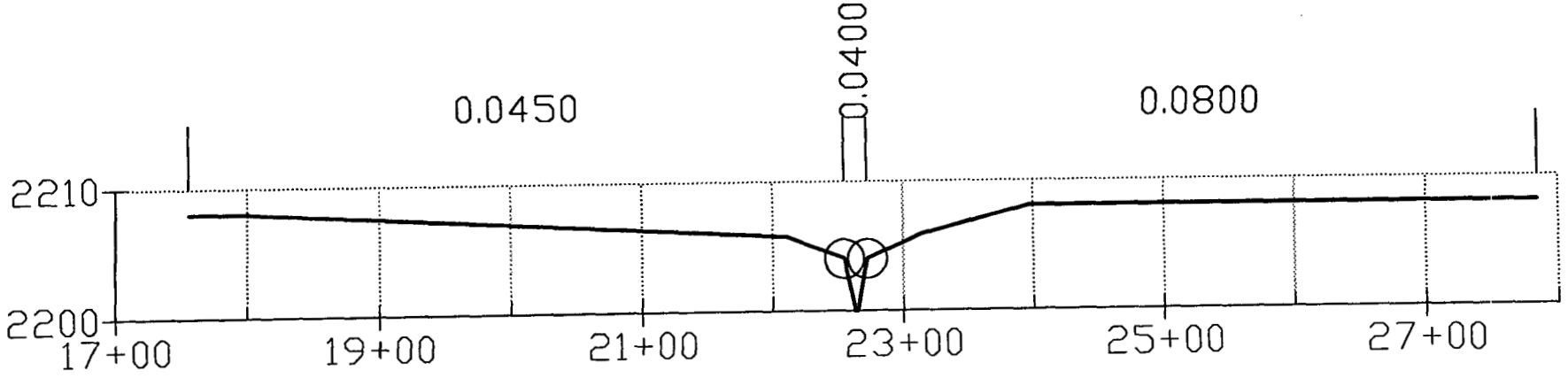

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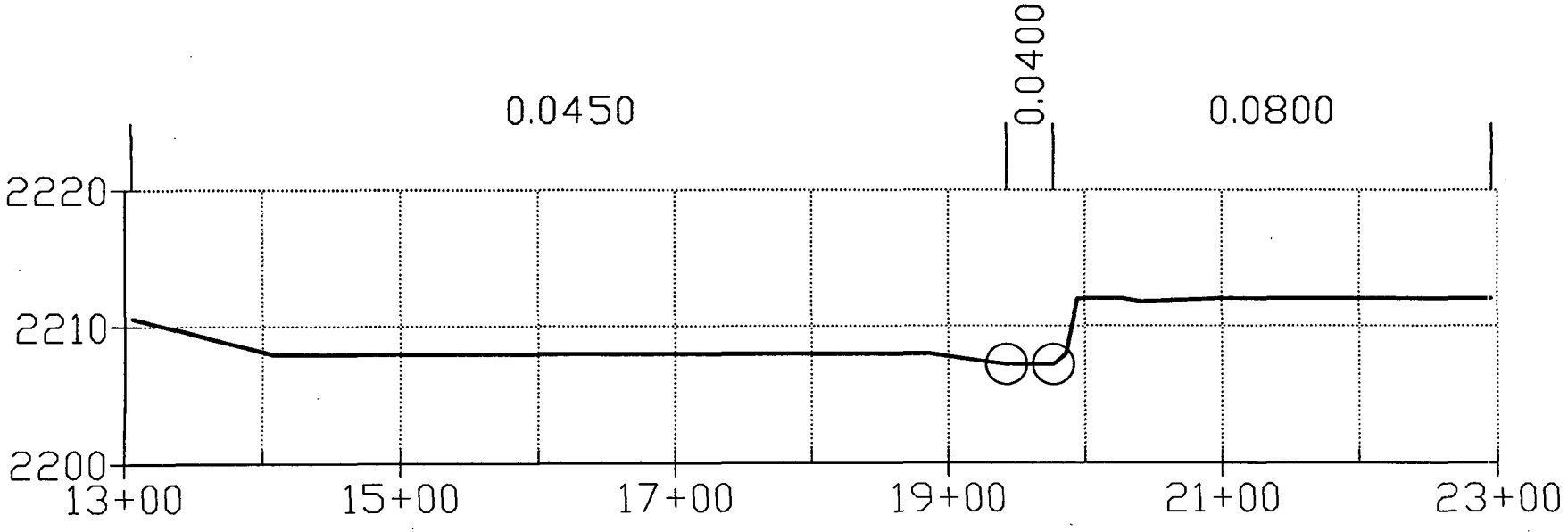
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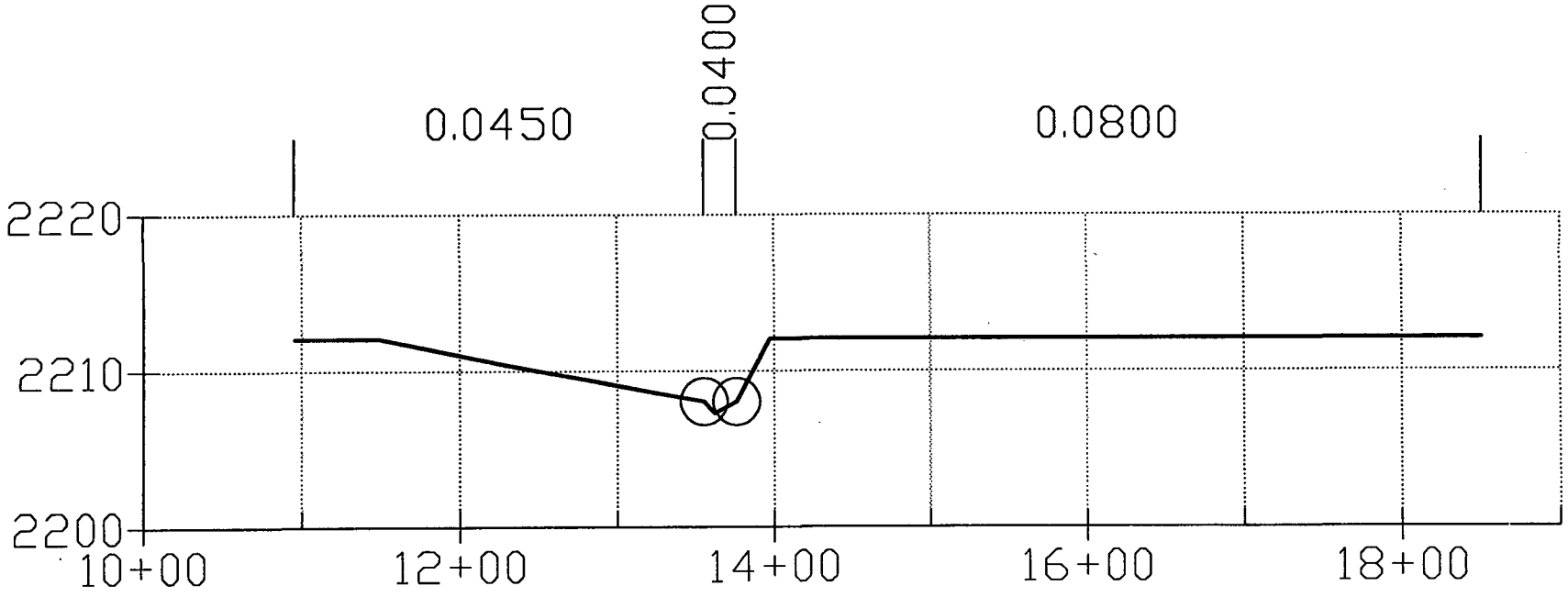
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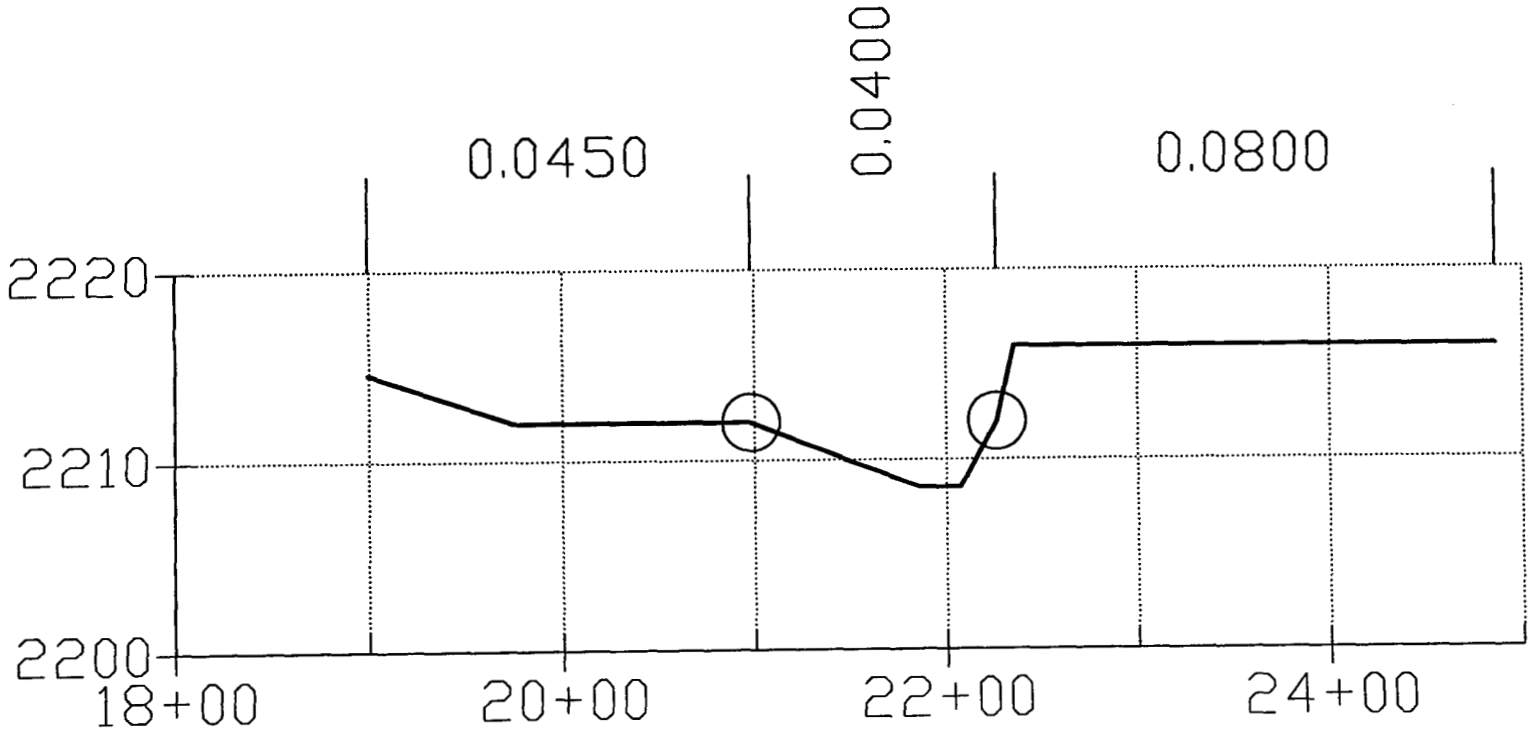

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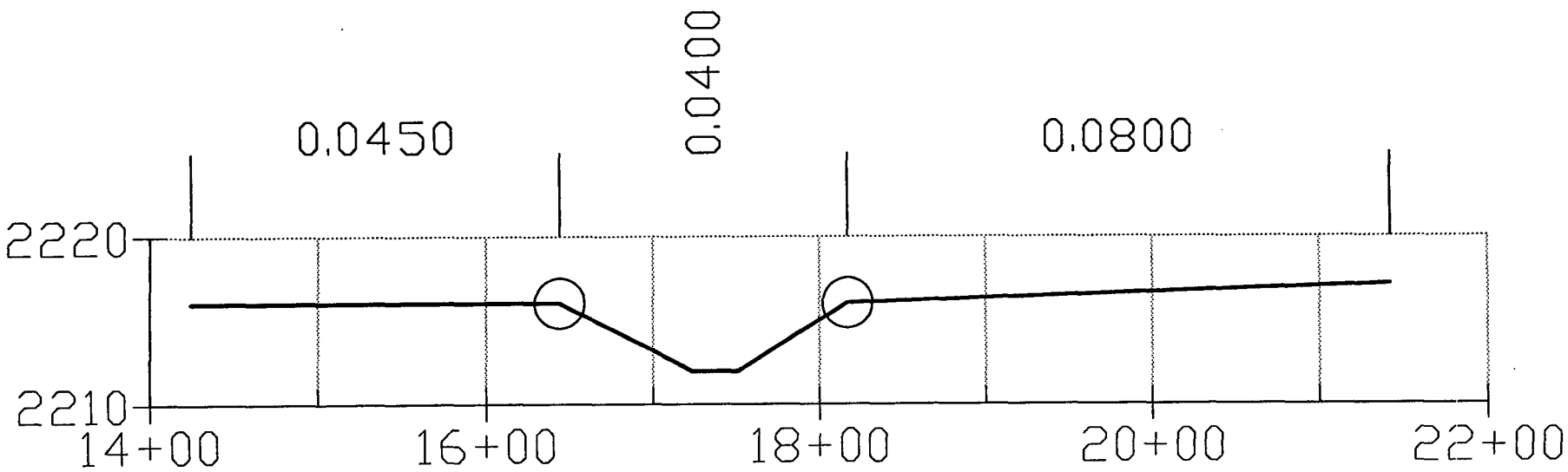
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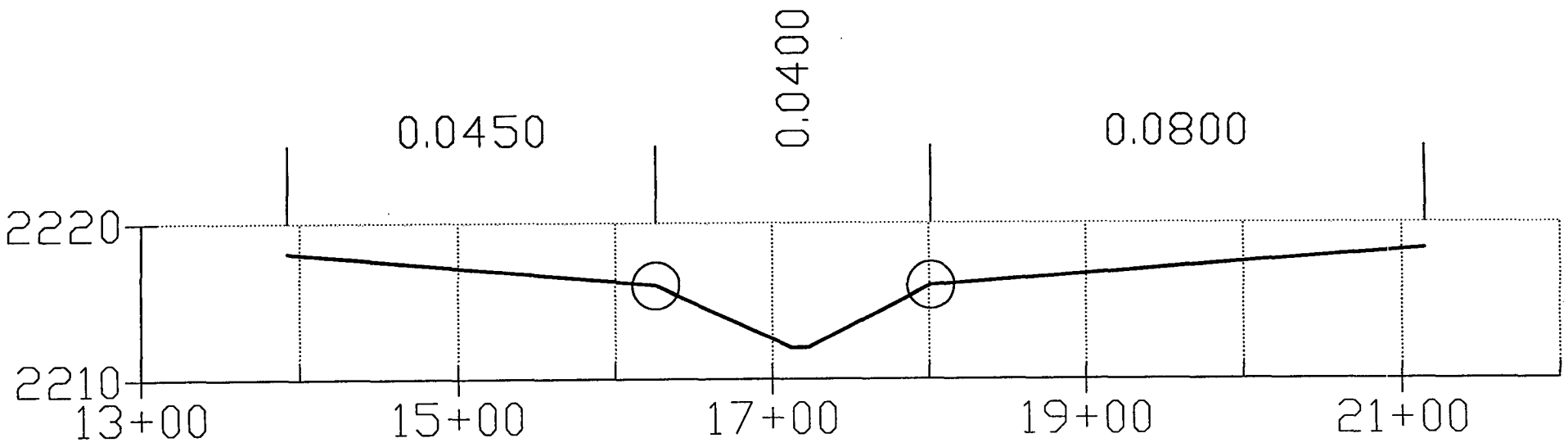

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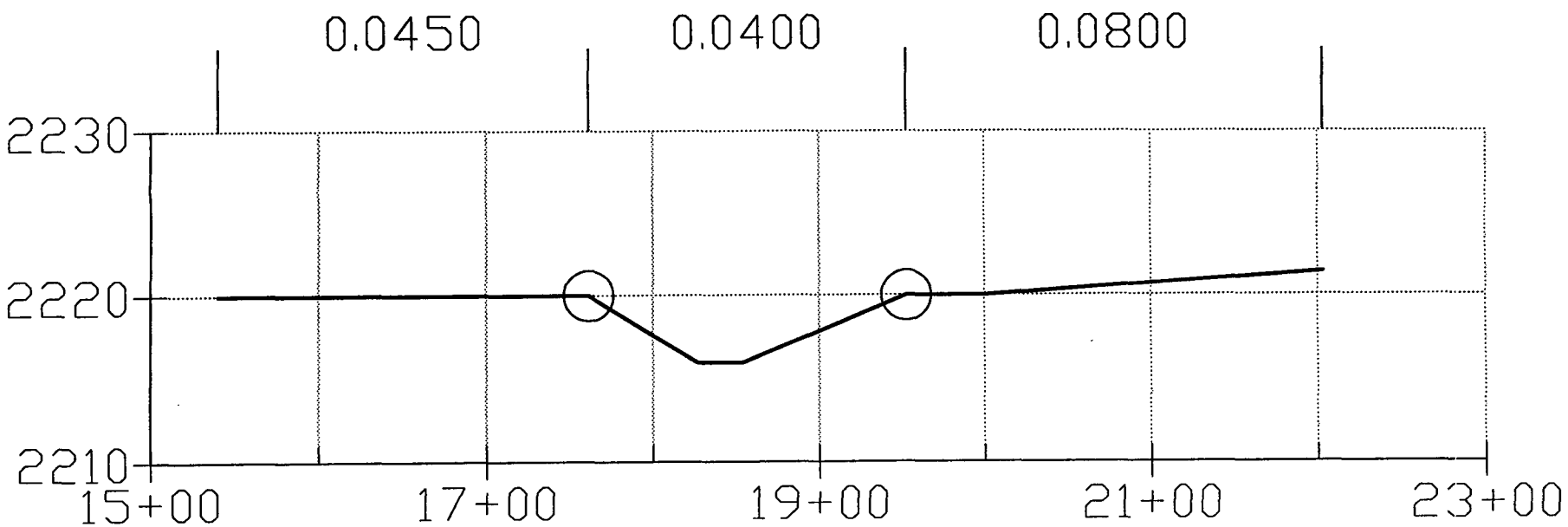

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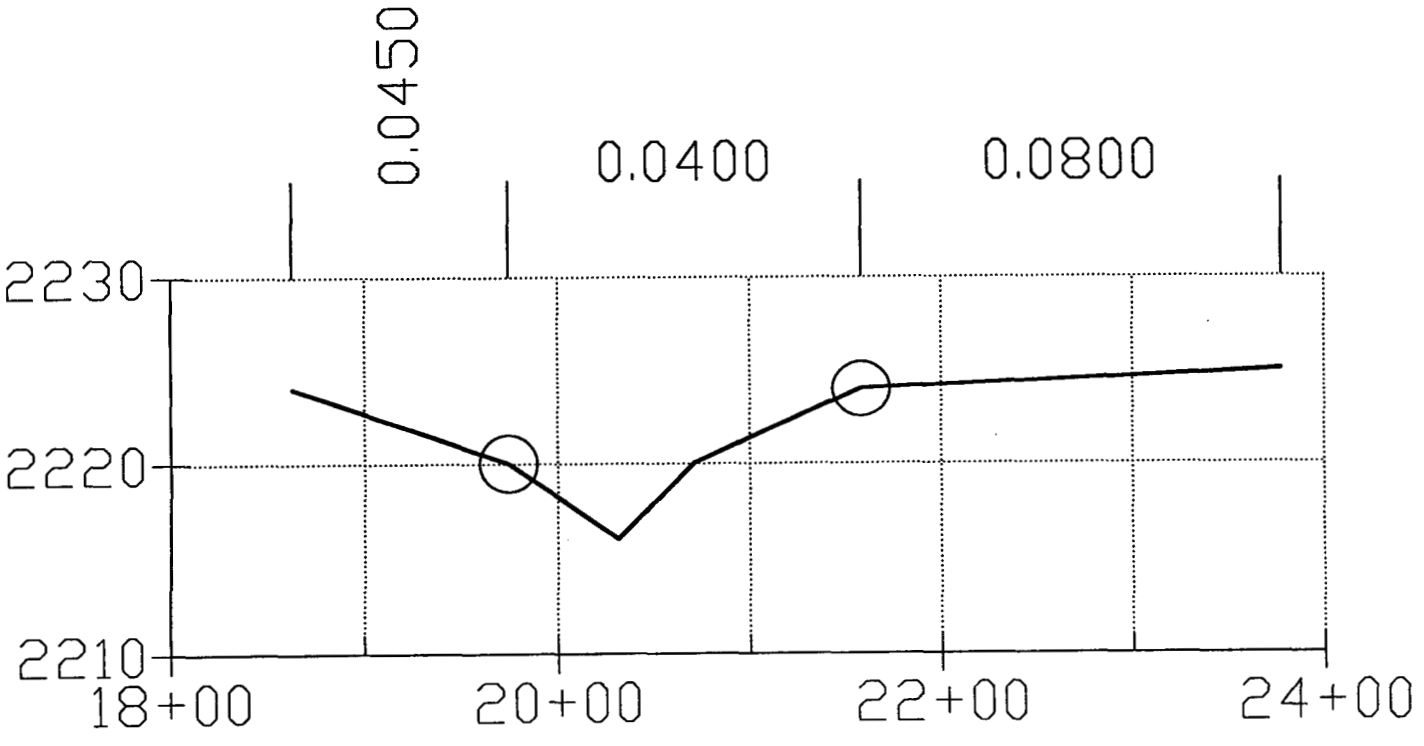

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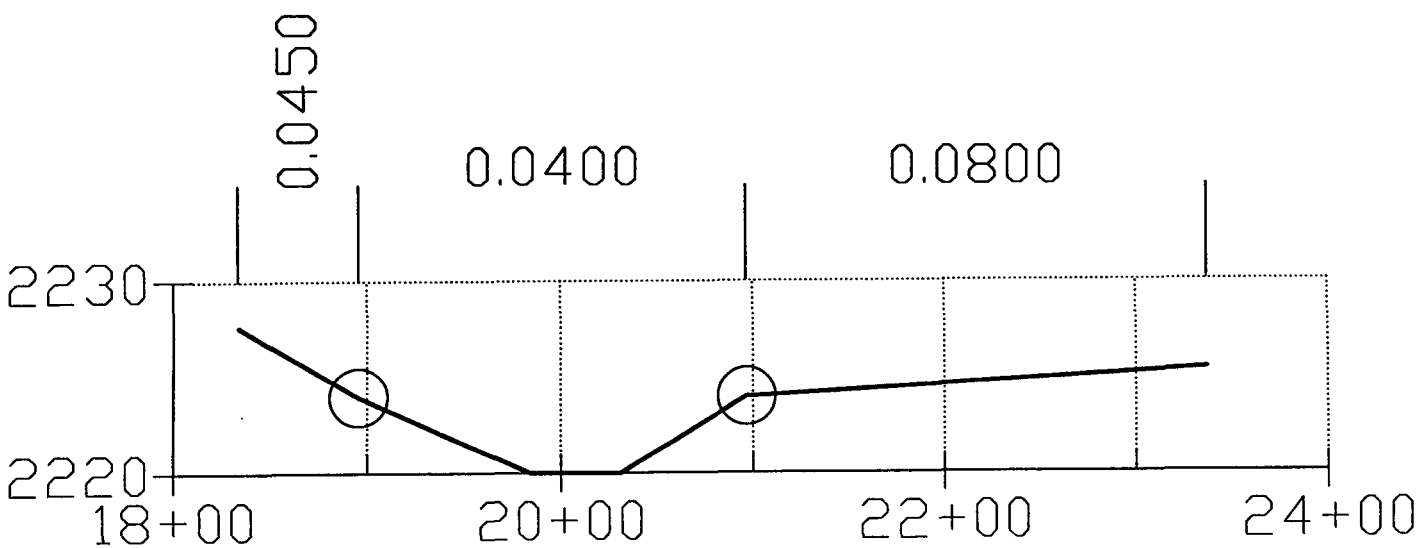

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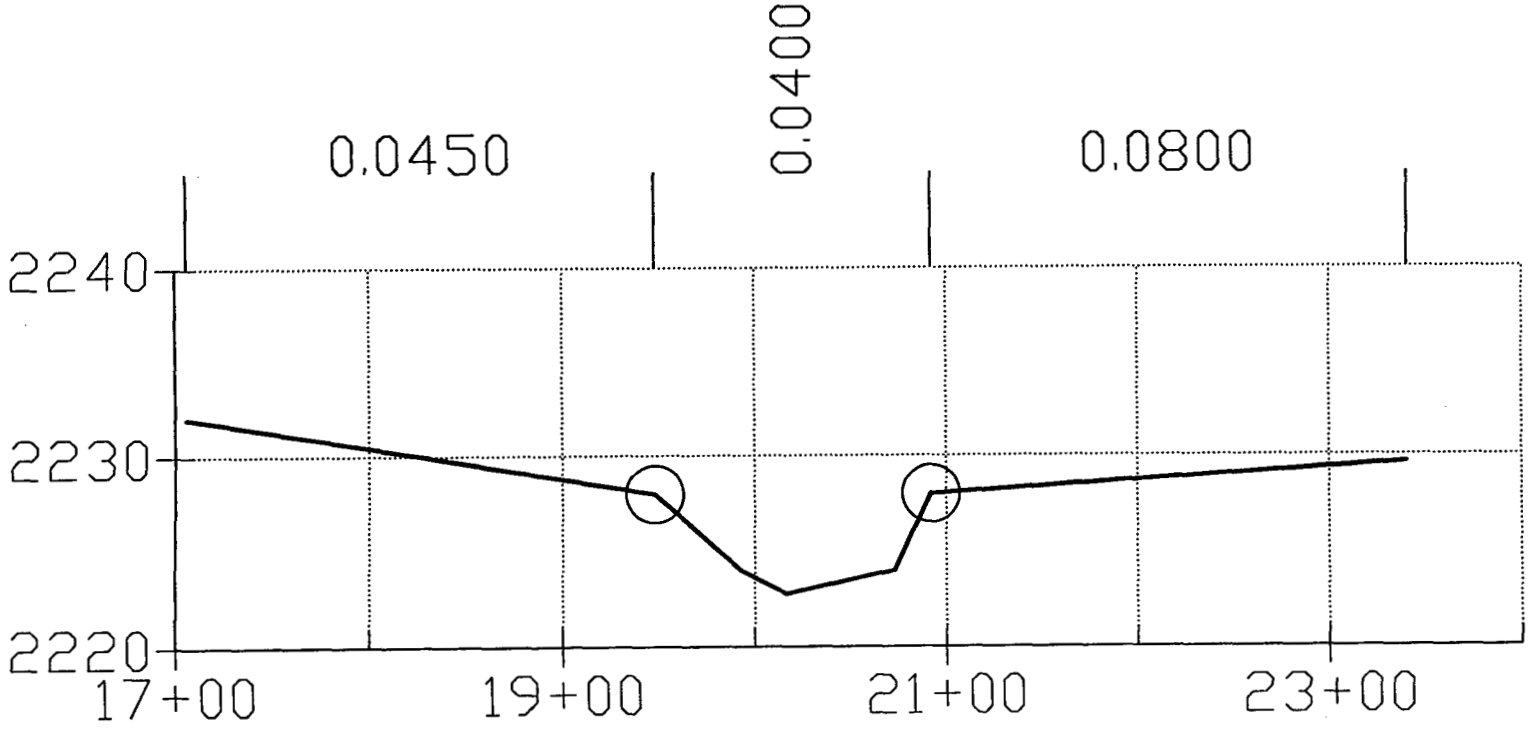

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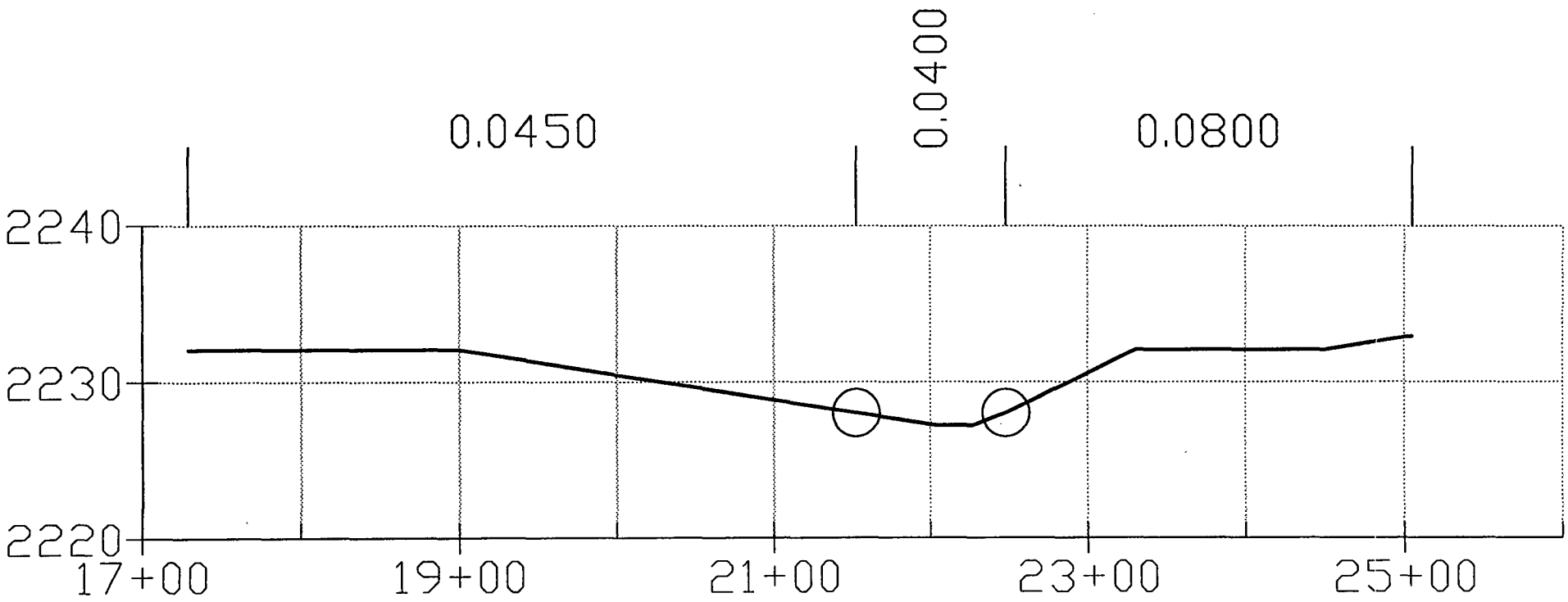

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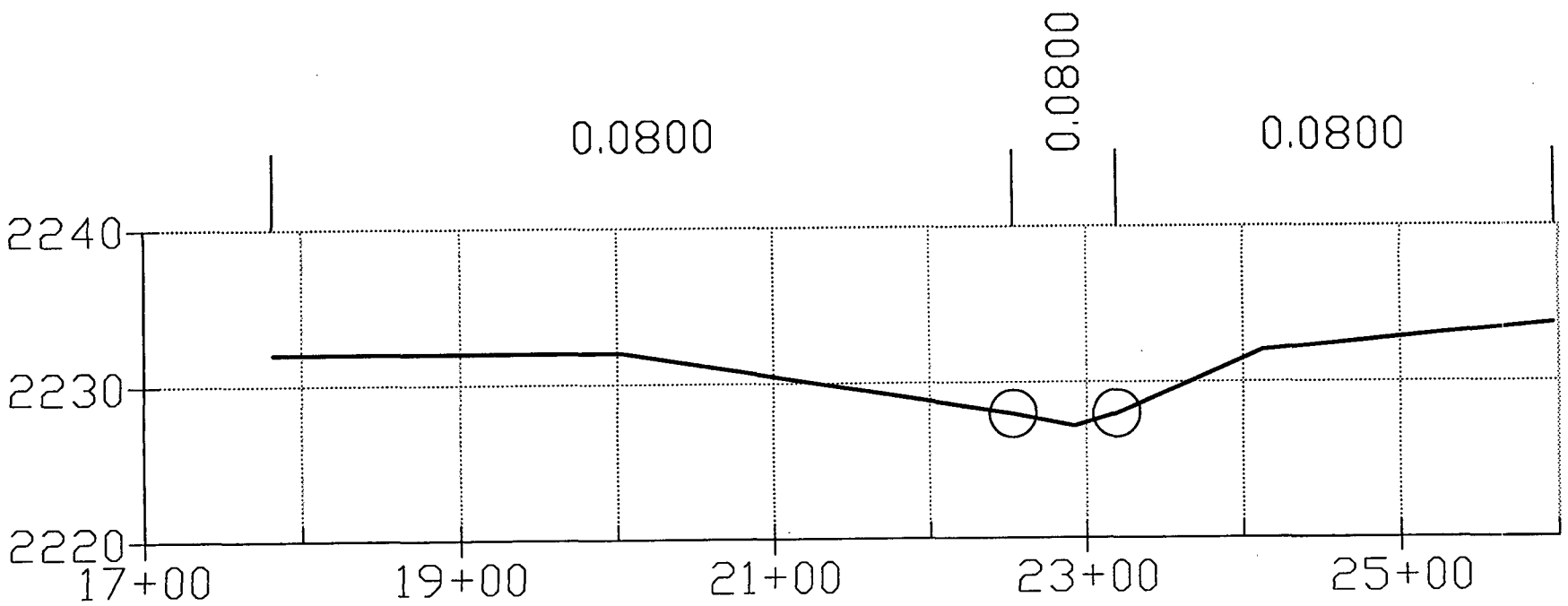

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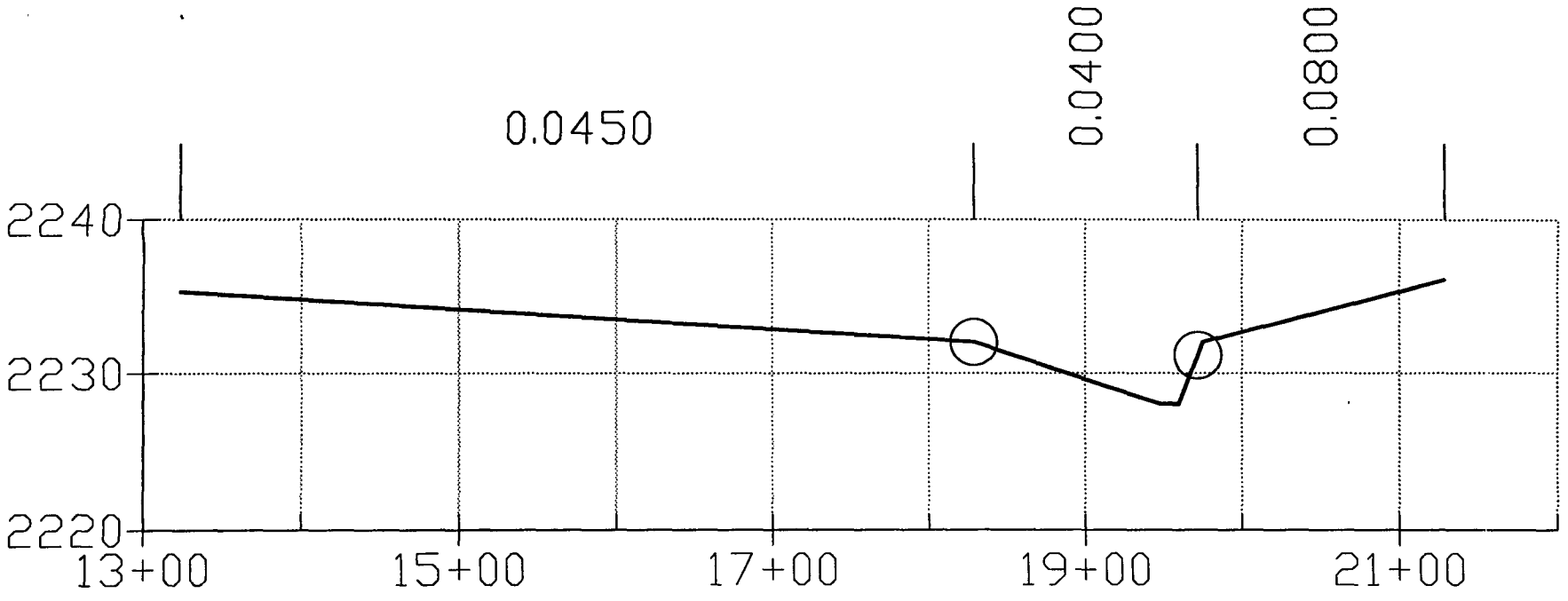

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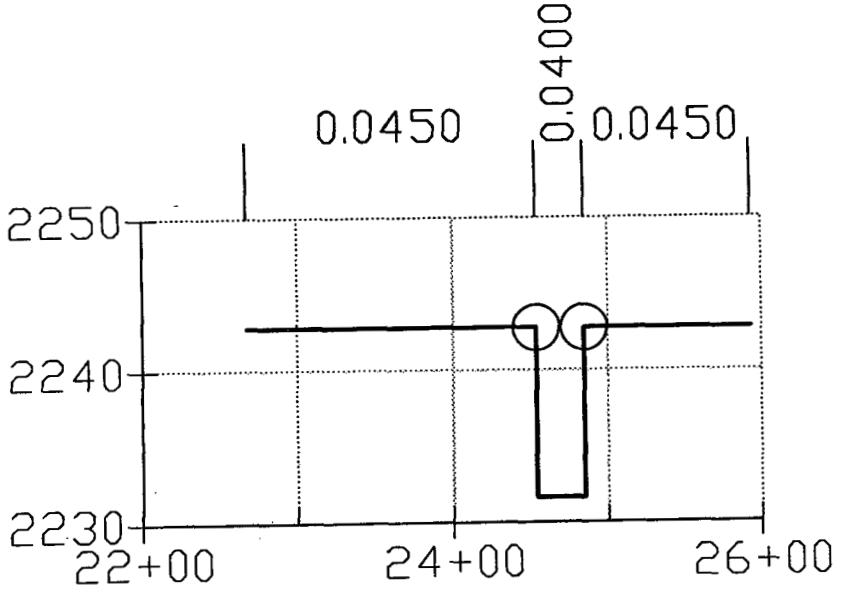

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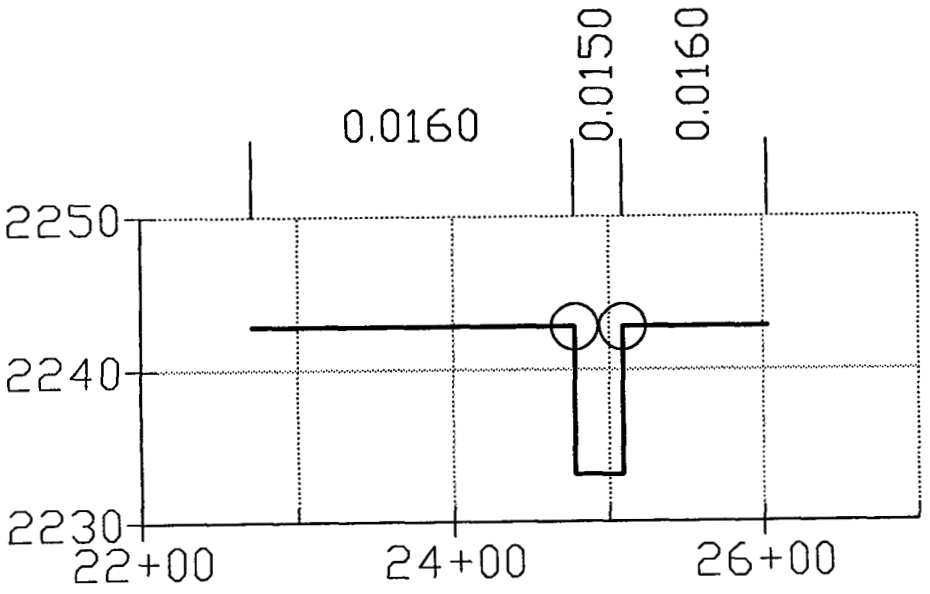



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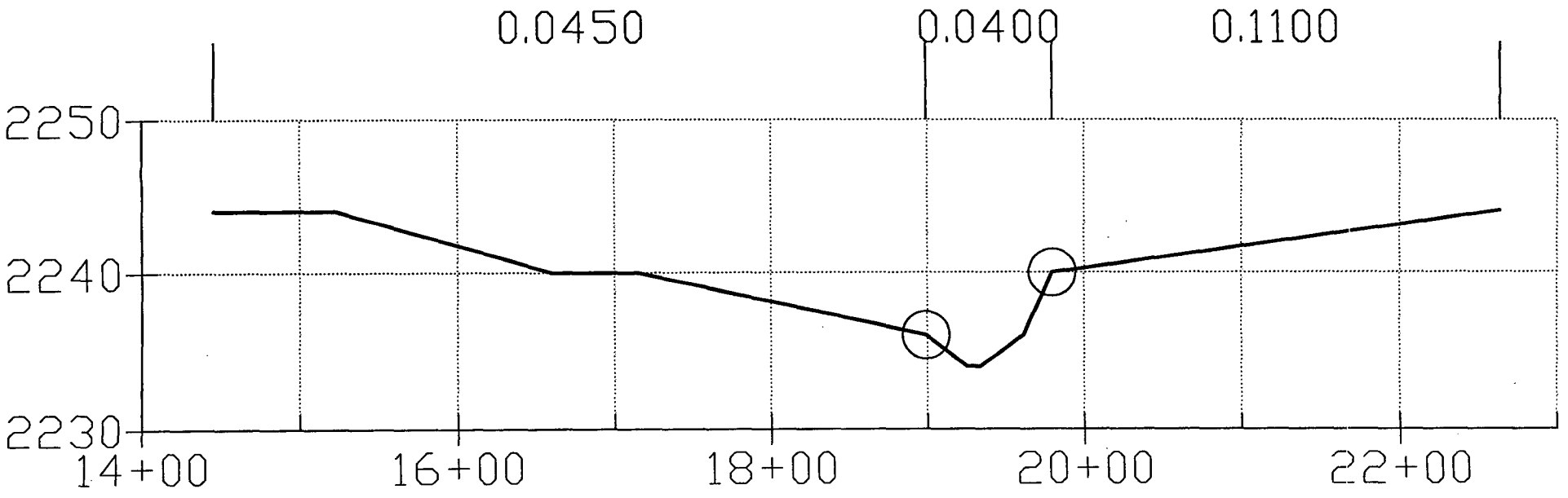

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DOWNSTREAM FACE OF LAS VEGAS BOULEVARD CULVERT

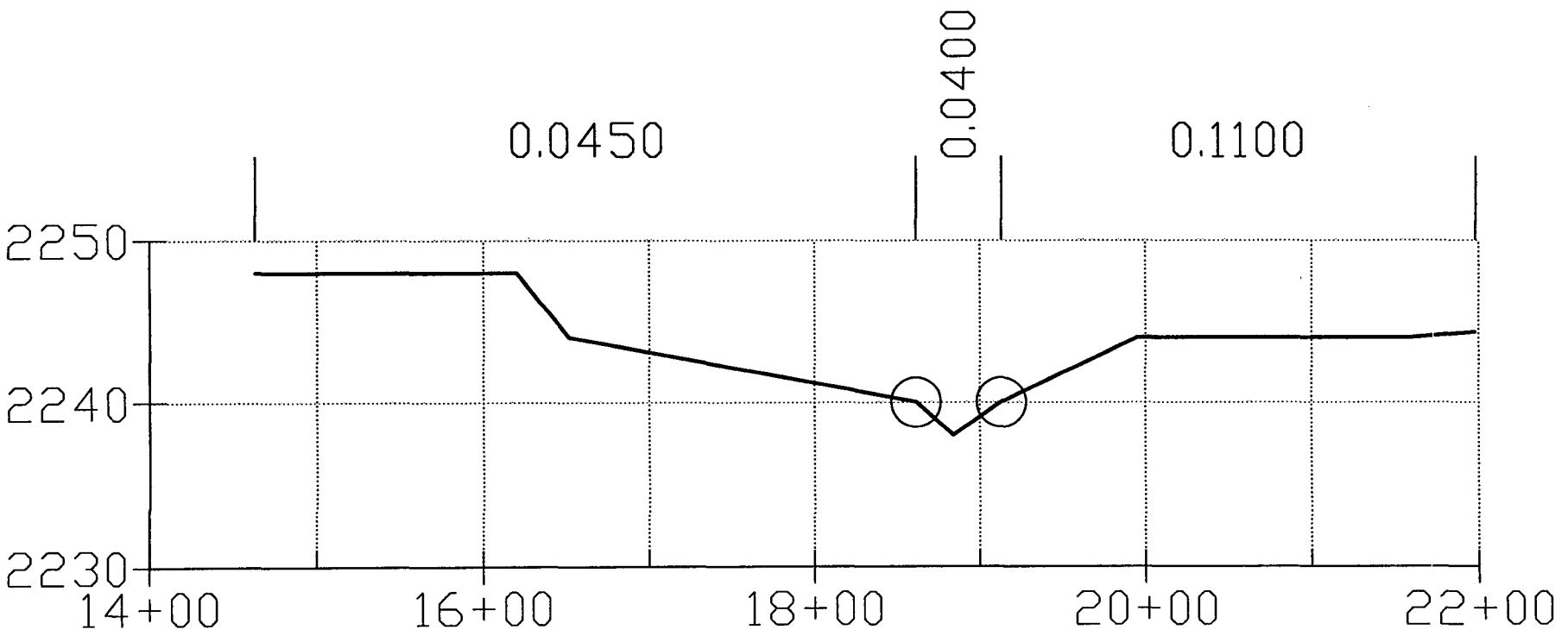



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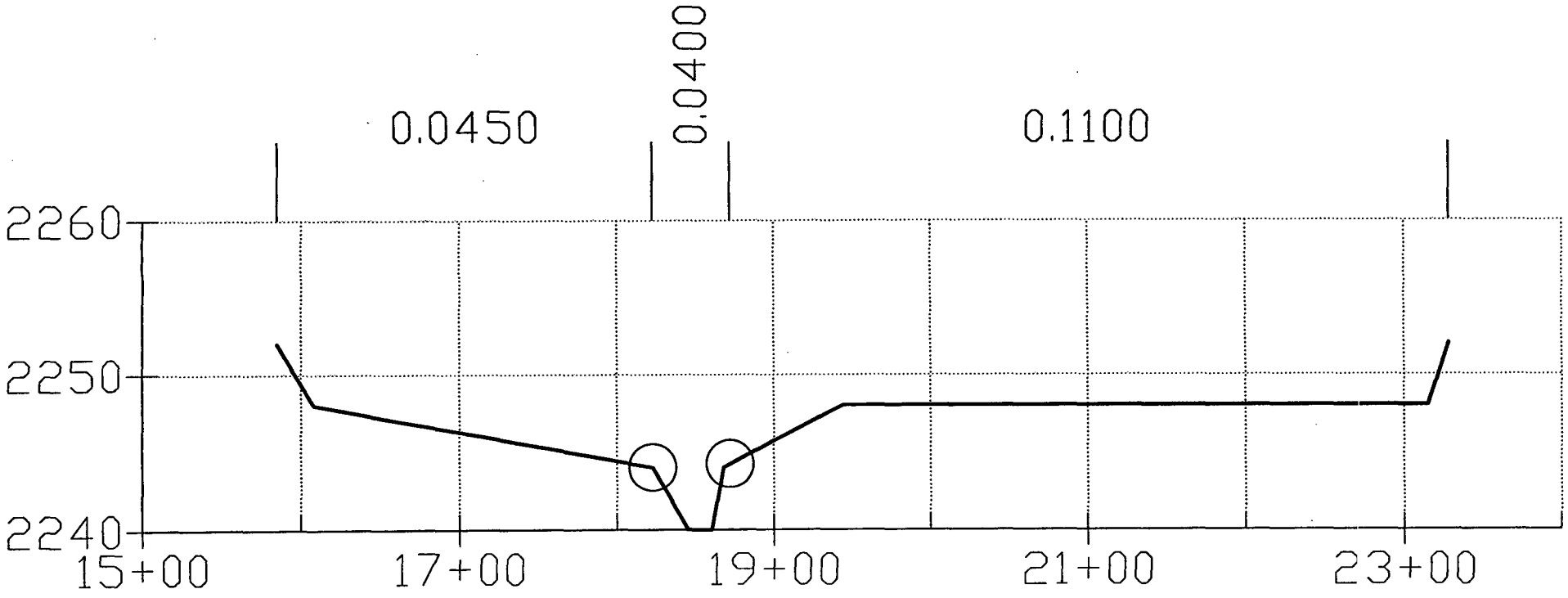
UPSTREAM FACE OF LAS VEGAS BOULEVARD CULVERT



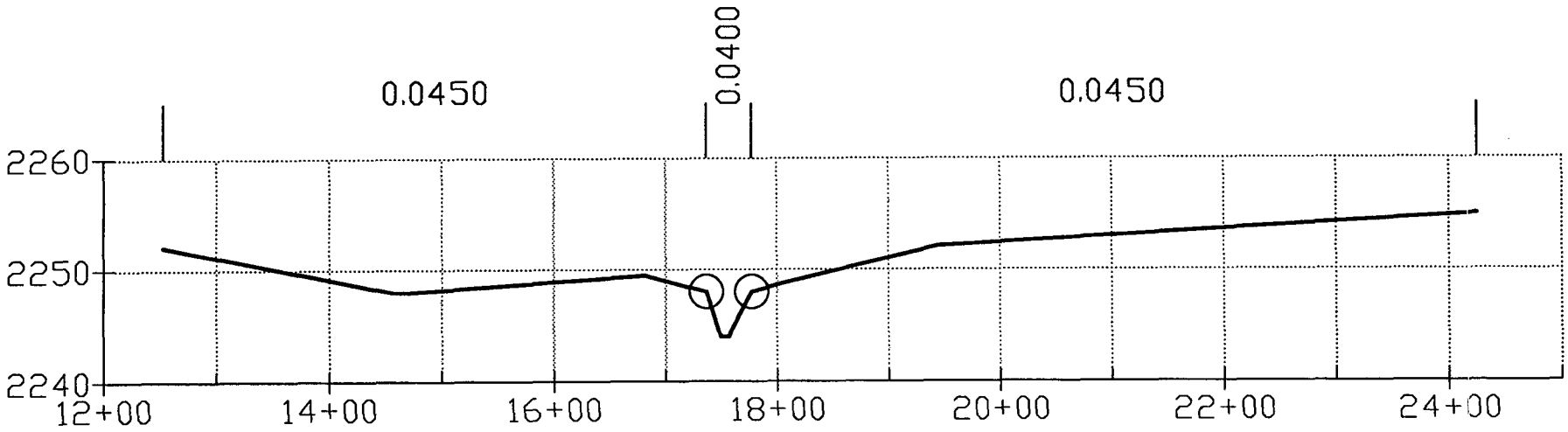

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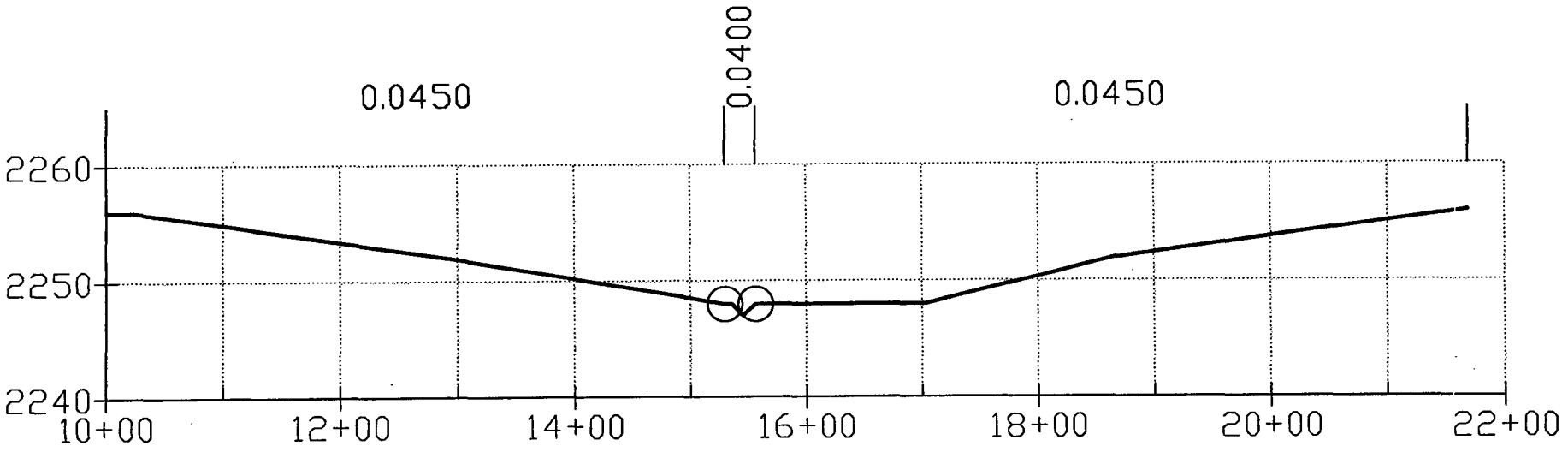

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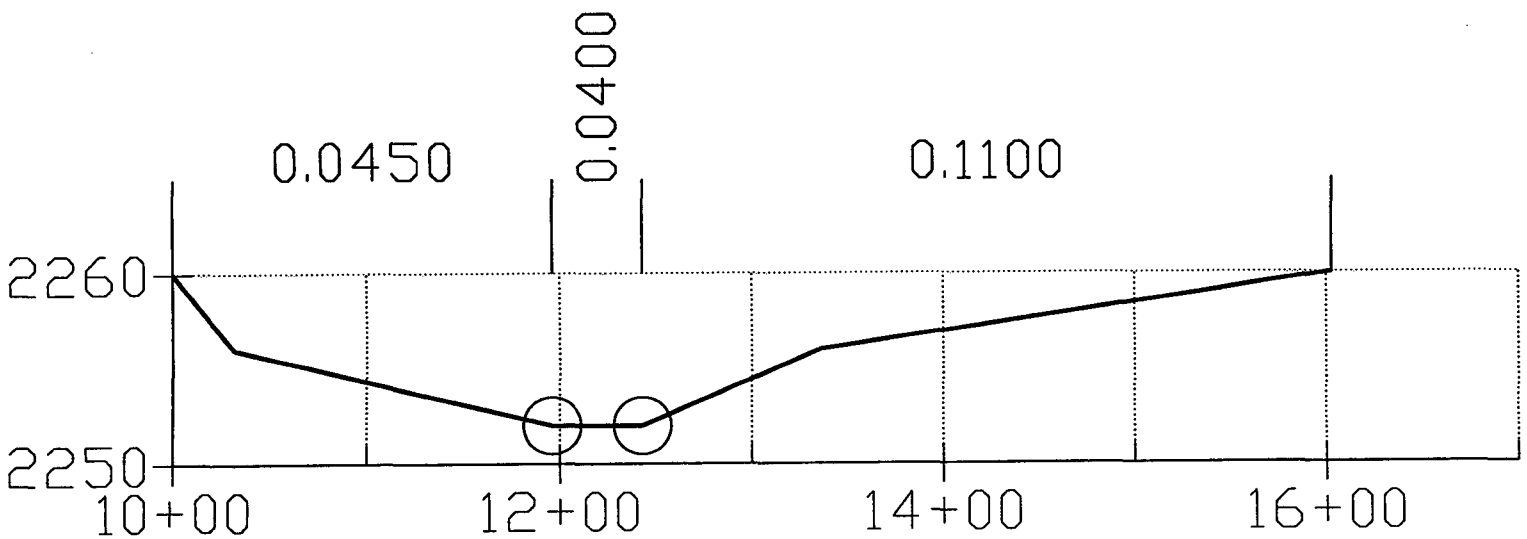

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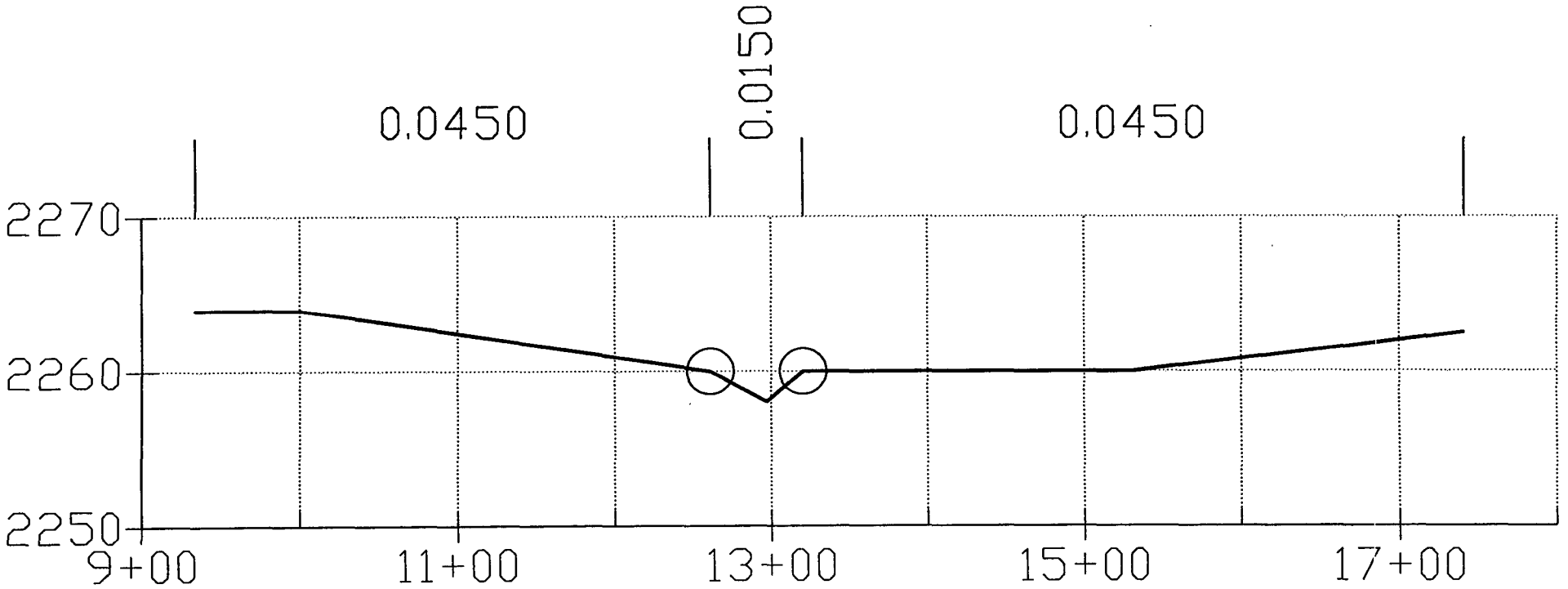
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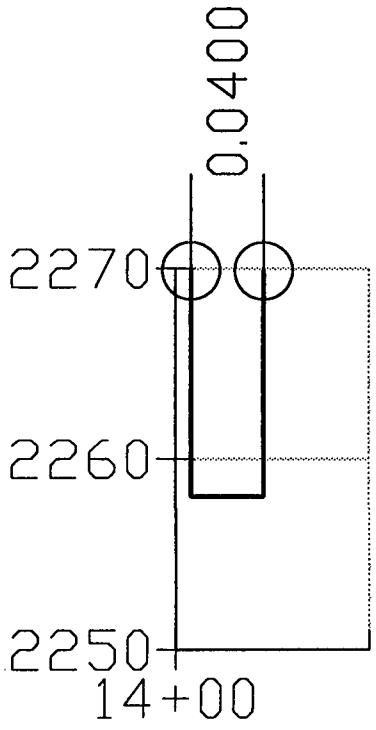
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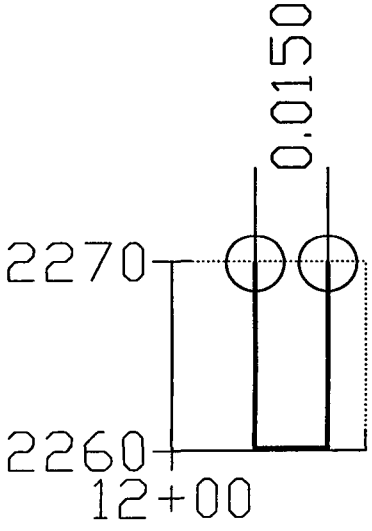



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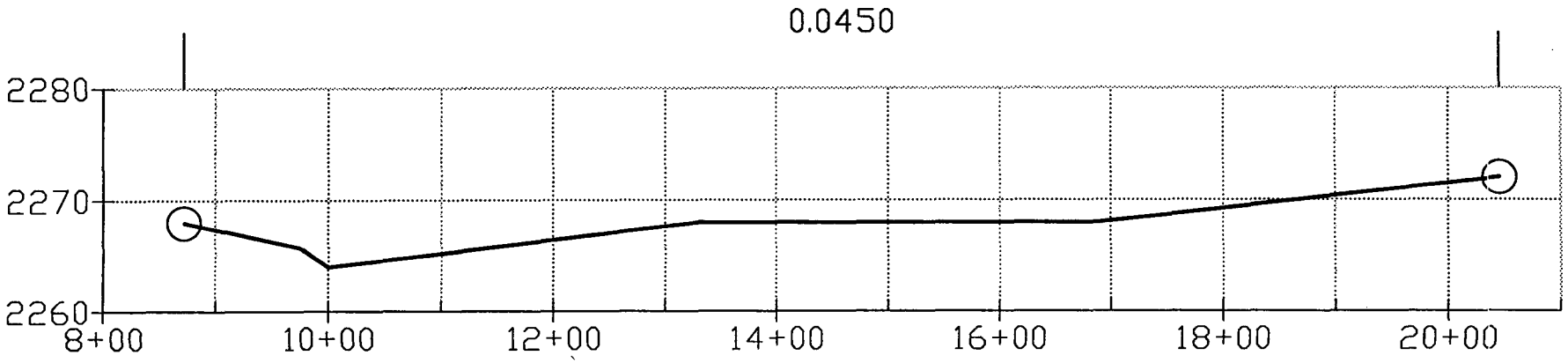

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DOWNSTREAM FACE OF I-15 CULVERT

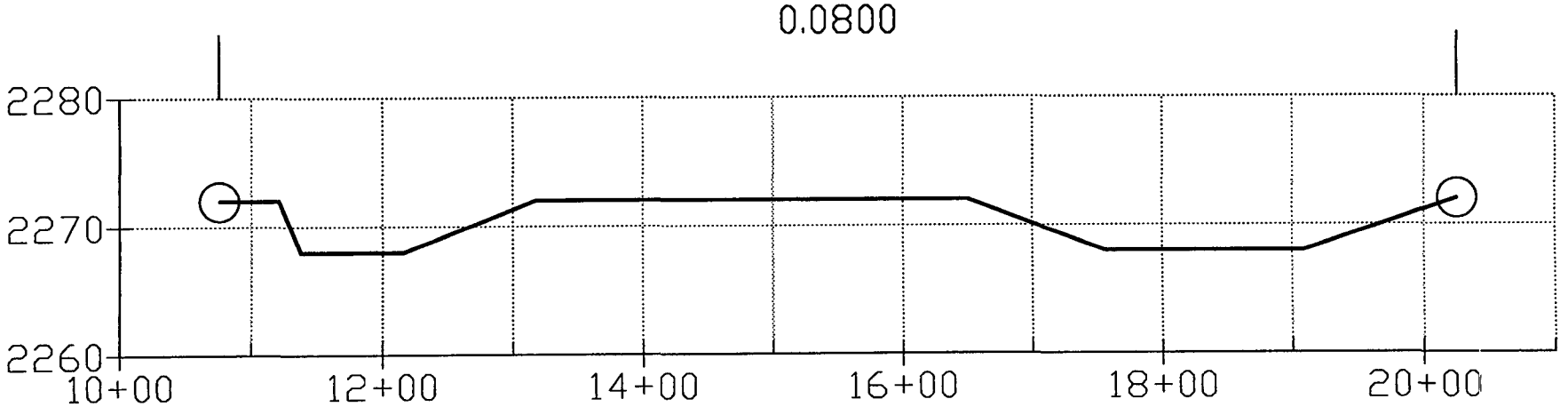



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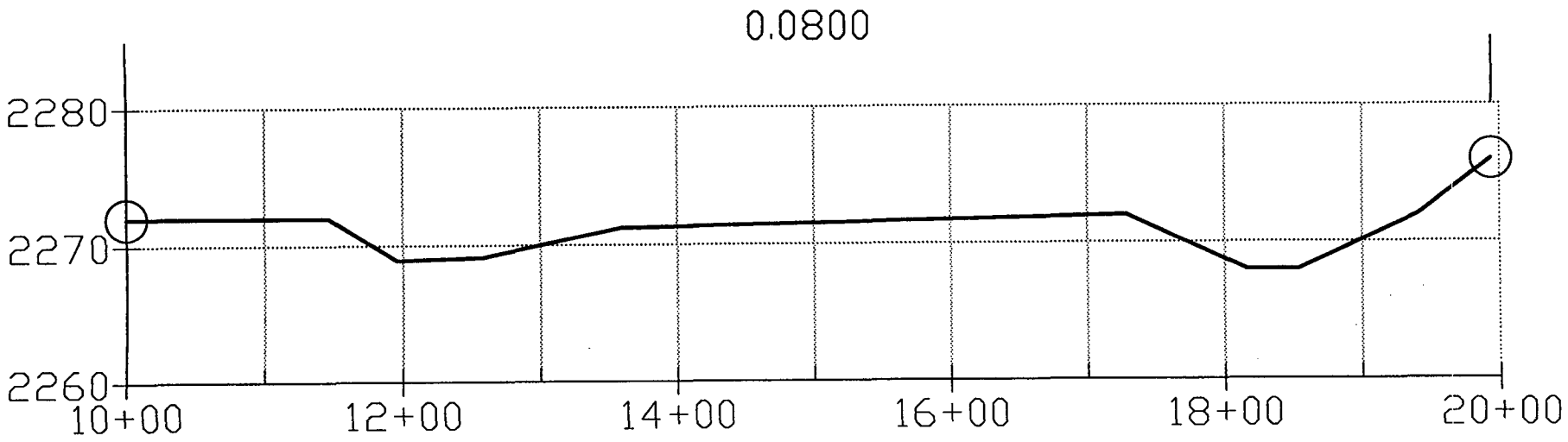
UPSTREAM FACE OF I-15 CULVERT



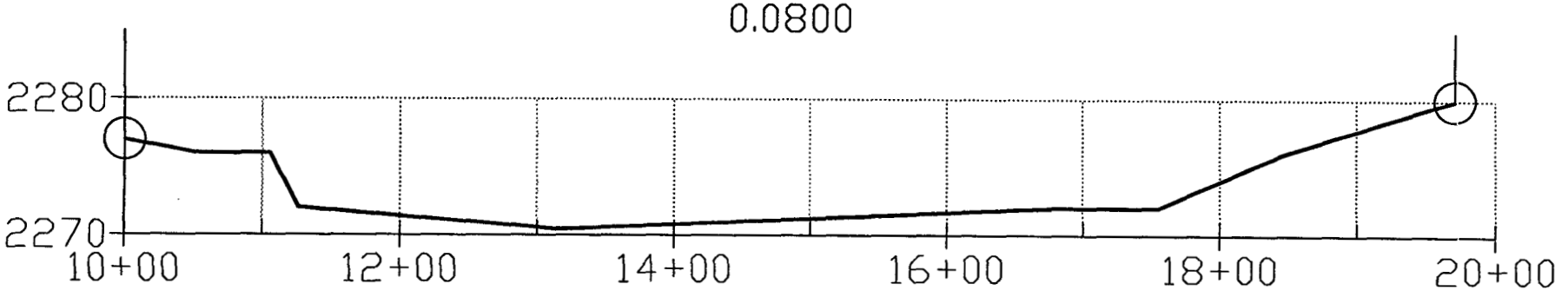

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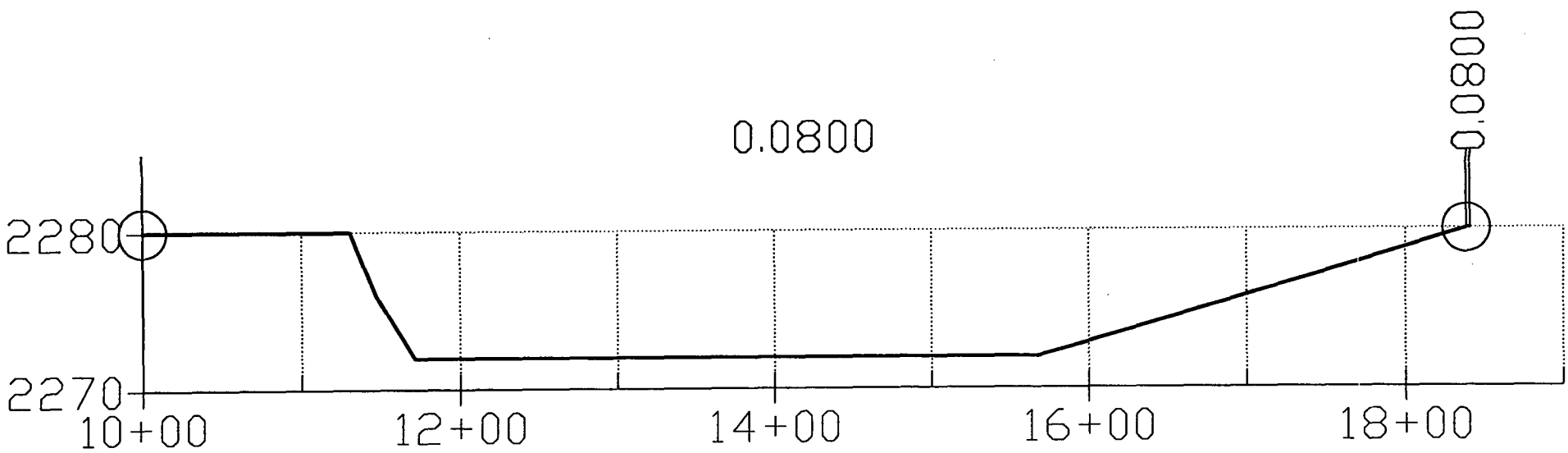

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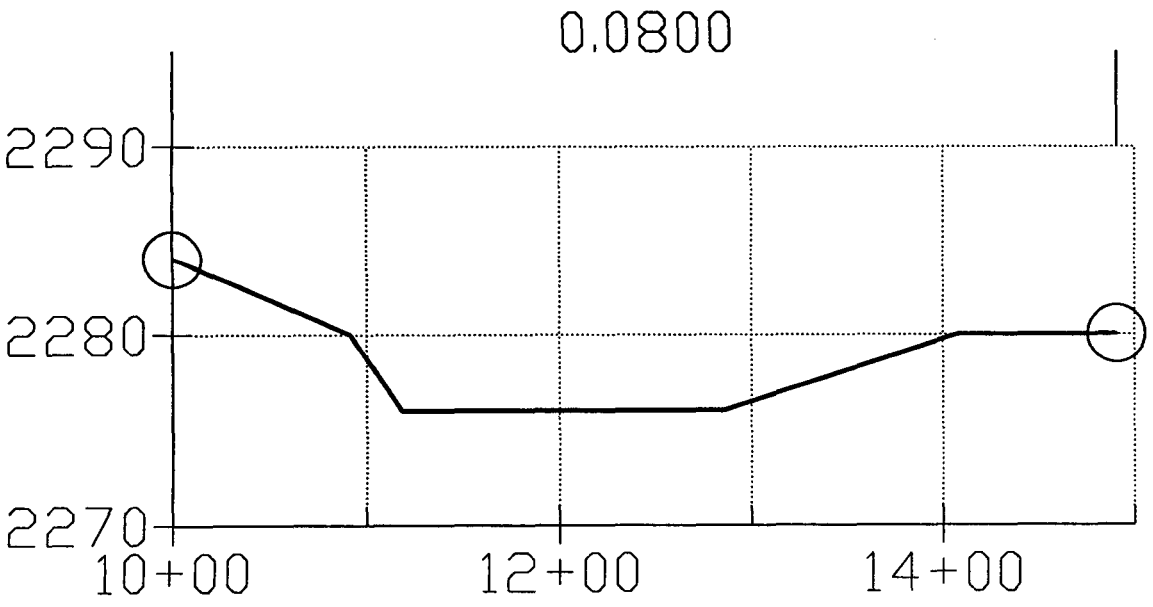

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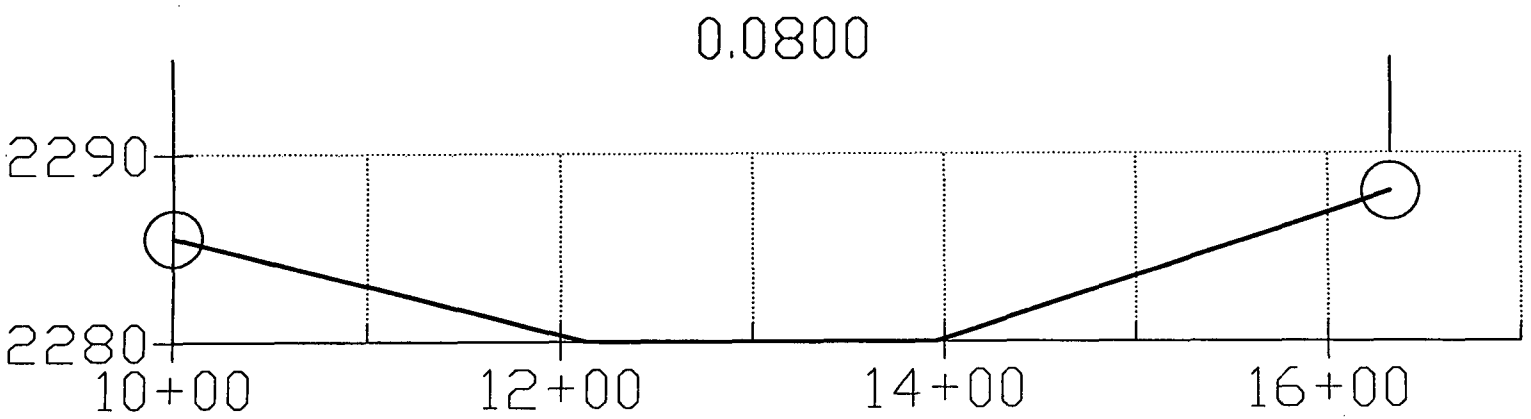

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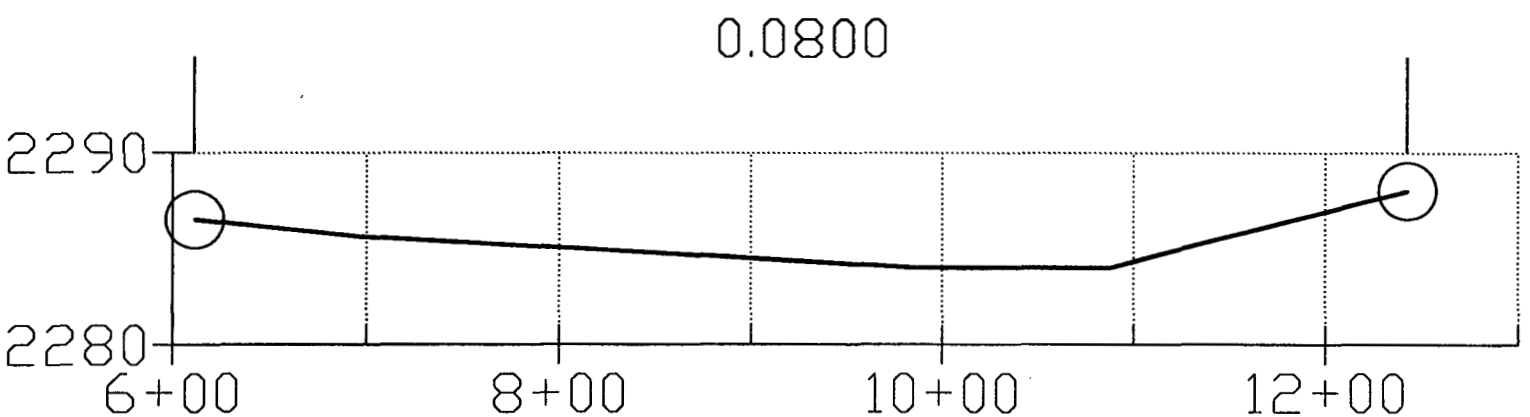

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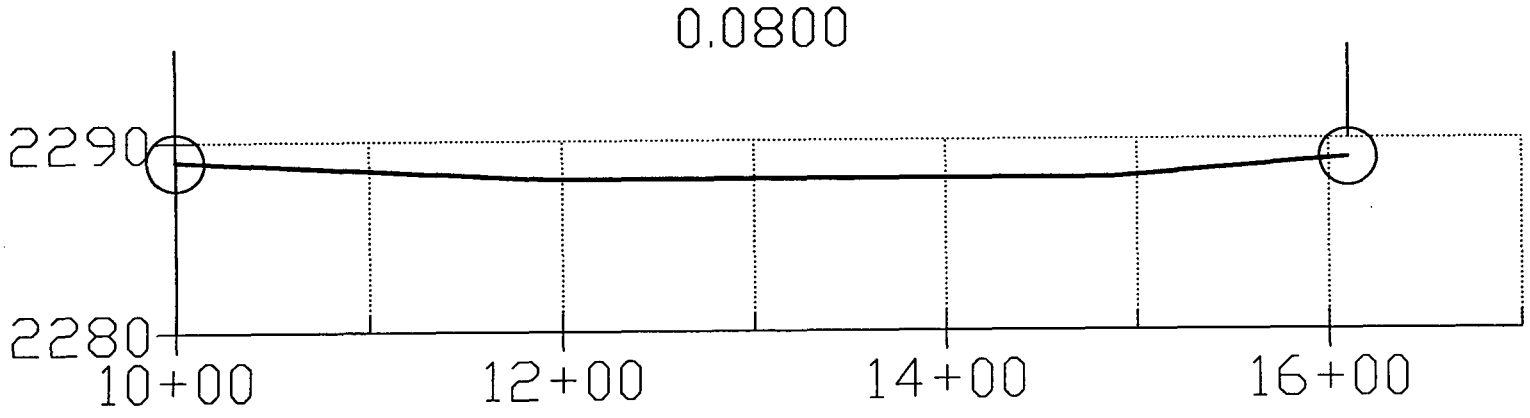

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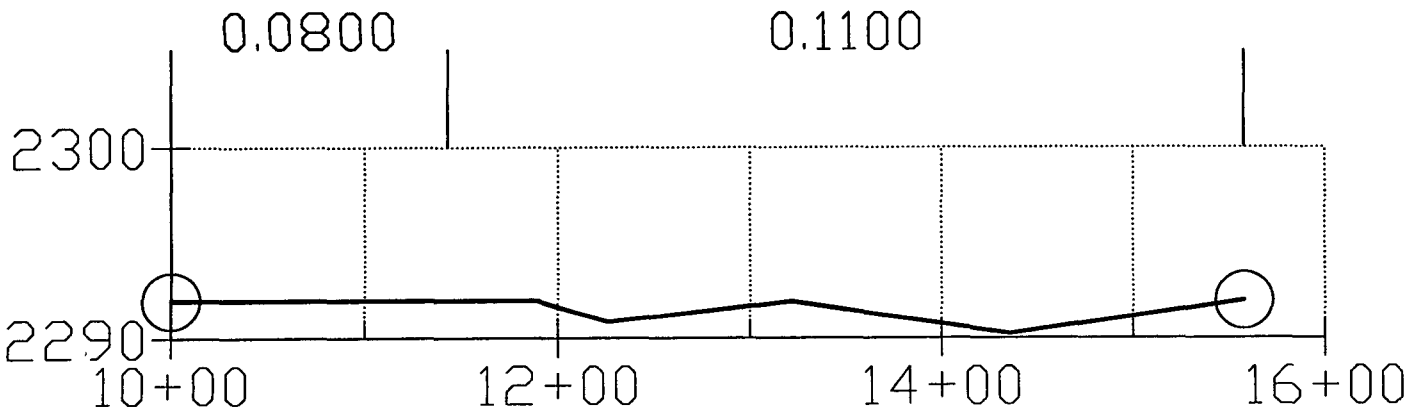

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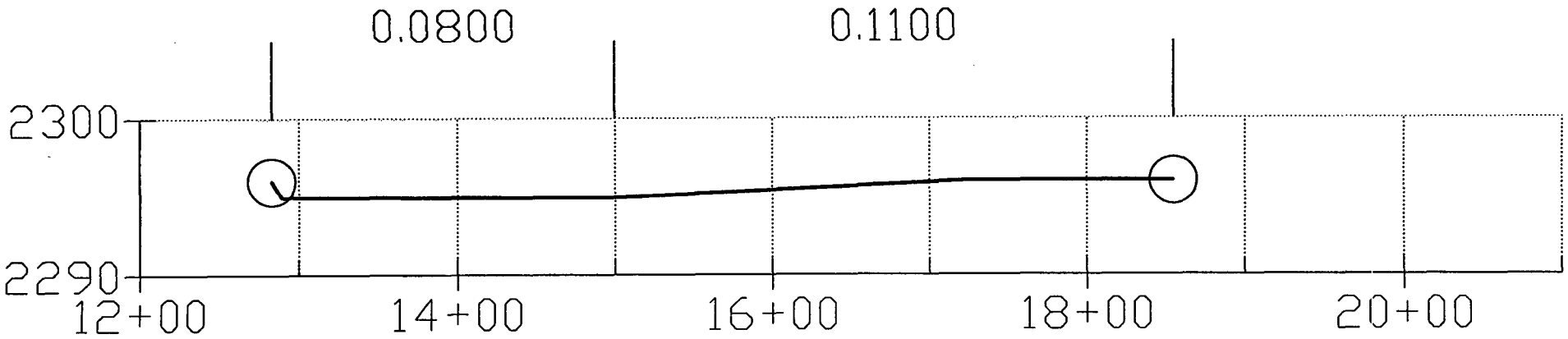

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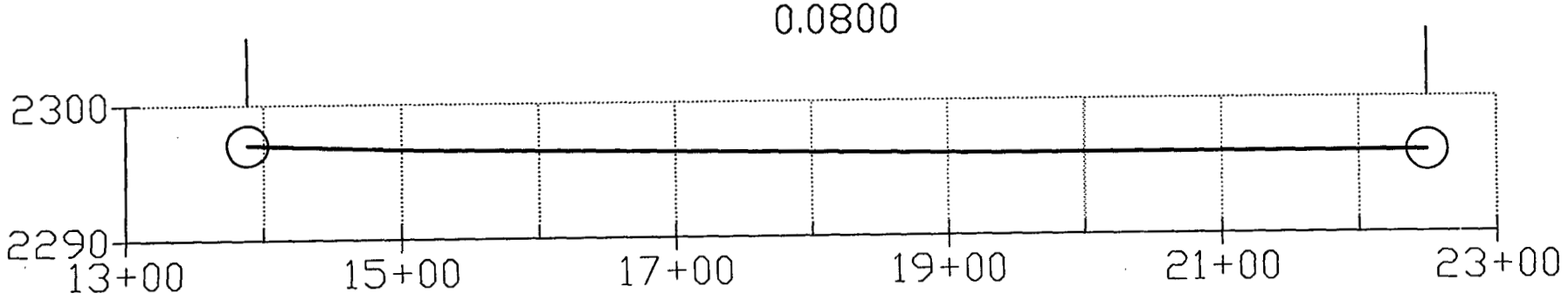

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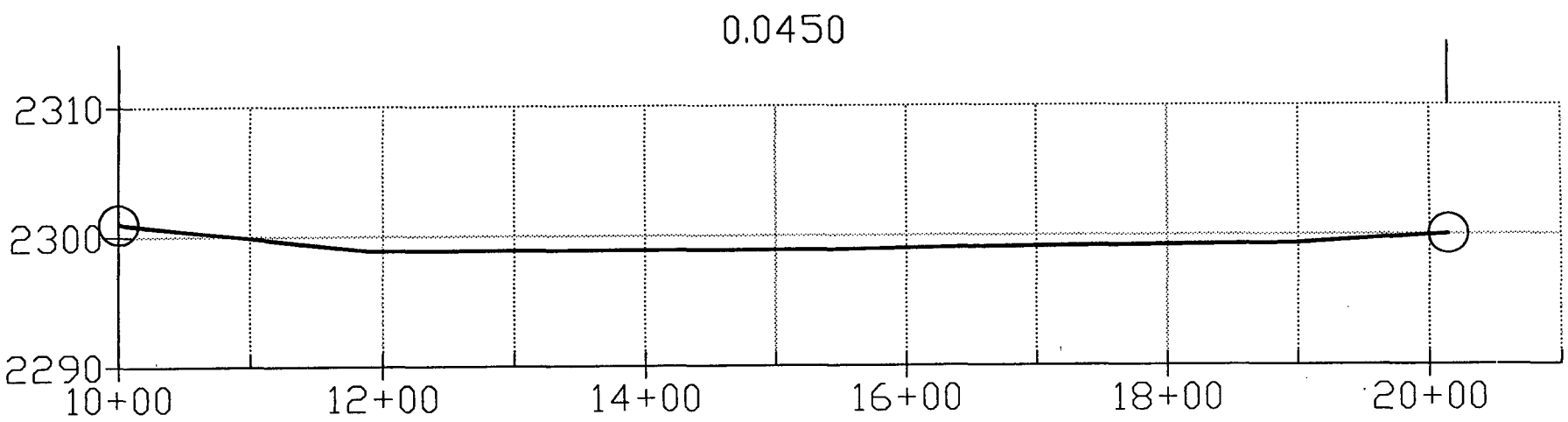

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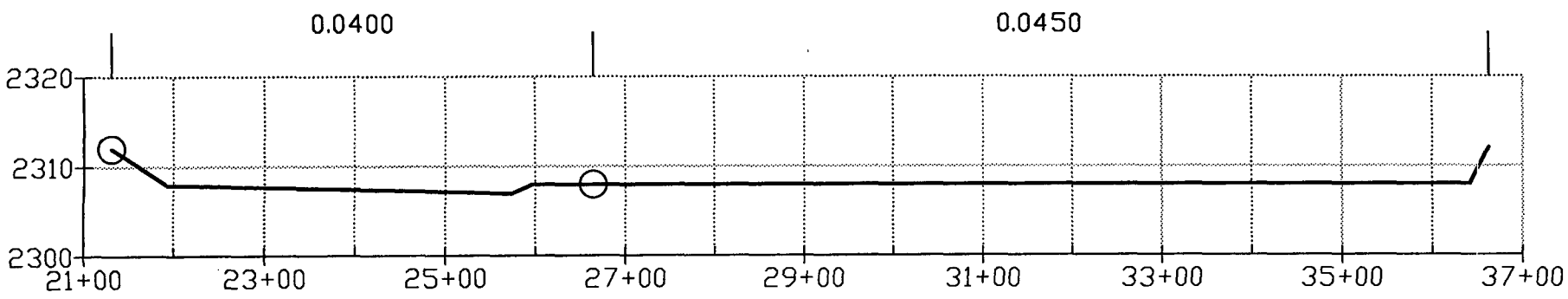

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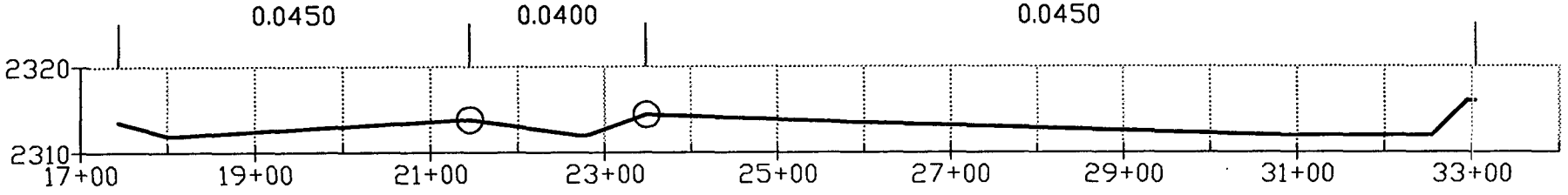

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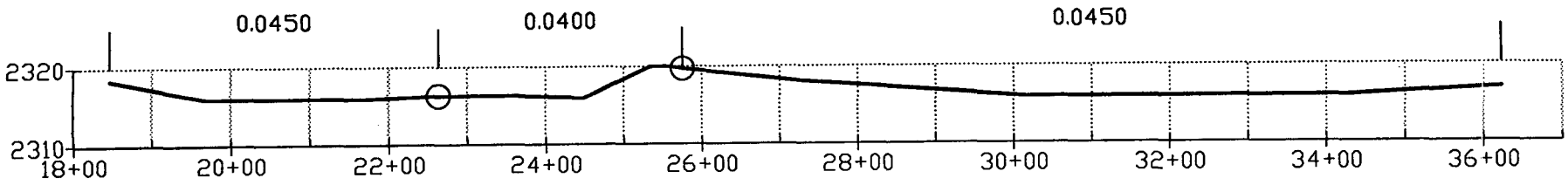

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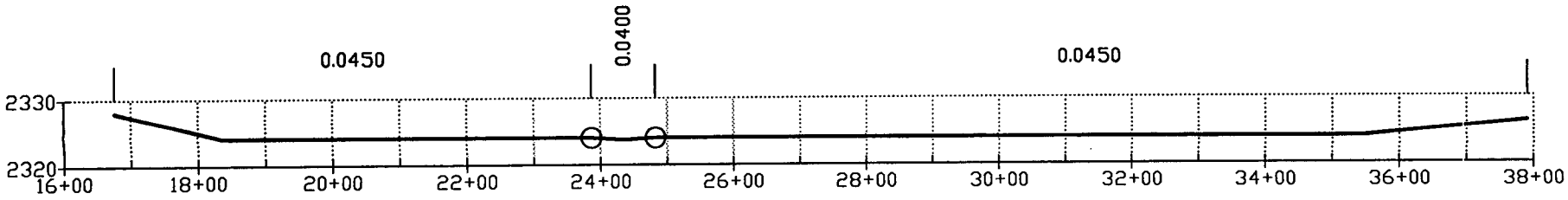
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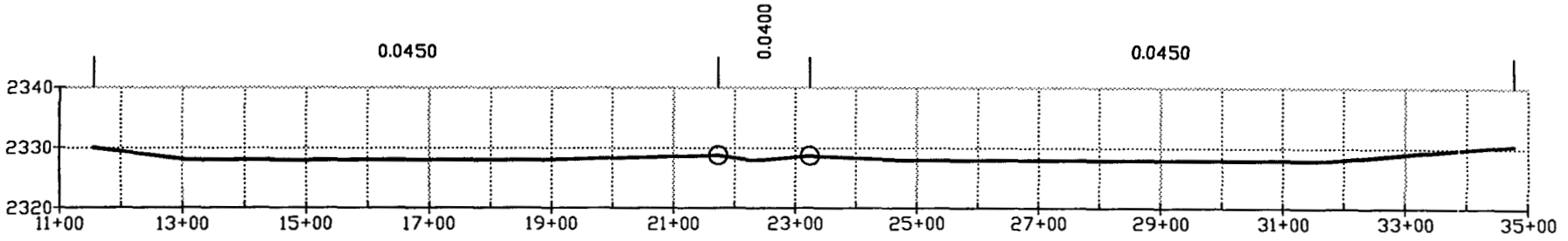
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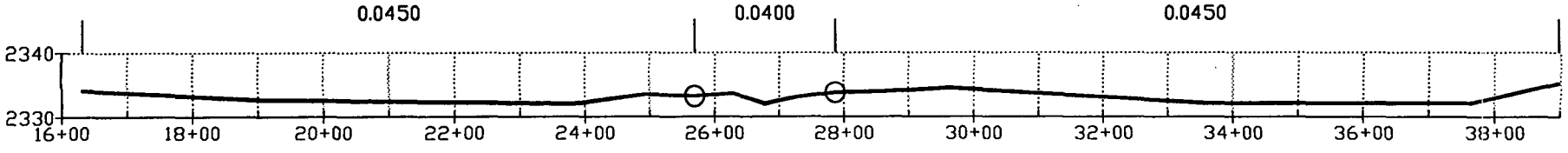
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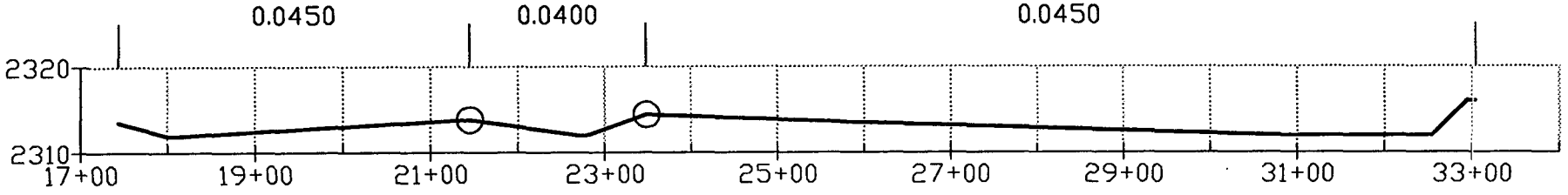
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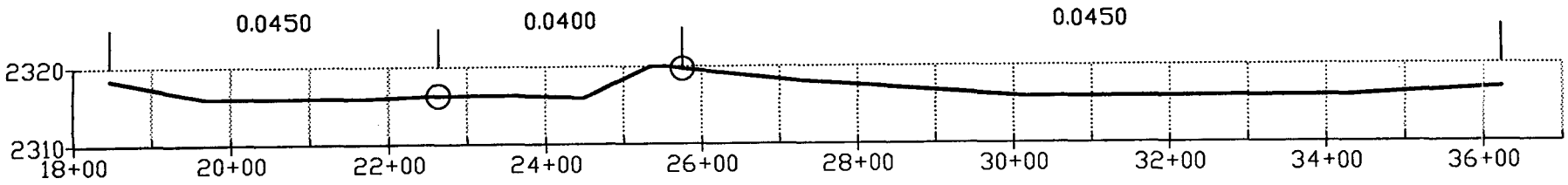
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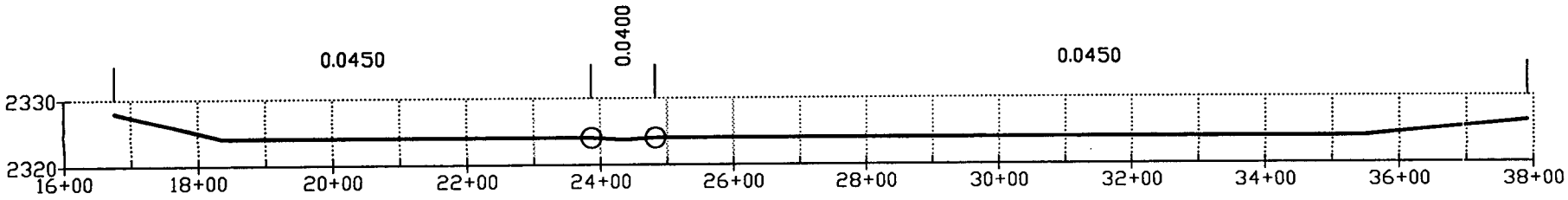
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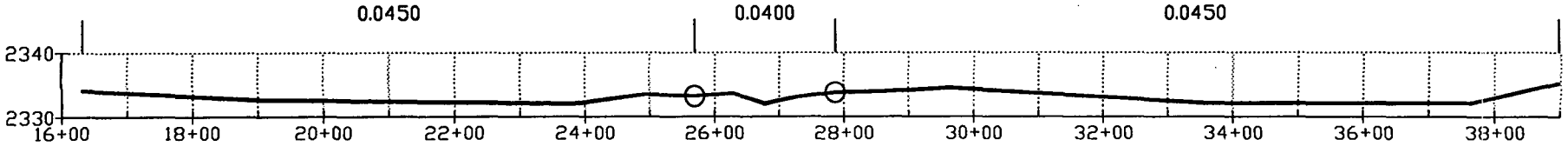
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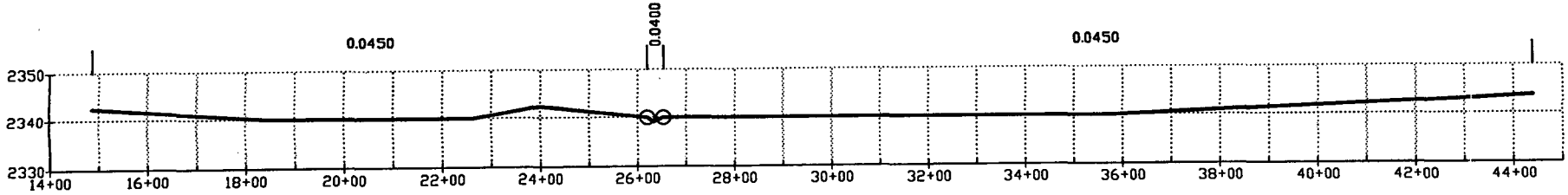
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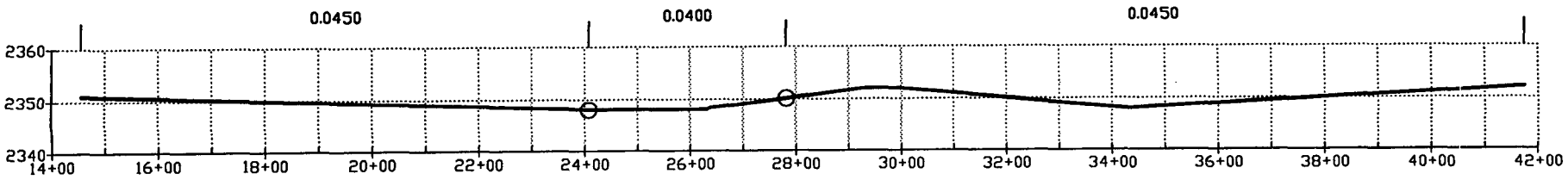
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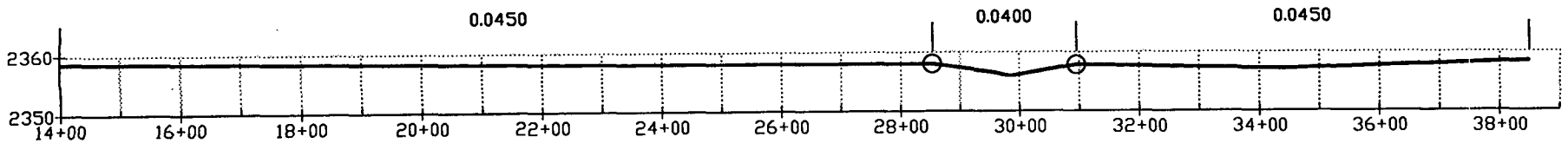
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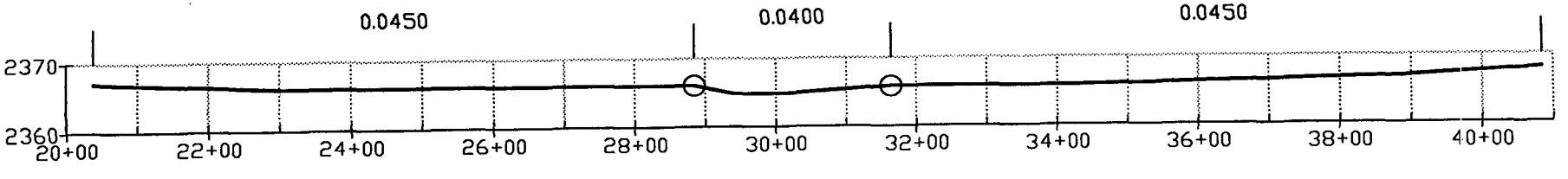
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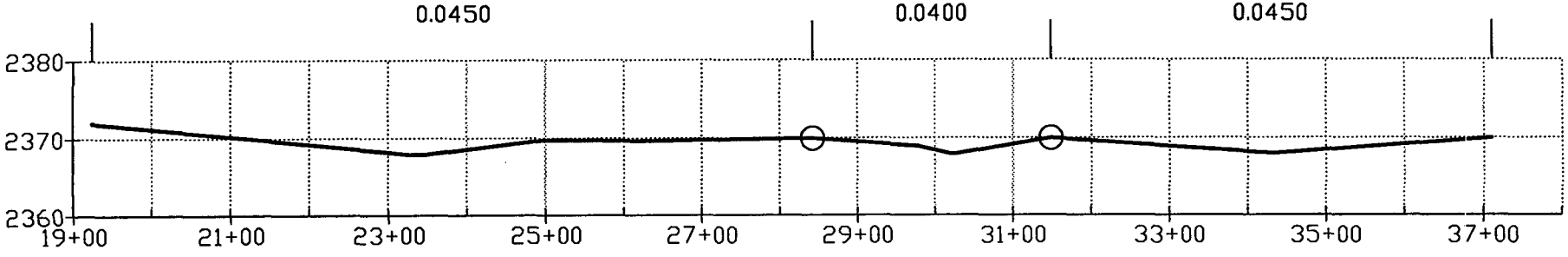
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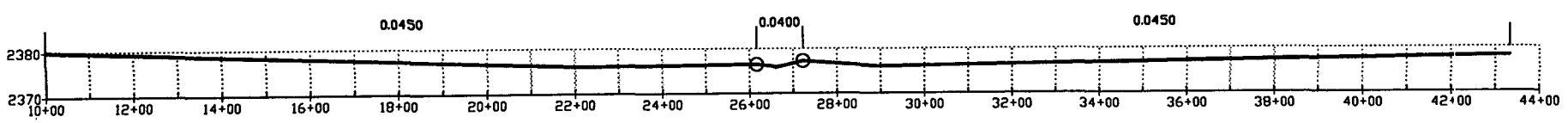
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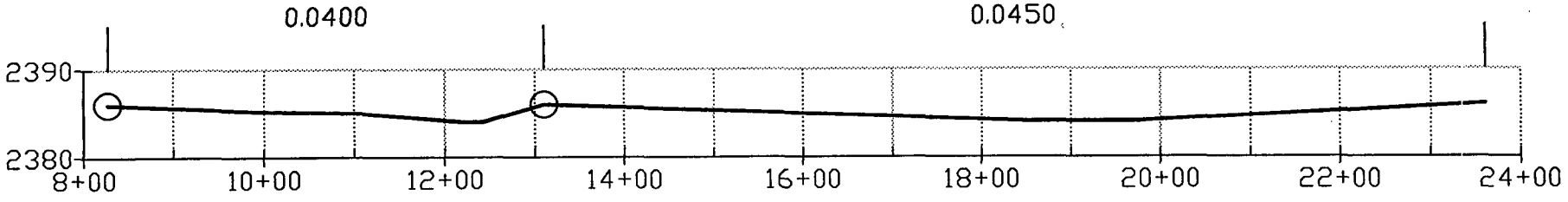
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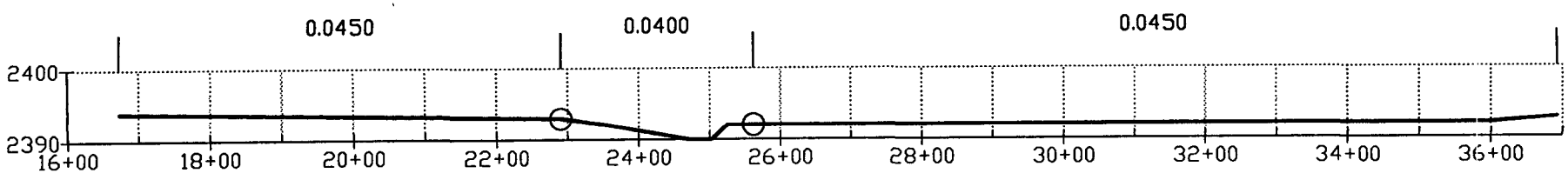
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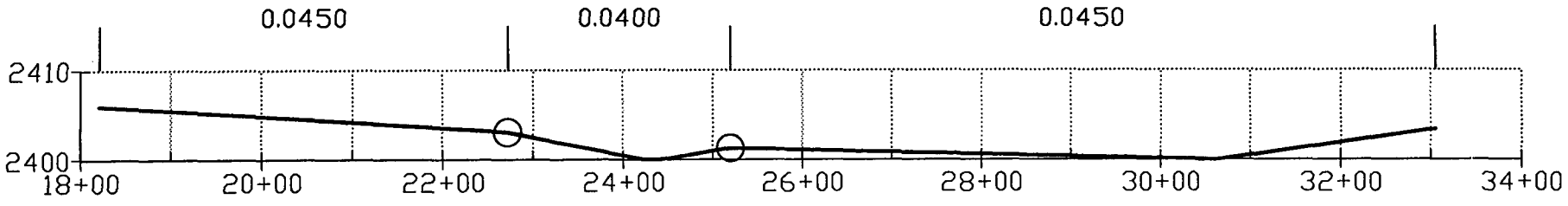
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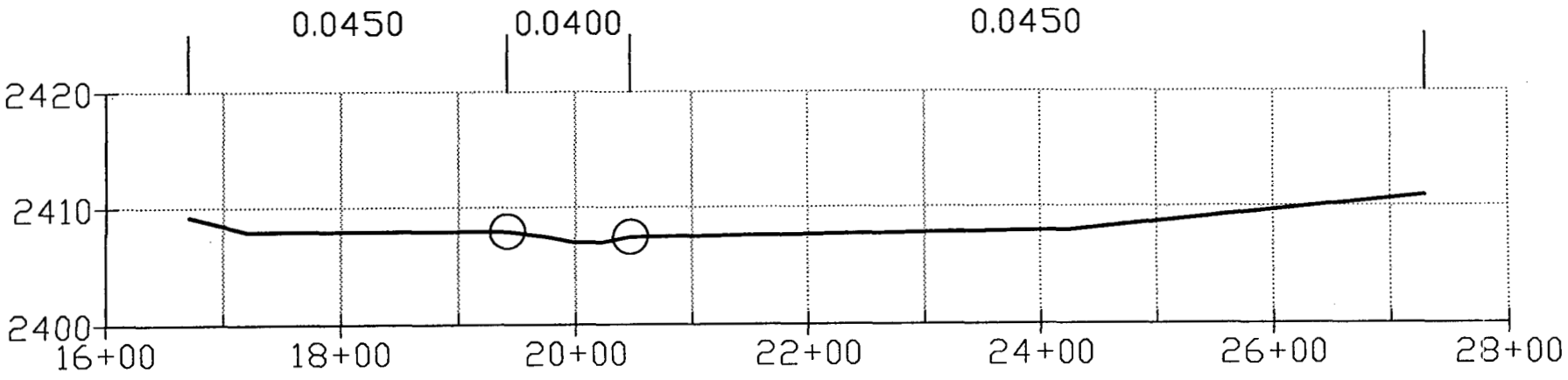
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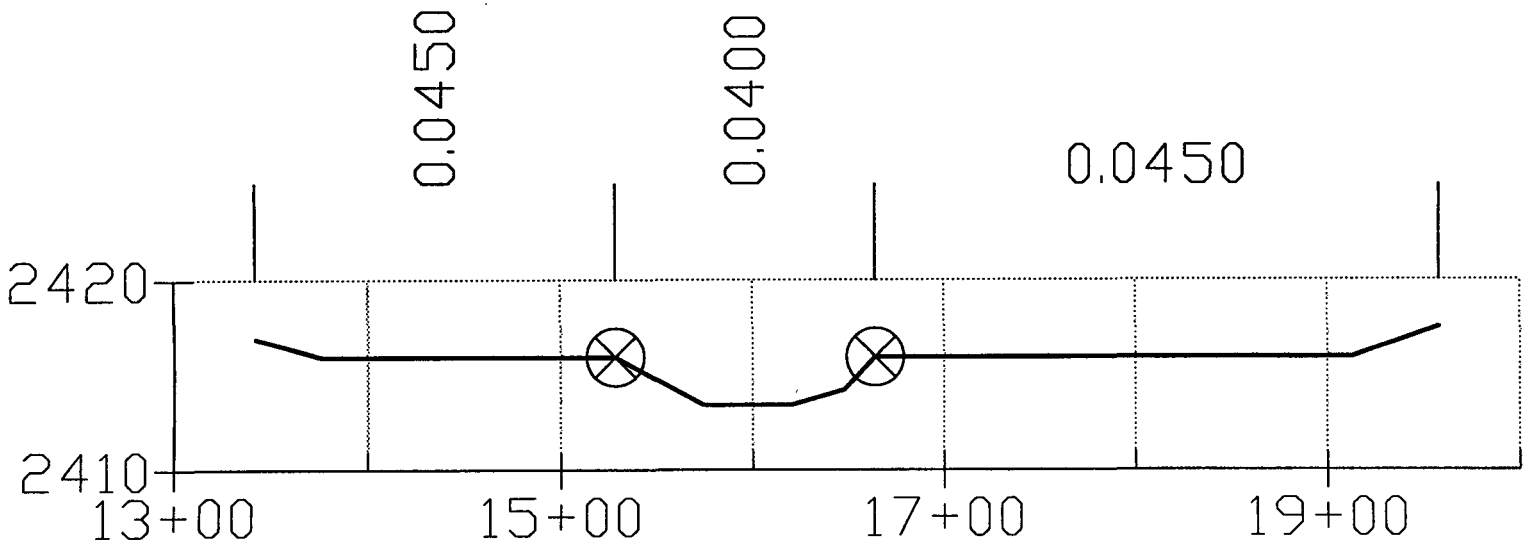
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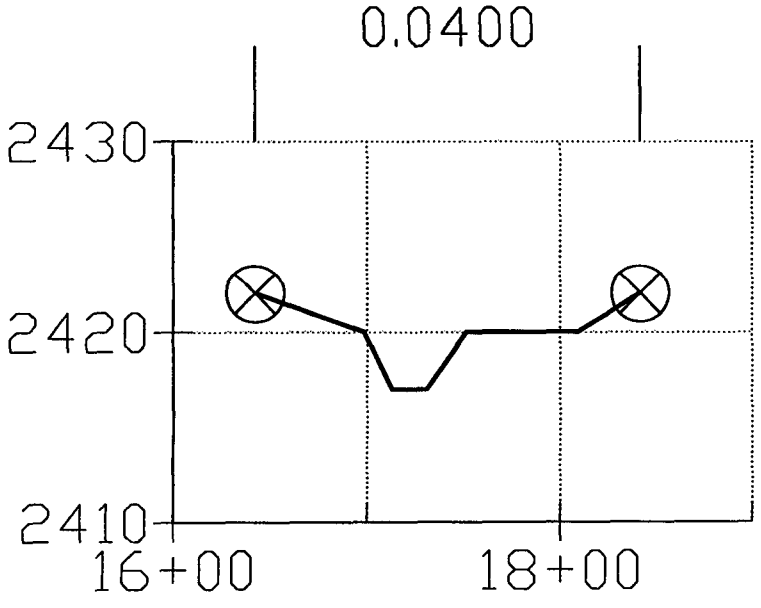
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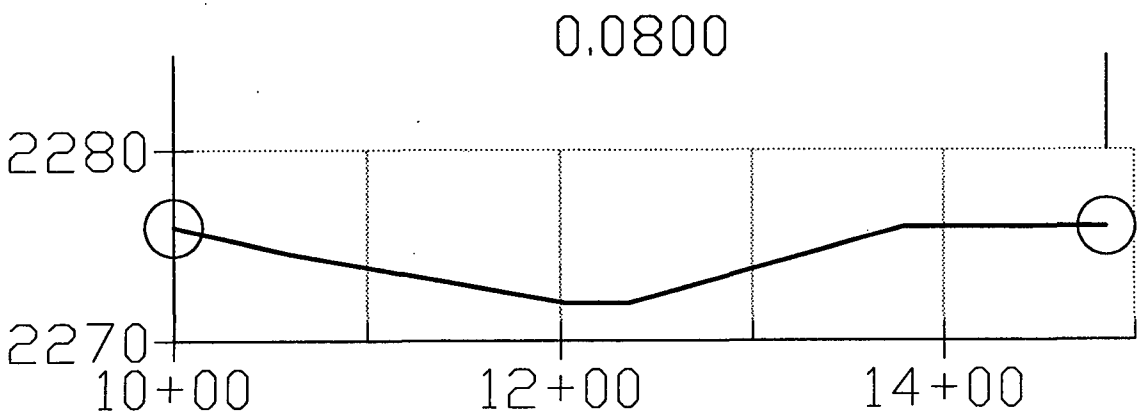
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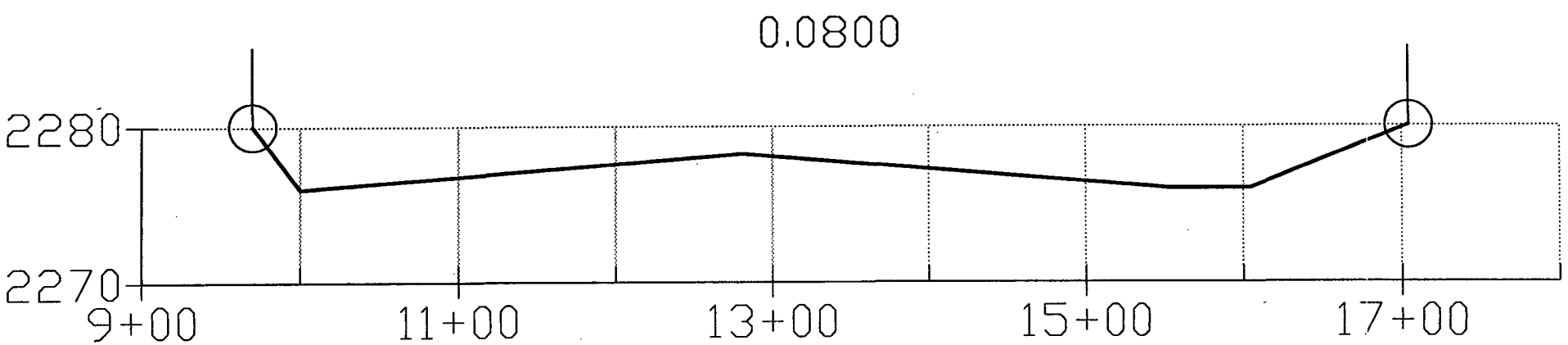

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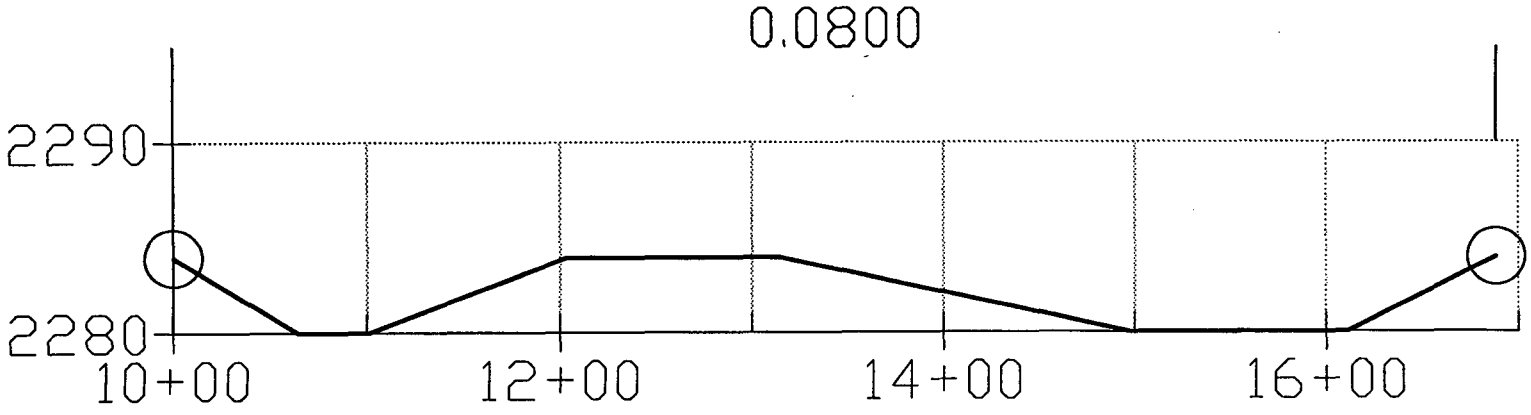

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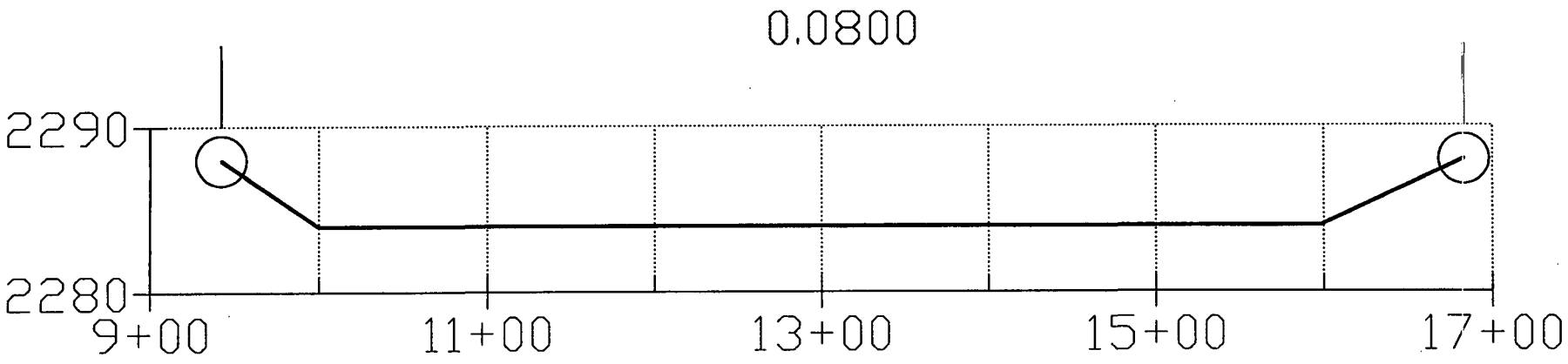

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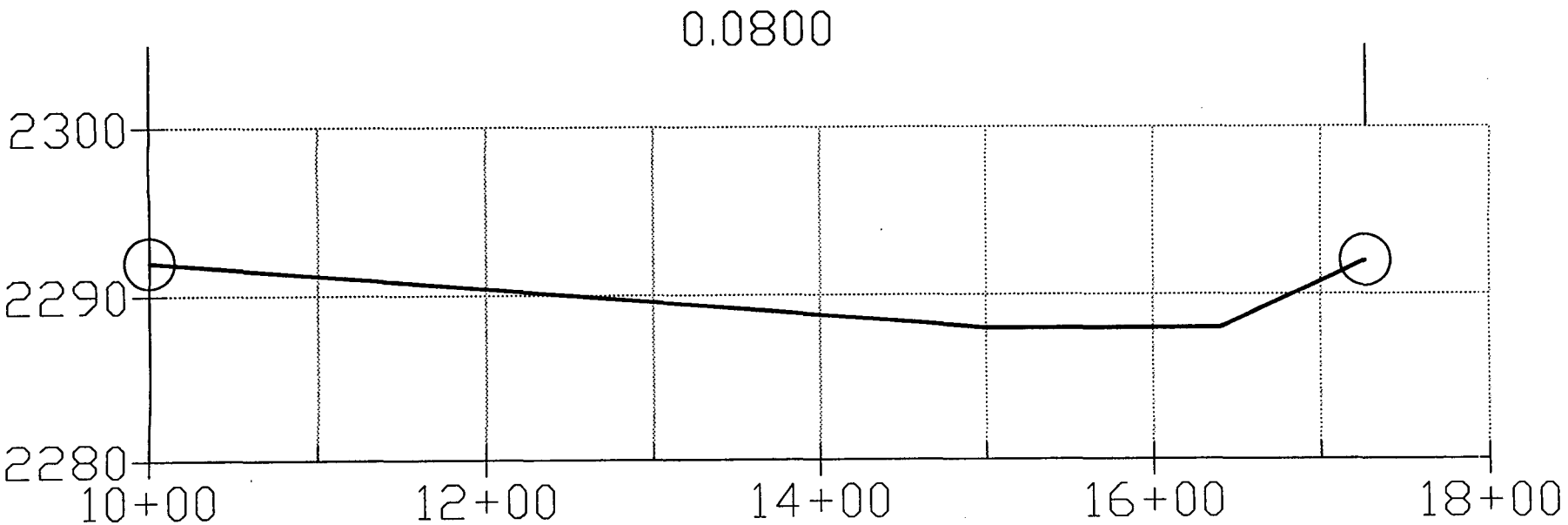

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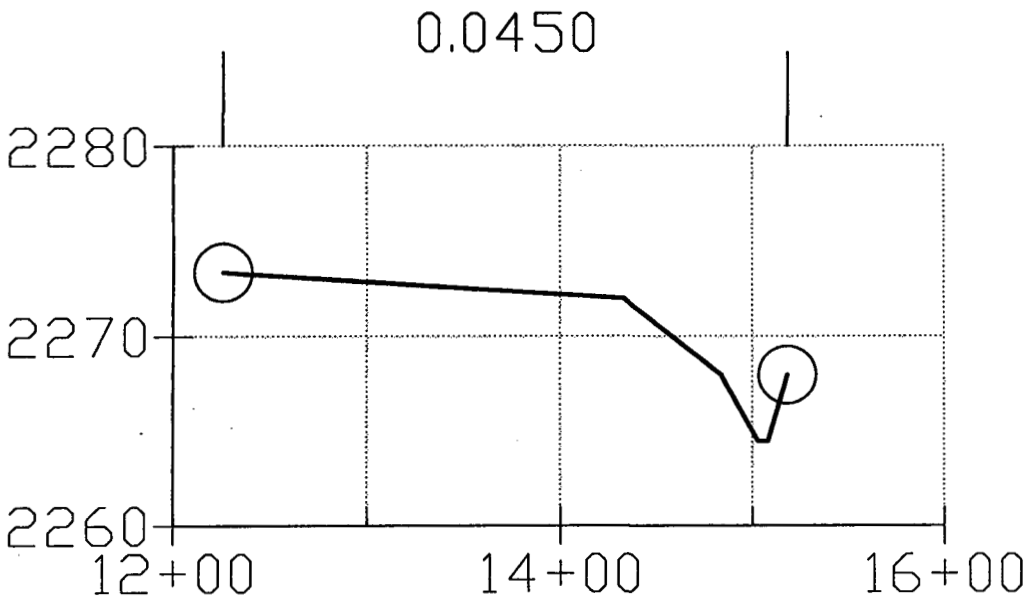

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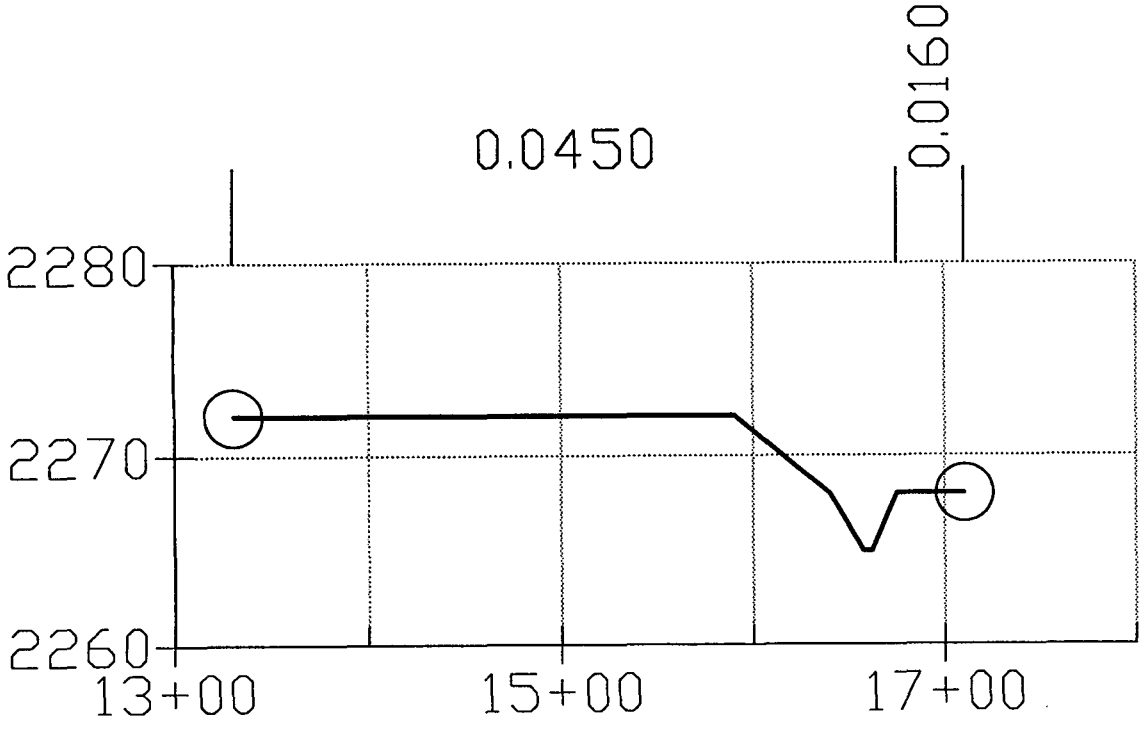

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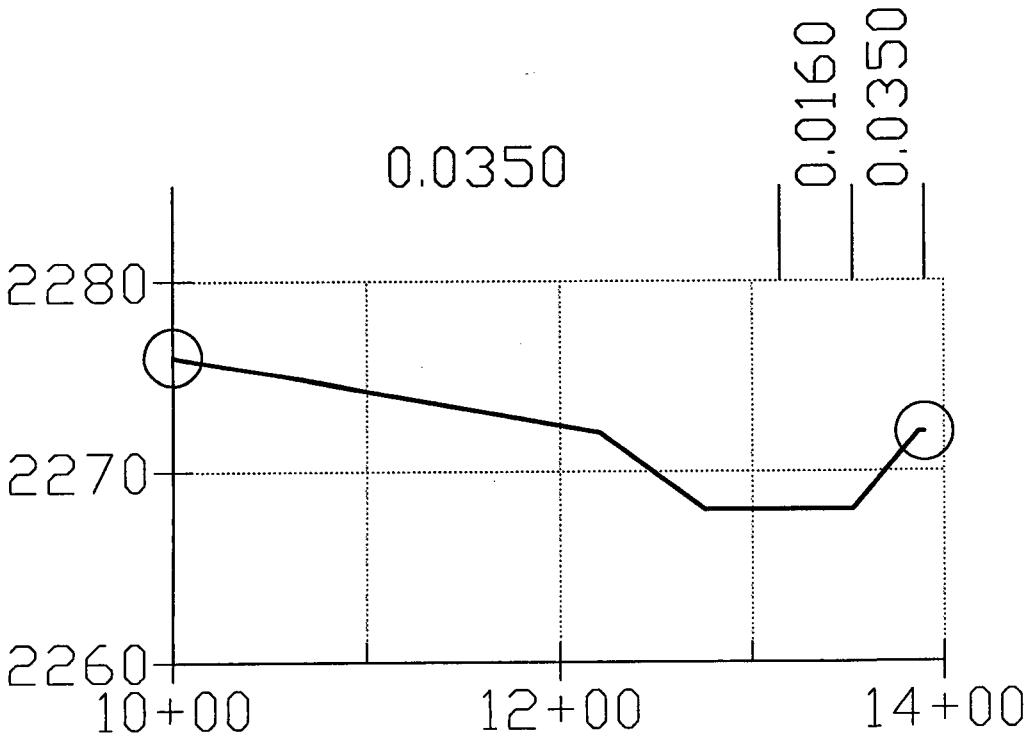

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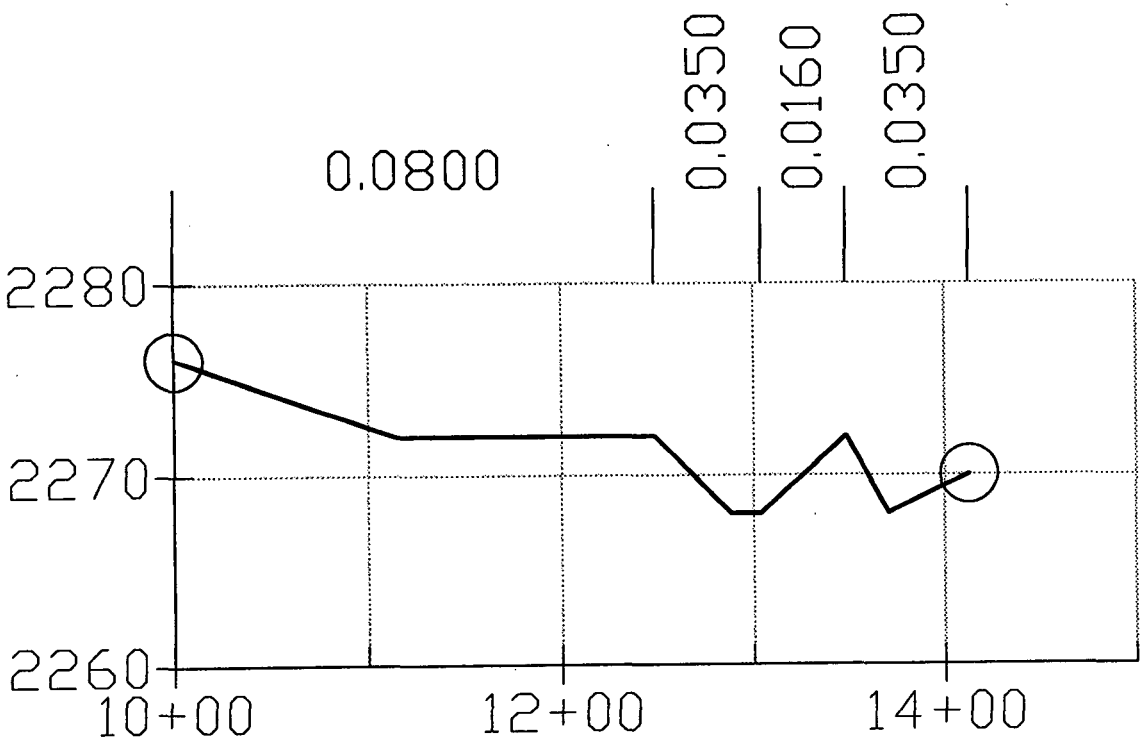

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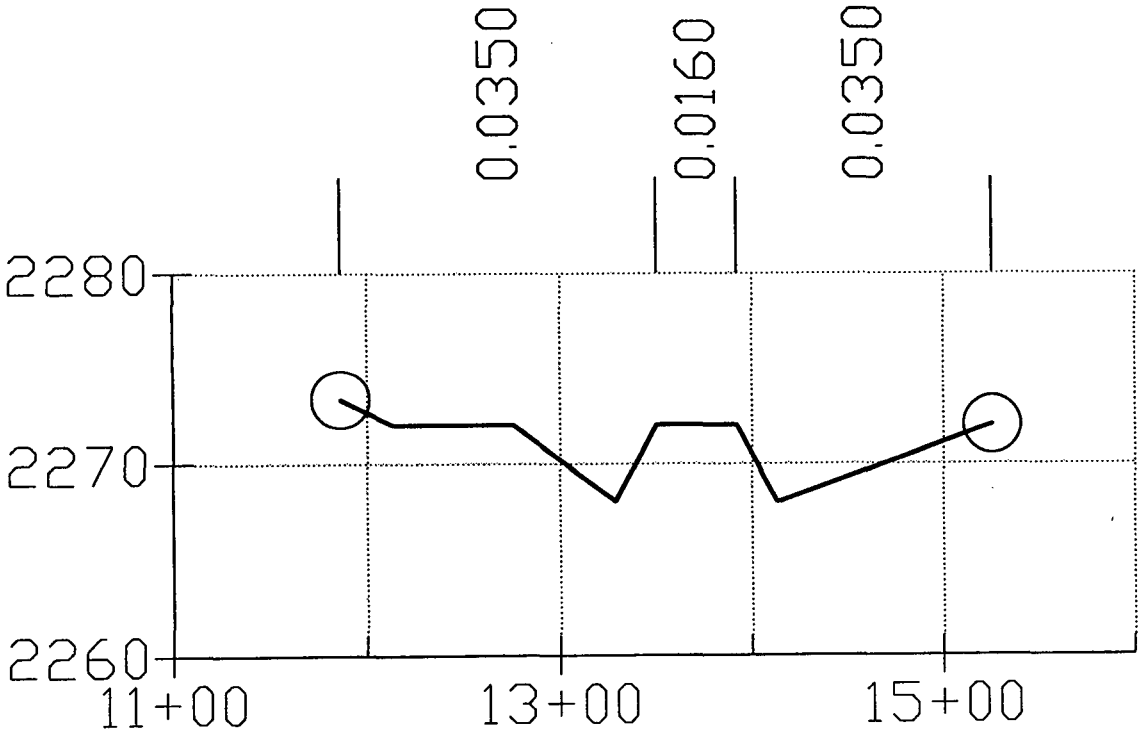

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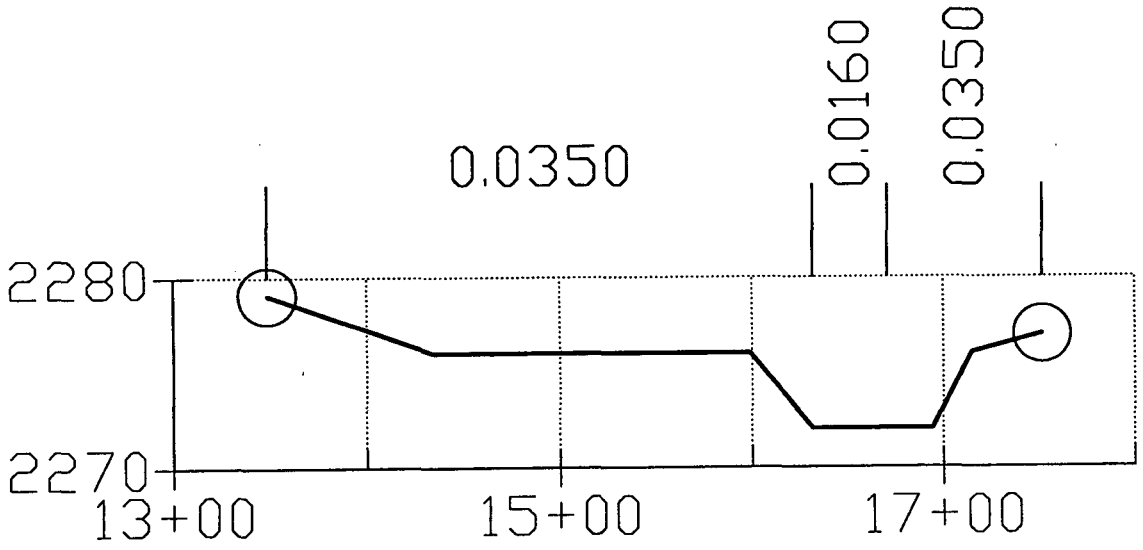

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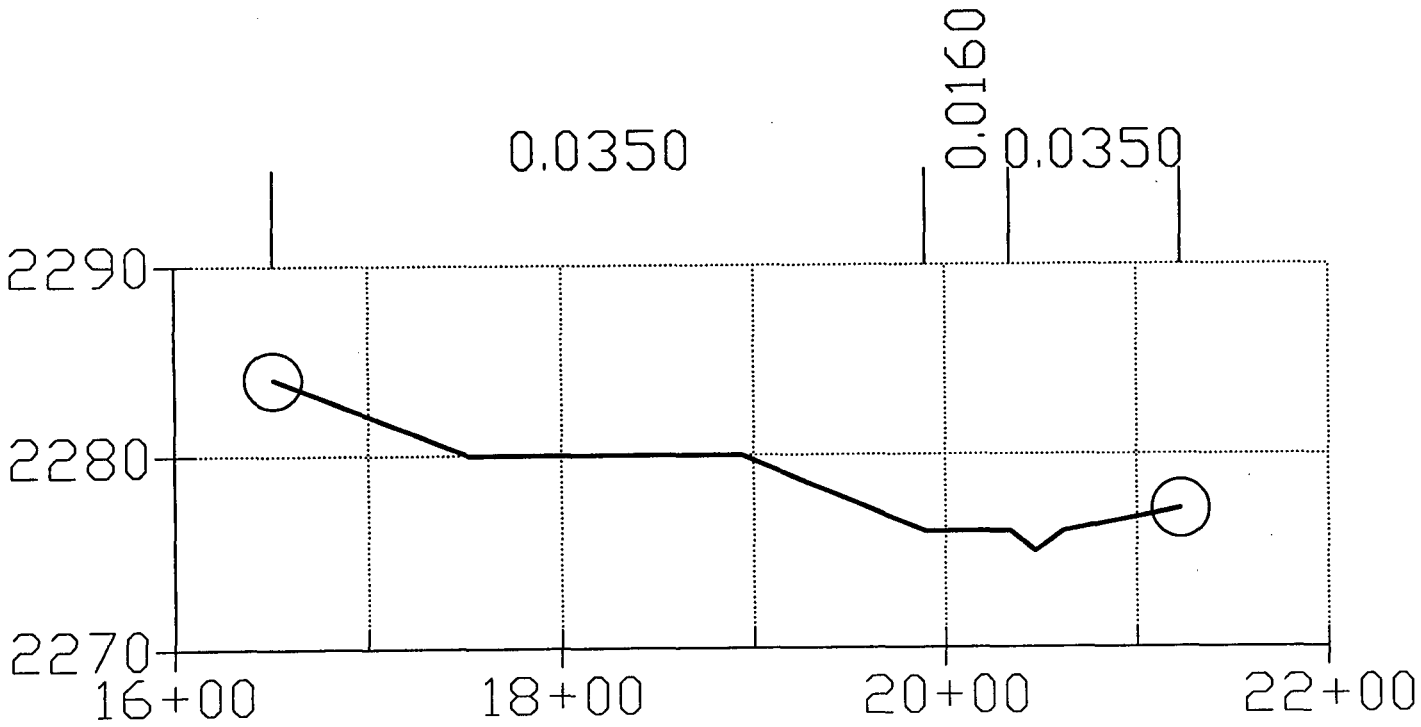

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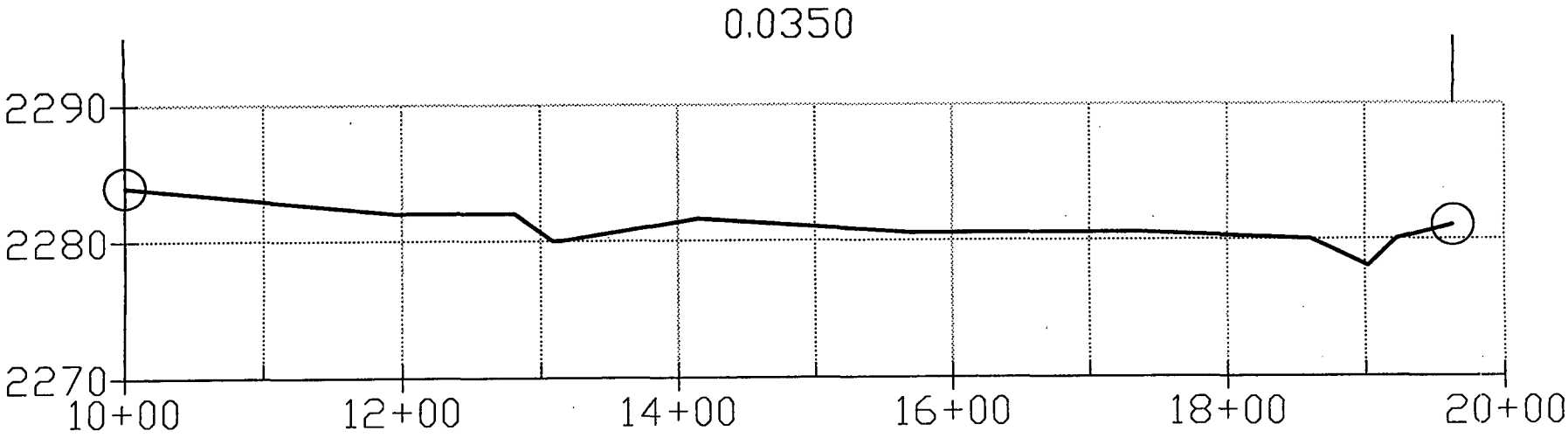

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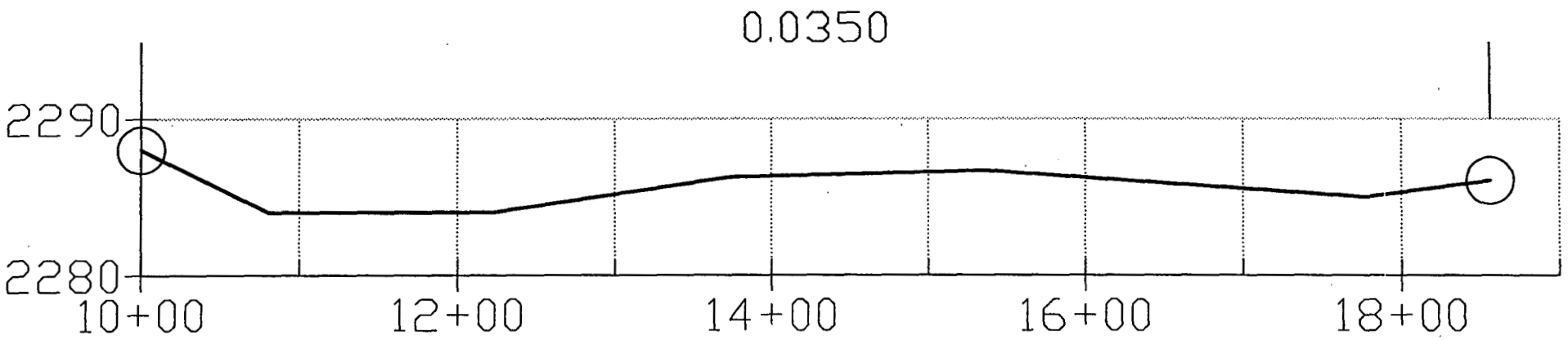

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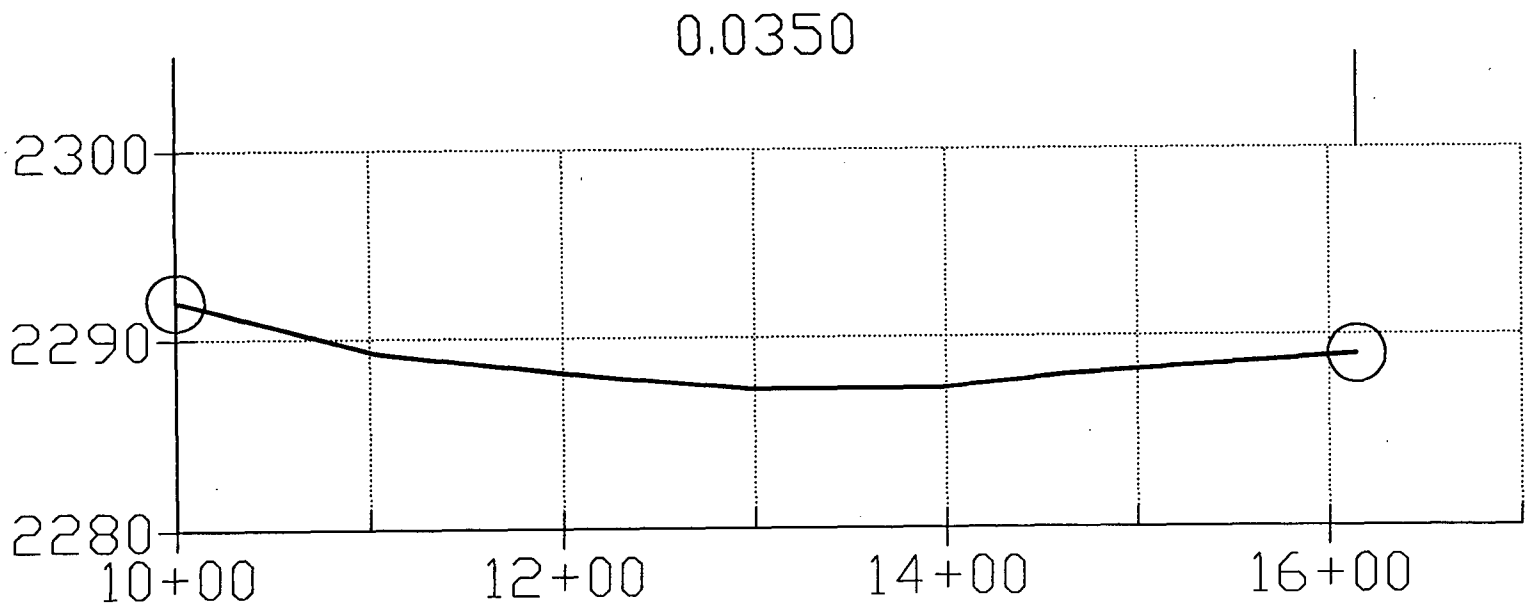

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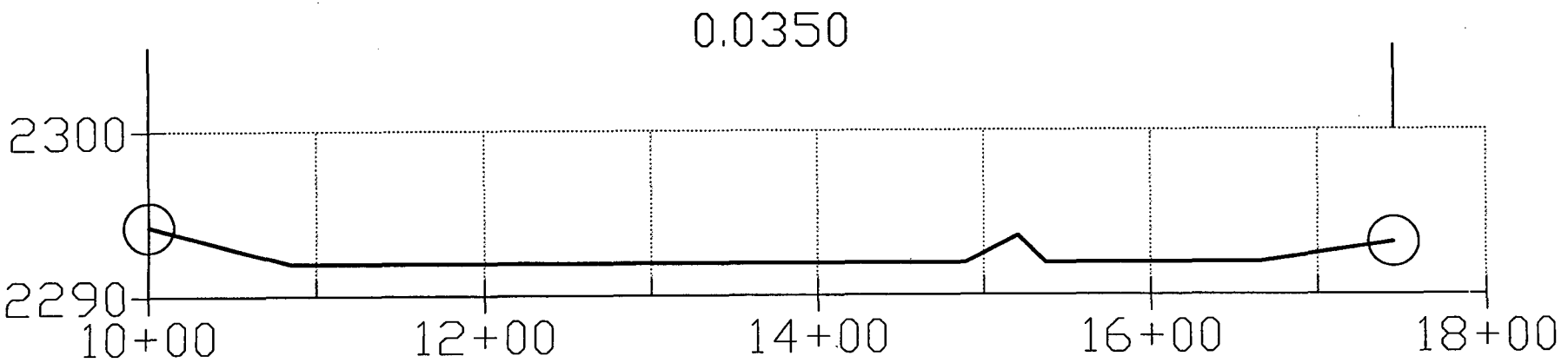

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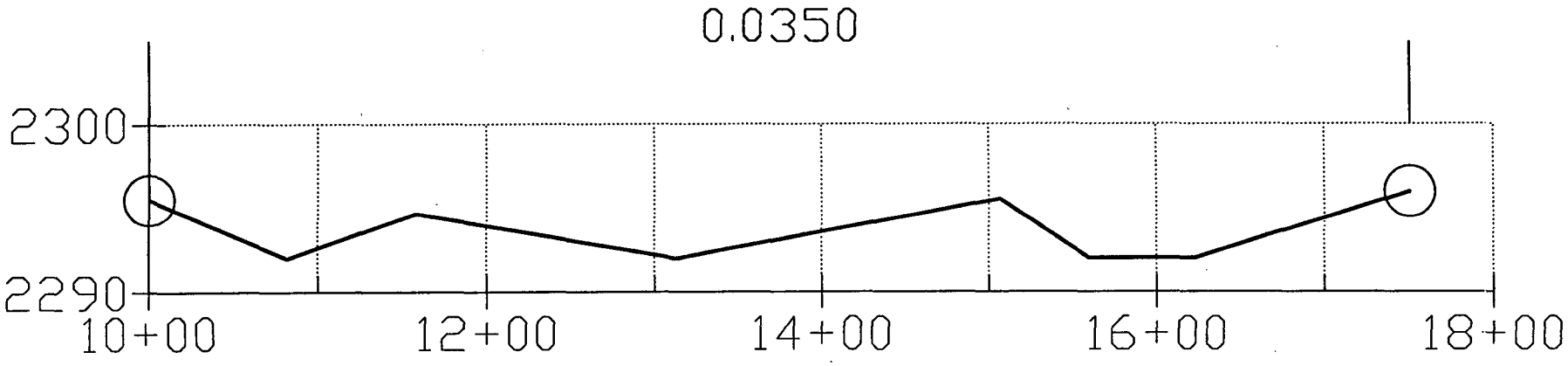

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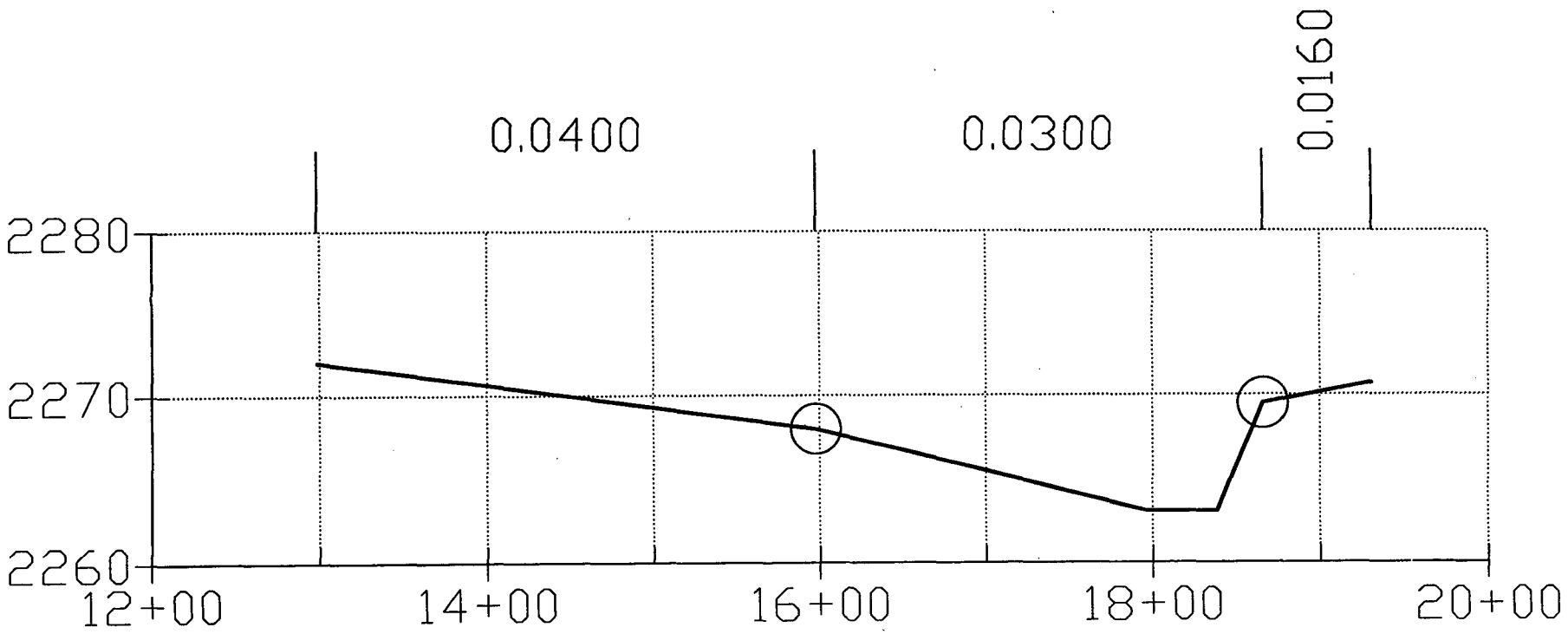

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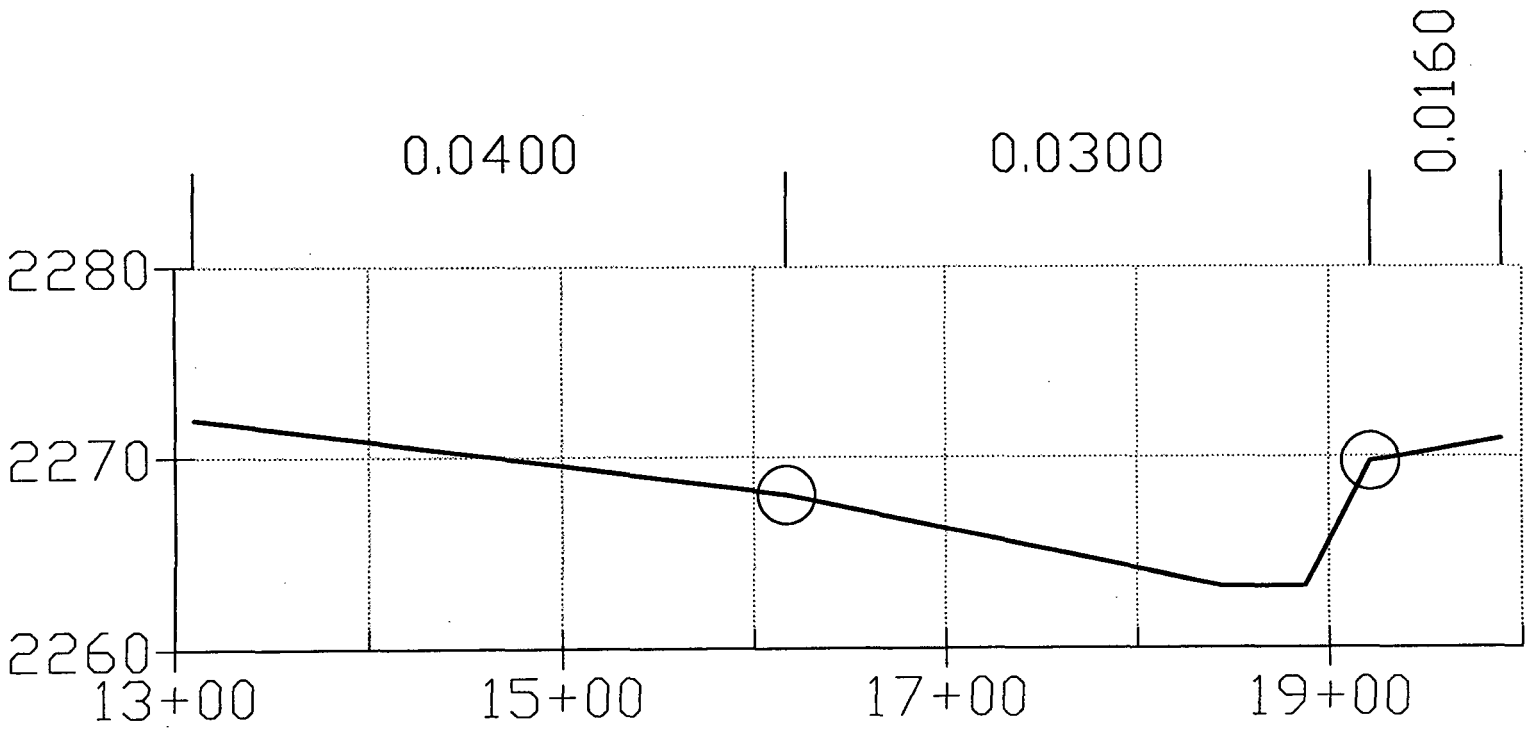

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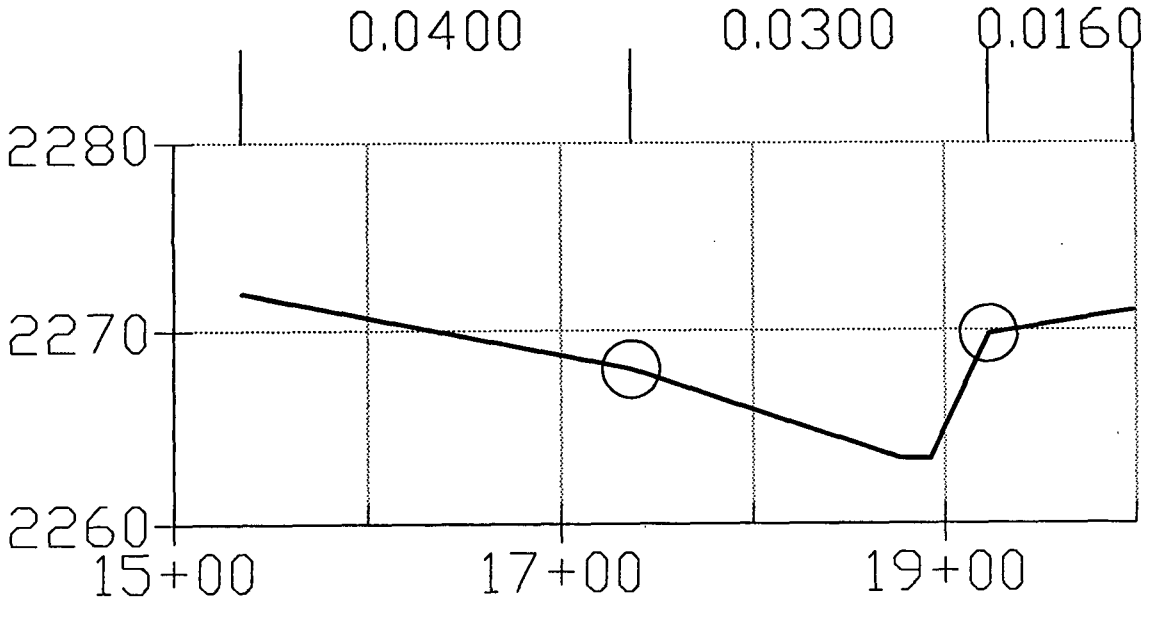

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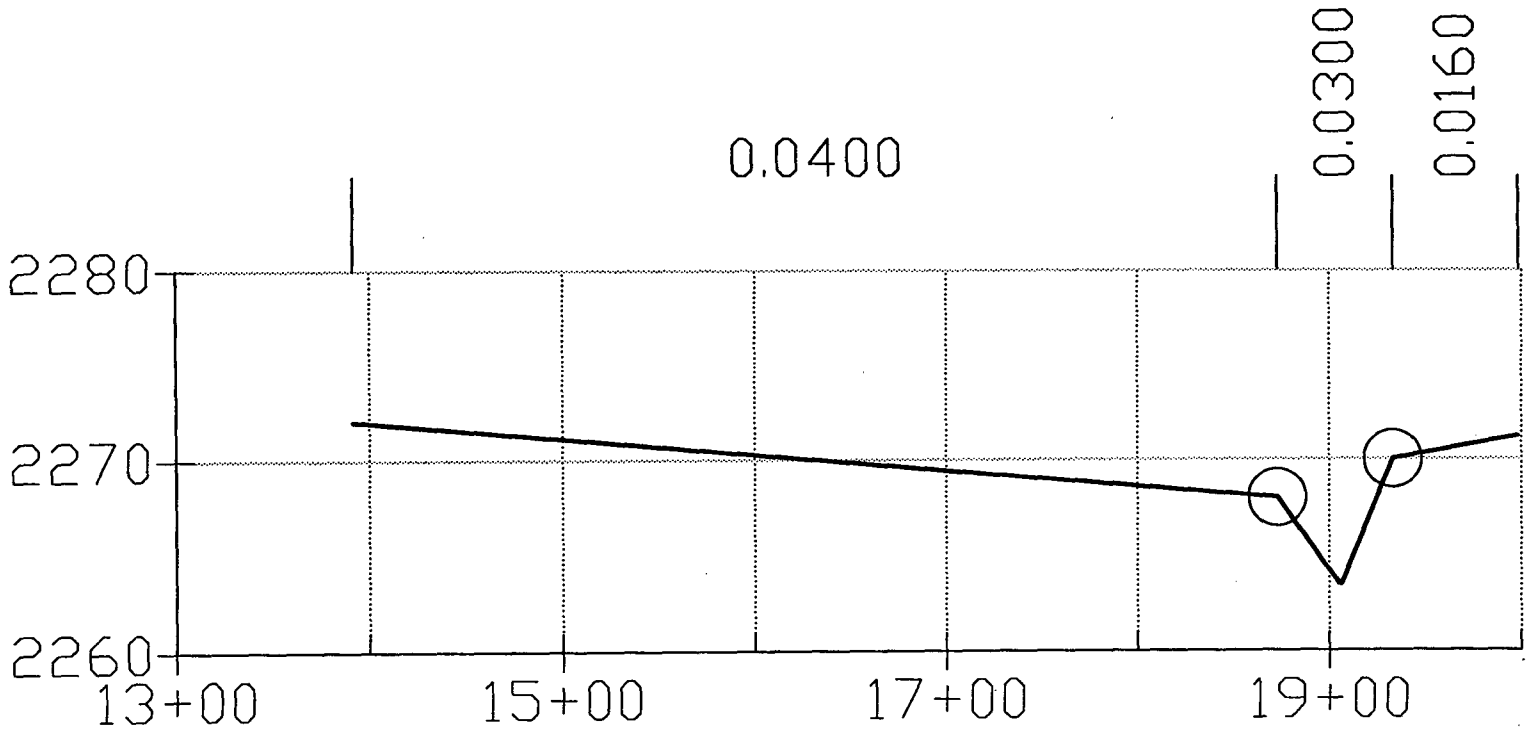

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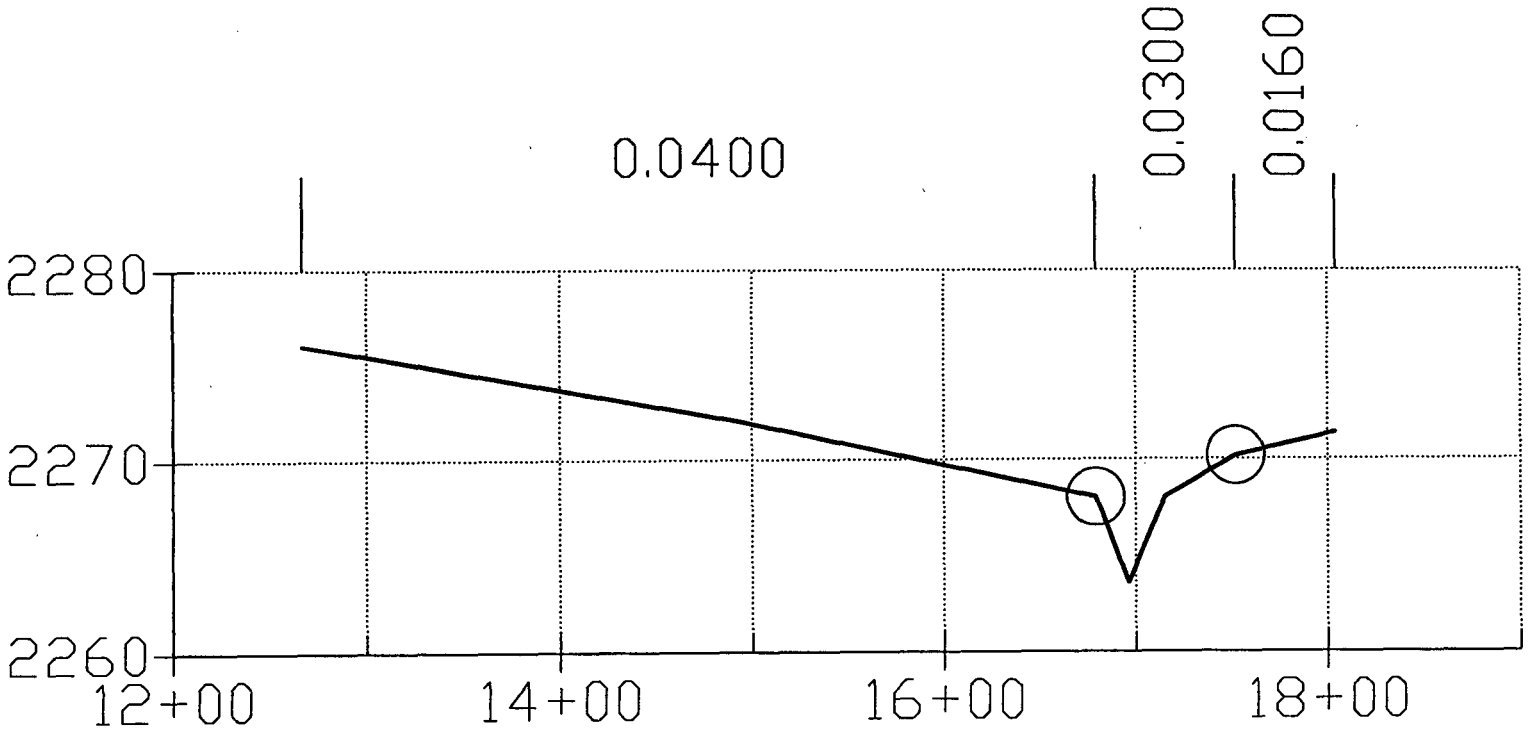

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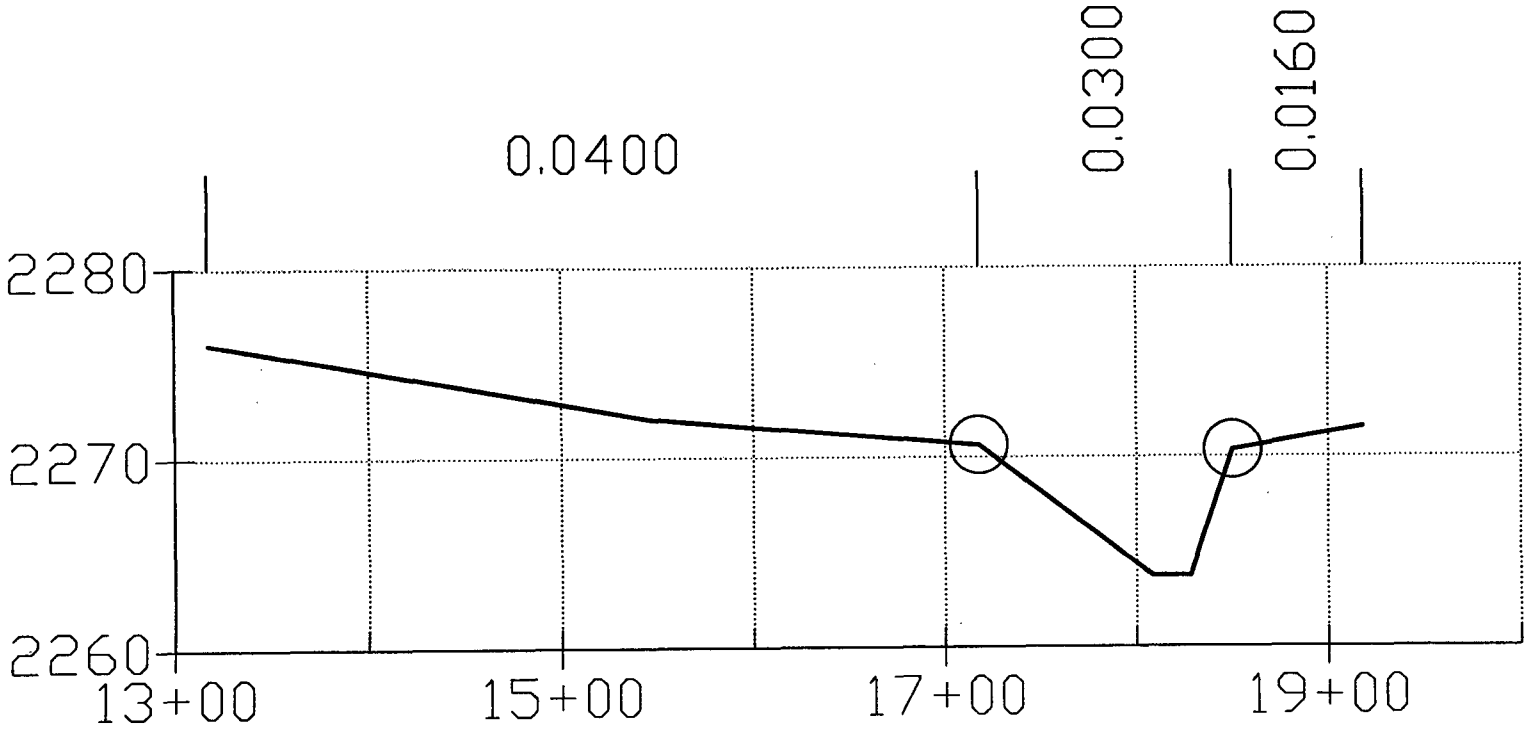

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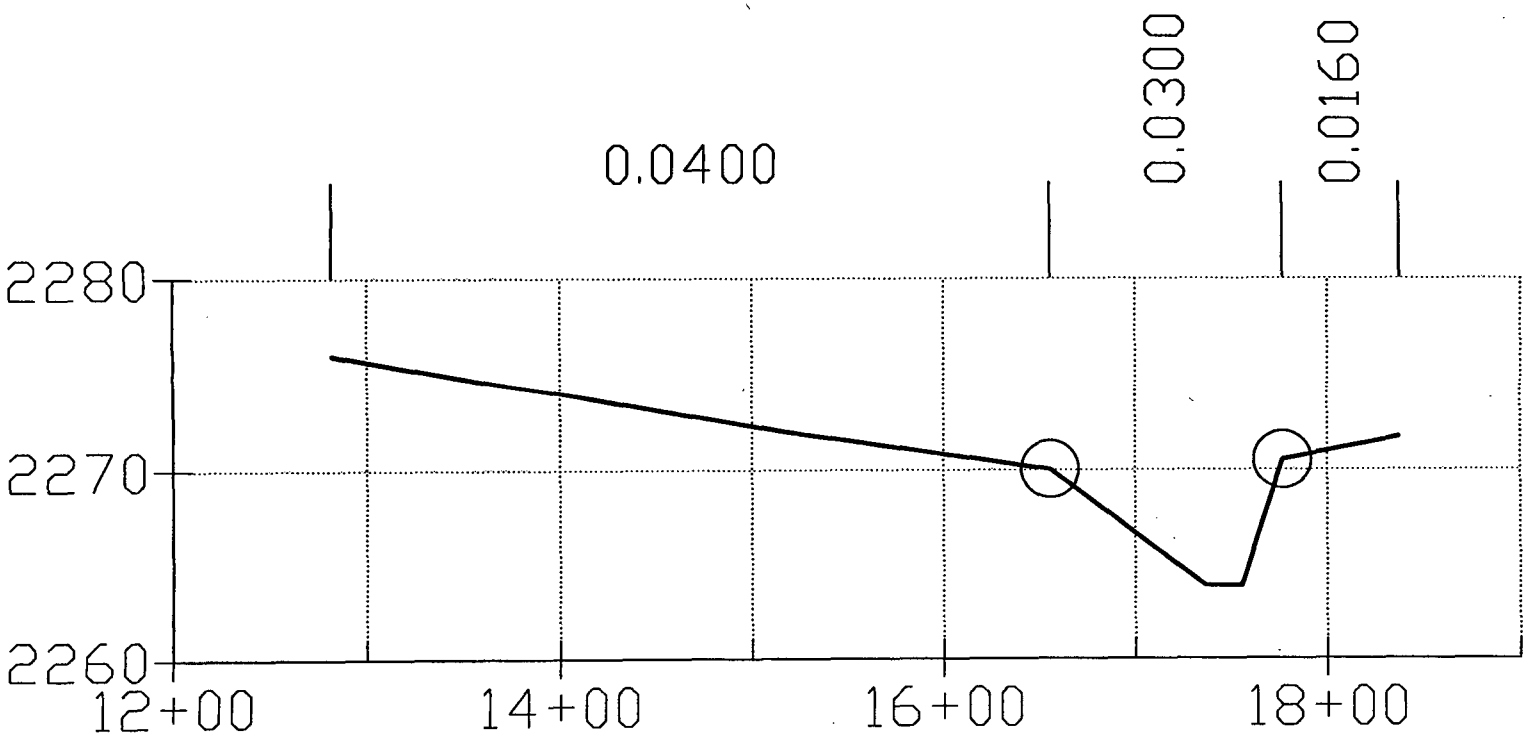

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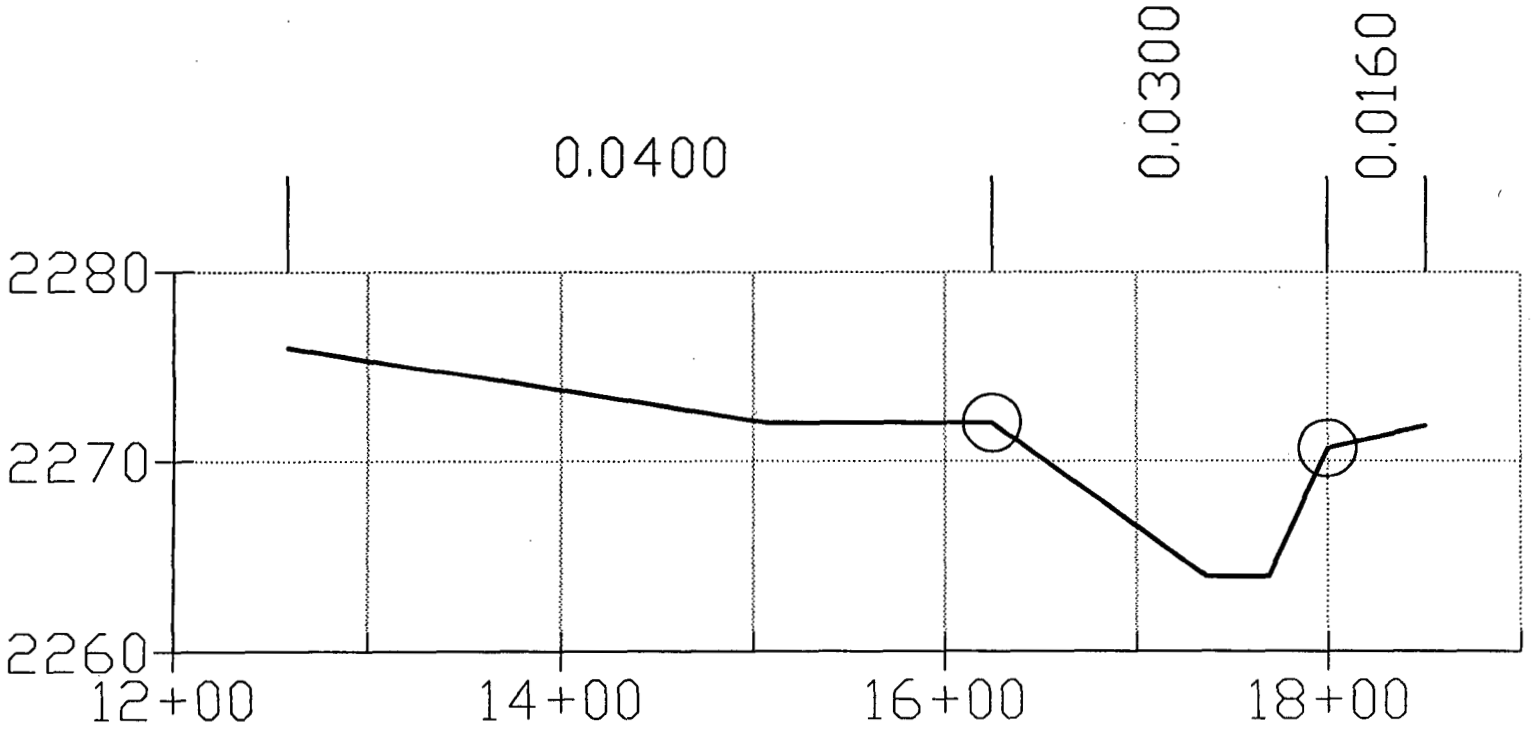

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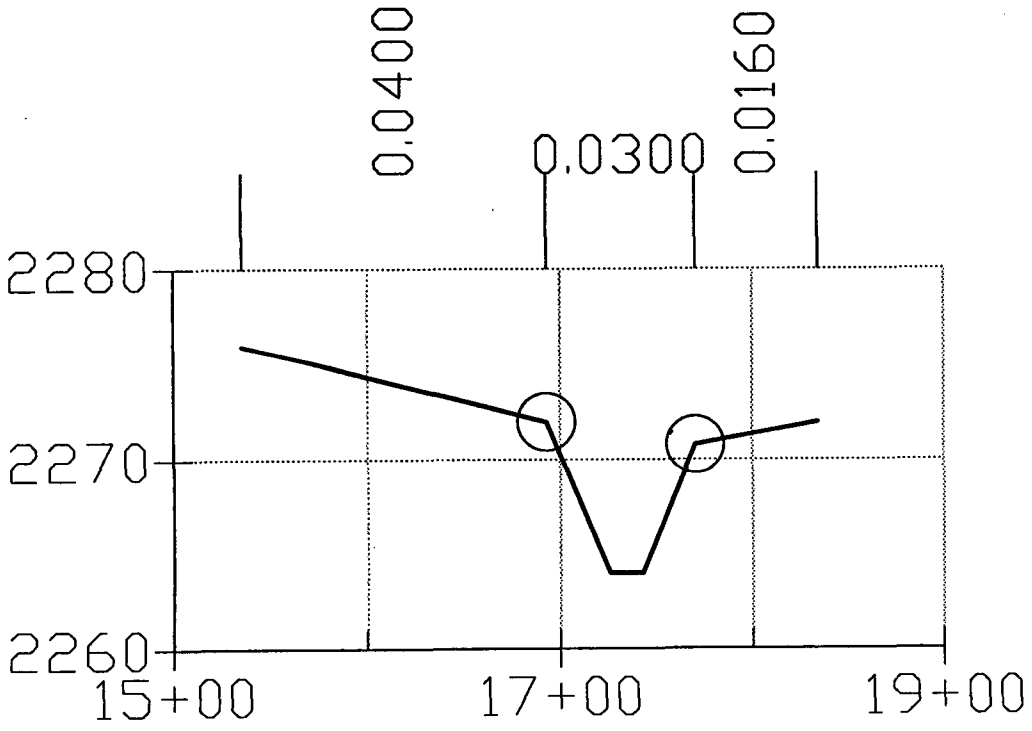

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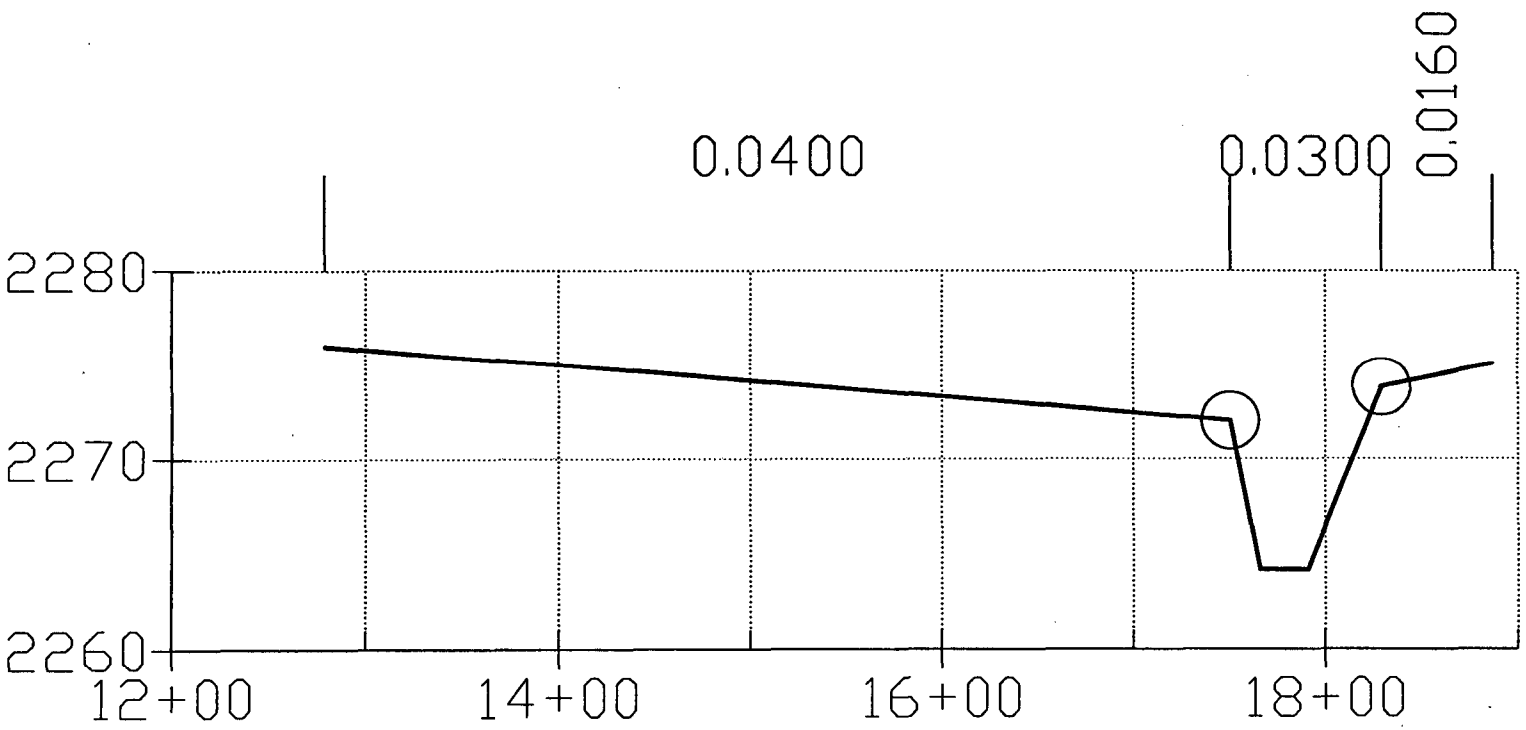

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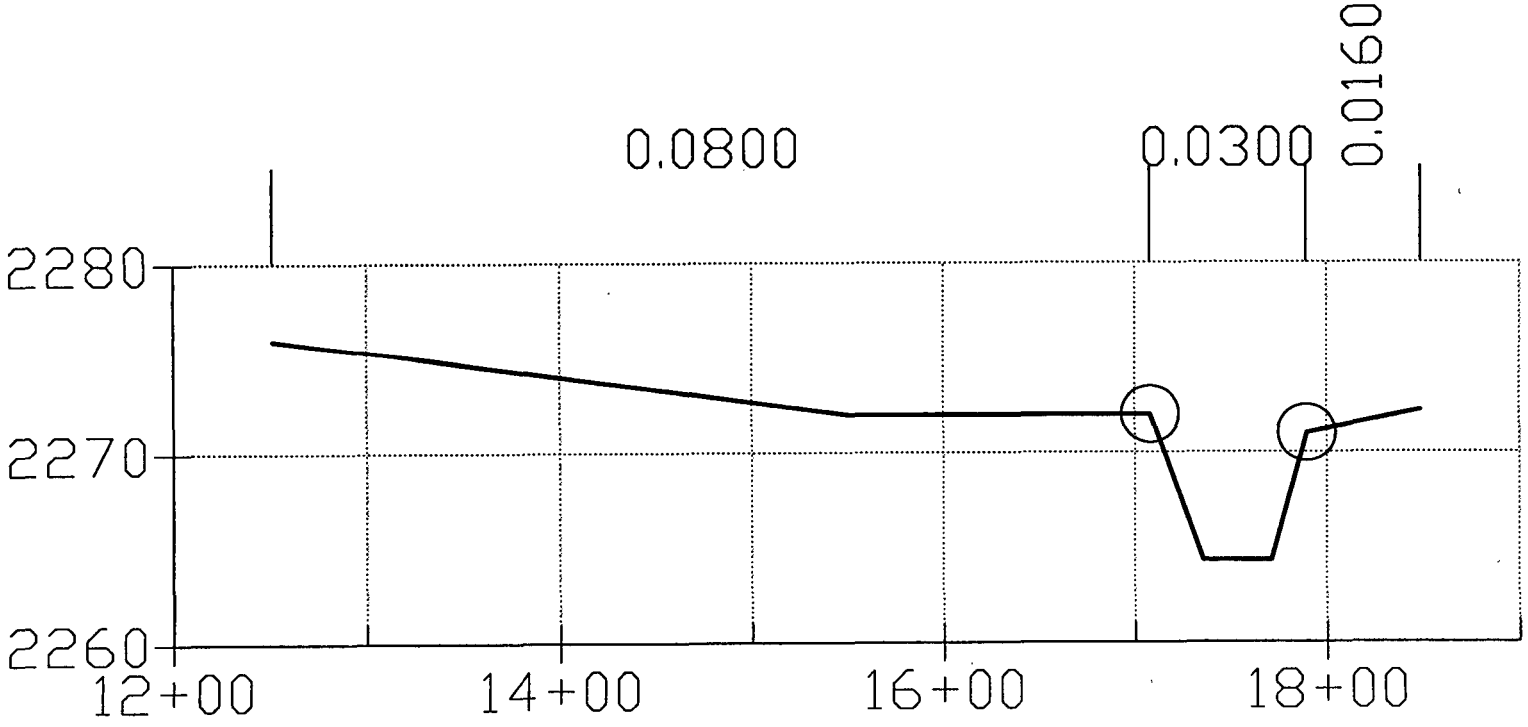

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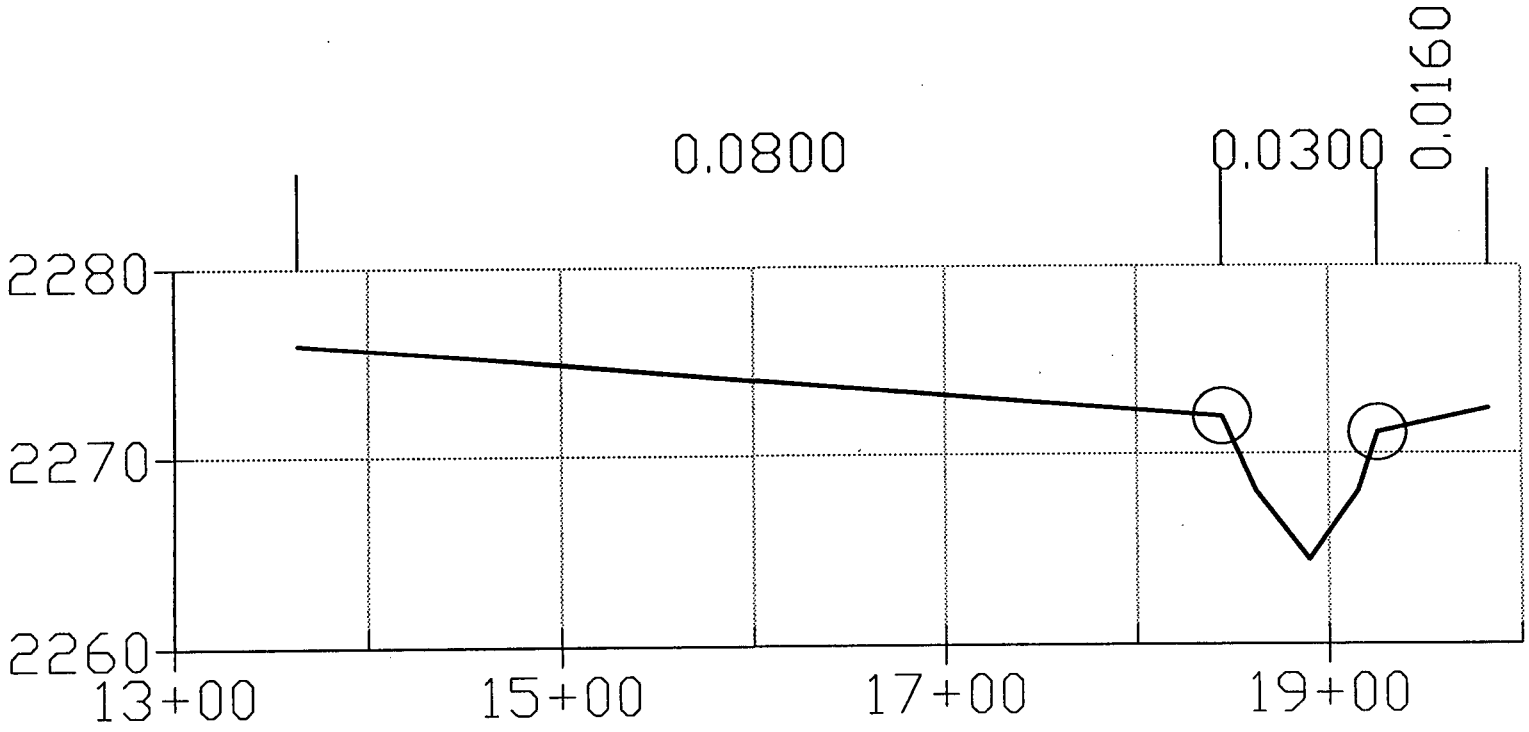

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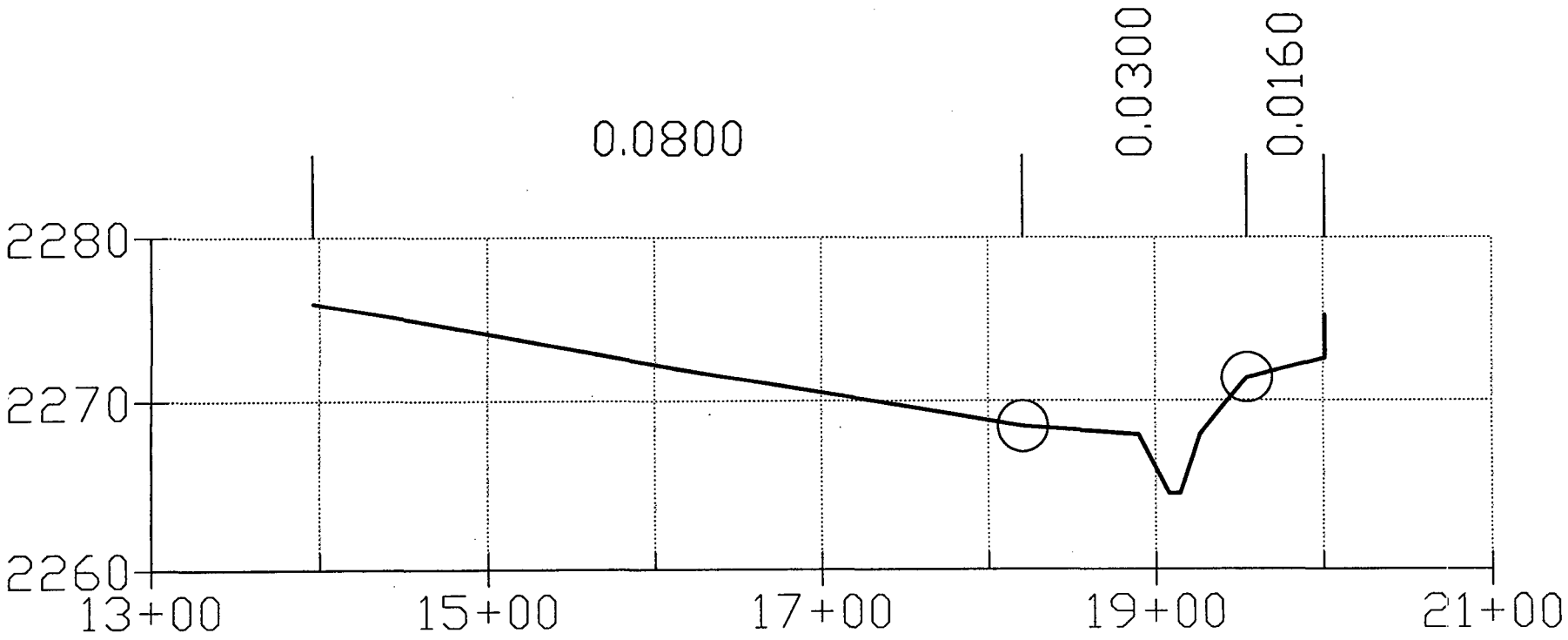

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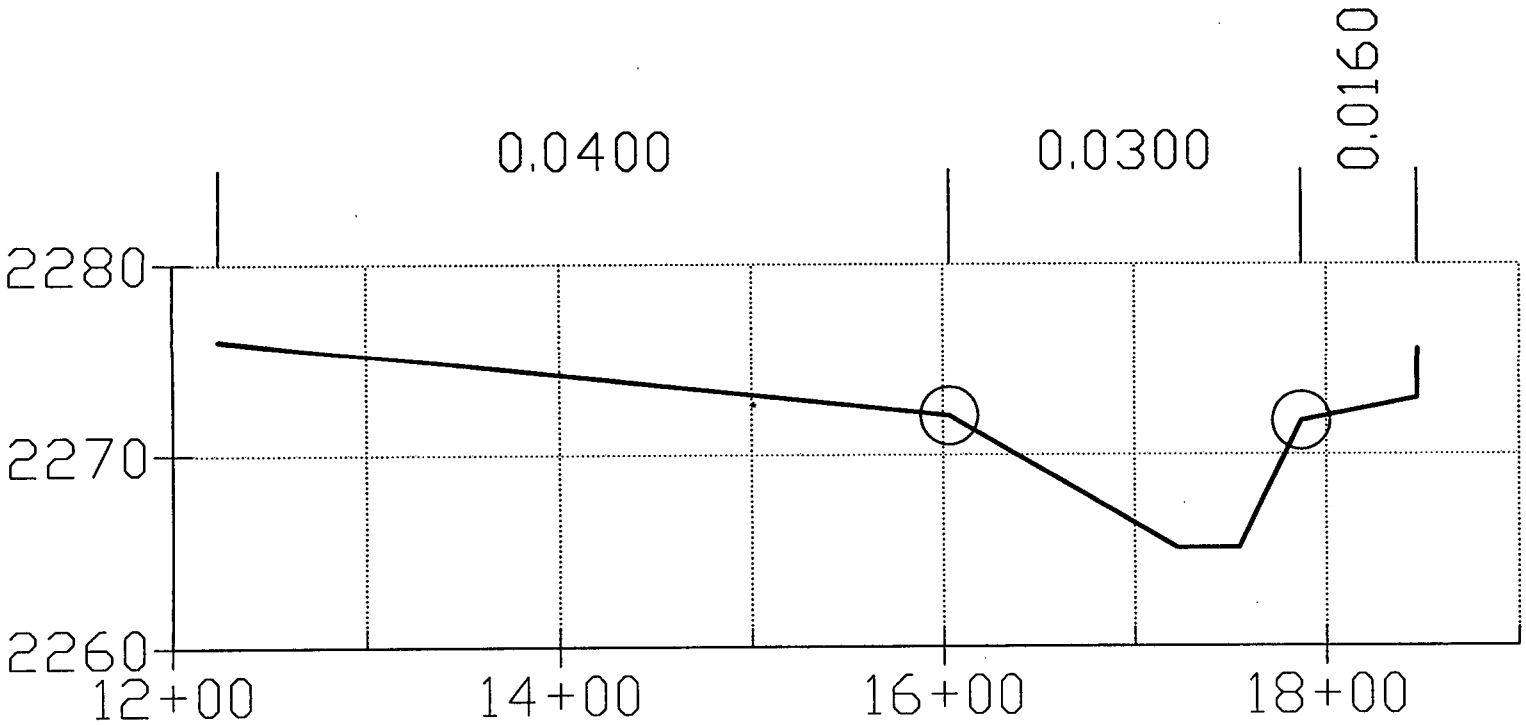

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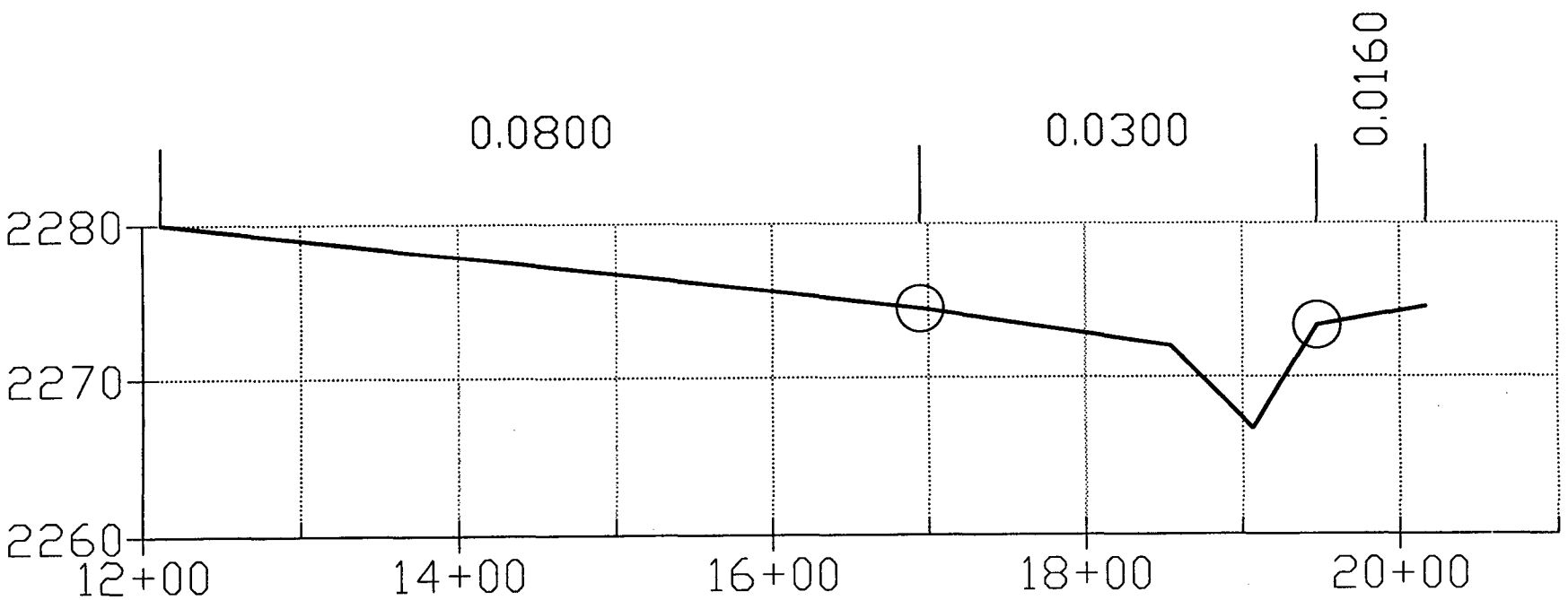

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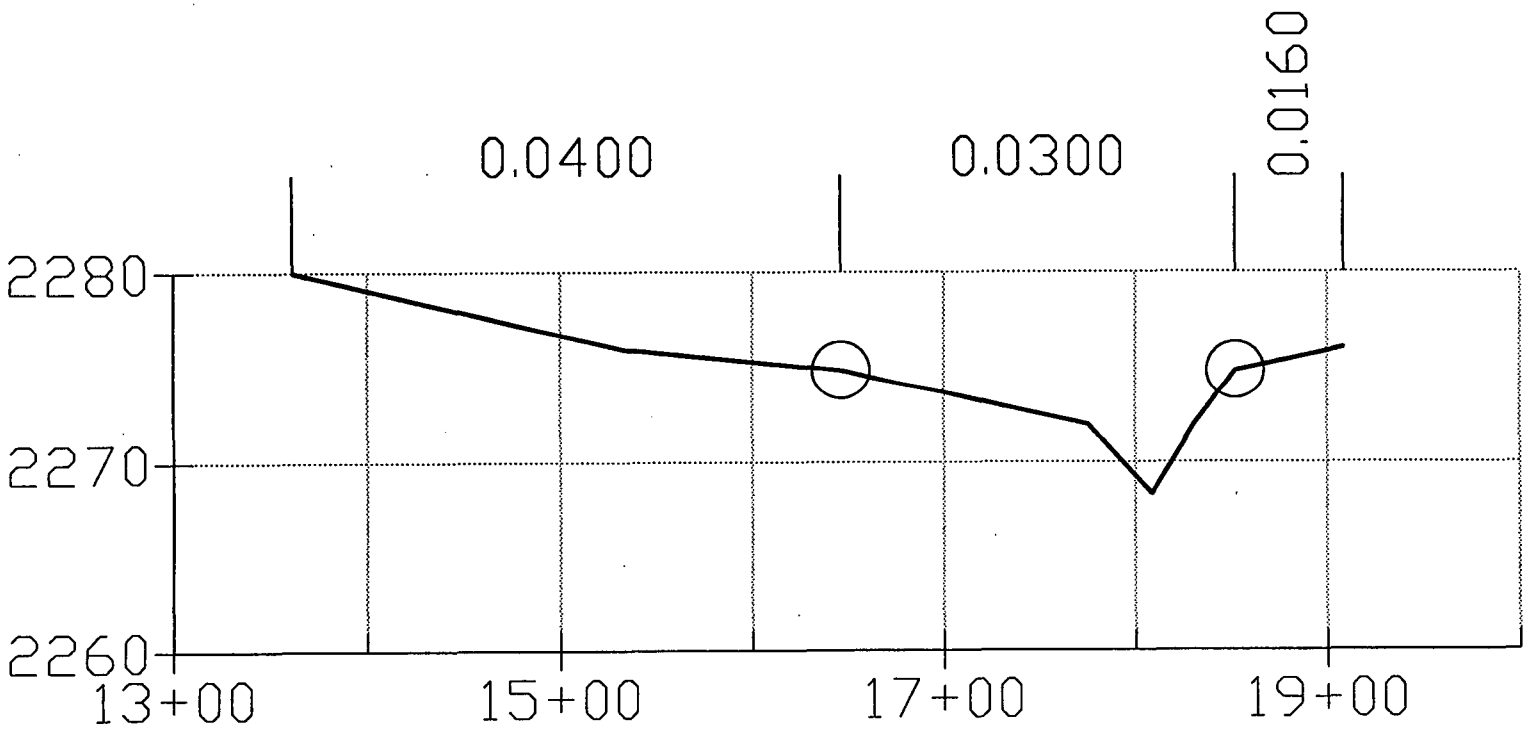

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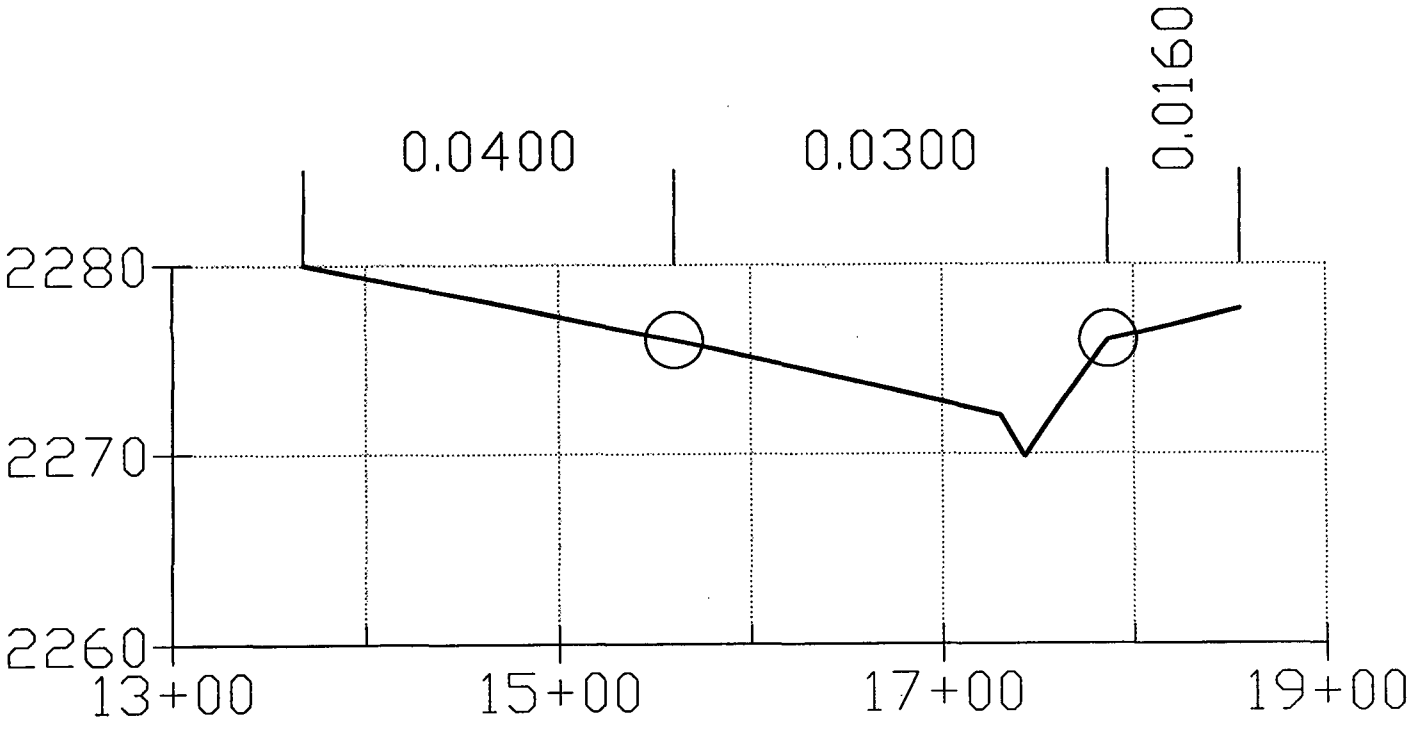

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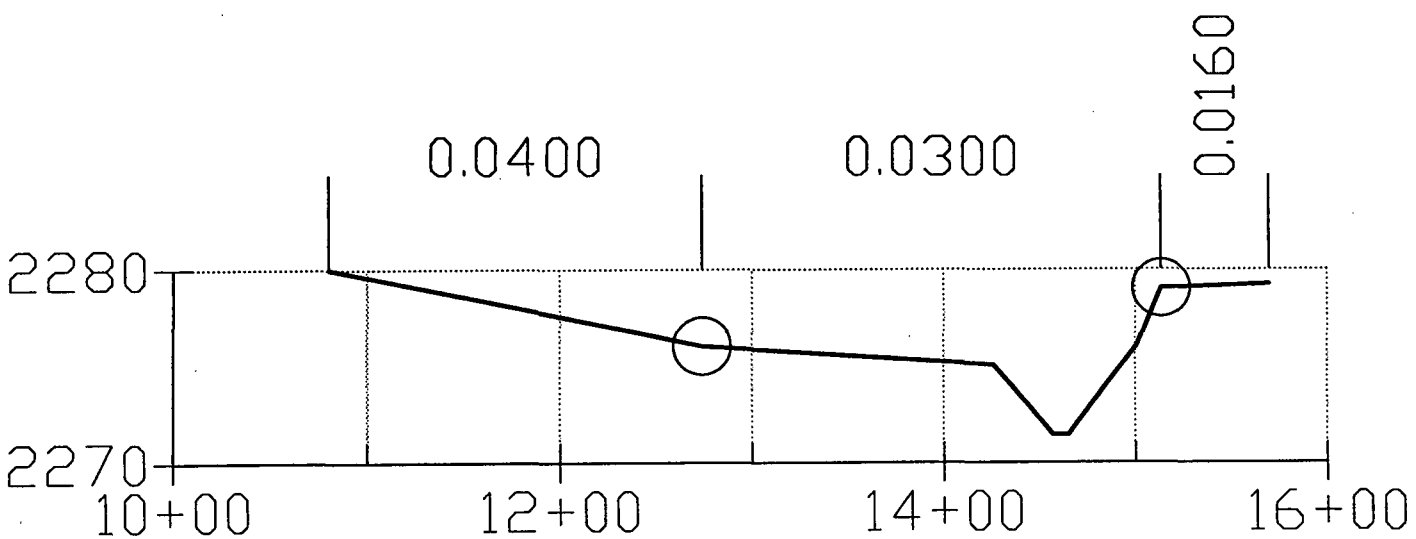

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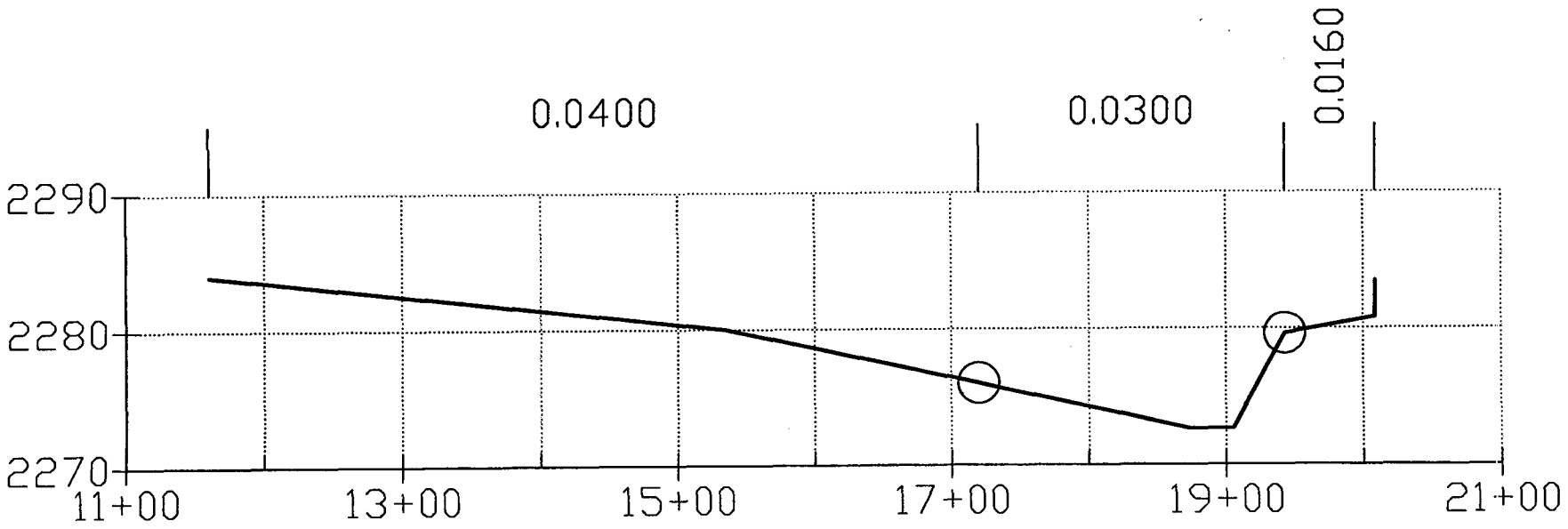

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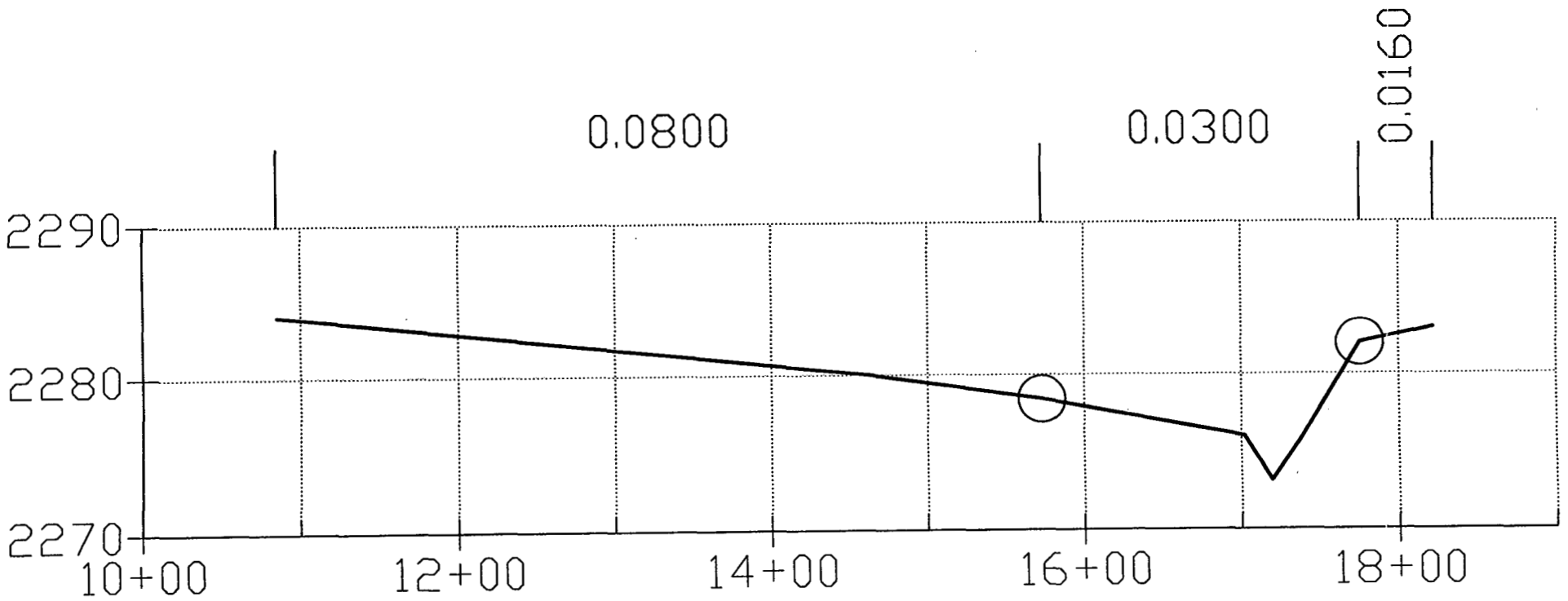

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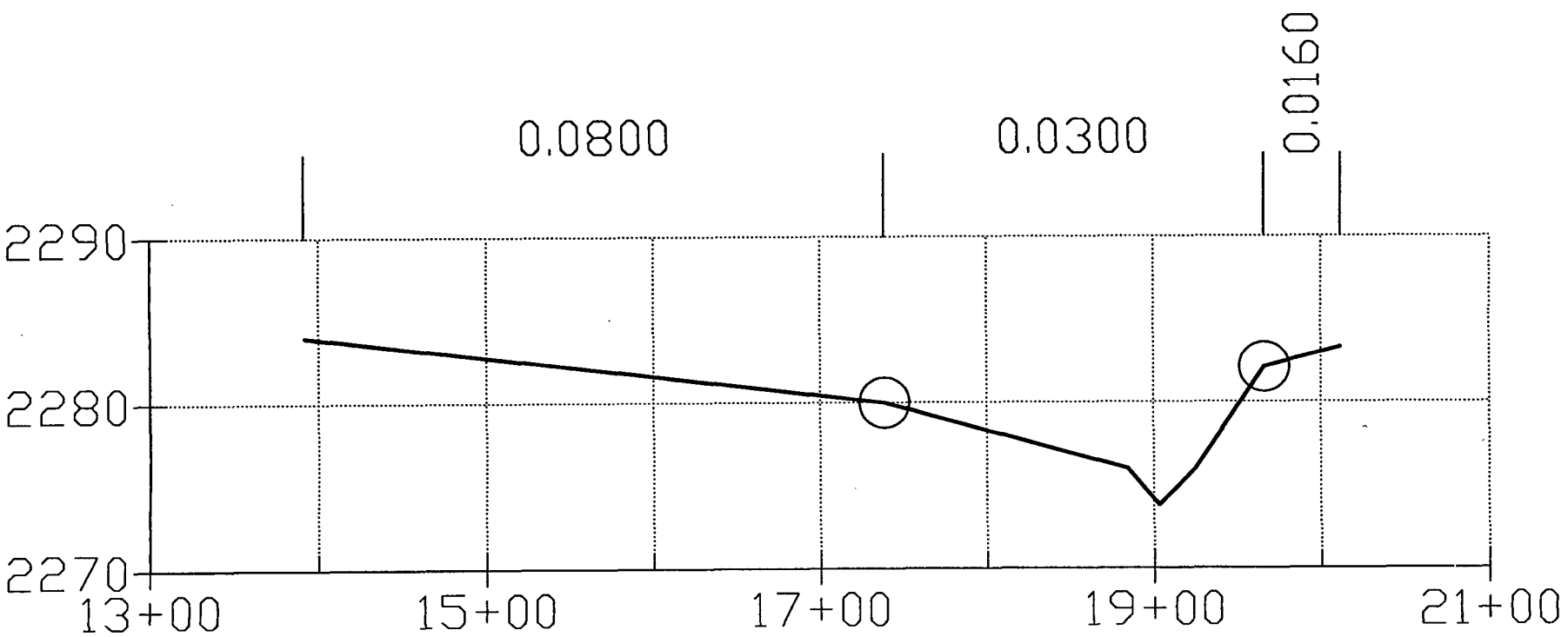

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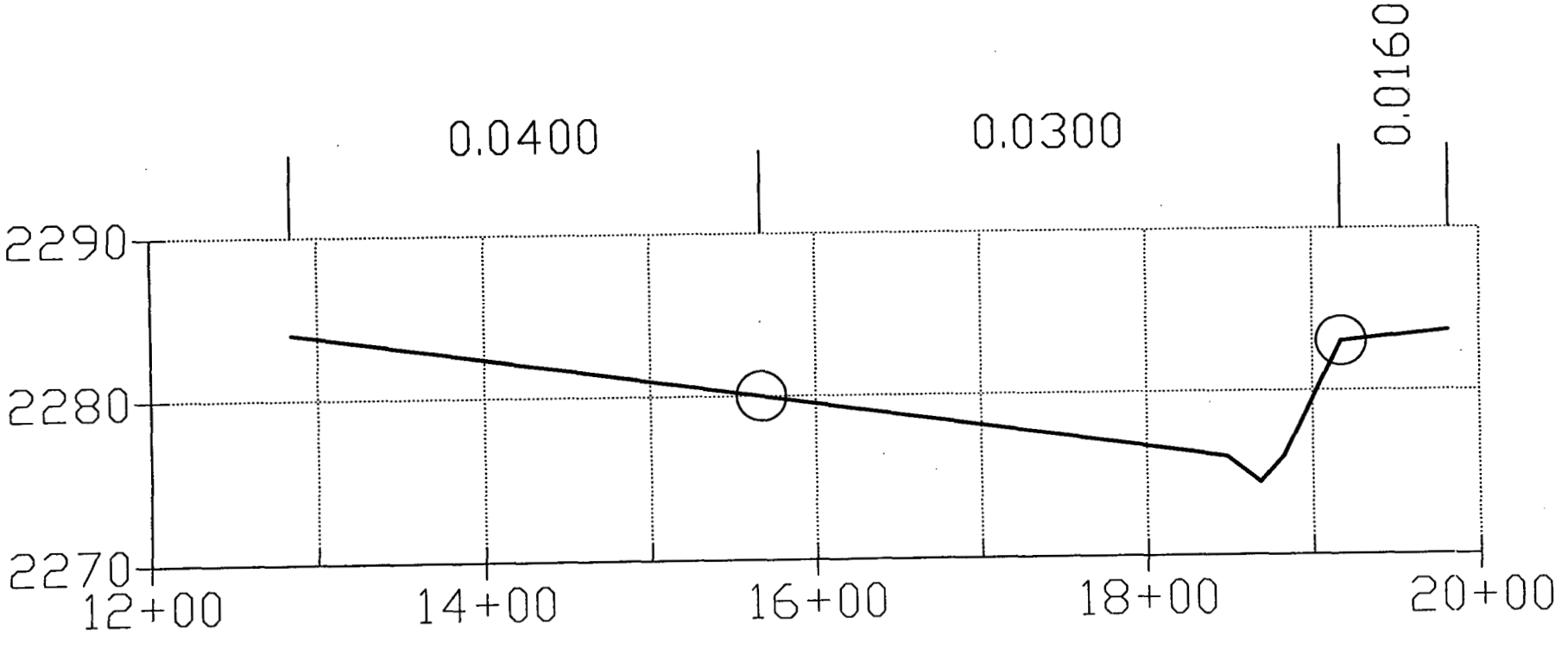
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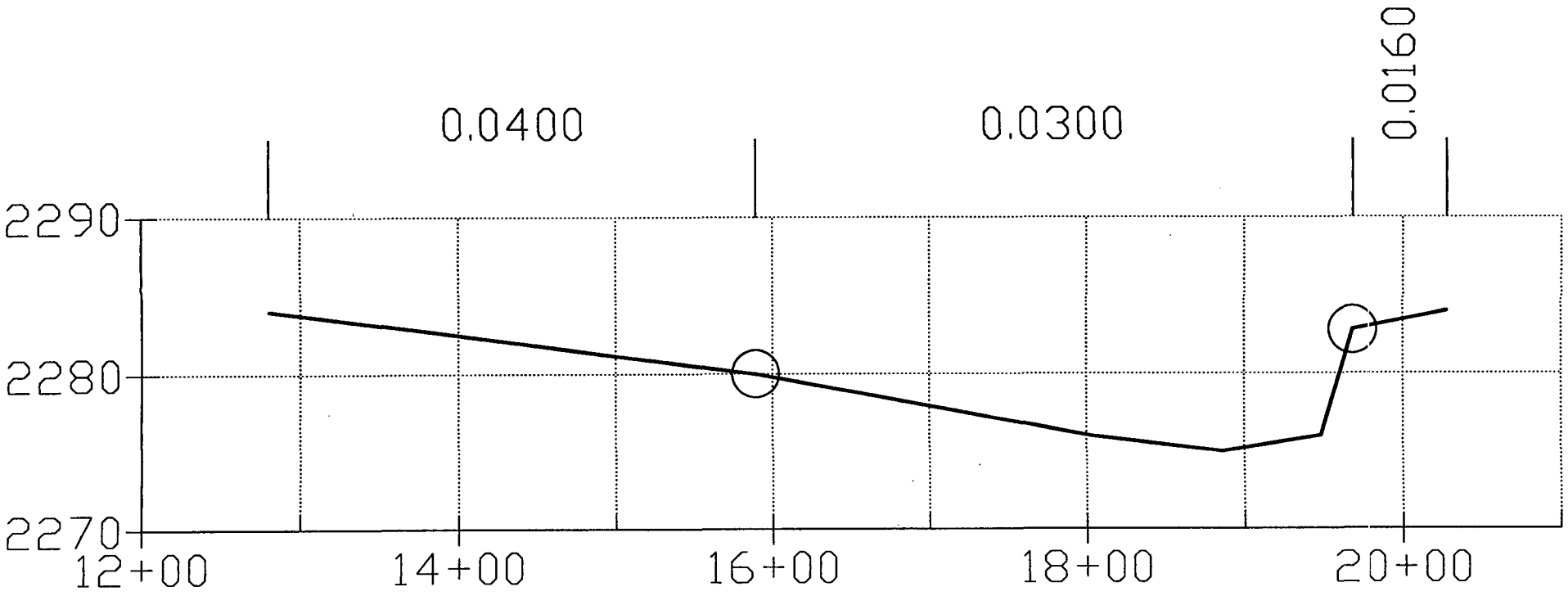

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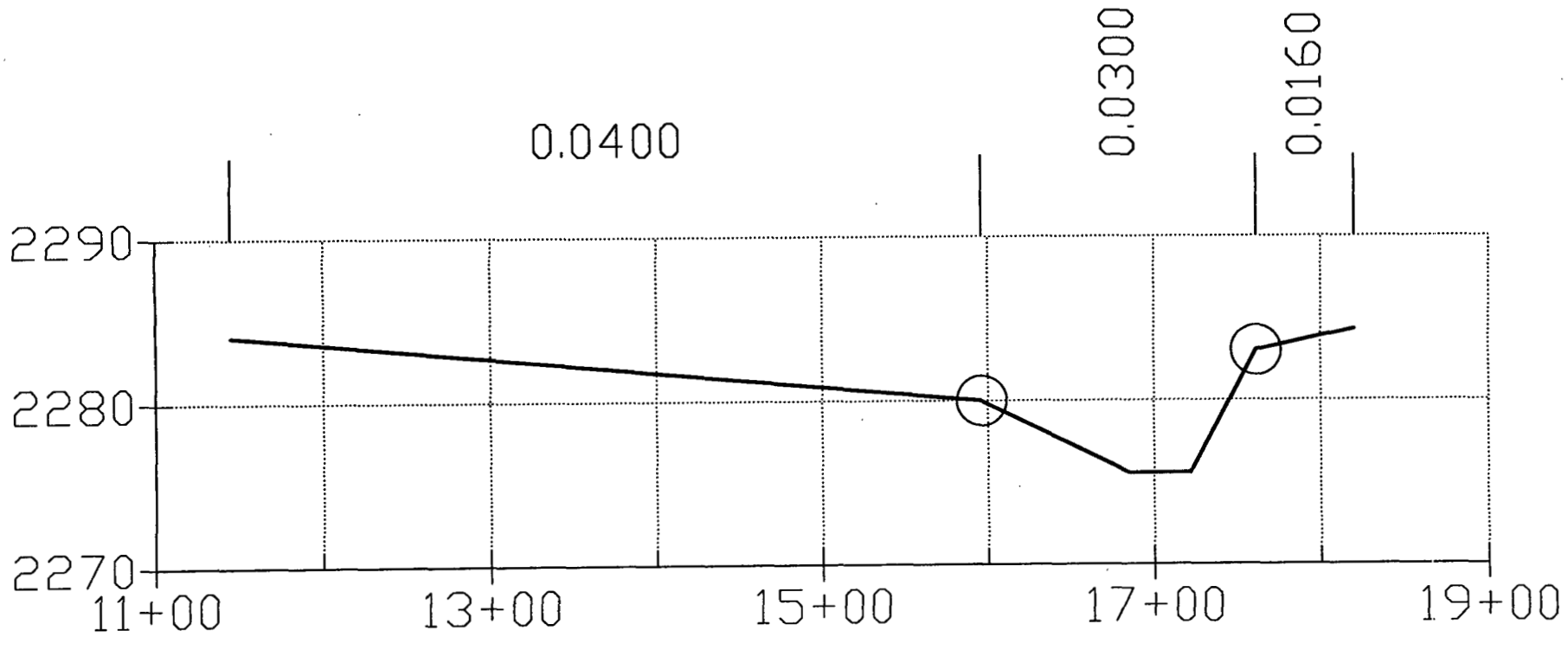

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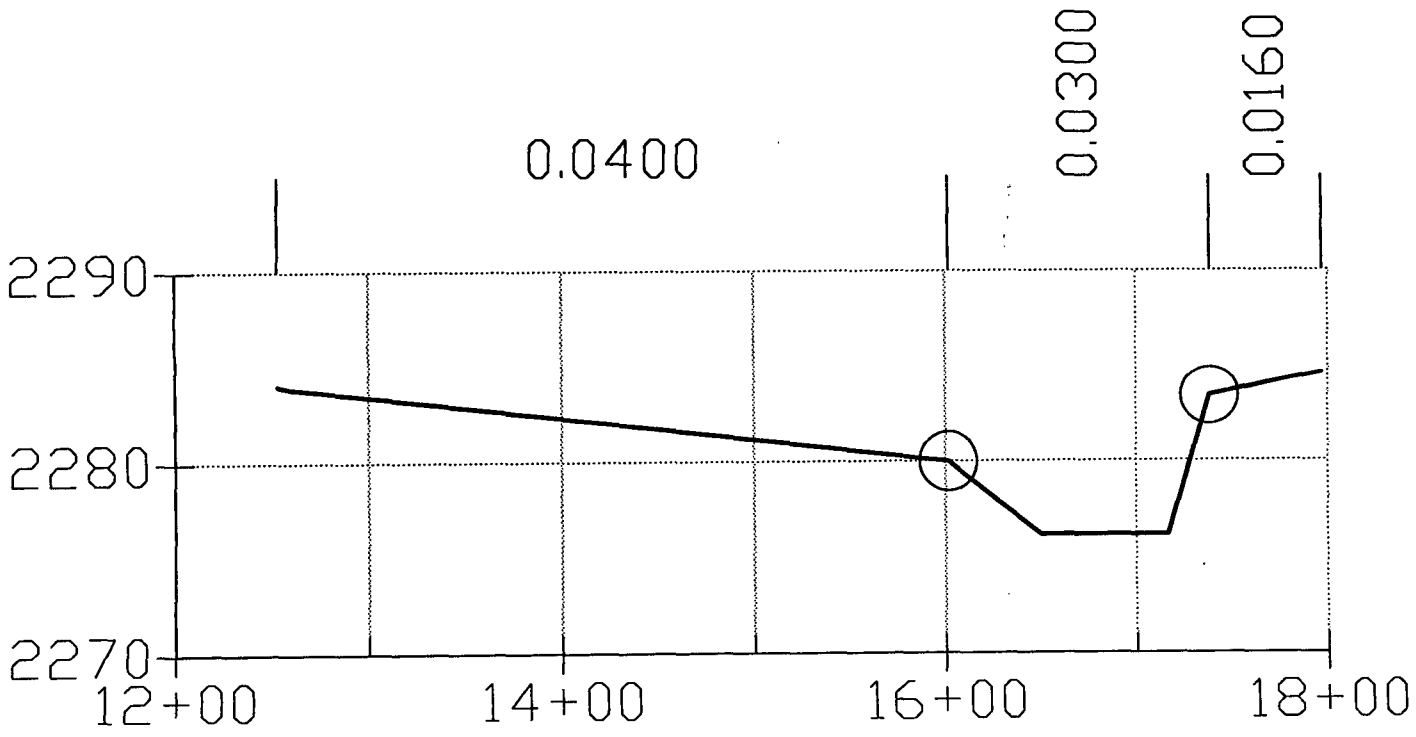

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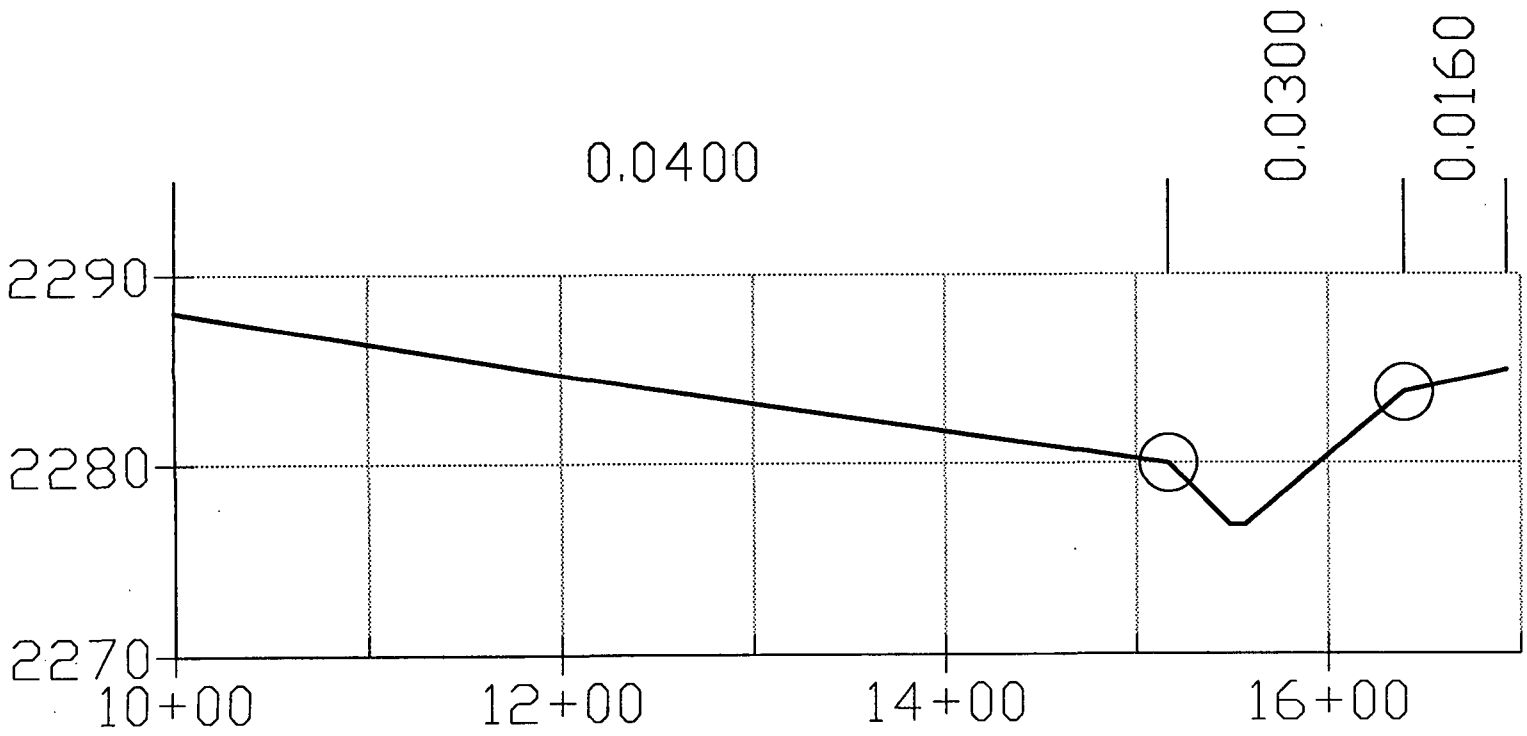

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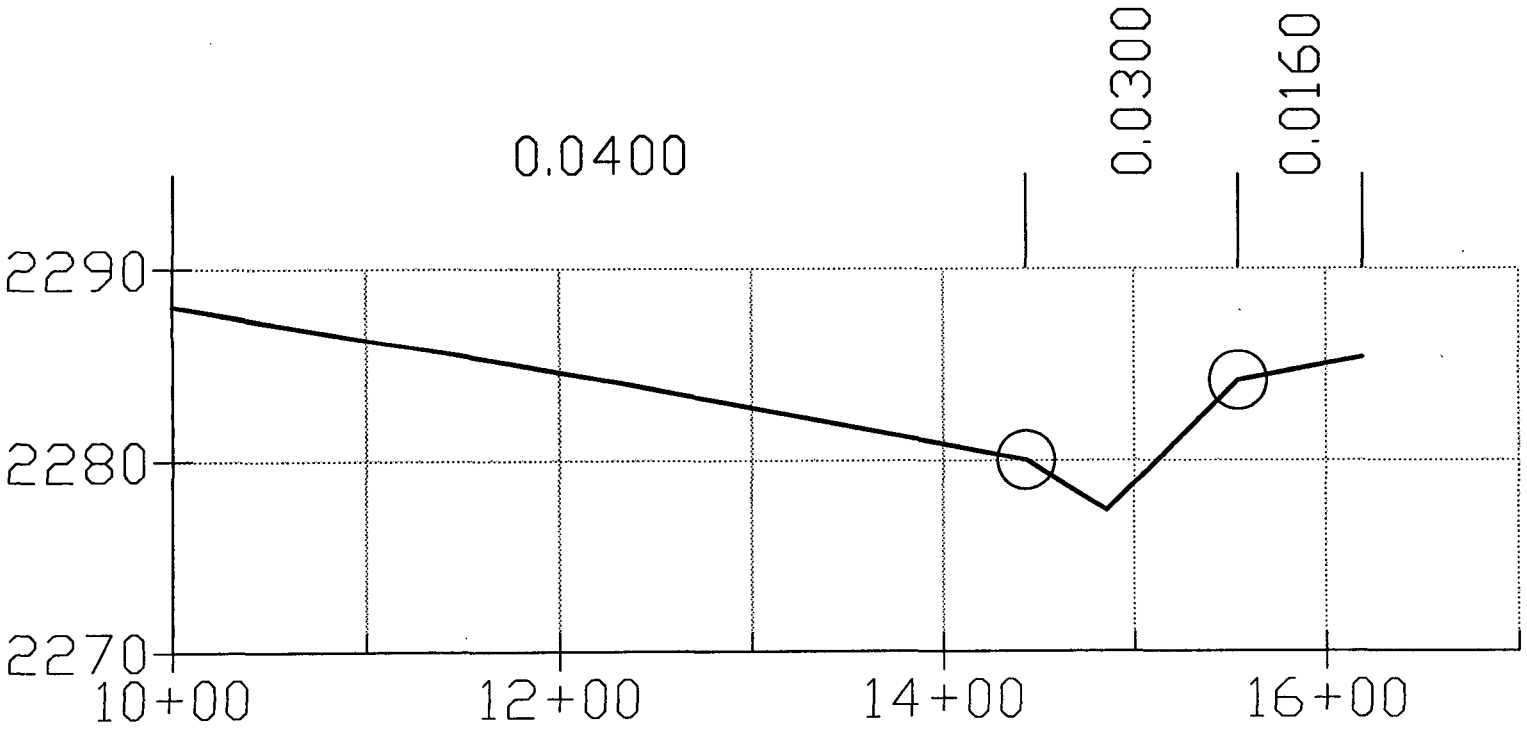

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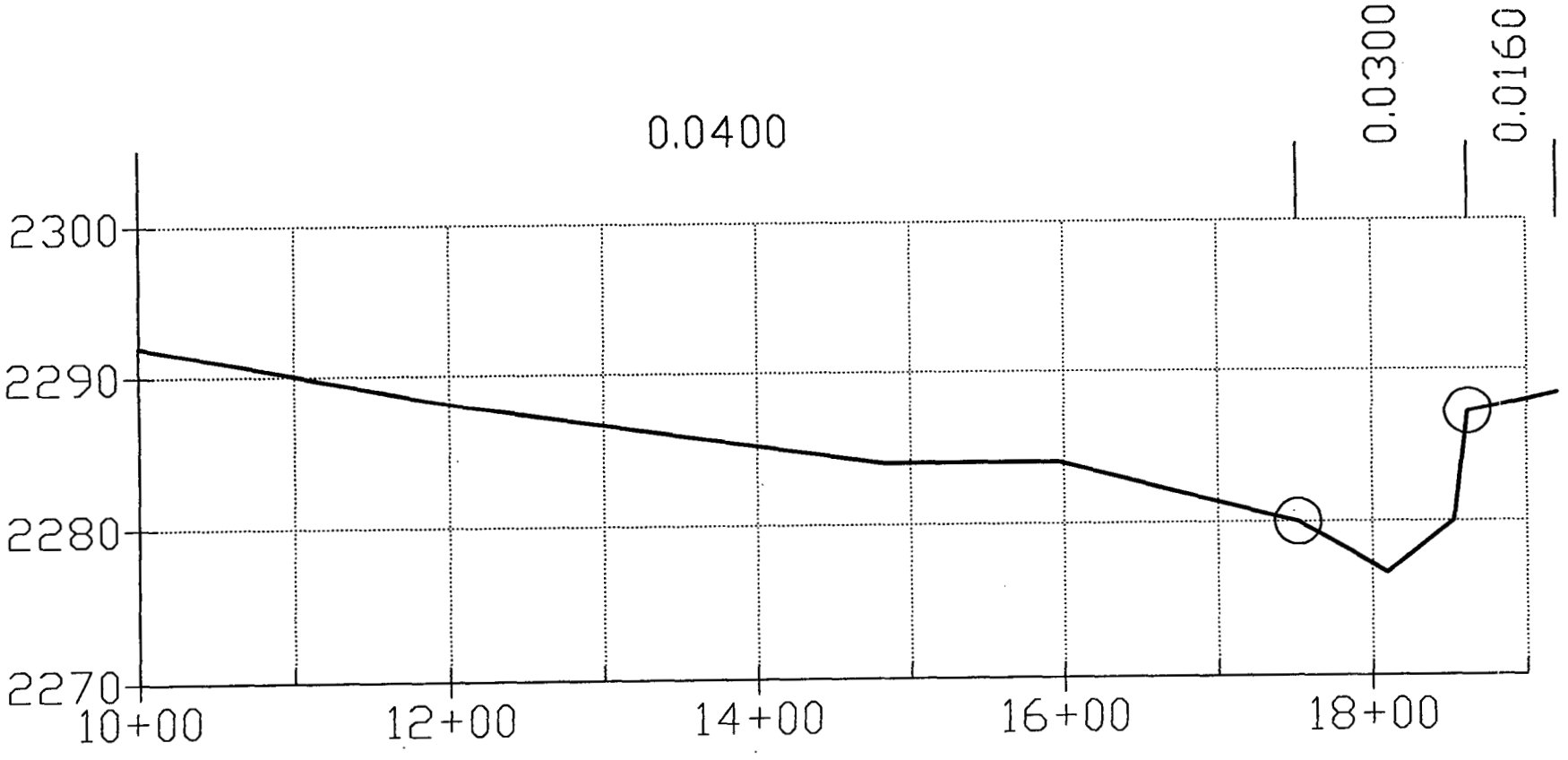

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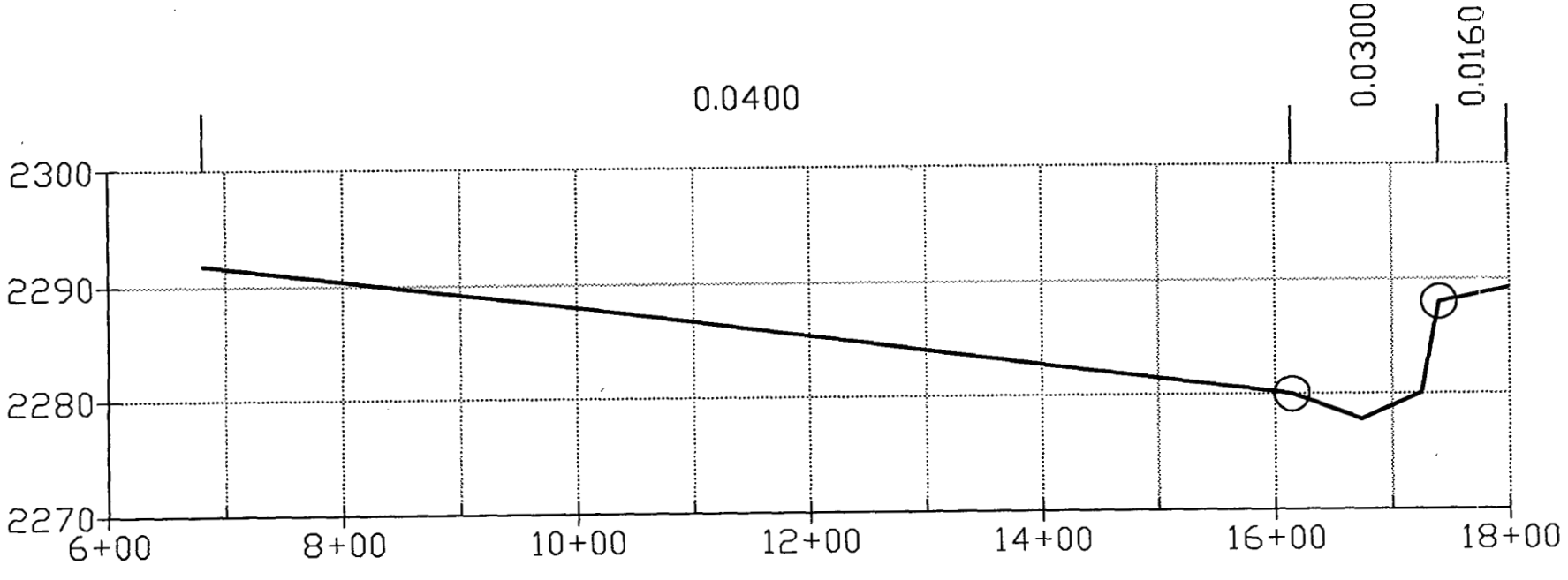

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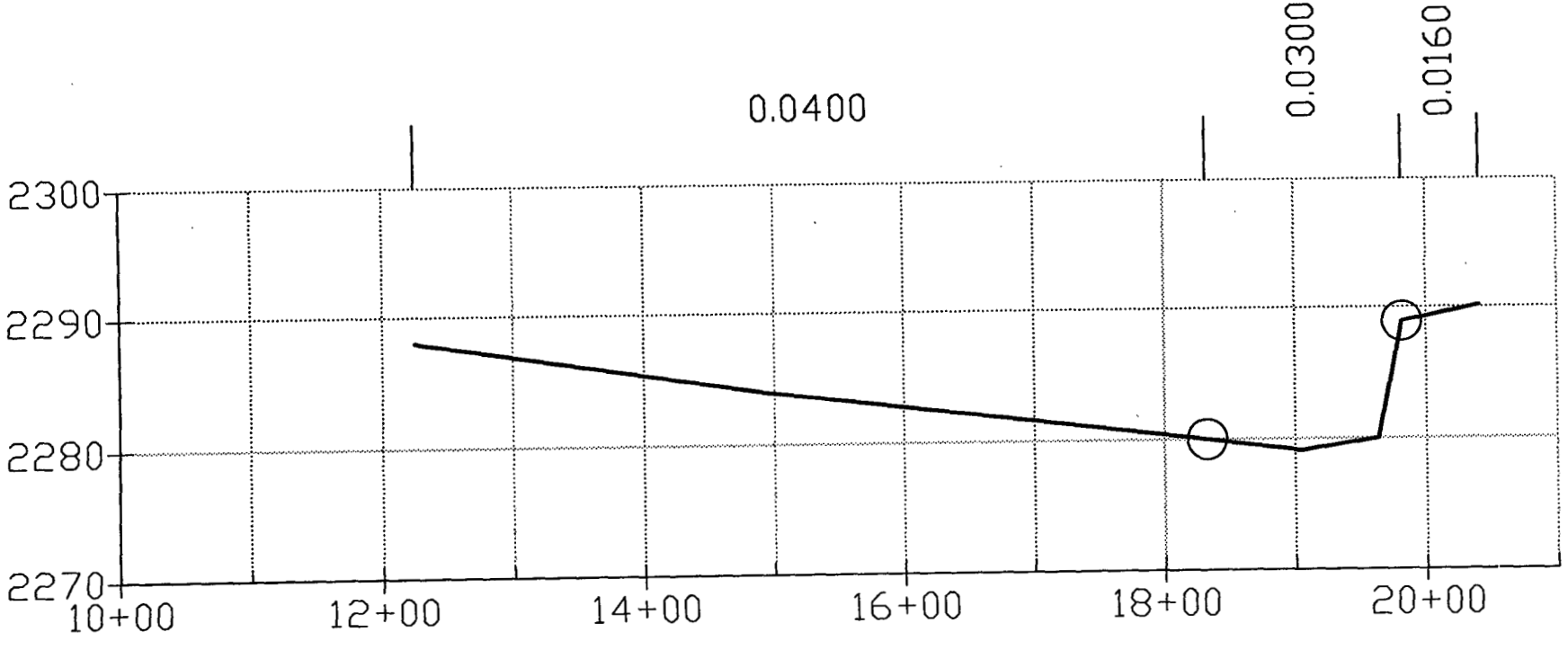

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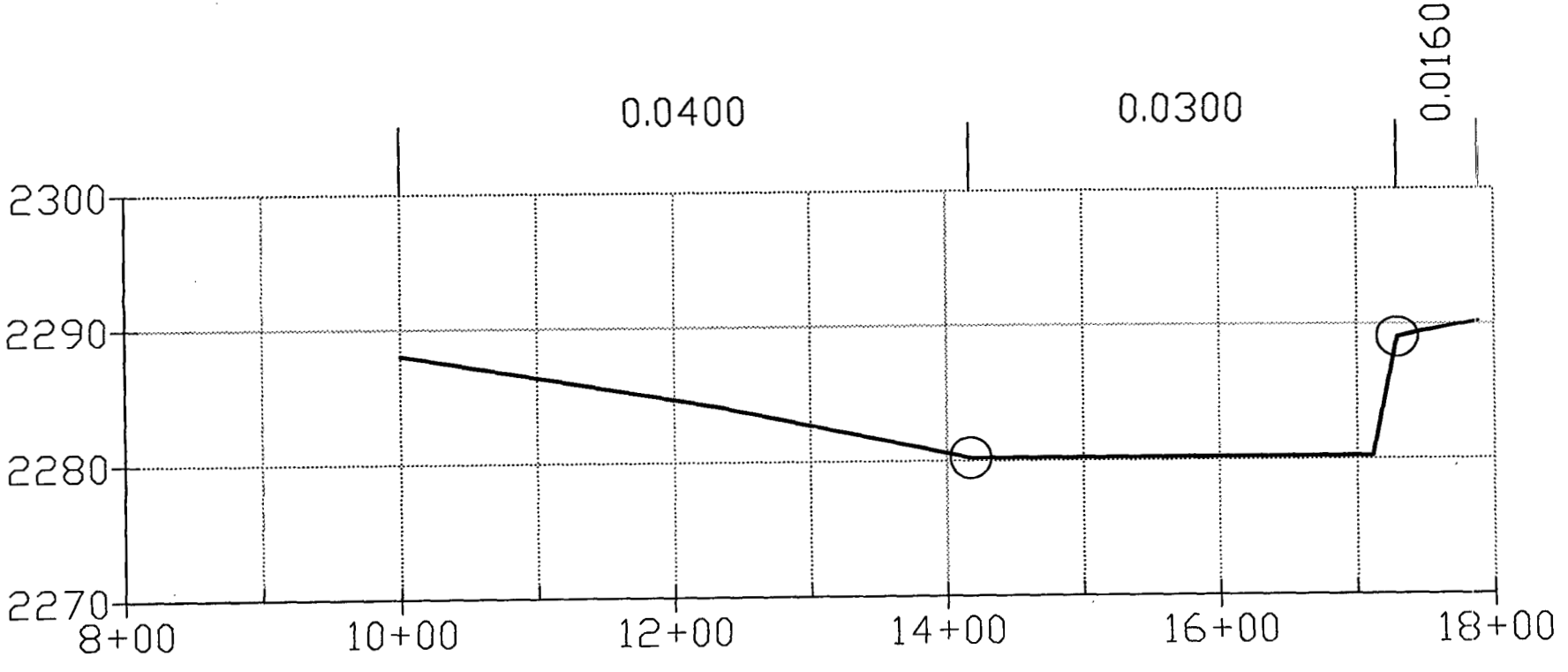
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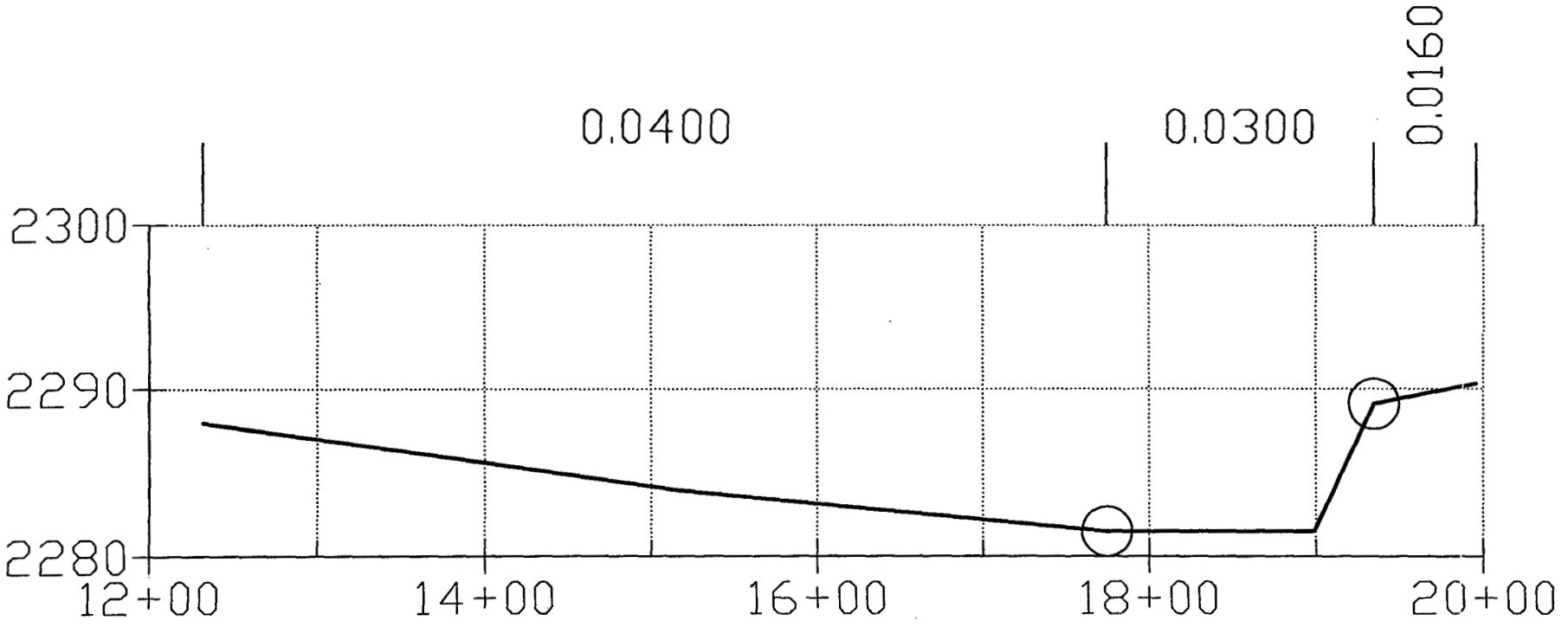
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53200


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2280
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8+00
10+00
12+00
14+00
16+00
18+00

53300




53400

Study Contractor: G. C. WALLACE, INC.

# HYDRAULIC ANALYSES INDEX

Clark County, Nevada

## DUCK CREEK / BLUE DIAMOND WASHES FIS RESTUDY

| Flooding Source / Stream Name | **Hydrologic Method / Model Used | Method / Model Analysis Date | Exhibit No. Paper Copy | Exhibit No. Floppy Diskettes |
|---|---|---|---|---|
| Middle Branch BDW* | BDM1SUBB | March 17, 2002 | NA | CD |
| Middle Branch BDW | BDM2SUBB | March 17, 2002 | NA | CD |
| Middle Branch BDW | BDM3SPRC | March 17, 2002 | NA | CD |
| Middle Branch BDW | BDM3SUBC | March 17, 2002 | NA | CD |
| Middle Branch BDW | BDM4SUBB | March 17, 2002 | NA | CD |
| North Branch BDW | BDN1SPRC | March 17, 2002 | NA | CD |
| North Branch BDW | BDN1SUBC | March 17, 2002 | NA | CD |
| Duck Creek | DCL1SPRC | March 17, 2002 | NA | CD |
| Duck Creek | DCL1SUBA | March 17, 2002 | NA | CD |
| Duck Creek | DCL1SUBC | March 17, 2002 | NA | CD |
| Duck Creek | DCL2SUBB | March 17, 2002 | NA | CD |
| Duck Creek | DCL3SUBB | March 17, 2002 | NA | CD |
| Duck Creek | DCL4SUBB | March 17, 2002 | NA | CD |
| Duck Creek | DCL5SUBB | March 17, 2002 | NA | CD |
| Duck Creek | DCL6SUBB | March 17, 2002 | NA | CD |
| Duck Creek | DCU1SUBA | March 17, 2002 | NA | CD |
| Duck Creek | DCU1SUBC | March 17, 2002 | NA | CD |
| Duck Creek | DCU2SUBB | March 17, 2002 | NA | CD |
| Duck Creek | DCU3SUBA | March 17, 2002 | NA | CD |
| Duck Creek | DCU3SUBC | March 17, 2002 | NA | CD |
| Duck Creek | DCU4SUBC | March 17, 2002 | NA | CD |
| Duck Creek | I151SUBB | March 17, 2002 | NA | CD |
| Duck Creek | I152SUBB | March 17, 2002 | NA | CD |

*BDW = Blue Diamond Wash
**All models used HEC-2

**HEC-2 SUMMARY TABLE**

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 900 | DUCK CREEK | DCL6SUBB | SUB | 11500 | 1620.1 | -- | -- |
| 1000 | DUCK CREEK | DCL6SUBB | SUB | 11500 | 1625.8 | -- | -- |
| 1100 | DUCK CREEK | DCL6SUBB | SUB | 11500 | 1629.4 | -- | -- |
| 1200 | DUCK CREEK | DCL6SUBB | SUB | 11500 | 1633.2 | -- | -- |
| 1300 | DUCK CREEK | DCL6SUBB | SUB | 11500 | 1637.5 | -- | -- |
| 1400 | DUCK CREEK | DCL6SUBB | SUB | 11500 | 1641.4 | -- | -- |
| 1500 | DUCK CREEK | DCL6SUBB | SUB | 11500 | 1641.4 | -- | -- |
| 1600 | DUCK CREEK | DCL6SUBB | SUB | 11500 | 1642.0 | -- | -- |
| 1700 | NO SECTION | | | | | | |
| 1800 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1642.4 | -- | -- |
| 1900 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1645.1 | -- | -- |
| 2000 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1646.3 | -- | -- |
| 2100 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1648.3 | -- | -- |
| 2200 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1648.7 | -- | -- |
| 2300 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1648.2 | -- | -- |
| 2400 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1649.6 | -- | -- |
| 2500 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1651.9 | -- | -- |
| 2600 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1651.7 | -- | -- |
| 2700 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1652.9 | -- | -- |
| 2800 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1653.4 | -- | -- |
| 2900 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1653.3 | -- | -- |
| 3000 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1653.6 | -- | -- |
| 3100 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1654.5 | -- | -- |
| 3200 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1655.0 | -- | -- |
| 3300 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1655.4 | -- | -- |
| 3400 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1663.1 | -- | -- |
| 3500 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1664.9 | -- | -- |
| 3600 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1667.7 | -- | -- |
| 3700 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1671.3 | -- | -- |
| 3800 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1672.4 | -- | -- |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 3900 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1675.4 | -- | -- |
| 4000 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1676.4 | -- | -- |
| 4100 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1680.1 | -- | -- |
| 4200 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1687.7 | -- | -- |
| 4300 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1693.1 | -- | -- |
| 4400 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1697.8 | -- | -- |
| 4500 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1704.7 | -- | -- |
| 4600 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1717.4 | -- | -- |
| 4700 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1723.2 | -- | -- |
| 4800 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1730.1 | -- | -- |
| 4900 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1737.9 | -- | -- |
| 5000 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1746.4 | -- | -- |
| 5100 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1759.0 | -- | -- |
| 5200 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1762.3 | -- | -- |
| 5300 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1764.5 | -- | -- |
| 5400 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1778.3 | -- | -- |
| 5500 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1781.3 | -- | -- |
| 5600 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1782.4 | -- | -- |
| 5700 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1784.0 | -- | -- |
| 5800 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1786.6 | -- | -- |
| 5900 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1789.9 | -- | -- |
| 6000 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1791.0 | -- | -- |
| 6100 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1792.9 | -- | -- |
| 6200 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1805.0 | -- | -- |
| 6300 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1809.0 | -- | -- |
| 6400 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1809.7 | -- | -- |
| 6500 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1810.0 | -- | -- |
| 6600 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1810.7 | -- | -- |
| 6700 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1811.9 | -- | -- |
| 6800 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1813.6 | -- | -- |
| 6900 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1818.6 | -- | -- |
| 7000 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1823.2 | -- | -- |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 7100 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1828.6 | -- | -- |
| 7200 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1834.7 | -- | -- |
| 7300 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1843.4 | -- | -- |
| 7400 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1855.2 | -- | -- |
| 7500 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1860.9 | -- | -- |
| 7600 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1864.9 | -- | -- |
| 7700 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1871.6 | -- | -- |
| 7800 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1877.0 | -- | -- |
| 7900 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1880.9 | -- | -- |
| 8000 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1883.4 | 8562 | 1883.4 |
| 8100 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1883.5 | 8562 | 1884.1 |
| 8200 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1882.6 | 8562 | 1883.5 |
| 8300 | DUCK CREEK | DCL1SUBC | SUB | 8325 | 1884.3 | 8562 | 1884.4 |
| 8400 | DUCK CREEK | DCL1SUBC | SUB | 8057 | 1889.1 | 8562 | 1889.2 |
| 8500 | DUCK CREEK | DCL1SUBC | SUB | 8057 | 1891.5 | 8562 | 1891.8 |
| 8600 | DUCK CREEK | DCL1SUBC | SUB | 8057 | 1907.0 | 8562 | 1907.3 |
| 8700 | DUCK CREEK | DCL1SUBC | SUB | 8057 | 1907.3 | 8562 | 1907.6 |
| 8800 | DUCK CREEK | DCL1SUBC | SUB | 8057 | 1911.5 | 8562 | 1911.8 |
| 8900 | DUCK CREEK | DCL1SUBC | SUB | 8057 | 1919.3 | 8562 | 1919.5 |
| 9000 | DUCK CREEK | DCL1SUBC | SUB | 8057 | 1922.4 | 8562 | 1923.1 |
| 9100 | DUCK CREEK | DCL1SUBC | SUB | 8057 | 1923.9 | 8562 | 1924.3 |
| 9200 | DUCK CREEK | DCL1SUBC | SUB | 8057 | 1925.2 | 8562 | 1925.6 |
| 9300 | DUCK CREEK | DCL1SUBC | SUB | 8057 | 1925.8 | 8562 | 1926.4 |
| 9400 | DUCK CREEK | DCL1SUBC | SUB | 7603 | 1928.0 | 8562 | 1928.4 |
| 9500 | DUCK CREEK | DCL1SUBC | SUB | 7603 | 1928.8 | 8562 | 1929.3 |
| 9600 | DUCK CREEK | DCL1SUBC | SUB | 7603 | 1929.2 | 8562 | 1929.7 |
| 9700 | DUCK CREEK | DCL1SUBC | SUB | 7603 | 1932.1 | 8562 | 1932.7 |
| 9800 | DUCK CREEK | DCL1SUBC | SUB | 7603 | 1932.1 | 8562 | 1932.8 |
| 9900 | DUCK CREEK | DCL1SUBC | SUB | 7603 | 1932.3 | 8562 | 1933.1 |
| 10000 | DUCK CREEK | DCL1SUBC | SUB | 7603 | 1933.1 | 8562 | 1933.8 |
| 10100 | DUCK CREEK | DCL1SUBC | SUB | 7621 | 1937.4 | 8562 | 1938.1 |
| 10200 | DUCK CREEK | DCL1SUBC | SUB | 8386 | 1937.4 | 8562 | 1938.3 |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 10300 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1938.0 | 8562 | 1938.8 |
| 10400 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1937.6 | 8562 | 1938.6 |
| 10500 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 1946.6 | 8562 | 1945.7 |
| 10600 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1949.3 | 8562 | 1949.3 |
| 10700 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1954.7 | 8562 | 1954.7 |
| 10800 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1958.6 | 8562 | 1958.6 |
| 10900 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1963.2 | 8562 | 1963.2 |
| 11000 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1968.2 | 8562 | 1968.2 |
| 11100 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 1971.3 | 8562 | 1971.3 |
| 11200 | DUCK CREEK | DCL1SPRC | SUPER | 7820 | 1970.8 | 7820 | 1970.9 |
| 11300 | DUCK CREEK | DCL1SPRC | SUPER | 7700 | 1971.8 | 7700 | 1972.1 |
| 11400 | DUCK CREEK | DCL1SPRC | SUPER | 7700 | 1971.0 | 7700 | 1971.4 |
| 11500 | DUCK CREEK | DCL1SPRC | SUPER | 7700 | 1971.3 | 7700 | 1971.6 |
| 11600 | DUCK CREEK | DCL1SPRC | SUPER | 6562 | 1975.0 | 6562 | 1976.0 |
| 11700 | DUCK CREEK | DCL1SPRC | SUPER | 6562 | 1975.5 | 6562 | 1975.6 |
| 11800 | DUCK CREEK | DCL1SPRC | SUPER | 6562 | 1977.1 | 6562 | 1977.3 |
| 11900 | DUCK CREEK | DCL1SPRC | SUPER | 6562 | 1978.8 | 6562 | 1979.3 |
| 12000 | DUCK CREEK | DCL1SPRC | SUPER | 6562 | 1978.9 | 6562 | 1979.4 |
| 12100 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 1979.9 | 5562 | 1980.2 |
| 12200 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 1984.0 | 5562 | 1984.7 |
| 12300 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 1986.9 | 5562 | 1987.9 |
| 12400 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 1987.1 | 5562 | 1987.1 |
| 12500 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 1987.5 | 5562 | 1987.5 |
| 12600 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 1990.5 | 5562 | 1990.5 |
| 12700 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 1993.0 | 5562 | 1993.0 |
| 12800 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 1995.8 | 5562 | 1995.8 |
| 12900 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 1997.4 | 5562 | 1997.4 |
| 13000 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 1997.8 | 5562 | 1997.8 |
| 13100 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2003.8 | 5562 | 2003.8 |
| 13200 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2006.5 | 5562 | 2006.5 |
| 13300 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2006.5 | 5562 | 2006.5 |
| 13400 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2006.7 | 5562 | 2006.7 |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 13500 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2006.9 | 5562 | 2006.9 |
| 13600 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2010.5 | 5562 | 2010.5 |
| 13700 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2011.8 | 5562 | 2011.9 |
| 13800 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2013.4 | 5562 | 2013.5 |
| 13900 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2014.7 | 5562 | 2014.7 |
| 14000 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2015.4 | 5562 | 2015.5 |
| 14100 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2017.6 | 5562 | 2017.7 |
| 14200 | DUCK CREEK | DCL1SPRC | SUPER | 5562 | 2018.2 | 5562 | 2018.3 |
| 14300 | DUCK CREEK | DCL1SUBC | SUB | 5562 | 2024.8 | 5562 | 2024.8 |
| 14400 | DUCK CREEK | DCL1SUBC | SUB | 5562 | 2027.1 | 5562 | 2027.1 |
| 14500 | DUCK CREEK | DCL1SUBC | SUB | 5562 | 2026.8 | 5562 | 2026.8 |
| 14600 | DUCK CREEK | DCL1SUBC | SUB | 5562 | 2028.3 | 5562 | 2028.3 |
| 14700 | DUCK CREEK | DCL1SUBC | SUB | 5562 | 2029.1 | 5562 | 2029.1 |
| 14800 | DUCK CREEK | DCL1SUBC | SUB | 6394 | 2030.2 | 6394 | 2030.1 |
| 14900 | DUCK CREEK | DCL1SUBC | SUB | 7883 | 2031.5 | 7883 | 2031.5 |
| 15000 | DUCK CREEK | DCL1SUBC | SUB | 8382 | 2033.6 | 8382 | 2033.9 |
| 15100 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2034.0 | 8562 | 2034.3 |
| 15200 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2034.1 | 8562 | 2034.7 |
| 15300 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2035.9 | 8562 | 2036.2 |
| 15400 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2038.3 | 8562 | 2038.3 |
| 15500 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2037.8 | 8562 | 2037.8 |
| 15600 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2038.4 | 8562 | 2038.4 |
| 15700 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2040.7 | 8562 | 2040.7 |
| 15800 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2043.5 | 8562 | 2043.5 |
| 15900 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 2045.0 | 8562 | 2045.0 |
| 16000 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 2044.8 | 8562 | 2044.8 |
| 16100 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2048.0 | 8562 | 2048.0 |
| 16200 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2050.6 | 8562 | 2050.6 |
| 16300 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2052.9 | 8562 | 2052.9 |
| 16400 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2053.0 | 8562 | 2052.8 |
| 16500 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2052.7 | 8562 | 2052.6 |
| 16600 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2054.0 | 8562 | 2054.8 |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 16700 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2055.6 | 8562 | 2056.5 |
| 16800 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2056.2 | 8562 | 2056.8 |
| 16900 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2058.1 | 8562 | 2058.4 |
| 17000 | DUCK CREEK | DCL1SUBC | SUB | 8474 | 2059.9 | 8562 | 2059.5 |
| 17100 | DUCK CREEK | DCL1SUBC | SUB | 8474 | 2061.4 | 8562 | 2062.3 |
| 17200 | DUCK CREEK | DCL1SUBC | SUB | 8474 | 2064.0 | 8562 | 2064.8 |
| 17300 | DUCK CREEK | DCL1SUBC | SUB | 8560 | 2064.1 | 8562 | 2065.1 |
| 17400 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2064.4 | 8562 | 2065.3 |
| 17500 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 2059.9 | 8562 | 2060.9 |
| 17600 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 2060.7 | 8562 | 2060.7 |
| 17700 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 2063.1 | 8562 | 2063.1 |
| 17800 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2069.1 | 8562 | 2069.0 |
| 17900 | DUCK CREEK | DCL1SUBC | SUB | 8562 | 2071.8 | 8562 | 2072.0 |
| 18000 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 2070.3 | 8562 | 2070.3 |
| 18100 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 2071.5 | 8562 | 2071.5 |
| 18200 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 2071.9 | 8562 | 2071.9 |
| 18300 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 2071.8 | 8562 | 2071.8 |
| 18400 | DUCK CREEK | DCL1SPRC | SUPER | 8562 | 2078.5 | 8562 | 2078.5 |
| 18500 | DUCK CREEK | DCL1SPRC | SUPER | 8477 | 2077.1 | 8477 | 2077.2 |
| 18600 | DUCK CREEK | DCL1SPRC | SUPER | 8477 | 2076.5 | 8477 | 2076.6 |
| 18700 | DUCK CREEK | DCL1SPRC | SUPER | 8477 | 2079.0 | 8477 | 2079.3 |
| 18800 | DUCK CREEK | DCL1SPRC | SUPER | 8477 | 2080.8 | 8477 | 2081.4 |
| 18900 | DUCK CREEK | DCL1SPRC | SUPER | 8477 | 2081.7 | 8477 | 2082.7 |
| 19000 | DUCK CREEK | DCL1SPRC | SUPER | 8477 | 2082.4 | 8477 | 2082.4 |
| 19100 | DUCK CREEK | DCL1SPRC | SUPER | 8477 | 2085.8 | 8477 | 2085.8 |
| 19200 | DUCK CREEK | DCL1SPRC | SUPER | 8477 | 2091.4 | 8477 | 2091.4 |
| 19300 | DUCK CREEK | DCL1SPRC | SUPER | 8477 | 2094.7 | 8477 | 2094.7 |
| 19400 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2101.3 | 7484 | 2101.3 |
| 19500 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2102.1 | 7484 | 2102.1 |
| 19600 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2106.3 | 7484 | 2106.3 |
| 19700 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2110.7 | 7484 | 2110.8 |
| 19800 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2118.5 | 7484 | 2118.6 |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 19900 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2122.3 | 7484 | 2122.6 |
| 20000 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2125.8 | 7484 | 2126.2 |
| 20100 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2128.2 | 7484 | 2129.2 |
| 20200 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2129.0 | 7484 | 2129.0 |
| 20300 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2137.7 | 7484 | 2137.7 |
| 20400 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2143.0 | 7484 | 2143.0 |
| 20500 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2155.3 | 7484 | 2155.3 |
| 20600 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2153.2 | 7484 | 2153.2 |
| 20700 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2156.5 | 7484 | 2156.4 |
| 20800 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2158.4 | 7484 | 2158.2 |
| 20900 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2159.1 | 7484 | 2159.1 |
| 21000 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2159.2 | 7484 | 2159.2 |
| 21100 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2159.6 | 7484 | 2159.6 |
| 21200 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2157.0 | 7484 | 2157.6 |
| 21300 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2158.4 | 7484 | 2159.4 |
| 21400 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2158.9 | 7484 | 2158.9 |
| 21500 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2158.6 | 7484 | 2158.6 |
| 21600 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2162.7 | 7484 | 2162.7 |
| 21700 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2167.3 | 7484 | 2167.3 |
| 21800 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2173.1 | 7484 | 2173.1 |
| 21900 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2176.5 | 7484 | 2176.5 |
| 22000 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2177.9 | 7484 | 2177.9 |
| 22100 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2179.5 | 7484 | 2179.4 |
| 22200 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2177.9 | 7484 | 2177.9 |
| 22300 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2181.3 | 7484 | 2181.3 |
| 22400 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2185.0 | 7484 | 2186.0 |
| 22500 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2183.5 | 7484 | 2183.5 |
| 22600 | DUCK CREEK | DCL1SPRC | SUPER | 7484 | 2182.2 | 7484 | 2182.2 |
| LOWER DUCK CREEK DETENTION BASIN | | NA | NA | NA | 2201.0 | NA | NA |
| 22700 | NO SECTION | | | | | | |
| 22800 | DUCK CREEK | DCU3SUBC | SUB | 4155 | 2218.3 | 4155 | 2218.3 |
| 22900 | DUCK CREEK | DCU3SUBC | SUB | 4155 | 2219.7 | 4155 | 2220.5 |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 23000 | DUCK CREEK | DCU3SUBC | SUB | 4155 | 2221.5 | 4155 | 2222.2 |
| 23100 | DUCK CREEK | DCU3SUBC | SUB | 4155 | 2225.3 | 4155 | 2226.0 |
| 23200 | DUCK CREEK | DCU3SUBC | SUB | 5940 | 2227.2 | 5940 | 2227.8 |
| 23300 | DUCK CREEK | DCU3SUBC | SUB | 6246 | 2228.9 | 6246 | 2229.5 |
| 23400 | DUCK CREEK | DCU3SUBC | SUB | 6470 | 2231.6 | 6470 | 2232.1 |
| 23500 | DUCK CREEK | DCU3SUBC | SUB | 6470 | 2236.0 | 6470 | 2236.7 |
| 23600 | DUCK CREEK | DCU3SUBC | SUB | 6470 | 2237.9 | 6470 | 2238.5 |
| 23700 | DUCK CREEK | DCU3SUBC | SUB | 6470 | 2240.8 | 6470 | 2241.5 |
| 23800 | DUCK CREEK | DCU3SUBC | SUB | 6470 | 2241.9 | 6470 | 2242.5 |
| 23900 | DUCK CREEK | DCU3SUBC | SUB | 6470 | 2246.5 | 6470 | 2247.4 |
| 24000 | DUCK CREEK | DCU3SUBC | SUB | 1059 | 2249.4 | 1805 | 2249.8 |
| 24100 | DUCK CREEK | DCU3SUBC | SUB | 1059 | 2250.5 | 1805 | 2251.1 |
| 24200 | DUCK CREEK | DCU3SUBC | SUB | 1059 | 2255.3 | 1805 | 2255.8 |
| 24300 | DUCK CREEK | DCU3SUBC | SUB | 1059 | 2256.6 | 1805 | 2257.2 |
| 24400 | DUCK CREEK | DCU3SUBC | SUB | 1645 | 2257.0 | 1805 | 2257.9 |
| 24500 | DUCK CREEK | DCU3SUBC | SUB | 1805 | 2257.0 | 1805 | 2257.9 |
| 24600 | DUCK CREEK | DCU3SUBC | SUB | 1805 | 2257.9 | 1805 | 2258.2 |
| 24700 | DUCK CREEK | DCU3SUBC | SUB | 1805 | 2261.8 | 1805 | 2262.5 |
| 24800 | DUCK CREEK | DCU3SUBC | SUB | 1805 | 2265.1 | 1805 | 2265.5 |
| 24900 | DUCK CREEK | DCU3SUBC | SUB | 1805 | 2267.8 | 1805 | 2268.5 |
| 25000 | DUCK CREEK | DCU3SUBC | SUB | 1805 | 2269.3 | 1805 | 2269.9 |
| 25100 | DUCK CREEK | DCU3SUBC | SUB | 1805 | 2272.6 | 1805 | 2273.3 |
| 25200 | DUCK CREEK | DCU3SUBC | SUB | 1805 | 2274.7 | 1805 | 2275.4 |
| 25300 | DUCK CREEK | DCU3SUBC | SUB | 1326 | 2277.6 | 1326 | 2277.7 |
| 25400 | DUCK CREEK | DCU3SUBC | SUB | 1326 | 2280.1 | 1326 | 2280.2 |
| 25500 | NO SECTION | | | | | | |
| 25600 | DUCK CREEK | DCU1SUBC | SUB | 5834 | 2248.9 | 5088 | 2249.3 |
| 25700 | DUCK CREEK | DCU1SUBC | SUB | 5543 | 2252.6 | 5088 | 2252.9 |
| 25800 | DUCK CREEK | DCU1SUBC | SUB | 5659 | 2252.9 | 5088 | 2253.4 |
| 25900 | DUCK CREEK | DCU1SUBC | SUB | 5248 | 2253.7 | 5088 | 2254.2 |
| 26000 | DUCK CREEK | DCU1SUBC | SUB | 5088 | 2256.9 | 5088 | 2257.6 |
| 26100 | DUCK CREEK | DCU1SUBC | SUB | 5088 | 2261.0 | 5088 | 2262.0 |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 26200 | DUCK CREEK | DCU1SUBC | SUB | 5088 | 2266.5 | 5088 | 2266.9 |
| 26300 | DUCK CREEK | DCU1SUBC | SUB | 5088 | 2270.8 | 5088 | 2271.2 |
| 26400 | DUCK CREEK | DCU1SUBC | SUB | 5088 | 2277.1 | 5088 | 2277.1 |
| 26500 | DUCK CREEK | DCU1SUBC | SUB | 5088 | 2285.8 | 5088 | 2285.8 |
| 26600 | DUCK CREEK | DCU1SUBC | SUB | 5088 | 2285.9 | 5088 | 2285.9 |
| 26700 | DUCK CREEK | DCU1SUBC | SUB | 9510 | 2286.8 | 9510 | 2286.8 |
| 26800 | DUCK CREEK | DCU1SUBC | SUB | 9510 | 2290.2 | 9510 | 2291.0 |
| 26900 | NO SECTION | | | | | | |
| 27000 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2000.0 | -- | -- |
| 27100 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2004.8 | -- | -- |
| 27200 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2006.4 | -- | -- |
| 27300 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2008.6 | -- | -- |
| 27400 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2011.1 | -- | -- |
| 27500 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2011.3 | -- | -- |
| 27600 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2014.9 | -- | -- |
| 27700 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2017.4 | -- | -- |
| 27800 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2018.9 | -- | -- |
| 27900 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2019.5 | -- | -- |
| 28000 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2022.2 | -- | -- |
| 28100 | DUCK CREEK | DCL2SUBB | SUB | 3000 | 2025.8 | -- | -- |
| 28200 | DUCK CREEK | DCU4SUBC | SUB | 2315 | 2208.0 | 2315 | 2208.0 |
| 28300 | DUCK CREEK | DCU4SUBC | SUB | 2315 | 2210.3 | 2315 | 2211.3 |
| 28400 | DUCK CREEK | DCU4SUBC | SUB | 2315 | 2214.0 | 2315 | 2214.6 |
| 28500 | DUCK CREEK | DCU4SUBC | SUB | 2315 | 2217.2 | 2315 | 2218.1 |
| 28600 | DUCK CREEK | DCU4SUBC | SUB | 2315 | 2219.8 | 2315 | 2220.2 |
| 28700 | DUCK CREEK | DCU4SUBC | SUB | 2315 | 2225.1 | 2315 | 2225.9 |
| 28800 | DUCK CREEK | DCU2SUBB | SUB | 291 | 2246.2 | -- | -- |
| 28900 | DUCK CREEK | DCU2SUBB | SUB | 291 | 2248.6 | -- | -- |
| 29000 | DUCK CREEK | DCU2SUBB | SUB | 291 | 2249.9 | -- | -- |
| 29100 | DUCK CREEK | DCU2SUBB | SUB | 291 | 2250.3 | -- | -- |
| 29200 | DUCK CREEK | DCU2SUBB | SUB | 291 | 2250.5 | -- | -- |
| 29300 | NO SECTION | | | | | | |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 29400 | DUCK CREEK | DCL3SUBB | SUB | 500 | 1982.3 | -- | -- |
| 29500 | DUCK CREEK | DCL3SUBB | SUB | 500 | 1982.9 | -- | -- |
| 29600 | DUCK CREEK | DCL3SUBB | SUB | 560 | 1984.0 | -- | -- |
| 29700 | DUCK CREEK | DCL3SUBB | SUB | 1079 | 1986.7 | -- | -- |
| 29800 | DUCK CREEK | DCL3SUBB | SUB | 1543 | 1989.2 | -- | -- |
| 29900 | DUCK CREEK | DCL3SUBB | SUB | 2500 | 1992.2 | -- | -- |
| 30000 | DUCK CREEK | DCL3SUBB | SUB | 2500 | 1997.7 | -- | -- |
| 30100 | DUCK CREEK | DCL4SUBB | SUB | 1138 | 1977.3 | -- | -- |
| 30200 | DUCK CREEK | DCL4SUBB | SUB | 1209 | 1979.2 | -- | -- |
| 30300 | DUCK CREEK | DCL4SUBB | SUB | 1333 | 1981.4 | -- | -- |
| 30400 | DUCK CREEK | DCL4SUBB | SUB | 957 | 1984.3 | -- | -- |
| 30500 | DUCK CREEK | DCL5SUBB | SUB | 76 | 1972.7 | -- | -- |
| 30600 | DUCK CREEK | DCL5SUBB | SUB | 76 | 1973.7 | -- | -- |
| 30700 | DUCK CREEK | DCL5SUBB | SUB | 742 | 1975.6 | -- | -- |
| 30800 | DUCK CREEK | DCL5SUBB | SUB | 774 | 1976.9 | -- | -- |
| 30900 | DUCK CREEK | DCL5SUBB | SUB | 862 | 1977.4 | -- | -- |
| 31000 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2074.0 | 1290 | 2074.0 |
| 31100 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2083.1 | 1290 | 2083.1 |
| 31200 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2087.4 | 1290 | 2087.4 |
| 31300 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2094.1 | 1290 | 2094.1 |
| 31400 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2094.8 | 1290 | 2094.8 |
| 31500 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2089.8 | 1290 | 2089.8 |
| 31600 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2090.8 | 1290 | 2090.8 |
| 31700 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2099.2 | 1290 | 2099.2 |
| 31800 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2102.3 | 1290 | 2102.3 |
| 31900 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2106.6 | 1290 | 2106.6 |
| 32000 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2106.4 | 1290 | 2106.4 |
| 32100 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2107.2 | 1290 | 2107.2 |
| 32200 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2110.6 | 1290 | 2110.6 |
| 32300 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2111.4 | 1290 | 2111.4 |
| 32400 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2112.3 | 1290 | 2112.3 |
| 32500 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2116.6 | 1290 | 2116.6 |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 32600 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2115.7 | 1290 | 2115.6 |
| 32700 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2118.3 | 1290 | 2118.2 |
| 32800 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2123.3 | 1290 | 2122.8 |
| 32900 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2129.8 | 1290 | 2129.8 |
| 33000 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2131.3 | 1290 | 2131.3 |
| 33100 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2144.5 | 1290 | 2145.5 |
| 33200 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2150.3 | 1290 | 2151.2 |
| 33300 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2154.4 | 1290 | 2155.4 |
| 33400 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2160.3 | 1290 | 2160.5 |
| 33500 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2160.8 | 1290 | 2161.2 |
| 33600 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2160.9 | 1290 | 2161.7 |
| 33700 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2164.3 | 1290 | 2165.1 |
| 33800 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2169.7 | 1290 | 2169.6 |
| 33900 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2174.8 | 1290 | 2175.1 |
| 34000 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2177.5 | 1290 | 2177.8 |
| 34100 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2178.1 | 1290 | 2179.0 |
| 34200 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2181.1 | 1290 | 2180.7 |
| 34300 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2184.1 | 1290 | 2184.8 |
| 34400 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2189.6 | 1290 | 2189.5 |
| 34500 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2194.1 | 1290 | 2194.8 |
| 34600 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2196.6 | 1290 | 2197.3 |
| 34700 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2201.7 | 1290 | 2202.3 |
| 34800 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2206.0 | 1290 | 2206.2 |
| 34900 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2206.3 | 1290 | 2207.0 |
| 35000 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2209.5 | 1290 | 2210.3 |
| 35100 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2210.7 | 1290 | 2211.1 |
| 35200 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2212.1 | 1290 | 2212.1 |
| 35300 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2209.1 | 1290 | 2209.1 |
| 35400 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2213.0 | 1290 | 2213.0 |
| 35500 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2214.7 | 1290 | 2214.7 |
| 35600 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2215.8 | 1290 | 2215.8 |
| 35700 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2216.1 | 1290 | 2216.1 |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 35800 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2218.9 | 1290 | 2218.9 |
| 35900 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2218.5 | 1290 | 2218.5 |
| 36000 | NORTH BRANCH BLUE DIAMOND | BDN1SPRC | SUPER | 1290 | 2223.3 | 1290 | 2223.3 |
| 36100 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2232.1 | 1290 | 2229.7 |
| 36200 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2232.3 | 1290 | 2232.2 |
| 36300 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2232.6 | 1290 | 2232.5 |
| 36400 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2238.2 | 1290 | 2238.8 |
| 36500 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2242.3 | 1290 | 2243.2 |
| 36600 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2245.4 | 1290 | 2246.0 |
| 36700 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2250.8 | 1290 | 2251.4 |
| 36800 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2255.3 | 1290 | 2256.1 |
| 36900 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2259.9 | 1290 | 2260.5 |
| 37000 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2265.0 | 1290 | 2265.0 |
| 37100 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2267.7 | -- | -- |
| 37200 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 1290 | 2271.3 | -- | -- |
| 37300 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2271.3 | -- | -- |
| 37400 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2271.3 | -- | -- |
| 37500 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2271.3 | -- | -- |
| 37600 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2273.0 | -- | -- |
| 37700 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2273.2 | -- | -- |
| 37800 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2275.2 | -- | -- |
| 37900 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2277.4 | -- | -- |
| 38000 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2282.8 | -- | -- |
| 38100 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2287.8 | -- | -- |
| 38200 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2290.0 | -- | -- |
| 38300 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2293.0 | -- | -- |
| 38400 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2296.5 | -- | -- |
| 38500 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2297.2 | -- | -- |
| 38600 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2297.6 | -- | -- |
| 38700 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2299.6 | -- | -- |
| 38800 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2303.8 | -- | -- |
| 38900 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2313.1 | -- | -- |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 39000 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2320.4 | -- | -- |
| 39100 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2325.3 | -- | -- |
| 39200 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2329.5 | -- | -- |
| 39300 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2337.2 | -- | -- |
| 39400 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2341.6 | -- | -- |
| 39500 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2347.9 | -- | -- |
| 39600 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2352.4 | -- | -- |
| 39700 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2357.2 | -- | -- |
| 39800 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2363.6 | -- | -- |
| 39900 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2368.6 | -- | -- |
| 40000 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2375.0 | -- | -- |
| 40100 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2377.2 | -- | -- |
| 40200 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2380.9 | -- | -- |
| 40300 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2387.5 | -- | -- |
| 40400 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2391.3 | -- | -- |
| 40500 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2397.5 | -- | -- |
| 40600 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2401.5 | -- | -- |
| 40700 | NORTH BRANCH BLUE DIAMOND | BDN1SUBC | SUB | 244 | 2403.2 | -- | -- |
| 40800 | NO SECTION | | | | | | |
| 40900 | MIDDLE BRANCH BLUE DIAMOND | BDM3SPRC | SUPER | 1462 | 2101.5 | 1462 | 2101.5 |
| 41000 | MIDDLE BRANCH BLUE DIAMOND | BDM3SPRC | SUPER | 1462 | 2108.0 | 1462 | 2108.1 |
| 41100 | MIDDLE BRANCH BLUE DIAMOND | BDM3SPRC | SUPER | 1462 | 2112.4 | 1462 | 2112.4 |
| 41200 | MIDDLE BRANCH BLUE DIAMOND | BDM3SPRC | SUPER | 1462 | 2112.2 | 1462 | 2112.2 |
| 41300 | MIDDLE BRANCH BLUE DIAMOND | BDM3SPRC | SUPER | 1462 | 2116.6 | 1462 | 2116.6 |
| 41400 | MIDDLE BRANCH BLUE DIAMOND | BDM3SPRC | SUPER | 1462 | 2119.2 | 1462 | 2119.2 |
| 41500 | MIDDLE BRANCH BLUE DIAMOND | BDM3SPRC | SUPER | 1462 | 2124.5 | 1462 | 2124.5 |
| 41600 | MIDDLE BRANCH BLUE DIAMOND | BDM3SPRC | SUPER | 1462 | 2127.7 | 1462 | 2127.7 |
| 41700 | MIDDLE BRANCH BLUE DIAMOND | BDM3SPRC | SUPER | 1462 | 2128.1 | 1462 | 2128.1 |
| 41800 | MIDDLE BRANCH BLUE DIAMOND | BDM3SPRC | SUPER | 1462 | 2133.9 | 1462 | 2133.9 |
| 41900 | MIDDLE BRANCH BLUE DIAMOND | BDM3SPRC | SUPER | 1462 | 2143.4 | 1462 | 2143.4 |
| 42000 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2169.0 | 1462 | 2169.0 |
| 42100 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2175.0 | 1462 | 2175.0 |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 42200 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2185.4 | 1462 | 2185.9 |
| 42300 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2186.0 | 1462 | 2186.9 |
| 42400 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2189.5 | 1462 | 2189.5 |
| 42500 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2193.3 | 1462 | 2194.4 |
| 42600 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2193.9 | 1462 | 2194.2 |
| 42700 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2197.8 | 1462 | 2197.8 |
| 42800 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2201.5 | 1462 | 2201.7 |
| 42900 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2201.7 | 1462 | 2202.1 |
| 43000 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2206.8 | 1462 | 2206.7 |
| 43100 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2209.0 | 1462 | 2209.6 |
| 43200 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2210.6 | 1462 | 2210.6 |
| 43300 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2212.5 | 1462 | 2212.5 |
| 43400 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2214.9 | 1462 | 2215.0 |
| 43500 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2215.6 | 1462 | 2215.6 |
| 43600 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2218.6 | 1462 | 2218.6 |
| 43700 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2221.4 | 1462 | 2221.5 |
| 43800 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2222.3 | 1462 | 2222.3 |
| 43900 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2226.4 | 1462 | 2226.4 |
| 44000 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2229.4 | 1462 | 2229.4 |
| 44100 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2230.8 | 1462 | 2231.3 |
| 44200 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2232.0 | 1462 | 2232.7 |
| 44300 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2235.7 | 1462 | 2235.7 |
| 44400 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2238.1 | 1462 | 2238.1 |
| 44500 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2239.7 | 1462 | 2239.6 |
| 44600 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2241.8 | 1462 | 2241.9 |
| 44700 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2245.0 | 1462 | 2245.8 |
| 44800 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2249.2 | 1462 | 2249.4 |
| 44900 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2250.3 | 1462 | 2251.0 |
| 45000 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2254.3 | 1462 | 2255.1 |
| 45100 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2261.1 | 1462 | 2261.7 |
| 45200 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2261.7 | 1462 | 2261.9 |
| 45300 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 1462 | 2264.7 | -- | -- |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 45400 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 391 | 2266.3 | -- | -- |
| 45500 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 391 | 2268.4 | -- | -- |
| 45600 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 391 | 2270.4 | -- | -- |
| 45700 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 391 | 2271.5 | -- | -- |
| 45800 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 391 | 2273.0 | -- | -- |
| 45900 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 391 | 2276.5 | -- | -- |
| 46000 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 391 | 2281.1 | -- | -- |
| 46100 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 391 | 2284.7 | -- | -- |
| 46200 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 391 | 2288.6 | -- | -- |
| 46300 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 391 | 2291.9 | -- | -- |
| 46400 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 391 | 2295.9 | -- | -- |
| 46500 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 589 | 2297.0 | -- | -- |
| 46600 | MIDDLE BRANCH BLUE DIAMOND | BDM3SUBC | SUB | 764 | 2299.3 | -- | -- |
| 46700 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2308.4 | -- | -- |
| 46800 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2313.1 | -- | -- |
| 46900 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2316.8 | -- | -- |
| 47000 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2324.3 | -- | -- |
| 47100 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2328.6 | -- | -- |
| 47200 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2332.7 | -- | -- |
| 47300 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2340.6 | -- | -- |
| 47400 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2348.9 | -- | -- |
| 47500 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2358.0 | -- | -- |
| 47600 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2366.3 | -- | -- |
| 47700 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2369.5 | -- | -- |
| 47800 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2376.8 | -- | -- |
| 47900 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2385.3 | -- | -- |
| 48000 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2392.4 | -- | -- |
| 48100 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2401.4 | -- | -- |
| 48200 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2408.5 | -- | -- |
| 48300 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2416.4 | -- | -- |
| 48400 | MIDDLE BRANCH BLUE DIAMOND | BDM1SUBB | SUB | 1961 | 2421.2 | -- | -- |
| 48500 | MIDDLE BRANCH BLUE DIAMOND | BDM2SUBB | SUB | 373 | 2273.6 | -- | -- |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 48600 | MIDDLE BRANCH BLUE DIAMOND | BDM2SUBB | SUB | 373 | 2277.2 | -- | -- |
| 48700 | MIDDLE BRANCH BLUE DIAMOND | BDM2SUBB | SUB | 373 | 2281.1 | -- | -- |
| 48800 | MIDDLE BRANCH BLUE DIAMOND | BDM2SUBB | SUB | 373 | 2284.5 | -- | -- |
| 48900 | MIDDLE BRANCH BLUE DIAMOND | BDM2SUBB | SUB | 373 | 2289.0 | -- | -- |
| 49000 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2270.5 | -- | -- |
| 49100 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2271.6 | -- | -- |
| 49200 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2272.0 | -- | -- |
| 49300 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2272.1 | -- | -- |
| 49400 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2272.4 | -- | -- |
| 49500 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2274.1 | -- | -- |
| 49600 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2277.5 | -- | -- |
| 49700 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2280.9 | -- | -- |
| 49800 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2285.5 | -- | -- |
| 49900 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2288.6 | -- | -- |
| 50000 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2292.7 | -- | -- |
| 50100 | MIDDLE BRANCH BLUE DIAMOND | BDM4SUBB | SUB | 1260 | 2293.7 | -- | -- |
| 50200 | DUCK CREEK | I152SUBB | SUB | 1462 | 2265.4 | -- | -- |
| 50300 | DUCK CREEK | I152SUBB | SUB | 1462 | 2267.0 | -- | -- |
| 50400 | DUCK CREEK | I152SUBB | SUB | 1462 | 2267.5 | -- | -- |
| 50500 | DUCK CREEK | I152SUBB | SUB | 1462 | 2268.9 | -- | -- |
| 50600 | DUCK CREEK | I152SUBB | SUB | 1462 | 2270.8 | -- | -- |
| 50700 | DUCK CREEK | I152SUBB | SUB | 1462 | 2271.2 | -- | -- |
| 50800 | DUCK CREEK | I152SUBB | SUB | 1462 | 2271.3 | -- | -- |
| 50900 | DUCK CREEK | I152SUBB | SUB | 1462 | 2271.5 | -- | -- |
| 51000 | DUCK CREEK | I152SUBB | SUB | 1462 | 2271.5 | -- | -- |
| 51100 | DUCK CREEK | I152SUBB | SUB | 1462 | 2271.8 | -- | -- |
| 51200 | DUCK CREEK | I152SUBB | SUB | 1462 | 2272.1 | -- | -- |
| 51300 | DUCK CREEK | I152SUBB | SUB | 1462 | 2272.3 | -- | -- |
| 51400 | DUCK CREEK | I152SUBB | SUB | 1462 | 2272.6 | -- | -- |
| 51500 | DUCK CREEK | I152SUBB | SUB | 3549 | 2273.7 | -- | -- |
| 51600 | DUCK CREEK | I152SUBB | SUB | 3549 | 2273.5 | -- | -- |
| 51700 | DUCK CREEK | I152SUBB | SUB | 3549 | 2275.8 | -- | -- |

| GENERAL | | | | FLOODPLAIN | | FLOODWAY | |
|---|---|---|---|---|---|---|---|
| HEC-2 XS | STREAM NAME | HEC-2 MODEL | FLOW REGIME | Q (CFS) | WSE (FT) | Q (CFS) | WSE (FT) |
| 51800 | DUCK CREEK | I152SUBB | SUB | 3549 | 2276.7 | -- | -- |
| 51900 | DUCK CREEK | I152SUBB | SUB | 3549 | 2277.7 | -- | -- |
| 52000 | DUCK CREEK | I152SUBB | SUB | 4422 | 2281.1 | -- | -- |
| 52100 | DUCK CREEK | I152SUBB | SUB | 4422 | 2281.1 | -- | -- |
| 52200 | DUCK CREEK | I152SUBB | SUB | 4422 | 2281.7 | -- | -- |
| 52300 | DUCK CREEK | I152SUBB | SUB | 4422 | 2282.2 | -- | -- |
| 52400 | DUCK CREEK | I152SUBB | SUB | 4422 | 2282.4 | -- | -- |
| 52500 | DUCK CREEK | I152SUBB | SUB | 4422 | 2282.4 | -- | -- |
| 52600 | DUCK CREEK | I152SUBB | SUB | 4422 | 2282.9 | -- | -- |
| 52700 | DUCK CREEK | I152SUBB | SUB | 4422 | 2283.4 | -- | -- |
| 52800 | DUCK CREEK | I152SUBB | SUB | 4422 | 2284.6 | -- | -- |
| 52900 | NO SECTION | | | | | | |
| 53000 | DUCK CREEK | I151SUBB | SUB | 816 | 2285.6 | -- | -- |
| 53100 | DUCK CREEK | I151SUBB | SUB | 816 | 2285.6 | -- | -- |
| 53200 | DUCK CREEK | I151SUBB | SUB | 1301 | 2285.6 | -- | -- |
| 53300 | DUCK CREEK | I151SUBB | SUB | 1301 | 2285.6 | -- | -- |

**HEC-2 MODEL: DCL1SUBA**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: Lower Duck Creek Detention Basin
DOWNSTREAM LIMIT: Confluence with Pittman Wash
UPSTREAM HEC-2 SECTION: 22600
DOWNSTREAM HEC-2 SECTION: 1800
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – model used only to determine flow splits/ adjustments
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This model serves only as a base model used to determine split flows and flow adjustments. The flows determined from this model are used as base flows for the subcritical (DCL1SUBC) and supercritical (DCL1SPRC) HEC-2 models.

Split flow geometry is setup along three reaches of the main channel:

1. Robindale Road to Spencer Street (w/ flow distribution) - Left Overbank
2. Topaz Street to Warm Springs Road - Right Overbank
3. Sandhill Road to Annie Oakley Drive - Left Overbank

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Bridge geometry is based on a detailed field review organized in Section 5.1. All bridges in this reach were modeled using the Special Bridge routine. Note that the cross section geometry in HEC-2 model DCL1SUBA is identical to the other Duck Creek main channel models, DCL1SUBC, and DCL1SPRC.

Note that several bridge models were modified to compensate for an internal HEC-1 check during supercritical flow analysis. If critical depth is above the low chord, it will not pass low flow. In order to pass low flow, low chords were raised artificially using engineer judgment. The following bridge locations were modified:

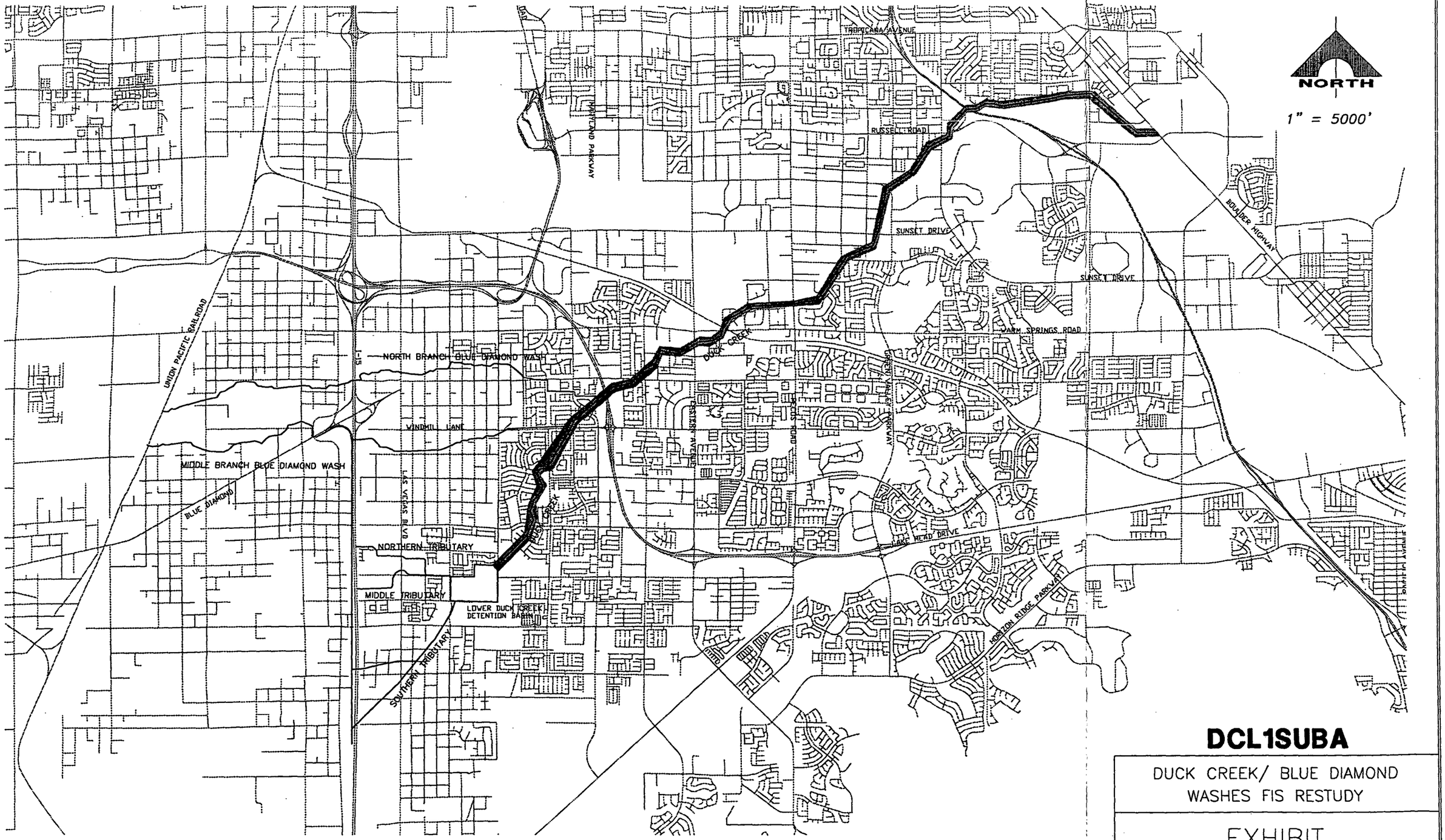
A. Windmill Lane
B. Paradise Road/ Maryland Parkway
C. Robindale Road
D. Vista del Sol Avenue
E. Pachuca Street
F. Mira Vista Street
G. Tomiyasu Lane
H. Pine Street Crossings
I. Pecos Road

The downstream limit of the HEC-2 model is located at the end of the Duck Creek Channel Phase 1 Improvements, which is an interim earth channel. Therefore, the starting water surface elevation is based on normal depth for subcritical flow. Manning's "n" roughness calculations are attached in Section 2.3.

The following projects are incorporated into the HEC-2 model:

A. Duck Creek Channel Phase 1
B. Duck Creek Improvements from Tomiyasu Lane to Warm Springs Road
C. Aviara Apartments Offsite Channel Improvements
D. Duck Creek Crossing at Robindale Road
E. Crystal Springs Duck Creek Channel

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# DCL1SUBA

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

RGarcia 02-27-02 12:46 F:\550-\dwg\fig\FIG-2b.dwg

**HEC-2 MODEL: DCL1SUBC**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: Lower Duck Creek Detention Basin
DOWNSTREAM LIMIT: Confluence with Pittman Wash
UPSTREAM HEC-2 SECTION: 22600
DOWNSTREAM HEC-2 SECTION: 1800
FLOW REGIME: Subcritical
STUDY METHOD: Detailed – Floodplain and Floodway model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This is a subcritical floodplain and floodway model. Note that the downstream limit of the floodway is set at Patrick Lane. The split flow option was disabled for this model. Flow rate adjustments for this model are based on flows generated by the base model DCL1SUBA.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Bridge geometry is based on a detailed field review organized in Section 5.1. All bridges in this reach were modeled using the Special Bridge routine. Note that the cross section geometry of this model is identical to that of the base model, DCLSUBA.

Note that several bridge models were modified to compensate for an internal HEC-1 check during supercritical flow analysis. If critical depth is above the low chord, it will not pass low flow. In order to pass low flow, low chords were raised artificially using engineer judgment. The following bridge locations were modified:

A. Windmill Lane
B. Paradise Road/ Maryland Parkway
C. Robindale Road
D. Vista del Sol Avenue
E. Pachuca Street
F. Mira Vista Street
G. Tomiyasu Lane
H. Pine Street Crossings
I. Pecos Road

The downstream limit of the HEC-2 model is located at the end of the Duck Creek Channel Phase 1 Improvements, which is an interim earth channel. Therefore, the starting water surface elevation is based on normal depth for subcritical flow. Manning's "n" roughness calculations are attached in Section 2.3.

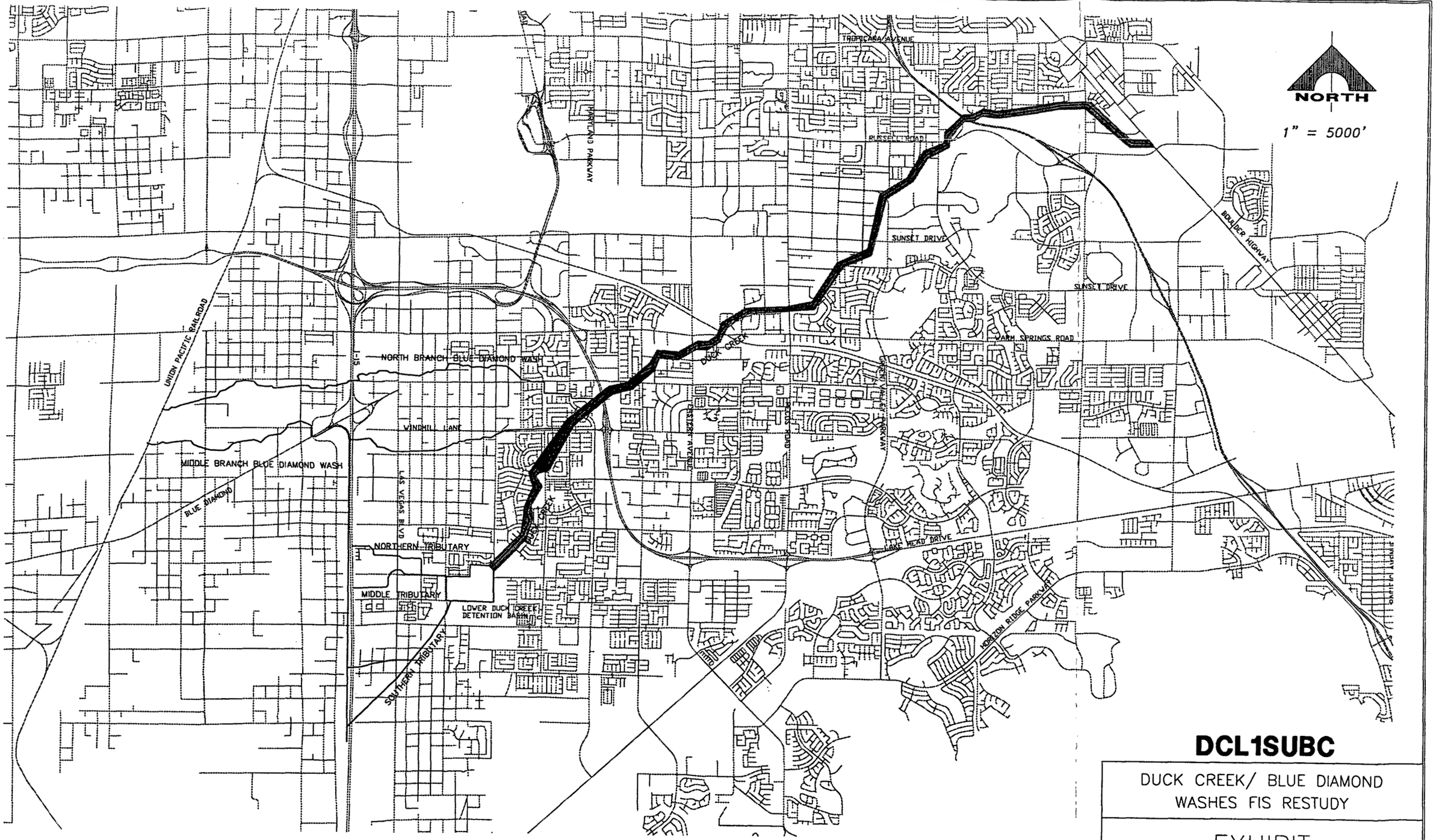
The following projects are incorporated into the HEC-2 model:

A. Duck Creek Channel Phase 1
B. Duck Creek Improvements from Tomiyasu Lane to Warm Springs Road
C. Aviara Apartments Offsite Channel Improvements
D. Duck Creek Crossing at Robindale Road
E. Crystal Springs Duck Creek Channel

The floodway analysis uses a combination of Encroachment Methods 1 and 4. Encroachment Method 1 was used when Encroachment Method 4 failed to produce reasonable results. An iterative process was applied with Encroachment Method 1 using

engineering judgment to determine the locations of the encroachment stations in order to approximate equal conveyance loss for both overbanks.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# DCL1SUBC

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

RGarcia
02-27-02
F:\550...\dwg\fig\FIG-2b.dwg

**HEC-2 MODEL: DCL1SPRC**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: Lower Duck Creek Detention Basin
DOWNSTREAM LIMIT: Confluence with Pittman Wash
UPSTREAM HEC-2 SECTION: 22600
DOWNSTREAM HEC-2 SECTION: 1800
FLOW REGIME: Supercritical
STUDY METHOD: Detailed – Floodplain and Floodway model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This is a supercritical floodplain and floodway model. Note that the downstream limit of the floodway is set at Patrick Lane. The split flow option was disabled for this model. Flow rate adjustments for this model are based on flows generated by the base model, DCL1SUBA.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Bridge geometry is based on a detailed field review organized in Section 5.1. All bridges in this reach were modeled using the Special Bridge routine. Note that the cross section geometry of this model is identical to that of the base model, DCLSUBA.

Note that several bridge models were modified to compensate for an internal HEC-1 check during supercritical flow analysis. If critical depth is above the low chord, it will not pass low flow. In order to pass low flow, low chords were raised artificially using engineer judgment. The following bridge locations were modified:

A. Windmill Lane
B. Paradise Road/ Maryland Parkway
C. Robindale Road
D. Vista del Sol Avenue
E. Pachuca Street
F. Mira Vista Street
G. Tomiyasu Lane
H. Pine Street Crossings
I. Pecos Road

The upstream limit of the model is located just upstream of Bermuda Road at the outfall of the Lower Duck Creek Detention Basin, which is a rectangular channel. Therefore, the starting water surface elevation is based on normal depth for supercritical flow. Manning's "n" roughness calculations are attached in Section 2.3.

The following projects are incorporated into the model:

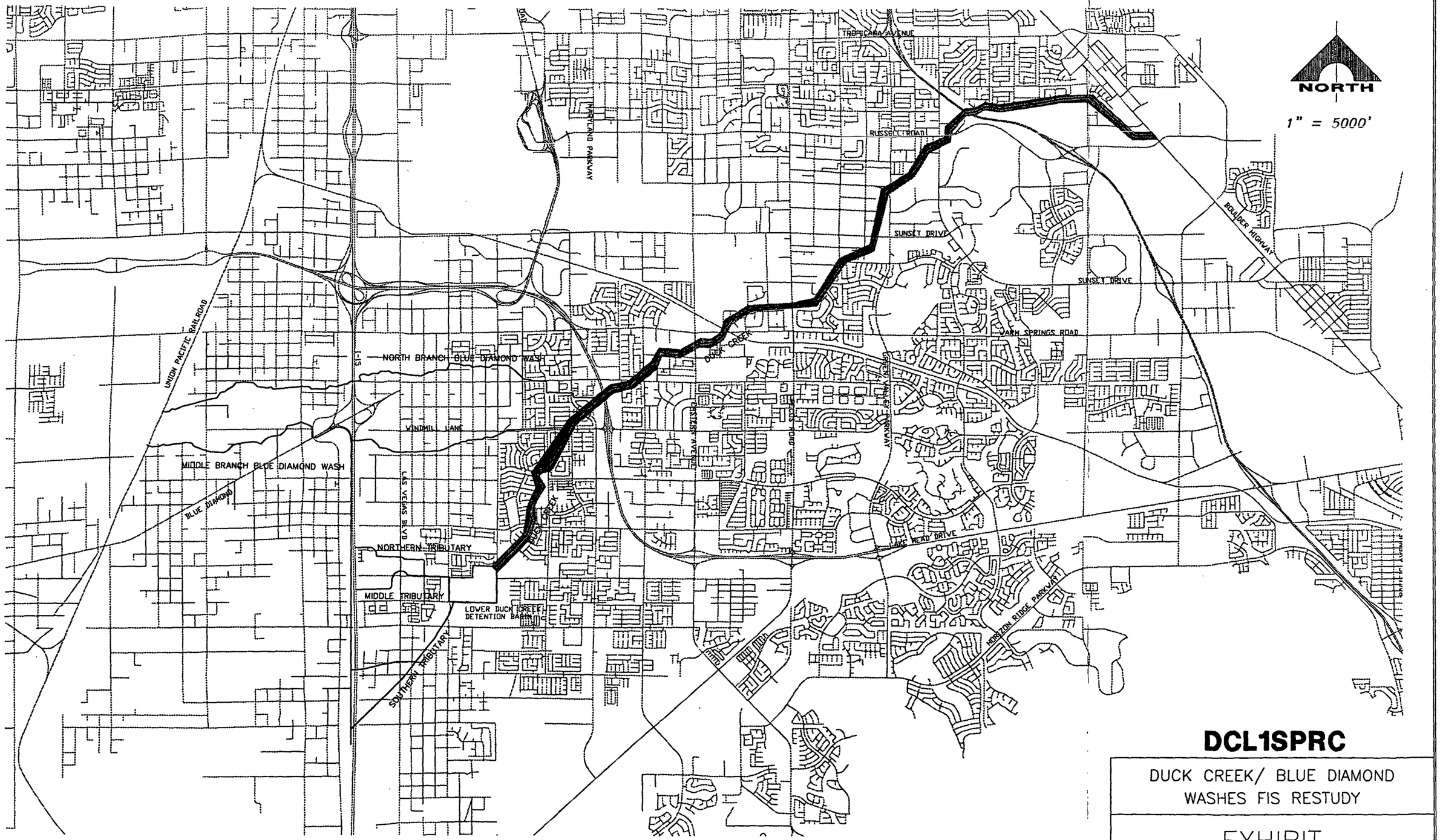
A. Duck Creek Channel Phase 1
B. Duck Creek Improvements from Tomiyasu Lane to Warm Springs Road
C. Aviara Apartments Offsite Channel Improvements
D. Duck Creek Crossing at Robindale Road
E. Crystal Springs Duck Creek Channel

The floodway analysis uses a combination of Encroachment Methods 1 and 4. Encroachment Method 1 was used when Encroachment Method 4 failed to produce reasonable results. An iterative process was applied with Encroachment Method 1 using

engineering judgment to determine the locations of the encroachment stations in order to approximate equal conveyance loss for both overbanks.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.

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LEGEND

- LIMITS OF HEC-2 MODEL
- STREET CENTER LINE
- CHANNEL CENTER LINE

# DCL1SPRC

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

**HEC-2 MODEL: DCL2SUBB**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: Duck Creek at Warm Springs Road
DOWNSTREAM LIMIT: Pine Street Storm Drain at Warm Springs Road
UPSTREAM HEC-2 SECTION: 28100
DOWNSTREAM HEC-2 SECTION: 27000
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – Floodplain model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

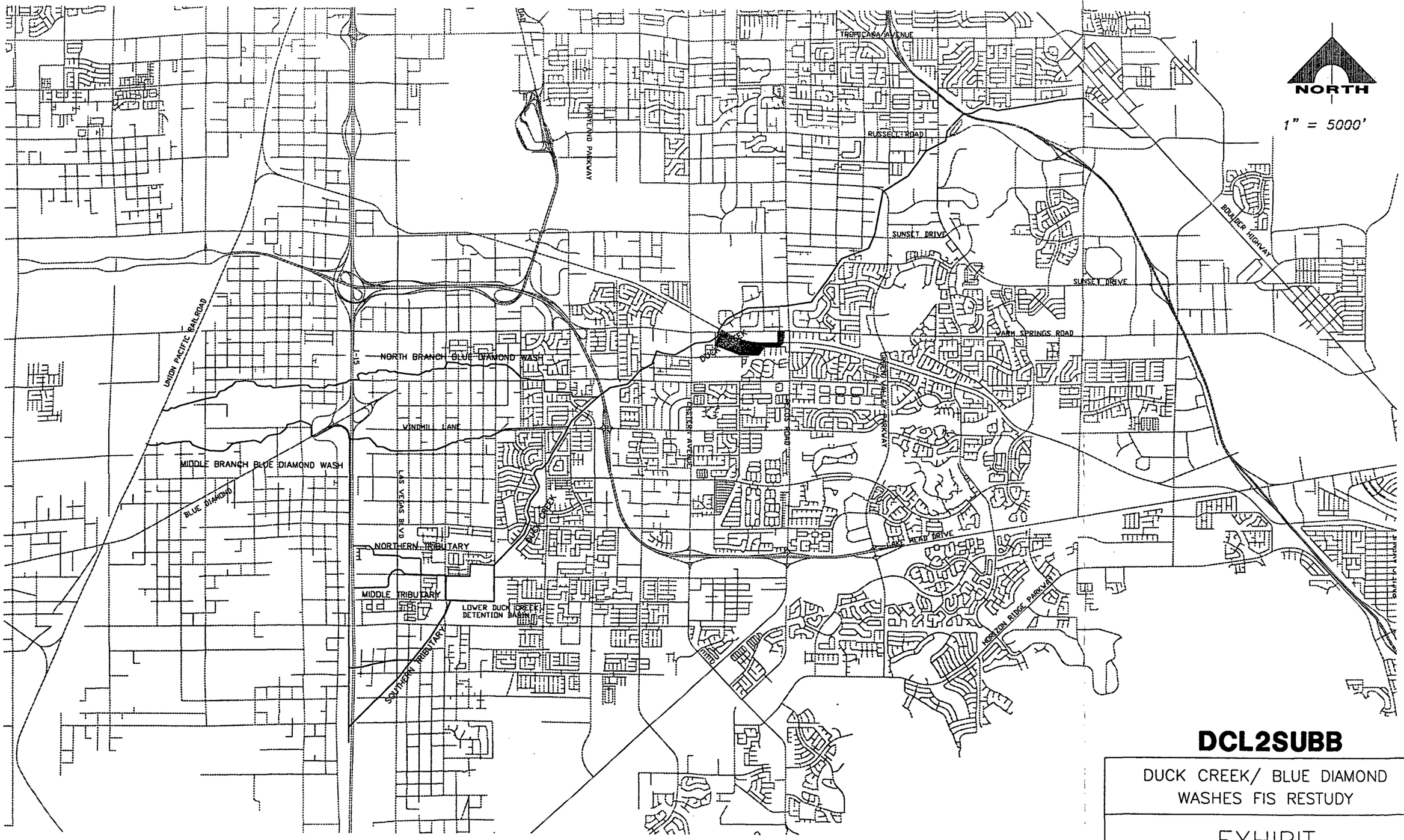
This is a subcritical floodplain model. The flow used in this model is referenced from the Duck Creek split flow from Topaz Street to Warm Springs Road. This split flow is determined in the subcritical Duck Creek base model, DCL1SUBA.

There are no split flows or flow adjustments in this model. The breakout flows are confined at the north by the UPRR – Henderson Spur.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. See Section 5.1 for a detailed field review of this area.

The downstream limit of the model is located at the south side of Warm Springs Road. The starting water surface elevation is based on the normal depth for subcritical flow. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# DCL2SUBB

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: DCL3SUBB**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: Pine Street at Warm Springs Road
DOWNSTREAM LIMIT: Pine Street at Duck Creek
UPSTREAM HEC-2 SECTION: 30000
DOWNSTREAM HEC-2 SECTION: 29400
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – Floodplain model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This is a subcritical floodplain model. The flow used in this model is referenced from the Duck Creek split flow from Topaz Street to Warm Springs Road, minus the capacity of the Pine Street Storm Drain System (500 cfs). This split flow is determined in the subcritical Duck Creek base model, DCL1SUBA.

Split flow geometry is set up at the right overbank along the entire model. Flow breaking out from this model will enter Pecos Road. Pecos Road is modeled by DCL4SUBB.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. See Section 5.1 for a detailed field review of this area.

The downstream limit of the model is located at the north end of Pine Street, at Duck Creek. The starting water surface elevation is based on the normal depth for subcritical flow. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.

NORTH

1" = 5000'

TROPICANA AVENUE
RUSSELL ROAD
MARYLAND PARKWAY
SUNSET DRIVE
SUNSET DRIVE
BOULDER HIGHWAY
WARM SPRINGS ROAD
UNION PACIFIC RAILROAD
I-15
NORTH BRANCH BLUE DIAMOND WASH
DUCK CREEK
GREEN VALLEY PARKWAY
WINDMILL LANE
LAS VEGAS BLVD
MIDDLE BRANCH BLUE DIAMOND WASH
BLUE DIAMOND
NORTHERN TRIBUTARY
DUCK CREEK
LAKE HEAD DRIVE
MIDDLE TRIBUTARY
LOWER DUCK CREEK DETENTION BASIN
HORIZON RIDGE PARKWAY
SOUTHERN TRIBUTARY

LEGEND

- LIMITS OF HEC-2 MODEL
- STREET CENTER LINE
- CHANNEL CENTER LINE

# DCL3SUBB

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD.,LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: DCL4SUBB**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: Pecos Road 700 feet south of Duck Creek
DOWNSTREAM LIMIT: Pecos Road at Duck Creek
UPSTREAM HEC-2 SECTION: 30400
DOWNSTREAM HEC-2 SECTION: 30100
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – Floodplain model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

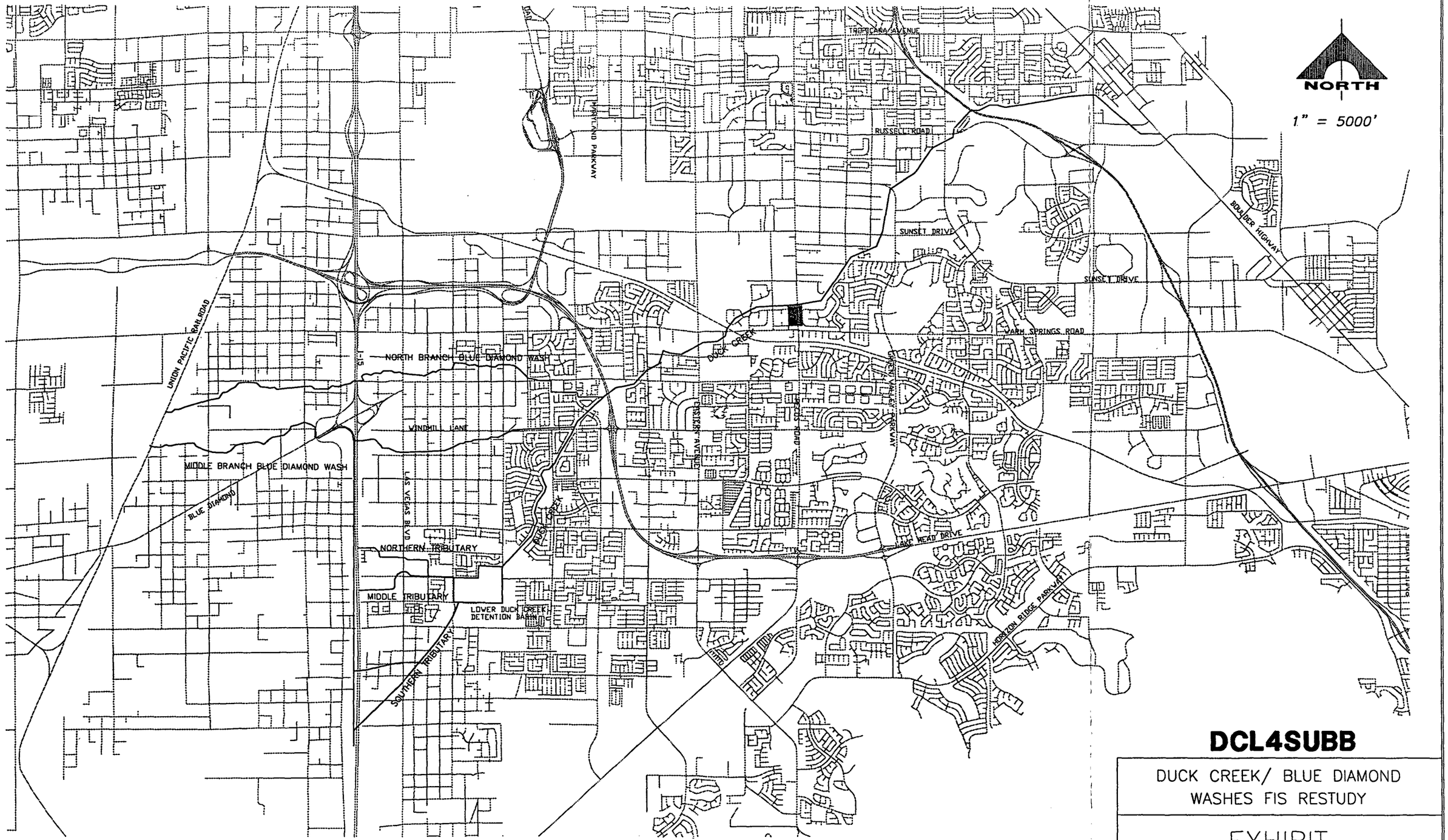
This is a subcritical floodplain model. The flow used in this model is based on the split flow from Pine Street that is determined in the HEC-2 model, DCL3SUBA. See the attached exhibit showing the location and limits of the HEC-2 model.

Split flow geometry is set up at the right overbank along the entire model. Flow breaking out from this model will enter Quail Run Road. The HEC-2 model for Quail Run Road is DCL5SUBB.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. See Section 5.1 for a detailed field review of this area.

The downstream limit of the model is Pecos Road at Duck Creek. The starting water surface elevation is based on the normal depth for subcritical flow. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# DCL4SUBB

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: DCL5SUBB**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: Quail Run Road adjacent to Pecos Road
DOWNSTREAM LIMIT: Duck Creek 1300 feet downstream of Pecos Road
UPSTREAM HEC-2 SECTION: 30500
DOWNSTREAM HEC-2 SECTION: 30900
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – Floodplain model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

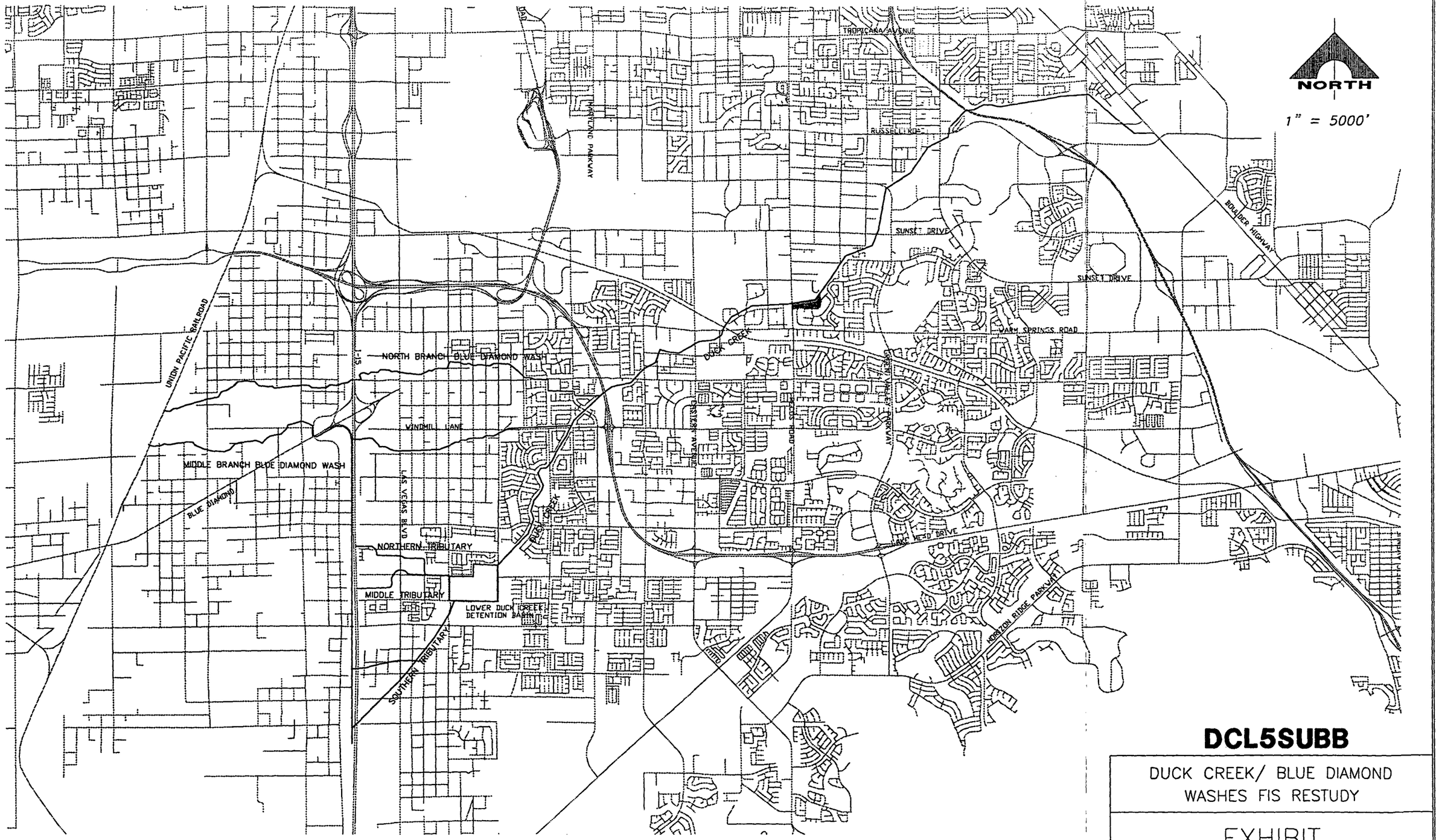
This is a subcritical model. The flow used in this model is based on the split flow from Pecos Road that is determined in the HEC-2 model, DCL4SUBA. See the attached exhibit showing the location and limits of the HEC-2 model.

Split flow geometry is set up at the left overbank along the entire model. Flow breaking out from this model will return to Duck Creek.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream.

The downstream limit of the model is Duck Creek. The starting water surface elevation is based on the normal depth for subcritical flow. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# DCL5SUBB

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: DCU1SUBA**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: 800 feet west of I-15 at Pyle Avenue
DOWNSTREAM LIMIT: 100 feet east of Las Vegas Boulevard at Southern Confluence
UPSTREAM HEC-2 SECTION: 26800
DOWNSTREAM HEC-2 SECTION: 25600
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – model used only to determine flow splits/ adjustments
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000, April 2001; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

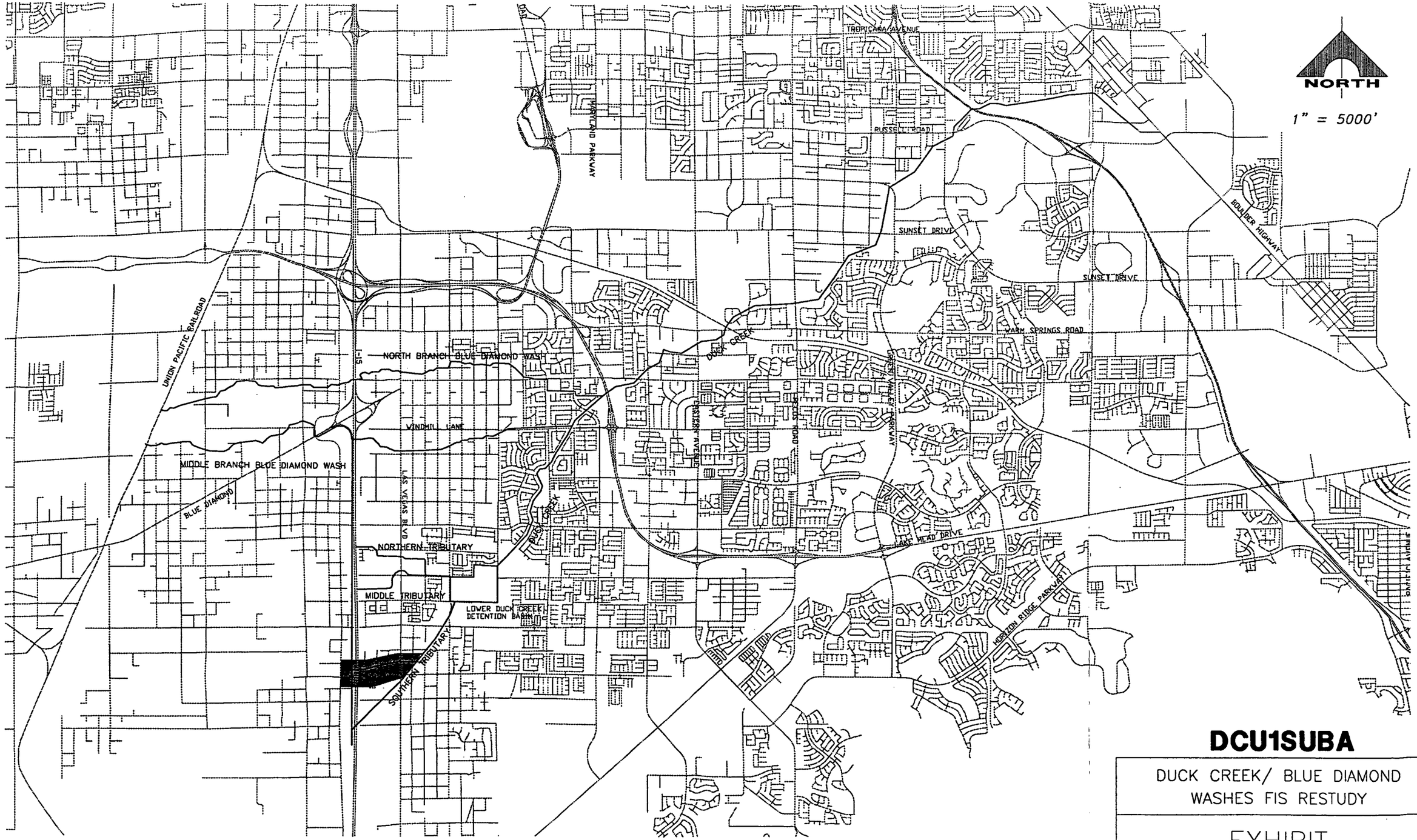
This model serves only as a base model used to determine split flows and flow adjustments for the HEC-2 models, DCU1SUBC, and DCU2SUBB. See the attached exhibit showing the location and limits of the HEC-2 model.

Split flow geometry extends along the left overbank from Las Vegas Boulevard to approximately 350 feet west of Las Vegas Boulevard. Breakout flow from this model will drain north along the west side of Las Vegas Boulevard that is modeled in DCU2SUBB. Note that model DCU1SUBA also accepts flow resulting from the split flow of HEC-2 model, DCU3SUBA. This split enters model DCU1SUBA by overtopping Pyle Avenue, west of Las Vegas Boulevard.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Bridge geometry is based on a detailed field review organized in Section 5.1. All bridges in this reach were modeled using the Special Culvert routine. The water surface elevation at the upstream face of the I-15 crossing is set to 2285.6 feet, based on the hand calculations for Diversion DVI153. Note that the cross section geometry in model DCU1SUBA is identical to that in model DCU1SUBC.

The starting water surface elevation is based on the normal depth for subcritical flow at the downstream limit. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# DCU1SUBA

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: DCU1SUBC**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: 800 feet west of I-15 at Pyle Avenue
DOWNSTREAM LIMIT: 100 feet east of Las Vegas Boulevard at Southern Confluence
UPSTREAM HEC-2 SECTION: 26800
DOWNSTREAM HEC-2 SECTION: 25600
FLOW REGIME: Subcritical
STUDY METHOD: Detailed – floodplain and floodway model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000, April 2001; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This is a floodplain and floodway model. The split flow option was disabled for this model. Flow rate adjustments for this model are based on flows generated by the base model DCU1SUBA.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Bridge geometry is based on a detailed field review organized in Section 5.1. All bridges in this reach were modeled using the Special Culvert routine. The water surface elevation at the upstream face of the I-15 crossing is set to 2285.6 feet, based on the hand calculations for Diversion DVI153. Note that the cross section geometry in model DCU1SUBA is identical to that in model DCU1SUBC.

The starting water surface elevation is based on the normal depth for subcritical flow at the downstream limit. Manning's "n" roughness calculations are attached in Section 2.3.

The floodway analysis uses a combination of Encroachment Methods 1 and 4. Encroachment Method 1 was used when Encroachment Method 4 failed to produce reasonable results. An iterative process was applied with Encroachment Method 1 using engineering judgment to determine the locations of the encroachment stations in order to approximate equal conveyance loss for both overbanks.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.

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NORTH

1" = 5000'

TROPICANA AVENUE
MARYLAND PARKWAY
RUSSELL ROAD
SUNSET DRIVE
BOULDER HIGHWAY
FARM SPRINGS ROAD
UNION PACIFIC RAILROAD
NORTH BRANCH BLUE DIAMOND WASH
DUCK CREEK
WINDMILL LANE
LAS VEGAS BLVD
MIDDLE BRANCH BLUE DIAMOND WASH
BLUE DIAMOND
NORTHERN TRIBUTARY
MIDDLE TRIBUTARY
LOWER DUCK CREEK DETENTION BASIN
SOUTHERN TRIBUTARY
LAKE MEAD DRIVE
HORIZON RIDGE PARKWAY

# DCU1SUBC

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

LEGEND

- LIMITS OF HEC-2 MODEL
- STREET CENTER LINE
- CHANNEL CENTER LINE

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

**HEC-2 MODEL: DCU2SUBB**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: West side Las Vegas Blvd. 1100 feet south of Silverado Ranch Blvd.
DOWNSTREAM LIMIT: West side Las Vegas Blvd. 300 feet south of Silverado Ranch Blvd.
UPSTREAM HEC-2 SECTION: 29200
DOWNSTREAM HEC-2 SECTION: 28800
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – floodplain model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000, April 2001; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

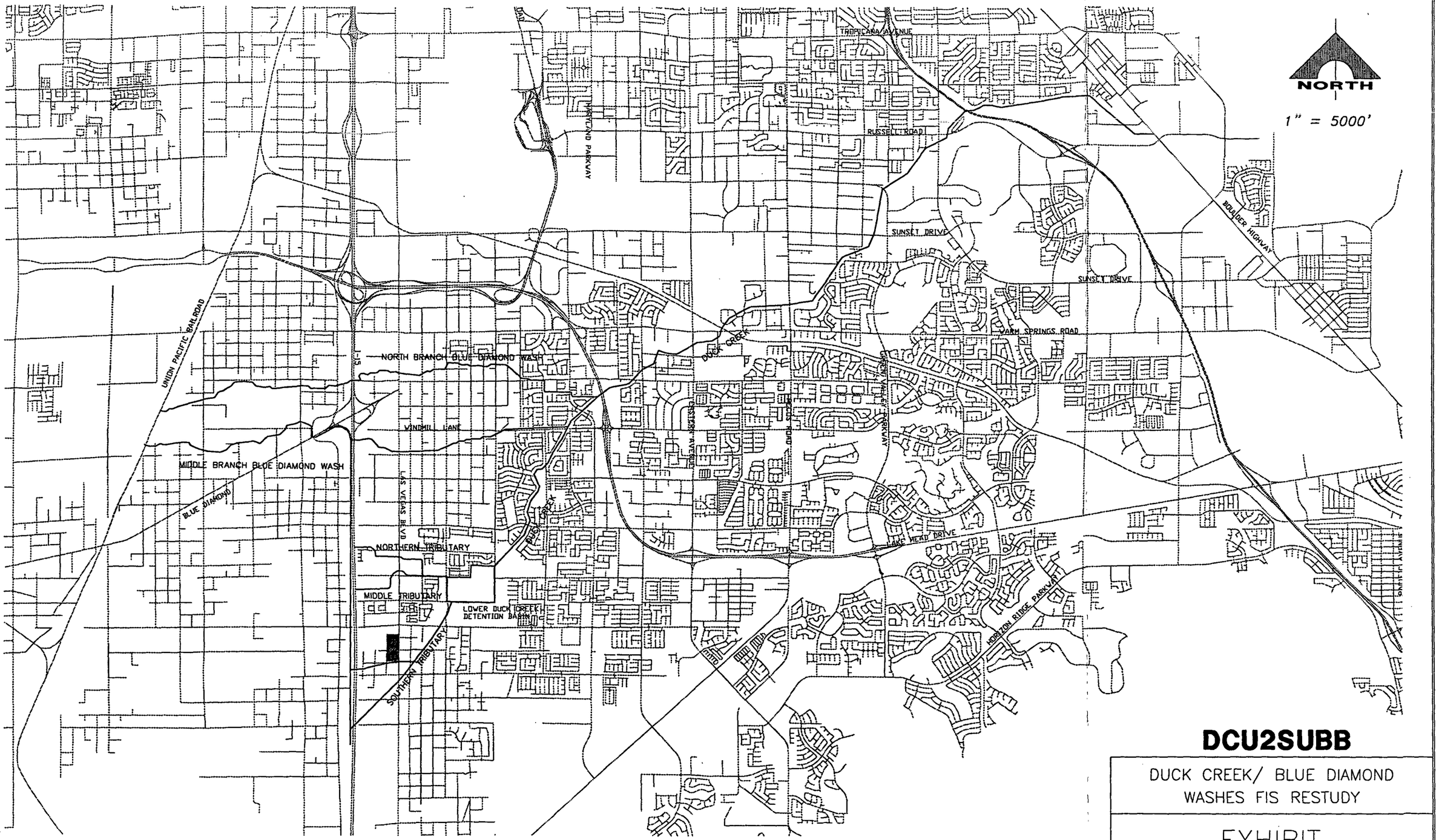
This is a subcritical floodplain model. Flows for this model are based on split flows determined in the base model, DCU1SUBA. There are no split flows or flow adjustments in this model.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream.

The starting water surface elevation is based on the normal depth for subcritical flow at the downstream limit. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.

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# DCU2SUBB

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

**HEC-2 MODEL: DCU3SUBA**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: East side of I-15 at Cactus Avenue
DOWNSTREAM LIMIT: Lower Duck Creek Detention Basin
UPSTREAM HEC-2 SECTION: 22800
DOWNSTREAM HEC-2 SECTION: 25400
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – model used only to determine flow splits/ adjustments
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000, April 2001; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This model serves only as a base model used to determine split flows and flow adjustments for the HEC-2 models, DCU1SUBA, DCU3SUBC, and DCU4SUBC.

Split flow geometry is setup along two reaches:

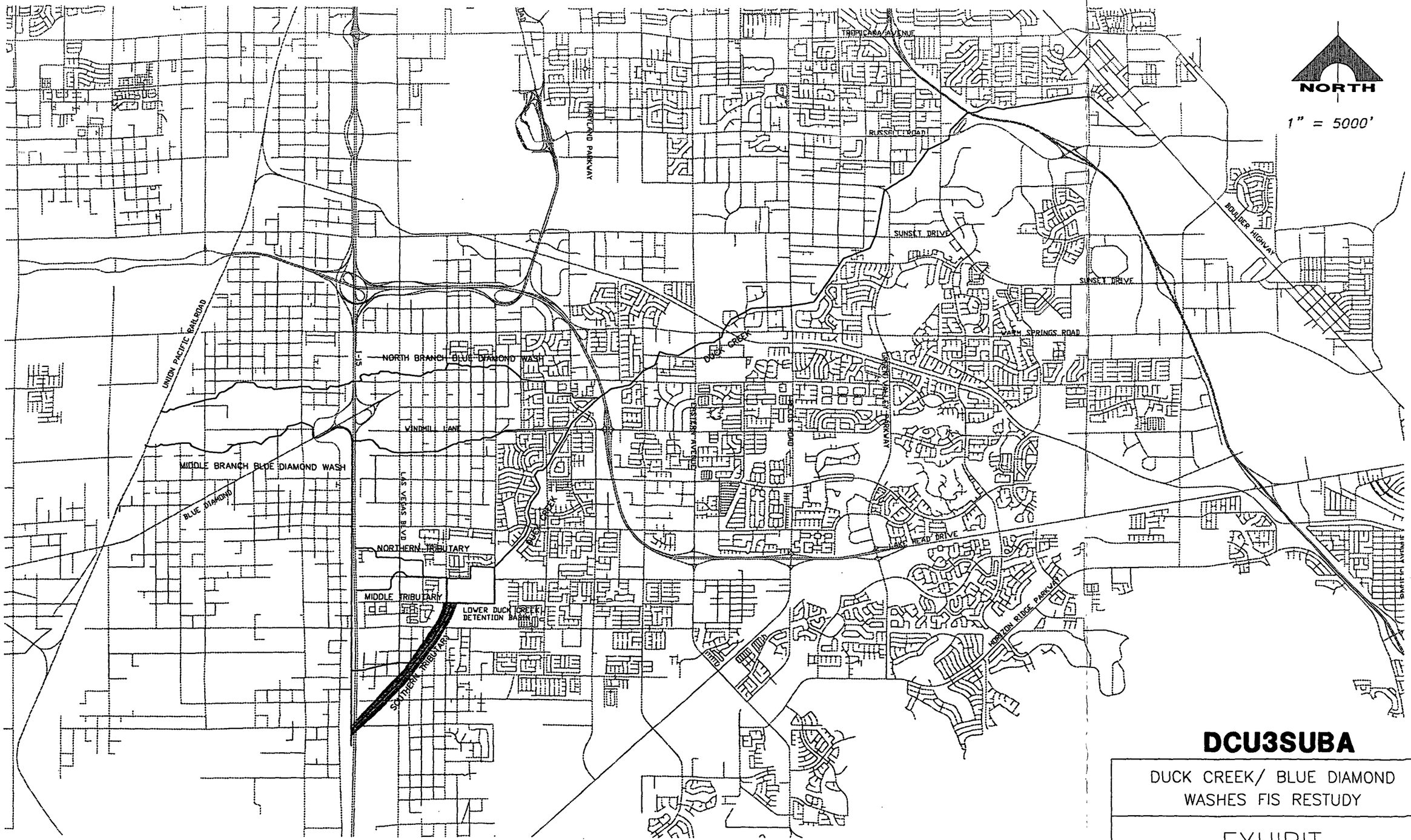
1. North along Pyle Road, west of Las Vegas Boulevard – Left Overbank
2. East at Silverado Ranch Boulevard – Right Overbank

Breakout flow along Pyle Road is included in the HEC-2 model, DCU1SUBA. Breakout flow at Silverado Ranch Boulevard is included in HEC-2 model, DCU4SUBC.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Bridge geometry is based on a detailed field review organized in Section 5.1. All bridges in this reach are modeled using the Special Bridge routine. Note that the cross section geometry in model DCU3SUBA is identical to that in model DCU3SUBC.

The starting water surface elevation is based on the normal depth for subcritical flow at the downstream limit. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# DCU3SUBA

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

LEGEND

- LIMITS OF HEC-2 MODEL
- STREET CENTER LINE
- CHANNEL CENTER LINE

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

RGarcia
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HEC-2 MODEL: DCU3SUBC
STREAM NAME: Duck Creek
UPSTREAM LIMIT: East side of I-15 at Cactus Avenue
DOWNSTREAM LIMIT: Lower Duck Creek Detention Basin
UPSTREAM HEC-2 SECTION: 22800
DOWNSTREAM HEC-2 SECTION: 25400
FLOW REGIME: Subcritical
STUDY METHOD: Detailed – floodplain and floodway model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000, April 2001; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

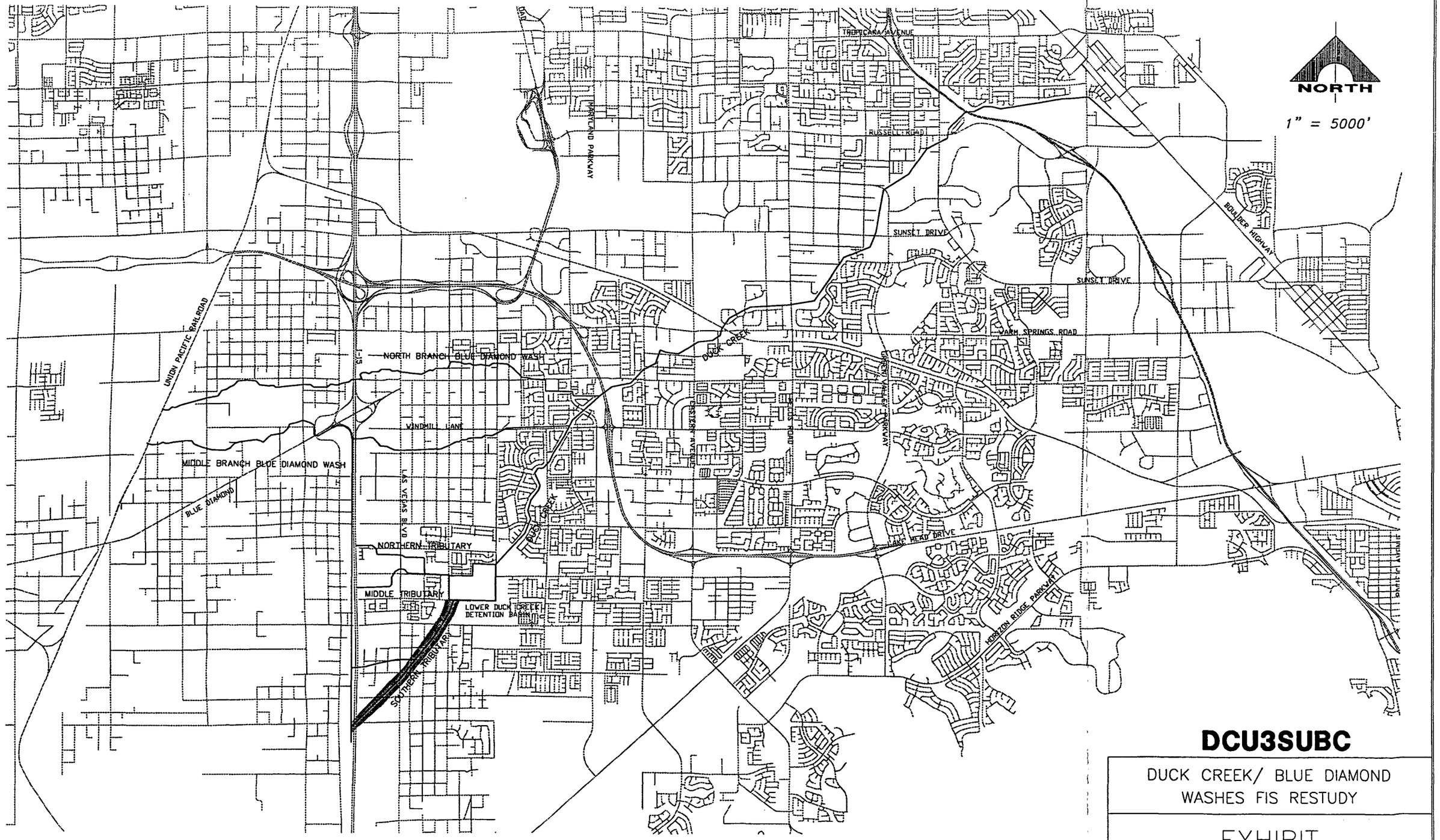
This is a subcritical floodplain and floodway model. The split flow option was disabled for this model. Flow rate adjustments for this model are based on flows generated by the base model, DCU3SUBA.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Bridge geometry is based on a detailed field review organized in Section 5.1. All bridges in this reach are modeled using the Special Bridge routine. Note that the cross section geometry in model DCU3SUBC is identical to that in model DCU3SUBA.

The starting water surface elevation is based on the normal depth for subcritical flow at the downstream limit. Manning's "n" roughness calculations are attached in Section 2.3.

The floodway analysis uses a combination of Encroachment Methods 1 and 4. Encroachment Method 1 was used when Encroachment Method 4 failed to produce reasonable results. An iterative process was applied with Encroachment Method 1 using engineering judgment to determine the locations of the encroachment stations in order to approximate equal conveyance loss for both overbanks.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# DCU3SUBC

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: DCU4SUBC**
STREAM NAME: Duck Creek – "South Channel"
UPSTREAM LIMIT: Silverado Ranch Boulevard
DOWNSTREAM LIMIT: Lower Duck Creek Detention Basin
UPSTREAM HEC-2 SECTION: 28700
DOWNSTREAM HEC-2 SECTION: 28200
FLOW REGIME: Subcritical
STUDY METHOD: Detailed – floodplain and floodway model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000, April 2001; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

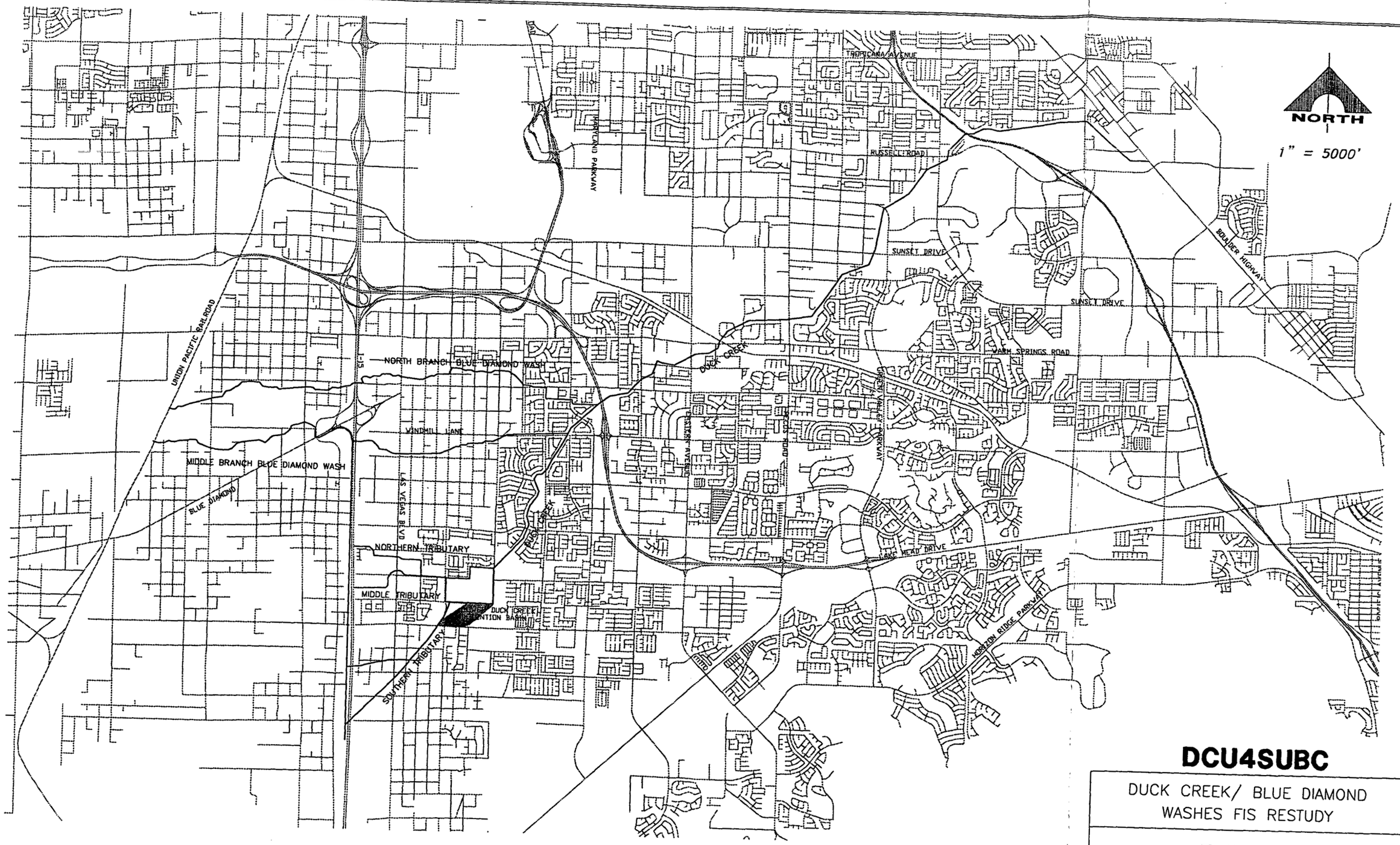
This is a subcritical floodplain and floodway model. The flows used in this model were determined from the split flow output of the base model, DCU3SUBA.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream.

The starting water surface elevation is based on the normal depth for subcritical flow at the downstream limit. Manning's "n" roughness calculations are attached in Section 2.3.

The floodway analysis uses a combination of Encroachment Methods 1 and 4. Encroachment Method 1 was used when Encroachment Method 4 failed to produce reasonable results. An iterative process was applied with Encroachment Method 1 using engineering judgment to determine the locations of the encroachment stations in order to approximate equal conveyance loss for both overbanks.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# DCU4SUBC

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

LEGEND

- LIMITS OF HEC-2 MODEL
- STREET CENTER LINE
- CHANNEL CENTER LINE

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: I151SUBB**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: West side I-15 at Duck Creek near Cactus Avenue
DOWNSTREAM LIMIT: West Side I-15 at Haleh Avenue
UPSTREAM HEC-2 SECTION: 53000
DOWNSTREAM HEC-2 SECTION: 53400
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – Floodplain model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000, April 2001; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

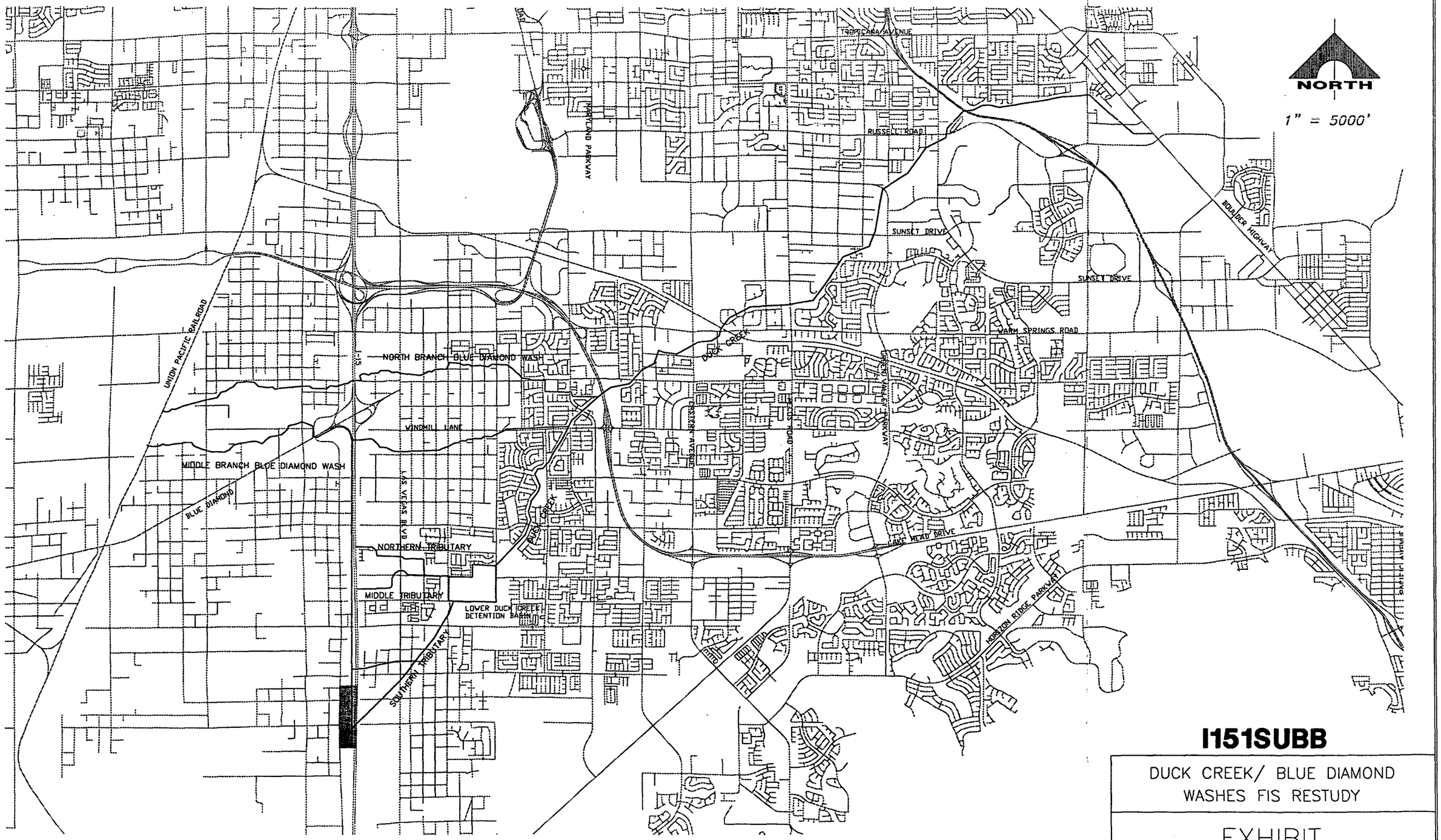
ADDITIONAL DESCRIPTION/DISCUSSION:

This is a subcritical floodplain model. The flow adjustments used in this model are referenced directly from the HEC-1 output.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream.

The starting water surface elevation is based on the normal depth for subcritical flow at the downstream end. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# I151SUBB

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: I152SUBB**
STREAM NAME: Duck Creek
UPSTREAM LIMIT: West side I-15 at Le Baron Avenue
DOWNSTREAM LIMIT: West Side I-15 at Middle Branch Blue Diamond Wash
UPSTREAM HEC-2 SECTION: 52800
DOWNSTREAM HEC-2 SECTION: 50200
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – Floodplain model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000, April 2001; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This is a subcritical floodplain model. The flow adjustments used in this model are referenced directly from the HEC-1 output.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream.

The starting water surface elevation is based on the headwater elevation (2264.7 feet, HEC-2 model BDM3SUBC) of the I-15 culvert, I156, at the Middle Branch Blue Diamond Wash. Water surface elevations are also set at each of the I-15 culverts, referenced from the diversion calculations in Section 2.1 *Summary of Design Flows*. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.

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NORTH

1" = 5000'

UNION PACIFIC RAILROAD
NORTH BRANCH BLUE DIAMOND WASH
MIDDLE BRANCH BLUE DIAMOND WASH
BLUE DIAMOND
VANDMILL LANE
LAS VEGAS BLVD
NORTHERN TRIBUTARY
MIDDLE TRIBUTARY
SOUTHERN TRIBUTARY
LOWER DUCK CREEK DETENTION BASIN
DUCK CREEK
HARTLAND PARKWAY
TROPICANA AVENUE
RUSSELL ROAD
SUNSET DRIVE
SUNSET DRIVE
BOULDER HIGHWAY
WARM SPRINGS ROAD
GREEN VALLEY PARKWAY
GREEN VALLEY PARKWAY
LAKE MEAD DRIVE
HORIZON RIDGE PARKWAY

LEGEND

- LIMITS OF HEC-2 MODEL
- STREET CENTER LINE
- CHANNEL CENTER LINE

# I152SUBB

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

**HEC-2 MODEL: BDM1SUBB**
STREAM NAME: Middle Branch Blue Diamond Wash
UPSTREAM LIMIT: Union Pacific Railroad
DOWNSTREAM LIMIT: 1000 feet west of Valley View Boulevard
UPSTREAM HEC-2 SECTION: 48400
DOWNSTREAM HEC-2 SECTION: 46700
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – Floodplain model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

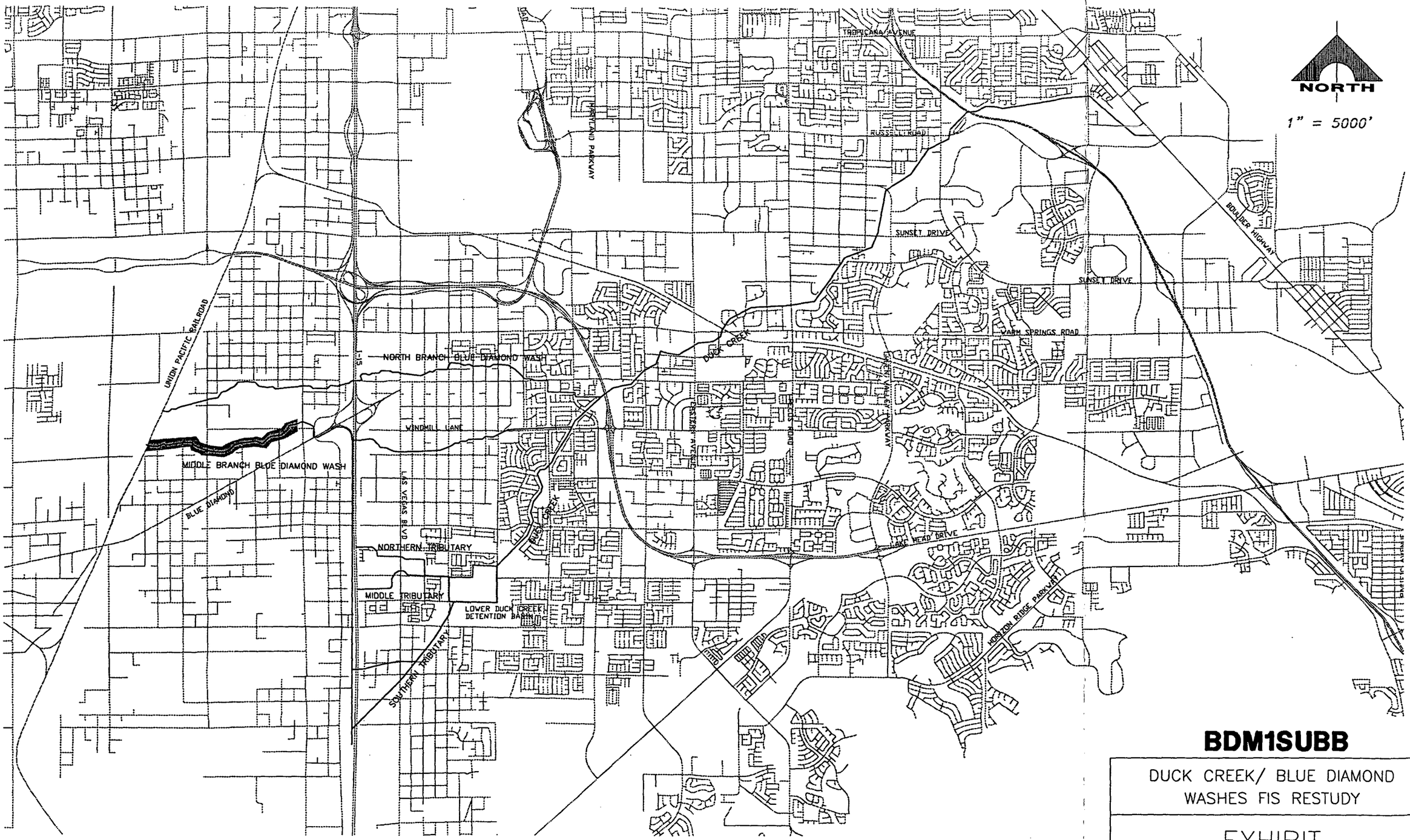
ADDITIONAL DESCRIPTION/DISCUSSION:

This is a subcritical floodplain model.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream.

The starting water surface elevation is based on the normal depth for subcritical flow at the downstream end. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# BDM1SUBB

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: BDM2SUBB**
STREAM NAME: Middle Branch Blue Diamond Wash
UPSTREAM LIMIT: South side of Blue Diamond Road
DOWNSTREAM LIMIT: West side of Industrial Road
UPSTREAM HEC-2 SECTION: 48900
DOWNSTREAM HEC-2 SECTION: 48500
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – Floodplain model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

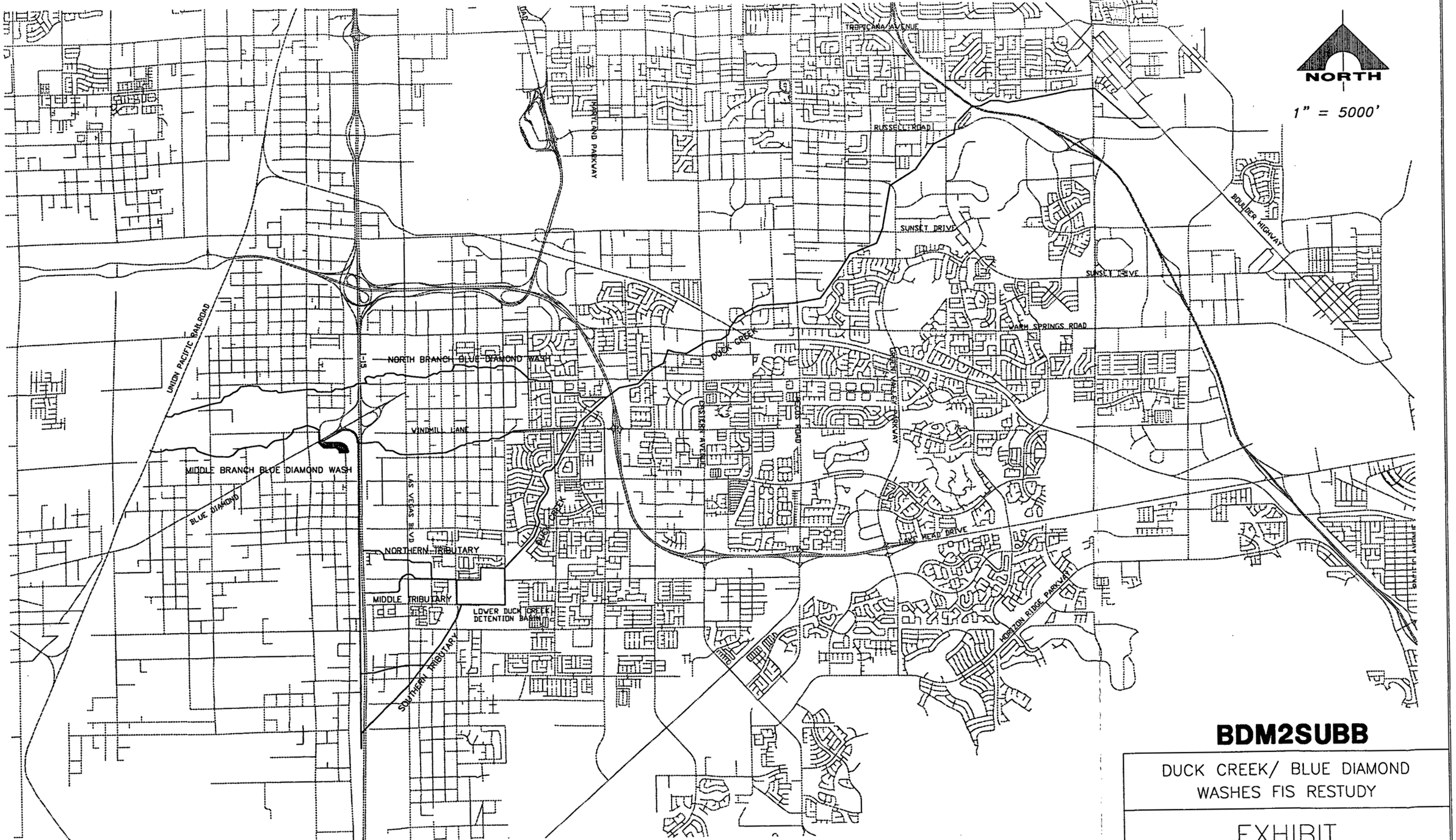
ADDITIONAL DESCRIPTION/DISCUSSION:

This is a subcritical floodplain model. The flows used in this model were determined from the split flow output of model BDM3SUBC.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream.

The starting water surface elevation is based on the normal depth for subcritical flow at the downstream end. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model




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**HEC-2 MODEL: BDM3SUBC**
STREAM NAME: Middle Branch Blue Diamond Wash
UPSTREAM LIMIT: 200 feet west of Valley View Boulevard
DOWNSTREAM LIMIT: Confluence with Duck Creek
UPSTREAM HEC-2 SECTION: 46600
DOWNSTREAM HEC-2 SECTION: 40900
FLOW REGIME: Subcritical
STUDY METHOD: *Detailed – floodplain and floodway model*
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This is a subcritical floodplain and floodway model. The flows used are referenced directly from the HEC-1 output.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Bridge geometry is based on a detailed field review organized in Section 5.1. All bridges in this reach were modeled using the Special Bridge routine. Note that the cross section geometry in HEC-2 model BDM3SUBC is identical to that in model BDM3SPRC.

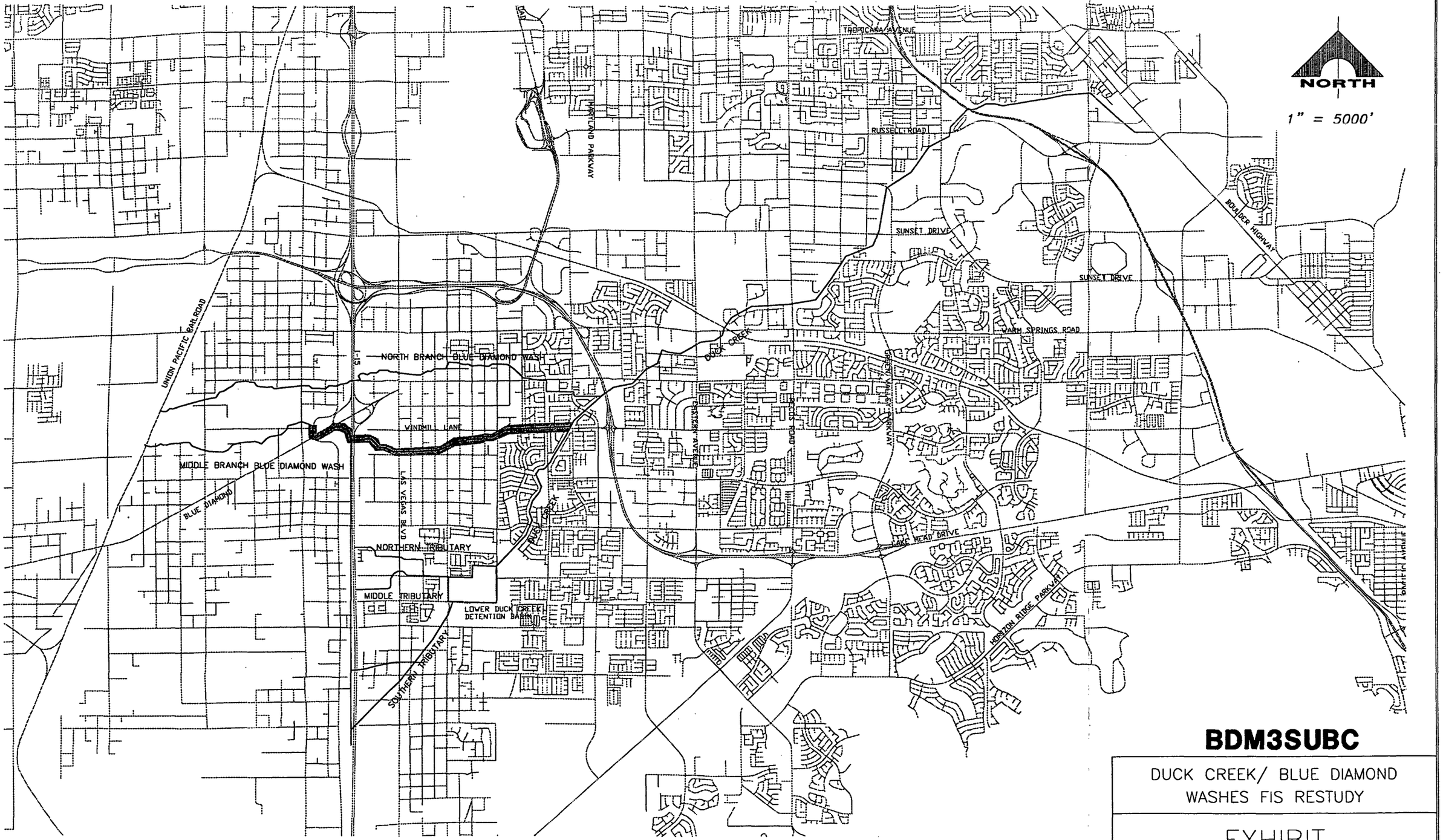
The starting water surface elevation is based on critical depth at the downstream end. The water surface elevation at the downstream end of the Middle Branch Blue Diamond Wash controlled over the supercritical water surface elevation in Duck Creek, at the confluence. Manning's "n" roughness calculations are attached in Section 2.3.

The floodway analysis uses a combination of Encroachment Methods 1 and 4. Encroachment Method 1 was used when Encroachment Method 4 failed to produce reasonable results. An iterative process was applied with Encroachment Method 1 using engineering judgment to determine the locations of the encroachment stations in order to approximate equal conveyance loss for both overbanks.

The following projects are incorporated into the HEC-2 model:

A. Windmill Lane Storm Drain from Bermuda Road to Amigo Street

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# BDM3SUBC

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: BDM4SUBB**
STREAM NAME: Middle Branch Blue Diamond Wash
UPSTREAM LIMIT: Valley View Boulevard
DOWNSTREAM LIMIT: North Branch Blue Diamond Wash
UPSTREAM HEC-2 SECTION: 50100
DOWNSTREAM HEC-2 SECTION: 49000
FLOW REGIME: Subcritical
STUDY METHOD: Approximate – floodplain model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

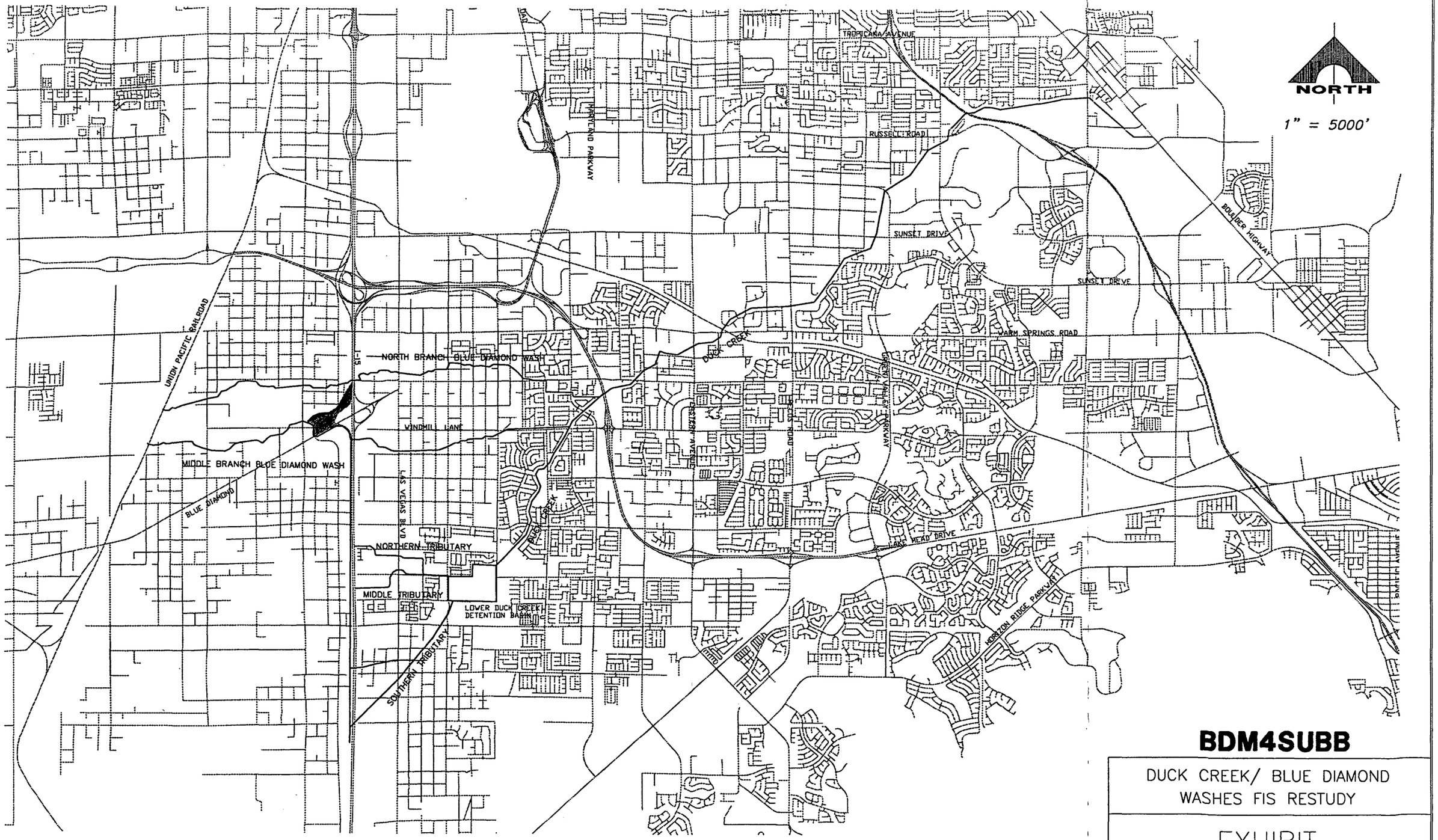
ADDITIONAL DESCRIPTION/DISCUSSION:

This is a subcritical floodplain model. Flows for this model are referenced directly from the HEC-1 output. There are no split flows or flow adjustments in this model. The interchange area is considered an ineffective flow area.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Photographs of this area are organized in a detailed field review in Section 5.1.

The starting water surface elevation is based on the normal depth for subcritical flow at the downstream limit. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# BDM4SUBB

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: BDM3SPRC**
STREAM NAME: Middle Branch Blue Diamond Wash
**UPSTREAM LIMIT: 200 feet west of Valley View Boulevard**
DOWNSTREAM LIMIT: Confluence with Duck Creek
UPSTREAM HEC-2 SECTION: 46600
**DOWNSTREAM HEC-2 SECTION: 40900**
FLOW REGIME: Supercritical
STUDY METHOD: Detailed – floodplain and floodway model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This is a supercritical floodplain and floodway model. The subcritical HEC-2 model, BDM3SUBC, generated the flows used in this model. The split flow option was also disabled for this model.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Bridge geometry is based on a detailed field review organized in Section 5.1. All bridges in this reach were modeled using the Special Bridge routine.
Note that the cross section geometry in HEC-2 model BDM3SPRC is identical to model BDM3SUBC.

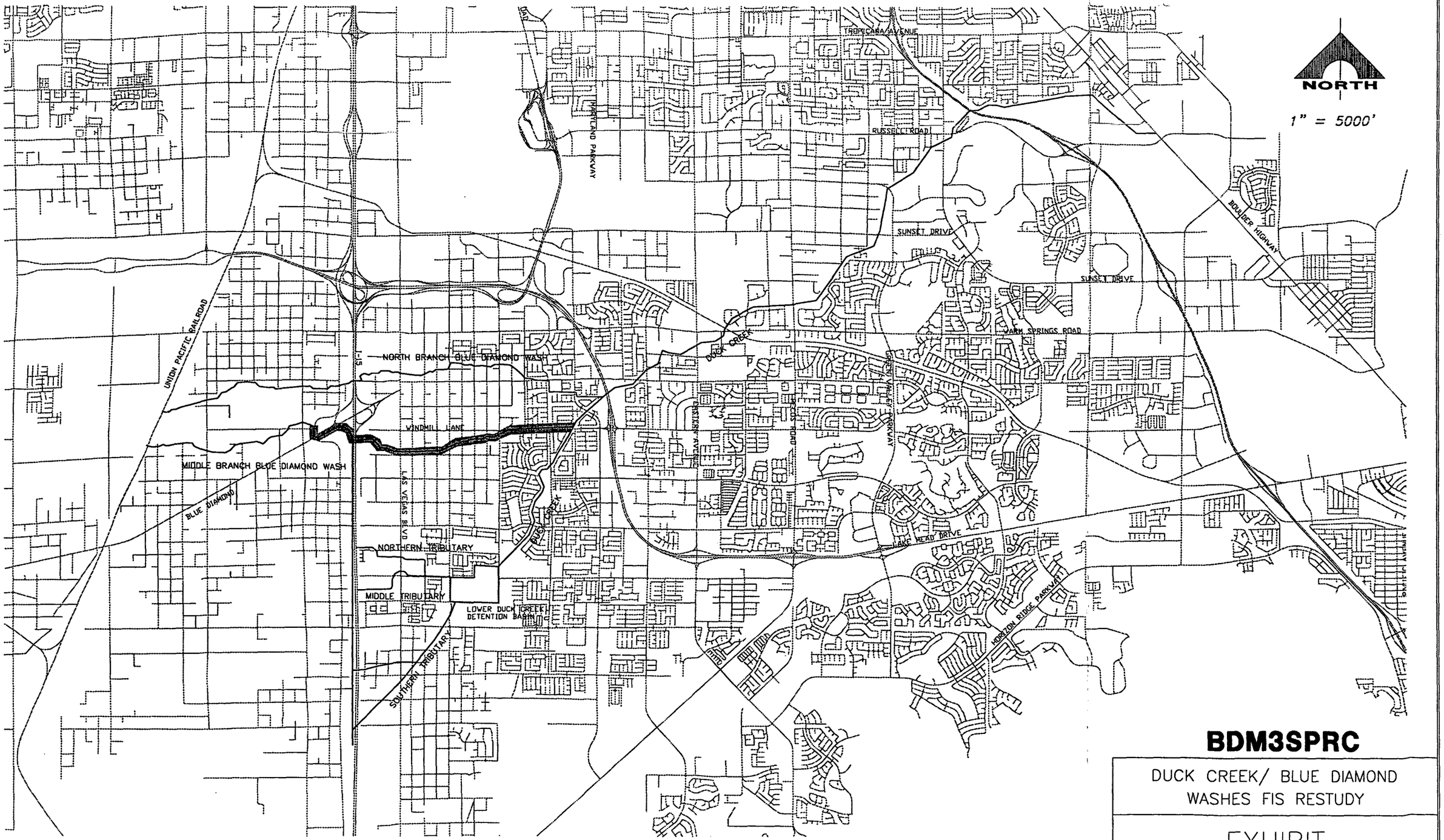
The starting water surface elevation is based on the supercritical water surface elevation in Duck Creek at the confluence. Manning's "n" roughness calculations are attached in Section 2.3.

The floodway analysis uses a combination of Encroachment Methods 1 and 4. Encroachment Method 1 was used when Encroachment Method 4 failed to produce reasonable results. An iterative process was applied with Encroachment Method 1 using engineering judgment to determine the locations of the encroachment stations in order to approximate equal conveyance loss for both overbanks.

The following projects are incorporated into the HEC-2 model:

A. Windmill Lane Storm Drain from Bermuda Road to Amigo Street

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




**BDM3SPRC**

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: BDN1SUBC**
STREAM NAME: North Branch Blue Diamond Wash
UPSTREAM LIMIT: Union Pacific Railroad
DOWNSTREAM LIMIT: Confluence with Duck Creek
UPSTREAM HEC-2 SECTION: 40700
DOWNSTREAM HEC-2 SECTION: 31000
FLOW REGIME: Subcritical
STUDY METHOD: Detailed – floodplain and floodway model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This is a subcritical floodplain and floodway model. The flows used are referenced directly from the HEC-1 output.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Note that the cross section geometry in HEC-2 model BDN1SUBC is identical to model BDN1SPRC.

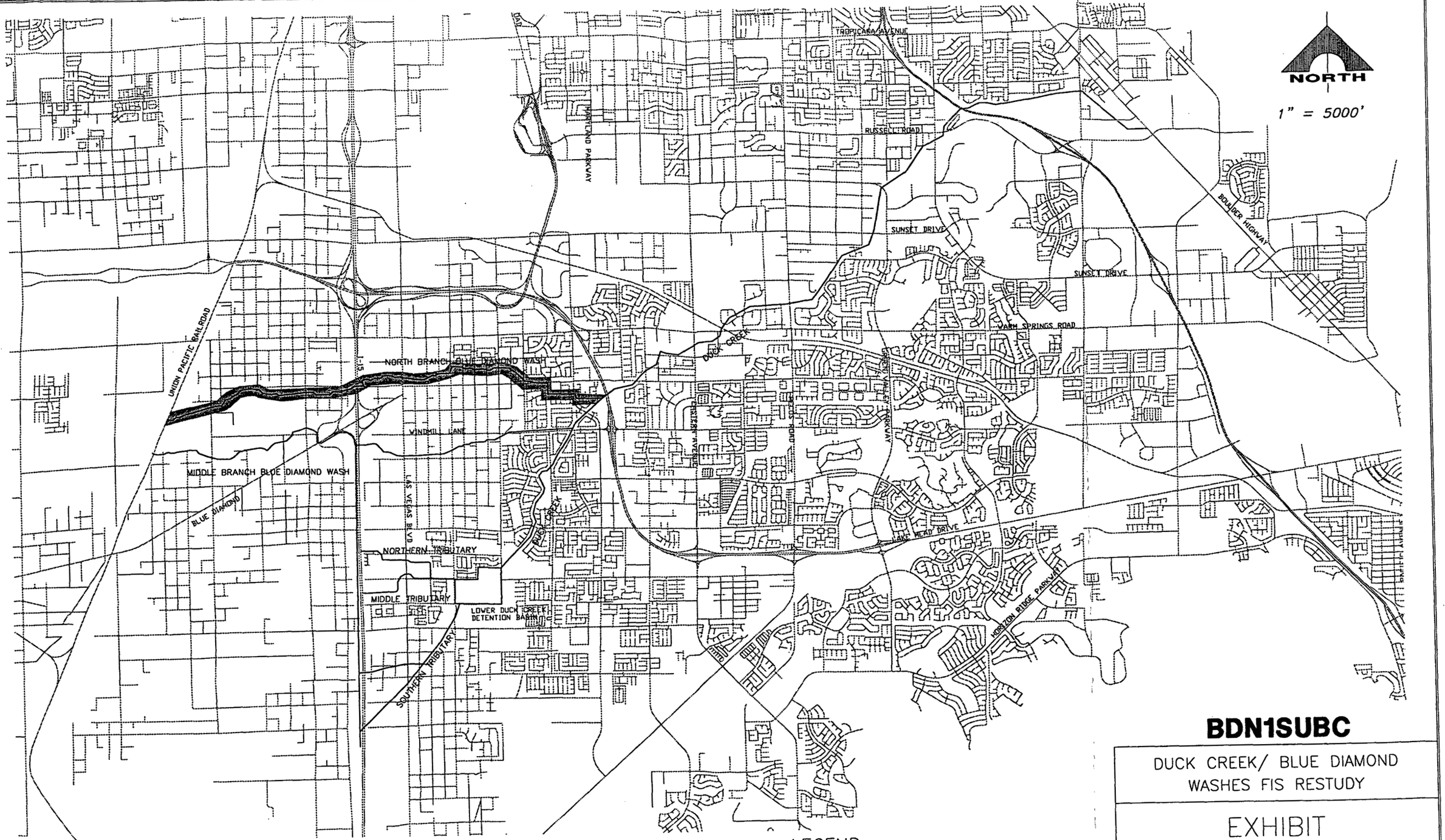
Bridge geometry is based on a detailed field review organized in Section 5.1. Bridge modeling was done using the Special Bridge and Special Culvert methods. The headwater elevation at Las Vegas Boulevard was set using a rating curve hand calculation because of the irregular, multiple opening system. Note that several bridge models were modified to compensate for an internal HEC-1 check during supercritical flow analysis. If critical depth is above the low chord, it will not pass low flow. In order to pass low flow, low chords were raised artificially using engineer judgment. The following bridge locations were modified:

A. Amigo Street
B. Robindale Road
C. Paradise Road

The starting water surface elevation is based on the supercritical water surface elevation in Duck Creek at the confluence. Manning's "n" roughness calculations are attached in Section 2.3.

The floodway analysis uses a combination of Encroachment Methods 1 and 4. Encroachment Method 1 was used when Encroachment Method 4 failed to produce reasonable results. An iterative process was applied with Encroachment Method 1 using engineering judgment to determine the locations of the encroachment stations in order to approximate equal conveyance loss for both overbanks.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




# BDN1SUBC

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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**HEC-2 MODEL: BDN1SPRC**
STREAM NAME: North Branch Blue Diamond Wash
UPSTREAM LIMIT: Union Pacific Railroad
DOWNSTREAM LIMIT: Confluence with Duck Creek
UPSTREAM HEC-2 SECTION: 40700
DOWNSTREAM HEC-2 SECTION: 31000
FLOW REGIME: Supercritical
STUDY METHOD: Detailed – floodplain and floodway model
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., September 2000 to November 2001; NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This is a supercritical floodplain and floodway model. The flows used are referenced directly from the HEC-1 output.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream. Note that the cross section geometry in HEC-2 model BDN1SUBC is identical to that in model BDN1SPRC.

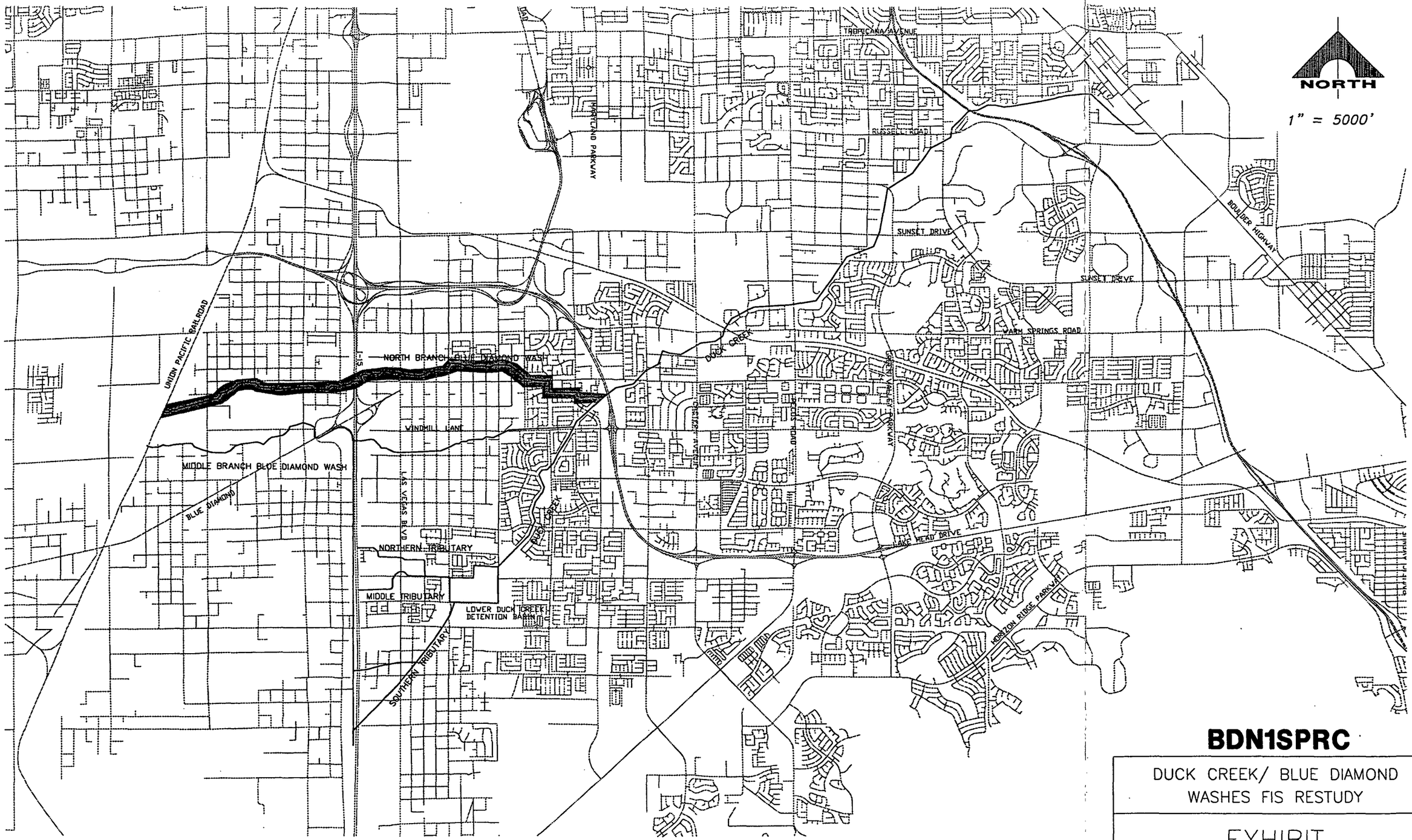
Bridge geometry is based on a detailed field review organized in Section 5.1. Bridge modeling was done using the Special Bridge and Special Culvert methods. The headwater elevation at Las Vegas Boulevard was set using a rating curve hand calculation because of the irregular, multiple opening system. Note that several bridge models were modified to compensate for an internal HEC-1 check during supercritical flow analysis. If critical depth is above the low chord, it will not pass low flow. In order to pass low flow, low chords were raised artificially using engineer judgment. The following bridge locations were modified:

A. Amigo Street
B. Robindale Road
C. Paradise Road

The starting water surface elevation is based on the supercritical depth at the upstream end. Manning's "n" roughness calculations are attached in Section 2.3.

The floodway analysis uses a combination of Encroachment Methods 1 and 4. Encroachment Method 1 was used when Encroachment Method 4 failed to produce reasonable results. An iterative process was applied with Encroachment Method 1 using engineering judgment to determine the locations of the encroachment stations in order to approximate equal conveyance loss for both overbanks.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model.




**BDN1SPRC**

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

# EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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HEC-2 MODEL: DCL6SUBB
STREAM NAME: Duck Creek
UPSTREAM LIMIT: Confluence with Pittman Wash
DOWNSTREAM LIMIT: 300 feet downstream of Hollywood Boulevard
UPSTREAM HEC-2 SECTION: 1600
DOWNSTREAM HEC-2 SECTION: 900
FLOW REGIME: Subcritical
STUDY METHOD: Detailed – No floodway, only Base Flood Elevations
MODELING SOFTWARE: HEC-2 Version 4.6.2 (8/91) operating inside BOSS RMS 2000
TOPOGRAPHIC MAPPING: Kenney Aerial Mapping, July 2000; NGVD 29
FIELD SURVEY: G.C. Wallace, Inc., March 1998; NAVD 88 converted to NGVD 29

ADDITIONAL DESCRIPTION/DISCUSSION:

This is a subcritical floodplain model. In addition to delineating the 100-year floodplain, base flood elevations were determined for this reach of Duck Creek. The proposed floodway for Duck Creek ends at Patrick Lane, which is several miles upstream of this model limit. The 100-year flow of 11,500 cfs is referenced directly from the Effective FIS Restudy of Duck Creek by Nimbus Engineers, July 1997.

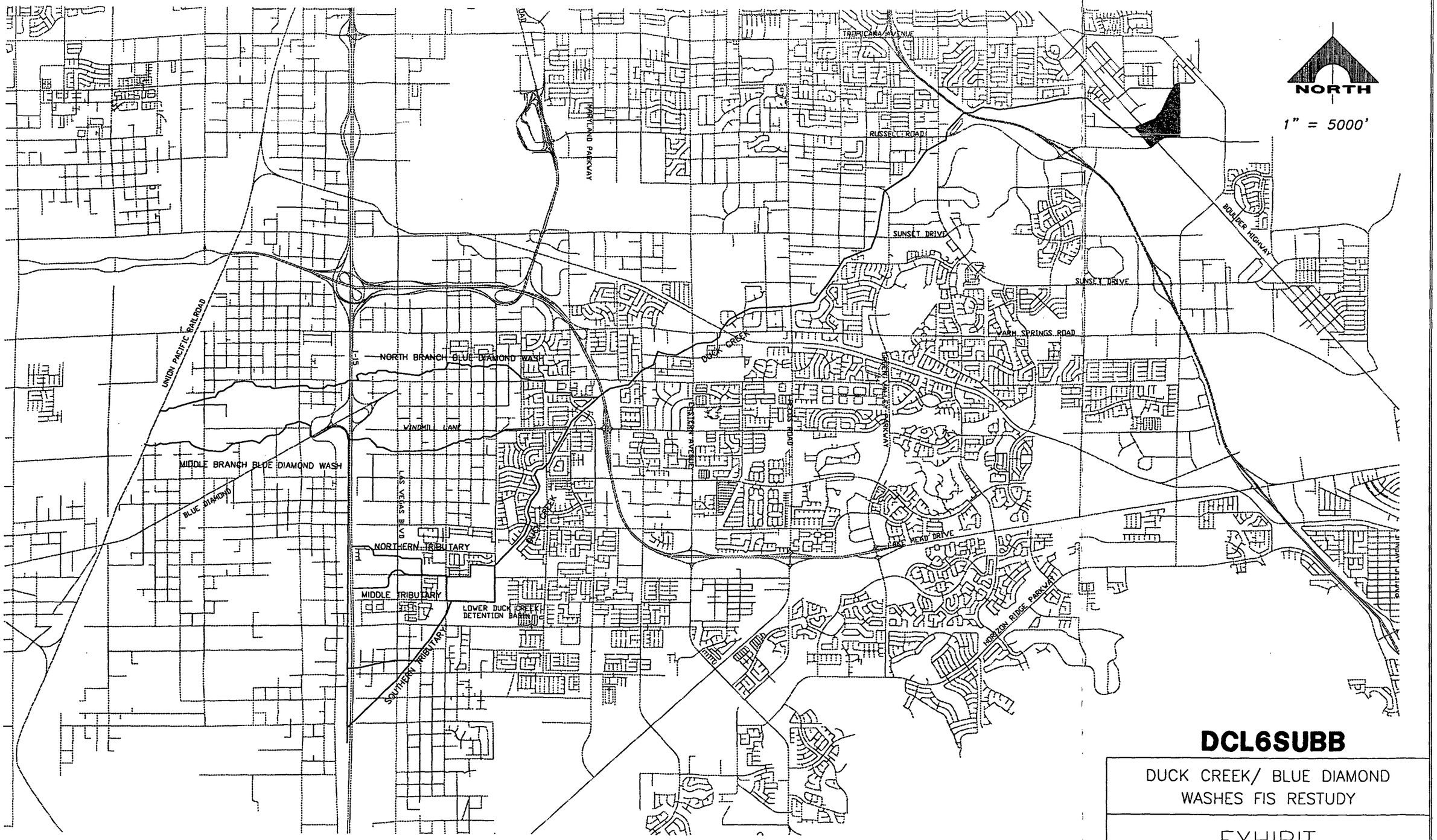
A flow distribution is used to quantify a breakout at the upstream face of Boulder Highway, along the right overbank at Russell Road. These calculations are organized in Section 2.2. The breakout is returned immediately to Duck Creek downstream of Boulder Highway.

Cross section geometry is based on a 4-foot contour interval and field survey, oriented left to right facing downstream.

The bridge geometry for Boulder Highway is based on field survey by GCW in March 1998 for the Duck Creek Channel Phase 2 project. This survey information is organized in Section 5.1. The bridge at Boulder Highway is modeled using the Special Culvert method.

The most downstream HEC-2 section of this current Restudy, Section 900, is referenced directly from Section C of *The 1997 FIS Restudy of Duck Creek by Nimbus Engineers*. The cross section geometry of Section C ties into the topographic mapping generated specifically for this project. Manning's "n" roughness calculations are attached in Section 2.3.

Due to the large volume of HEC-2 output, the input and output files are submitted electronically on CD. See the attached exhibit showing the location and limits of the HEC-2 model




# DCL6SUBB

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## EXHIBIT

HEC-2 MODEL

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

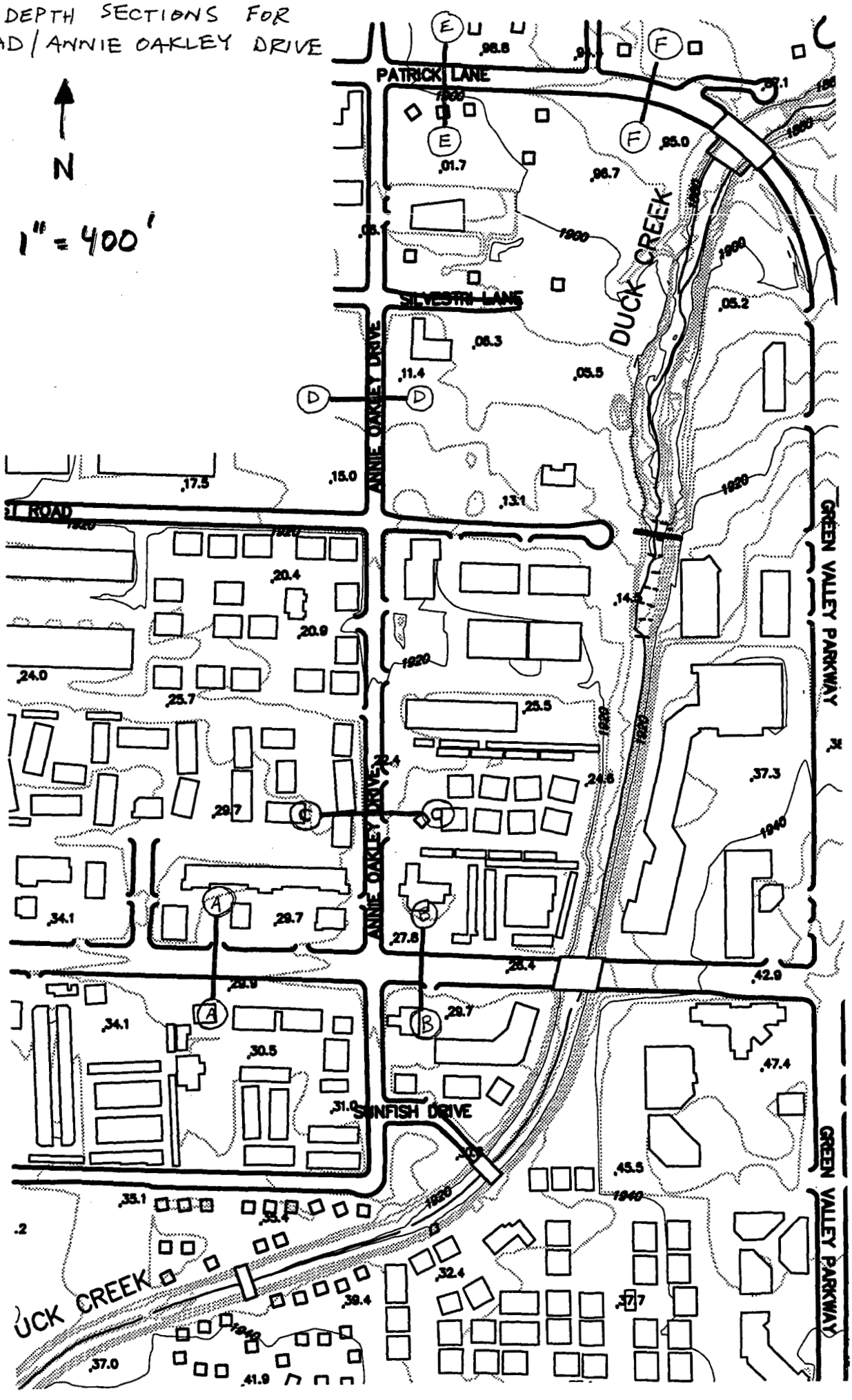
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# SUNSET ROAD/ ANNIE OAKLEY DRIVE BREAKOUT
# NORMAL DEPTH CALCULATIONS

NORMAL DEPTH SECTIONS FOR SUNSET ROAD / ANNIE OAKLEY DRIVE BREAKOUT

N

1" = 400'



DATE

CLIENT JOB NO CALC BY

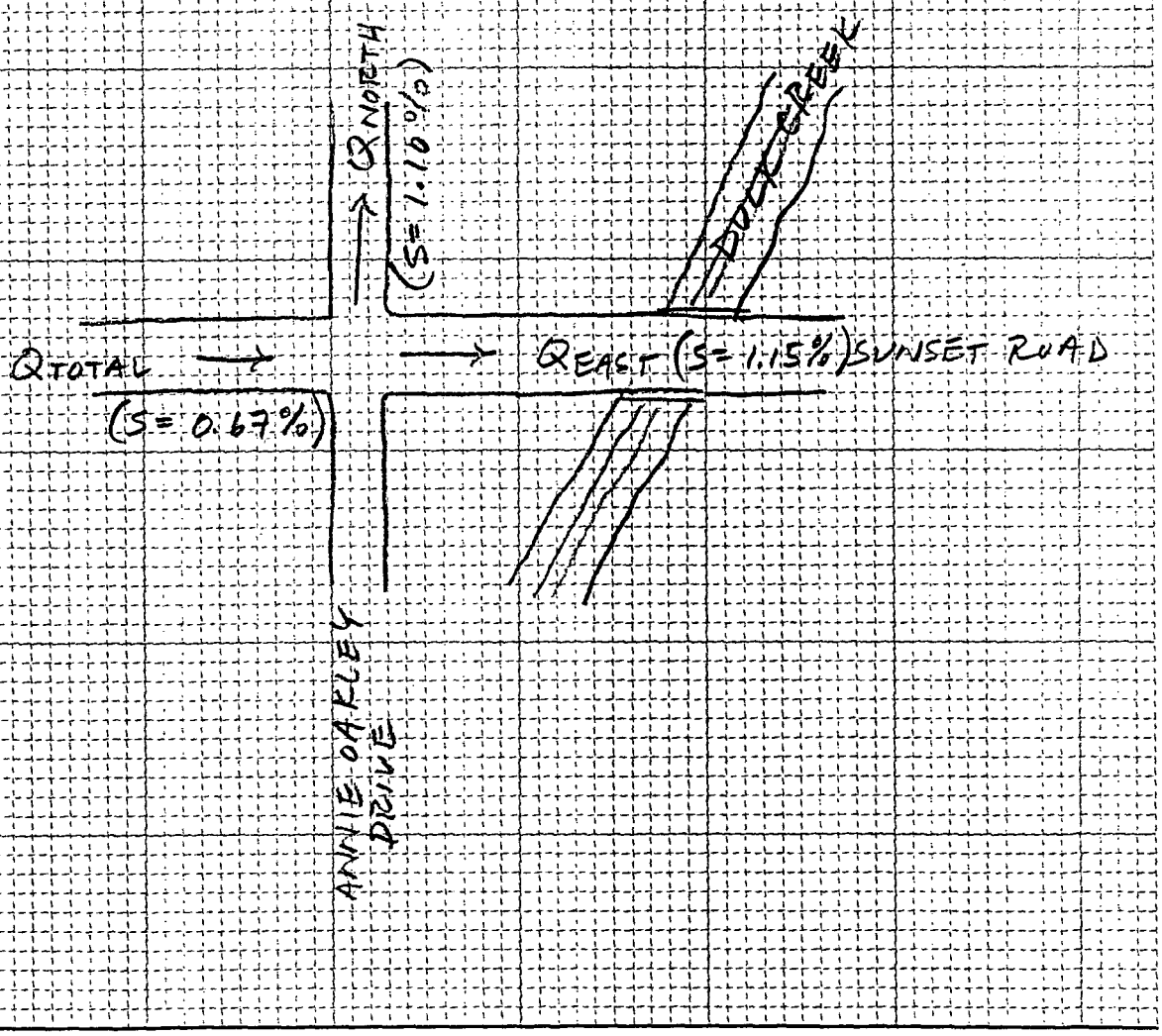
DESCRIPTION CHECKED BY

$Q_{TOTAL} = Q_{EAST} + Q_{NORTH}$

$Q_{TOTAL}$ = TOTAL BREAKOUT FLOW IN SUNSET ROAD AT INTERSECTION W/ ANNIE OAKLEY DR

$Q_{EAST}$ = FLOW IN SUNSET ROAD EAST OF INTERSECTION

$Q_{NORTH}$ = FLOW IN ANNIE OAKLEY DR NORTH OF INTERSECTION.






G. C. WALLACE, INC.
Engineers/Planners/Surveyors

SHEET ____ OF ____

DATE _____

CLIENT _____ JOB NO _____ CALC BY _____

DESCRIPTION _____ CHECKED BY _____

| D (FT) | (B) Q EAST 1 (CFS) | (C) Q NORTH 1 (CFS) | Q TOTAL (CFS) | |
|---|---|---|---|---|
| 1.20 | 445 | 385 | 830 | |
| 1.25 | 505 | 426 | 931 | TOTAL |
| 1.30 | 569 | 468 | 1037 | BREAKOUT |
| 1.35 | 636 | 513 | 1149 | ← ≅ 1141 CFS |

$Q_{EAST\ 1} \cong$ 636 CFS — SUNSET ROAD

$Q_{NORTH\ 1} \cong$ 513 CFS — ANNIE OAKLEY DRIVE



G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

DATE _____

CLIENT _____ JOB NO _____ CALC BY _____

DESCRIPTION _____ CHECKED BY _____

$Q_{NORTH1} = Q_{NORTH2} + Q_{EAST2}$

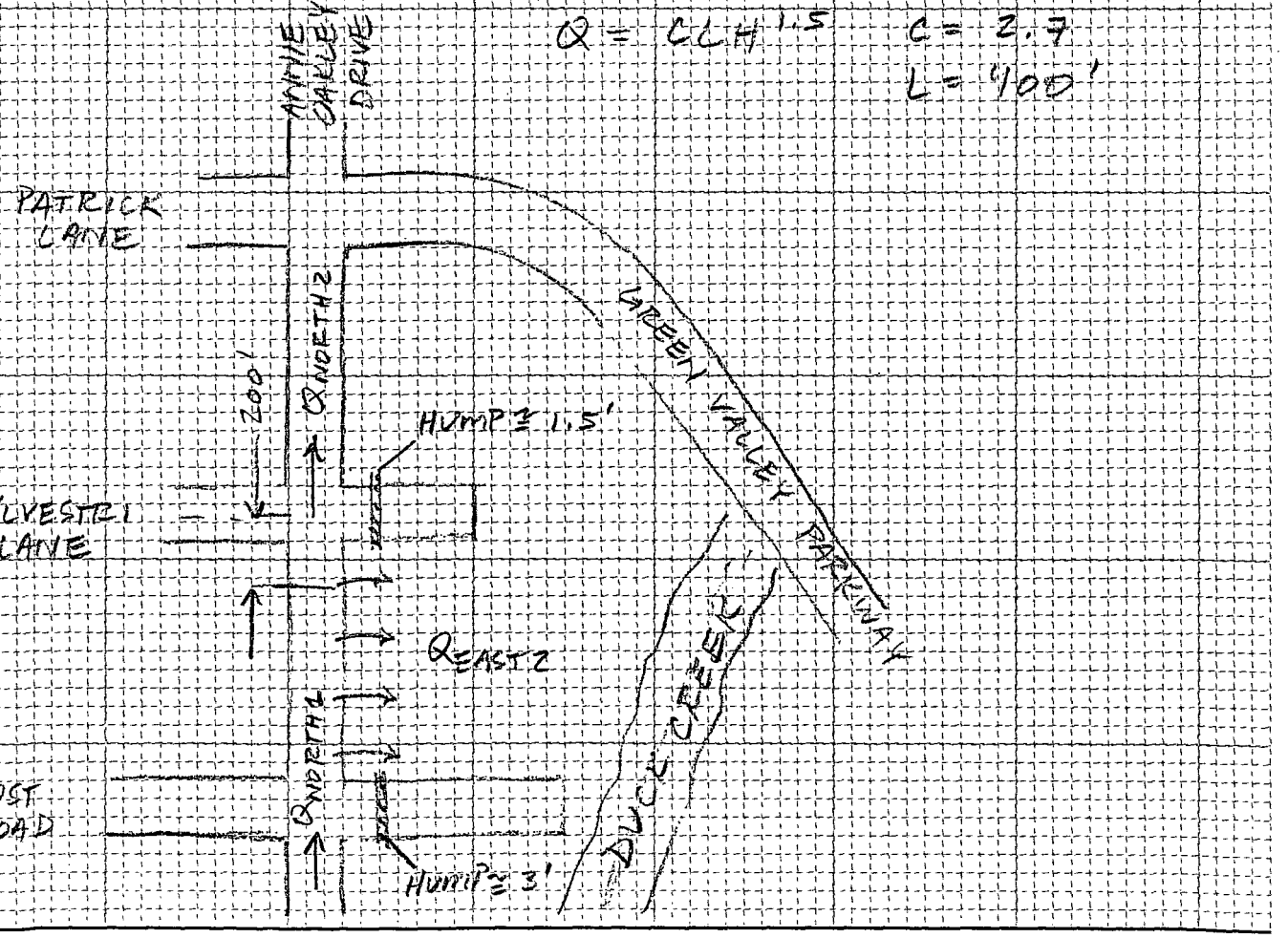
$Q_{NORTH1}$ = TOTAL FLOW REMAINING IN ANNIE OAKLEY NORTH OF SUNSET ROAD INTERSECTION

$Q_{NORTH2}$ = FLOW IN ANNIE OAKLEY DRIVE NORTH OF SYLVESTRI LANE

$Q_{EAST2}$ = WEIR FLOW TO EAST FROM POST ROAD TO SYLVESTRI LANE

$Q = CLH^{1.5}$ $C = 2.7$

$L = 400'$




EN-3-N
3/66

G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

SHEET____ OF_____

DATE _____

CLIENT _____ JOB NO _____ CALC BY _____

DESCRIPTION _____ CHECKED BY _____

| FLOW DEPTH IN STREET D (FT) | (D) $Q_{NORTH2}$ (CFS) | (D-0.6') H (FT) | (Q = 2.7 L H$^{1.5}$) $Q_{EAST2}$ (CFS) | $Q_{TOTAL}$ (CFS) | |
|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | |
| 0.6 | 39 | 0 | 0 | 39 | |
| 0.7 | 76 | 0.1 | 34 | 110 | |
| 0.8 | 125 | 0.2 | 96 | 221 | |
| 0.9 | 183 | 0.3 | 177 | 360 | |
| 1.0 | 248 | 0.9 | 273 | 521 | ← $Q_{NORTH1}$ = 513 CFS |

$Q_{NORTH2} = (513 - 360)\left(\frac{248 - 183}{521 - 360}\right) + 183$

$= \boxed{245 \text{ CFS}}$ AT VINE OAKLEY DRIVE

$Q_{EAST2} = Q_{NORTH1} - Q_{NORTH2}$

$= 513 \text{ CFS} - 245 \text{ CFS}$

$= \boxed{268 \text{ CFS}}$ EAST WEST TO DUCK CREEK.



G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

# SUNSET ROAD WEST OF ANNIE OAKLEY DRIVE
## Worksheet for Irregular Channel

(A)

| Project Description | |
|---|---|
| Worksheet | SUNSET |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 0.67 % |
| Water Surface Elevation | 1.00 ft |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Elevation Range | 0.00 to 1.03 | |
| Discharge | 182.16 | cfs |
| Flow Area | 42.2 | ft² |
| Wetted Perimeter | 98.91 | ft |
| Top Width | 97.00 | ft |
| Actual Depth | 1.00 | ft |
| Critical Elevation | 1.05 | ft |
| Critical Slope | 0.49 | % |
| Velocity | 4.31 | ft/s |
| Velocity Head | 0.29 | ft |
| Specific Energy | 1.29 | ft |
| Froude Number | 1.15 | |
| Flow Type | Supercritical | |

Calculation Messages:
Water elevation exceeds lowest end station by 0.4 ft.
Flow is divided.

| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00 | 1+00 | 0.016 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00 | 0.60 |
| 0+05 | 0.50 |
| 0+06 | 0.50 |
| 0+06 | 0.00 |
| 0+07 | 0.13 |
| 0+07 | 0.17 |
| 0+50 | 1.03 |
| 0+93 | 0.17 |
| 0+93 | 0.13 |

# SUNSET ROAD WEST OF ANNIE OAKLEY DRIVE
## Worksheet for Irregular Channel

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+95 | 0.00 |
| 0+95 | 0.50 |
| 0+95 | 0.50 |
| 1+00 | 0.60 |

# Table
## Rating Table for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | SUNSET |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 0.67 % |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Attribute | Minimum | Maximum | Increment |
|---|---|---|---|
| Water Surface Elevation (ft | 1.00 | 2.00 | 0.05 |

| Water Surface Elevation (ft) | Discharge (cfs) | Velocity (ft/s) | Flow Area ($ft^2$) | Wetted Perimeter (ft) | Top Width (ft) |
|---|---|---|---|---|---|
| 1.00 | 182.16 | 4.31 | 42.2 | 98.91 | 97.00 |
| 1.05 | 214.68 | 4.55 | 47.2 | 102.01 | 100.00 |
| 1.10 | 253.74 | 4.86 | 52.2 | 102.11 | 100.00 |
| 1.15 | 295.33 | 5.16 | 57.2 | 102.21 | 100.00 |
| 1.20 | 339.37 | 5.46 | 62.2 | 102.31 | 100.00 |
| 1.25 | 385.79 | 5.74 | 67.2 | 102.41 | 100.00 |
| 1.30 | 434.52 | 6.02 | 72.2 | 102.51 | 100.00 |
| 1.35 | 485.51 | 6.29 | 77.2 | 102.61 | 100.00 |
| 1.40 | 538.68 | 6.55 | 82.2 | 102.71 | 100.00 |
| 1.45 | 594.00 | 6.81 | 87.2 | 102.81 | 100.00 |
| 1.50 | 651.42 | 7.06 | 92.2 | 102.91 | 100.00 |
| 1.55 | 710.90 | 7.31 | 97.2 | 103.01 | 100.00 |
| 1.60 | 772.38 | 7.56 | 102.2 | 103.11 | 100.00 |
| 1.65 | 835.84 | 7.80 | 107.2 | 103.21 | 100.00 |
| 1.70 | 901.23 | 8.03 | 112.2 | 103.31 | 100.00 |
| 1.75 | 968.53 | 8.26 | 117.2 | 103.41 | 100.00 |
| 1.80 | 1,037.70 | 8.49 | 122.2 | 103.51 | 100.00 |
| 1.85 | 1,108.71 | 8.72 | 127.2 | 103.61 | 100.00 |
| 1.90 | 1,181.53 | 8.94 | 132.2 | 103.71 | 100.00 |
| 1.95 | 1,256.13 | 9.16 | 137.2 | 103.81 | 100.00 |
| 2.00 | 1,332.49 | 9.37 | 142.2 | 103.91 | 100.00 |

# SUNSET ROAD EAST OF ANNIE OAKLEY DRIVE
## Worksheet for Irregular Channel

(B)

| Project Description | |
|---|---|
| Worksheet | SUNSET |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 1.15 % |
| Water Surface Elevation | 1.00 ft |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Elevation Range | 0.00 to 1.03 | |
| Discharge | 238.66 | cfs |
| Flow Area | 42.2 | ft² |
| Wetted Perimeter | 98.91 | ft |
| Top Width | 97.00 | ft |
| Actual Depth | 1.00 | ft |
| Critical Elevation | 1.14 | ft |
| Critical Slope | 0.47 | % |
| Velocity | 5.65 | ft/s |
| Velocity Head | 0.50 | ft |
| Specific Energy | 1.50 | ft |
| Froude Number | 1.51 | |
| Flow Type | Supercritical | |

Calculation Messages:
Water elevation exceeds lowest end station by 0.4 ft.
Flow is divided.

| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00 | 1+00 | 0.016 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00 | 0.60 |
| 0+05 | 0.50 |
| 0+06 | 0.50 |
| 0+06 | 0.00 |
| 0+07 | 0.13 |
| 0+07 | 0.17 |
| 0+50 | 1.03 |
| 0+93 | 0.17 |
| 0+93 | 0.13 |

# SUNSET ROAD EAST OF ANNIE OAKLEY DRIVE
## Worksheet for Irregular Channel

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+95 | 0.00 |
| 0+95 | 0.50 |
| 0+95 | 0.50 |
| 1+00 | 0.60 |

# Table
## Rating Table for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | SUNSET |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 1.15 % |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Attribute | Minimum | Maximum | Increment |
|---|---|---|---|
| Water Surface Elevation (ft | 1.00 | 1.50 | 0.05 |

| Water Surface Elevation (ft) | Discharge (cfs) | Velocity (ft/s) | Flow Area ($ft^2$) | Wetted Perimeter (ft) | Top Width (ft) |
|---|---|---|---|---|---|
| 1.00 | 238.66 | 5.65 | 42.2 | 98.91 | 97.00 |
| 1.05 | 281.26 | 5.96 | 47.2 | 102.01 | 100.00 |
| 1.10 | 332.43 | 6.37 | 52.2 | 102.11 | 100.00 |
| 1.15 | 386.92 | 6.76 | 57.2 | 102.21 | 100.00 |
| 1.20 | 444.62 | 7.15 | 62.2 | 102.31 | 100.00 |
| 1.25 | 505.43 | 7.52 | 67.2 | 102.41 | 100.00 |
| 1.30 | 569.28 | 7.88 | 72.2 | 102.51 | 100.00 |
| 1.35 | 636.07 | 8.24 | 77.2 | 102.61 | 100.00 |
| 1.40 | 705.74 | 8.59 | 82.2 | 102.71 | 100.00 |
| 1.45 | 778.22 | 8.92 | 87.2 | 102.81 | 100.00 |
| 1.50 | 853.44 | 9.26 | 92.2 | 102.91 | 100.00 |

# ANNIE OAKLEY DRIVE BETWEEN SUNSET ROAD AND POST ROAD
## Worksheet for Irregular Channel

C

| Project Description | |
|---|---|
| Worksheet | ANNIE OAKLEY DR |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | | |
|---|---|---|
| Slope | 1.10 | % |
| Water Surface Elevation | 1.00 | ft |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Elevation Range | 0.00 to 0.63 | |
| Discharge | 237.62 | cfs |
| Flow Area | 35.4 | ft² |
| Wetted Perimeter | 61.90 | ft |
| Top Width | 60.00 | ft |
| Actual Depth | 1.00 | ft |
| Critical Elevation | 1.20 | ft |
| Critical Slope | 0.42 | % |
| Velocity | 6.71 | ft/s |
| Velocity Head | 0.70 | ft |
| Specific Energy | 1.70 | ft |
| Froude Number | 1.54 | |
| Flow Type | Supercritical | |

Calculation Messages:
Water elevation exceeds lowest end station by 0.4 ft.

| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00 | 0+60 | 0.016 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00 | 0.60 |
| 0+05 | 0.50 |
| 0+06 | 0.50 |
| 0+06 | 0.00 |
| 0+07 | 0.13 |
| 0+07 | 0.17 |
| 0+30 | 0.63 |
| 0+53 | 0.17 |
| 0+53 | 0.13 |
| 0+55 | 0.00 |

# ANNIE OAKLEY DRIVE BETWEEN SUNSET ROAD AND POST ROAD
## Worksheet for Irregular Channel

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+55 | 0.50 |
| 0+55 | 0.50 |
| 0+60 | 0.60 |

# ANNIE OAKLEY DRIVE BETWEEN POST ROAD AND SYLVESTRI LANE
## Worksheet for Irregular Channel

(D)

| Project Description | |
|---|---|
| Worksheet | ANNIE OAKLEY DR |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | | |
|---|---|---|
| Slope | 1.20 | % |
| Water Surface Elevation | 1.00 | ft |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Elevation Range | 0.00 to 0.63 | |
| Discharge | 248.18 | cfs |
| Flow Area | 35.4 | ft² |
| Wetted Perimeter | 61.90 | ft |
| Top Width | 60.00 | ft |
| Actual Depth | 1.00 | ft |
| Critical Elevation | 1.22 | ft |
| Critical Slope | 0.42 | % |
| Velocity | 7.01 | ft/s |
| Velocity Head | 0.76 | ft |
| Specific Energy | 1.76 | ft |
| Froude Number | 1.61 | |
| Flow Type | Supercritical | |

Calculation Messages:
Water elevation exceeds lowest end station by 0.4 ft.

| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00 | 0+60 | 0.016 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00 | 0.60 |
| 0+05 | 0.50 |
| 0+06 | 0.50 |
| 0+06 | 0.00 |
| 0+07 | 0.13 |
| 0+07 | 0.17 |
| 0+30 | 0.63 |
| 0+53 | 0.17 |
| 0+53 | 0.13 |
| 0+55 | 0.00 |

# ANNIE OAKLEY DRIVE BETWEEN POST ROAD AND SYLVESTRI LANE
## Worksheet for Irregular Channel

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+55 | 0.50 |
| 0+55 | 0.50 |
| 0+60 | 0.60 |

# Table
## Rating Table for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | ANNIE OAKLEY DR |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 1.20 % |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Attribute | Minimum | Maximum | Increment |
|---|---|---|---|
| Water Surface Elevation (ft | 0.50 | 1.00 | 0.05 |

| Water Surface Elevation (ft) | Discharge (cfs) | Velocity (ft/s) | Flow Area ($ft^2$) | Wetted Perimeter (ft) | Top Width (ft) |
|---|---|---|---|---|---|
| 0.50 | 22.05 | 3.27 | 6.8 | 37.10 | 36.00 |
| 0.55 | 29.13 | 3.29 | 8.9 | 48.10 | 47.00 |
| 0.60 | 39.45 | 3.45 | 11.5 | 58.10 | 57.00 |
| 0.65 | 55.87 | 3.88 | 14.4 | 61.20 | 60.00 |
| 0.70 | 76.49 | 4.39 | 17.4 | 61.30 | 60.00 |
| 0.75 | 99.59 | 4.88 | 20.4 | 61.40 | 60.00 |
| 0.80 | 125.04 | 5.34 | 23.4 | 61.50 | 60.00 |
| 0.85 | 152.71 | 5.78 | 26.4 | 61.60 | 60.00 |
| 0.90 | 182.52 | 6.21 | 29.4 | 61.70 | 60.00 |
| 0.95 | 214.36 | 6.62 | 32.4 | 61.80 | 60.00 |
| 1.00 | 248.18 | 7.01 | 35.4 | 61.90 | 60.00 |

# PATRICK LANE EAST OF ANNIE OAKLEY DRIVE
## Worksheet for Irregular Channel

(E)

| Project Description | |
|---|---|
| Worksheet | PATRICK LANE |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | | |
|---|---|---|
| Slope | 1.23 | % |
| Water Surface Elevation | 1.00 | ft |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Elevation Range | 0.00 to 1.03 | |
| Discharge | 177.99 | cfs |
| Flow Area | 30.2 | ft² |
| Wetted Perimeter | 69.97 | ft |
| Top Width | 68.05 | ft |
| Actual Depth | 1.00 | ft |
| Critical Elevation | 1.15 | ft |
| Critical Slope | 0.46 | % |
| Velocity | 5.89 | ft/s |
| Velocity Head | 0.54 | ft |
| Specific Energy | 1.54 | ft |
| Froude Number | 1.56 | |
| Flow Type | Supercritical | |

Calculation Messages:
Water elevation exceeds lowest end station by 0.4 ft.
Flow is divided.

| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00.0000 | 0+70.0000 | 0.016 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00.0000 | 0.60 |
| 0+05.0000 | 0.50 |
| 0+05.5000 | 0.50 |
| 0+05.5000 | 0.00 |
| 0+07.0000 | 0.13 |
| 0+07.0000 | 0.17 |
| 0+35.0000 | 1.03 |
| 0+63.0000 | 0.17 |
| 0+63.0000 | 0.13 |

# PATRICK LANE EAST OF ANNIE OAKLEY DRIVE
## Worksheet for Irregular Channel

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+64.5000 | 0.00 |
| 0+64.5000 | 0.50 |
| 0+65.0000 | 0.50 |
| 0+70.0000 | 0.60 |

# Table
## Rating Table for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | PATRICK LANE |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | |
|---|---|
| Slope | 1.23 % |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Attribute | Minimum | Maximum | Increment |
|---|---|---|---|
| Water Surface Elevation (ft | 0.50 | 1.50 | 0.05 |

| Water Surface Elevation (ft) | Discharge (cfs) | Velocity (ft/s) | Flow Area ($ft^2$) | Wetted Perimeter (ft) | Top Width (ft) |
|---|---|---|---|---|---|
| 0.50 | 16.49 | 3.40 | 4.9 | 25.59 | 24.49 |
| 0.55 | 20.92 | 3.30 | 6.3 | 34.85 | 33.74 |
| 0.60 | 28.08 | 3.41 | 8.2 | 43.11 | 42.00 |
| 0.65 | 39.53 | 3.80 | 10.4 | 46.46 | 45.26 |
| 0.70 | 52.94 | 4.15 | 12.8 | 49.82 | 48.51 |
| 0.75 | 68.36 | 4.48 | 15.3 | 53.18 | 51.77 |
| 0.80 | 85.86 | 4.79 | 17.9 | 56.54 | 55.02 |
| 0.85 | 105.51 | 5.08 | 20.8 | 59.89 | 58.28 |
| 0.90 | 127.37 | 5.36 | 23.8 | 63.25 | 61.53 |
| 0.95 | 151.50 | 5.63 | 26.9 | 66.61 | 64.79 |
| 1.00 | 177.99 | 5.89 | 30.2 | 69.97 | 68.05 |
| 1.05 | 209.26 | 6.21 | 33.7 | 72.02 | 70.00 |
| 1.10 | 246.49 | 6.63 | 37.2 | 72.12 | 70.00 |
| 1.15 | 286.07 | 7.03 | 40.7 | 72.22 | 70.00 |
| 1.20 | 327.93 | 7.42 | 44.2 | 72.32 | 70.00 |
| 1.25 | 371.99 | 7.80 | 47.7 | 72.42 | 70.00 |
| 1.30 | 418.19 | 8.17 | 51.2 | 72.52 | 70.00 |
| 1.35 | 466.48 | 8.53 | 54.7 | 72.62 | 70.00 |
| 1.40 | 516.81 | 8.88 | 58.2 | 72.72 | 70.00 |
| 1.45 | 569.11 | 9.22 | 61.7 | 72.82 | 70.00 |
| 1.50 | 623.35 | 9.56 | 65.2 | 72.92 | 70.00 |

245 →

∴ D ≅ 1.1 FT

# PATRICK LANE EAST OF ANNIE OAKLEY DRIVE
## Worksheet for Irregular Channel

(F)

| Project Description | |
|---|---|
| Worksheet | SUPERELEVATED PATRIC |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | | |
|---|---|---|
| Slope | 0.69 | % |
| Water Surface Elevation | 1.30 | ft |

2896 − (2892.14 − 0.5 FT) = 4.36 FT
U/S FL  CURB

$S = \frac{4.36\ FT}{633\ FT} = 0.69\%$

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Elevation Range | 0.00 to 1.30 | |
| Discharge | 266 | cfs |
| Flow Area | 46.1 | ft² |
| Wetted Perimeter | 71.21 | ft |
| Top Width | 70.00 | ft |
| Actual Depth | 1.30 | ft |
| Critical Elevation | 1.41 | ft |
| Critical Slope | 0.42 | % |
| Velocity | 5.77 | ft/s |
| Velocity Head | 0.52 | ft |
| Specific Energy | 1.82 | ft |
| Froude Number | 1.25 | |
| Flow Type | Supercritical | |

> 245 CFS ∴ CONFINED TO PATRICK LANE.

Calculation Messages:
*Water elevation exceeds lowest end station by 0.7 ft.*

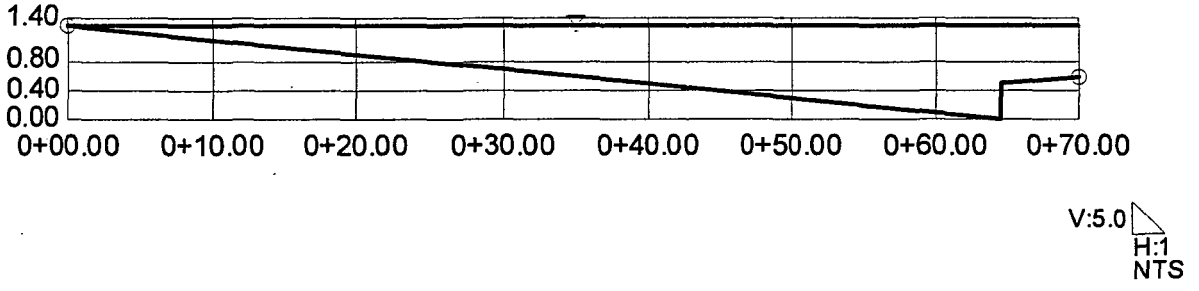
| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00.00 | 0+70.00 | 0.016 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00.00 | 1.30 |
| 0+64.50 | 0.00 |
| 0+64.50 | 0.50 |
| 0+65.00 | 0.50 |
| 0+70.00 | 0.60 |

# Cross Section
## Cross Section for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | SUPERELEVATED PATRIC |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Section Data | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Slope | 0.69 | % |
| Water Surface Elevation | 1.30 | ft |
| Elevation Range | 0.00 to 1.30 | |
| Discharge | 266 | cfs |



# RUSSELL ROAD AT DOWNSTREAM TIE-IN
# NORMAL DEPTH CALCULATIONS

# RUSSELL ROAD EAST OF BOULDER HIGHWAY
## Worksheet for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | RUSSELL ROAD EAST OF BOULDE |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Input Data | | |
|---|---|---|
| Slope | 0.50 | % |
| Water Surface Elevation | 1.00 | ft |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Elevation Range | 0.00 to 0.93 | |
| Discharge | 163.67 | cfs |
| Flow Area | 42.0 | ft² |
| Wetted Perimeter | 91.91 | ft |
| Top Width | 90.00 | ft |
| Actual Depth | 1.00 | ft |
| Critical Elevation | 1.00 | ft |
| Critical Slope | 0.49 | % |
| Velocity | 3.90 | ft/s |
| Velocity Head | 0.24 | ft |
| Specific Energy | 1.24 | ft |
| Froude Number | 1.01 | |
| Flow Type | Supercritical | |

$Q_{max}$ *

* SEE FLOW DISTRIBUTION @ IN HEC-2 OUTPUT @ SECTION UPSTREAM FACE OF BOULDER HIGHWAY BRIDGE

FLOW TO RUSSELL ROAD IS DETERMINED FROM STA 2548.8 FT TO 2825.7 FT

Calculation Messages:
Water elevation exceeds lowest end station by 0.4 ft.

$\Rightarrow$ 1.2 % $Q_{TOTAL}$

$= 0.012\ (11500\ CFS) = \boxed{138\ CFS}$

$138\ CFS < 164\ CFS = Q_{max}$

$\therefore \boxed{D < 1.0\ FT}$

| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00.0000 | 0+90.0000 | 0.016 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00.0000 | 0.60 |
| 0+05.0000 | 0.50 |
| 0+05.5000 | 0.50 |
| 0+05.5000 | 0.00 |
| 0+07.0000 | 0.13 |
| 0+07.0000 | 0.17 |
| 0+45.0000 | 0.93 |
| 0+83.0000 | 0.17 |
| 0+83.0000 | 0.13 |
| 0+84.5000 | 0.00 |

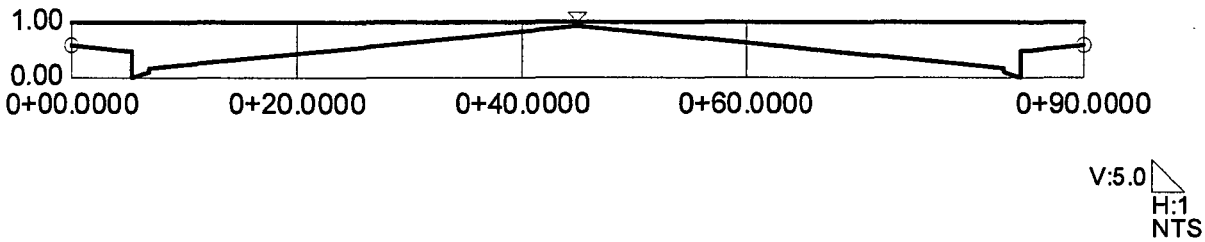
# RUSSELL ROAD EAST OF BOULDER HIGHWAY
## Worksheet for Irregular Channel

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+84.5000 | 0.50 |
| 0+85.0000 | 0.50 |
| 0+90.0000 | 0.60 |

# Cross Section
## Cross Section for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | RUSSELL ROAD EAST OF BOULDE |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Discharge |

| Section Data | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Slope | 0.50 | % |
| Water Surface Elevation | 1.00 | ft |
| Elevation Range | 0.00 to 0.93 | |
| Discharge | 163.67 | cfs |



# ROBINDALE ROAD/DUCK CREEK BREAKOUT
# NORMAL DEPTH CALCULATIONS

Contraction Coefficient (CCHV) 0.100

Expansion Coefficient (CEHV) 0.300

STATUS: Analyzing cross-section reach 17300.000.

STATUS: (3280) For cross-section 17300.00, ends have been extended vertically 0.15 feet in order to calculate the hydraulic cross-section properties.

WARNING: (3302) Conveyance change is outside of acceptable range.

Upstream to Downstream Conveyance Ratio (KRATIO) 0.64

| SECNO | XNL | XNCH | XNR | DEPTH | CWSEL | CRIWS | WSELK |
|---|---|---|---|---|---|---|---|
| SLOPE | XLOBL | XLCH | XLOBR | EG | HV | HL | OLOSS |
| VOL | ALOB | ACH | AROB | CORAR | LTBNK | RTBNK | ITRIAL |
| Q | QLOB | QCH | QROB | TOPWD | SSTA | ENDST | IDC |
| TIME | VLOB | VCH | VROB | WTN | TWA | ELMIN | ICONT |
| 17300.000 | 0.110 | 0.025 | 0.080 | 11.84 | 2064.14 | 2059.32 | 0.00 |
| 0.000819 | 158 | 162 | 162 | 2065.09 | 0.94 | 0.08 | 0.01 |
| 584.72 | 326 | 1066 | 9 | 0.00 | 2060.30 | 2064.00 | 2 |
| 8559 | 160 | 8397 | 1 | 429.7 | 1325.14 | 1754.88 | 11 |
| 0.82 | 0.49 | 7.87 | 0.14 | 0.000 | 105.0 | 2052.30 | 0 |

FLOW DISTRIBUTION :

Cross-Section Number (SECNO) 17300.000
Total Discharge (cfs, Q) 8559
Computed Water Surface Elevation (ft MSL, CWSEL) 2064.14

| Station (ft) = | 1325.1 | 1559.1 | 1581.0 | 1681.0 | 1737.3 | 1754.9 |
|---|---|---|---|---|---|---|
| Flow (%) = | 1.3 | 0.6 | 98.1 | 0.0 | 0.0 | |
| Area (sq ft) = | 261.7 | 65.0 | 1066.6 | 8.4 | 1.3 | |
| Vel (ft/s) = | 0.42 | 0.80 | 7.87 | 0.15 | 0.09 | |
| Depth (ft) = | 1.12 | 2.97 | 10.67 | 0.15 | 0.07 | |

Contraction Coefficient (CCHV) 0.100

Expansion Coefficient (CEHV) 0.300

STATUS: Analyzing cross-section reach 17400.000.

$Q_{TOTAL} = 8562$ CFS

$Q_{REMAIN} = 8559$ CFS

$Q_{SPLIT} = 8562 - 8559$ CFS $= 3$ CFS

FLOW DISTRIBUTION

FLOW FROM STA 1325.1 TO 1581.0 $= 1.3 + 0.6 = 1.9\%$

$Q_{DIST} = 1.9\% (8559 \text{ CFS}) = 163$ CFS

$Q_{BREAK} = Q_{SPLIT} + Q_{DIST} = 3 \text{ CFS} + 163 \text{ CFS}$

$= 166$ CFS $\Rightarrow$ 170 CFS

# DEMONA DRIVE
## Worksheet for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DEMONA DRIVE |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Input Data | | |
|---|---|---|
| Slope | 0.80 | % |
| Discharge | 170.00 | cfs |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Water Surface Elevation | 1.20 | ft |
| Elevation Range | 0.00 to 0.93 | |
| Flow Area | 27.4 | ft² |
| Wetted Perimeter | 42.33 | ft |
| Top Width | 40.00 | ft |
| Actual Depth | 1.20 | ft |
| Critical Elevation | 1.34 | ft |
| Critical Slope | 0.43 | % |
| Velocity | 6.21 | ft/s |
| Velocity Head | 0.60 | ft |
| Specific Energy | 1.80 | ft |
| Froude Number | 1.32 | |
| Flow Type | Supercritical | |

Calculation Messages:
*Water elevation exceeds lowest end station by 0.59663365 ft.*

| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00.0000 | 0+40.0000 | 0.016 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00.0000 | 0.60 |
| 0+05.0000 | 0.50 |
| 0+05.5000 | 0.50 |
| 0+05.5000 | 0.00 |
| 0+07.0000 | 0.13 |
| 0+07.0000 | 0.17 |
| 0+20.0000 | 0.93 |
| 0+33.0000 | 0.17 |
| 0+33.0000 | 0.13 |
| 0+34.5000 | 0.00 |

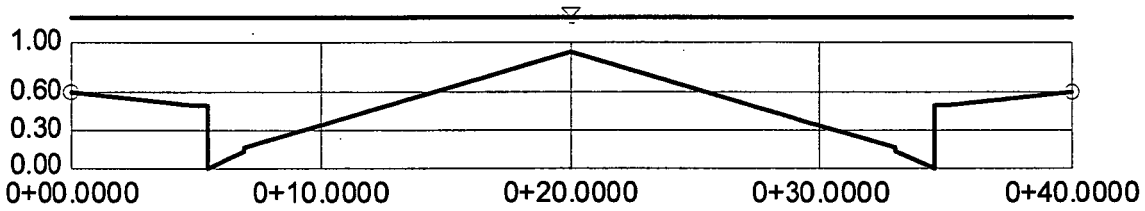
# DEMONA DRIVE
## Worksheet for Irregular Channel

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+34.5000 | 0.50 |
| 0+35.0000 | 0.50 |
| 0+40.0000 | 0.60 |

# DEMONA DRIVE
## Cross Section for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DEMONA DRIVE |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Section Data | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Slope | 0.80 | % |
| Water Surface Elevation | 1.20 | ft |
| Elevation Range | 0.00 to 0.93 | |
| Discharge | 170.00 | cfs |




V:5.0
H:1
NTS

# DOCENA DRIVE
## Worksheet for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DOCENA DRIVE |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Input Data | | |
|---|---|---|
| Slope | 1.00 | % |
| Discharge | 170.00 | cfs |

| Options | |
|---|---|
| Current Roughness Method | mproved Lotter's Method |
| Open Channel Weighting Method | mproved Lotter's Method |
| Closed Channel Weighting Metho | Horton's Method |

| Results | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Water Surface Elevation | 1.15 | ft |
| Elevation Range | 0.00 to 0.93 | |
| Flow Area | 25.6 | ft² |
| Wetted Perimeter | 42.24 | ft |
| Top Width | 40.00 | ft |
| Actual Depth | 1.15 | ft |
| Critical Elevation | 1.34 | ft |
| Critical Slope | 0.43 | % |
| Velocity | 6.65 | ft/s |
| Velocity Head | 0.69 | ft |
| Specific Energy | 1.84 | ft |
| Froude Number | 1.47 | |
| Flow Type | Supercritical | |

Calculation Messages:
Water elevation exceeds lowest end station by 0.55178407 ft.

| Roughness Segments | | |
|---|---|---|
| Start Station | End Station | Mannings Coefficient |
| 0+00.0000 | 0+40.0000 | 0.016 |

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+00.0000 | 0.60 |
| 0+05.0000 | 0.50 |
| 0+05.5000 | 0.50 |
| 0+05.5000 | 0.00 |
| 0+07.0000 | 0.13 |
| 0+07.0000 | 0.17 |
| 0+20.0000 | 0.93 |
| 0+33.0000 | 0.17 |
| 0+33.0000 | 0.13 |
| 0+34.5000 | 0.00 |

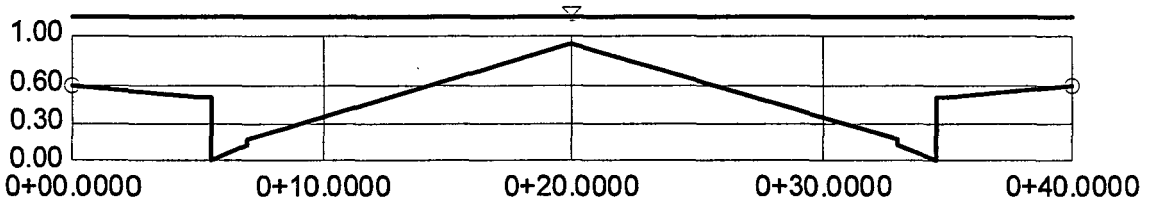
# DOCENA DRIVE
## Worksheet for Irregular Channel

| Natural Channel Points | |
|---|---|
| Station (ft) | Elevation (ft) |
| 0+34.5000 | 0.50 |
| 0+35.0000 | 0.50 |
| 0+40.0000 | 0.60 |

# DOCENA DRIVE
## Cross Section for Irregular Channel

| Project Description | |
|---|---|
| Worksheet | DOCENA DRIVE |
| Flow Element | Irregular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Section Data | | |
|---|---|---|
| Mannings Coefficient | 0.016 | |
| Slope | 1.00 | % |
| Water Surface Elevation | 1.15 | ft |
| Elevation Range | 0.00 to 0.93 | |
| Discharge | 170.00 | cfs |




V:5.0
H:1
NTS

# I-15/ BLUE DIAMOND ROAD INTERCHANGE BREAKOUT WEIR CALCULATION AT VALLEY VIEW BOULEVARD

**WEIR CALCULATIONS AT VALLEY VIEW BOULEVARD**
**MIDDLE BRANCH BLUE DIAMOND WASH**

TOTAL FLOW = **1260** CFS
WSE = 2297.82 FT
WEIR COEFFICIENT = 2.7

| WEIR SECTION | WEIR STA (FT) | GR ELEV (FT) | L (FT) | H (FT) | Havg (FT) | Qweir (CFS) | AREA (SQ FT) | V (FPS) |
|---|---|---|---|---|---|---|---|---|
| | 0 | 2300.00 | - | 0.0 | - | - | - | - |
| 1 | 69 | 2299.10 | 69 | 0.0 | 0.0 | 0.0 | 0.0 | ERR |
| 2 | 193 | 2298.90 | 124 | 0.0 | 0.0 | 0.0 | 0.0 | ERR |
| 3 | 272 | 2299.60 | 79 | 0.0 | 0.0 | 0.0 | 0.0 | ERR |
| 4 | 389 | 2296.80 | 117 | 1.0 | 0.5 | 115.1 | 59.7 | 1.9 |
| 5 | 455 | 2297.70 | 66 | 0.1 | 0.6 | 76.7 | 37.6 | 2.0 |
| 6 | 546 | 2296.60 | 91 | 1.2 | 0.7 | 134.7 | 61.0 | 2.2 |
| 7 | 609 | 2297.90 | 63 | 0.0 | 0.6 | 81.0 | 38.4 | 2.1 |
| 8 | 642 | 2296.00 | 33 | 1.8 | 0.9 | 77.3 | 30.0 | 2.6 |
| 9 | 756 | 2296.00 | 114 | 1.8 | 1.8 | 755.7 | 207.5 | 3.6 |
| | | | | **MATCH W/ ABOVE** | | **1240.6** | | |

# NORTH BRANCH BLUE DIAMOND WASH
# LAS VEGAS BOULEVARD CULVERT RATING CURVE

DATE 11/26/01

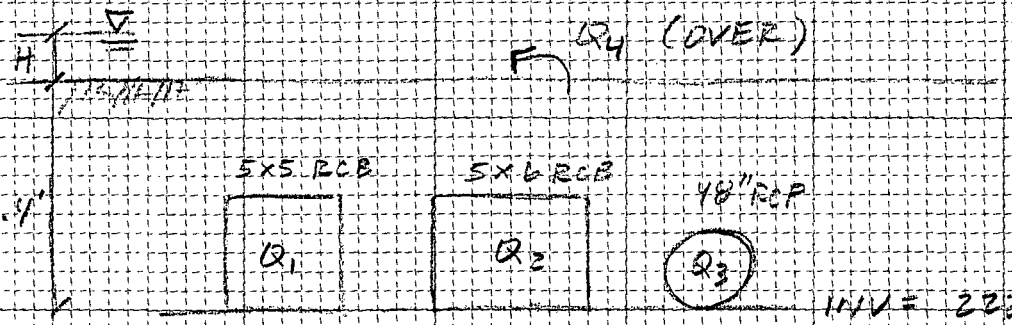
CLIENT CCRFCD JOB NO 550.039 CALC BY MJL

DESCRIPTION RATING CURVE - LV BLVD. CHECKED BY

LAS VEGAS BOULEVARD - NORTH BRANCH BLUE DIAMOND WASH.

WEIR LENGTH = 330 FT
SLOPES = 3.0%

UPSTREAM FACE




$Q_4 = CLH^{1.5}$

$C = 3.0$, $L = 330$ FT

| D (FT) | $Q_1$ (CFS) | $Q_2$ (CFS) | $Q_3$ (CFS) | $Q_4$ (CFS) | $Q_{TOTAL}$ (CFS) | |
|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | |
| 7.0 | 222 | 266 | 130 | 460 | 1078 | |
| 7.1 | 226 | 270 | 131 | 580 | 1207 | |
| → 7.2 | 229 | 275 | 133 | 708 | 1345 | ← 1290 (DESIGN) |

∴ USE = 2224.9 FT + 7.2 FT = **2232.1 FT NGVD**

EN-3-N
3/66

G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

SHEET ____ OF ____

# BOX CULVERT

Inlet control and outlet control.

Q1

LAS VEGAS BLVD - NORTH BRANCH BLUE DIAMOND WASH

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 5.00 ft | Tapered throat | 5.92 ft |
| Slope | 3.00 % | 45 degree bevels | 6.47 ft |
| Manning's 'n' | 0.015 | Sq. edge headwall | 7.00 ft ← 7.0 |
| Number of boxes | 1 | | |
| Culvert length | 150 ft | | |
| Discharge | 222 cfs | OUTLET CONTROL HWo: | |
| | | HWo depth | 2.58 ft |
| | | Velocity | 8.88 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.95 ft |

Notes: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

Q1

LAS VEGAS BLVD - NORTH BRANCH BLUE DIAMOND WASH

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 5.00 ft | Tapered throat | 6.00 ft |
| Slope | 3.00 % | 45 degree bevels | 6.57 ft |
| Manning's 'n' | 0.015 | Sq. edge headwall | 7.12 ft ← 7.1' |
| Number of boxes | 1 | | |
| Culvert length | 150 ft | | |
| Discharge | 226 cfs | OUTLET CONTROL HWo: | |
| | | HWo depth | 2.70 ft |
| | | Velocity | 9.04 fps |
| Ent. Coef (Ke) | 0.40 | Critical depth | 4.00 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

Q1

LAS VEGAS BLVD - NORTH BRANCH BLUE DIAMOND WASH

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 5.00 ft | Tapered throat | 6.05 ft |
| Slope | 3.00 % | 45 degree bevels | 6.65 ft |
| Manning's 'n' | 0.015 | Sq. edge headwall | 7.20 ft ← 7.2' |
| Number of boxes | 1 | | |
| Culvert length | 150 ft | | |
| Discharge | 229 cfs | OUTLET CONTROL HWo: | |
| | | HWo depth | 2.79 ft |
| | | Velocity | 9.16 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.03 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

$Q_2$

LAS VEGAS BLVD - NORTH BRANCH BLUE DIAMOND WASH

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 6.00 ft | Tapered throat | 5.92 ft |
| Slope | 3.00 % | 45 degree bevels | 6.46 ft |
| Manning's 'n' | 0.015 | Sq. edge headwall | 6.99 ft ← 7.0' |
| Number of boxes | 1 | | |
| Culvert length | 150 ft | | |
| Discharge | 266 cfs | OUTLET CONTROL HWo: | |
| | | HWo depth | 2.47 ft |
| | | Velocity | 8.37 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.95 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

$Q_2$

LAS VEGAS BLVD - NORTH BRANCH BLUE DIAMOND WASH

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 6.00 ft | Tapered throat | 5.98 ft |
| Slope | 3.00 % | 45 degree bevels | 6.54 ft |
| Manning's 'n' | 0.015 | Sq. edge headwall | 7.09 ft ← 7.1' |
| Number of boxes | 1 | | |
| Culvert length | 150 ft | | |
| Discharge | 270 cfs | OUTLET CONTROL HWo: | |
| | | HWo depth | 2.57 ft |
| | | Velocity | 9.00 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.99 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# BOX CULVERT

Inlet control and outlet control.

$Q_2$

LAS VEGAS BLVD - NORTH BRANCH BLUE DIAMOND WASH

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 5.00 ft | INLET CONTROL HWo: | |
| Box Width | 6.00 ft | Tapered throat | 6.05 ft |
| Slope | 3.00 % | 45 degree bevels | 6.65 ft |
| Manning's 'n' | 0.015 | Sq. edge headwall | 7.21 ft ← 7.2' |
| Number of boxes | 1 | | |
| Culvert length | 150 ft | | |
| Discharge | 275 cfs | OUTLET CONTROL HWo: | |
| | | HWo depth | 2.69 ft |
| | | Velocity | 9.17 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 4.03 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

# PIPE CULVERT

Inlet control and outlet control.

$Q_3$

LAS VEGAS BLVD - NORTH BRANCH BLUE DIAMOND WASH

INPUT VARIABLES:

| | |
|---|---|
| Pipe diameter | 48.00 in |
| Slope | 3.00 % |
| Number of pipes | 1 |
| Manning's 'n' | 0.013 |
| Culvert length | 150.00 ft |
| Discharge | 130.00 cfs |
| Ent. Coef. (Ke) | 0.40 |

OUTPUT VARIABLES:

| | |
|---|---|
| INLET CONTROL HWo: | |
| Tapered throat | 5.91 ft |
| 45 degree bevels | 6.50 ft |
| Sq. edge headwall | 7.01 ft ← 7.0 |
| Thin edge projecting | 8.32 ft |
| OUTLET CONTROL HWo: | |
| HWo depth | 2.73 ft |
| Velocity | 10.35 fps |
| Critical depth | 3.37 ft |

Note: 1. Outlet control assumes full pipe flow.
2. Critical depth can not exceed the pipe diameter.

# PIPE CULVERT

Inlet control and outlet control.

$Q_3$

LAS VEGAS BLVD - NORTH BRANCH BLUE DIAMOND WASH

INPUT VARIABLES:

| | |
|---|---|
| Pipe diameter | 48.00 in |
| Slope | 3.00 % |
| Number of pipes | 1 |
| Manning's 'n' | 0.013 |
| Culvert length | 150.00 ft |
| Discharge | 131.00 cfs |
| Ent. Coef. (Ke) | 0.40 |

OUTPUT VARIABLES:

| | |
|---|---|
| INLET CONTROL HWo: | |
| Tapered throat | 5.96 ft |
| 45 degree bevels | 6.56 ft |
| Sq. edge headwall | 7.07 ft ← 7.1' |
| Thin edge projecting | 8.42 ft |
| OUTLET CONTROL HWo: | |
| HWo depth | 2.80 ft |
| Velocity | 10.42 fps |
| Critical depth | 3.38 ft |

Note: 1. Outlet control assumes full pipe flow.
2. Critical depth can not exceed the pipe diameter.

# PIPE CULVERT

Inlet control and outlet control.

Q3

LAS VEGAS BLVD - NORTH BRANCH BLUE DIAMOND WASH

INPUT VARIABLES:

| | |
|---|---|
| Pipe diameter | 48.00 in |
| Slope | 3.00 % |
| Number of pipes | 1 |
| Manning's 'n' | 0.013 |
| Culvert length | 150.00 ft |
| Discharge | 133.00 cfs |
| Ent. Coef. (Ke) | 0.40 |

OUTPUT VARIABLES:

| | |
|---|---|
| INLET CONTROL HWo: | |
| Tapered throat | 6.04 ft |
| 45 degree bevels | 6.68 ft |
| Sq. edge headwall | 7.21 ft ← 7.2' |
| Thin edge projecting | 8.60 ft |
| OUTLET CONTROL HWo: | |
| HWo depth | 2.92 ft |
| Velocity | 10.58 fps |
| Critical depth | 3.41 ft |

Note: 1. Outlet control assumes full pipe flow.
2. Critical depth can not exceed the pipe diameter.

# PINE STREET STORM DRAIN

# BOX CULVERT

Inlet control and outlet control.

PINE STREET STORM DRAIN

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| Box Height | 4.00 ft | INLET CONTROL HWo: | |
| Box Width | 12.00 ft | Tapered throat | 5.76 ft |
| Slope | 1.50 % | 45 degree bevels | 6.71 ft |
| Manning's 'n' | 0.015 | Sq. edge headwall | 7.33 ft ← |
| Number of boxes | 1 | | |
| Culvert length | 1000 ft | | |
| Discharge | 500 cfs | OUTLET CONTROL HWo: | |
| | | HWo depth | -2.34 ft |
| | | Velocity | 10.42 fps |
| Ent. Coef. (Ke) | 0.40 | Critical depth | 3.79 ft |

Note: 1. Outlet control assumes full flow.
2. Critical depth can not exceed the box height

CAPACITY OF PINE STREET STORM DRAIN PRIOR TO OVERTOPPING WARM SPRINGS ROAD.

SEE SHEET SD-6 OF "IMPROVEMENT PLANS FOR WARM SPRINGS ROAD FROM TAMARUS STREET TO PECOS ROAD" BY MEA CONSULTING ENGINEERS.

# TRAPEZOIDAL CHANNEL

Normal depth calculations by Manning's equation.

PINE STREET STORM DRAIN

| INPUT VARIABLES: | | OUTPUT VARIABLES: | |
|---|---|---|---|
| FLOW (Q) | 500 cfs | VELOCITY | 11.90 ft/sec |
| MANNING's 'n' | 0.015 | DEPTH | 3.51 ft |
| SLOPE | 0.5 % | FREEBOARD | 1.45 ft |
| BOTTOM WIDTH | 12 ft | TOTAL DEPTH | 4.96 ft |
| SIDE SLOPE (Lt) | 0 H:1V | FROUD No. | 1.41 |
| SIDE SLOPE (Rt) | 0 H:1V | | |
| | | Top Width | 12.00 ft |
| | | End Area | 42.12 ft |
| | | Wetted Perim. | 19.02 ft |
| RADIUS | ft | | |
| SUPERELEVATION | 0 ft | | |

Fb= 0.5+V^2/2g (Sub-critical) 1+0.025Vd^(1/3) (Super-critical)
Se=V^2Tw/gR

**MANNING'S "n" SUMMARY TABLE**

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| 1000 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 1100 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 1200 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 1300 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 1400 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| 1500 | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| 1600 | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** |
| 1800 | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.000 | 0.000 | 0.000 | 0.005 | 1.000 | **0.025** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** |
| 1900 | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.000 | 0.000 | 0.000 | 0.005 | 1.000 | **0.025** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** |
| 2000 | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.000 | 0.000 | 0.000 | 0.005 | 1.000 | **0.025** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** |
| 2100 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.000 | 0.000 | 0.000 | 0.005 | 1.000 | **0.025** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 2200 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 2300 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 2400 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 2500 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 2600 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 2700 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 2800 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 2900 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 3000 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** |
| 3100 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 3200 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 3300 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 3400 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 3500 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 3600 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.035 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 3700 | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 3800 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 3900 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 4000 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 4100 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 4200 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 4300 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 4400 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 4500 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 4600 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| 4700 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 4800 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 4900 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 5000 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 5100 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 5200 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 5300 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 5400 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 5500 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 5600 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 5700 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 5800 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 5900 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 6000 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 6100 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 6200 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 6300 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 6400 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| 6500 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 6600 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 6700 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 6800 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| 6900 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| 7000 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| 7100 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 7200 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 7300 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 7400 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 7500 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 7600 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 7700 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 7800 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 7900 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 8000 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 8100 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 8200 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 8300 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| 8400 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| 8500 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| 8600 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 8700 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 8800 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 8900 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 9000 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 9100 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 9200 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| 9300 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| 9400 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 9500 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| 9600 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 9700 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 9800 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 9900 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 10000 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 10100 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 10200 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 10300 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 10400 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 10500 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 10600 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 10700 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 10800 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 10900 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 11000 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 11100 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 11200 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 11300 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 11400 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 11500 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 11600 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** |
| 11700 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** |
| 11800 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** |
| 11900 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** |
| 12000 | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** |
| 12100 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| 12200 | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| **12300** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **12400** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **12500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **12600** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **12700** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **12800** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **12900** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **13000** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **13100** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **13200** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **13300** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **13400** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **13500** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **13600** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **13700** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** |
| **13800** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **13900** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **14000** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **14100** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **14200** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **14300** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **14400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **14500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **14600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **14700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **14800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **14900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **15000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **15100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **15200** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **15300** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **15400** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **15500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **15600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **15700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.000 | 0.000 | 0.000 | 0.005 | 1.000 | **0.025** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **15800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.000 | 0.000 | 0.000 | 0.005 | 1.000 | **0.025** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **15900** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **16000** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| **16100** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **16200** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **16300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **16400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **16500** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **16600** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **16700** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **16800** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **16900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **17000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **17100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **17200** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **17300** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.000 | 0.000 | 0.000 | 0.005 | 1.000 | **0.025** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **17400** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.000 | 0.000 | 0.000 | 0.005 | 1.000 | **0.025** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **17500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **17600** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **17700** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **17800** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **17900** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **18000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **18100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **18200** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **18300** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **18400** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **18500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **18600** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **18700** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **18800** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **18900** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **19000** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **19100** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **19200** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **19300** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **19400** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **19500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **19600** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **19700** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **19800** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| 19900 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 20000 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 20100 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 20200 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 20300 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 20400 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 20500 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 20600 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 20700 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 20800 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 20900 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 21000 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 21100 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 21200 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 21300 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 21400 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 21500 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 21600 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 21700 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 21800 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 21900 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 22000 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 22100 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 22200 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 22300 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 22400 | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| 22500 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 22600 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 22800 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 22900 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 23000 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** |
| 23100 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 23200 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 23300 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 23400 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 23500 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 23600 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| 23700 | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| **23800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **23900** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **24000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **24100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **24200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **24300** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **24400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **24500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **24600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **24700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **24800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **24900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **25000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **25100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **25200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **25300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **25400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **25600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **25700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **25800** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **25900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **26000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **26100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **26200** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **26300** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **26400** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **26500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **26600** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **26700** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **26800** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **27000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **27100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **27200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **27300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **27400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **27500** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** |
| **27600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **27700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| **27800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **27900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **28000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **28100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **28200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **28300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **28400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **28500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **28600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **28700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **28800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **28900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **29000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **29100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **29200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **29400** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **29500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **29600** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **29700** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **29800** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **29900** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **30000** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **30100** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **30200** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **30300** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **30400** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **30500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **30600** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **30700** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **30800** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **30900** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **31000** | 0.020 | 0.000 | 0.000 | 0.000 | 0.005 | 1.000 | **0.025** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.000 | 0.000 | 0.000 | 0.005 | 1.000 | **0.025** |
| **31100** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **31200** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **31300** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **31400** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **31500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **31600** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| **31700** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **31800** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **31900** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **32000** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **32100** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **32200** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **32300** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **32400** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **32500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **32600** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **32700** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **32800** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **32900** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **33000** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **33100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **33200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **33300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **33400** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **33500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** |
| **33600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **33700** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **33800** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **33900** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **34000** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **34100** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** |
| **34200** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **34300** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **34400** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **34500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **34600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **34700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **34800** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **34900** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **35000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **35100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **35200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **35300** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **35400** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| **35500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **35600** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **35700** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **35800** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **35900** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **36000** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **36100** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **36200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **36300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **36400** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** |
| **36500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **36600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **36700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **36800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **36900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **37000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **37100** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **37200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **37300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **37400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **37500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **37600** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **37700** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **37800** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **37900** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **38000** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **38100** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **38200** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **38300** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **38400** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **38500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **38600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **38700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **38800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **38900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **39000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **39100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **39200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| **39300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **39400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **39500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **39600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **39700** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **39800** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **39900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **40000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **40100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **40200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **40300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **40400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **40500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **40600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **40700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **40800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **40900** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **41000** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **41100** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **41200** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **41300** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **41400** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **41500** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **41600** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **41700** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **41800** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **41900** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **42000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **42100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **42200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **42300** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **42400** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **42500** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **42600** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **42700** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **42800** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **42900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **43000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| **43100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **43200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **43300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **43400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **43500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **43600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **43700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **43800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **43900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **44000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **44100** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **44200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **44300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **44400** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **44500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **44600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **44700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **44800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **44900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **45000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **45100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **45200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **45300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.015 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.015** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **45400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **45500** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **45600** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **45700** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **45800** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **45900** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **46000** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **46100** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **46200** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **46300** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **46400** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** | 0.020 | 0.005 | 0.005 | 0.060 | 0.020 | 1.000 | **0.110** |
| **46500** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **46600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **46700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **46800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| **46900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **47000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **47100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **47200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **47300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **47400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **47500** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **47600** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **47700** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **47800** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **47900** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **48000** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **48100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **48200** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **48300** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **48400** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** |
| **48500** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **48600** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **48700** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **48800** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **48900** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** |
| **49000** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** |
| **49100** | 0.020 | 0.005 | 0.005 | 0.010 | 0.005 | 1.000 | **0.045** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** |
| **49200** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** |
| **49300** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** |
| **49400** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** |
| **49500** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** |
| **49600** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** |
| **49700** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** |
| **49800** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** |
| **49900** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** |
| **50000** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** |
| **50100** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** | 0.020 | 0.005 | 0.005 | 0.000 | 0.005 | 1.000 | **0.035** |
| **50200** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **50300** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **50400** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **50500** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **50600** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |

| HEC-2 | LEFT OVERBANK | | | | | | | CHANNEL | | | | | | | RIGHT OVERBANK | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XS | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n | n0 | n1 | n2 | n3 | n4 | m5 | n |
| **50700** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **50800** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **50900** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **51000** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **51100** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **51200** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **51300** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **51400** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **51500** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **51600** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **51700** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **51800** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **51900** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **52000** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **52100** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **52200** | 0.020 | 0.005 | 0.005 | 0.040 | 0.010 | 1.000 | **0.080** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **52300** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **52400** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **52500** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **52600** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **52700** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **52800** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **52900** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **53000** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **53100** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **53200** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **53300** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |
| **53400** | 0.020 | 0.005 | 0.005 | 0.000 | 0.010 | 1.000 | **0.040** | 0.020 | 0.005 | 0.000 | 0.000 | 0.005 | 1.000 | **0.030** | 0.016 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | **0.016** |

## KEY TO CROSS-SECTION (XS) LABELING

PREPARED BY: MJL
SC: G.C. Wallace, Inc.
TEC:

COMMUNITY NAME: Clark County/ Henderson
STATE: Nevada
FEMA CID NO.

DATE PREPARED: 3/17/2002
SC: G.C. Wallace, Inc.
TEC:

STREAM NAME: See Below
RUN DATE: See Below

| STUDY CONTRACTOR | | | | | | TECHNICAL EVALUATION CONTRACTOR | |
|---|---|---|---|---|---|---|---|
| FIELD SURVEY SECTION | XS LETTER DRAFT FIS | HEC-2 STATION | STREAM NAME | HEC-2 MODEL | RUN DATE | EPA REACH FILE NO. | XS LETTER FINAL FIS |
| | 900 | 900 | Duck Creek | DCL6SUBB | 3/17/2002 | | |
| | 1000 | 1000 | Duck Creek | DCL6SUBB | 3/17/2002 | | |
| | 1100 | 1100 | Duck Creek | DCL6SUBB | 3/17/2002 | | |
| | 1200 | 1200 | Duck Creek | DCL6SUBB | 3/17/2002 | | |
| | 1300 | 1300 | Duck Creek | DCL6SUBB | 3/17/2002 | | |
| 1400 | 1400 | 1400 | Duck Creek | DCL6SUBB | 3/17/2002 | | |
| 1500 | 1500 | 1500 | Duck Creek | DCL6SUBB | 3/17/2002 | | |
| | 1600 | 1600 | Duck Creek | DCL6SUBB | 3/17/2002 | | |
| | 1700 | 1700 | Duck Creek | DCL6SUBB | 3/17/2002 | | |
| | 1800 | 1800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 1900 | 1900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 2000 | 2000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 2100 | 2100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 2200 | 2200 | 2200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 2300 | 2300 | 2300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 2400 | 2400 | 2400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 2500 | 2500 | 2500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 2600 | 2600 | 2600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 2700 | 2700 | 2700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 2800 | 2800 | 2800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 2900 | 2900 | 2900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 3000 | 3000 | 3000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 3100 | 3100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 3200 | 3200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 3300 | 3300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 3400 | 3400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 3500 | 3500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 3600 | 3600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 3700 | 3700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 3800 | 3800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 3900 | 3900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 4000 | 4000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 4100 | 4100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 4200 | 4200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 4300 | 4300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 4400 | 4400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 4500 | 4500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 4600 | 4600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 4700 | 4700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 4800 | 4800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 4900 | 4900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 5000 | 5000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 5100 | 5100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 5200 | 5200 | 5200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 5300 | 5300 | 5300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 5400 | 5400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 5500 | 5500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 5600 | 5600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 5700 | 5700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 5800 | 5800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 5900 | 5900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 6000 | 6000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 6100 | 6100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 6200 | 6200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 6300 | 6300 | 6300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |

## KEY TO CROSS-SECTION (XS) LABELING

| | | | |
|---|---|---|---|
| PREPARED BY: | MJL | COMMUNITY NAME: | Clark County/ Henderson |
| SC: | G.C. Wallace, Inc. | STATE: | Nevada |
| TEC: | | FEMA CID NO. | |
| DATE PREPARED: | 3/17/2002 | STREAM NAME: | See Below |
| SC: | G.C. Wallace, Inc. | RUN DATE: | See Below |
| TEC: | | | |

| STUDY CONTRACTOR | | | | | | TECHNICAL EVALUATION CONTRACTOR | |
|---|---|---|---|---|---|---|---|
| FIELD SURVEY SECTION | XS LETTER DRAFT FIS | HEC-2 STATION | STREAM NAME | HEC-2 MODEL | RUN DATE | EPA REACH FILE NO. | XS LETTER FINAL FIS |
| 6400 | 6400 | 6400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 6500 | 6500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 6600 | 6600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 6700 | 6700 | 6700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 6800 | 6800 | 6800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 6900 | 6900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 7000 | 7000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 7100 | 7100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 7200 | 7200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 7300 | 7300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 7400 | 7400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 7500 | 7500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 7600 | 7600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 7700 | 7700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 7800 | 7800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 7900 | 7900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 8000 | 8000 | 8000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 8100 | 8100 | 8100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 8200 | 8200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 8300 | 8300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 8400 | 8400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 8500 | 8500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 8600 | 8600 | 8600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 8700 | 8700 | 8700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 8800 | 8800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 8900 | 8900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 9000 | 9000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 9100 | 9100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 9200 | 9200 | 9200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 9300 | 9300 | 9300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 9400 | 9400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 9500 | 9500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 9600 | 9600 | 9600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 9700 | 9700 | 9700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 9800 | 9800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 9900 | 9900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 10000 | 10000 | 10000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 10100 | 10100 | 10100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 10200 | 10200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 10300 | 10300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 10400 | 10400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 10500 | 10500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 10600 | 10600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 10700 | 10700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 10800 | 10800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 10900 | 10900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 11000 | 11000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 11100 | 11100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 11200 | 11200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 11300 | 11300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 11400 | 11400 | 11400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 11500 | 11500 | 11500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 11600 | 11600 | 11600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 11700 | 11700 | 11700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 11800 | 11800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |

## KEY TO CROSS-SECTION (XS) LABELING

| | | | |
|---|---|---|---|
| PREPARED BY: | MJL | COMMUNITY NAME: | Clark County/ Henderson |
| SC: | G.C. Wallace, Inc. | STATE: | Nevada |
| TEC: | | FEMA CID NO. | |
| DATE PREPARED: | 3/17/2002 | STREAM NAME: | See Below |
| SC: | G.C. Wallace, Inc. | RUN DATE: | See Below |
| TEC: | | | |

| STUDY CONTRACTOR | | | | | | TECHNICAL EVALUATION CONTRACTOR | |
|---|---|---|---|---|---|---|---|
| FIELD SURVEY SECTION | XS LETTER DRAFT FIS | HEC-2 STATION | STREAM NAME | HEC-2 MODEL | RUN DATE | EPA REACH FILE NO. | XS LETTER FINAL FIS |
| 11900 | 11900 | 11900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 12000 | 12000 | 12000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 12100 | 12100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 12200 | 12200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 12300 | 12300 | 12300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 12400 | 12400 | 12400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 12500 | 12500 | 12500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 12600 | 12600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 12700 | 12700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 12800 | 12800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 12900 | 12900 | 12900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 13000 | 13000 | 13000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 13100 | 13100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 13200 | 13200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 13300 | 13300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 13400 | 13400 | 13400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 13500 | 13500 | 13500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 13600 | 13600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 13700 | 13700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 13800 | 13800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 13900 | 13900 | 13900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 14000 | 14000 | 14000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 14100 | 14100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 14200 | 14200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 14300 | 14300 | 14300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 14400 | 14400 | 14400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 14500 | 14500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 14600 | 14600 | 14600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 14700 | 14700 | 14700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 14800 | 14800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 14900 | 14900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 15000 | 15000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 15100 | 15100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 15200 | 15200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 15300 | 15300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 15400 | 15400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 15500 | 15500 | 15500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 15600 | 15600 | 15600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 15700 | 15700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 15800 | 15800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 15900 | 15900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 16000 | 16000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 16100 | 16100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 16200 | 16200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 16300 | 16300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 16400 | 16400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 16500 | 16500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 16600 | 16600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 16700 | 16700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 16800 | 16800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 16900 | 16900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 17000 | 17000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 17100 | 17100 | 17100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 17200 | 17200 | 17200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 17300 | 17300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |

## KEY TO CROSS-SECTION (XS) LABELING

| | | | |
|---|---|---|---|
| PREPARED BY: | MJL | COMMUNITY NAME: | Clark County/ Henderson |
| SC: | G.C. Wallace, Inc. | STATE: | Nevada |
| TEC: | | FEMA CID NO. | |
| DATE PREPARED: | 3/17/2002 | STREAM NAME: | See Below |
| SC: | G.C. Wallace, Inc. | RUN DATE: | See Below |
| TEC: | | | |

| STUDY CONTRACTOR | | | | | | TECHNICAL EVALUATION CONTRACTOR | |
|---|---|---|---|---|---|---|---|
| FIELD SURVEY SECTION | XS LETTER DRAFT FIS | HEC-2 STATION | STREAM NAME | HEC-2 MODEL | RUN DATE | EPA REACH FILE NO. | XS LETTER FINAL FIS |
| | 17400 | 17400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 17500 | 17500 | 17500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 17600 | 17600 | 17600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 17700 | 17700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 17800 | 17800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 17900 | 17900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 18000 | 18000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 18100 | 18100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 18200 | 18200 | 18200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 18300 | 18300 | 18300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 18400 | 18400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 18500 | 18500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 18600 | 18600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 18700 | 18700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 18800 | 18800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 18900 | 18900 | 18900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 19000 | 19000 | 19000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 19100 | 19100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 19200 | 19200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 19300 | 19300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 19400 | 19400 | 19400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 19500 | 19500 | 19500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 19600 | 19600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 19700 | 19700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 19800 | 19800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 19900 | 19900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 20000 | 20000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 20100 | 20100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 20200 | 20200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 20300 | 20300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 20400 | 20400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 20500 | 20500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 20600 | 20600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 20700 | 20700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 20800 | 20800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 20900 | 20900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 21000 | 21000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 21100 | 21100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 21200 | 21200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 21300 | 21300 | 21300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 21400 | 21400 | 21400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 21500 | 21500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 21600 | 21600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 21700 | 21700 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 21800 | 21800 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 21900 | 21900 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 22000 | 22000 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 22100 | 22100 | 22100 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 22200 | 22200 | 22200 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 22300 | 22300 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 22400 | 22400 | 22400 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| 22500 | 22500 | 22500 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 22600 | 22600 | Duck Creek | DCL1SUBA | 3/17/2002 | | |
| | 22700 | 22700 | NO SECTION | | | | |
| | 22800 | 22800 | Duck Creek | DCU3SUBA | 3/17/2002 | | |

## KEY TO CROSS-SECTION (XS) LABELING

| | | | |
|---|---|---|---|
| PREPARED BY: | MJL | COMMUNITY NAME: | Clark County/ Henderson |
| SC: | G.C. Wallace, Inc. | STATE: | Nevada |
| TEC: | | FEMA CID NO. | |
| DATE PREPARED: | 3/17/2002 | STREAM NAME: | See Below |
| SC: | G.C. Wallace, Inc. | RUN DATE: | See Below |
| TEC: | | | |

| STUDY CONTRACTOR | | | | | | TECHNICAL EVALUATION CONTRACTOR | |
|---|---|---|---|---|---|---|---|
| FIELD SURVEY SECTION | XS LETTER DRAFT FIS | HEC-2 STATION | STREAM NAME | HEC-2 MODEL | RUN DATE | EPA REACH FILE NO. | XS LETTER FINAL FIS |
| | 22900 | 22900 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 23000 | 23000 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 23100 | 23100 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 23200 | 23200 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 23300 | 23300 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 23400 | 23400 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 23500 | 23500 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 23600 | 23600 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 23700 | 23700 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 23800 | 23800 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 23900 | 23900 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 24000 | 24000 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 24100 | 24100 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 24200 | 24200 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 24300 | 24300 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 24400 | 24400 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 24500 | 24500 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 24600 | 24600 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 24700 | 24700 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 24800 | 24800 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 24900 | 24900 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 25000 | 25000 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 25100 | 25100 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 25200 | 25200 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 25300 | 25300 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 25400 | 25400 | Duck Creek | DCU3SUBA | 3/17/2002 | | |
| | 25500 | 25500 | NO SECTION | | | | |
| | 25600 | 25600 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| | 25700 | 25700 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| | 25800 | 25800 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| | 25900 | 25900 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| | 26000 | 26000 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| | 26100 | 26100 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| | 26200 | 26200 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| | 26300 | 26300 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| | 26400 | 26400 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| 26500 | 26500 | 26500 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| 26600 | 26600 | 26600 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| | 26700 | 26700 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| | 26800 | 26800 | Duck Creek | DCU1SUBA | 3/17/2002 | | |
| | 26900 | 26900 | NO SECTION | | | | |
| | 27000 | 27000 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 27100 | 27100 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 27200 | 27200 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 27300 | 27300 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 27400 | 27400 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 27500 | 27500 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 27600 | 27600 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 27700 | 27700 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 27800 | 27800 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 27900 | 27900 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 28000 | 28000 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 28100 | 28100 | Duck Creek | DCL2SUBB | 3/17/2002 | | |
| | 28200 | 28200 | Duck Creek | DCU4SUBC | 3/17/2002 | | |
| | 28300 | 28300 | Duck Creek | DCU4SUBC | 3/17/2002 | | |

## KEY TO CROSS-SECTION (XS) LABELING

PREPARED BY: MJL
SC: G.C. Wallace, Inc.
TEC:

COMMUNITY NAME: Clark County/ Henderson
STATE: Nevada
FEMA CID NO.

DATE PREPARED: 3/17/2002
SC: G.C. Wallace, Inc.
TEC:

STREAM NAME: See Below
RUN DATE: See Below

| STUDY CONTRACTOR | | | | | | TECHNICAL EVALUATION CONTRACTOR | |
|---|---|---|---|---|---|---|---|
| FIELD SURVEY SECTION | XS LETTER DRAFT FIS | HEC-2 STATION | STREAM NAME | HEC-2 MODEL | RUN DATE | EPA REACH FILE NO. | XS LETTER FINAL FIS |
| | 28400 | 28400 | Duck Creek | DCU4SUBC | 3/17/2002 | | |
| | 28500 | 28500 | Duck Creek | DCU4SUBC | 3/17/2002 | | |
| | 28600 | 28600 | Duck Creek | DCU4SUBC | 3/17/2002 | | |
| | 28700 | 28700 | Duck Creek | DCU4SUBC | 3/17/2002 | | |
| | 28800 | 28800 | Duck Creek | DCU2SUBB | 3/17/2002 | | |
| | 28900 | 28900 | Duck Creek | DCU2SUBB | 3/17/2002 | | |
| | 29000 | 29000 | Duck Creek | DCU2SUBB | 3/17/2002 | | |
| | 29100 | 29100 | Duck Creek | DCU2SUBB | 3/17/2002 | | |
| | 29200 | 29200 | Duck Creek | DCU2SUBB | 3/17/2002 | | |
| | 29300 | 29300 | NO SECTION | | | | |
| | 29400 | 29400 | Duck Creek | DCL3SUBB | 3/17/2002 | | |
| | 29500 | 29500 | Duck Creek | DCL3SUBB | 3/17/2002 | | |
| | 29600 | 29600 | Duck Creek | DCL3SUBB | 3/17/2002 | | |
| | 29700 | 29700 | Duck Creek | DCL3SUBB | 3/17/2002 | | |
| | 29800 | 29800 | Duck Creek | DCL3SUBB | 3/17/2002 | | |
| | 29900 | 29900 | Duck Creek | DCL3SUBB | 3/17/2002 | | |
| | 30000 | 30000 | Duck Creek | DCL3SUBB | 3/17/2002 | | |
| | 30100 | 30100 | Duck Creek | DCL4SUBB | 3/17/2002 | | |
| | 30200 | 30200 | Duck Creek | DCL4SUBB | 3/17/2002 | | |
| | 30300 | 30300 | Duck Creek | DCL4SUBB | 3/17/2002 | | |
| | 30400 | 30400 | Duck Creek | DCL4SUBB | 3/17/2002 | | |
| | 30500 | 30500 | Duck Creek | DCL5SUBB | 3/17/2002 | | |
| | 30600 | 30600 | Duck Creek | DCL5SUBB | 3/17/2002 | | |
| | 30700 | 30700 | Duck Creek | DCL5SUBB | 3/17/2002 | | |
| | 30800 | 30800 | Duck Creek | DCL5SUBB | 3/17/2002 | | |
| | 30900 | 30900 | Duck Creek | DCL5SUBB | 3/17/2002 | | |
| 31000 | 31000 | 31000 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 31100 | 31100 | 31100 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 31200 | 31200 | 31200 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 31300 | 31300 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 31400 | 31400 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 31500 | 31500 | 31500 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 31600 | 31600 | 31600 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 31700 | 31700 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 31800 | 31800 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 31900 | 31900 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 32000 | 32000 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 32100 | 32100 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 32200 | 32200 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 32300 | 32300 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 32400 | 32400 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 32500 | 32500 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 32600 | 32600 | 32600 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 32700 | 32700 | 32700 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 32800 | 32800 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 32900 | 32900 | 32900 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 33000 | 33000 | 33000 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 33100 | 33100 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 33200 | 33200 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 33300 | 33300 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 33400 | 33400 | 33400 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 33500 | 33500 | 33500 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 33600 | 33600 | 33600 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 33700 | 33700 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 33800 | 33800 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |

## KEY TO CROSS-SECTION (XS) LABELING

| | | | |
|---|---|---|---|
| PREPARED BY: | MJL | COMMUNITY NAME: | Clark County/ Henderson |
| SC: | G.C. Wallace, Inc. | STATE: | Nevada |
| TEC: | | FEMA CID NO. | |
| DATE PREPARED: | 3/17/2002 | STREAM NAME: | See Below |
| SC: | G.C. Wallace, Inc. | RUN DATE: | See Below |
| TEC: | | | |

| STUDY CONTRACTOR | | | | | | TECHNICAL EVALUATION CONTRACTOR | |
|---|---|---|---|---|---|---|---|
| FIELD SURVEY SECTION | XS LETTER DRAFT FIS | HEC-2 STATION | STREAM NAME | HEC-2 MODEL | RUN DATE | EPA REACH FILE NO. | XS LETTER FINAL FIS |
| | 33900 | 33900 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 34000 | 34000 | 34000 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 34100 | 34100 | 34100 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 34200 | 34200 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 34300 | 34300 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 34400 | 34400 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 34500 | 34500 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 34600 | 34600 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 34700 | 34700 | 34700 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 34800 | 34800 | 34800 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 34900 | 34900 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 35000 | 35000 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 35100 | 35100 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 35200 | 35200 | 35200 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 35300 | 35300 | 35300 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 35400 | 35400 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 35500 | 35500 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 35600 | 35600 | 35600 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 35700 | 35700 | 35700 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 35800 | 35800 | 35800 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 35900 | 35900 | 35900 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 36000 | 36000 | 36000 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 36100 | 36100 | 36100 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 36200 | 36200 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 36300 | 36300 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 36400 | 36400 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 36500 | 36500 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 36600 | 36600 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 36700 | 36700 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 36800 | 36800 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 36900 | 36900 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 37000 | 37000 | 37000 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 37100 | 37100 | 37100 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 37200 | 37200 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 37300 | 37300 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 37400 | 37400 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 37500 | 37500 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 37600 | 37600 | 37600 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| 37700 | 37700 | 37700 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 37800 | 37800 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 37900 | 37900 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 38000 | 38000 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 38100 | 38100 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 38200 | 38200 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 38300 | 38300 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 38400 | 38400 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
| | 38500 | 38500 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
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| | 39300 | 39300 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |

## KEY TO CROSS-SECTION (XS) LABELING

| | | | |
|---|---|---|---|
| PREPARED BY: | MJL | COMMUNITY NAME: | Clark County/ Henderson |
| SC: | G.C. Wallace, Inc. | STATE: | Nevada |
| TEC: | | FEMA CID NO. | |
| DATE PREPARED: | 3/17/2002 | STREAM NAME: | See Below |
| SC: | G.C. Wallace, Inc. | RUN DATE: | See Below |
| TEC: | | | |

| STUDY CONTRACTOR | | | | | | TECHNICAL EVALUATION CONTRACTOR | |
|---|---|---|---|---|---|---|---|
| FIELD SURVEY SECTION | XS LETTER DRAFT FIS | HEC-2 STATION | STREAM NAME | HEC-2 MODEL | RUN DATE | EPA REACH FILE NO. | XS LETTER FINAL FIS |
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| | 39500 | 39500 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
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| | 40100 | 40100 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
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| 40700 | 40700 | 40700 | North Branch Blue Diamond | BDN1SUBC | 3/17/2002 | | |
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| | 42500 | 42500 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| | 42600 | 42600 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
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| 42900 | 42900 | 42900 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| | 43000 | 43000 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| 43100 | 43100 | 43100 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
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| 44100 | 44100 | 44100 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| | 44200 | 44200 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| 44300 | 44300 | 44300 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| 44400 | 44400 | 44400 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
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| | 44700 | 44700 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| | 44800 | 44800 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |

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| STUDY CONTRACTOR | | | | | | TECHNICAL EVALUATION CONTRACTOR | |
|---|---|---|---|---|---|---|---|
| FIELD SURVEY SECTION | XS LETTER DRAFT FIS | HEC-2 STATION | STREAM NAME | HEC-2 MODEL | RUN DATE | EPA REACH FILE NO. | XS LETTER FINAL FIS |
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| | 45000 | 45000 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| | 45100 | 45100 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| | 45200 | 45200 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| | 45300 | 45300 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
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| | 46000 | 46000 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| | 46100 | 46100 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
| | 46200 | 46200 | Middle Branch Blue Diamond | BDM3SUBC | 3/17/2002 | | |
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| | 47100 | 47100 | Middle Branch Blue Diamond | BDM1SUBB | 3/17/2002 | | |
| | 47200 | 47200 | Middle Branch Blue Diamond | BDM1SUBB | 3/17/2002 | | |
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| | 50300 | 50300 | Duck Creek | I152SUBB | 3/17/2002 | | |

## KEY TO CROSS-SECTION (XS) LABELING

| | | | |
|---|---|---|---|
| PREPARED BY: | MJL | COMMUNITY NAME: | Clark County/ Henderson |
| SC: | G.C. Wallace, Inc. | STATE: | Nevada |
| TEC: | | FEMA CID NO. | |
| DATE PREPARED: | 3/17/2002 | STREAM NAME: | See Below |
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| STUDY CONTRACTOR | | | | | | TECHNICAL EVALUATION CONTRACTOR | |
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| FIELD SURVEY SECTION | XS LETTER DRAFT FIS | HEC-2 STATION | STREAM NAME | HEC-2 MODEL | RUN DATE | EPA REACH FILE NO. | XS LETTER FINAL FIS |
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| | 53400 | 53400 | Duck Creek | I151SUBB | 3/17/2002 | | |

## DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
## ORGANIZATION OF TECHNICAL SUPPORT DATA NOTEBOOKS

**VOLUME I**

SECTION 1 GENERAL DOCUMENTATION
- 1.1 Special Problem Reports
- 1.2 Meeting Minutes
- 1.3 General Correspondence

SECTION 2 ENGINEERING ANALYSIS
- 2.1 Summary of Design Flows

**VOLUME II**

- 2.2 Hydraulic Analysis
  - 2.2.1 HEC-2 Model Descriptions
  - 2.2.2 Normal Depth Calculations
- 2.3 Supporting Data
  - 2.3.1 Cross Section Plots
  - 2.3.2 Manning's "n" Channel Roughness Calculations
- 2.4 Key to Cross Section Labeling

**VOLUME III**

SECTION 3 DRAFT FIS REPORT
- 3.1 Report Text
- 3.2 FEMA Forms

SECTION 4 MAPPING INFORMATION
- 4.1 Map Index, Effective FIRM, LOMR's
- 4.2 Base Maps
- 4.3 Work Maps
- 4.4 Cross Section Exhibits
- 4.5 Aerial Photographs

**VOLUME IV**

SECTION 5 MISCELLANEOUS REFERENCE MATERIAL
- 5.1 Detailed Field Review
  - 5.1.1 Photograph Location Maps
  - 5.1.2 Field Survey and Photographs
- 5.2 Survey Point Files
- 5.3 Operation and Maintenance Plan
- 5.4 References
- 5.5 Compact Disc

**VOLUME V**

GREEN PARK CLOMR

**ATTACHED DESIGN DRAWINGS**

Duck Creek from Tomiyasu Lane to Warm Springs Road
Lower Duck Creek Detention Basin
Duck Creek Channel Phase 1
Duck Creek Crossing at Robindale Road
Aviara Apartments Offsite Channel Improvements
Windmill Lane from Las Vegas Boulevard to Maryland Parkway

# DRAFT

# DUCK CREEK / BLUE DIAMOND WASHES
# FIS RESTUDY

## MARCH 2002

Clark County, Nevada

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# I. INTRODUCTION

## A. Purpose of Study

The purpose of this study is to investigate the limits of flood hazards caused by the Duck Creek and Blue Diamond Washes. The results of this Restudy will be used to update the Flood Insurance Rate Maps (FIRM) for Clark County and incorporated areas. The FIRMs are distributed by the Federal Emergency Management Agency (FEMA) to aid in the administration of the National Flood Insurance Program (NFIP). This program was established with the passage of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 to enable property owners to purchase insurance protection against losses from flooding.

## B. Authority For Study

G. C. Wallace, Inc. (GCW) was authorized by the Clark County Regional Flood Control District (CCRFCD) to perform this Restudy under contract, *Agreement of Professional Services for the Duck Creek/ Blue Diamond Washes FIS Restudy*, dated June 8, 2000. Additional work for this project was authorized by the CCRFCD under contract, *Supplemental Services for Duck Creek/ Blue Diamond Washes FIS Restudy,* dated May 29, 2001.

## C. Community Coordination and Acknowledgment

GCW met with representatives from the CCRFCD on May 9, 2000, for the initial coordination meeting to discuss scheduling, study methods, assumptions, and the format of deliverable items. The CCRFCD outlined the study areas and also provided relevant background information. Throughout the project, coordination meetings were held with the CCRFCD and the Clark County Public Works (CCPW) to discuss progress, preliminary results, and new data and flood control projects impacting the study area. In addition, the City of Henderson (COH) provided information due to the small portion of Duck Creek being within their jurisdiction. All meeting minutes and written comments are included in Section 1 of the Technical Data Support Notebooks (TSDN).

D. Community Concurrence

GCW has maintained close contact with the CCRFCD and CCPW through continued progress meetings. The final results of this Restudy incorporate all appropriate comments from these progress meetings. Concurrence letters from the CCRFCD, CCPW, and the COH are attached in Section 1 of the TSDN.

## II. AREAS STUDIED

A. Scope of Study

The work consisted of data collection, hydrologic modeling, hydraulic modeling, floodplain and floodway mapping, and determination of BFEs. The mapping was accomplished by approximate and detailed methods for the study area shown in Figures 1 and 2. The organization of this Restudy is in accordance with *FEMA Document No. 37* (Reference 1). Copies of the scope are attached in Section 1.3 of the TSDN.

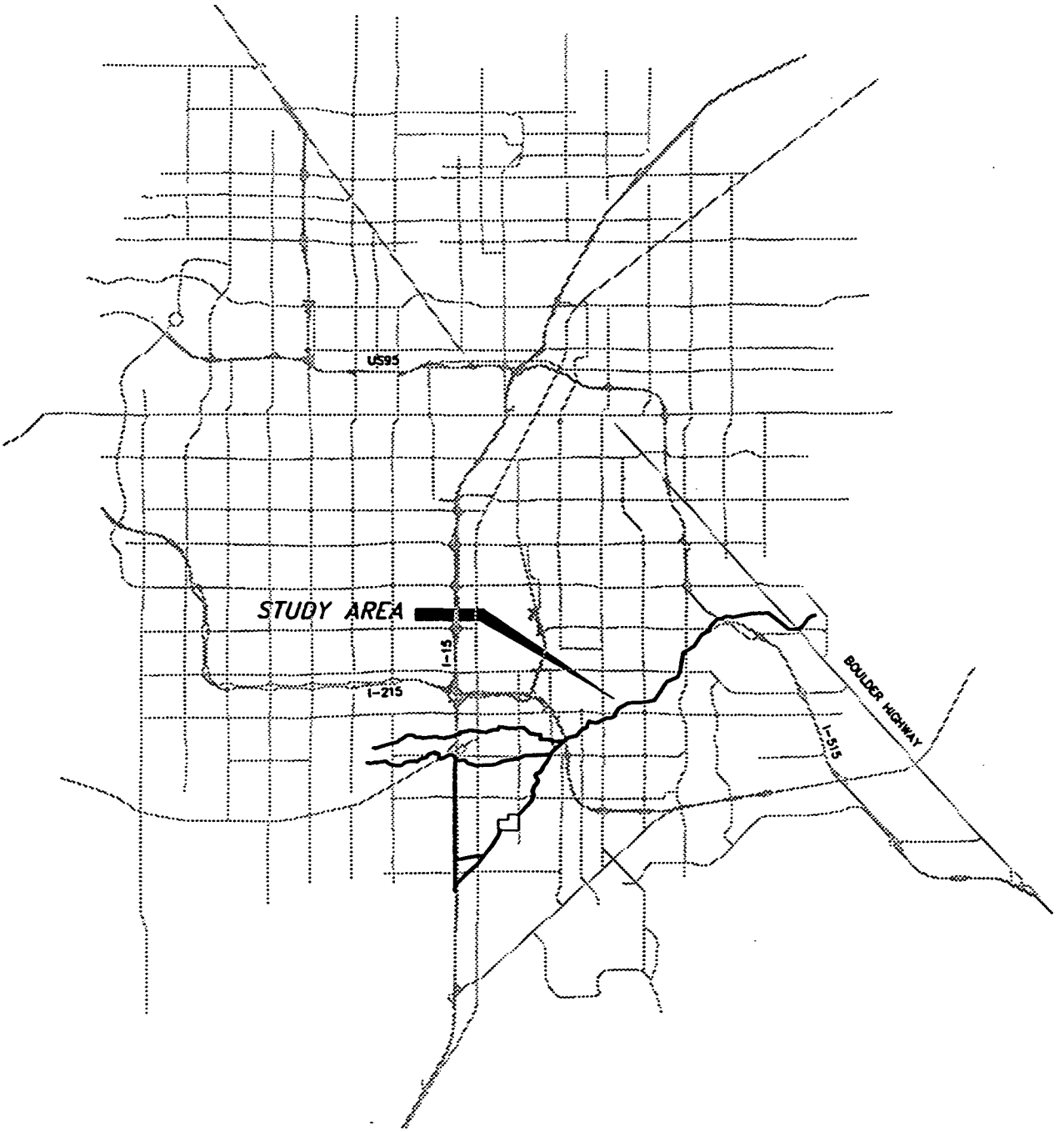
B. Community Description

The study area is located within Clark County, in southern Nevada. Note that a portion of Duck Creek lies within the boundary of the City of Henderson, Nevada (COH). The western portion of the study area is developing rapidly. This Restudy reflects the current development and existing flood control facilities within the study area. Note that the definition of "existing facilities" includes facilities that are substantially complete as of March 2002.

C. Principal Flood Problems

1. Duck Creek from the Lower Duck Creek Detention Basin (LDCDB) to 300 feet east of Hollywood Boulevard.

   - Duck Creek is mostly unimproved from Robindale Road to the Aviara Apartments Offsite Channel. Breakouts will occur along the left overbank from Robindale Road to Spencer Avenue. Elevated roadway crossings and a sharp bend in the channel at Eldorado Lane will create backwater affects.




NORTH

NOT TO SCALE

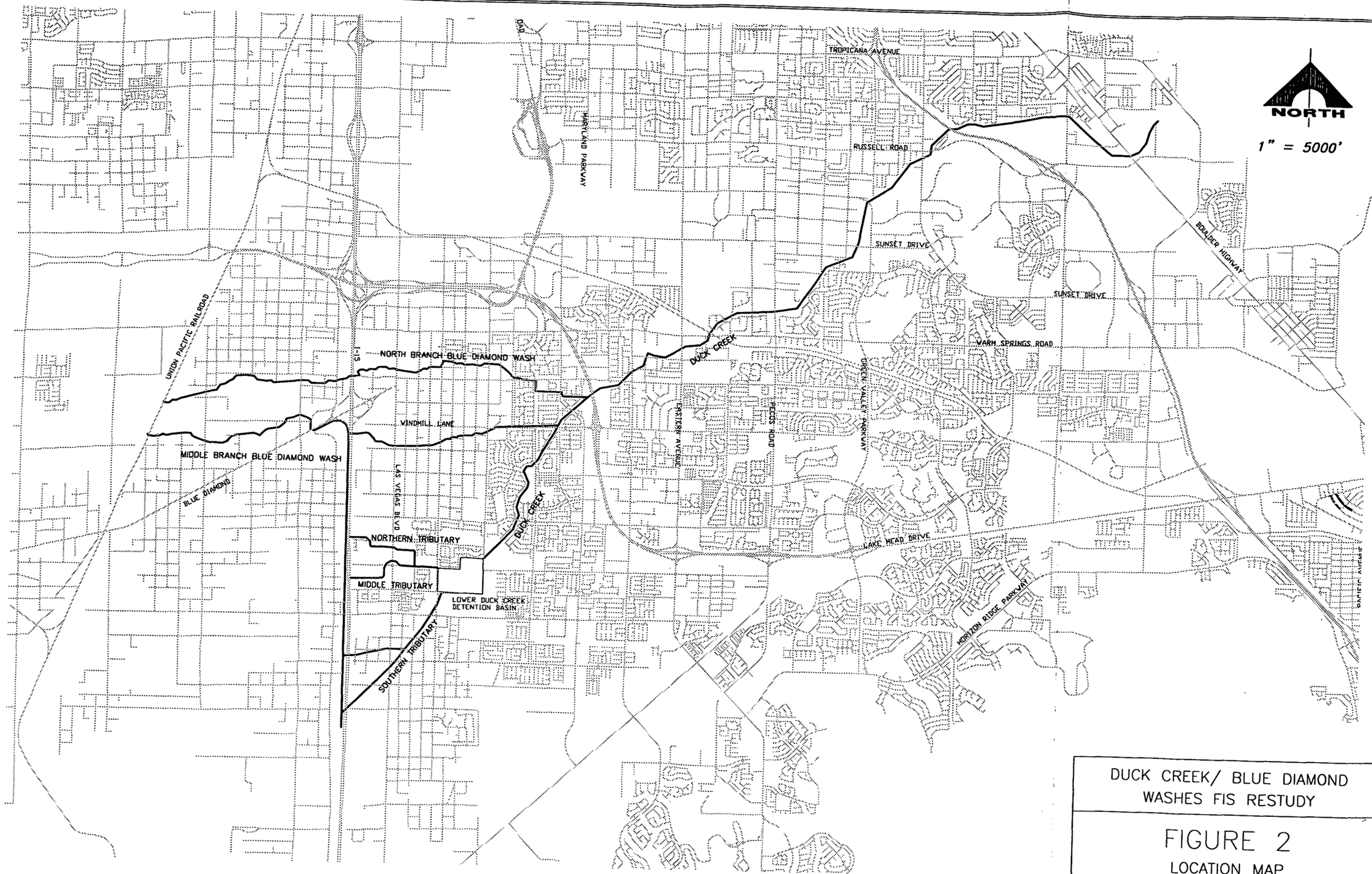
DUCK CREEK/ BLUE DIAMOND
WASHES FIS RESTUDY

# FIGURE 1

VICINITY MAP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

Mludwig
03-18-02
F:\550\dwg\fig\FIG-1b.dwg




DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

# FIGURE 2

LOCATION MAP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

03-18-02 11:04:41 Mludwig
F:\039\dwg\fig\FIG-2b.dwg

- Breakouts will occur along the right overbank from Topaz Street to Warm Springs Road. This breakout will drain to Pine Street, Pecos Road, and Quail Run Road.

- Breakouts will occur along the left overbank from Sandhill Road to Annie Oakley Drive. The breakout will drain north in Annie Oakley Drive to Patrick Lane.

2. Duck Creek from I-15 to the Lower Duck Creek Detention Basin (LDCDB).

   - Overtopping of I-15 at the culvert (I153) between Pyle Avenue and Joe Rae Avenue.

   - Backwater affects from the two culverts at Las Vegas Boulevard will result in subsequent breakouts along the west side of Las Vegas Boulevard.

   - A breakout at Silverado Ranch Boulevard will drain east to the LDCDB.

3. North Branch Blue Diamond Wash from the Union Pacific Railroad (UPRR) to the Duck Creek confluence.

   - Overtopping of I-15, breakout north along I-15 outside the limit of study.

   - Several elevated roadway crossings create backwater affects.

4. Middle Branch Blue Diamond Wash from the UPRR to the Duck Creek confluence.

   - Breakouts will occur at the Blue Diamond/ I-15 Interchange area.

   - Several elevated roadway crossings create backwater affects.

5. Duck Creek breakout along west side of I-15 from Cactus Avenue to Blue Diamond Road.

   - There are no flooding problems associated with this reach.

D. Flood Protection Measures

There is no new construction associated with this project. However, several flood control projects have been completed within the study area since the 1991 Flood Insurance Study of the Las Vegas Valley (Reference 2) and other projects are substantially complete as of March 2002. These projects were incorporated into the HEC-2 modeling based on the topographic mapping, field survey, or as-built design drawings.

## III. ENGINEERING METHODS

### A. Hydrologic Analysis

See the *Summary of Design Flows* in Section 2 of the TSDN.

### B. Hydraulic Analysis

1. Methodology

The 100-year floodplain, floodway, and base flood elevations were determined using the U.S. Army Corps of Engineers (USACOE) HEC-2 Water Surface Profiles computer program (Reference 3) which runs inside BOSS International's RMS 2000 for AutoCAD (Reference 4). Where otherwise unknown, the starting water surface elevations were developed using normal depth calculations.

The special bridge and special culvert options were used for bridge modeling. The required bridge/ culvert data was taken from field survey data, as-built construction drawings, and topographic maps. Bridge areas are normalized to the direction of flow to allow the continuous use of the HEC-2 model, which is a one-dimensional model. Otherwise, the models would have to be discontinuous with the use of the two-dimensional model at the discontinuities (i.e., bridges, culverts, etc.).

The weir flow method within the HEC-2 split flow option was used to model all breakouts within the study area. Weir elevations were set at the overbanks of sections where a breakout from the main channel was probable. The program performs split flow calculations when the water surface elevation rises above the end points at a particular section. There are two main limitations of the split flow option. The split flow option assumes that weir elevations are fixed and do not erode over time, and that the split occurs perpendicular to the flow direction of the main channel.

Horizontal control is tied into the NAD 83 datum in state plane coordinates. Clark County survey monuments were used for control whenever possible. Ground control surveys, check cross sections, and establishment of elevation reference markers were completed by GCW. Vertical control is based on Clark County survey monuments using the NGVD 29 vertical datum. See Section 5.1 of the TSDN for survey notes and photographs of the hydraulic structures. A conversion to the NAVD 88 vertical datum for this project is shown below.

NAVD 88 = NGVD 29 + 2.37 feet

2. Cross Section Description

Cross section locations were initially cut at 400-foot intervals and aligned normal to the expected direction of flow. Cross sections were then further refined based on preliminary HEC-2 models which showed major conveyance changes and ineffective flow areas. Additional cross sections were cut to reduce changes in top width, friction slope, and conveyance between cross sections. All cross sections are oriented left to right facing downstream. The cross section data was derived from the topographic mapping, field survey, and as-built design drawings. Kenney Aerial Mapping, Inc. generated topographic mapping specifically for this project. The flight dates were July 18, 2000, and April 18, 2001.

3. Manning's "n" Values

Manning's "n" roughness coefficients were determined using engineering judgment based on data collected from field surveys, and aerial photographs. From Chow's Open Channel Hydraulics (Reference 5), Cowan's Procedure for estimating hydraulic roughness coefficients (Reference 6) was used to account for channel material, degree of irregularity, channel cross section variation, relative effect of obstructions, vegetation, and degree of meandering. In cases where the roughness values varied horizontally within a cross section, the "NH" card of the HEC-2 model was used to designate the proper roughness value. The calculated Manning's "n" values for all cross sections are organized in Section 2.3.2 of the TSDN.

4. Expansion and Contraction Coefficients

The expansion and contraction loss coefficients used in the HEC-2 modeling are 0.1 and 0.3 for typical riverine cross sections with gradual changes; 0.3 and 0.5 for cross sections at bridges or elevated roadway crossings.

C. Modeling Results

The modeling effort consisted of 23 separate HEC-2 models, in addition to several normal depth calculations. Due to the large volume of HEC-2 output, all HEC-2 files are organized on the attached CD, in place of hardcopy output. The greater part of the modeling results is shown on the Cross Section Exhibits, attached in Section 4.4 of the TSDN. The Cross Section Exhibits include the HEC-2 cross sections, base flows, split flows, revised floodplain and floodway boundaries, base flood elevations, and the Effective floodplain and floodway boundaries. For additional information, see Section 2.2 of the TSDN for the HEC-2 summary table, model descriptions, and exhibits showing the location of each model within the study area. The following is an overview of the modeling results, identifying breakout locations, 100-year flows, and discussion of special modeling cases.

1. Duck Creek from the Lower Duck Creek Detention Basin (LDCDB) to 300 feet east of Hollywood Boulevard.

The 100-year floodplain, floodway, and base flood elevations are determined for this reach. Note that the downstream floodway limit is set at Patrick Lane and that limit is well beyond the previous limit of the Effective mapping. Patrick Lane was selected as a downstream floodway limit for convenience.

Robindale Road

The HEC-2 modeling results indicate that 170 cfs will breakout over the left overbank, just downstream of Robindale Road. The breakout will flow north in Demona Drive, then drain east, crossing Spencer Street and will return to Duck Creek prior to the Eldorado Lane crossing. This split flow was determined using a flow distribution from the HEC-2 output. The floodplain at this location is based on results from the HEC-2 output and normal depth street calculations. Normal depth calculations are attached in Section 2.2.2 of the TSDN.

Warm Springs Road/ Pine Street

The split flow model shows 3,000 cfs breaking out over the right overbank from Topaz Street to Warm Springs Road. The breakout will flow east along the Union Pacific Railroad – Henderson Spur to the intersection of Pine Street and Warm Springs Road. The Pine Street storm drain has capacity for 500 cfs. The remaining 2,500 cfs will overtop Warm Springs Road and flow north in Pine Street. Additional split flow models show that 500 cfs will continue north in Pine Street and 2,000 cfs will spill over to Pecos Road. There is also a breakout of 862 cfs spilling over Pecos Road into Quail Run Road, which drains east and returns to Duck Creek. Pine Street storm drain calculations are attached in Section 2.2.2 of the TSDN.

Note that the floodplain and floodway for the main channel from Warm Springs Road to 1,400 feet downstream of Pecos Road are based on the same 100-year flow of 5,562 cfs that takes into account the breakout at Warm Springs Road.

Annie Oakley Drive

The HEC-2 modeling shows a breakout of 1,141 cfs along the left overbank of Duck Creek from Sandhill Road to Annie Oakley Drive. This breakout is tracked until it returns to Duck Creek. Split flows at street intersections and floodplain boundaries were determined using normal depth street calculations, attached in Section 2.2.2 of the TSDN. Sunset Road will intercept 636 cfs into Duck Creek. The remaining flow of 513 cfs will drain north in Annie Oakley Drive. An additional breakout of 268 cfs along the east side of Annie Oakley Drive from Post Road to Sylvestri Lane will return to Duck Creek. The remaining flow of 245 cfs will drain north in Annie Oakley Drive, then east in Patrick Lane and then back to Duck Creek.

Note that modeling the split flows in this area required an iterative solution. The HEC-2 program is not capable of returning portions of split flows. An initial HEC-2 run with the base model, DCL1SUBA generated initial split flow values. Normal depth calculations based on these splits were used to map the breakout area, and to determine flow adjustments for a second run with the base model. The difference between the total split flow used in mapping the breakout area and the total flow adjustment shown in the final subcritical model is within 15 percent, which is within the accuracy of the HEC-1 model. This modeling case is also documented as a Special Problem report in Section 1.1 of the TSDN.

Boulder Highway and Downstream Tie-in

The HEC-2 model downstream of the Pittman Wash confluence uses the 100-year Effective flow of 11,500 cfs, referenced from the 1991 Las Vegas Valley Flood Insurance Study (Reference 2). The HEC-2 model results show that Boulder Highway will be overtopped, with 138 cfs of the overflow draining into Russell Road. Normal depth calculations for Russell Road indicate that the depth will be less than 1 foot. Normal depth calculations and flow distributions for Russell Road are attached in Section 2.2.2 of the TSDN.

For modeling purposes, the total flow of 11,500 cfs is the main channel was not decreased in downstream sections. Cross Section C from the Effective HEC-2 model tied in well to the topographic mapping in this Restudy. Cross Section 900 of this Restudy matches Cross Section C of the Effective model. The results of the HEC-2 model show that the 100-year water surface elevation at Cross Section 1000 is within 0.4 feet of the Effective water surface elevation. Calculations supporting the downstream tie-in are organized in Section 2.2.2 of the TSDN.

2. Duck Creek from I-15 to the Lower Duck Creek Detention Basin (LDCDB).

The 100-year floodplain, floodway, and base flood elevations are determined for this reach. Note that the breakout along Las Vegas Boulevard was done by approximate methods, with only the floodplain delineated.

There are two main branches of Duck Creek, upstream of the LDCDB. One branch extends from I-15 at Cactus Avenue to the LDCDB. The other branch runs parallel to Pyle Avenue from I-15 to the southern confluence located 500 feet east of Las Vegas Boulevard. An additional branch, labeled in previous studies as the "Duck Creek South Channel", is a breakout conveyance area from Silverado Ranch Boulevard to LDCDB.

I-15

The HEC-1 model indicates that 9,510 cfs will reach the I-15 culvert (I153), located between Pyle Avenue and Joe Rae Avenue. The special culvert output shows approximately 3,600 cfs overtopping I-15 to the east, 1,500 cfs passing through the culvert to the east, and 4,410 cfs bypassing to the north, along the west side of I-15. Both the hydrologic and hydraulic models assume a 1000-foot opening in the median barrier at this location.

Las Vegas Boulevard

There are two culverts along Las Vegas Boulevard within this reach of Duck Creek. One culvert is located 400 feet south of Pyle Avenue; the other is located 800 feet north of Pyle Avenue. These two culverts will create backwater affects, resulting in flow from the southern branch breaking out over Pyle Road, into the northern branch. Therefore, the flows will coalesce upstream of Las Vegas Boulevard, prior to the Duck Creek southern confluence. An additional breakout of 291 cfs will drain north along the west side of Las Vegas Boulevard. This breakout was tracked to the limit of study at Silverado Ranch Boulevard. For modeling purposes, the breakout is returned at the Duck Creek southern confluence.

Silverado Ranch Boulevard

Split flow output shows that 2,315 cfs will breakout at Silverado Ranch Boulevard and drain east to the LDCDB. This breakout is consistent with the Effective FIRM. This conveyance area was labeled previously as the "Duck Creek South Channel".

3. North Branch Blue Diamond Wash from the Union Pacific Railroad (UPRR) to the Duck Creek confluence.

The 100-year floodplain, floodway, and base flood elevations are determined for this reach. However, the upstream floodway limit is set at I-15. All flooding areas west of I-15 are mapped Zone A.

I-15

A breakout of 1,290 cfs from the Middle Branch Blue Diamond Wash will combine with the flow in the North Branch. The backwater affect will result in a breakout along the west side of I-15. However, this is outside the limit of study and the breakout was not tracked. For modeling purposes, the flow is kept in the main channel. The I-15 culvert is overtopped and creates a backwater affect. A limit of study was set at the north side of the culvert, which is consistent with the Effective FIRM.

Las Vegas Boulevard

The irregular multiple opening culverts at Las Vegas Boulevard were modeled using a rating curve hand calculation. The rating curve calculations are organized in Section 2.2.2 of the TSDN.

4. Middle Branch Blue Diamond Wash from the UPRR to the Duck Creek confluence.

The 100-year floodplain, floodway, and base flood elevations are determined for this reach. However, the upstream floodway limit is set at I-15. All flooding areas west of I-15 are mapped Zone A.

Blue Diamond Road/ I-15 Interchange Area

Previous studies of the Middle Branch Blue Diamond Wash have identified a split near the intersection of Hinson Street and Windmill Lane. The Blue Diamond Road/ I-15 Interchange Study (Reference 7) modeled this split using a FLO-2D analysis. Excerpts from this study are referenced in the *Summary of Design Flows* in Section 2.1 of the TSDN. The results of the FLO-2D analysis indicate a 67/33 split, with 67 percent of the total flow (1,260 cfs) drain northeast to a low area at the intersection of Valley View Boulevard and Mesa Verde Lane. A weir calculation along Valley View Boulevard was used to map the floodplain at this low area. See Section 2.2.2 of the TSDN for the Valley View Boulevard weir calculations. The 1,260 cfs will follow the west off-ramp of I-15 and combine with flow in the North Branch Blue Diamond Wash. For modeling purposes, the Interchange area was considered an ineffective flow area.

The remaining 33 percent (630 cfs) from the Hinson Street/ Windmill Lane split will continue east in the Middle Branch Blue Diamond Wash. Note that the adopted flow used to map this area is actually 764 cfs. See Combination Point PT22W on Figure 6B in the *Summary of Design Flows*, Section 2.1 of the TSDN.

5. Duck Creek breakout along west side of I-15 from Cactus Avenue to Blue Diamond Road.

This area was modeled by approximate methods only. The flows used in the hydraulic modeling are taken directly from the HEC-1 model. The hydraulic modeling and floodplain mapping reflect the flow adjustments and headwater elevations from the diversion calculations for the I-15 culverts. The HEC-2 output indicates that flow may be up against the barrier in a few locations, but the depth against the barrier will be less than a foot.

## IV. FLOODPLAIN MANAGEMENT APPLICATIONS

The 100-year floodplain, base flood elevations (BFEs), and floodways are based on HEC-2 modeling for subcritical and supercritical flow. Water surface elevations based on supercritical flow were used only with concrete lined channels. The floodplain, BFEs, and floodways were delineated on topographic maps by interpolating between cross sections using engineering judgment in conjunction with the RMS 2000 software capabilities. All mapping was done at a scale of 1-inch = 400 feet with a 4-foot contour interval. FEMA forms are attached in Section 3.2 of the TSDN.

### A. Floodplain Boundaries

Floodplain delineations are based on the 100-year flows. Appropriate tie-in locations to the Effective FIRM were determined. The 500-year floodplain was not determined in this Restudy.

### B. Base Flood Elevations (BFEs)

Base flood elevations indicate the 100-year water surface elevation at a particular location of the floodplain. Base flood elevations were determined from I-15 to the downstream limit of study.

### C. Floodway Boundaries

Floodways are typically defined as the main channel of a watercourse and the adjacent land width that must remain free of encroachments so as not to raise the 100-year water surface elevation more than a specified amount. This Restudy complies with the maximum allowable rise of 1-foot, which was established by FEMA. For this Restudy the west floodway limits for Duck

Creek, and the North and Middle Branches of the Blue Diamond Wash are set at I-15. The east floodway limit is set at Patrick Lane. Floodway data tables are attached with FEMA Form 4 in Section 3.2 of the TSDN.

## V. INSURANCE APPLICATIONS

Flood Insurance rate zones are designated based on the results of the engineering analyses. This Restudy proposes to revise areas previously designated Zone A, AO, AE, and X. The FEMA flood insurance rate zones are defined as follows:

### A. Zone A

The Flood Insurance Rate Zone that corresponds to the 100-year floodplains that are determined by approximate methods. Because detailed hydraulic analyses are not performed for such areas, base flood elevations (BFEs) are not shown within this zone.

### B. Zone AE

The Flood Insurance Rate Zone that corresponds to the 100-year floodplains that are determined by detailed methods. In most instances, whole foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

### C. Zone AH

The Flood Insurance Rate Zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the detailed hydraulic analyses are shown within this zone.

### D. Zone AO

The Flood Insurance Rate Zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analysis are shown within this zone.

E. Zone X

The Flood Insurance Rate Zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage areas is less than 1 square mile, and areas protected by levees from the 100-year flood. No BFEs are shown within this zone.

## VI. REFERENCES


1. Federal Emergency Management Agency, FEMA Document No. 37 Guidelines and Specifications for Study Contractors, January 1995.
2. James M. Montgomery Consulting Engineers, *Las Vegas Valley Flood Insurance Study Hydrology Report*, September 1991.
3. U.S. Army Corps of Engineers (USACOE), Hydrologic Engineering Center, HEC-2 Water Surface Profiles computer program Version 4.6.2, September 1990.
4. BOSS International, RMS 2000 for AutoCAD.
5. Ven Te Chow, *Open-Channel Hydraulics*, McGraw-Hill, Inc., 1959.
6. Woody L. Cowan, *Estimating Hydraulic Roughness Coefficients, Agricultural Engineering, Vol. 37, No. 7*, pp. 473-475, July 1956.
7. PBS&J, *Blue Diamond Road/ I-15 Interchange Report*, January 2001.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**REVISION REQUESTER AND COMMUNITY OFFICIAL** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

Public reporting burden for this form is estimated to average 2.13 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

## 1. REQUESTED RESPONSE FROM FEMA

This request is for a:

☐ CLOMR A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60,65 & 72).

☒ LOMR A letter from FEMA officially revising the current NFIP map to show the changes to floodplains, floodway or flood elevations. LOMRs typically decrease flood hazards. (See 44 CFR Ch. 1 Parts 60 & 65.)

☐ Other Describe: _____

## 2. OVERVIEW

1. The basis for this revision request is (are): (check all that apply)

☒ Physical Change ☒ Improved Methodology/Data ☒ Floodway Revision

☐ Other Describe:

Note: A photograph is not required, but is very helpful during review.

2. Flooding Source: Duck Creek / Blue Diamond Washes.

3. Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

4. FEMA zone designations affected: A, AH, AO, AE, X
(example: A, AH, AO, A1-A30, A99, AE, V, V1-V30, VE, B, C, D, X)

5. The NFIP map panel(s) affected for all impacted communities is (are):

| Community No. | Community Name | State | Map No. | Panel No. | Effective Date |
|---|---|---|---|---|---|
| Ex: 480301 | Katy, City | TX | 480301 | 0005D | 02/08/83 |
| 480287 | Harris County | TX | 48201C | 0220G | 09/28/90 |
| | SEE ATTACHED | | | | |
| | SEE ATTACHED | | | | |

6. The area of revision encompasses the following types of flooding and structures. Check all that apply.

| Types of Flooding | Structures |
|---|---|
| ☒ Riverine | ☒ Channelization |
| ☐ Coastal | ☐ Levee/Floodwall |
| ☐ Alluvial fan | ☒ Bridge/Culvert |
| ☐ Shallow Flooding (e.g. Zones AO and AH) | ☒ Dam |
| ☐ Lakes | ☐ Fill |
| ☐ Other (describe) | ☐ Other (describe) |

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 4. ENCROACHMENT INFORMATION

1. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
☐ Yes ☒ No

**Yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.**

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? ☐ Yes ☒ No ☐ N/A

3. Does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the base flood elevation to increase at any location by more than one foot (or other increase limit if community or state has adopted more stringent criteria - even if a floodway has not been delineated by FEMA)? ☐ Yes ☒ No

**If the answer to either items is Yes, please attach documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.**

## 5. MAINTENANCE RESPONSIBILITY NA

The community is willing to assume responsibility for ☐ performing ☐ overseeing compliance with the maintenance and operation plans of the All flood control facilities included in the HEC-2 models
(Name)
flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

**Operation and maintenance plans are attached.** ☐ Yes ☐ No ☐ N/A

## 6. REVIEW FEE

The review fee for the appropriate request category has been included. ☐ Yes Fee amount: $____

*OR*

This request is based on a federally sponsored flood-control project where 50 percent or more of the project's cost is federally sponsored, or the request is based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective FIRM; thus the project is fee exempt. ☒ Yes

**Please see Instructions for Fee Amounts**

## 7. SIGNATURE

***Note:*** *I understand that my signature indicates that all information submitted in support of this request is correct*

Signature of Revision Requester

Kevin Eubanks, P.E.; Assistant General Manager
Printed Name and Title of Revision Requester

Clark County Regional Flood Control District
Company Name

Telephone No.: (702) 455-3139 Date: ____

***Note:*** *Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.*

Signature of Community Official

Robert Thompson, P.E.; Plans Check Unit Supervisor
Printed Name and Title of Community Official

Clark County Department of Public Works
Community Name

Telephone No.: (702) 455-4600 Date: ____

### CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is in accordance with 44 CFR Ch. 1, Sect 65.2

Signature

Jerry E. Pruitt, P.E.; Vice President
G. C. Wallace, Inc.
Printed Name and Title of Revision Requester

License No. 11902 Expires (Date) 12/31/03 State NV

Type of License/Expertise: Civil / Hydrology and Hydraulics

### Check which forms have been included with this request

| Form Name and (Number) | Required if ..... |
|---|---|
| ☒ Hydrologic (3) | new or revised discharges |
| ☒ Hydraulic (4) | new or revised water-surface elevations |
| ☒ Mapping (5) | floodplain/floodway changes |
| ☐ Channelization (6) | channel is modified |
| ☐ Bridge/Culvert (7) | addition/revision of bridge/culvert |
| ☐ Levee/Floodwall (8) | addition/revision of levee/floodwall |
| ☐ Coastal (9) | new or revised coastal elevations |
| ☐ Coastal Structures (10) | addition/revision of coastal structure |
| ☒ Dam (11) | addition/revision of dam |
| ☐ Alluvial Fan (12) | structures proposed on alluvial fan |

# ATTACHMENT

## MT-2 Form 1

**FEMA**
**REVISION REQUESTER AND COMMUNITY OFFICIAL**

**2.1** Note: Photos attached in detailed field review.

## 2.5 OVERVIEW

| Community No. | Community Name | State | Map No. | Panel No. | Effective |
|---|---|---|---|---|---|
| 320003 | Clark County | NV | 320003 | 2562 D | 08/16/1995 |
| 320003 | Clark County | NV | 320003 | 2566 D | 08/16/1995 |
| 320003 | Clark County | NV | 320003 | 2567 D | 08/16/1995 |
| 320003 | Clark County | NV | 320003 | 2568 D | 08/16/1995 |
| 320003 | Clark County | NV | 320003 | 2569 D | 08/16/1995 |
| 320003 | Clark County | NV | 320003 | 2583 D | 08/16/1995 |
| 320003 | Clark County | NV | 320003 | 2585 D | 08/16/1995 |
| 320003 | Clark County | NV | 320003 | 2590 D | 08/16/1995 |
| 320003 | Clark County | NV | 320003 | 2580 D | 08/16/1995 |

## 7. INCLUDED FORMS

The HEC-2 modeling includes over 40 bridge/culvert models. Due to the number of bridge/culverts, the information normally shown on the Bridge/Culvert Form (Form 7) is located in the HEC-2 models and is not reproduced on the Form in an effort to save the community time and money.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**REVISION REQUESTER AND COMMUNITY OFFICIAL** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

Public reporting burden for this form is estimated to average 2.13 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

## 1. REQUESTED RESPONSE FROM FEMA

This request is for a:

☐ CLOMR A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60,65 & 72).

☒ LOMR A letter from FEMA officially revising the current NFIP map to show the changes to floodplains, floodway or flood elevations. LOMRs typically decrease flood hazards. (See 44 CFR Ch. 1 Parts 60 & 65.)

☐ Other Describe: _____

## 2. OVERVIEW

1. The basis for this revision request is (are): (check all that apply)

☒ Physical Change ☒ Improved Methodology/Data ☒ Floodway Revision

☐ Other Describe:

Note: A photograph is not required, but is very helpful during review.

2. Flooding Source: Duck Creek

3. Project Name/Identifier: N/A

4. FEMA zone designations affected: A, AO, AE, X
(example: A, AH, AO, A1-A30, A99, AE, V, V1-V30, VE, B, C, D, X)

5. The NFIP map panel(s) affected for all impacted communities is (are):

| Community No. | Community Name | State | Map No. | Panel No. | Effective Date |
|---|---|---|---|---|---|
| Ex: 480301 | Katy, City | TX | 480301 | 0005D | 02/08/83 |
| 480287 | Harris County | TX | 48201C | 0220G | 09/28/90 |
| | SEE ATTACHED | | | | |
| | SEE ATTACHED | | | | |

6. The area of revision encompasses the following types of flooding and structures. Check all that apply.

| Types of Flooding | Structures |
|---|---|
| ☒ Riverine | ☒ Channelization |
| ☐ Coastal | ☐ Levee/Floodwall |
| ☐ Alluvial fan | ☒ Bridge/Culvert |
| ☐ Shallow Flooding (e.g. Zones AO and AH) | ☐ Dam |
| ☐ Lakes | ☐ Fill |
| ☐ Other (describe) | ☐ Other (describe) |

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

550.039

## 4. ENCROACHMENT INFORMATION

1. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
☐ Yes ☒ No

If Yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? ☐ Yes ☒ No ☐ N/A

3. Does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the base flood elevation to increase at any location by more than one foot (or other increase limit if community or state has adopted more stringent criteria - even if a floodway has not been delineated by FEMA)? ☐ Yes ☒ No

If the answer to either item is Yes, please attach documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.

## 5. MAINTENANCE RESPONSIBILITY NA

The community is willing to assume responsibility for ☐ performing ☐ overseeing compliance with the maintenance and operation plans of the _____ (Name)
flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

Operation and maintenance plans are attached. ☐ Yes ☐ No ☐ N/A

## 6. REVIEW FEE

The review fee for the appropriate request category has been included. ☐ Yes Fee amount: $_____
*OR*
This request is based on a federally sponsored flood-control project where 50 percent or more of the project's cost is federally sponsored, or the request is based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective FIRM; thus the project is fee exempt. ☒ Yes

Please see Instructions for Fee Amounts

## 7. SIGNATURE

*Note:* I understand that my signature indicates that all information submitted in support of this request is correct:

Signature of Revision Requester

Kevin Eubanks, P.E.; Assistant General Manager
Printed Name and Title of Revision Requester

Clark County Regional Flood Control District
Company Name

Telephone No.: (702) 455-3139 Date: 4/2/02

*Note:* Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.

Signature of Community Official

Curt Chandler, P.E.; Land Development Manager
Printed Name and Title of Community Official

City of Henderson, Public Works Department
Community Name

Telephone No.: (702) 565-2329 Date: 4/2/02

### CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is in accordance with 44 CFR Ch. 1, Sect 65.2

Signature

Jerry E. Pruitt, P.E.; Vice President
G. C. Wallace, Inc.
Printed Name and Title of Revision Requester

Register No. 11907 Expires (Date) 12/31/03 State NV

Type of License/Expertise: Civil / Hydrology and Hydraulics

### Check which forms have been included with this request

| Form Number and (Number) | Required if ..... |
|---|---|
| ☒ Hydrologic (3) | new or revised discharges |
| ☒ Hydraulic (4) | new or revised water-surface elevations |
| ☒ Mapping (5) | floodplain/floodway changes |
| ☐ Channelization (6) | channel is modified |
| ☐ Bridge/Culvert (7) | addition/revision of bridge/culvert |
| ☐ Levee/Floodwall (8) | addition/revision of levee/floodwall |
| ☐ Coastal (9) | new or revised coastal elevations |
| ☐ Coastal Structures (10) | addition/revision of coastal structure |
| ☒ Dam (11) | addition/revision of dam |
| ☐ Alluvial Fan (12) | structures proposed on alluvial fan |

# ATTACHMENT

## MT-2 Form 1
## Henderson, City

**FEMA**
**REVISION REQUESTER AND COMMUNITY OFFICIAL**

2.1 Note: Photos attached in detailed field review.

## 2.5 OVERVIEW

| Community No. | Community Name | State | Map No. | Panel No. | Effective |
|---|---|---|---|---|---|
| 320005 | Henderson, City | NV | 320003 | 2585 D | 08/16/1995 |
| 320005 | Henderson, City | NV | 320003 | 2590 D | 08/16/1995 |
| 320005 | Henderson, City | NV | 320003 | 2580 D | 08/16/1995 |

## 7. INCLUDED FORMS

The HEC-2 modeling includes over 40 bridge/culvert models. Due to the number of bridge/culverts, the information normally shown on the Bridge/Culvert Form (Form 7) is located in the HEC-2 models and is not reproduced on the Form in an effort to save the community time and money.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**HYDROLOGIC ANALYSIS** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

**PUBLIC BURDEN DISCLOSURE NOTICE**

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**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

***Note: Fill out one form for each flooding source studied***

Community Name: Clark County, Nevada; Henderson, Nevada

Flooding Source: Duck Creek / Blue Diamond Washes

Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

## 1. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis ☒ Improved data ☒ Changed physical condition of watershed

☐ Alternative methodology ☐ Proposed Conditions (CLOMR) ☐ Other

**For the reason stated above, please attach a detailed explanation.** If a computer program/model was used in revising the hydrologic analysis, **please provide a diskette with the input files** for the same flood recurrence intervals contained in the FIS for that stream; and at least for the 1% annual chance (base) flood where no detailed study exists.

**Explanation provided:** ☒ Yes ☐ No **Diskettes provided:** ☒ Yes ☐ No

## 2. METHODOLOGY FOR NEW ANALYSIS

| Indicate Method | Required Data | Data Included |
|---|---|---|
| ☐ Statistical Analysis of Gage Records | Form 3 - Attachment A | ☐ Yes ☐ No |
| ☐ Regional Regression Equations | Form 3 - Attachment C | ☐ Yes ☐ No |
| ☒ Precipitation/Runoff Model | Form 3 - Attachment D | ☒ Yes ☐ No |
| ☐ Other | Back-up computations and supporting data | ☐ Yes ☐ No |

## 3. APPROVAL OF ANALYSIS

The hydrologic analysis has already been approved by a local, state, or Federal Agency. ☒ Yes ☐ No ☐ Not Required

If Yes, attach evidence of approval. ☒ **Approval attached.** If No, attach explanation. ☐ **Explanation attached.**

## 4. COMPARISON OF BASE FLOOD DISCHARGES

| Location: | Drainage Area (SqMi) | FIS(cfs) | Revised (cfs) |
|---|---|---|---|
| _____ | SEE ATTACHED | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

*Note: When revised discharges are not significantly different than the FIS discharges, FEMA may require a confidence limits analysis (see attachment B) at a later date to complete the review.*

If only a portion of a detailed study area was revised please attach an explanation describing the transition from the proposed discharges to the effective discharges. ☒ **Explanation Included** ☐ **Explanation Not Required**

## 5. HISTORICAL FLOODING INFORMATION

If historical data are available for the flooding source please provide: Location, peak discharges/water-surface elevations and dates, and source of information. ☐ **Data Attached** ☒ **Data Not Available**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## ATTACHMENT A: STATISTICAL ANALYSIS OF GAGE RECORDS NA

Gaging Station: N/A

Gage Location (latitude and longitude): _____

| | | FIS: | | Revised: | |
|---|---|---|---|---|---|
| 1. | Number of years of data | _____ | | _____ | |
| | Systematic | _____ | | _____ | |
| | Historical | _____ | | _____ | |
| 2. | Homogeneous data | ☐ Yes | ☐ No | ☐ Yes | ☐ No |
| 3. | Data adjustments | ☐ Yes | ☐ No | ☐ Yes | ☐ No |
| 4. | Number of high outliers | _____ | | _____ | |
| | Low outliers | _____ | | _____ | |
| | Zero events | _____ | | _____ | |
| 5. | Generalized skew | _____ | | _____ | |
| 6. | Station skew | _____ | | _____ | |
| 7. | Adopted skew | _____ | | _____ | |
| 8. | Probability distribution used (justify if log-Pearson III was not used) | _____ | | _____ | |
| 9. | Transfer equations to ungaged sites | | | ☐ Yes | ☐ No |
| | **If Yes, specify method** | | | | |

_____

| | | | |
|---|---|---|---|
| 10. | Expected probability* | ☐ Yes | ☐ No |
| 11. | Comparison of results with other analyses | ☐ Yes | ☐ No |
| | **If Yes, describe comparison** | | |

_____

12. **Attach analysis including plot of flood-frequency curve. Analysis Attached?** ☐ Yes ☐ No

*FEMA does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS.

**If any data are not available, indicate by N/A.**

## ATTACHMENT B: CONFIDENCE LIMITS EVALUATION NA

Stream: N/A

Select one location for Confidence Limits Evaluation (*describe location*): _____

1. Discharges for selected location:

| Exceedence Probability | | FIS: | Revised: |
|---|---|---|---|
| 10% | (10-year) | _____ cfs | _____ cfs |
| 2% | (50-year) | _____ cfs | _____ cfs |
| 1% | (100-year) | _____ cfs | _____ cfs |
| 0.2% | (500-year) | _____ cfs | _____ cfs |

2. 1% Annual Chance (Base) Flood Confidence Intervals

| | | |
|---|---|---|
| 90% Confidence Interval: | 5% limit | _____ cfs |
| | 95% limit | _____ cfs |
| 50% Confidence Interval: | 25% limit | _____ cfs |
| | 75% limit | _____ cfs |

3. If the discharge of the base flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the base flood elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

4. **Confidence Limits Analysis Attached?** ☐ Yes ☐ No

## ATTACHMENT C: REGIONAL REGRESSION EQUATIONS NA

Bibliographical Reference:

N/A

_____

_____

***(Attach a copy of title page, table of contents, and pertinent pages including equations.)***

2. Gaged or ungaged stream: _____

3. Hydrologic region(s): _____
**Attach backup map.**

4. Provide parameters, values, and source of data used to define parameters.

_____

_____

_____

| | | FIS: | | Revised: | |
|---|---|---|---|---|---|
| 5. | Urbanized conditions calculations | ☐ Yes | ☐ No | ☐ Yes | ☐ No |
| | Percent of watershed urbanization | _____ | | _____ | |
| 7. | Is the watershed controlled? | ☐ Yes | ☐ No | ☐ Yes | ☐ No |
| 8. | Comparison with other analyses | ☐ Yes | ☐ No | ☐ Yes | ☐ No |

**If the answer to 5, 7, or 8 is Yes, explain methdology below. If data are not available, indicate with N/A.**

Comments

_____

9. **Attach computation and supporting maps, delineating the watershed boundary and drainage area divides.**

**Computation and Supporting Maps provided?** ☐ Yes ☐ No

## ATTACHMENT D: PRECIPITATION/RUNOFF MODEL

| | | FIS: | Revised: |
|---|---|---|---|
| | Method or model used: | HEC-1 | HEC-1 |
| | Version: | 4.0 | 4.0 |
| | Date: | September 1990 | September 1990 |
| 2. | Source of rainfall depth: | NOAA Atlas/CCRFCD Manual | NOAA Atlas/CCRFCD Manual |
| 3. | Source of rainfall distribution: | CCRFCD Manual | CCRFCD Manual |
| 4. | Rainfall duration: | 6-HR | 6-HR |
| 5. | Areal adjustment to precipitation (%): | 58 | 58 |
| 6. | Maximum overland flow length | Less than 500 feet | Less than 500 feet |
| 7. | Hydrograph development method: | SCS Unit Hydrograph | SCS Unit Hydrograph |
| 8. | Loss rate method: | SCS Curve Number | SCS Curve Number |
| | Source of soils information: | SCS Soil Survey | SCS Soil Survey |
| | Source of land use information: | Fall 1990 Aerials | Fall 2000 Aerials |
| 9. | Channel routing method: | Muskingum & Kinematic Wave | Muskingum & Muskingum-Cunge |
| 10. | Reservoir routing: | ☐ Yes ☒ No | ☒ Yes ☐ No |
| 11. | Baseflow considerations: | ☐ Yes ☒ No | ☐ Yes ☒ No |
| | **If Yes, explain below how baseflow was determined:** | | |
| | _____ | | |
| 12. | Snowmelt considerations: | ☐ Yes ☒ No | ☐ Yes ☒ No |
| 13. | Model calibration: | ☐ Yes ☒ No | ☐ Yes ☒ No |
| | **If Yes, explain below how calibration was performed** | | |
| | _____ | | |
| 14. | Future land use condition: | ☐ Yes ☒ No | ☐ Yes ☒ No |
| | **If Yes, explain why below** | | |
| | _____ | | |

15. **Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides.**

**Information and Maps provided?** ☒ Yes ☐ No

**NOTE:** FEMA policy is to base flooding on existing conditions.

# ATTACHMENT

## HYDROLOGIC ANALYSIS

### MT-2 Form 3

Duck Creek and the Blue Diamond Washes were organized into one HEC-1 model. Therefore, one FEMA Form 3 is filled out.

1. Improved data:

   - Rainfall data updated
   - Diversions along I-15 included
   - Drainage basin areas updated

   Changed physical condition of watershed:

   - Channel improvements
   - Detention basins
   - Development reflected in an increased percent impervious

Attachment D: Precipitation / Runoff Model

2. Regional precipitation adjustments from USACOE, Los Angeles District, 1988. Adjustments with respect to individual drainage basins completed with GIS capabilities. See Section 2.1 for the Summary of Design Flows.

10. Lower Duck Creek Detention Basin (LDCDB)

**ATTACHMENT: FEMA FORM 3**

**4. COMPARISON OF BASE FLOOD DISCHARGES**

| Location | Effective FIS | | | Revised FIS | | | Explanation of Flow Change |
|---|---|---|---|---|---|---|---|
| | HEC-1 point | Flow (cfs) | Area (mi^2) | HEC-1 point | Flow (cfs) | Area (mi^2) | |
| North Branch Blue Diamond Wash @ I-15 | B12 | 3400 | 72.7 | PT33 | 1286 | 7.75 | Upper Blue Diamond Detention Basin reduces peak |
| Middle Branch Blue Diamond Wash @ I-15 | B14B | 3400 | 72.6 | PT22 | 1462 | 97.51 | Upper Blue Diamond Detention Basin reduces peak |
| Duck Creek at DVI153 | D3 | 9700 | 71.5 | PT14 | 9510 | 82.66 | Area updated using GIS capabilities |
| Duck Creek upstream of LDCDB | D4 | 11000 | 119.5 | PT26 | 6470 | 119.78 | I-15 diverts portion of flow to the north |
| Duck Creek at UPRR - Henderson | D7 | 11500 | 147 | PT41 | 8562 | 151.47 | Lower Duck Creek Detention Basin reduces peak |
| Duck Creek at Mountain Vista Avenue | D10 | 11500 | 158 | PT46 | 8562 | 158.49 | Lower Duck Creek Detention Basin reduces peak |
| Duck Creek at Boulder Highway | D11B | 11500 | 164 | PT51 | 8562 | 164.76 | Lower Duck Creek Detention Basin reduces peak |

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE HYDRAULIC ANALYSIS** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

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***Note: Fill out one form for each flooding source studied***

Community Name: Clark County, Nevada; Henderson, Nevada

Flooding Source: Duck Creek

Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

## 1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: 300 Feet downstream of Hollywood Boulevard

Upstream Limit: Lower Duck Creek Detention Basin

## 2. MODELS SUBMITTED

| Requirements: for areas which have detailed flooding: | for areas which do not have detailed flooding: |
|---|---|
| Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required. | Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted. |

**If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.**

**1. Duplicate Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

**2. Corrected Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Corrected Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

**3. Existing or Pre-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

**4. Revised or Post-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

**5. Other** – Please attach a sheet describing all other models submitted along with the file names. ☒ **Natural** ☒ **Floodway**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended. For detailed analysis studies, using a known water-surface elevation is recommended.

## 4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☒ Supercritical depth ☒ Critical Depth ☒ Drawdowns ☒ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☒ Water surface elevations higher than the end points of cross sections.

☒ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☐ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

**Explanation attached with Form** ☒ **Explanation provided on attached printout** ☐

**If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program?** ☒ **Yes** ☐ **No**
**(see instructions for information on how to obtain CHECK-2)**

## 5. REVISED FIRM/FBFM AND FLOOD PROFILES

1. **Profile Transition**

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End 1000 within 0.4 (feet) *Cross-Section #* Upstream End _____ within N/A (feet) *Cross-Section #*

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #* Upstream End _____ within N/A (feet) *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #* Upstream End _____ within N/A (feet) *Cross-Section #*

2. **Profile Checklist (check box if information has been provided on profile)**

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☒ Stream Name ☒ Community Name ☐ Corporate Limits labeled ☒ Study limits labeled

☒ Confluences labeled ☒ Channel Stationing ☒ Streambed profiled ☒ Cross Sections labeled

☒ Horizontal/Vertical Scales indicated ☒ 100-year elevs profiled*

☒ Road Crossings ☒ Labeled ☒ Low Chord Elevations ☒ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

**Floodway Data Table**

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

**Floodway Data Table Attached** ☒ **Yes** ☐ **Not Required**

## ATTACHMENT TO FORM 4

2.5. The following HEC-2 models were used in the Revised Reach:

DCL1SUBA
DCL1SUBC
DCL1SPRC
DCL2SUBB
DCL3SUBB
DCL4SUBB
DCL5SUBB
DCL6SUBB

A detailed description of each HEC-2 model is attached in Section 2 of this Restudy.

3. Starting water surface elevations for each HEC-2 model are discussed in the HEC-2 model descriptions, in Section 2 of this Restudy.

4. Results

a. Supercritical depths – occurred in reaches with concrete channel improvements.
b. Critical depths – in subcritical models, when supercritical flow controlled.
c. Drawdowns – occurred near bridges, but did not have an adverse affect on upstream or downstream water surface elevations.
d. Negative floodway surcharges – either did not adversely impact the floodway upstream or downstream, or increase was confined to the revisor's property.
f. Water surface elevations higher than end points of cross sections –Section 16300: 90-degree bend in Duck Creek. Right overbank of Section 16300 ties into right overbank of Section 16000. Therefore, unconfined flow at right overbank of 16300 is tracked in Section 16000, where it is confined. Section 17100: Flow at left overbank is considered ineffective. Additionally, flow is confined in immediate downstream Section 17000. All other sections with unconfined flow: occurred at split flow locations and were tracked in separate HEC-2 models or normal depth calculations.
g. Floodway discharge different than floodplain discharge – occurred at split flow locations. Floodplains were based on reduced flows after breakouts. Floodways were analyzed based on total flows assuming no breakouts. The exception to this is the breakout at Warm Springs Road, which drains east to the Pine Street storm drain system. In this case, both the floodplain and floodway are based on the same reduced flow. A summary table comparing flows used in the floodplain analysis vs. the floodway analysis are attached in Section 2 of this Restudy.

5. Revised FIRM/ FBFM and Flood Profiles

1.a. See downstream tie-in calculation in Normal Depth Calculations of Section 2 of this Restudy. Upstream limit of revised floodplain extends west to I-15, therefore beyond the reach limit addressed in this form.

1.b. Revised floodway analysis extends upstream and downstream of Effective floodway limits. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.

1.c. Revised floodway analysis extends upstream and downstream of Effective floodway limits. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE HYDRAULIC ANALYSIS** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
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**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

***Note: Fill out one form for each flooding source studied***

Community Name: Clark County, Nevada

Flooding Source: Duck Creek

Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

## 1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: Lower Duck Creek Detention Basin

Upstream Limit: East side I-15 near Cactus Avenue

## 2. MODELS SUBMITTED

| **Requirements: for areas which have detailed flooding:** | **for areas which do not have detailed flooding:** |
|---|---|
| Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required. | Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted. |

**If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.**

**1. Duplicate Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

**2. Corrected Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Corrected Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

**3. Existing or Pre-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

**4. Revised or Post-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

**5. Other** – Please attach a sheet describing all other models submitted along with the file names. ☒ **Natural** ☒ **Floodway**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended. For detailed analysis studies, using a known water-surface elevation is recommended.

## 4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☐ Supercritical depth ☒ Critical Depth ☐ Drawdowns ☐ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☒ Water surface elevations higher than the end points of cross sections.

☒ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☐ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

**Explanation attached with Form** ☒ **Explanation provided on attached printout** ☐

**If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program?** ☒ **Yes** ☐ **No**
**(see instructions for information on how to obtain CHECK-2)**

## 5. REVISED FIRM/FBFM AND FLOOD PROFILES

**1. Profile Transition**

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

**2. Profile Checklist (check box if information has been provided on profile)**

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☒ Stream Name ☒ Community Name ☐ Corporate Limits labeled ☒ Study limits labeled

☒ Confluences labeled ☒ Channel Stationing ☒ Streambed profiled ☒ Cross Sections labeled

☒ Horizontal/Vertical Scales indicated ☒ 100-year elevs profiled*

☒ Road Crossings ☒ Labeled ☒ Low Chord Elevations ☒ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

**Floodway Data Table**

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

**Floodway Data Table Attached** ☒ **Yes** ☒ **Not Required**

## ATTACHMENT TO FORM 4

2.5. The following HEC-2 models were used in the Revised Reach:

DCU3SUBA
DCU3SUBC

A detailed description of each HEC-2 model is attached in Section 2 of this Restudy.

3. Starting water surface elevations for each HEC-2 model are discussed in the HEC-2 model descriptions, in Section 2 of this Restudy.

4. Results

b. Critical depths – in subcritical models, when supercritical flow controlled.
f. Water surface elevations higher than end points of cross sections – occurred at split flow locations and were tracked in separate HEC-2 models or normal depth calculations.
g. Floodway discharge different than floodplain discharge – occurred at split flow locations. Floodplains were based on reduced flows after breakouts. Floodways were analyzed based on total flows assuming no breakouts.

5. Revised FIRM/ FBFM and Flood Profiles

1.a. Revised floodplain analysis extends upstream and downstream of Effective floodplain limits. Therefore, new floodplain limits have been established, making tie-in locations Not Applicable.
1.b. Revised floodway analysis extends upstream and downstream of Effective floodway limits. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.
1.c. Revised floodway analysis extends upstream and downstream of Effective floodway limits. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE HYDRAULIC ANALYSIS** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

**PUBLIC BURDEN DISCLOSURE NOTICE**

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**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

***Note: Fill out one form for each flooding source studied***

Community Name: Clark County, Nevada

Flooding Source: Duck Creek

Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

## 1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: 100 feet east of Las Vegas Boulevard at Southern Confluence of Duck Creek

Upstream Limit: 800 feet west of I-15 at Pyle Avenue

## 2. MODELS SUBMITTED

| **Requirements: for areas which have detailed flooding:** | **for areas which do not have detailed flooding:** |
|---|---|
| Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required. | Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted. |

**If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.**

**1. Duplicate Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

**2. Corrected Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Corrected Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

**3. Existing or Pre-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

**4. Revised or Post-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

**5. Other** – Please attach a sheet describing all other models submitted along with the file names. ☒ **Natural** ☒ **Floodway**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended. For detailed analysis studies, using a known water-surface elevation is recommended.

## 4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☐ Supercritical depth ☒ Critical Depth ☐ Drawdowns ☒ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☒ Water surface elevations higher than the end points of cross sections.

☒ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☐ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

**Explanation attached with Form** ☒ **Explanation provided on attached printout** ☐

**If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program?** ☒ **Yes** ☐ **No**
**(see instructions for information on how to obtain CHECK-2)**

## 5. REVISED FIRM/FBFM AND FLOOD PROFILES

**1. Profile Transition**

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

**2. Profile Checklist (check box if information has been provided on profile)**

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☒ Stream Name ☒ Community Name ☐ Corporate Limits labeled ☒ Study limits labeled

☒ Confluences labeled ☒ Channel Stationing ☒ Streambed profiled ☒ Cross Sections labeled

☒ Horizontal/Vertical Scales indicated ☒ 100-year elevs profiled*

☒ Road Crossings ☒ Labeled ☒ Low Chord Elevations ☒ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

**Floodway Data Table**

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

**Floodway Data Table Attached** ☒ **Yes** ☐ **Not Required**

## ATTACHMENT TO FORM 4

2.5. The following HEC-2 models were used in the Revised Reach:

DCU1SUBA
DCU1SUBC
DCU2SUBB

A detailed description of each HEC-2 model is attached in Section 2 of this Restudy.

3. Starting water surface elevations for each HEC-2 model are discussed in the HEC-2 model descriptions, in Section 2 of this Restudy.

4. Results

b. Critical depths – in subcritical models, when supercritical flow controlled.
d. Negative floodway surcharges – either did not adversely impact the floodway upstream or downstream, or increase was confined to the revisor's property.
f. Water surface elevations higher than end points of cross sections – occurred at split flow locations and were tracked in separate HEC-2 models or normal depth calculations.
g. Floodway discharge different than floodplain discharge – occurred at split flow locations. Floodplains were based on reduced flows after breakouts. Floodways were analyzed based on total flows assuming no breakouts. The exception to this is the breakout at Warm Springs Road, which drains east to the Pine Street storm drain system. In this case, both the floodplain and floodway are based on the same reduced flow. A summary table comparing flows used in the floodplain analysis vs. the floodway analysis are attached in Section 2 of this Restudy.

5. Revised FIRM/ FBFM and Flood Profiles

1.a. Revised floodplain analysis extends upstream and downstream of Effective floodplain limits. Therefore, new floodplain limits have been established, making tie-in locations Not Applicable.
1.b. Revised floodway analysis extends upstream and downstream of Effective floodway limits. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.
1.c. Revised floodway analysis extends upstream and downstream of Effective floodway limits. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE HYDRAULIC ANALYSIS** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
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**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

***Note: Fill out one form for each flooding source studied***

Community Name: Clark County, Nevada

Flooding Source: Duck Creek (South Channel)

Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

## 1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: Lower Duck Creek Detention Basin

Upstream Limit: Silverado Ranch Boulevard

## 2. MODELS SUBMITTED

| **Requirements: for areas which have detailed flooding:** | **for areas which do not have detailed flooding:** |
|---|---|
| Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required. | Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted. |

**If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.**

**1. Duplicate Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

**2. Corrected Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Corrected Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

**3. Existing or Pre-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

**4. Revised or Post-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

**5. Other** – Please attach a sheet describing all other models submitted along with the file names. ☒ **Natural** ☒ **Floodway**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended. For detailed analysis studies, using a known water-surface elevation is recommended.

## 4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☐ Supercritical depth ☒ Critical Depth ☐ Drawdowns ☐ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☐ Water surface elevations higher than the end points of cross sections.

☐ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☐ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

**Explanation attached with Form** ☒ **Explanation provided on attached printout** ☐

**If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program?** ☒ **Yes** ☐ **No**
**(see instructions for information on how to obtain CHECK-2)**

## 5. REVISED FIRM/FBFM AND FLOOD PROFILES

**1. Profile Transition**

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

**2. Profile Checklist (check box if information has been provided on profile)**

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☒ Stream Name ☒ Community Name ☐ Corporate Limits labeled ☒ Study limits labeled

☒ Confluences labeled ☒ Channel Stationing ☒ Streambed profiled ☒ Cross Sections labeled

☒ Horizontal/Vertical Scales indicated ☒ 100-year elevs profiled*

☒ Road Crossings ☒ Labeled ☒ Low Chord Elevations ☒ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

**Floodway Data Table**

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

**Floodway Data Table Attached** ☒ **Yes** ☐ **Not Required**

## ATTACHMENT TO FORM 4

2.5. The following HEC-2 models were used in the Revised Reach:

DCU4SUBC

A detailed description of each HEC-2 model is attached in Section 2 of this Restudy.

3. Starting water surface elevations for each HEC-2 model are discussed in the HEC-2 model descriptions, in Section 2 of this Restudy.

4. Results

b. Critical depths – in subcritical models, when supercritical flow controlled.

5. Revised FIRM/ FBFM and Flood Profiles

1.a. Revised floodplain analysis extends upstream and downstream of Effective floodplain limits. Therefore, new floodplain limits have been established, making tie-in locations Not Applicable.

1.b. Revised floodway analysis extends upstream and downstream of Effective floodway limits. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.

1.c. Revised floodway analysis extends upstream and downstream of Effective floodway limits. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE HYDRAULIC ANALYSIS** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
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***Note: Fill out one form for each flooding source studied***

Community Name: Clark County, Nevada

Flooding Source: Duck Creek

Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

## 1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: West side I-15 at Haleh Avenue

Upstream Limit: West side I-15 at Duck Creek near Cactus Avenue

## 2. MODELS SUBMITTED

| Requirements: for areas which have detailed flooding: | for areas which do not have detailed flooding: |
|---|---|
| Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required. | Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted. |

**If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.**

**1. Duplicate Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

**2. Corrected Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Corrected Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

**3. Existing or Pre-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

**4. Revised or Post-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

**5. Other** – Please attach a sheet describing all other models submitted along with the file names. ☒ **Natural** ☐ **Floodway**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended. For detailed analysis studies, using a known water-surface elevation is recommended.

## 4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☐ Supercritical depth ☐ Critical Depth ☐ Drawdowns ☐ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☐ Water surface elevations higher than the end points of cross sections.

☐ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☐ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

**Explanation attached with Form** ☐ **Explanation provided on attached printout** ☐

**If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program?** ☒ **Yes** ☐ **No**
**(see instructions for information on how to obtain CHECK-2)**

## 5. REVISED FIRM/FBFM AND FLOOD PROFILES

**1. Profile Transition**

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) Upstream End _____ within N/A (feet)
*Cross-Section #* *Cross-Section #*

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) Upstream End _____ within N/A (feet)
*Cross-Section #* *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End _____ within N/A (feet) Upstream End _____ within N/A (feet)
*Cross-Section #* *Cross-Section #*

**2. Profile Checklist (check box if information has been provided on profile)**

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☐ Stream Name ☐ Community Name ☐ Corporate Limits labeled ☐ Study limits labeled

☐ Confluences labeled ☐ Channel Stationing ☐ Streambed profiled ☐ Cross Sections labeled

☐ Horizontal/Vertical Scales indicated ☐ 100-year elevs profiled*

☐ Road Crossings ☐ Labeled ☐ Low Chord Elevations ☐ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

**Floodway Data Table**

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

**Floodway Data Table Attached** ☐ **Yes** ☒ **Not Required**

## ATTACHMENT TO FORM 4

2.5. The following HEC-2 models were used in the Revised Reach:

I151SUBB

A detailed description of each HEC-2 model is attached in Section 2 of this Restudy.

3. Starting water surface elevations for each HEC-2 model are discussed in the HEC-2 model descriptions, in Section 2 of this Restudy.

5. Revised FIRM/ FBFM and Flood Profiles

1.a. Revised floodplain analysis extends upstream and downstream of Effective floodplain limits. Therefore, new floodplain limits have been established, making tie-in locations Not Applicable.
1.b. Approximate methods. No floodway analysis.
1.c. Approximate methods. No floodway analysis.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE HYDRAULIC ANALYSIS** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
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***Note: Fill out one form for each flooding source studied***

Community Name: Clark County, Nevada

Flooding Source: Duck Creek

Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

## 1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: West side I-15 at Middle Branch Blue Diamond Wash

Upstream Limit: West side I-15 at Le Baron Avenue

## 2. MODELS SUBMITTED

| **Requirements: for areas which have detailed flooding:** | **for areas which do not have detailed flooding:** |
|---|---|
| Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required. | Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted. |

**If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.**

**1. Duplicate Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

**2. Corrected Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Corrected Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

**3. Existing or Pre-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

**4. Revised or Post-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

**5. Other** – Please attach a sheet describing all other models submitted along with the file names. ☒ **Natural** ☐ **Floodway**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended. For detailed analysis studies, using a known water-surface elevation is recommended.

## 4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☐ Supercritical depth ☒ Critical Depth ☐ Drawdowns ☐ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☐ Water surface elevations higher than the end points of cross sections.

☐ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☐ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

**Explanation attached with Form** ☒ **Explanation provided on attached printout** ☐

**If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program?** ☒ **Yes** ☐ **No**
**(see instructions for information on how to obtain CHECK-2)**

## 5. REVISED FIRM/FBFM AND FLOOD PROFILES

**1. Profile Transition**

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End _____ within _____ (feet) Upstream End _____ within _____ (feet)
*Cross-Section #* *Cross-Section #*

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End _____ within _____ (feet) Upstream End _____ within _____ (feet)
*Cross-Section #* *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End _____ within _____ (feet) Upstream End _____ within _____ (feet)
*Cross-Section #* *Cross-Section #*

**2. Profile Checklist (check box if information has been provided on profile)**

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☐ Stream Name ☐ Community Name ☐ Corporate Limits labeled ☐ Study limits labeled

☐ Confluences labeled ☐ Channel Stationing ☐ Streambed profiled ☐ Cross Sections labeled

☐ Horizontal/Vertical Scales indicated ☐ 100-year elevs profiled*

☐ Road Crossings ☐ Labeled ☐ Low Chord Elevations ☐ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

**Floodway Data Table**

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

**Floodway Data Table Attached** ☐ **Yes** ☐ **Not Required**

## ATTACHMENT TO FORM 4

2.5. The following HEC-2 models were used in the Revised Reach:

I152SUBB

A detailed description of each HEC-2 model is attached in Section 2 of this Restudy.

3. Starting water surface elevations for each HEC-2 model are discussed in the HEC-2 model descriptions, in Section 2 of this Restudy.

5. Revised FIRM/ FBFM and Flood Profiles

1.a. Revised floodplain analysis extends upstream and downstream of Effective floodplain limits. Therefore, new floodplain limits have been established, making tie-in locations Not Applicable.
1.b. Approximate methods. No floodway analysis.
1.c. Approximate methods. No floodway analysis.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE HYDRAULIC ANALYSIS** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

**PUBLIC BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

***Note: Fill out one form for each flooding source studied***

Community Name: Clark County, Nevada

Flooding Source: North Branch Blue Diamond Wash

Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

## 1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: Confluence with Duck Creek

Upstream Limit: Union Pacific Railroad

## 2. MODELS SUBMITTED

| **Requirements: for areas which have detailed flooding:** | **for areas which do not have detailed flooding:** |
|---|---|
| Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See Instructions for directions on when other models may be required. | Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted. |

**If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.**

**1. Duplicate Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

**2. Corrected Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Corrected Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

**3. Existing or Pre-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

**4. Revised or Post-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

**5. Other** – Please attach a sheet describing all other models submitted along with the file names. ☒ **Natural** ☒ **Floodway**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended. For detailed analysis studies, using a known water-surface elevation is recommended.

## 4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☒ Supercritical depth ☒ Critical Depth ☒ Drawdowns ☒ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☒ Water surface elevations higher than the end points of cross sections.

☐ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☐ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

**Explanation attached with Form** ☒ **Explanation provided on attached printout** ☐

**If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program?** ☒ **Yes** ☐ **No**
**(see instructions for information on how to obtain CHECK-2)**

## 5. REVISED FIRM/FBFM AND FLOOD PROFILES

**1. Profile Transition**

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #*  Upstream End _____ within N/A (feet) *Cross-Section #*

**2. Profile Checklist (check box if information has been provided on profile)**

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☒ Stream Name ☒ Community Name ☐ Corporate Limits labeled ☒ Study limits labeled

☒ Confluences labeled ☒ Channel Stationing ☒ Streambed profiled ☒ Cross Sections labeled

☒ Horizontal/Vertical Scales indicated ☒ 100-year elevs profiled*

☒ Road Crossings ☒ Labeled ☒ Low Chord Elevations ☒ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

**Floodway Data Table**

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

**Floodway Data Table Attached** ☒ **Yes** ☐ **Not Required**

## ATTACHMENT TO FORM 4

2.5. The following HEC-2 models were used in the Revised Reach:

BDN1SUBC
BDN1SPRC

A detailed description of each HEC-2 model is attached in Section 2 of this Restudy. The upstream limit of detailed methods for North Branch Blue Diamond Wash is set at I-15. Revised flood zones west of I-15 are designated Zone A; flood zones east of I-15 are designated Zone AE.

3. Starting water surface elevations for each HEC-2 model are discussed in the HEC-2 model descriptions, in Section 2 of this Restudy.

4. Results

a. Supercritical depths – occurred in reaches with concrete channel improvements.
b. Critical depths – in subcritical models, when supercritical flow controlled.
c. Drawdowns – occurred near bridges, but did not have an adverse affect on upstream or downstream water surface elevations.
d. Negative floodway surcharges – either did not adversely impact the floodway upstream or downstream, or increase was confined to the revisor's property.
f. Water surface elevations higher than end points of cross sections – Section 33200: Left overbank flow is shallow and ineffective. Sections immediately upstream and downstream of Section 33200 show total confinement of flow.

5. Revised FIRM/ FBFM and Flood Profiles

1.a. See downstream tie-in calculation in Normal Depth Calculations of Section 2 of this Restudy. Upstream limit of revised floodplain extends west to I-15, therefore beyond the reach limit addressed in this form.
1.b. Revised floodway analysis extends upstream and downstream of Effective floodway limits. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.
1.c. Revised floodway analysis extends upstream and downstream of Effective floodway limits.. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE HYDRAULIC ANALYSIS** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
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**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

***Note: Fill out one form for each flooding source studied***

Community Name: Clark County, Nevada

Flooding Source: Middle Branch Blue Diamond Wash

Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

## 1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: Confluence with Duck Creek

Upstream Limit: Union Pacific Railroad

## 2. MODELS SUBMITTED

| Requirements: for areas which have detailed flooding: | for areas which do not have detailed flooding: |
|---|---|
| Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required. | Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted. |

**If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.**

**1. Duplicate Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

**2. Corrected Effective Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Corrected Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

**3. Existing or Pre-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

**4. Revised or Post-Project Conditions Model** ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____

The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

**5. Other** – Please attach a sheet describing all other models submitted along with the file names. ☒ **Natural** ☒ **Floodway**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended.
For detailed analysis studies, using a known water-surface elevation is recommended.

## 4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☒ Supercritical depth ☒ Critical Depth ☒ Drawdowns ☒ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☒ Water surface elevations higher than the end points of cross sections.

☐ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☐ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

**Explanation attached with Form** ☒ **Explanation provided on attached printout** ☐

**If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program?** ☒ **Yes** ☐ **No**
**(see instructions for information on how to obtain CHECK-2)**

## 5. REVISED FIRM/FBFM AND FLOOD PROFILES

**1. Profile Transition**

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #* Upstream End _____ within N/A (feet) *Cross-Section #*

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #* Upstream End _____ within N/A (feet) *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End _____ within N/A (feet) *Cross-Section #* Upstream End _____ within N/A (feet) *Cross-Section #*

**2. Profile Checklist (check box if information has been provided on profile)**

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☒ Stream Name ☒ Community Name ☐ Corporate Limits labeled ☒ Study limits labeled

☒ Confluences labeled ☒ Channel Stationing ☒ Streambed profiled ☒ Cross Sections labeled

☒ Horizontal/Vertical Scales indicated ☒ 100-year elevs profiled*

☒ Road Crossings ☒ Labeled ☒ Low Chord Elevations ☒ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

**Floodway Data Table**

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

**Floodway Data Table Attached** ☒ **Yes** ☐ **Not Required**

## ATTACHMENT TO FORM 4

2.5. The following HEC-2 models were used in the Revised Reach:

BDM1SUBB
BDM2SUBB
BDM3SUBC
BDM3SPRC
BDM4SUBB

A detailed description of each HEC-2 model is attached in Section 2 of this Restudy. The upstream limit of detailed methods for the Middle Branch Blue Diamond Wash is set at I-15. Revised flood zones west of I-15 are designated Zone A. Flood zones east of I-15 are designated Zone AE.

3. Starting water surface elevations for each HEC-2 model are discussed in the HEC-2 model descriptions, in Section 2 of this Restudy.

4. Results

a. Supercritical depths – occurred in reaches with concrete channel improvements.
b. Critical depths – in subcritical models, when supercritical flow controlled.
c. Drawdowns – occurred near bridges, but did not have an adverse affect on upstream or downstream water surface elevations.
f. Water surface elevations higher than end points of cross sections – occurred at split flow locations and were tracked in separate HEC-2 models or normal depth calculations. Also occurred in HEC-2 model BDM4SUBB for sections adjacent to the Blue Diamond/ I-15 Interchange. Flow that breaks out from HEC-2 model BDM4SUBB into the interchange area is considered ineffective flow.

5. Revised FIRM/ FBFM and Flood Profiles

1.a. Revised floodplain analysis extends upstream and downstream of Effective floodplain limits. Therefore, new floodplain limits have been established, making tie-in locations Not Applicable.
1.b. Revised floodway analysis extends upstream and downstream of Effective floodway limits. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.
1.c. Revised floodway analysis extends upstream and downstream of Effective floodway limits. Therefore, new floodway limits have been established, making tie-in locations Not Applicable.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE / COASTAL MAPPING** | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
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**PUBLIC BURDEN DISCLOSURE NOTICE**

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**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

***Note: Fill out one form for each flooding source studied***

Community Name: Clark County, Nevada; Henderson, Nevada

Flooding Source: Duck Creek / Blue Diamond Washes

Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

This is a ☒ Manual ☐ Digital submission. *Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance as possible.*

## 1. MAPPING CHANGES

1. A topographic workmap must be submitted showing the following information (check N/A when not applicable):

| | | | |
|---|---|---|---|
| a. Revised approximate 100-year floodplain boundaries (Zone A) | ☒ Yes | ☐ No | ☐ N/A |
| b. Revised detailed 100- and 500-year floodplain boundaries. | ☒ Yes | ☐ No | ☐ N/A |
| c. Revised floodway boundaries | ☒ Yes | ☐ No | ☐ N/A |
| d. Location and alignment of all cross sections with stationing control indicated. | ☒ Yes | ☐ No | ☐ N/A |
| e. Stream alignments, road alignments and dam alignments. | ☒ Yes | ☐ No | ☐ N/A |
| f. Current community boundaries. | ☒ Yes | ☐ No | ☐ N/A |
| g. Effective 100- year floodplain and floodway boundaries from FIRM/FBFM reduced or enlarged to the scale of the topographic workmap | ☒ Yes | ☐ No | ☐ N/A |
| h. Tie-ins between the effective and revised 100-, 500-year and floodway boundaries | ☒ Yes | ☐ No | ☐ N/A |
| i. The requester's property boundaries and community easements | ☐ Yes | ☐ No | ☒ N/A |
| j. The signed certification of a registered professional engineer | ☒ Yes | ☐ No | ☐ N/A |
| k. Location and description of reference marks | ☒ Yes | ☐ No | ☐ N/A |
| l. Vertical datum (example: NGVD, NAVD) | ☒ Yes | ☐ No | ☐ N/A |
| m. Coastal zone designations tie into adjacent areas not being revised | ☐ Yes | ☐ No | ☒ N/A |
| n. Location and alignment of all coastal transects used to revise the coastal analyze | ☐ Yes | ☐ No | ☒ N/A |
| o. V-zone has been delineated to extend landward to the heel of the primary frontal dune | ☐ Yes | ☐ No | ☒ N/A |

**If any items are marked No or N/A please attach an explanation.**

2. What is the source and date of the updated topographic information (example: orthophoto maps, July 1985; filed survey, May 1979, beach profile, June 1987 etc.)? Topographic mapping, July 2000, April 2001. Field Survey - September 2000 to November 2001.

3. What is the scale and contour interval of the following workmaps?

Effective FIS Scale 1" = 400' Contour Interval 4-foot

Revision Request Scale 1" = 400' Contour Interval 4-foot

*NOTE: Revised topographic information must be of equal or greater detail than effective.*

4. Attach an annotated FIRM/FBFM at the scale of the effective FIRM/FBFM showing the revised 100- and 500-year floodplain and the floodway boundaries and how they tie into those shown on the effective FIRM/FBFM downstream and upstream of the revisions or adjacent to the area of revision for coastal studies. **FIRM/FBFM attached?** ☒ **Yes** ☐ **No**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 2. EARTH FILL PLACEMENT NA

The fill is: ☐ Existing ☐ Proposed

2. Has fill been/will be placed in the regulatory floodway? ☐ Yes ☐ No
If Yes, please attach completed Riverine Hydraulic Analysis Form (Form 4).

3. Has fill been/will be placed in floodway fringe (*area between the floodway and 100-year floodplain boundaries*)? ☐ Yes ☐ No

If Yes, then complete A, B, C, and D below.

a. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ☐ Yes ☐ No

If Yes, justify steeper slopes _____

b. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? (*Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)*

☐ Yes ☐ No

If No, describe erosion protection provided _____

c. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No

d. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No

**If Yes, attach certification of fill compaction (item 3c. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer in accordance with Subparagraph 65.5(a)(6) of the NFIP regulations.**

**Fill certification attached** ☐ **Yes** ☐ **No**

4. Has fill been/will be placed in a V zone? ☐ Yes ☐ No

If Yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall?

☐ Yes ☐ No

If Yes, attach the Coastal Structures Form (Form 10).

# ATTACHMENT

## RIVERINE / COASTAL MAPPING

### MT-2 Form 5

1. MAPPING CHANGES

   b. 100-year floodplain boundaries only

   d. Stationing control of cross sections is reflected by reach lengths in HEC-2 output

   h. 100-year floodway boundary only

   i. NA, FIS Restudy of flooding source

   l. NGVD 29 datum

   m. Riverine analysis

   n. Riverine analysis

   o. Riverine analysis

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**DAM** | O.M.B. Burden No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

**PUBLIC BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 0.5 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

Community Name: Clark County, Nevada

Flooding Source: Duck Creek

Project Name/Identifier: Duck Creek / Blue Diamond Washes FIS Restudy

## 1. IDENTIFIER

1. **Name of Dam:** Lower Duck Creek Detention Basin

2. Location of dam along flood source (in terms of stream distance or cross section identifier):

   500 feet upstream of Bermuda Road at Duck Creek

   _____

   _____

3. This request is for (check one of the following):

   ☒ Existing dam
   ☐ New dam
   ☐ Modifications of existing dam (describe modifications): _____

4. Was the dam designed by: ☐ Federal agency ☐ State agency ☐ Local government agency ☐ Private organization?

## 2. BACKGROUND

1. Does the dam have dedicated flood control storage? ☒ Yes ☐ No

2. Does the project involve revised hydrology? ☒ Yes ☐ No

   **If Yes, complete Hydrologic Analysis Form (Form 3) and include calculations of the 100-year inflow flood hydrograph routed through the dam with the beginning pool at the normal pool elevation (spillway crest elevation for ungated spillway). Include any inflow hydrograph bulking by watershed sediment yield and provide necessary debris and sediment yield analysis.**

3. Does the revised hydrology affect the 100-year water-surface (base flood) elevation behind the dam or downstream of the dam?

   ☒ Yes ☐ No

   **If yes, complete the Riverine Hydraulic Analysis Form (Form 4) and complete the table shown on the following page.**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 3. RESULTS

| | Stillwater Elevation Behind the Dam | |
|---|---|---|
| | FIS | REVISED |
| 10-year | N/A | N/A |
| 50-year | N/A | N/A |
| 100-year | N/A | 2,199 feet NGVD 29 |
| 500-year | N/A | N/A |
| Normal Pool Elevation | N/A | N/A |

1. Was long-term sediment accumulation taken into consideration in determining the normal pool elevation? ☒ Yes ☐ No

2. Was the dam designed to withstand the hydrostatic and hydrodynamic forces associated with floods greater than the base flood? ☒ Yes ☐ No

   **If No, the dam should not be modeled as considering the attenuation effects from the dam.**

3. Provide the following data on the dam:

   Dimensional Height: 29 feet

   Crest Elevation of top of dam: 2,212 feet NAVD 88

   base flood storage capacity: 1,263 acre-feet

   Freeboard (measured from base flood elevation): 4.9 feet

Spillway(s):

Type: ☐ gated ☒ ungated

Dimensional Width: 2,166 feet

Dimensional Height: 22 feet

Crest Elevation of Top of Spillway: 2,204.0 NAVD 88

5. Outlet(s):

Type: ☐ gated ☒ ungated

Width: (5) 8' x 8.4' = 42 feet total

Height: 8 feet

Diameter: N/A

Invert Elevation: 2,182.0 feet NAVD 88

6. Explain flow regulation plan: None

7. Are the project features, including the emergency spillway, designed to accommodate the 100-year flood discharge without overtopping the dam? ☒ Yes ☐ No

8. Was the dam designed in accordance with all currently applicable local, State, and Federal regulations?
   ☒ Yes ☐ No

   **If No, please attach an explanation.** **Explanation attached** ☐ **Yes** ☐ **No**

   FEMA may request a list of regulations that have been complied with and supporting documentation demonstrating compliance with these regulations.

9. **Attach copy of formal operation and maintenance plan. Plan Attached?** ☒ Yes ☐ No

## ATTACHMENT

**MT-2 Form 11**

Note: All detention basin elevation data is based on NAVD 88 datum.

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 900 | 1.6 | DCL6SUBB | SUB | -- | -- | -- | 1620.4 | -- | 1620.1 | -- |
| 1000 | 2.5 | DCL6SUBB | SUB | -- | -- | -- | 1625.0 | -- | 1625.8 | -- |
| 1100 | 3.0 | DCL6SUBB | SUB | -- | -- | -- | 1628.0 | -- | 1629.4 | -- |
| 1200 | 3.4 | DCL6SUBB | SUB | -- | -- | -- | 1633.5 | -- | 1633.2 | -- |
| 1300 | 3.9 | DCL6SUBB | SUB | -- | -- | -- | 1634.5 | -- | 1637.5 | -- |
| 1400 | 4.1 | DCL6SUBB | SUB | -- | -- | -- | 1638.0 | -- | 1641.4 | -- |
| 1500 | 4.3 | DCL6SUBB | SUB | -- | -- | -- | 1638.5 | -- | 1641.4 | -- |
| 1600 | 4.4 | DCL6SUBB | SUB | -- | -- | -- | 1639.9 | -- | 1642.0 | -- |
| 1700 | | | | | | | | | | |
| 1800 | 4.7 | DCL1SUBC | SUB | -- | -- | -- | 1642.4 | -- | 1642.4 | -- |
| 1900 | 5.1 | DCL1SUBC | SUB | -- | -- | -- | 1646.2 | -- | 1645.1 | -- |
| 2000 | 5.5 | DCL1SUBC | SUB | -- | -- | -- | 1648.2 | -- | 1646.3 | -- |
| 2100 | 5.8 | DCL1SUBC | SUB | -- | -- | -- | 1649.7 | -- | 1648.3 | -- |
| 2200 | 6.0 | DCL1SUBC | SUB | -- | -- | -- | 1650.8 | -- | 1648.7 | -- |
| 2300 | 6.3 | DCL1SPRC | SUPER | -- | -- | -- | 1652.4 | -- | 1648.2 | -- |
| 2400 | 6.7 | DCL1SPRC | SUPER | -- | -- | -- | 1654.5 | -- | 1649.6 | -- |
| 2500 | 7.1 | DCL1SPRC | SUPER | -- | -- | -- | 1656.3 | -- | 1651.9 | -- |
| 2600 | 7.5 | DCL1SPRC | SUPER | -- | -- | -- | 1657.9 | -- | 1651.7 | -- |
| 2700 | 7.9 | DCL1SPRC | SUPER | -- | -- | -- | 1660.2 | -- | 1652.9 | -- |
| 2800 | 8.3 | DCL1SPRC | SUPER | -- | -- | -- | 1662.5 | -- | 1653.4 | -- |
| 2900 | 8.5 | DCL1SPRC | SUPER | -- | -- | -- | 1663.9 | -- | 1653.3 | -- |
| 3000 | 8.6 | DCL1SPRC | SUPER | -- | -- | -- | 1664.8 | -- | 1653.6 | -- |
| 3100 | 8.7 | DCL1SPRC | SUPER | -- | -- | -- | 1665.5 | -- | 1654.5 | -- |
| 3200 | 8.8 | DCL1SPRC | SUPER | -- | -- | -- | 1666.2 | -- | 1655.0 | -- |
| 3300 | 8.9 | DCL1SPRC | SUPER | -- | -- | -- | 1667.1 | -- | 1655.4 | -- |
| 3400 | 8.9 | DCL1SUBC | SUB | -- | -- | -- | 1667.1 | -- | 1663.4 | -- |
| 3500 | 9.0 | DCL1SUBC | SUB | -- | -- | -- | 1667.7 | -- | 1664.8 | -- |
| 3600 | 9.0 | DCL1SUBC | SUB | -- | -- | -- | 1667.7 | -- | 1667.7 | -- |
| 3700 | 9.3 | DCL1SUBC | SUB | -- | -- | -- | 1672.0 | -- | 1671.3 | -- |
| 3800 | 9.7 | DCL1SUBC | SUB | -- | -- | -- | 1674.0 | -- | 1672.4 | -- |
| 3900 | 10.1 | DCL1SUBC | SUB | -- | -- | -- | 1675.4 | -- | 1675.3 | -- |
| 4000 | 10.5 | DCL1SUBC | SUB | -- | -- | -- | 1681.0 | -- | 1676.3 | -- |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 4100 | 10.9 | DCL1SUBC | SUB | -- | -- | -- | 1687.0 | -- | 1680.1 | -- |
| 4200 | 11.3 | DCL1SUBC | SUB | -- | -- | -- | 1695.5 | -- | 1687.6 | -- |
| 4300 | 11.7 | DCL1SUBC | SUB | -- | -- | -- | 1702.1 | -- | 1693.1 | -- |
| 4400 | 12.1 | DCL1SUBC | SUB | -- | -- | -- | 1709.6 | -- | 1697.8 | -- |
| 4500 | 12.5 | DCL1SUBC | SUB | -- | -- | -- | 1712.3 | -- | 1704.7 | -- |
| 4600 | 12.9 | DCL1SUBC | SUB | -- | -- | -- | 1718.9 | -- | 1717.4 | -- |
| 4700 | 13.3 | DCL1SUBC | SUB | -- | -- | -- | 1725.1 | -- | 1723.2 | -- |
| 4800 | 13.7 | DCL1SUBC | SUB | -- | -- | -- | 1733.6 | -- | 1730.1 | -- |
| 4900 | 14.1 | DCL1SUBC | SUB | -- | -- | -- | 1740.8 | -- | 1737.9 | -- |
| 5000 | 14.5 | DCL1SUBC | SUB | -- | -- | -- | 1748.0 | -- | 1746.4 | -- |
| 5100 | 14.8 | DCL1SUBC | SUB | -- | -- | -- | 1756.7 | -- | 1758.9 | -- |
| 5200 | 15.1 | DCL1SUBC | SUB | -- | -- | -- | 1765.3 | -- | 1762.3 | -- |
| 5300 | 15.3 | DCL1SUBC | SUB | -- | -- | -- | 1766.2 | -- | 1764.5 | -- |
| 5400 | 15.5 | DCL1SUBC | SUB | -- | -- | -- | 1770.0 | -- | 1778.3 | -- |
| 5500 | 15.7 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1781.3 | -- |
| 5600 | 15.8 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1782.4 | -- |
| 5700 | 15.8 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1784.0 | -- |
| 5800 | 16.0 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1786.6 | -- |
| 5900 | 16.1 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1789.9 | -- |
| 6000 | 16.2 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1791.0 | -- |
| 6100 | 16.3 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1792.9 | -- |
| 6200 | 16.6 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1804.9 | -- |
| 6300 | 16.8 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1809.0 | -- |
| 6400 | 16.9 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1809.6 | -- |
| 6500 | 17.1 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1810.0 | -- |
| 6600 | 17.3 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1810.6 | -- |
| 6700 | 17.5 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1811.9 | -- |
| 6800 | 17.6 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1813.6 | -- |
| 6900 | 17.8 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1818.6 | -- |
| 7000 | 18.2 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1823.2 | -- |
| 7100 | 18.6 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1828.6 | -- |
| 7200 | 19.0 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1834.7 | -- |
| 7300 | 19.4 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1843.4 | -- |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 7400 | 19.8 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1855.2 | -- |
| 7500 | 20.2 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1860.9 | -- |
| 7600 | 20.5 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1864.9 | -- |
| 7700 | 21.0 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1871.6 | -- |
| 7800 | 21.4 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1877.0 | -- |
| 7900 | 21.5 | DCL1SUBC | SUB | -- | -- | -- | -- | -- | 1880.9 | -- |
| 8000 | 21.6 | DCL1SUBC | SUB | 111 | 951 | 9.0 | -- | 1883.4 | 1883.4 | 0.0 |
| 8100 | 21.7 | DCL1SUBC | SUB | 112 | 974 | 8.8 | -- | 1884.1 | 1883.5 | 0.6 |
| 8200 | 21.7 | DCL1SUBC | SUB | 122 | 745 | 11.5 | -- | 1883.5 | 1882.6 | 0.9 |
| 8300 | 21.9 | DCL1SUBC | SUB | 97 | 601 | 14.2 | -- | 1884.4 | 1884.3 | 0.1 |
| 8400 | 22.3 | DCL1SUBC | SUB | 93 | 730 | 11.7 | -- | 1889.2 | 1889.1 | 0.1 |
| 8500 | 22.6 | DCL1SUBC | SUB | 98 | 754 | 11.4 | -- | 1891.8 | 1891.5 | 0.3 |
| 8600 | 22.8 | DCL1SUBC | SUB | 87 | 579 | 14.8 | -- | 1907.3 | 1907.0 | 0.3 |
| 8700 | 22.9 | DCL1SUBC | SUB | 87 | 580 | 14.8 | -- | 1907.6 | 1907.3 | 0.3 |
| 8800 | 23.0 | DCL1SUBC | SUB | 88 | 582 | 14.7 | -- | 1911.8 | 1911.5 | 0.3 |
| 8900 | 23.3 | DCL1SUBC | SUB | 94 | 597 | 14.3 | -- | 1919.5 | 1919.3 | 0.2 |
| 9000 | 23.5 | DCL1SUBC | SUB | 127 | 989 | 8.7 | -- | 1923.1 | 1922.4 | 0.7 |
| 9100 | 23.9 | DCL1SUBC | SUB | 84 | 705 | 12.2 | -- | 1924.3 | 1923.9 | 0.4 |
| 9200 | 24.1 | DCL1SUBC | SUB | 65 | 661 | 12.9 | -- | 1925.6 | 1925.2 | 0.4 |
| 9300 | 24.2 | DCL1SUBC | SUB | 66 | 679 | 12.6 | -- | 1926.4 | 1925.8 | 0.6 |
| 9400 | 24.4 | DCL1SUBC | SUB | 104 | 907 | 9.4 | -- | 1928.4 | 1928.0 | 0.4 |
| 9500 | 24.6 | DCL1SUBC | SUB | 103 | 951 | 9.0 | -- | 1929.3 | 1928.8 | 0.5 |
| 9600 | 24.8 | DCL1SUBC | SUB | 89 | 940 | 9.1 | -- | 1929.7 | 1929.2 | 0.5 |
| 9700 | 24.9 | DCL1SUBC | SUB | 96 | 1136 | 7.5 | -- | 1932.6 | 1932.1 | 0.5 |
| 9800 | 25.0 | DCL1SUBC | SUB | 105 | 1105 | 7.7 | -- | 1932.8 | 1932.1 | 0.7 |
| 9900 | 25.4 | DCL1SUBC | SUB | 98 | 882 | 9.7 | -- | 1933.1 | 1932.3 | 0.8 |
| 10000 | 25.6 | DCL1SUBC | SUB | 96 | 956 | 9.0 | -- | 1933.9 | 1933.1 | 0.8 |
| 10100 | 25.7 | DCL1SUBC | SUB | 142 | 1548 | 5.5 | -- | 1938.2 | 1937.4 | 0.8 |
| 10200 | 25.9 | DCL1SUBC | SUB | 131 | 1338 | 6.4 | -- | 1938.3 | 1937.4 | 0.9 |
| 10300 | 26.1 | DCL1SUBC | SUB | 316 | 1995 | 4.3 | -- | 1938.9 | 1938.0 | 0.9 |
| 10400 | 26.5 | DCL1SUBC | SUB | 98 | 890 | 9.6 | -- | 1938.6 | 1937.6 | 1.0 |
| 10500 | 26.9 | DCL1SUBC | SUB | 85 | 613 | 14.0 | -- | 1945.7 | 1946.6 | -0.9 |
| 10600 | 27.3 | DCL1SPRC | SUPER | 71 | 325 | 26.4 | -- | 1949.3 | 1949.3 | 0.0 |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 10700 | 27.7 | DCL1SPRC | SUPER | 83 | 344 | 24.9 | -- | 1954.7 | 1954.7 | 0.0 |
| 10800 | 28.1 | DCL1SPRC | SUPER | 85 | 345 | 24.8 | -- | 1958.6 | 1958.6 | 0.0 |
| 10900 | 28.5 | DCL1SPRC | SUPER | 76 | 369 | 23.2 | -- | 1963.2 | 1963.2 | 0.0 |
| 11000 | 28.9 | DCL1SPRC | SUPER | 85 | 431 | 19.9 | -- | 1967.9 | 1967.9 | 0.0 |
| 11100 | 29.3 | DCL1SPRC | SUPER | 66 | 417 | 20.5 | -- | 1969.4 | 1969.4 | 0.0 |
| 11200 | 29.7 | DCL1SPRC | SUPER | 64 | 494 | 15.8 | -- | 1973.6 | 1973.6 | 0.0 |
| 11300 | 30.2 | DCL1SPRC | SUPER | 61 | 369 | 20.8 | -- | 1972.1 | 1971.8 | 0.3 |
| 11400 | 30.4 | DCL1SPRC | SUPER | 42 | 310 | 24.8 | -- | 1971.4 | 1971.0 | 0.4 |
| 11500 | 30.5 | DCL1SPRC | SUPER | 42 | 299 | 25.7 | -- | 1971.7 | 1971.3 | 0.4 |
| 11600 | 30.8 | DCL1SPRC | SUPER | 34 | 300 | 21.9 | -- | 1976.0 | 1975.0 | 1.0 |
| 11700 | 30.8 | DCL1SPRC | SUPER | 34 | 254 | 25.8 | -- | 1975.6 | 1975.4 | 0.2 |
| 11800 | 30.9 | DCL1SPRC | SUPER | 34 | 267 | 24.5 | -- | 1977.4 | 1977.1 | 0.3 |
| 11900 | 30.9 | DCL1SPRC | SUPER | 34 | 287 | 22.9 | -- | 1979.2 | 1978.8 | 0.4 |
| 12000 | 31.0 | DCL1SPRC | SUPER | 34 | 288 | 22.8 | -- | 1979.3 | 1978.9 | 0.4 |
| 12100 | 31.2 | DCL1SPRC | SUPER | 41 | 229 | 24.3 | -- | 1980.2 | 1979.9 | 0.3 |
| 12200 | 31.5 | DCL1SPRC | SUPER | 45 | 264 | 21.1 | -- | 1984.7 | 1984.0 | 0.7 |
| 12300 | 31.8 | DCL1SPRC | SUPER | 68 | 301 | 18.5 | -- | 1987.9 | 1986.9 | 1.0 |
| 12400 | 31.8 | DCL1SPRC | SUPER | 64 | 229 | 24.3 | -- | 1987.1 | 1987.1 | 0.0 |
| 12500 | 31.9 | DCL1SPRC | SUPER | 63 | 218 | 25.5 | -- | 1987.5 | 1987.5 | 0.0 |
| 12600 | 32.0 | DCL1SPRC | SUPER | 50 | 244 | 22.8 | -- | 1990.5 | 1990.5 | 0.0 |
| 12700 | 32.3 | DCL1SPRC | SUPER | 50 | 240 | 23.1 | -- | 1993.0 | 1993.0 | 0.0 |
| 12800 | 32.7 | DCL1SPRC | SUPER | 50 | 220 | 25.3 | -- | 1995.8 | 1995.8 | 0.0 |
| 12900 | 33.0 | DCL1SPRC | SUPER | 50 | 196 | 28.4 | -- | 1997.4 | 1997.4 | 0.0 |
| 13000 | 33.0 | DCL1SPRC | SUPER | 50 | 194 | 28.7 | -- | 1997.8 | 1997.8 | 0.0 |
| 13100 | 33.1 | DCL1SPRC | SUPER | 50 | 240 | 23.2 | -- | 2003.8 | 2003.8 | 0.0 |
| 13200 | 33.3 | DCL1SPRC | SUPER | 50 | 255 | 21.8 | -- | 2006.5 | 2006.5 | 0.0 |
| 13300 | 33.4 | DCL1SPRC | SUPER | 65 | 239 | 23.2 | -- | 2006.5 | 2006.5 | 0.0 |
| 13400 | 33.5 | DCL1SPRC | SUPER | 64 | 223 | 25.0 | -- | 2006.7 | 2006.7 | 0.0 |
| 13500 | 33.5 | DCL1SPRC | SUPER | 64 | 219 | 25.4 | -- | 2006.9 | 2006.9 | 0.0 |
| 13600 | 33.6 | DCL1SPRC | SUPER | 66 | 251 | 22.2 | -- | 2010.5 | 2010.5 | 0.0 |
| 13700 | 33.7 | DCL1SPRC | SUPER | 50 | 265 | 21.0 | -- | 2011.8 | 2011.8 | 0.0 |
| 13800 | 34.0 | DCL1SPRC | SUPER | 50 | 253 | 22.0 | -- | 2013.4 | 2013.4 | 0.0 |
| 13900 | 34.3 | DCL1SPRC | SUPER | 50 | 227 | 24.5 | -- | 2014.7 | 2014.7 | 0.0 |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 14000 | 34.4 | DCL1SPRC | SUPER | 50 | 228 | 24.4 | -- | 2015.4 | 2015.4 | 0.0 |
| 14100 | 34.5 | DCL1SPRC | SUPER | 50 | 245 | 22.7 | -- | 2017.7 | 2017.6 | 0.1 |
| 14200 | 34.5 | DCL1SPRC | SUPER | 60 | 244 | 22.8 | -- | 2018.3 | 2018.2 | 0.1 |
| 14300 | 34.6 | DCL1SUBC | SUB | 80 | 424 | 13.1 | -- | 2024.8 | 2024.8 | 0.0 |
| 14400 | 34.6 | DCL1SUBC | SUB | 86 | 595 | 9.3 | -- | 2027.1 | 2027.1 | 0.0 |
| 14500 | 34.7 | DCL1SUBC | SUB | 68 | 465 | 12.0 | -- | 2026.8 | 2026.8 | 0.0 |
| 14600 | 34.7 | DCL1SUBC | SUB | 60 | 595 | 9.4 | -- | 2028.3 | 2028.3 | 0.0 |
| 14700 | 34.8 | DCL1SUBC | SUB | 60 | 611 | 9.1 | -- | 2029.1 | 2029.1 | 0.0 |
| 14800 | 35.0 | DCL1SUBC | SUB | 121 | 885 | 7.2 | -- | 2030.0 | 2030.2 | -0.2 |
| 14900 | 35.2 | DCL1SUBC | SUB | 200 | 855 | 9.2 | -- | 2031.5 | 2031.5 | 0.0 |
| 15000 | 35.2 | DCL1SUBC | SUB | 259 | 1449 | 5.8 | -- | 2033.9 | 2033.6 | 0.3 |
| 15100 | 35.4 | DCL1SUBC | SUB | 176 | 1131 | 7.6 | -- | 2034.3 | 2034.0 | 0.3 |
| 15200 | 35.6 | DCL1SUBC | SUB | 101 | 777 | 11.0 | -- | 2034.6 | 2034.1 | 0.5 |
| 15300 | 35.9 | DCL1SUBC | SUB | 103 | 775 | 11.0 | -- | 2036.2 | 2035.9 | 0.3 |
| 15400 | 36.4 | DCL1SUBC | SUB | 92 | 844 | 10.1 | -- | 2038.2 | 2038.2 | 0.0 |
| 15500 | 36.5 | DCL1SUBC | SUB | 57 | 547 | 15.7 | -- | 2037.9 | 2037.8 | 0.1 |
| 15600 | 36.7 | DCL1SUBC | SUB | 57 | 509 | 16.8 | -- | 2038.5 | 2038.4 | 0.1 |
| 15700 | 37.0 | DCL1SUBC | SUB | 82 | 569 | 15.0 | -- | 2040.7 | 2040.7 | 0.0 |
| 15800 | 37.3 | DCL1SUBC | SUB | 105 | 703 | 12.2 | -- | 2043.5 | 2043.5 | 0.0 |
| 15900 | 37.6 | DCL1SPRC | SUPER | 80 | 566 | 15.1 | -- | 2045.0 | 2045.0 | 0.0 |
| 16000 | 38.0 | DCL1SPRC | SUPER | 131 | 592 | 14.5 | -- | 2044.8 | 2044.8 | 0.0 |
| 16100 | 38.4 | DCL1SUBC | SUB | 158 | 708 | 12.1 | -- | 2048.0 | 2048.0 | 0.0 |
| 16200 | 38.6 | DCL1SUBC | SUB | 183 | 869 | 9.9 | -- | 2050.6 | 2050.6 | 0.0 |
| 16300 | 38.7 | DCL1SUBC | SUB | 577 | 2940 | 2.9 | -- | 2052.9 | 2052.9 | 0.0 |
| 16400 | 38.8 | DCL1SUBC | SUB | 587 | 2301 | 3.7 | -- | 2052.9 | 2053.0 | -0.1 |
| 16500 | 38.8 | DCL1SUBC | SUB | 596 | 2025 | 4.2 | -- | 2052.6 | 2052.7 | -0.1 |
| 16600 | 39.0 | DCL1SUBC | SUB | 610 | 1407 | 6.1 | -- | 2054.8 | 2053.9 | 0.9 |
| 16700 | 39.2 | DCL1SUBC | SUB | 501 | 2232 | 3.8 | -- | 2056.5 | 2055.6 | 0.9 |
| 16800 | 39.4 | DCL1SUBC | SUB | 409 | 1655 | 5.2 | -- | 2056.8 | 2056.2 | 0.6 |
| 16900 | 39.6 | DCL1SUBC | SUB | 308 | 1072 | 8.0 | -- | 2058.4 | 2058.1 | 0.3 |
| 17000 | 39.8 | DCL1SUBC | SUB | 95 | 606 | 14.1 | -- | 2059.5 | 2059.9 | -0.4 |
| 17100 | 40.0 | DCL1SUBC | SUB | 101 | 891 | 9.6 | -- | 2062.2 | 2061.4 | 0.8 |
| 17200 | 40.0 | DCL1SUBC | SUB | 114 | 1194 | 7.2 | -- | 2064.8 | 2064.0 | 0.8 |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 17300 | 40.2 | DCL1SUBC | SUB | 100 | 1166 | 7.3 | -- | 2065.1 | 2064.1 | 1.0 |
| 17400 | 40.6 | DCL1SUBC | SUB | 100 | 1013 | 8.5 | -- | 2065.3 | 2064.4 | 0.9 |
| 17500 | 40.7 | DCL1SPRC | SUPER | 89 | 516 | 16.6 | -- | 2060.9 | 2059.9 | 1.0 |
| 17600 | 40.8 | DCL1SPRC | SUPER | 89 | 392 | 21.9 | -- | 2060.7 | 2060.7 | 0.0 |
| 17700 | 40.9 | DCL1SPRC | SUPER | 92 | 438 | 19.5 | -- | 2063.1 | 2063.1 | 0.0 |
| 17800 | 41.3 | DCL1SUBC | SUB | 94 | 598 | 14.3 | -- | 2069.0 | 2069.1 | -0.1 |
| 17900 | 41.6 | DCL1SUBC | SUB | 89 | 682 | 12.6 | -- | 2072.0 | 2071.8 | 0.2 |
| 18000 | 42.0 | DCL1SPRC | SUPER | 97 | 463 | 18.5 | -- | 2070.3 | 2070.3 | 0.0 |
| 18100 | 42.2 | DCL1SPRC | SUPER | 94 | 465 | 18.4 | -- | 2071.5 | 2071.5 | 0.0 |
| 18200 | 42.4 | DCL1SPRC | SUPER | 95 | 436 | 19.6 | -- | 2071.9 | 2071.9 | 0.0 |
| 18300 | 42.7 | DCL1SPRC | SUPER | 92 | 365 | 23.4 | -- | 2071.7 | 2071.7 | 0.0 |
| 18400 | 42.8 | DCL1SPRC | SUPER | 114 | 636 | 13.5 | -- | 2078.5 | 2078.5 | 0.0 |
| 18500 | 43.0 | DCL1SPRC | SUPER | 97 | 482 | 17.6 | -- | 2077.3 | 2077.1 | 0.2 |
| 18600 | 43.2 | DCL1SPRC | SUPER | 92 | 395 | 21.5 | -- | 2076.6 | 2076.5 | 0.1 |
| 18700 | 43.6 | DCL1SPRC | SUPER | 89 | 394 | 21.5 | -- | 2079.3 | 2078.9 | 0.4 |
| 18800 | 43.8 | DCL1SPRC | SUPER | 96 | 410 | 20.7 | -- | 2081.4 | 2080.8 | 0.6 |
| 18900 | 44.0 | DCL1SPRC | SUPER | 91 | 419 | 20.2 | -- | 2082.7 | 2081.7 | 1.0 |
| 19000 | 44.1 | DCL1SPRC | SUPER | 87 | 317 | 26.8 | -- | 2082.4 | 2082.4 | 0.0 |
| 19100 | 44.4 | DCL1SPRC | SUPER | 90 | 307 | 27.6 | -- | 2085.8 | 2085.8 | 0.0 |
| 19200 | 44.8 | DCL1SPRC | SUPER | 93 | 291 | 29.1 | -- | 2091.4 | 2091.4 | 0.0 |
| 19300 | 45.0 | DCL1SPRC | SUPER | 97 | 252 | 33.7 | -- | 2094.7 | 2094.7 | 0.0 |
| 19400 | 45.2 | DCL1SPRC | SUPER | 42 | 241 | 31.0 | -- | 2101.3 | 2101.3 | 0.0 |
| 19500 | 45.4 | DCL1SPRC | SUPER | 41 | 225 | 33.2 | -- | 2102.1 | 2102.1 | 0.0 |
| 19600 | 45.6 | DCL1SPRC | SUPER | 45 | 236 | 31.7 | -- | 2106.3 | 2106.3 | 0.0 |
| 19700 | 46.0 | DCL1SPRC | SUPER | 42 | 232 | 32.2 | -- | 2110.7 | 2110.7 | 0.0 |
| 19800 | 46.4 | DCL1SPRC | SUPER | 46 | 259 | 28.9 | -- | 2118.6 | 2118.5 | 0.1 |
| 19900 | 46.8 | DCL1SPRC | SUPER | 46 | 257 | 29.2 | -- | 2122.5 | 2122.3 | 0.2 |
| 20000 | 47.1 | DCL1SPRC | SUPER | 48 | 252 | 29.7 | -- | 2126.3 | 2125.8 | 0.5 |
| 20100 | 47.4 | DCL1SPRC | SUPER | 39 | 255 | 29.4 | -- | 2129.2 | 2128.2 | 1.0 |
| 20200 | 47.6 | DCL1SPRC | SUPER | 36 | 203 | 36.8 | -- | 2129.0 | 2129.0 | 0.0 |
| 20300 | 47.8 | DCL1SPRC | SUPER | 54 | 234 | 32.0 | -- | 2137.6 | 2137.6 | 0.0 |
| 20400 | 48.0 | DCL1SPRC | SUPER | 51 | 253 | 29.6 | -- | 2143.0 | 2143.0 | 0.0 |
| 20500 | 48.3 | DCL1SPRC | SUPER | 65 | 480 | 15.6 | -- | 2155.3 | 2155.3 | 0.0 |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 20600 | 48.7 | DCL1SPRC | SUPER | 63 | 375 | 20.0 | -- | 2153.2 | 2153.2 | 0.0 |
| 20700 | 49.1 | DCL1SPRC | SUPER | 70 | 439 | 17.1 | -- | 2156.4 | 2156.4 | 0.0 |
| 20800 | 49.5 | DCL1SPRC | SUPER | 67 | 485 | 15.4 | -- | 2158.3 | 2158.4 | -0.1 |
| 20900 | 49.9 | DCL1SPRC | SUPER | 79 | 514 | 14.6 | -- | 2159.1 | 2159.1 | 0.0 |
| 21000 | 50.3 | DCL1SPRC | SUPER | 81 | 519 | 14.4 | -- | 2159.2 | 2159.2 | 0.0 |
| 21100 | 50.7 | DCL1SPRC | SUPER | 78 | 513 | 14.6 | -- | 2159.6 | 2159.6 | 0.0 |
| 21200 | 51.1 | DCL1SPRC | SUPER | 67 | 359 | 20.9 | -- | 2157.6 | 2157.0 | 0.6 |
| 21300 | 51.3 | DCL1SPRC | SUPER | 65 | 381 | 19.7 | -- | 2159.4 | 2158.4 | 1.0 |
| 21400 | 51.4 | DCL1SPRC | SUPER | 61 | 306 | 24.4 | 2165.0 | 2158.9 | 2158.9 | 0.0 |
| 21500 | 51.5 | DCL1SPRC | SUPER | 66 | 286 | 26.2 | 2166.0 | 2158.6 | 2158.6 | 0.0 |
| 21600 | 51.9 | DCL1SPRC | SUPER | 64 | 287 | 26.1 | 2170.0 | 2162.7 | 2162.7 | 0.0 |
| 21700 | 52.3 | DCL1SPRC | SUPER | 61 | 296 | 25.3 | 2175.1 | 2167.3 | 2167.3 | 0.0 |
| 21800 | 52.7 | DCL1SPRC | SUPER | 64 | 354 | 21.1 | 2180.2 | 2173.1 | 2173.1 | 0.0 |
| 21900 | 53.0 | DCL1SPRC | SUPER | 69 | 427 | 17.5 | 2184.0 | 2176.5 | 2176.5 | 0.0 |
| 22000 | 53.4 | DCL1SPRC | SUPER | 69 | 435 | 17.2 | 2186.3 | 2177.9 | 2177.9 | 0.0 |
| 22100 | 53.7 | DCL1SPRC | SUPER | 71 | 467 | 16.0 | 2188.2 | 2179.4 | 2179.4 | 0.0 |
| 22200 | 53.9 | DCL1SPRC | SUPER | 76 | 358 | 20.9 | 2189.1 | 2177.9 | 2177.9 | 0.0 |
| 22300 | 54.2 | DCL1SPRC | SUPER | 76 | 417 | 17.9 | 2190.8 | 2181.3 | 2181.3 | 0.0 |
| 22400 | 54.2 | DCL1SPRC | SUPER | 81 | 790 | 9.5 | 2190.8 | 2186.0 | 2185.0 | 1.0 |
| 22500 | 54.3 | DCL1SPRC | SUPER | 81 | 518 | 14.4 | 2191.4 | 2183.5 | 2183.5 | 0.0 |
| 22600 | 54.5 | DCL1SPRC | SUPER | 120 | 468 | 16.0 | 2191.4 | 2182.2 | 2182.2 | 0.0 |

LOWER DUCK CREEK DETENTION BASIN

HYDRAULIC BASE LINE MEASURED FROM BROADBENT AVENUE (FORMERLY REBEL ROAD)

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 22800 | 0.0 | DCU3SUBC | SUB | 226 | 520 | 8.0 | 2214.0 | 2218.3 | 2218.3 | 0.0 |
| 22900 | 0.4 | DCU3SUBC | SUB | 258 | 1152 | 3.6 | 2217.2 | 2220.5 | 2219.7 | 0.8 |
| 23000 | 0.8 | DCU3SUBC | SUB | 222 | 490 | 8.5 | 2220.2 | 2222.2 | 2221.5 | 0.7 |
| 23100 | 1.2 | DCU3SUBC | SUB | 167 | 678 | 6.1 | 2223.7 | 2226.0 | 2225.3 | 0.7 |
| 23200 | 1.6 | DCU3SUBC | SUB | 246 | 997 | 6.0 | 2227.2 | 2227.9 | 2227.2 | 0.7 |
| 23300 | 2.0 | DCU3SUBC | SUB | 231 | 986 | 6.3 | 2230.0 | 2229.5 | 2228.9 | 0.6 |
| 23400 | 2.4 | DCU3SUBC | SUB | 180 | 699 | 9.3 | 2232.0 | 2232.1 | 2231.6 | 0.5 |
| 23500 | 2.9 | DCU3SUBC | SUB | 262 | 1022 | 6.3 | 2235.0 | 2236.7 | 2235.9 | 0.8 |
| 23600 | 3.2 | DCU3SUBC | SUB | 385 | 972 | 6.7 | 2237.0 | 2238.5 | 2237.9 | 0.6 |
| 23700 | 3.6 | DCU3SUBC | SUB | 440 | 1245 | 5.2 | 2239.3 | 2241.5 | 2240.8 | 0.7 |
| 23800 | 3.7 | DCU3SUBC | SUB | 288 | 720 | 9.0 | 2242.1 | 2242.5 | 2241.9 | 0.6 |
| 23900 | 4.3 | DCU3SUBC | SUB | 876 | 2237 | 2.9 | 2248.0 | 2247.4 | 2246.5 | 0.9 |
| 24000 | 4.6 | DCU3SUBC | SUB | 206 | 284 | 6.3 | 2249.0 | 2249.9 | 2249.4 | 0.5 |
| 24100 | 4.7 | DCU3SUBC | SUB | 195 | 342 | 5.3 | 2249.5 | 2251.0 | 2250.4 | 0.6 |
| 24200 | 5.1 | DCU3SUBC | SUB | 240 | 376 | 4.8 | 2252.0 | 2255.8 | 2255.3 | 0.5 |
| 24300 | 5.1 | DCU3SUBC | SUB | 260 | 422 | 4.3 | 2253.0 | 2257.2 | 2256.6 | 0.6 |
| 24400 | 5.4 | DCU3SUBC | SUB | 405 | 1248 | 1.4 | 2255.2 | 2257.9 | 2257.0 | 0.9 |
| 24500 | 5.6 | DCU3SUBC | SUB | 488 | 1003 | 1.8 | 2256.5 | 2257.9 | 2257.0 | 0.9 |
| 24600 | 5.8 | DCU3SUBC | SUB | 114 | 245 | 7.4 | 2258.3 | 2258.2 | 2257.9 | 0.3 |
| 24700 | 6.3 | DCU3SUBC | SUB | 189 | 453 | 4.0 | 2262.2 | 2262.6 | 2261.8 | 0.8 |
| 24800 | 6.7 | DCU3SUBC | SUB | 169 | 265 | 6.8 | 2264.9 | 2265.5 | 2265.1 | 0.4 |
| 24900 | 7.0 | DCU3SUBC | SUB | 268 | 471 | 3.8 | 2267.8 | 2268.5 | 2267.7 | 0.8 |
| 25000 | 7.3 | DCU3SUBC | SUB | 341 | 590 | 3.1 | 2270.4 | 2269.9 | 2269.3 | 0.6 |
| 25100 | 7.7 | DCU3SUBC | SUB | 206 | 276 | 6.5 | 2274.5 | 2273.3 | 2272.6 | 0.7 |
| 25200 | 8.0 | DCU3SUBC | SUB | 217 | 513 | 3.5 | 2278.0 | 2275.4 | 2274.7 | 0.7 |
| 25300 | 8.4 | DCU3SUBC | SUB | 92 | 170 | 7.8 | 2282.0 | 2277.7 | 2277.6 | 0.1 |
| 25400 | 8.5 | DCU3SUBC | SUB | 62 | 183 | 7.2 | --- | 2280.2 | 2280.0 | 0.2 |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 25600 | 0.0 | DCU1SUBC | SUB | 373 | 686 | 7.4 | 2250.0 | 2249.3 | 2248.9 | 0.4 |
| 25700 | 0.1 | DCU1SUBC | SUB | 315 | 769 | 6.6 | 2250.5 | 2252.9 | 2252.6 | 0.3 |
| 25800 | 0.1 | DCU1SUBC | SUB | 409 | 1035 | 4.9 | 2250.8 | 2253.4 | 2252.9 | 0.5 |
| 25900 | 0.5 | DCU1SUBC | SUB | 400 | 718 | 7.1 | 2252.0 | 2254.2 | 2253.7 | 0.5 |
| 26000 | 0.7 | DCU1SUBC | SUB | 430 | 904 | 5.6 | 2254.3 | 2257.6 | 2256.9 | 0.7 |
| 26100 | 1.1 | DCU1SUBC | SUB | 429 | 851 | 6.0 | 2257.0 | 2262.0 | 2261.0 | 1.0 |
| 26200 | 1.5 | DCU1SUBC | SUB | 420 | 996 | 5.1 | 2262.0 | 2266.9 | 2266.5 | 0.4 |
| 26300 | 1.9 | DCU1SUBC | SUB | 510 | 1067 | 4.8 | 2268.1 | 2271.2 | 2270.8 | 0.4 |
| 26400 | 2.3 | DCU1SUBC | SUB | 751 | 1151 | 4.4 | 2277.0 | 2277.1 | 2277.1 | 0.0 |
| 26500 | 2.5 | DCU1SUBC | SUB | 1000 | 927 | 5.5 | 2278.0 | 2285.8 | 2285.8 | 0.0 |
| 26600 | 2.7 | DCU1SUBC | SUB | 1000 | 1004 | 5.1 | 2279.0 | 2285.9 | 2285.9 | 0.0 |
| 26700 | 3.1 | DCU1SUBC | SUB | 736 | 2273 | 4.2 | 2283.9 | 2286.8 | 2286.8 | 0.0 |
| 26800 | 3.5 | DCU1SUBC | SUB | 823 | 1332 | 7.1 | 2287.0 | 2291.0 | 2290.2 | 0.8 |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 28200 | 0.0 | DCU4SUBC | SUB | 102 | 287 | 8.1 | 2207.2 | 2208.0 | 2208.0 | 0.0 |
| 28300 | 0.4 | DCU4SUBC | SUB | 127 | 418 | 5.5 | 2208.8 | 2211.3 | 2210.3 | 1.0 |
| 28400 | 0.8 | DCU4SUBC | SUB | 99 | 255 | 9.1 | 2212.0 | 2214.6 | 2214.0 | 0.6 |
| 28500 | 1.2 | DCU4SUBC | SUB | 117 | 455 | 5.1 | 2215.8 | 2218.1 | 2217.2 | 0.9 |
| 28600 | 1.6 | DCU4SUBC | SUB | 127 | 282 | 8.2 | 2218.3 | 2220.3 | 2219.8 | 0.5 |
| 28700 | 2.0 | DCU4SUBC | SUB | 396 | 566 | 4.1 | 2225.4 | 2225.9 | 2225.1 | 0.8 |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 31000 | 0.0 | BDN1SPRC | SUPER | 30 | 54 | 23.8 | -- | 2074.0 | 2074.0 | 0.0 |
| 31100 | 0.4 | BDN1SPRC | SUPER | 10 | 62 | 20.7 | -- | 2083.1 | 2083.1 | 0.0 |
| 31200 | 0.8 | BDN1SPRC | SUPER | 10 | 60 | 21.5 | -- | 2087.4 | 2087.4 | 0.0 |
| 31300 | 1.2 | BDN1SPRC | SUPER | 10 | 79 | 16.3 | -- | 2094.1 | 2094.1 | 0.0 |
| 31400 | 1.3 | BDN1SPRC | SUPER | 10 | 80 | 16.1 | -- | 2094.8 | 2094.8 | 0.0 |
| 31500 | 1.5 | BDN1SPRC | SUPER | 30 | 65 | 19.9 | -- | 2089.8 | 2089.8 | 0.0 |
| 31600 | 1.7 | BDN1SPRC | SUPER | 30 | 58 | 22.3 | -- | 2090.8 | 2090.8 | 0.0 |
| 31700 | 2.1 | BDN1SPRC | SUPER | 10 | 71 | 18.3 | -- | 2099.2 | 2099.2 | 0.0 |
| 31800 | 2.5 | BDN1SPRC | SUPER | 10 | 69 | 18.8 | -- | 2102.3 | 2102.3 | 0.0 |
| 31900 | 2.9 | BDN1SPRC | SUPER | 10 | 78 | 16.5 | -- | 2106.6 | 2106.6 | 0.0 |
| 32000 | 3.0 | BDN1SPRC | SUPER | 10 | 70 | 18.4 | -- | 2106.4 | 2106.4 | 0.0 |
| 32100 | 3.1 | BDN1SPRC | SUPER | 10 | 70 | 18.5 | -- | 2107.2 | 2107.2 | 0.0 |
| 32200 | 3.5 | BDN1SPRC | SUPER | 10 | 70 | 18.5 | -- | 2110.6 | 2110.6 | 0.0 |
| 32300 | 3.6 | BDN1SPRC | SUPER | 10 | 70 | 18.4 | -- | 2111.4 | 2111.4 | 0.0 |
| 32400 | 3.7 | BDN1SPRC | SUPER | 10 | 70 | 18.4 | -- | 2112.3 | 2112.3 | 0.0 |
| 32500 | 4.1 | BDN1SPRC | SUPER | 10 | 80 | 16.1 | -- | 2116.6 | 2116.6 | 0.0 |
| 32600 | 4.4 | BDN1SPRC | SUPER | 23 | 56 | 23.2 | -- | 2115.6 | 2115.7 | -0.1 |
| 32700 | 4.5 | BDN1SPRC | SUPER | 23 | 53 | 24.5 | -- | 2118.2 | 2118.3 | -0.1 |
| 32800 | 4.7 | BDN1SPRC | SUPER | 20 | 48 | 27.1 | -- | 2122.7 | 2123.3 | -0.6 |
| 32900 | 4.9 | BDN1SUBC | SUB | 21 | 102 | 12.6 | -- | 2129.8 | 2129.8 | 0.0 |
| 33000 | 5.0 | BDN1SUBC | SUB | 30 | 128 | 10.1 | 2136.0 | 2131.3 | 2131.3 | 0.0 |
| 33100 | 5.5 | BDN1SUBC | SUB | 128 | 189 | 6.8 | 2142.2 | 2145.5 | 2144.5 | 1.0 |
| 33200 | 5.9 | BDN1SUBC | SUB | 32 | 128 | 10.0 | 2148.3 | 2151.2 | 2150.3 | 0.9 |
| 33300 | 6.3 | BDN1SUBC | SUB | 46 | 167 | 7.7 | 2153.9 | 2155.4 | 2154.4 | 1.0 |
| 33400 | 6.6 | BDN1SUBC | SUB | 90 | 167 | 7.7 | 2160.2 | 2160.5 | 2160.3 | 0.2 |
| 33500 | 6.6 | BDN1SUBC | SUB | 100 | 221 | 5.8 | 2160.5 | 2161.2 | 2160.8 | 0.4 |
| 33600 | 6.7 | BDN1SUBC | SUB | 160 | 265 | 4.9 | 2161.0 | 2161.7 | 2160.9 | 0.8 |
| 33700 | 7.1 | BDN1SUBC | SUB | 62 | 224 | 5.8 | 2165.8 | 2165.1 | 2164.3 | 0.8 |
| 33800 | 7.5 | BDN1SUBC | SUB | 32 | 117 | 11.0 | 2171.5 | 2169.6 | 2169.7 | -0.1 |
| 33900 | 7.9 | BDN1SUBC | SUB | 50 | 156 | 8.3 | 2175.5 | 2175.1 | 2174.8 | 0.3 |
| 34000 | 8.0 | BDN1SUBC | SUB | 90 | 168 | 7.7 | 2177.8 | 2177.9 | 2177.5 | 0.4 |
| 34100 | 8.0 | BDN1SUBC | SUB | 100 | 296 | 4.4 | 2178.8 | 2179.0 | 2178.1 | 0.9 |
| 34200 | 8.3 | BDN1SUBC | SUB | 36 | 129 | 10.0 | 2181.7 | 2180.7 | 2181.1 | -0.4 |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 34300 | 8.7 | BDN1SUBC | SUB | 41 | 200 | 6.5 | 2185.5 | 2184.9 | 2184.1 | 0.8 |
| 34400 | 9.1 | BDN1SUBC | SUB | 43 | 129 | 10.0 | 2186.4 | 2189.5 | 2189.6 | -0.1 |
| 34500 | 9.5 | BDN1SUBC | SUB | 82 | 226 | 5.7 | 2192.3 | 2194.7 | 2194.1 | 0.6 |
| 34600 | 9.9 | BDN1SUBC | SUB | 39 | 153 | 8.4 | 2195.0 | 2197.2 | 2196.6 | 0.6 |
| 34700 | 10.2 | BDN1SUBC | SUB | 63 | 148 | 8.7 | 2202.9 | 2202.3 | 2201.7 | 0.6 |
| 34800 | 10.3 | BDN1SUBC | SUB | 70 | 153 | 8.4 | 2205.0 | 2206.2 | 2206.0 | 0.2 |
| 34900 | 10.5 | BDN1SUBC | SUB | 48 | 142 | 9.1 | 2206.7 | 2207.0 | 2206.3 | 0.7 |
| 35000 | 10.7 | BDN1SUBC | SUB | 98 | 236 | 5.5 | 2207.9 | 2210.3 | 2209.5 | 0.8 |
| 35100 | 10.8 | BDN1SUBC | SUB | 70 | 195 | 6.6 | 2209.0 | 2211.0 | 2210.6 | 0.4 |
| 35200 | 11.0 | BDN1SUBC | SUB | 37 | 197 | 6.5 | 2210.6 | 2212.1 | 2212.1 | 0.0 |
| 35300 | 11.0 | BDN1SPRC | SUPER | 37 | 70 | 18.3 | 2210.7 | 2209.1 | 2209.1 | 0.0 |
| 35400 | 11.3 | BDN1SPRC | SUPER | 29 | 75 | 17.2 | 2213.0 | 2213.0 | 2213.0 | 0.0 |
| 35500 | 11.5 | BDN1SPRC | SUPER | 29 | 75 | 17.2 | 2214.8 | 2214.7 | 2214.7 | 0.0 |
| 35600 | 11.6 | BDN1SPRC | SUPER | 29 | 77 | 16.8 | 2216.2 | 2215.8 | 2215.8 | 0.0 |
| 35700 | 11.7 | BDN1SPRC | SUPER | 29 | 73 | 17.6 | 2216.7 | 2216.1 | 2216.1 | 0.0 |
| 35800 | 11.9 | BDN1SPRC | SUPER | 29 | 75 | 17.3 | 2221.3 | 2218.9 | 2218.9 | 0.0 |
| 35900 | 12.1 | BDN1SPRC | SUPER | 26 | 55 | 23.5 | 2223.4 | 2218.5 | 2218.5 | 0.0 |
| 36000 | 12.2 | BDN1SPRC | SUPER | 22 | 63 | 20.5 | 2225.0 | 2223.3 | 2223.3 | 0.0 |
| 36100 | 12.4 | BDN1SUBC | SUB | 22 | 102 | 12.6 | 2228.5 | 2229.7 | 2232.1 | -2.4 |
| 36200 | 12.5 | BDN1SUBC | SUB | 48 | 234 | 5.5 | 2233.0 | 2232.2 | 2232.3 | -0.1 |
| 36300 | 12.7 | BDN1SUBC | SUB | 48 | 176 | 7.3 | 2234.2 | 2232.5 | 2232.6 | -0.1 |
| 36400 | 13.1 | BDN1SUBC | SUB | 50 | 137 | 9.4 | 2238.8 | 2238.8 | 2238.2 | 0.6 |
| 36500 | 13.5 | BDN1SUBC | SUB | 68 | 210 | 6.1 | 2242.4 | 2243.1 | 2242.3 | 0.8 |
| 36600 | 13.9 | BDN1SUBC | SUB | 108 | 217 | 6.0 | 2245.6 | 2246.0 | 2245.4 | 0.6 |
| 36700 | 14.3 | BDN1SUBC | SUB | 41 | 130 | 9.9 | 2250.0 | 2251.3 | 2250.8 | 0.5 |
| 36800 | 14.7 | BDN1SUBC | SUB | 43 | 176 | 7.3 | 2255.4 | 2256.1 | 2255.3 | 0.8 |
| 36900 | 15.1 | BDN1SUBC | SUB | 32 | 119 | 10.8 | 2260.1 | 2260.5 | 2259.9 | 0.6 |
| 37000 | 15.3 | BDN1SUBC | SUB | 12 | 85 | 15.2 | 2264.0 | 2265.0 | 2265.0 | 0.0 |
| 37100 | 15.5 | BDN1SUBC | SUB | 12 | 89 | 14.5 | -- | 2267.7 | 2267.7 | 0.0 |
| 37200 | 15.7 | BDN1SUBC | SUB | 801 | 2127 | 0.6 | -- | 2271.2 | 2271.2 | 0.0 |
| 37300 | 15.9 | BDN1SUBC | SUB | 481 | 1517 | 0.2 | -- | 2271.3 | 2271.3 | 0.0 |
| 37400 | 16.1 | BDN1SUBC | SUB | 153 | 303 | 0.8 | -- | 2271.3 | 2271.3 | 0.0 |
| 37500 | 16.3 | BDN1SUBC | SUB | 47 | 127 | 1.9 | -- | 2271.3 | 2271.3 | 0.0 |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 37600 | 16.3 | BDN1SUBC | SUB | 72 | 51 | 4.8 | -- | 2273.0 | 2273.0 | 0.0 |
| 37700 | 16.4 | BDN1SUBC | SUB | 112 | 87 | 2.8 | -- | 2273.2 | 2273.2 | 0.0 |
| 37800 | 16.5 | BDN1SUBC | SUB | 22 | 35 | 7.0 | -- | 2275.2 | 2275.2 | 0.0 |
| 37900 | 16.7 | BDN1SUBC | SUB | 124 | 118 | 2.1 | -- | 2277.4 | 2277.4 | 0.0 |
| 38000 | 17.1 | BDN1SUBC | SUB | 21 | 34 | 7.2 | -- | 2282.7 | 2282.7 | 0.0 |
| 38100 | 17.5 | BDN1SUBC | SUB | 27 | 53 | 4.6 | -- | 2287.8 | 2287.8 | 0.0 |
| 38200 | 17.8 | BDN1SUBC | SUB | 92 | 80 | 3.1 | -- | 2290.0 | 2290.0 | 0.0 |
| 38300 | 18.2 | BDN1SUBC | SUB | 67 | 61 | 4.0 | -- | 2293.0 | 2293.0 | 0.0 |
| 38400 | 18.5 | BDN1SUBC | SUB | 81 | 61 | 4.0 | -- | 2296.5 | 2296.5 | 0.0 |
| 38500 | 18.5 | BDN1SUBC | SUB | 79 | 55 | 4.4 | -- | 2297.2 | 2297.2 | 0.0 |
| 38600 | 18.8 | BDN1SUBC | SUB | 1023 | 1862 | 0.1 | -- | 2297.6 | 2297.6 | 0.0 |
| 38700 | 19.1 | BDN1SUBC | SUB | 314 | 86 | 2.9 | -- | 2299.6 | 2299.6 | 0.0 |
| 38800 | 19.6 | BDN1SUBC | SUB | 493 | 181 | 1.4 | -- | 2303.8 | 2303.8 | 0.0 |
| 38900 | 19.9 | BDN1SUBC | SUB | 86 | 65 | 3.8 | -- | 2313.1 | 2313.1 | 0.0 |
| 39000 | 20.3 | BDN1SUBC | SUB | 169 | 74 | 3.3 | -- | 2320.4 | 2320.4 | 0.0 |
| 39100 | 20.7 | BDN1SUBC | SUB | 79 | 58 | 4.2 | -- | 2325.3 | 2325.3 | 0.0 |
| 39200 | 21.0 | BDN1SUBC | SUB | 122 | 67 | 3.6 | -- | 2329.5 | 2329.5 | 0.0 |
| 39300 | 21.6 | BDN1SUBC | SUB | 107 | 72 | 3.4 | -- | 2337.2 | 2337.2 | 0.0 |
| 39400 | 21.9 | BDN1SUBC | SUB | 83 | 66 | 3.7 | -- | 2341.6 | 2341.6 | 0.0 |
| 39500 | 22.3 | BDN1SUBC | SUB | 111 | 62 | 3.9 | -- | 2347.9 | 2347.9 | 0.0 |
| 39600 | 22.7 | BDN1SUBC | SUB | 396 | 135 | 1.8 | -- | 2352.4 | 2352.4 | 0.0 |
| 39700 | 23.1 | BDN1SUBC | SUB | 141 | 64 | 3.8 | -- | 2357.2 | 2357.2 | 0.0 |
| 39800 | 23.5 | BDN1SUBC | SUB | 89 | 73 | 3.3 | -- | 2363.6 | 2363.6 | 0.0 |
| 39900 | 23.9 | BDN1SUBC | SUB | 150 | 75 | 3.2 | -- | 2368.6 | 2368.6 | 0.0 |
| 40000 | 24.3 | BDN1SUBC | SUB | 168 | 74 | 3.3 | -- | 2375.0 | 2375.0 | 0.0 |
| 40100 | 24.6 | BDN1SUBC | SUB | 173 | 118 | 2.1 | -- | 2377.2 | 2377.2 | 0.0 |
| 40200 | 25.1 | BDN1SUBC | SUB | 148 | 76 | 3.2 | -- | 2380.9 | 2380.9 | 0.0 |
| 40300 | 25.5 | BDN1SUBC | SUB | 22 | 39 | 6.3 | -- | 2387.5 | 2387.5 | 0.0 |
| 40400 | 25.9 | BDN1SUBC | SUB | 17 | 50 | 4.9 | -- | 2391.3 | 2391.3 | 0.0 |
| 40500 | 26.3 | BDN1SUBC | SUB | 36 | 41 | 5.9 | -- | 2397.5 | 2397.5 | 0.0 |
| 40600 | 26.5 | BDN1SUBC | SUB | 36 | 49 | 5.0 | -- | 2401.5 | 2401.5 | 0.0 |
| 40700 | 26.7 | BDN1SUBC | SUB | 32 | 53 | 4.6 | -- | 2403.2 | 2403.2 | 0.0 |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 40900 | 0.0 | BDM3SPRC | SUPER | 25 | 65 | 22.6 | -- | 2101.5 | 2101.5 | 0.0 |
| 41000 | 0.4 | BDM3SPRC | SUPER | 25 | 64 | 22.9 | -- | 2108.1 | 2108.0 | 0.0 |
| 41100 | 0.6 | BDM3SPRC | SUPER | 26 | 69 | 21.1 | -- | 2112.4 | 2112.4 | 0.0 |
| 41200 | 0.7 | BDM3SPRC | SUPER | 25 | 63 | 23.3 | -- | 2112.2 | 2112.2 | 0.0 |
| 41300 | 0.9 | BDM3SPRC | SUPER | 25 | 68 | 21.5 | -- | 2116.6 | 2116.6 | 0.0 |
| 41400 | 1.1 | BDM3SPRC | SUPER | 25 | 68 | 21.6 | -- | 2119.2 | 2119.2 | 0.0 |
| 41500 | 1.5 | BDM3SPRC | SUPER | 24 | 62 | 23.5 | -- | 2124.5 | 2124.5 | 0.0 |
| 41600 | 1.7 | BDM3SPRC | SUPER | 24 | 58 | 25.1 | -- | 2127.7 | 2127.7 | 0.0 |
| 41700 | 1.7 | BDM3SPRC | SUPER | 23 | 55 | 26.4 | -- | 2128.1 | 2128.1 | 0.0 |
| 41800 | 2.0 | BDM3SPRC | SUPER | 23 | 52 | 27.9 | -- | 2133.9 | 2133.9 | 0.0 |
| 41900 | 2.3 | BDM3SPRC | SUPER | 12 | 55 | 26.7 | -- | 2143.4 | 2143.4 | 0.0 |
| 42000 | 3.0 | BDM3SUBC | SUB | 12 | 93 | 15.8 | 2178.0 | 2169.0 | 2169.0 | 0.0 |
| 42100 | 3.1 | BDM3SUBC | SUB | 38 | 149 | 9.8 | 2178.7 | 2175.0 | 2175.0 | 0.0 |
| 42200 | 3.6 | BDM3SUBC | SUB | 81 | 174 | 8.4 | 2186.0 | 2185.9 | 2185.4 | 0.5 |
| 42300 | 3.7 | BDM3SUBC | SUB | 128 | 392 | 3.7 | 2186.0 | 2186.9 | 2186.0 | 0.9 |
| 42400 | 3.9 | BDM3SUBC | SUB | 41 | 139 | 10.5 | 2188.7 | 2189.5 | 2189.5 | 0.0 |
| 42500 | 4.3 | BDM3SUBC | SUB | 83 | 258 | 5.7 | 2195.0 | 2194.3 | 2193.3 | 1.0 |
| 42600 | 4.3 | BDM3SUBC | SUB | 81 | 177 | 8.3 | 2195.0 | 2194.2 | 2193.9 | 0.3 |
| 42700 | 4.7 | BDM3SUBC | SUB | 142 | 210 | 6.9 | 2198.3 | 2197.8 | 2197.8 | 0.0 |
| 42800 | 5.0 | BDM3SUBC | SUB | 124 | 274 | 5.3 | 2202.3 | 2201.7 | 2201.5 | 0.2 |
| 42900 | 5.1 | BDM3SUBC | SUB | 121 | 587 | 2.5 | 2202.3 | 2202.1 | 2201.7 | 0.4 |
| 43000 | 5.4 | BDM3SUBC | SUB | 114 | 252 | 5.8 | 2206.2 | 2206.7 | 2206.8 | -0.1 |
| 43100 | 5.7 | BDM3SUBC | SUB | 235 | 422 | 3.5 | 2209.6 | 2209.6 | 2209.0 | 0.6 |
| 43200 | 5.8 | BDM3SUBC | SUB | 160 | 253 | 5.8 | 2210.0 | 2210.6 | 2210.6 | 0.0 |
| 43300 | 6.0 | BDM3SUBC | SUB | 128 | 326 | 4.5 | 2212.0 | 2212.5 | 2212.5 | 0.0 |
| 43400 | 6.4 | BDM3SUBC | SUB | 137 | 247 | 5.9 | 2215.6 | 2215.0 | 2214.9 | 0.1 |
| 43500 | 6.4 | BDM3SUBC | SUB | 159 | 307 | 4.8 | 2216.0 | 2215.6 | 2215.6 | 0.0 |
| 43600 | 6.7 | BDM3SUBC | SUB | 132 | 205 | 7.1 | 2219.5 | 2218.6 | 2218.6 | 0.0 |
| 43700 | 7.1 | BDM3SUBC | SUB | 128 | 355 | 4.1 | 2224.0 | 2221.4 | 2221.4 | 0.0 |
| 43800 | 7.1 | BDM3SUBC | SUB | 135 | 206 | 7.1 | 2224.0 | 2222.3 | 2222.3 | 0.0 |
| 43900 | 7.5 | BDM3SUBC | SUB | 119 | 289 | 5.1 | 2228.5 | 2226.4 | 2226.4 | 0.0 |
| 44000 | 7.7 | BDM3SUBC | SUB | 95 | 184 | 8.0 | 2231.0 | 2229.5 | 2229.4 | 0.1 |
| 44100 | 7.8 | BDM3SUBC | SUB | 66 | 243 | 6.0 | 2231.0 | 2231.3 | 2230.8 | 0.5 |

| HEC-2 MODELING | | | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HEC-2 CROSS SECTION | DISTANCE BASE LINE (x1000 FT) | HEC-2 MODEL | FLOW REGIME | WIDTH (FT) | AREA (SQ. FT) | V (FPS) | REGULATORY WSE (FT) | FLOODWAY WSE (FT) | W/O FLOODWAY WSE (FT) | DIFFERENCE WSE (FT) |
| 44200 | 8.0 | BDM3SUBC | SUB | 143 | 415 | 3.5 | 2231.7 | 2232.7 | 2232.0 | 0.7 |
| 44300 | 8.3 | BDM3SUBC | SUB | 31 | 127 | 11.5 | 2233.0 | 2235.7 | 2235.7 | 0.0 |
| 44400 | 8.5 | BDM3SUBC | SUB | 31 | 156 | 9.4 | 2238.0 | 2238.1 | 2238.1 | 0.0 |
| 44500 | 8.7 | BDM3SUBC | SUB | 79 | 323 | 4.5 | 2239.5 | 2239.6 | 2239.7 | -0.1 |
| 44600 | 9.1 | BDM3SUBC | SUB | 52 | 150 | 9.8 | 2241.9 | 2241.9 | 2241.8 | 0.1 |
| 44700 | 9.4 | BDM3SUBC | SUB | 49 | 208 | 7.0 | 2243.8 | 2245.8 | 2245.0 | 0.8 |
| 44800 | 9.9 | BDM3SUBC | SUB | 128 | 225 | 6.5 | 2246.4 | 2249.4 | 2249.2 | 0.2 |
| 44900 | 10.0 | BDM3SUBC | SUB | 135 | 416 | 3.5 | 2247.5 | 2251.0 | 2250.3 | 0.7 |
| 45000 | 10.5 | BDM3SUBC | SUB | 47 | 146 | 10.0 | 2253.3 | 2255.1 | 2254.2 | 0.9 |
| 45100 | 11.0 | BDM3SUBC | SUB | 59 | 157 | 9.3 | 2261.7 | 2261.6 | 2261.1 | 0.5 |
| 45200 | 11.0 | BDM3SUBC | SUB | 37 | 146 | 10.0 | 2264.6 | 2262.0 | 2261.7 | 0.3 |
| 45300 | 11.3 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2264.7 | 0.0 |
| 45400 | 11.5 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2266.3 | 0.0 |
| 45500 | 11.7 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2268.4 | 0.0 |
| 45600 | 12.0 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2270.4 | 0.0 |
| 45700 | 12.2 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2271.5 | 0.0 |
| 45800 | 12.4 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2273.0 | 0.0 |
| 45900 | 12.8 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2276.5 | 0.0 |
| 46000 | 12.9 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2281.1 | 0.0 |
| 46100 | 13.1 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2284.7 | 0.0 |
| 46200 | 13.3 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2288.6 | 0.0 |
| 46300 | 13.5 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2291.9 | 0.0 |
| 46400 | 13.8 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2295.9 | 0.0 |
| 46500 | 13.9 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2296.9 | 0.0 |
| 46600 | 14.1 | BDM3SUBC | SUB | -- | -- | -- | -- | -- | 2299.3 | 0.0 |

HEC-2 CROSS SECTION ID

31000 31100 31200 31300 31400 31500 31600 31700 31800 31900 32000 32100 32200 32300 32400 32500 32600 32700 32800 32900 33000

ELEVATION (FEET, NGVD 29)

2206 2202 2198 2194 2190 2186 2182 2178 2174 2170 2166 2162 2158 2154 2150 2146 2142 2138 2134 2130 2126 2122 2118 2114 2110 2106 2102 2098 2094 2090 2086 2082 2078 2074 2070

DUCK CREEK CONFLUENCE

PARADISE RD.

ROBINDALE RD.

AMIGO ST.

0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00 52+00

DISTANCE (FEET)

LEGEND

- - - WATER SURFACE ELEVATION (100-YR)
——— CHANNEL INVERT ELEVATION

HORIZONTAL SCALE: 1 IN = 400 FT
VERTICAL SCALE: 1 IN = 20 FT

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

FLOOD PROFILES

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

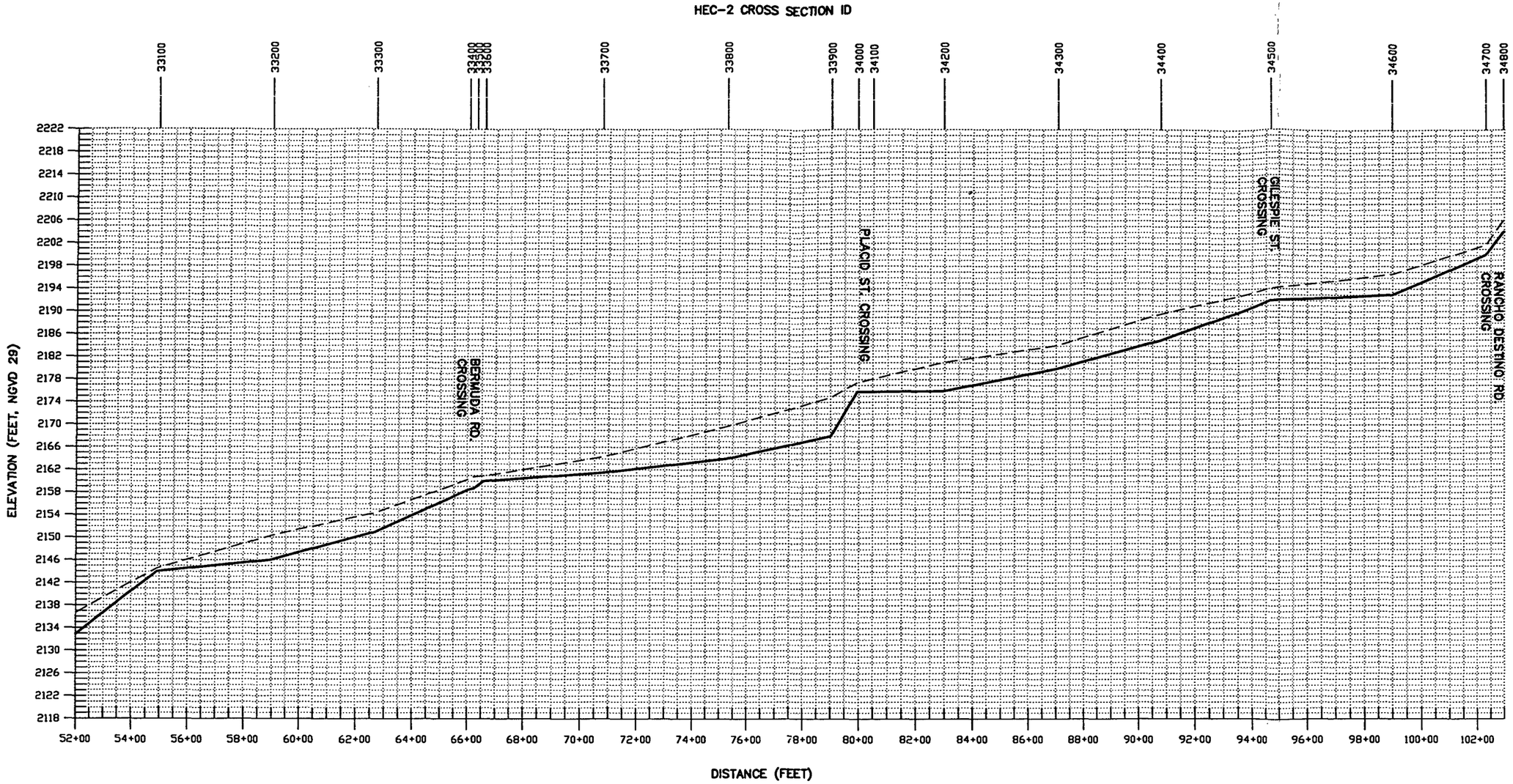
CLARK COUNTY, NEVADA
NORTH BRANCH BLUE DIAMOND WASH

SHEET

PR-1

1 OF 3 SHTS

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LEGEND
- - - WATER SURFACE ELEVATION (100-YR)
——— CHANNEL INVERT ELEVATION

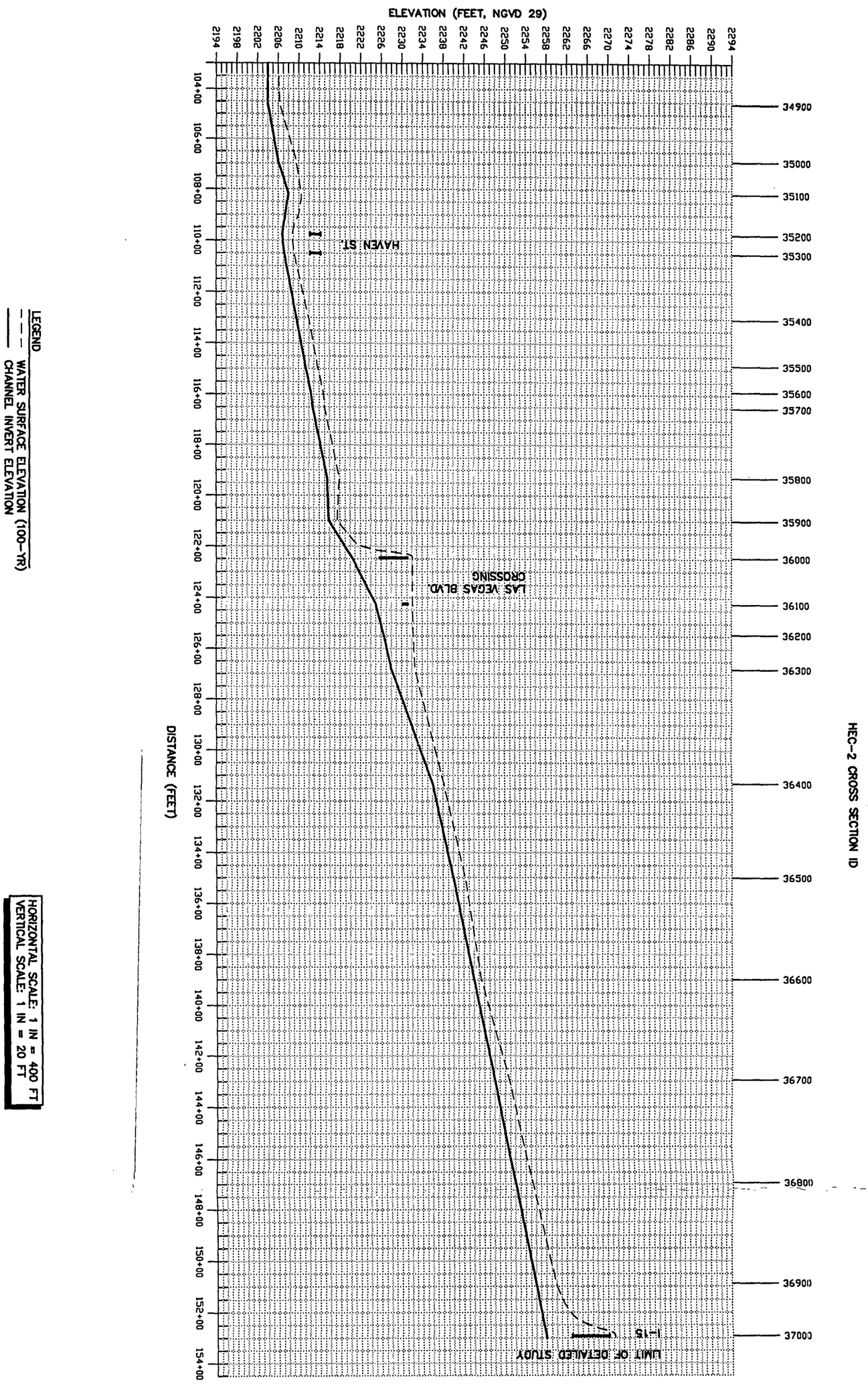
HORIZONTAL SCALE: 1 IN = 400 FT
VERTICAL SCALE: 1 IN = 20 FT

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FLOOD PROFILES
DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
CLARK COUNTY, NEVADA
NORTH BRANCH BLUE DIAMOND WASH

SHEET
PR-2
2 OF 3 SHTS

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# FLOOD PROFILES

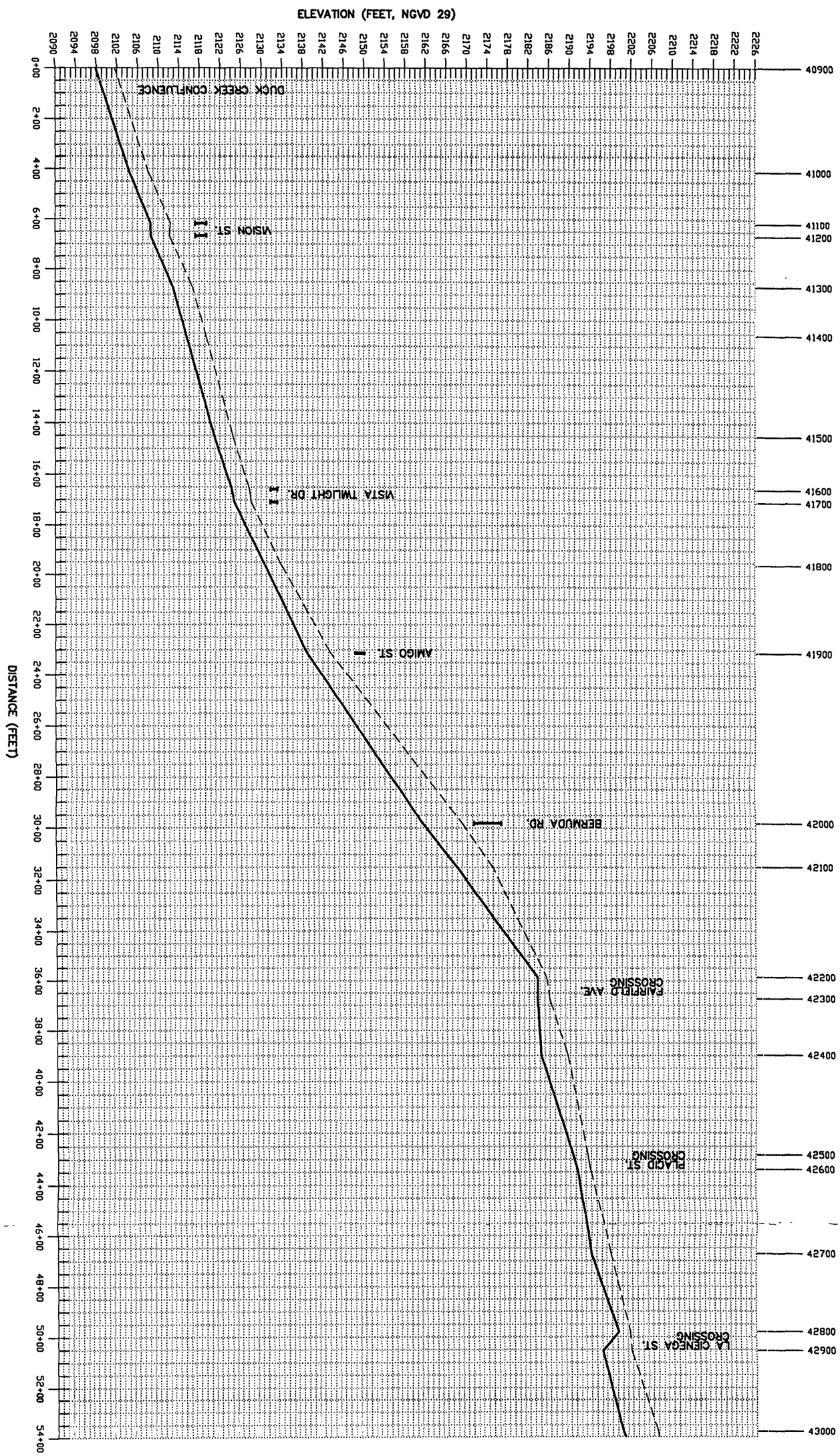
## DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## CLARK COUNTY, NEVADA

## NORTH BRANCH BLUE DIAMOND WASH

SHEET **PR-3** 3 OF 3 SHTS

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299




# FLOOD PROFILES

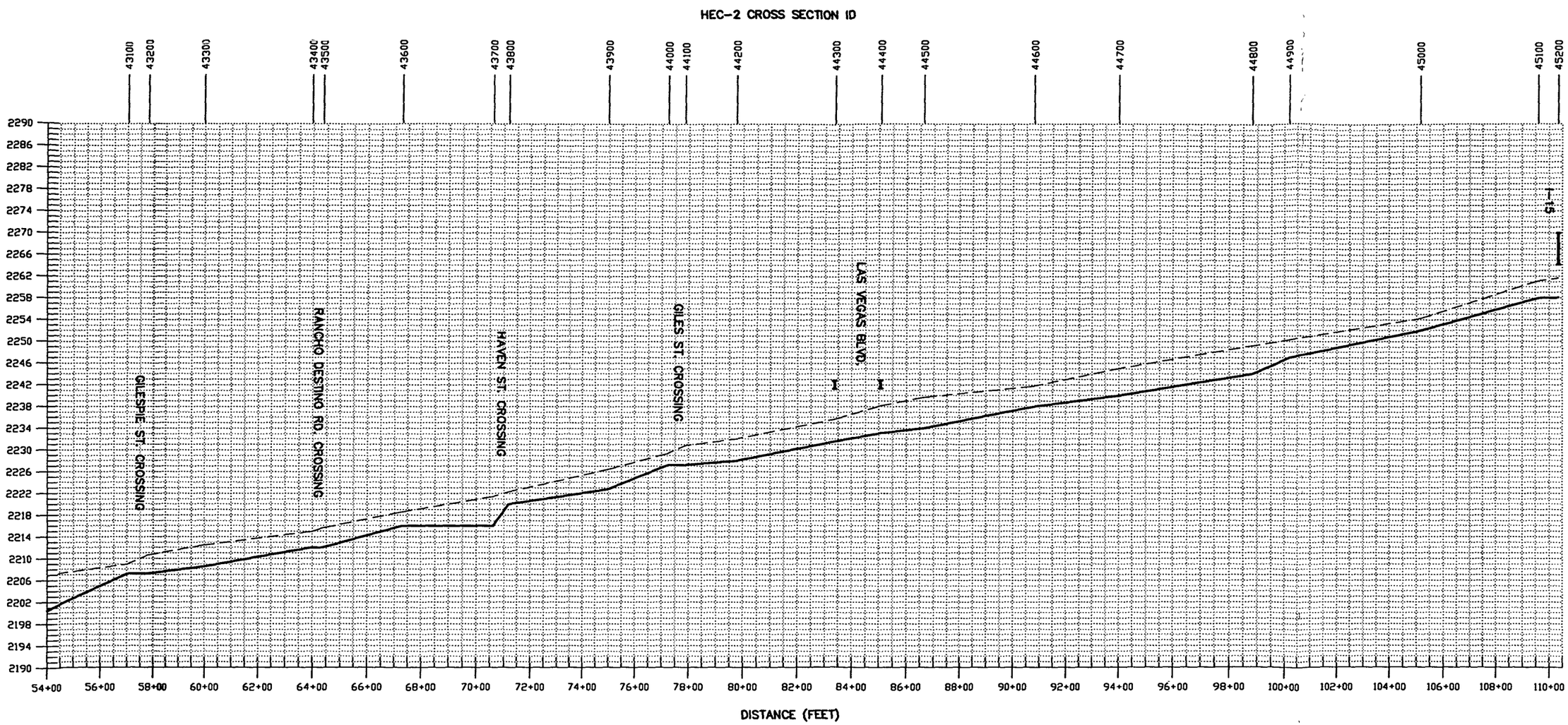
## DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

## CLARK COUNTY, NEVADA

## MIDDLE BRANCH BLUE DIAMOND WASH

SHEET **PR-4** 1 OF 2 SHTS

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299




LEGEND
- – – WATER SURFACE ELEVATION (100-YR)
- ——— CHANNEL INVERT ELEVATION

HORIZONTAL SCALE: 1 IN = 400 FT
VERTICAL SCALE: 1 IN = 20 FT

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

# FLOOD PROFILES

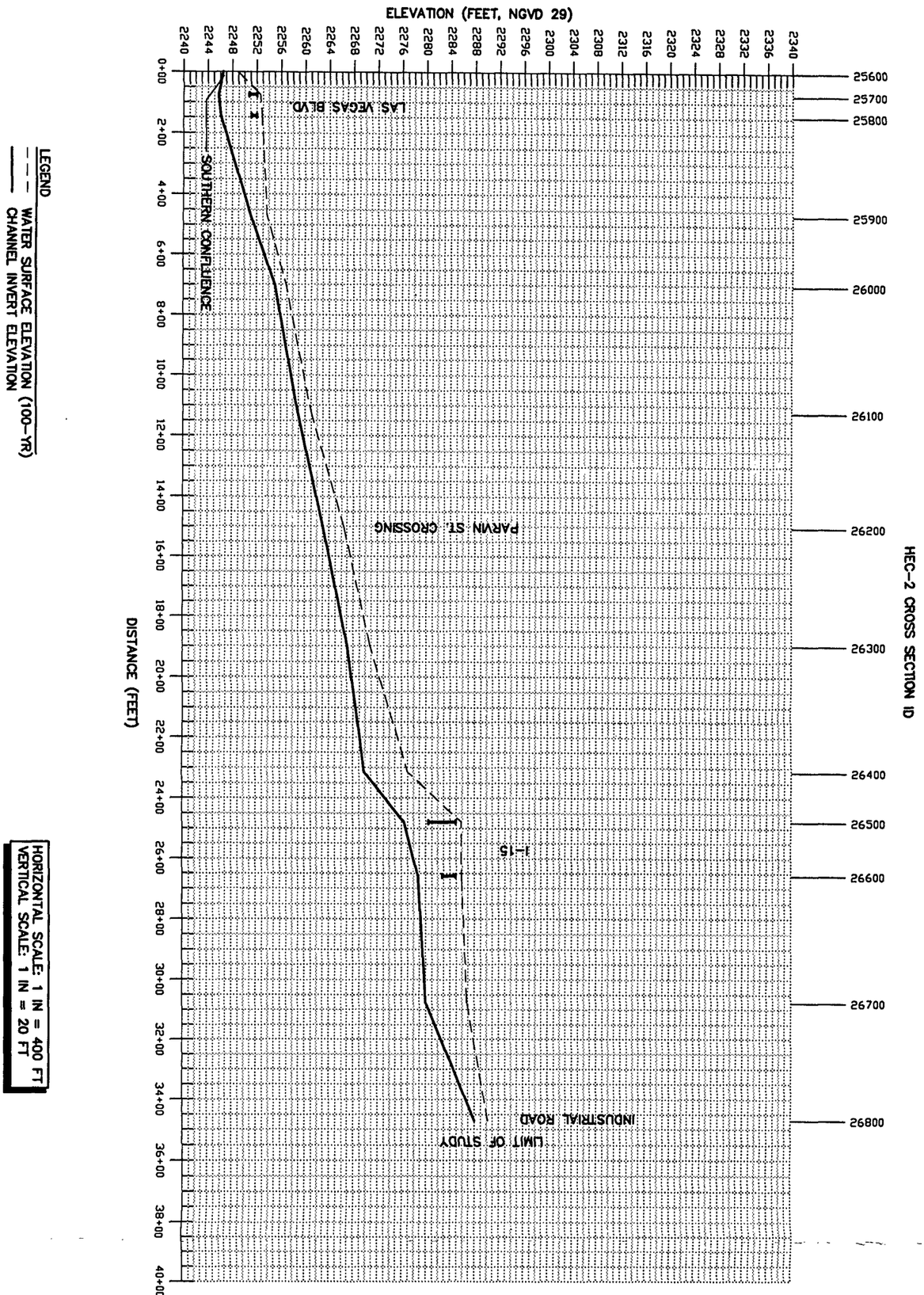
## DUCK CREEK/ BLUE DIAMOND WASHES FRS RESTUDY

CLARK COUNTY, NEVADA

MIDDLE BRANCH BLUE DIAMOND WASH

SHEET
PR-5
2 OF 2 SHTS

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# FLOOD PROFILES

## DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

CLARK COUNTY, NEVADA

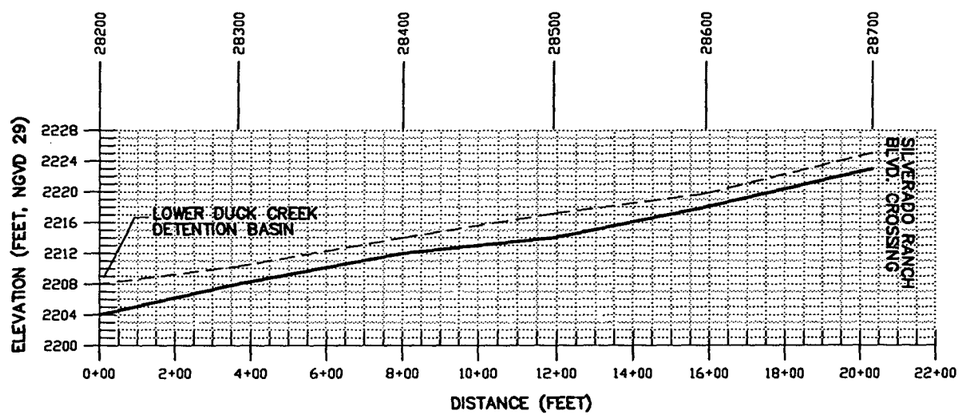
DUCK CREEK

SHEET PR-6

1 OF 1 SHTS

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

HEC-2 CROSS SECTION ID




LEGEND
- – – WATER SURFACE ELEVATION (100-YR)
——— CHANNEL INVERT ELEVATION

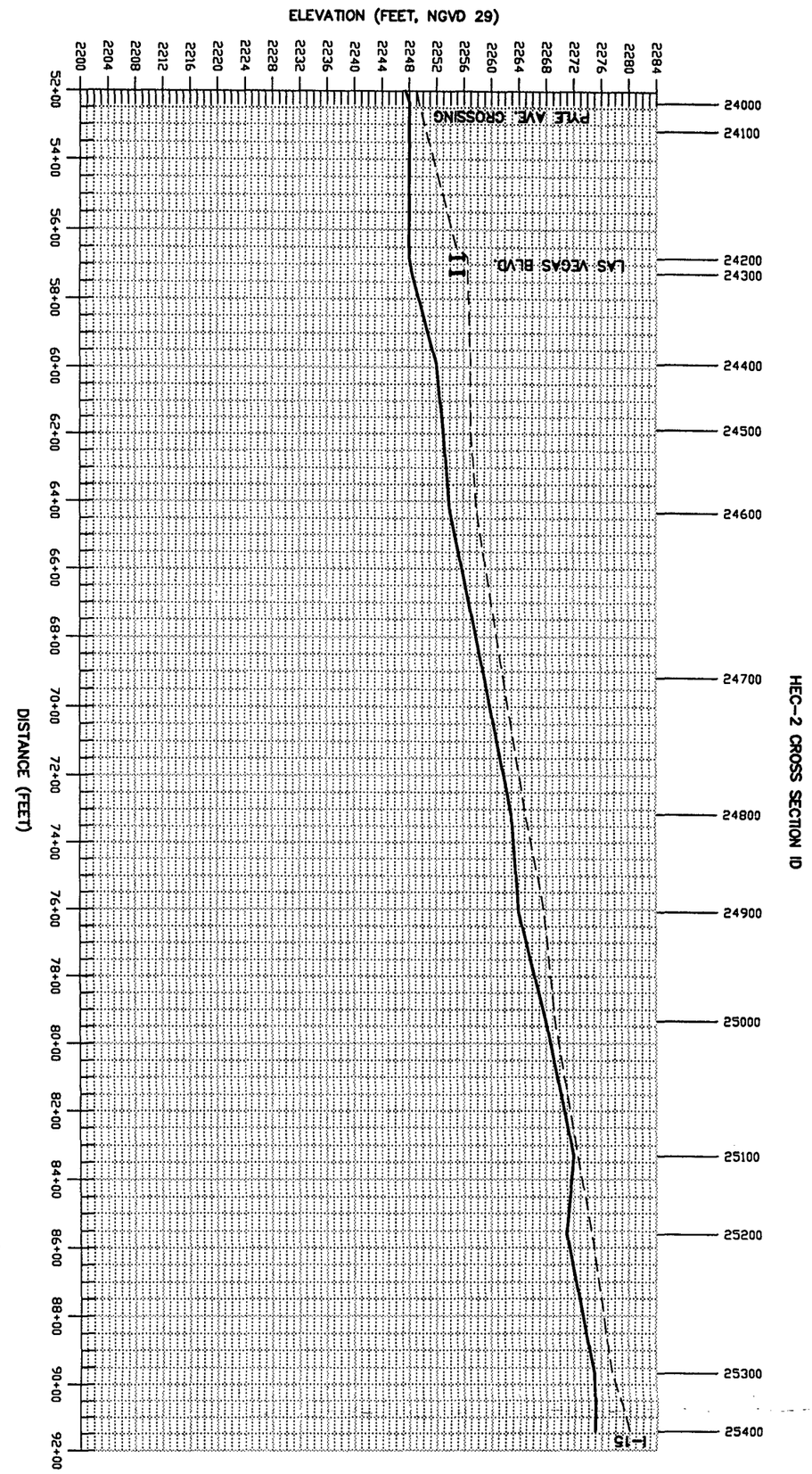
HORIZONTAL SCALE: 1 IN = 400 FT
VERTICAL SCALE: 1 IN = 20 FT

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
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FLOOD PROFILES
DUCK CREEK/ BLUE DIAMOND WASHES FRS RESTUDY
CLARK COUNTY, NEVADA
DUCK CREEK - SOUTH CHANNEL

SHEET
PR-7
1 OF 1 SHTS

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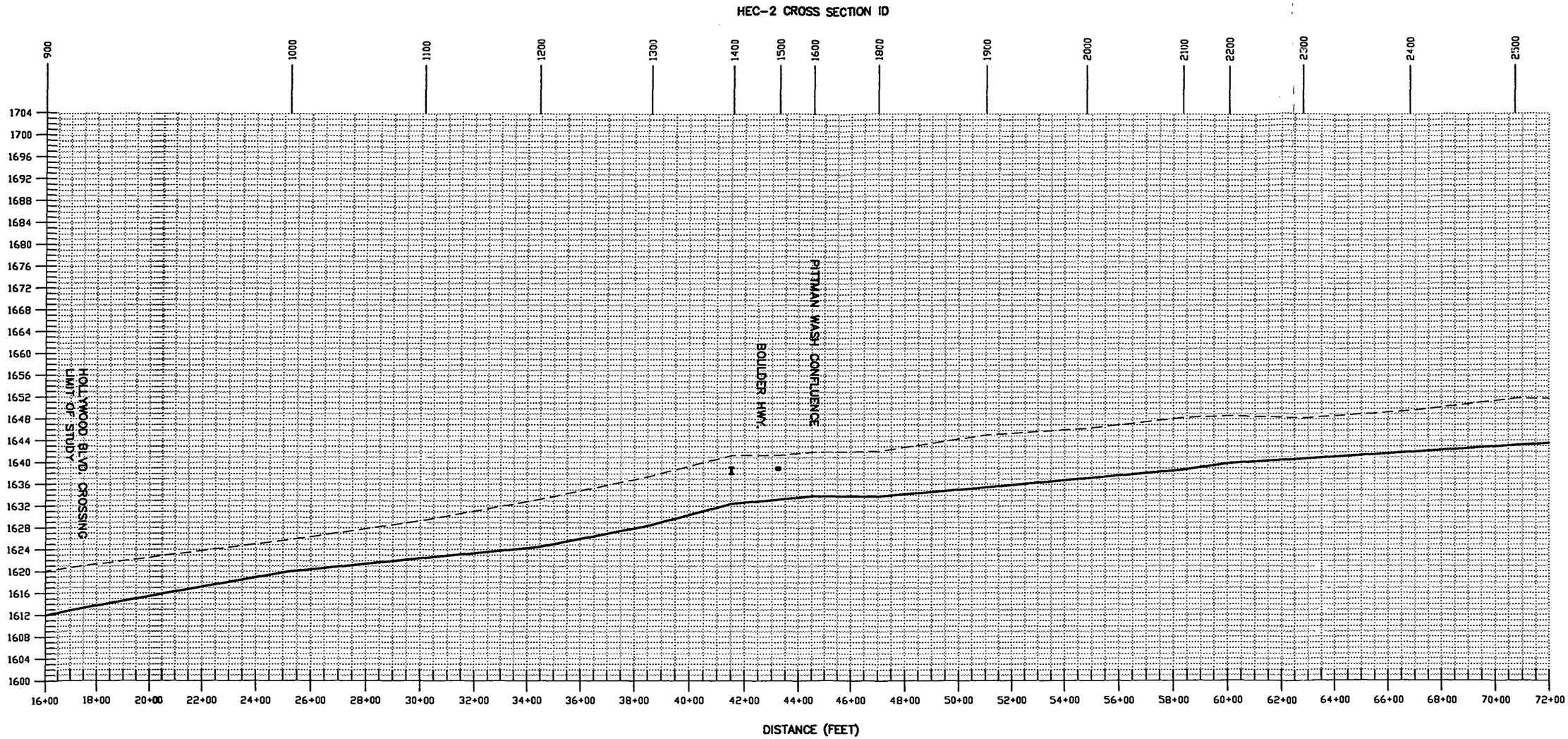

LEGEND
WATER SURFACE ELEVATION (100-YR)
CHANNEL INVERT ELEVATION

HORIZONTAL SCALE: 1 IN = 400 FT
VERTICAL SCALE: 1 IN = 20 FT

# FLOOD PROFILES
## DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
## CLARK COUNTY, NEVADA
## DUCK CREEK

SHEET PR-9 2 OF 2 SHTS

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299




LEGEND
- - - - WATER SURFACE ELEVATION (100-YR)
——— CHANNEL INVERT ELEVATION

HORIZONTAL SCALE: 1 IN = 400 FT
VERTICAL SCALE: 1 IN = 20 FT

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

FLOOD PROFILES
DUCK CREEK/ BLUE DIAMOND WASHES FRS RESTUDY
CLARK COUNTY, NEVADA
DUCK CREEK

SHEET
PR-10
1 OF 10 SHTS

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HEC-2 CROSS SECTION ID

2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500

ELEVATION (FEET, NGVD 29)

1744 1740 1736 1732 1728 1724 1720 1716 1712 1708 1704 1700 1696 1692 1688 1684 1680 1676 1672 1668 1664 1660 1656 1652 1648 1644 1640 1636 1632 1628 1624 1620 1616 1612 1608 1604 1600

STEPHANIE ST.

DROP STRUCTURE

DROP STRUCTURE

72+00 74+00 76+00 78+00 80+00 82+00 84+00 86+00 88+00 90+00 92+00 94+00 96+00 98+00 100+00 102+00 104+00 106+00 108+00 110+00 112+00 114+00 116+00 118+00 120+00 122+00 124+00 126+00 128+00

DISTANCE (FEET)

LEGEND

- - - WATER SURFACE ELEVATION (100-YR)

——— CHANNEL INVERT ELEVATION

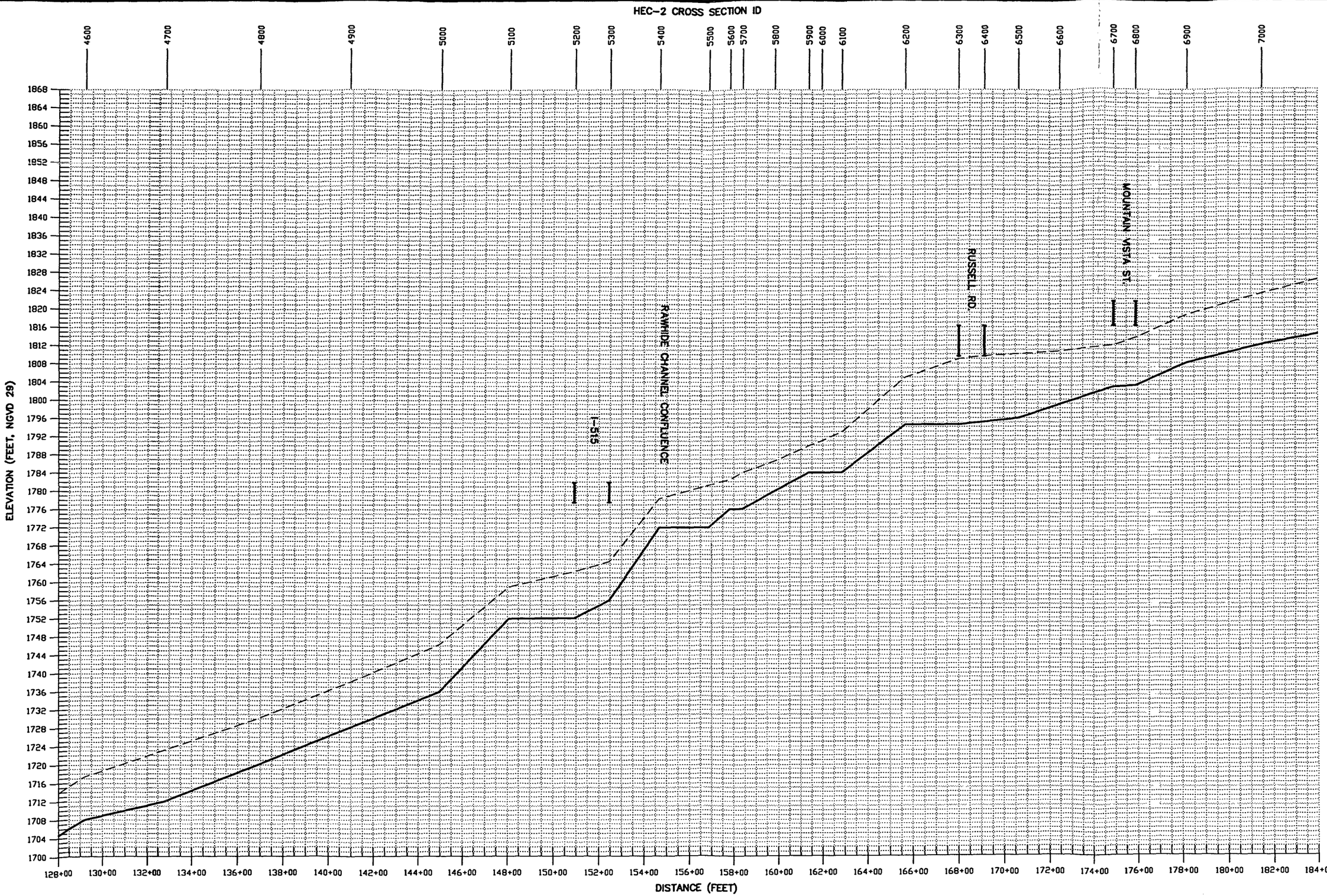
HORIZONTAL SCALE: 1 IN = 400 FT
VERTICAL SCALE: 1 IN = 20 FT

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

FLOOD PROFILES
DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
CLARK COUNTY, NEVADA
DUCK CREEK

SHEET
PR-11
2 OF 10 SHTS

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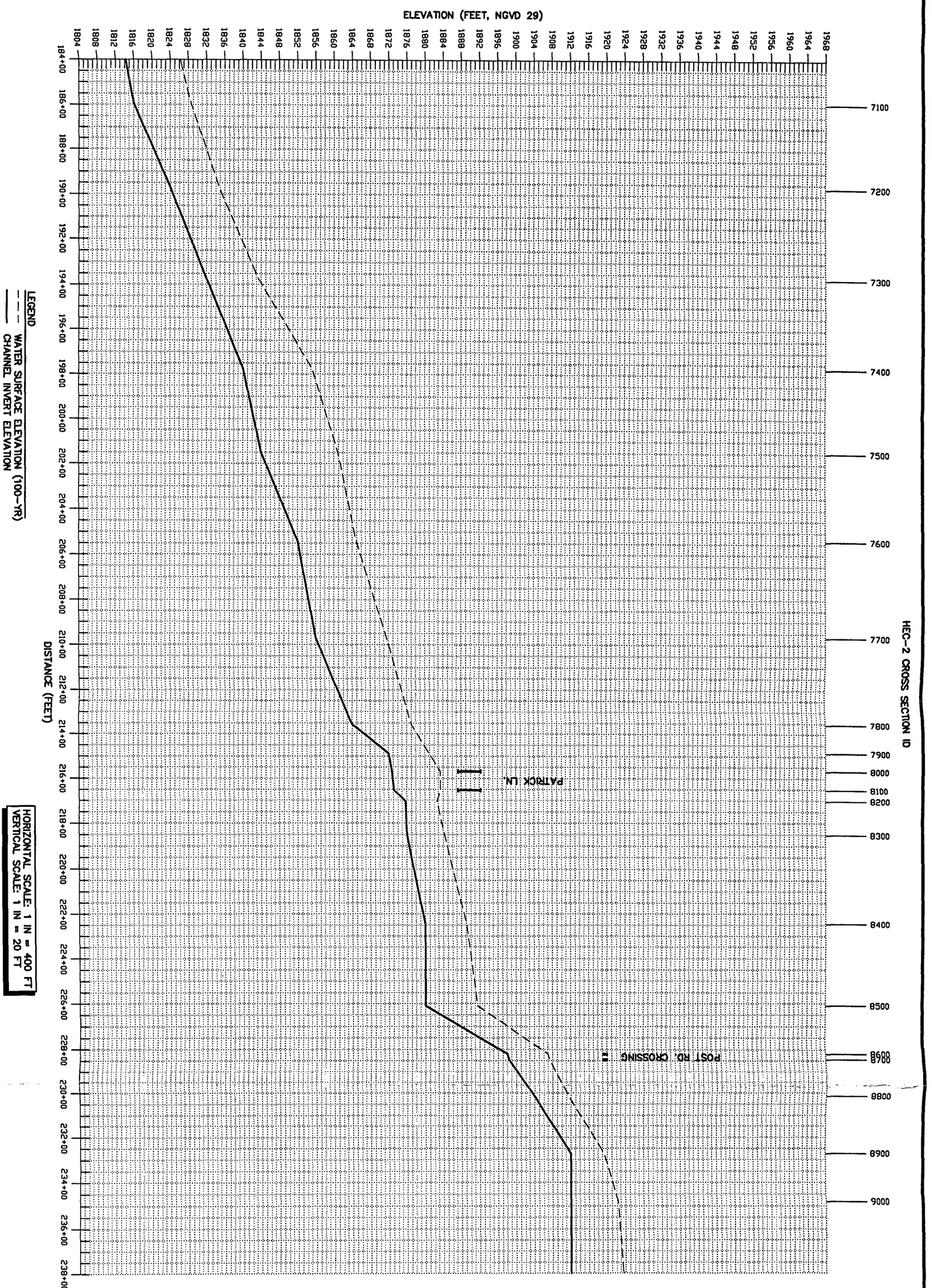



G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

FLOOD PROFILES
DUCK CREEK/ BLUE DIAMOND WASHES FRS RESTUDY
CLARK COUNTY, NEVADA
DUCK CREEK

SHEET
PR-12
3 OF 10 SHTS

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# FLOOD PROFILES

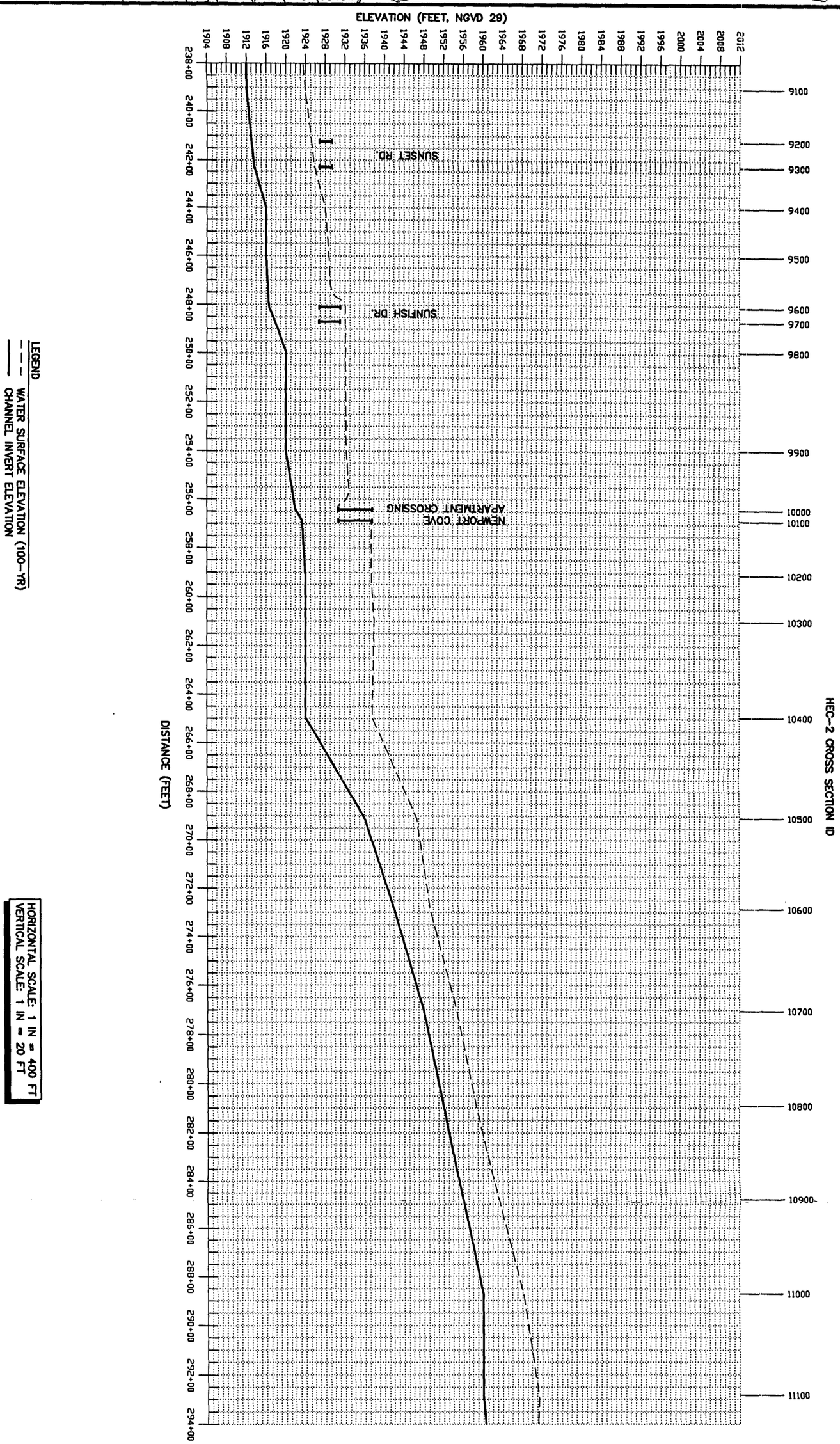
## DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

CLARK COUNTY, NEVADA

DUCK CREEK

SHEET **PR-13** 4 OF 10 SHTS

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299




# FLOOD PROFILES

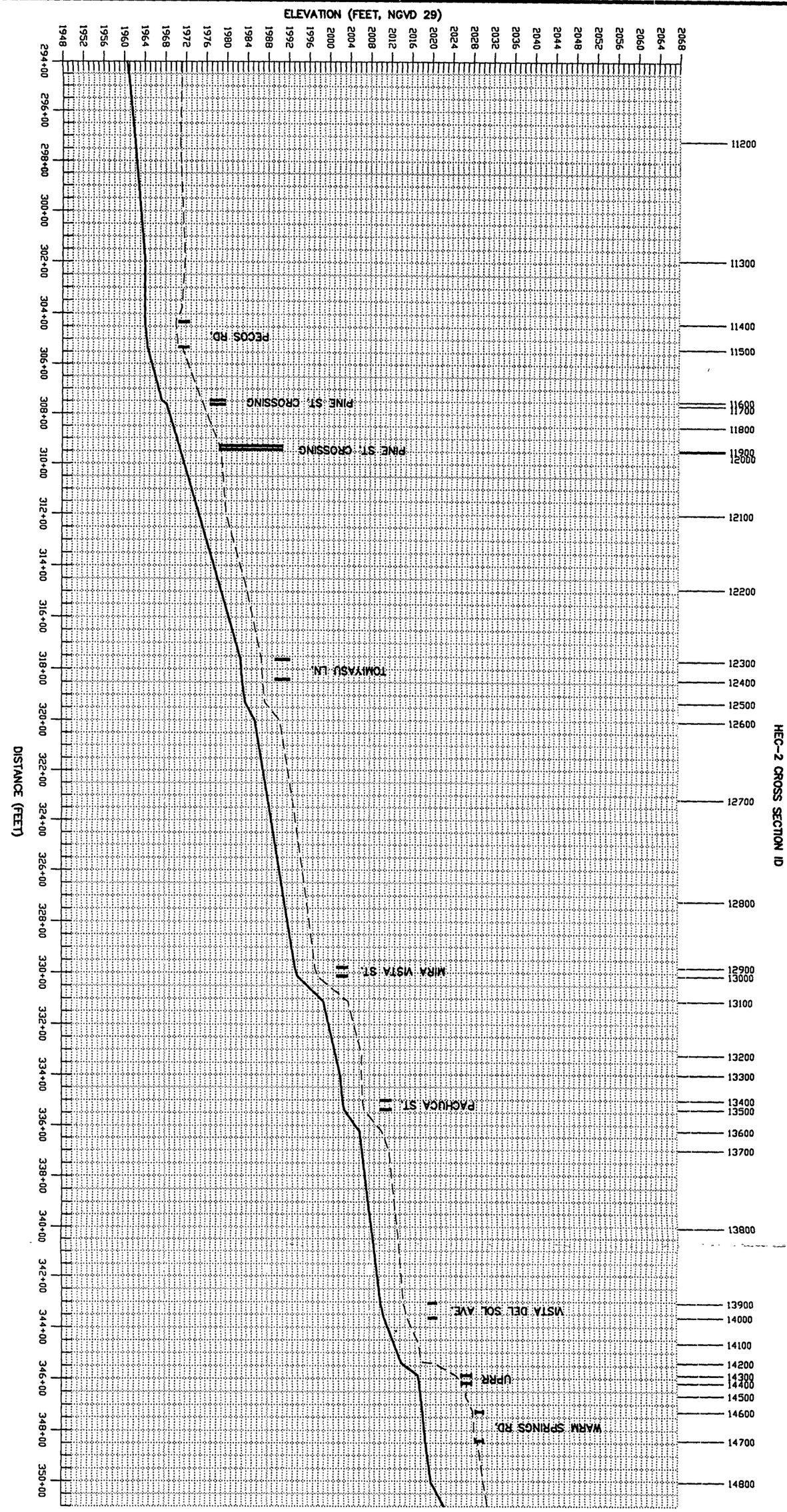
## DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

CLARK COUNTY, NEVADA
DUCK CREEK

SHEET **PR-14** 5 OF 10 SHTS

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

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# FLOOD PROFILES

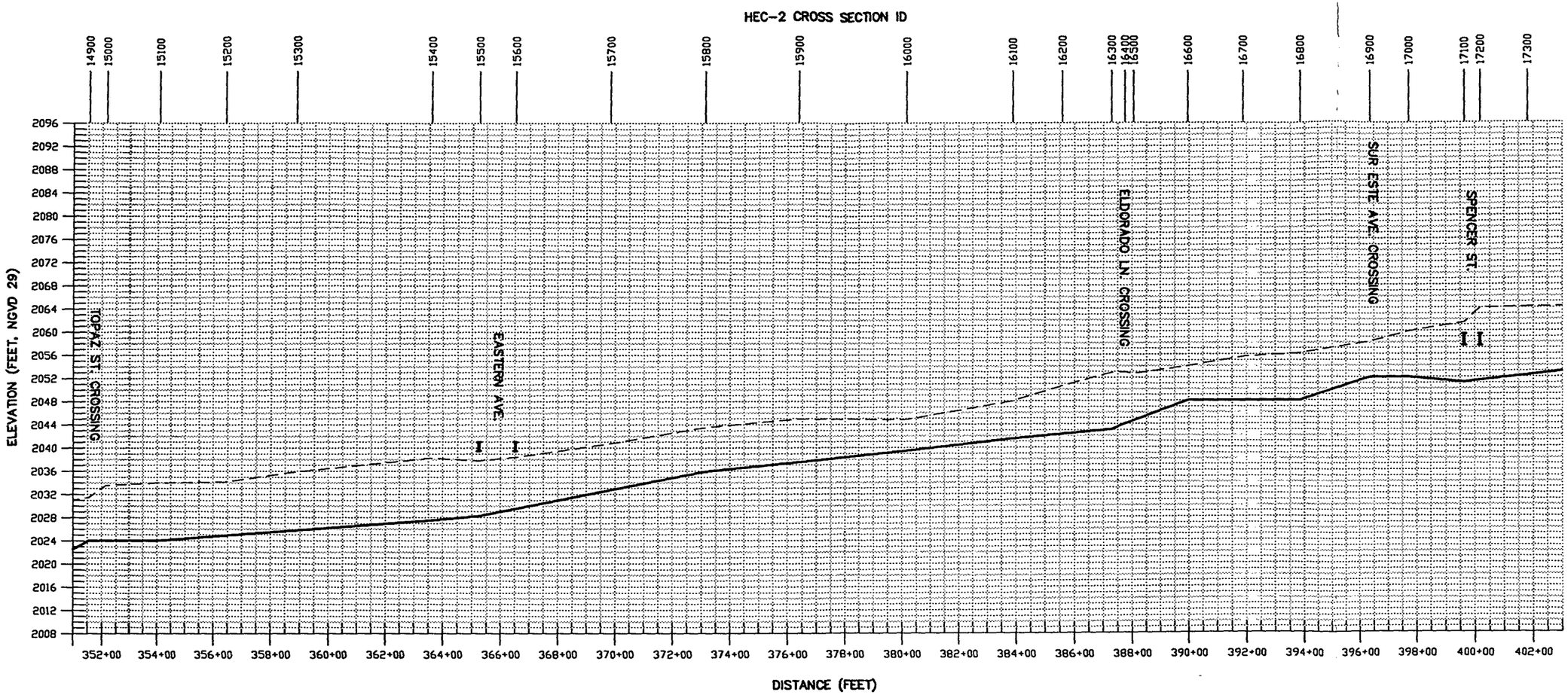
## DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

CLARK COUNTY, NEVADA

DUCK CREEK

SHEET **PR-15** 6 OF 10 SHTS

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299




LEGEND
- - - - WATER SURFACE ELEVATION (100-YR)
——— CHANNEL INVERT ELEVATION

HORIZONTAL SCALE: 1 IN = 400 FT
VERTICAL SCALE: 1 IN = 20 FT

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

FLOOD PROFILES
DUCK CREEK/ BLUE DIAMOND WASHES FRS RESTUDY
CLARK COUNTY, NEVADA
DUCK CREEK

SHEET
PR-16
7 OF 10 SHTS

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HEC-2 CROSS SECTION ID

17400 17500 17600 17700 17800 17900 18000 18100 18200 18300 18400 18500 18600 18700 18800 18900 19000 19100 19200 19300 19400 19500 19600 19700

ELEVATION (FEET, NGVD 29)

2164 2160 2156 2152 2148 2144 2140 2136 2132 2128 2124 2120 2116 2112 2108 2104 2100 2096 2092 2088 2084 2080 2076 2072 2068 2064 2060 2056 2052 2048

ROBINDALE RD.
I-215
NORTH BRANCH BLUE DIAMOND WASH CONFLUENCE
MIDDLE BRANCH BLUE DIAMOND WASH CONFLUENCE
WINDMILL LN.
PARADISE RD.

404+00 406+00 408+00 410+00 412+00 414+00 416+00 418+00 420+00 422+00 424+00 426+00 428+00 430+00 432+00 434+00 436+00 438+00 440+00 442+00 444+00 446+00 448+00 450+00 452+00 454+00 456+00 458+00 460+00

DISTANCE (FEET)

LEGEND
- - - WATER SURFACE ELEVATION (100-YR)
——— CHANNEL INVERT ELEVATION

HORIZONTAL SCALE: 1 IN = 400 FT
VERTICAL SCALE: 1 IN = 20 FT

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

FLOOD PROFILES
DUCK CREEK/ BLUE DIAMOND WASHES FS RESTUDY
CLARK COUNTY, NEVADA
DUCK CREEK

SHEET
PR-17
8 OF 10 SHTS

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HEC-2 CROSS SECTION ID

19800 19900 20000 20100 20200 20300 20400 20500 20600 20700 20800 20900 21000 21100 21200 21300 21400 21500

ELEVATION (FEET, NGVD 29)

2220 2216 2212 2208 2204 2200 2196 2192 2188 2184 2180 2176 2172 2168 2164 2160 2156 2152 2148 2144 2140 2136 2132 2128 2124 2120 2116 2112 2108 2104 2100 2096

POLLOCK DR

PEBBLE RD.

462+00 464+00 466+00 468+00 470+00 472+00 474+00 476+00 478+00 480+00 482+00 484+00 486+00 488+00 490+00 492+00 494+00 496+00 498+00 500+00 502+00 504+00 506+00 508+00 510+00 512+00 514+00 516+00 518+00

DISTANCE (FEET)

LEGEND
- - - WATER SURFACE ELEVATION (100-YR)
——— CHANNEL INVERT ELEVATION

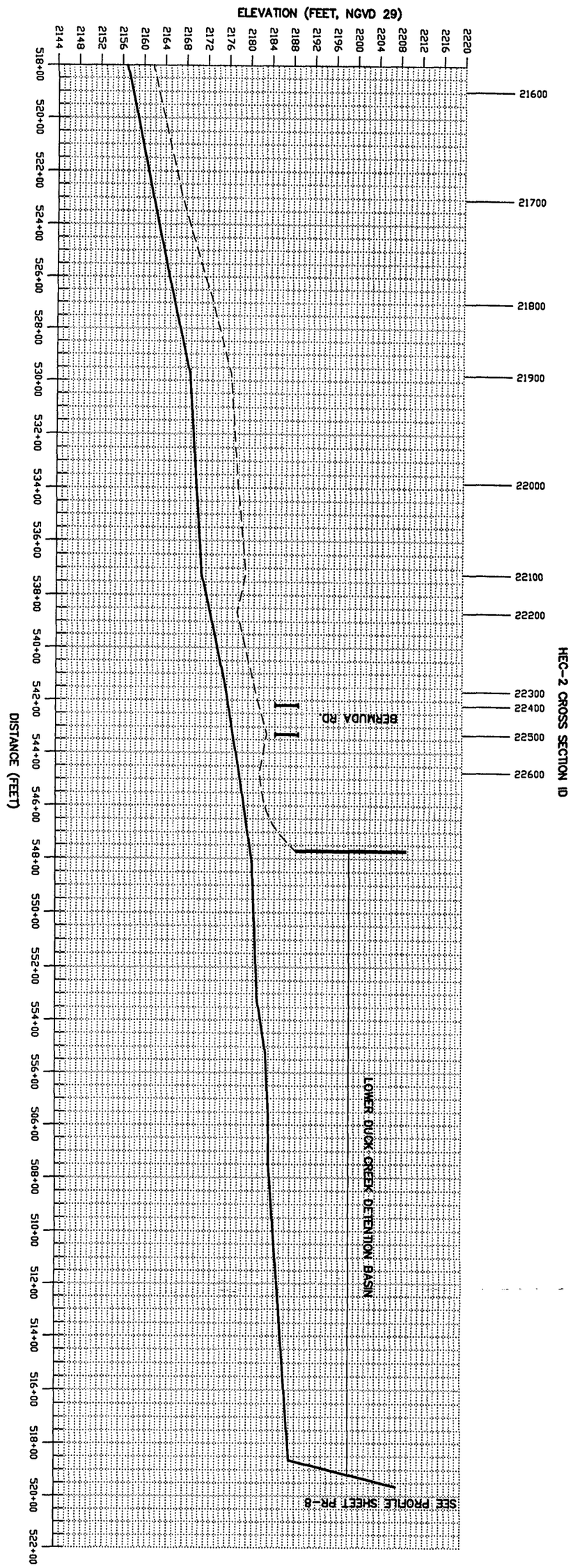
HORIZONTAL SCALE: 1 IN = 400 FT
VERTICAL SCALE: 1 IN = 20 FT

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 FAX: (702) 804-2799

FLOOD PROFILES
DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
CLARK COUNTY, NEVADA
DUCK CREEK

SHEET
PR-18
9 OF 10 SHTS

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LEGEND
- - - WATER SURFACE ELEVATION (100-YR)
——— CHANNEL INVERT ELEVATION

HORIZONTAL SCALE: 1 IN = 400 FT
VERTICAL SCALE: 1 IN = 20 FT

# FLOOD PROFILES

## DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

CLARK COUNTY, NEVADA
DUCK CREEK

SHEET PR-19 10 OF 10 SHTS

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

Study Contractor: G. C. WALLACE, INC.

## MAPPING INFORMATION INDEX

Clark County, Nevada

**Duck Creek / Blue Diamond Washes FIS Restudy**

| TYPE OF MAP | MAP DATE | NO. OF SHEETS | EXHIBIT NO. |
|---|---|---|---|
| FIRM | NA | 10 | 4.1 |
| Base | NA | 8 | 4.2 |
| Work | NA | 8 | 4.3 |
| Cross Section | NA | 8 | 4.4 |
| Aerial Photos | NA | 13 | 4.5 |

NORTH

1" = 5000'

FLAMINGO ROAD
TROPICANA AVENUE
PARADISE ROAD
MARYLAND PARKWAY
LAS VEGAS BLVD.
I-215
I-15
UNION PACIFIC RAILROAD
RUSSELL ROAD
SUNSET DRIVE
DUCK CREEK
US 95
BOULDER HIGHWAY
WARM SPRINGS ROAD
GREEN VALLEY PARKWAY
EASTERN AVENUE
PECOS ROAD
LAKE MEAD DRIVE
HORIZON RIDGE PARKWAY
NORTH BRANCH BLUE DIAMOND WASH
MIDDLE BRANCH BLUE DIAMOND WASH
VINDMILL LANE
BLUE DIAMOND
NORTHERN TRIBUTARY
MIDDLE TRIBUTARY
SOUTHERN TRIBUTAR
LOWER DUCK CREEK DETENTION BASIN

1-1
1-2
1-3
1-4
1-5
1-6
1-7
1-11
2-2
3-4
3-6
3-8
5-2

DUCK CREEK/ BLUE DIAMOND
WASHES FIS RESTUDY

# EXHIBIT

AERIAL PHOTOGRAPH LOCATION MAP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

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NE 7-18-00 1:12000 000632-N 3-4
NORTH
SHEET 3-4

SHEET 3-8

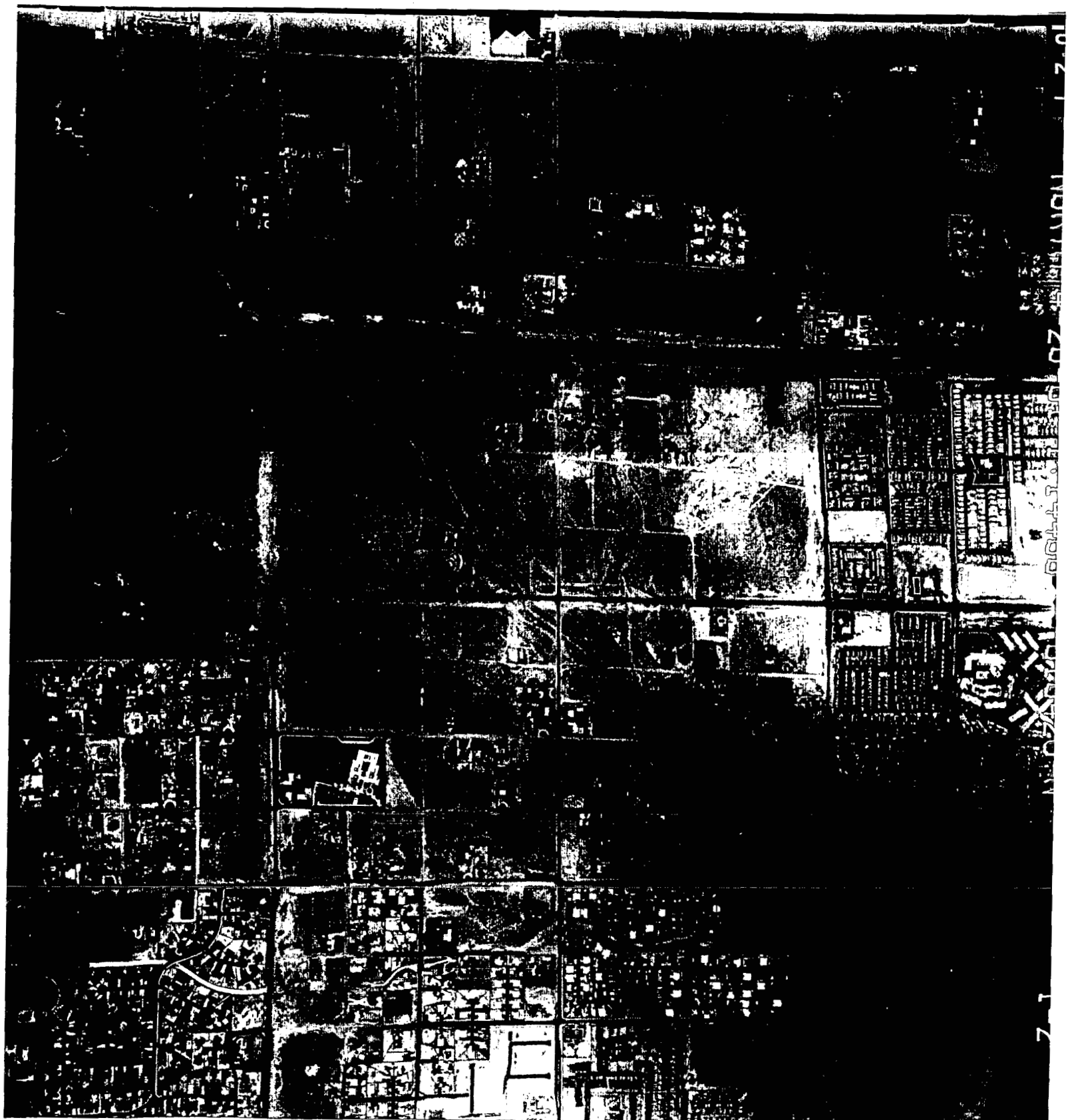
SHEET 5-2

SHEET 3-6

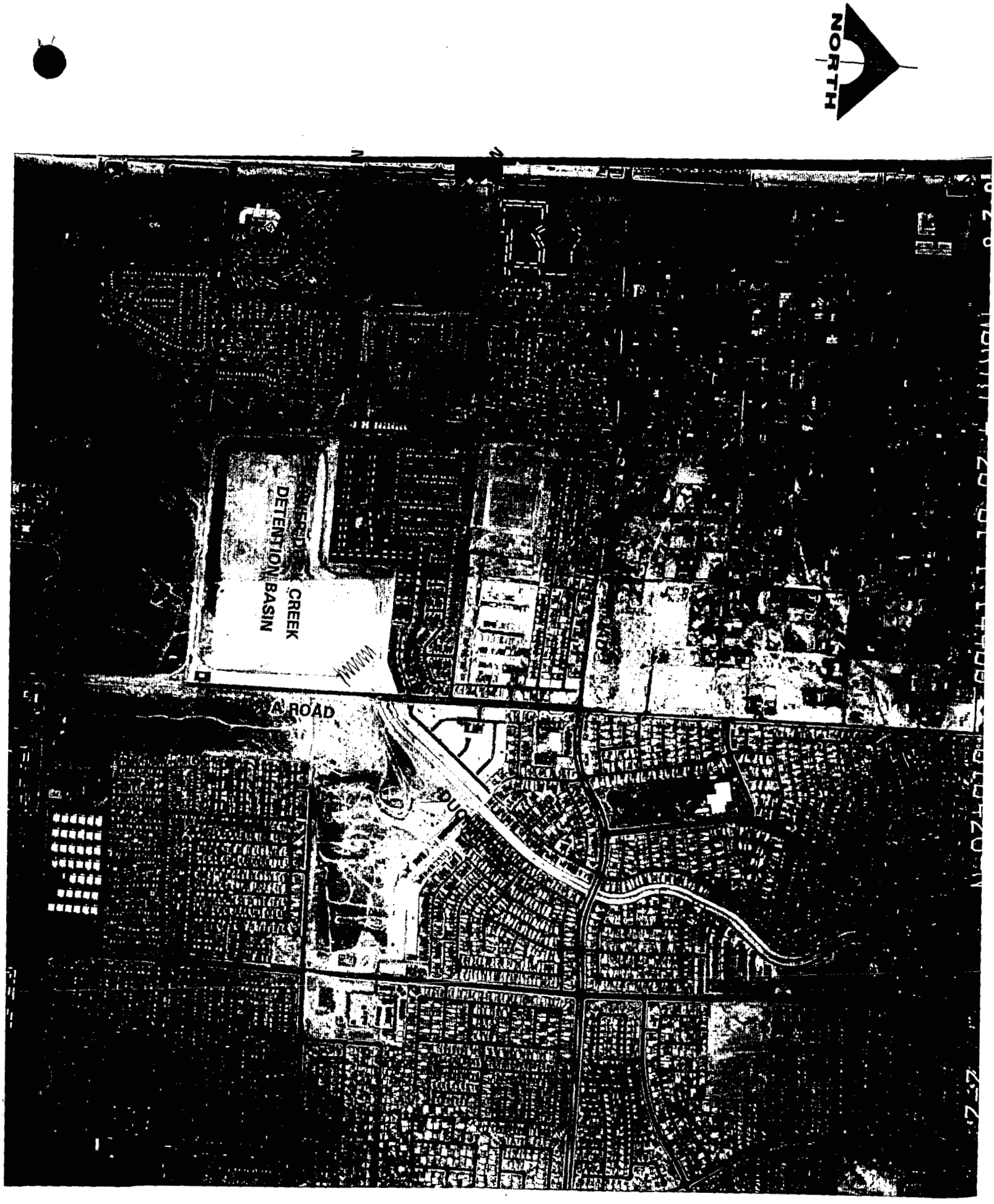
SHEET 1-4

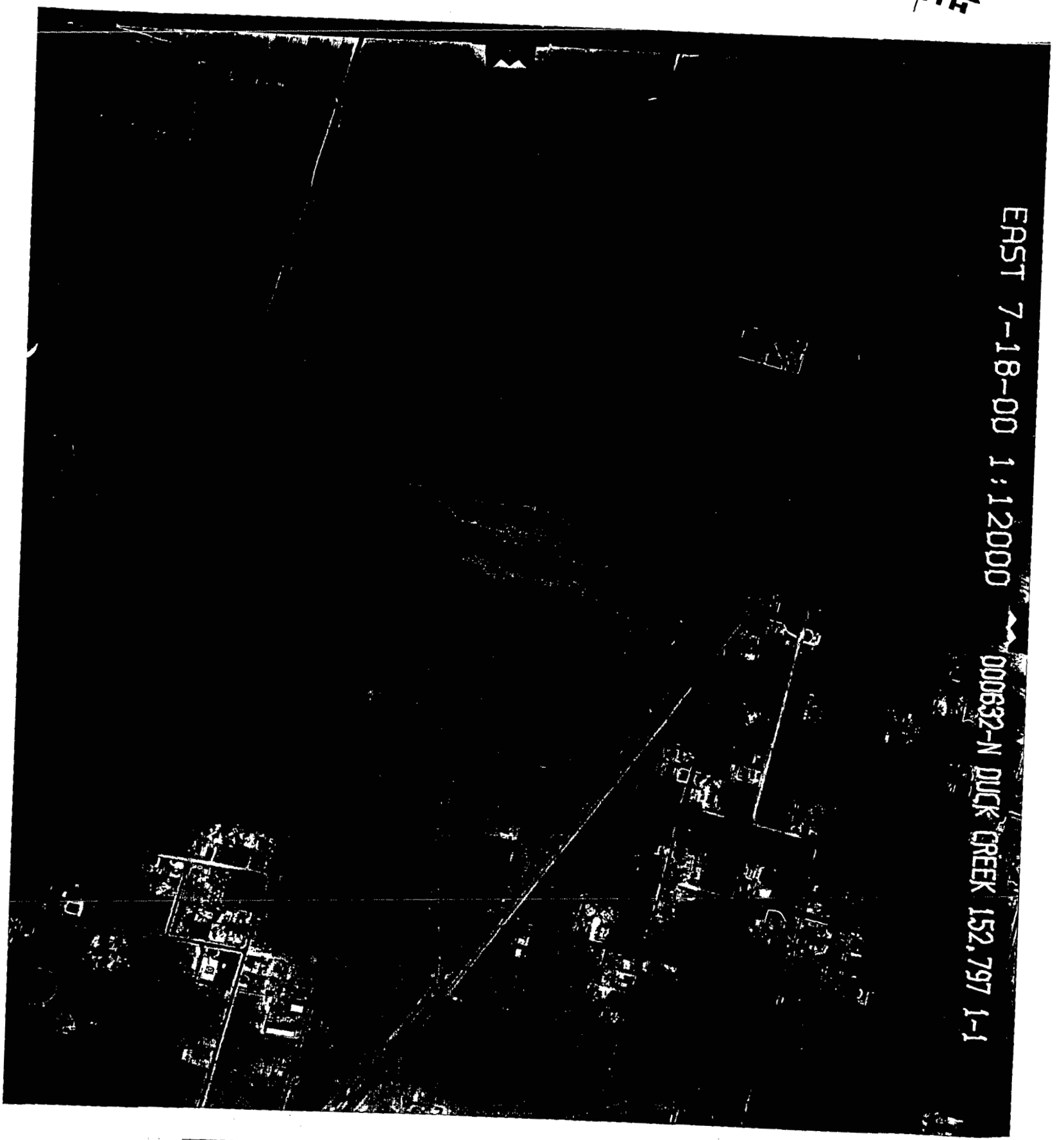
NORTH

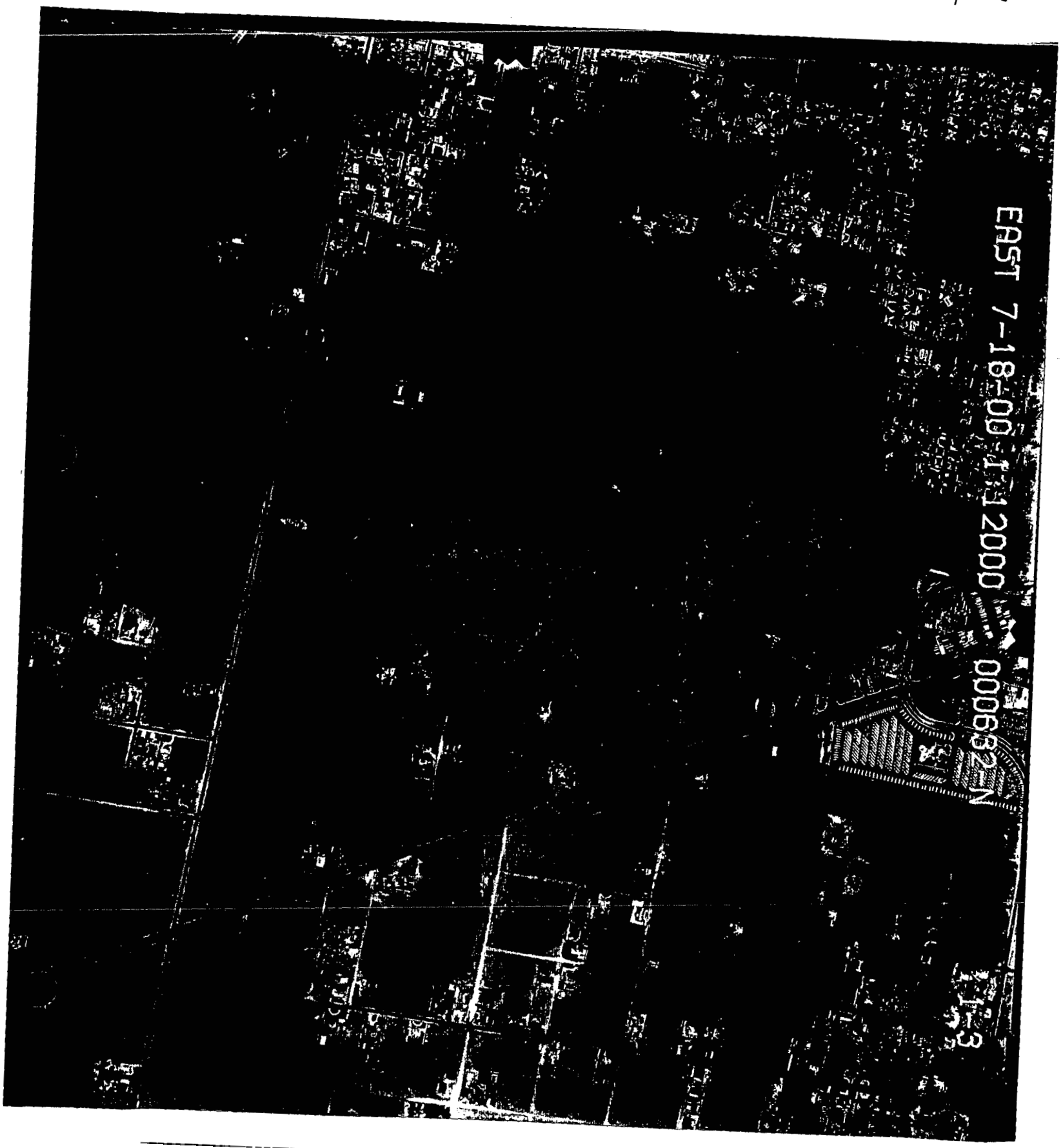
SHEET 1-2



SHEET 2-2




NORTH
EAST 7-18-00 1:12000
000632-N DUCK CREEK 152.797 1-1


NORTH
EAST 7-18-00 11:11 2000 000632 N
1:3


NORTH
EAST 7-18-00 1:2000 000632-N
1-5

EAST 7-18-00 1:12000 000632-N 1-7
NORTH
SHEET 1-7


NORTH
EAST 7-18-00 E 12000 FT 000632-N
1-9

SHEET 1-11

MAP REPOSITORY

City of Boulder City
Engineering Department
401 California Avenue
Boulder City, Nevada 89005
(Maps available for reference only, not for distribution.)

City of Henderson
Public Works Department
240 Water Street
Henderson, Nevada 89015
(Maps available for reference only, not for distribution.)

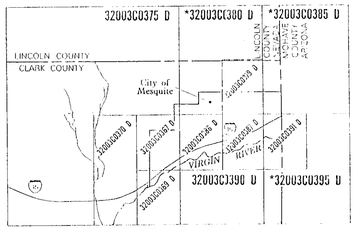
City of Las Vegas
Public Works Department
400 East Stewart Avenue, Fourth Floor
Las Vegas, Nevada 89101
(Maps available for reference only, not for distribution.)

City of Mesquite
Mesquite City Hall
11 East Mesquite Boulevard
Mesquite, Nevada 89024
(Maps available for reference only, not for distribution.)

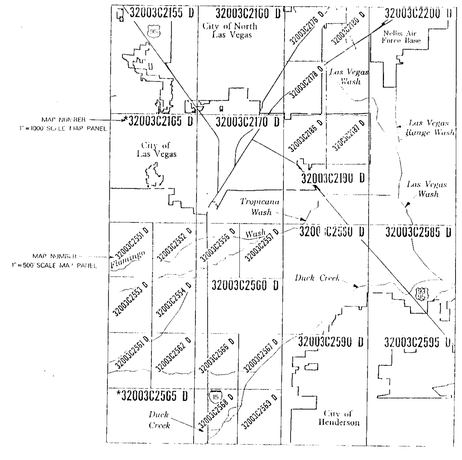
City of North Las Vegas
Public Works Department
2200 Civic Center Drive
North Las Vegas, Nevada 89030
(Maps available for reference only, not for distribution.)

Clark County
Office of the Director of Public Works
Clark County Bridger Building
225 Bridger Avenue
Las Vegas, Nevada 89155
(Maps available for reference only, not for distribution.)

ENLARGED AREA A




ENLARGED AREA B




ELEVATION DATUM

Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, contact the National Geodetic Survey at the following address:

The Vertical Network Branch, N/CG33
National Geodetic Survey, NOAA
Silver Spring Metro Center 3
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

BASE MAP SOURCE

Base map data have been obtained from the Clark County Department of Transportation.




FLOOD-PRONE COMMUNITIES

| COMMUNITY NAME | COMMUNITY NUMBER | LOCATED ON PANELS | INITIAL IDENTIFICATION DATE | POST FIRM DATE |
|---|---|---|---|---|
| BOULDER CITY, CITY OF | 320004 | 2620,2640,2650,2975,2980,2990,2995 | JUNE 28, 1974 | SEPTEMBER 16, 1981 |
| HENDERSON, CITY OF | 320005 | 2225, 2580, 2585, 2590, 2595, 2605, 2610, 2615, 2620, 2910, 2930, 2955, 2975 | JUNE 28, 1974 | JUNE 15, 1982 |
| LAS VEGAS, CITY OF | 325276 | 1735,1745,1750,1755,1765,2135, 2145,2150,2155,2160,2170,2175, 2180,2185,2187,2190,2200 | DECEMBER 3, 1976 | SEPTEMBER 30, 1980 |
| MESQUITE, CITY OF | 320035 | 367,368,375,378,385,387,389 | NOVEMBER 1, 1985 | SEPTEMBER 28, 1990 |
| NORTH LAS VEGAS, CITY OF | 320007 | 1755,1760,1765,1770,1780,2155, 2160,2170,2175,2180,2185 | FEBRUARY 15, 1974 | JANUARY 16, 1981 |
| CLARK COUNTY UNINCORPORATED AREAS | 320003 | ALL EXCEPT 2980 | AUGUST 30, 1974 | SEPTEMBER 29, 1989 |

* PANELS NOT PRINTED - AREA IN ZONE X
** PANELS NOT PRINTED - THESE AREAS ARE SHOWN ON OTHER PANELS
32003C2750D IS SHOWN ON 32003C2400D
32003C3475D IS SHOWN ON 32003C3600D
32003C3800D IS SHOWN ON 32003C3925D

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

CLARK COUNTY, NEVADA AND INCORPORATED AREAS

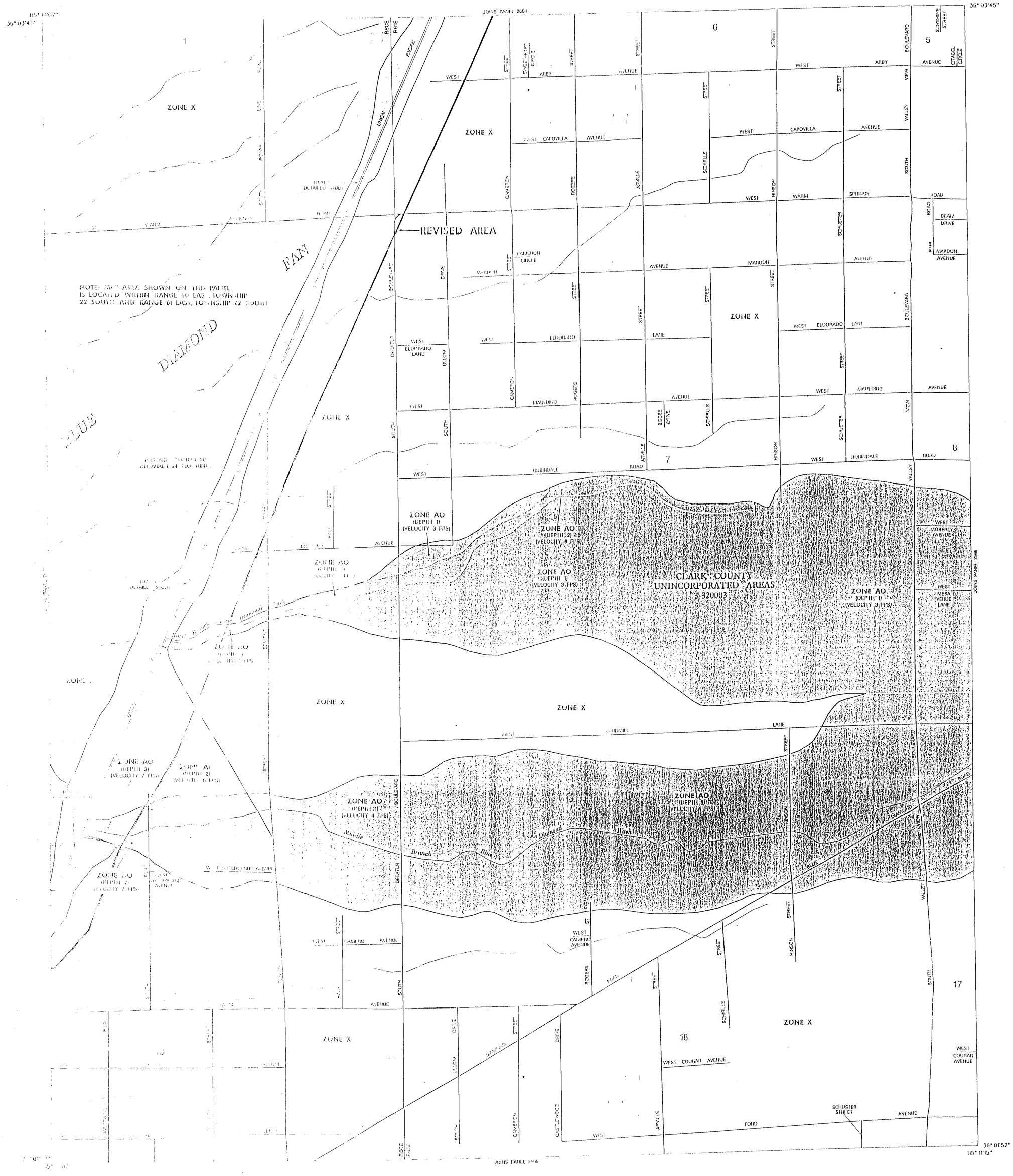
(SEE TABLE SHOWN ABOVE FOR LISTING OF COMMUNITIES)

# MAP INDEX


PANELS PRINTED: 225, 250, 275, 300, 325, 350, 367, 369, 375, 378, 385, 387, 389, 425, 450, 475, 500, 525, 550, 575, 600, 625, 650, 675, 700, 725, 750, 775, 800, 825, 850, 875, 900, 925, 950, 975, 1000, 1025, 1050, 1075, 1085, 1100, 1125, 1150, 1175, 1200, 1225, 1250, 1275, 1300, 1325, 1350, 1375, 1400, 1425, 1450, 1475, 1500, 1525, 1550, 1575, 1600, 1625, 1650, 1675, 1700, 1725, 1735, 1745, 1750, 1755, 1760, 1765, 1770, 1780, 1925, 1950, 1975, 2000, 2025, 2050, 2075, 2100, 2125, 2135, 2145, 2150, 2155, 2160, 2165, 2170, 2175, 2180, 2185, 2187, 2190, 2200, 2225, 2250, 2275, 2300, 2325, 2350, 2375, 2400, 2425, 2450, 2475, 2500, 2525, 2535, 2545, 2550, 2555, 2560, 2565, 2580, 2585, 2590, 2595, 2605, 2610, 2615, 2620, 2640, 2650, 2910, 2930, 2955, 2975, 2980, 2990, 2995, 3025, 3050, 3075, 3100, 3125, 3150, 3175, 3200, 3225, 3250, 3275, 3300, 3325, 3350, 3375, 3400, 3425, 3450, 3475, 3500, 3525, 3550, 3575, 3600, 3625, 3650, 3675, 3700, 3725, 3750, 3775, 3800, 3825, 3850, 3875, 3900, 3925, 3950, 3975, 4000, 4015, 4040, 4070, 4090, 4090


MAP NUMBER
32003C0000
EFFECTIVE DATE:
AUGUST 16, 1995

Federal Emergency Management Agency




# LEGEND

SPECIAL FLOOD HAZARD AREAS is by 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

(D)—(D) — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 × — Elevation Reference Mark

• M2 — River Mile

97° 07'30", 32° 22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

## NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 120 inch.

Coastal base flood elevations apply only landward of 0.0 NGVD, and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
AUGUST 16,1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE DATE shown on this map to determine when actuarial rates apply to structures in zones where elevations or depths have been established.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
600 0 600

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

CLARK COUNTY, NEVADA AND INCORPORATED AREAS

PANEL 2562 OF 4090
(SEE MAP INDEX FOR PANELS NOT PRINTED)

| CONTAINS: COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CLARK COUNTY, UNINCORPORATED AREAS | 320003 | 2562 | D |

REVISED TO REFLECT LOMR DATED SEP 04 2001

MAP NUMBER
32003C2562 D

EFFECTIVE DATE:
AUGUST 16,1995




NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 22 SOUTH AND RANGE 61 EAST.

# LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year floodplain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 — Elevation Reference Mark

M2 — River Mile

97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

## NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Coastal base flood elevations apply only landward of 0.0 NGVD, and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, AH, AO, A99, V, and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and/or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
AUGUST 16,1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE DATE shown on this map to determine when actuarial rates apply to structures in zones where elevations or depths have been established.

To determine if flood insurance is available contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620

APPROXIMATE SCALE IN FEET
500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

CLARK COUNTY,
NEVADA AND
INCORPORATED AREAS

**PANEL 2566 OF 4090**
(SEE MAP INDEX FOR PANELS NOT PRINTED)

| CONTAINS: COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CLARK COUNTY UNINCORPORATED AREAS | 320003 | 2566 | D |

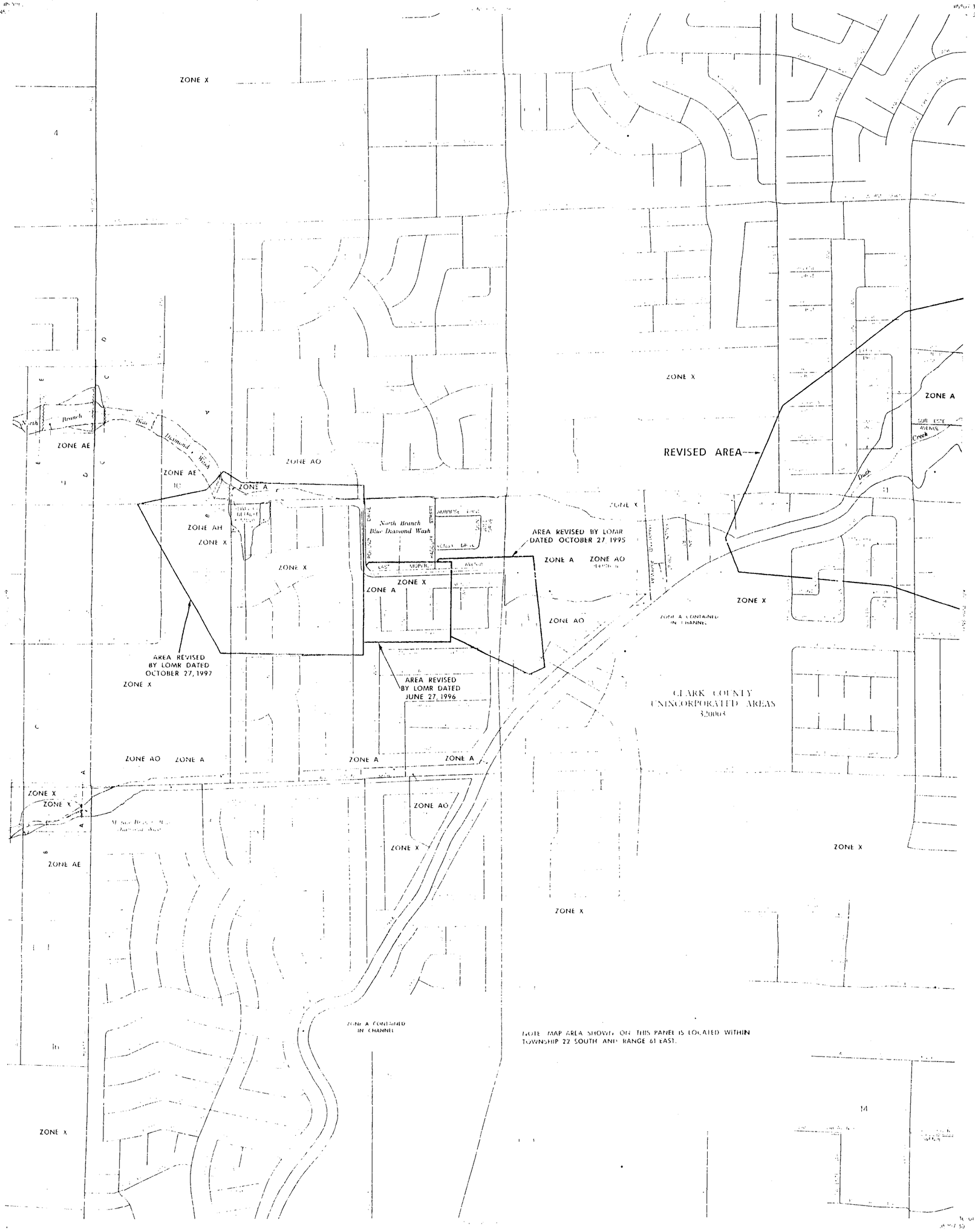
**MAP NUMBER**
**32003C2566 D**

**EFFECTIVE DATE:**
**AUGUST 16,1995**

Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

| REFERENCE MARK | ELEVATION (FEET NGVD) | DESCRIPTION OF LOCATION |
|---|---|---|
| RM1039 | 2104.71 | Intersection of Maryland Parkway and Windmill Lane. |




## LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100 YEAR FLOOD

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- ZONE V — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- ZONE X — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- ZONE X — Areas determined to be outside 500-year floodplain.
- ZONE D — Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified Units | Otherwise Protected Areas

COASTAL BARRIER (OPA)

Boundary dividing Special Flood Hazard Areas and Boundary dividing Special Flood Hazard Areas of Different Coastal Base Flood Elevations within Special Flood Hazard Areas

Base Flood Elevation Line; Elevation in feet* (EL 987) *Referenced to the National Geodetic Vertical Datum of 1929

Cross Section Line

Base Flood Elevation in Feet where uniform within Zone (EL 987) Elevation Datum

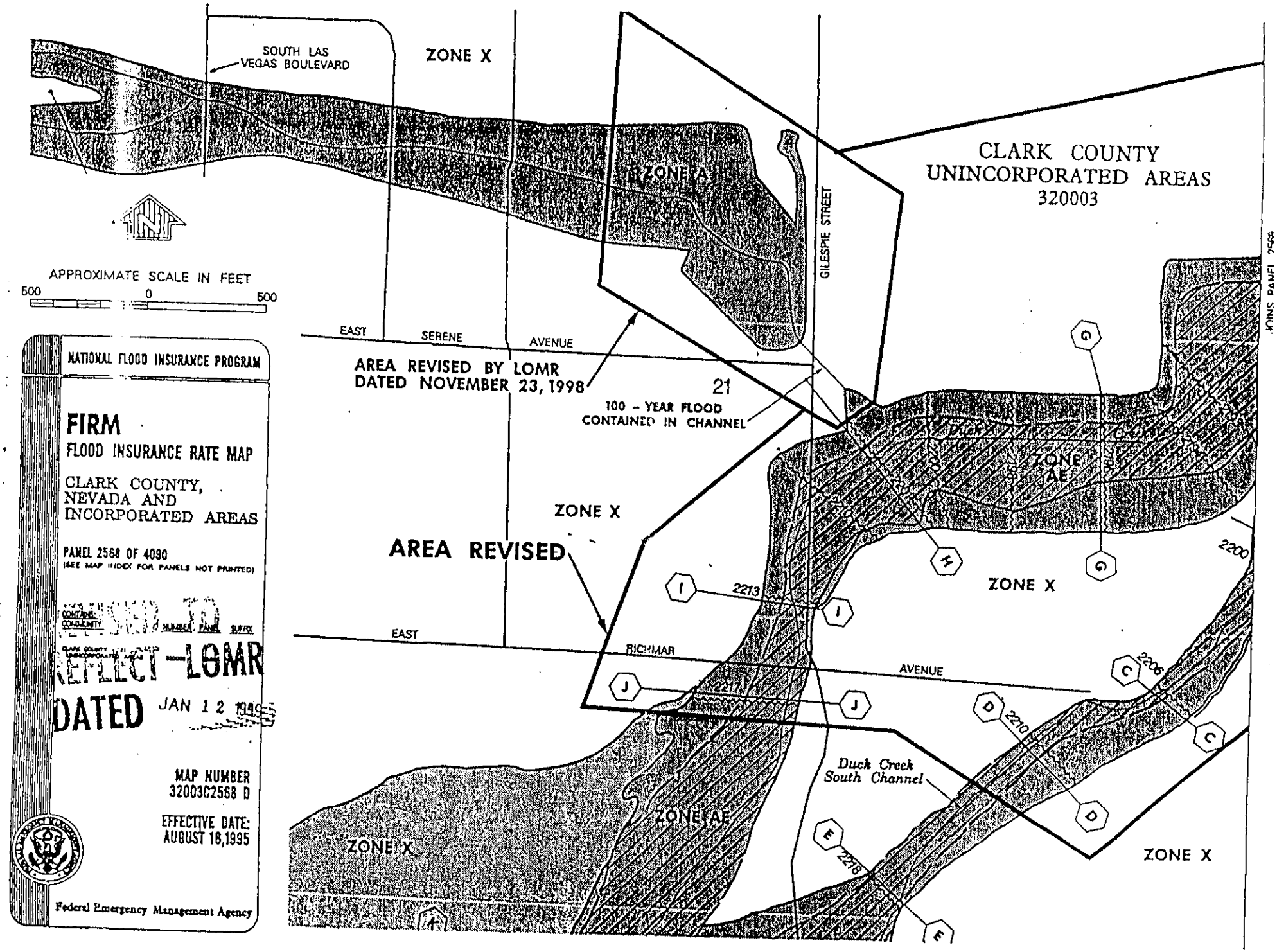
Coastal Transect

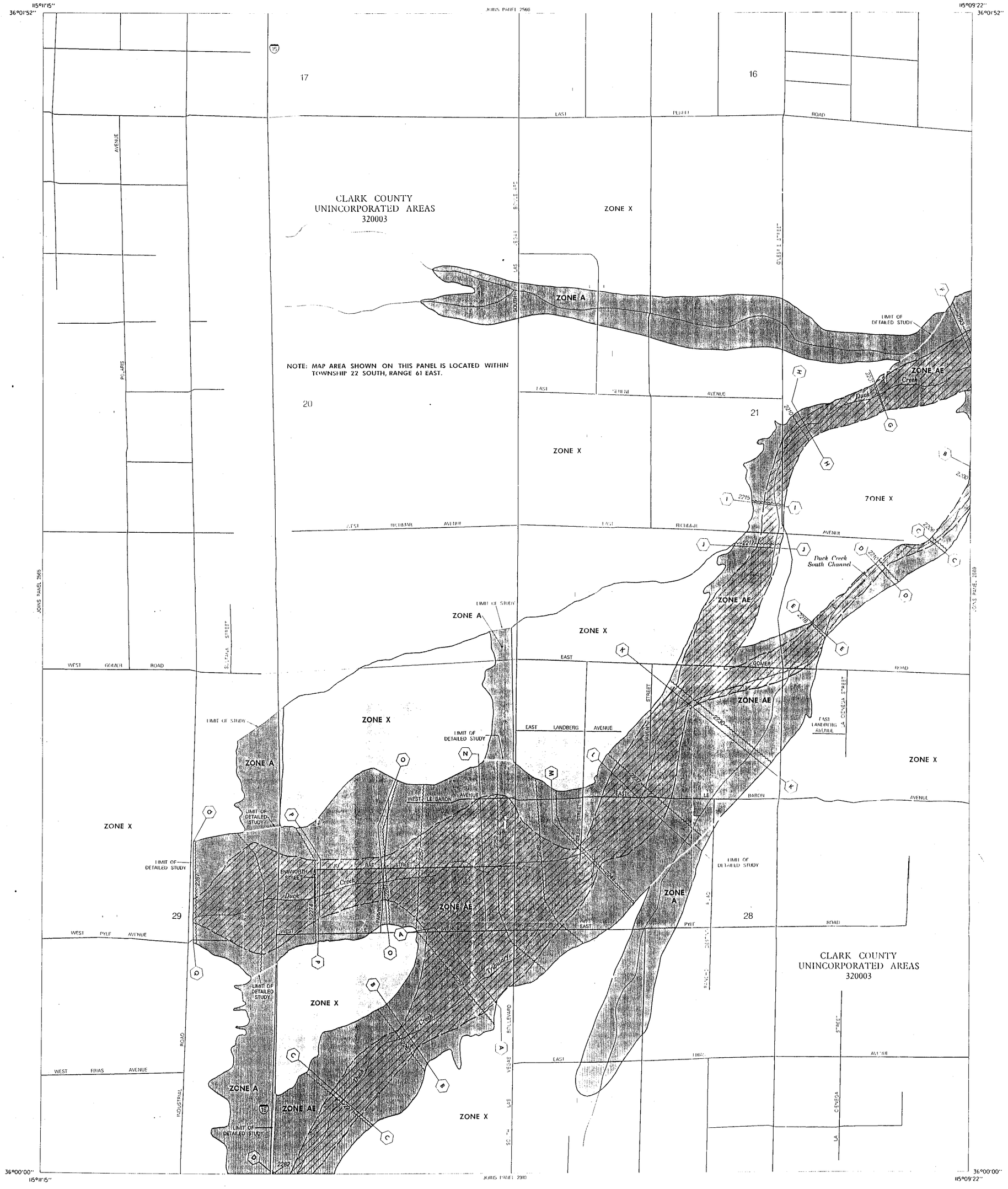
Transect Baseline

Geographic coordinates shown as red tick marks (North American Datum of 1927 (NAD 27) Projection)

### NOTES

[illegible] indicating that no flood insurance [illegible] [illegible] subject to the mapping [illegible] [illegible] [illegible]


SOUTH LAS VEGAS BOULEVARD
ZONE X
ZONE AH
GILESPIE STREET
CLARK COUNTY
UNINCORPORATED AREAS
320003
APPROXIMATE SCALE IN FEET
500 0 500
EAST SERENE AVENUE
AREA REVISED BY LOMR
DATED NOVEMBER 23, 1998
21
100 - YEAR FLOOD
CONTAINED IN CHANNEL
ZONE AE
ZONE X
AREA REVISED
2200
2213
EAST RICHMAR AVENUE
2217
2206
2210
Duck Creek
South Channel
ZONE AE
ZONE X
2218
ZONE X
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
CLARK COUNTY, NEVADA AND INCORPORATED AREAS
PANEL 2568 OF 4090
(SEE MAP INDEX FOR PANELS NOT PRINTED)
COMMUNITY NUMBER PANEL SUFFIX
REFLECT LOMR
DATED JAN 12 1999
MAP NUMBER
32003C2568 D
EFFECTIVE DATE:
AUGUST 16,1995
Federal Emergency Management Agency




# LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

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FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

**ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

**ZONE X** Areas determined to be outside 500-year floodplain.

**ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified Pre-1983 | Identified Post-1983 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

D–D Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 × Elevation Reference Mark

• M2 River Mile

97°07'30", 32°22'30" Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

## NOTES

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For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
AUGUST 16,1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE DATE shown on this map to determine when actuarial rates apply to structures in zones where elevations or depths have been established.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

CLARK COUNTY,
NEVADA AND
INCORPORATED AREAS

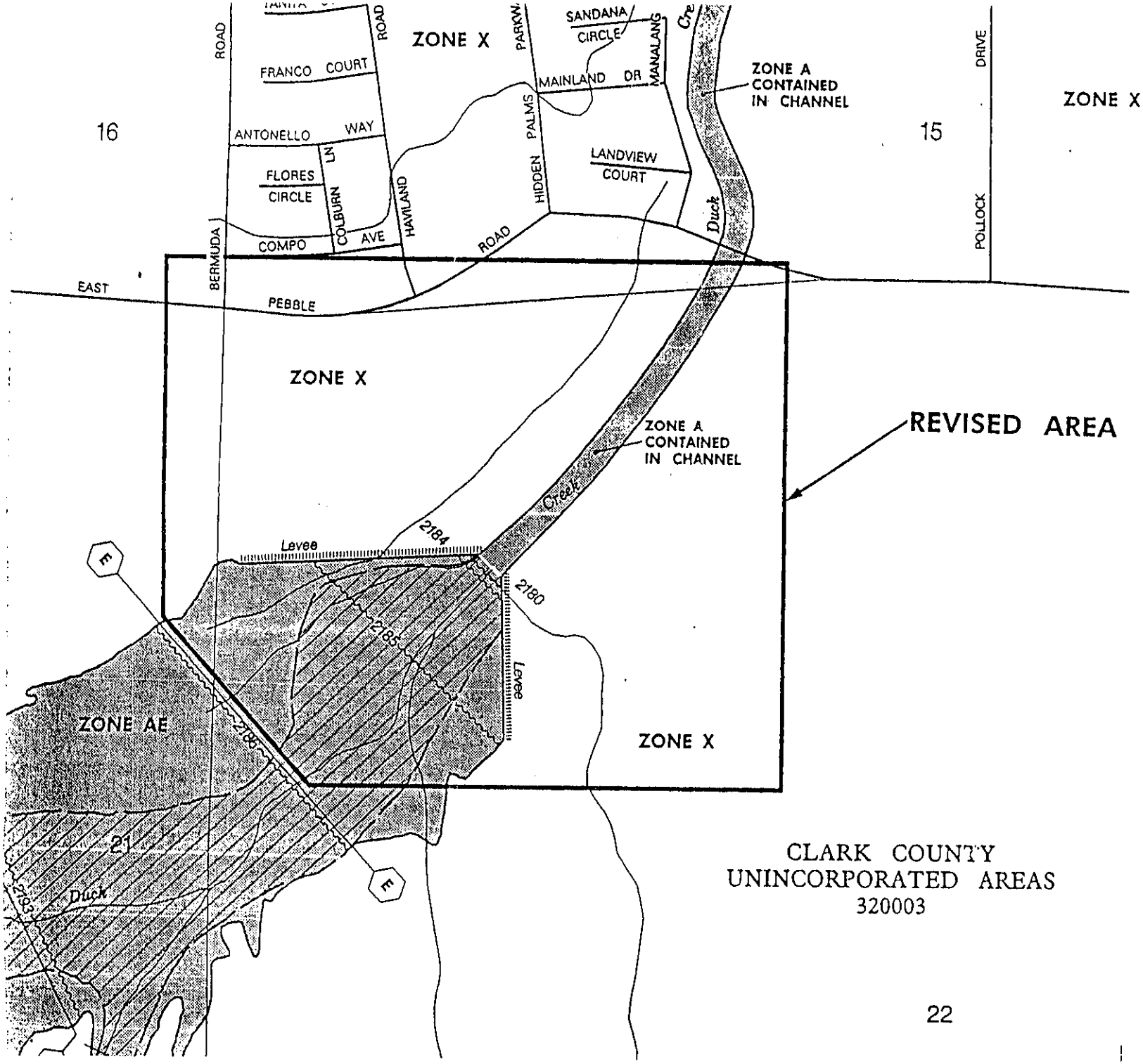
PANEL 2568 OF 4090
(SEE MAP INDEX FOR PANELS NOT PRINTED)

| CONTAINS: COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CLARK COUNTY, UNINCORPORATED AREAS | 320003 | 2568 | D |

MAP NUMBER
32003C2568 D

EFFECTIVE DATE:
AUGUST 16,1995

Federal Emergency Management




CLARK COUNTY
UNINCORPORATED AREAS
320003

APPROXIMATE SCALE IN FEET
1000 0 1C

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

CLARK COUNTY,
NEVADA AND
INCORPORATED AREAS

PANEL 2569 OF 4090
(SEE MAP INDEX FOR PANELS NOT PRINTED)

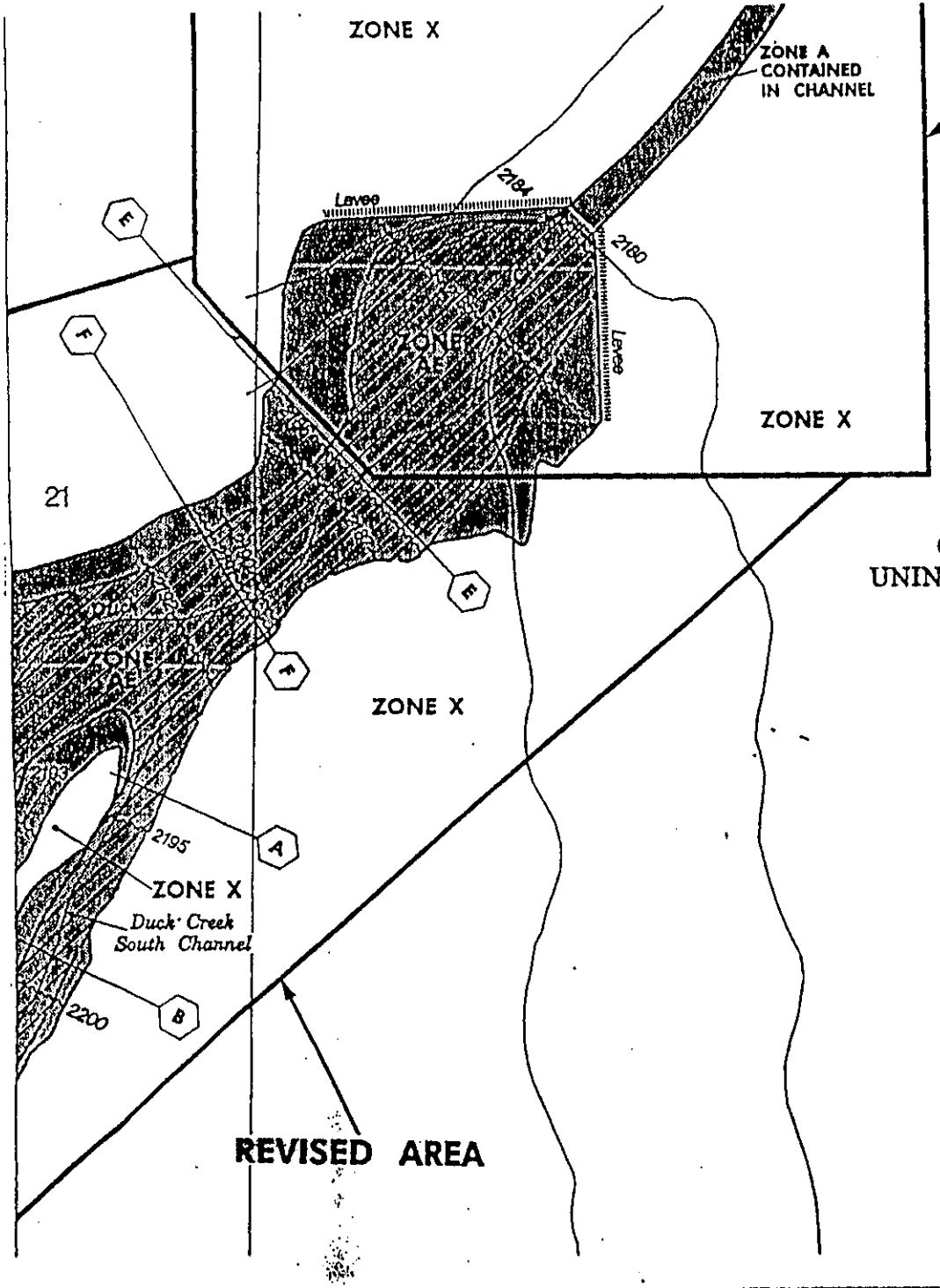
| CONTAINS: COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CLARK COUNTY, UNINCORPORATED AREAS | 320003 | 2569 | D |

MAY 20 1998

MAP NUMBER
32003C2569 D

EFFECTIVE DATE:
AUGUST 18,1995

Federal Emergency Management Agency




CLARK COUNTY
UNINCORPORATED AREAS
320003

22

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**
FLOOD INSURANCE RATE MAP

CLARK COUNTY,
NEVADA AND
INCORPORATED AREAS

PANEL 2569 OF 4090
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS
COMMUNITY NUMBER PANEL SUFFIX
CLARK COUNTY, 320003 2569 D

REVISED TO
EFFECT LOMR
DATED JAN 12 1999

MAP NUMBER
32003C2569 D

EFFECTIVE DATE:
AUGUST 16,1995

Federal Emergency Management Agency

115°09'22"
36°01'52"

115°07'30"
36°01'52"

JOINS PANEL 2567

ZONE X

ZONE A CONTAINED IN CHANNEL

LIMIT OF DETAILED STUDY

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 22 SOUTH, RANGE 61 EAST.

CLARK COUNTY
UNINCORPORATED AREAS
320003

ZONE AE

ZONE A

ZONE X

ZONE X
Duck Creek
South Channel

ZONE X

ZONE A

ZONE X

ZONE X

ZONE X

ZONE A

ZONE X

CLARK COUNTY
UNINCORPORATED AREAS
320003

ZONE X

JOINS PANEL 2568

JOINS PANEL 2890

JOINS PANEL 2910

36°00'00"
115°09'22"

36°00'00"
115°07'30"

# LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

**ZONE A** No base flood elevations determined.

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FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

**ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

**ZONE X** Areas determined to be outside 500-year floodplain.

**ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified Part | Identified Prot | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones

513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum

D — D — Cross Section Line

(EL 987) Base Flood Elevation in Feet where Uniform Within Zone. See Map Index for Elevation Datum

RM7 × — Elevation Reference Mark

M2 — River Mile

97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

## NOTES

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MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
AUGUST 16,1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE DATE shown on this map to determine when actuarial rates apply to structures in zones where elevations or depths have been established.

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APPROXIMATE SCALE IN FEET
500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

CLARK COUNTY,
NEVADA AND
INCORPORATED AREAS

PANEL 2569 OF 4090
(SEE MAP INDEX FOR PANELS NOT PRINTED)

| CONTAINS: COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CLARK COUNTY, UNINCORPORATED AREAS | 320003 | 2569 | D |

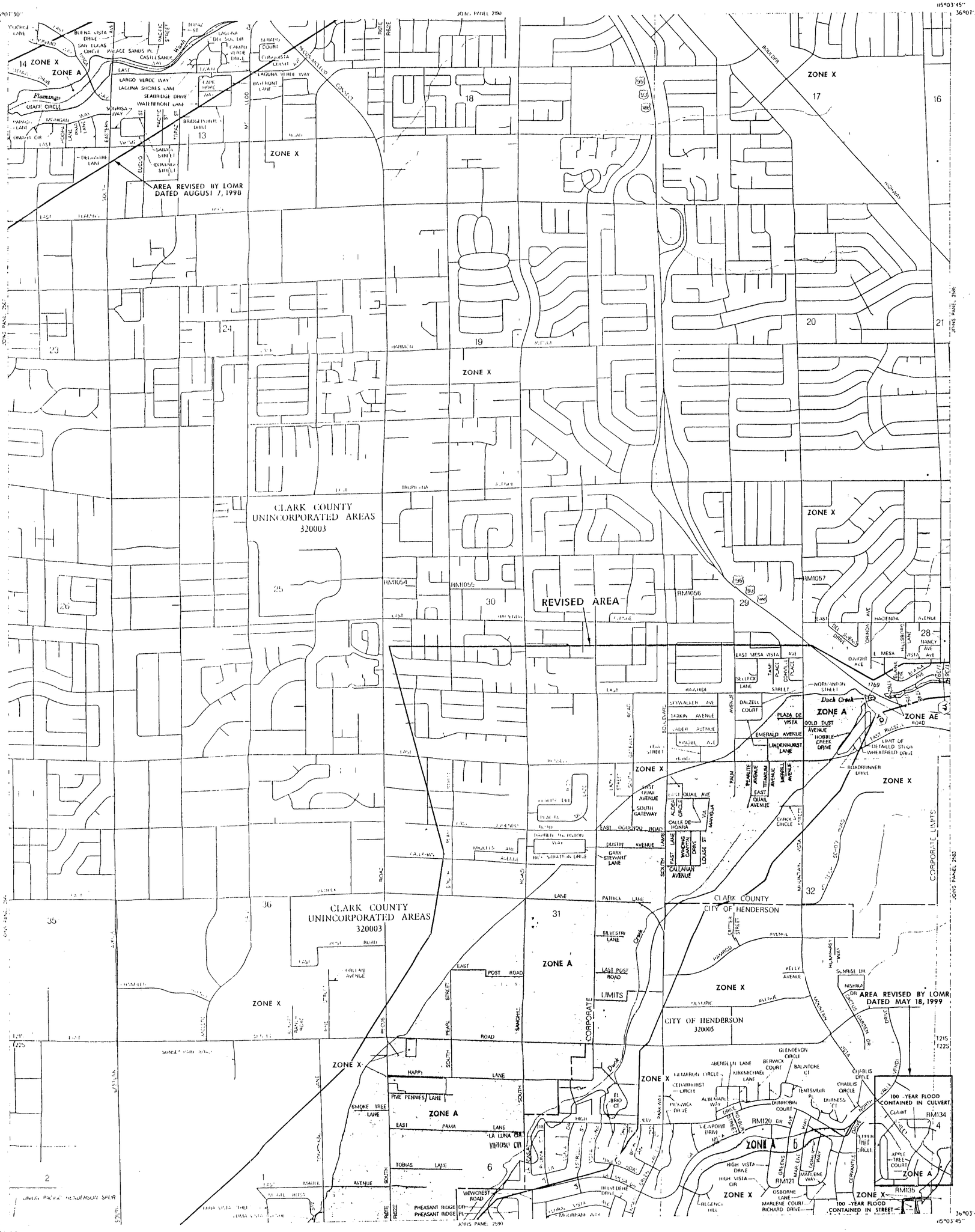
MAP NUMBER
32003C2569 D

EFFECTIVE DATE:
AUGUST 16,1995

Federal Emergency Management Agenc

## ELEVATION REFERENCE MARKS

| REFERENCE MARK | ELEVATION (FEET NGVD) | DESCRIPTION OF LOCATION |
|---|---|---|
| RM1054 | 1960.87 | Intersection of Pecos Road and Casey Ave Brasscap 1985 PLS 5835. |
| RM1055 | 1934.66 | Intersection of Ladera Ave and Pearl Street |
| RM1056 | 1826.32 | Intersection of Casey Ave. and Somerset Drive Brasscap 4046. |
| RM1057 | 1770.66 | Approx. 60' W of the intersection of Dall Drive and Mtn Vista Street. |




## LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

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- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year floodplain.
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UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas

- Flood Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
- 513 Base Flood Elevation Line; Elevation in Feet (See Map Index for Elevation Datum)
- D — D Cross Section Line
- (EL 987) Base Flood Elevation in Feet Where Uniform Within Zone (See Map Index for Elevation Datum)
- RM7 Elevation Reference Mark
- 5 M2 River Mile
- 97°07'30", 32°22'30" Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection

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For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP
AUGUST 16,1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE DATE shown on this map to determine when actuarial rates apply to structures in zones where elevations or depths have been established.

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APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

CLARK COUNTY,
NEVADA AND
INCORPORATED AREAS

**PANEL 2580 OF 4090**
(SEE MAP INDEX FOR PANELS NOT PRINTED)

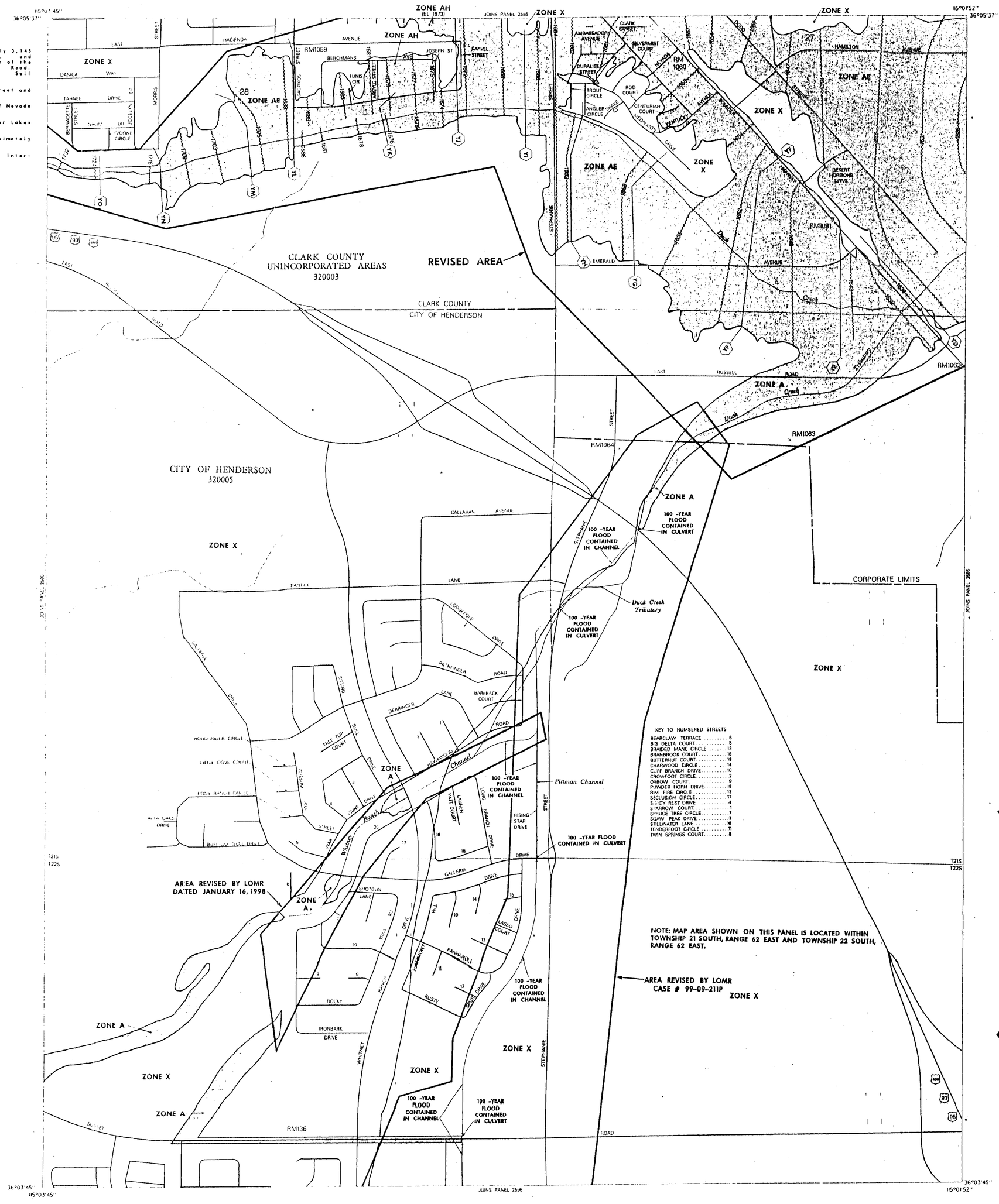
| CONTAINS COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| HENDERSON, CITY OF | 320005 | 2580 | D |
| CLARK COUNTY UNINCORPORATED AREAS | 320003 | 2580 | D |

**MAP NUMBER**
**32003C2580 D**

**REVISED TO REFLECT LOMR**
EFFECTIVE DATE: AUGUST 16,1995
DATED MAR 2 1 2000

## ELEVATION REFERENCE MARKS

| REFERENCE MARK | ELEVATION (FEET NGVD) | DESCRIPTION OF LOCATION |
|---|---|---|
| RM136 | 1758.63 | "T" bar located approximately 3,145 feet east of RM24, and approximately 40 feet north of the north edge of Sunset Road. Established by U.S. Soil Conservation Service. |
| RM1059 | 1689.21 | Intersection of Denning Street and Hacienda Ave. |
| RM1060 | 1657.60 | 100' S of intersection of Nevada Ave. and Boulder Highway. |
| RM1061 | 1647.38 | Boulder Highway at Boulder Lakes Resort. |
| RM1063 | 1652.26 | Due East from RM1064 Approximately 1/4 Mile. |
| RM1064 | 1600.24 | At Stephanie Street near Intersection with Russell Road. |




## LEGEND

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FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year floodplain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones
- 513 — Base Flood Elevation Line; Elevation in Feet See Map Index for Elevation Datum
- D — D — Cross Section Line
- (EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone See Map Index for Elevation Datum.
- RM7 — Elevation Reference Mark
- M2 — River Mile
- 97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection

## NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFEs, and for any information on floodway delineations prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE, and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Coastal base flood elevations apply only landward of 0.0 NGVD and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and/or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
AUGUST 16,1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE DATE shown on this map to determine when actuarial rates apply to structures in zones where elevations or depths have been established.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

CLARK COUNTY,
NEVADA AND
INCORPORATED AREAS

**PANEL 2583 OF 4090**
(SEE MAP INDEX FOR PANELS NOT PRINTED)

| CONTAINS COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CLARK COUNTY UNINCORPORATED AREAS | 320003 | 2583 | D |
| HENDERSON, CITY OF | 320005 | 2583 | D |

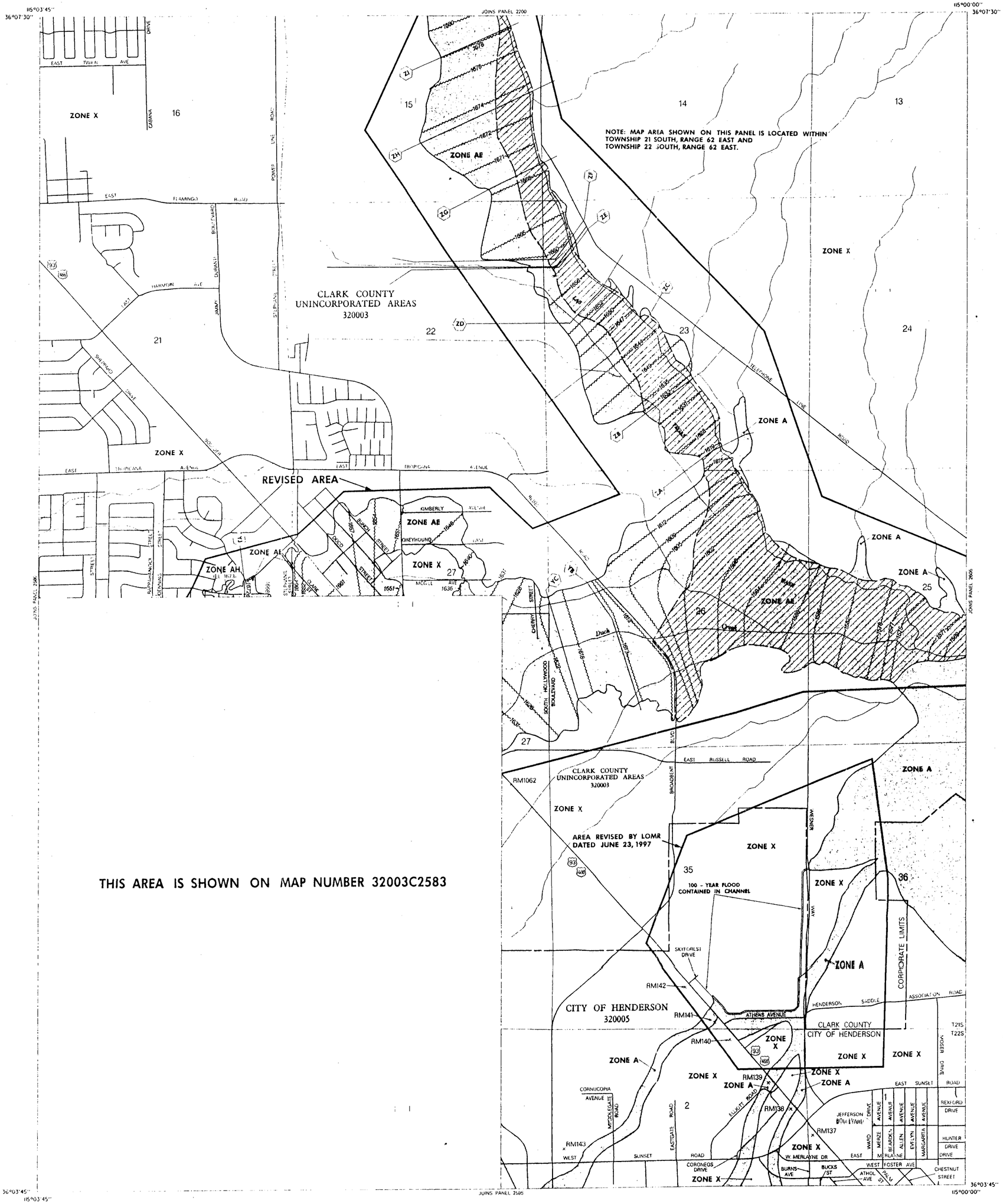
**MAP NUMBER**
**32003C2583 D**

**EFFECTIVE DATE:**
**AUGUST 16, 1995**

**REVISED TO REFLECT LOMR**
**DATED MAR 2 1 2000**

## ELEVATION REFERENCE MARKS

| REFERENCE MARK | ELEVATION (FEET NGVD) | DESCRIPTION OF LOCATION |
|---|---|---|
| RM137 | 1657.91 | Spike and tin located approximately 200 feet southeast of the intersection of Sunset Road and Boulder Highway on the south edge of the southbound lane. Established by U.S. Soil Conservation Service. |
| RM138 | 1656.38 | Spike and tin located on Boulder Highway approximately 110 feet south of its junction with Coronado Drive. Established by U.S. Soil Conservation Service. |
| RM139 | 1653.59 | Spike and tin located on Boulder Highway at approximate intersection with Elliott Road. Established by U.S. Soil Conservation Service. |
| RM140 | 1647.77 | Spike and tin located on Boulder Highway at approximate intersection with Castlerock Drive. Established by U.S. Soil Conservation Service. |
| RM141 | 1648.68 | Spike and tin located on Boulder Highway approximately 450 feet north of Castlerock Drive. Established by U.S. Soil Conservation Service. |
| RM142 | 1649.42 | Spike and tin located on Boulder Highway approximately 1,450 feet north of Castlerock Drive. Established by U.S. Soil Conservation Service. |
| RM143 | 1700.09 | "T" bar located approximately 180 feet east of the east edge of Gibson Road, and approximately 300 feet north of the north edge of Sunset Road. Established by U.S. |
| RM1062 | 1639.79 | 250' S of intersection of Russell Road and Boulder Highway. |




THIS AREA IS SHOWN ON MAP NUMBER 32003C2583

## LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year floodplain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1981 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas

- Flood Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
- 513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.
- (D)—(D) Cross Section Line
- (EL 987) Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.
- RM7 Elevation Reference Mark
- M2 River Mile
- 97°07'30", 32°22'30" Horizontal Coordinates Based on North American Datum of 1927 (NAD 27)

## NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Coastal base flood elevations apply only landward of 0.0 NGVD, and include the effects of wave action. these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, AH, AO, A99, V, and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:
AUGUST 16,1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE DATE shown on this map to determine when actuarial rates apply to structures in zones where elevations or depths have been established.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

CLARK COUNTY, NEVADA AND INCORPORATED AREAS

**PANEL 2585 OF 4090**
(SEE MAP INDEX FOR PANELS NOT PRINTED)

| CONTAINS COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CLARK COUNTY UNINCORPORATED AREAS | 320003 | 2585 | D |
| HENDERSON, CITY OF | 320006 | 2585 | D |

**MAP NUMBER 32003C2585 D**

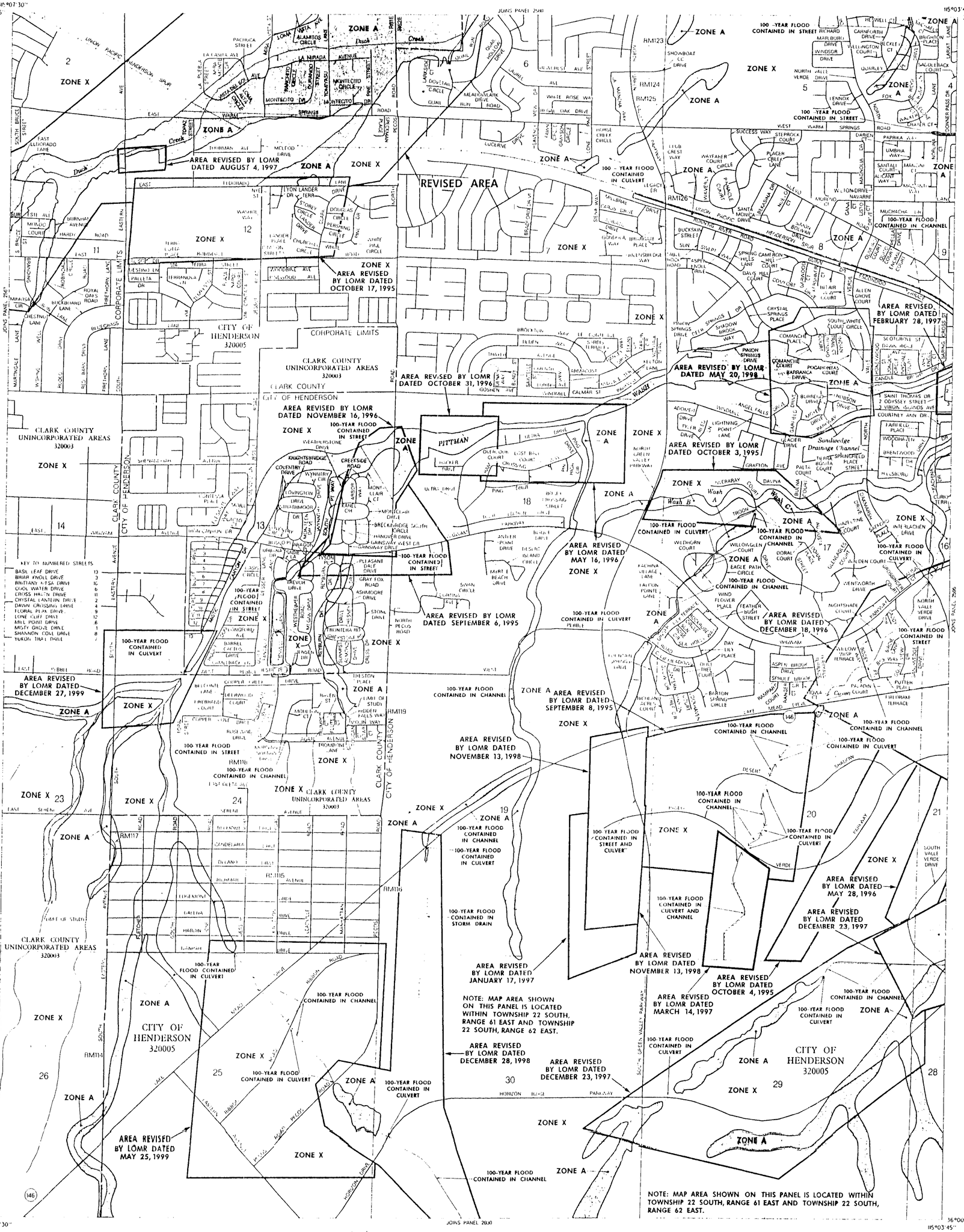
**REVISED TO REFLECT LOMR DATED MAR 2 1 2000**

EFFECTIVE DATE: AUGUST 16,1995

Federal Emergency Management Agency

## ELEVATION REFERENCE MARKS

| REFERENCE MARK | ELEVATION (FEET NGVD) | DESCRIPTION OF LOCATION |
|---|---|---|
| RM114 | 2220.59 | "T" bar located approximately 1,250 feet south of Eastern Avenue, Ivanpah Drive intersection. Established by U.S. Soil Conservation Service. |
| RM115 | 2210.83 | "T" bar located midway between Delano Drive, Richmar Avenue, Jessup and Kingston Roads. Established by U.S. Soil Conservation Service. |
| RM116 | 2227.54 | "T" bar located in Pecos Road and north edge of State Highway 41. Established by U.S. Soil Conservation Service. |
| RM117 | 2170.50 | "T" bar located on Eastern Avenue approximately 100 feet north of Candelaria Lane intersection. Established by U.S. Soil Conservation Service. |
| RM118 | 2161.05 | "T" bar located approximately 1,100 feet north of intersection of Sarona Avenue and Jessup Road. Established by U.S. Soil Conservation Service. |
| RM119 | 2160.17 | "T" bar located approximately 1,500 feet north of Sarona Avenue and Pecos Road intersection. Established by U.S. Soil Conservation Service. |




## LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year floodplain
- **ZONE D** — Areas in which flood hazards are undetermined

UNDEVELOPED COASTAL BARRIERS

Nonstructural (PUB) | Undeveloped (UND) | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas

- Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones
- 513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum
- (D) — (D) — Cross Section Line
- EL 987 — Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum
- RM17 — Elevation Reference Mark
- M2 — River Mile
- 97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection

## NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFEs and for any information on floodway delineations prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, AH, AO, AH, AO, A99, V, VE, and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table when a floodway width is shown at 120 inch.

Coastal base flood elevations apply only landward of 0.0 NGVD, and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section [illegible] of the Flood Insurance Study Report.

For reporting map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:
AUGUST 16,1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE DATE shown on this map to determine when actuarial rates apply to structures in Zone A where elevations or depths have been established.

To determine if flood insurance is available contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

CLARK COUNTY, NEVADA AND INCORPORATED AREAS

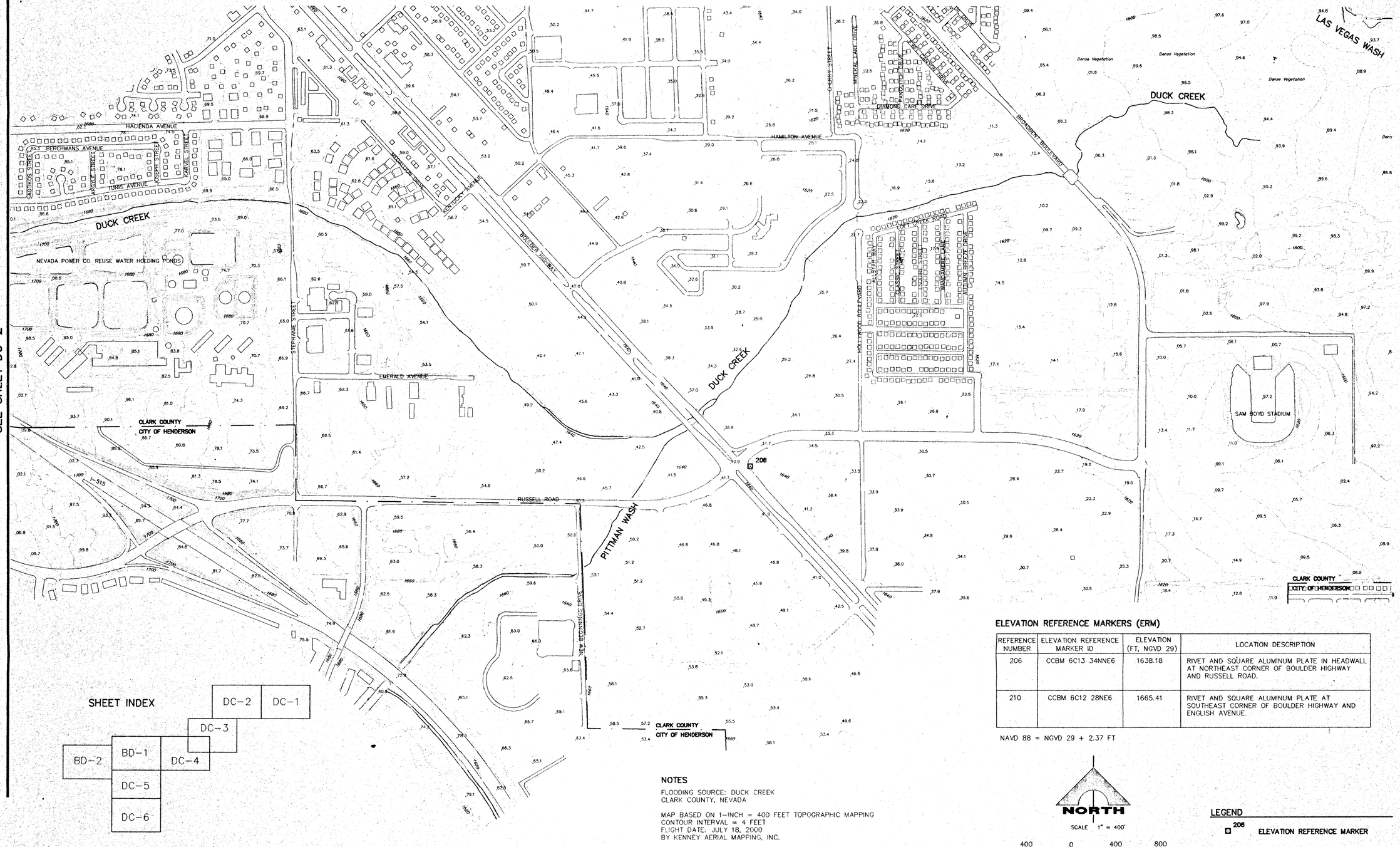
PANEL 2590 OF 4090
(SEE MAP INDEX FOR PANELS NOT PRINTED)

| CONTAINS COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CLARK COUNTY UNINCORPORATED AREAS | 320003 | 2590 | D |
| HENDERSON, CITY OF | 320005 | 2590 | D |

MAP NUMBER
32003C2590 D

REVISED TO REFLECT LOMR EFFECTIVE DATE: AUGUST 16,1995

EFFECTIVE MAP 2 1 2000




SHEET INDEX




## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 206 | CCBM 6C13 34NNE6 | 1638.18 | RIVET AND SQUARE ALUMINUM PLATE IN HEADWALL AT NORTHEAST CORNER OF BOULDER HIGHWAY AND RUSSELL ROAD. |
| 210 | CCBM 6C12 28NE6 | 1665.41 | RIVET AND SQUARE ALUMINUM PLATE AT SOUTHEAST CORNER OF BOULDER HIGHWAY AND ENGLISH AVENUE. |

NAVD 88 = NGVD 29 + 2.37 FT

## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2585 D, DATED AUGUST 16, 1995

NORTH
SCALE 1" = 400'

400 0 400 800
SCALE FEET

LEGEND

206 ELEVATION REFERENCE MARKER

DESIGN:
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ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-14-02
PLOT TIME: 20:08:33
Mludwig

| REV | DATE | DESCRIPTION | DATE AGEN. APP | DATE GCW APP |
|---|---|---|---|---|

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299
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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM DENNING STREET TO HOLLYWOOD BLVD.

BASE MAP

SHEET
DC-1
1 OF 8 SHTS

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## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 207 | WHITNEY #2 USC&GS | 1905.62 | USC&GS BRASS CAP, WHITNEY #2, 1972. LOCATED ON THE TOP OF THE NORTHEAST PORTION OF THE MESA THAT VO-TECH IS ON. ALSO 70 FEET OF PP #67761NP, (1 OF 3 POWER POLES SET ON WEST EDGE OF MESA). |
| 208 | CCBM 6C12 29C4 | 1783.99 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF MOUNTAIN VISTA STREET AND HACIENDA AVENUE NEAR THE PC OF MOUNTAIN VISTA STREET. |
| 212 | CCBM 7C12 31NNW6 | 1912.27 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, SOUTHEAST CORNER OF RUSSELL ROAD AND PEARL STREET NEAR THE PC OF RUSSELL ROAD. |

NAVD 88 = NGVD 29 + 2.37 FT

## NOTES

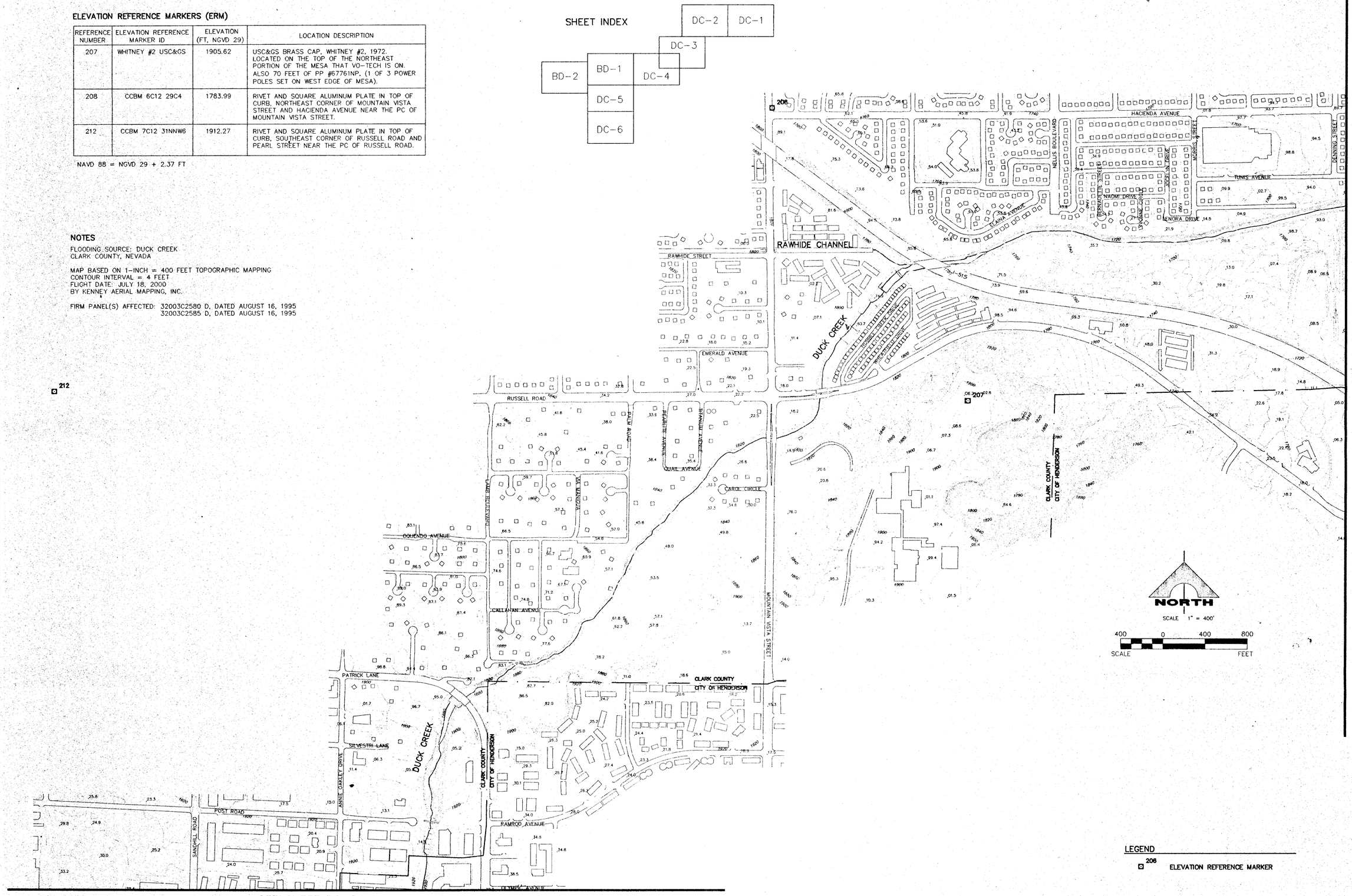
FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2580 D, DATED AUGUST 16, 1995
32003C2585 D, DATED AUGUST 16, 1995

SHEET INDEX

| | | |
|---|---|---|
| | DC-2 | DC-1 |
| | DC-3 | |
| BD-2 | BD-1 | DC-4 |
| | DC-5 | |
| | DC-6 | |




SEE SHEET DC-3

SEE SHEET DC-1

LEGEND

208 ELEVATION REFERENCE MARKER

| DESIGN: | DATE |
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| CHECK: | |
| ISSUE DATE: 03-14-02 | DATE AGEN APP |
| ISSUE EDITOR: | DATE GOV APP |
| PLOT DATE: 03-14-02 | DESCRIPTION |
| PLOT TIME: 20:28:04 | REV DATE |

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2399

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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM SUNSET ROAD TO DENNING STREET

**BASE MAP**

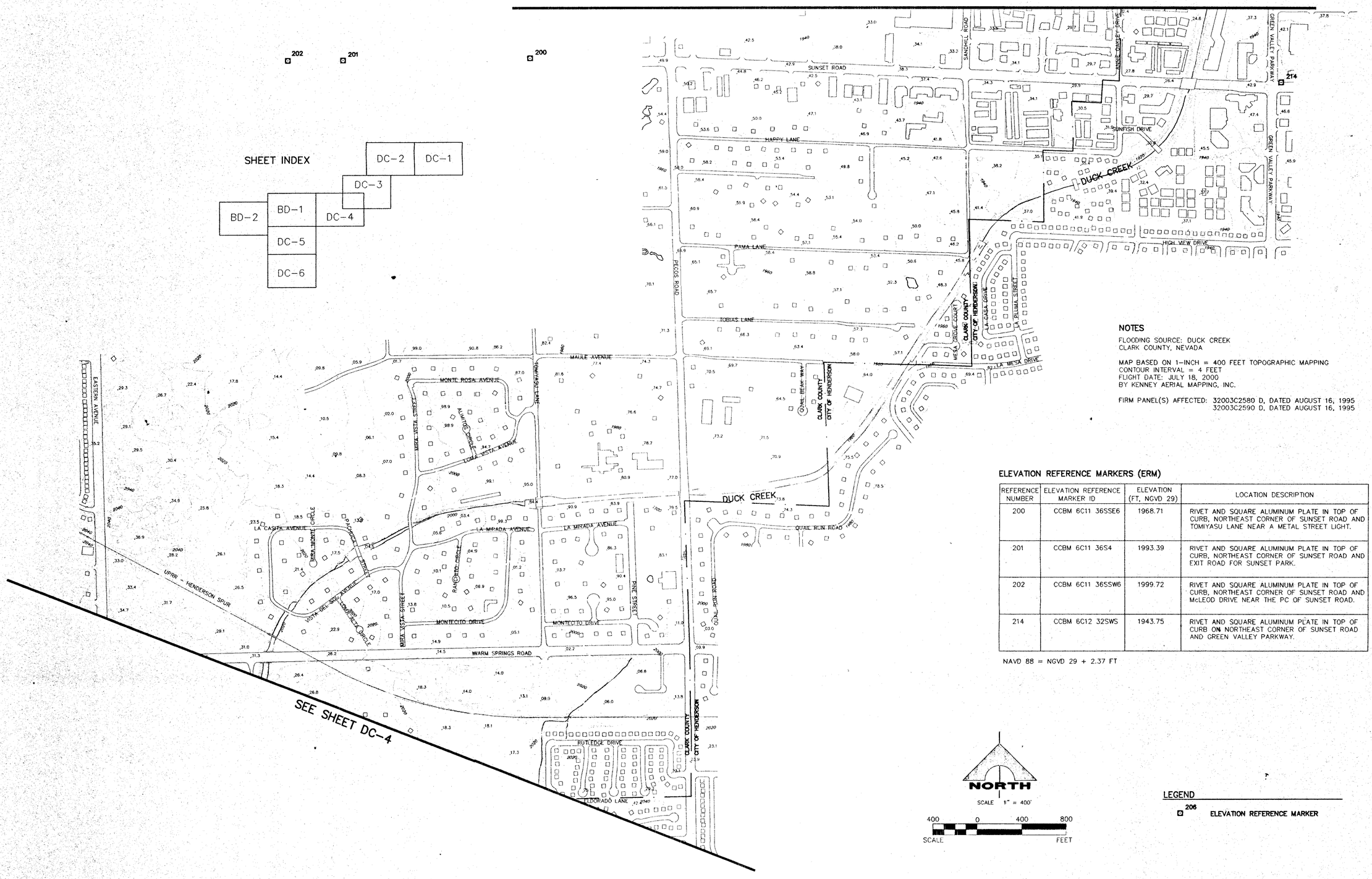
SHEET
**DC-2**
2 OF 8 SHTS

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SEE SHEET DC-2

SHEET INDEX

DC-2 | DC-1
DC-3
BD-2 | BD-1 | DC-4
DC-5
DC-6




## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2580 D, DATED AUGUST 16, 1995
32003C2590 D, DATED AUGUST 16, 1995

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 200 | CCBM 6C11 36SSE6 | 1968.71 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND TOMIYASU LANE NEAR A METAL STREET LIGHT. |
| 201 | CCBM 6C11 36S4 | 1993.39 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND EXIT ROAD FOR SUNSET PARK. |
| 202 | CCBM 6C11 36SSW6 | 1999.72 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND McLEOD DRIVE NEAR THE PC OF SUNSET ROAD. |
| 214 | CCBM 6C12 32SWS | 1943.75 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB ON NORTHEAST CORNER OF SUNSET ROAD AND GREEN VALLEY PARKWAY. |

NAVD 88 = NGVD 29 + 2.37 FT

NORTH
SCALE 1" = 400'

400 0 400 800
SCALE FEET

LEGEND

206 ELEVATION REFERENCE MARKER

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-14-02
PLOT TIME: 20:10:54
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| REV | DATE | DESCRIPTION | DATE ASEN APP | DATE GCW APP | DATE |
|---|---|---|---|---|---|

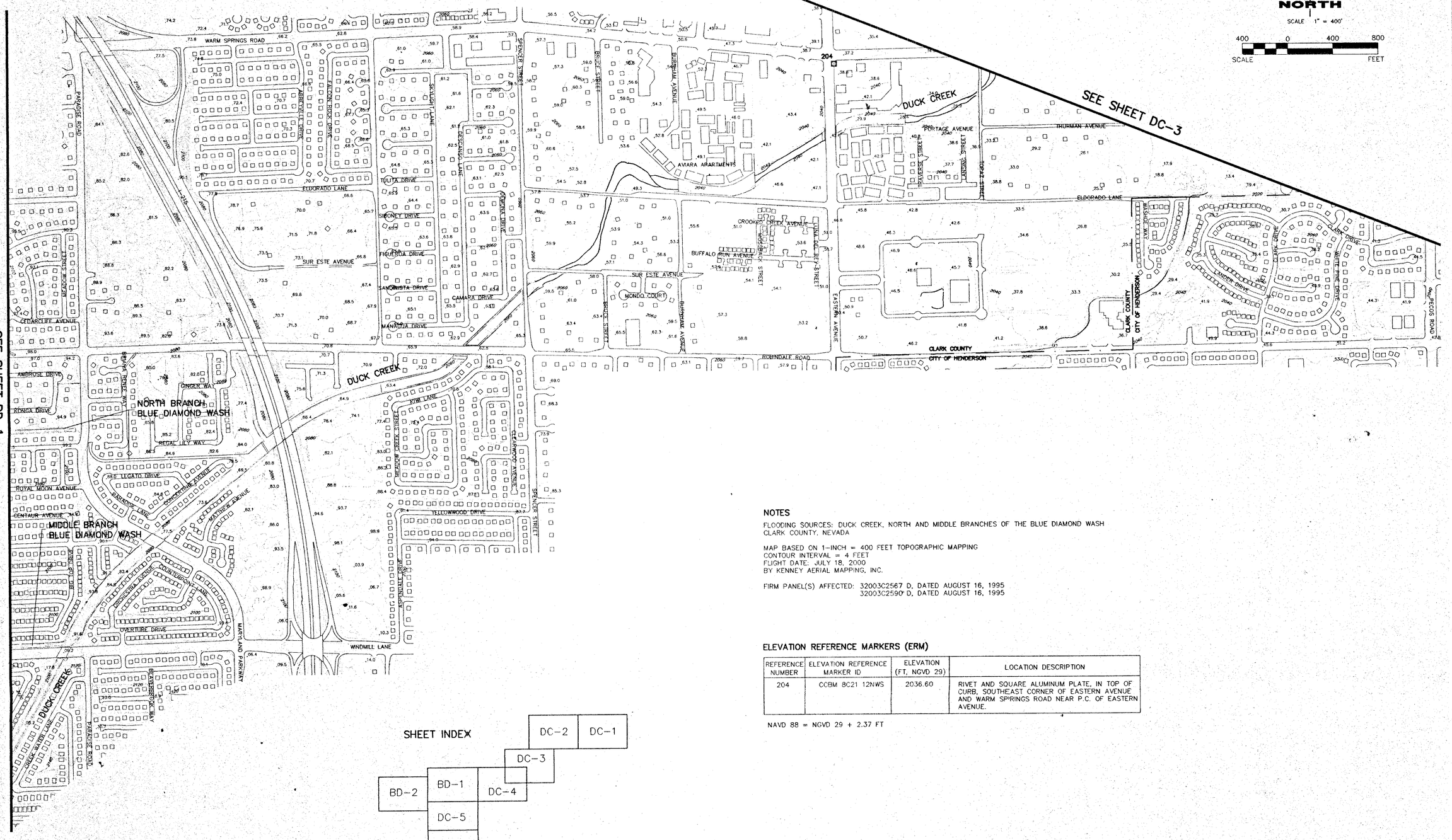
G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299
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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM WARM SPRINGS ROAD TO SUNSET ROAD

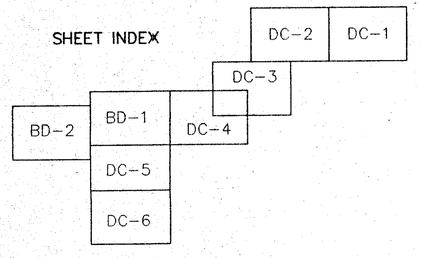
BASE MAP

SHEET
DC-3
3 OF 8 SHTS

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SHEET INDEX




## NOTES

FLOODING SOURCES: DUCK CREEK, NORTH AND MIDDLE BRANCHES OF THE BLUE DIAMOND WASH
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2567 D, DATED AUGUST 16, 1995
32003C2590 D, DATED AUGUST 16, 1995

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 204 | CCBM 8C21 12NWS | 2036.60 | RIVET AND SQUARE ALUMINUM PLATE, IN TOP OF CURB, SOUTHEAST CORNER OF EASTERN AVENUE AND WARM SPRINGS ROAD NEAR P.C. OF EASTERN AVENUE. |

NAVD 88 = NGVD 29 + 2.37 FT

LEGEND

206 ELEVATION REFERENCE MARKER

DESIGN:
DRAWN:
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ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-14-02
PLOT TIME: 20:12:54
Mlydwig

REV DATE DESCRIPTION RATE AGEN APP RATE GOV APP DATE

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299
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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM WINDMILL LANE TO WARM SPRINGS ROAD

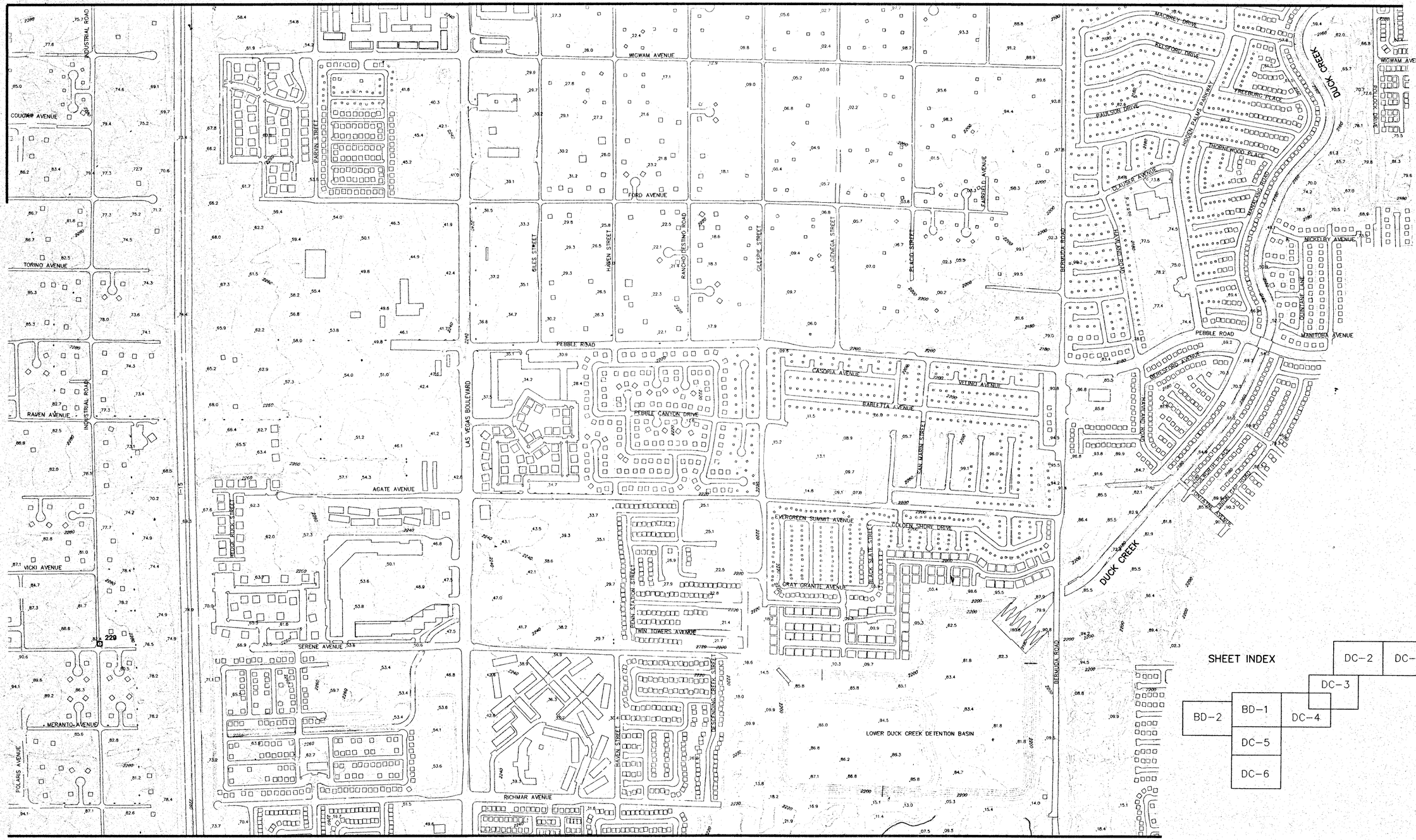
BASE MAP

SHEET DC-4
4 OF 8 SHTS

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SEE SHEET BD-1

SEE SHEET BD-2




SEE SHEET DC-6

## SHEET INDEX




## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 229 | CCBM OC21 20C4 | 2281.61 | RIVET AND SQUARE ALUMINUM PLATE, IN THE WEST CENTER OF A 4 FT. X 3 FT. CONCRETE PAD IN THE NORTHEAST CORNER OF INDUSTRIAL ROAD AND SERENE AVENUE. |

NAVD 88 = NGVD 29 + 2.37 FT

## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2566 D, DATED AUGUST 16, 1995
32003C2567 D, DATED AUGUST 16, 1995
32003C2568 D, DATED AUGUST 16, 1995
32003C2569 D, DATED AUGUST 16, 1995

NORTH

SCALE 1" = 400'

400 0 400 800

SCALE FEET

LEGEND

206 ELEVATION REFERENCE MARKER

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-14-02
PLOT TIME: 20:14:42
Mludwig

| REV. | DATE | DESCRIPTION | DATE | AGEN. APP. | DATE | GCW APP. | DATE |
|---|---|---|---|---|---|---|---|

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000• FAX: (702) 804-2299

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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY

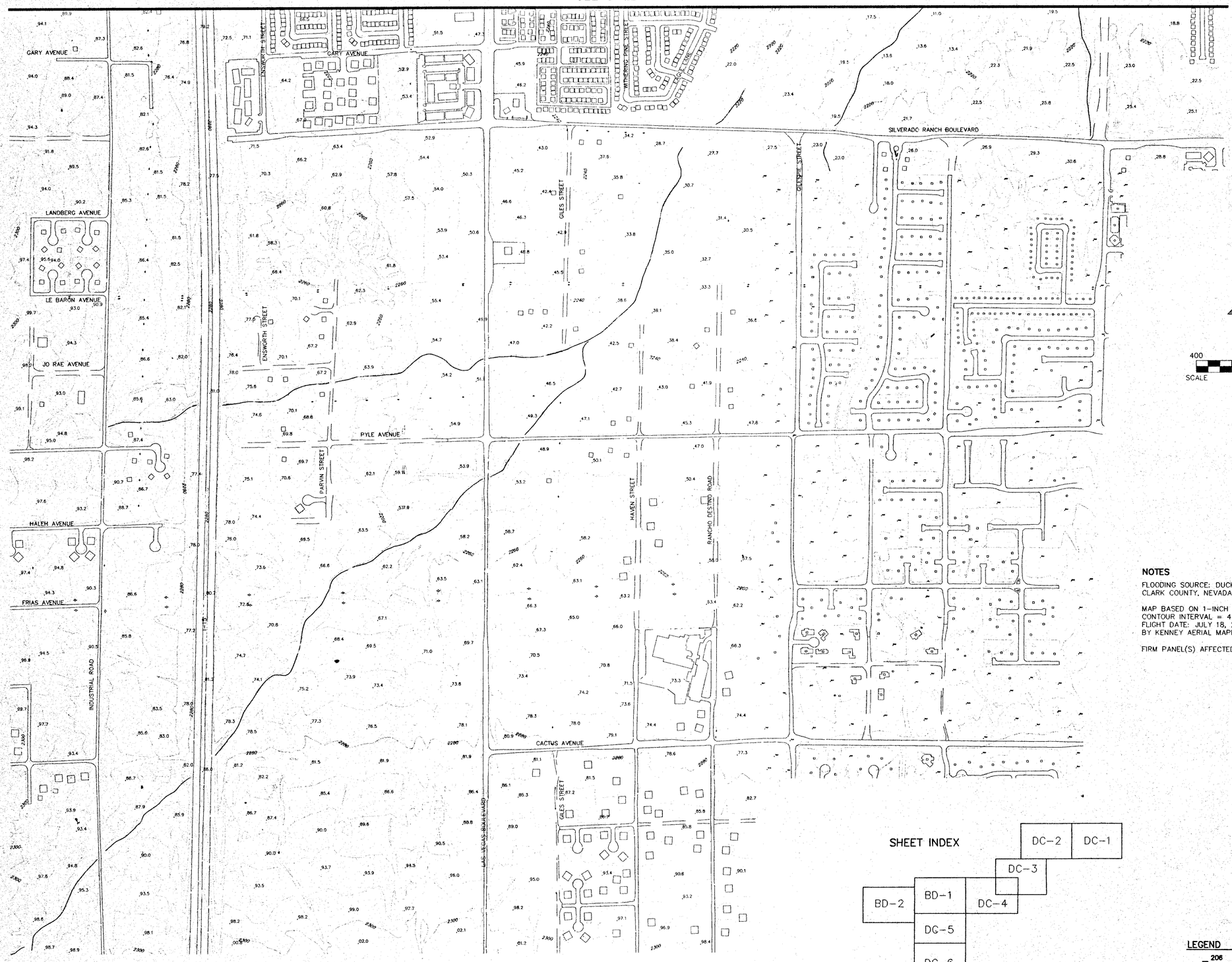
DUCK CREEK FROM RICHMAR AVENUE TO WIGWAM AVENUE

BASE MAP

SHEET
DC-5
5 OF 8 SHTS

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SEE SHEET DC-5




NORTH

SCALE 1" = 400'

SCALE 400 0 400 800 FEET

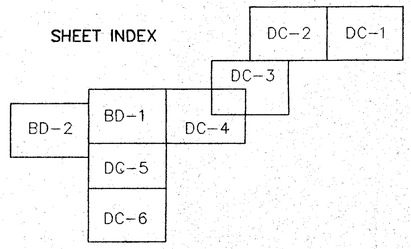
## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2569 D, DATED AUGUST 16, 1995
32003C2568 D, DATED AUGUST 16, 1995
32003C2910 D, DATED AUGUST 16, 1995

SHEET INDEX




LEGEND

206 ELEVATION REFERENCE MARKER

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-14-02
PLOT TIME: 20:15:54
Mludwig

DATE | DESCRIPTION | REV | DATE

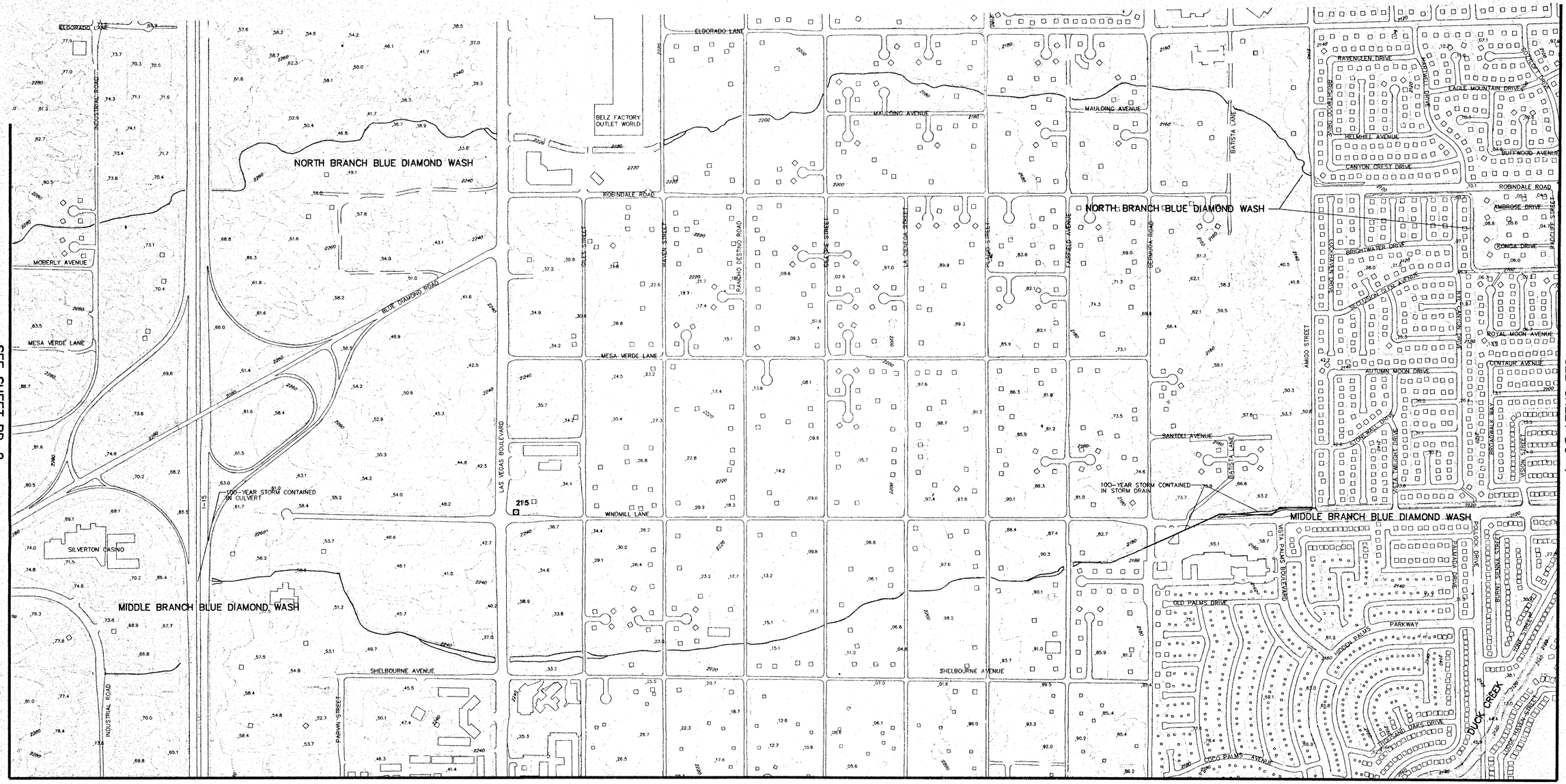
G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

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DUCK CREEK/ BLUE DIAMOND WASHES FRS RESTUDY
DUCK CREEK FROM I-15 TO RICHMAR AVENUE

# BASE MAP

SHEET
DC-6
6 OF 8 SHTS




## NOTES

FLOODING SOURCE: NORTH AND MIDDLE BRANCHES OF BLUE DIAMOND WASH; DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001
BY KENNEY AERIAL MAPPING, INC.

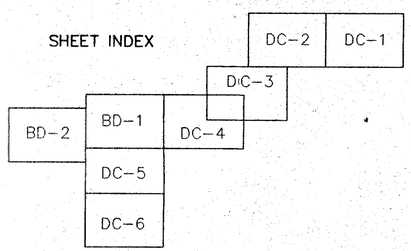
FIRM PANEL(S) AFFECTED: 32003C2566 D, DATED AUGUST 16, 1995
32003C2567 D, DATED AUGUST 16, 1995

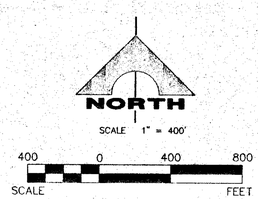
## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 215 | CCBM OC21 9SWS | 2240.64 | RIVET AND SQUARE ALUMINUM PLATE, IN TOP OF CURB NEAR 1/2 DELTA, WEST PORTION OF PLANTER, NORTHEAST CORNER OF LAS VEGAS BOULEVARD AND WINDMILL LANE. |

NAVD 88 = NGVD 29 + 2.37 FT

SHEET INDEX




LEGEND

206 ELEVATION REFERENCE MARKER

DESIGN:
DRAWN:
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ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-14-02
PLOT TIME: 20:06:05
Mludwig

| REV | DATE | DESCRIPTION | DATE AGEN. APP | DATE BCW APP | DATE: |
|---|---|---|---|---|---|

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000• FAX: (702) 804-2299
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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
BLUE DIAMOND WASHES FROM INDUSTRIAL ROAD TO PARADISE ROAD

# BASE MAP

SHEET
BD-1
7 OF 8 SHTS

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## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 217 | CCBM OC21 8SSW6 | 2286.91 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB ON THE EAST SIDE OF INDUSTRIAL ROAD IN FRONT OF A FIRE HYDRANT 950'± NORTH OF BLUE DIAMOND ROAD. |
| 222 | SNWA BRASS CAP | 2412.57 | FOUND 3" BRASS CAP AT NORTHWEST CORNER OF VAULT (UNMARKED) 200'± WEST OF RAILROAD TRACKS AT BRIDGE OVER WASH "SOUTHERN NEVADA WATER SYSTEM". |

NAVD 88 = NGVD 29 + 2.37 FT

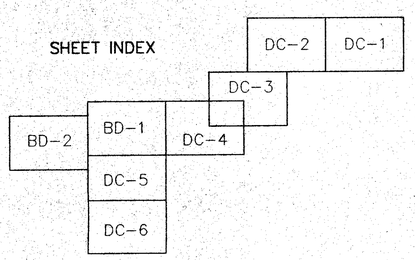
## NOTES

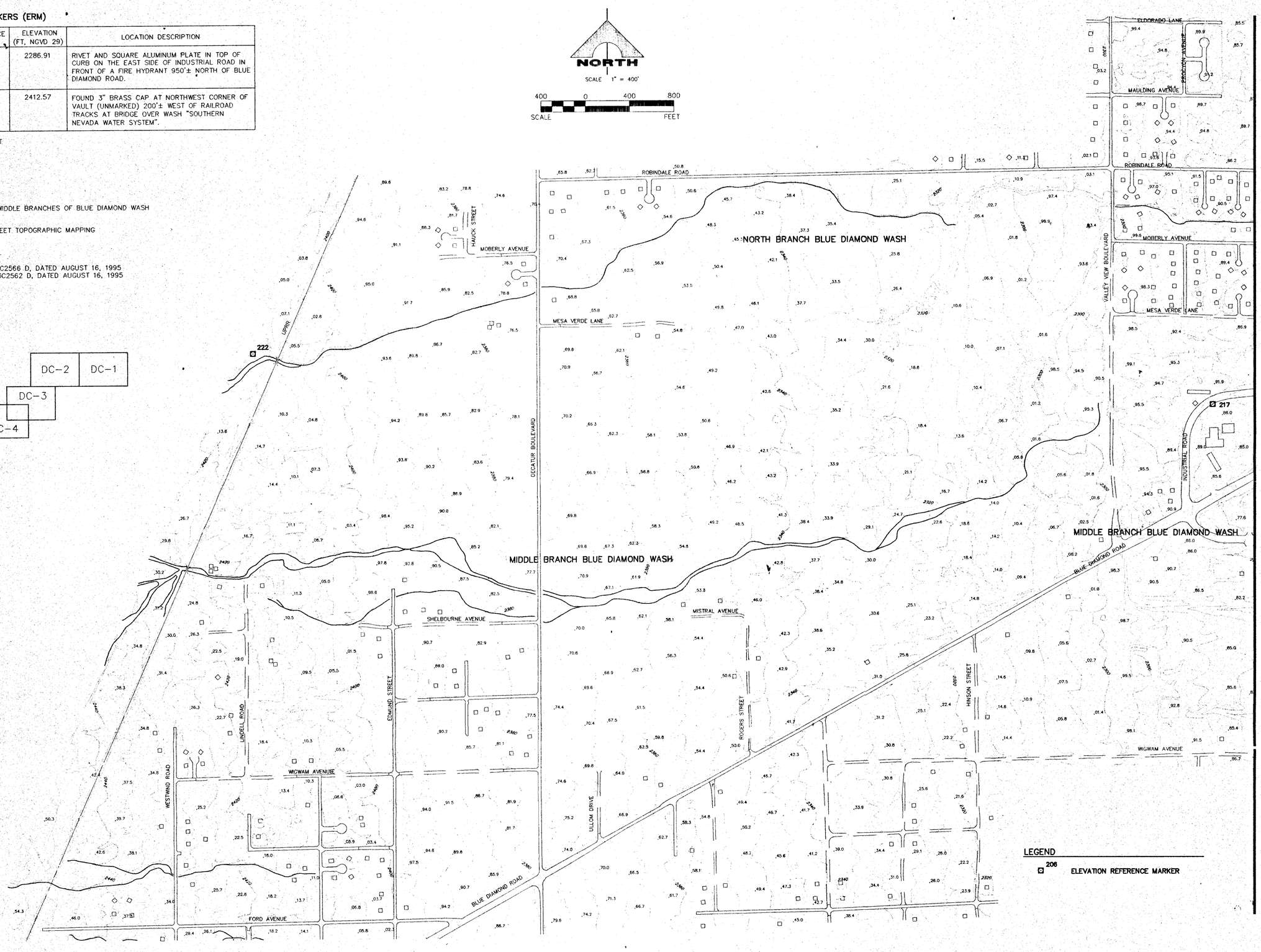
FLOODING SOURCE: NORTH AND MIDDLE BRANCHES OF BLUE DIAMOND WASH
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2566 D, DATED AUGUST 16, 1995
32003C2562 D, DATED AUGUST 16, 1995

## SHEET INDEX




SEE SHEET BD-1

SEE SHEET DC-5

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ISSUE EDITOR:
PLOT DATE: 03-14-02
PLOT TIME: 20:07:25
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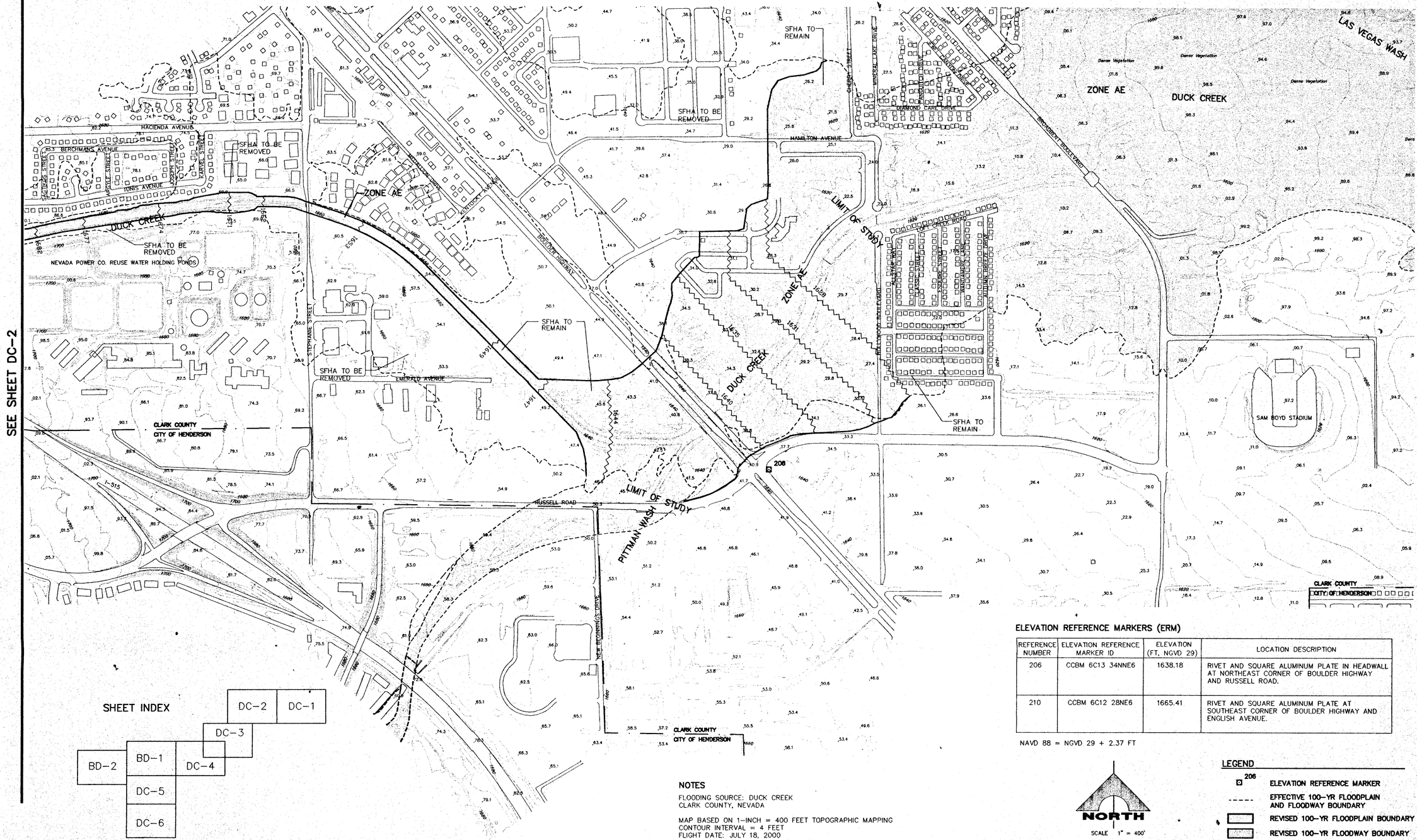
DATE | DESCRIPTION | REV. | DATE | AGEN. APP. | DATE | GOW APP. | DATE

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299
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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
BLUE DIAMOND WASHES FROM UPPR TO INDUSTRIAL ROAD
BASE MAP

SHEET
BD-2
8 OF 8 SHTS

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SHEET INDEX




## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 206 | CCBM 6C13 34NNE6 | 1638.18 | RIVET AND SQUARE ALUMINUM PLATE IN HEADWALL AT NORTHEAST CORNER OF BOULDER HIGHWAY AND RUSSELL ROAD. |
| 210 | CCBM 6C12 28NE6 | 1665.41 | RIVET AND SQUARE ALUMINUM PLATE AT SOUTHEAST CORNER OF BOULDER HIGHWAY AND ENGLISH AVENUE. |

NAVD 88 = NGVD 29 + 2.37 FT

### NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2585 D, DATED AUGUST 16, 1995

NORTH
SCALE 1" = 400'

400 0 400 800
SCALE FEET

### LEGEND

- 206 — ELEVATION REFERENCE MARKER
- EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- 2058 — BASE FLOOD ELEVATION

DATE | DESCRIPTION | REV | DATE | DRWN | APP | DATE | DRWN | APP

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ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 15:54:59
Mludwig

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

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DUCK CREEK/ BLUE DIAMOND WASHES FRS RESTUDY
DUCK CREEK FROM DENNING STREET TO HOLLYWOOD BLVD.

# WORK MAP

SHEET
DC-1
1 OF 8 SHTS

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 207 | WHITNEY #2 USC&GS | 1905.62 | USC&GS BRASS CAP, WHITNEY #2, 1972. LOCATED ON THE TOP OF THE NORTHEAST PORTION OF THE MESA THAT VO-TECH IS ON. ALSO 70 FEET OF PP #67761NP, (1 OF 3 POWER POLES SET ON WEST EDGE OF MESA). |
| 208 | CCBM 6C12 29C4 | 1783.99 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF MOUNTAIN VISTA STREET AND HACIENDA AVENUE NEAR THE PC OF MOUNTAIN VISTA STREET. |
| 212 | CCBM 7C12 31NNW6 | 1912.27 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, SOUTHEAST CORNER OF RUSSELL ROAD AND PEARL STREET NEAR THE PC OF RUSSELL ROAD. |

NAVD 88 = NGVD 29 + 2.37 FT

## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2580 D, DATED AUGUST 16, 1995
32003C2585 D, DATED AUGUST 16, 1995

SHEET INDEX

DC-2 | DC-1
DC-3
BD-2 | BD-1 | DC-4
DC-5
DC-6




LEGEND

- 206 — ELEVATION REFERENCE MARKER
- ----- — EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- 2058 — BASE FLOOD ELEVATION

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ISSUE EDITOR:
PLOT DATE: 03-17-02
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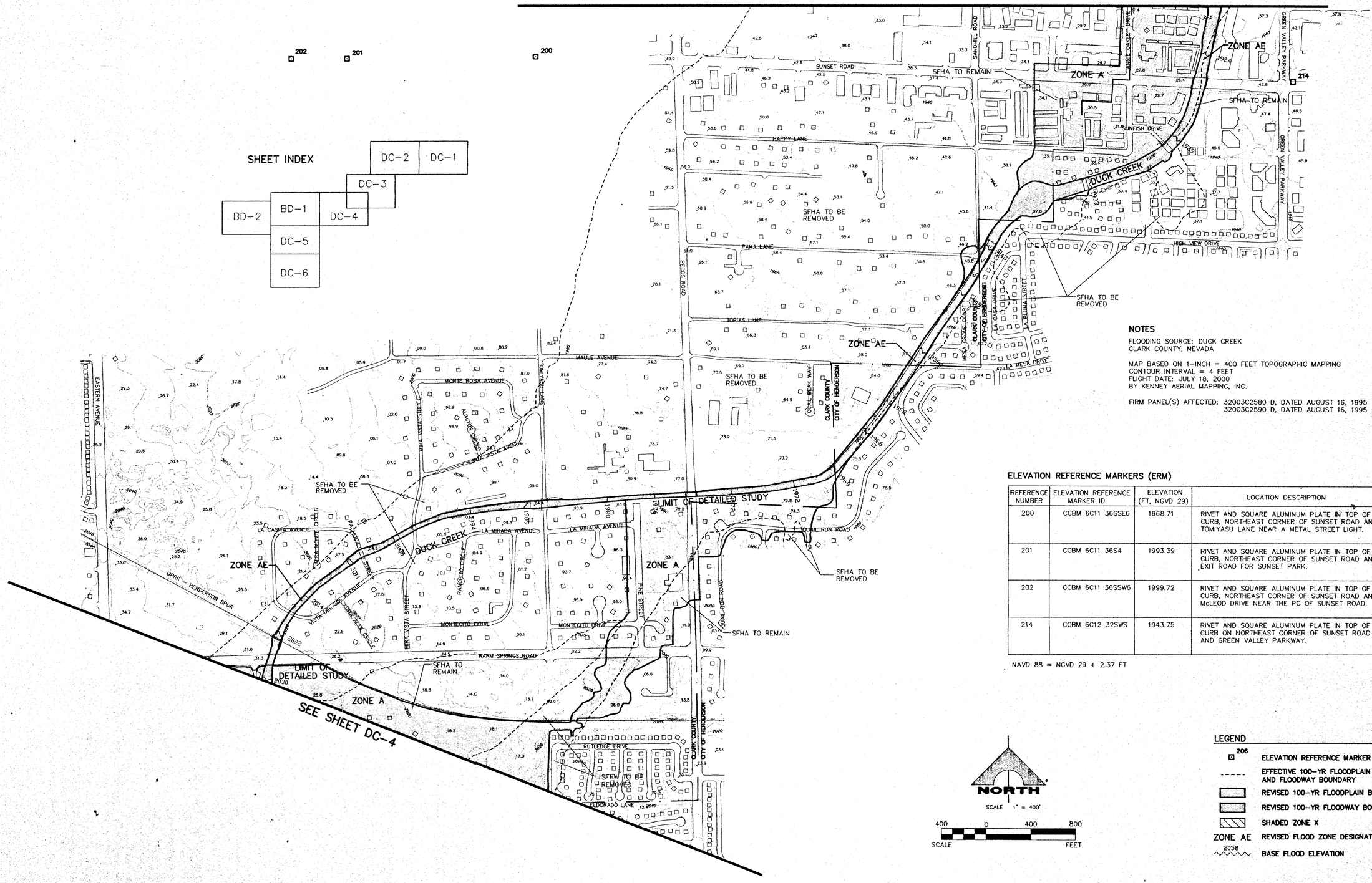
G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD., LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 FAX: (702) 804-2299
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# DUCK CREEK/ BLUE DIAMOND WASHES 7.8 RESTUDY
## DUCK CREEK FROM SUNSET ROAD TO DENNING STREET
## WORK MAP

SHEET
DC-2
2 OF 8 SHTS

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SEE SHEET DC-2




## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2580 D, DATED AUGUST 16, 1995
32003C2590 D, DATED AUGUST 16, 1995

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 200 | CCBM 6C11 36SSE6 | 1968.71 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND TOMIYASU LANE NEAR A METAL STREET LIGHT. |
| 201 | CCBM 6C11 36S4 | 1993.39 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND EXIT ROAD FOR SUNSET PARK. |
| 202 | CCBM 6C11 36SSW6 | 1999.72 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND McLEOD DRIVE NEAR THE PC OF SUNSET ROAD. |
| 214 | CCBM 6C12 32SWS | 1943.75 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB ON NORTHEAST CORNER OF SUNSET ROAD AND GREEN VALLEY PARKWAY. |

NAVD 88 = NGVD 29 + 2.37 FT

NORTH
SCALE 1" = 400'

400 0 400 800
SCALE FEET

## LEGEND

- ELEVATION REFERENCE MARKER
- EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- 2058 — BASE FLOOD ELEVATION

| REV | DATE | DESCRIPTION | DATE AGEN. APP | DATE DCM. APP. | DATE |
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PLOT DATE: 16.12.06
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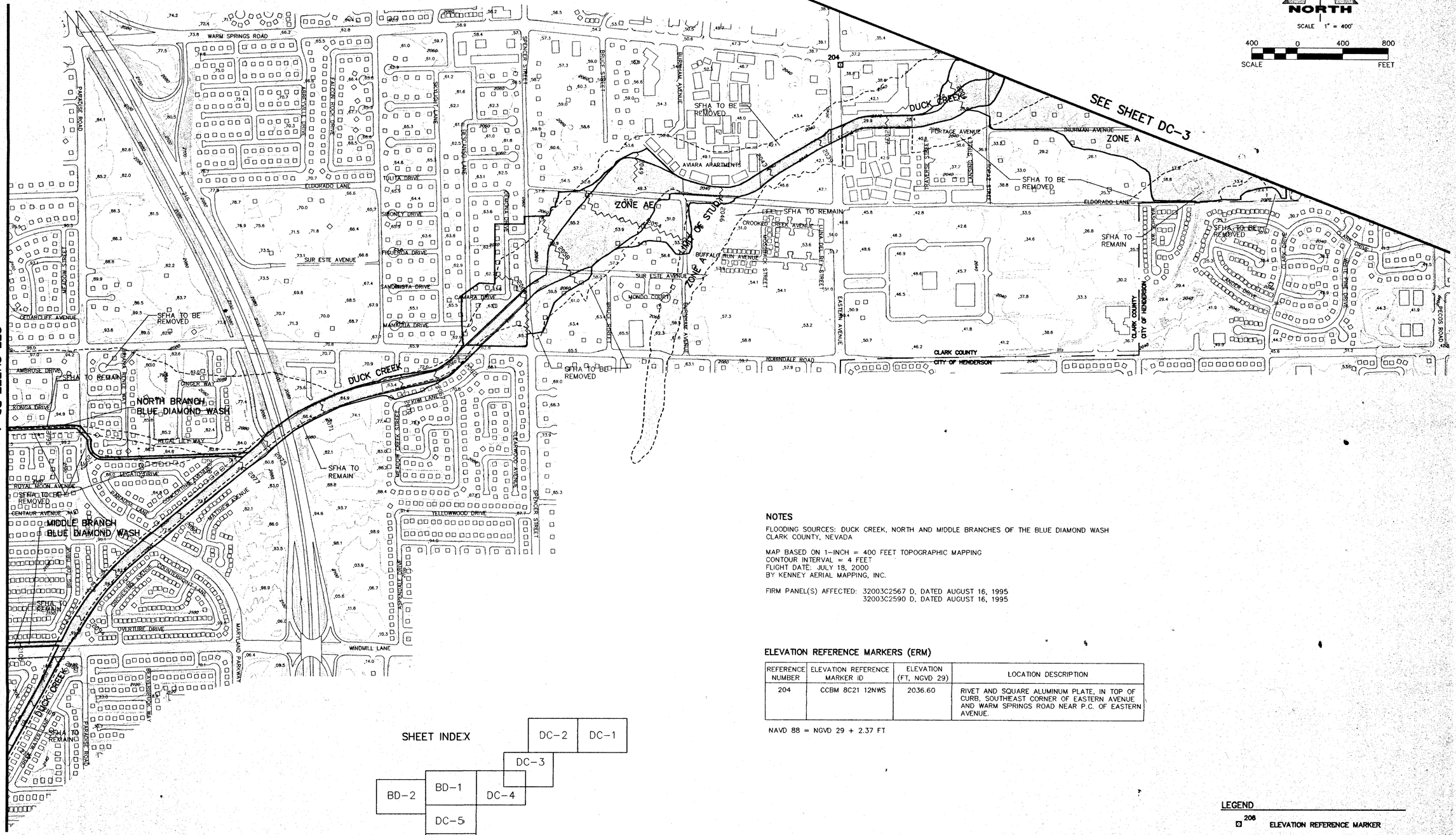
G.C. WALLACE, INC.
CONSULTING ENGINEERS/Planners/Surveyors
7395 S. PECOS ROAD, SUITE A104 LAS VEGAS, NEVADA 89120
TELEPHONE: (702) 896-2000 • FAX: (702) 896-2009

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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM WARM SPRINGS ROAD TO SUNSET ROAD
WORK MAP

SHEET
DC-3
3 OF 8 SHTS

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## NOTES

FLOODING SOURCES: DUCK CREEK, NORTH AND MIDDLE BRANCHES OF THE BLUE DIAMOND WASH CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

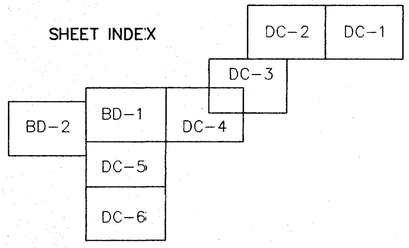
FIRM PANEL(S) AFFECTED: 32003C2567 D, DATED AUGUST 16, 1995
32003C2590 D, DATED AUGUST 16, 1995

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 204 | CCBM 8C21 12NWS | 2036.60 | RIVET AND SQUARE ALUMINUM PLATE, IN TOP OF CURB, SOUTHEAST CORNER OF EASTERN AVENUE AND WARM SPRINGS ROAD NEAR P.C. OF EASTERN AVENUE. |

NAVD 88 = NGVD 29 + 2.37 FT

SHEET INDEX




LEGEND

- 206 — ELEVATION REFERENCE MARKER
- ----- — EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- 2058 — BASE FLOOD ELEVATION

| REV | DATE | DESCRIPTION | DATE | APP | DATE | APP |
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ISSUE DATE: 03-17-02
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 16:20:32
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G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
PHONE (702) 804-2100 FAX: (702) 804-2299
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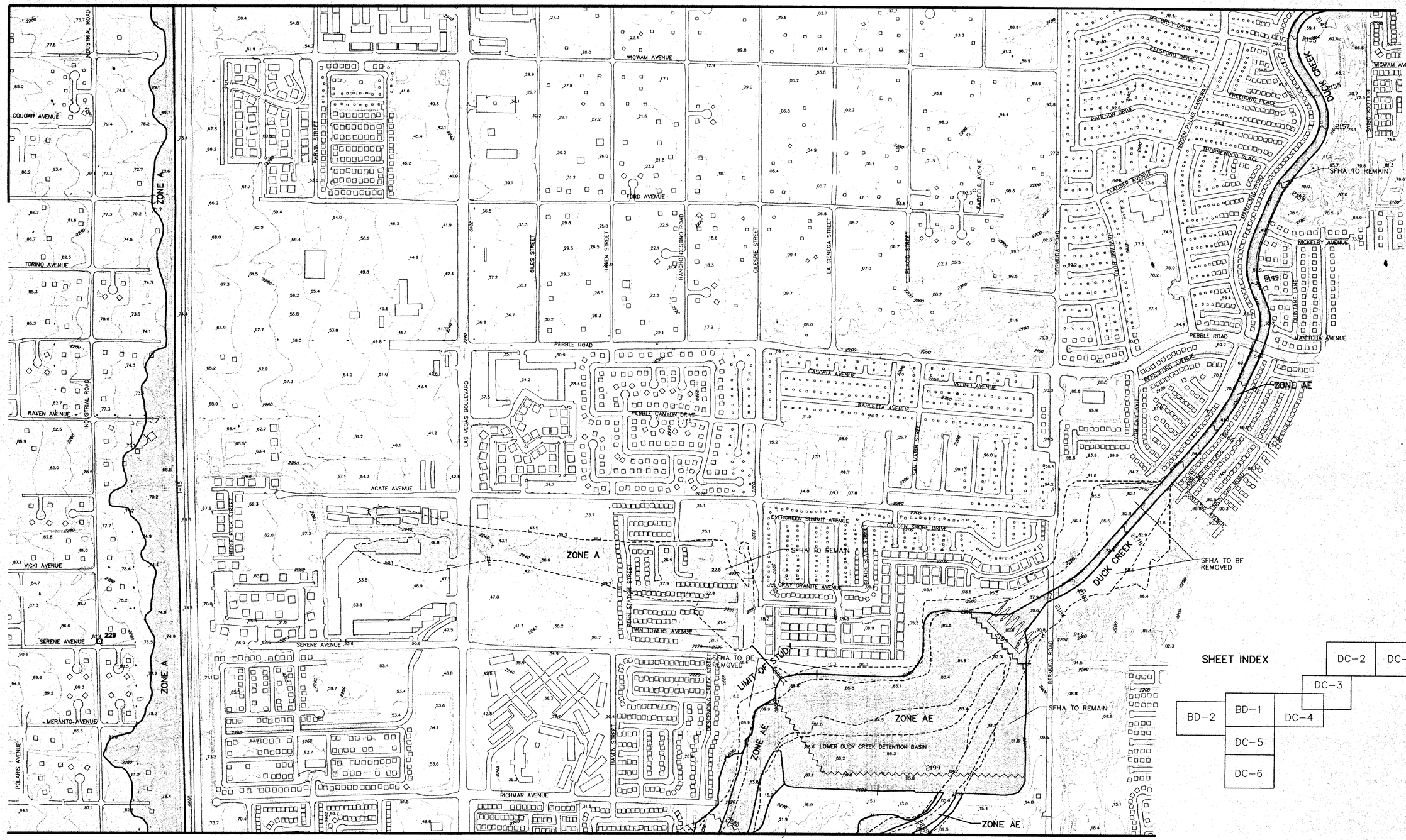
DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM WINDMILL LANE TO WARM SPRINGS ROAD
WORK MAP

SHEET DC-4
4 OF 8 SHTS

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SEE SHEET BD-1

SEE SHEET BD-2




SEE SHEET DC-6

SHEET INDEX




### ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 229 | CCBM OC21 20C4 | 2281.61 | RIVET AND SQUARE ALUMINUM PLATE, IN THE WEST CENTER OF A 4 FT. X 3 FT. CONCRETE PAD IN THE NORTHEAST CORNER OF INDUSTRIAL ROAD AND SERENE AVENUE. |

NAVD 88 = NGVD 29 + 2.37 FT

### NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2566 D, DATED AUGUST 16, 1995
32003C2567 D, DATED AUGUST 16, 1995
32003C2568 D, DATED AUGUST 16, 1995
32003C2569 D, DATED AUGUST 16, 1995

NORTH

SCALE 1" = 400'

400 0 400 800
SCALE FEET

LEGEND

- 206 — ELEVATION REFERENCE MARKER
- EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- 2058 — BASE FLOOD ELEVATION

DESIGN:
DRAWN:
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ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 16:36:23

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| | | | | |

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
765 COMMERCIAL WAY, LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 895-6000 FAX: (702) 895-6099
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DUCK CREEK/ BLUE DIAMOND WASHES FRS RESTUDY

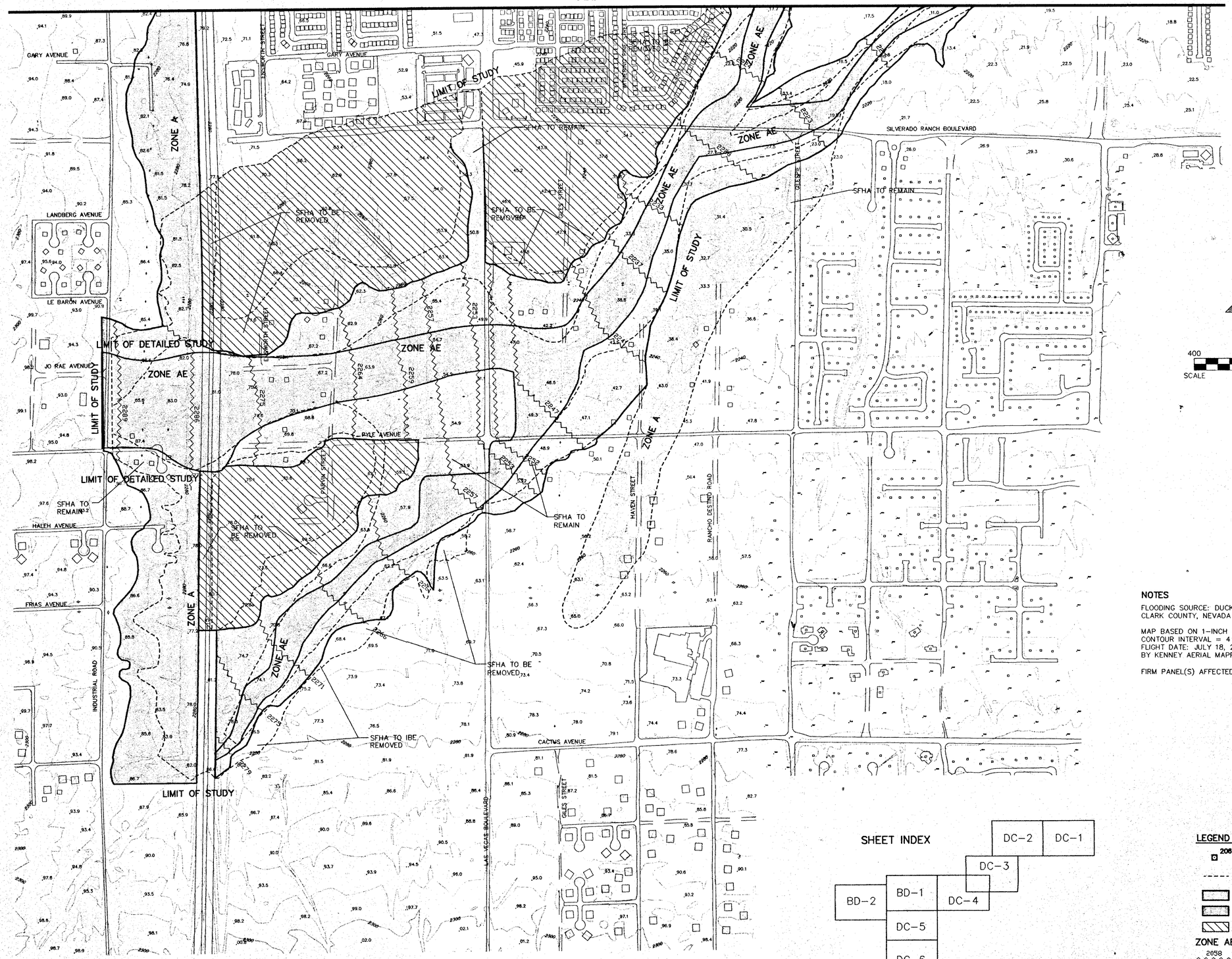
DUCK CREEK FROM RICHMAR AVENUE TO WIGWAM AVENUE

WORK MAP

SHEET
DC-5
5 OF 8 SHTS

F:\550-039\dwg\map\workmaps\dc-5.dwg 03-17-02 16:36:23 Mludwig

SEE SHEET DC-5




NORTH

SCALE 1" = 400'

400 0 400 800

SCALE FEET

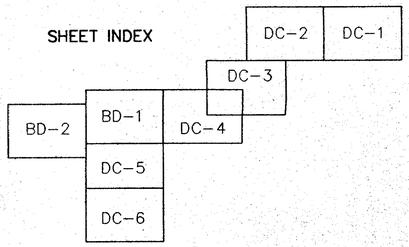
## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2569 D, DATED AUGUST 16, 1995
32003C2568 D, DATED AUGUST 16, 1995
32003C2910 D, DATED AUGUST 16, 1995

SHEET INDEX




LEGEND

- 206 — ELEVATION REFERENCE MARKER
- ----- — EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- 2058 — BASE FLOOD ELEVATION

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 16:44:59
Mludwig

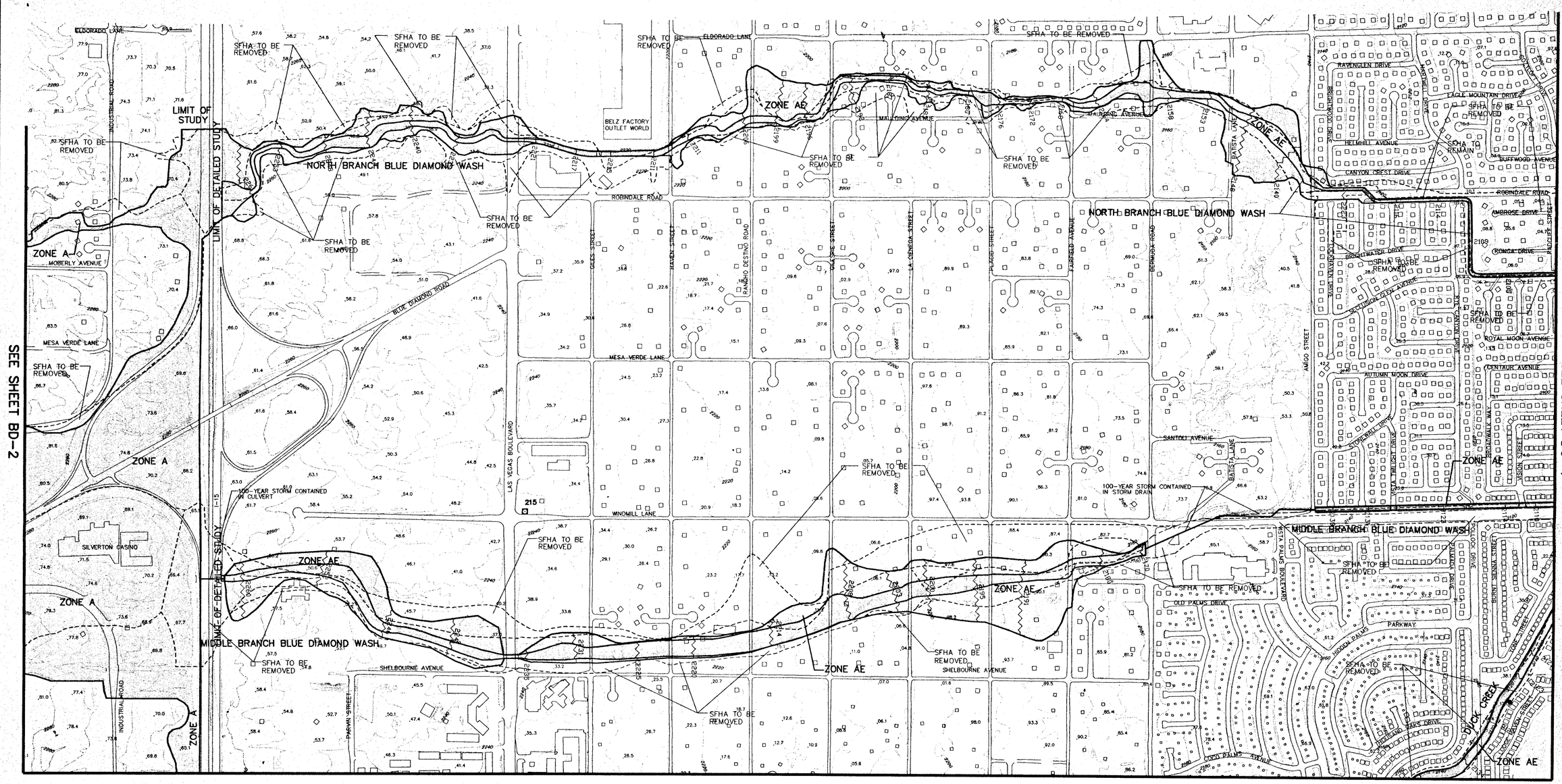
REV | DATE | DESCRIPTION | DATE AGEN. APP | DATE CCFW APP | DATE:

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299
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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM I-15 TO RICHMAR AVENUE
WORK MAP

SHEET
DC-6
6 OF 8 SHTS

F:\550-039\dwg\map\workmaps\dc-6.dwg 03-17-02 16:44:59 Mludwig




## NOTES

FLOODING SOURCE: NORTH AND MIDDLE BRANCHES OF BLUE DIAMOND WASH; DUCK CREEK CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001
BY KENNEY AERIAL MAPPING, INC.

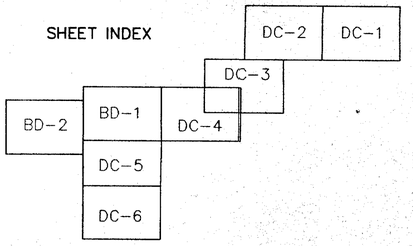
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32003C2567 D, DATED AUGUST 16, 1995

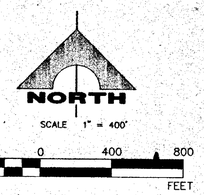
## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 215 | CCBM 0C21 9SWS | 2240.64 | RIVET AND SQUARE ALUMINUM PLATE, IN TOP OF CURB NEAR 1/2 DELTA, WEST PORTION OF PLANTER, NORTHEAST CORNER OF LAS VEGAS BOULEVARD AND WINDMILL LANE. |

NAVD 88 = NGVD 29 + 2.37 FT

SHEET INDEX




LEGEND

- 206 — ELEVATION REFERENCE MARKER
- EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- 2058 — BASE FLOOD ELEVATION

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 16:58:31
Mludwig

| REV | DATE | DESCRIPTION | DATE | AGEN. APP | DATE | GCW APP | DATE |
|---|---|---|---|---|---|---|---|

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE (702) 804-2000 • FAX (702) 804-2299

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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
BLUE DIAMOND WASHES FROM INDUSTRIAL ROAD TO PARADISE ROAD

**WORK MAP**

SHEET
**BD-1**
7 OF 8 SHTS

Mludwig 03-17-02 16:58:31 F:\550-039\dwg\vmap\workmaps\bd-1.dwg

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 217 | CCBM 0C21 8SSW6 | 2286.91 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB ON THE EAST SIDE OF INDUSTRIAL ROAD IN FRONT OF A FIRE HYDRANT 950'± NORTH OF BLUE DIAMOND ROAD. |
| 222 | SNWA BRASS CAP | 2412.57 | FOUND 3" BRASS CAP AT NORTHWEST CORNER OF VAULT (UNMARKED) 200'± WEST OF RAILROAD TRACKS AT BRIDGE OVER WASH "SOUTHERN NEVADA WATER SYSTEM". |

NAVD 88 = NGVD 29 + 2.37 FT

## NOTES

FLOODING SOURCE: NORTH AND MIDDLE BRANCHES OF BLUE DIAMOND WASH
CLARK COUNTY, NEVADA

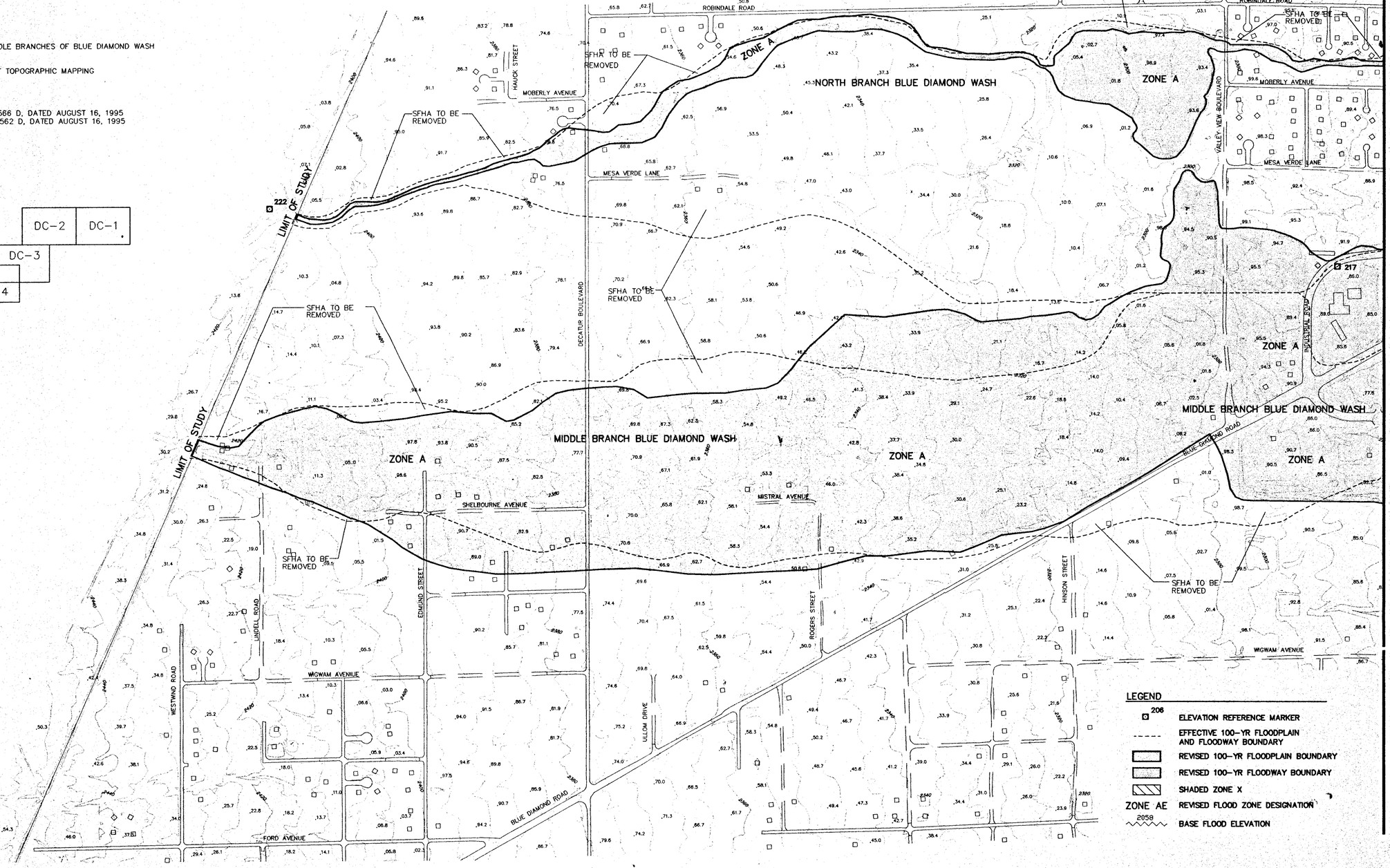
MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2566 D, DATED AUGUST 16, 1995
32003C2562 D, DATED AUGUST 16, 1995

SHEET INDEX

DC-2 | DC-1
DC-3
BD-2 | BD-1 | DC-4
DC-5
DC-6

NORTH
SCALE 1" = 400'
400 0 400 800
SCALE FEET




LEGEND

- 206 — ELEVATION REFERENCE MARKER
- EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- 2058 — BASE FLOOD ELEVATION

SEE SHEET BD-1
SEE SHEET DC-5

DESIGN:
DRAWN:
CHECK:
ISSUE DATE: 03-17-02
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 17:03:26
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DATE | REV. | DESCRIPTION | DATE | AGEN. | APP | DATE | GCW | APP

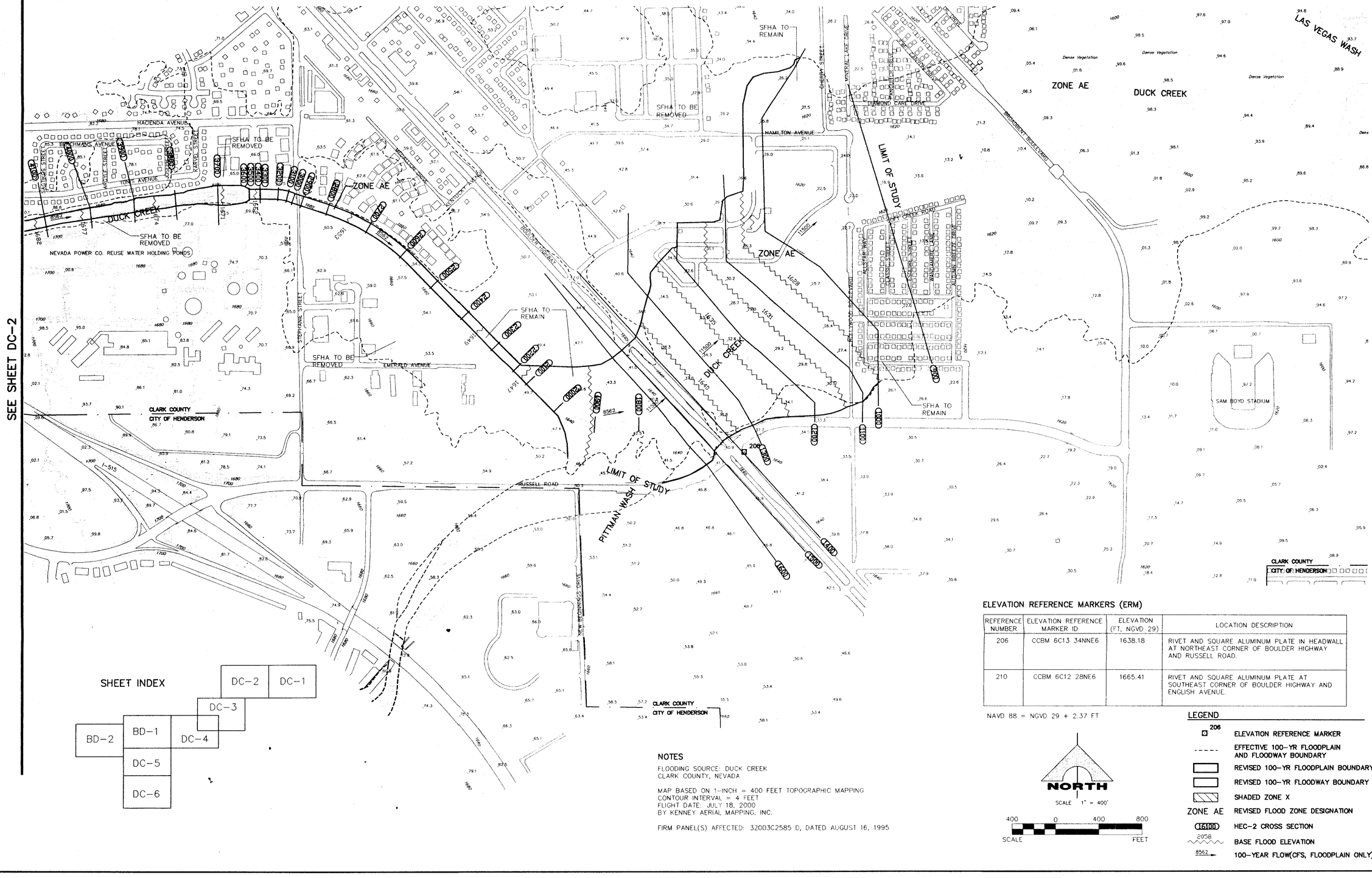
G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000• FAX: (702) 804-2299

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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
BLUE DIAMOND WASHES FROM UPRR TO INDUSTRIAL ROAD

# WORK MAP

SHEET
BD-2
8 OF 8 SHTS




## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2585 D, DATED AUGUST 16, 1995

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 206 | CCBM 6C13 34NNE6 | 1638.18 | RIVET AND SQUARE ALUMINUM PLATE IN HEADWALL AT NORTHEAST CORNER OF BOULDER HIGHWAY AND RUSSELL ROAD. |
| 210 | CCBM 6C12 28NE6 | 1665.41 | RIVET AND SQUARE ALUMINUM PLATE AT SOUTHEAST CORNER OF BOULDER HIGHWAY AND ENGLISH AVENUE. |

NAVD 88 = NGVD 29 + 2.37 FT

NORTH

SCALE 1" = 400'

400 0 400 800
SCALE FEET

## LEGEND

- 206 — ELEVATION REFERENCE MARKER
- ----- — EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- ▭ — REVISED 100-YR FLOODPLAIN BOUNDARY
- ▭ — REVISED 100-YR FLOODWAY BOUNDARY
- ▨ — SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- (16100) — HEC-2 CROSS SECTION
- 2058 — BASE FLOOD ELEVATION
- 8562 → — 100-YEAR FLOW(CFS, FLOODPLAIN ONLY)

DESIGN:
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CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 15:59:24

DATE | DESCRIPTION | DATE A/EN APP | DATE G/W APP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

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DUCK CREEK/ BLUE DIAMOND WASHES FS RESTUDY
DUCK CREEK FROM DENNING STREET TO HOLLYWOOD BLVD.

# CROSS SECTION EXHIBIT

SHEET
DC-1
1 OF 8 SHTS

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 207 | WHITNEY #2 USC&GS | 1905.62 | USC&GS BRASS CAP, WHITNEY #2, 1972. LOCATED ON THE TOP OF THE NORTHEAST PORTION OF THE MESA THAT VO-TECH IS ON. ALSO 70 FEET OF PP #67761NP, (1 OF 3 POWER POLES SET ON WEST EDGE OF MESA). |
| 208 | CCBM 6C12 29C4 | 1783.99 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF MOUNTAIN VISTA STREET AND HACIENDA AVENUE NEAR THE PC OF MOUNTAIN VISTA STREET. |
| 212 | CCBM 7C12 31NNW6 | 1912.27 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, SOUTHEAST CORNER OF RUSSELL ROAD AND PEARL STREET NEAR THE PC OF RUSSELL ROAD. |

NAVD 88 = NGVD 29 + 2.37 FT

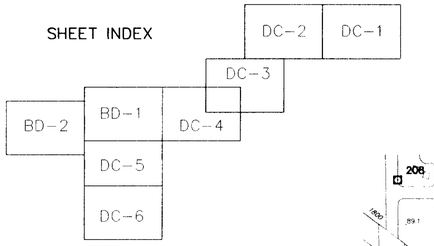
## NOTES

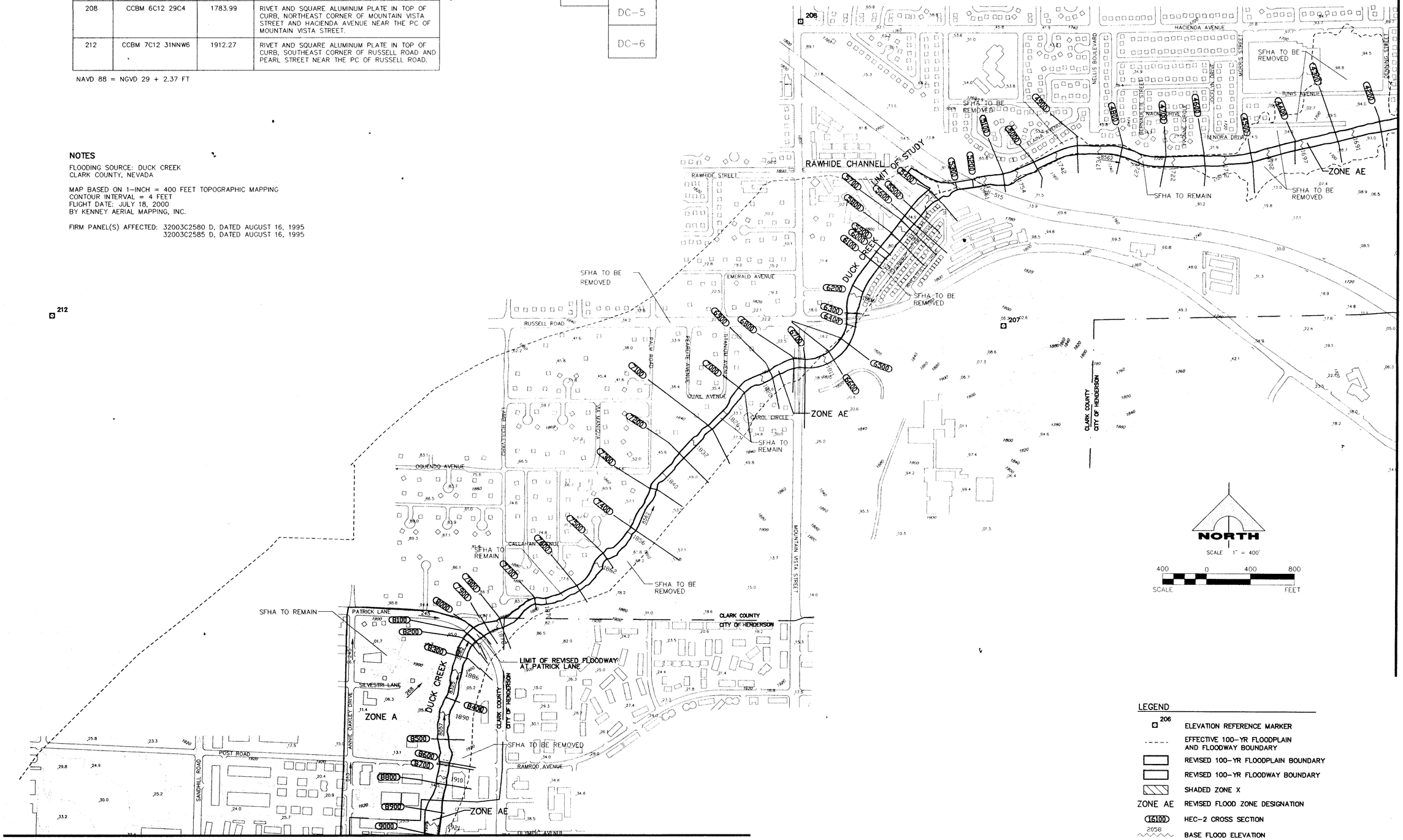
FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2580 D, DATED AUGUST 16, 1995
32003C2585 D, DATED AUGUST 16, 1995

SHEET INDEX







LEGEND

- 206 — ELEVATION REFERENCE MARKER
- EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- (6100) — HEC-2 CROSS SECTION
- 2058 — BASE FLOOD ELEVATION
- 8562 — 100-YEAR FLOW (CFS, FLOODPLAIN ONLY)

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 15:28:13
MU:dwg

| REV. | DATE | DESCRIPTION | DATE: AGEN. APP. | DATE: CCW. APP. |
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G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BOULEVARD, SUITE 400, LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299
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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM SUNSET ROAD TO DENNING STREET
CROSS SECTION EXHIBIT

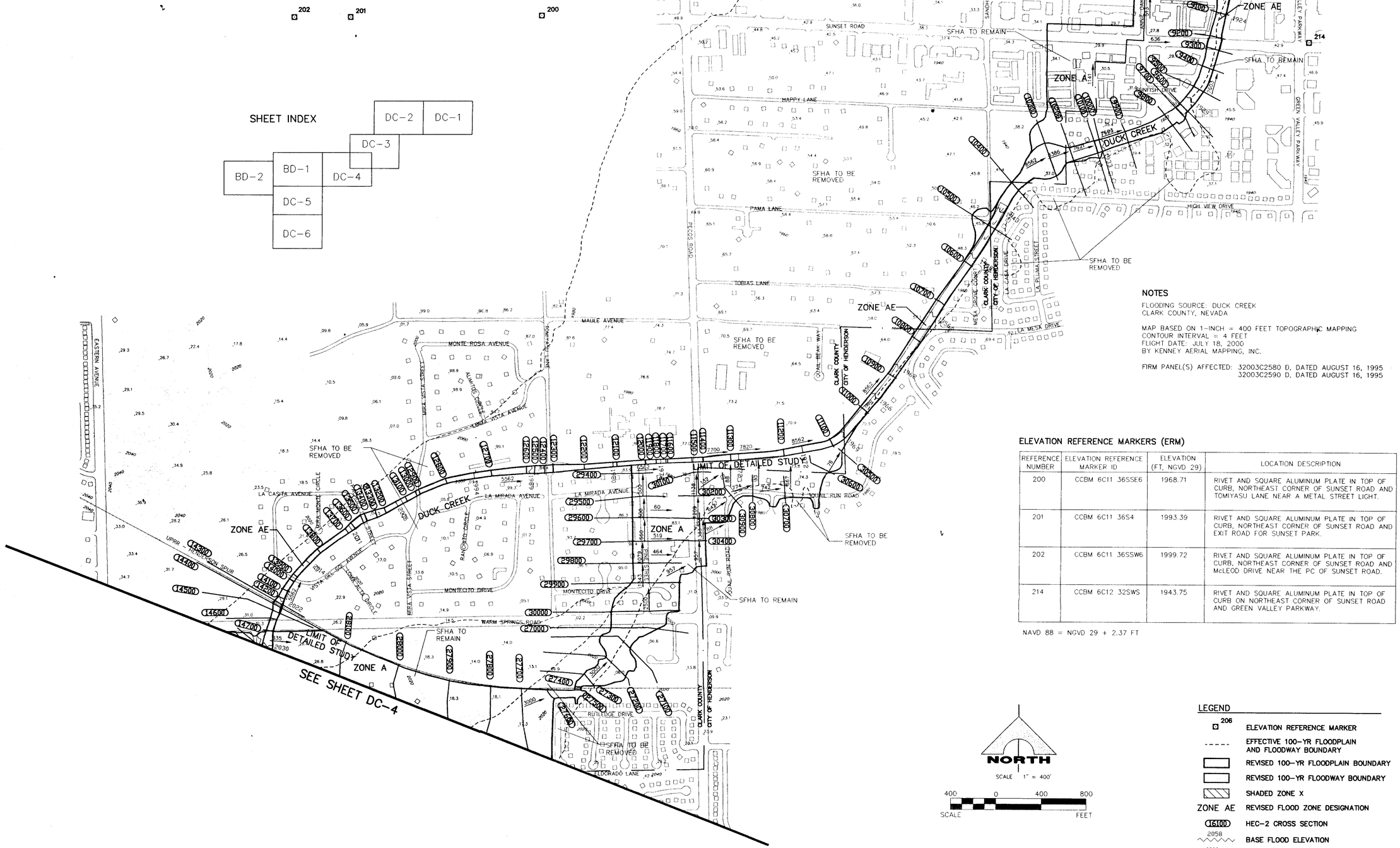
SHEET
DC-2
2 OF 8 SHTS

F:\550-039\dwg\mop\vsmop\dc-2.dwg 03-17-02 15:28:13 MU:dwg

SEE SHEET DC-2

SHEET INDEX




## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2580 D, DATED AUGUST 16, 1995
32003C2590 D, DATED AUGUST 16, 1995

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 200 | CCBM 6C11 36SSE6 | 1968.71 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND TOMIYASU LANE NEAR A METAL STREET LIGHT. |
| 201 | CCBM 6C11 36S4 | 1993.39 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND EXIT ROAD FOR SUNSET PARK. |
| 202 | CCBM 6C11 36SSW6 | 1999.72 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND McLEOD DRIVE NEAR THE PC OF SUNSET ROAD. |
| 214 | CCBM 6C12 32SWS | 1943.75 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB ON NORTHEAST CORNER OF SUNSET ROAD AND GREEN VALLEY PARKWAY. |

NAVD 88 = NGVD 29 + 2.37 FT

NORTH
SCALE 1" = 400'

400 0 400 800
SCALE FEET

## LEGEND

- 206 — ELEVATION REFERENCE MARKER
- ----- — EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- (16100) — HEC-2 CROSS SECTION
- 2058 — BASE FLOOD ELEVATION
- 8562 — 100-YEAR FLOW (CFS, FLOODPLAIN ONLY)

DATE:
DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 16:05:00
Mludwig

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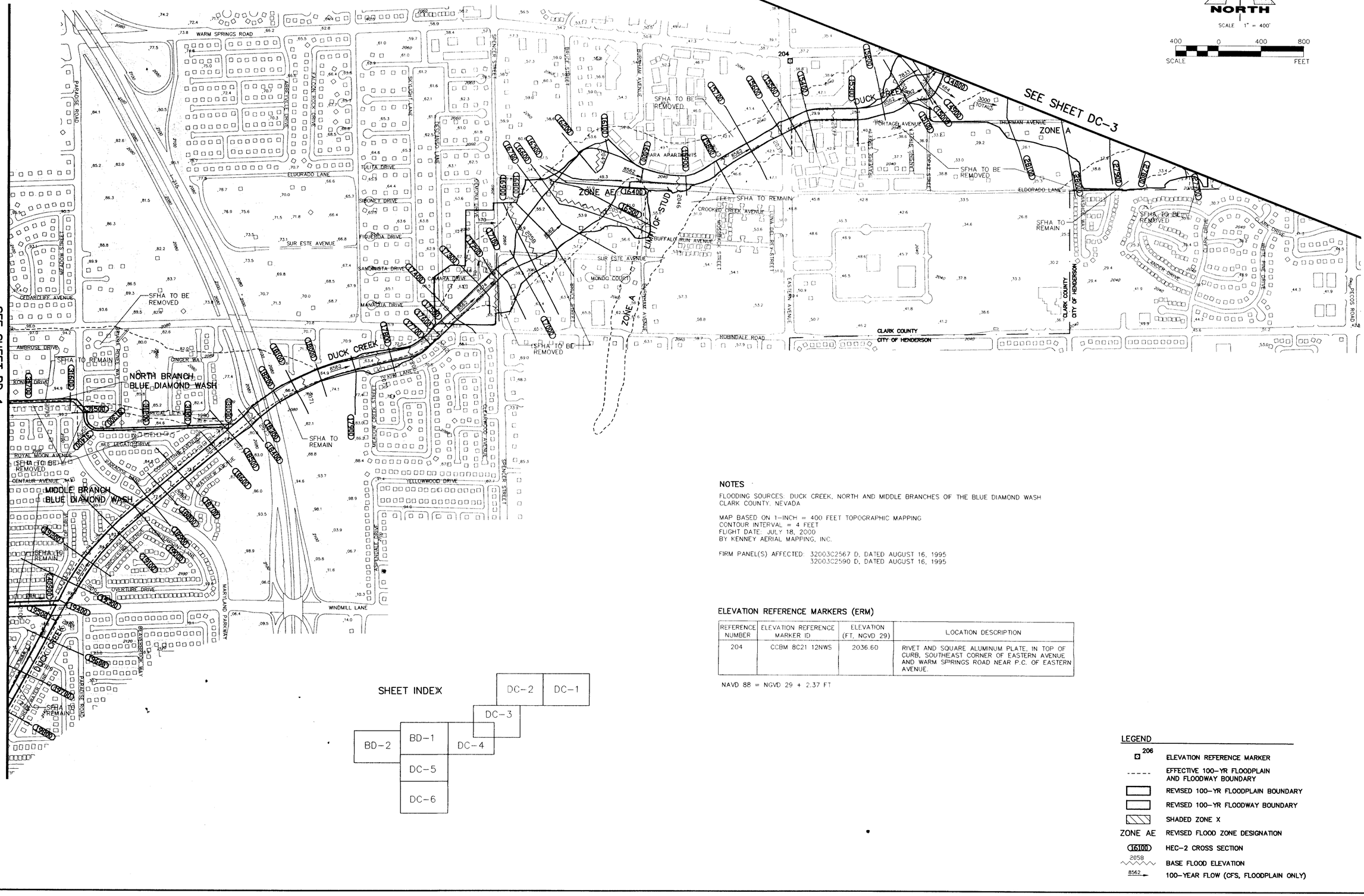
G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
(702) 804-2000 • FAX: (702) 804-2099

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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM WARM SPRINGS ROAD TO SUNSET ROAD

# CROSS SECTION EXHIBIT

SHEET
DC-3
3 OF 8 SHTS




## SHEET INDEX




## NOTES

FLOODING SOURCES: DUCK CREEK, NORTH AND MIDDLE BRANCHES OF THE BLUE DIAMOND WASH
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2567 D, DATED AUGUST 16, 1995
32003C2590 D, DATED AUGUST 16, 1995

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 204 | CCBM 8C21 12NWS | 2036.60 | RIVET AND SQUARE ALUMINUM PLATE, IN TOP OF CURB, SOUTHEAST CORNER OF EASTERN AVENUE AND WARM SPRINGS ROAD NEAR P.C. OF EASTERN AVENUE. |

NAVD 88 = NGVD 29 + 2.37 FT

## LEGEND

- 206 — ELEVATION REFERENCE MARKER
- EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- (16100) — HEC-2 CROSS SECTION
- 2058 — BASE FLOOD ELEVATION
- 8562 — 100-YEAR FLOW (CFS, FLOODPLAIN ONLY)

| REV. | DATE | DESCRIPTION | DATE AGEN. APP. | DATE GOVM. APP. | DATE |
|---|---|---|---|---|---|

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 16:15:19
Mludwig

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
10845 GRIFFITH PEAK DR., SUITE 200, LAS VEGAS, NEVADA 89135
TELEPHONE: (702) 836-3500 • FAX: (702) 836-3339
F:\550-039\dwg\mop\samap\dc-4.dwg

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM WINDMILL LANE TO WARM SPRINGS ROAD

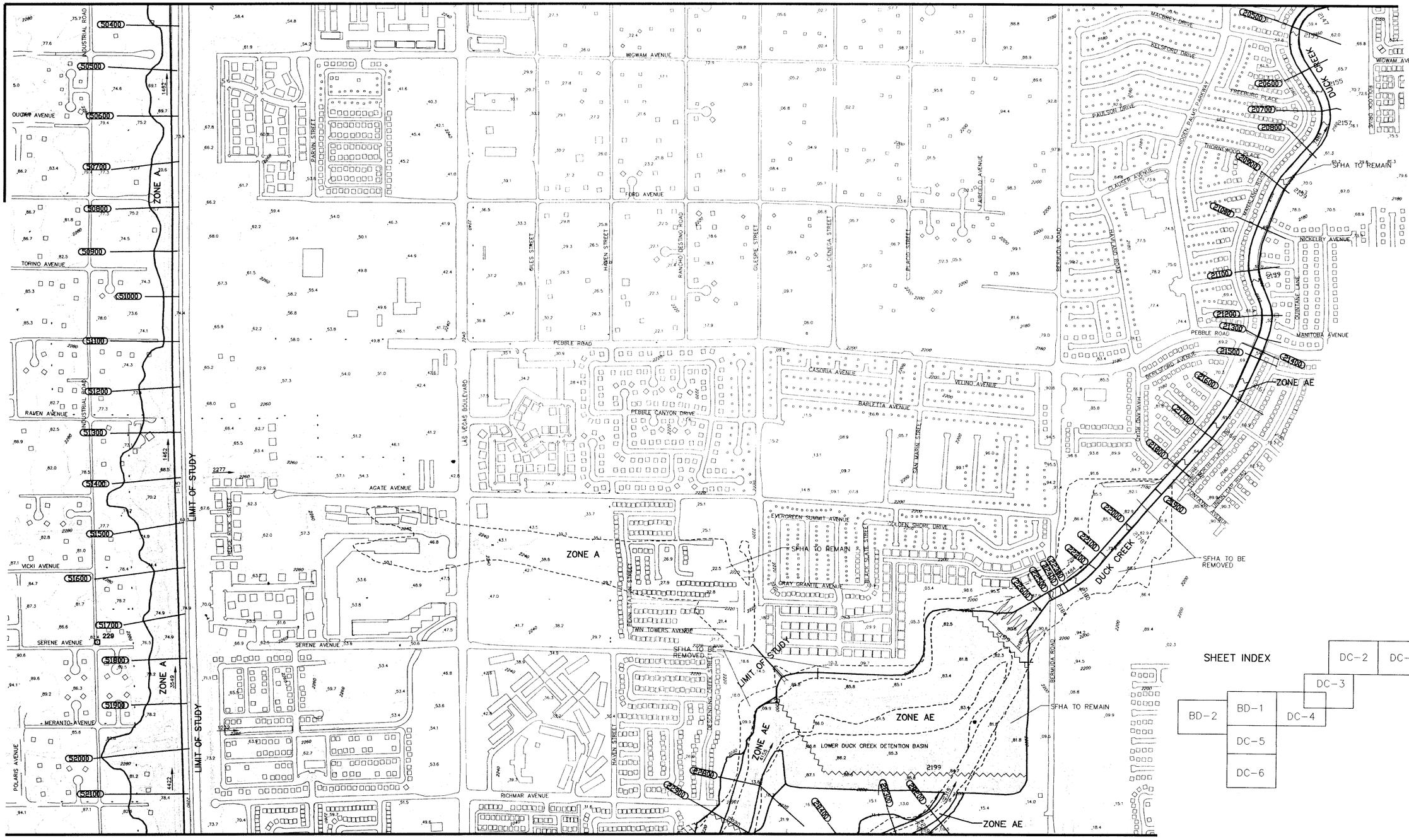
# CROSS SECTION EXHIBIT

SHEET
DC-4
4 OF 8 SHTS

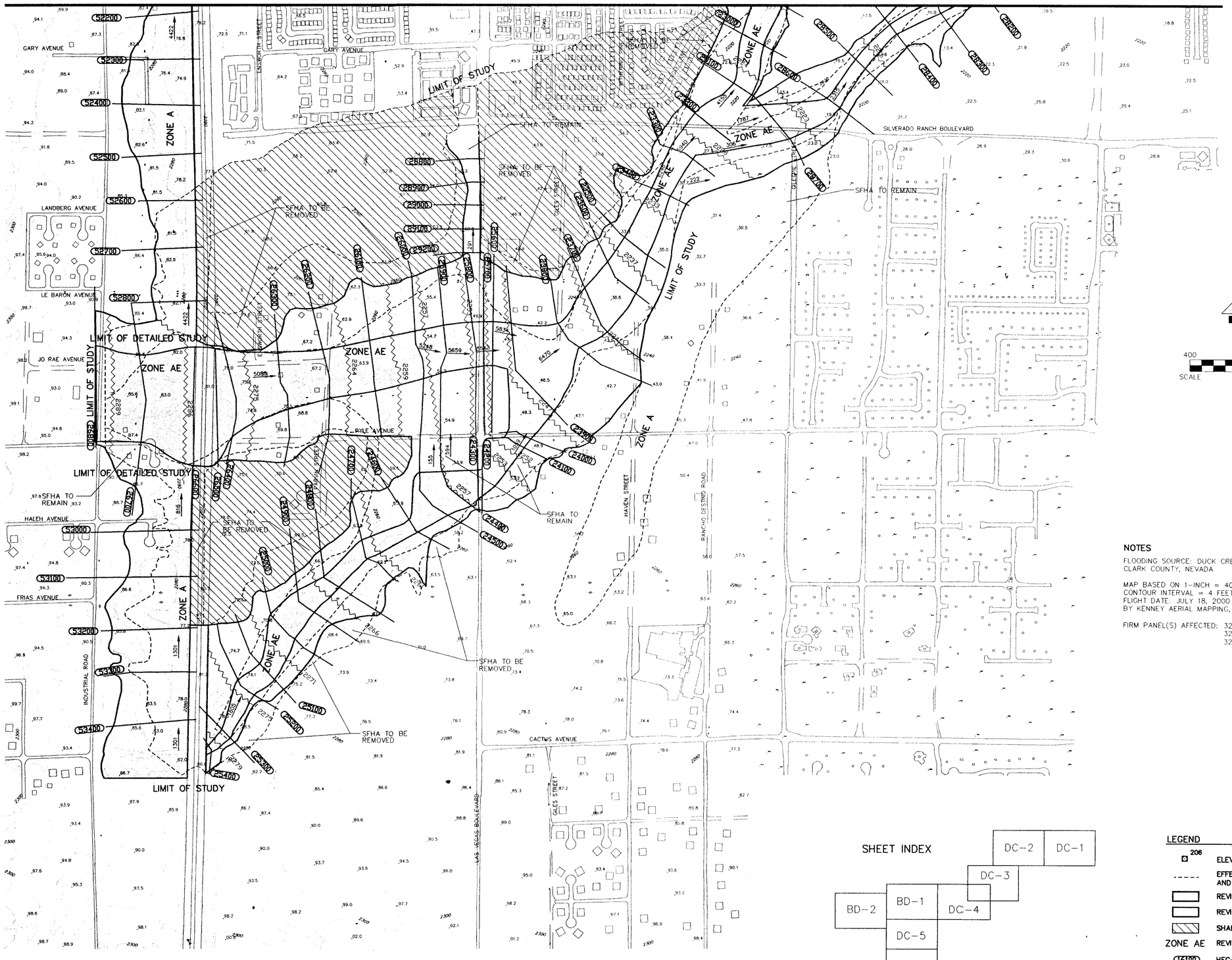
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SEE SHEET BD-1

SEE SHEET BD-2


INDUSTRIAL ROAD
OUTER AVENUE
TORINO AVENUE
RAVEN AVENUE
VICKI AVENUE
SERENE AVENUE
MERANTO AVENUE
POLARIS AVENUE
ZONE A
LIMIT OF STUDY
PARVIN STREET
WIGWAM AVENUE
FORD AVENUE
GILES STREET
HAVEN STREET
RANCHO DESTINO ROAD
GILESPIE STREET
LA CIENEGA STREET
PLACID STREET
FAIRFIELD AVENUE
BERMUDA ROAD
PEBBLE ROAD
CASORIA AVENUE
VELINO AVENUE
BARLETTA AVENUE
SAN MARINO STREET
PEBBLE CANYON DRIVE
LAS VEGAS BOULEVARD
AGATE AVENUE
EVERGREEN SUMMIT AVENUE
GOLDEN SHORE DRIVE
GRAY GRANITE AVENUE
BLACK SLATE STREET
PENNSYLVANIA STREET
WIN TOWERS AVENUE
SFHA TO BE REMOVED
RAVEN STREET
DESCENDING CREEK STREET
RICHMAR AVENUE
ZONE AE
SFHA TO REMAIN
LOWER DUCK CREEK DETENTION BASIN
MACBREY DRIVE
KELSFORD DRIVE
FREEBURG PLACE
PAULSON DRIVE
HIDDEN PALMS PARKWAY
THORNEWOOD PLACE
CLAUSEN AVENUE
CHARLESTON BOULEVARD
NICKELBY AVENUE
QUINTANA LANE
MANITOBA AVENUE
BOBBSFORD AVENUE
DUCK CREEK
SFHA TO BE REMOVED
SFHA TO REMAIN
50400
50500
50600
50700
50800
50900
51000
51100
51200
51300
51400
51500
51600
51700
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51900
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24400

SEE SHEET DC-5



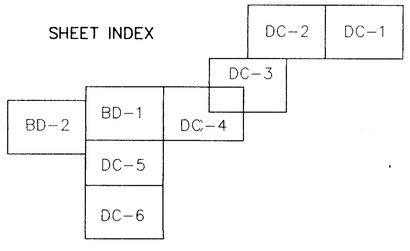

## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2569 D, DATED AUGUST 16, 1995
32003C2568 D, DATED AUGUST 16, 1995
32003C2910 D, DATED AUGUST 16, 1995

SHEET INDEX




LEGEND

- 206 — ELEVATION REFERENCE MARKER
- ----- — EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- (16100) — HEC-2 CROSS SECTION
- 2058 — BASE FLOOD ELEVATION
- 8562 — 100-YEAR FLOW (CFS, FLOODPLAIN ONLY)

DATE
DESCRIPTION
REV. DATE
DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 16:39:40
Mludwig

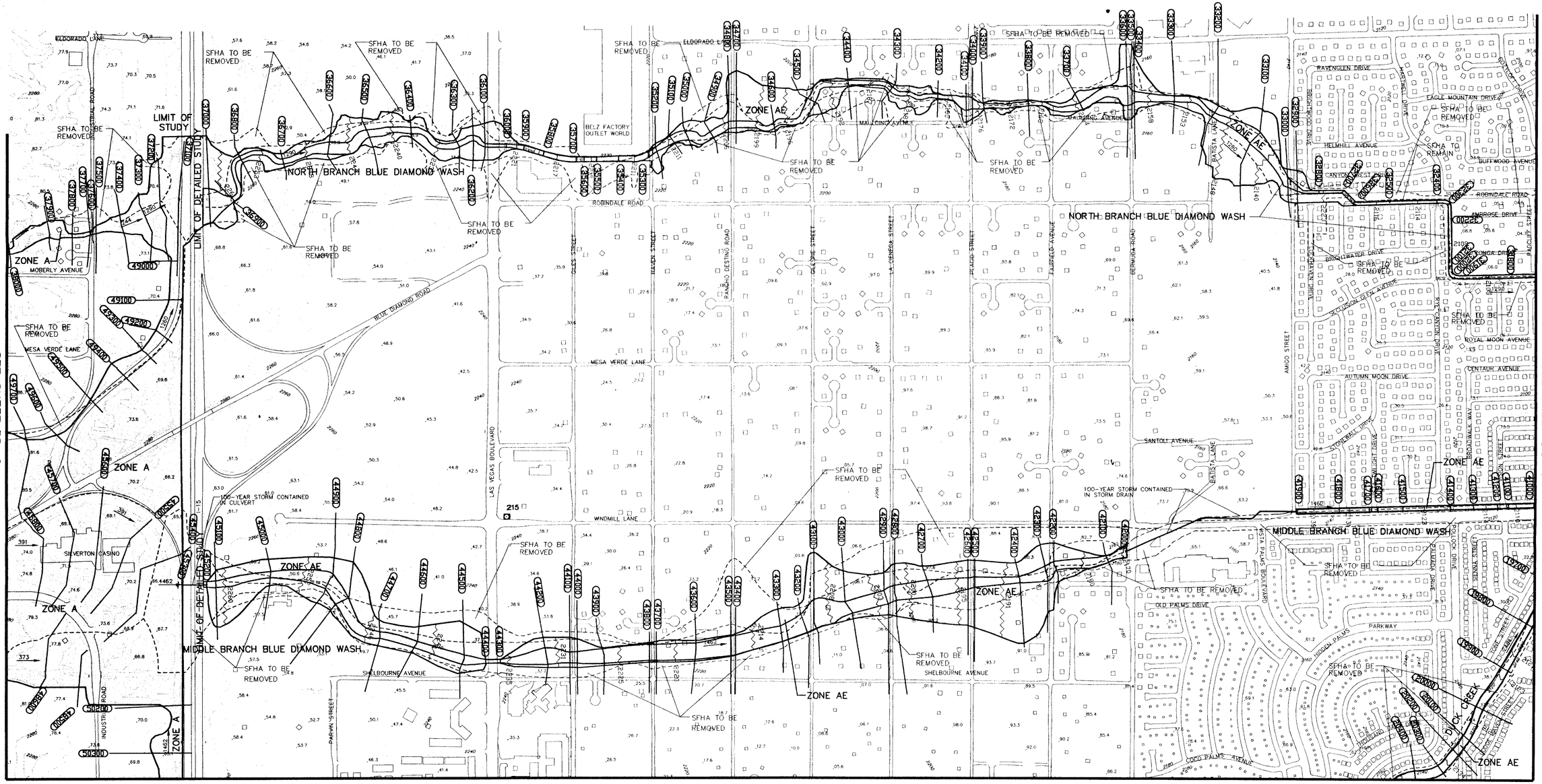
G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2399

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# DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
## DUCK CREEK FROM I-15 TO RICHMAR AVENUE
## CROSS SECTION EXHIBIT

SHEET
DC-6
6 OF 8 SHTS

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## NOTES

FLOODING SOURCE: NORTH AND MIDDLE BRANCHES OF BLUE DIAMOND WASH; DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001
BY KENNEY AERIAL MAPPING, INC.

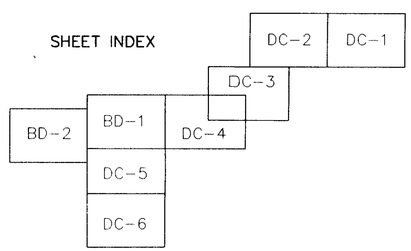
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32003C2567 D, DATED AUGUST 16, 1995

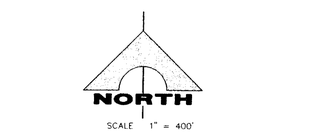
## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 215 | CCBM OC21 9SWS | 2240.64 | RIVET AND SQUARE ALUMINUM PLATE, IN TOP OF CURB NEAR 1/2 DELTA, WEST PORTION OF PLANTER, NORTHEAST CORNER OF LAS VEGAS BOULEVARD AND WINDMILL LANE. |

NAVD 88 = NGVD 29 + 2.37 FT

SHEET INDEX




LEGEND

- 206 — ELEVATION REFERENCE MARKER
- EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
- SHADED ZONE X
- ZONE AE — REVISED FLOOD ZONE DESIGNATION
- (16100) — HEC-2 CROSS SECTION
- 2058 — BASE FLOOD ELEVATION
- 8562 — 100-YEAR FLOW (CFS, FLOODPLAIN ONLY)

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 16:49:26

DATE | DESCRIPTION | REV | DATE | DATE AGEN APP | DATE GCW APP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE (702) 804-2000 • FAX (702) 804-2299

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
BLUE DIAMOND WASHES FROM INDUSTRIAL ROAD TO PARADISE ROAD

# CROSS SECTION EXHIBIT

SHEET
BD-1
7 OF 8 SHTS

F:\550-039\dwg\vmap\samap\bd-1.dwg 03-17-02 16:49:26 Mludwig

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 217 | CCBM 0C21 8SSW6 | 2286.91 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB ON THE EAST SIDE OF INDUSTRIAL ROAD IN FRONT OF A FIRE HYDRANT 950'± NORTH OF BLUE DIAMOND ROAD. |
| 222 | SNWA BRASS CAP | 2412.57 | FOUND 3" BRASS CAP AT NORTHWEST CORNER OF VAULT (UNMARKED) 200'± WEST OF RAILROAD TRACKS AT BRIDGE OVER WASH "SOUTHERN NEVADA WATER SYSTEM". |

NAVD 88 = NGVD 29 + 2.37 FT

## NOTES

FLOODING SOURCE: NORTH AND MIDDLE BRANCHES OF BLUE DIAMOND WASH
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2566 D, DATED AUGUST 16, 1995
32003C2562 D, DATED AUGUST 16, 1995

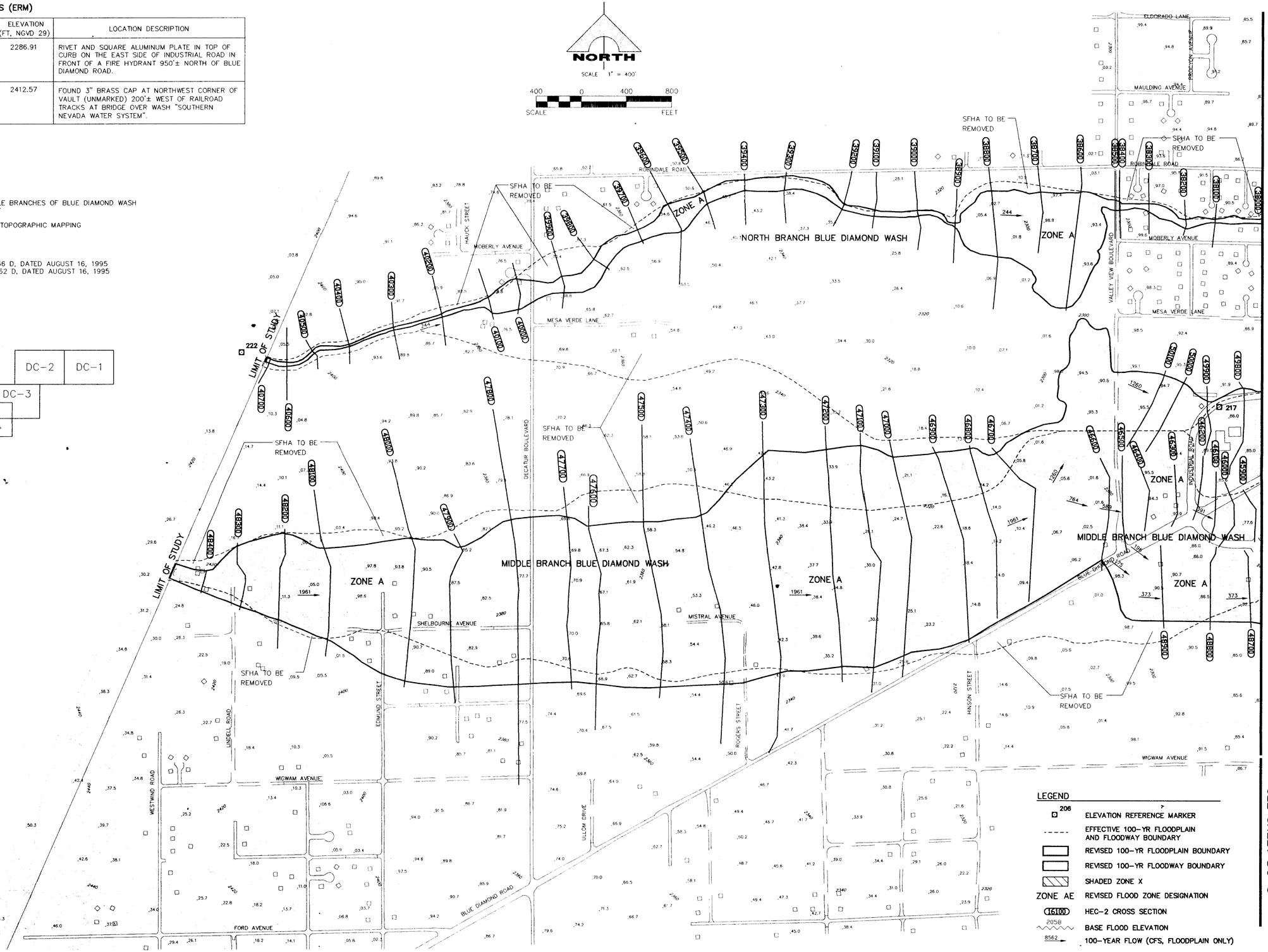
SHEET INDEX

DC-2 | DC-1
DC-3
BD-2 | BD-1 | DC-4
DC-5
DC-6

NORTH

SCALE 1" = 400'

400 0 400 800
SCALE FEET




SEE SHEET BD-1

SEE SHEET DC-5

LEGEND

- 208 — ELEVATION REFERENCE MARKER
- EFFECTIVE 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY
- REVISED 100-YR FLOODPLAIN BOUNDARY
- REVISED 100-YR FLOODWAY BOUNDARY
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DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-17-02
PLOT TIME: 17:01:03
Mludwig

| REV. | DATE | DESCRIPTION | DATE AGEN. APP | DATE GCW APP. | DATE |
|---|---|---|---|---|---|


G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
BLUE DIAMOND WASHES FROM UPRR TO INDUSTRIAL ROAD

# CROSS SECTION EXHIBIT

SHEET
BD-2
8 OF 8 SHTS

**DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY**
**ORGANIZATION OF TECHNICAL SUPPORT DATA NOTEBOOKS**

**VOLUME I**

SECTION 1 GENERAL DOCUMENTATION
- 1.1 Special Problem Reports
- 1.2 Meeting Minutes
- 1.3 General Correspondence

SECTION 2 ENGINEERING ANALYSIS
- 2.1 Summary of Design Flows

**VOLUME II**

- 2.2 Hydraulic Analysis
  - 2.2.1 HEC-2 Model Descriptions
  - 2.2.2 Normal Depth Calculations
- 2.3 Supporting Data
  - 2.3.1 Cross Section Plots
  - 2.3.2 Manning's "n" Channel Roughness Calculations
- 2.4 Key to Cross Section Labeling

**VOLUME III**

SECTION 3 DRAFT FIS REPORT
- 3.1 Report Text
- 3.2 FEMA Forms

SECTION 4 MAPPING INFORMATION
- 4.1 Map Index, Effective FIRM, LOMR's
- 4.2 Base Maps
- 4.3 Work Maps
- 4.4 Cross Section Exhibits
- 4.5 Aerial Photographs

**VOLUME IV**

SECTION 5 MISCELLANEOUS REFERENCE MATERIAL
- 5.1 Detailed Field Review
  - 5.1.1 Photograph Location Maps
  - 5.1.2 Field Survey and Photographs
- 5.2 Survey Point Files
- 5.3 Operation and Maintenance Plan
- 5.4 References
- 5.5 Compact Disc

**VOLUME V**

GREEN PARK CLOMR

**ATTACHED DESIGN DRAWINGS**

Duck Creek from Tomiyasu Lane to Warm Springs Road
Lower Duck Creek Detention Basin
Duck Creek Channel Phase 1
Duck Creek Crossing at Robindale Road
Aviara Apartments Offsite Channel Improvements
Windmill Lane from Las Vegas Boulevard to Maryland Parkway

Study Contractor: G. C. WALLACE, INC.

## MISCELLANEOUS REFERENCE MATERIALS INDEX

Clark County, Nevada

## DUCK CREEK / BLUE DIAMOND WASHES FIS RESTUDY

| INFORMATION TYPE | ITEM DATE | EXHIBIT NO. |
|---|---|---|
| Photo Location Maps | NA | 5.1.1 |
| Field Survey and Photographs | NA | 5.1.2 |
| Survey Point Files | NA | 5.2 |
| Operation and Maintenance Plan | NA | 5.3 |
| Open Channel Hydraulics | NA | 5.4 |
| Effective HEC-2 Model | NA | 5.4 |
| Pine Street Storm Drain Plans | NA | 5.4 |
| Compact Disc | NA | 5.5 |

# FIELD SURVEY AND PHOTOGRAPHS

**DUCK CREEK**

- BOULDER HIGHWAY
- DUCK CREEK CHANNEL PHASE 1
- STEPHANIE STREET
- DUCK CREEK FROM STEPHANIE STREET TO I-515
- I-515
- RUSSELL ROAD
- MOUNTAIN VISTA ROAD
- GREEN VALLEY PARKWAY/ PATRICK LANE
- POST ROAD CROSSING
- SUNSET ROAD
- SUNFISH DRIVE
- NEWPORT COVE APARTMENT CROSSING
- ANNIE OAKLEY DRIVE/ SUNSET ROAD BREAKOUT AREA
- DUCK CREEK AT PAMA LANE
- PECOS ROAD
- PINE STREET CROSSINGS
- TOMIYASU LANE
- MIRA VISTA STREET
- PACHUCA STREET
- VISTA DEL SOL AVENUE
- UNION PACIFIC RAILROAD - HENDERSON SPUR
- WARM SPRINGS ROAD
- TOPAZ STREET CROSSING
- PINE STREET BREAKOUT AREA
- EASTERN AVENUE
- AVIARA APARTMENTS OFFSITE CHANNEL
- ELDORADO LANE CROSSING
- SUR ESTE AVENUE CROSSING
- SPENCER STREET
- ROBINDALE ROAD
- I-215/ CONFLUENCE WITH NORTH BRANCH BLUE DIAMOND WASH
- MARYLAND PARKWAY
- WINDMILL LANE AT DUCK CREEK CONFLUENCE WITH MIDDLE BRANCH BLUE DIAMOND WASH
- POLLOCK STREET
- PEBBLE ROAD
- BERMUDA ROAD
- LOWER DUCK CREEK DETENTION BASIN

**SOUTHERN TRIBUTARY TO LOWER DUCK CREEK DETENTION BASIN**

- SILVERADO RANCH BOULEVARD CROSSING
- SILVERADO RANCH PARK
- LAS VEGAS BOULEVARD SOUTH OF PYLE AVENUE
- LAS VEGAS BOULEVARD NORTH OF PYLE AVENUE

**NORTH BRANCH BLUE DIAMOND WASH**

- PARADISE ROAD
- ROBINDALE ROAD TO AMIGO STREET
- BERMUDA ROAD
- PLACID STREET
- RANCHO DESTINO ROAD
- HAVEN STREET

BELZ FACTORY OUTLET WORLD CHANNEL
LAS VEGAS BOULEVARD
I-15
INDUSTRIAL ROAD
BREAKOUT PATH FROM MIDDLE BRANCH BLUE DIAMOND WASH
VALLEY VIEW BOULEVARD
DECATUR BOULEVARD
UNION PACIFIC RAILROAD

**MIDDLE BRANCH BLUE DIAMOND WASH**

VISION STREET
VISTA TWILIGHT DRIVE
BERMUDA ROAD TO AMIGO STREET
FAIRFIELD AVENUE
LA CIENEGA STREET
GILESPIE ROAD
GILES STREET
LAS VEGAS BOULEVARD
I-15
BLUE DIAMOND ROAD/ I-15 INTERCHANGE AREA
VALLEY VIEW BOULEVARD
DECATUR BOULEVARD
UNION PACIFIC RAILROAD

**I-15 SOUTH OF MIDDLE BRANCH BLUE DIAMOND WASH**

**OTHER FIELD SURVEY NOTES**

# BOULDER HIGHWAY

#500 877

DUCK CREEK

ASBUILTS (CONTROL)

WHITNEY 2 ANT: 5.05

PK FD & STEPHINE CIR.

ALCAP FD & STEPHINE PL
RUSSELL RD PLS#?

G.C.W. CP SET (60d) @
DUCKCREEK AND STEPHINE PL.

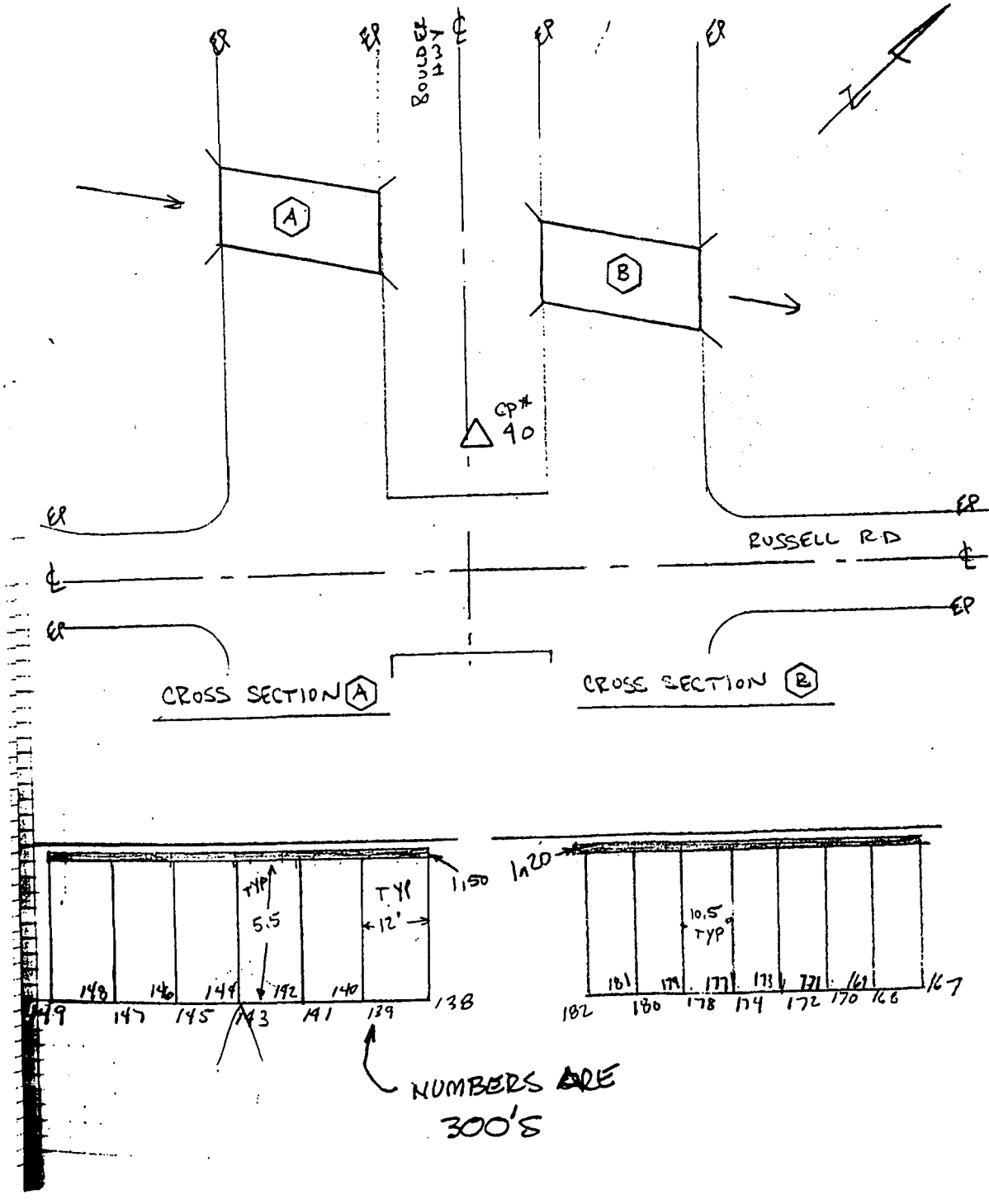
G.C.W. CP SET (60d) @
DUCKCREEK AND DENNING ST.

G.C.W. CP SET (60d) @
BOULDER HWY AND RUSSELL RD

G.C.W. CP SET (60d) @
STEPHINE ST AND PATRICK LN

SEE ASBUILT NOTE FOR LOCATIONS.

## ASBUILT # ONE




BOULDER HIGHWAY SURVEY BY GCW, MARCH 1998
FOR DUCK CREEK CHANNEL PHASE 2 PROJECT

Project: ducky Tue Mar 10 07:42:26 1998

Current Coordinate Listing by Point Range

| Point | Northing | Easting | Elevation | Description |
|---|---|---|---|---|
| 286 | 22131.5084 | 26121.5356 | 1664.75 | EDGE AC |
| 287 | 22074.1575 | 26098.5302 | 1660.72 | FL PIPE |
| 288 | 22070.4758 | 26097.8202 | 1660.61 | FL PIPE |
| 289 | 22066.2105 | 26095.5788 | 1660.79 | FL PIPE |
| 290 | 22061.8449 | 26149.6441 | 1660.34 | FL PIPE |
| 291 | 22065.6190 | 26149.6411 | 1660.43 | FL PIPE |
| 292 | 22070.4065 | 26149.1285 | 1660.38 | FL PIPE |
| 293 | 21877.3467 | 26117.6071 | 1666.49 | AC CL.RD. |
| 294 | 21934.2227 | 26116.3174 | 1666.19 | AC CL.RD. |
| 295 | 21988.6485 | 26115.5285 | 1665.25 | AC CL.RD. |
| 296 | 22041.2720 | 26115.2994 | 1664.71 | AC CL.RD. |
| 297 | 22095.8594 | 26113.2098 | 1664.78 | AC CL.RD. |
| 298 | 22152.7925 | 26109.1885 | 1664.90 | AC CL.RD. |
| 299 | 22210.1498 | 26105.0789 | 1664.98 | AC CL.RD. |
| 300 | 22263.5359 | 26102.6427 | 1664.88 | AC CL.RD. |
| 301 | 22117.8051 | 26058.2384 | 1666.44 | BSCHK |
| 302 | 21893.4362 | 23416.6384 | 1691.65 | NG |
| 303 | 21858.9097 | 23422.0619 | 1690.99 | NG |
| 304 | 21831.6951 | 23424.6780 | 1691.63 | TOP |
| 305 | 21820.5108 | 23428.4949 | 1689.67 | GRADE BRK |
| 306 | 21804.3070 | 23431.5743 | 1681.52 | TOE |
| 307 | 21797.0360 | 23435.9186 | 1679.79 | FL |
| 308 | 22117.8029 | 26058.2172 | 1666.39 | BSCHK |
| 309 | 21793.1712 | 23441.7714 | 1679.76 | INV |
| 310 | 21786.0068 | 23437.5319 | 1680.64 | TOE |
| 311 | 21780.7350 | 23438.1839 | 1681.78 | GRADE BRK |
| 312 | 21773.8939 | 23440.4290 | 1687.24 | TOP |
| 313 | 21746.4125 | 23446.5508 | 1687.72 | NG |
| 314 | 21721.9238 | 23450.6673 | 1690.46 | NG |
| 315 | 20022.7446 | 31180.6371 | 1633.03 | BSCHK |
| 316 | 20029.4579 | 29662.1007 | 1641.30 | EDGE AC |
| 317 | 19992.0497 | 29694.2500 | 1641.26 | EDGE AC |
| 318 | 19954.9370 | 29726.8738 | 1641.14 | EDGE AC |
| 319 | 19917.6739 | 29760.0994 | 1641.26 | EDGE AC |
| 320 | 19880.0807 | 29794.1808 | 1641.33 | EDGE AC |
| 321 | 19843.6464 | 29827.8020 | 1641.61 | EDGE AC |
| 322 | 19805.9610 | 29862.0754 | 1641.55 | EDGE AC |
| 323 | 20066.9967 | 29628.8475 | 1641.65 | EDGE AC |
| 324 | 20105.3536 | 29592.9042 | 1641.21 | EDGE AC |
| 325 | 20144.7577 | 29553.2619 | 1641.18 | EDGE AC |
| 326 | 20183.9180 | 29517.0612 | 1641.39 | EDGE AC |
| 327 | 20222.8924 | 29481.3095 | 1641.25 | EDGE AC |
| 328 | 20262.5535 | 29445.4235 | 1641.36 | EDGE AC |
| 329 | 20300.6293 | 29410.9341 | 1641.39 | EDGE AC |
| 330 | 20089.4118 | 29590.5960 | 1639.29 | WINGWALL |
| 331 | 20088.9899 | 29597.6377 | 1641.61 | WINGWALL |
| 332 | 20023.4557 | 29650.4925 | 1639.36 | WINGWALL |
| 333 | 20030.6799 | 29650.9031 | 1641.57 | WINGWALL |

Project: ducky Tue Mar 10 07:42:27 1998

Current Coordinate Listing by Point Range

| Point | Northing | Easting | Elevation | Description |
|---|---|---|---|---|
| 334 | 20030.8948 | 29651.8687 | 1641.62 | HEADWALL |
| 335 | 20059.8529 | 29625.3726 | 1641.54 | HEADWALL |
| 336 | 20089.8325 | 29597.9823 | 1641.61 | HEADWALL |
| 337 | 20059.2582 | 29624.6384 | 1641.52 | HEADWALL |
| 338 | 20030.5642 | 29650.9996 | 1634.02 | INV |
| 339 | 20039.1188 | 29642.3439 | 1634.41 | INV |
| 340 | 20039.5086 | 29642.3656 | 1635.54 | INV |
| 341 | 20048.3054 | 29634.4132 | 1635.63 | INV |
| 342 | 20048.7860 | 29634.2317 | 1636.21 | INV |
| 343 | 20058.4507 | 29625.0674 | 1634.41 | INV |
| 344 | 20060.4143 | 29623.0111 | 1634.42 | INV |
| 345 | 20069.9027 | 29614.4234 | 1634.37 | INV |
| 346 | 20070.1219 | 29613.9680 | 1634.37 | INV |
| 347 | 20079.0924 | 29605.8257 | 1634.33 | INV |
| 348 | 20079.2713 | 29605.5846 | 1634.34 | INV |
| 349 | 20089.2253 | 29597.6122 | 1634.40 | INV |
| 350 | 19867.1076 | 29955.3219 | 1641.97 | EDGE AC |
| 351 | 19906.4811 | 29919.2549 | 1641.89 | EDGE AC |
| 352 | 19944.3091 | 29884.2729 | 1641.79 | EDGE AC |
| 353 | 19983.9918 | 29847.5007 | 1641.66 | EDGE AC |
| 354 | 20024.3013 | 29810.2931 | 1641.67 | EDGE AC |
| 355 | 20064.0427 | 29772.7939 | 1641.62 | EDGE AC |
| 356 | 20096.8471 | 29741.3641 | 1641.62 | EDGE AC |
| 357 | 20134.1496 | 29707.0677 | 1641.69 | EDGE AC |
| 358 | 20173.9949 | 29671.9383 | 1641.63 | EDGE AC |
| 359 | 20213.4904 | 29635.3255 | 1641.95 | EDGE AC |
| 360 | 20251.6355 | 29601.4132 | 1642.06 | EDGE AC |
| 361 | 20290.4550 | 29566.5735 | 1642.22 | EDGE AC |
| 362 | 20328.3628 | 29532.2736 | 1642.24 | EDGE AC |
| 363 | 20368.1981 | 29496.3497 | 1642.44 | EDGE AC |
| 364 | 20163.8692 | 29678.0941 | 1640.77 | HEADWALL |
| 365 | 20133.3357 | 29706.1506 | 1640.69 | HEADWALL |
| 366 | 20103.9404 | 29732.9295 | 1640.66 | HEADWALL |
| 367 | 20104.2125 | 29732.3609 | 1633.56 | INV.B |
| 368 | 20111.1423 | 29725.0422 | 1633.20 | INV.B |
| 369 | 20112.1476 | 29724.3363 | 1633.09 | INV.B |
| 370 | 20119.3549 | 29717.6323 | 1632.42 | INV.B |
| 371 | 20120.6991 | 29716.4362 | 1633.05 | INV.B |
| 372 | 20128.0352 | 29709.6365 | 1632.29 | INV.B |
| 373 | 20129.4767 | 29708.9700 | 1632.52 | INV.B |
| 374 | 20136.7211 | 29702.3107 | 1633.32 | INV.B |
| 375 | 20137.7777 | 29701.3625 | 1633.47 | INV.B |
| 376 | 20137.3677 | 29701.8655 | 1633.67 | INV.B |
| 377 | 20138.2066 | 29700.9727 | 1633.62 | INV.B |
| 378 | 20145.6854 | 29694.1953 | 1635.20 | INV.B |
| 379 | 20147.2015 | 29693.7031 | 1635.18 | INV.B |
| 380 | 20154.6365 | 29686.3345 | 1636.22 | INV.B |
| 381 | 20155.5539 | 29685.5885 | 1636.07 | INV.B |

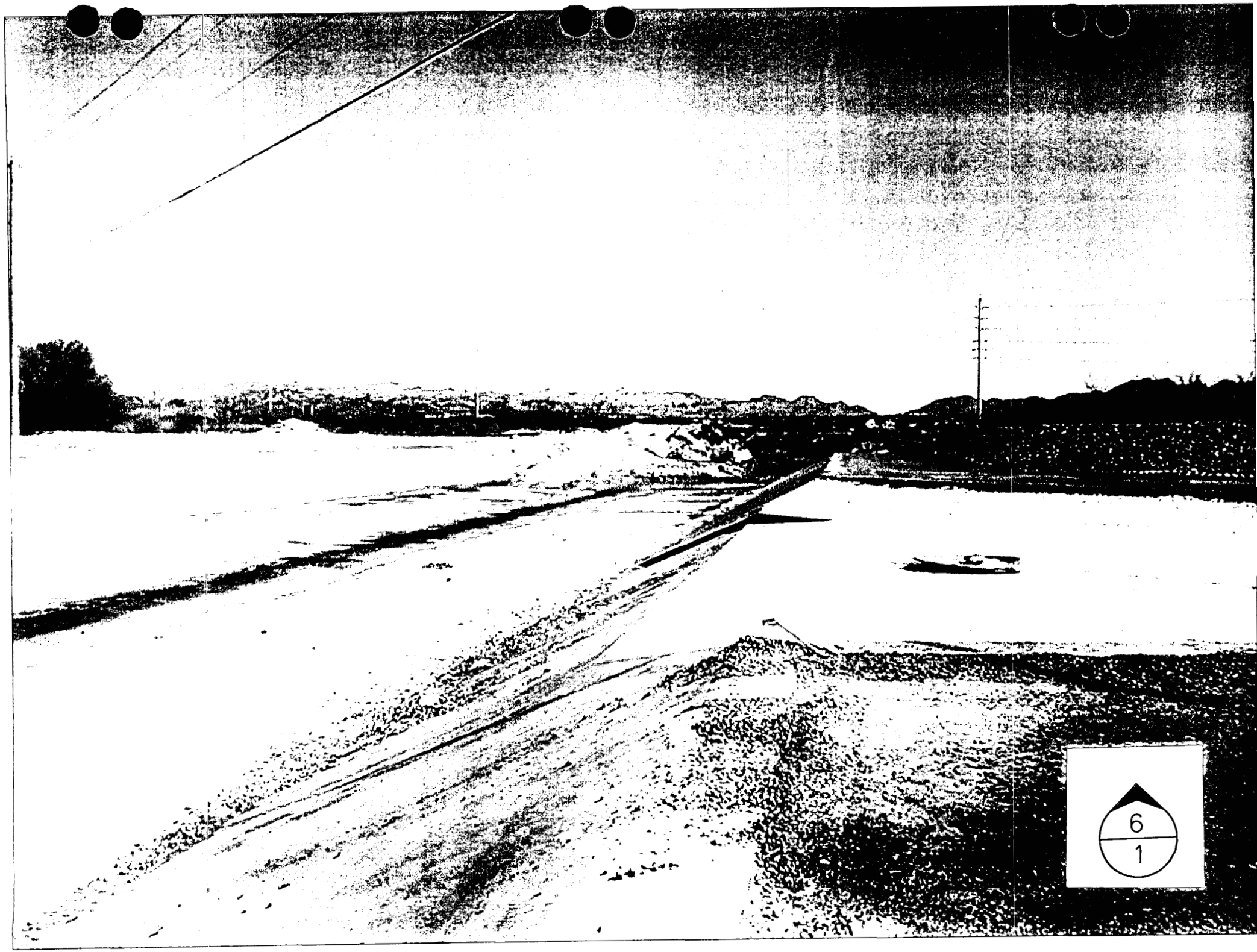
Project: ducky

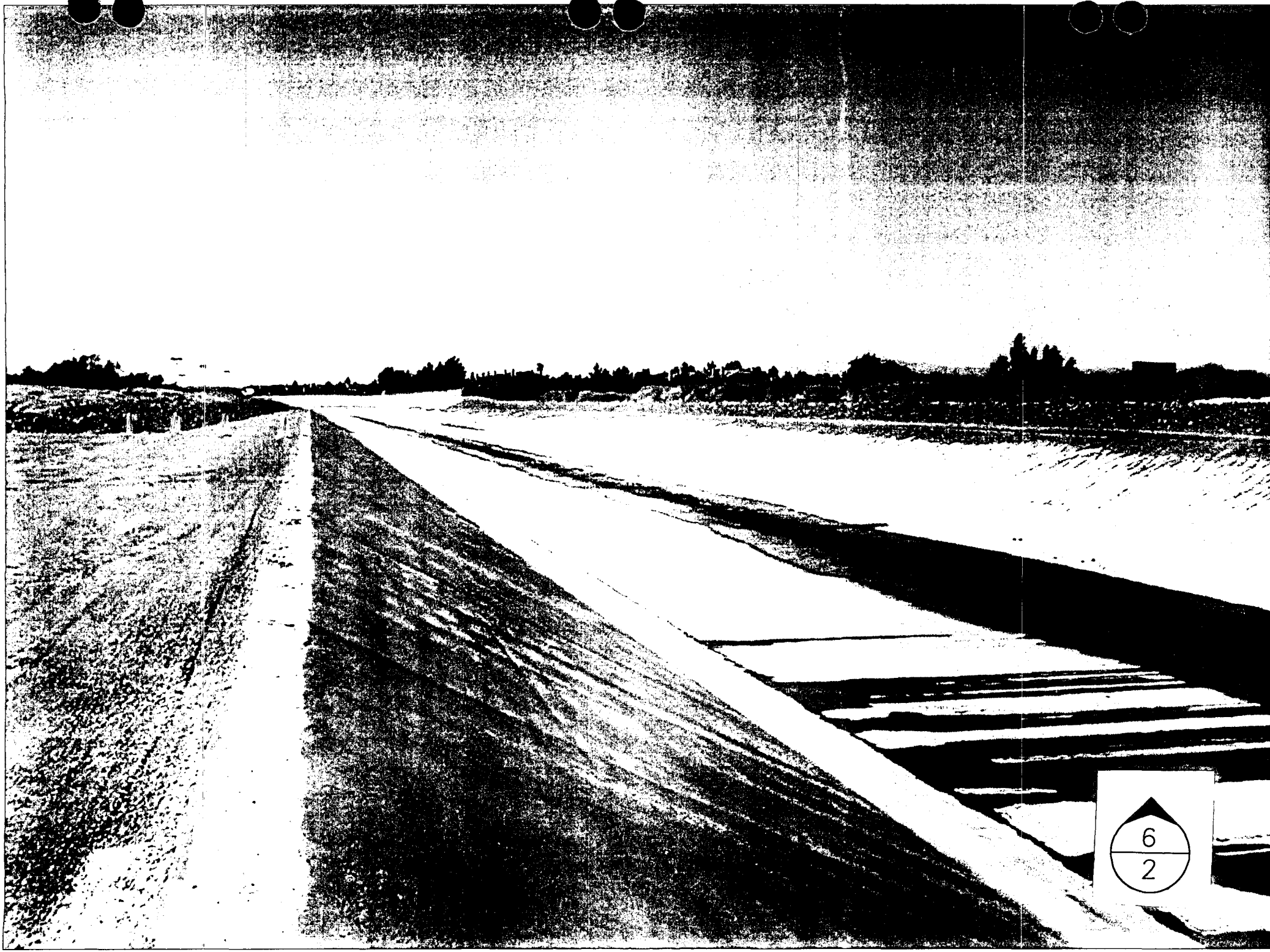
Tue Mar 10 07:42:30 1998

Current Coordinate Listing by Point Range

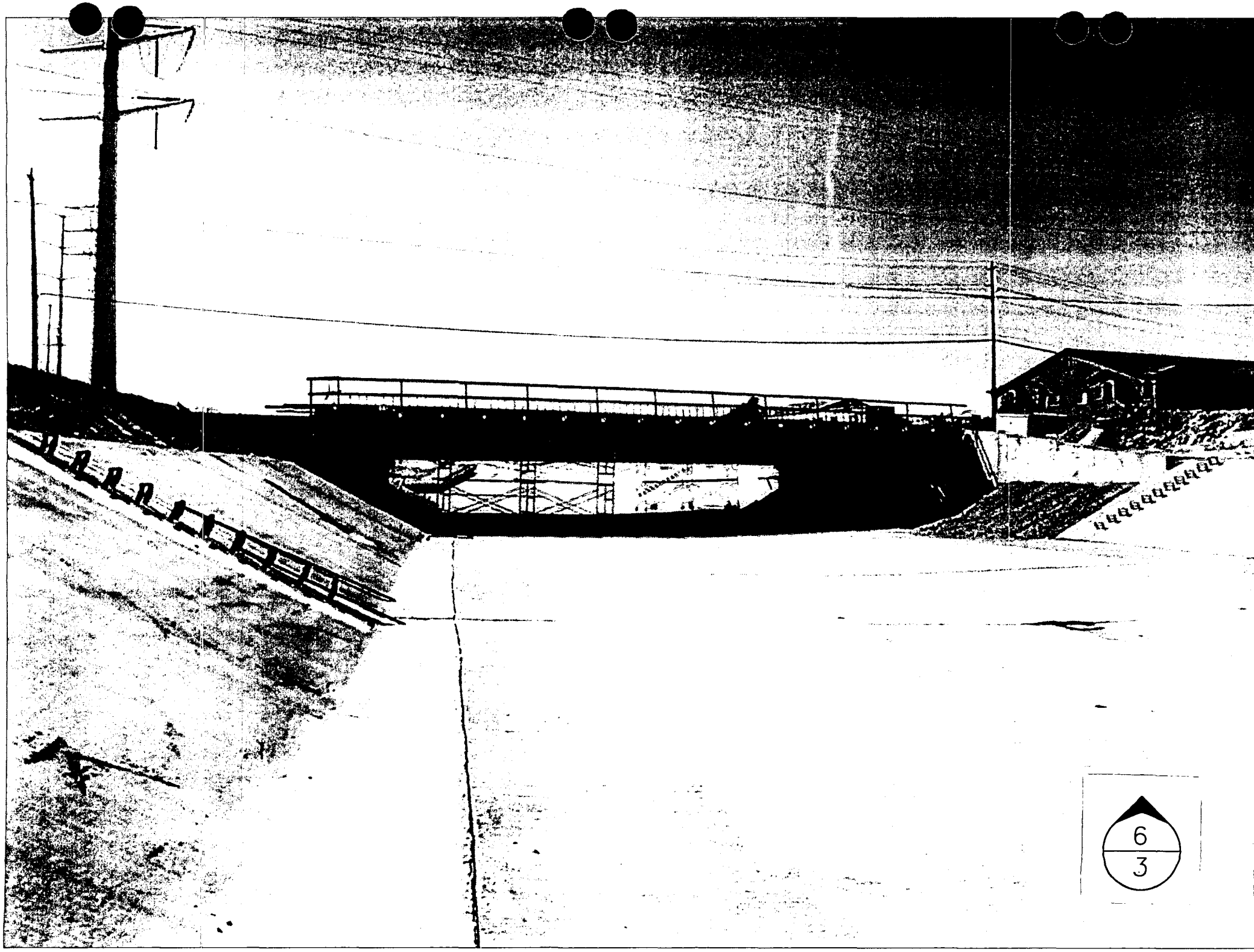
| Point | Northing | Easting | Elevation | Description |
|---|---|---|---|---|
| 382 | 20163.0405 | 29678.5055 | 1635.94 | INV.B |

# DUCK CREEK CHANNEL PHASE 1

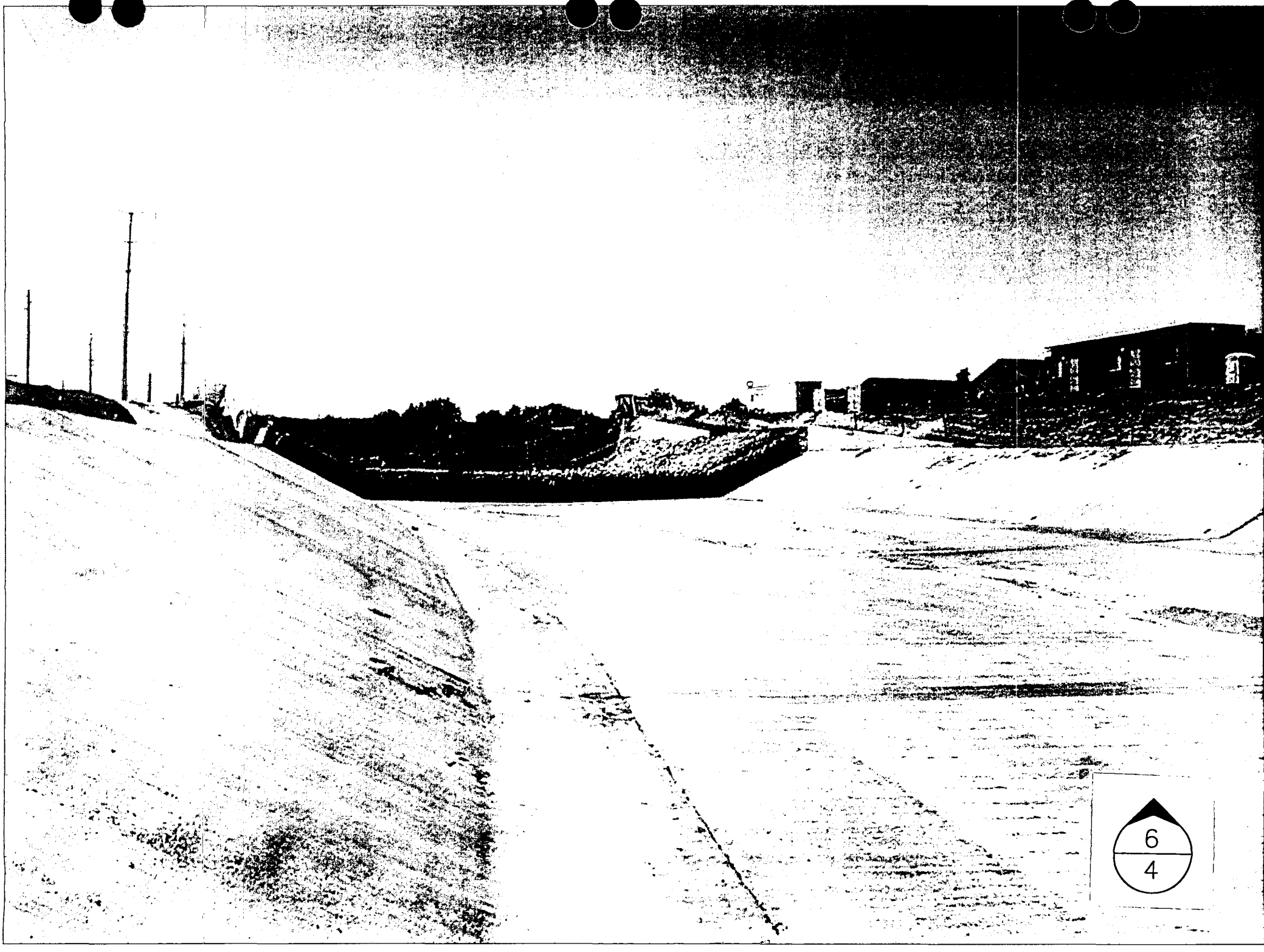

6
1


6
2

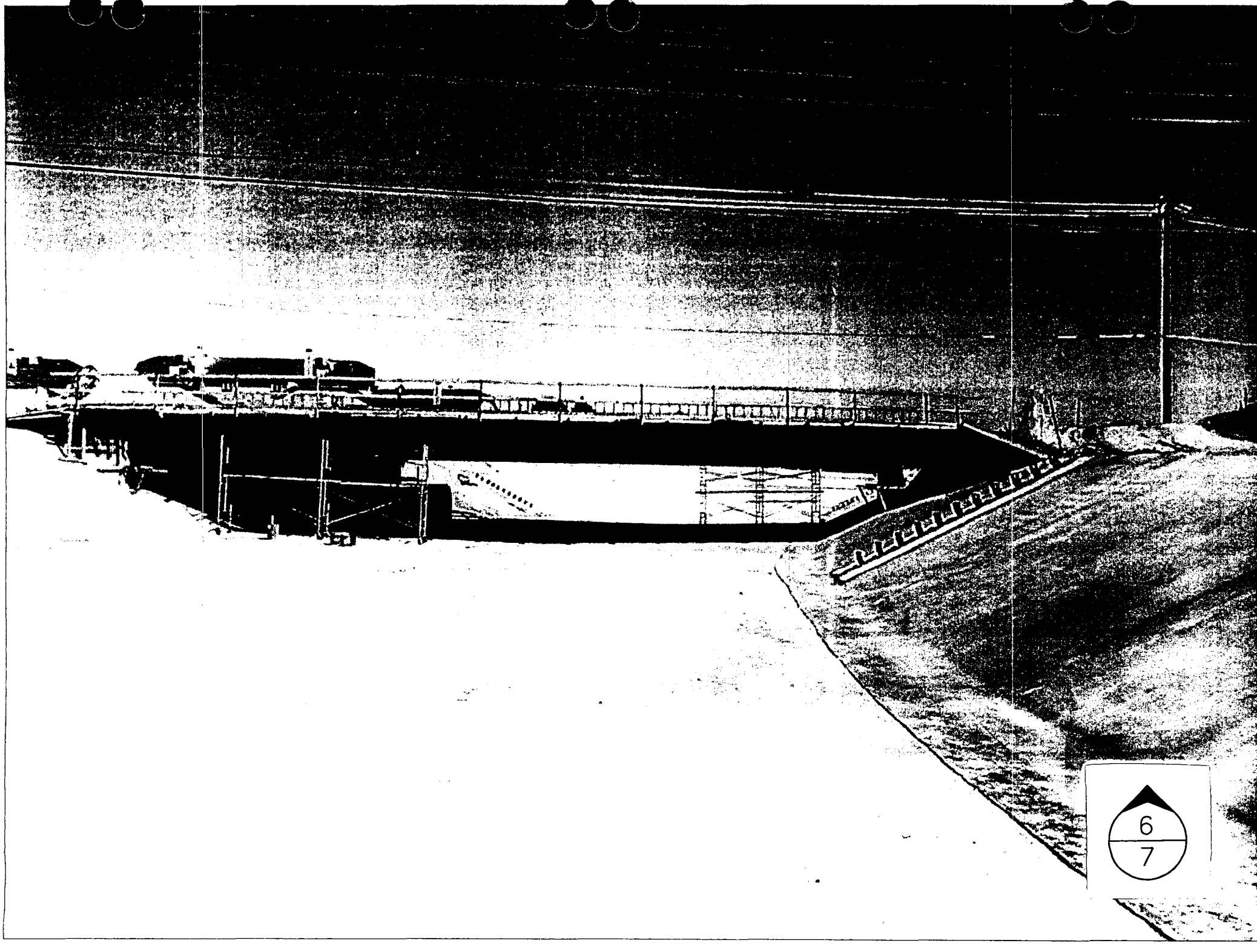
STEPHANIE STREET



6
3



6
4

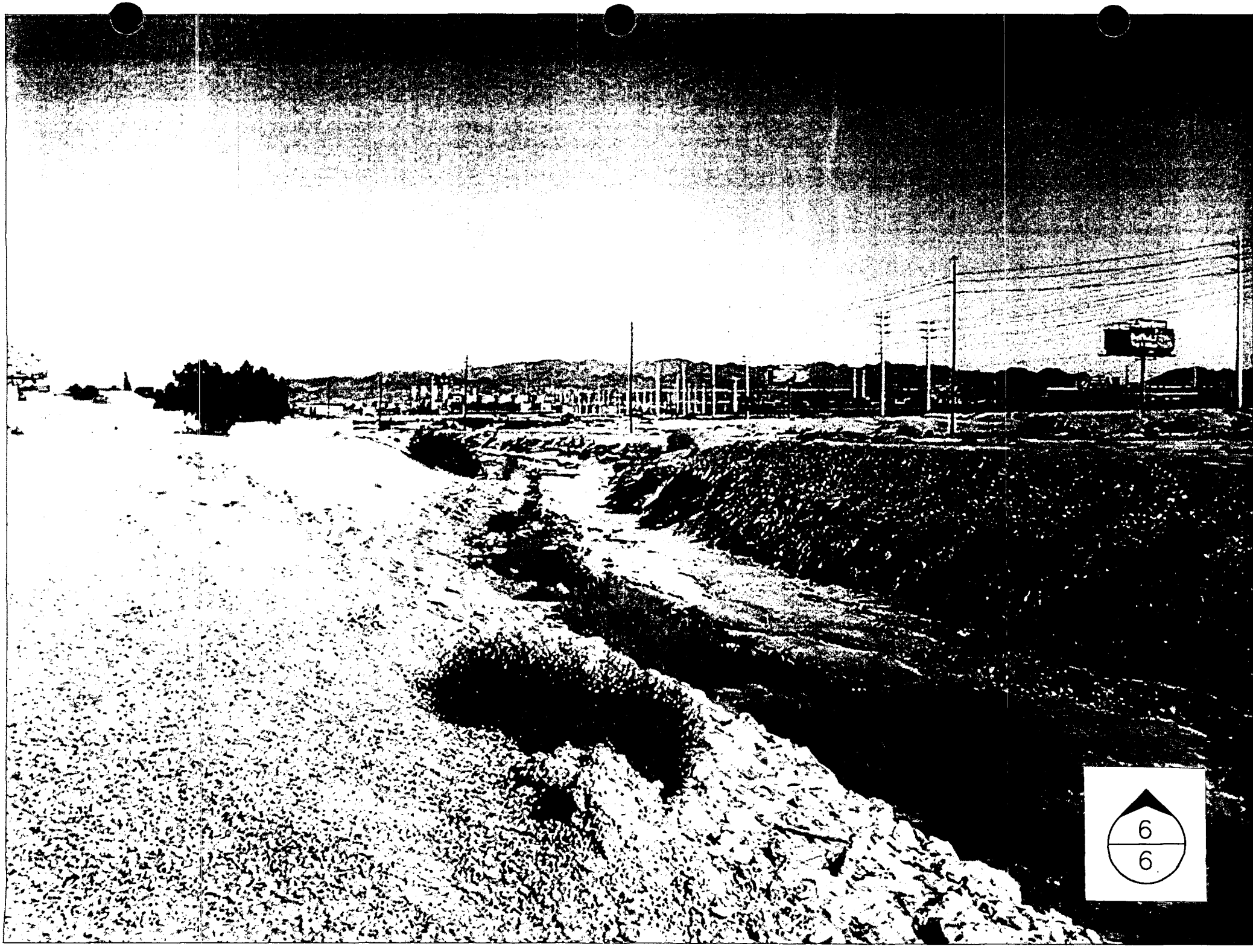


**Stephanie Street Bridge**

For survey information, see attached conformed design drawings for "Improvement Plans for Duck Creek Channel – Phase 1 from Stephanie Street to Emerald Avenue"

# DUCK CREEK FROM STEPHANIE STREET TO I-515


6
5



6
6

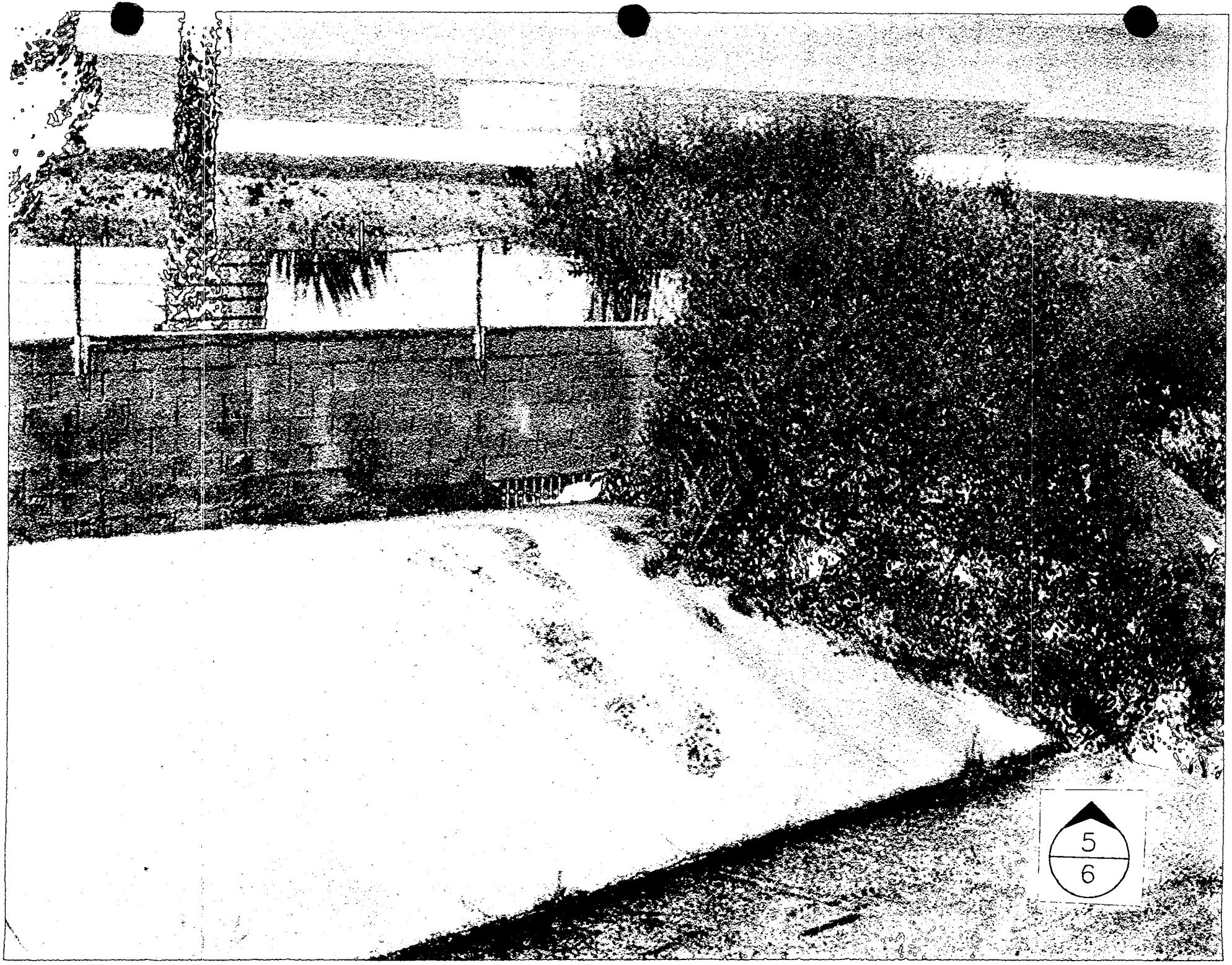

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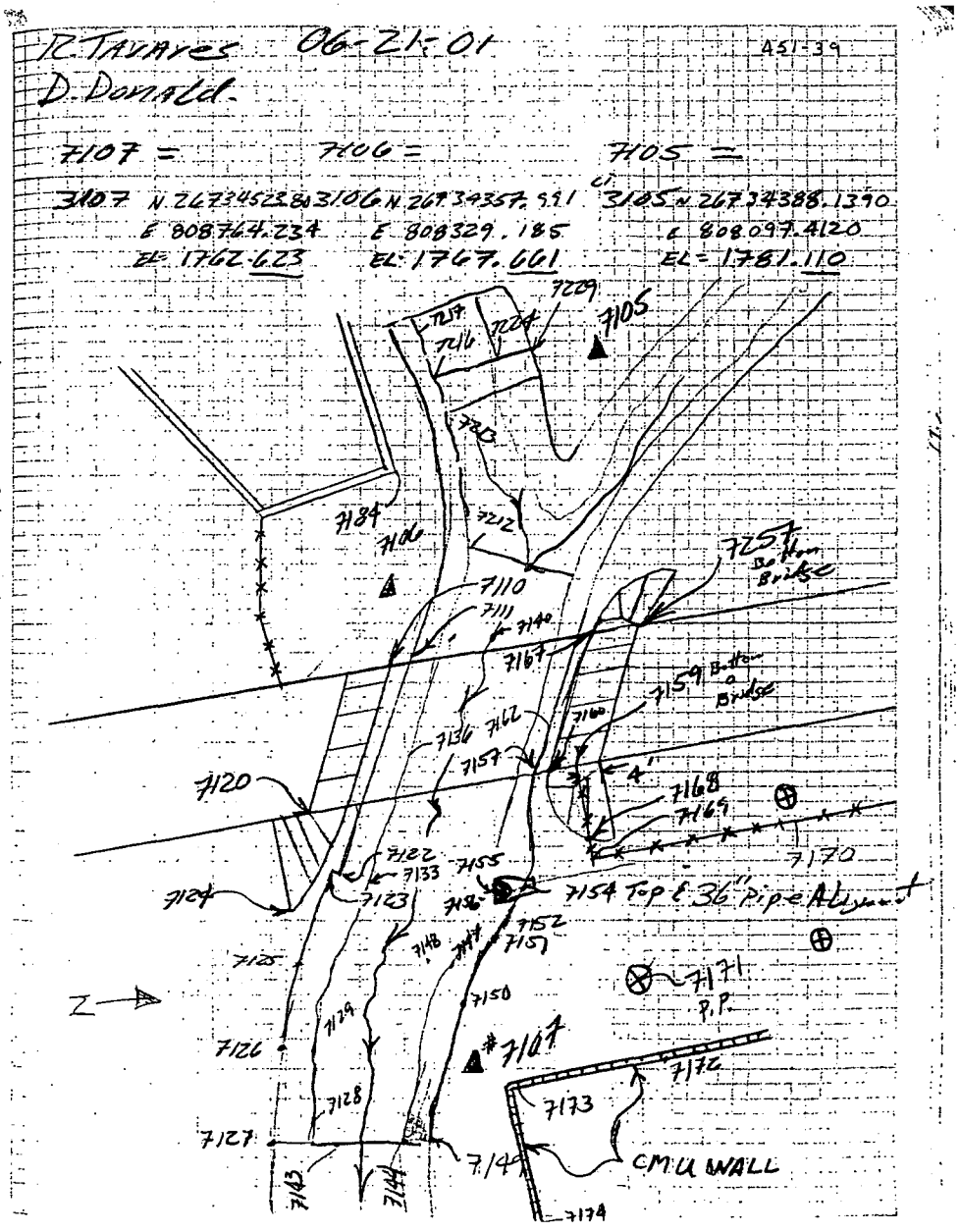
550.039 Duck Creek Topo 95°F
Sediment File: DC01172 ✓ sunny
sec 18
T29S
R62E

TC# 7107 = (3107) m3 rip @ 5.47'
BS. pt# 7106 = (3106) Rde 6.0'
5 Pts.
7110 Edge conc. (119)
7111 Top o Rip (74)

7120 (code 200) Bottom of bridge @ abutment
7121 (119)
7122 (74)
7123 (74) & Pt
7128 (119) Edge o Conc. Bottom of Slope
7129 (75) Rip Top Toe
8' Rd.
7130 (75) Rip
7136 Toe Rip
7154 Top Slope ℄ 36" Pipe Align
7155 ℄ 36" RCP Flared pipe
7156 N.G
7159 (code 200 Bottom o Bridge Rod @ 0
% 4.0" on Alignment to Abutment
(7120 → 7159)
Rod @ 6'
7160 Top o Rip
7169 (92) Fence x Pt.

RC Tavares 06-21-01
D. Donald

7107 = 7106 = 7105 =
3107 N. 267345.283 3106 N. 267349.357 9.91 3105 N. 267374388.1390
E 808764.234 E 808329.185 E 808097.4120
EL: 1762.623 EL: 1767.661 EL = 1781.110



S50.039 cont. from ps
File: DC01172

TC 7106 ms up 5.57
BS 7107 @ 5.22
FS Topo Pts

ORI: 7175 (code 200) bottom of Bridge
o/s 5.30' on Alignment ( → 7175 )
to Abutment
Rod @ 6'

# 7176 } Top o Rip
7183 }
7184 & Pt WALL (91) ← 8' Rod
7185 Valley Gutter (67)
7186 & Pt WALL (91)
7187 A
7188 C N6
7202
7205 Edge Conc POC
7206 Fence & Pt
7207 @ Valley Gutter
7210 A
7212 Edge o Conc / TOE Slope
7213 TOE
7214 Edge o Conc / TOE
7225 Conc & Pt
7257 (code 200) Bottom of Bridge @ Abutment

BS 7107 (3104) check
337-59-58

JCT 6-21-01
D.D.

451-40

# RUSSELL ROAD

# RUSSELL RD CROSSING
# PICTURE LOOKING NORTH
# FIELDBOOK 450 PG-9



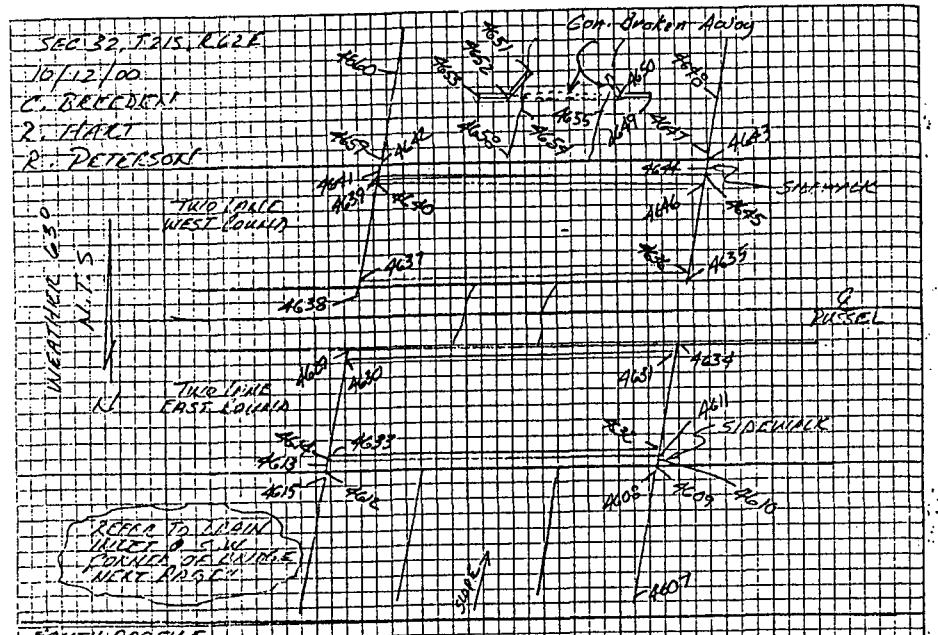
# RUSSELL RD CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 450 PG-9



# RUSSELL RD CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 450 PG-9



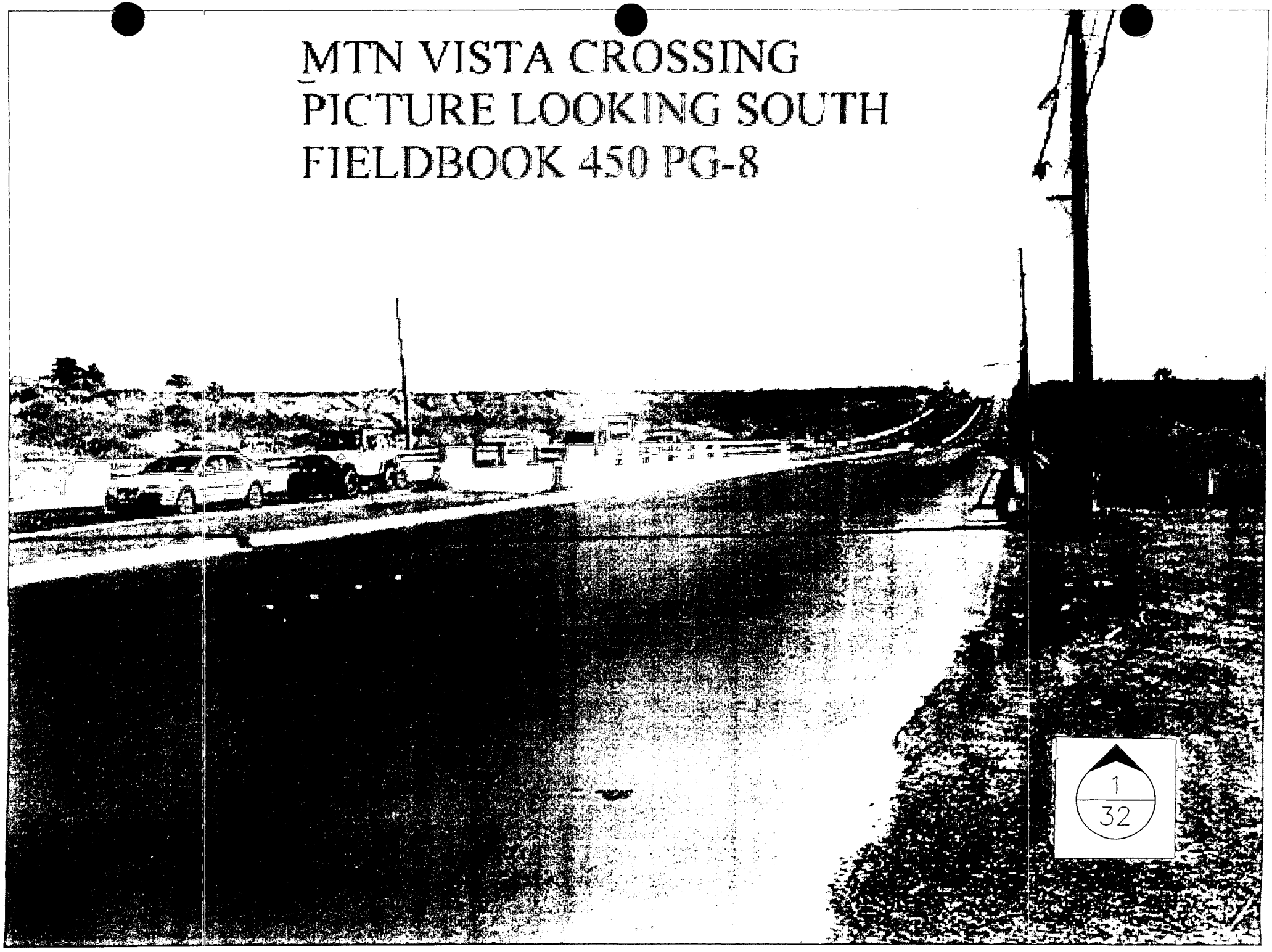
SEC 32, T 31 S, R 62 E
10/12/00
C. BRECKEL
2. HART
R. PETERSON



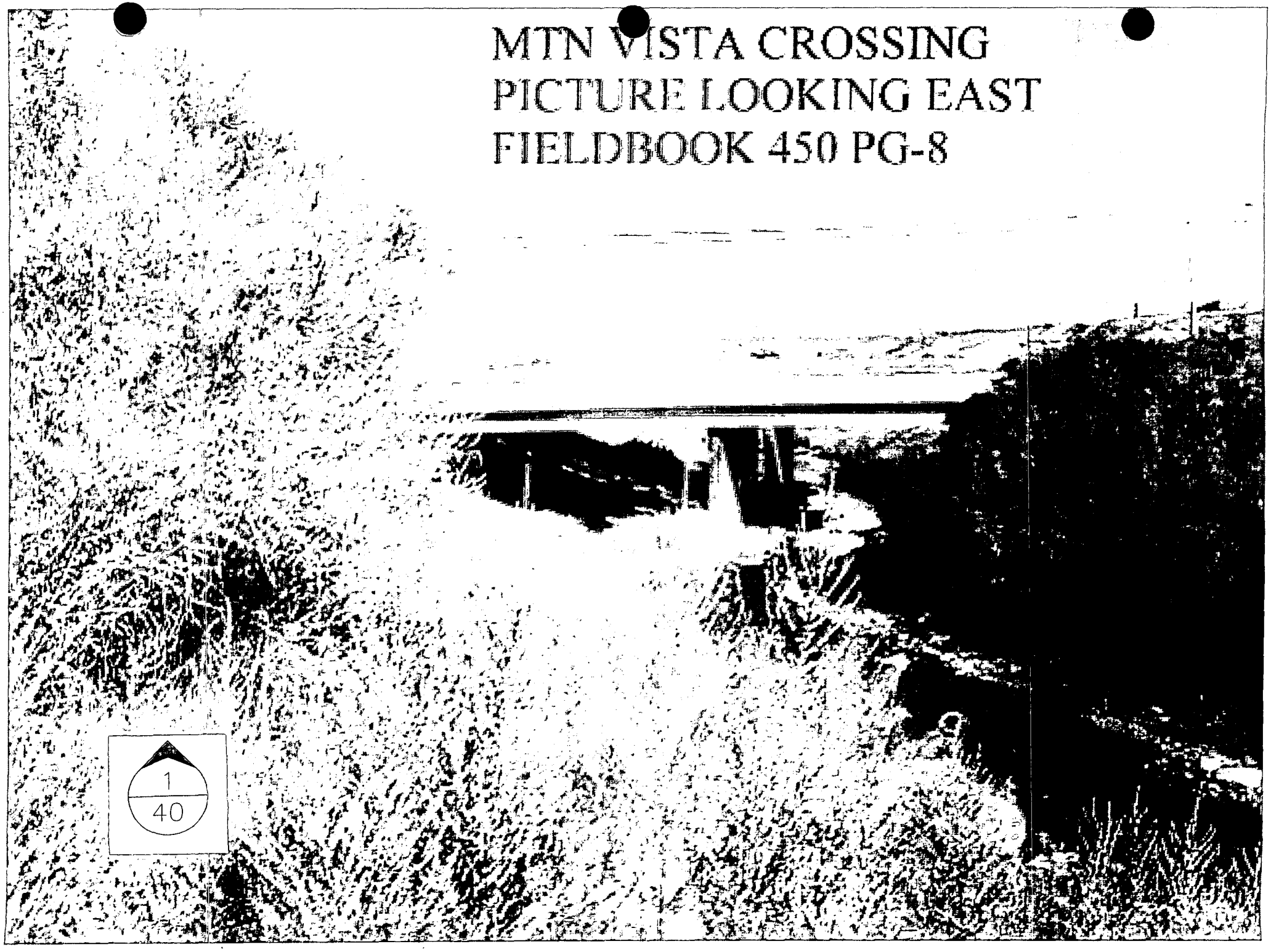
4644 E 4' S.W.
4645 Top Con. Guard Rail
4646 AC @ Bridge
4647 Top Chnl. @ Bridge
4648 Top Chnl.
4649 Con. Wing Wall
4650 " " "
4651 " " "
4652 " " "
4653 " " "
4654 Top Chnl.
4655 " "
4656 Top Chnl. @ Bridge Line
4657 Top Con @ Bridge Line
4658 Top Chnl @ " " "
4659 Top " " " "
4660 Top Chnl.

# MOUNTAIN VISTA ROAD

# MTN VISTA CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 450 PG-8

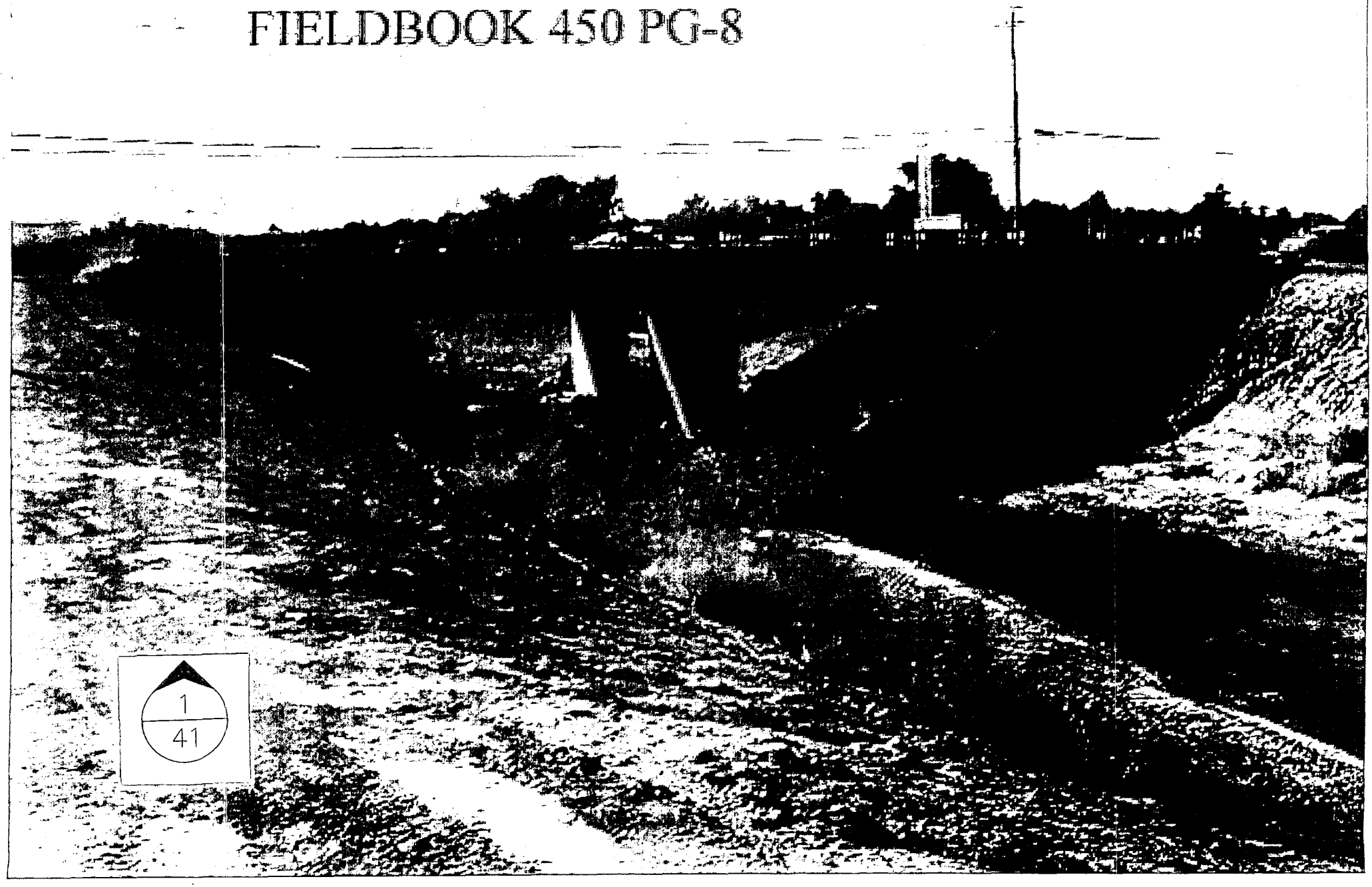


# MTN VISTA CROSSING
# PICTURE LOOKING EAST
# FIELDBOOK 450 PG-8

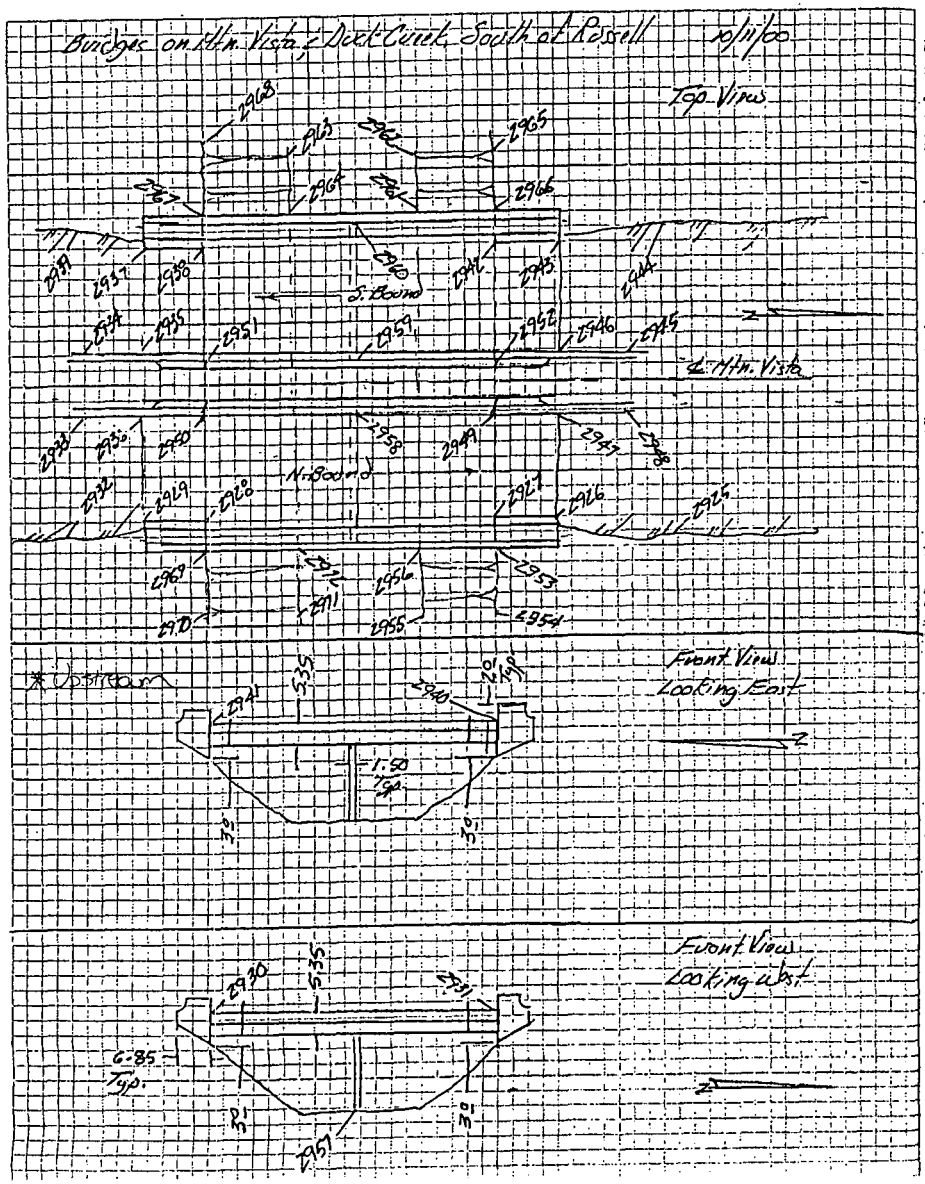


1
40

# MTN VISTA CROSSING
# PICTURE LOOKING WEST
# FIELDBOOK 450 PG-8



Bridges on Mtn. Vista / Deer Creek South of Russell 10/11/00




↑ @ 3061 BS 3062 000-00-00

HI = 5.57 HR = 5.26 CHECKED BS

H = -0.05

V = -0.04

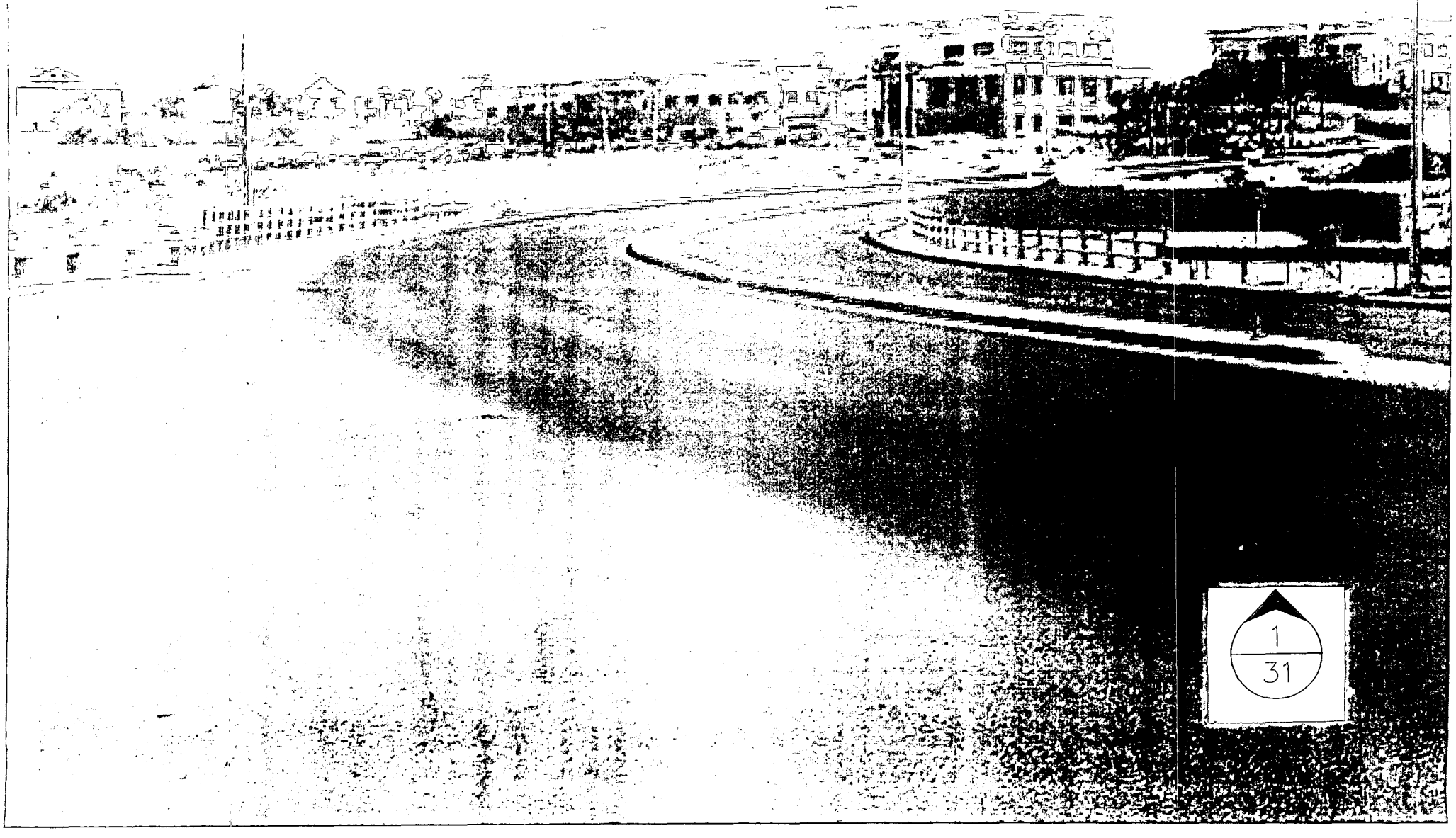
2925 Edge AC
2926 AC @ Lip Gutter
2927 " " " " @ Bridge
2928 " " " "
2929 AC @ Lip Gutter
2930 Top Begin Bridge
2931 " " "
2932 Edge AC
2933 AC @ Lip Gutter
2934 " " "
2935 " " "
2936 " " "
2937 " " "
2938 " " "
2939 Edge AC
2940 Top Begin Bridge
2941 " " "
2942 AC @ Lip Gutter
2943 " " "
2944 Edge AC
2945 AC @ Lip Gutter
2946 " " "
2947 " " "
2948 " " "
2949 Top Begin Bridge
2950 " " "
2951 " " "
2952 " " "
2953 Top Chnl.
2954 " "
2955 Toe Chnl.
2956 " " @ Bridge
2957 @ 1.50 wide mid span support
2958 N. side End " " "
2959 " " Begin " " "
2960 " " End " " "
2961 Toe @ Bridge line
2962 Toe Chnl.
2963 " "
2964 Toe Chnl. @ Bridge
2965 Top Chnl.
2966 " " @ Bridge
2967 " " " "
2968 Top Chnl.
2969 " " @ Bridge
2970 Top Chnl.
2971 Toe Chnl.
2972 " " @ Bridge

PICTURES TAKEN 10/17/00

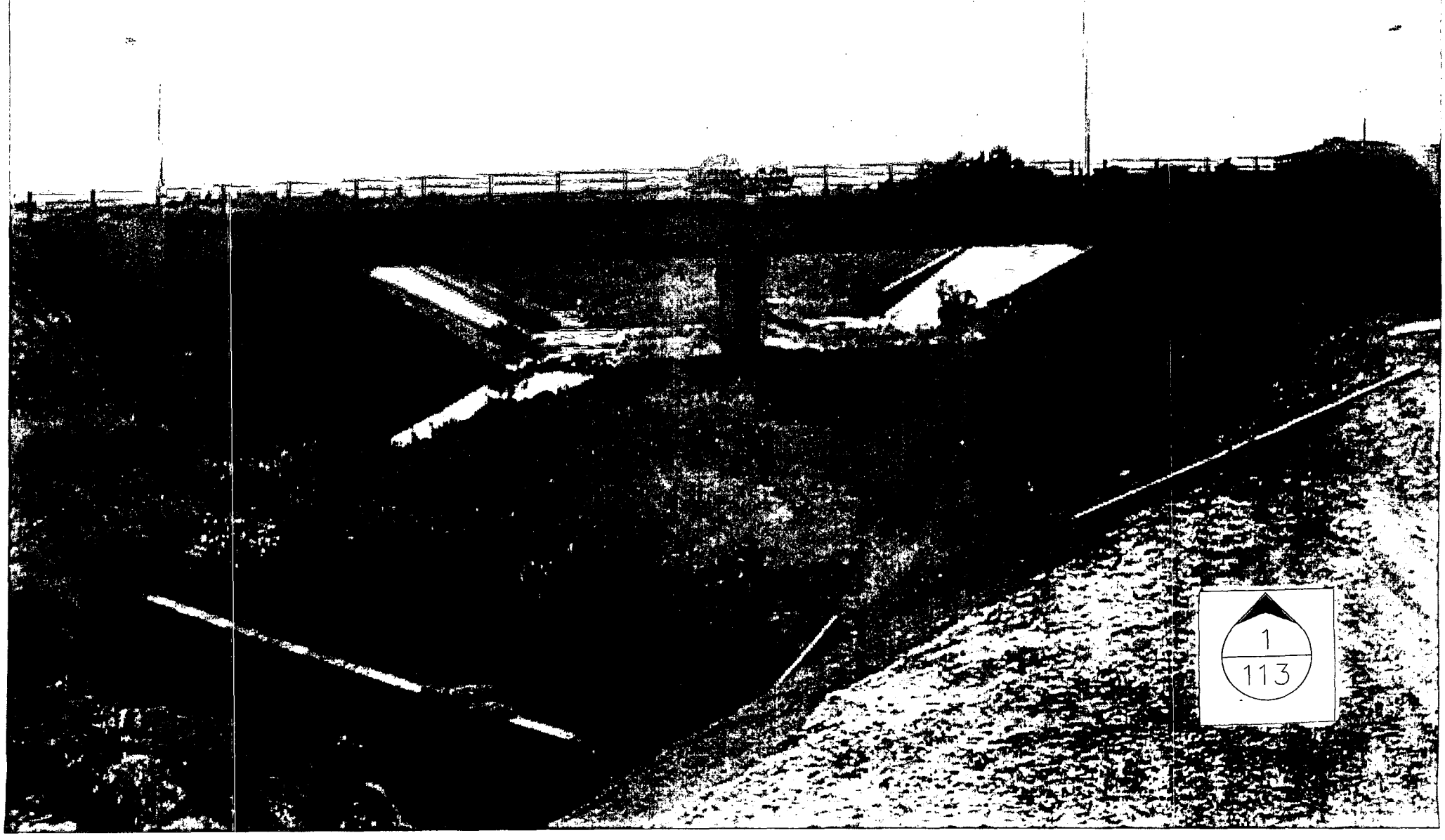
061 TOP VIEW LOOKING SOUTH ON MOUNTAIN VISTA
062 WEST SIDE LOOKING EAST
063 EAST SIDE LOOKING WEST

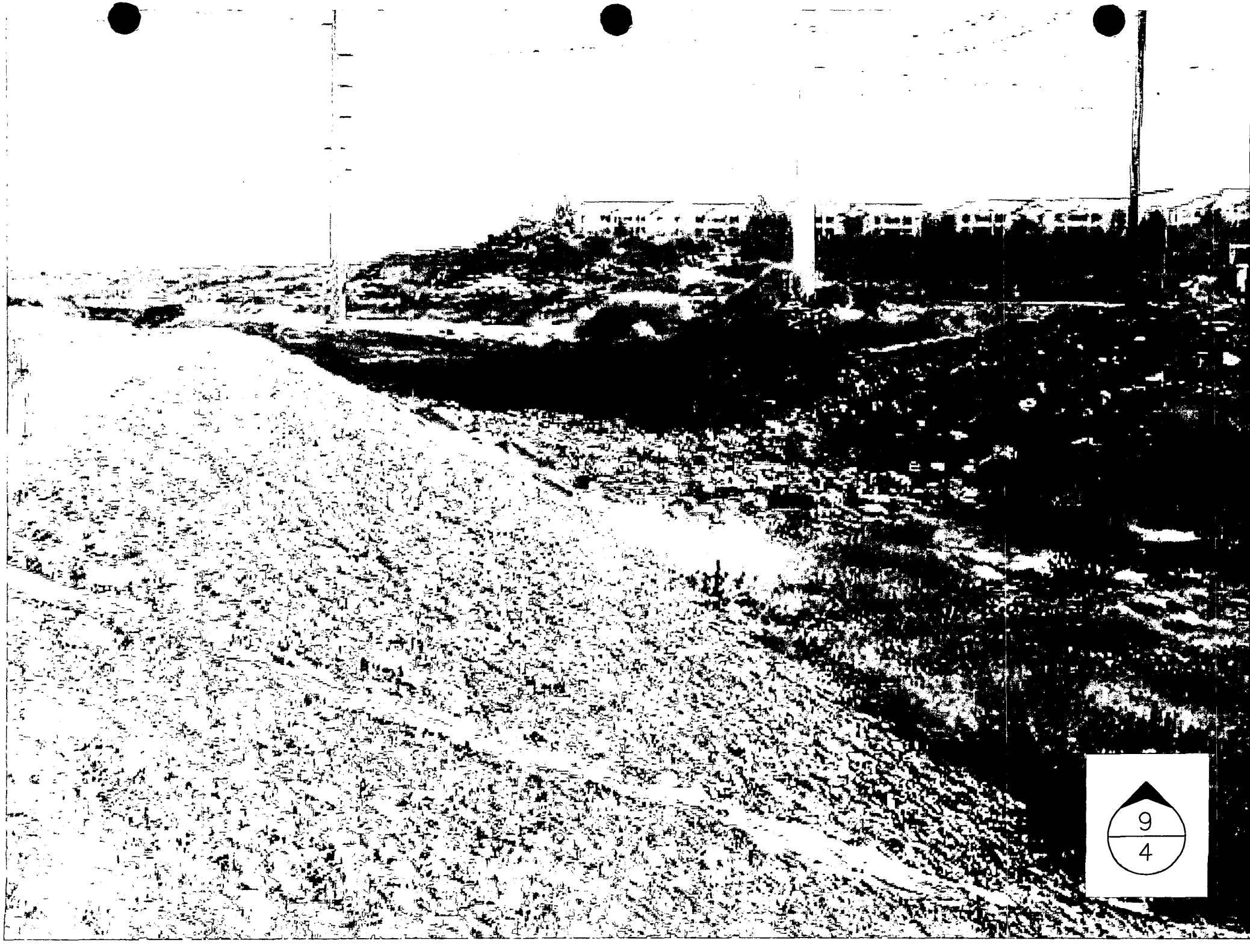
# GREEN VALLEY PARKWAY/ PATRICK LANE

PATRICK LN CROSSING
PICTURE LOOKING SOUTHEAST
FIELDBOOK 450 PG-7



# PATRICK LN CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 450 PG-7




9
4

# PATRICK LN CROSSING
# PICTURE LOOKING NORTH
# FIELDBOOK 450 PG-7





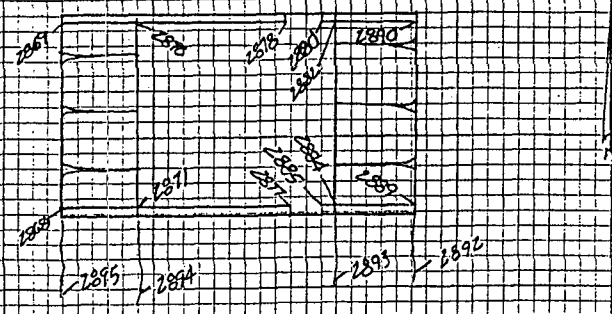
.32 X .10

450-6

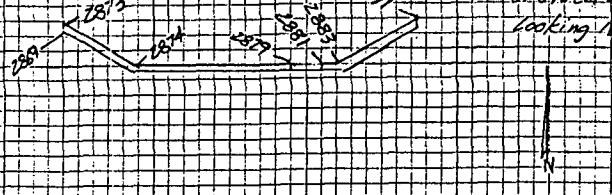
Con. Structure South Side Bridge @ Patrick & Dock Creek

10/11/00

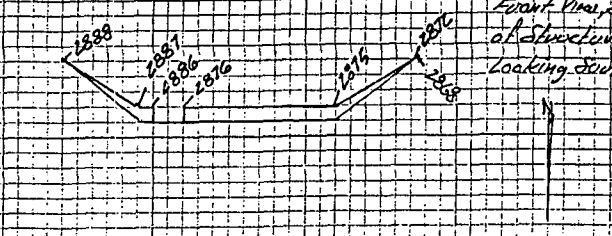
Top View




Front View, N. Side of Structure Looking South




Front View, S. Side of Structure Looking South




Last @ 3043, BS 3045' @ Ft. 32, V. 10, Ht. 5.28, HR. 4.71 (Some on next page)

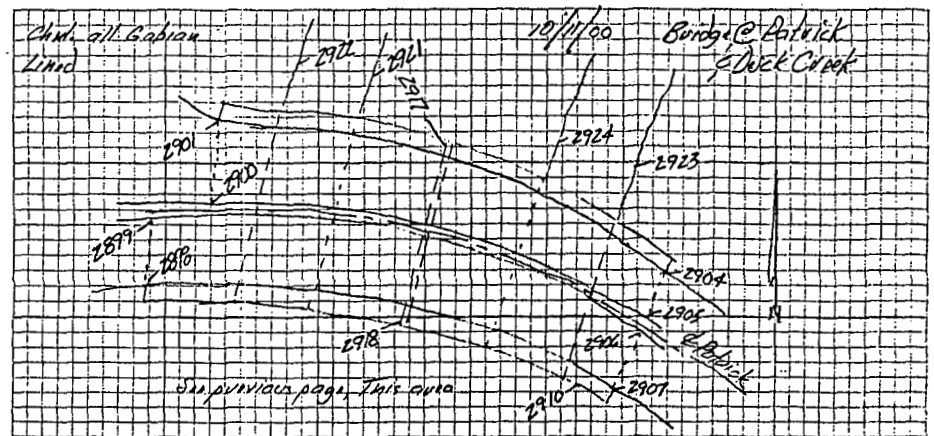
| | | |
|---|---|---|
| 2868 | Bottom | Con. |
| 2869 | " | " |
| 2870 | " | " |
| 2871 | " | " |
| 2872 | Top | Con. |
| 2873 | " | " |
| 2874 | " | " |
| 2875 | " | " |
| 2876 | " | " |
| 2877 | Bottom | Con. |
| 2878 | " | " |
| 2879 | Top | Con. |
| 2880 | Bottom | Con. |
| 2881 | Top | Con. |
| 2882 | Bottom | Con. |
| 2883 | Top | Con. |
| 2884 | Bottom | Con. |
| 2885 | " | " |
| 2886 | Top | Con. |
| 2887 | " | " |
| 2888 | " | " |
| 2889 | Bottom | Con. |
| 2890 | " | " |
| 2891 | Top | Con. |
| 2892 | Top | Chnl. |
| 2893 | Top | Chnl. |
| 2894 | " | " |
| 2895 | Top | Chnl. |

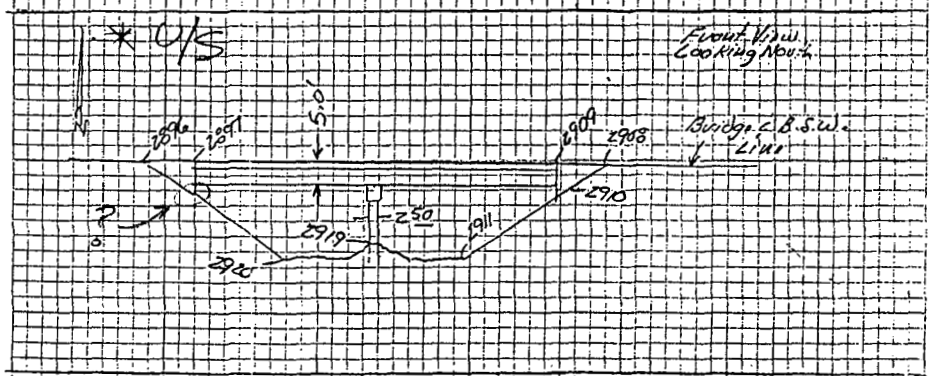
DEFELTO BK 450 PG 7 for pictures on 10/17/00 taken

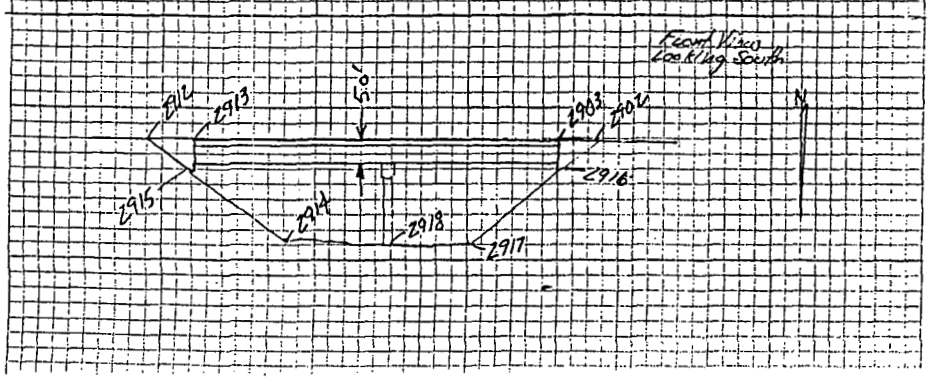
Chnl. all Gabion Lined

10/17/00

Bridge @ Patrick & Deck Creek



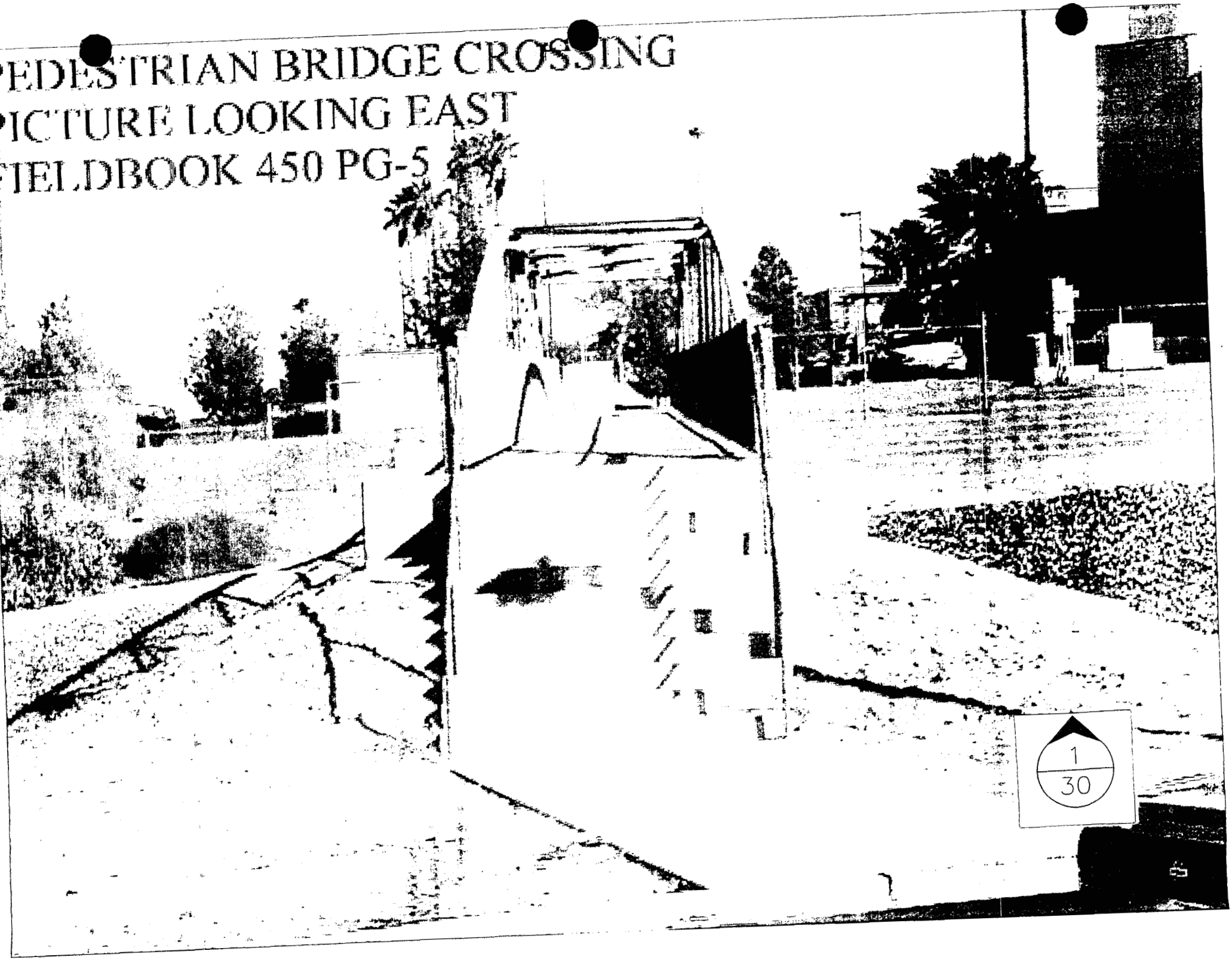




Z896 Top, begin Structure
Z897 Top @ Bridge
Z898 Structure @ Face of curb
Z899 " " "
Z900 " " "
Z901 " " "
Z902 Top Begin Structure
Z903 Top @ Bridge
Z904 Structure @ Face of curb
Z905 " " "
Z906 " " "
Z907 " " "
Z908 Top Structure
Z909 Top @ Bridge
Z910 Top @ Bridge line
Z911 Toe @ Bridge line
Z912 Top, Begin Structure
Z913 Top @ Bridge
Z914 Toe @ Bridge
Z915 Top @ Bridge
Z916 Top @ Bridge
Z917 Toe Chnl. @ Bridge
Z918 W. side of Chnl. column
Z919 " " " "
Z920 Toe Chnl @ Bridge
Z921 Toe Chnl.
Z922 Top Chnl.
Z923 " "
Z924 Toe Chnl.

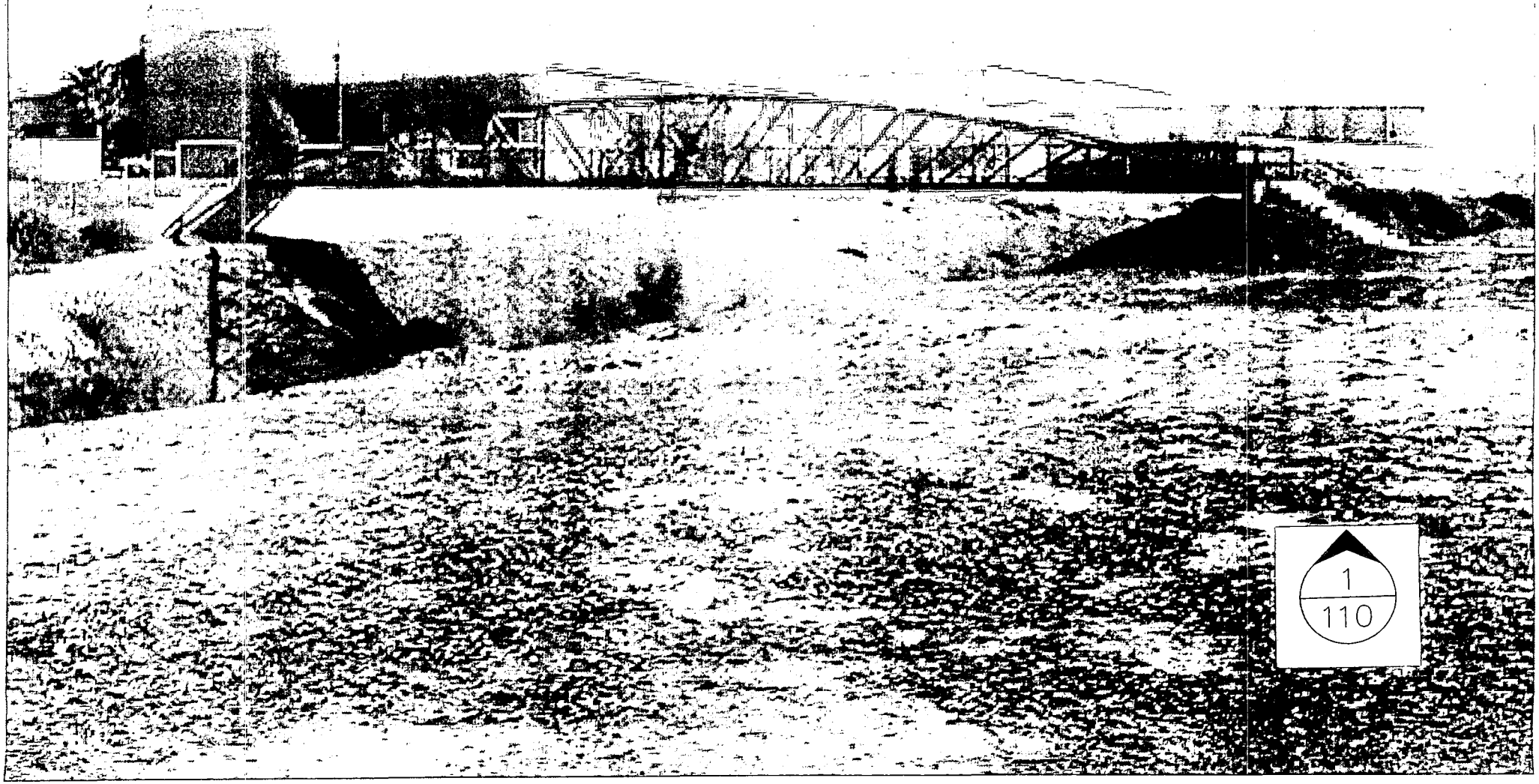
PICTURES 10/17/00
059 TOP VIEW LOOKING S.E'RLY
060 SOUTH SIDE LOOKING NORTH
061 NORTH SIDE LOOKING SOUTH

# POST ROAD CROSSING

PEDESTRIAN BRIDGE CROSSING
PICTURE LOOKING EAST
FIELDBOOK 450 PG-5

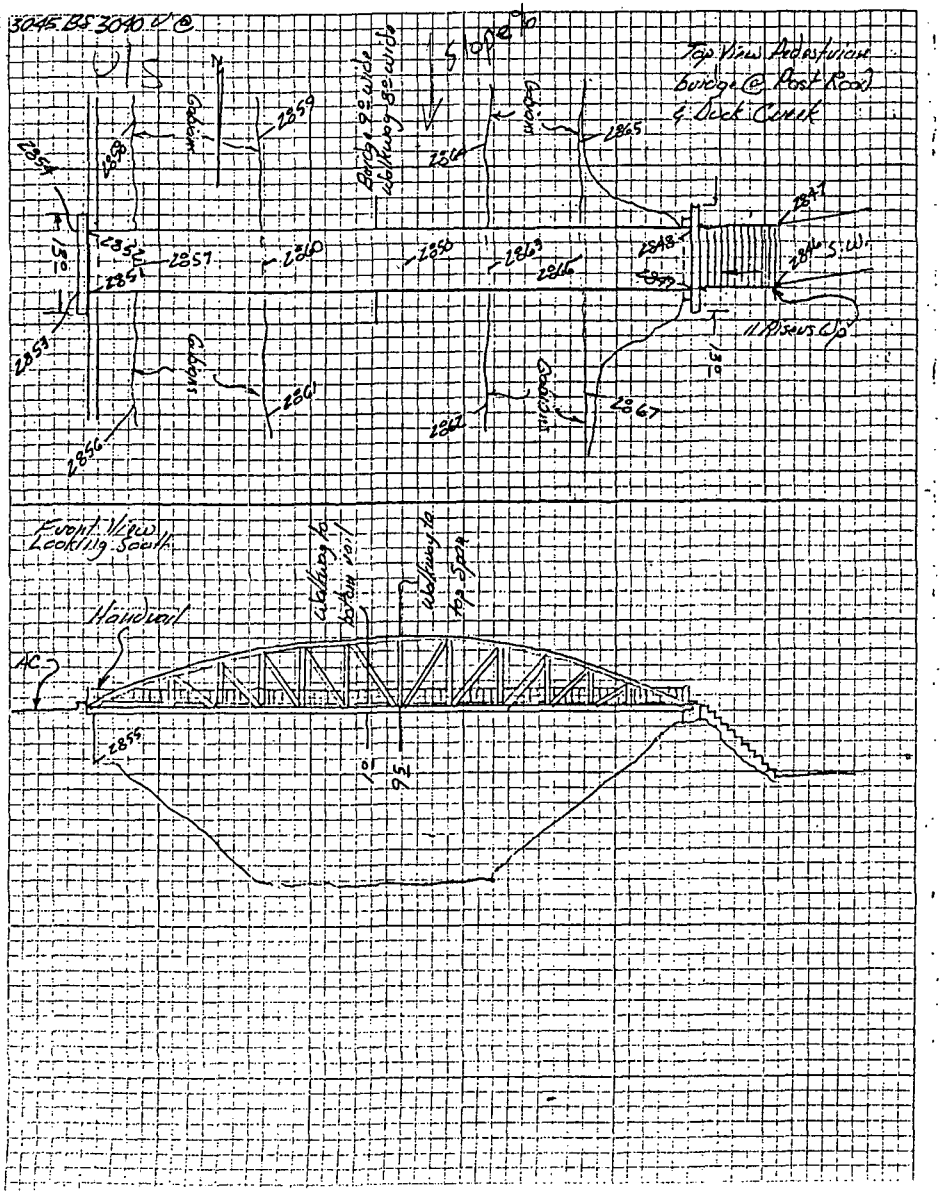


# PEDESTRIAN BRIDGE CROSSING
# PICTURE LOOKING SOUTHEAST
# FIELDBOOK 450 PG-5



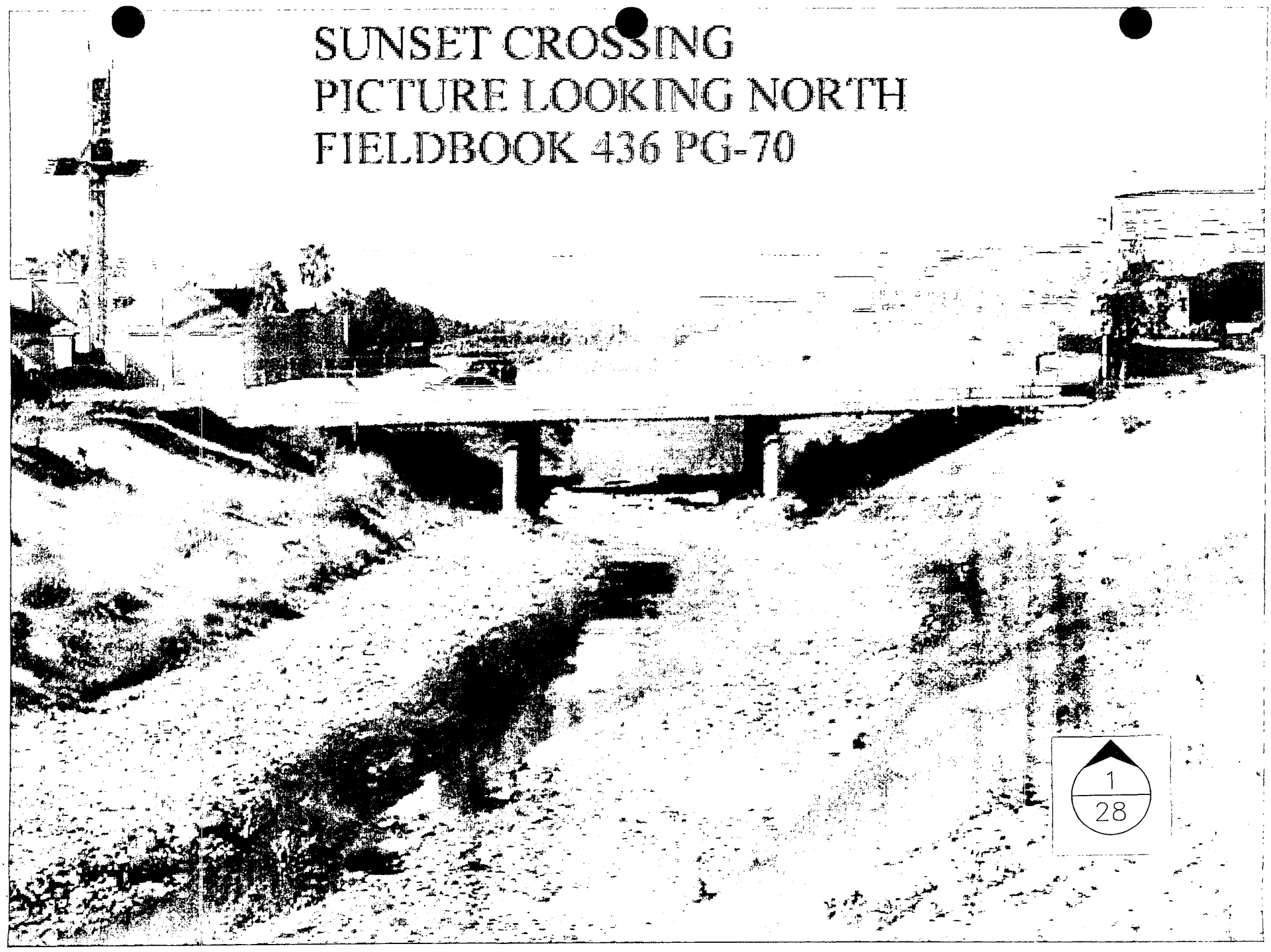
# PEDESTRIAN BRIDGE CROSSING
# PICTURE LOOKING NORTHEAST
# FIELDBOOK PG-5



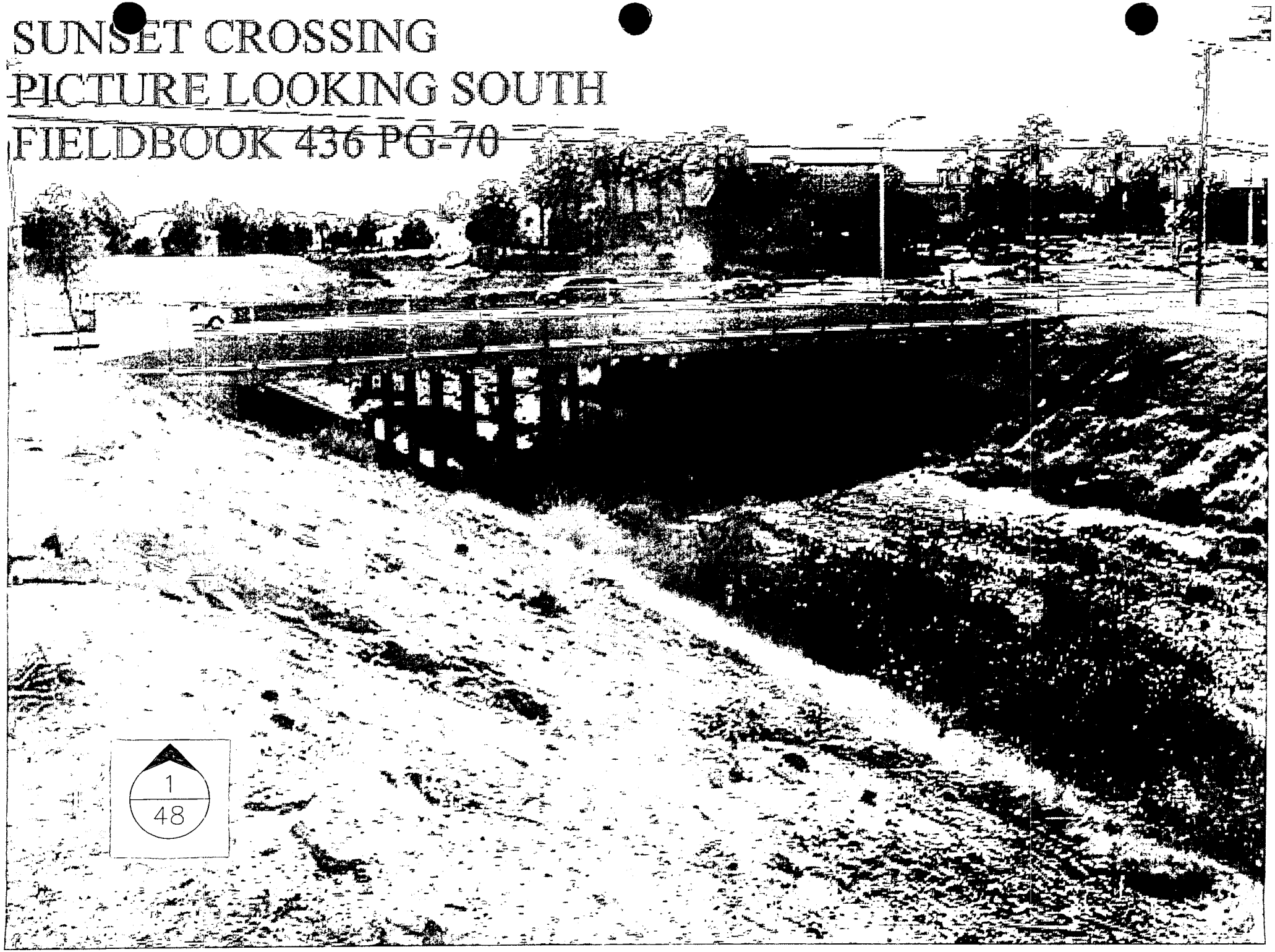

@ 3045 BS 3040 U @
Top View Pedestrian Bridge @ Post Road & Duck Creek
Concrete 8'± wide walkway
Concrete
Concrete
Concrete

# SUNSET ROAD

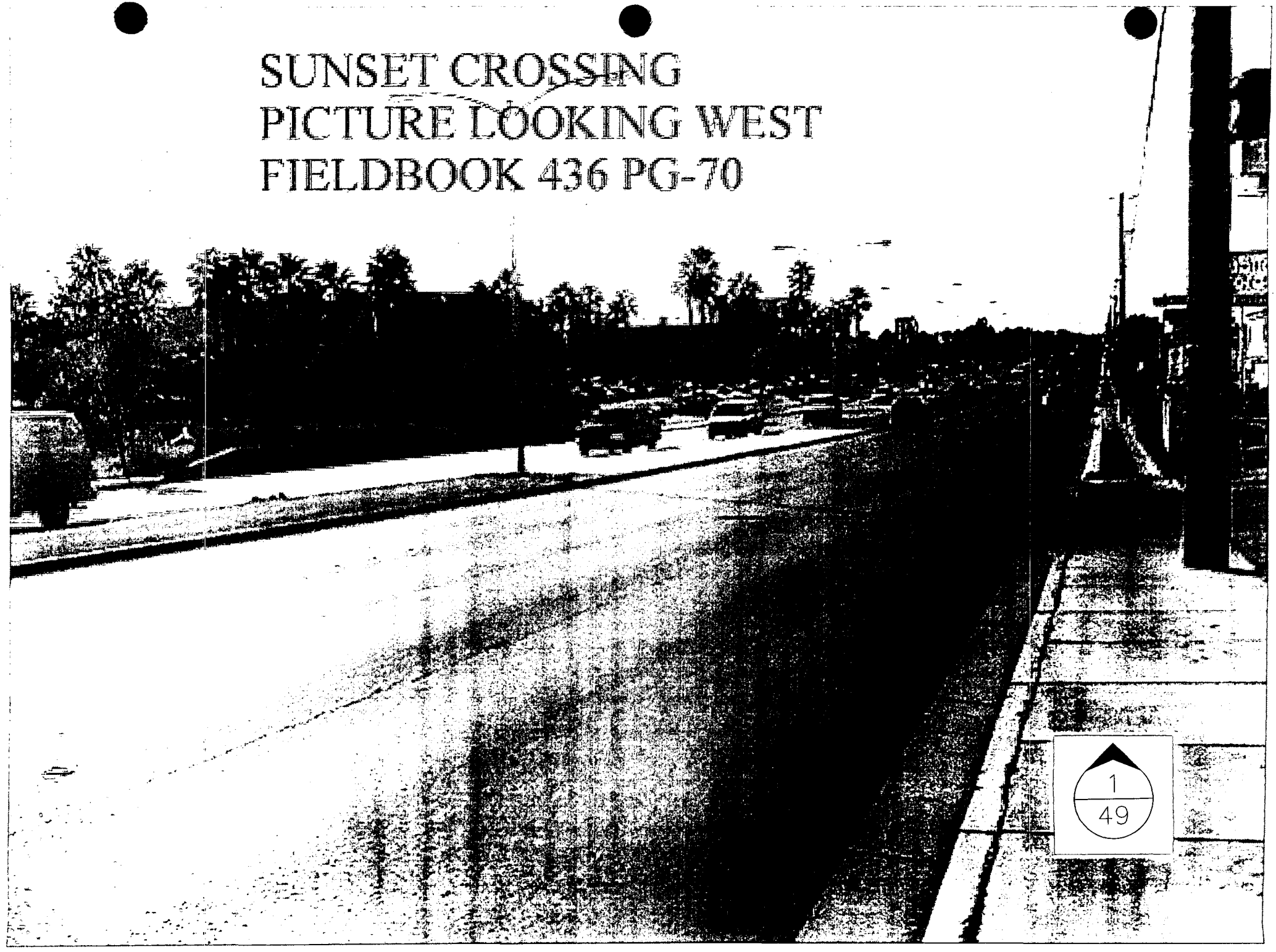
# SUNSET CROSSING
# PICTURE LOOKING NORTH
# FIELDBOOK 436 PG-70



# SUNSET CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 436 PG-70

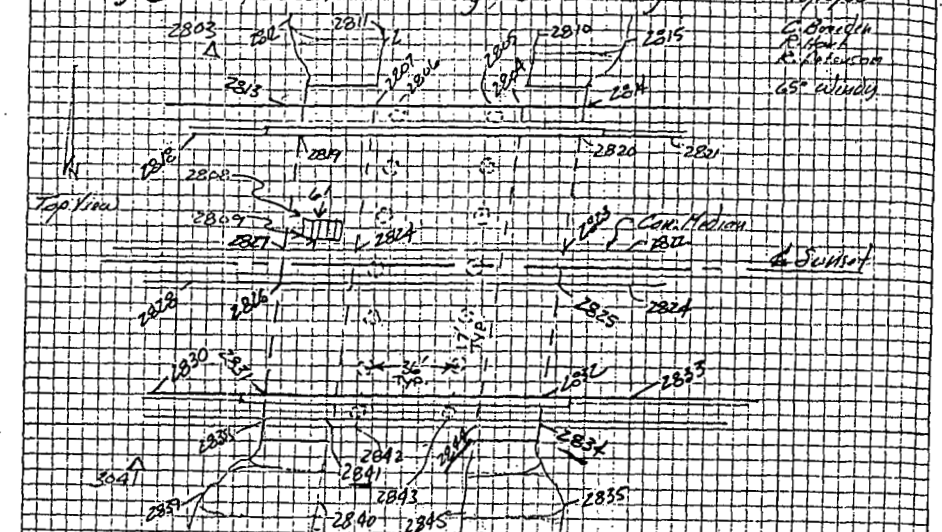


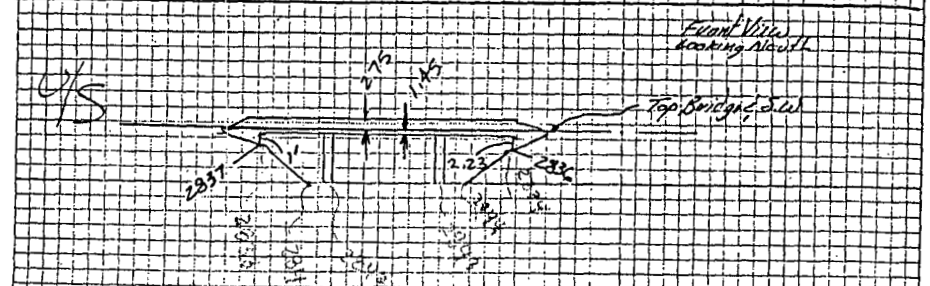
# SUNSET CROSSING
# PICTURE LOOKING WEST
# FIELDBOOK 436 PG-70

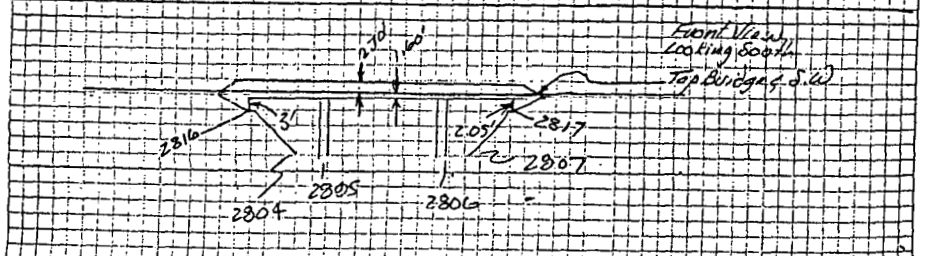


Bridge @ Sta. of Between Annie Oakley & G.V. Parkway

10/10/00
C. Bonelli
R. Hunt
R. Peterson
65° cloudy




TO 3041 BS 3045 000-00-00 436-10

CHECKED BS H = 0.25

HI = 5.25 HR = 0.90 V = -0.29

2803 N 2672727.8326
E 803555.5187
EL 1850.09

| | |
|---|---|
| 2804 | TOE CHANNEL @ FG SURFACE "DIRT" |
| 2805 | BRIDGE PILLAR |
| 2806 | " " |
| 2807 | TOE CHANNEL @ FG SURFACE "DIRT" |
| 2808 | STORM DRAIN 6'w x 12.65'L |
| 2809 | STORM DRAIN " |
| 2810 | TOE CHANNEL |
| 2811 | TOE CHANNEL |
| 2812 | Top Chnl |
| 2813 | " " |
| 2814 | " " |
| 2815 | " " |
| 2816 | Top Conc @ BRIDGE |
| 2817 | " " " |
| 2818 | AC LIP @ GUTTER LINE |
| 2819 | AC/LIP @ Bridge |
| 2820 | " " " |
| 2821 | AC LIP |
| 2822 | AC @ Face of curb Island |
| 2823 | AC @ Bridge line @ Island |
| 2824 | AC @ Face of curb Island |
| 2825 | AC @ Bridge line @ Island |
| 2826 | " " " |
| 2827 | " " " |
| 2828 | AC @ Face of curb Island |
| 2829 | " " " |
| 2830 | AC LIP @ Gutter line |
| 2831 | AC LIP @ Bridge line |
| 2832 | " " " |
| 2833 | AC LIP @ Gutter line |
| 2834 | Top Chnl |
| 2835 | " " |
| 2836 | Top Chnl @ Bridge |
| 2837 | " " |
| 2838 | Top Chnl |
| 2839 | " " |
| 2840 | TOE CHANNEL |
| 2841 | TOE CHANNEL @ Bridge |
| 2842 | PILLAR @ Bridge |
| 2843 | " " |
| 2844 | TOE CHANNEL @ Bridge |
| 2845 | " " |

5 PICTURES 10/11/00
023 SOUTHERLY SIDE LOOKG NORTHERLY
054 NORTHERLY SIDE LOOKG SOUTHERLY
055 TOP VIEW LOOKG WESTERLY ALONG SUNSET

SUNFISH DRIVE

# 2ND APARTMENT CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 436 PG-69



# 2ND APARTMENT CROSSING
# PICTURE LOOKING EAST
# FIELDBOOK 436 PG-69

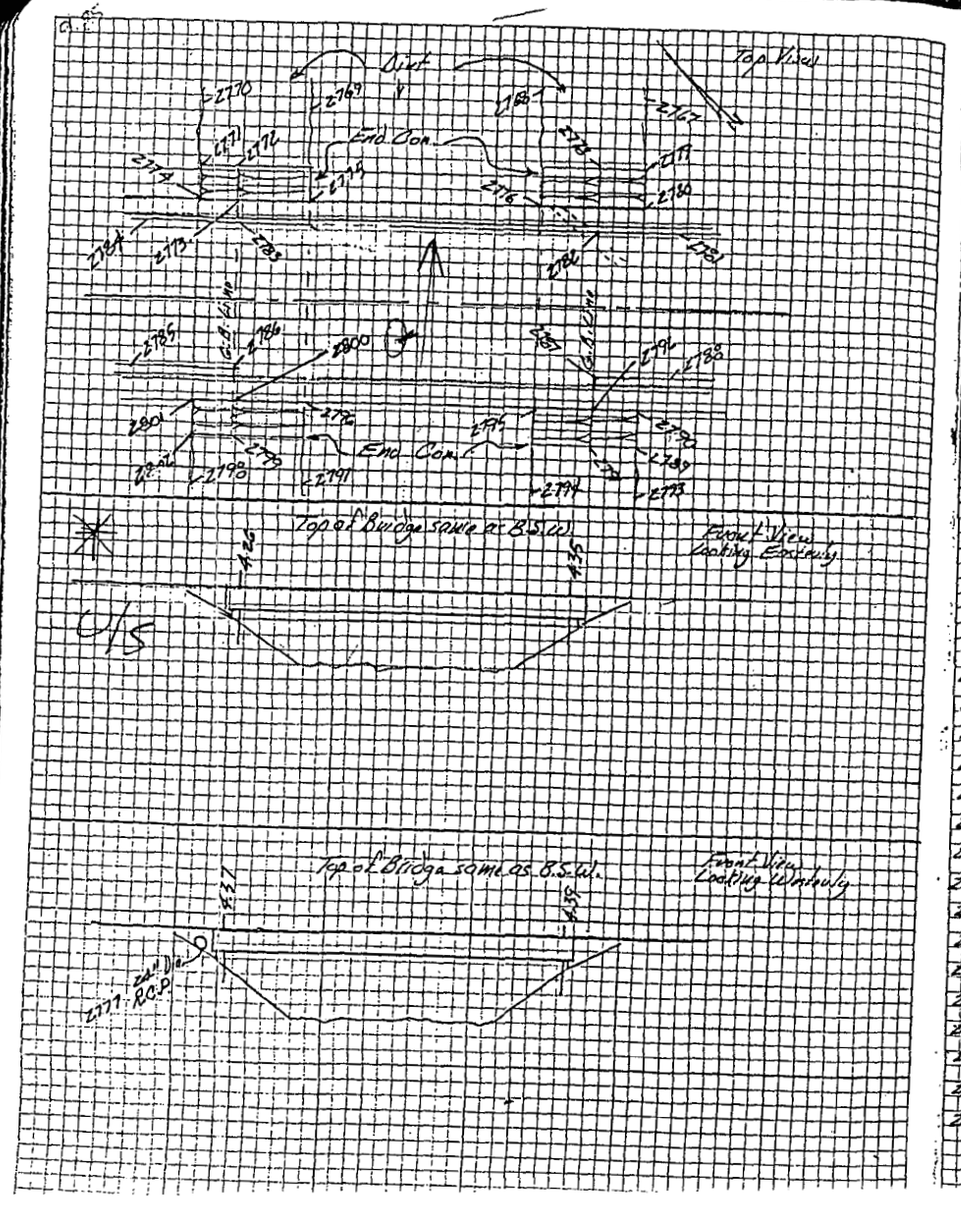


1
46

# 2ND APARTMENT CROSSING PICTURE LOOKING WEST FIELDBOOK 436 PG-69



Surfish Dr.




Ind @ 3042, BS 3042 N.I. 5.7, B.S. N.P.S. 1.3

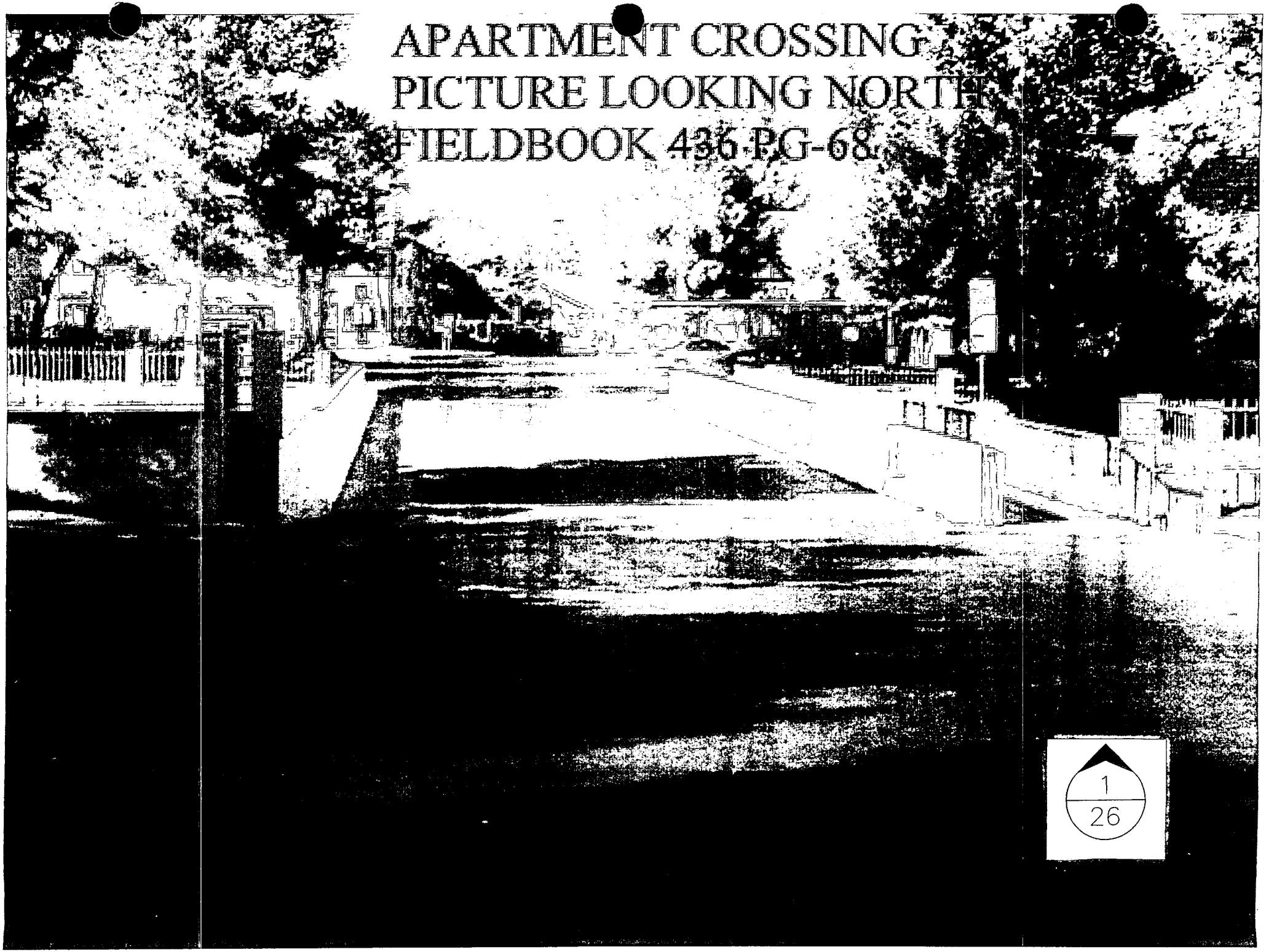
2767 Top Chnl.
2768 Top Chnl.
2769 " "
2770 Top "
2771 Top Chnl. @ Cou. Con.
2772 Edge Cou. C.B.
2773 Con. @ Bridge Line
2774 Cou. Con.
2775, 2776 Top Chnl. @ Bridge Line
2777 A. 24" RCP
2778 Edge Con. C.B.
2779 Top Chnl. @ Cou. Con.
2780 Cou. Con.
2781 AC @ Face A cond.
2782 Gutter cond @ Bridge Line
2783 " " " "
2784 AC @ Face A cond.
2785 AC @ Top cond.
2786, 2787 AC Top gutter @ Bridge
2788 AC @ Top cond.
2789 Top Chnl. @ Cou. Con.
2790 Cou. Con.
2791 Edge Cou. @ C.B.
2792 Con. @ Bridge Line
2793 Top Chnl.
2794 Top Chnl.
2795 Top Chnl @ Bridge
2796 " " " "
2797 Top Chnl.
2798 Top Chnl.
2799 Edge Cou @ C.B.
2800 Con. @ Bridge Line
2801 Cou. Con.
2802 Top Con. Con.

PICTURES 10/17/00
050 Top View looking North
051 West side looking East
052 East side looking West

* NOTE no name on road, access to apartments daily

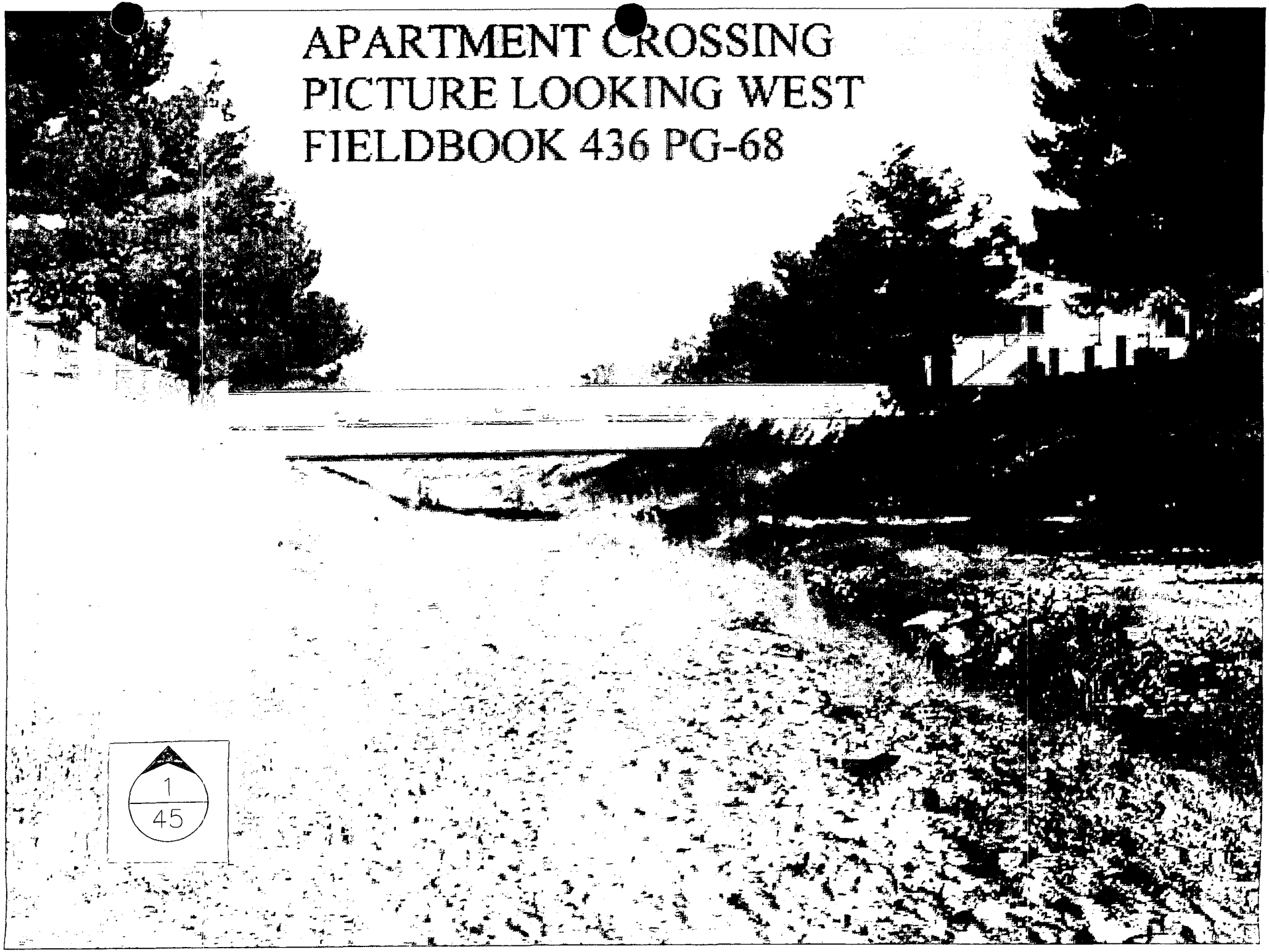
436-69

# NEWPORT COVE APARTMENT CROSSING


APARTMENT CROSSING
PICTURE LOOKING NORTH
FIELDBOOK 436 PG-68
1
26



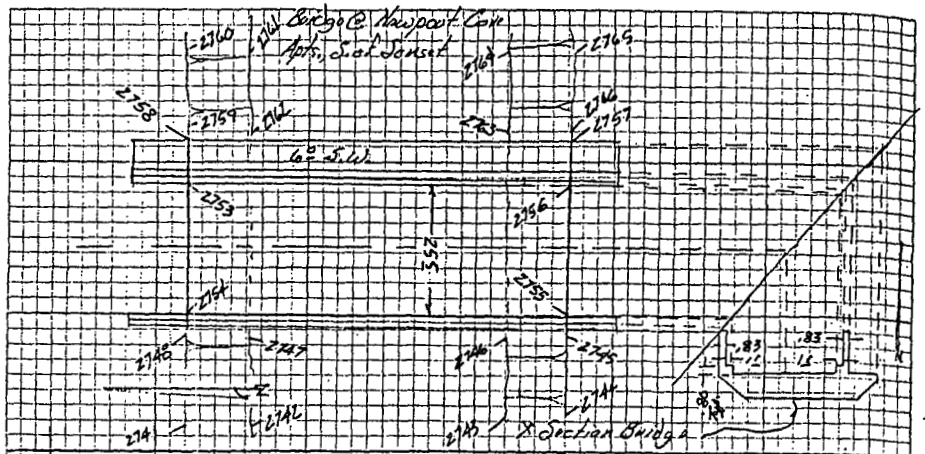
9
3


APARTMENT CROSSING
PICTURE LOOKING WEST
FIELDBOOK 436 PG-68
1
45



9
1

6
2




1 @ 3038 & 3039 CHECKED BS 436-6-8

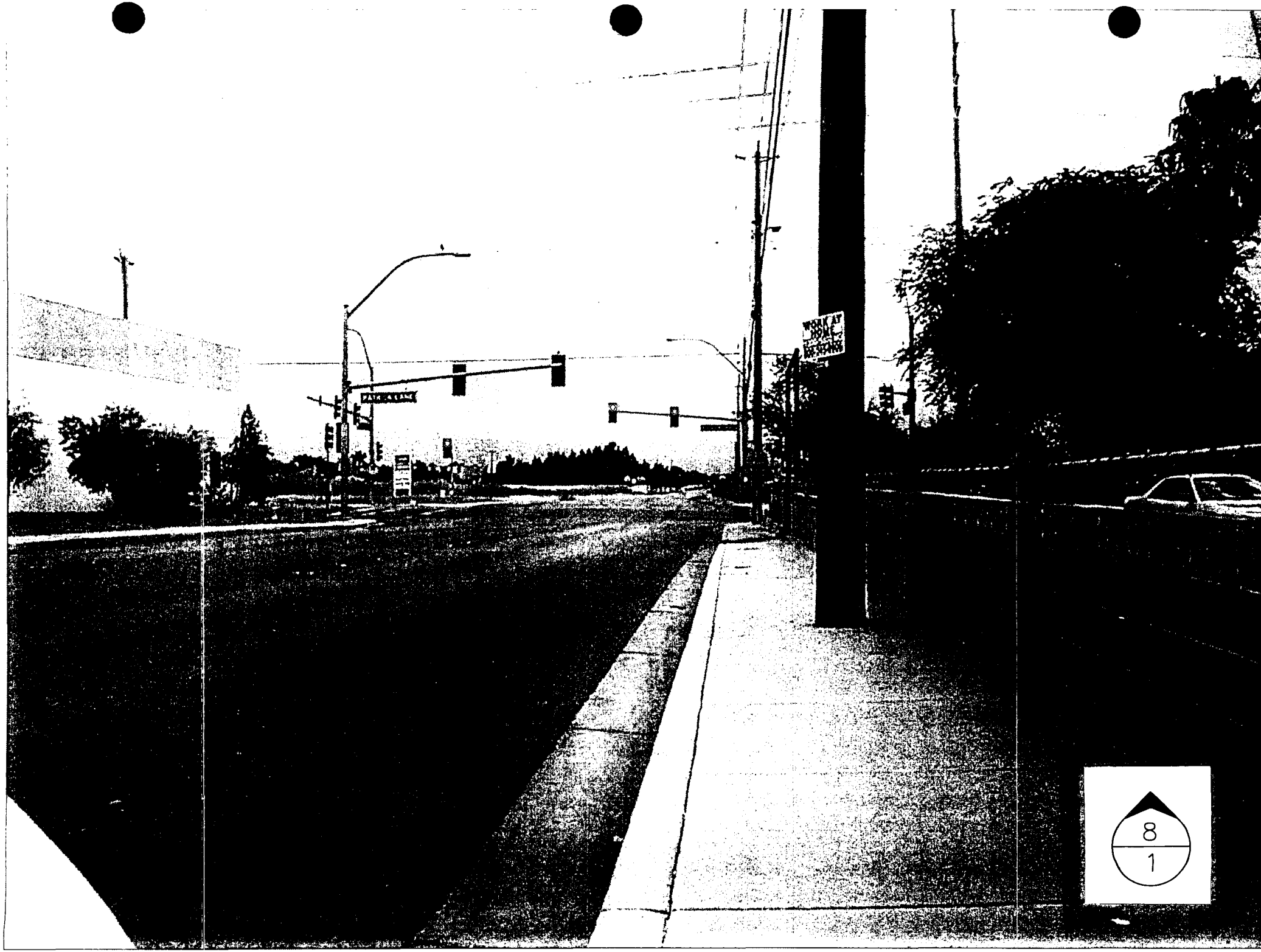
H.I = 5.37 H.I = 4.77 H = .07 V = .03

2741 Top Chnl.
2742 Toe Chnl.
2743 " "
2744 Top "
2745 " "
2746 Toe "
2747 " "
2748 Top "
2749, & 2750 Conc. Bridge
2751, & 2752 " "
2753, 2754, 2755, & 2756
2757, & 2758, Conc. Bridge & S.W.
2759, 2760, Top Chnl.
2761, 2762, 2763, & 2764 Toe Chnl.
2765, 2766 Top Chnl.

PICTURES 10/17/00
047 TOP VIEW LOOK NORTH
048 EAST SIDE LOOKING WEST
049 WEST SIDE LOOKING EAST

* NOTE NO MAINT. ACCESS TO APARTMENTS ONLY

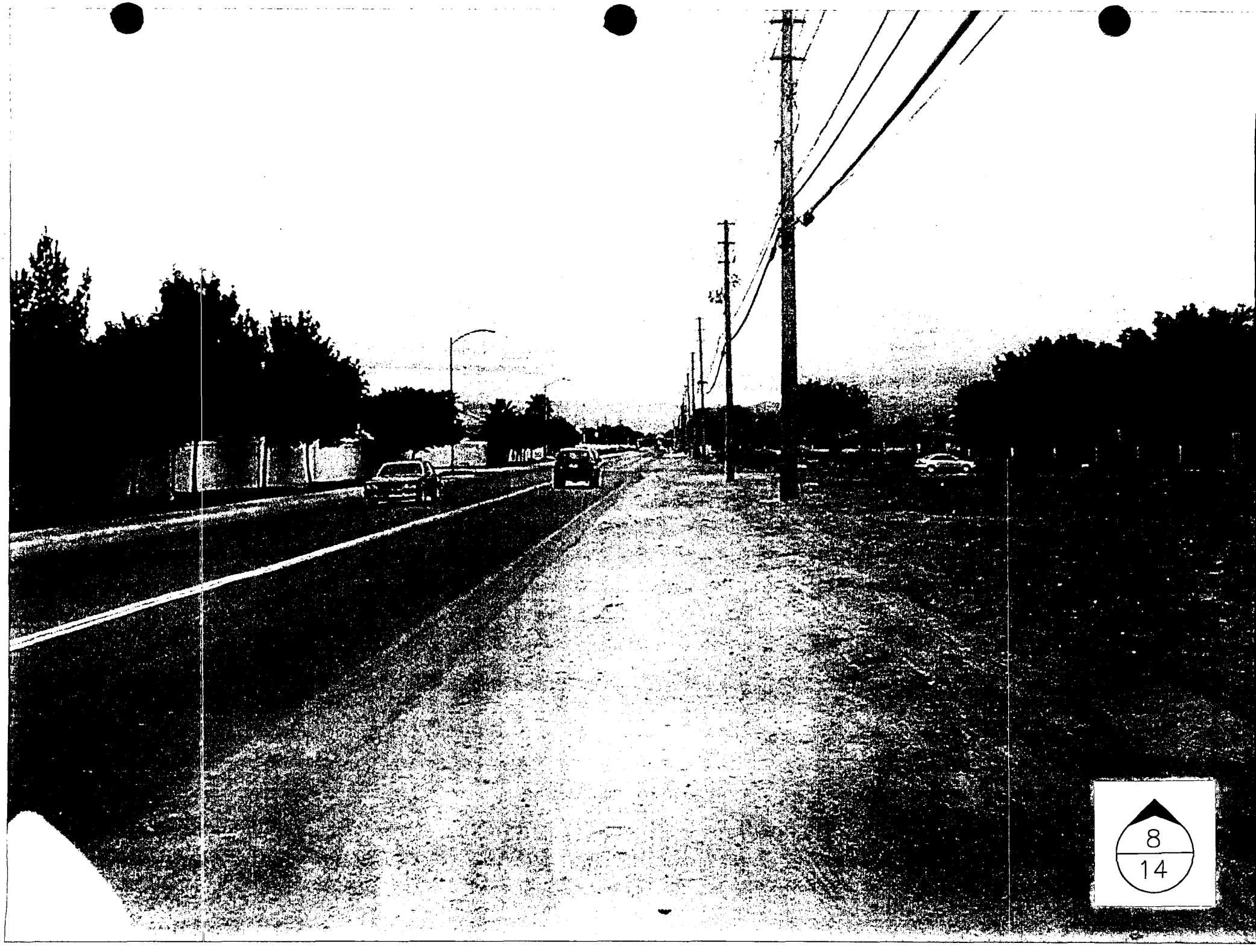
# ANNIE OAKLEY DRIVE/ SUNSET ROAD BREAKOUT AREA


8
1



8
5


GREEN VALLEY



8
14



8
7

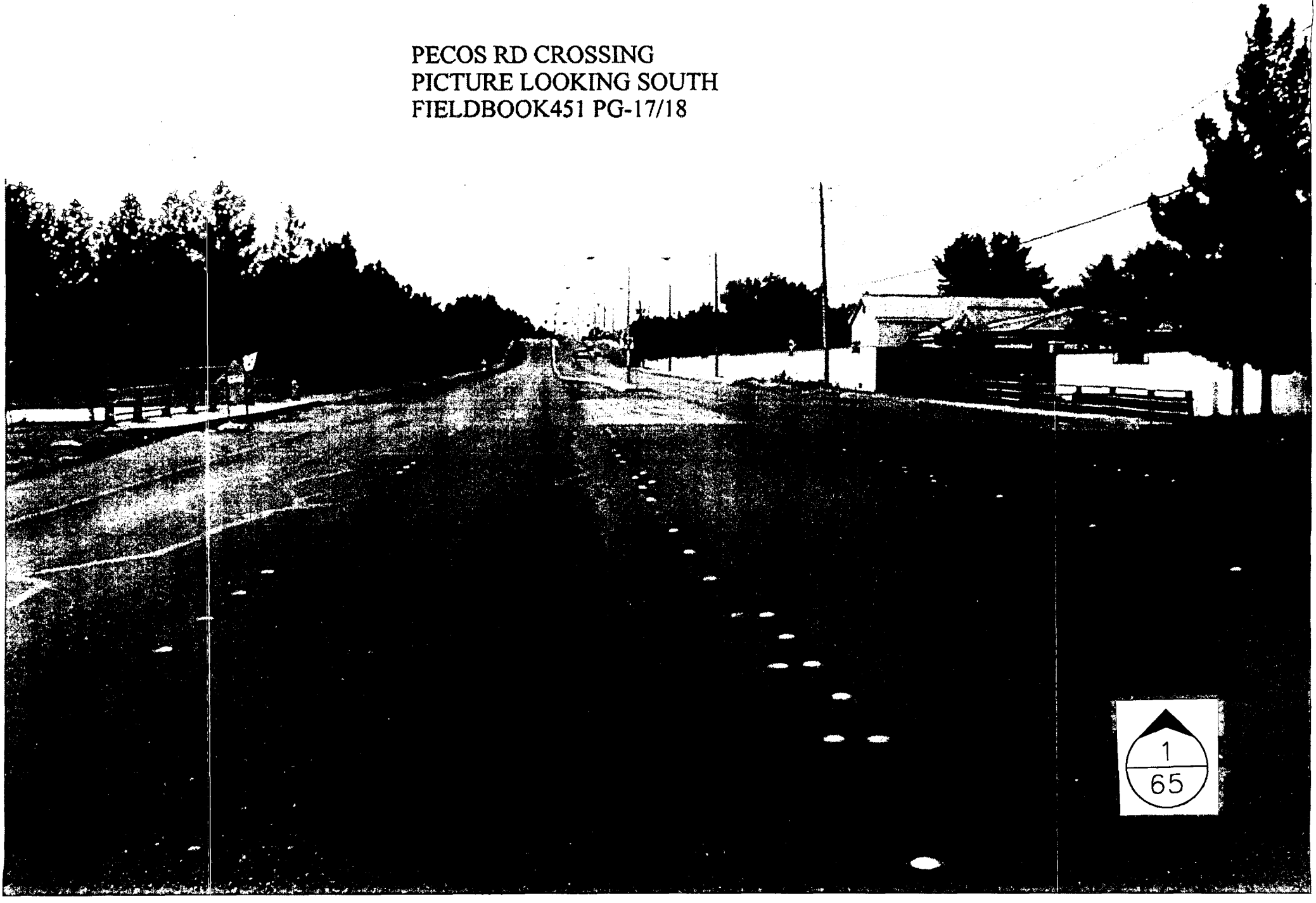
# DUCK CREEK AT PAMA LANE



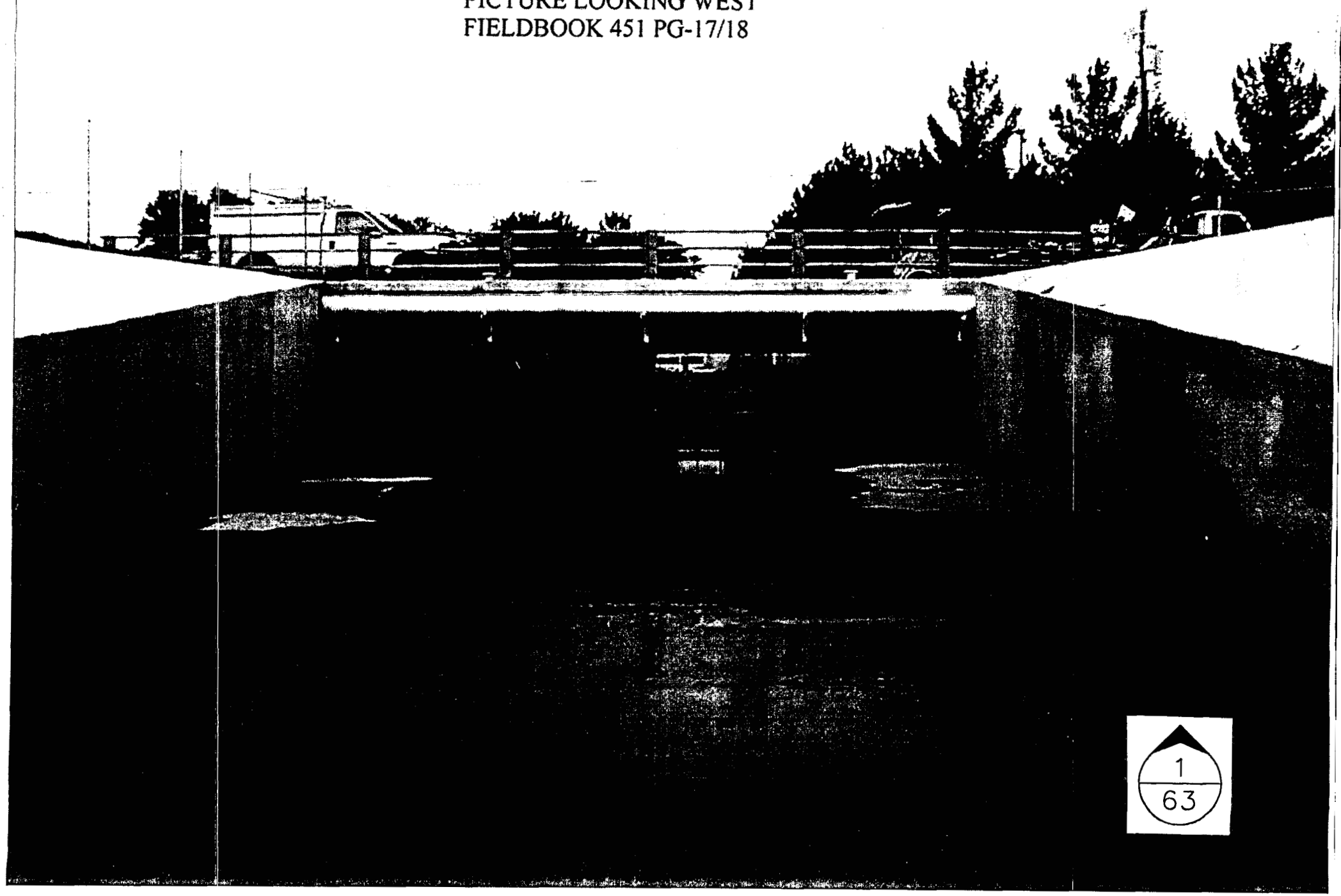
6
11

# PECOS ROAD

PECOS RD CROSSING
PICTURE LOOKING SOUTH
FIELDBOOK451 PG-17/18

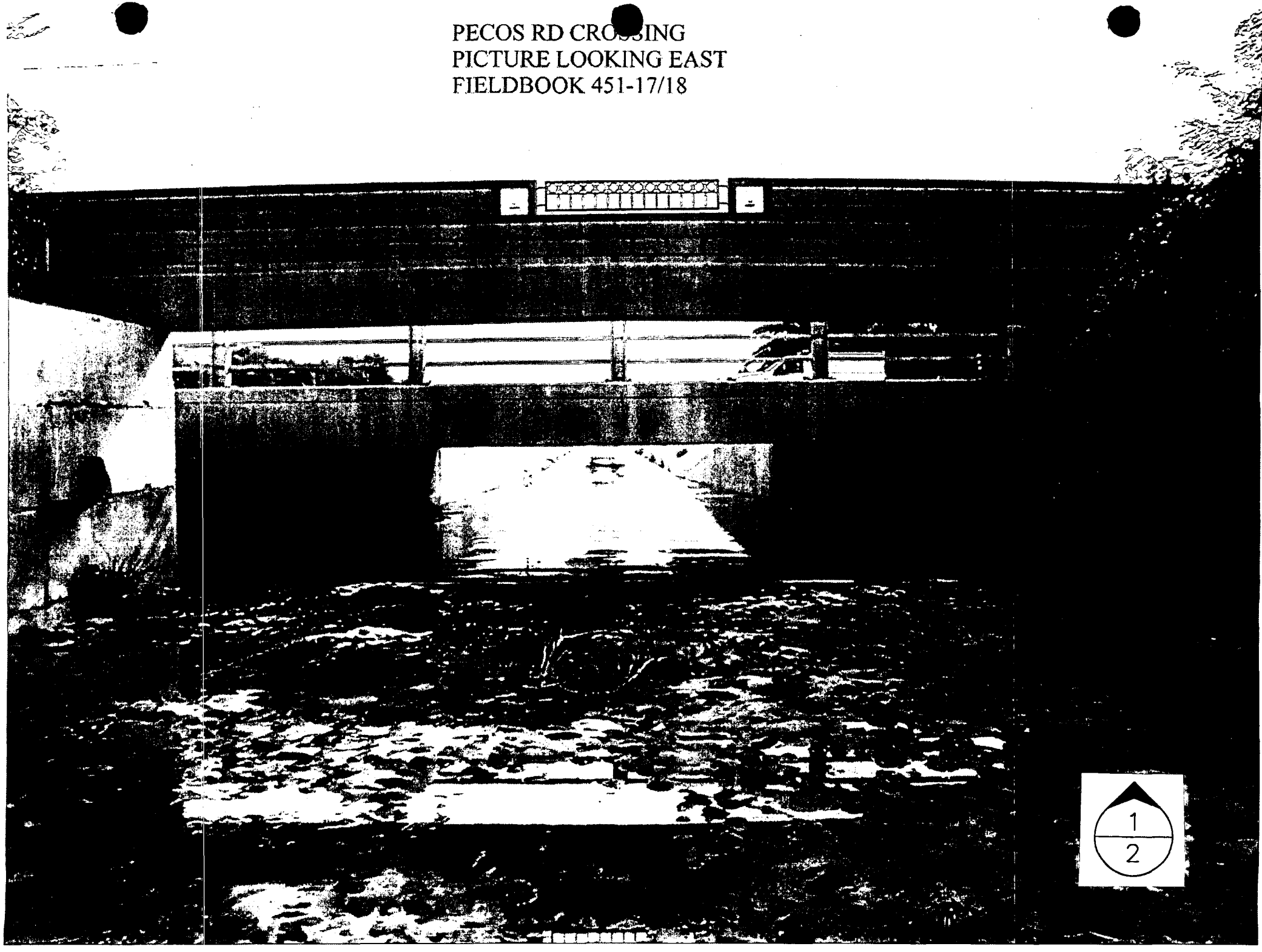


PECOS RD CROSSING
PICTURE LOOKING WEST
FIELDBOOK 451 PG-17/18



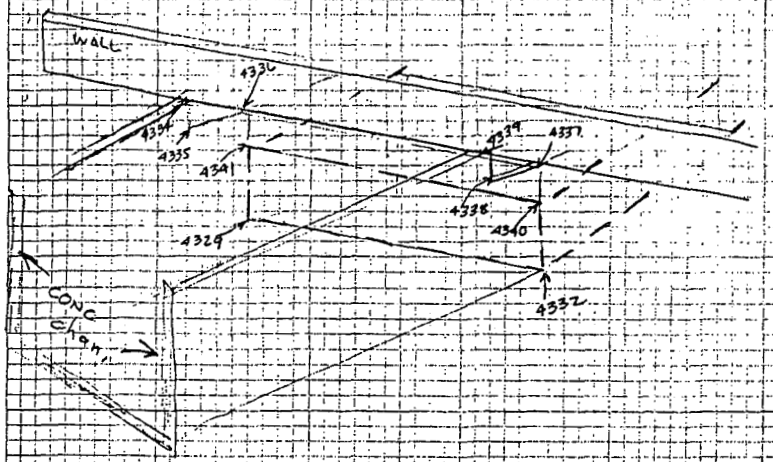
1
63

PECOS RD CROSSING
PICTURE LOOKING EAST
FIELDBOOK 451-17/18



550:039 DUCK CREEK

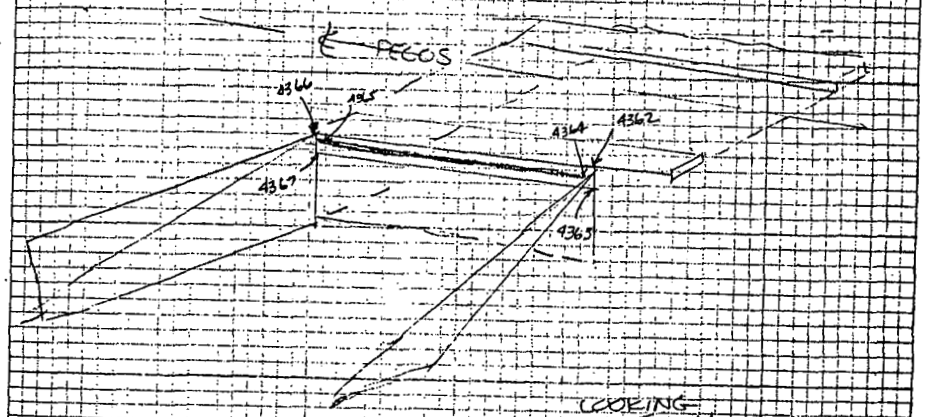
SECT 1
T-22S
R-61E




LOOKING NORTHEAST

10-11-00
S. MCKEE
B. STRUCHEK

451-19




LOOKING SOUTHWEST

550.039 DUCK CREEK (CONF'D) SECT=1 T-22S R-61E

FS CP 4327 1) 181-43-20 687-01
2) 181-43-20 687-02

GPS PT # 3058 = CP # 4327 PK

π @ 4327

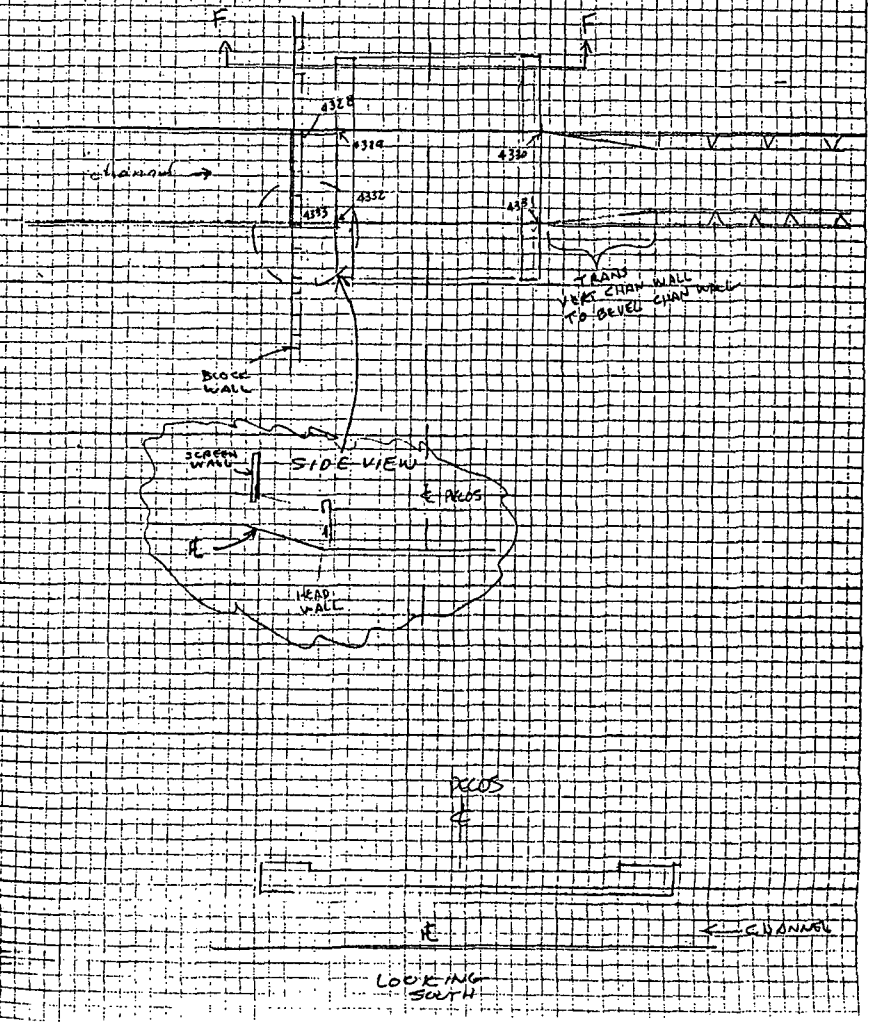
BS @ 4287

FS 4328 →

* 205 T.O.P. 12' w/c?

10-17-00 451-18

S. McKee
B. Streetex

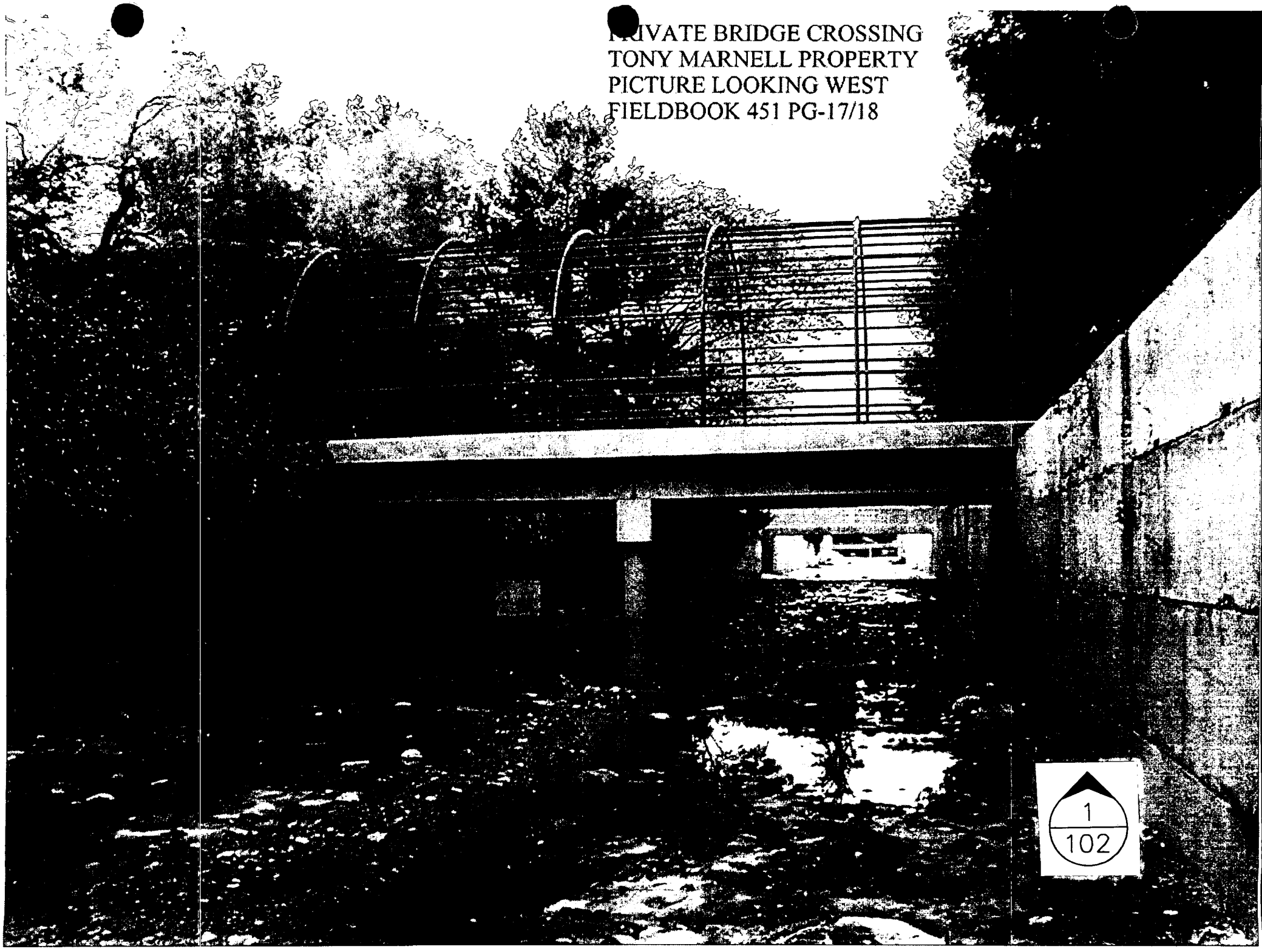


# PINE STREET CROSSINGS

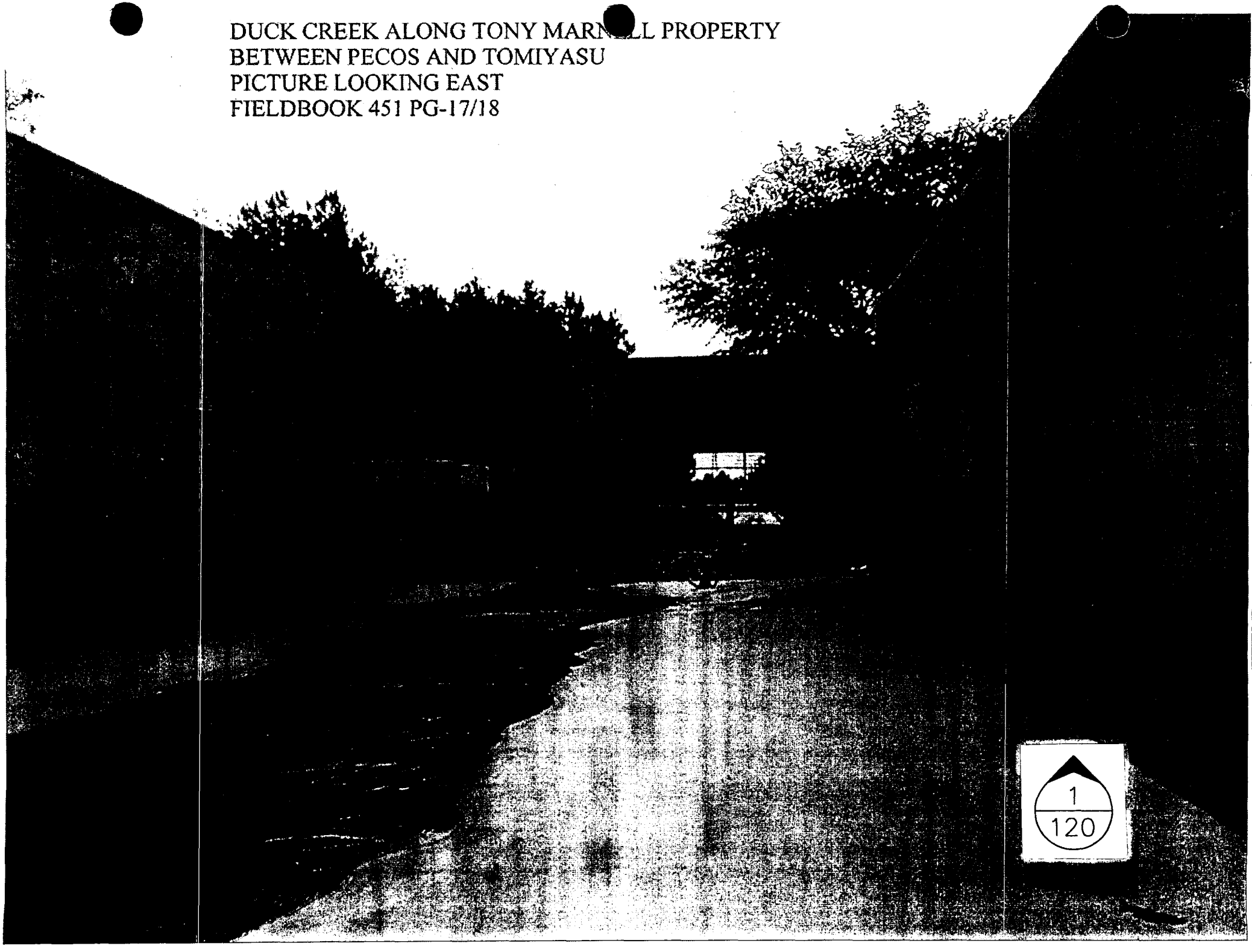


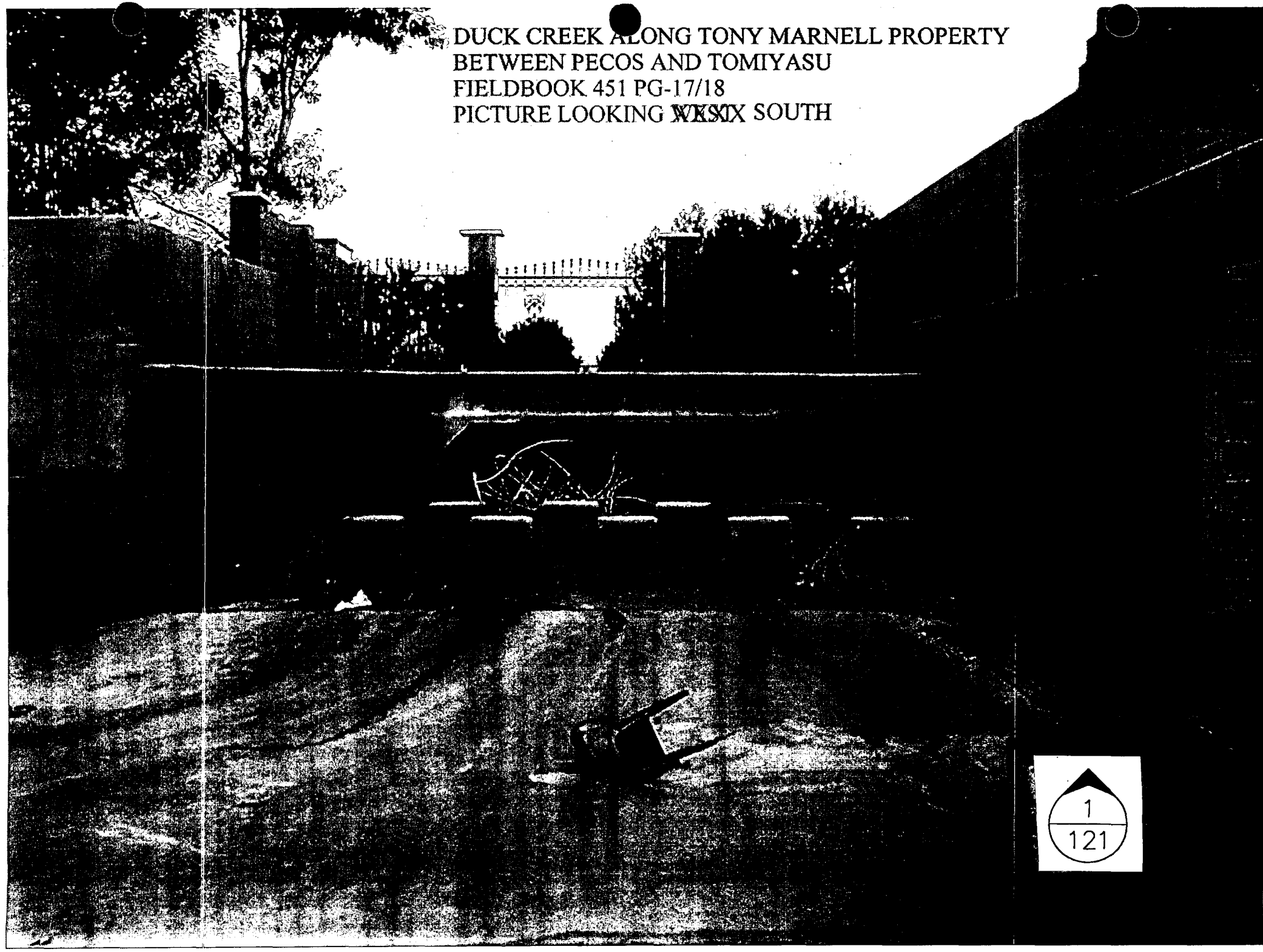
PRIVATE BRIDGE CROSSING
TONY MARNELL PROPERTY
FIELDBOOK 451 PG-17/18
PICTURE LOOKING EAST

1
101


PRIVATE BRIDGE CROSSING
TONY MARNELL PROPERTY
PICTURE LOOKING WEST
FIELDBOOK 451 PG-17/18
1
102

DUCK CREEK ALONG TONY MARR[illegible]LL PROPERTY
BETWEEN PECOS AND TOMIYASU
PICTURE LOOKING EAST
FIELDBOOK 451 PG-17/18

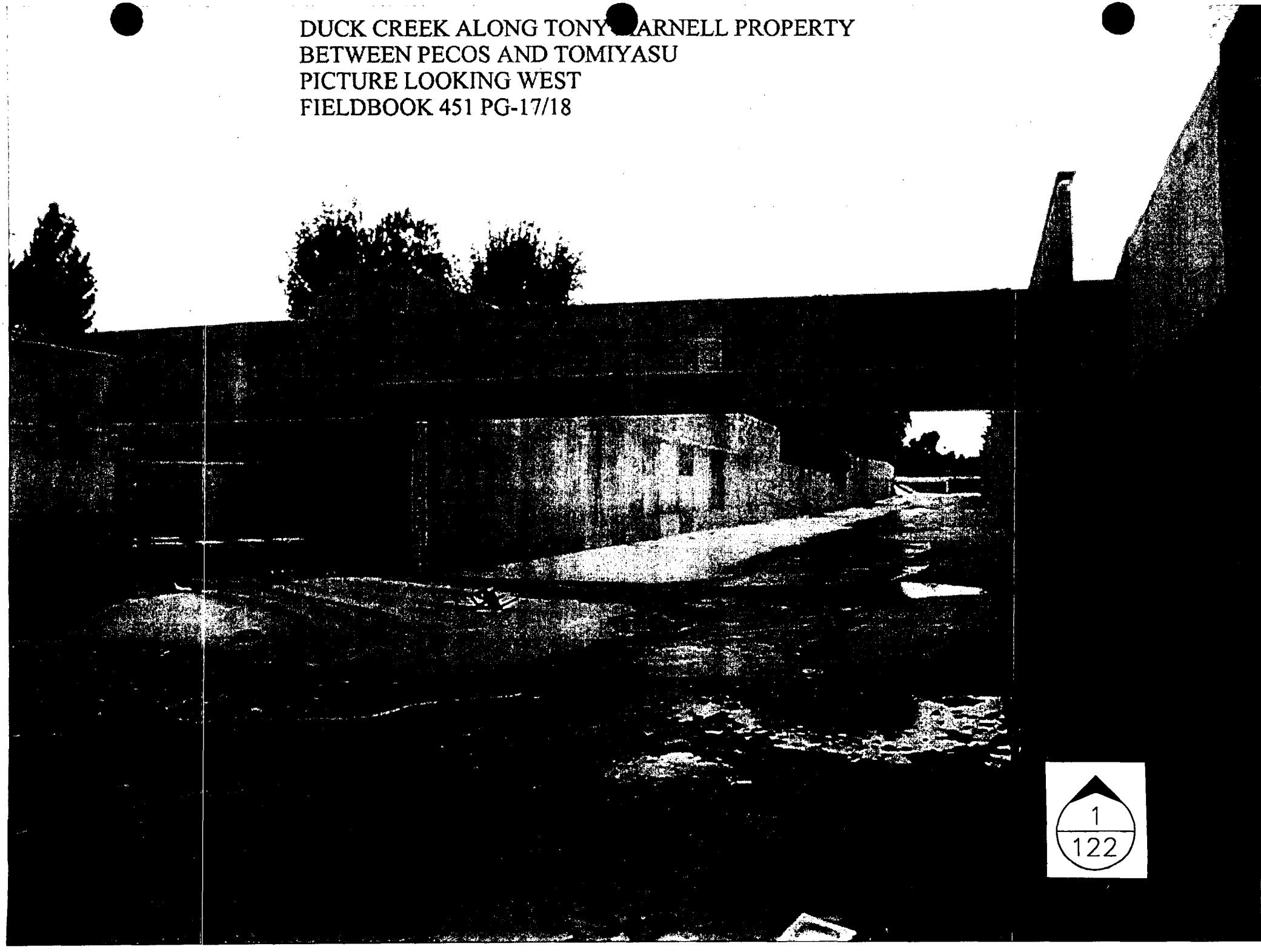




DUCK CREEK ALONG TONY MARNELL PROPERTY
BETWEEN PECOS AND TOMIYASU
FIELDBOOK 451 PG-17/18
PICTURE LOOKING ~~WEST~~ SOUTH

1
121

DUCK CREEK ALONG TONY [illegible]ARNELL PROPERTY
BETWEEN PECOS AND TOMIYASU
PICTURE LOOKING WEST
FIELDBOOK 451 PG-17/18

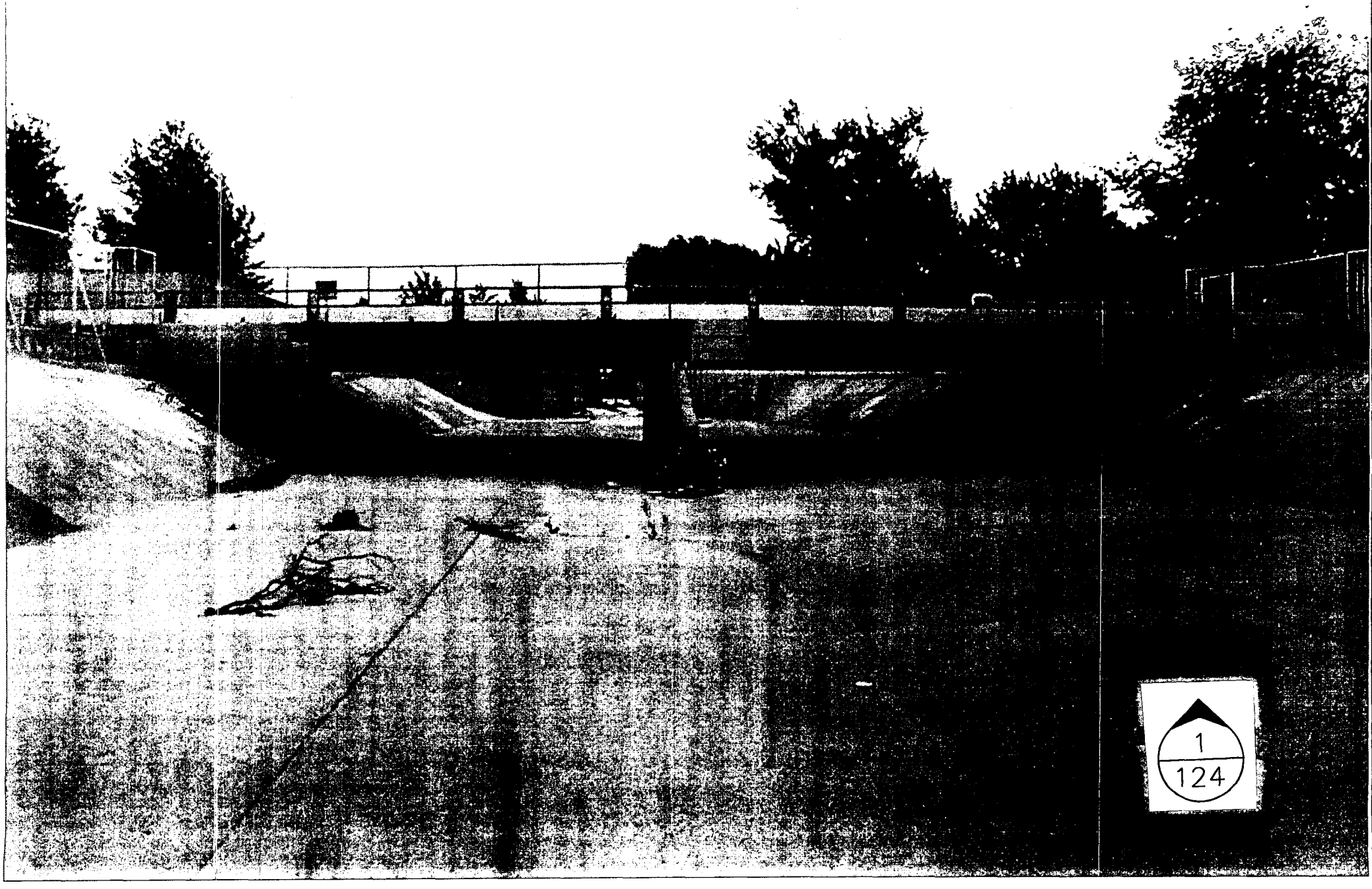


1
122

TOMIYASU CROSSING
PICTURE LOOKING SOUTH
FIELDBOOK 451 PG- 15



TOMIYASU CROSSING
PICTURE LOOKING EAST
FIELDBOOK 451 PG-15/16



1
124

550.039

DUCK CREEK
TOPO BRIDGES / CULVERTS
BETWEEN TOMYASU & PECOS 1205

SECT 1
T-22S
R-61E

| STA | PT NO | DESC |
|---|---|---|
| ↑ | 4287 | X ON CONC |
| BS 4+77 | 3056 | |
| ES | 4288 - | |

C.P. 3056A

"TOP ENERGY DISSIPATER"

* CODE 201
TOP OF BLOCK

Slot at ctr top

H= 2.7'

1.2 N-S

1.7' E-W

* CODE 202 & 18" CONC COL.

10-11-00
S. McKEE
B. STREETER

451-17

NORTH

SEE DETAIL 'D'

C.P. #4287

CONC & ENDS RIP/RAP BENS

4309 4308 4307 4306 4305 4304 4291 4288

RIP RAP

4315 4318 4317 4316

SEE DETAIL E SMALL BRIDGE

C 4289 C 4290

BOX CULVERT OUT FALL

DETAIL C-C

4292 4293 4294

LOOKING SOUTH

4312 4311 4314 4313

LOOKING NORTHWEST

"D"

SCREEN WALL

TOP OF CHANNEL WALL

SIDE VIEW LOOKING NORTH

4319 4320

DETAIL 'E'

LOOKING SOUTH

4321 1.5' 2' 4322 4323

# TOMIYASU LANE

550.039.

DUCK CREEK
BRIDGE JOBO @ TOMYASU
(N. OF WARM SPRINGS RD)

SECT 1
T-22S
R-6E

GEODIMETER
4900010637

TDS FILE "TOMYASU"

| STA | PT NO | DESC |
|---|---|---|
| ℄ 32 | 3035 | BRASS CAP & TOMYASU "GREAT WEST" PS 7167 |
| BS 557 | 3056 | 0-0-0 X ON CONC |
| FS | 4200 - 4247 | |
| ℄ 32 | 3056 | |
| BS 32-35 | 3055 | 0-0-0 |
| FS | 4248 - 4286 | |
| FS | 4287 | DIST<br>1) 187°31'00" 680.75 SET ℄ ON CONC<br>2) 180-30-50 680.74 |

CODE 200 EDGE OF JERSEY BARRICADE

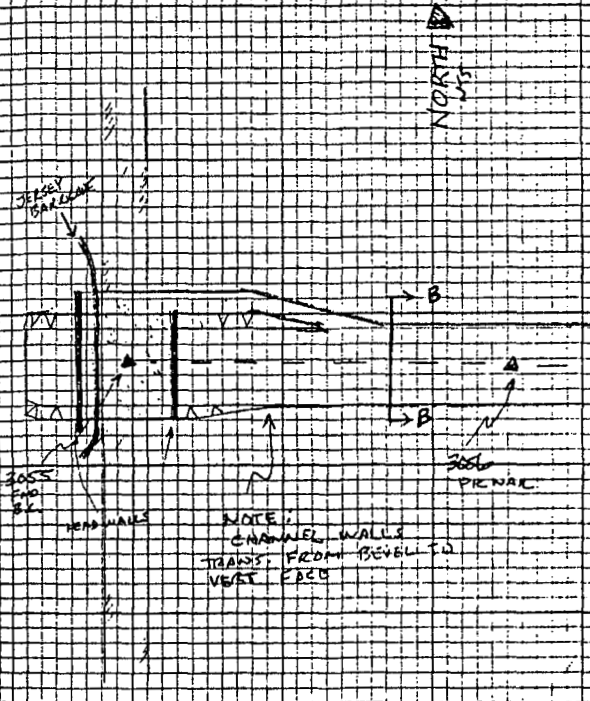


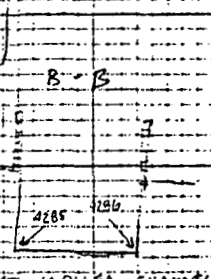

10-11-00
S. McKEE
B. STREETER

65°-75°
CLEAR, BREEZY

451:15

SECT



550.037 DUCK CREEK

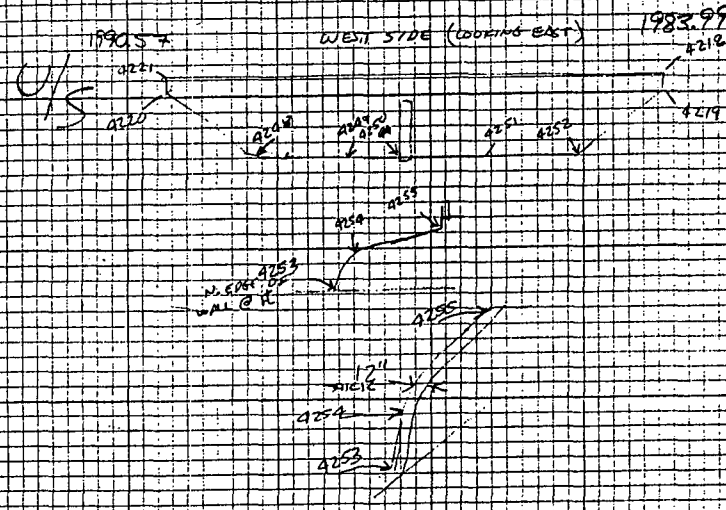
BRIDGE TOPO @ TORRYASU

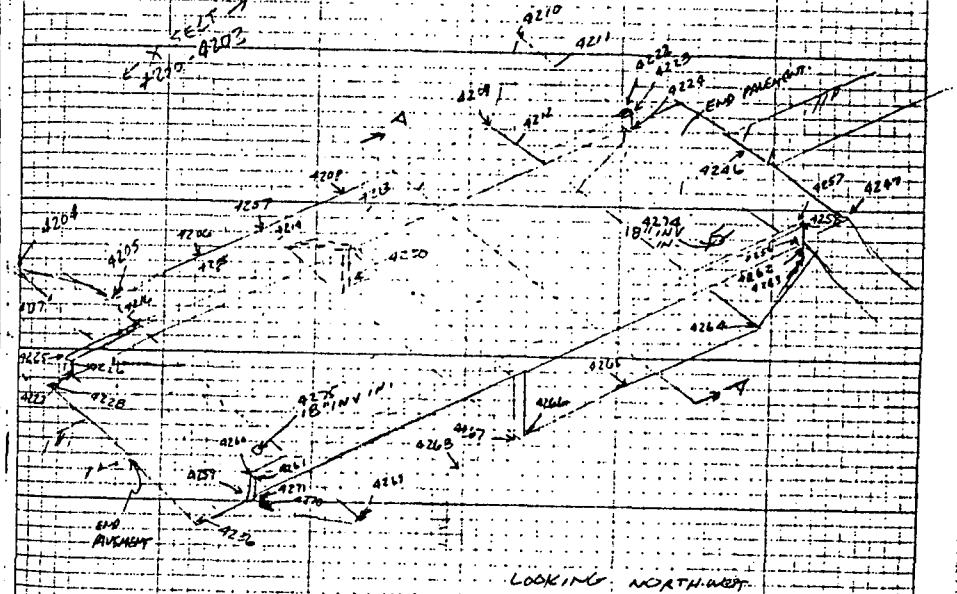
(CONT'D)

SECT 1
T-22 S
R-61 E

10-1-00
S. MAYEE
B. STREETER

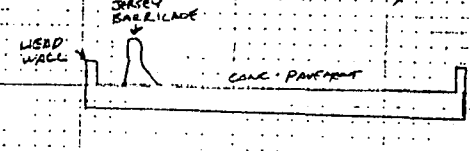
A51-16




DETAIL

A-A (LOOKING NORTH)



# MIRA VISTA STREET



9
5



9
6

## Mira Vista Street Bridge

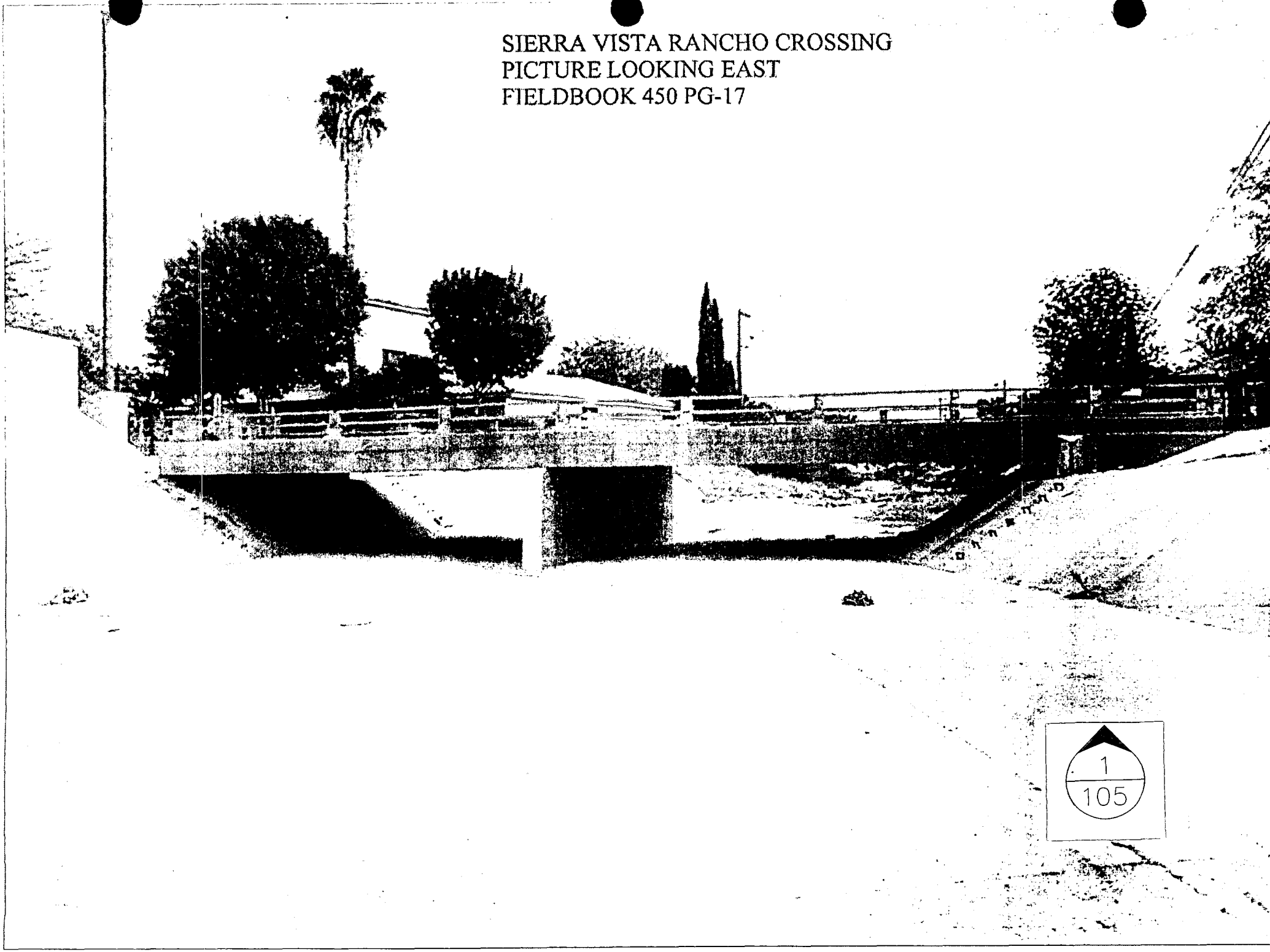
For survey information, see attached conformed design drawings for "Duck Creek Improvements from Tomiyasu Lane to Warm Springs Road".

# PACHUCA STREET

SIERRA VISTA RANCHO CROSSING
PICTURE LOOKING NORTH
FIELDBOOK 450 PG-17



SIERRA VISTA RANCHO CROSSING
PICTURE LOOKING EAST
FIELDBOOK 450 PG-17



1
105

SIERRA VISTA CROSSING
PICTURE LOOKING WEST
FIELDBOOK 450 PG-17



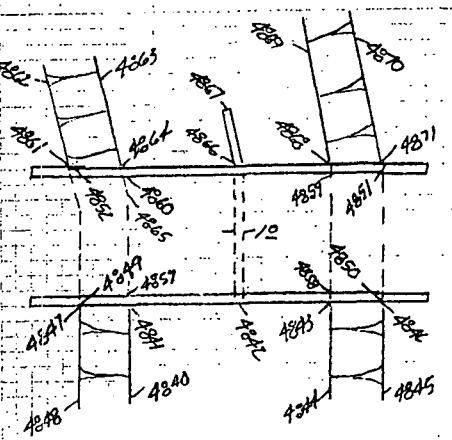
1
106

@ PACHUCA STREET

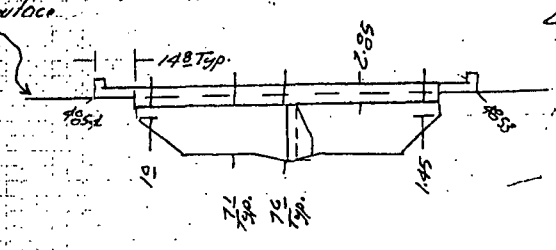
10/16/00
C. Burdon
Kilbourn
35° Calm

Dirt Crnt & Bridge in Sierra Vista Ranchos
West of Tomiyasu
SEC 1, T22S, R6E, MDB&M

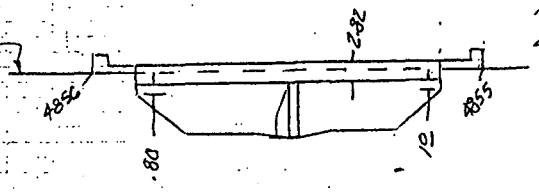
Top View




Front View
Looking East




Front View
Looking West




450-17

T.O. 3081. BS 3082 000-00-00
HI = 5.63 HR = 5.38

CHECKED BS
H = 0.00
V = 0.00

SET CONC NAIL
#3082
N: 2672384.7021
E: 796418.3717
EL: 2001.0750

4840 Toe Chnl.
4841 Toe Chnl. @ Bridge
4842 @ Column
4843 Toe Chnl. @ Bridge
4844 Toe Chnl.
4845 Top Chnl.
4846 Top Chnl. @ Bridge
4847 " " "
4848 Top Chnl.
4849 Top, Cor. Bridge
4850 " "
4851 " "
4852 " "
4853 Road Surface @ Structure
4854 " " "
4855 " " "
4856 " " "
4857 Road Surface @ Bridge
4858 " " "
4859 " " "
4860 " " "
4861 Top Chnl. @ Bridge
4862 Top Chnl.
4863 Toe Chnl.
4864 Toe Chnl. @ Bridge
4865 Toe Chnl. @ ⊥ Ext.
4866 S. side column @ ⊥ Ext.
4867 @ End Column

4868 Toe Chnl. @ Bridge, ⊥ Ext.
4869 Toe Chnl.
4870 Top Chnl.
4871 Top Chnl. @ Bridge

NOTE: CREATED POINT NO. 3082 IN FIELD. ASSUMED N 64°30'00"E FROM PT NO. 3081 TO SAID 3082

GPS COORD TO FOLLOW

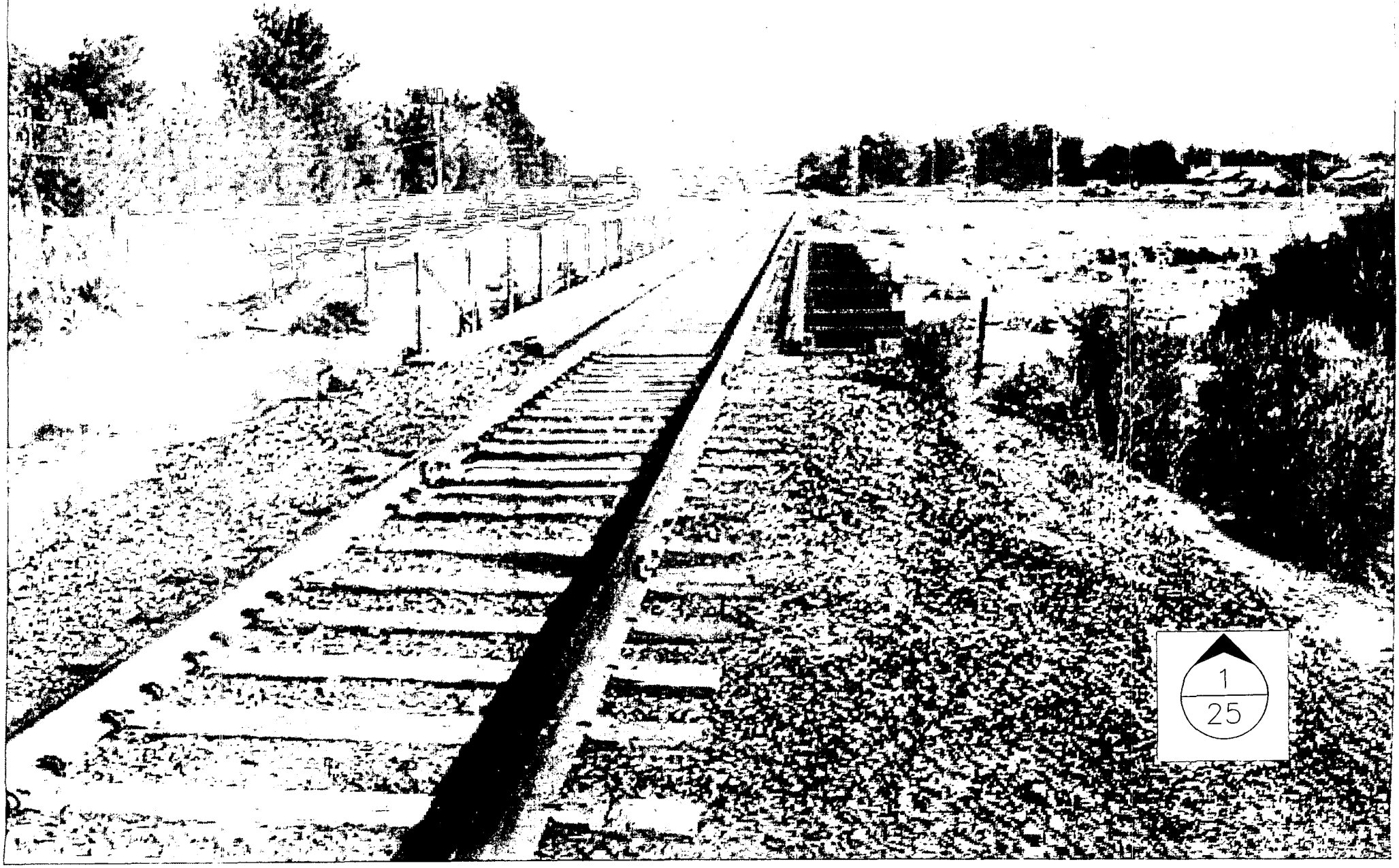
# VISTA DEL SOL AVENUE

**Vista del Sol Avenue Bridge**

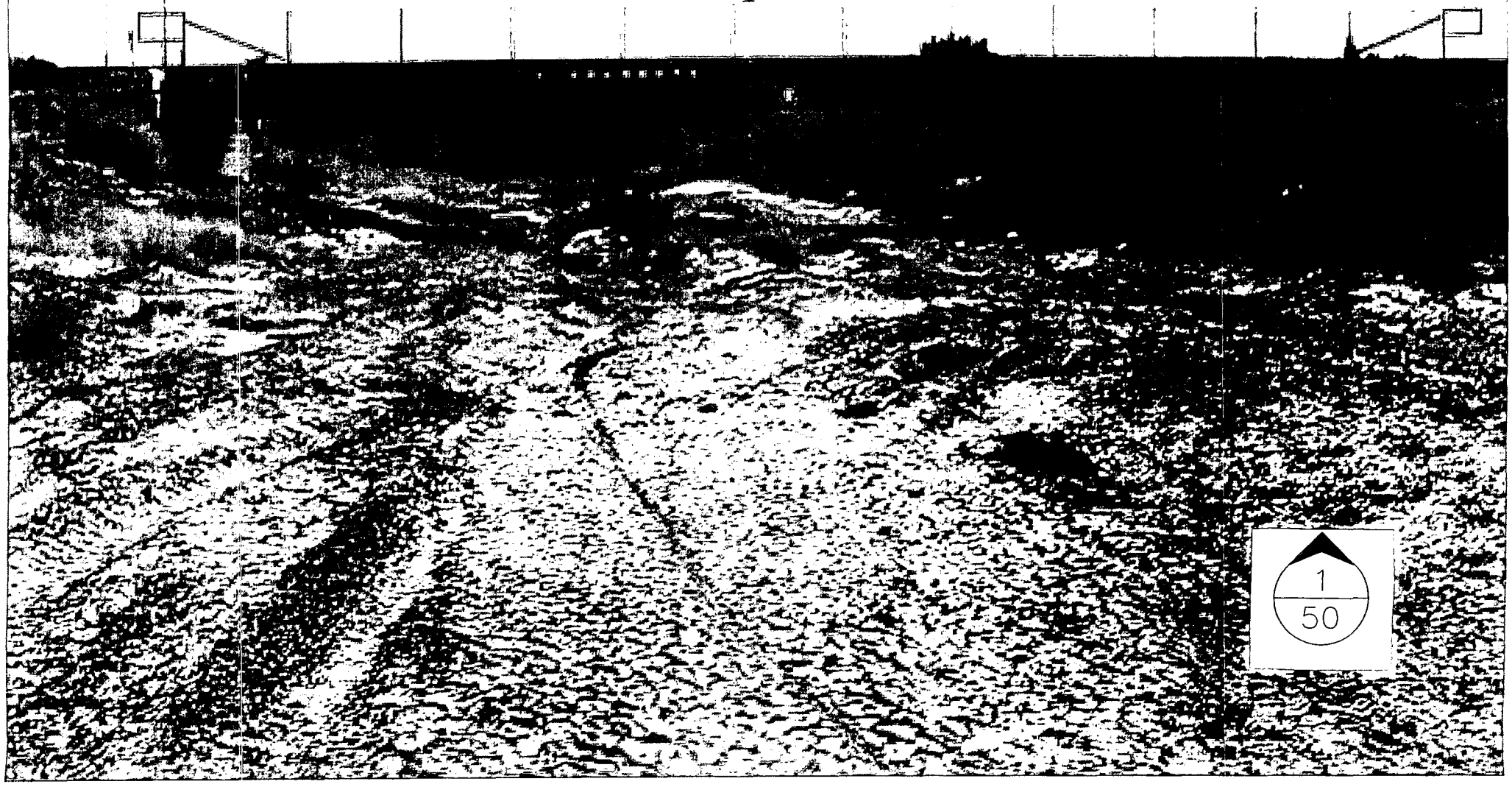
For survey information, see attached conformed design drawings for "Duck Creek Improvements from Tomiyasu Lane to Warm Springs Road".

# UNION PACIFIC RAILROAD – HENDERSON SPUR

# RAILROAD CROSSING JUST NORTH OF WARMSPRINGS
# PICTURE LOOKING EAST
# FIELDBOOK 436 PG-67



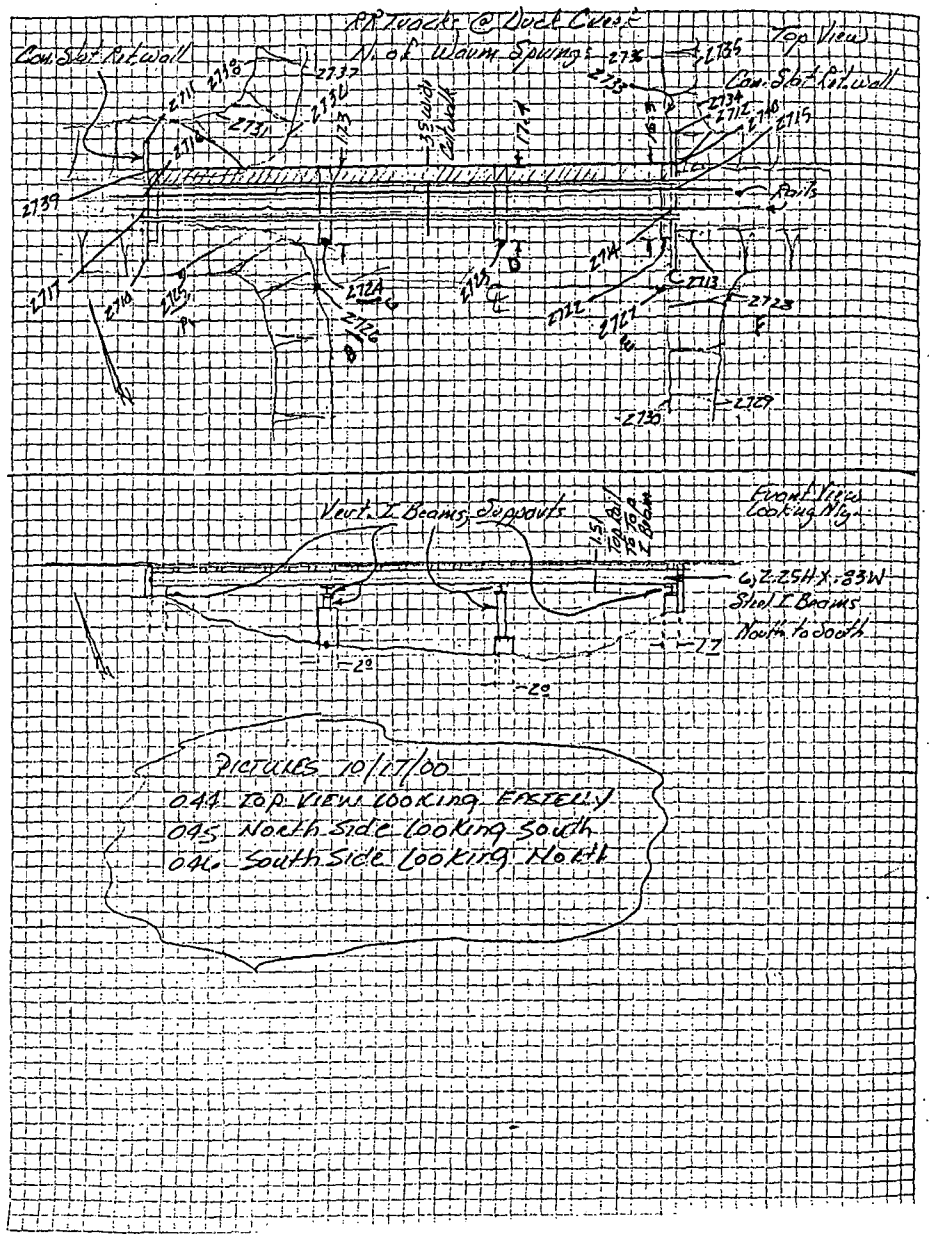
# RAILROAD CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 436 PG-67



# RAILROAD CROSSING
# PICTURE LOOKING NORTH
# FIELDBOOK 436 PG-67



AR Trucks @ Duck Creek N. of Warm Spring

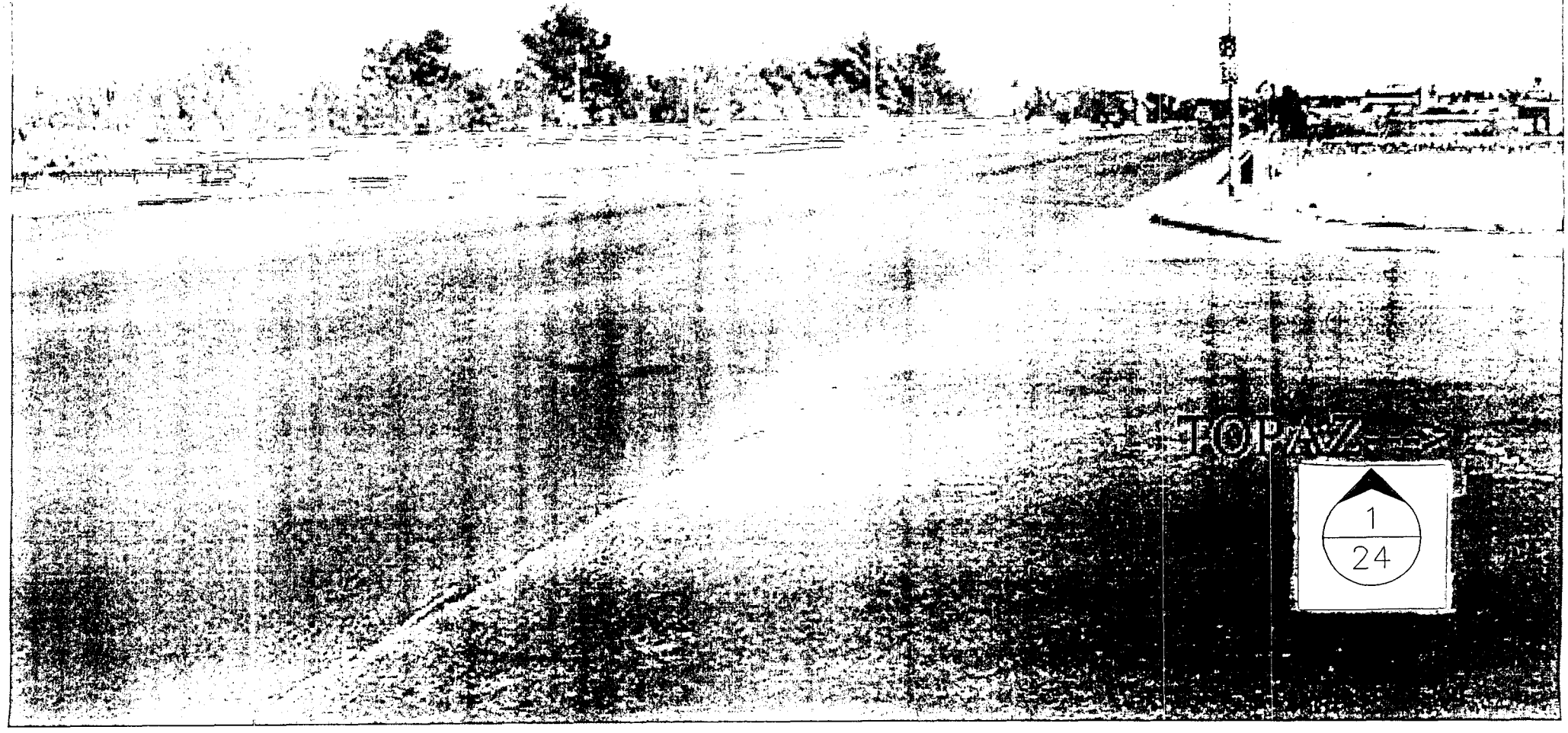



Inst. @ 2670, 85.3037, 85 NRS 14, EH 5.39

2710, 2711, 2712, & 2713 Top Con Std Rd walls
2714, 2715, 2716, & 2717 Top Rail
2718, 2719, 2720, & 2721 Top Edge 2.25 H x .83 W I Beams
2722, Edge Con. Support, Southerly side
2723 " " " " " 2019.93
2724 " " " " " 2022.90
2725 Top Chnl 2023.76
2726 Top Chnl 2019.73
2727 " " 2019.73
2728 Top Chnl 2022.81
2729 " "
2730 Top Chnl
2731 Top Chnl
2732 Top Chnl
2733 " "
2734 Top Chnl
2735 " "
2736 Top Chnl
2737 " "
2738 Top Chnl
2739, & 2740, Con. Catwalk

# WARM SPRINGS ROAD

# WARMSPRINGS & TOPAZ
# PICTURE LOOKING EAST
# FIELDBOOK 436 PG-66

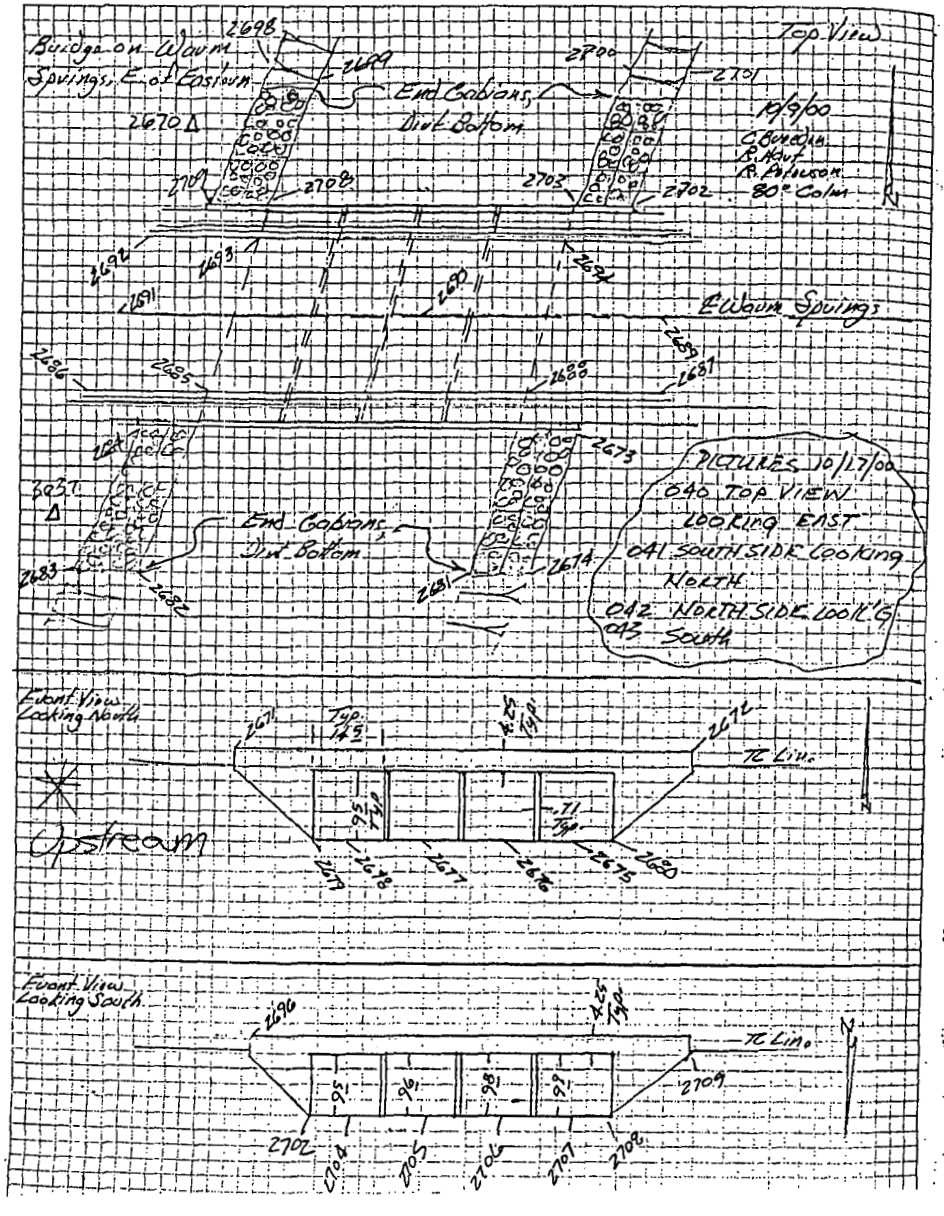


# WARMSPRINGS CROSSING
# PICTURE LOOKING NORTH
# FIELDBOOK PG-66



# WARMSPRINGS CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 436 PG-~~67~~ 66






HPS.03 1 @ 3037, BS 3036 000-00-00 436-66
HI = 5.45 CHECK BS H = 0.05 V = -0.14
Δ 2670 N: 2647227.52 3007 1 @ 3037, BS 2670
E: 795074.2529 CHECKED H = -0.005
EL: 1936.4936 V = -0.006

Inst @ 2670 BS 3037 H = 0.00
BS HPS.14 HI 5.39 V = 0.05

| | |
|---|---|
| 2671 | Con. Structure |
| 2672 | " " |
| 2673 | Top, Gabions |
| 2674 | Top, End Gabions |
| 2675 | AC Box |
| 2676 | " " |
| 2677 | " " |
| 2678 | " " |
| 2679 | Edge Box |
| 2680 | " " |
| 2681 | Toe, End Gabions |
| 2682 | " " " |
| 2683 | Top, End Gabions |
| 2684 | Top, Gabions |
| 2685 | AC @ Lip Gutter @ Bridge Structure |
| 2686 | AC @ Lip Gutter |
| 2687 | " " " |
| 2688 | AC @ Lip Gutter @ Bridge Structure |
| 2689 | AC @ Crown |
| 2690 | " " |
| 2691 | " " |
| 2692 | AC @ Lip Gutter |
| 2698 | AC @ Lip Gutter @ Bridge Structure |
| 2694 | " " " " |
| 2695 | AC @ Lip Gutter |
| 2696 | Con. Structure |
| 2697 | " " |

| | |
|---|---|
| 2698 | TOP CHANNEL |
| 2699 | TOE CHANNEL |
| 2700 | TOE CHANNEL |
| 2701 | TOP CHANNEL |
| 2702 | Top CHANNEL @ Bridge |
| 2703 | TOE " @ " |
| 2704 | CL FLOWLINE |
| 2705 | " |
| 2706 | " |
| 2707 | " |
| 2708 | TOE @ Bridge Edge Box |
| 2709 | TOP CHANNEL @ Bridge |

# TOPAZ STREET CROSSING



7
14

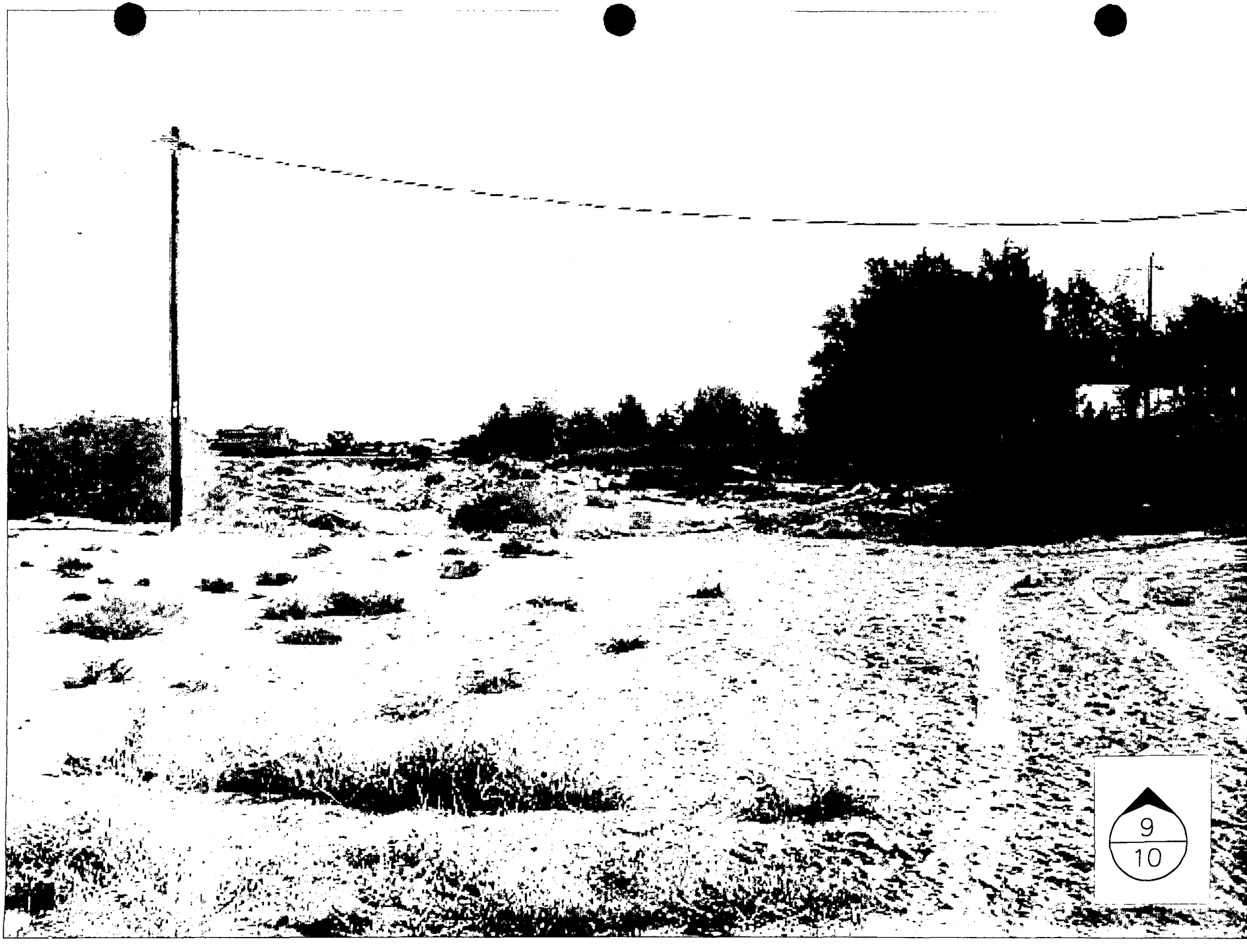




7
16

# PINE STREET BREAKOUT AREA

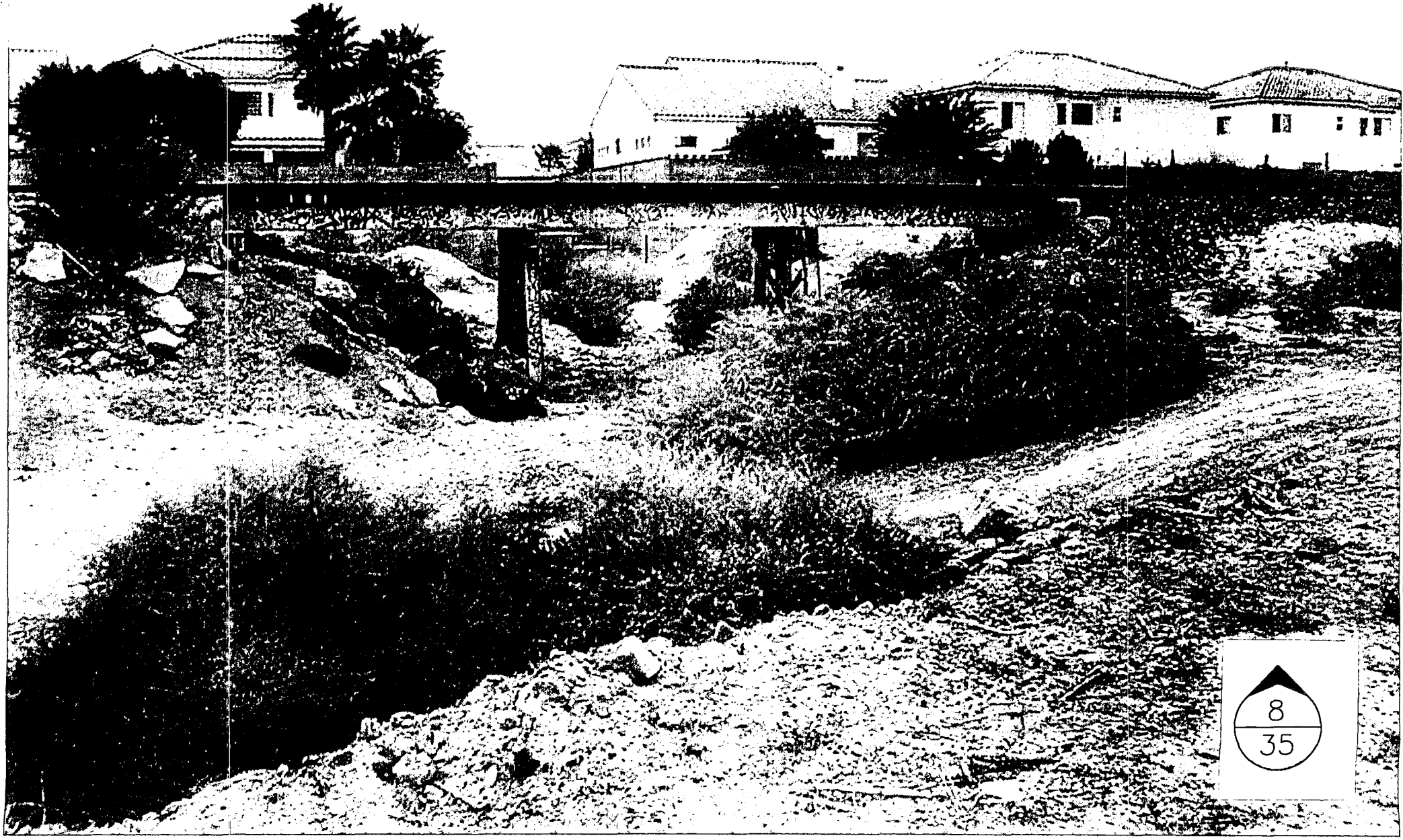




9
10



8
41






8
40



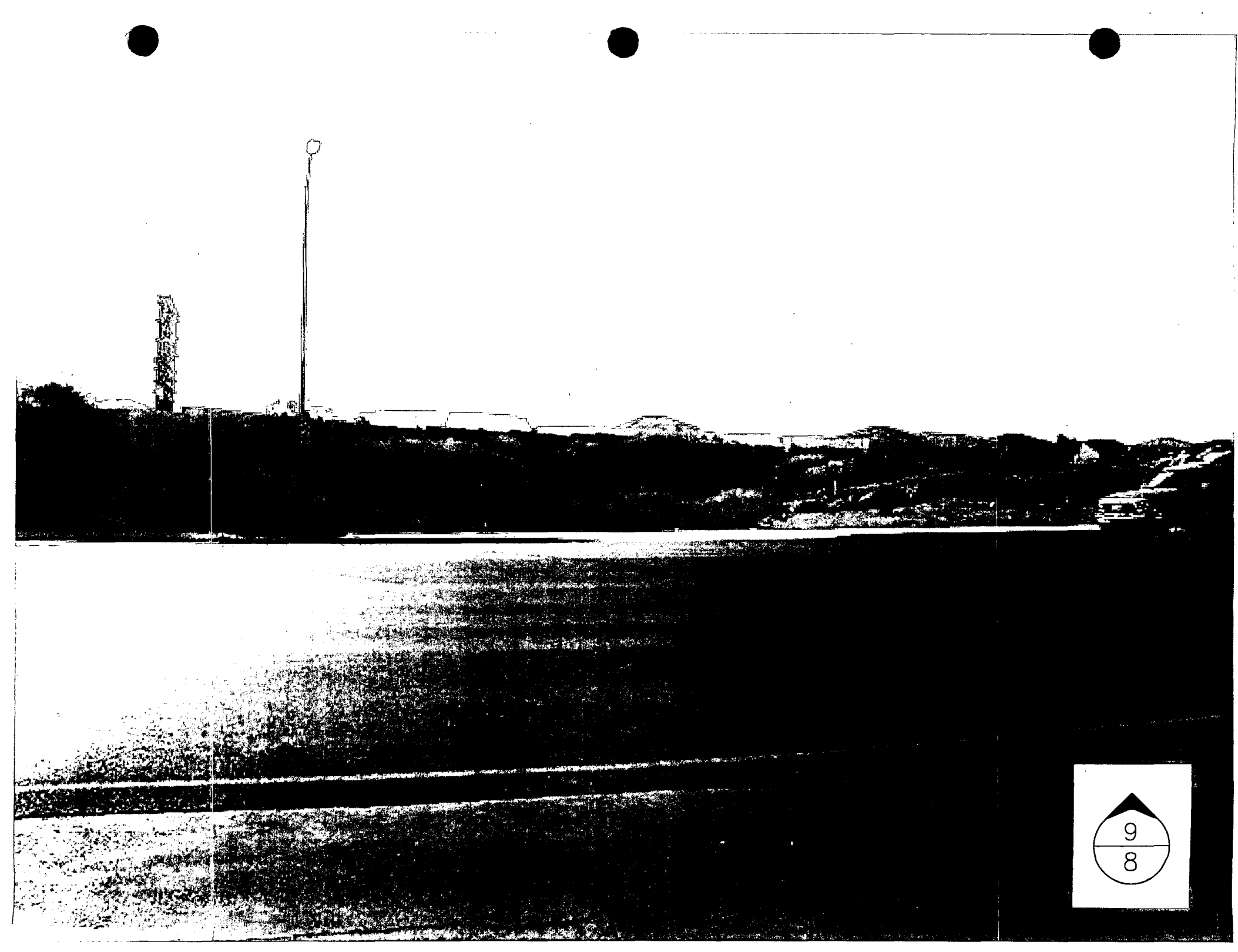


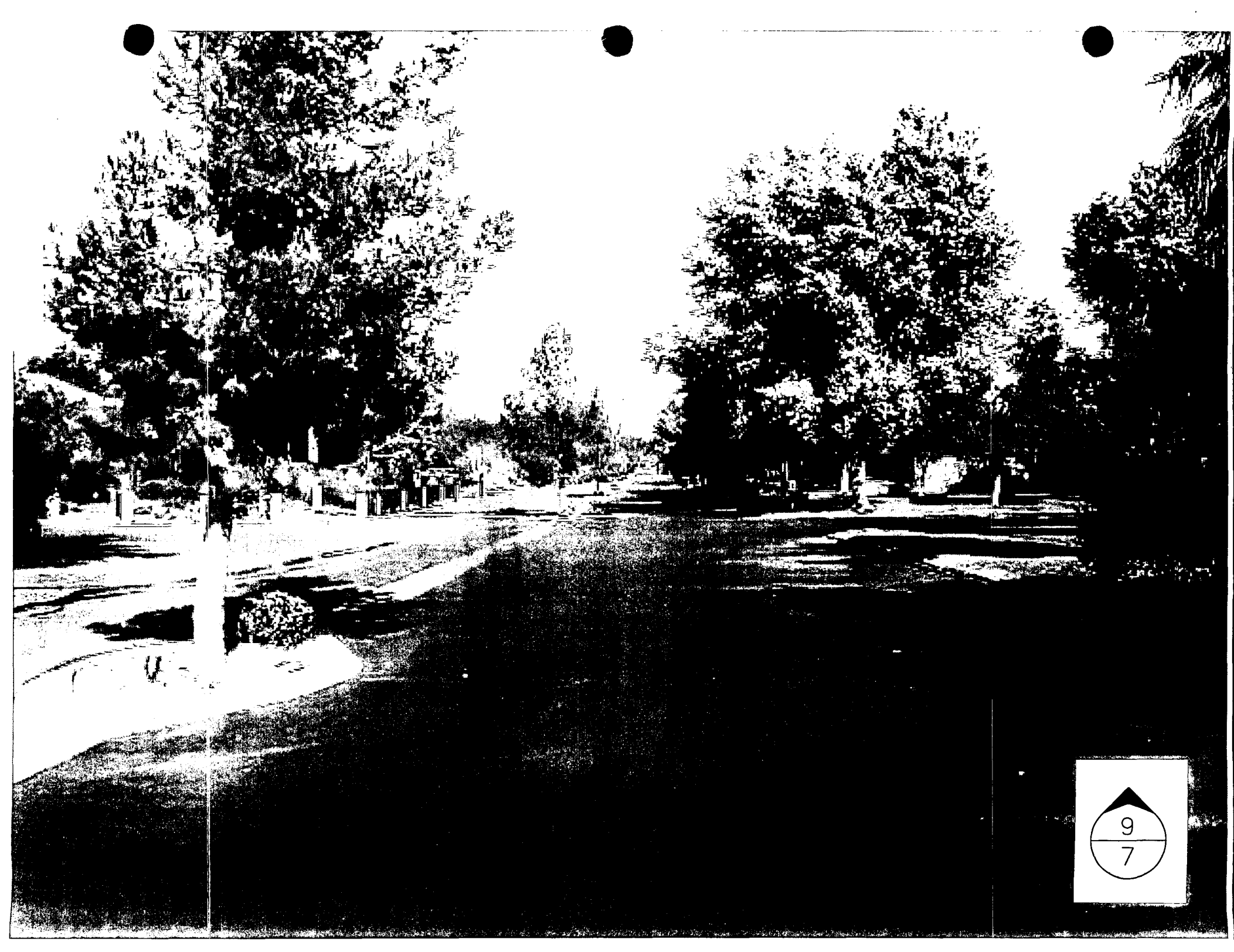


8
31



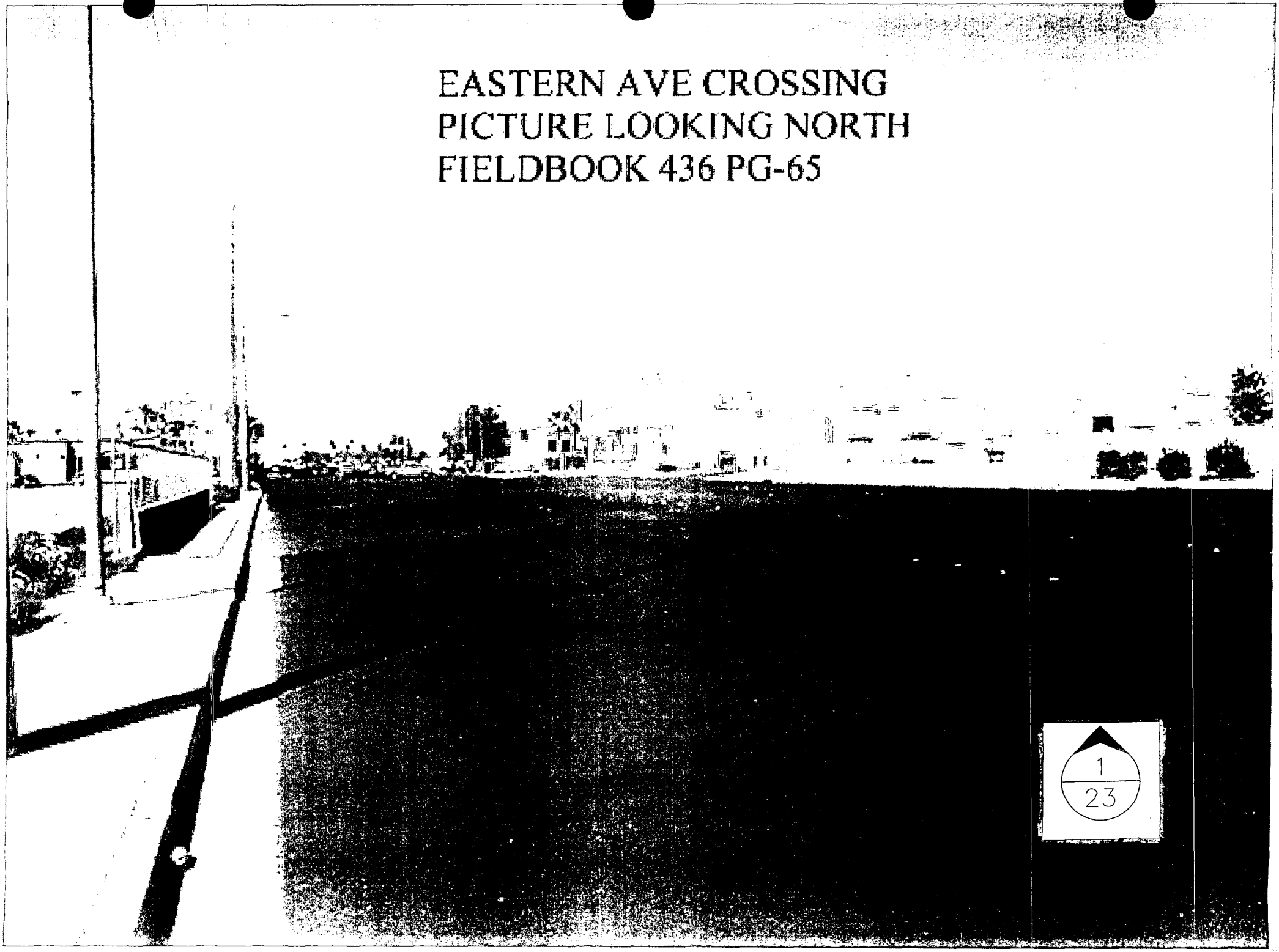
8
25


9
8

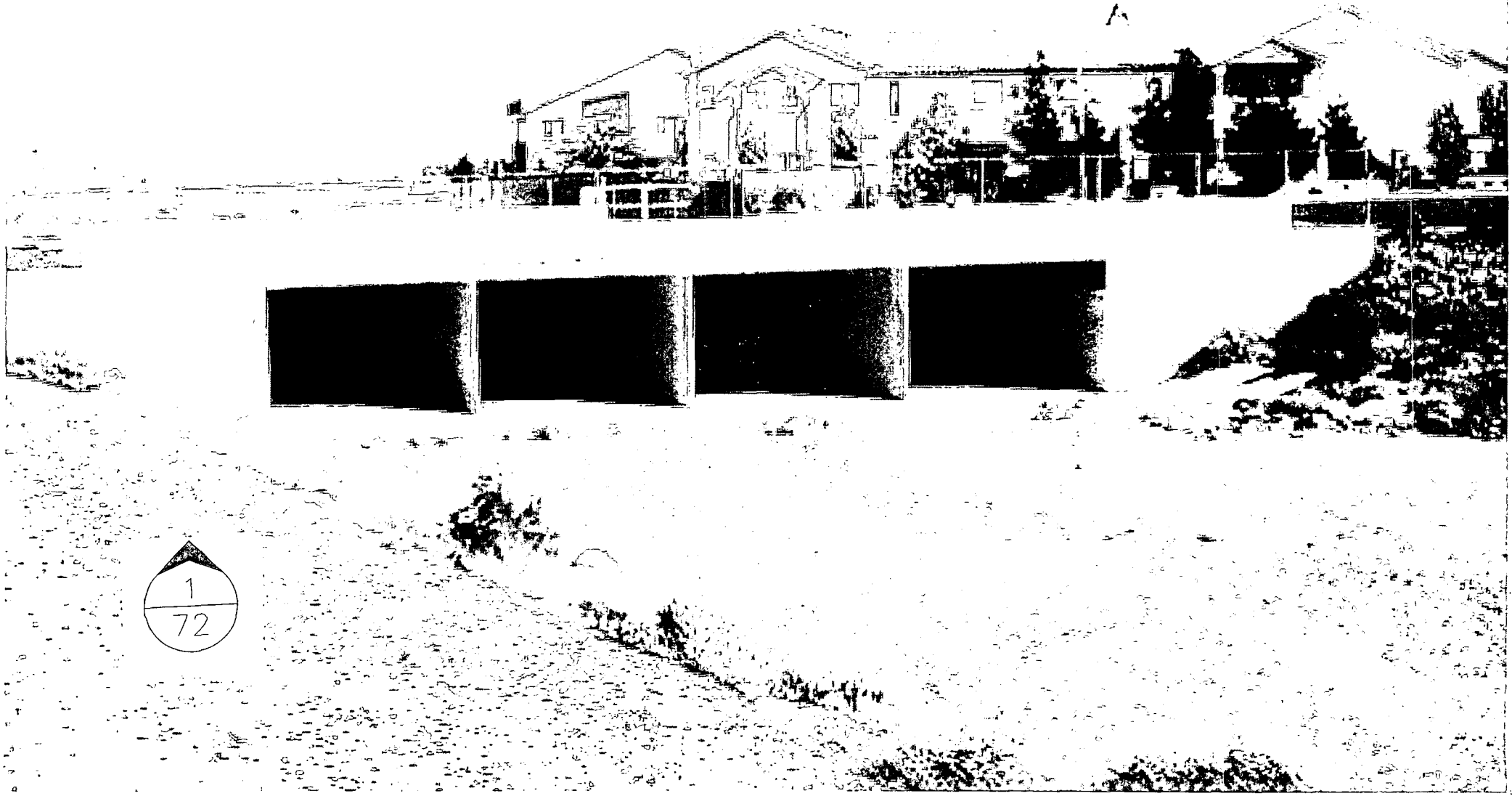

9
7

# EASTERN AVENUE

# EASTERN AVE CROSSING
# PICTURE LOOKING NORTH
# FIELDBOOK 436 PG-65

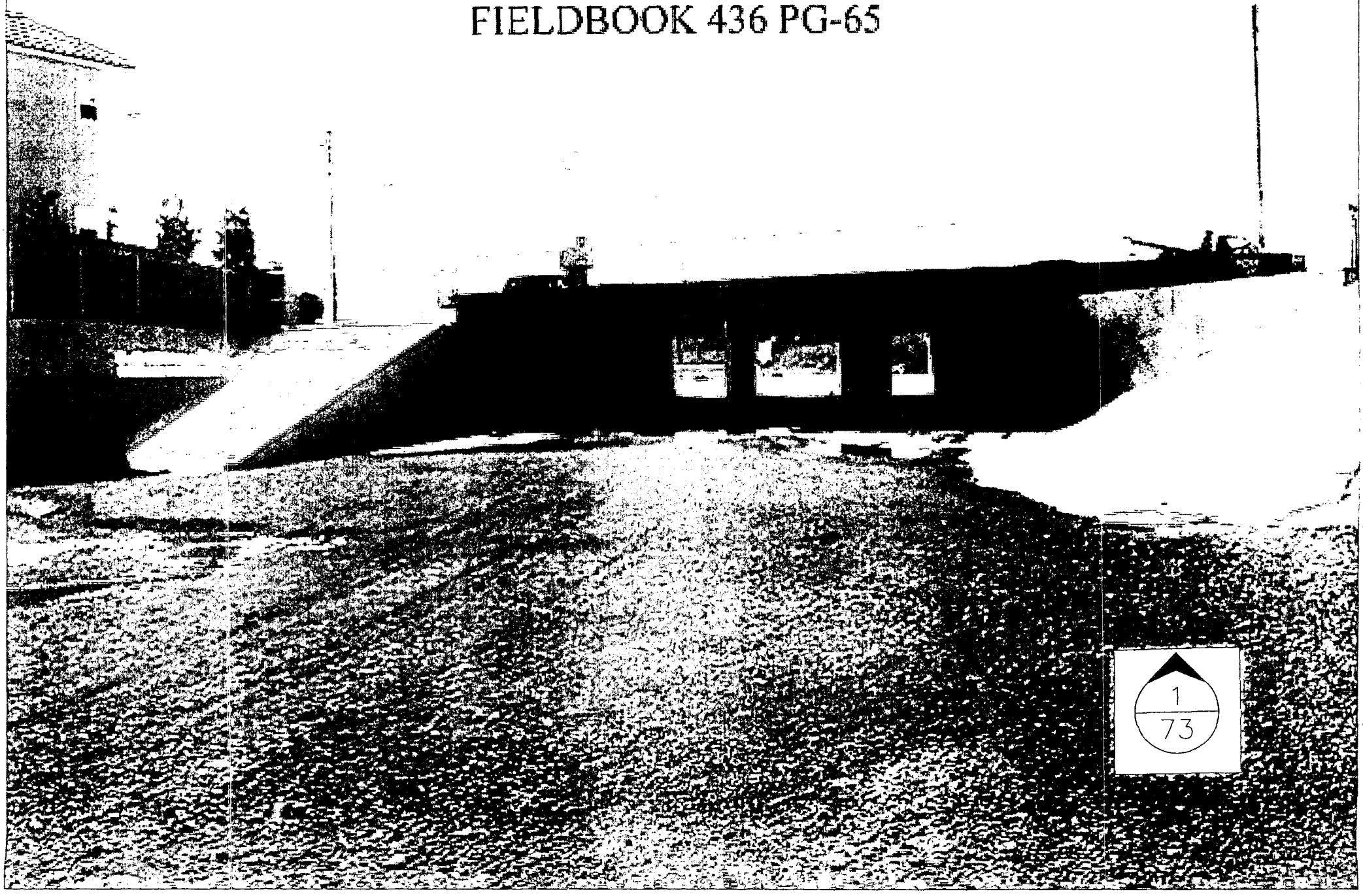


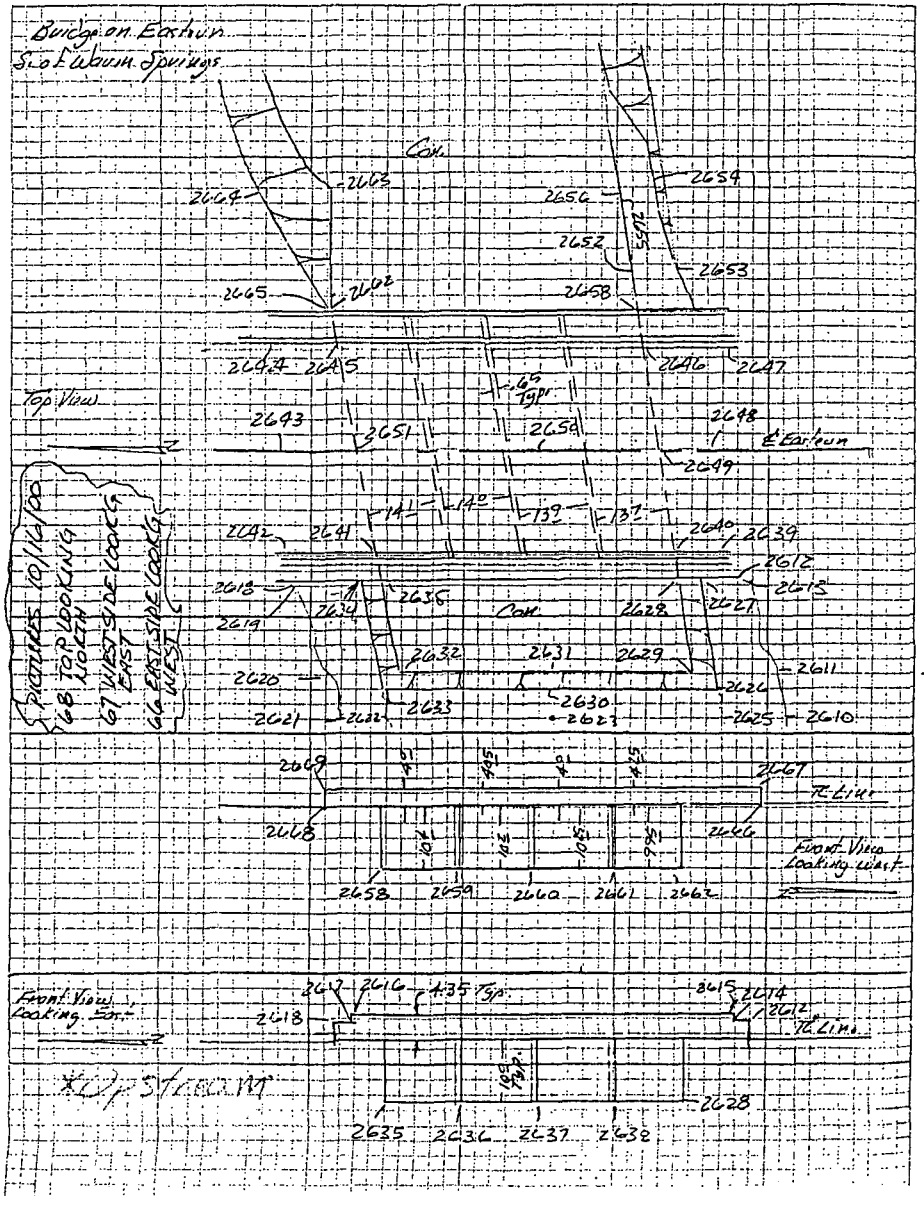
# EASTERN AVE CROSSING
# PICTURE LOOKING EAST
# FIELDBOOK 436 PG-65



1
72

# EASTERN AVE CROSSING
# PICTURE LOOKING WEST
# FIELDBOOK 436 PG-65






Job Download C8002794

10/5/00 436-45
C. Buerosse
R. Hart
D. Patterson
85° Calm

Ent @ 3053, BS 3035, ∠ @ 213 H x 15 V

| | | | |
|---|---|---|---|
| 2610 | TOP CHANNEL | 2643 | ℄ CROWN |
| 2611 | TOP CHANNEL | 2644 | AC LIP |
| 2612 | BRIDGE | 2645 | AC @ BRIDGE |
| 2613 | TOP CHANNEL @ BRIDGE | 2646 | " " |
| 2614 | BRIDGE | 2647 | AC LIP |
| 2615 | BRIDGE | 2648 | ℄ CROWN |
| 2616 | " | 2649 | ℄ " @ Bridge |
| 2617 | " | 2650 | ℄ " ON PHOTO PT |
| 2618 | " | 2651 | ℄ " @ Bridge |
| 2619 | TOP CHANNEL @ BRIDGE | | |
| 2620 | TOP CHANNEL | | |
| 2621 | " " | | |
| 2622 | TOE CHANNEL | | |
| 2623 | ℄ CHANNEL | 2652 | TOP CHANNEL |
| 2624 | " " | 2653 | " " |
| 2625 | TOE CHANNEL | 2654 | TOE @ RAMP |
| 2626 | " " @ CONTACT | 2655 | TOP @ RAMP |
| 2627 | " " @ Bridge | 2656 | TOE CHANNEL |
| 2628 | " " | 2657 | " " @ BRIDGE |
| 2629 | " " | 2658 | CENTER CHANNEL WALL |
| 2630 | ℄ CHANNEL | 2659 | " " " |
| 2631 | TOE @ ℄ CHANNEL | 2660 | " " " |
| 2632 | TOE CHANNEL | 2661 | " " " |
| 2633 | " " | 2662 | " " " |
| 2634 | " " | 2663 | TOP CHANNEL |
| 2635 | " " | 2664 | TOP " |
| 2636 | CENTER CHANNEL WALL | 2665 | " " @ BRIDGE |
| 2637 | " " " | 2666 | BOTTOM END WALL |
| 2638 | " " " | 2667 | TOP " " |
| 2639 | AC LIP | 2668 | BOTTOM " " |
| 2640 | AC @ Bridge | 2669 | TOP " " |
| 2641 | " " | | |
| 2642 | AC LIP | | |

T @ 3035, BS 3053 000-00-00
CHECK BS H=0.13
V=0.07

# AVIARA APARTMENTS OFFSITE CHANNEL



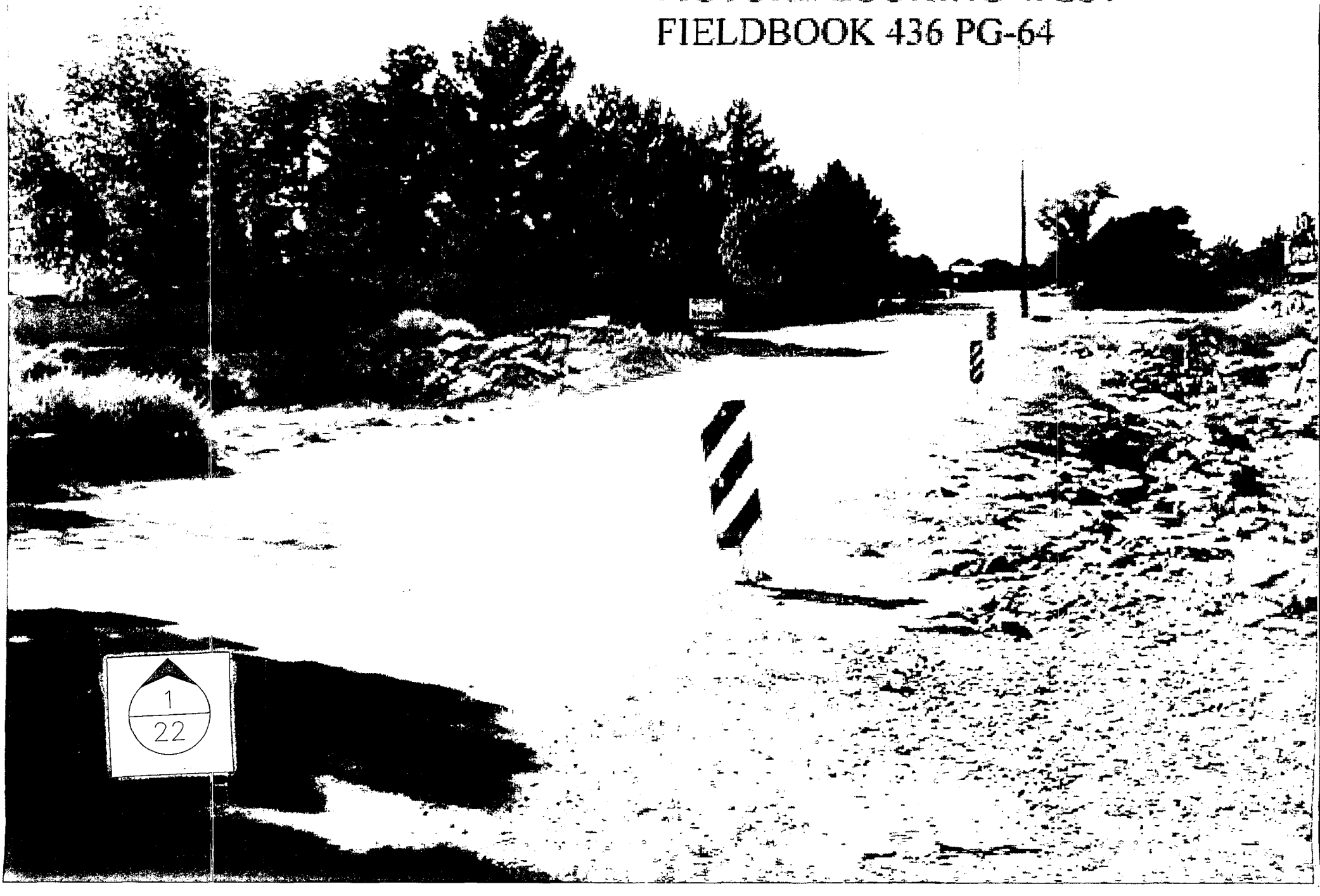
6
12

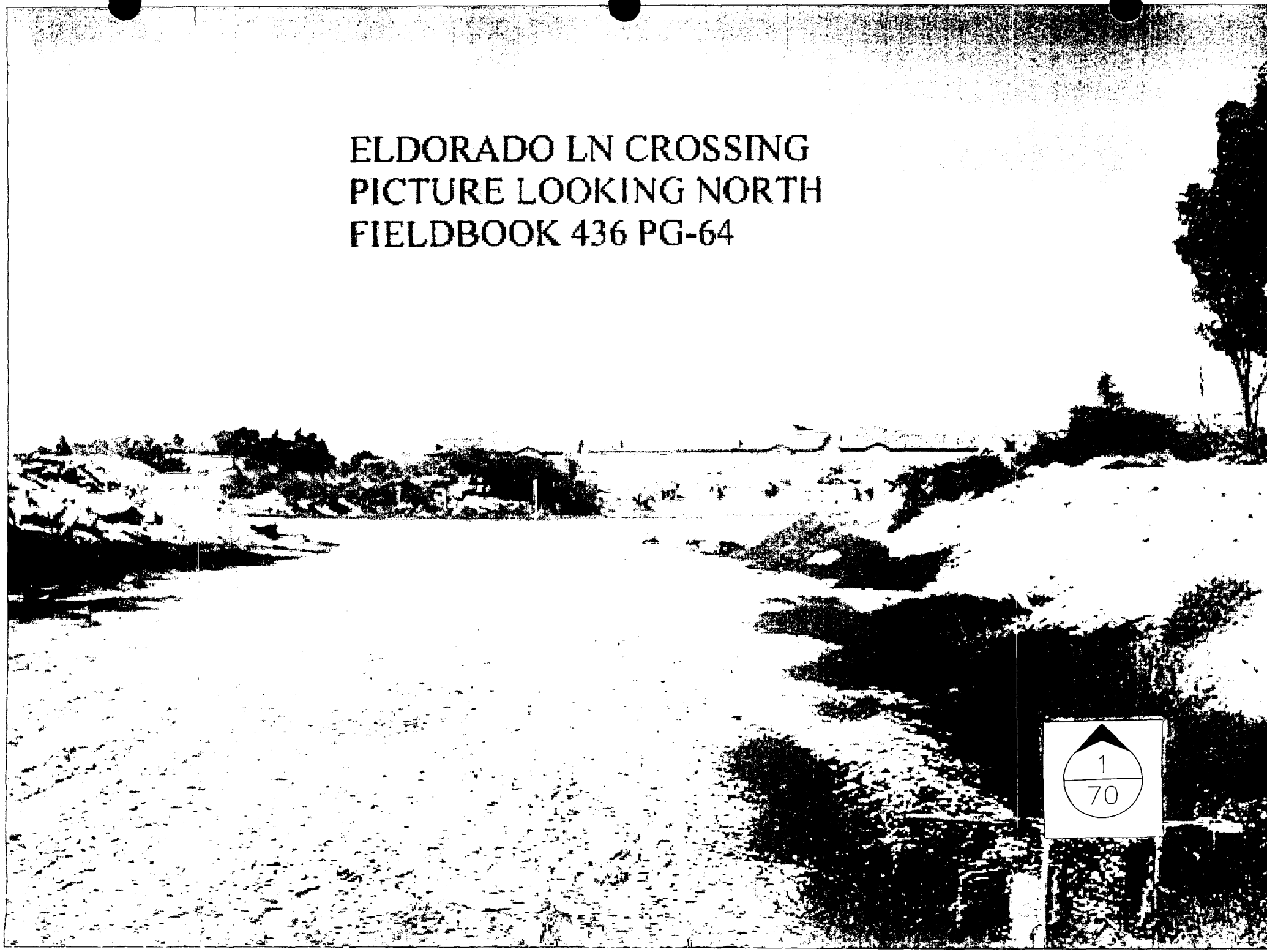


6
13

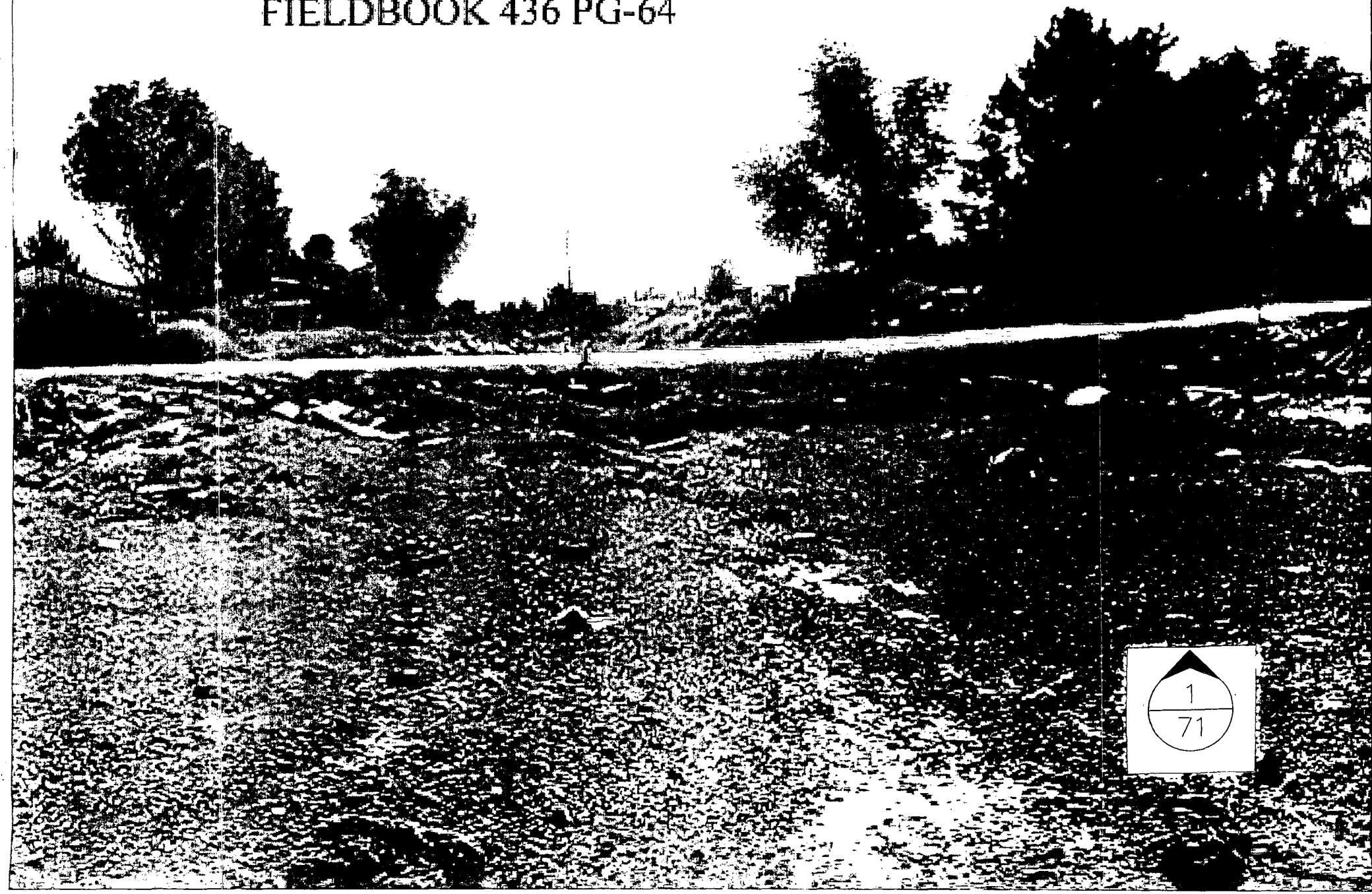
# ELDORADO LANE CROSSING

ELDORADO LN CROSSING
PICTURE LOOKING WEST
FIELDBOOK 436 PG-64



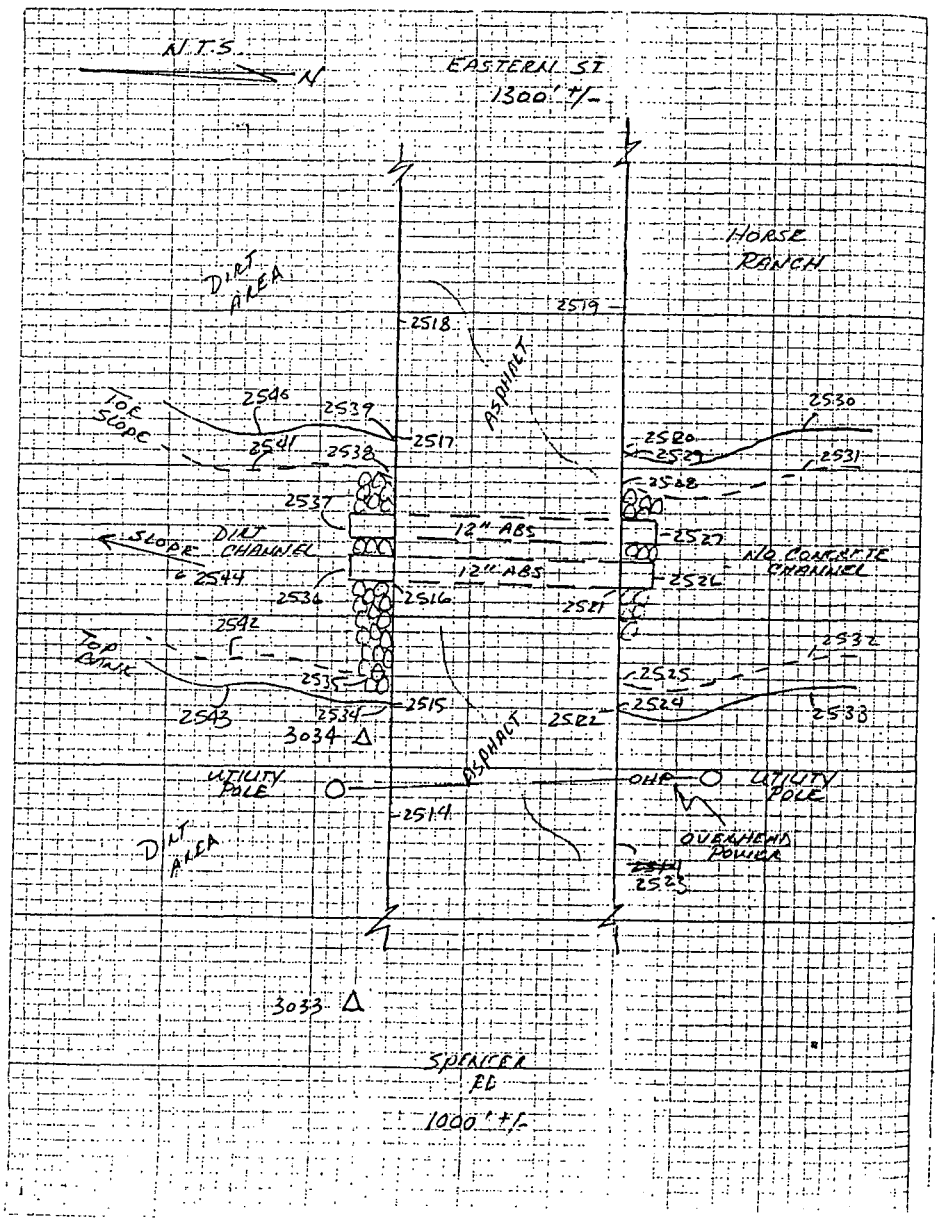

ELDORADO LN CROSSING
PICTURE LOOKING NORTH
FIELDBOOK 436 PG-64
1
70

# ELDORADO LN CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 436 PG-64



1
71

# ELDORADO LANE




Δ 3037, BS 3033 HI = 5.51
(BS) HR = 4.91
CHECKED BS
H = 0.00
V = 0.15

436-CA

2514 EDGE AC
2515
2516
2517
2518
2519
2520
2521
2522
2523 EDGE AC
2524 TOP CHANNEL @ AC
2525 TOE CHANNEL
2526 TE 12" ABS
2527 " " "
2528 TOE CHANNEL
2529 TOP CHANNEL
2530 " "
2531 TOE "
2532 " "
2533 TOP "
2534 TOP CHANNEL
2535 TOE "
2536 TE 12" ABS
2537 " " "
2538 TOE CHANNEL
2539 TOP "
2540 TOE "
2541 TOE "
2542 TOE "
2543 TOP "
2544 E CHANNEL

PICTURES 10/16/00
71 TOP LOOKING WEST
70 SOUTH SIDE LOOKG NORTH
69 NORTH SIDE LOOKG SOUTH

# SUR ESTE AVENUE CROSSING





6
15



SPENCER STREET

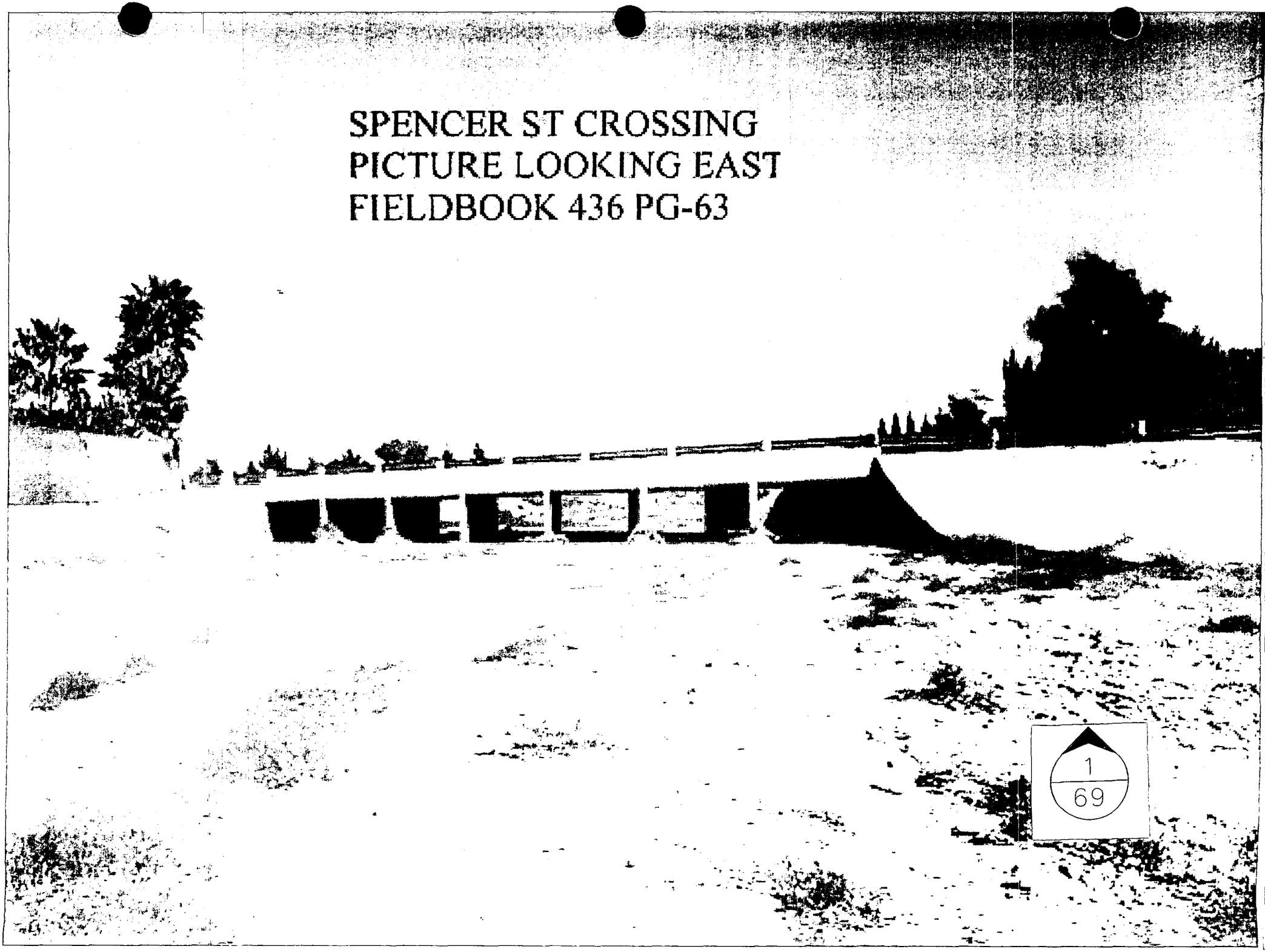
# SPENCER ST CROSSING
# PICTURE LOOKING NORTH
# FIELDBOOK 436 PG-63



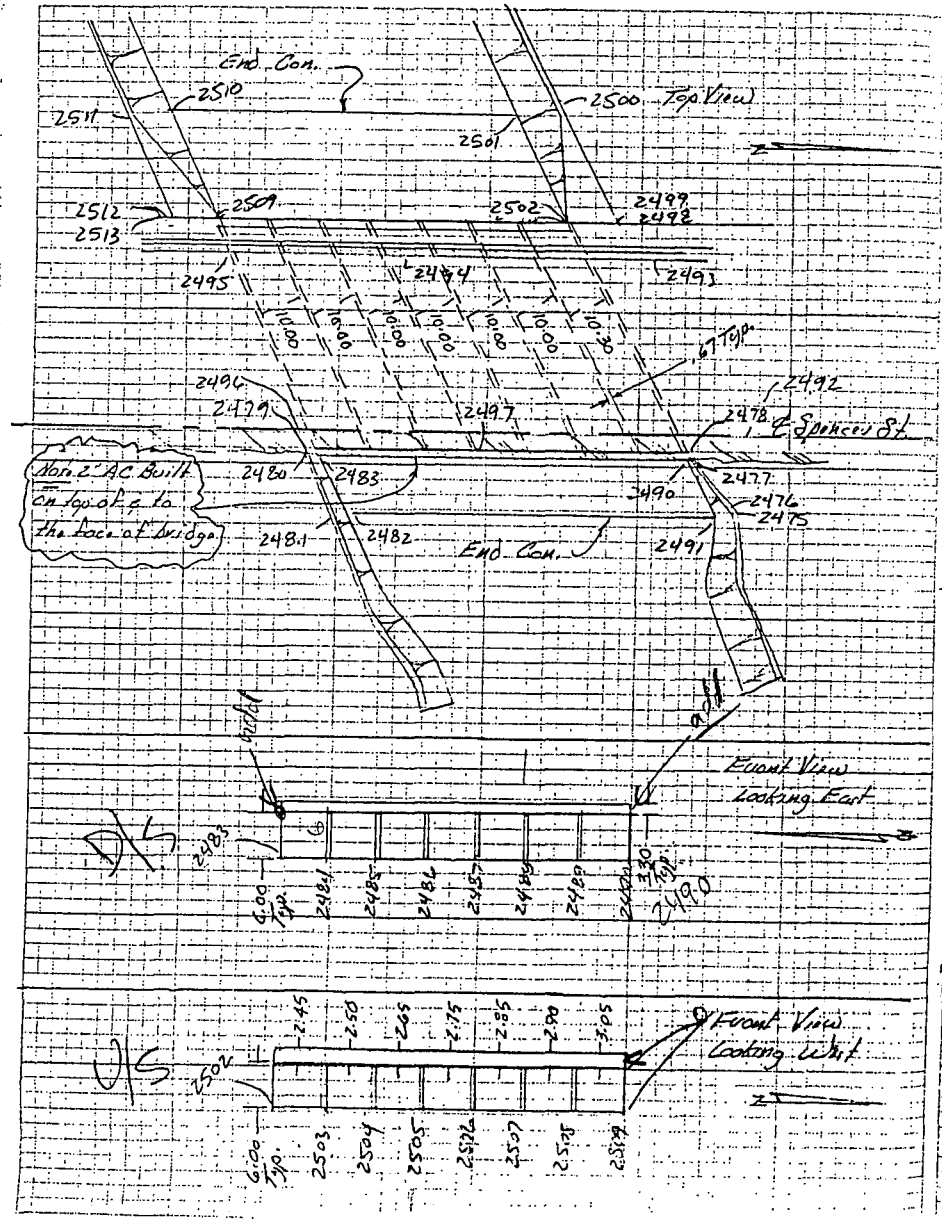
SPENCER ST CROSSING
PICTURE LOOKING WEST
FIELDBOOK 436 PG-63



SPENCER ST CROSSING
PICTURE LOOKING EAST
FIELDBOOK 436 PG-63



1
69




T @ 3032, BS 3031 HI = 5.60

(BS) HR = 5.23

4.36=G3

CHECKED BS

H = -0.04

V = 0.15

2475 TOP CHANNEL
2476 " "
2477 " " @ Bridge
2478 Top Bridge
2479 Bridge
2480 Top Channel @ Bridge
2481 Top Channel
2482 Toe Channel
2483 Channel (Top) @ Bridge
2484 - 2489 Channel @ Pillar
2490 Toe Channel @ Bridge
2491 " "
2492 Edge AC Roadway
2493 " "
2494 " "
2495 " "
2496 " "
2497 " "
2498 Bridge
2499 Top Channel @ Bridge
2500 Top Channel
2501 Toe "
2502 " " @ Bridge
2503 - 2508 Channel @ Pillar
2509 Toe Channel @ Bridge
2510 Toe Channel
2511 Top Channel
2512 Top Channel @ Bridge
2513 Bridge

PICTURES 10/16/00
75 TOP LOOKING NORTH
74 EAST SIDE LOOKING WEST
73 WEST SIDE LOOKING EAST

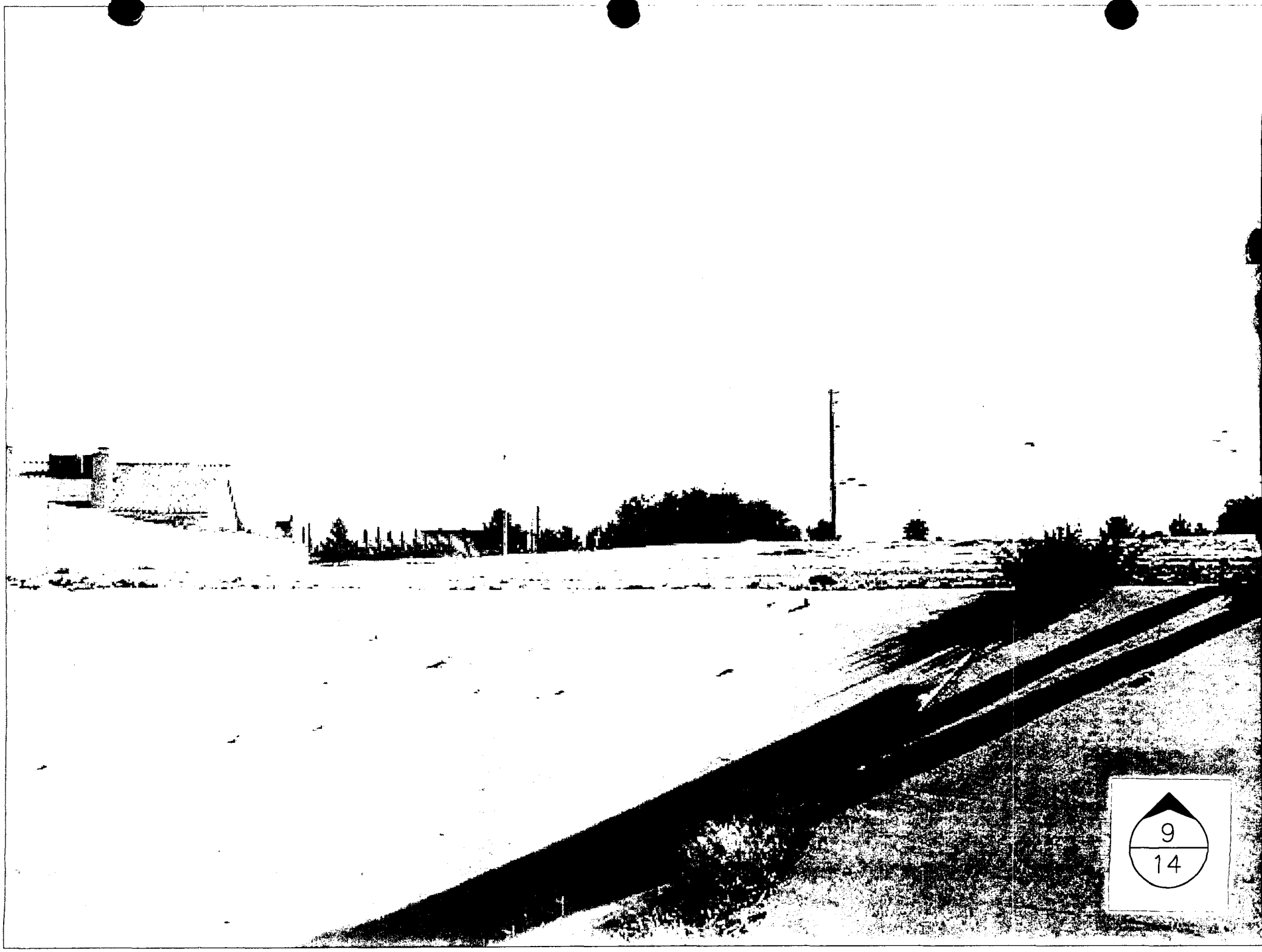
# ROBINDALE ROAD

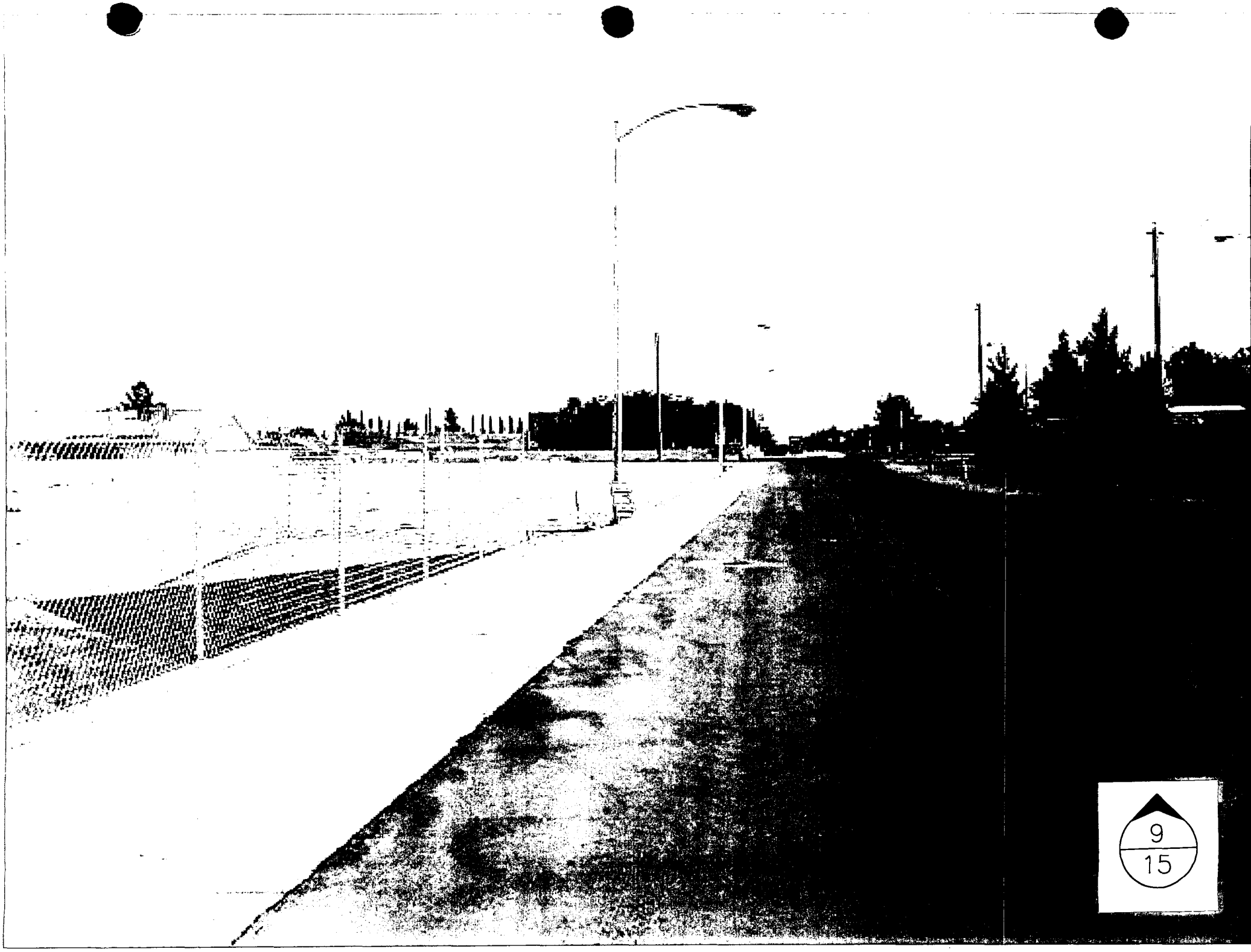


9
12



9
13


9
14

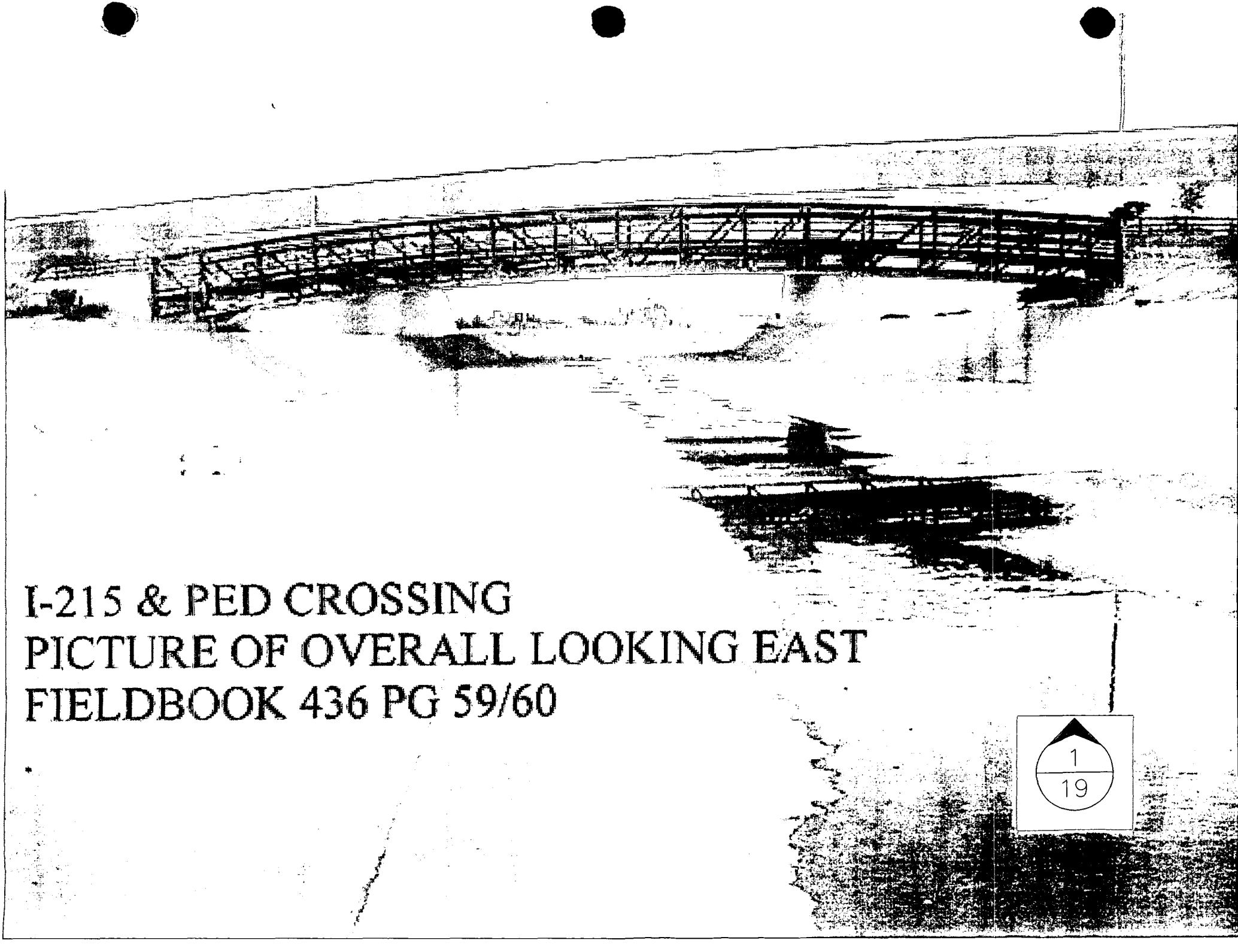

9
15



## Robindale Road Bridge

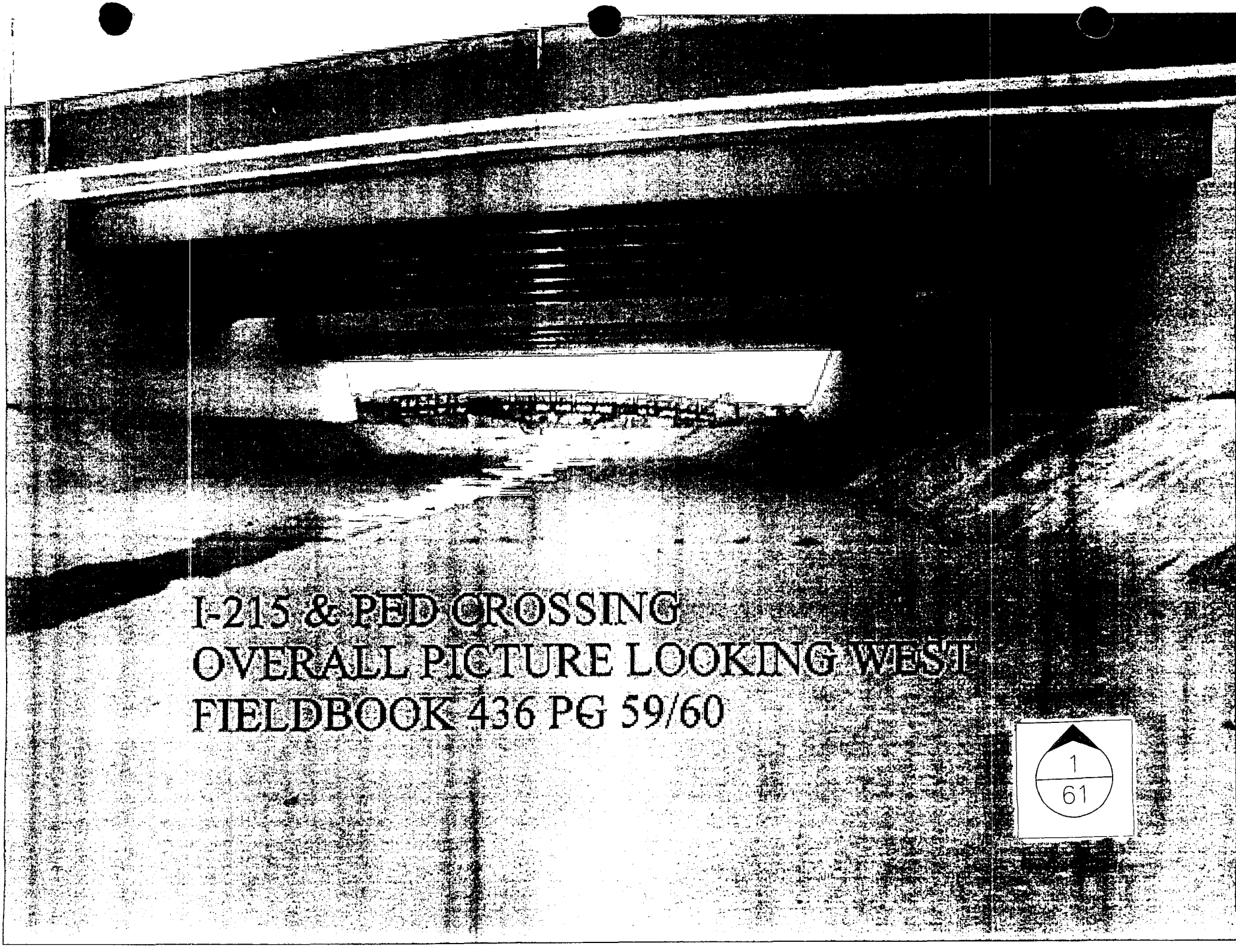
For survey information, see attached conformed design drawings for "Duck Creek Crossing at Robindale Road".

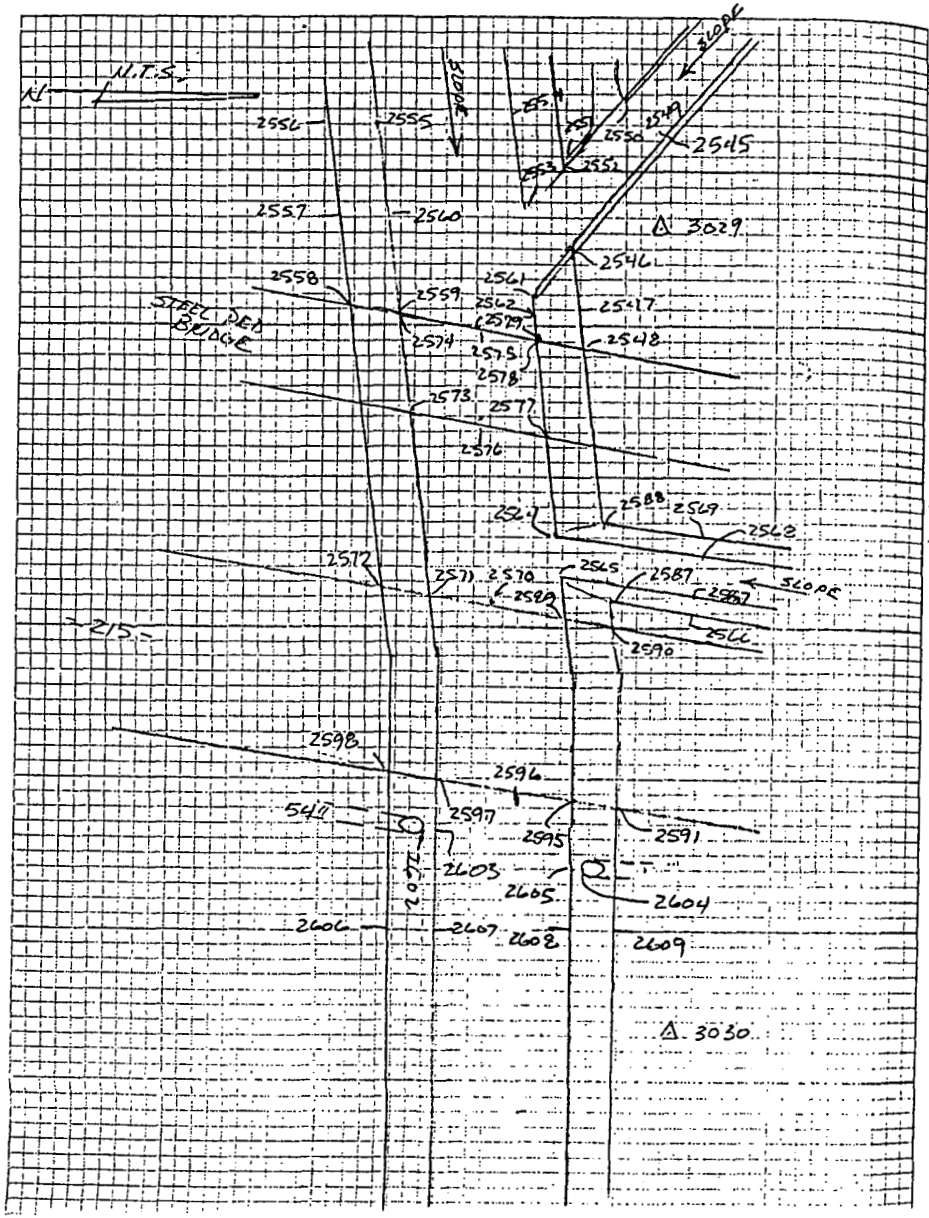
# I-215/ CONFLUENCE WITH NORTH BRANCH BLUE DIAMOND WASH



I-215 & PED CROSSING
PICTURE OF OVERALL LOOKING EAST
FIELDBOOK 436 PG 59/60

1
19


I-215 & PED CROSSING
OVERALL PICTURE LOOKING WEST
FIELDBOOK 436 PG 59/60
1
61




↑ @ 3029, BS 3030 HI = 4.85

(BS) HR = 5.12

CHECKED BS

H = -0.15

V = -0.27

4.34-5.9

10-2-00

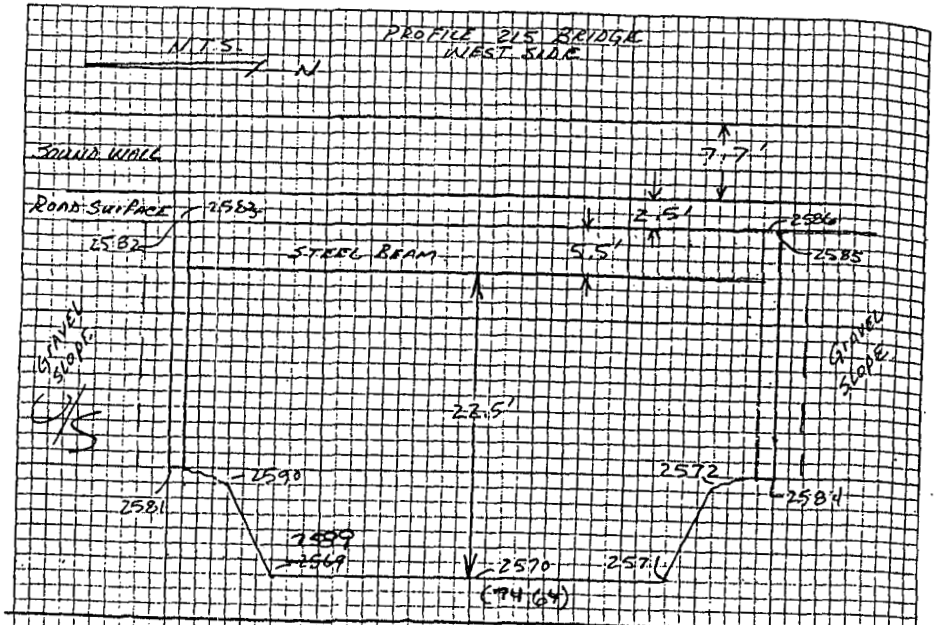
JOB NO. 530.037

| | |
|---|---|
| 2545 | TOP CHANNEL |
| 2546 | " " & POINT |
| 2547 | " " |
| 2548 | " " @ PED Bridge |
| 2549 | TOE CHANNEL |
| 2550 | TOE CHANNEL |
| 2551 | TOP " & Point/End |
| 2552 | TOE CHANNEL END |
| 2554 | " " |
| 2555 | " " |
| 2556 | TOP CHANNEL |
| 2557 | " |
| 2558 | " " @ PED BRIDGE |
| 2559 | TOE " " " |
| 2560 | TOE CHANNEL & POINT |
| 2561 | " " " |
| 2562 | TOE CHANNEL |
| 2563 | " " @ PED Bridge |
| 2564 | TOE CHANNEL & Point |
| 2565 | " " " " |
| 2566 | TOP CHANNEL |
| 2567 | TOE CHANNEL |
| 2568 | " " |
| 2569 | TOP CHANNEL |
| 2570 | E CHANNEL @ 215 Bridge WEST SIDE |
| 2571 | TOE CHANNEL @ " " " " |
| 2572 | TOP " " " " " " |
| 2573 | EOG PED Bridge |
| 2574 | " " " |
| 2575 | MID SPAN PED Bridge |
| 2576 | " " " |
| 2577 | END PED Bridge |
| 2578 | " " " |
| 2579 | TOE CHANNEL @ PED Bridge |
| 2580 | FLOWLINE @ PED Bridge |
| 2581 | BOTTOM WING WALL |
| 2582 | TOP WING WALL & PT |
| 2583 | " " " @ ROADWAY |
| 2584 | BOTTOM WING WALL |
| 2585 | TOP WALL & Point |
| 2586 | " " @ ROADWAY |
| 2587 | TOP CHANNEL & PT |
| 2588 | " " " |
| 2589 | TOE CHANNEL @ Bridge |
| 2590 | TOP " " " |
| 2591 | " " " " |
| 2592 | BOTTOM WING WALL |
| 2593 | & PT WING WALL |
| 2594 | TOP WING WALL |
| 2595 | TOE CHANNEL @ Bridge |
| 2596 | E FLOWLINE |
| 2597 | TOE CHANNEL @ Bridge |
| 2598 | TOP " " " |
| 2599 | Bottom wing WALL |
| 2600 | & PT Wing WALL |
| 2601 | END wing WALL |
| 2602 | IE 54" RCP |
| 2603 | TOE CHANNEL |
| 2604 | I.E-18" RCP |
| 2605 | TOE CHANNEL |
| 2606 | TOP " |
| 2607 | TOE " |

2609 Top Channel

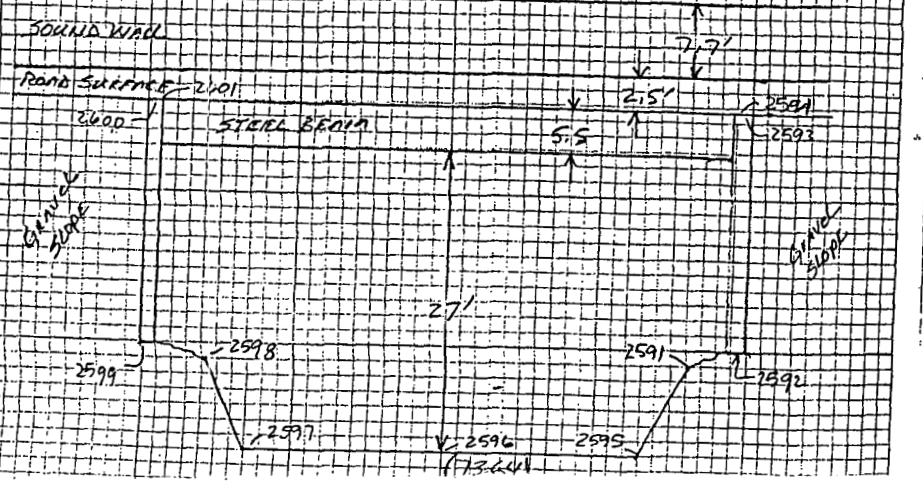
PROFILE 215 BRIDGE
WEST SIDE

N.T.S.




PROFILE 215 BRIDGE
EAST SIDE

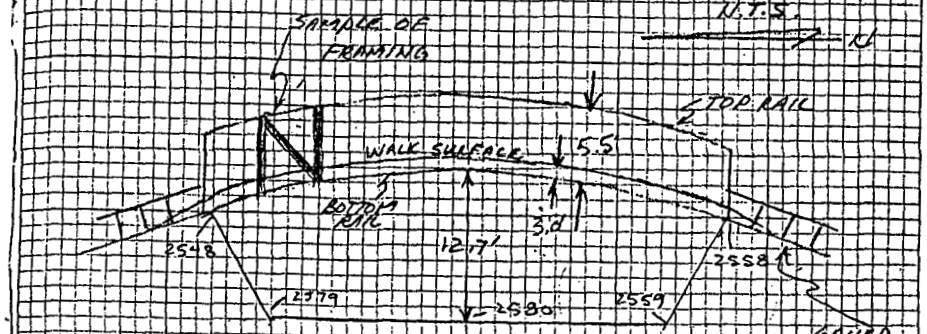
N.T.S.




PROFILE PED. BRIDGE
WEST SIDE

4.36-60

N.T.S.

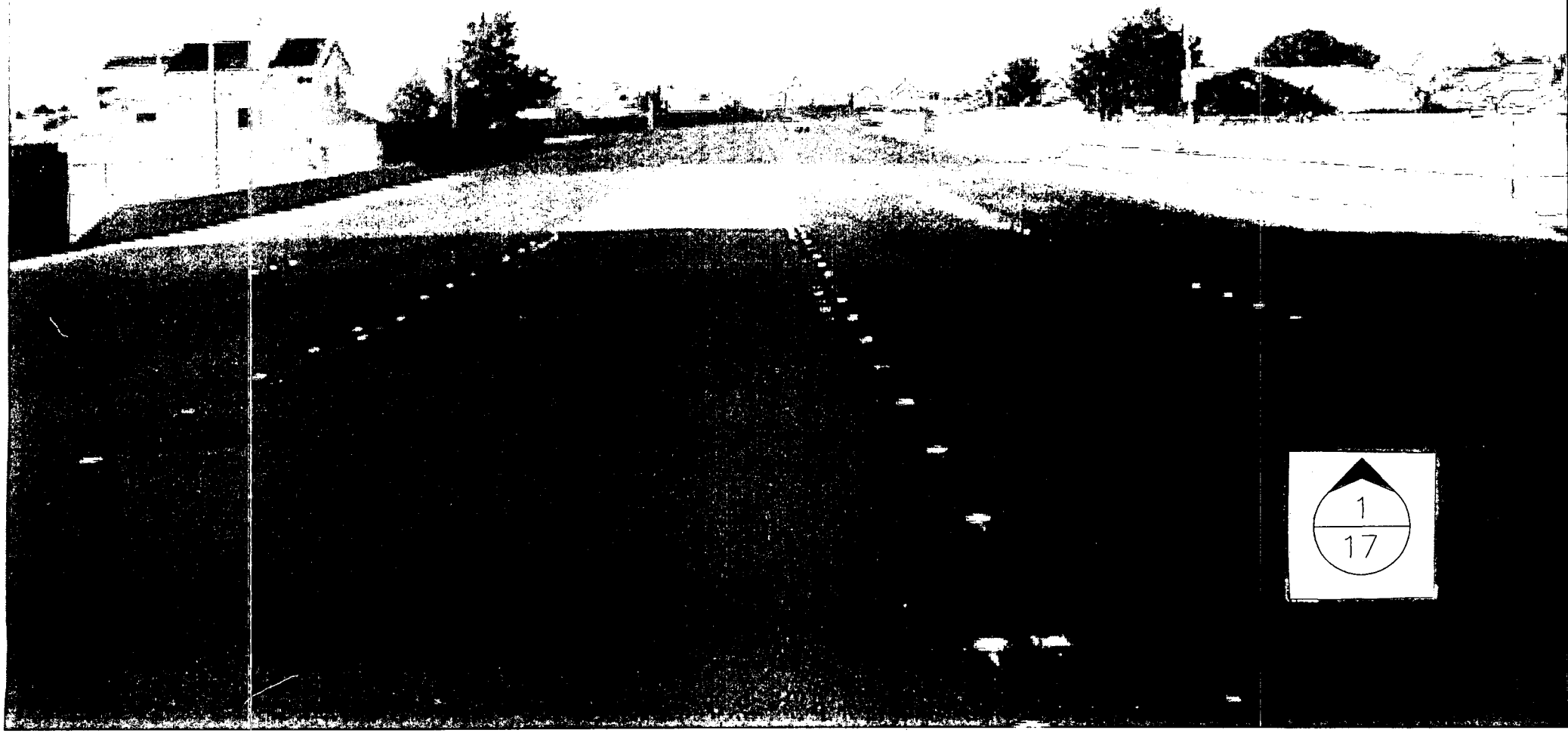



TO-3030; BS-3029 (83) 11.6.49. CHECK BS
HI 5.30
H: -0.12
V: +0.05

I-5608.C13
1974-11
34.32

# MARYLAND PARKWAY

PARADISE AND MARYLAND PWKY X-ING
PICTURE LOOKING NORTH
FIELDBOOK 436 PG-57



PARADISE AND MARYLAND PWKY X-ING
PICTURE LOOKING EAST
FIELDBOOK 436 PG-57



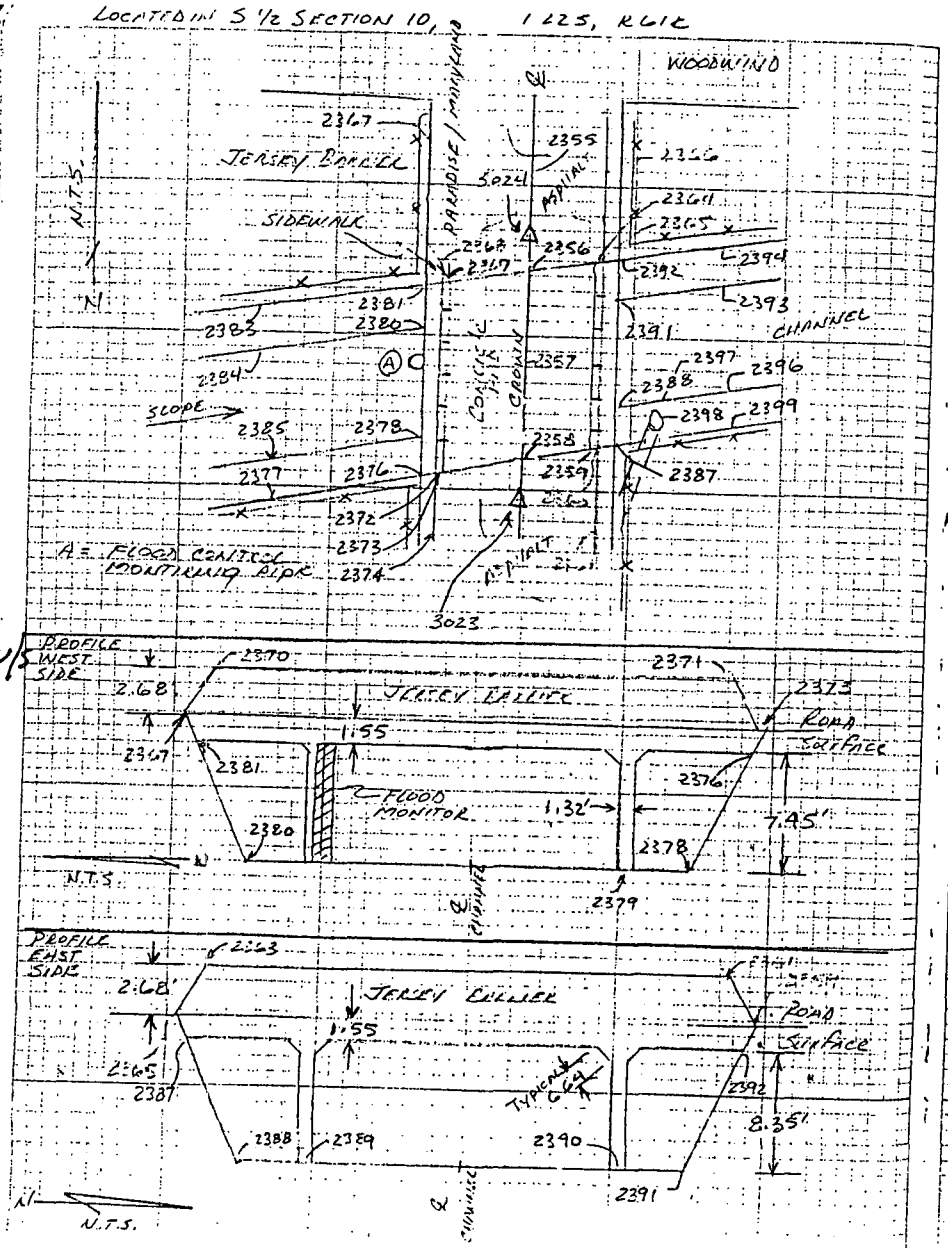
1
118

PARADISE AND MARYLAND PWKY X-ING
PICTURE LOOKING WEST
FIELDBOOK 436 PG-57



1
119

LOCATED IN S ½ SECTION 10, T 22 S, R 21 E




P.O. 3023, BS 3024 HI = 5.50 426-57

(BS) HR = 4.75 9-29-00

JOB # 550.039 CHECKED BS

H = 0.15

V = 0.00

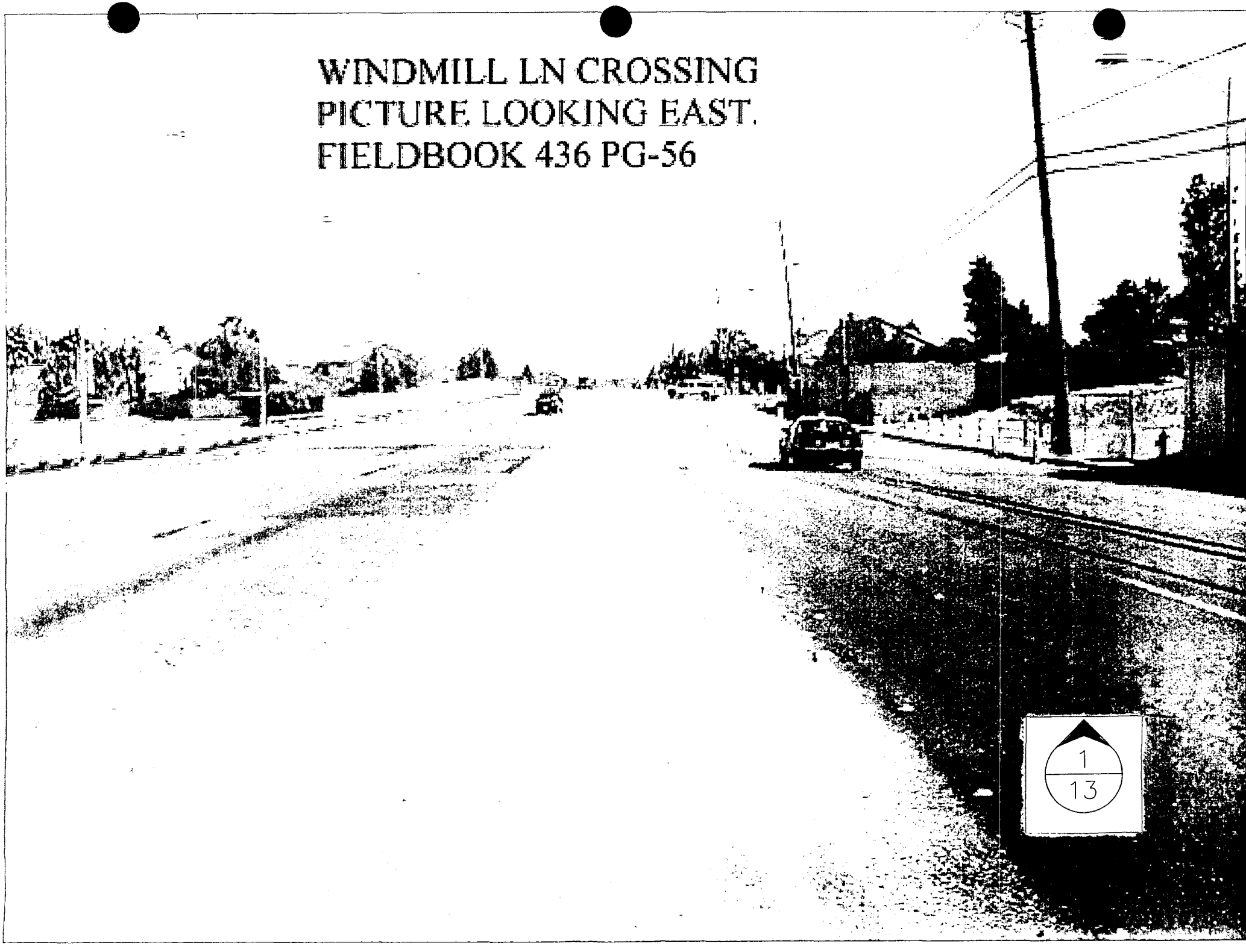
2355 ℄ CROWN
2356 " " @ Bridge
2357 " " "
2358 " " "
2359 AC @ CURB FACE @ BRIDGE
2360 TOP FACE CURB "TBC"
2361 AC @ CURB FACE
2362 TOP BARRIER
2363 " "
2364 TBC
2365 AC @ CURB FACE @ BRIDGE
2366 TBC
2367 AC @ CURB TBC
2368 AC @ GUTTER FACE
2369 " "
2370 " " @ Bridge
2371 TBC
2372 TOP BARRIER
2373 " "
2374 TBC
2375 AC @ GUTTER FACE @ BRIDGE
2376 " " "
2377 BW @ BRIDGE BW = BACK WALL
2378 TOP CHANNEL @ Bridge
2379 " "
2380 TOE CHANNEL @ Bridge
2381 CHANNEL @ PILLAR
2382 TOP CHANNEL @ Bridge
2383 BW @ Bridge
2384 TOP CHANNEL
2385 TOE CHANNEL
2386 " "
2387 BW @ Bridge

2387 TOP CHANNEL @ Bridge
2388 TOE CHANNEL @ Bridge
2389 CHANNEL @ PILLAR
2390 CHANNEL @ PILLAR
2391 TOE CHANNEL @ PILLAR
2392 TOP CHANNEL @ Bridge
2393 TOE CHANNEL
2394 TOP CHANNEL
2395 BW @ Bridge
2396 TOE CHANNEL
2397 " "
2398 T.E. 48" RCP
2399 TOP CHANNEL

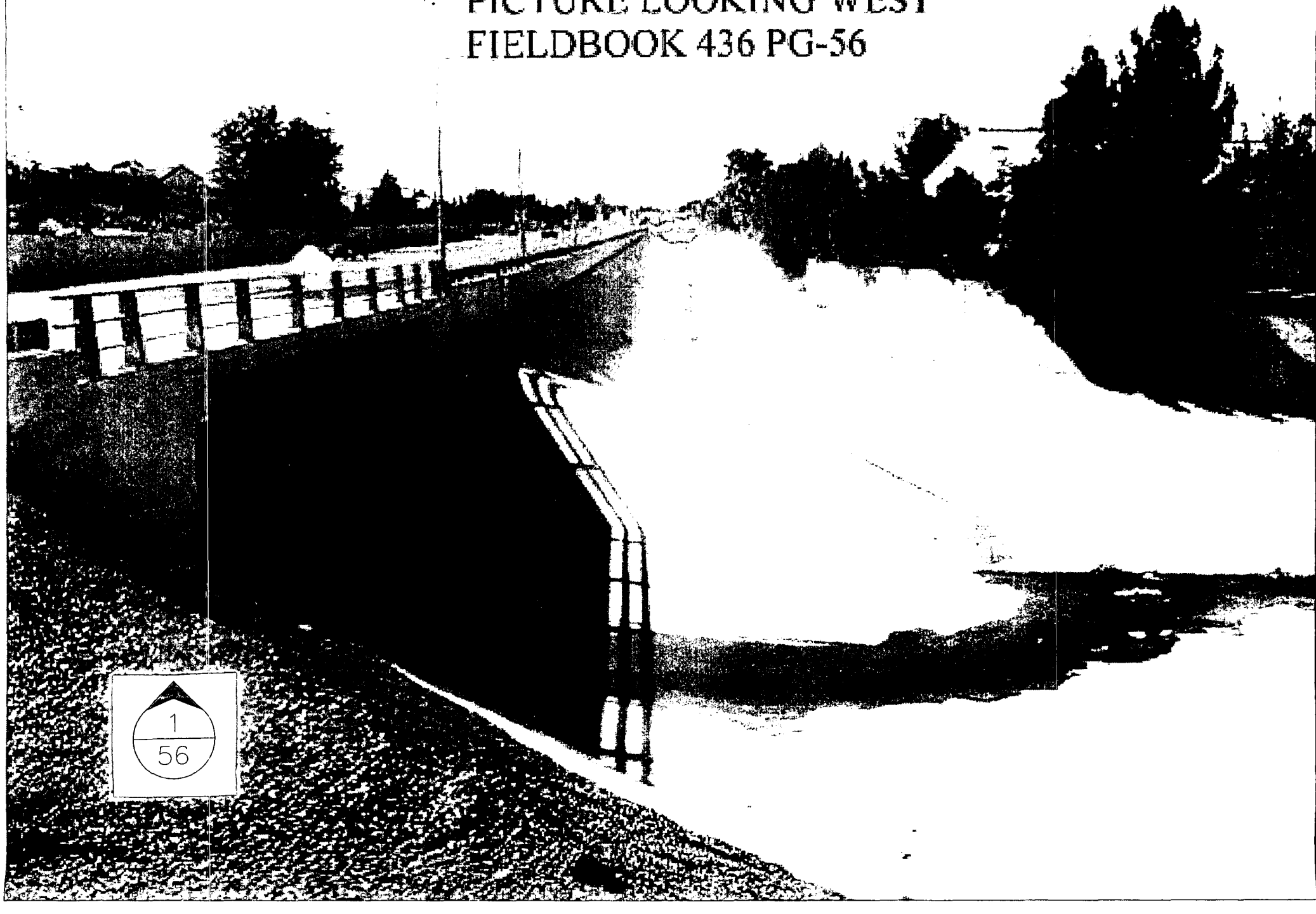
Pictures 10/4/00
84 Top, Looking Northerly
83 WESTERLY SIDE LOOKING EAST
82 EASTERLY SIDE LOOKING WEST

# WINDMILL LANE AT DUCK CREEK CONFLUENCE WITH MIDDLE BRANCH BLUE DIAMOND WASH

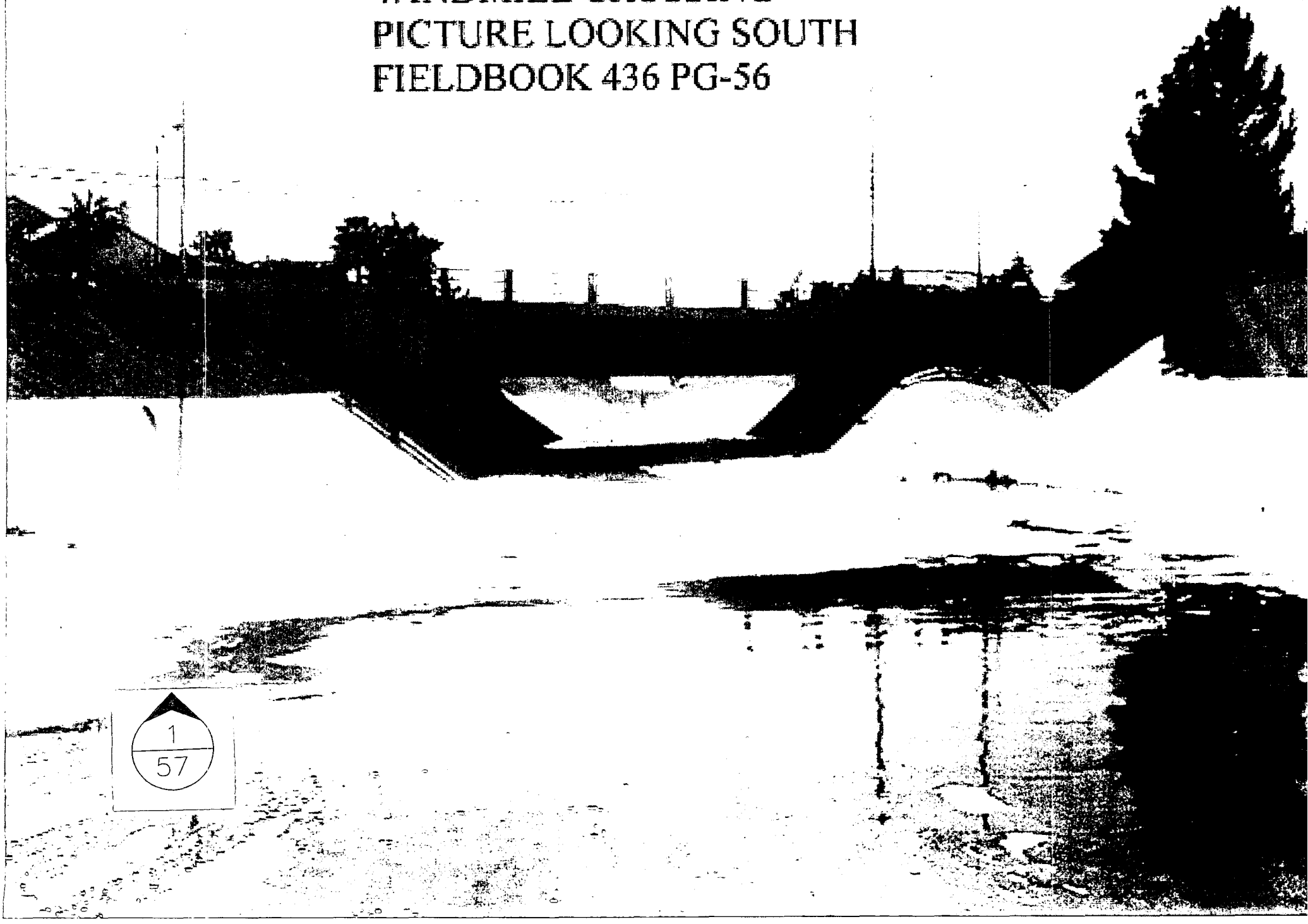
# WINDMILL LN CROSSING
# PICTURE LOOKING EAST.
# FIELDBOOK 436 PG-56

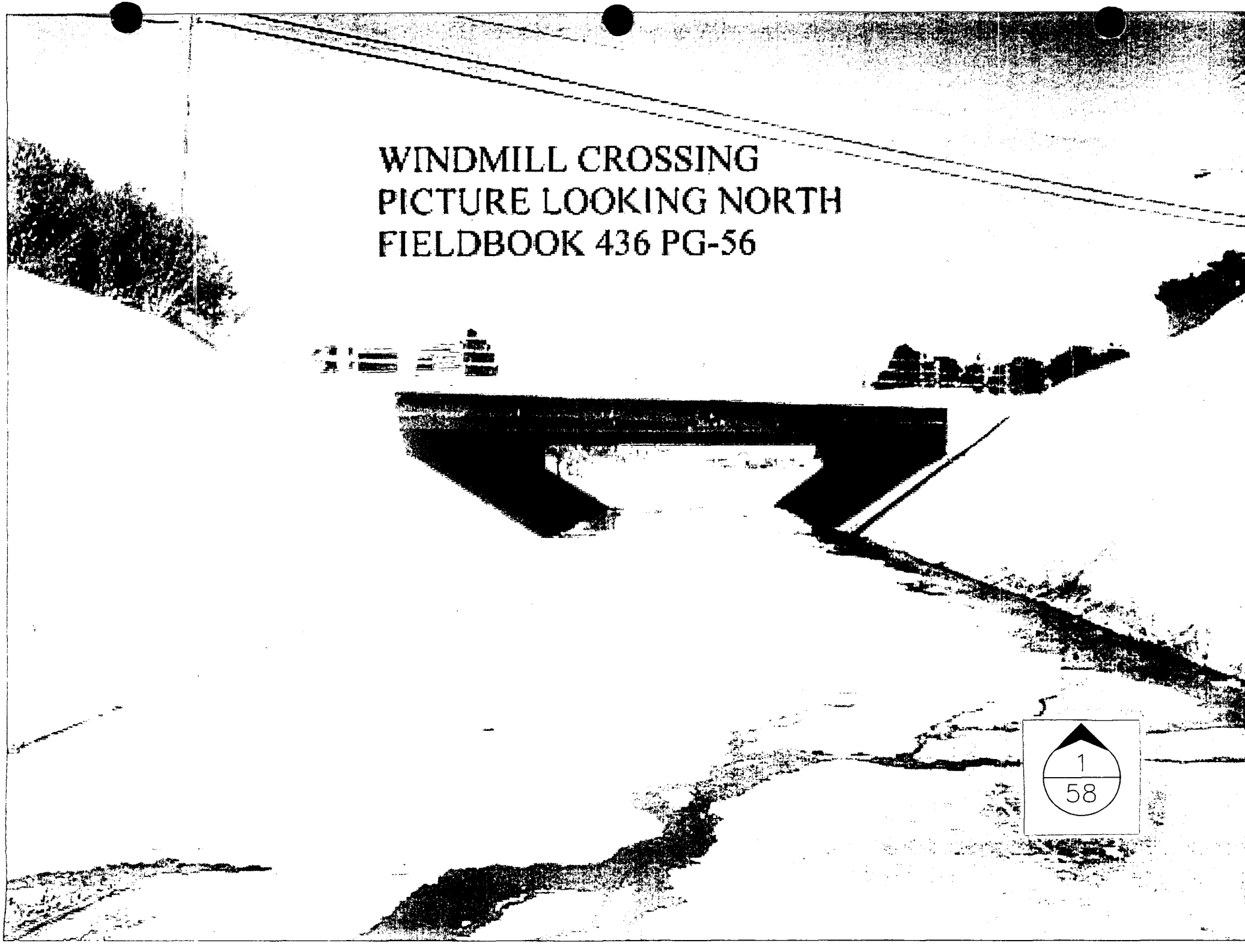


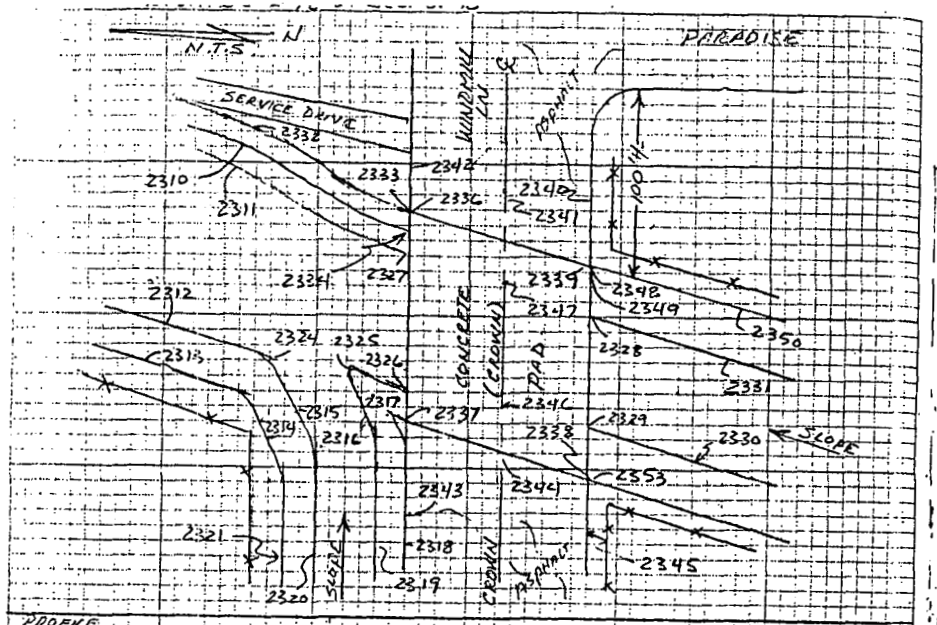
WINDMILL CROSSING
PICTURE LOOKING WEST
FIELDBOOK 436 PG-56



# WINDMILL CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 436 PG-56




WINDMILL CROSSING
PICTURE LOOKING NORTH
FIELDBOOK 436 PG-56
1
58




↑ @ 3021 BS 3022 HI = 5.11

(BS) HR = 5.28

CHECKED BS

N = -0.08

V = -0.07

436.56

9.26.00

| | | |
|---|---|---|
| 2310 | TOP CHANNEL (CONCRETE) | |
| 2311 | TOE " | |
| 2312 | " " | |
| 2313 | TOP CHANNEL | 2341 Crown |
| 2314 | " " | 2342 AC/Curb |
| 2315 | TOE CHANNEL | 2343 " " |
| 2316 | " " | 2344 Crown |
| 2317 | TOP CHANNEL | 2345 AC/Curb |
| 2318 | TOP CHANNEL | 2346 Crown/Bridge |
| 2319 | TOE CHANNEL | 2347 " " |
| 2320 | " " | 2348 Top Channel/Bridge |
| 2321 | TOP CHANNEL | 2349 " " " |
| 2322 | " " @ BRIDGE | 2350 Top Channel |
| 2323 | " " " | 2351 " " @ Bridge |
| 2324 | TOE CHANNEL | 2352 " " " |
| 2325 | TOE CHANNEL | 2353 " " " |
| 2326 | " " | 2354 Top Channel |
| 2327 | " " | |
| 2328 | " " | |
| 2329 | " " | |
| 2330 | " " | |
| 2321 | " " | |
| 2332 | TOP CHANNEL Gravel | |
| 2333 | " " " @ BRIDGE | |
| 2334 | " " | |
| 2335 | " " Concrete @ Bridge | |
| 2336 | AC/Curb @ BRIDGE | |
| 2337 | " " " | |
| 2338 | " " " | |
| 2339 | " " " | |
| 2340 | AC Curb | |

Pictures 10/16/00

90 Top Looking East

89 Looking West

88 Looking South

87 Looking North

14.99

102.75

91-32-47

93-37-28

99-45-56

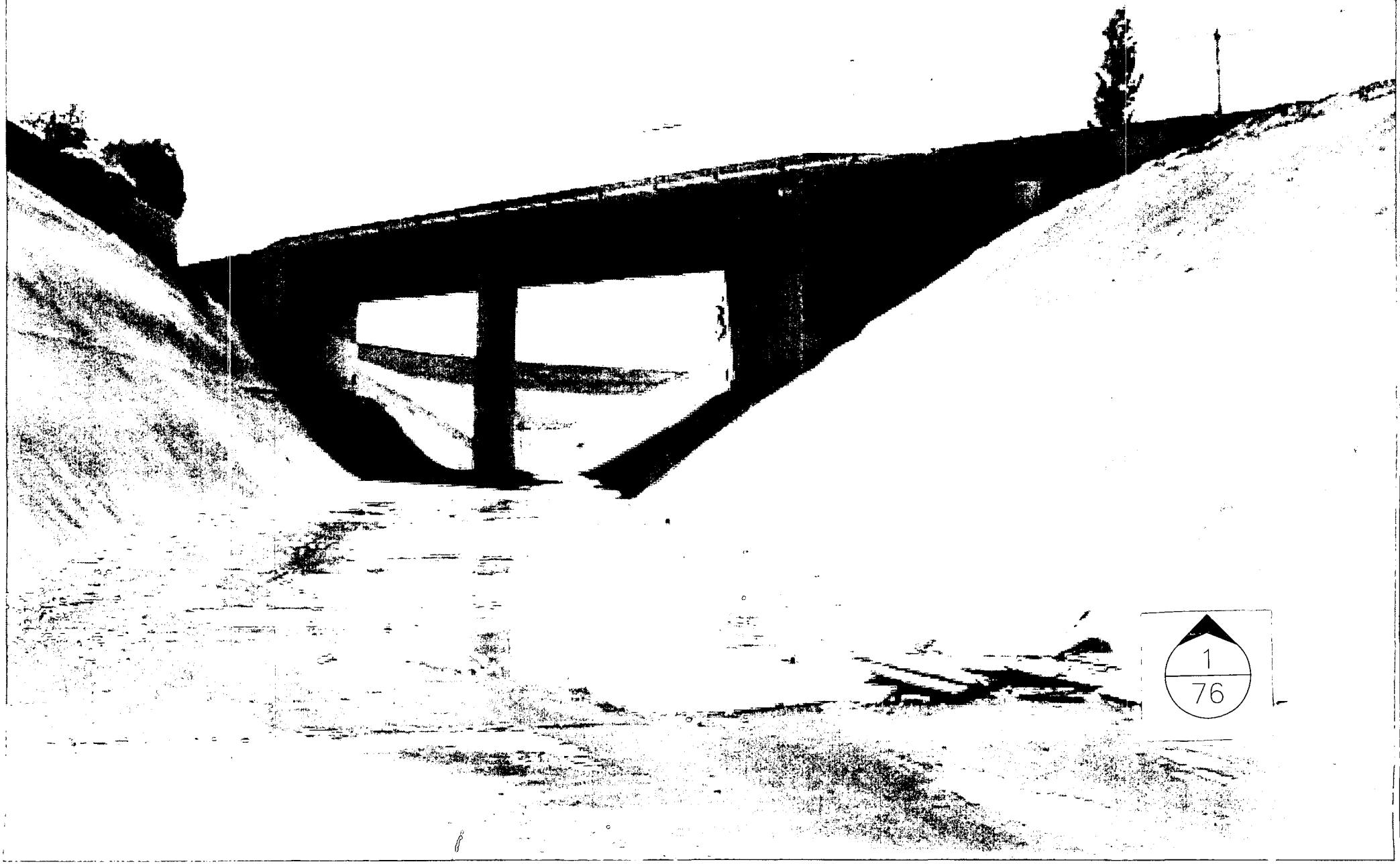
# POLLOCK STREET

POLLOCK ST CROSSING
PICTURE LOOKING NORTH
FIELDBOOK 436 PG-55



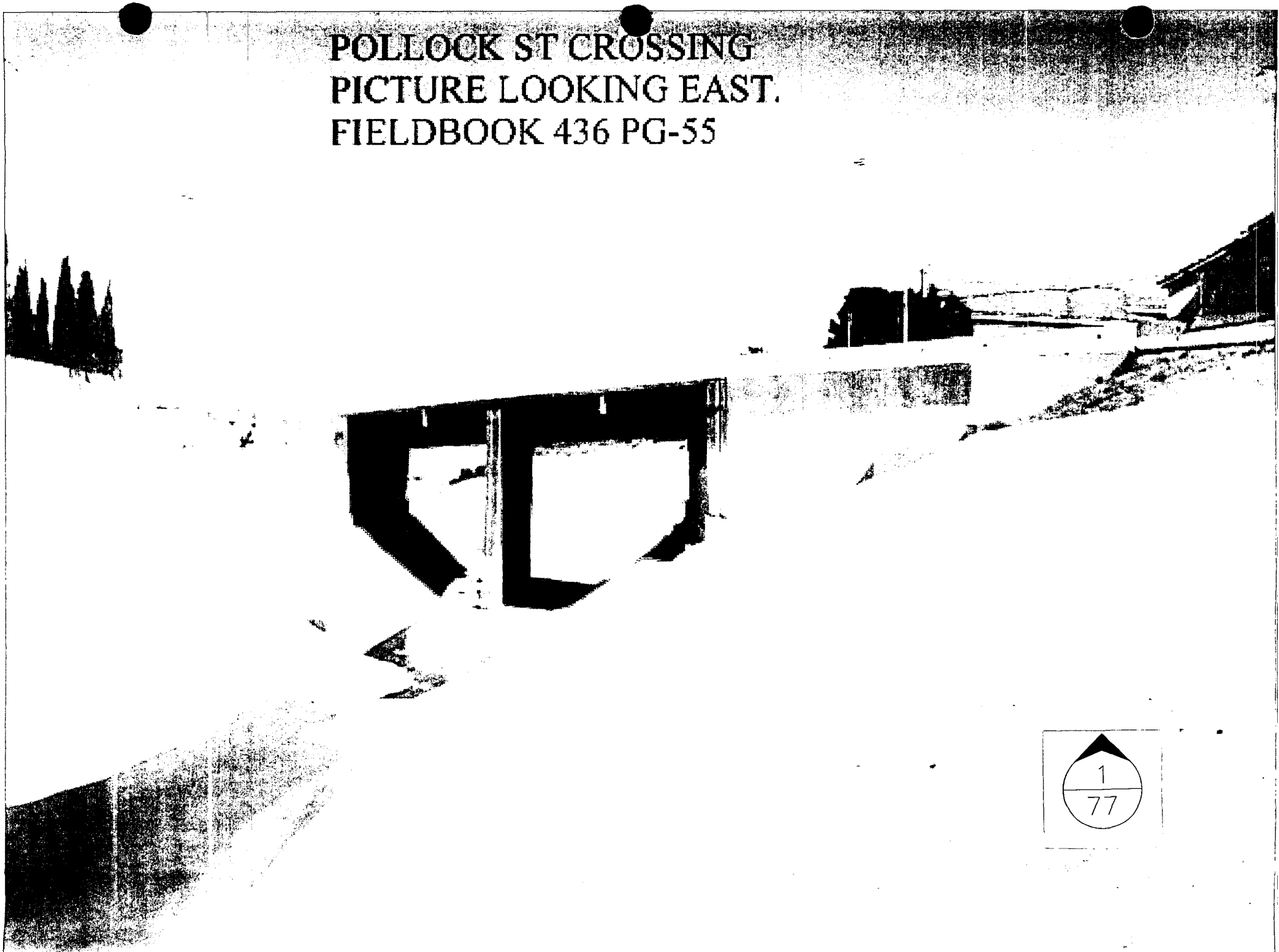
1
1

POLLOCK ST CROSSING
PICTURE LOOKING WEST
FIELDBOOK 436 PG-~~X~~ 55

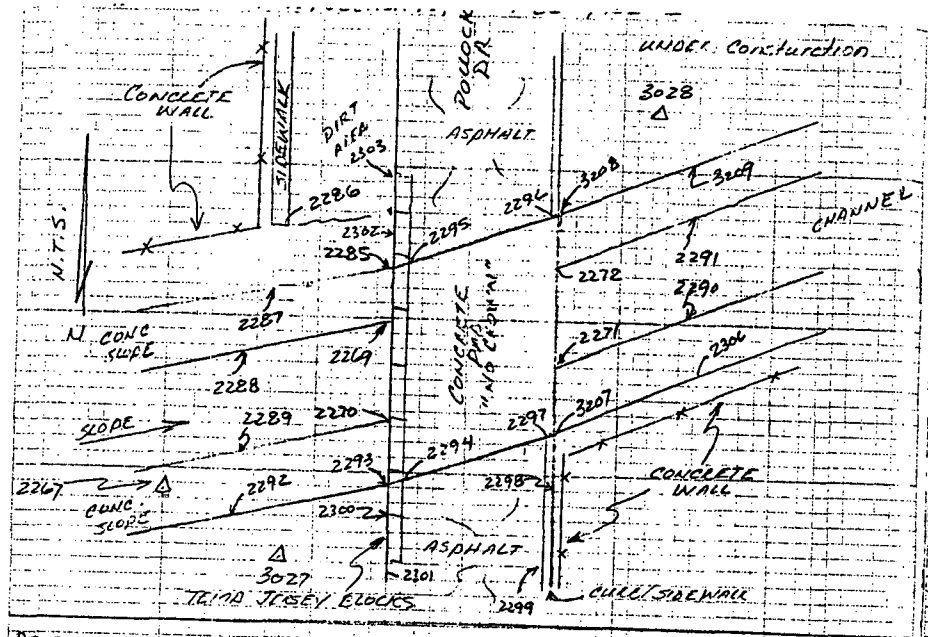


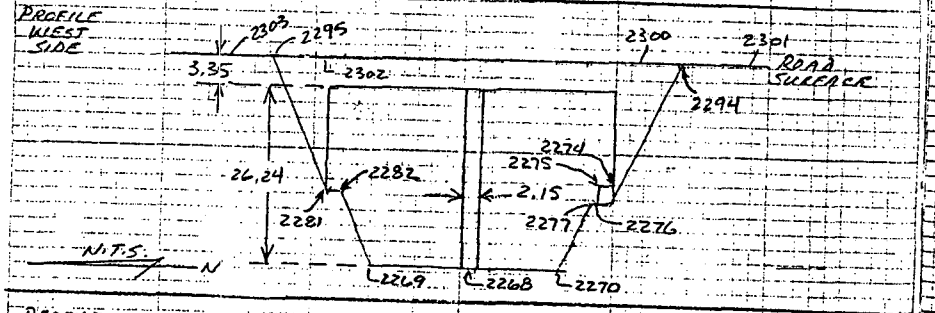
1
76

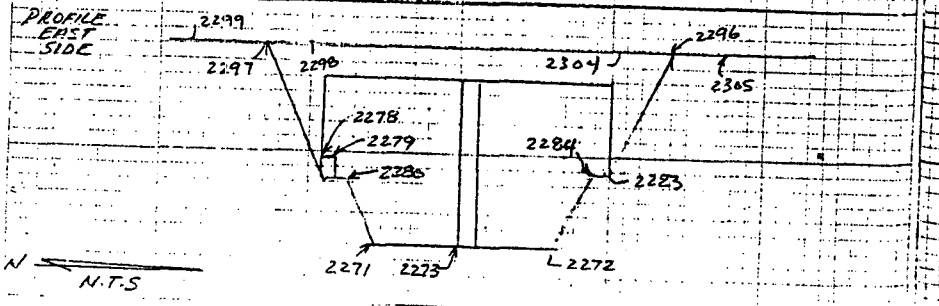
POLLOCK ST CROSSING
PICTURE LOOKING EAST.
FIELDBOOK 436 PG-55



1
77




2267 ℄ 3027, BS 3028 HI = 5.45 436-55
N 267152215.538 (BS) HR = 4.91
E 785555.029 CHECKED BS 9-26-00
EL 2144.3455 H = -0.14
V = -0.25

2267 SET SCRIBE / CONTROL POINT

℄ 2267, BS 3027 HI 5.47
(BS) HR = 5.14

CHECKED BS
H = -0.00
V = -0.05

2268 CENTER PILLAR @ CHANNEL (SHOT CENTER)
2269 CHANNEL (TOE) @ BRIDGE
2270 " " "
2271 " " "
2272 " " "
2273 CENTER PILLAR @ CHANNEL (SHOT S.E. COR.)
2274 CHANNEL LIP
2275 " "
2276 " "
2277 " "
2278 " "
2279 " "
2280 " " (TAPERS FROM 2279 TO 2280)
2281 CHANNEL LIP
2282 " "
2283 " "
2284 " "
2285 TOP CHANNEL @ BRIDGE
2286 "TBC" TOP BACK CURB
2287 TOP CHANNEL
2288 TOE CHANNEL
2289 " "
2290 TOE CHANNEL
2291 " "
2292 TOP CHANNEL
2293 " " @ BRIDGE
2294 BRIDGE END @ ROAD SURFACE
2295 " " " "
2296 " " " "
2297 " " " "

Pickens 10/16/00
93 Top, Looking North
92 Looking Easterly
91 Looking Westerly

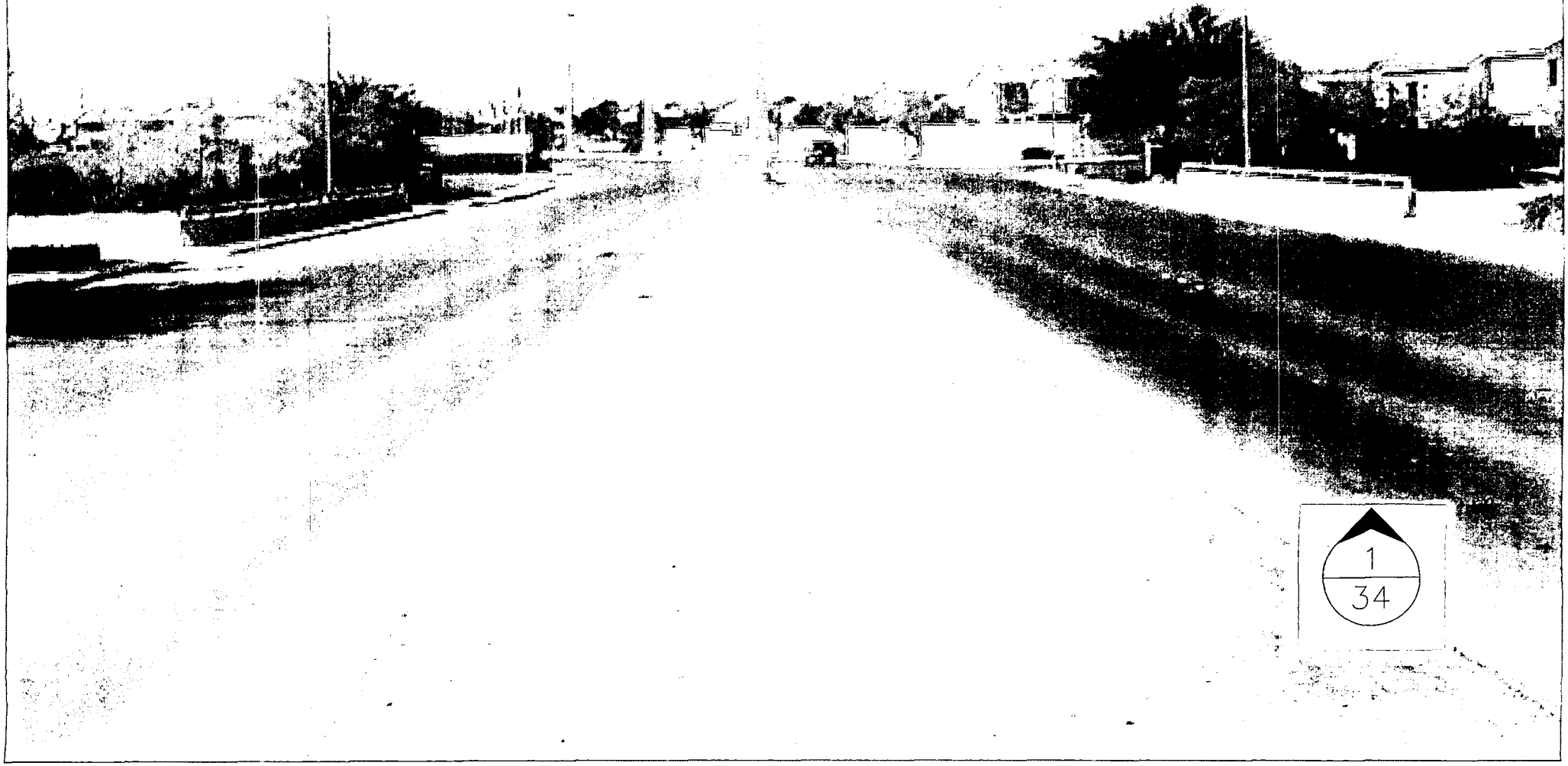
2298 "AC" ASPHALT
2299 "AC" ASPHALT
2300 " "
2301 " "
2302 " "
2303 " "
2304 " "
2305 " "

℄ @ 3028, BS 3027 HI = 5.27
CHECK BS H = 0.13 HR = 5.14
CHECK BS V = 0.17

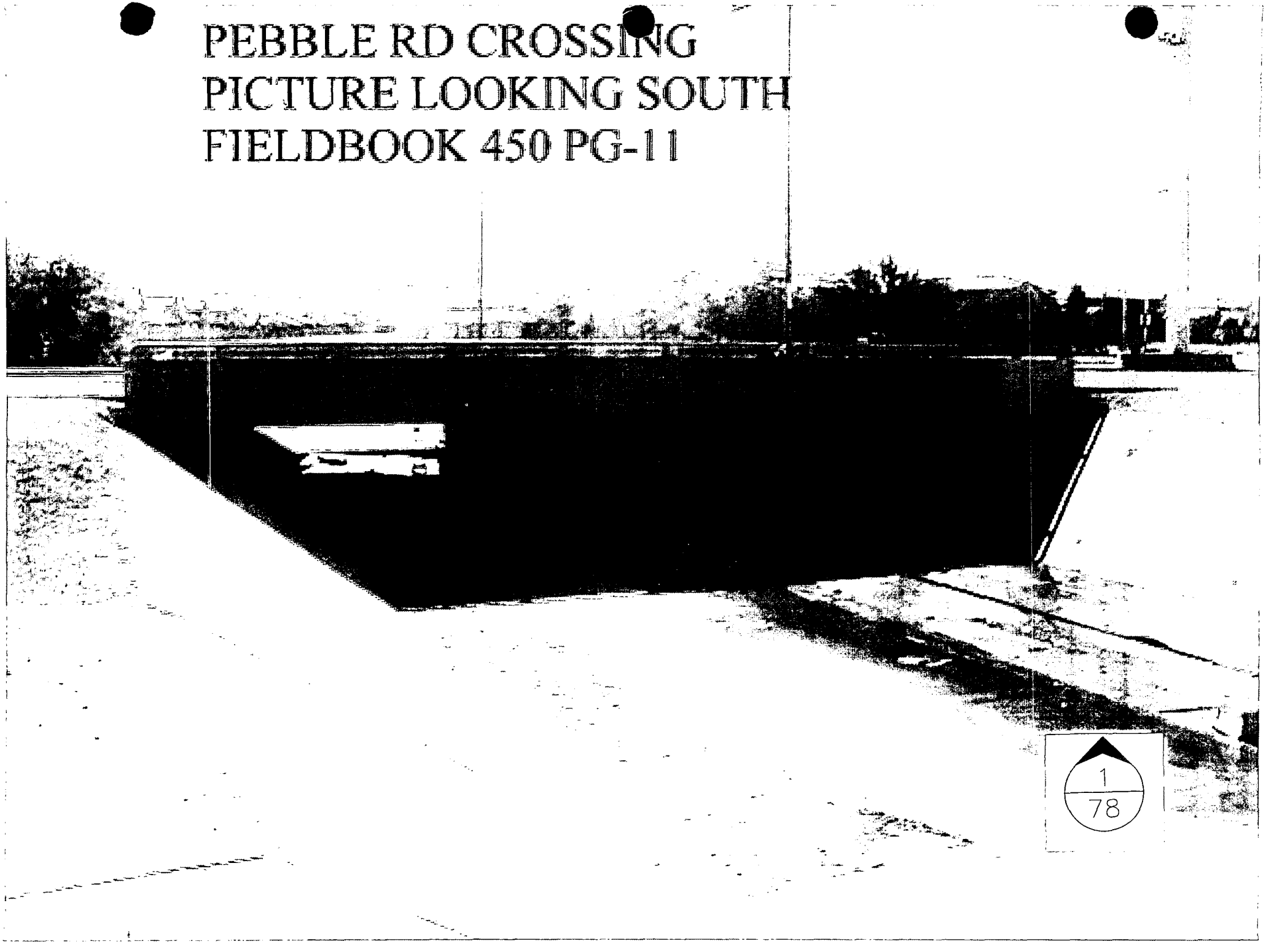
3206 TOP CHANNEL
3207 " " @ BRIDGE
3208 " " " "
3209 " "

# PEBBLE ROAD

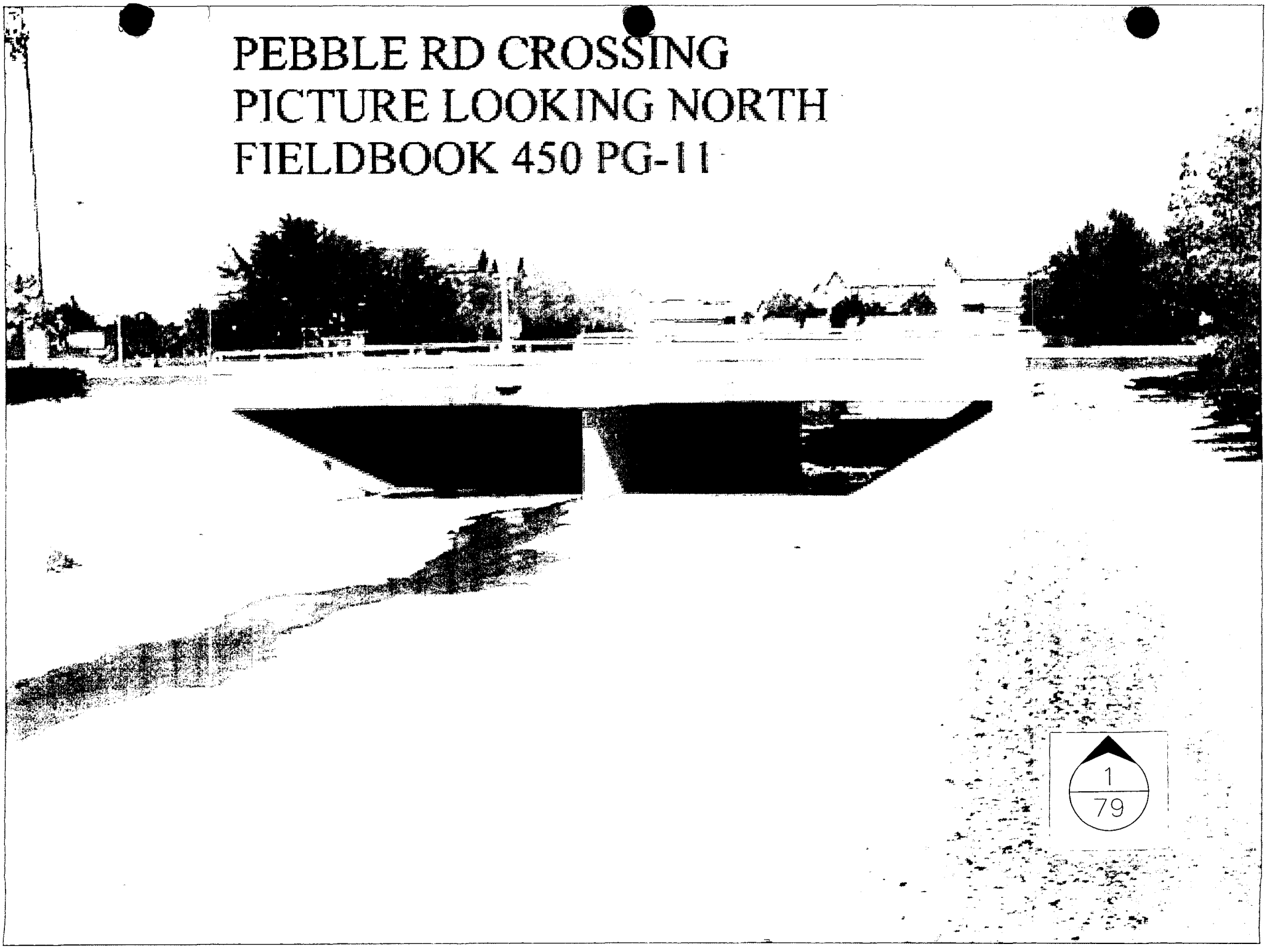
# PEBBLE RD CROSSING
# PICTURE LOOKING WEST
# FIELDBOOK 450 PG-11



# PEBBLE RD CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 450 PG-11



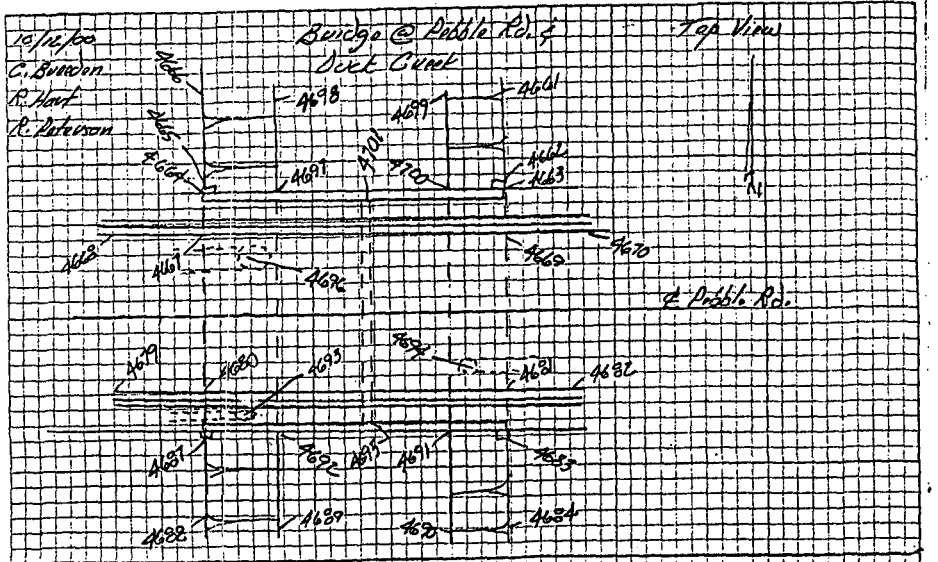
# PEBBLE RD CROSSING
# PICTURE LOOKING NORTH
# FIELDBOOK 450 PG-11

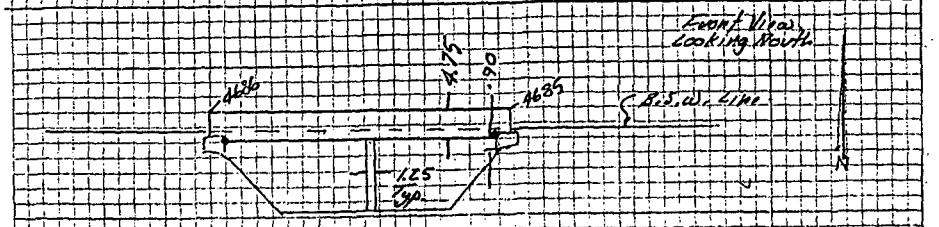


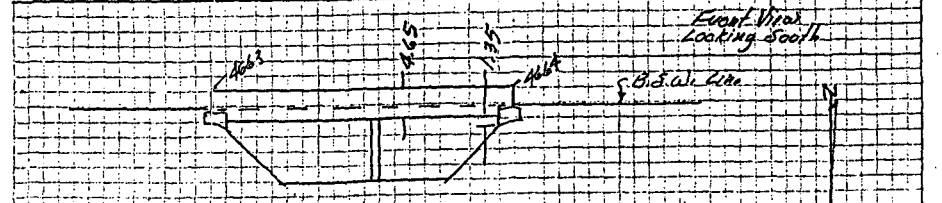
1
79

10/12/00
C. Burdon
R. Hart
K. Peterson

Bridge @ Pebble Rd. & Top View
Inlet Chnl



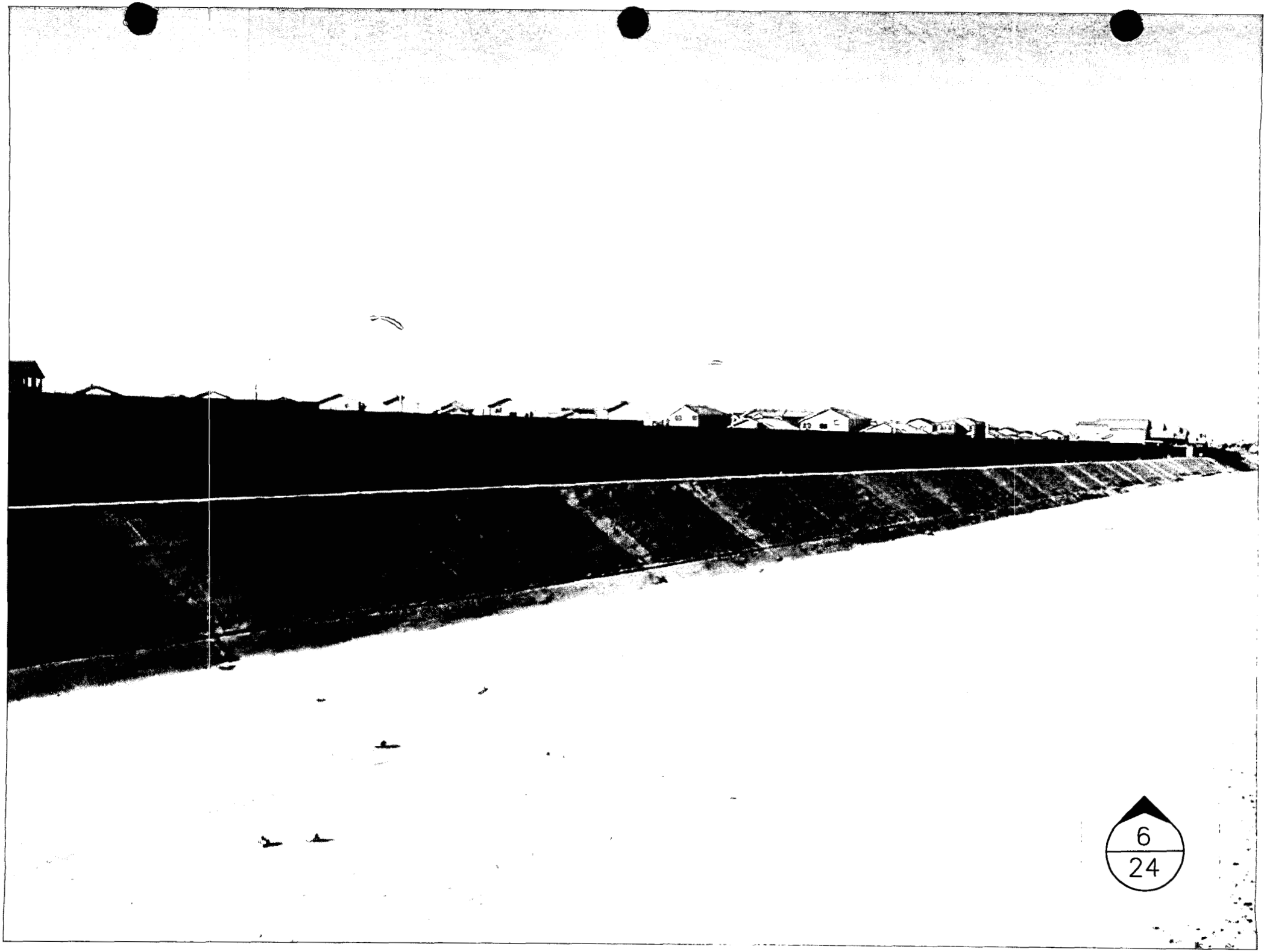



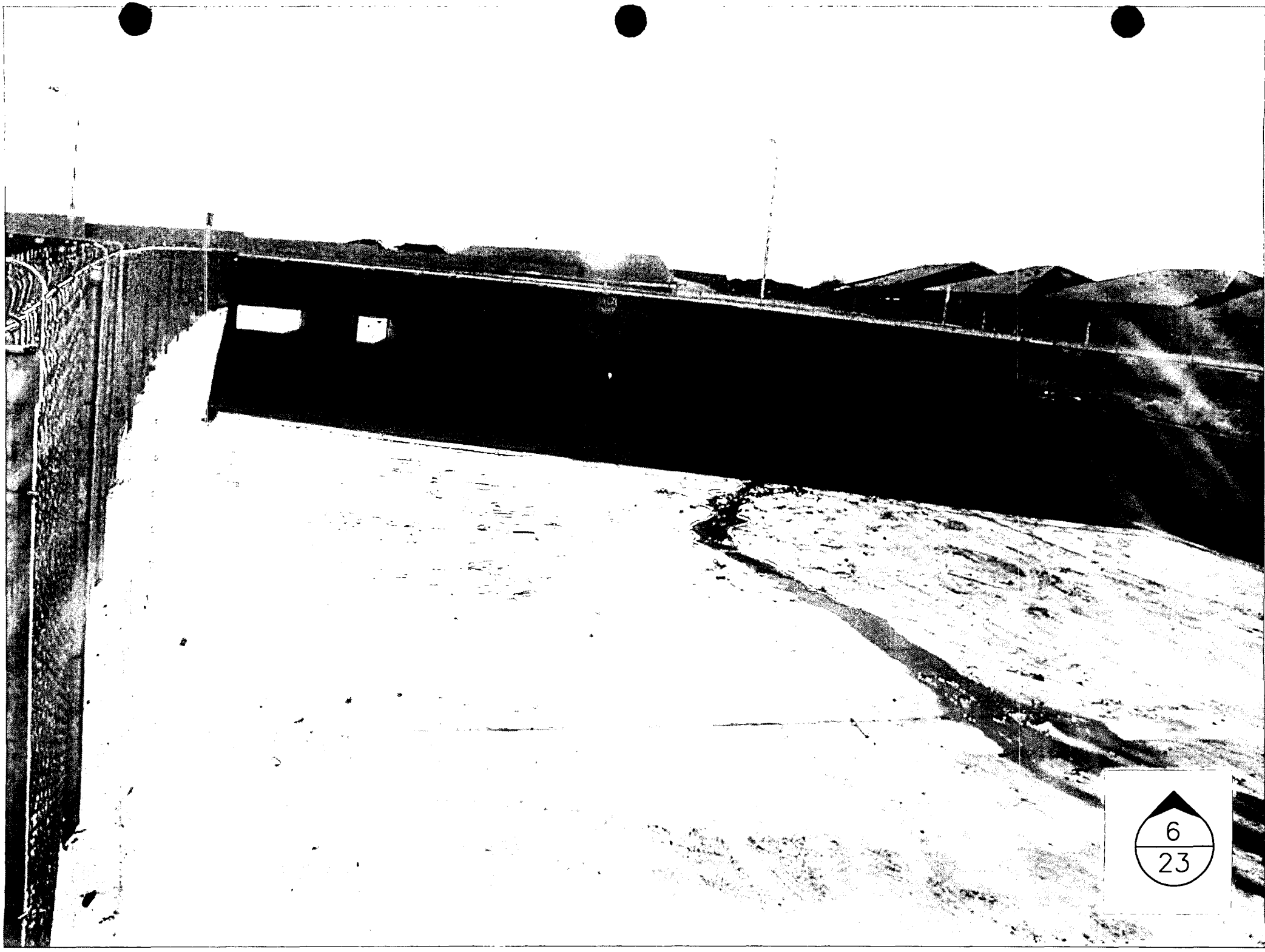

A @ 3011, BS 3070 000-00-000 CHECKED BS
HI = 5.5.5 HR = 8.75 H = 0.00
V = -0.10

| | | | |
|---|---|---|---|
| 4661 | Top Chnl. | 4693 | E. 30" RCP |
| 4662 | Top Chnl @ Bridge | 4694 | W. 24" RCP |
| 4663 | Top Bridge | 4695 | E. side Column |
| 4664 | " " | 4696 | E. 72" RCP |
| 4665 | Top Chnl. @ Bridge | 4697 | Toe Chnl. @ Bridge |
| 4666 | Top Chnl. | 4698 | Toe Chnl. |
| 4667 | AC @ Lip Gutter | 4699 | " " |
| 4668 | " " " | 4700 | Toe Chnl @ Bridge line |
| 4669 | " " " | 4701 | ℄ Column |
| 4670 | " " " | | |
| 4671 | E.O.C. Island @ Bridge line | | |
| 4672 | AC @ E.O.C. Island | | |
| 4673 | " " " | | |
| 4674 | E.O.C. Island @ Bridge line | | |
| 4675 | " " " " | | |
| 4676 | " " " " | | |
| 4677 | AC @ E.O.C. Island | | |
| 4678 | " " " | | |
| 4679 | AC @ Lip Gutter | | |
| 4680 | " " " | | |
| 4681 | " " " | | |
| 4682 | " " " | | |
| 4683 | Top Chnl @ Bridge | | |
| 4684 | Top Chnl | | |
| 4685 | Top Bridge | | |
| 4686 | " " | | |
| 4687 | Top Chnl @ Bridge | | |
| 4688 | Top Chnl | | |
| 4689 | Toe Chnl | | |
| 4690 | " " | | |
| 4691 | Toe Chnl @ Bridge line | | |
| 4692 | " " " " | | |

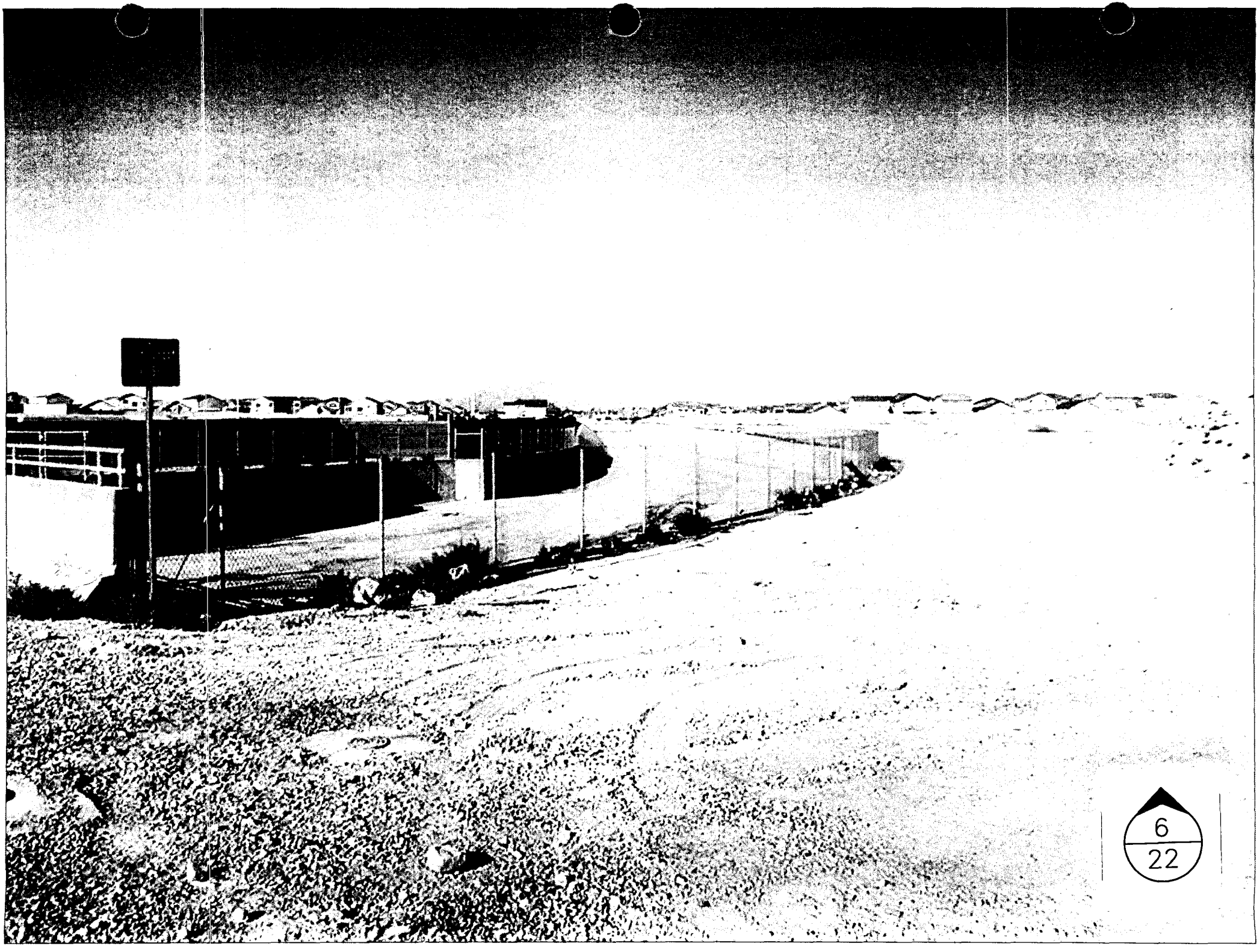
# BERMUDA ROAD



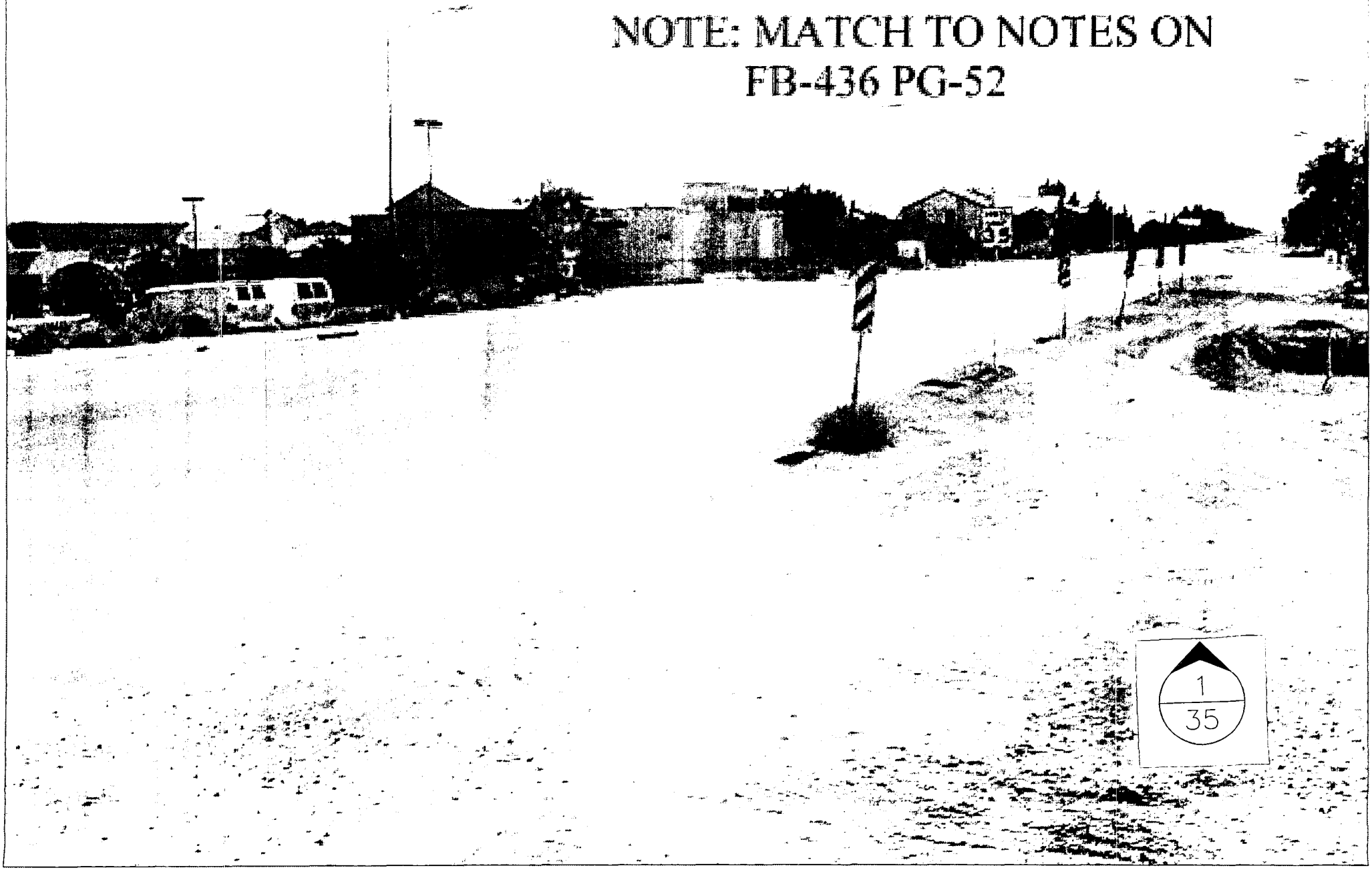
6
24

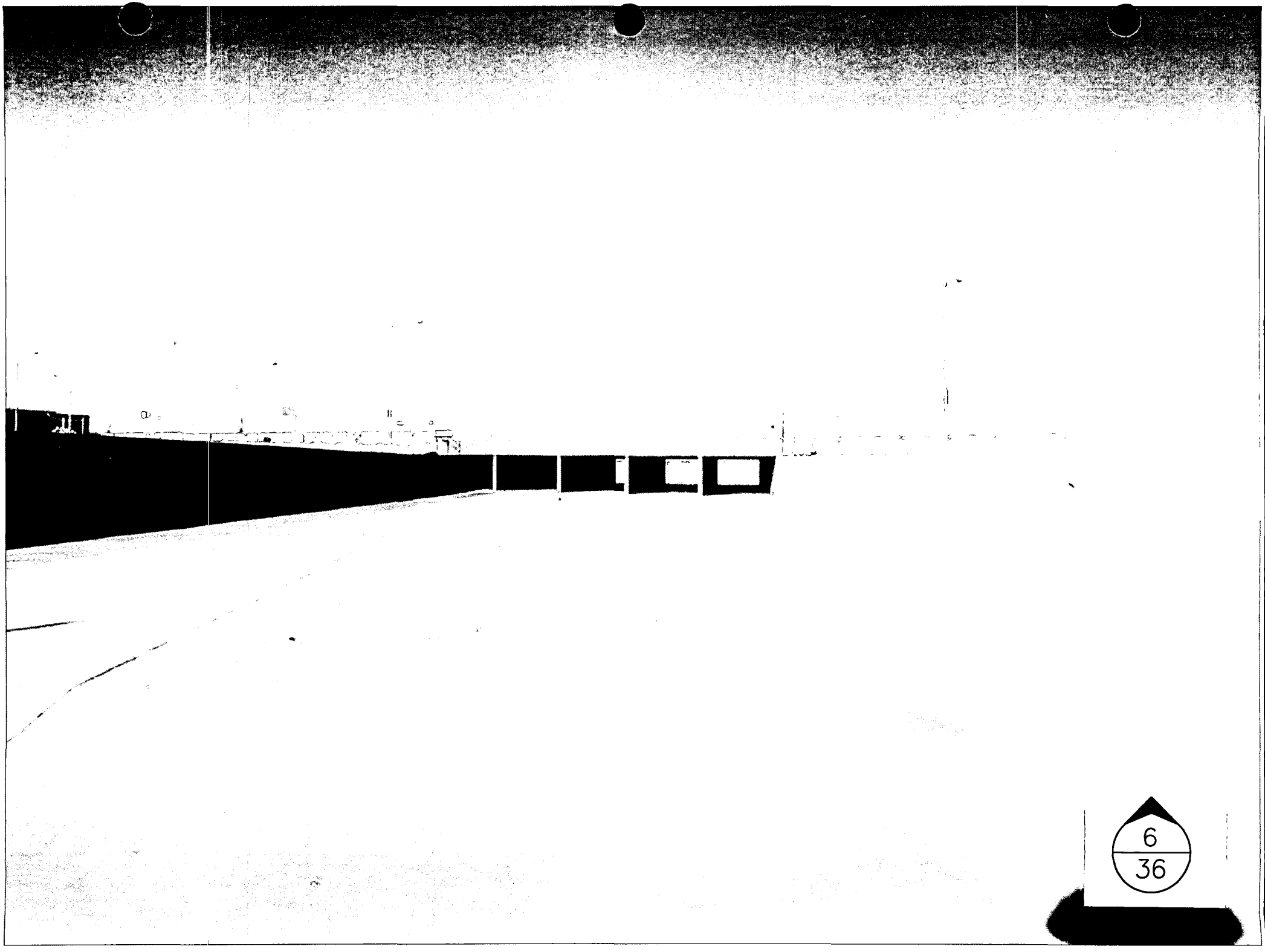


6
23



BERMUDA ST CROSSING
PICTURE LOOKING SOUTH
FIELDBOOK 450 PG-12
NOTE: MATCH TO NOTES ON
FB-436 PG-52

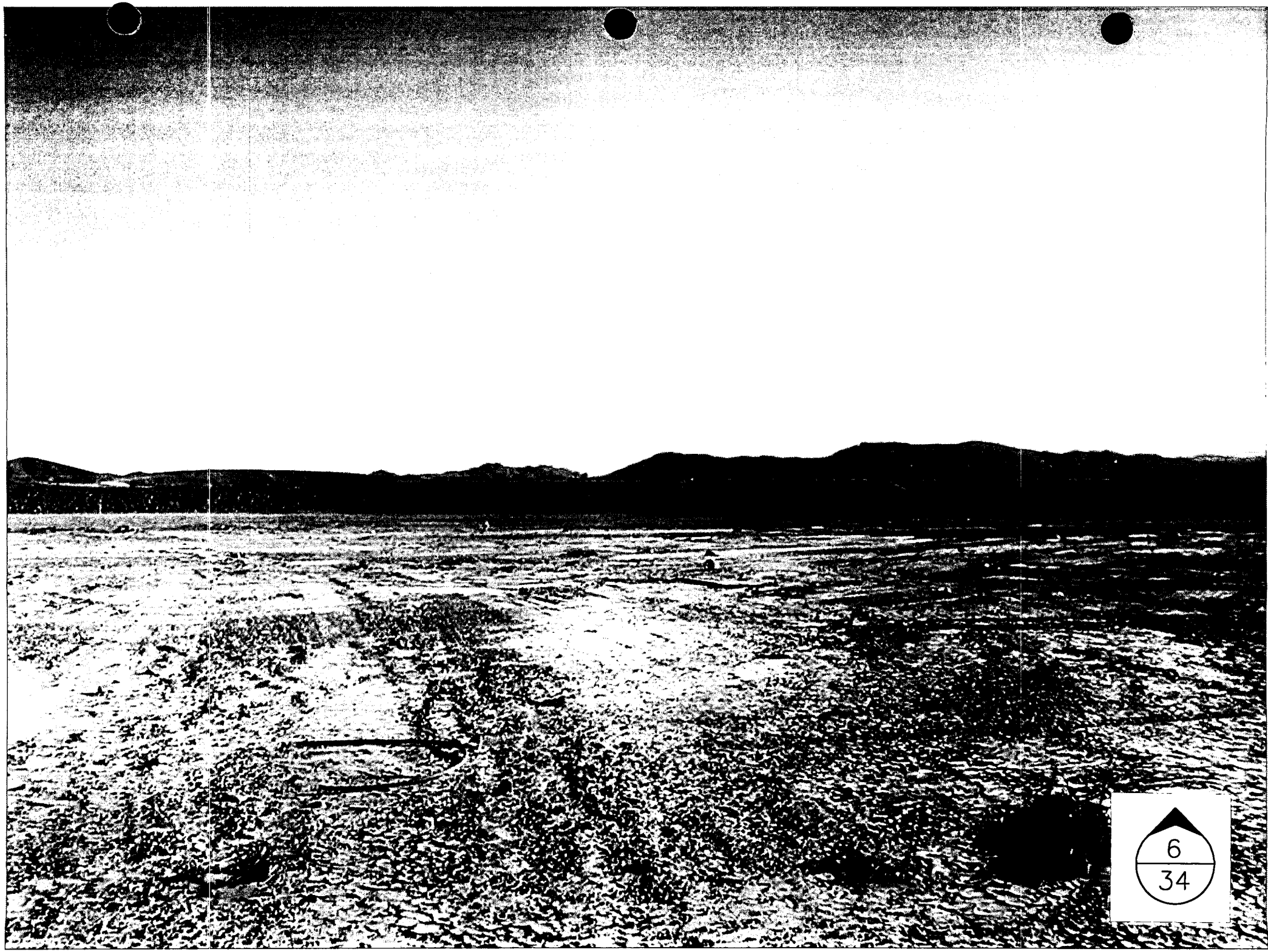




# LOWER DUCK CREEK DETENTION BASIN

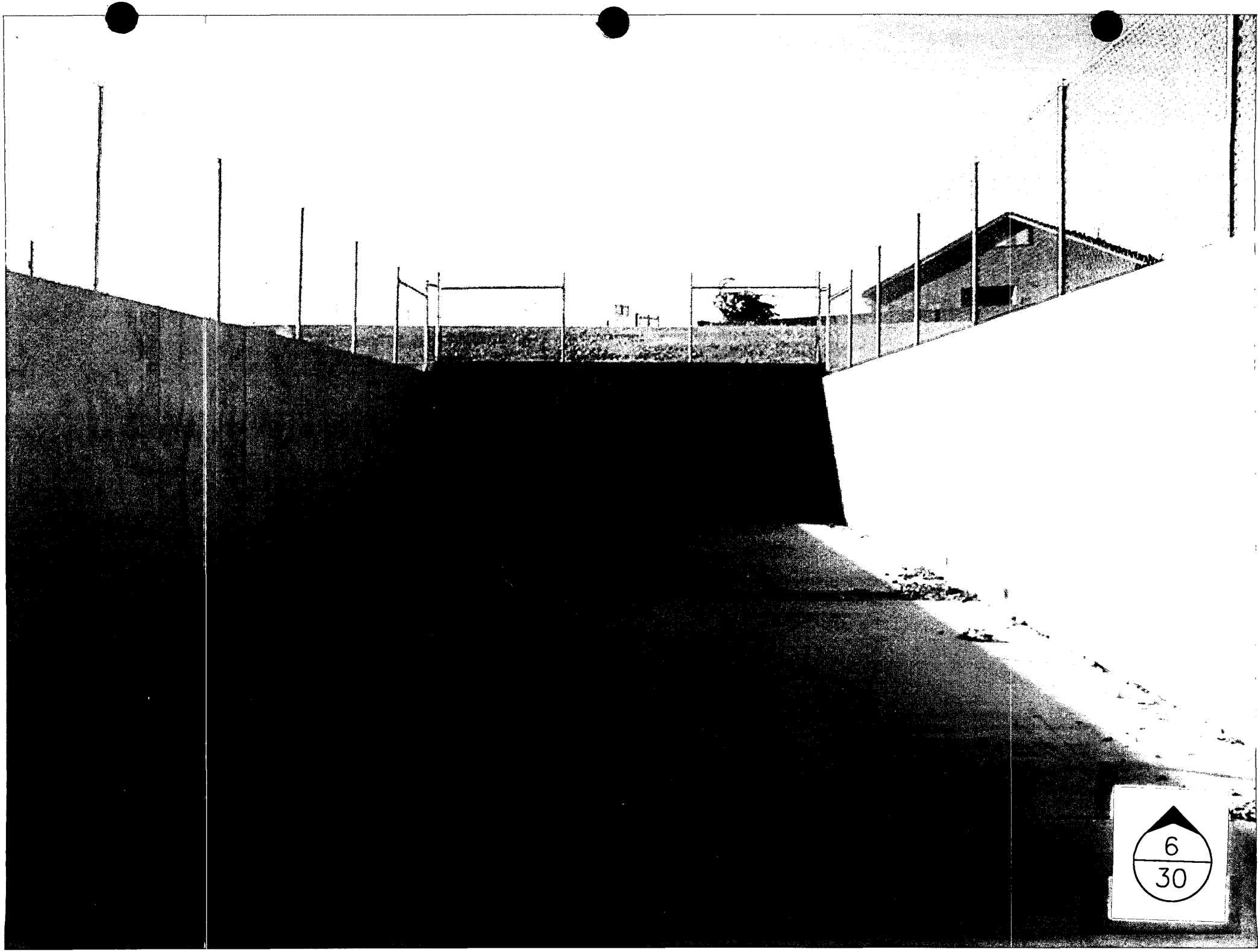


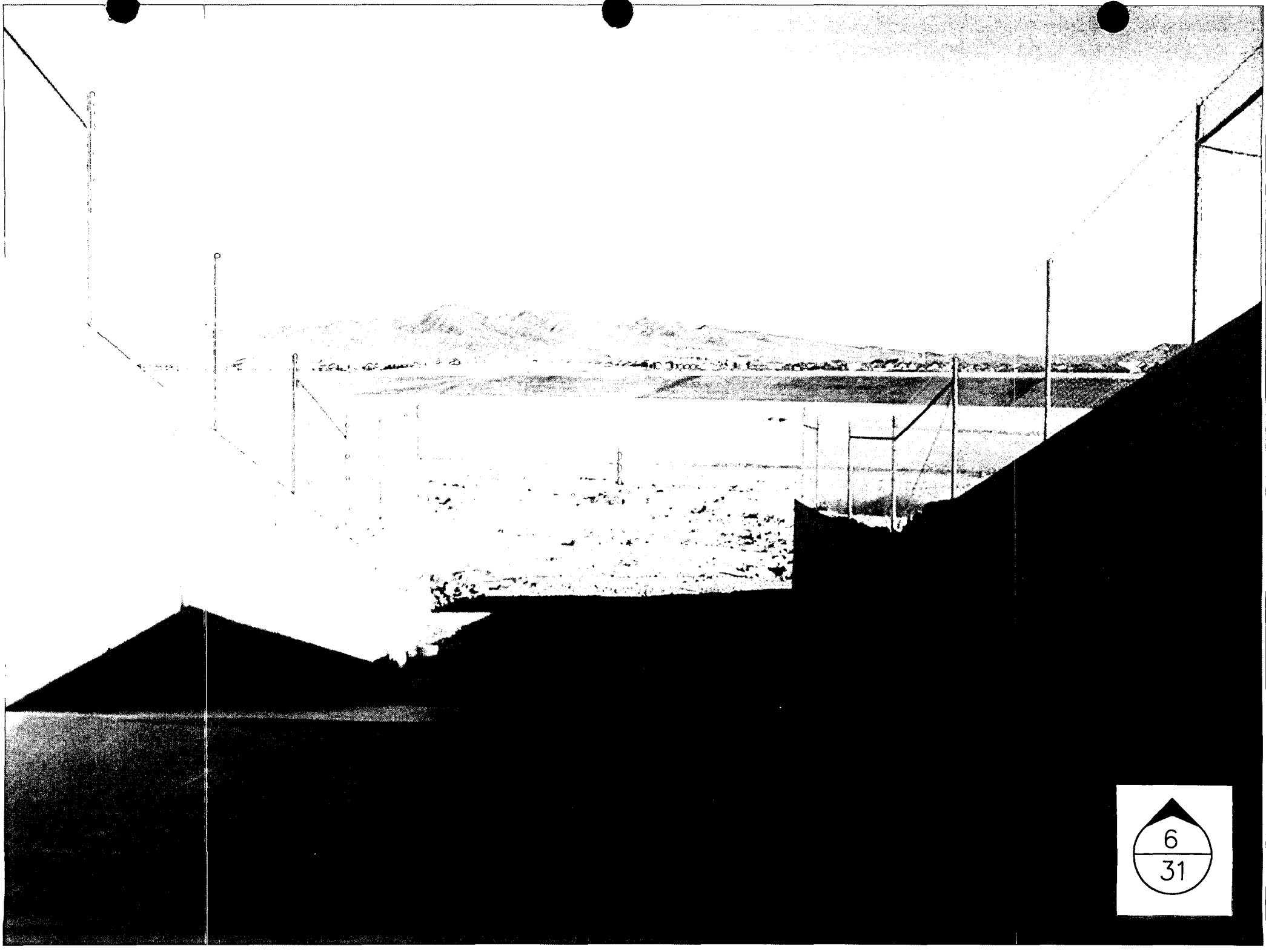

6
27

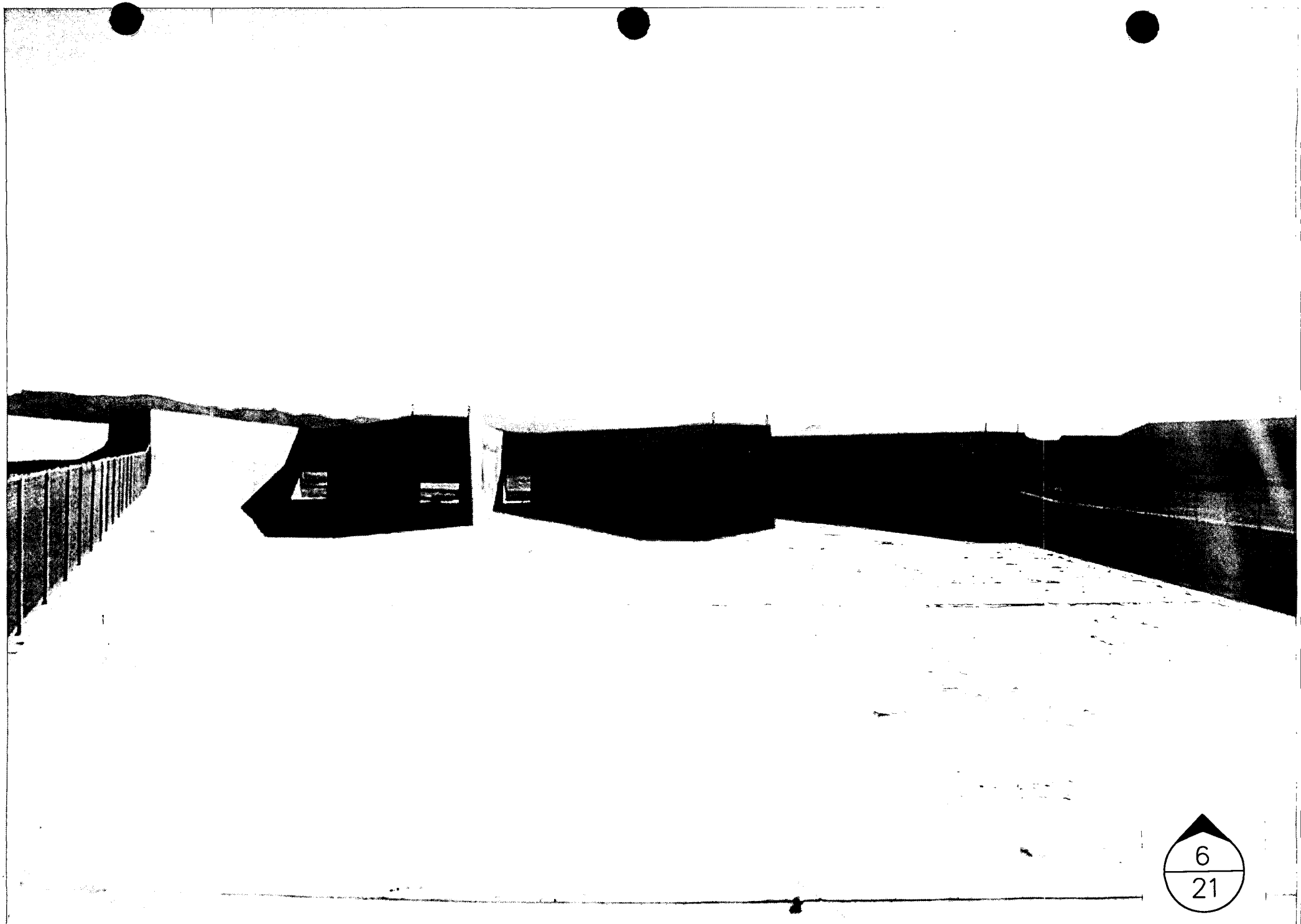


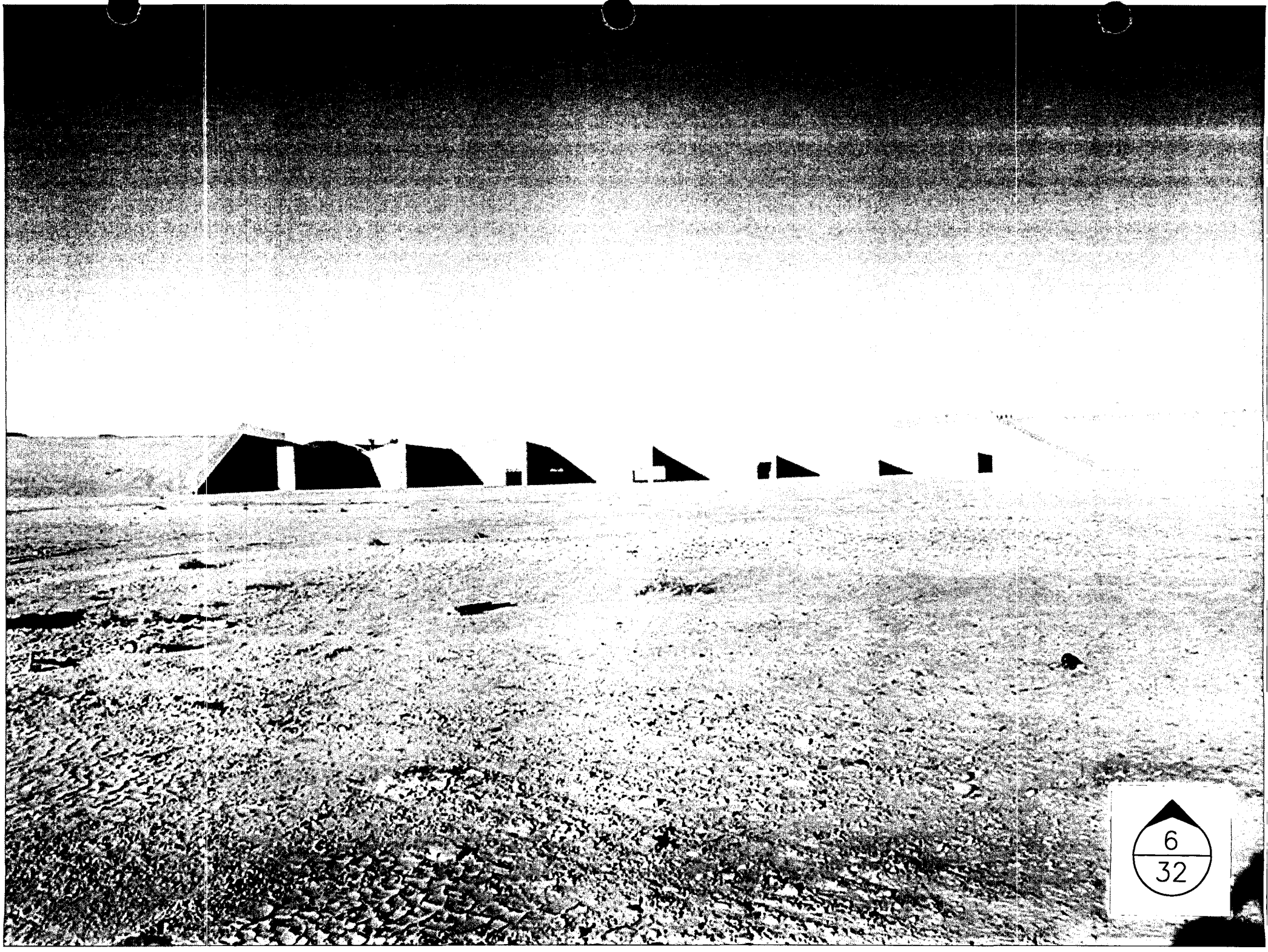


6
28


6
30






6
32

## Lower Duck Creek Detention Basin

For survey information, see attached conformed design drawings for "Lower Duck Creek Detention Basin".

# SOUTHERN TRIBUTARY TO LOWER DUCK CREEK
# DETENTION BASIN

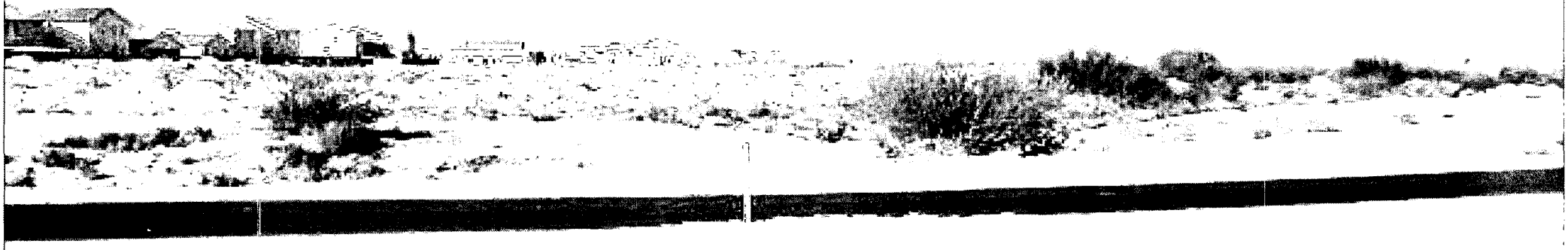
# SILVERADO RANCH BOULEVARD CROSSING

9
29





9
31

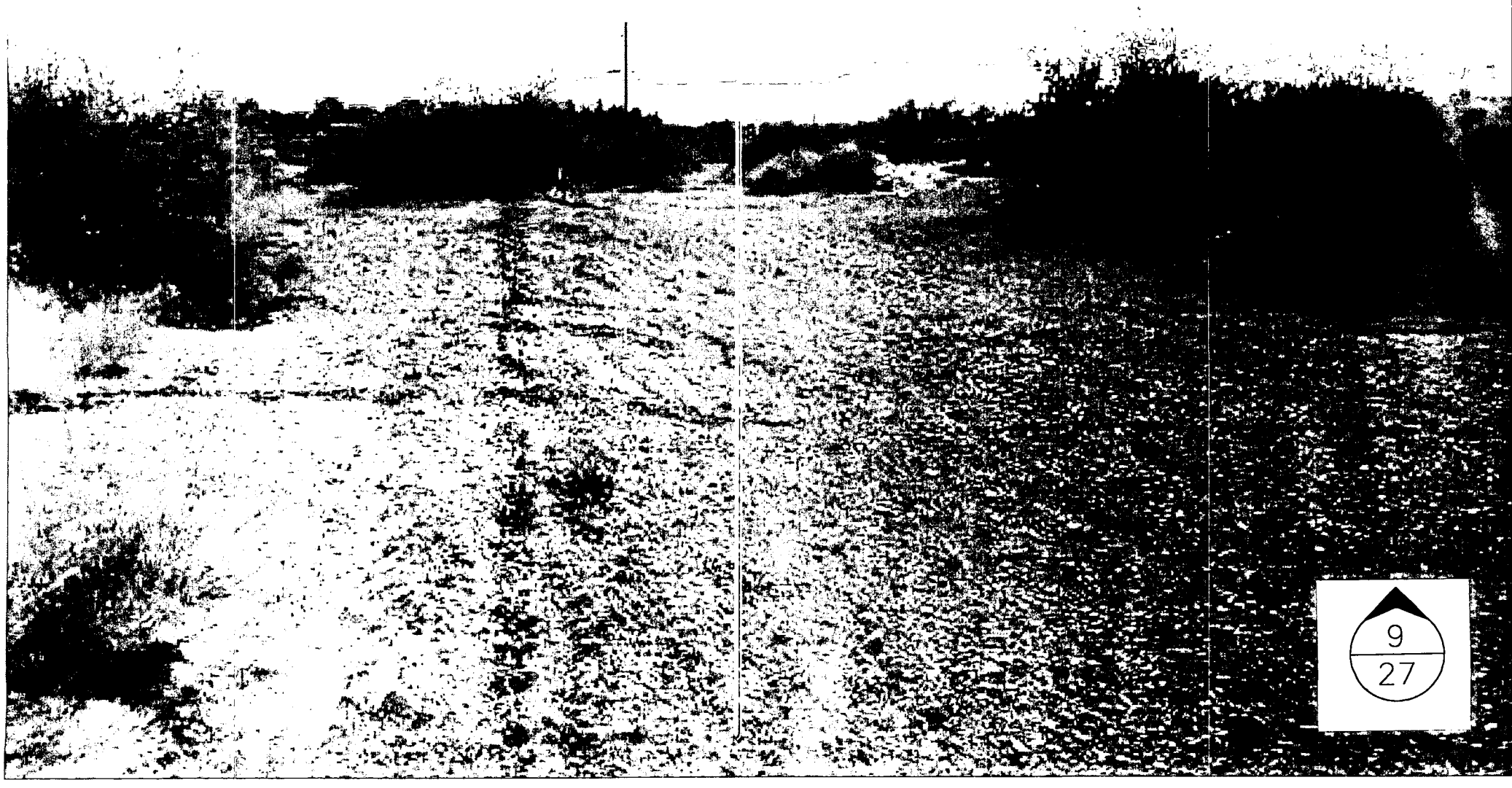


# SILVERADO RANCH PARK



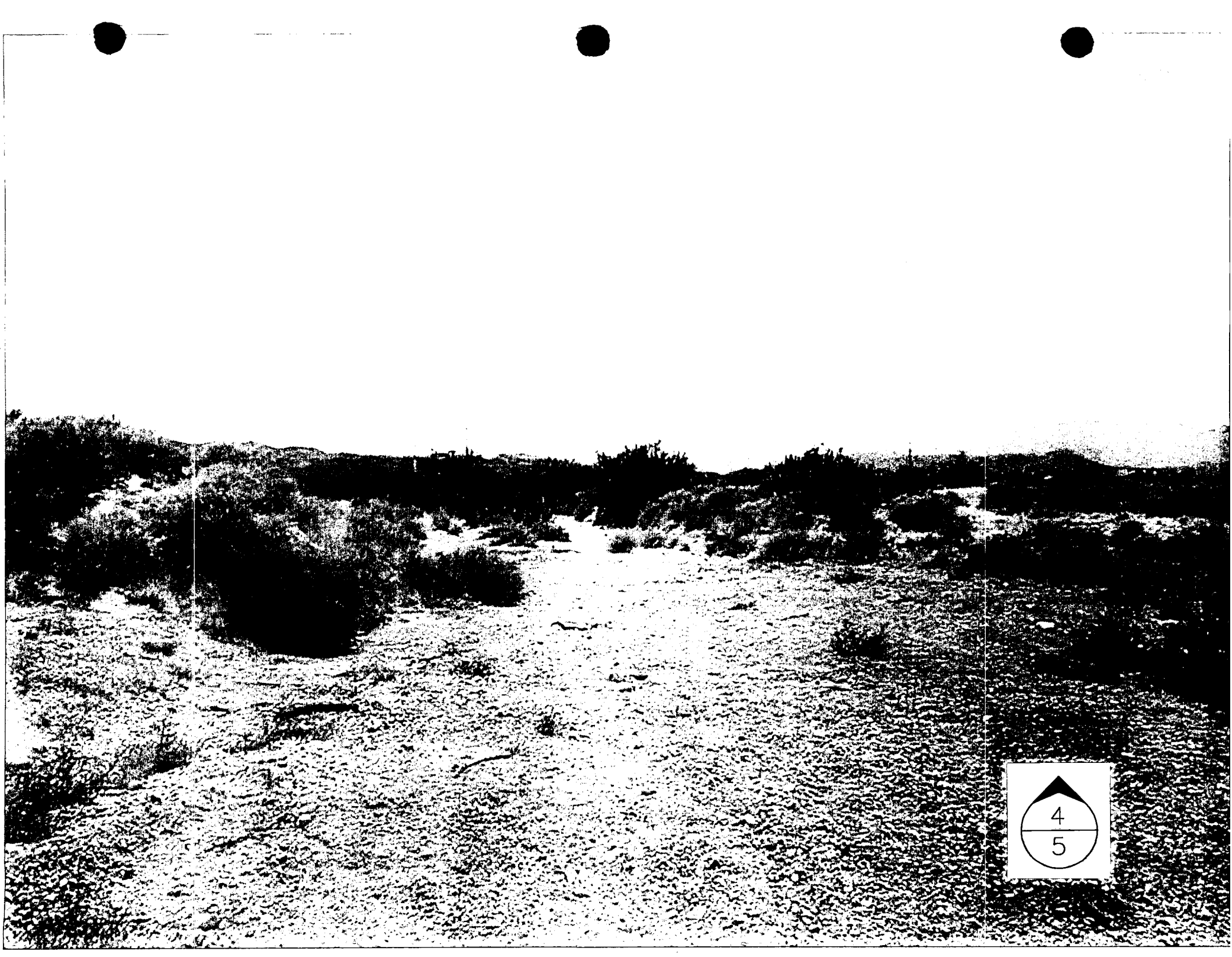
9
24


9
26





# LAS VEGAS BOULEVARD SOUTH OF PYLE AVENUE


4
5

4
4

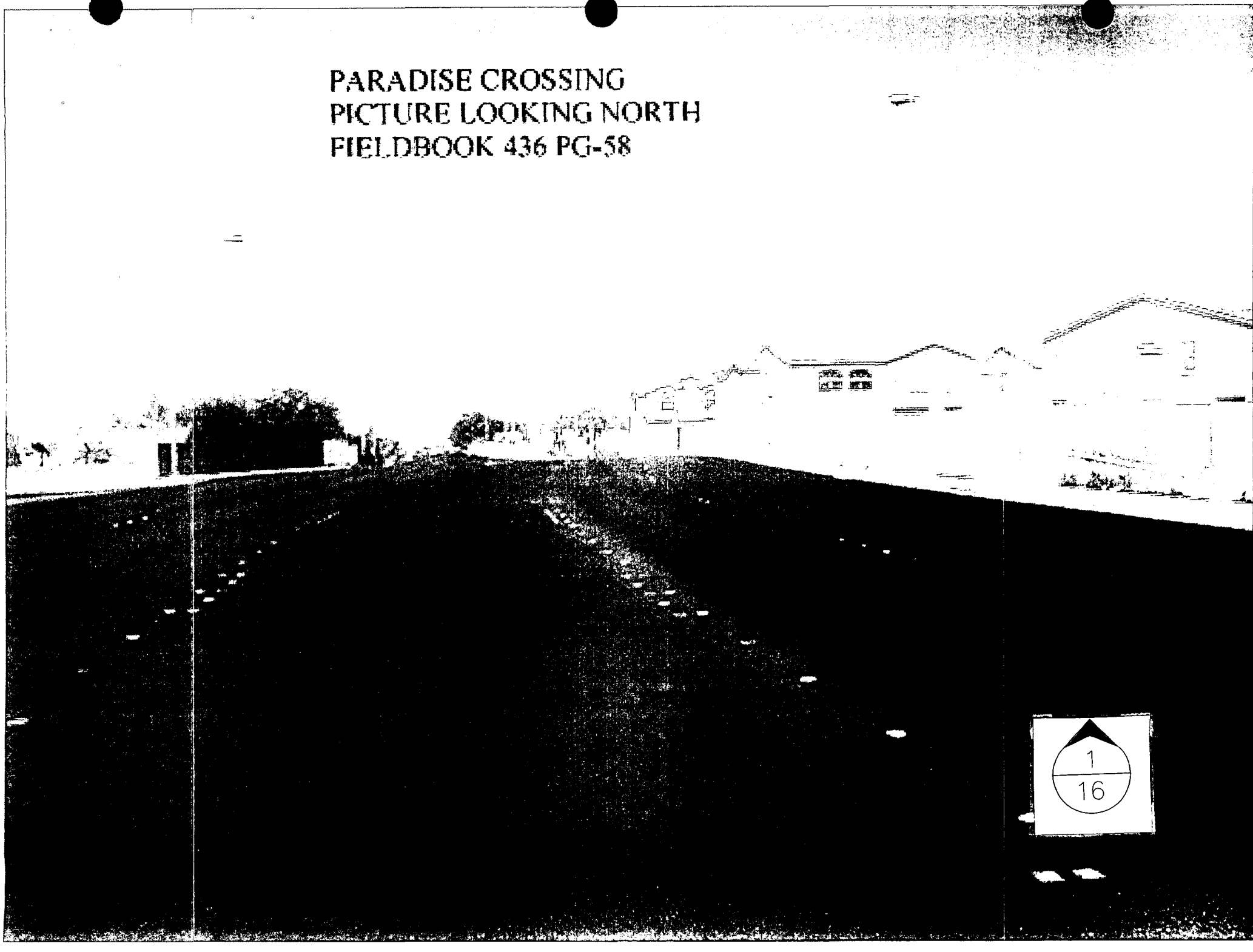
# LAS VEGAS BOULEVARD NORTH OF PYLE AVENUE


4
3

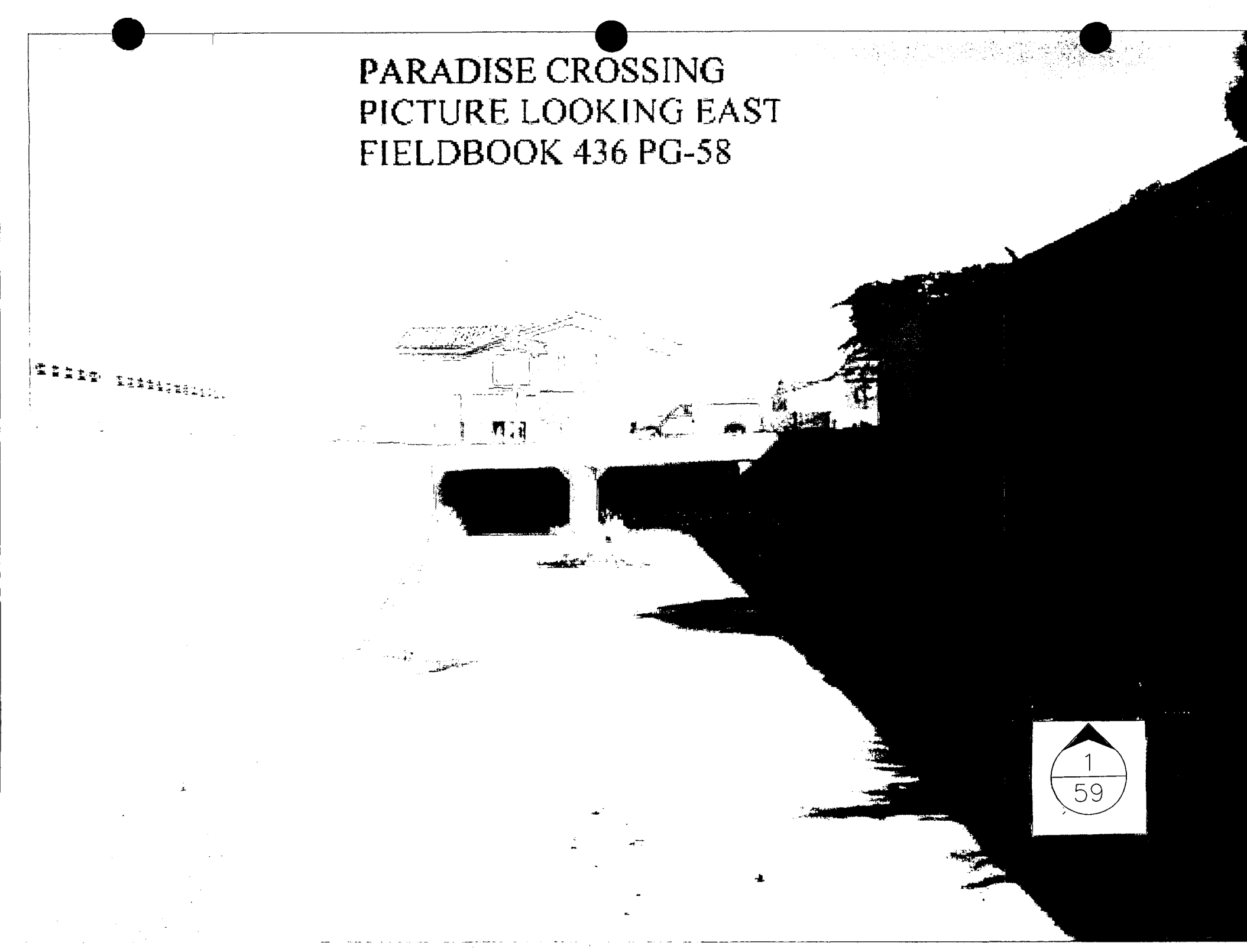
# NORTH BRANCH BLUE DIAMOND WASH

# PARADISE ROAD

PARADISE CROSSING
PICTURE LOOKING NORTH
FIELDBOOK 436 PG-58

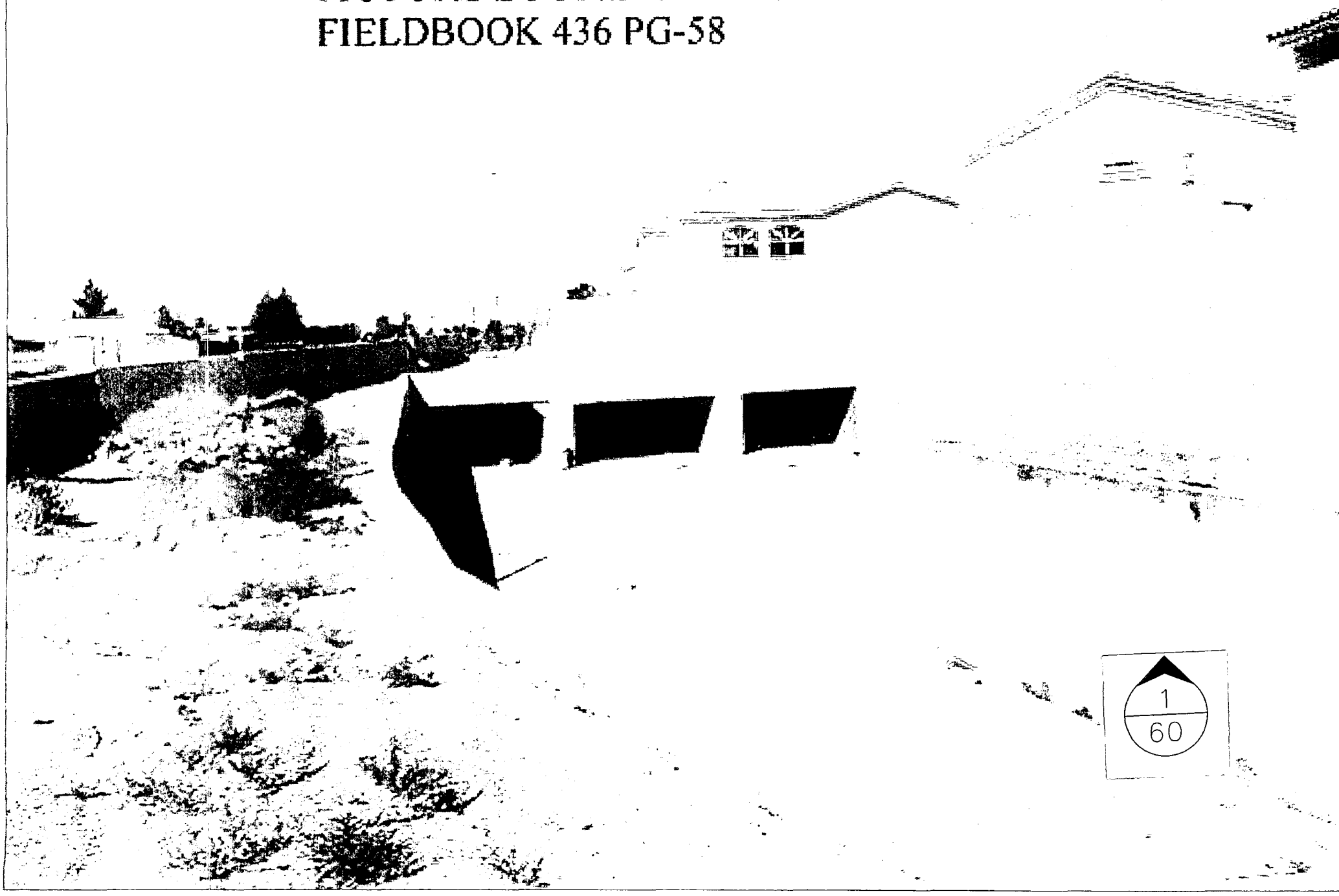


PARADISE CROSSING
PICTURE LOOKING EAST
FIELDBOOK 436 PG-58

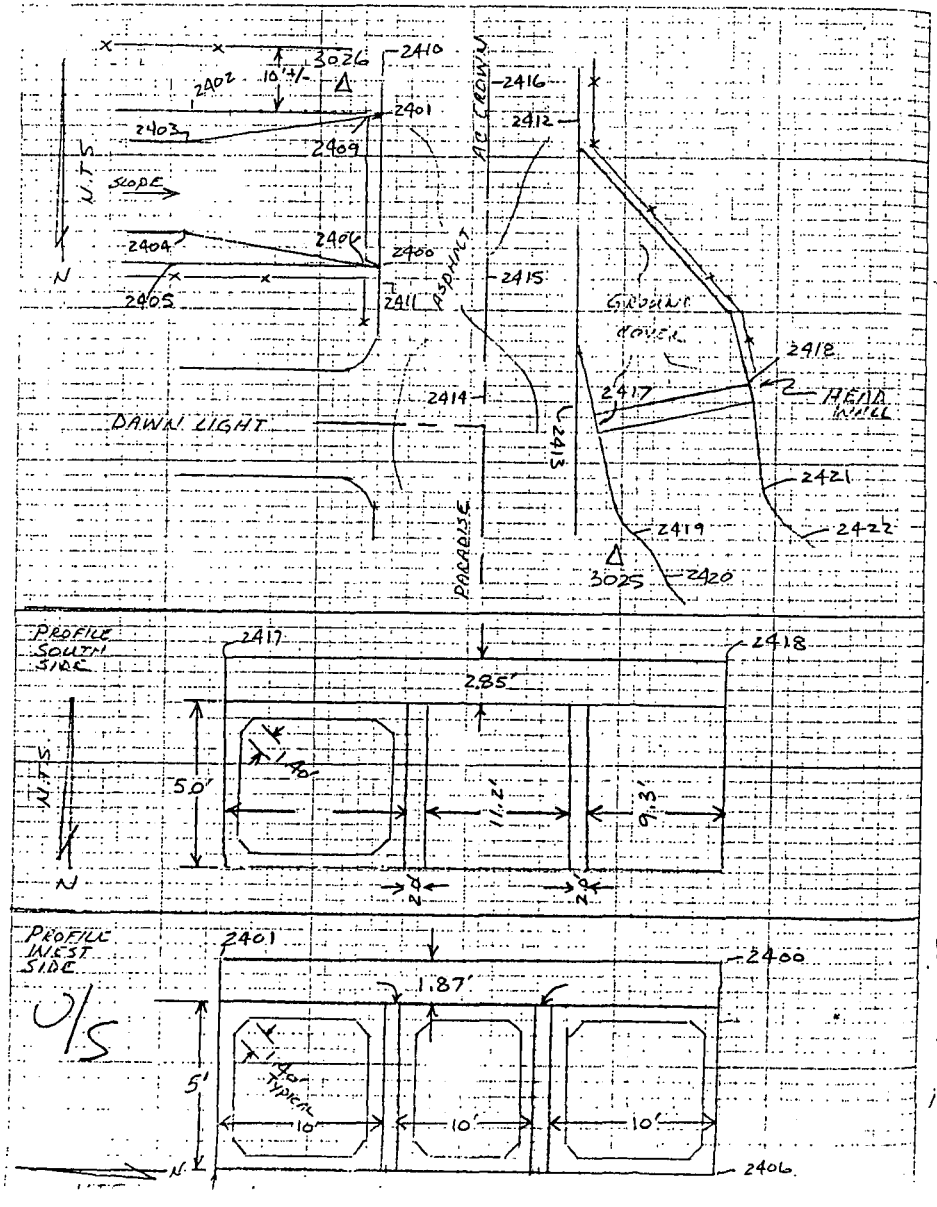


1
59

# PARADISE CROSSING
# PICTURE LOOKING NORTH
# FIELDBOOK 436 PG-58



1
60




℄ @ 3026, BS 3025 HI = 5.44 436-58

S1/2, SEC. 10, T22S, R11E (BS) HR = 5.23 9-29-00

JOB # 550.039 CHECKED BS

H = 0.06

V = -0.25

| | |
|---|---|
| 2400 | TOP CHANNEL @ HEAD WALL |
| 2401 | " " " " |
| 2402 | TOP CHANNEL |
| 2403 | TOE " |
| 2404 | " " |
| 2405 | TOP CHANNEL |
| 2406 | TOE CHANNEL |
| 2407 | " " @ PILLAR |
| 2408 | " " " |
| 2409 | TOE CHANNEL |
| 2410 | AC @ CURB "GUTTER" |
| 2411 | " " " |
| 2412 | " " " |
| 2413 | " " " |
| 2414 | CENTER "AC" ASPHALT |
| 2415 | " " " |
| 2416 | " " " |
| 2417 | TOP CHANNEL @ HEAD WALL |
| 2418 | " " " " |
| 2419 | TOP CHANNEL |
| 2420 | " " |
| 2421 | " " |
| 2422 | " " |

PICTURES 10/16/00

81 TOP LOOKING NORTH

80 SOUTH SIDE LOOKING NORTHERLY

79 NORTH SIDE LOOKING SOUTHERLY

2419 = MINUS 8.0' TO TOE OF CHANNEL

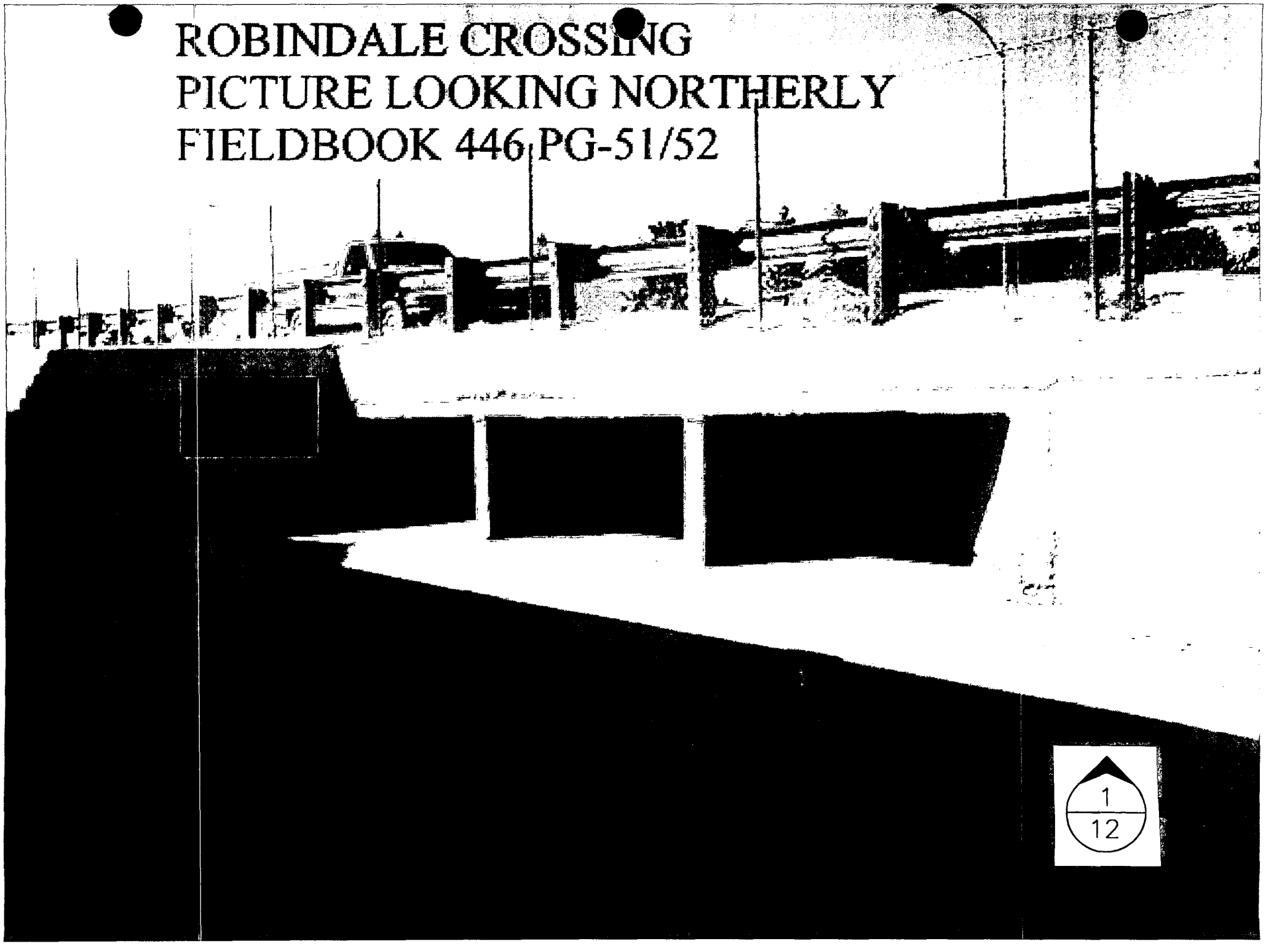
2420 " 8.0' " " "

2421 " 7.40' " " "

2422 " 7.90' " " "

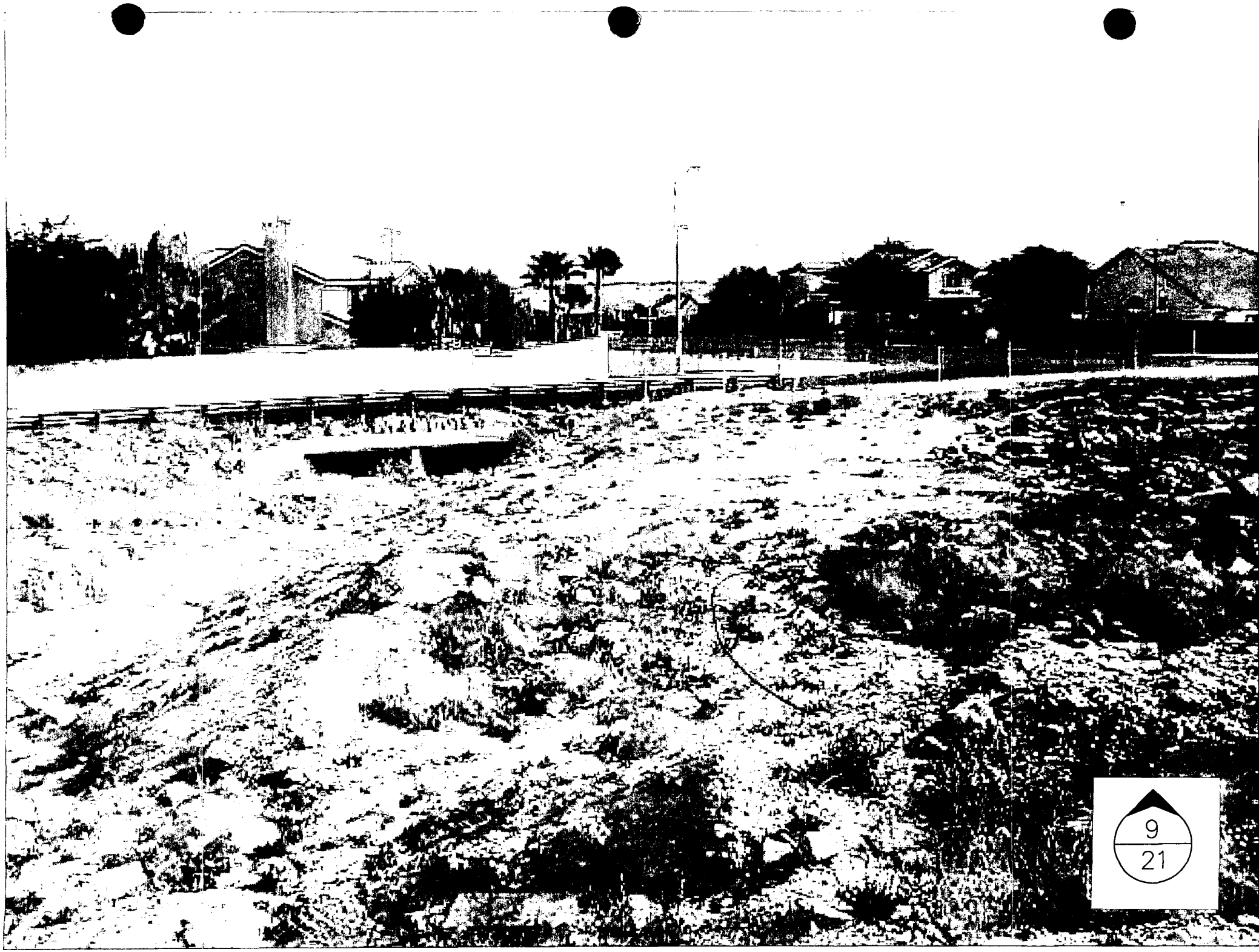
# ROBINDALE ROAD TO AMIGO STREET

# ROBINDALE CROSSING
# PICTURE LOOKING NORTHERLY
# FIELDBOOK 446 PG-51/52



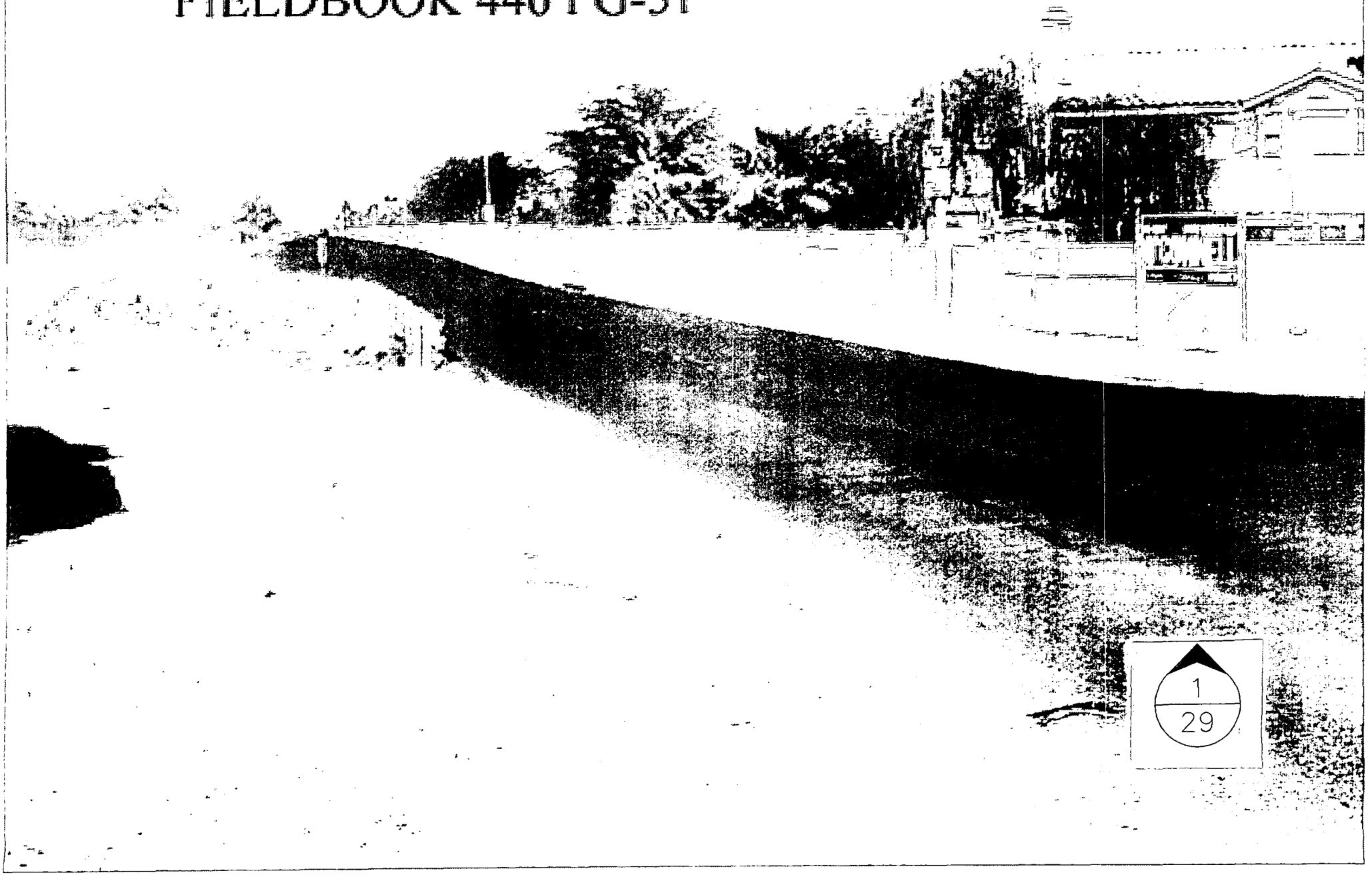
1
12

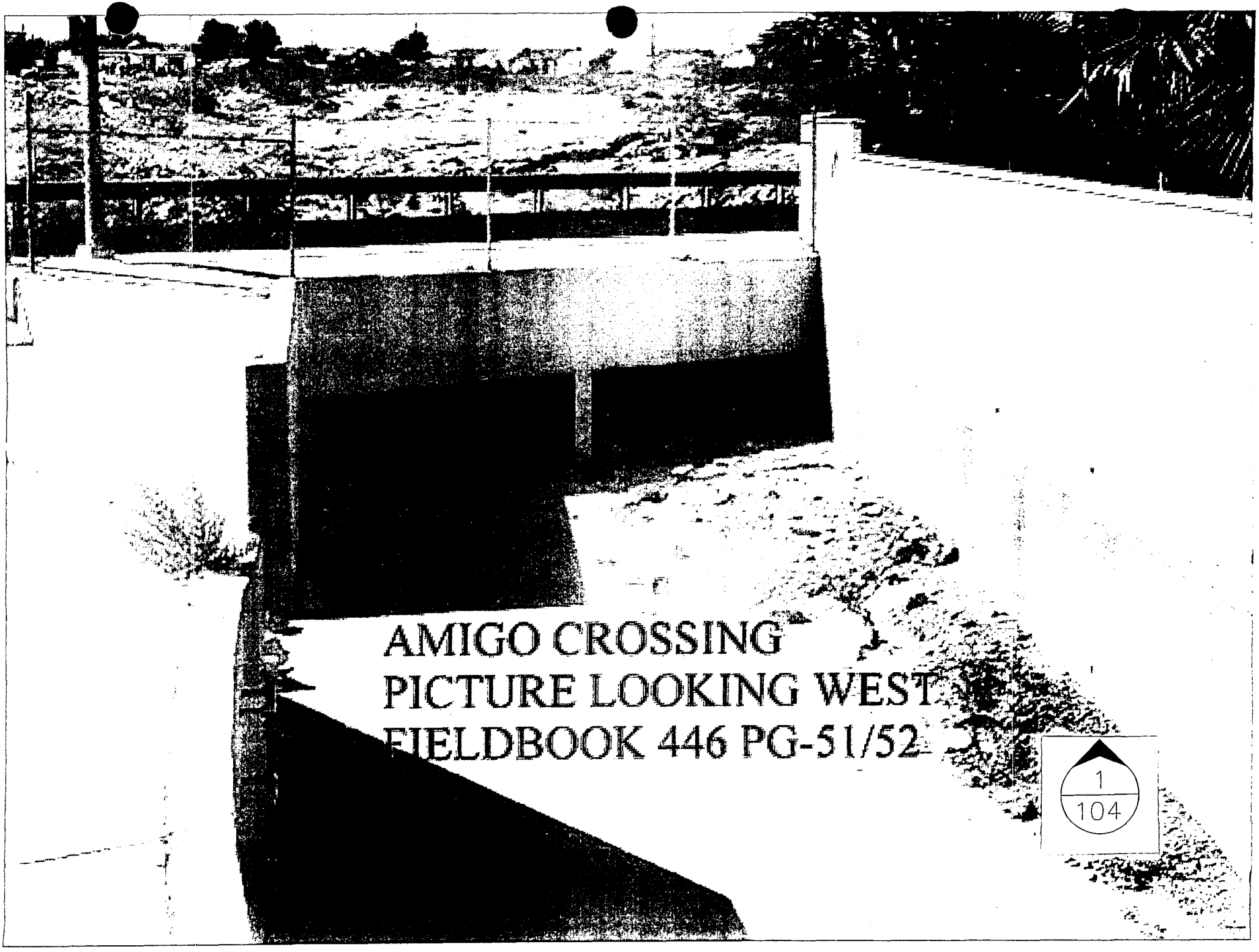

S AMIGO
E ROBINDALE
9
22



9
21

# AMIGO & ROBINDALE CROSSING
# PICTURE LOOKING NORTH ON AMIGO
# FIELDBOOK 446 PG-51





AMIGO CROSSING
PICTURE LOOKING WEST
FIELDBOOK 446 PG-51/52



9
19



~~500.851~~
550.039

DUCK CREEK ℄
LAS VEGAS WASH BRIDGE TODOS
@ AMIGO & ROBINDALE
REF: 436-40 J. PATTON (PTS 3012-3013)

SECT 10
T21S R51E

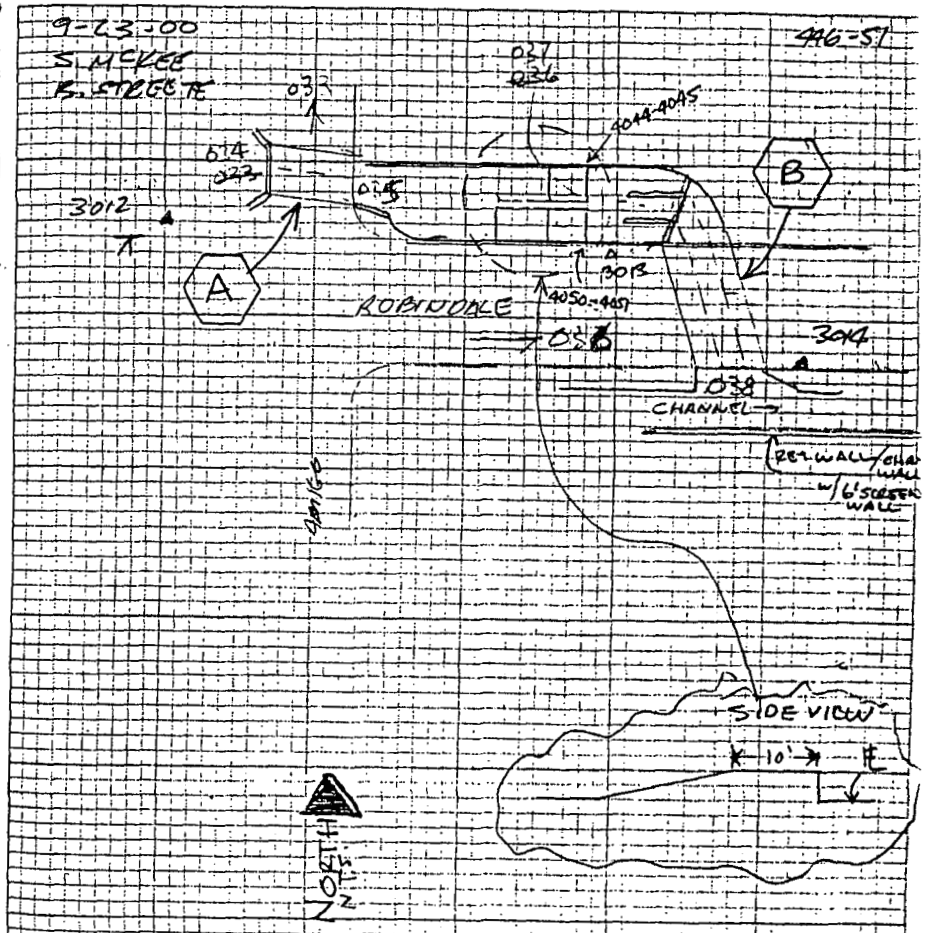
GOODMETER
4000805J

| STA | RT NO | DESC |
|---|---|---|
| A | 3012 | FND GOODYEAR |
| BS | 3013 | |
| FS | 3013 | |
| FS | 4000 - | |

FOS FILE "AMIGO"

9-23-00
S. MCKEE
K. STEELE

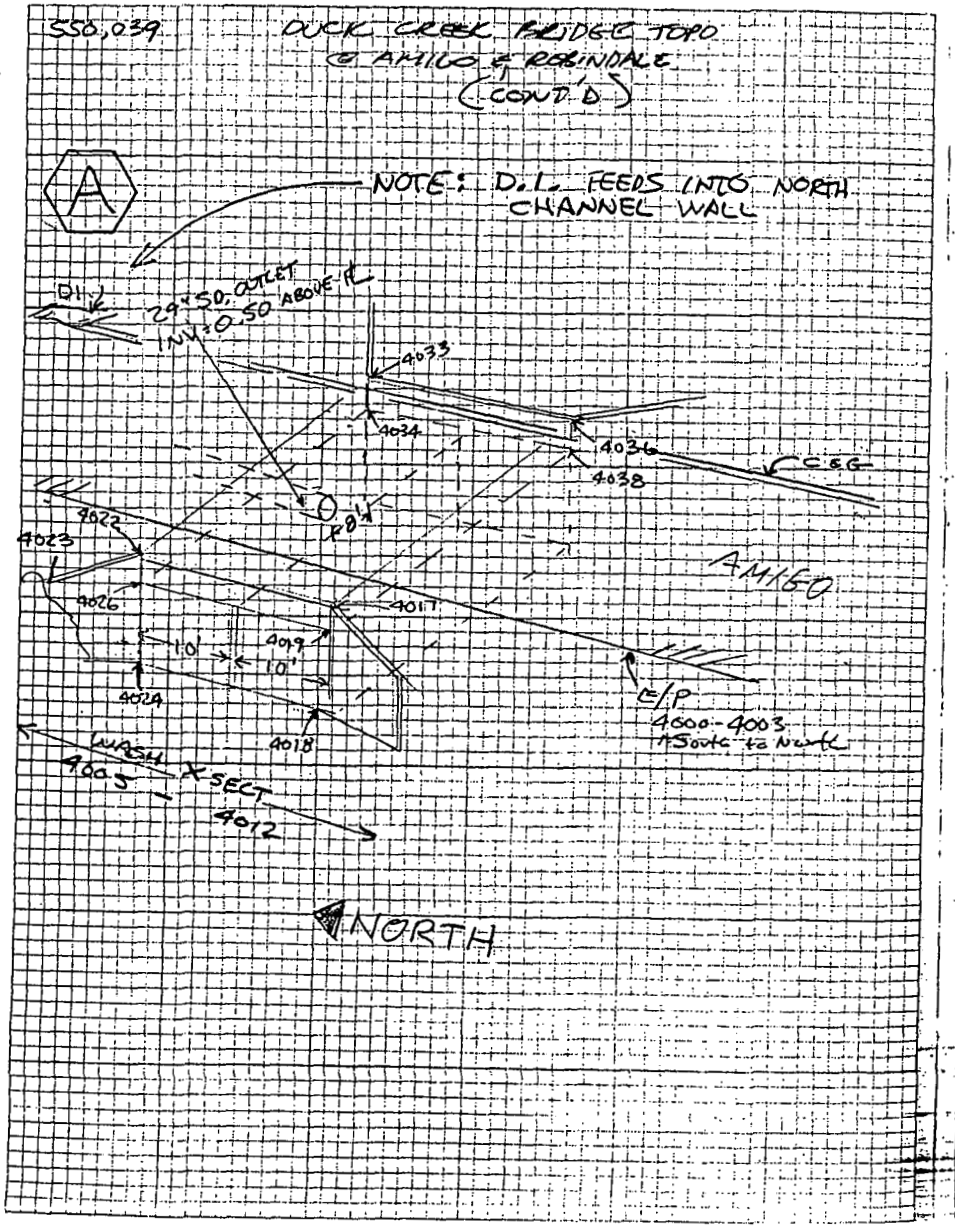
446-51

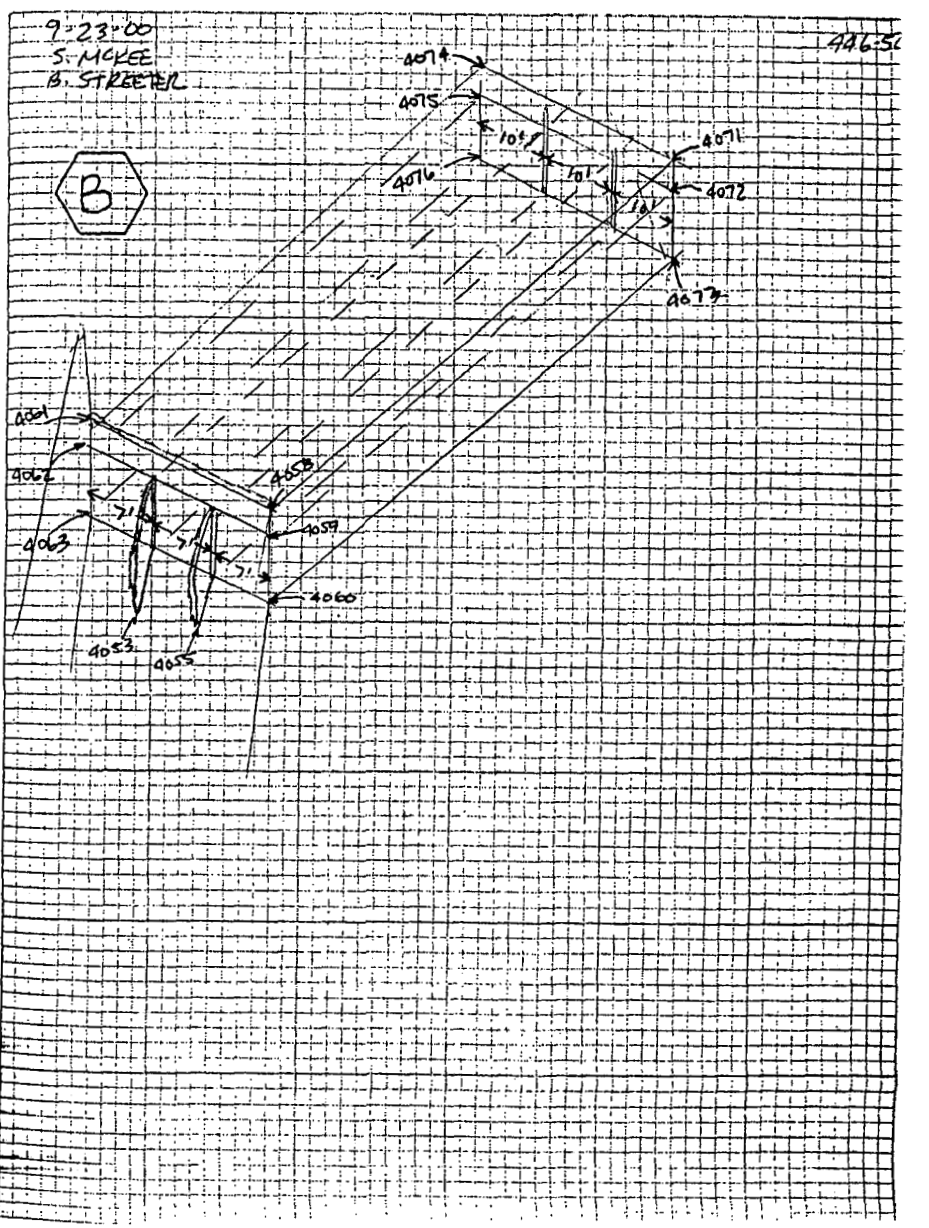


550,039

DUCK CREEK RIDGE TOPO
@ AMIGO & ROBINDALE
(CONT'D)

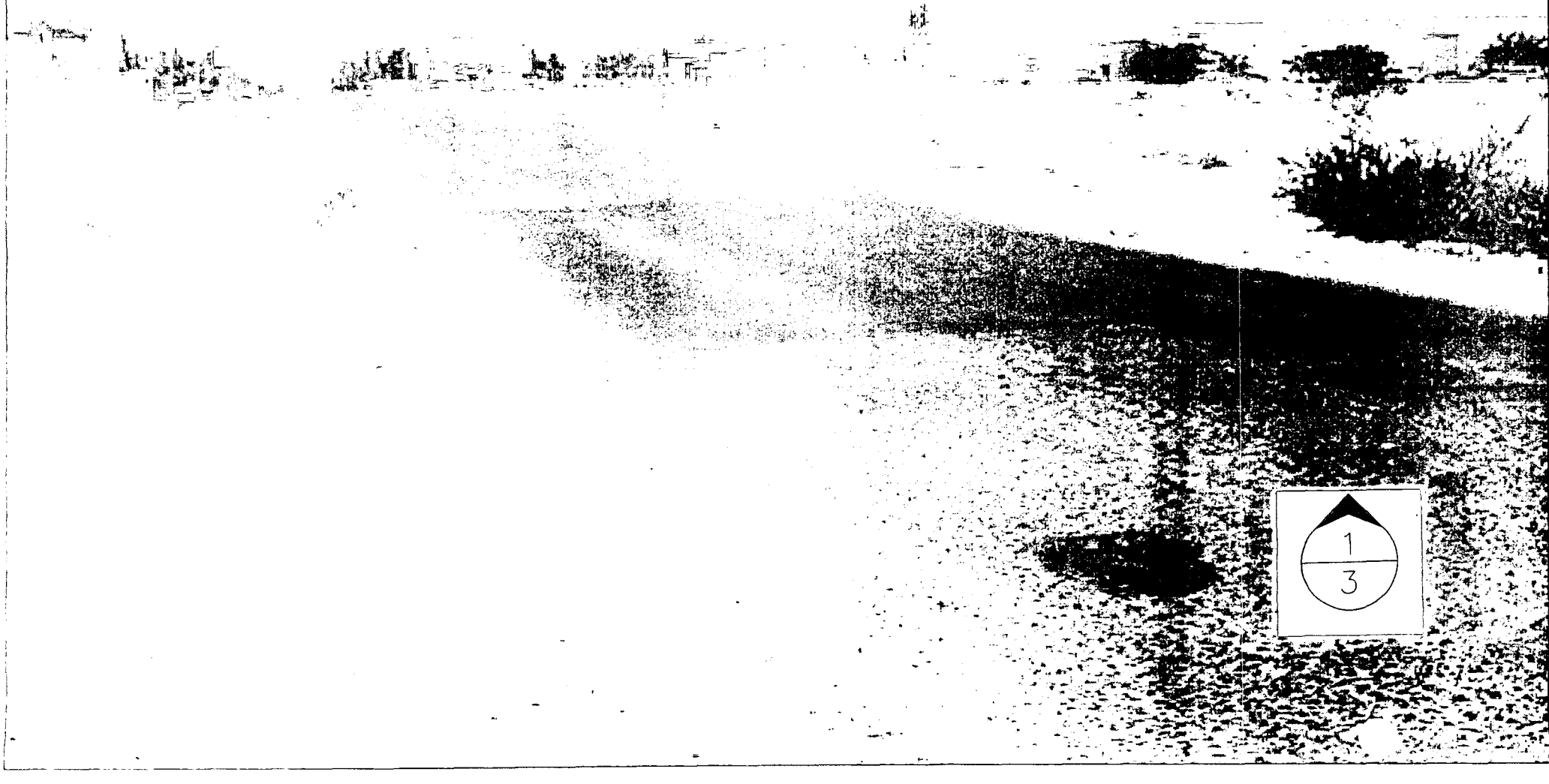
9-23-00
S. MCKEE
B. STREETER



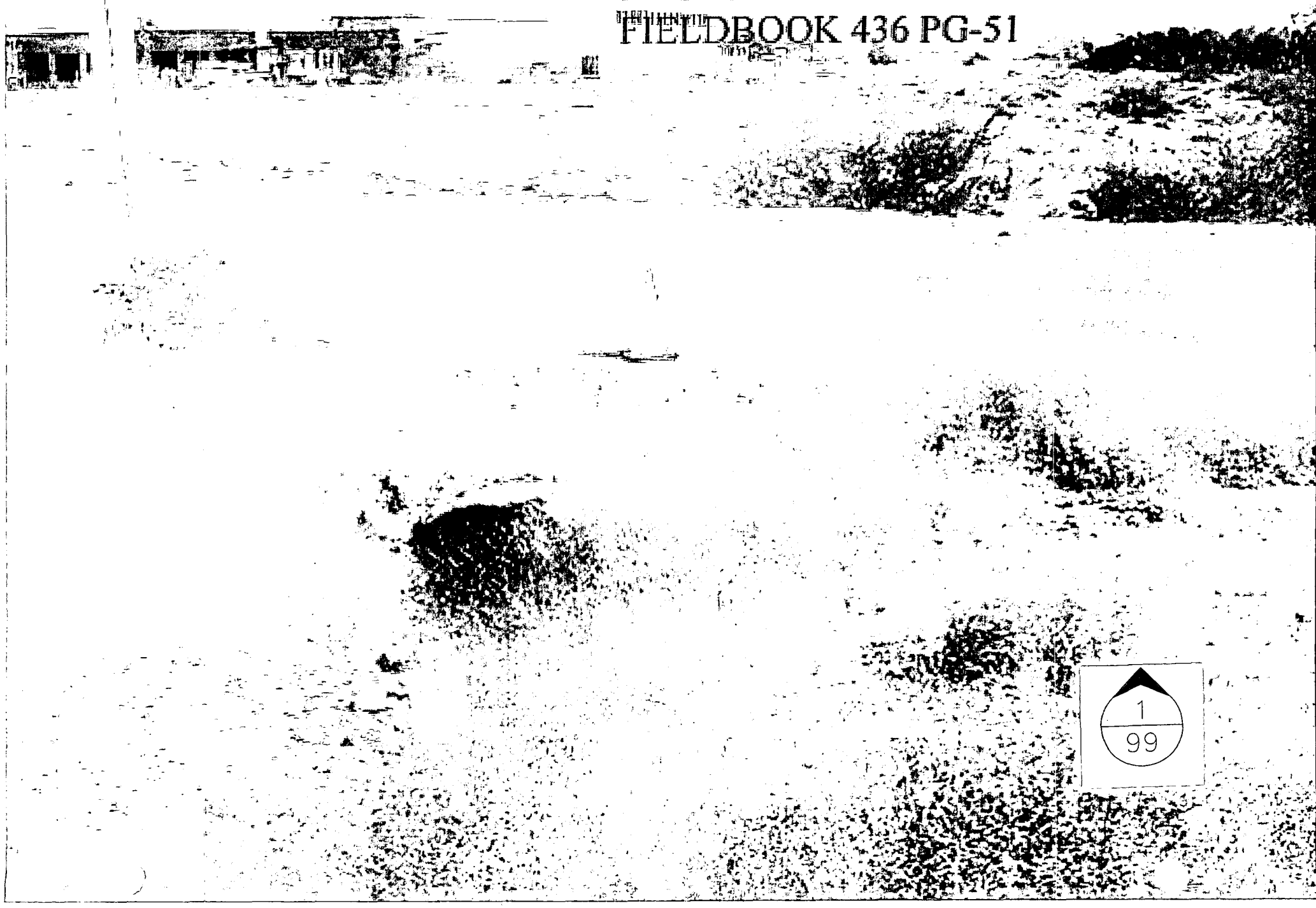



# BERMUDA ROAD

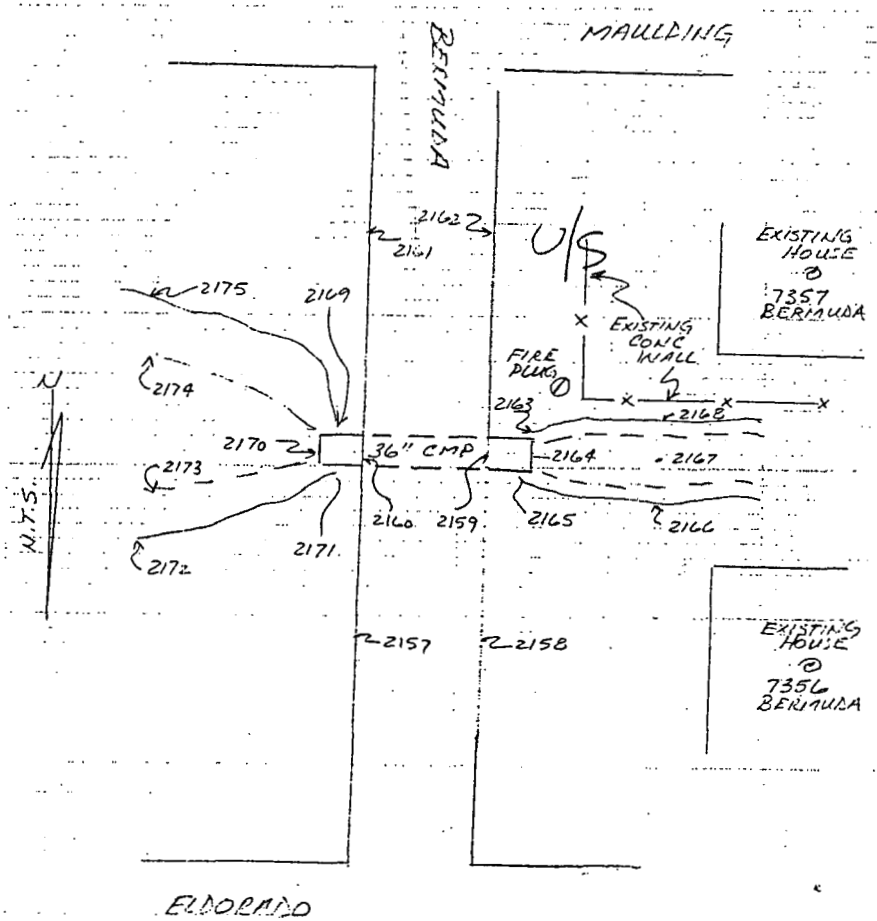
CROSSING @ BERMUDA ST.
PICTURE LOOKING NORTH.
FIELDBOOK 436 PG-51



PICTURE @ BERMUDA ST CROSSING.
LOOKING EAST
FIELDBOOK 436 PG-51




BERMUDA ST CROSSING
PICTURE LOOKING WEST
FIELDBOOK 436 PG 51
1
100




T @ 3011, BS 3012 HI = 5.24 436.51

(BS) HR = 5.07

CHECK BS
H = 0.14
V = 0.21

| | |
|---|---|
| 2157 | "EAC" EDGE OF ASPHALT PAVEMENT |
| 2158 | EAC |
| 2159 | EAC OVER PIPE 36" CMP |
| 2160 | EAC " " " |
| 2161 | EAC |
| 2162 | EAC |
| 2163 | TOP OF BANK |
| 2164 | I.E. 36" CMP |
| 2165 | TOP OF BANK |
| 2166 | " " " |
| 2167 | FLOWLINE |
| 2168 | TOP OF BANK |
| 2169 | " " " |
| 2170 | IE 36" CMP |
| 2171 | TOP OF BANK |
| 2172 | " " " |
| 2173 | TOE OF SLOPE |
| 2174 | " " " |
| 2175 | TOP OF BANK |

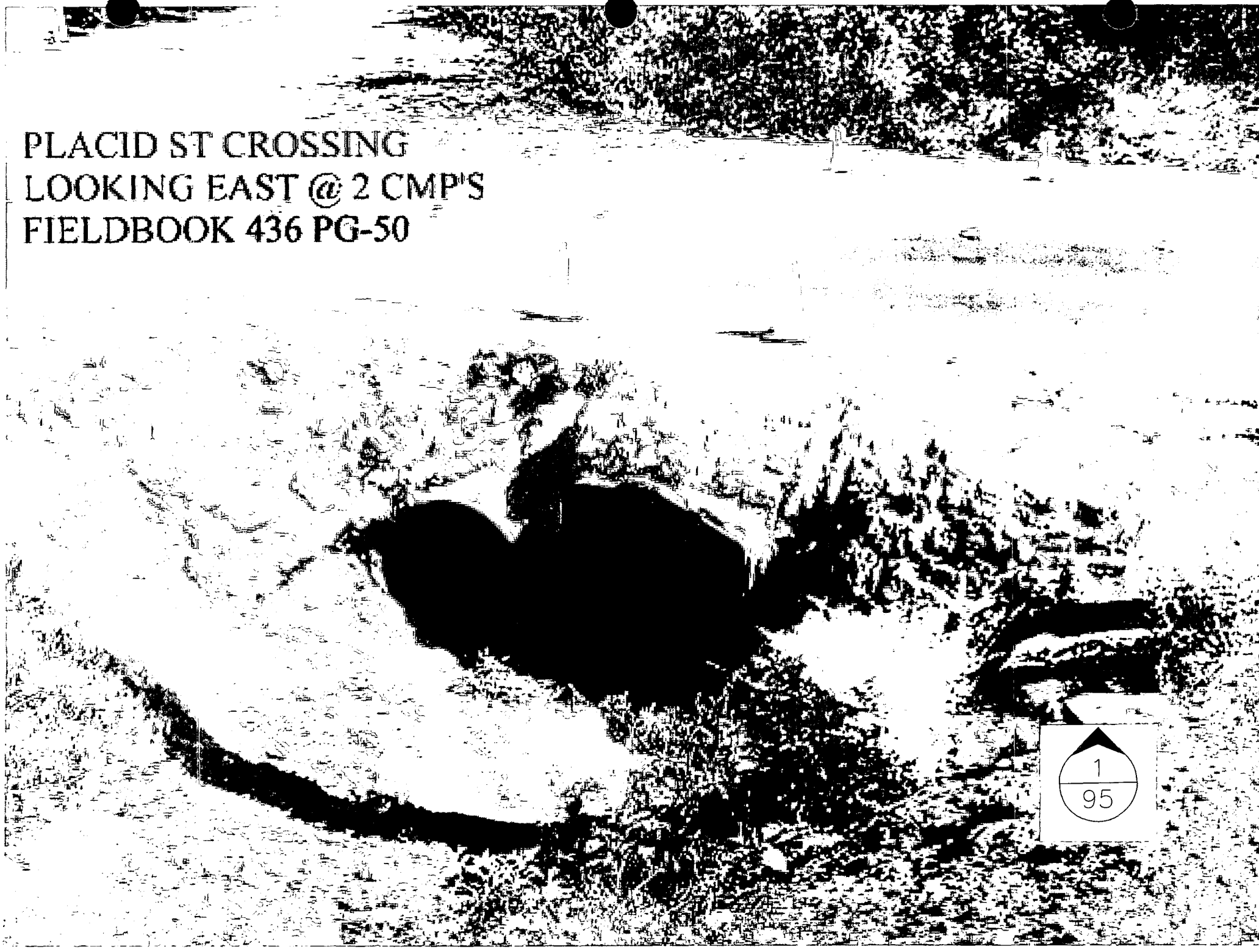
Pictures 10/16/00
104 Top looking North, corner @ Edge AC over pipe
103 Looking East @ 36" CMP
102 Looking West " " "

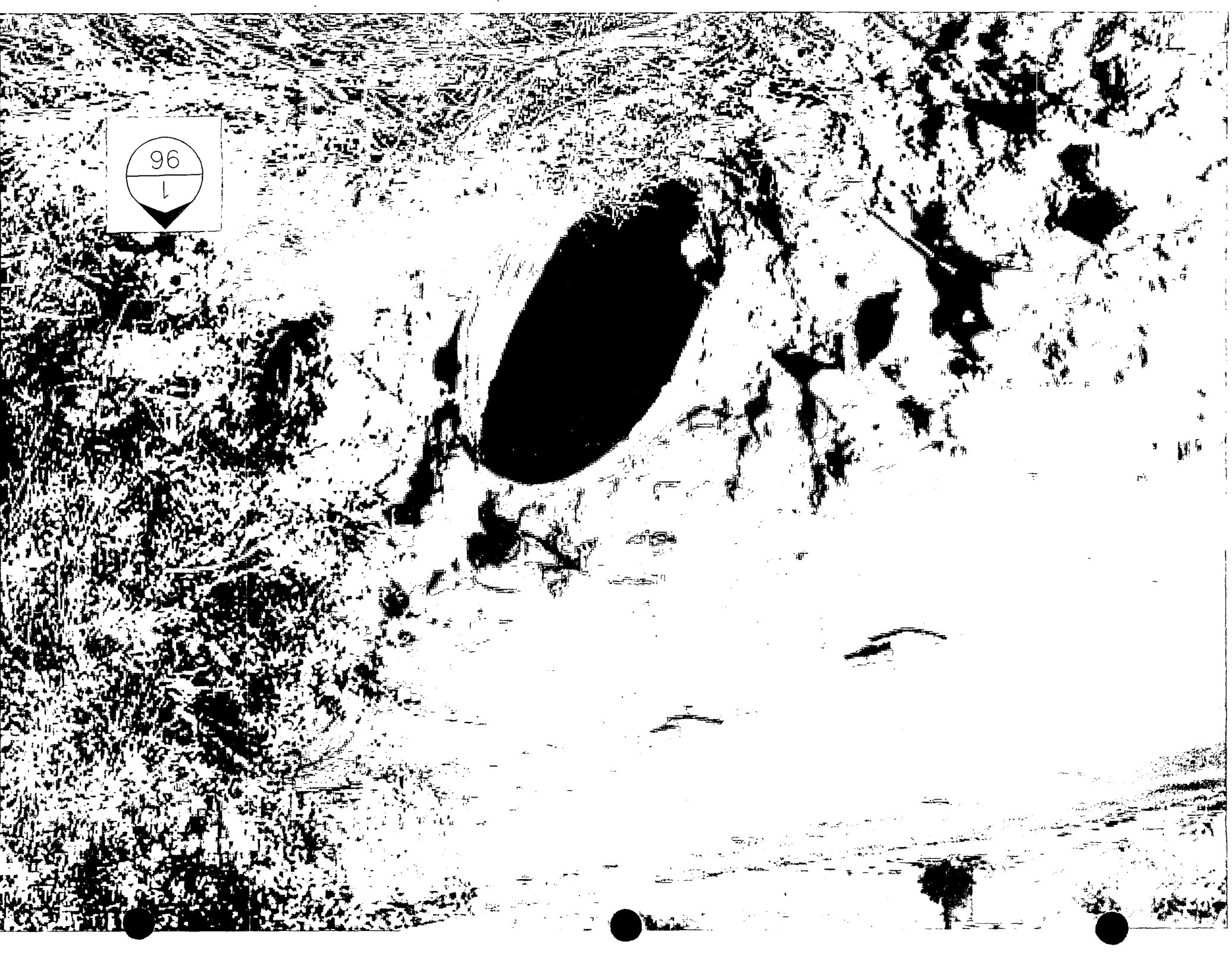
START NEXT BRIDGE @ 2180
POINT NUMBER. JEFF NEEDS FOUR POINTS FOR PREVIOUS SPOTS THREE AFTER COMMUNICATION WITH ENGINEER ON 9-25-00 AM.

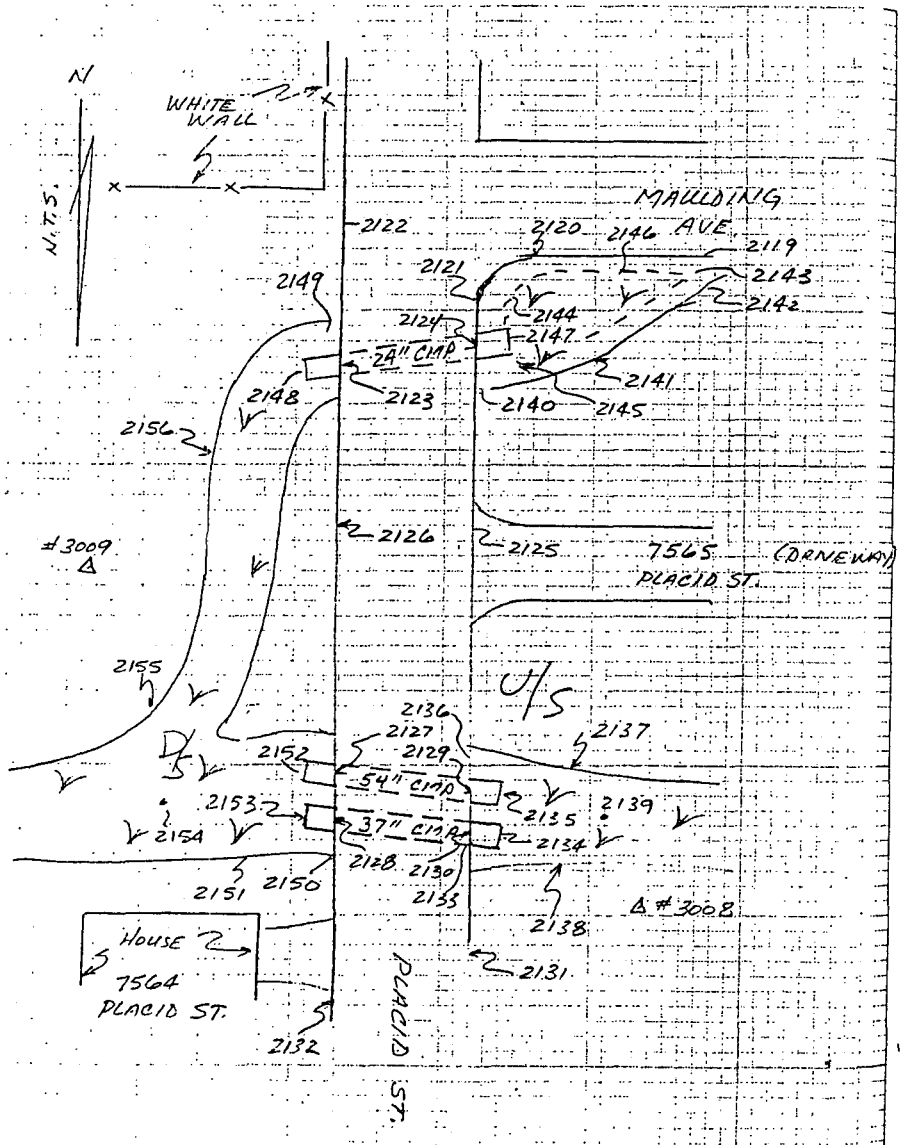
# PLACID STREET

PLACID ST CROSSING.
PICTURE LOOKING NORTH.
FIELDBOOK 436 PG-50




PLACID ST CROSSING
LOOKING EAST @ 2 CMP'S
FIELDBOOK 436 PG-50
1
95


96
L




↑ 0.3009 BS 3008 HI = 5.44 436.50'
(BS) HR = 4.86

| | | |
|---|---|---|
| 2119 | (EAC) EDGE OF ASPHALT PAVEMENT | CHECK BS |
| 2120 | EAC "PC" | H = 0.02 |
| 2121 | " "PT" | V = 0.09 |
| 2122 | EAC | |
| 2123 | EAC | |
| 2124 | EAC | |
| 2125 | EAC LOW POINT | |
| 2126 | " " " | 2154 FLOWLINE |
| 2127 | EAC | 2155 TOP OF BANK |
| 2128 | EAC | 2156 " " " |
| 2129 | EAC | |
| 2130 | EAC | |
| 2132 | EAC | |
| 2133 | TOP OF BANK | |
| 2134 | IE 37" CMP | |
| 2135 | IE 54" CMP | |
| 2136 | TOP OF BANK | |
| 2137 | TOP OF BANK | |
| 2138 | TOP OF BANK | |
| 2139 | FLOWLINE | |
| 2140 | TOP OF BANK | |
| 2141 | " " " | |
| 2142 | " " " | |
| 2143 | TOE OF SLOPE | |
| 2144 | " " " | |
| 2145 | " " " | |
| 2146 | " " " | |
| 2147 | IE 24" CMP | |
| 2148 | " " " | |
| 2149 | TOP OF BANK | |
| 2150 | " " " | |
| 2151 | " " " | |
| 2152 | IE 54" CMP | |
| 2153 | IE 37" CMP | |

Pictures 10/16/00
109 Top looking North, across @ Edge AC, Over pipes
108 Looking East @ 24" CMP
107 " West " " "
106 Looking West @ 54" & 37" CMPs
105 " East " " "

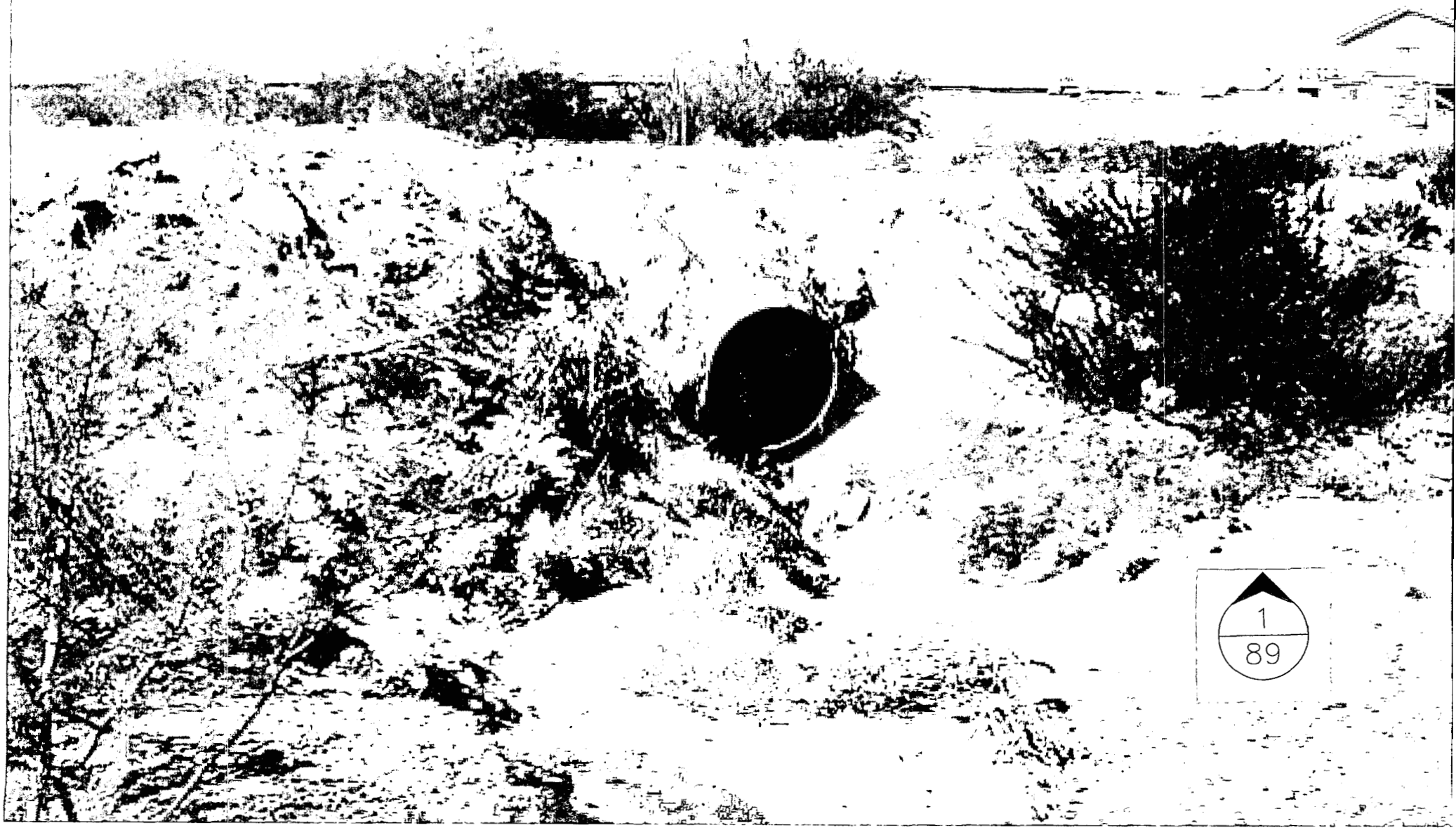
# RANCHO DESTINO ROAD

RANCHO DISTINO ST CROSSING.
PICTURE LOOKING NORTH, LATH ON BANK ABOVE PIPE
FIELDBOOK 436 PG-49



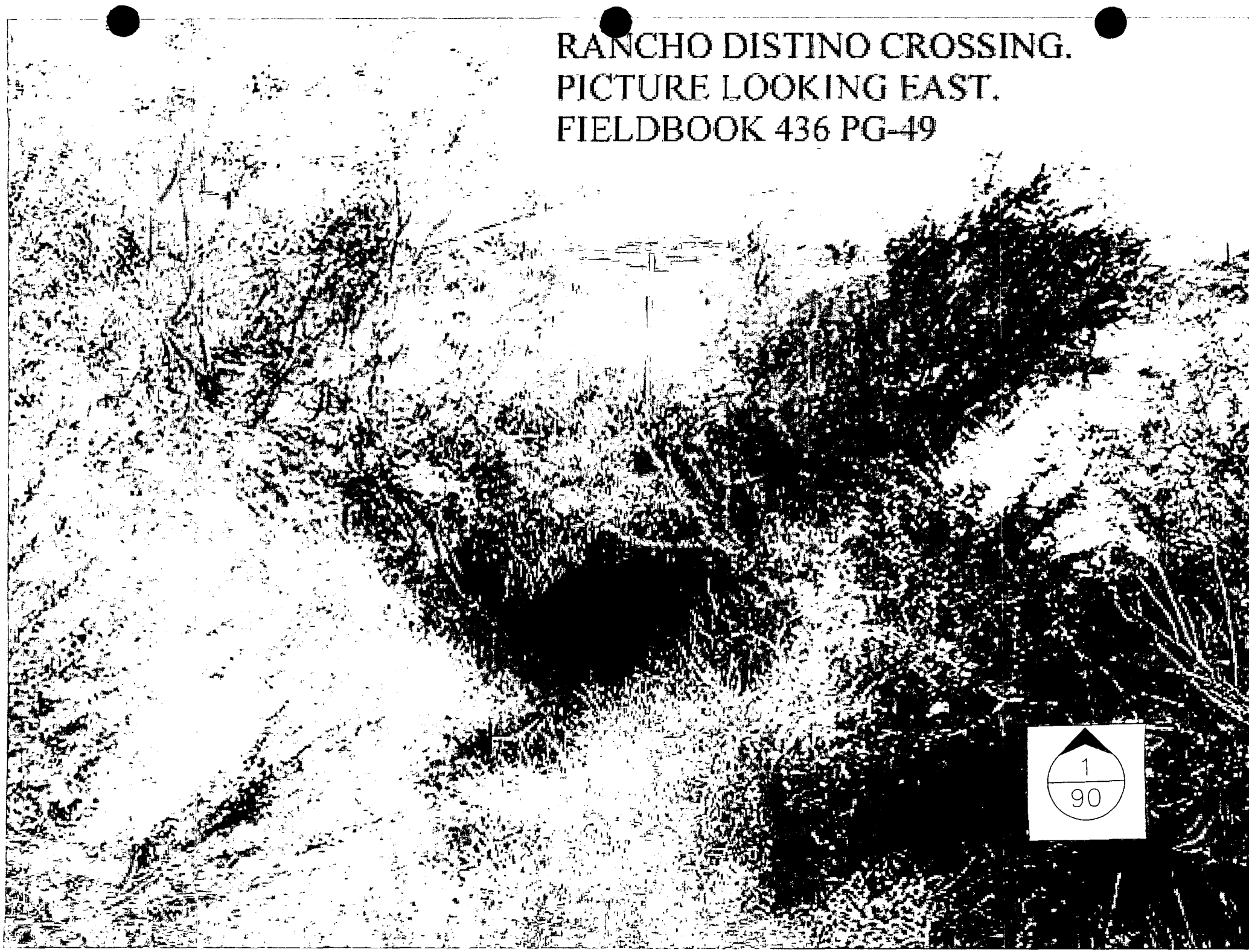
1
5

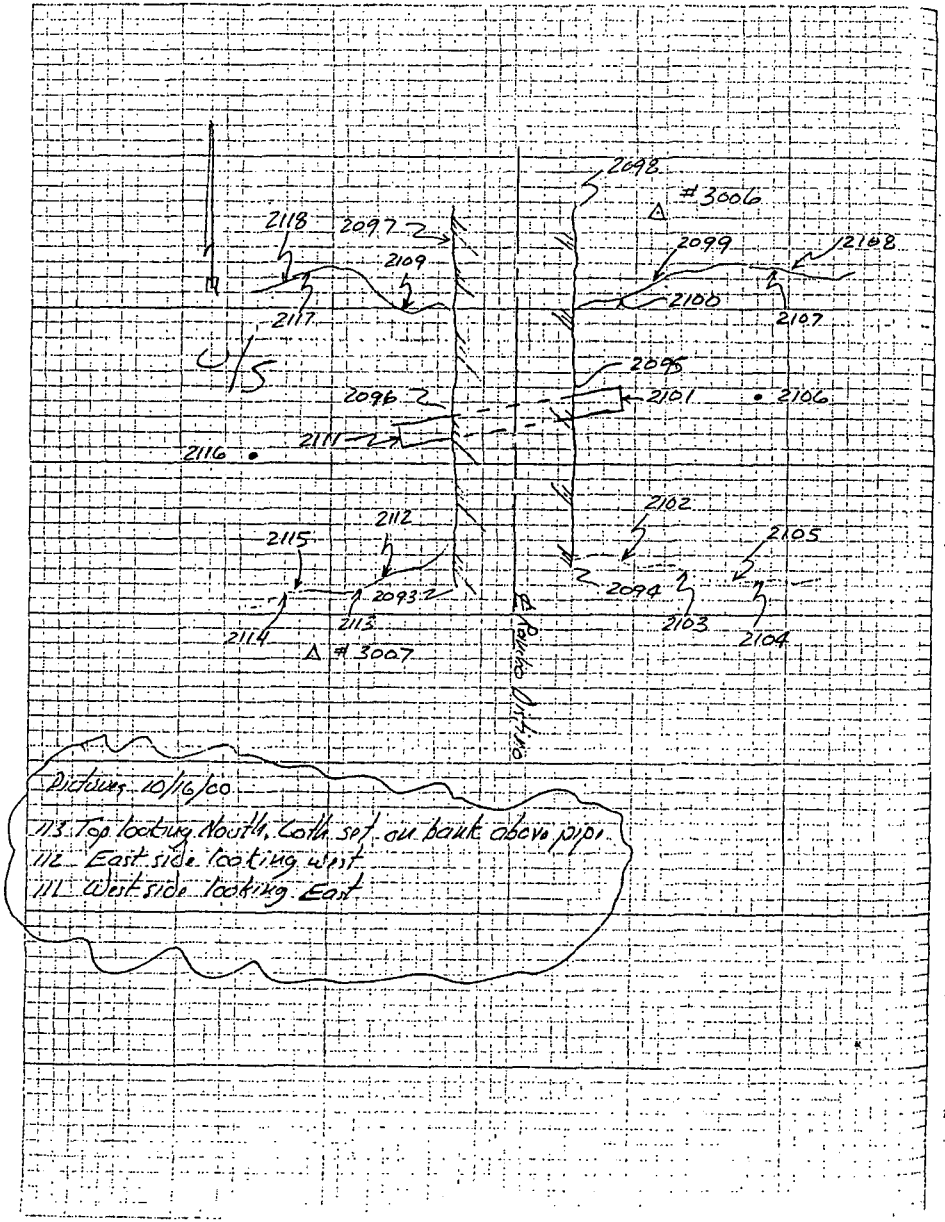
RANCHO DISTINCT CROSSING.
PICTURE LOOKING WEST.
FIELDBOOK 436 PG-49



1
89

RANCHO DISTINO CROSSING.
PICTURE LOOKING EAST.
FIELDBOOK 436 PG-49






436.49

T.O. 3007, BS 3006 HI = 5.34

(BS) HR = 4.94

BS CHECK H = 0.03

V = 0.01

| | |
|---|---|
| 2093 | EDGE OF ASPHALT PAVEMENT |
| 2094 | " " " " |
| 2095 | " " " " |
| 2096 | " " " " |
| 2097 | " " " " |
| 2098 | " " " " |
| 2099 | TOP OF BANK |
| 2100 | TOE OF SLOPE |
| 2101 | I.E. 48" CMP |
| 2102 | TOE OF SLOPE |
| 2103 | TOP OF BANK |
| 2104 | " " " |
| 2105 | TOE OF SLOPE |
| 2106 | FLOWLINE |
| 2107 | TOE OF SLOPE |
| 2108 | TOP OF BANK |
| 2109 | " " " |
| 2110 | TOE OF SLOPE |
| 2111 | I.E. 48" CMP |
| 2112 | TOE OF SLOPE |
| 2113 | TOP OF BANK |
| 2114 | " " " |
| 2115 | TOE OF SLOPE |
| 2116 | FLOWLINE |
| 2117 | TOE OF SLOPE |
| 2118 | TOP OF BANK |

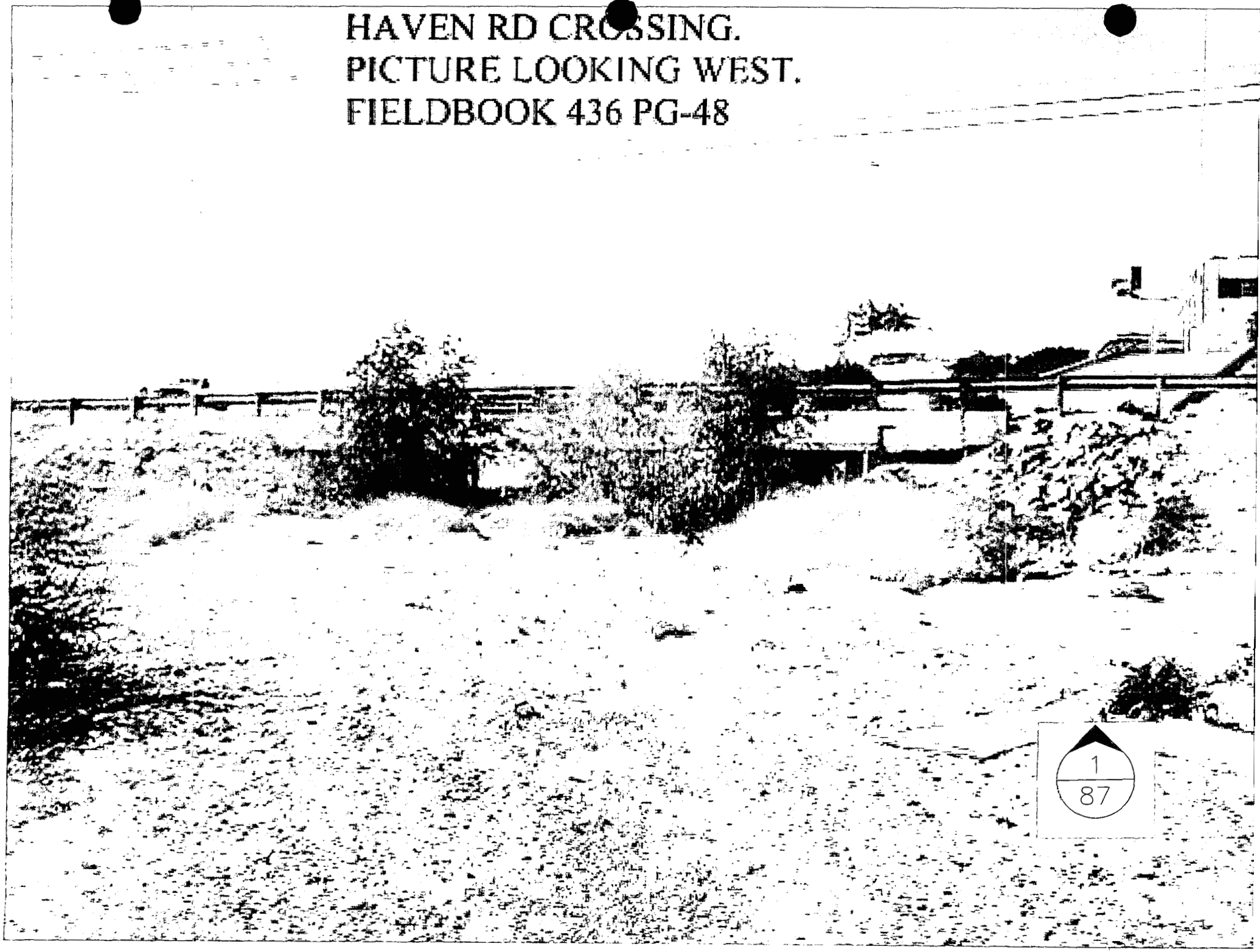
# HAVEN STREET

BRIDGE CROSSING ON HAVEN RD
PICTURE LOOKING NORTHBOUND
FIELDBOOK 436 PG-48

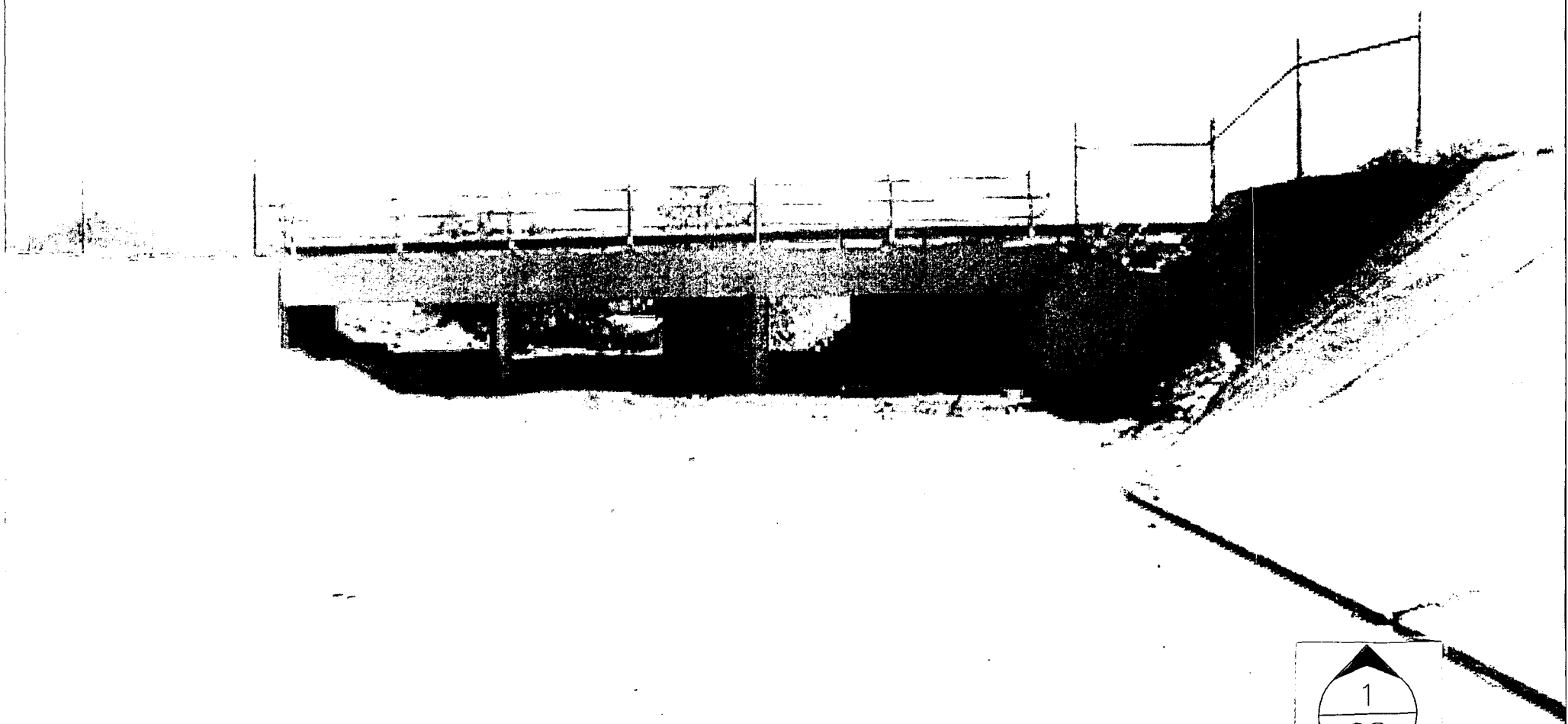


1
6

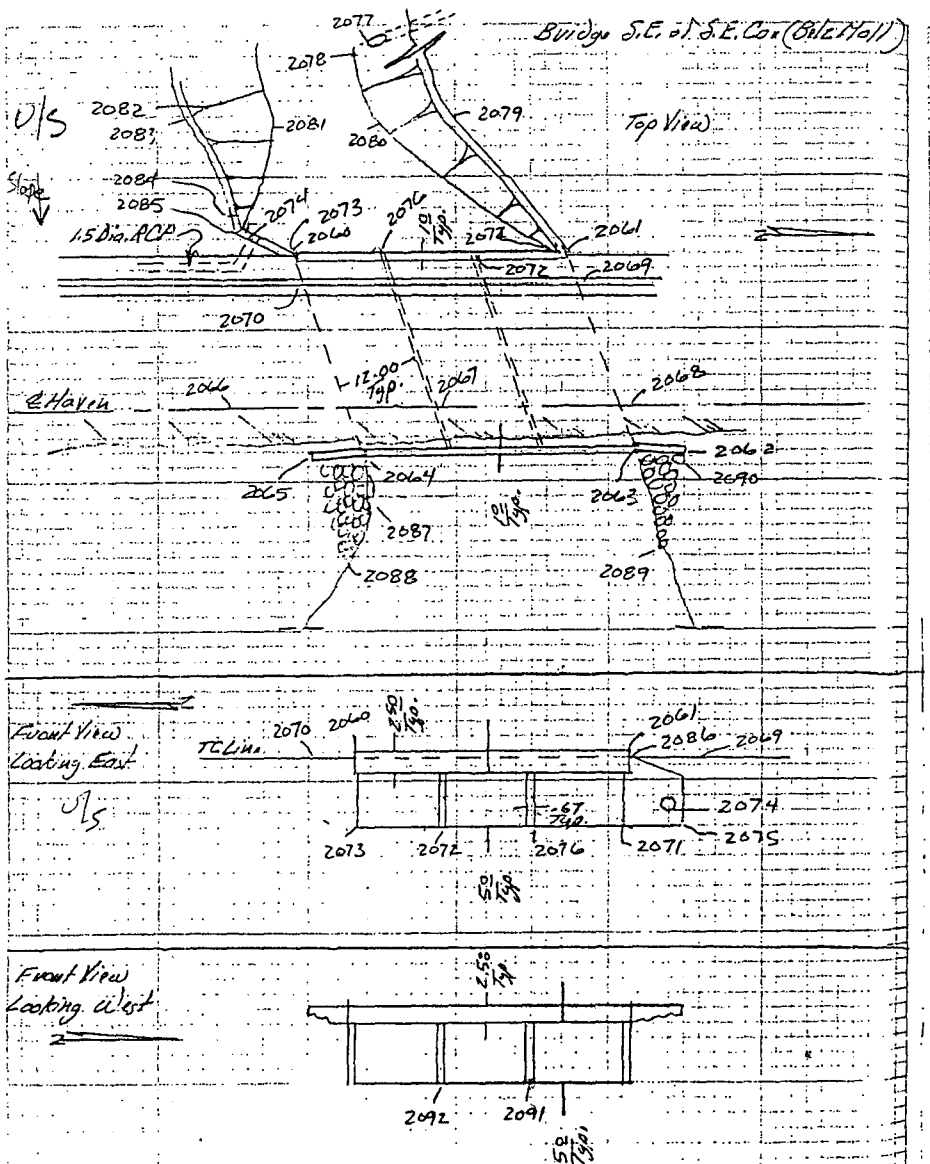
HAVEN RD CROSSING.
PICTURE LOOKING WEST.
FIELDBOOK 436 PG-48



HAVEN RD CROSSING.
PICTURE LOOKING EAST.
FIELDBOOK 436 PG-48



1
88



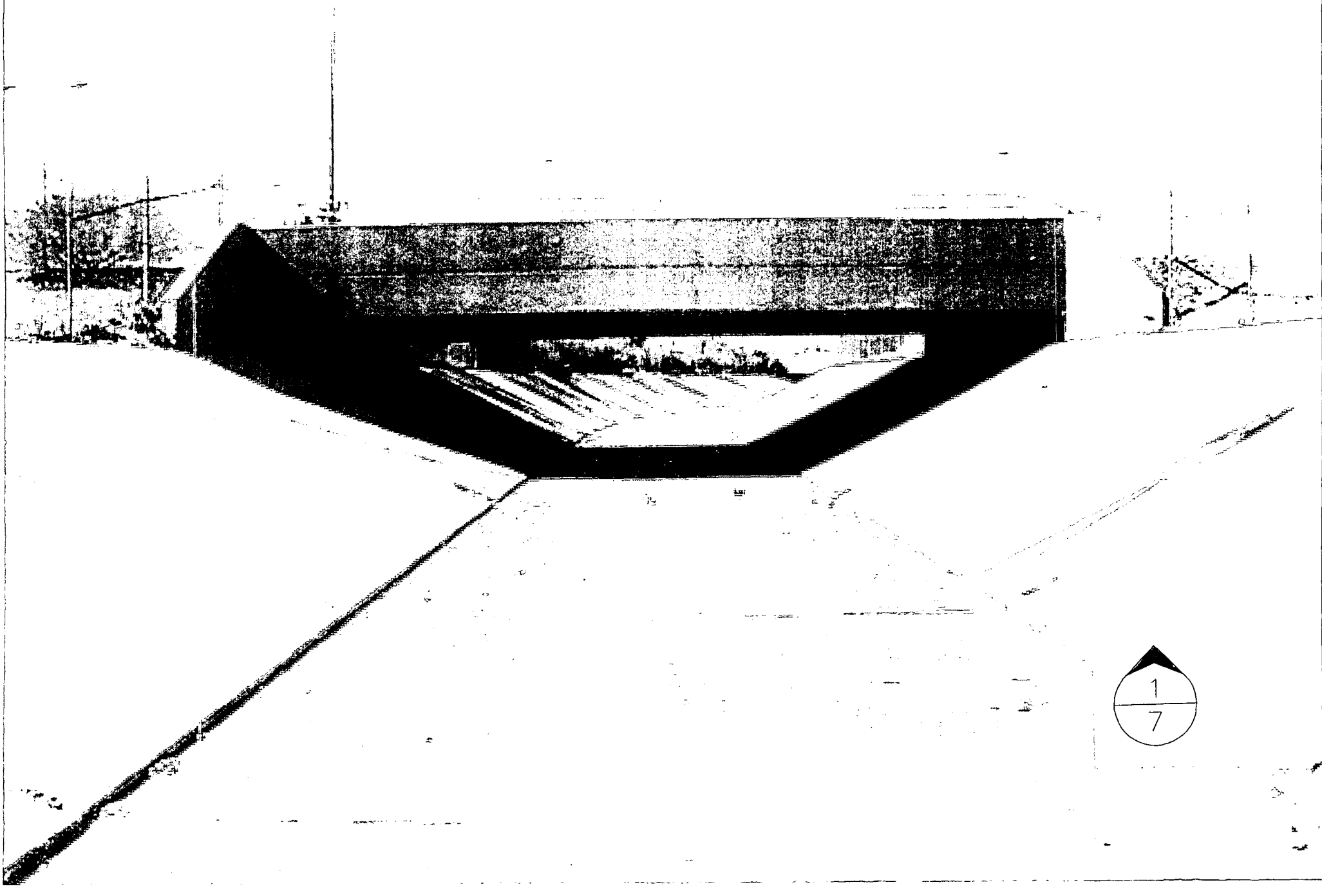

T.O. 3005, BS 3003 HI = 5.42 436.48
(BS) HR = 9.22
#3007 (FS) HR = 5.00

| | | |
|---|---|---|
| 2060 | TOP BRIDGE | BS CHECK H = 0.03 V = 0.10 |
| 2061 | TOP BRIDGE | |
| 2062 | TOP BRIDGE @ END CONC | FS CHECK TO # |
| 2063 | TOP BRIDGE | 3007 H = 0.02 V = 0.14 |
| 2064 | TOP BRIDGE | STORED AS 2059 |
| 2065 | TOP BRIDGE @ END CONC | |
| 2066 | EDGE PAVEMENT | |
| 2067 | " " " | |
| 2068 | " " " | |
| 2069 | TOP BACK CURB | |
| 2070 | " " " | |
| 2071 | BOTTOM CHANNEL | |
| 2072 | " " " BARREL | |
| 2073 | " " " | |
| 2074 | IE 1.5 RCP | |
| 2075 | BOTTOM CHANNEL | |
| 2076 | BOTTOM CHANNEL BARREL | |
| 2077 | IE 1.5 RCP | |
| 2078 | TOE CHANNEL | |
| 2079 | TOP CHANNEL | |
| 2080 | TOE CHANNEL | |
| 2081 | " " | |
| 2082 | TOP CHANNEL | |
| 2083 | EDGE CONC CHANNEL | |
| 2084 | TOP CHANNEL WALL | |
| 2085 | " " " | |
| 2086 | " " " | |
| 2087 | PI TOP RIP/RAP | |
| 2088 | BOTTOM RIP/RAP | |
| 2089 | " " " | |
| 2090 | TOP RIP/RAP | |
| 2091 | BTM CHANNEL @ BARREL | |
| 2092 | " " " | |

Distress 10/16/80
115 Top Looking Northbound
114 Eastside looking West
110 Westside looking East

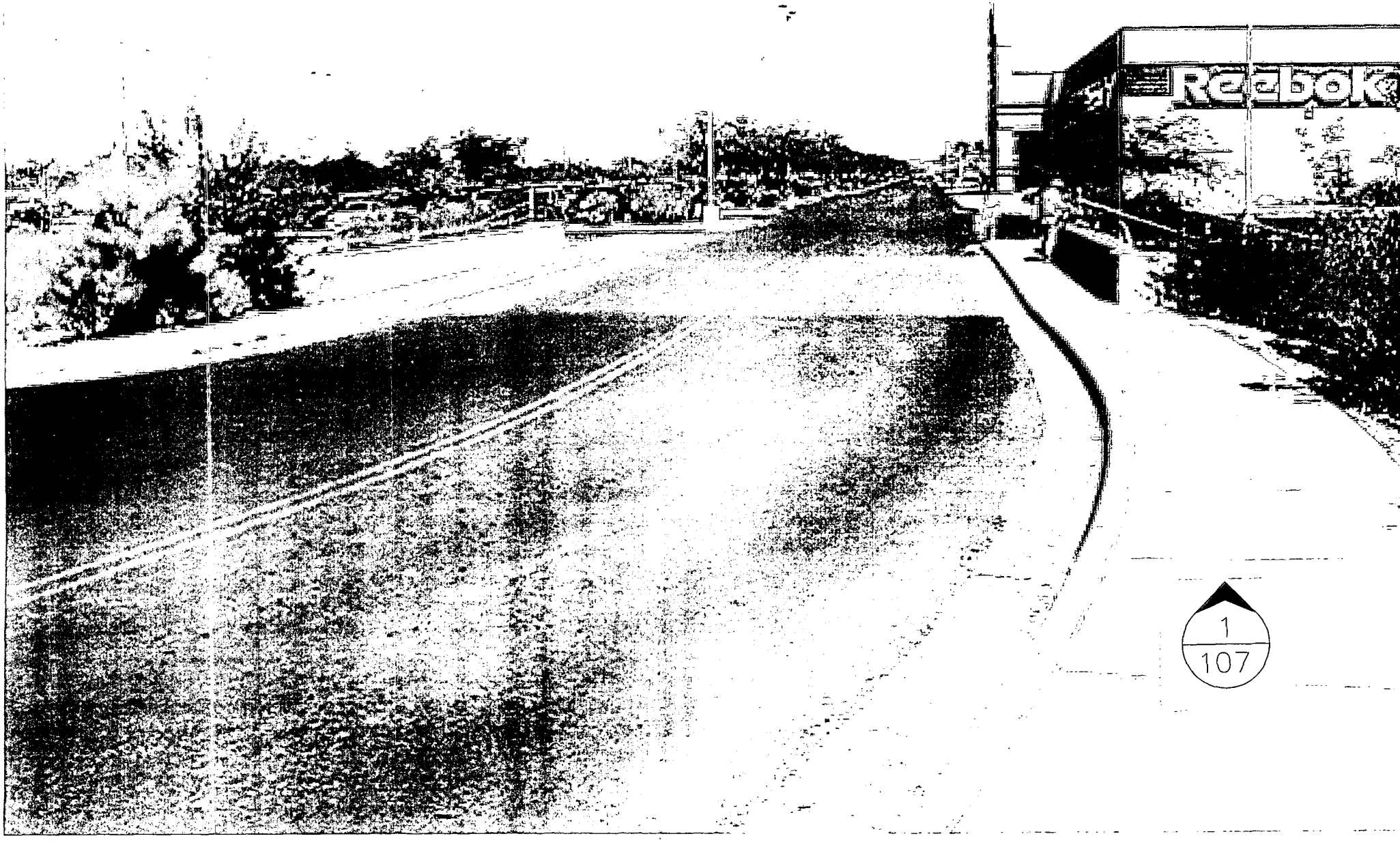
# BELZ FACTORY OUTLET WORLD CHANNEL

EASTERLY BRIDGE LOOKING WEST AT BELZ OUTLET MALL
FIELDBOOK 436 PG-47



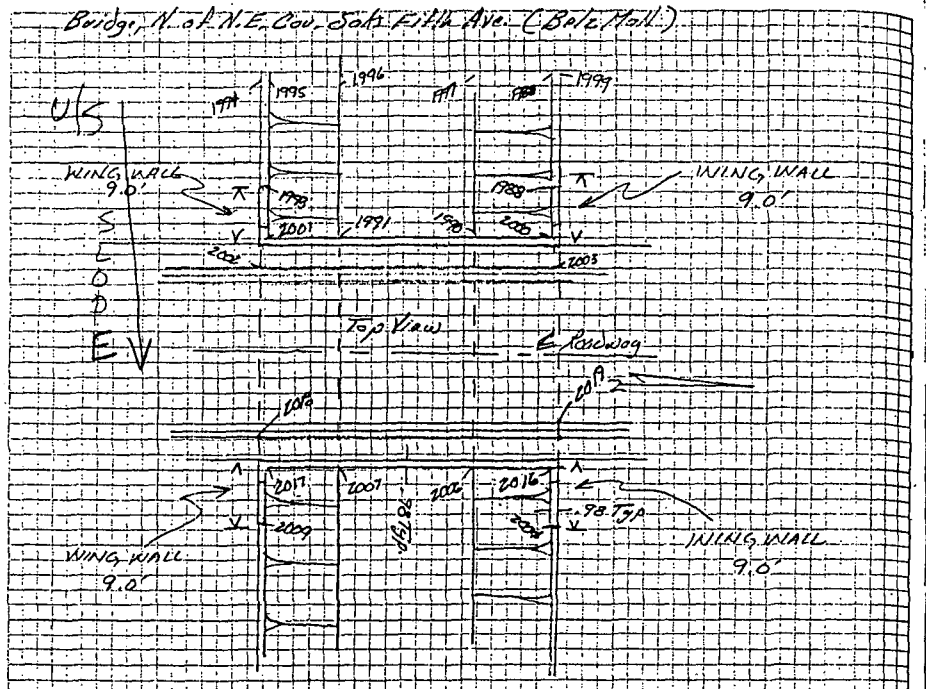
1
7

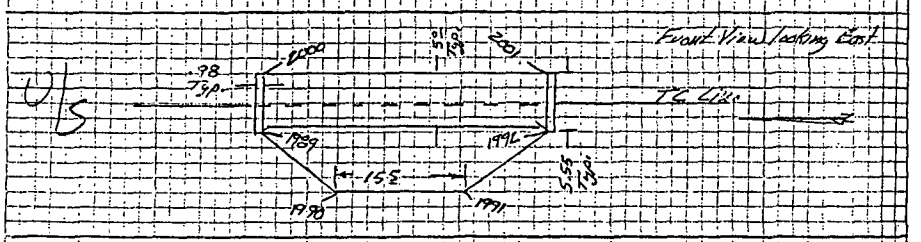
EAST BRIDGE LOOKING ~~SOUTH~~ NORTH
FIELDBOOK 436 PG-46

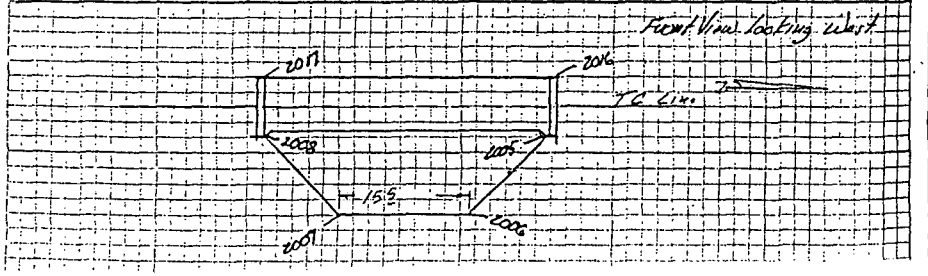



1
107

Bridge, N. of N.E. Cor. 54th Ave. (Belt Mall)




Encl. @ 3001, BS 3002 Fou. #s 1988 - 2003

St. Pln. #s

1988 Top @ Wingwall
1989 Top @ Bridge
1990 Toe Chnl.
1991 Toe Chnl.
1992 Top @ Bridge
1993 Top @ Wingwall
1994 Edge Con.
1995 Top Chnl.
1996 Toe Chnl.
1997 Toe Chnl.
1998 Top Chnl.
1999 Edge Con.
2000 Top Bridge
2001 " "
2002 Top Back of Curb
2003 " " "

Encl @ 3002, BS 3001 Fou. #s 2004 - 2019

2004 Top @ Wingwall
2005 Top @ Bridge
2006 Toe Chnl.
2007 " "
2008 Top @ Bridge
2009 Top @ Wingwall
2010 Edge Con.
2011 Top Chnl.
2012 Toe Chnl.
2013 Toe Chnl.
2014 Top Chnl.
2015 Edge Con.
2016 Top Bridge
2017 " "
2018 Top back of curb
2019 " " "

436-46

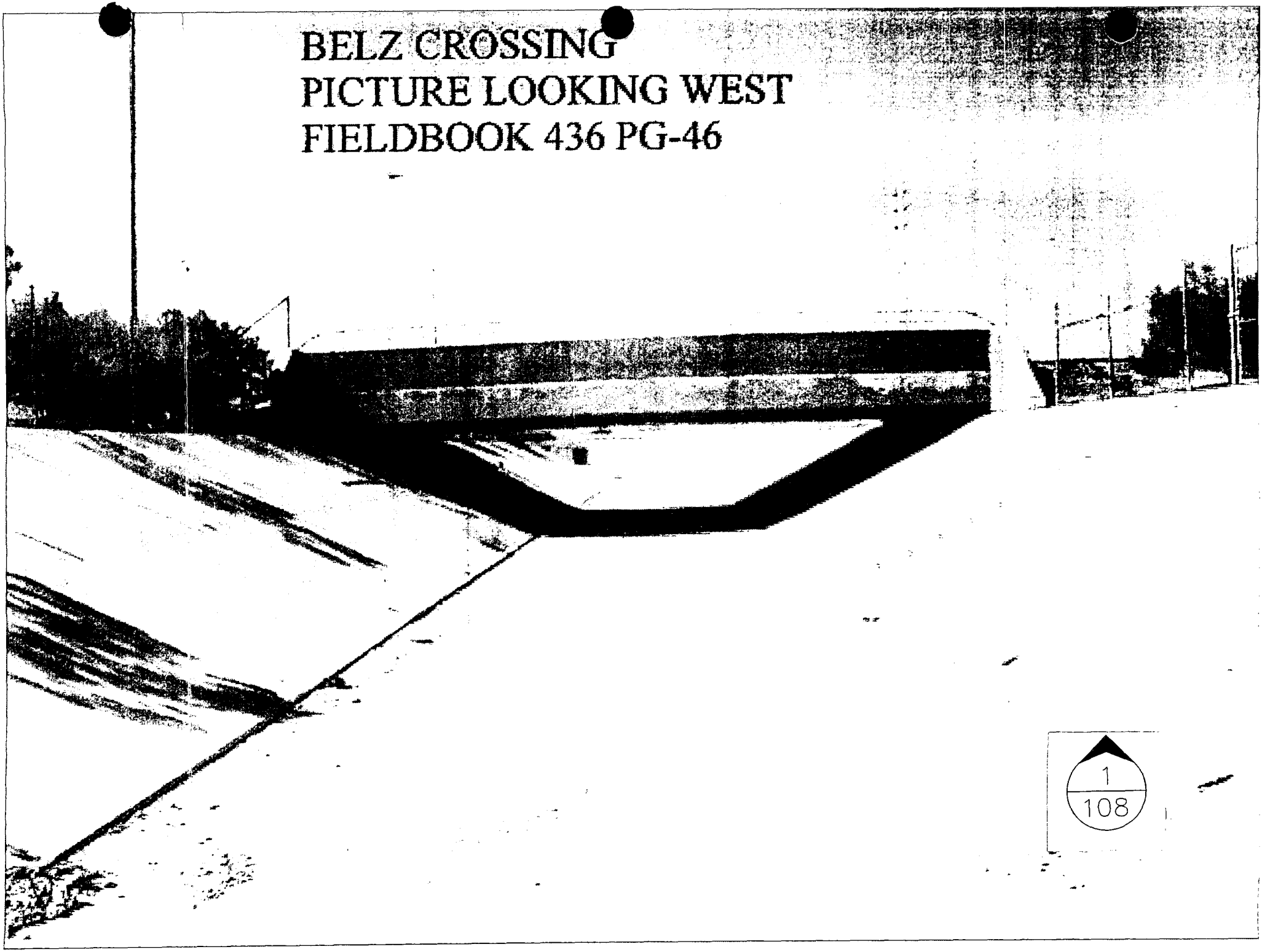
Pictures 10/16/00

121' WEST SIDE LOOKING EAST
120 EAST SIDE LOOKING WEST
116 Top Looking Southerly

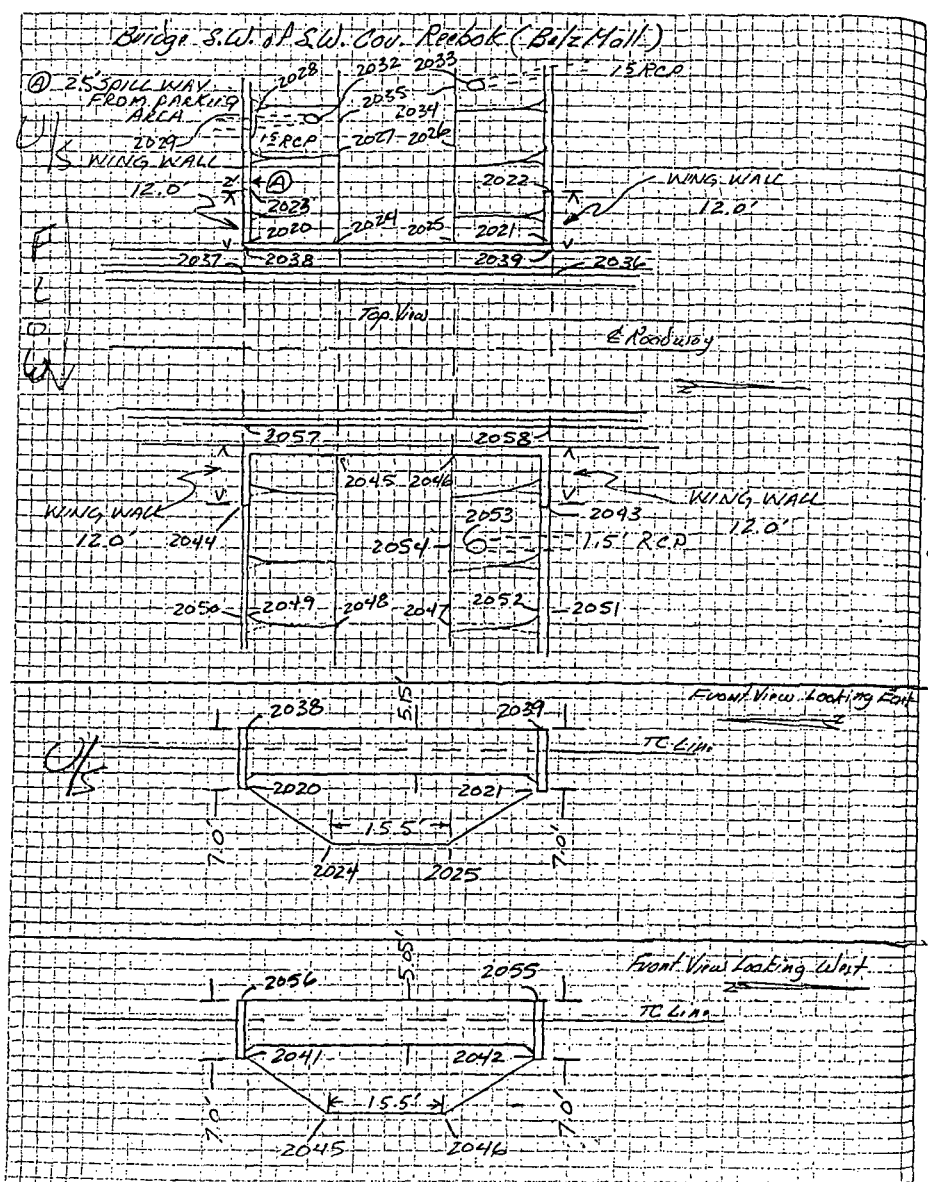
# WEST BRIDGE X-ING @ BELZ
# PICTURE LOOKING NORTH
# FIELDBOOK 436 PG-46



# BELZ CROSSING
# PICTURE LOOKING WEST
# FIELDBOOK 436 PG-46



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108




E BS 5.12
BS 5.41

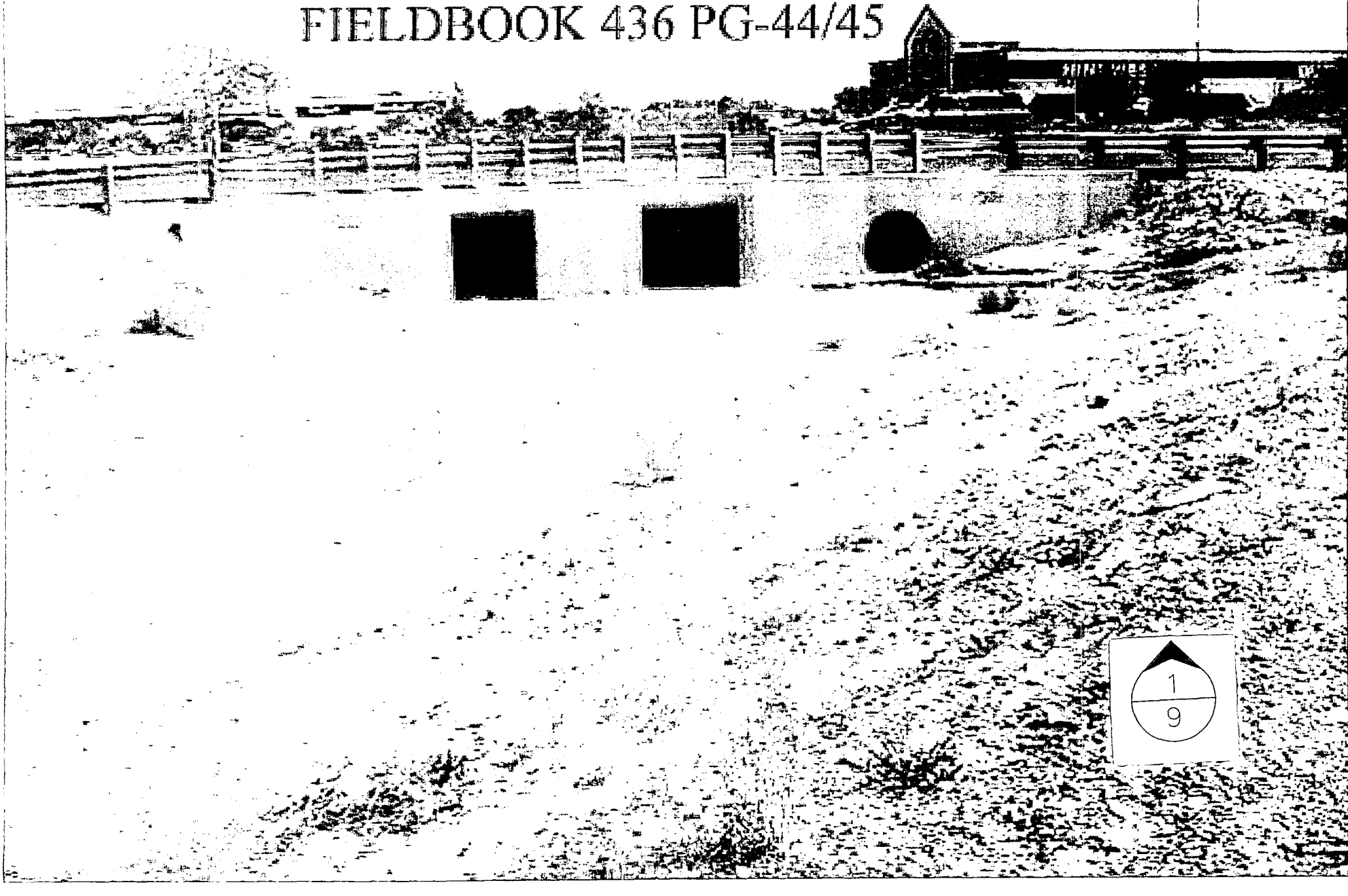
| | | | |
|---|---|---|---|
| △ @ 3003, BS 3002 | | H.I = 5.59 | 436-47 |
| | | (BS) HR = 5.41 | |
| 2020 | TOP CHANNEL @ BRIDGE | | BS CHECK H = 0.10 |
| 2021 | " " " | | V = 0.10 |
| 2022 | TOP CHANNEL @ WING WALL | | TURNED ↑ RT TO |
| 2023 | " " " | | #3004 H = 6.03 |
| 2024 | TOE OF CHANNEL @ BRIDGE | HR = 5.12 | V = 0.17 |
| 2025 | " " " | | STORED ✓ |
| 2026 | TOE OF CHANNEL | | @ 3500, |
| 2027 | " " | | 2038 TOP BRIDGE |
| 2028 | TOP CHANNEL | | 2039 TOP BRIDGE |
| 2029 | EDGE CONC. CHANNEL | | |
| 2030 | " " " | | |
| 2031 | TOP CHANNEL | | |
| 2032 | I.E. 1.5 RCP | | |
| 2033 | I.E. 1.5 RCP | | |
| 2034 | TOE CHANNEL | | |
| 2035 | TOE CHANNEL | | |
| 2036 | TOP BACK CURB | | |
| 2037 | TOP BANK CURB | | |

| | | | |
|---|---|---|---|
| △ @ 3004, BS 3003 | | (BS) HR = 9.22 | #3005 (FS) HR = 9.36 |
| 2041 | TOP CHANNEL @ BRIDGE | H.I = 5.47 | ✓ #3005 |
| 2042 | " " " | | HR = 0.64 |
| 2043 | TOP CHANNEL @ WING WALL | | V = 0.11 |
| 2044 | " " " | | STORED AS 2040 |
| 2045 | TOE CHANNEL @ BRIDGE | | |
| 2046 | " " " | | |
| 2047 | TOE CHANNEL | | |
| 2048 | TOE CHANNEL | | |
| 2049 | TOP CHANNEL | | |
| 2050 | EDGE CONC. CHANNEL | | |
| 2051 | " " " | | |
| 2052 | TOP CHANNEL | | |
| 2053 | I.E. 1.5 RCP | | |
| 2054 | TOE CHANNEL | | |
| 2055 | TOP BRIDGE | | |
| 2056 | TOP BRIDGE | | |
| 2057 | TOP BACK CURB | | |
| 2058 | TOP BACK CURB | | |

PICTURES 10/16/00
119 WEST SIDE LOOKING EAST
118 EAST SIDE LOOKING WEST
117 Top Looking Northerly

# LAS VEGAS BOULEVARD

# LAS VEGAS BLVD CROSSING
# PICTURE LOOKING EAST
# FIELDBOOK 436 PG-44/45

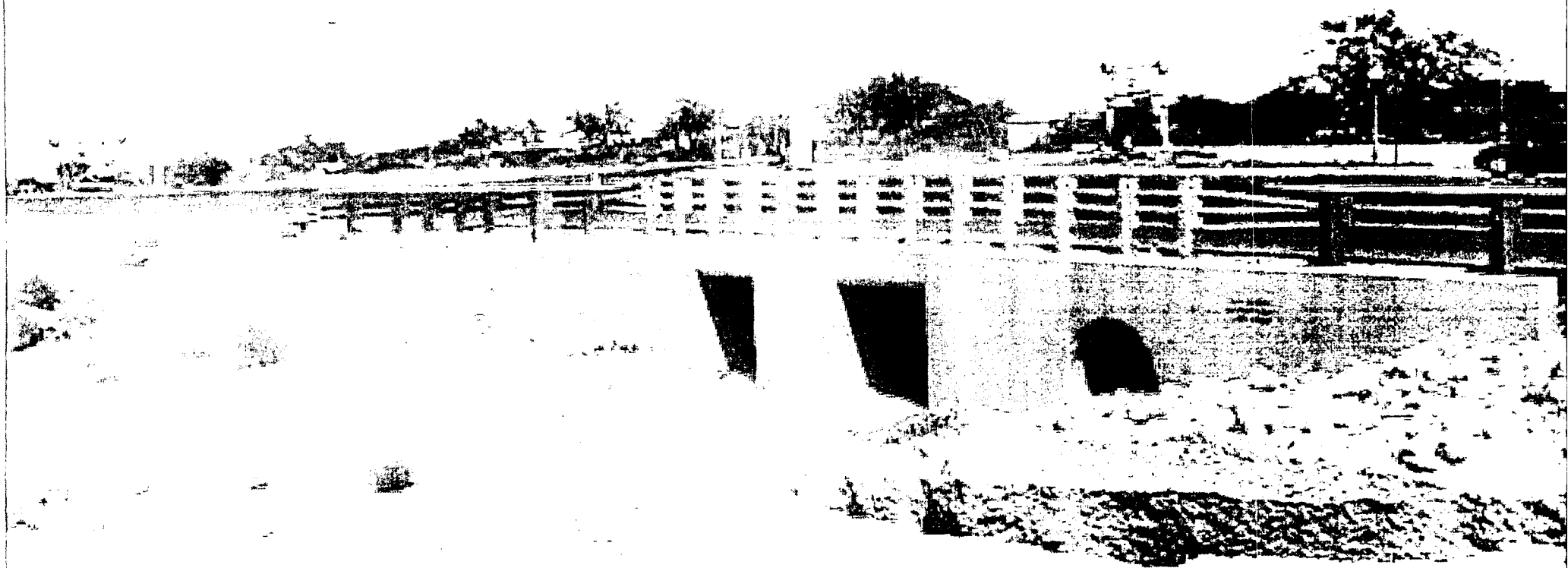


# LAS VEGAS BLVD CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 436 PG-44/45

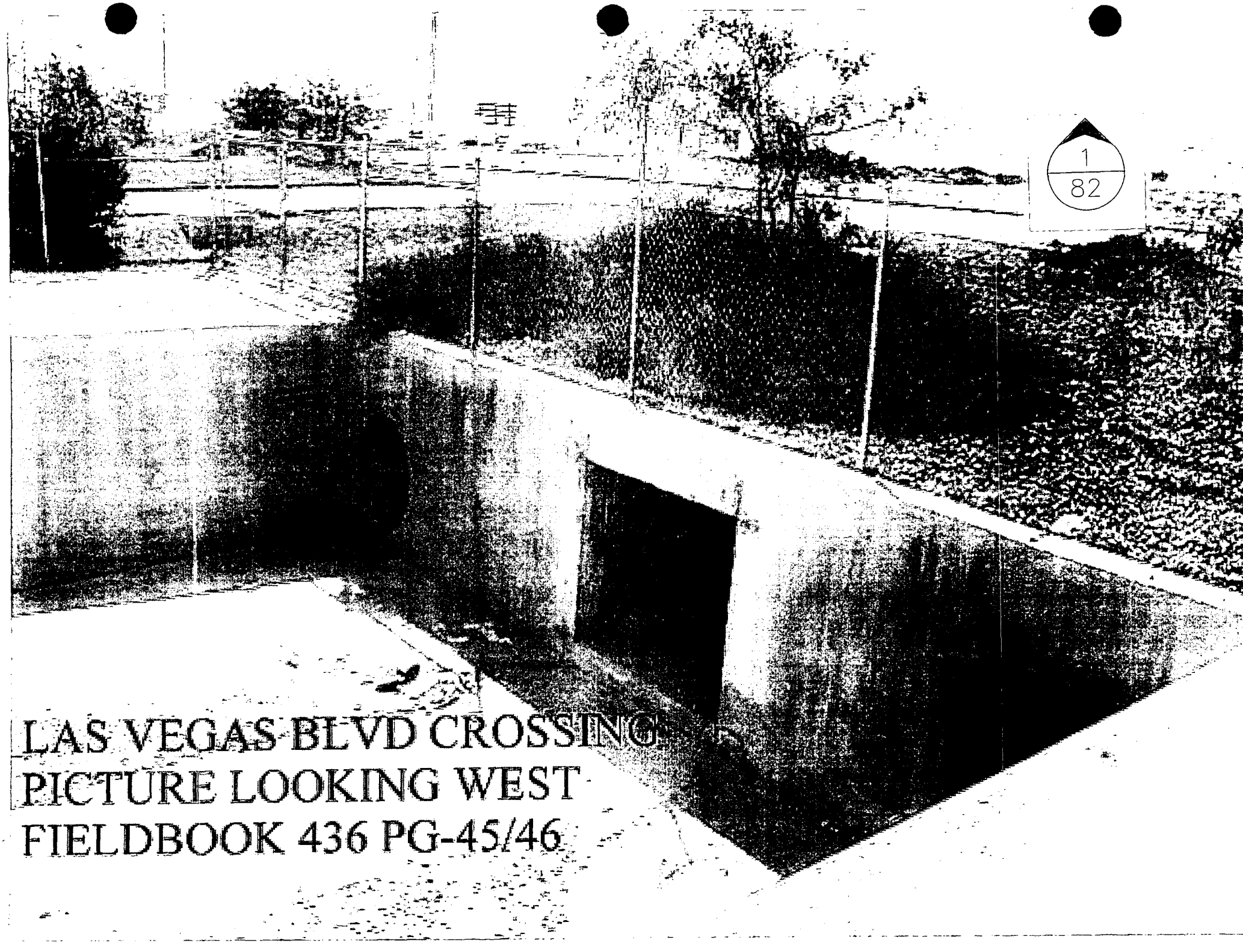


1
80

# LAS VEGAS BLVD CROSSING
# PICTURE LOOKING NORTHEAST
# FIELDBOOK 436 PG 44/45



1
81


1
82
LAS VEGAS BLVD CROSSING
PICTURE LOOKING WEST
FIELDBOOK 436 PG-45/46

FILE "DUK-BRIDGE" 9-8-00
#5 LAS VEGAS BLVD J. PATION PC
START 10 YOM B. STREETER X

ANT HT 6.60

| PT # | | | ANT HT |
|---|---|---|---|
| 1715 | | CHECK IN PT 506~~+106~~ NN-6 | 6.60 |
| 1716 | 119 | TOP EDGE CONC WALL WEST EDGE 1Ø THICK | |
| ↓ | | | |
| 1723 | 119 | TOP EDGE CONC WALL WEST EDGE 1Ø THICK | |
| 1724 | | EDGE OF ASPHALT | |
| ↓ | | " " " | |
| 1729 | | EDGE OF ASPHALT | |
| 1730 | | TOB | |
| ↓ | | " | |
| | | " | |
| | | TOB | |
| | | TOE | |
| ↓ | | " | |
| | | " | |
| 1741 | | TOE | |
| 1742 | | ℄ FL WASH + 0Z- | |
| ↓ | | " " " " | |
| | | " " " " | |
| 1745 | | ℄ FL WASH + 0Z- | |

TOP VIEW EAST

△ 1750 60D NAIL

ELEC BOX

ASPHALT

LAS VEGAS BLVD

TOP

1719 1718 1727 1726 1725 1724

TOP VIEW WEST

CONC WALL

1730 1Ø THICK 1716

1723

1751

TOE

TOB

℄ WASH

TOE

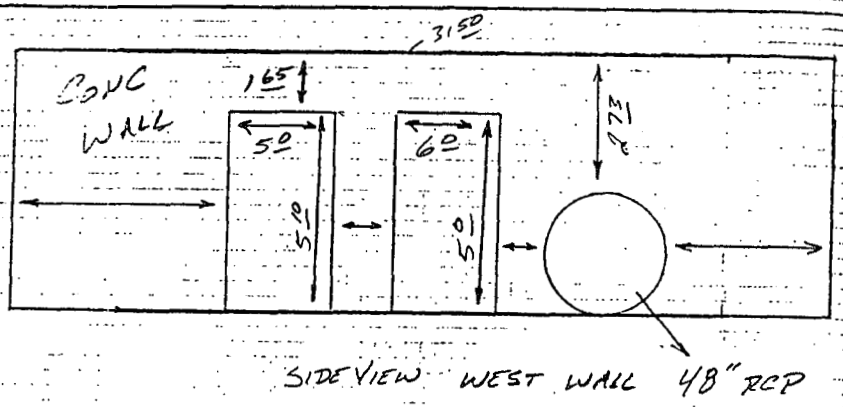
TOB

9-8-00

436-45

CONT.

#5




SIDE VIEW WEST WALL 48" RCP

| | | |
|---|---|---|
| 1746 | TOE | |
| ↓ | " | |
| 1749 | TOE | |
| X1750 | SET 60 D NAIL CP # | |
| 1751 | TOB | |

SPIKE LOST INITIALIZATION

– END DAY –

NEED TO CONT TOB FROM 1751 WEST ALONG TOB

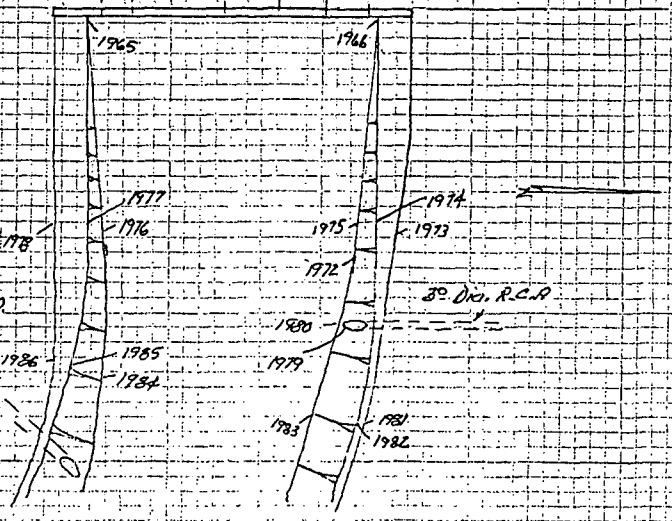
NEED SHOTS AT FL INVERTS ENTRANCE OF BOX CULVERTS AND 48" RCP

(ALL ON WEST SIDE)

9/22/00
C. Brandon
J. Reed
95° Gusty Winds

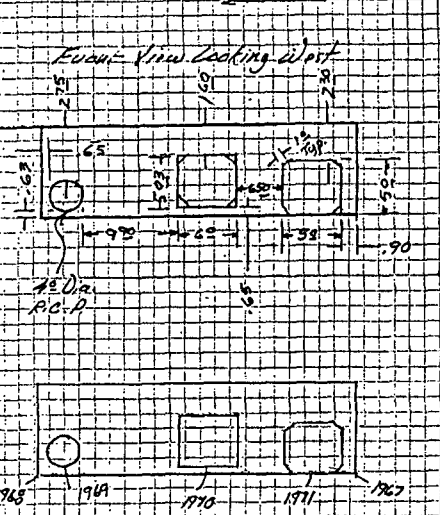
# Duck Creek Wash
## Box Culvert @ LVBS & Belz Mall

Top View




Inl @ 3001, BS 3002

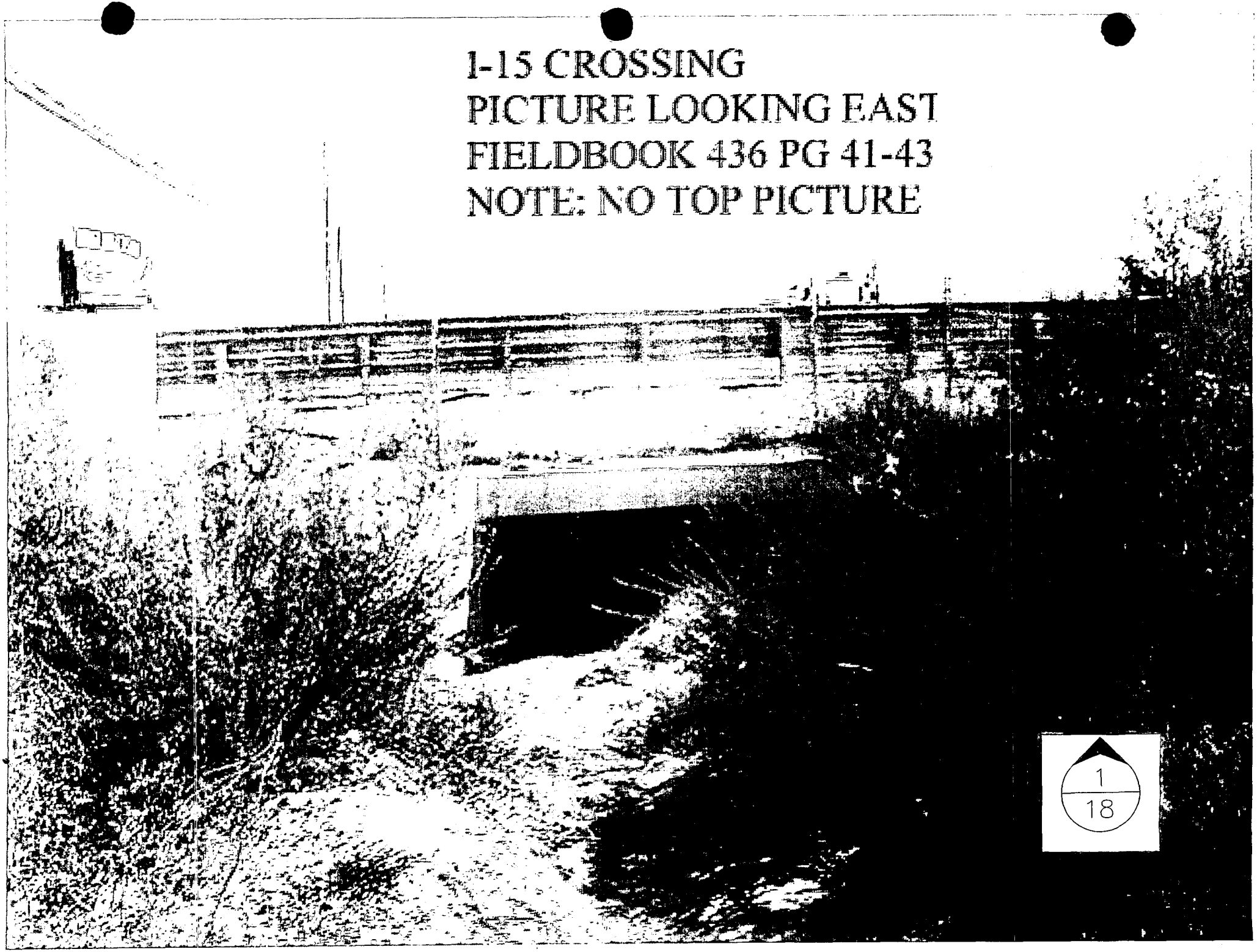
Evans View Looking West




St. Inlet
1965 Top inside conc. Headwall
1966 " " " "
1967 Conc. Headwall @ Bottom Chnl.
1968 " " " "
1969 15" RCP
1970 15' Box Culvert
1971 " " "
1972 Toe Chnl.
1973 Edge Con.
1974 Top Chnl.
1975 Toe Chnl.
1976 " "
1977 Top Chnl.
1978 Edge Con.
1979 15" RCP

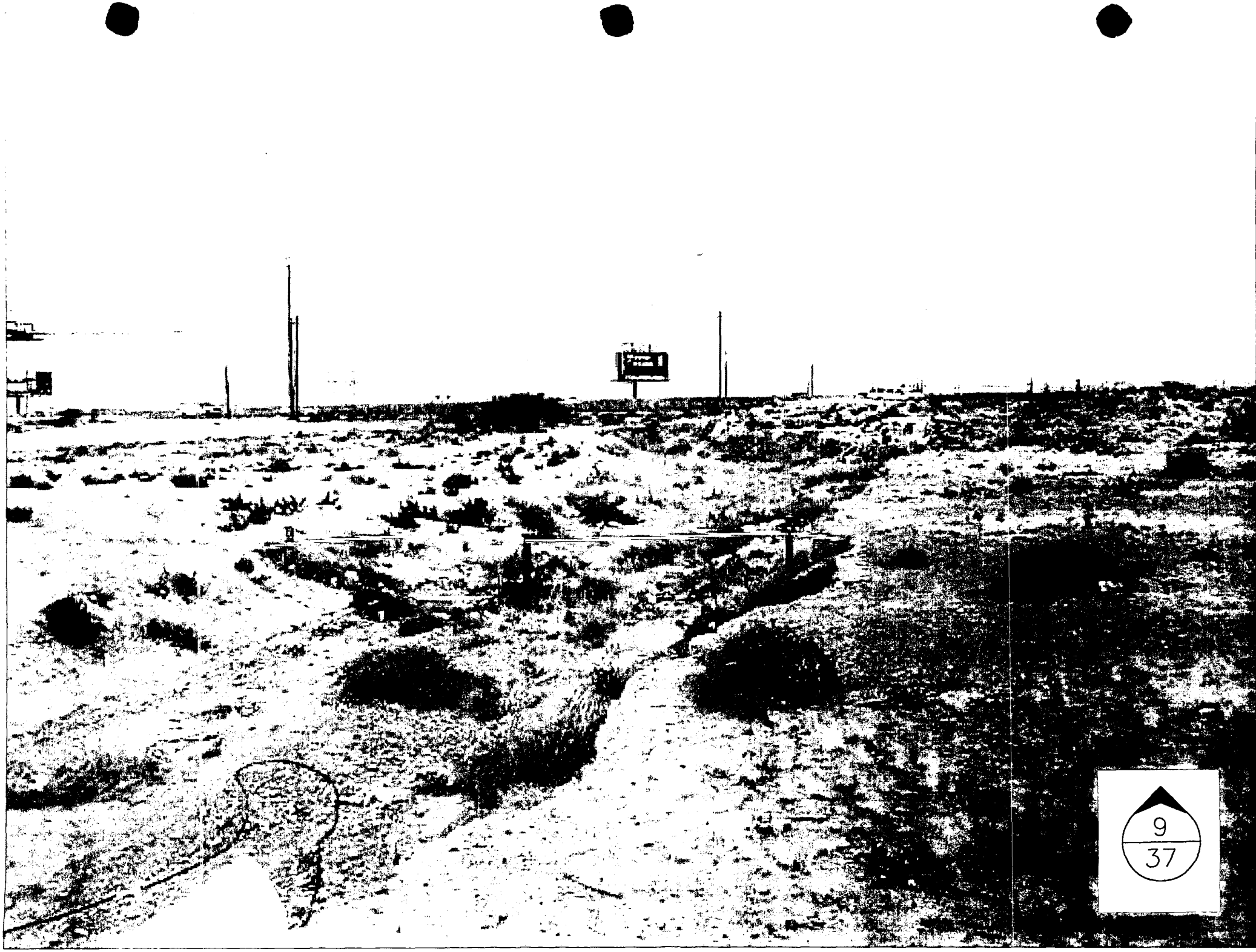
St. Inlet
1980 Toe Chnl.
1981 Edge Con.
1982 Top Chnl.
1983 Toe Chnl.
1984 Toe Chnl.
1985 Top Chnl.
1986 Edge Con.
1987 15" RCP

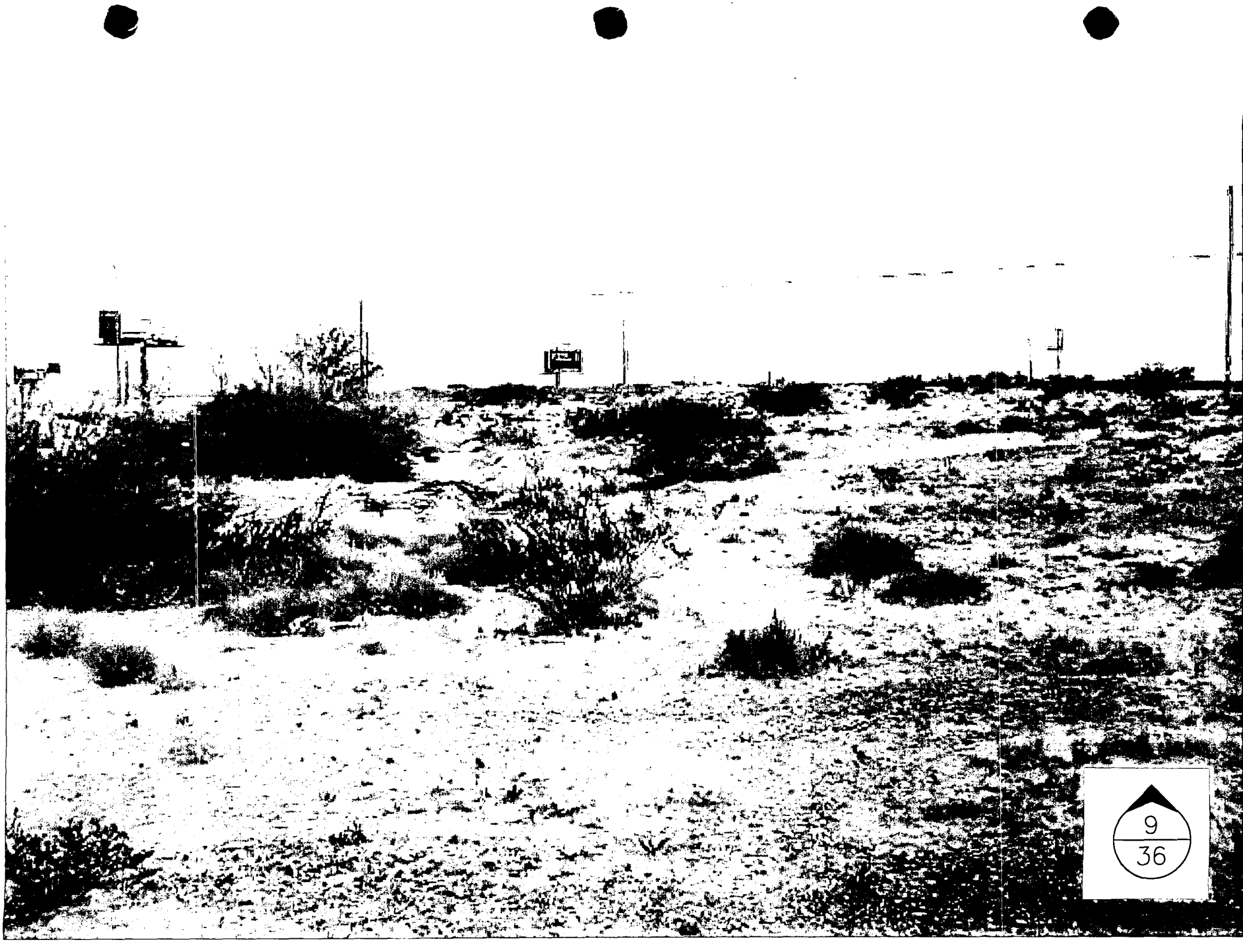
# I-15 CROSSING
# PICTURE LOOKING EAST
# FIELDBOOK 436 PG 41-43
# NOTE: NO TOP PICTURE



# I-15 CROSSING
# PICTURE LOOKING WEST
# FIELDBOOK 436 PG 41-43

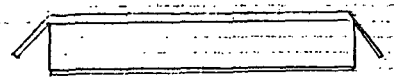






436-41

#4

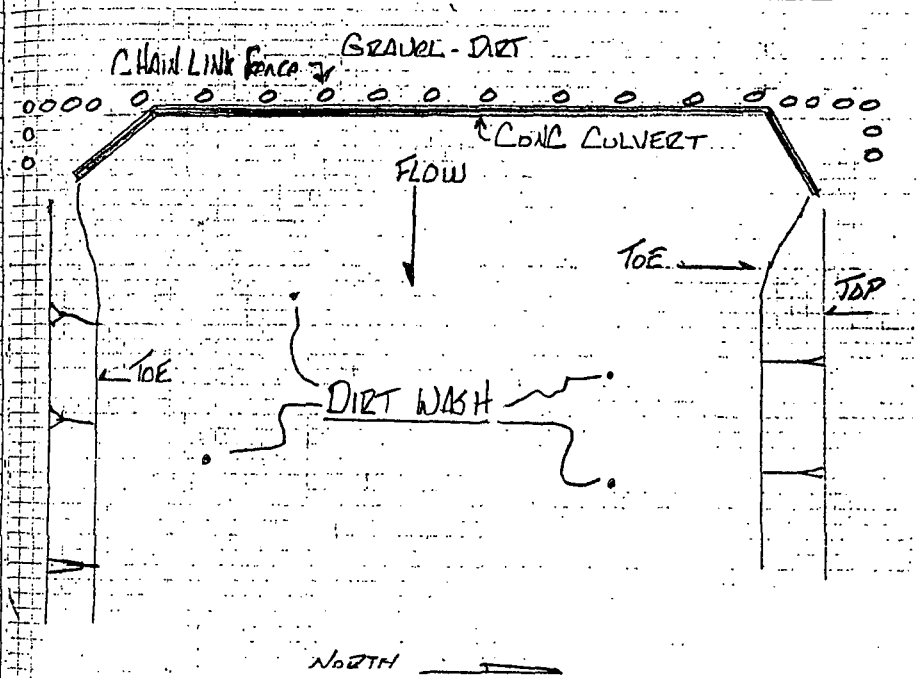


Control Point Set For Culvert

@ I-15 East Side -
North Bound Lane.

1656: Set 2x2 ☒
Hub: Tack East: South
of Culvert.
Initialized - Checked in 0
CP - Bm ± 568 - ± 215
Bench @ Manhill - Las Vegas 2001
Stored as # 1655.

Top View Conc Box Culvert @ East of I-15
which Extends West Under I-15

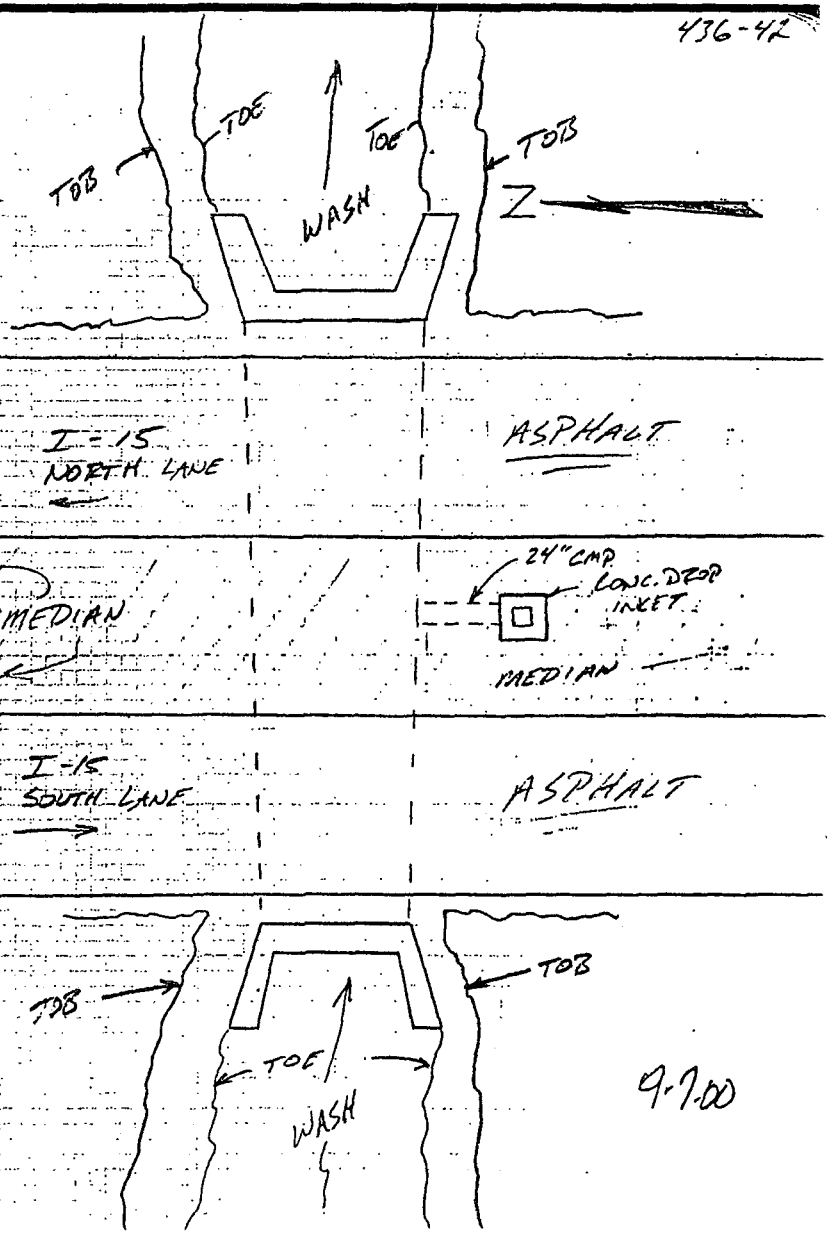



9-7-00

436-42

#4

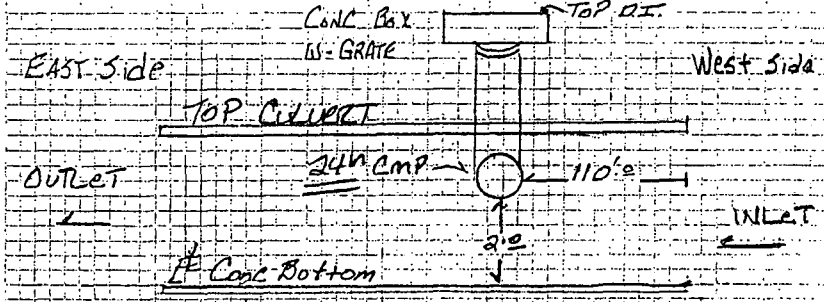
| PT # | | HWT HEIGHT |
|---|---|---|
| 1635 | OLD CP# 165 | 8.80 |
| 1636 | NG | |
| 1637 | TOP | |
| 1638 | TOE | |
| 1639 | Check in # 165 | |
| 1640 | TOE | |
| 1641 | TOE | |
| 1642 | TOP | |
| 1643 | NG | |
| 1644 | Toe West NG | |
| 1645 | Check in # 165 | |
| 1646 | EDGE OF CONC AT F/L NORTH END | |
| 1714 | END PT # | |



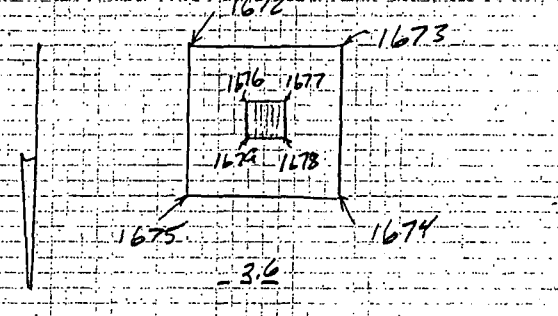

9-7-00

#4

## Side View - Box Culvert



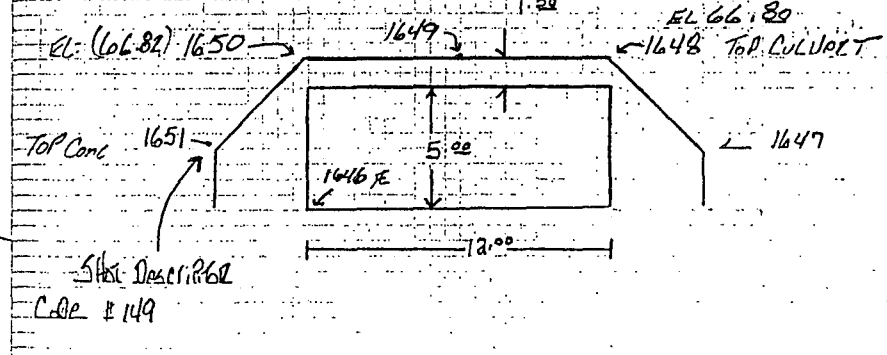

## Top View




## #149 - Top Conc Wing @ Box Culvert

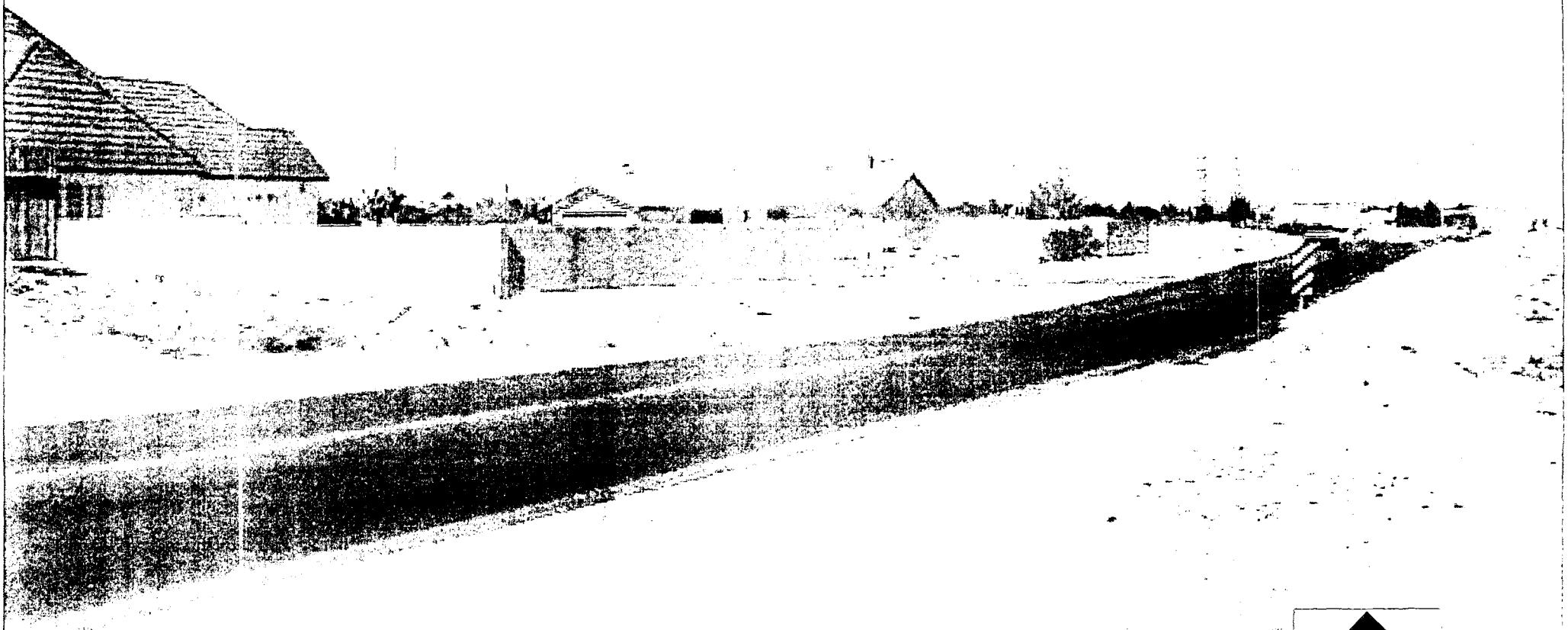
Concrete Box Culvert

@ I-15 & CP #165

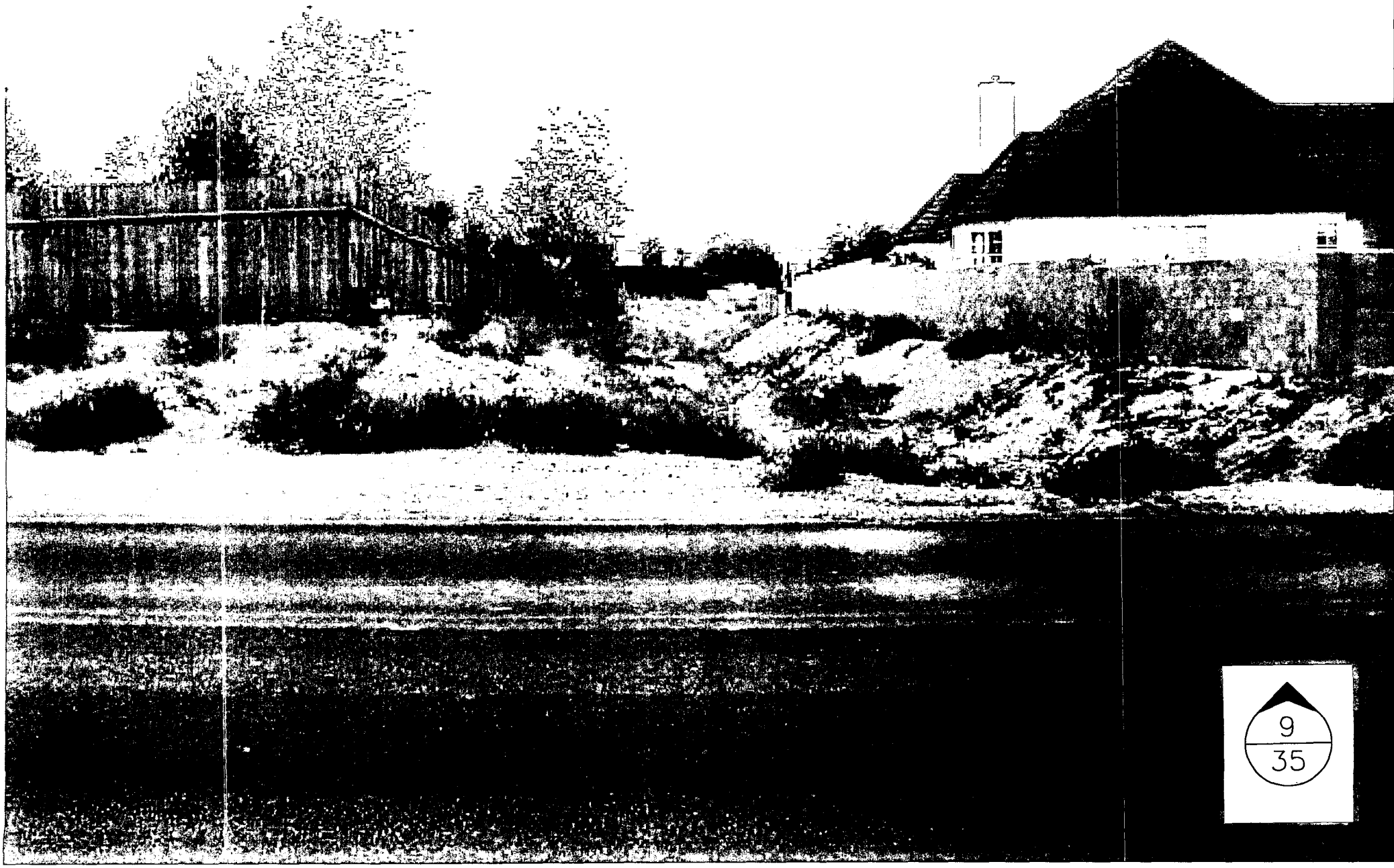


INDUSTRIAL ROAD

INDUSTRIAL RD CROSSING
PICTURE LOOKING NORTH
FIELDBOOK 436 PG-38-40



1
10



DUCK CREEK FIMA

9-7-00

J. PATTON
B. STREETER

FILE= " DUK-BRIDGE"

SUNNY, CLOUDY 80°

INDUSTRIAL ROAD # 3

2 36" CMP

TRIMBLE 4700 -

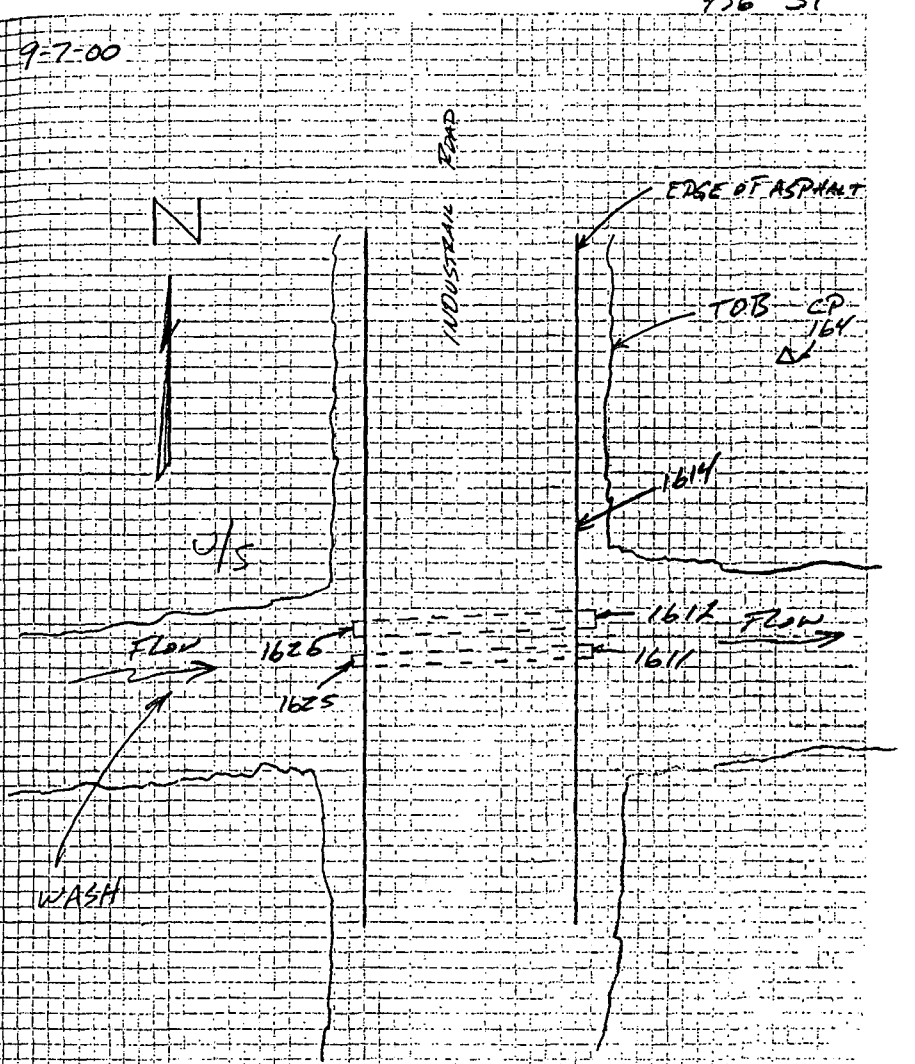
BASE LVWD "CREF"

550.039

#3

| PT # | | | ANT HEIGHT |
|---|---|---|---|
| 1600 | CHECK IN | CP # 164 | 7.26 |
| 1601 | 100 | TOB | |
| 1602 | 101 | TOE | |
| 1603 | 100 | TOB | |
| 1604 | 101 | TOE | |
| 1605 | 98 | FL & WASH + OR | |
| 1606 | 101 | TOE | |
| 1607 | 100 | TOB | |
| 1608 | 97 | NG | |
| 1609 | 97 | NG | |
| 1610 | 100 | TOB | |
| 1611 | 65 | FL 36" CMP CRUSHED | |
| 1612 | 65 | " " " " | |
| 1613 | 100 | TOB | |
| 1614 | 116 | EDGE ASPHALT | |
| 1615 | " | " " | |
| 1616 | " | " " | |

9-7-00



#3

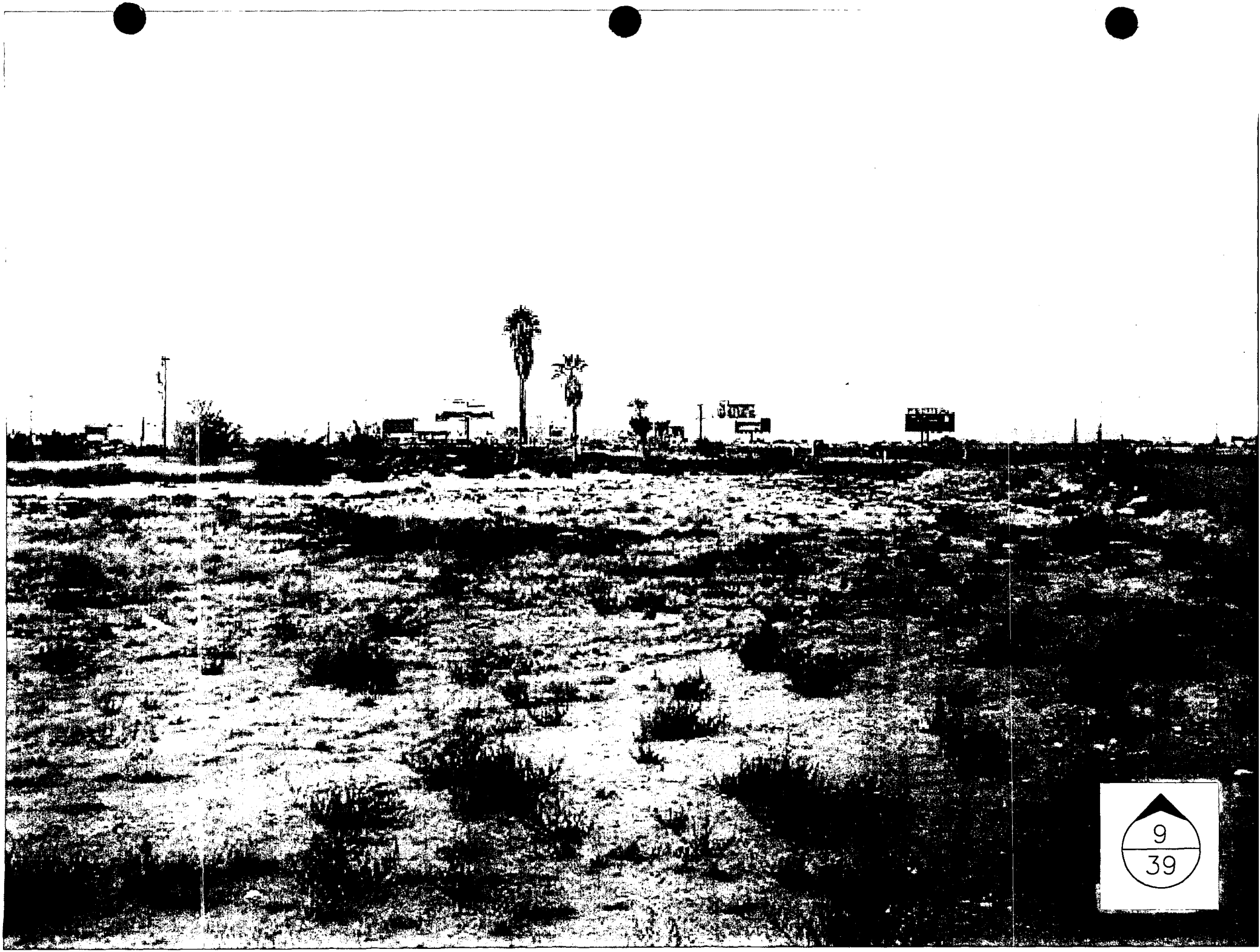
| | | | ALT HT |
|---|---|---|---|
| 1617 | 114 | ℄ ASPHALT | 7.26 |
| 1618 | 114 | " " | |
| 1619 | 114 | " " | |
| 1620 | 116 | EDGE ASPHALT | |
| 1621 | 116 | " " | |
| 1622 | 116 | " " | |
| 1623 | 100 | TOB | |
| 1624 | 101 | TOE | |
| 1625 | 65 | 36" CMP CRUSHED | |
| 1626 | 65 | 36" CMP CRUSHED | |
| 1627 | 101 | TOE | |
| 1628 | 100 | TOB | |
| 1629 | 100 | TOB | |
| 1630 | 101 | TOE | |
| 1631 | 98 | FL ℄ WASH +OR- | |
| 1632 | 101 | TOE | |
| 1633 | 100 | TOB | |
| 1634 | CHECK IN | PF #164 | |

END #3

9-7-00

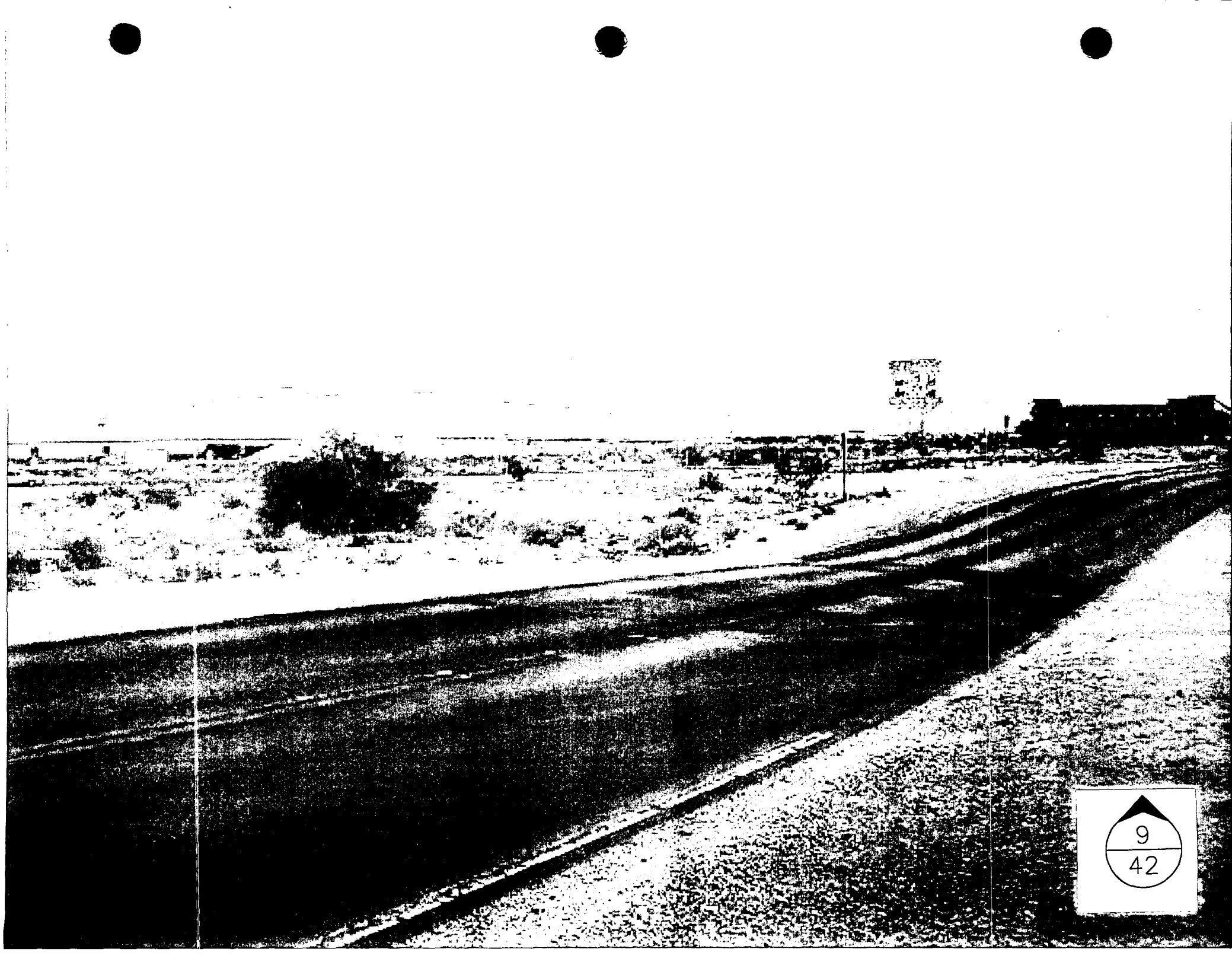
# BREAKOUT PATH FROM MIDDLE BRANCH BLUE DIAMOND WASH



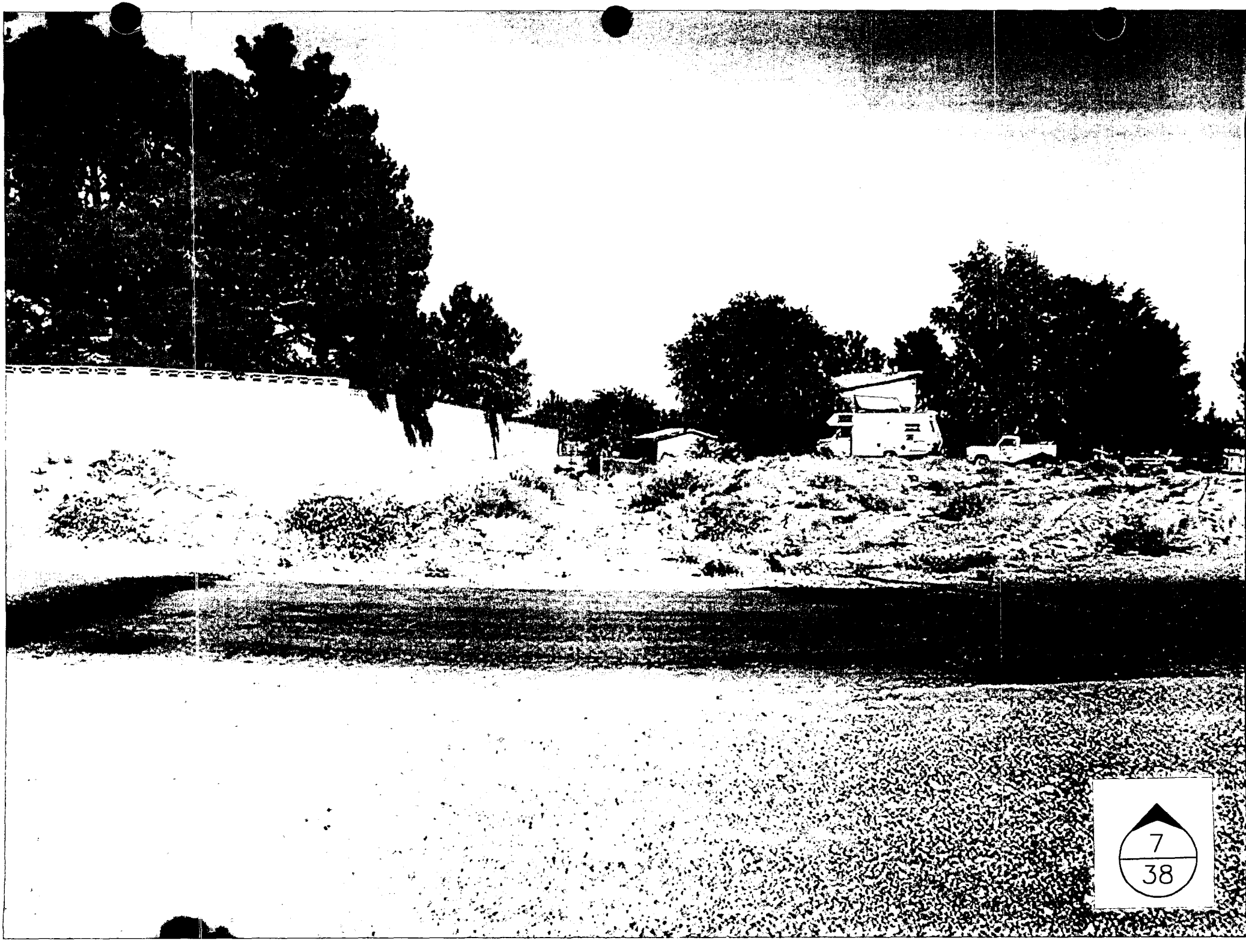




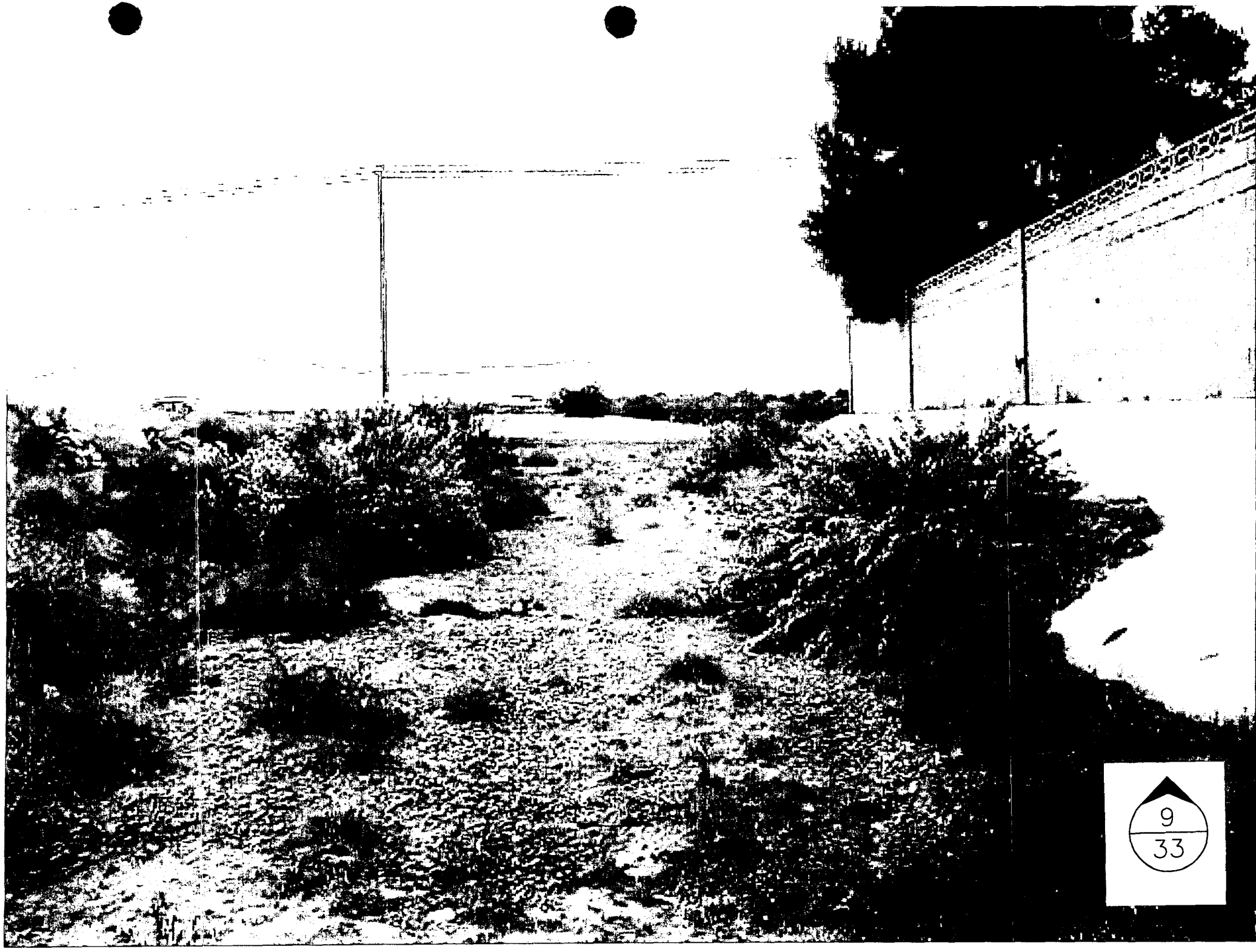




# VALLEY VIEW BOULEVARD

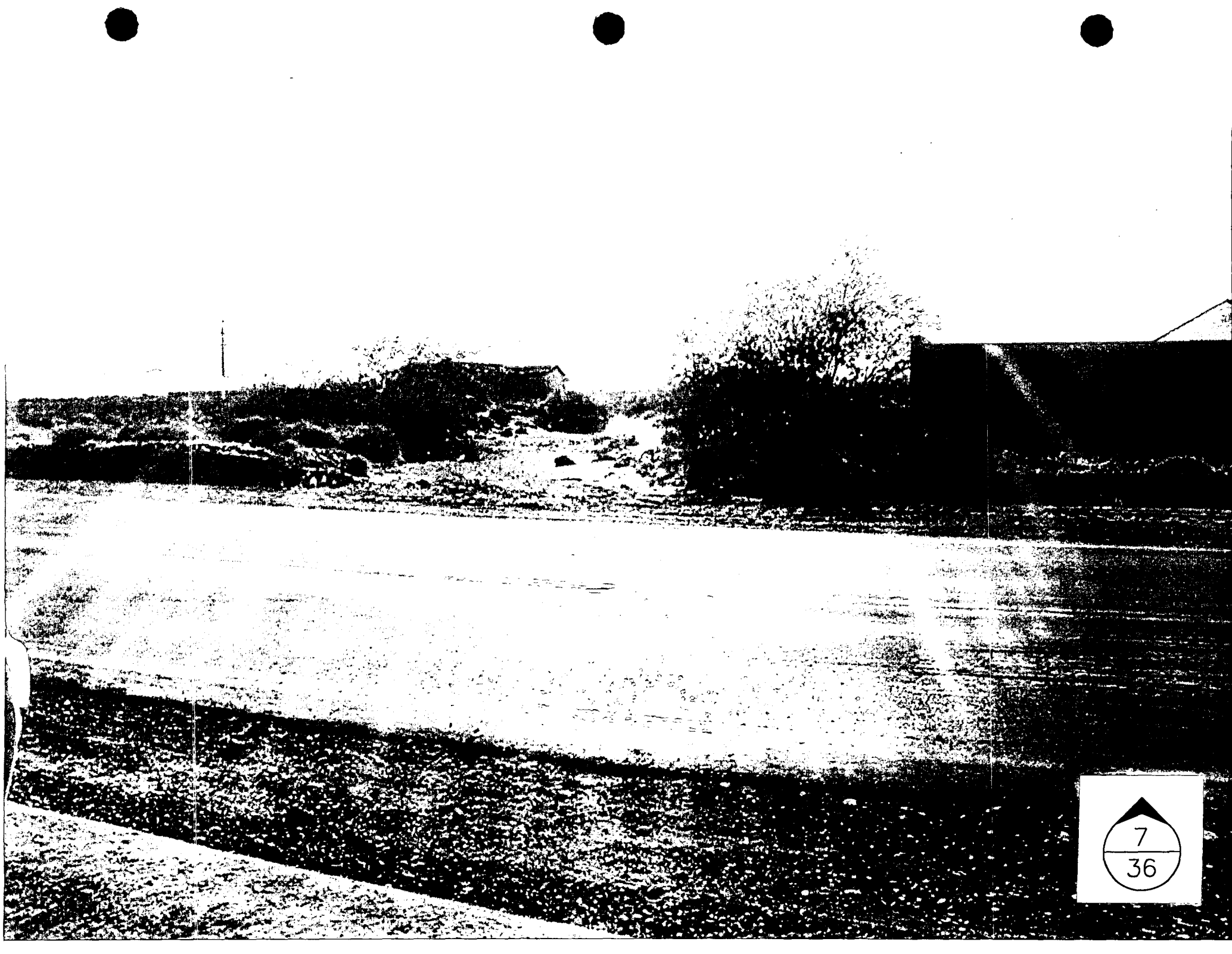








# DECATUR BOULEVARD



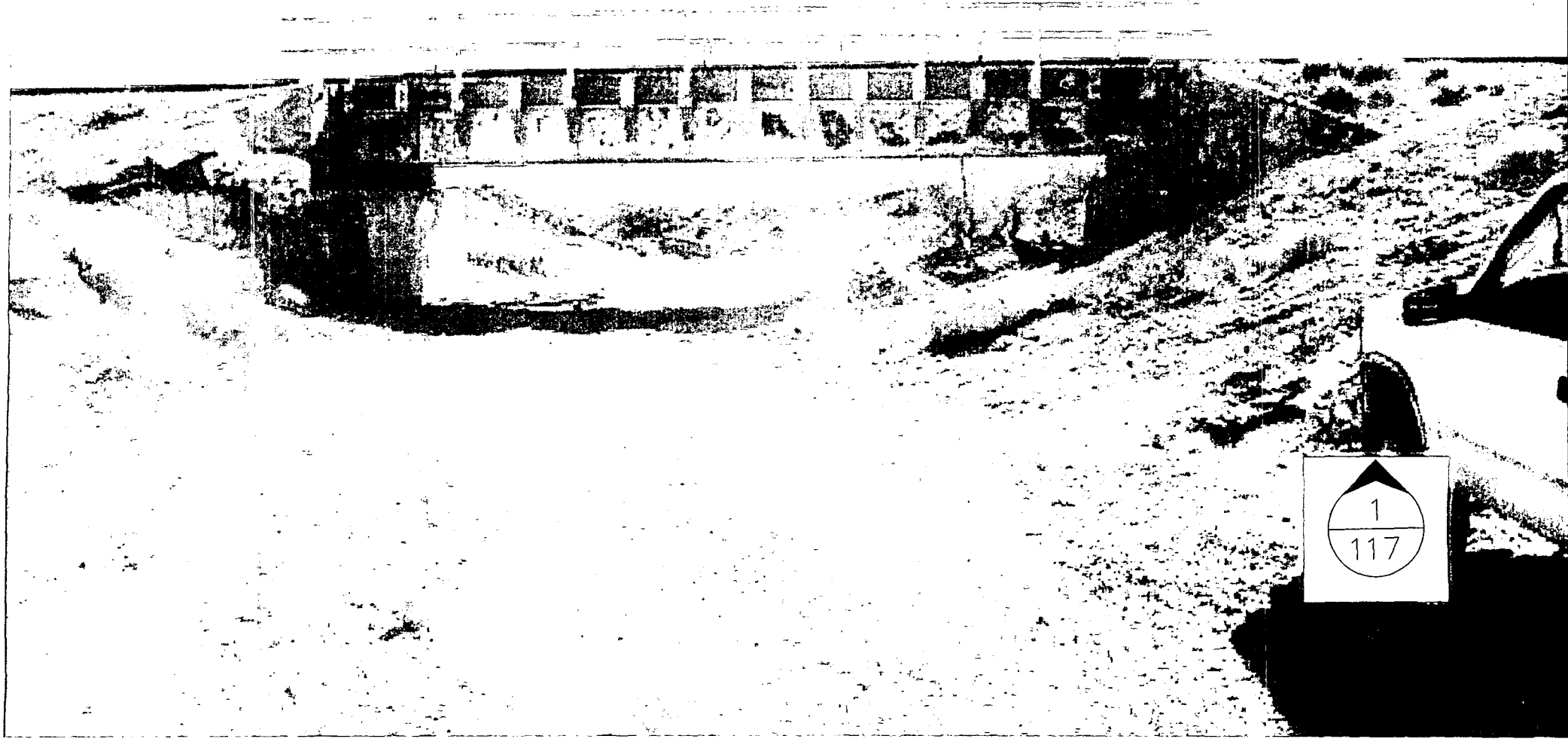
7
37

UNION PACIFIC RAILROAD

RAILROAD CROSSING
PICTURE LOOKING WEST.
FIELDBOOK 436 PG-31,32,33



RAILROAD CROSSING
PICTURE LOOKING EAST
FIELDBOOK 436 PG-31,32,33



#1

START 9:32 END 11:26

DUCK CREEK TINA
TOPO BRIDGE 1
FILE "DUK-BRIDGE"

550.039
CALM, SUNNY
80°
TRIMBLE 4700-13

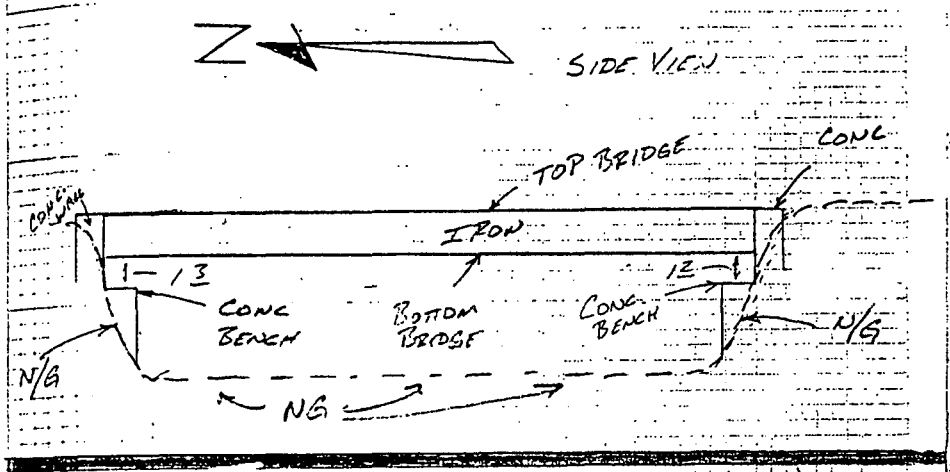
ANT HT: 6.00

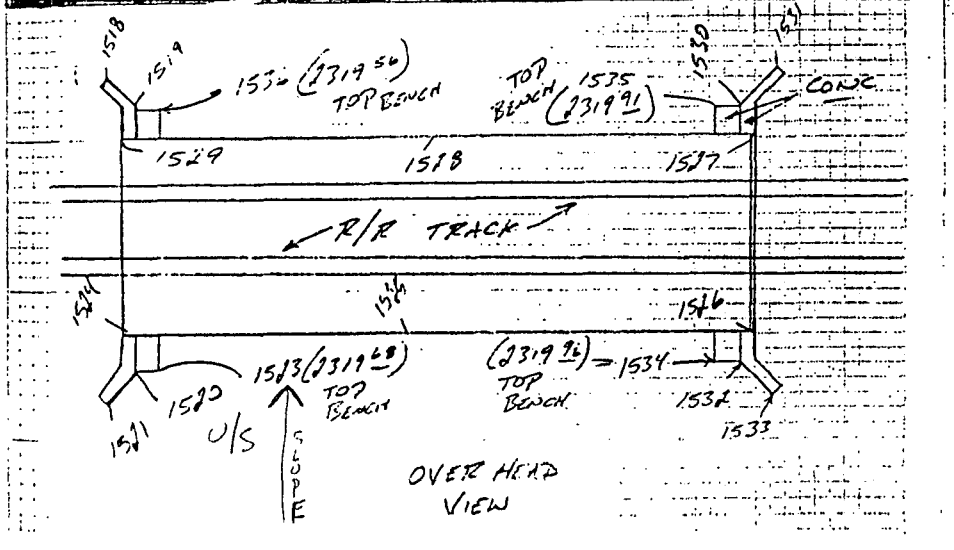
550.039

| PT # | DESC | OLD PT # |
|---|---|---|
| PT 1522 | CHECK IN | 222 |
| | WEST SIDE SOUTH TO NORTH | |
| 1501 | NG TOB | |
| 1502 | NG TOE | |
| 1503 | NG @ FL + 0.2' - | |
| 1504 | NG TOE | |
| 1505 | NG TOB | |
| 1506 | CHECK IN NORTH TO SOUTH | |
| 1507 | NG TOE | |
| 1508 | @ FL + 0.2' - | |
| 1509 | NG TOE | |
| | EAST SIDE SOUTH TO NORTH | |
| 1510 | NG TOB | |
| 1511 | NG TOB | |
| 1512 | NG TOE | |
| 1513 | NG @ FL + 0.2' - | |
| 1514 | NG TOE | |

436-31

9-6-00 BRIDGE #1 R/R J. PATTON CC
BASE LYND "CREF" B. STREETER RA



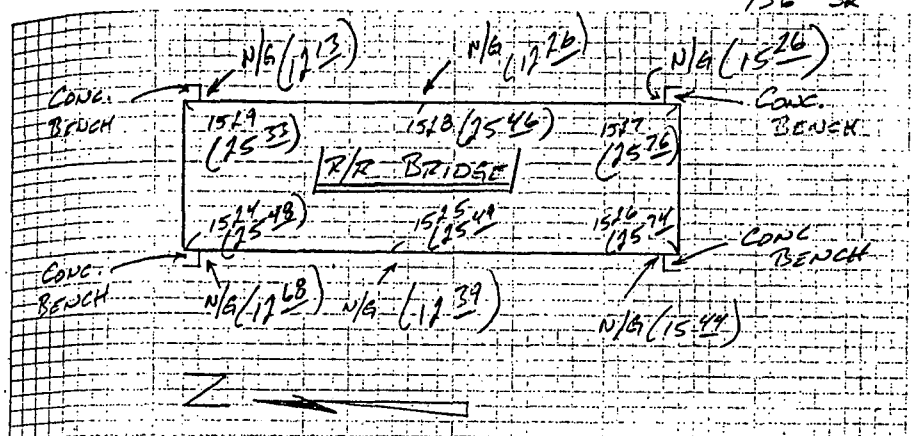
436-32

#1

| | | | |
|---|---|---|---|
| 1516 | 1/2 INCH REBAR NE WING WALL NORTHEAST END | BM-2C10 ANT 1256 | 6.90 |
| 1517 | NG AT END WING WALL — SOUTH EDGE — | | " |
| 1518 | END CONC WING SOUTH 1½ WIDE | | " |
| 1519 | ANGLE " " " " " | | " |
| 1520 | ANGLE CONC WING SOUTH 1½ WIDE | | " |
| 1521 | END CONC WALL 1½ WIDE | | " |
| 1522 | NG AT END WING WALL | | " |
| 1523 | ANGLE CONC BENCH NW | ANT HEIGHT | 8.49 |

MEASURE DOWNS

| | | |
|---|---|---|
| 1524 | TOP BRIDGE NW (STEEL) | |
| 1525 | TOP BRIDGE & WASH WEST | |
| 1526 | TOP BRIDGE SW | |
| 1527 | TOP BRIDGE SE | |
| 1528 | TOP BRIDGE & WASH EAST | |
| 1529 | TOP BRIDGE NE | |




| TOP BRIDGE | NG | BOTT. BRIDGE SOFFIT |
|---|---|---|
| EL = 25.48 | EL = 17.68 | EL = 20.85 |
| EL = 25.49 | EL = 17.39 | EL = 20.86 |
| EL = 25.24 | EL = 15.44 | EL = 21.16 |
| EL = 25.76 | EL = 15.46 | EL = 21.13 |
| EL = 25.16 | EL = 17.26 | EL = 20.83 |
| EL = 25.33 | EL = 17.13 | EL = 20.70 |

#1 - NORTH EDGE -

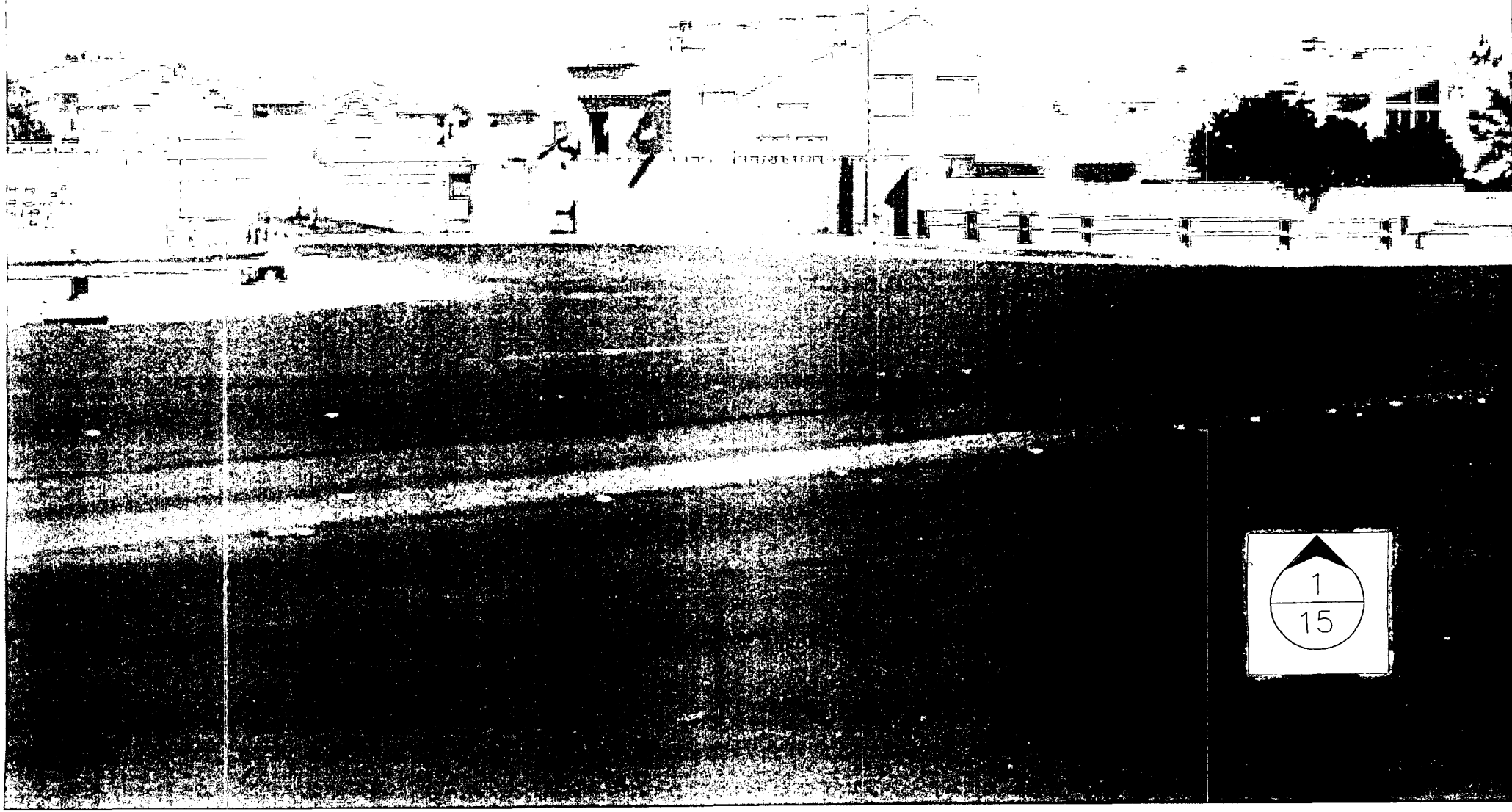
| | | | | |
|---|---|---|---|---|
| 1530 | ANGLE CONC WING WALL | 14 | ANT. | |
| 1531 | END CONC WING WALL/NG | " | 8.49 | |
| 1532 | ANGLE CONC WING WALL | " | " | |
| 1533 | END CONC WING WALL/NG | " | " | |
| 1534 | CONC BENCH | SW | 8.49 | |
| 1535 | CONC BENCH | SE | " | |
| 1536 | CONC BENCH | NE | " | |
| 1537 | CHECK IN | | 8.49 | |
| 1538 | CHECK IN | OLD PT #21 | | |

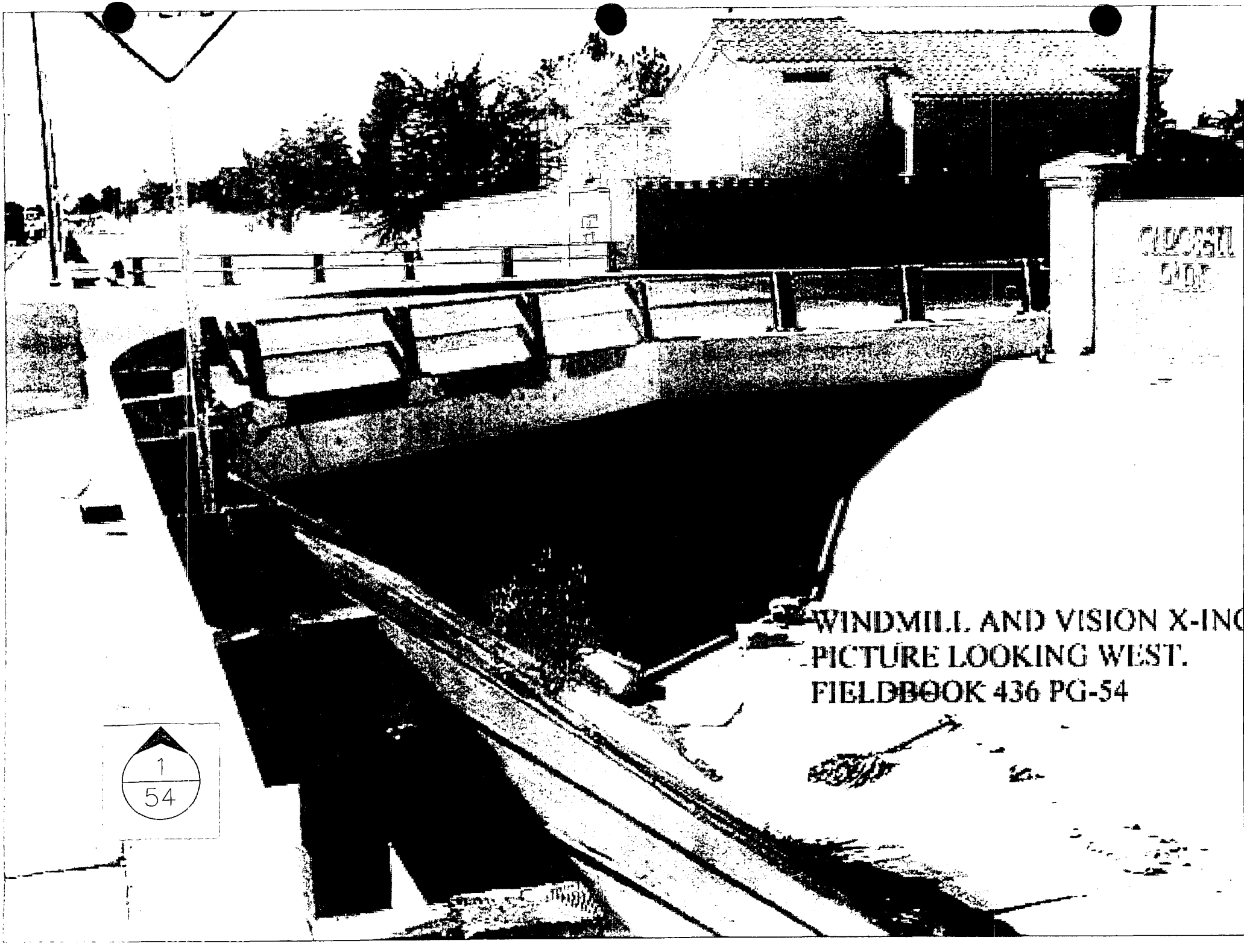
END #1

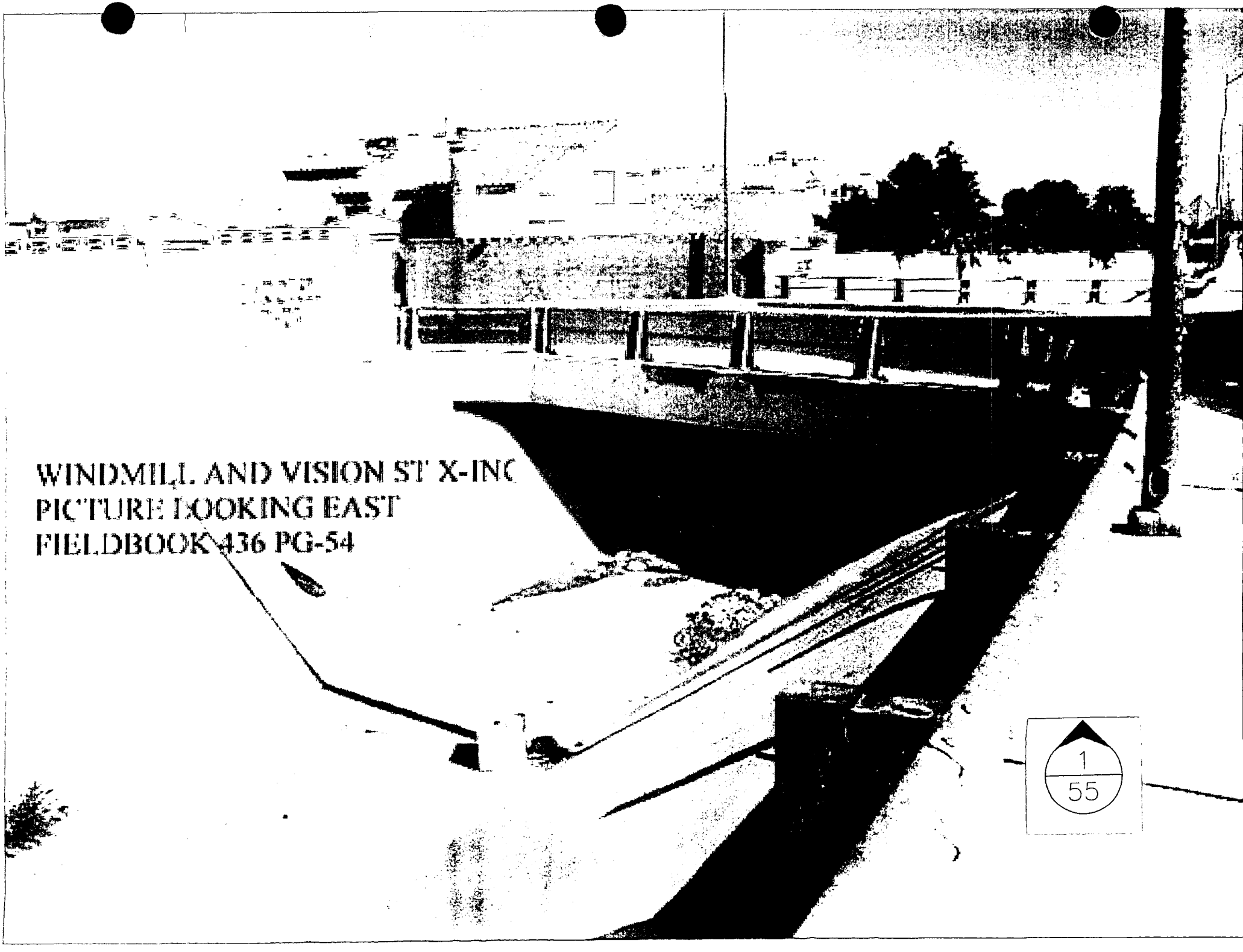
# MIDDLE BRANCH BLUE DIAMOND WASH

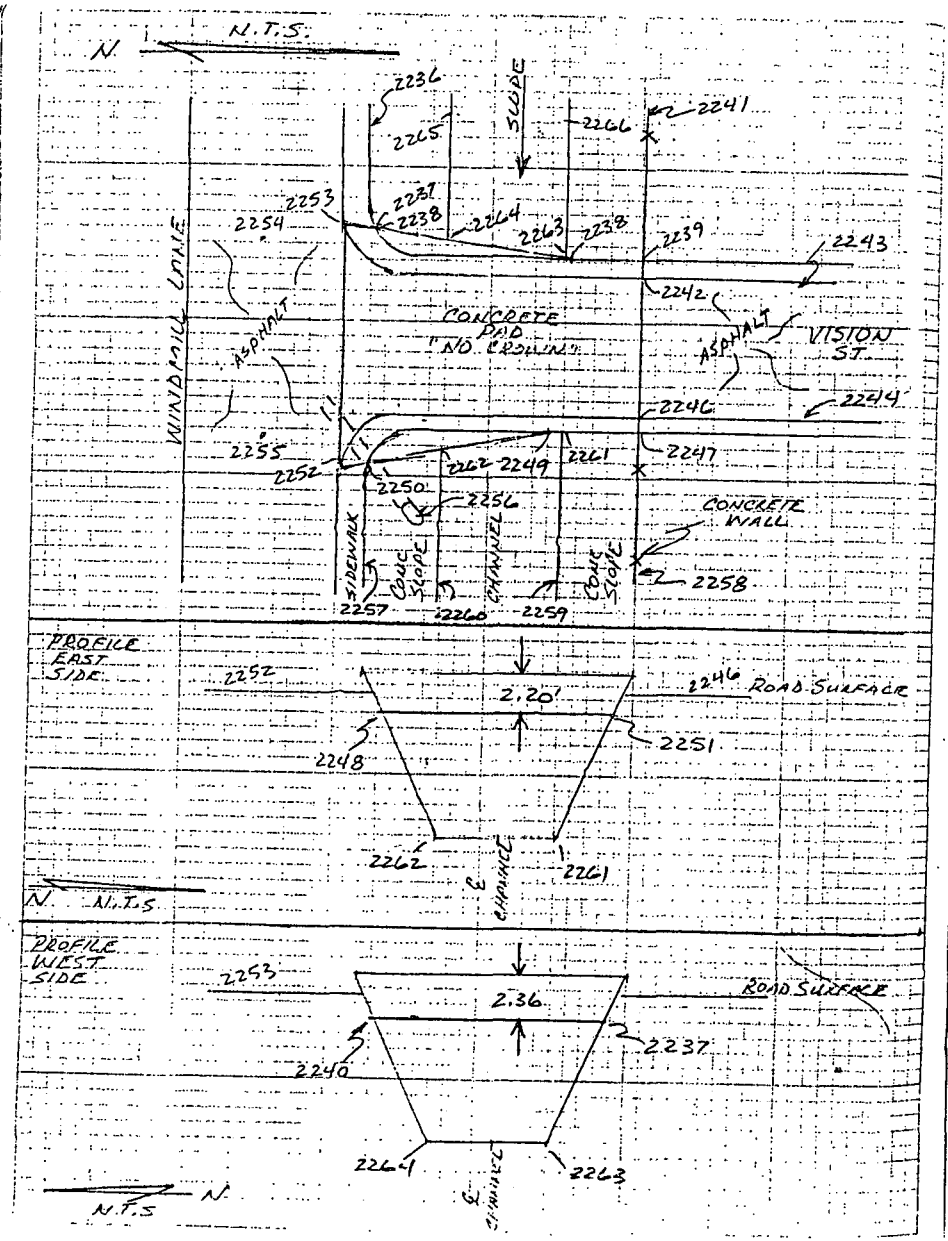
# VISION STREET

WINDMILL AND VISION ST X-IN(
PICTURE LOOKING NORTH.
FIELDBOOK 436 PG-54




WINDMILL AND VISION X-ING
PICTURE LOOKING WEST.
FIELDBOOK 436 PG-54
1
54


WINDMILL AND VISION ST X-INC
PICTURE LOOKING EAST
FIELDBOOK 436 PG-54
1
55




↗ @ 3019, BS 3020 HI = 5.31 436-54

(BS) HR = 5.00

CHECK BS

H = -0.03

V = -0.10

| | |
|---|---|
| 2236 | TOP CHANNEL |
| 2237 | " " @ BRIDGE |
| 2238 | ℄ PT IN BRIDGE |
| 2239 | BRIDGE END |
| 2240 | TOP CHANNEL @ BRIDGE |
| 2241 | TOP CHANNEL |
| 2242 | BRIDGE |
| 2243 | EAC @ BRIDGE LINE / FACE of Curb |
| 2244 | EAC |
| 2245 | EAC |
| 2246 | EAC @ BRIDGE LINE / FACE OF CURB |
| 2247 | BRIDGE END |
| 2248 | TOP CHANNEL @ BRIDGE |
| 2249 | ℄ PT IN BRIDGE |
| 2250 | BRIDGE END |
| 2251 | TOP CHANNEL @ BRIDGE |
| 2252 | EAC @ BRIDGE LINE / FACE OF CURB |
| 2253 | " " " " " " |
| 2254 | ASPHALT |
| 2255 | " |
| * 2256 | I.E. 24" R.C.P. |
| 2257 | TOP CHANNEL |
| 2258 | " " |
| 2259 | FLOWLINE |
| 2260 | " |
| 2261 | " |
| 2262 | " |
| 2263 | " |
| 2264 | " |
| 2265 | " |
| 2266 | " |

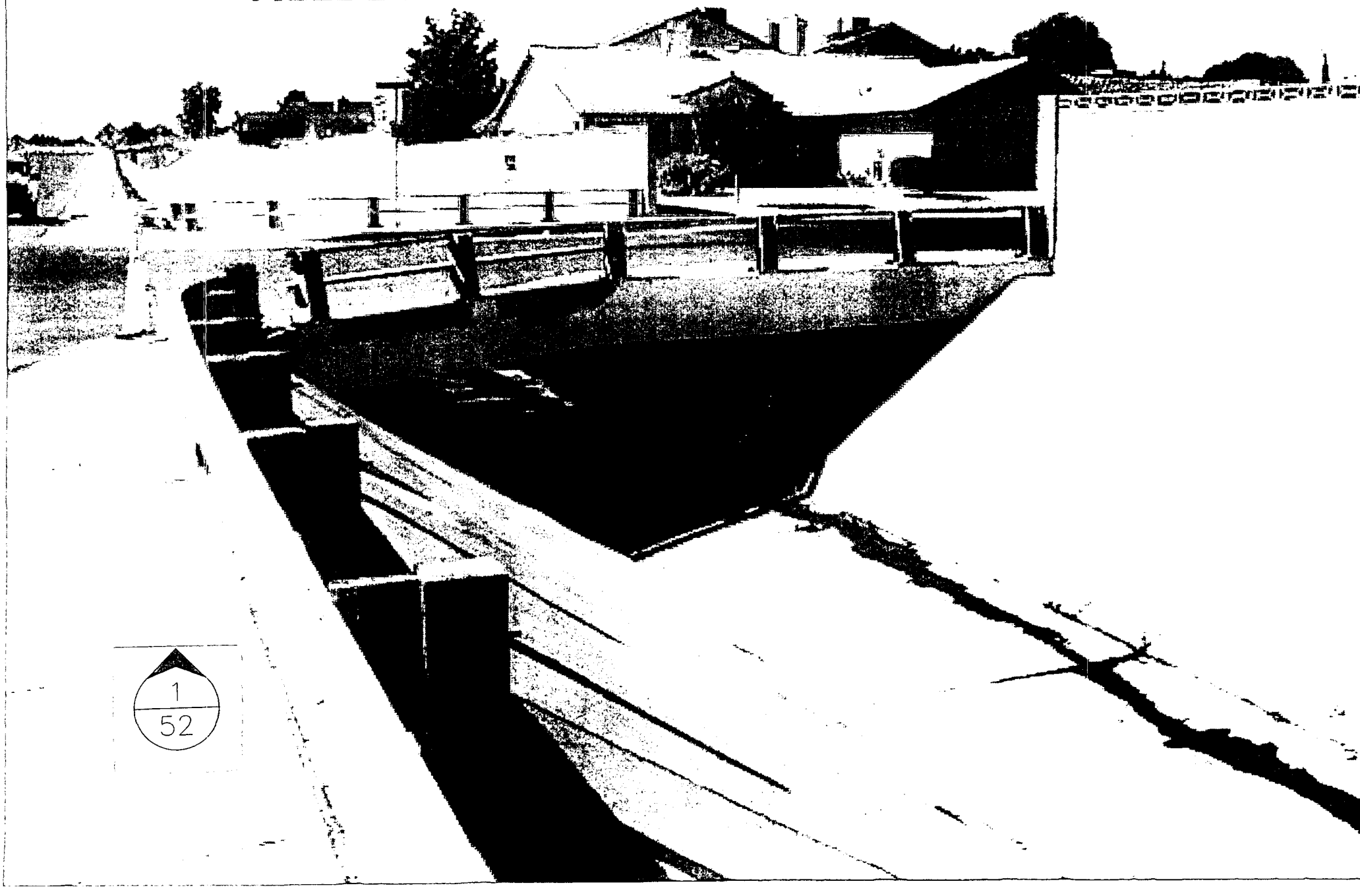
Pictures 10/16/00
95 Top, Looking North
94 Looking West
93 Looking East

# VISTA TWILIGHT DRIVE

WINDMILL AND VISTA TWILIGHT CROSSING
PICTURE LOOKING NORTH.
FIELDBOOK 436 PG 53

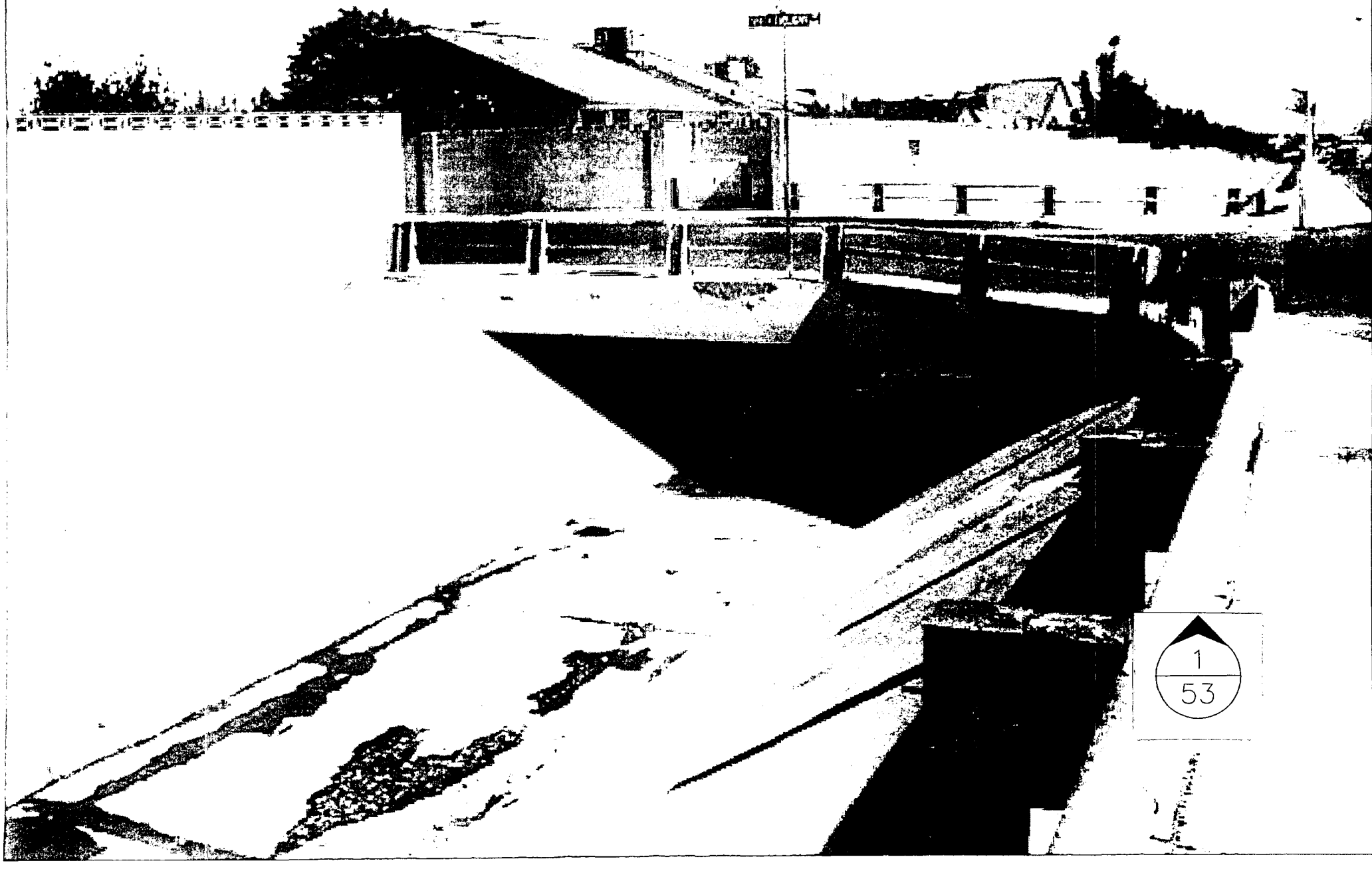


WINDMILL-VISTA TWILGHT CROSSING
PICTURE LOOKING WEST.
FIELDBOOK 463 PG-53

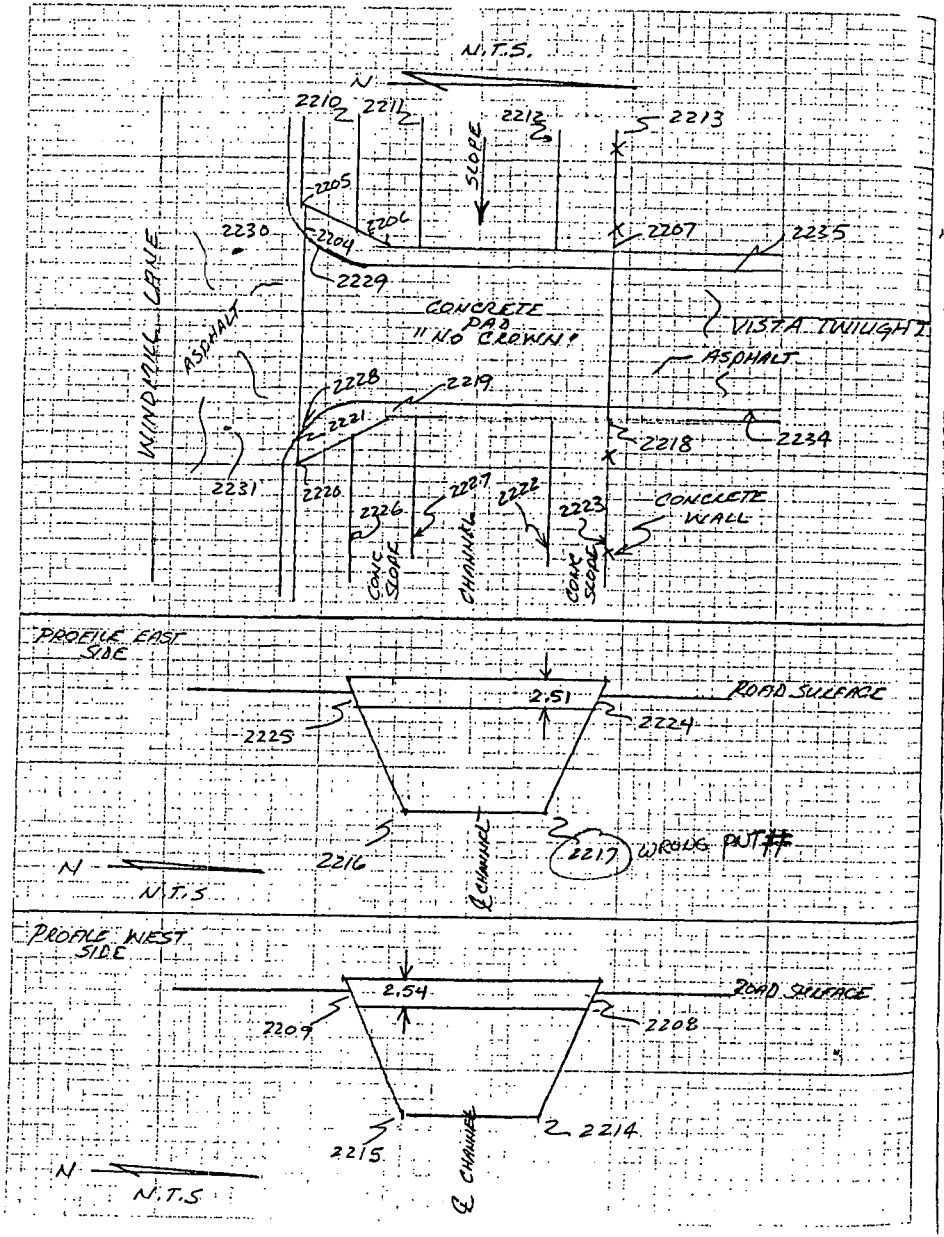


1
52

WINDMILL AND VISTA TWLIGHT X-IN(
PICTURE LOOKING EAST.
FIELDBOOK 436 PG-53



1
53




↑ 3017, BS 3018 HI = 5.10

(BS) HR = 5.01

436-53

CHECK BS

H = -0.18

V = -0.12

Pictures 10/16/00

98 Top, Looking North

97 Looking West

96 Looking East

2204 BRIDGE @ TOP SIDEWALK

2205 ANGLE PT. IN BRIDGE

2206 " " " "

2207 END BRIDGE

2208 TOP CHANNEL @ BRIDGE

2209 " " "

2210 TOP CHANNEL

2211 FLOWLINE

2212 "

2213 TOP CHANNEL

2214 FLOWLINE

2215 FLOWLINE

2216 "

* 2217 "

2218 END BRIDGE

2219 ANGLE PT IN BRIDGE

↑ @ 3018, BS 3017 HI = 5.36

(BS) HR = 4.78

CHECK BS

H = -0.18

V = -0.10

2220 BRIDGE ℄ PT.

2221 BRIDGE LINE (END)

2222 FLOWLINE

2223 TOP CHANNEL

2224 " "

2225 " "

2226 " "

2227 FLOWLINE

2228 EAC @ CURB / BRIDGE LINE

2229 " " " "

2230 "EAC" EDGE ASPHALT

2231 " " "

2232 " " " @ BRIDGE LINE / FACE OF CURB

2233 " " " " " " " "

2234 EAC @ CURB FACE

2235 " " "

# BERMUDA ROAD TO AMIGO STREET

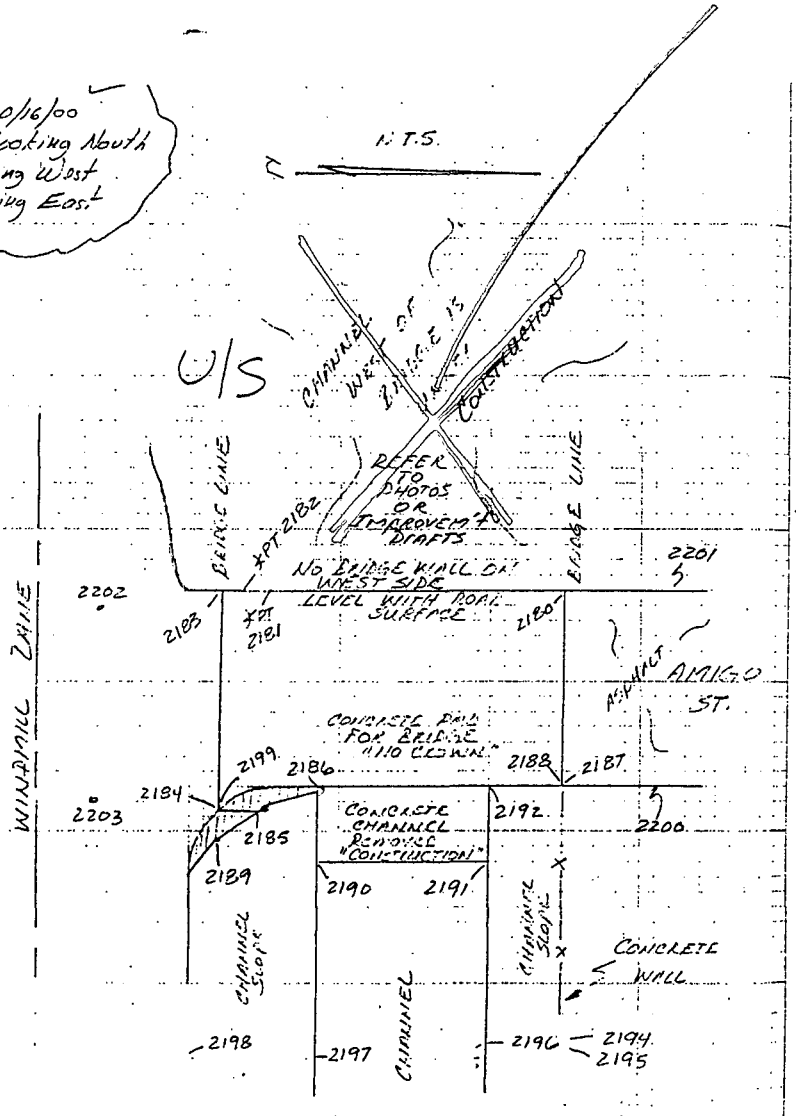


6
18



SEE PLANS – NEW STORM DRAIN

Pictures 10/16/00
101 T&D, Looking North
100 Looking West
99 Looking East




T @ 3017, BS 3018. (BS) HI = 5.10, HR = 5.01

436-52
9-25-00

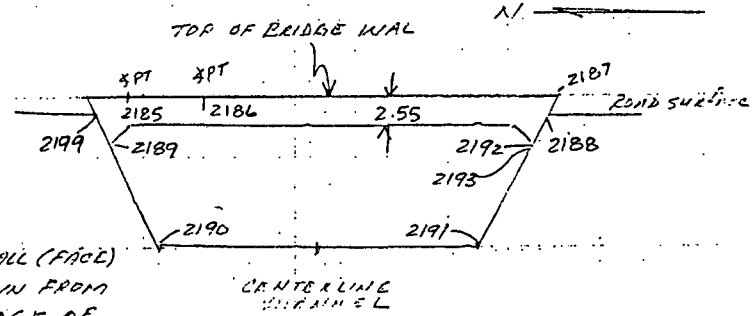
#3017 #3018 CHECKED BS

N 2671738.787N 2671741.1.38 H = -0.18
E 784405.452 E 785182.626 V = -0.12
EL 2147.37 EL 2130.33

2180 BRIDGE LINE @ (EAC) EDGE OF ASPHALT
2181 ANGLE POINT EDGE OF BRIDGE
2182 " " " " "
2183 BRIDGE LINE @ EAC
2184 BRIDGE @ TOP SIDEWALK
2185 BRIDGE @ TOP OF WALL XPT.
2186 " " " " "
2187 BRIDGE LINE
2188 BRIDGE LINE @ EAC
2189 TOP CHANNEL @ BRIDGE
2190 EDGE OF CHANNEL @ Construction REMOVAL
2191 EDGE OF CHANNEL @ CONSTRUCTION REMOVAL
2192 EDGE CONC
2193 TOP CHANNEL
2194 EDGE OF CONC
2195 TOP CHANNEL
2196 BTM. CHANNEL "FLOWLINE"
2197 " " "
2198 TOP CHANNEL @ BACKBACK 2199 EDGE BRIDGE @ EAC

| | |
|---|---|
| 2200 | EAC |
| 2201 | EAC |
| 2202 | EAC |
| 2203 | EAC |

PROFILE EAST SIDE



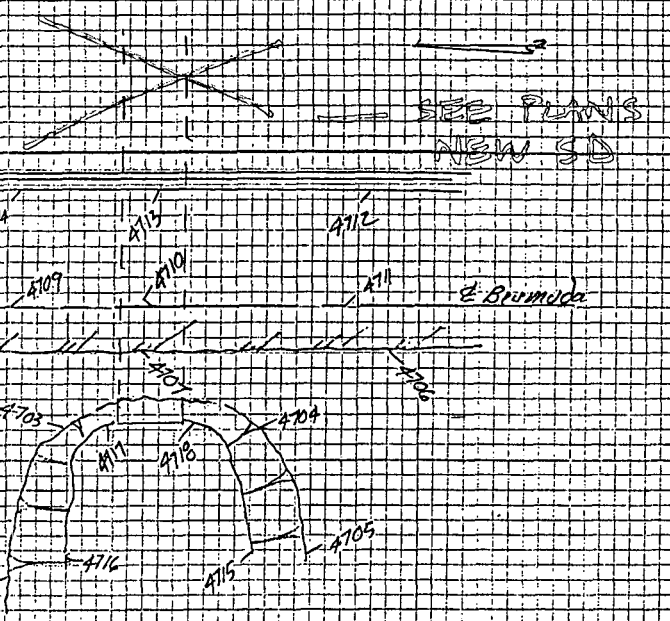

BRIDGE WALL (FACE) 1.65 DOWN FROM WEST EDGE OF ROADWAY.

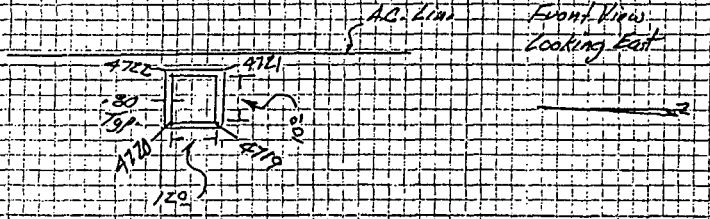
10/13/00
C. BREEDEN
Z. HART
R. PETERSON
65° CALM

SEC 16, T22S, R61E MDM

DOWNLOAD FILE CC000B1A

Top View




1 @ 3072 BS 3073 000-00-00
HI = 5.22 HI = 5.17 CHECKED BS ✓
WEATHER 65° CALM H = 0.07
V = 0.01

| | |
|---|---|
| 4707 | Top Chal. |
| 4703 | " " |
| 4704 | " " |
| 4705 | " " |
| 4706 | Edge AC |
| 4707 | " " |
| 4708 | " " |
| 4709 | Coown AC |
| 4710 | " " |
| 4711 | " " |
| 4712 | AC @ Up Cotton |
| 4713 | " " " |
| 4714 | " " " |
| 4715 | Toe Chnl. |
| 4716 | " " |
| 4717 | Toe Chnl. @ Box |
| 4718 | " " " |
| 4719 | Coo Box Cutout |
| 4720 | " " |
| 4721 | Top Coo. Box Cutout |
| 4722 | " " " " |

**Windmill Lane Storm Drain from Bermuda Road to Amigo Street**

For additional survey information, see attached conformed design drawings "Improvement Plans for Windmill Lane from Las Vegas Boulevard to Maryland Parkway".

# FAIRFIELD AVENUE

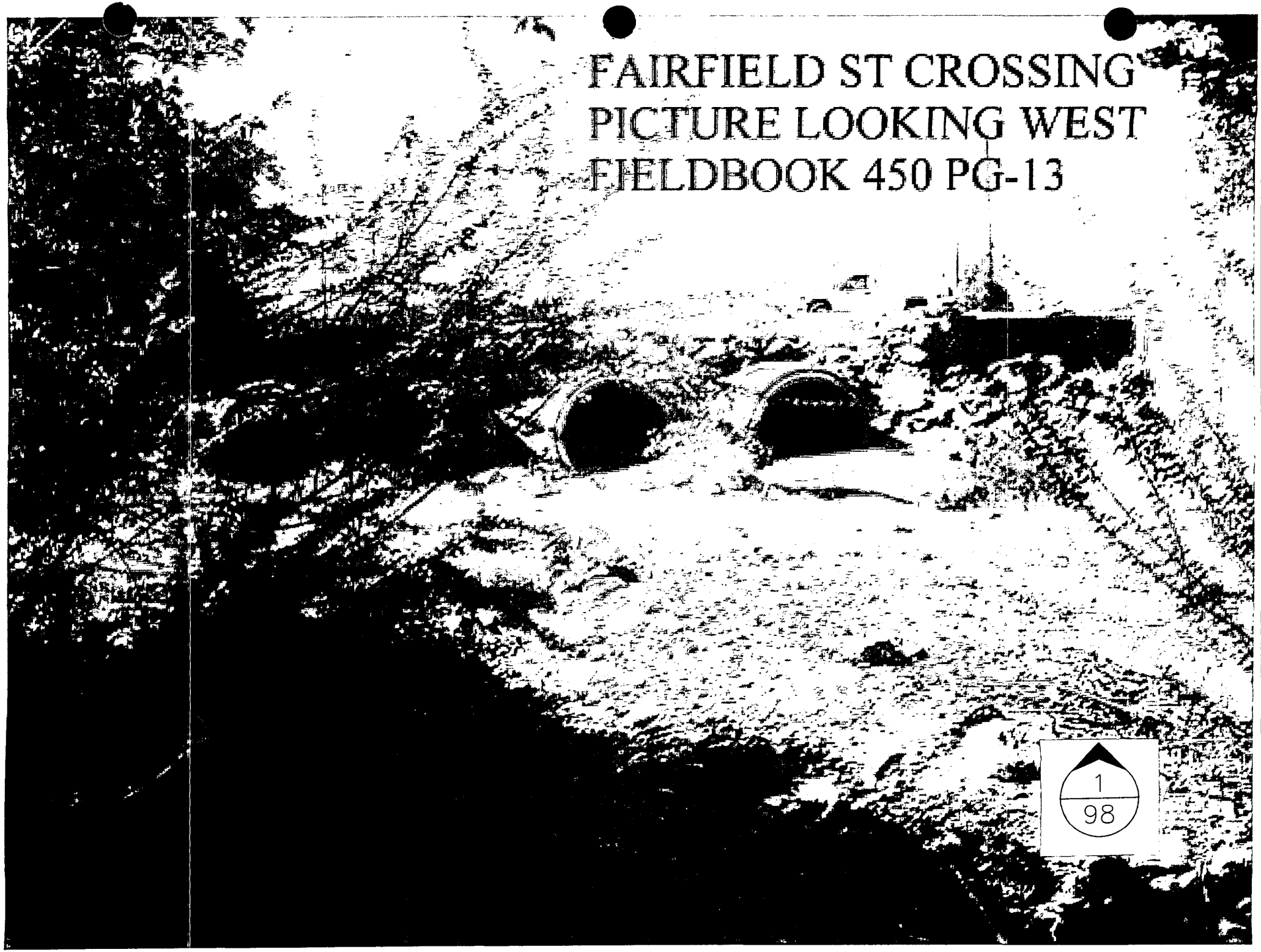


# FAIRFIELD ST CROSSING
# PICTURE LOOKING NORTH
# FIELDBOOK 450 PG-13

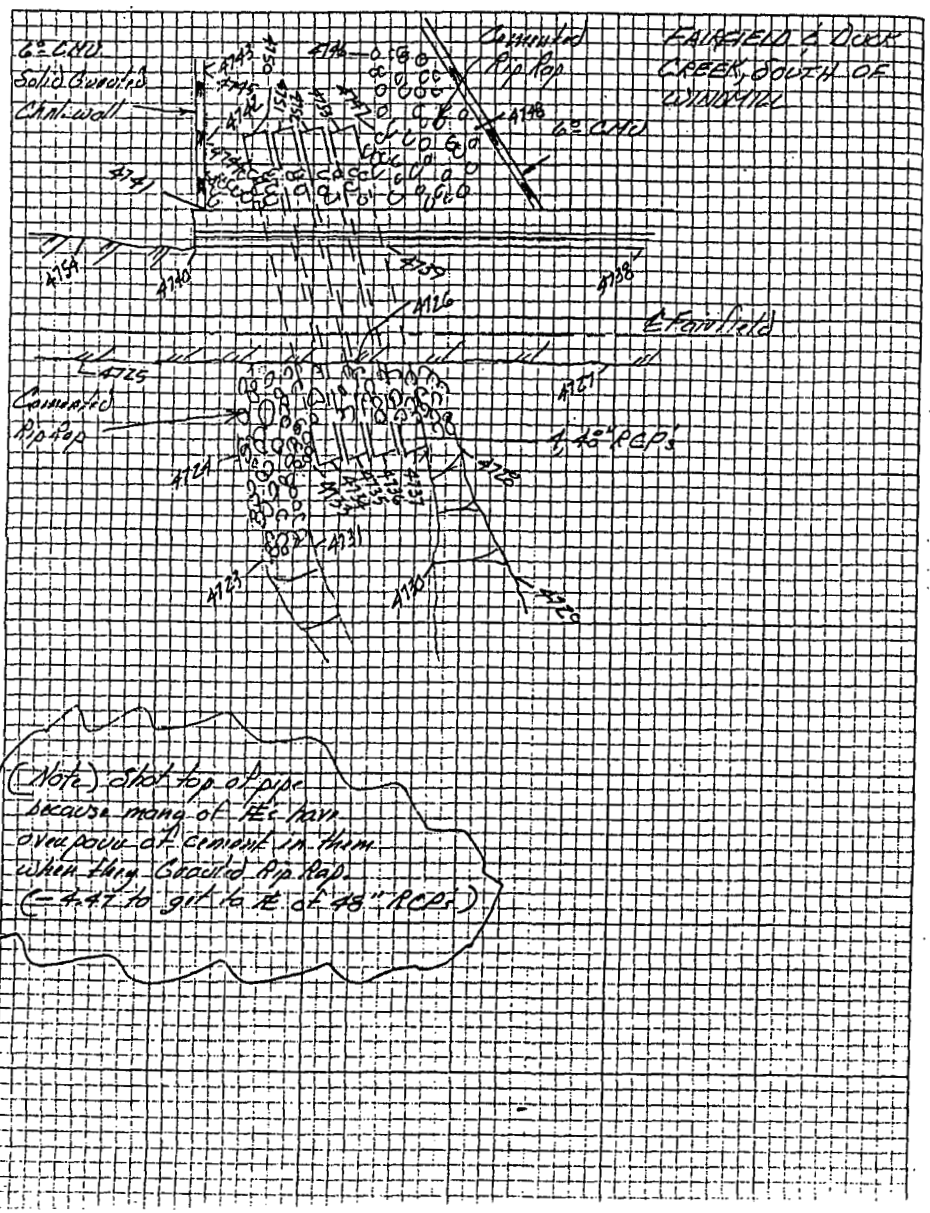
1
36


FAIRFIELD ST CROSSING
PICTURE LOOKING EAST
FIELDBOOK 450 PG-13
1
97

# FAIRFIELD ST CROSSING
# PICTURE LOOKING WEST
# FIELDBOOK 450 PG-13



1
98




FAIRFIELD & DUCK CREEK, SOUTH OF WINDSOR

N @ 2080, ES 3073 000-00-00
PAT = 5.29 HR = 5.17 CHECKED ES ✓
TOWNLAND BGE LA002878 H = -0.17
SPC No. T125, SCALE DATA V = -0.18
68° CACH

| | |
|---|---|
| 4723 | Top Chnl. |
| 4724 | " " |
| 4725 | Edge AC |
| 4726 | " " |
| 4727 | " " |
| 4728 | Top Chnl. |
| 4729 | " " |
| 4730 | Toe Chnl. |
| 4731 | " " |
| 4732 | " " |
| 4733 | " " |
| 4734 | Top Centre RCP (See Note @ Left) |
| 4735 | " " " |
| 4736 | " " " |
| 4737 | " " " |
| 4738 | AC @ Up Gutter |
| 4739 | " " " |
| 4740 | " " " |
| 4741 | Top Cov. Chnl wall |
| 4742 | Top Chnl. wall |
| 4743 | " " " |
| 4744 | Toe Chnl. @ wall |
| 4745 | " " " |
| 4746 | " " " |
| 4747 | " " " |
| 4748 | Top Chnl. |
| 4749 | " " |
| 4750 | Top Centre RCP (See note @ Left) |
| 4751 | " " " |
| 4752 | " " " |
| 4753 | " " " |
| 4754 | Edge AC |

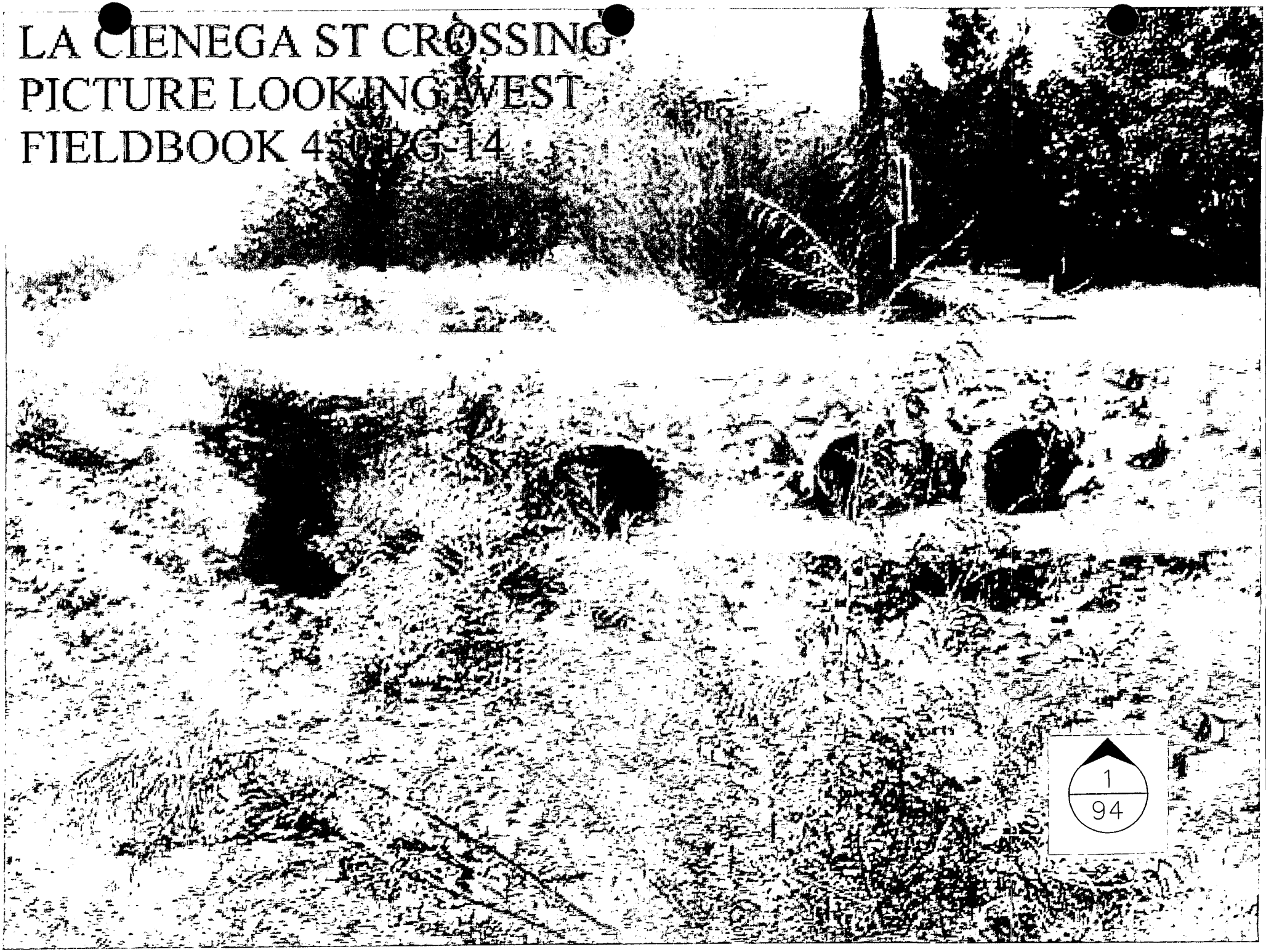
# LA CIENEGA STREET



LA CIENEGA ST CROSSING
PICTURE LOOKING NORTH
FIELDBOOK 450 PG-14

1
37

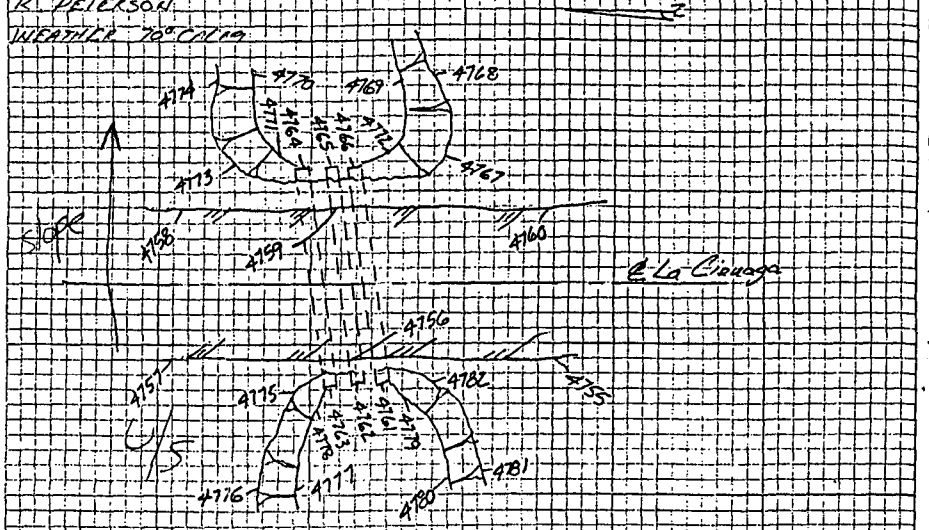
# LA CIENEGA ST CROSSING
# PICTURE LOOKING WEST
# FIELDBOOK 450 PG 14



1
94

10/12/00
C. BREEDEN
R. HART
R. PETERSON
WEATHER 70° CLOUDY

SEC 10, T2S, R6E MDM
DOWNLOAD FILE CB00287C



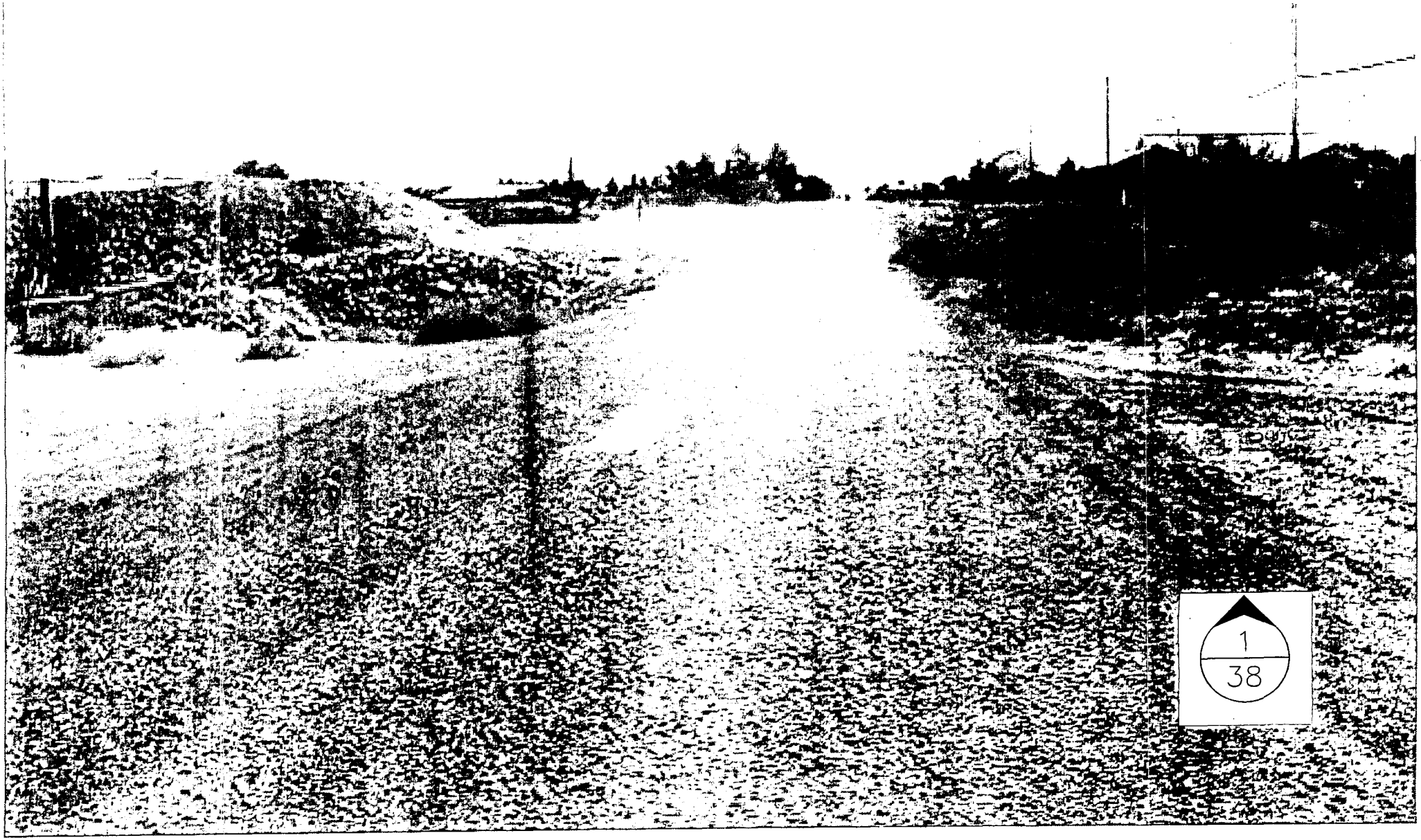

T @ 3078, BS 3079
HI = 5.40 HLE 5.12

000-00-00
CHECKED BS ✓
HL = -0.05
V = 0.09

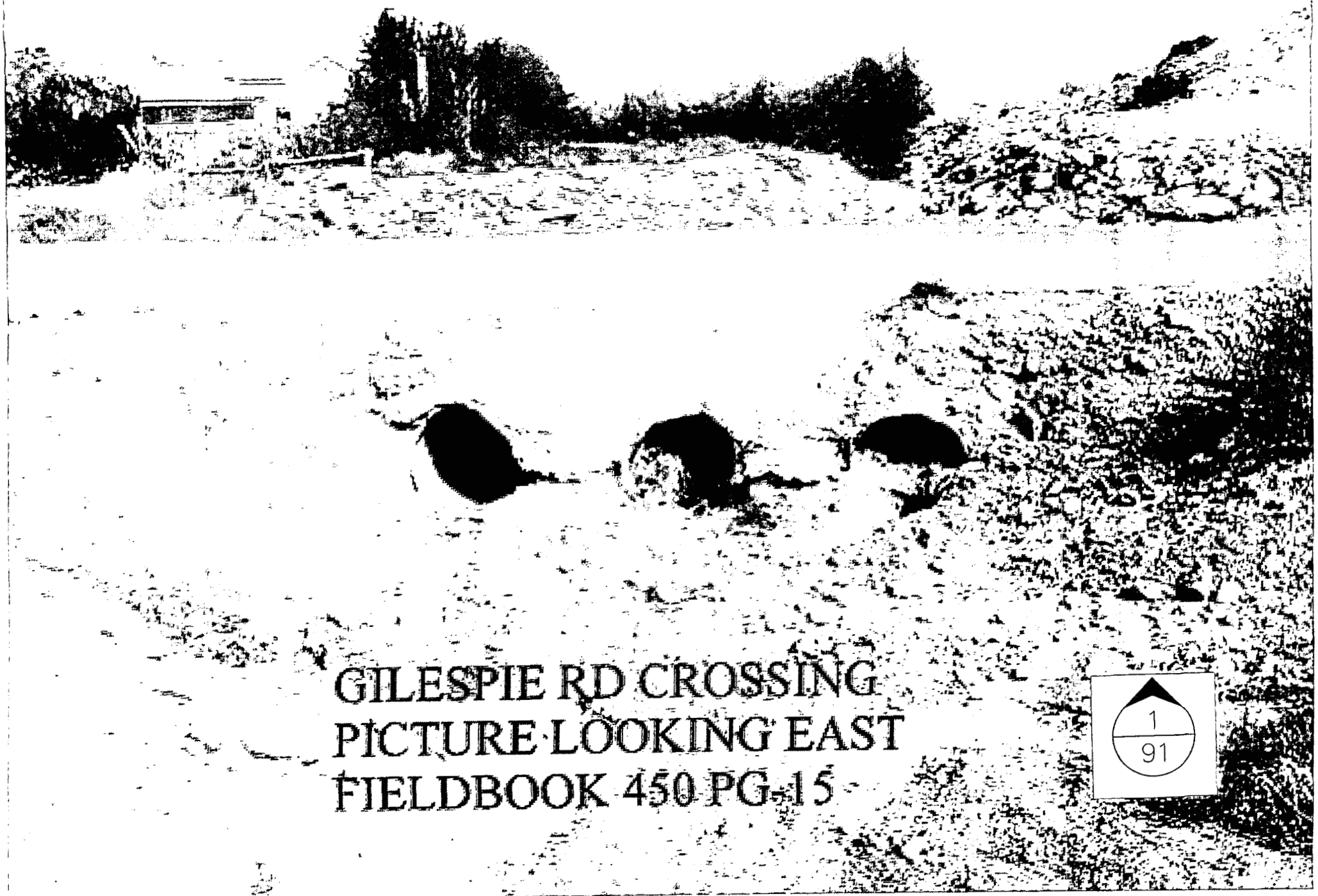
| | | | |
|---|---|---|---|
| 4755 | Edge | AC | |
| 4756 | " | " | |
| 4757 | " | " | |
| 4758 | " | " | |
| 4759 | " | " | |
| 4760 | " | " | |
| 4761 | EC | 24" | CMP |
| 4762 | " | " | " |
| 4763 | " | " | " |
| 4767 | " | " | " |
| 4765 | " | " | " |
| 4766 | " | " | " |
| 4767 | Top | Chnl | |
| 4768 | " | " | |
| 4769 | Top | Chnl | |
| 4770 | " | " | |
| 4771 | " | " | |
| 4772 | " | " | |
| 4773 | Top | Chnl | |
| 4774 | " | " | |
| 4775 | " | " | |
| 4776 | " | " | |
| 4777 | Top | Chnl | |
| 4778 | " | " | |
| 4779 | " | " | |
| 4780 | " | " | |
| 4781 | Top | Chnl | |
| 4782 | " | " | |

# GILESPIE ROAD

# GILESPIE RD CROSSING
# PICTURE LOOKING SOUTH
# FIELDBOOK 450 PG-15



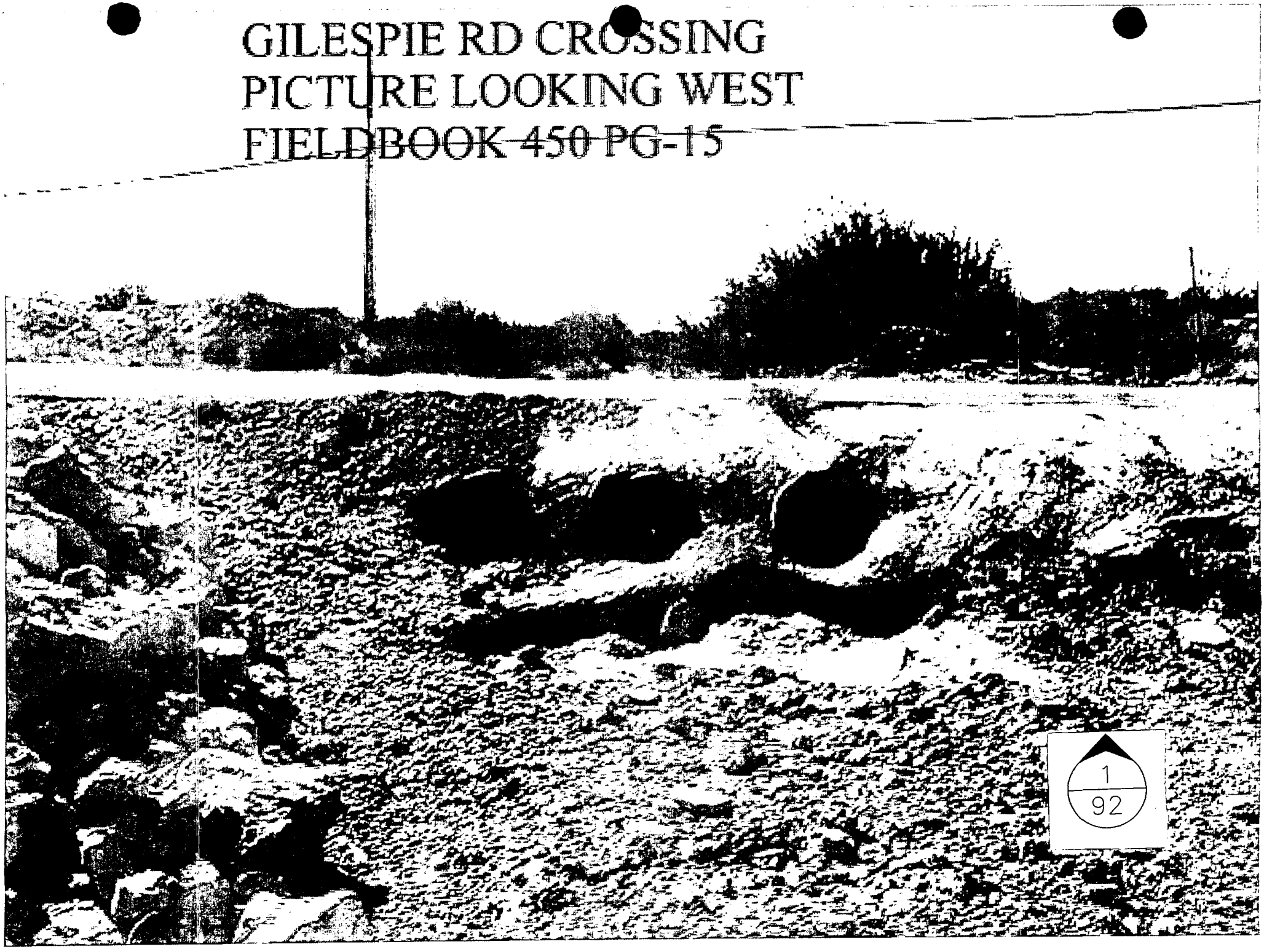
1
38



GILESPIE RD CROSSING
PICTURE LOOKING EAST
FIELDBOOK 450 PG 15

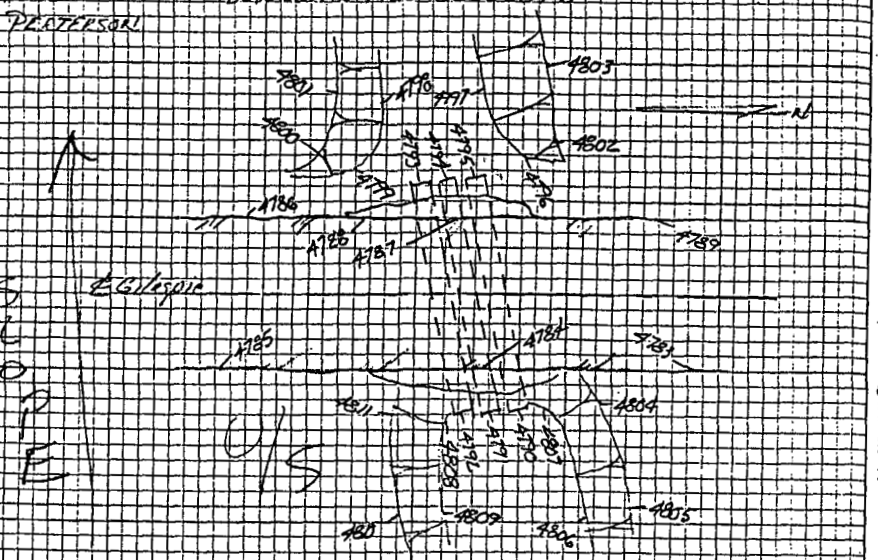
1
91

GILESPIE RD CROSSING
PICTURE LOOKING WEST
FIELDBOOK 450 PG-15



10/13/00
C. BREEDEN
R. HART
R. PETERSON

SEC 16, T22S, R6E MDM
WEATHER 75° SUNNY
DOWNLOAD FILE CB002870




1 @ 3011. BS 3010. 000-00-00
HI = 5.17 HC = 5.29

CHECKED RS
H = 0.03
V = 0.13

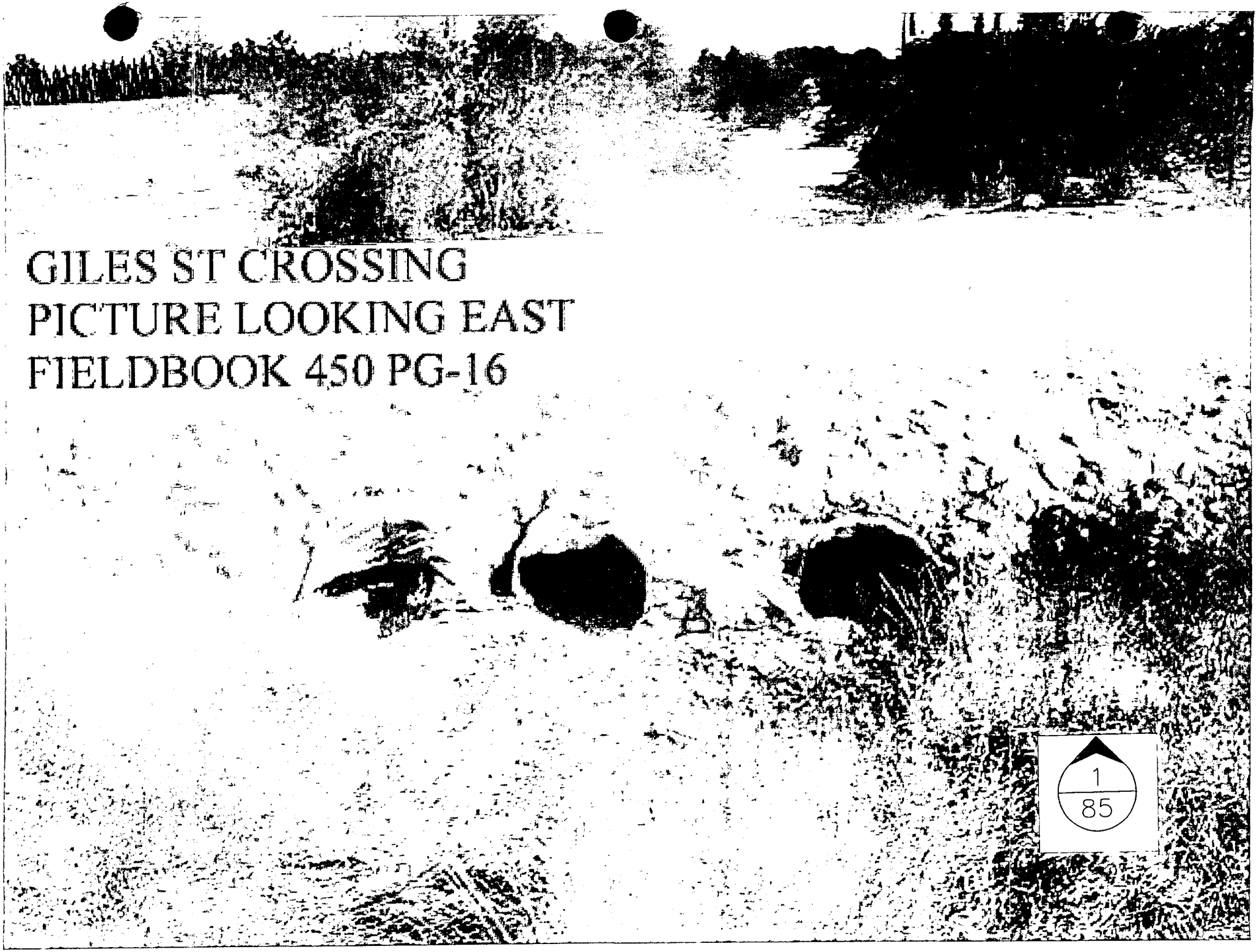
| | | | |
|---|---|---|---|
| 4783 | Edge | AC | |
| 4784 | " | " | |
| 4785 | " | " | |
| 4786 | " | " | |
| 4787 | " | " | |
| 4788 | " | " | |
| 4789 | " | " | |
| 4790 | 12" | CMP | |
| 4791 | " | " | " |
| 4792 | " | " | " |
| 4793 | " | " | " |
| 4794 | " | " | " |
| 4795 | " | " | " |
| 4796 | Toe | Chnl | |
| 4797 | " | " | |
| 4798 | " | " | |
| 4799 | " | " | |
| 4800 | Top | Chnl | |
| 4801 | " | " | |
| 4802 | " | " | |
| 4803 | " | " | |
| 4804 | " | " | |
| 4805 | " | " | |
| 4806 | Toe | Chnl | |
| 4807 | " | " | |
| 4808 | " | " | |
| 4809 | " | " | |
| 4810 | Top | Chnl | |
| 4811 | " | " | |

# GILES STREET



GILES ST CROSSING
PICTURE LOOKING NORTH
FIELDBOOK 450 PG-16

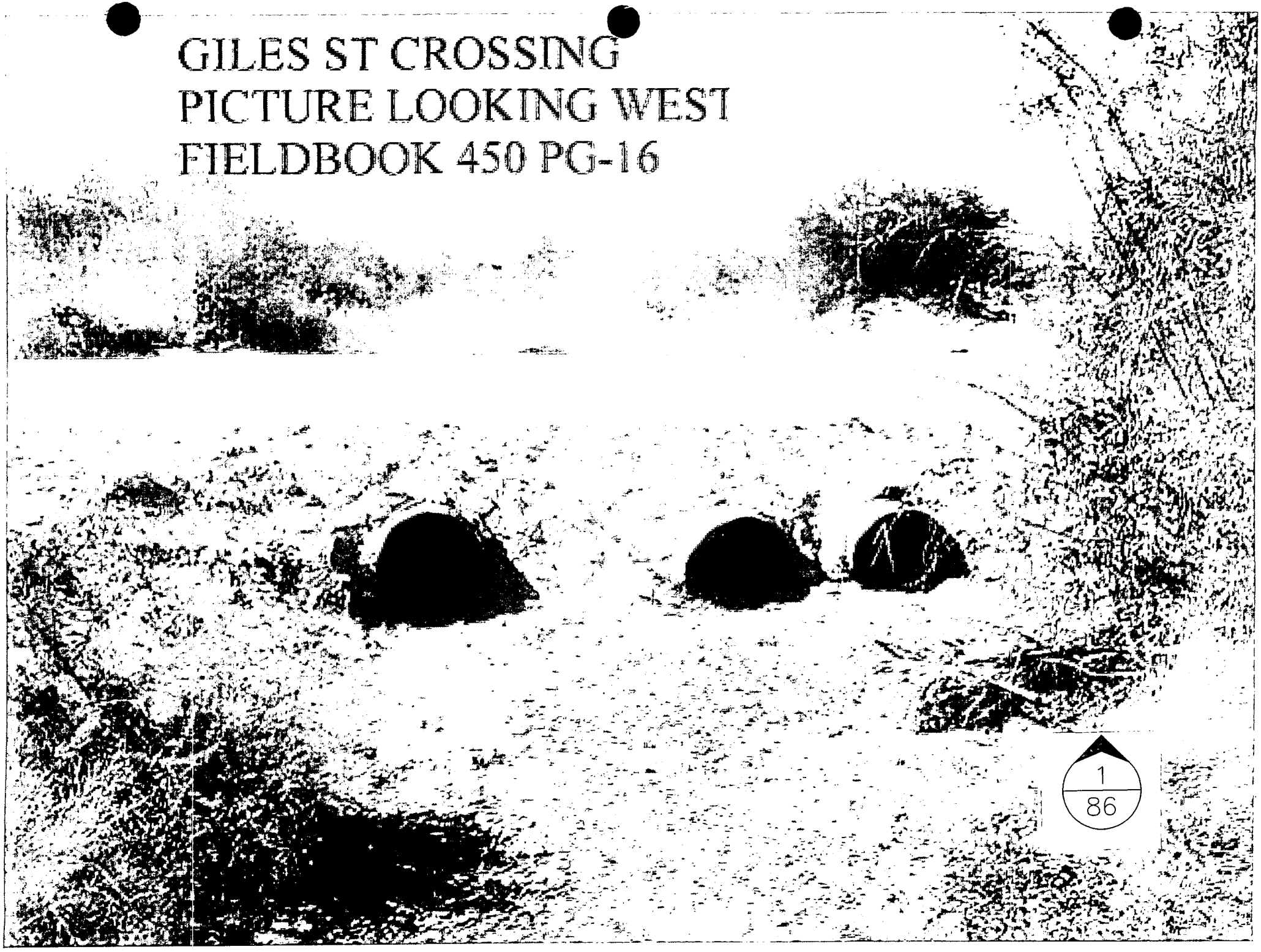
1
39



GILES ST CROSSING
PICTURE LOOKING EAST
FIELDBOOK 450 PG-16

1
85

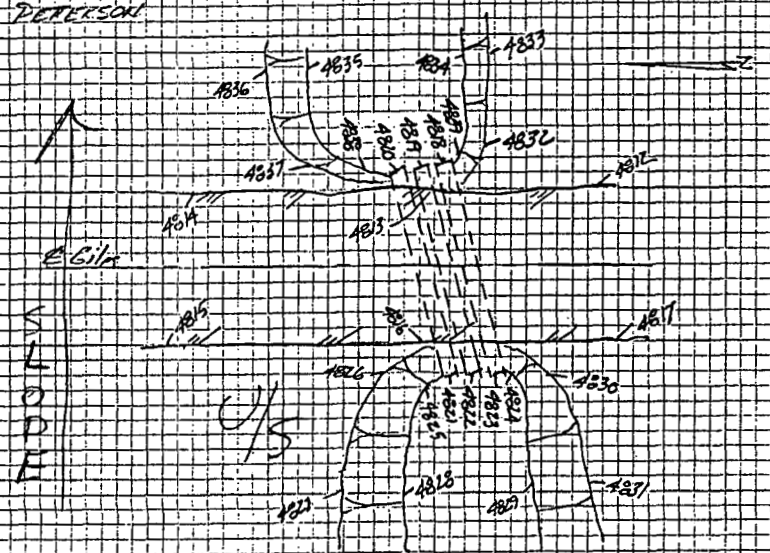
# GILES ST CROSSING
# PICTURE LOOKING WEST
# FIELDBOOK 450 PG-16



SEC 16, T22S, R21E MDBM

10/13/66
C. BREEDEN
R. HINKT
R. PETERSON

WEATHER 70° CALM
DOWNLOAD FILE CB0028TE



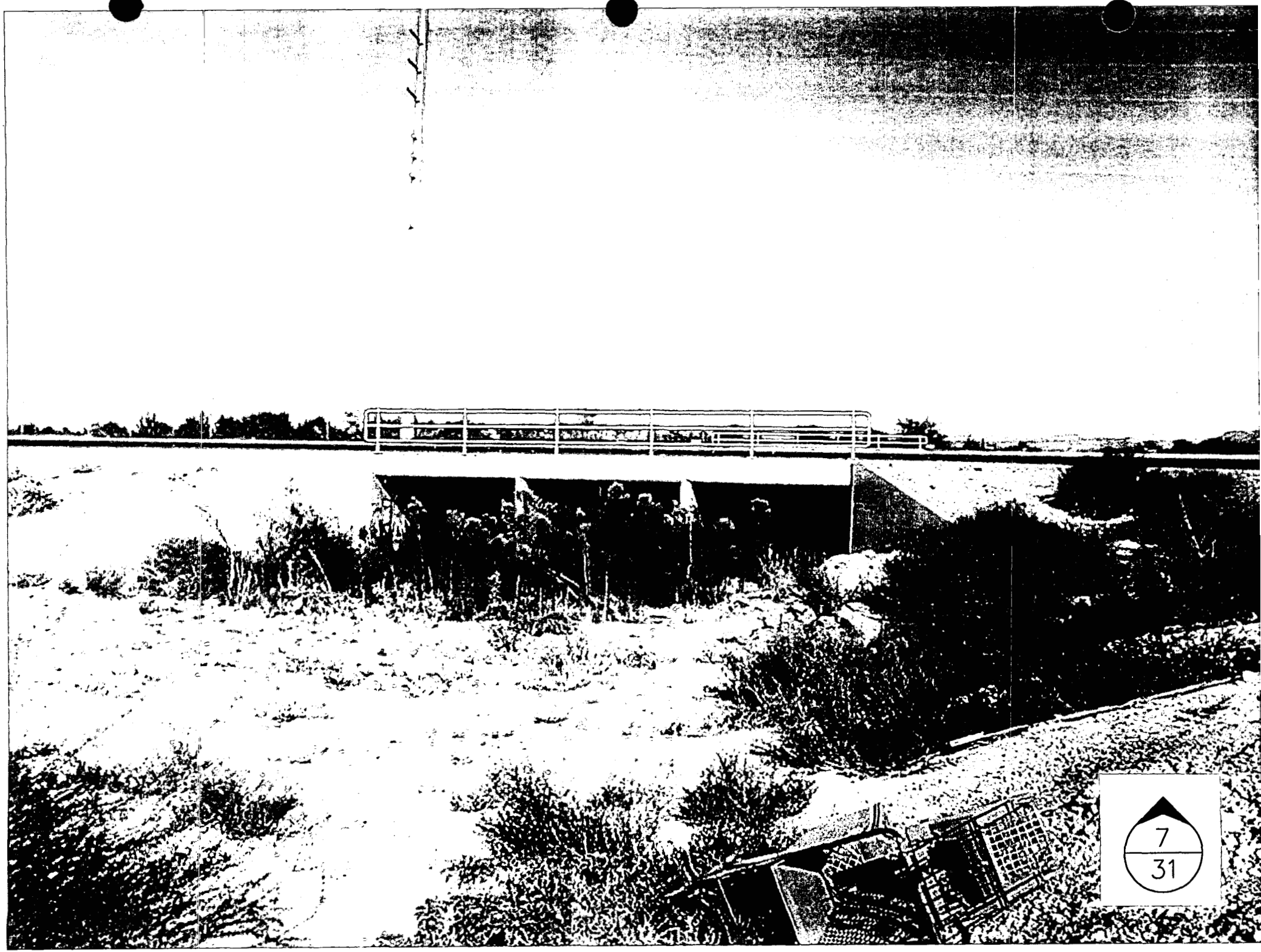

N 30.74, BS 30.75
H.I = 5.25 H.R = 4.89

000-00-00
CHECK BS
H = 0.10
V = -0.05

| | | |
|---|---|---|
| 4812 | Edge AC | |
| 4813 | " | " |
| 4814 | " | " |
| 4815 | " | " |
| 4816 | " | " |
| 4817 | " | " |
| 4818 | Ft 24" CMP | |
| 4819 | " | " |
| 4820 | " | " |
| 4821 | " | " |
| 4822 | " | " |
| 4823 | " | " |
| 4824 | Toe Chnl | |
| 4825 | " | " |
| 4826 | Top Chnl | |
| 4827 | " | " |
| 4828 | Toe Chnl | |
| 4829 | " | " |
| 4830 | Top Chnl | |
| 4831 | " | " |
| 4832 | " | " |
| 4833 | " | " |
| 4834 | Toe Chnl | |
| 4835 | " | " |
| 4836 | Top Chnl | |
| 4837 | " | " |
| 4838 | Toe Chnl | |
| 4839 | " | " |

# LAS VEGAS BOULEVARD



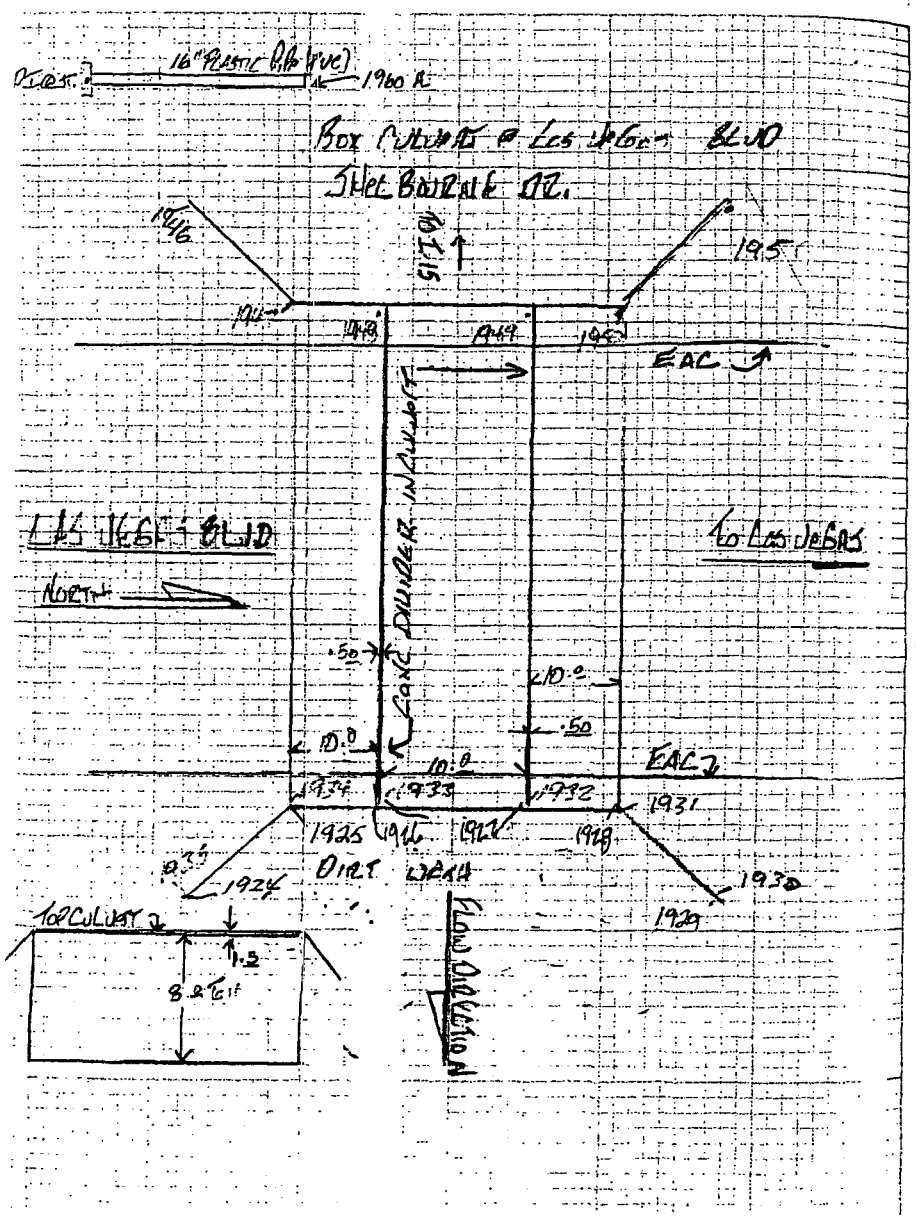




Drill Cook Wash.

Box Culvert @ Los Mages Blvd #
Structure No.
-550.039

100° Cleat. Conn PC Station 9.16.00
Tonnage 4100 # 13
Bl & D PC Co20




436.42

BOX POINTS 1900 - 31

1 85 Low Bar Bottom control
1.30 4 4.37 16.67 NG-TOE

1924 NG-TOE @ E&D WING WALL

1925 E Box Culvert @ End Box & S. Wing Wall

1926 E Box Culvert @ Edge conc

1927 E Box Culvert @ Edge conc

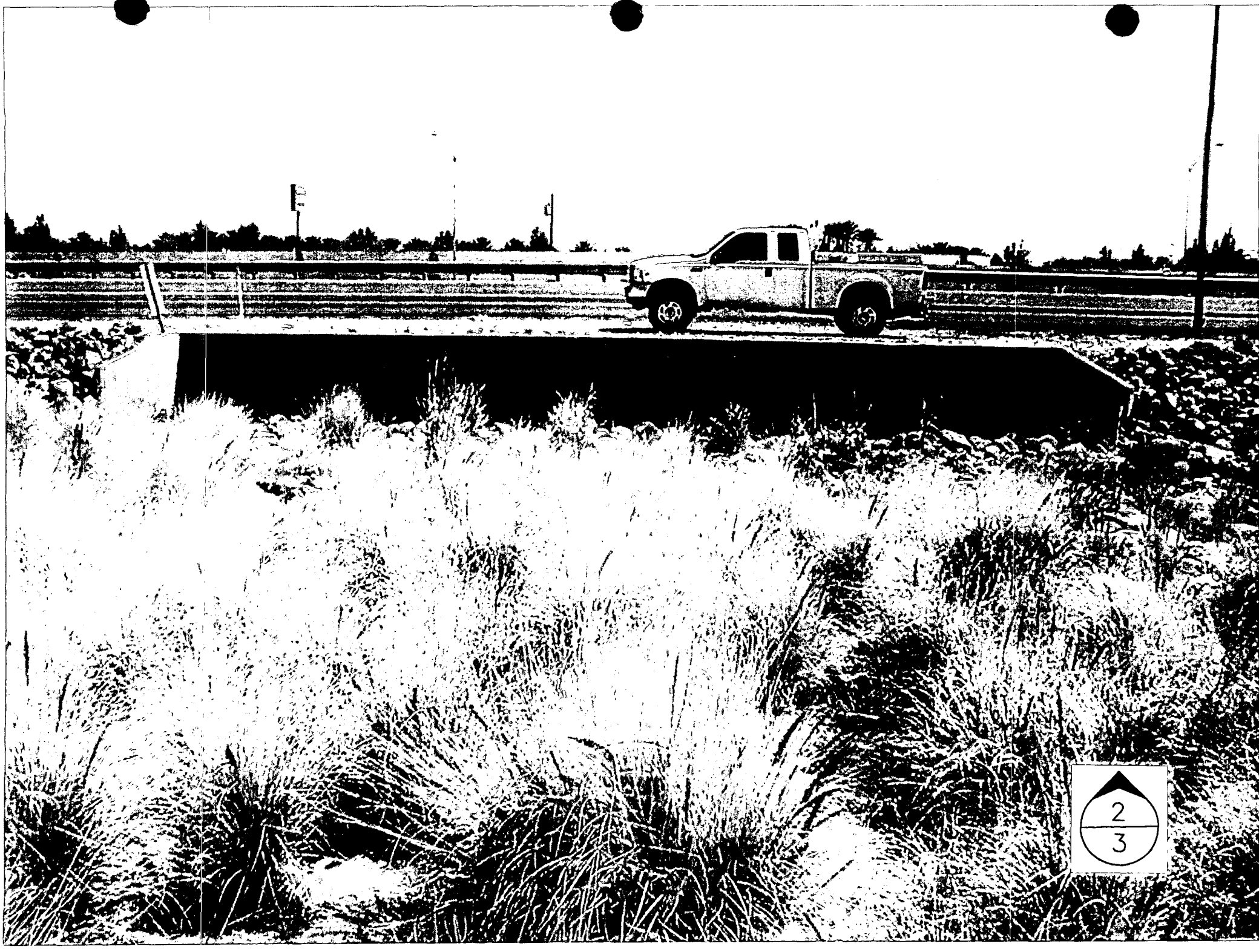
1928 E Box Culvert @ Edge conc
approx Point Begin Slope Wall

1929 N.G. @ End Wing Wall

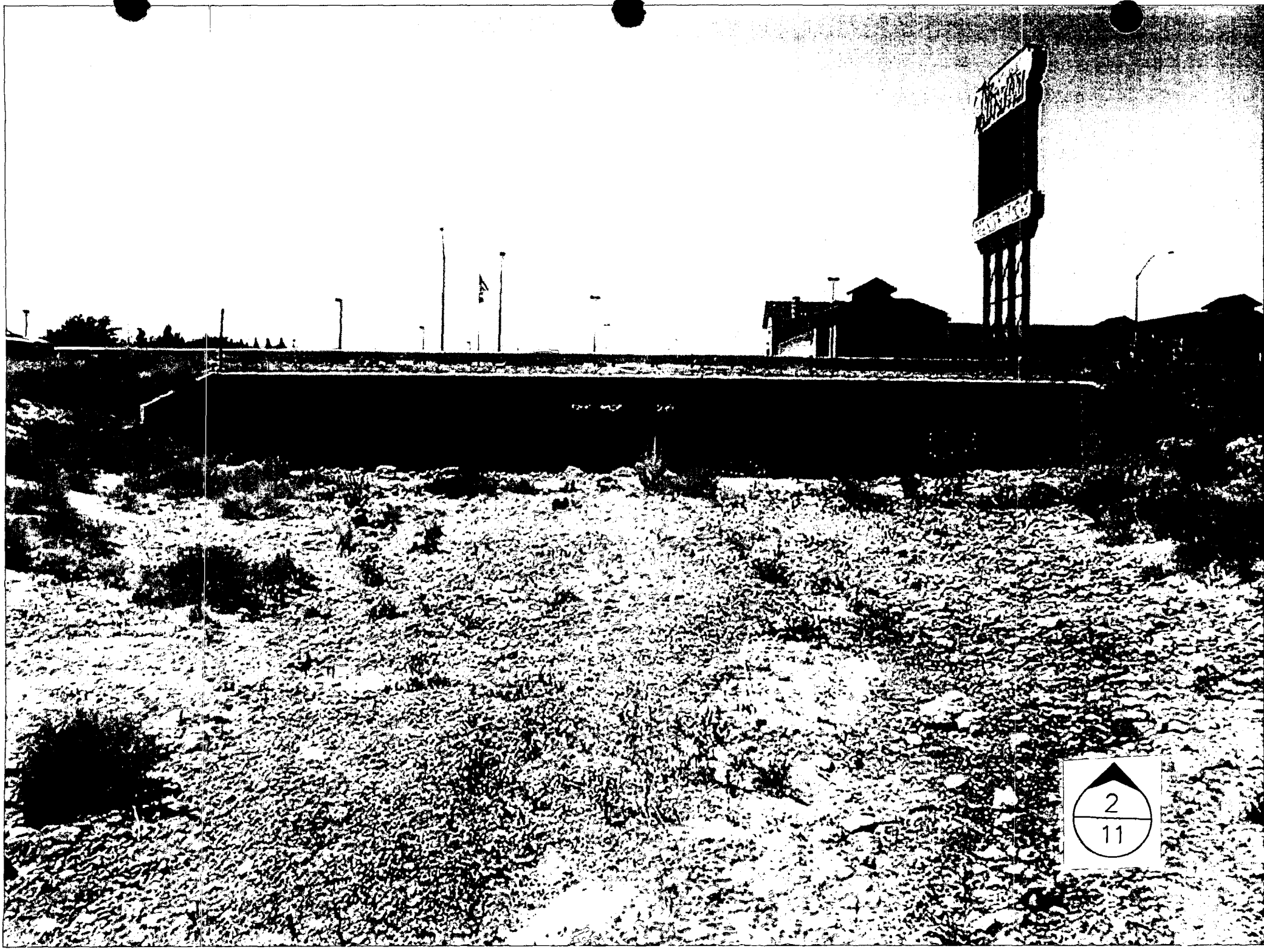
1946 Top Wing Wall @ End

1947 Top Box Culvert @ Begin Wingwall

POINTS 1900 — 1964



2
3



2
11

# Duck Creek

Bridge TOPO @ I 15
Job # 550.039
S 1 T 22S R 6E
File: DC.DR 420

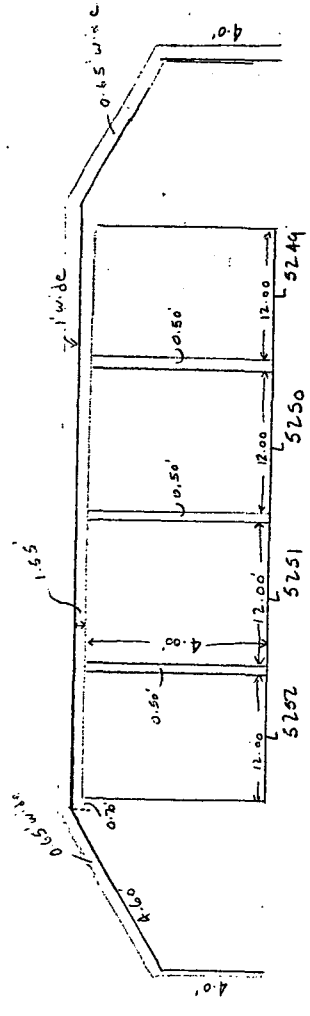
TA @ CP-3101 BS CP-3102 @ 0-00-00

Hi = 5.06
HR@BS = 9.36
HR@Pole = 4.69/8.50

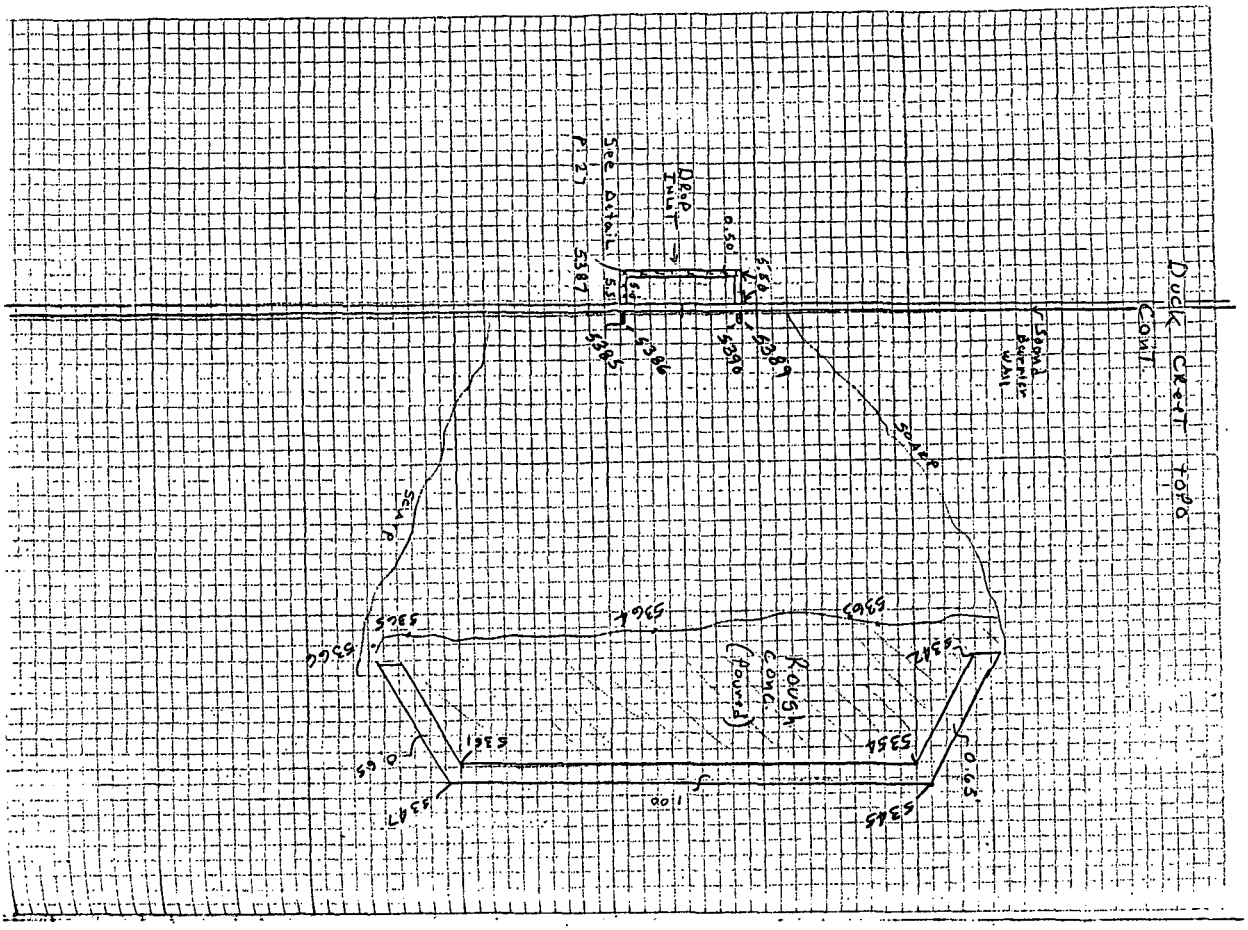
Stant TOPO @ PNT. # 5170
END TOPO @ PNT. 5414

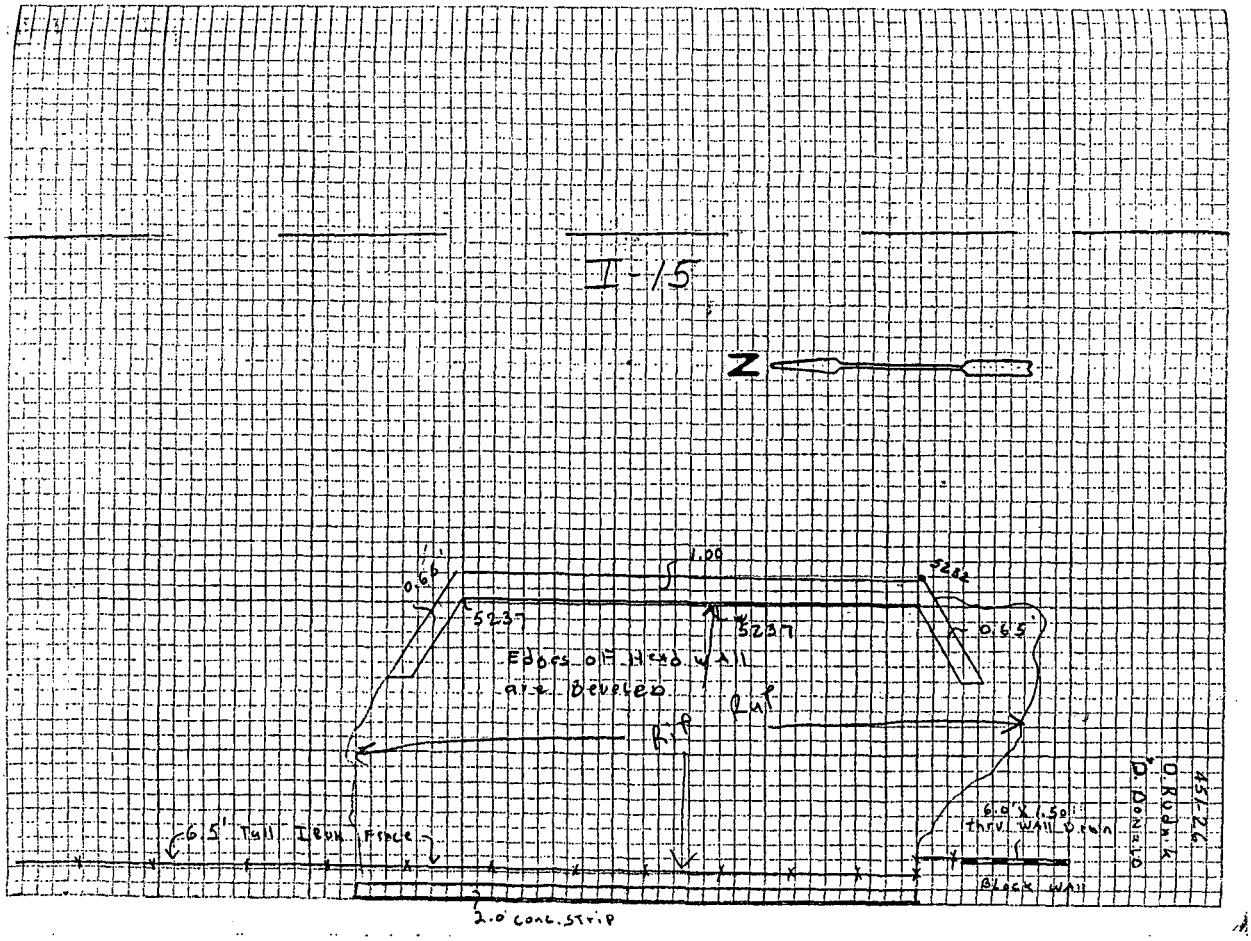
| PNT # | Desc. |
|---|---|
| 5170 | CP-3102 Hub & Tack |
| 5171 | Guard Rail ℄ |
| 5172 | Edge Pavement |
| 5173 | Edge Pavement |
| 5174 | Top Slope |
| 5175 | Toe Slope |
| 5176 | Top Slope |
| 5177 | Face of Block Wall |
| 5178 | Edge of Rip Rap |
| 5179 | " " " |
| 5180 | " " " |
| 5181 | " " " |
| 5182 | " " " |
| 5183 | " " " |
| 5184 | " " " |
| 5185 | " " " |
| 5186 | Edge of Rip Rap |
| 5187 | Wall Drain ℄ |
| 5188 | Toe of Rip Rap |
| 5189 | " " " |
| 5190 | " " " |
| 5191 | Toe of Rip Rap |

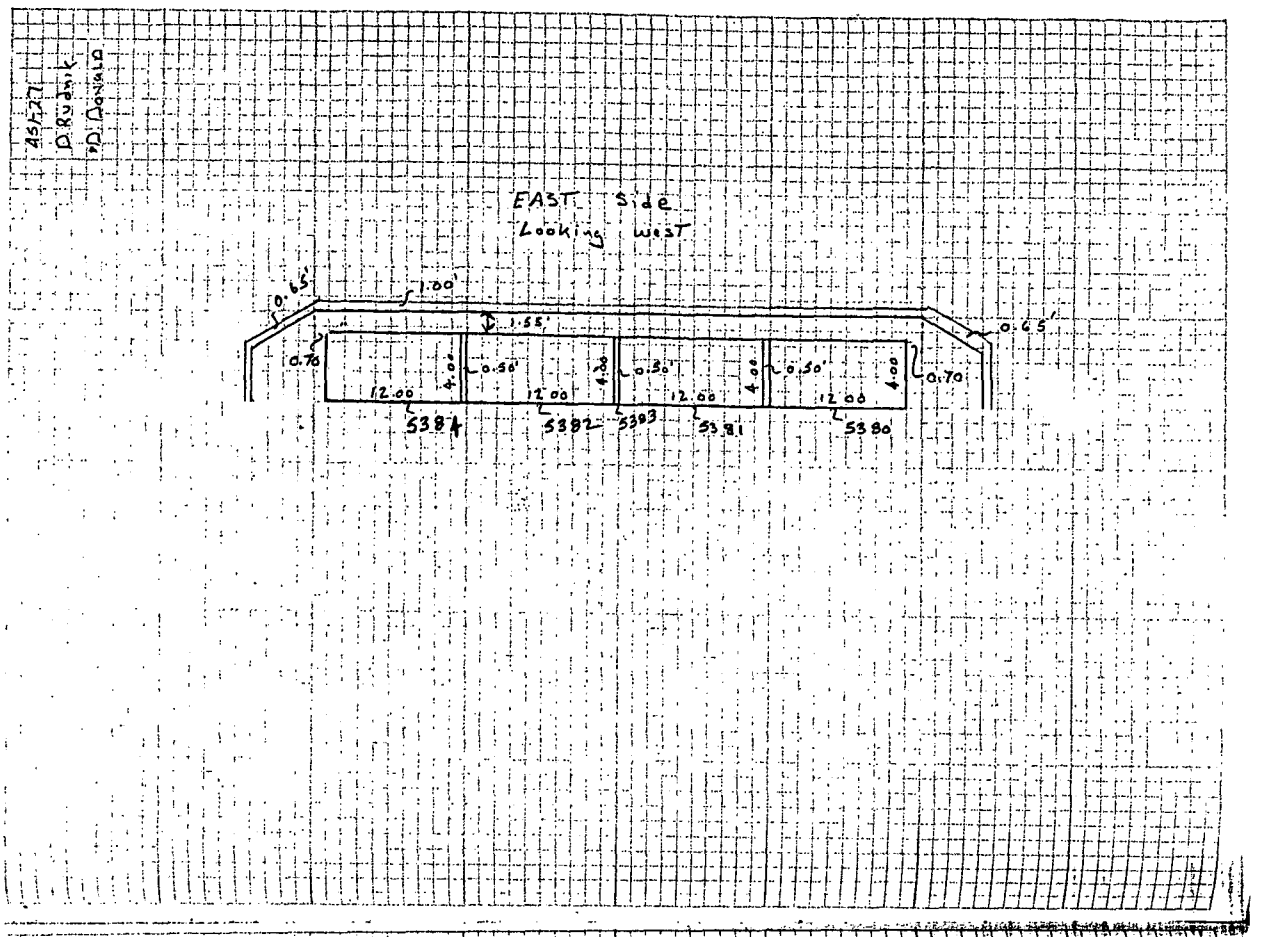
WEST side
Looking EAST

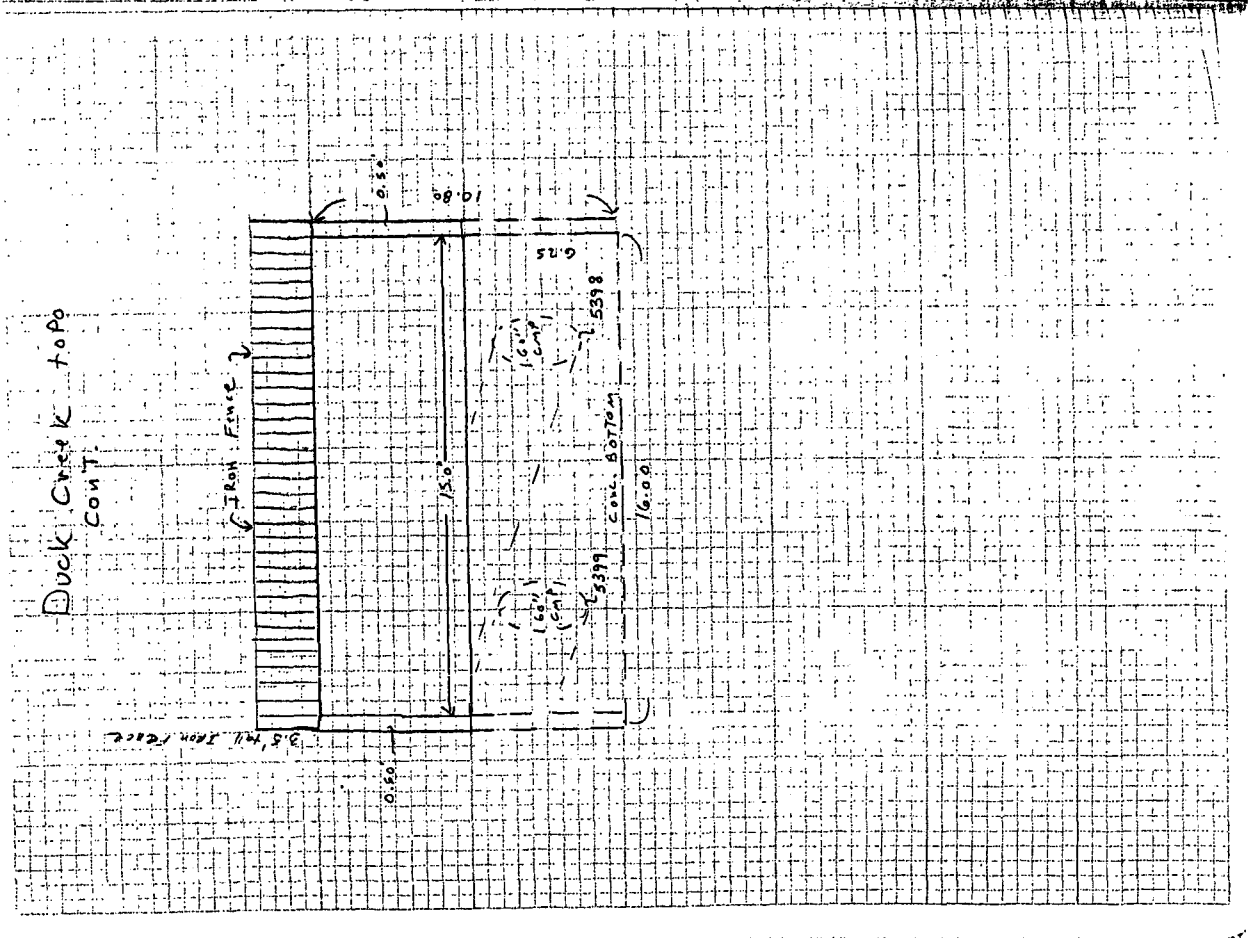



451-25
D. Rudnick
D. Donald
75°
LT. wind
P. Cloudy
4/18/01


Duck Creek Topo
Retaining Barrier Wall
See Detail P-27
DRIP INLET
0.50
5.50
5387
5386
5390
5389
SLOPE
5365
5364
5362
5360
5358
5356
5354
5347
5345
KOUGH CONC. (poured)
19.5
69.0
0.63
100'


I-15
N
1.00
0.65
5237
5287
5282
EPOCS OR HEAVY DUTY
Air Blasted
6.0' x 1.50' thru WALL Drain
Back WALL
65' Tall Iron Fence
2.0' conc. strip
#57-26
D. Donato
O. Kuan. K


25427
D. Rudnik
D. Donald
EAST side
Looking West
0.65
1.00
1.55
0.65
0.70
12.00
4.00
0.50
4.00
12.00
0.30
4.00
12.00
0.50
4.00
0.70
5384
5382
5383
5381
5380


Duck Creek topo
cont.
0.50
98.01
52.0
5398
Iron Fence
15.0
Conc. Bottom
16.00
5399
3.5' tall Iron Fence
0.50

5192 - Edge of Pavement
5193 - Edge of Pavement
5194 - Guard Rail ℄
5195 - Guard Rail ℄
5196 - Edge of Pavement
5197 - Edge of Pavement
5198 - Guard Rail ℄
5199 - Guard Rail ℄
5200 - Edge of Pavement
5201 - Edge of Pavement
5202 - Guard Rail ℄
5203 - Guard Rail ℄
5204 - Edge of Pavement
5205 - Edge of Pavement
5206 - Guard Rail ℄
5207 - Edge of Pavement
5208 - Guard Rail ℄
5209 - Edge of Pavement
5210 - 24" RCP FES
5211 - Edge of Pavement
5212 - Edge of Pavement
5213 - Top Slope
5214 - Toe Slope
5215 - Top Slope
5216 - Natural Ground
5217 - Barbed wire Fence / Top Slope
5218 - Iron Fence / Top Slope
5219 - Barbed Wire Fence / Toe Slope
5220 - Barbed Wire Fence @ End
5221 - Iron Fence / Edge of Rip Rap
5222 - Fence
5223 - Edge of Rip Rap
5224 - " " "
5225 - " " "
5226 - Edge of Rip Rap
5227 - Head wall

5228 - Headwall
5229 - "
5230 - "
5231 - "
5232 - "
5233 - "
5234 - "
5235 - "
5236 - "
5237 - "
5238 - "
5239 - Headwall
5240 - Edge of Rip Rap
5241 - " " "
5242 - " " "
5243 - " " "
5244 - " " "
5245 - Iron Fence / Edge Rip Rap @ Angle Pnt.
5246 " " " " " " "
5247 - Fence
5248 - Toe Rip Rap
5249 - Flowline of Box Culvert @ Edge of conc.
5250 - " " " " " "
5251 - " " " " " "
5252 - " " " " " "
5253 - Natural Ground
5254 - Natural Ground
5255 - Flowline
5256 - Natural Ground
5257 - Natural Ground
5258 - Edge of Pavement
5259 - Grade Break
5260 - Grade Break
5261 - toe Slope
5262 - top Slope
5263 - toe Slope

5264
5265
5266
5267
5268
5269
5270
5271
5272
5273
5274
5275
5276
5277
5278
5279
5280
5281
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5292
5293
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5297
5298
5299

5300
5301
5302
5303
5304
5305
5306
5307
5308
5309
5310
5311
5312
5313
5314
5315
5316
5317
5318
5319
5320
5321
5322
5323
5324
5325
5326
5327
5328 CP-3102 Hub & rack

Duck Creek
con't.

To 3/02 BS 3/01 @ 0-00-00

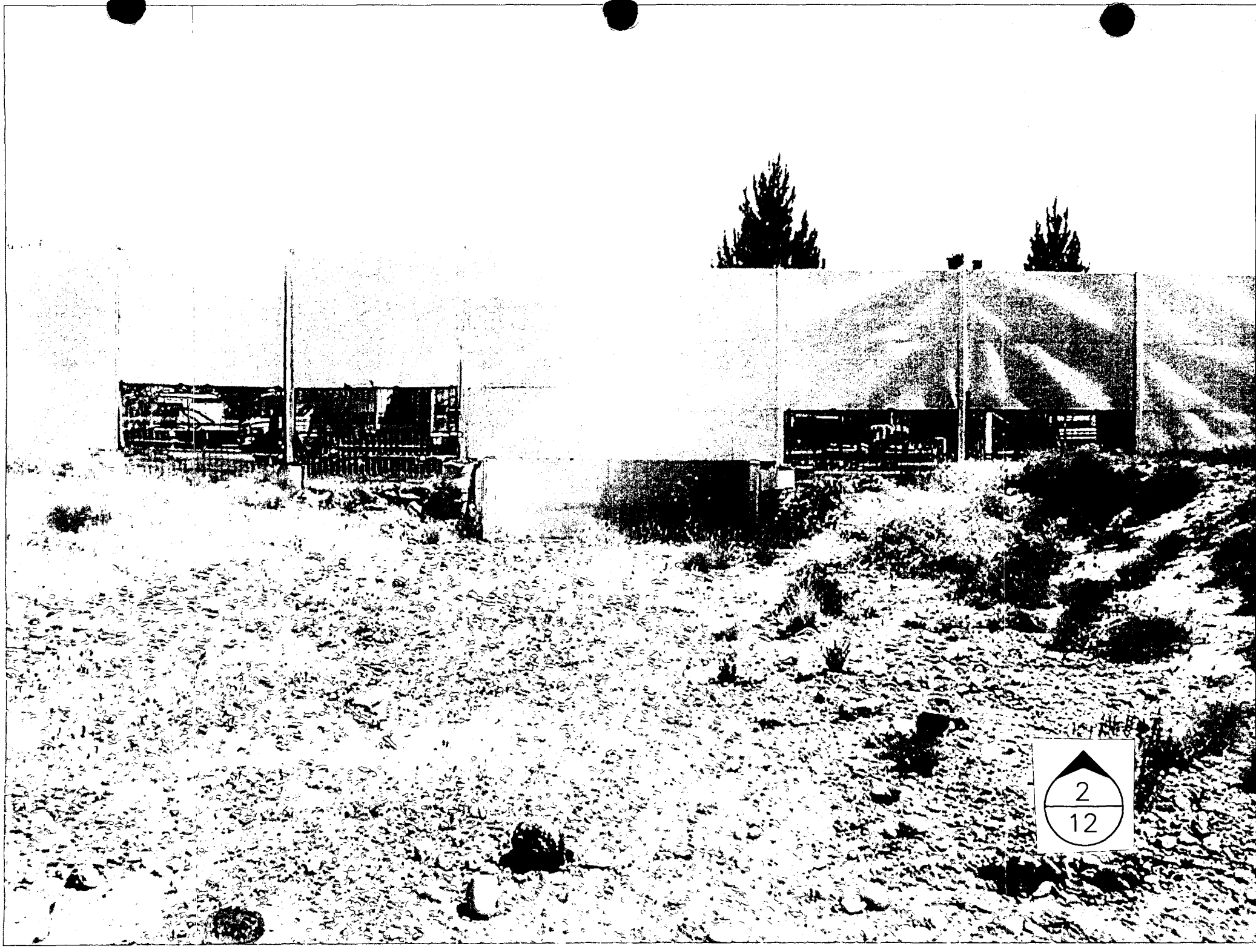
HI = 4.95
HR @ BS = 8.62
HR Pole = 4.69 / 8.50

| PNT. | Desc. |
|---|---|
| 5329 | |
| 5330 | |
| 5331 | |
| 5332 | |
| 5333 | |
| 5334 | |
| 5335 | |
| 5336 | |
| 5337 | |
| 5338 | |
| 5339 | |
| 5340 | |
| 5341 | |
| 5342 | |
| 5343 | |
| 5344 | |
| 5345 | |
| 5346 | |
| 5347 | |
| 5348 | |
| 5349 | |
| 5350 | |
| 5351 | |
| 5352 | |
| 5353 | |
| 5354 | |
| 5355 | |
| 5356 | |
| 5357 | |
| 5358 | |
| 5359 | |
| 5360 | |
| 5361 | |
| 5362 | - Toe Slope @ conc. slurry |
| 5363 | |
| 5364 | |
| 5365 | |
| 5366 | - Edge conc @ toe |
| 5367 | |
| 5368 | |
| 5369 | |
| 5370 | |
| 5371 | |
| 5372 | |
| 5373 | |
| 5374 | |
| 5375 | |
| 5376 | |
| 5377 | |
| 5378 | |
| 5379 | |
| 5380 | |
| 5381 | |
| 5382 | |
| 5383 | |
| 5384 | |
| 5385 | |
| 5386 | |
| 5387 | |

451-30
4/18/01
D. Rudnik
D. DeNaLD

5388
5389
5390
5391
5392
5393
5394
5395
5396
5397
5398
5399
5400
5401
5402
5403
5404
5405
5406
5407
5408
5409
5410
5411
5412
5413
5414 - CP-3101 HUB & Tack

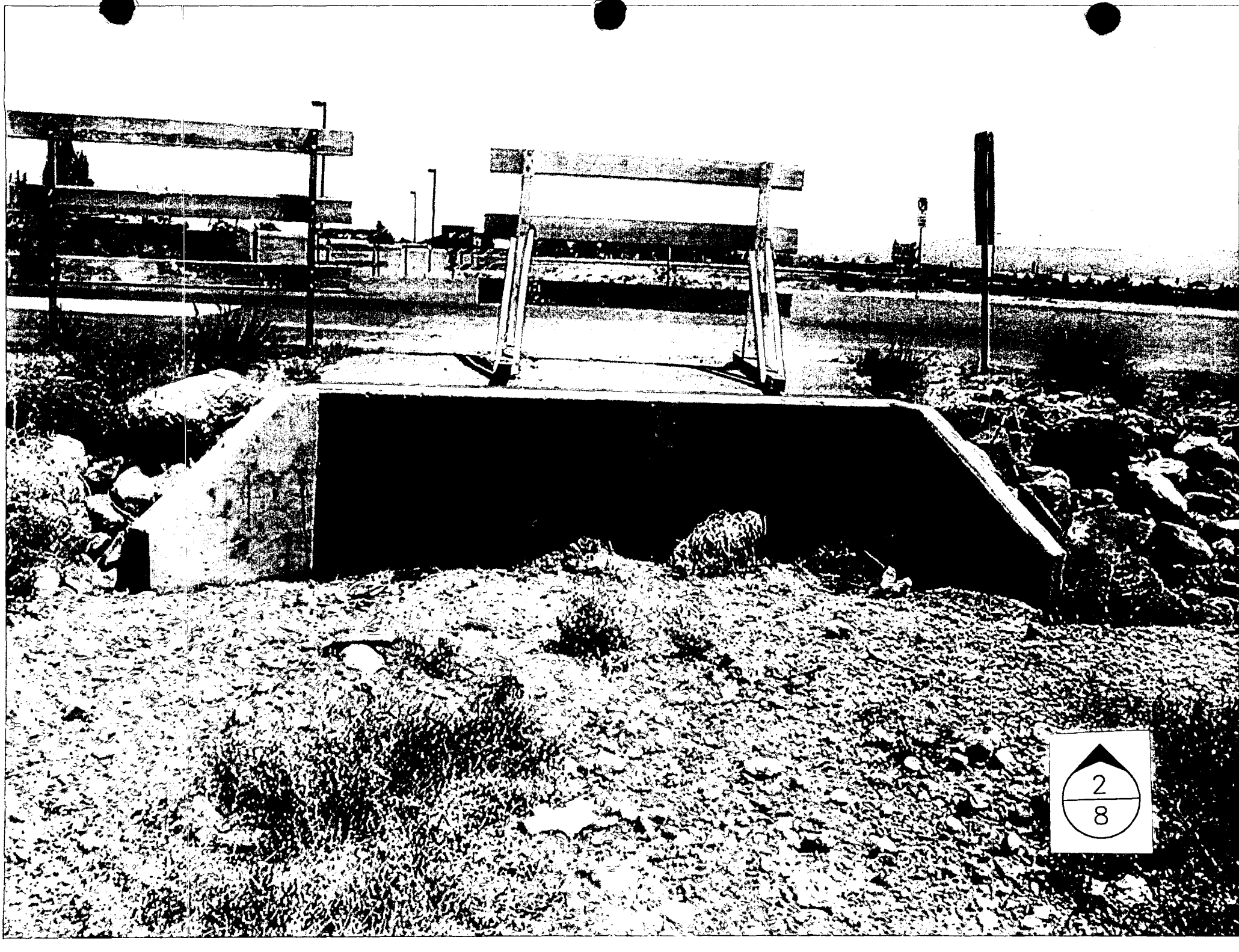
Code: 200 = HeAdWAll
202 = Guard Rail
203 = Face OF Block WAll
204 = ℄ WAll Drain
205 = Face OF Sound Barrier WAll



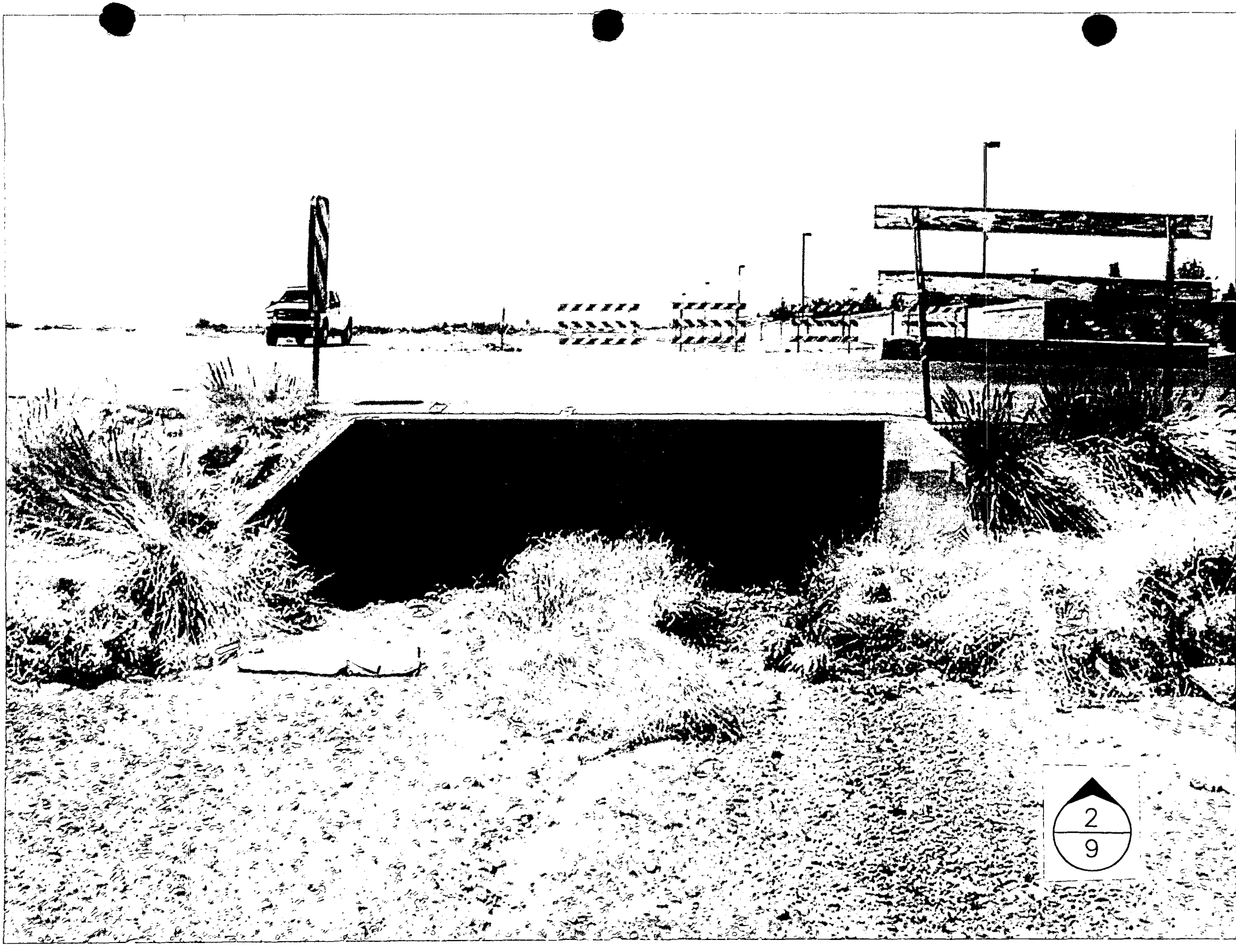
2
13



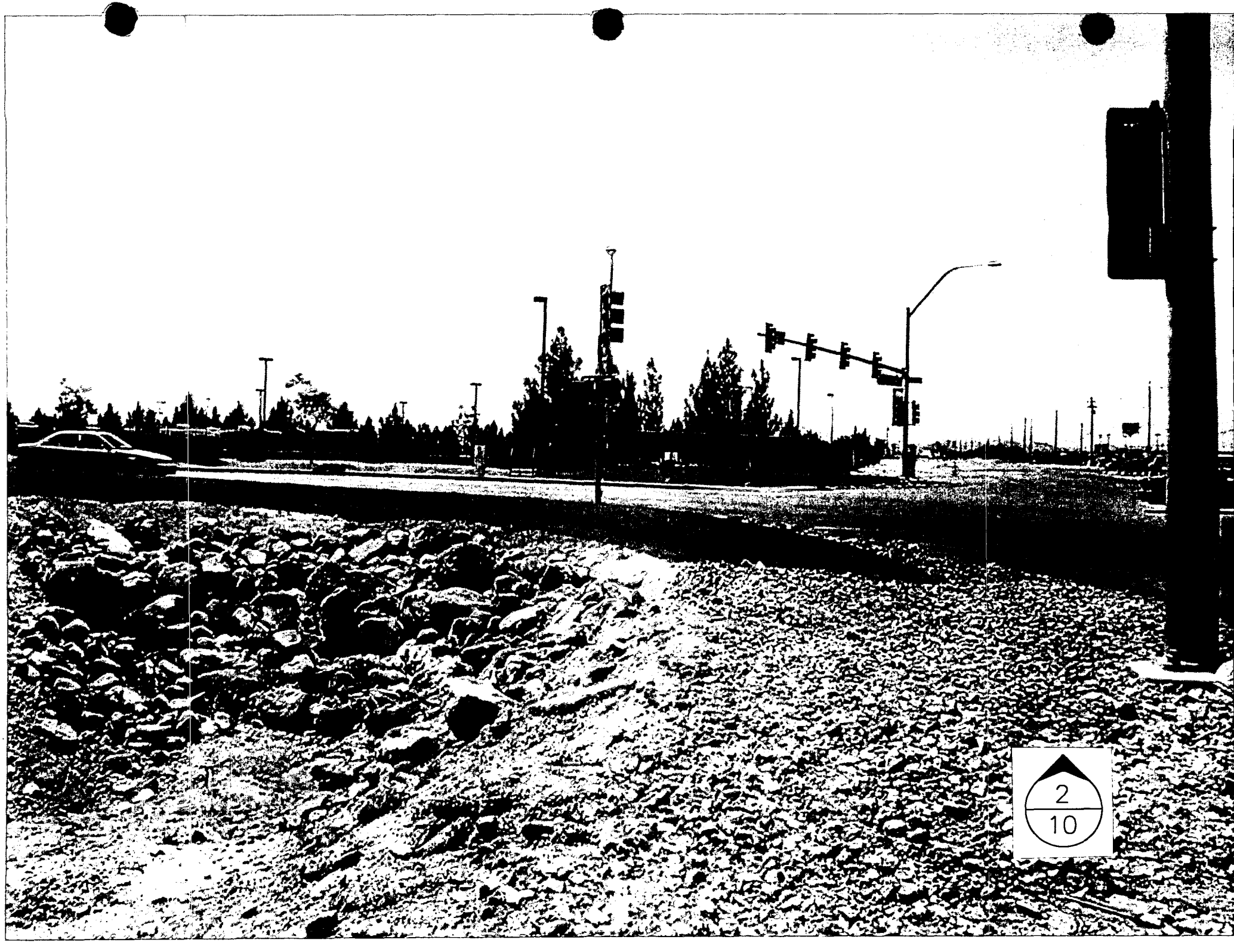
2
14



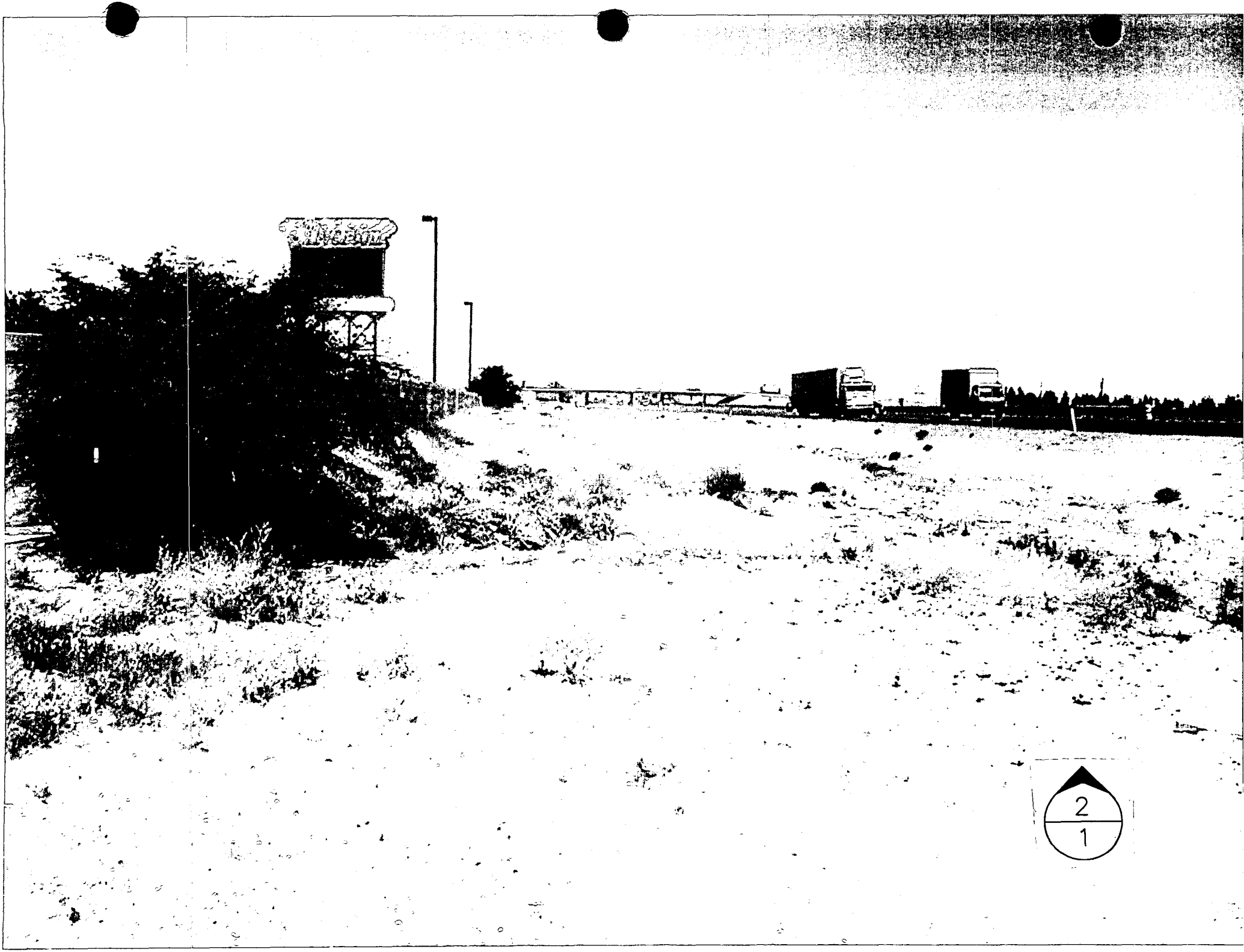
2
8

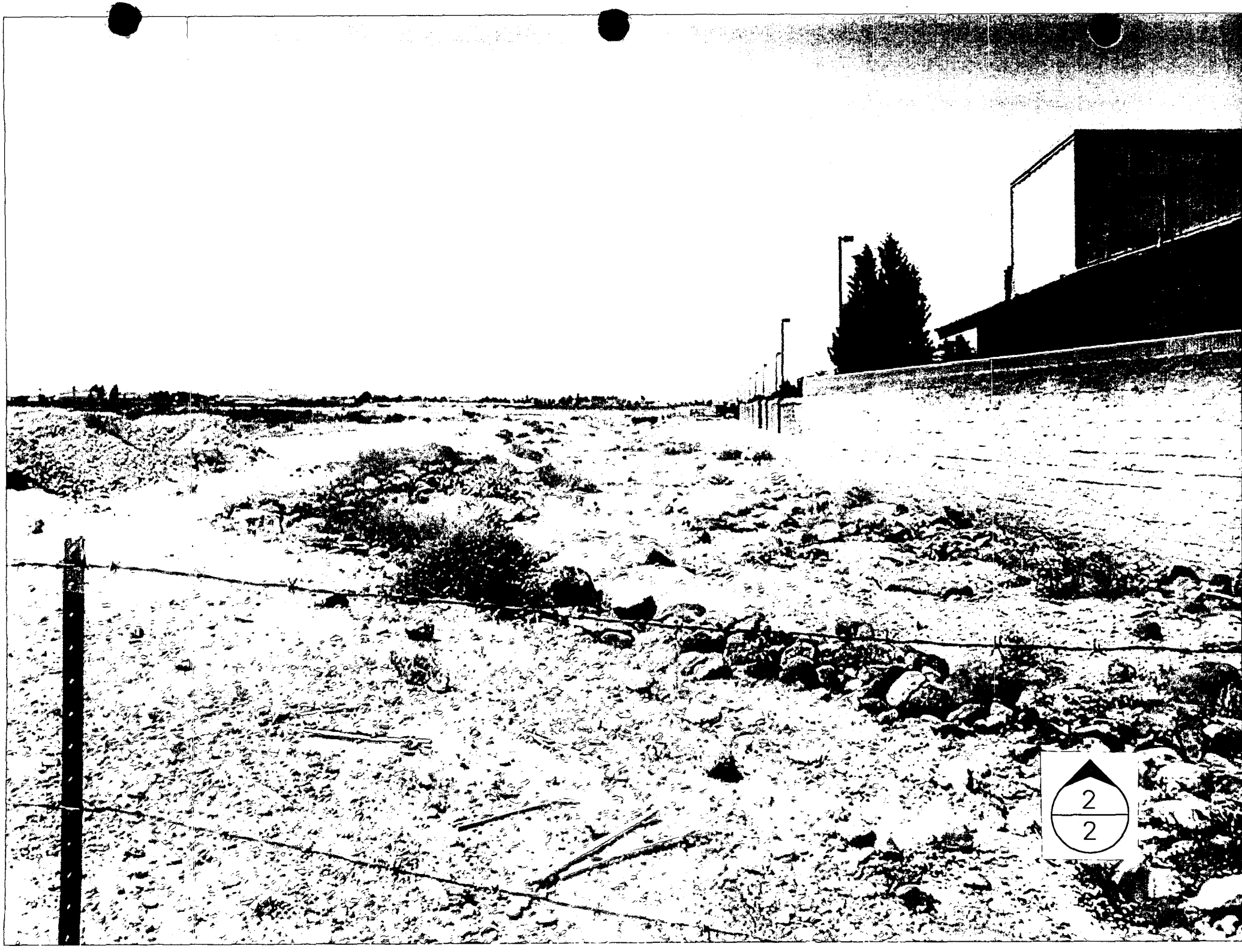


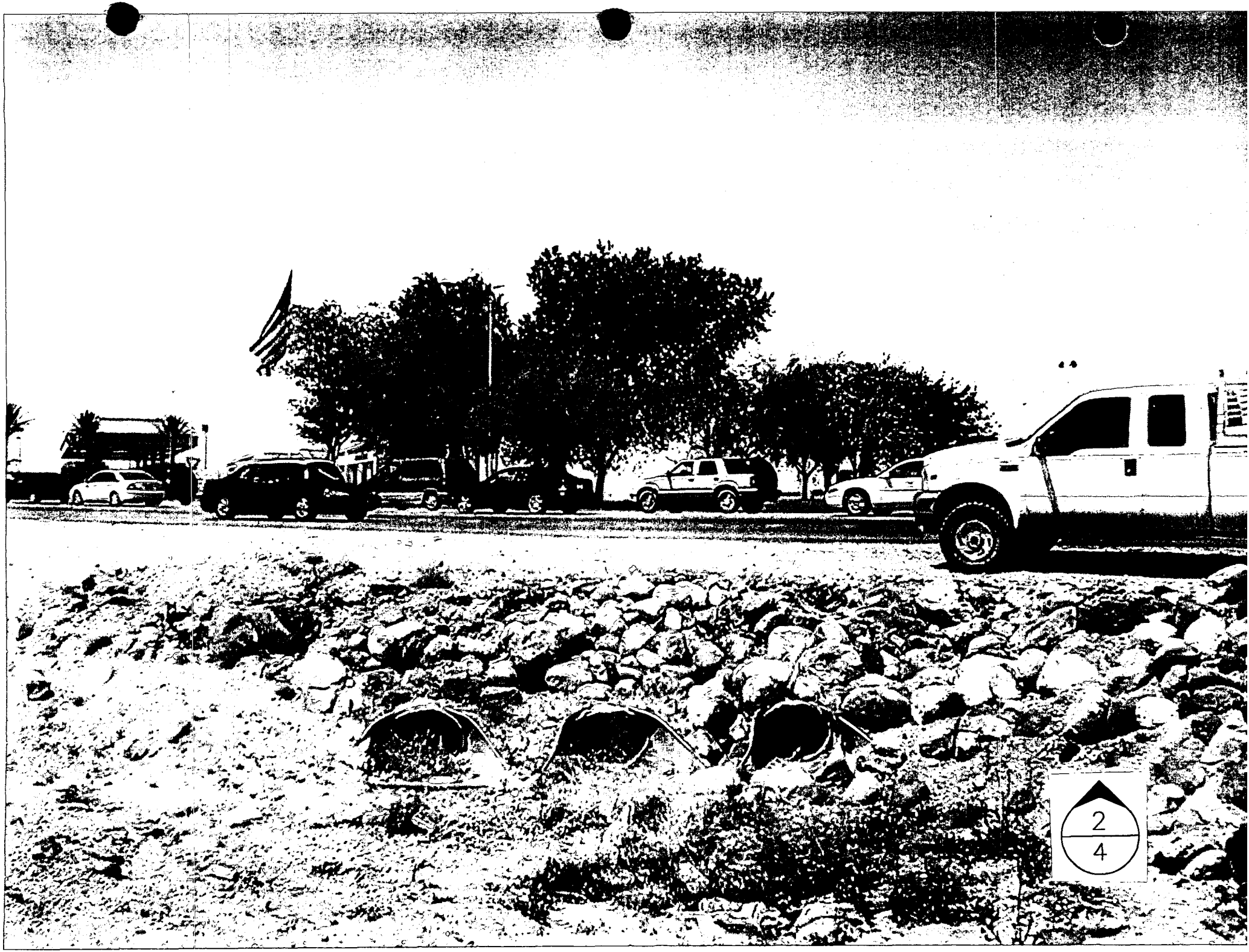
2
9



2
10


2
1

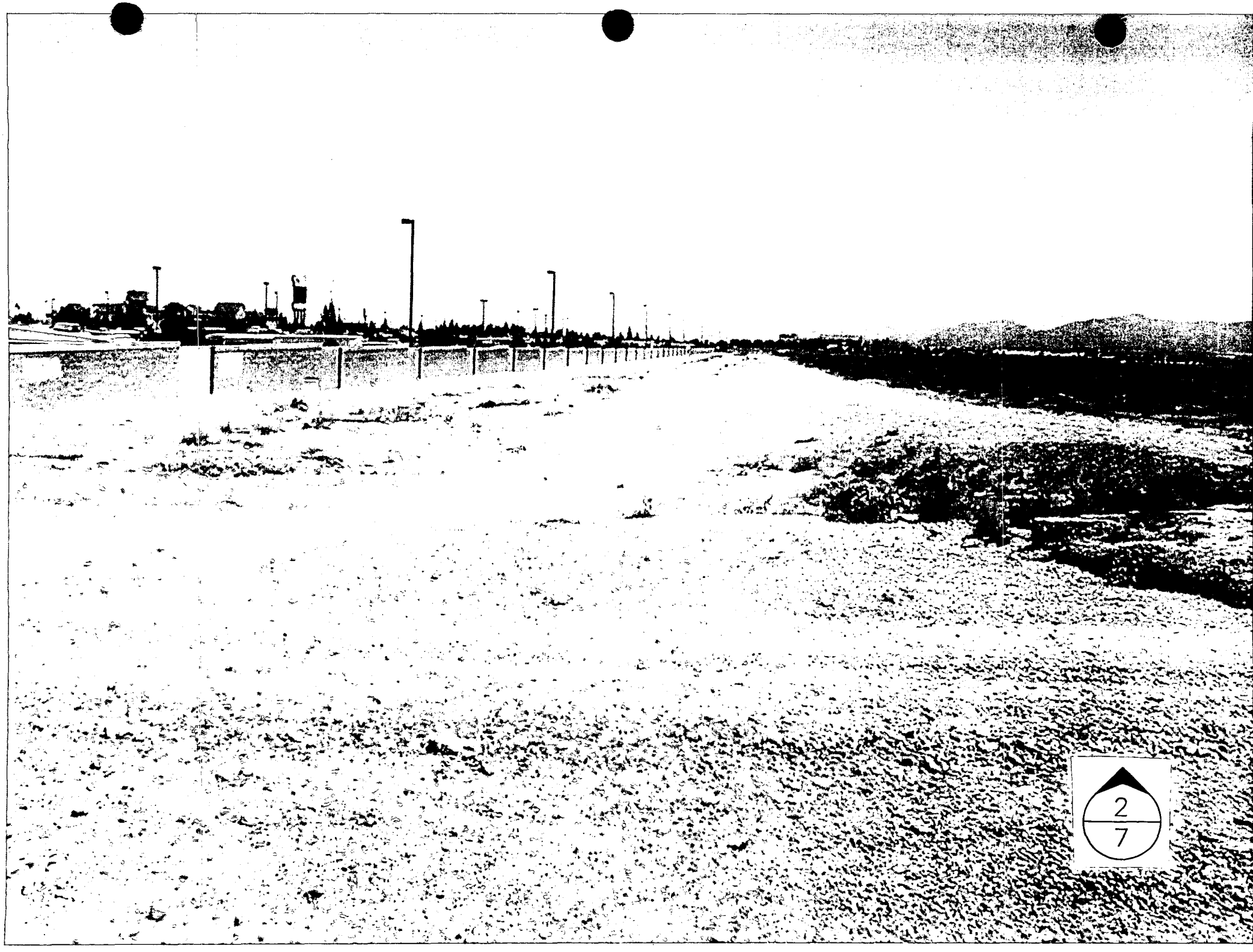

2
2



2
5



2
6



2/7

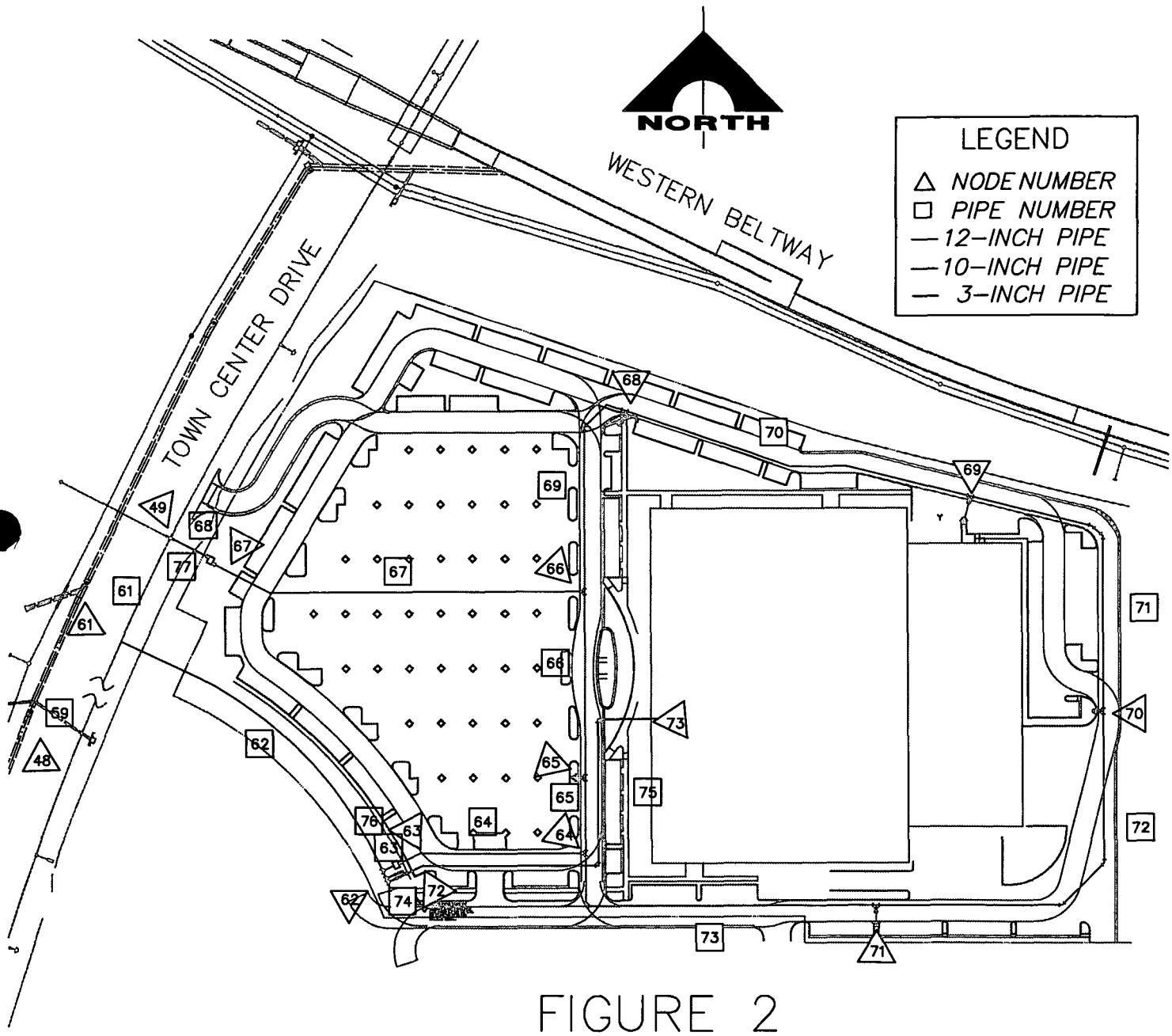
# VALLEY VIEW BOULEVARD





7
41

# DECATUR BOULEVARD



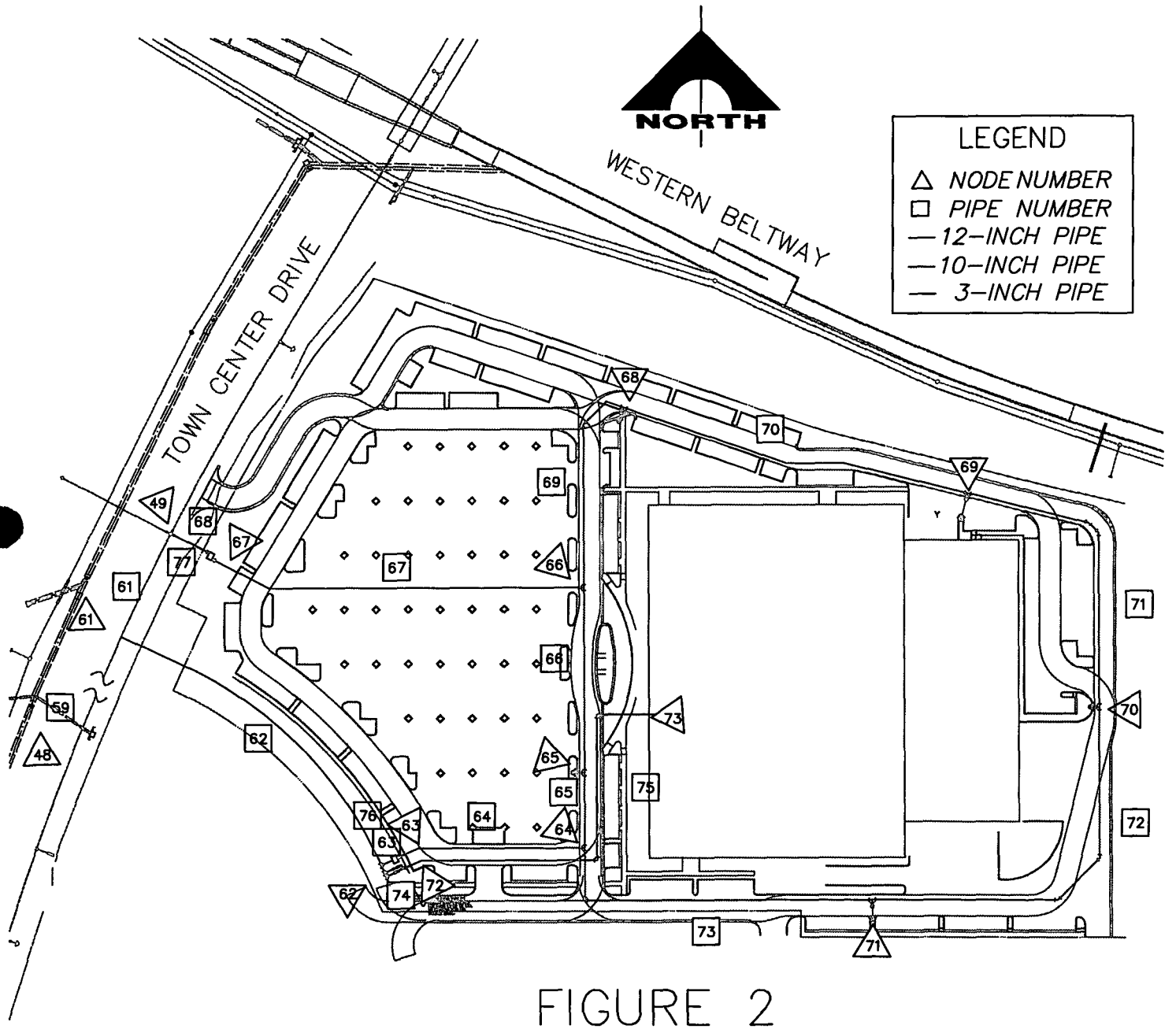

# FIGURE 2

## WATER DISTRIBUTION SYSTEM

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

VALETINER CRANE ARCHITECTS
RC WILLEY HOME FURNISHINGS
FIREFLOW AVAILABILITY
2975 PRESSURE ZONE

UNION PACIFIC RAILROAD

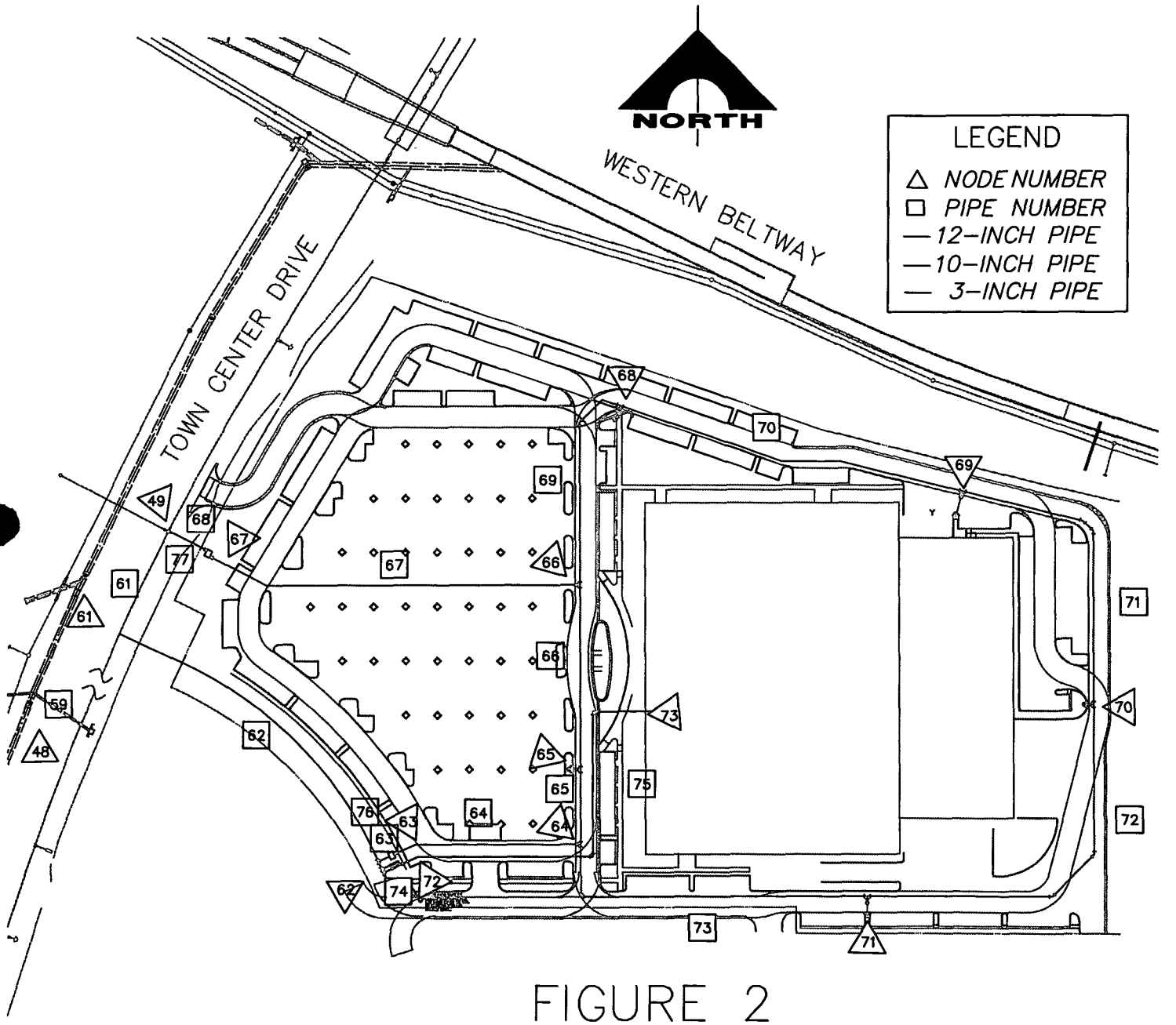



# FIGURE 2

## WATER DISTRIBUTION SYSTEM

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

VALETINER CRANE ARCHITECTS
RC WILLEY HOME FURNISHINGS
FIREFLOW AVAILABILITY
2975 PRESSURE ZONE

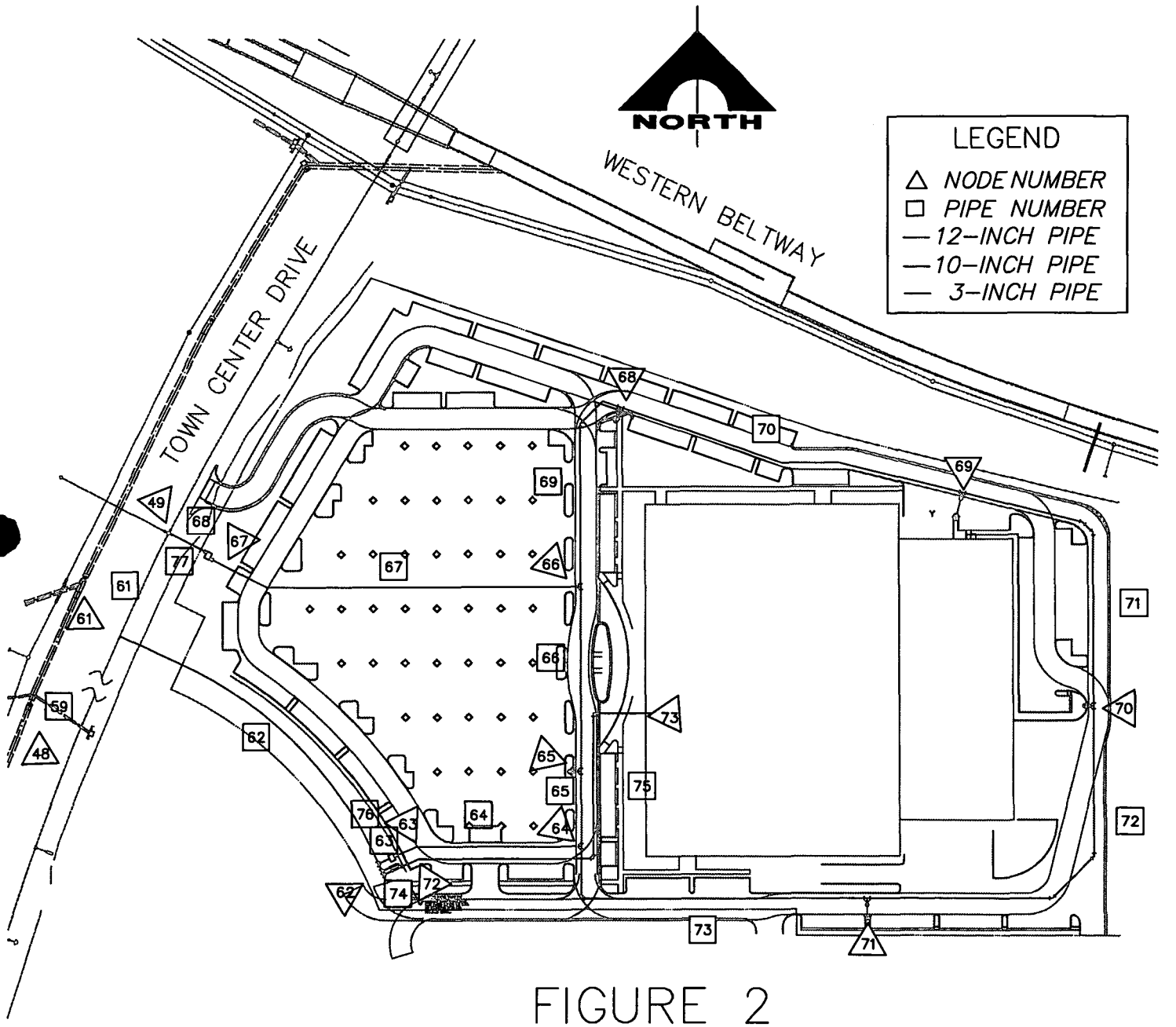



# FIGURE 2

## WATER DISTRIBUTION SYSTEM

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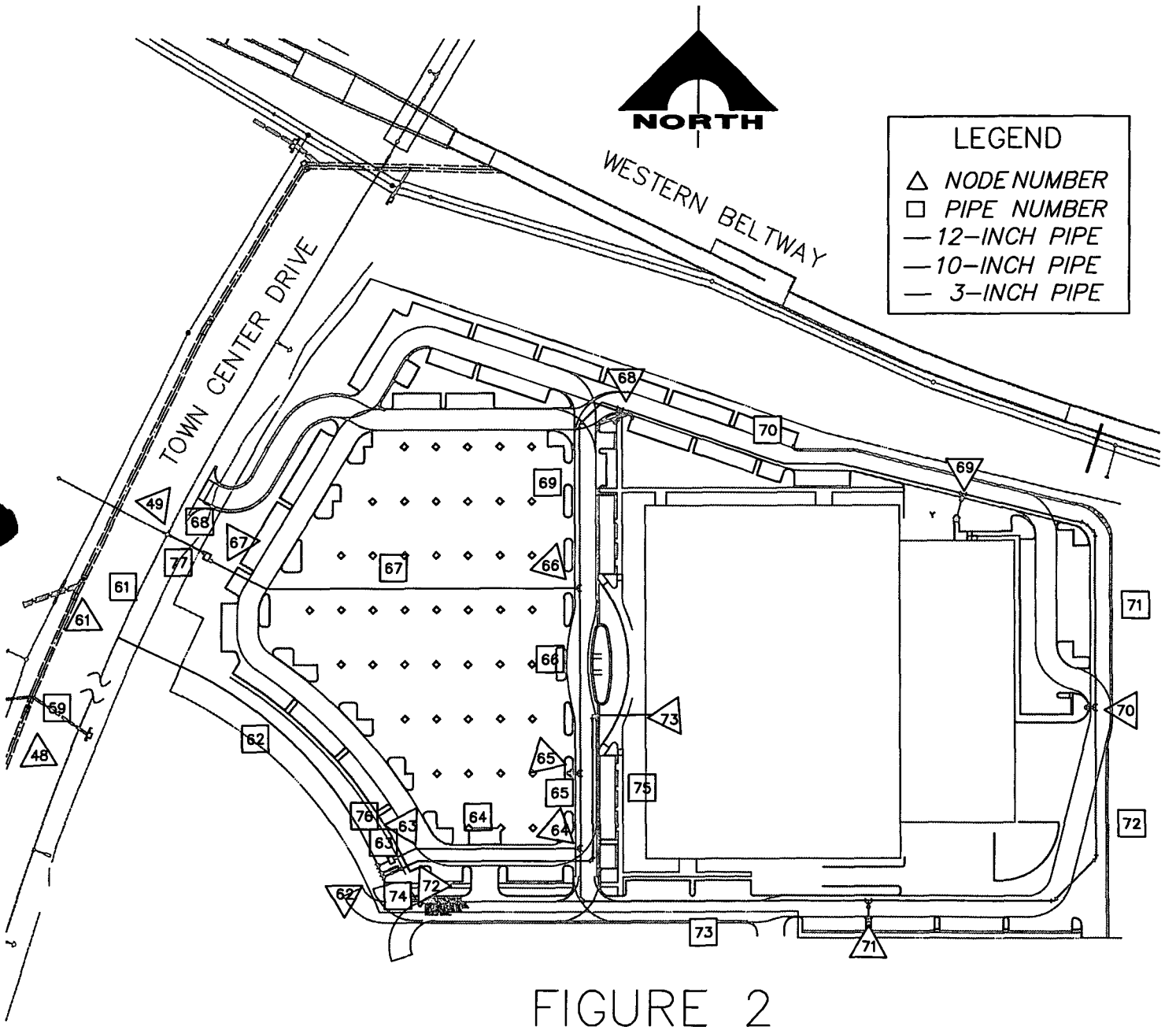



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FIREFLOW AVAILABILITY
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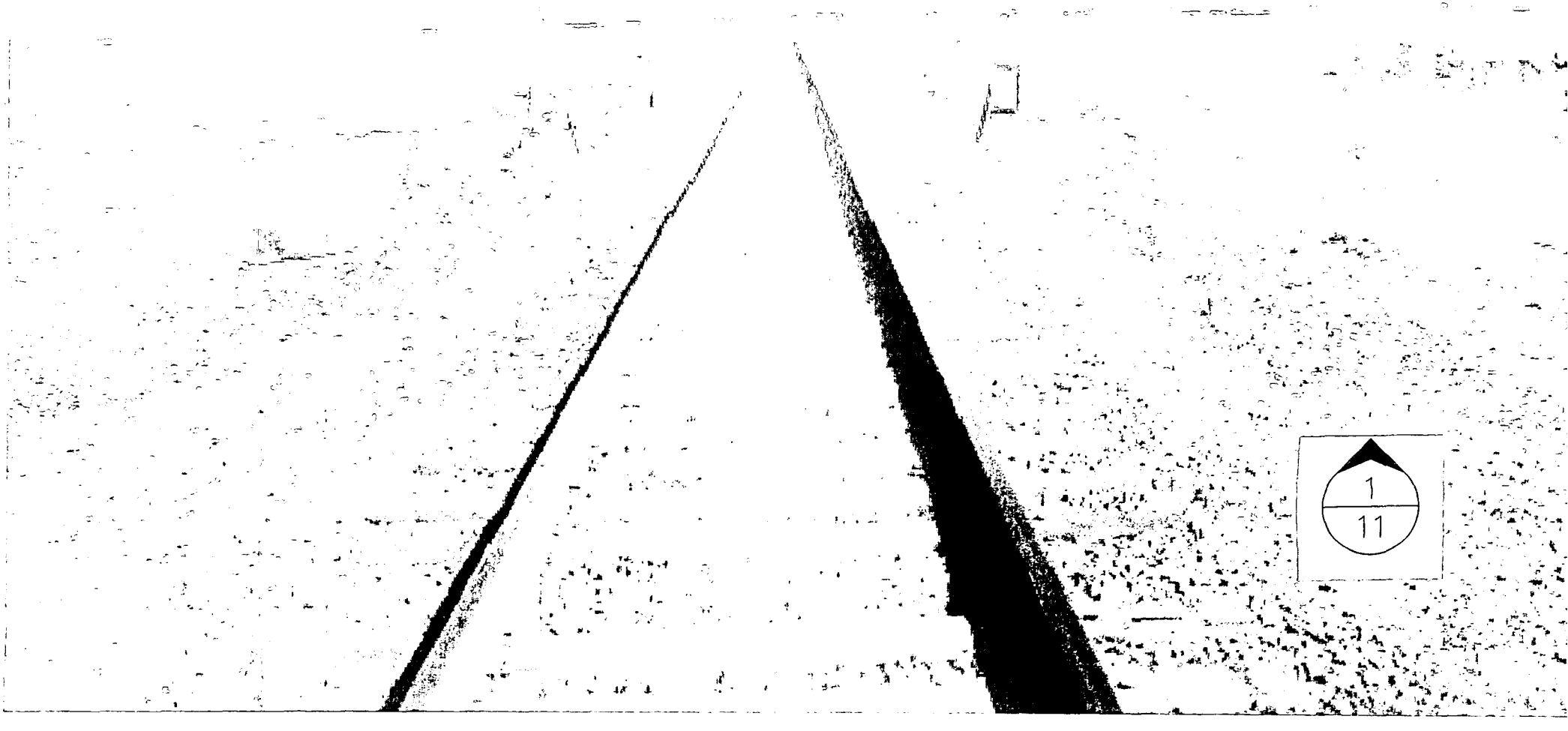

# FIGURE 2

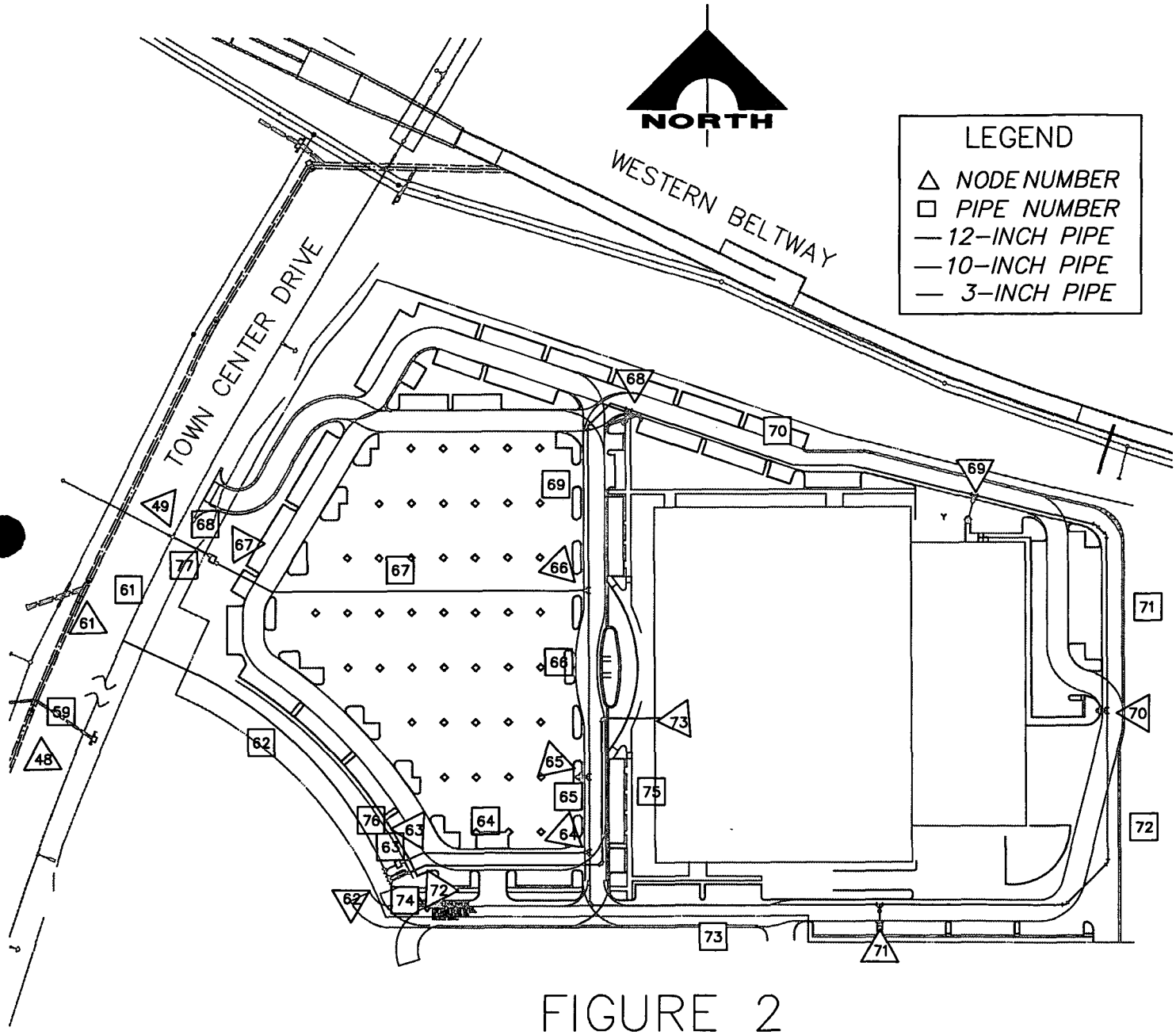
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2975 PRESSURE ZONE

# RAILROAD CROSSING #2
# PICTURE LOOKING NORTH
# FIELDBOOK 436 PG-34,35,36,37



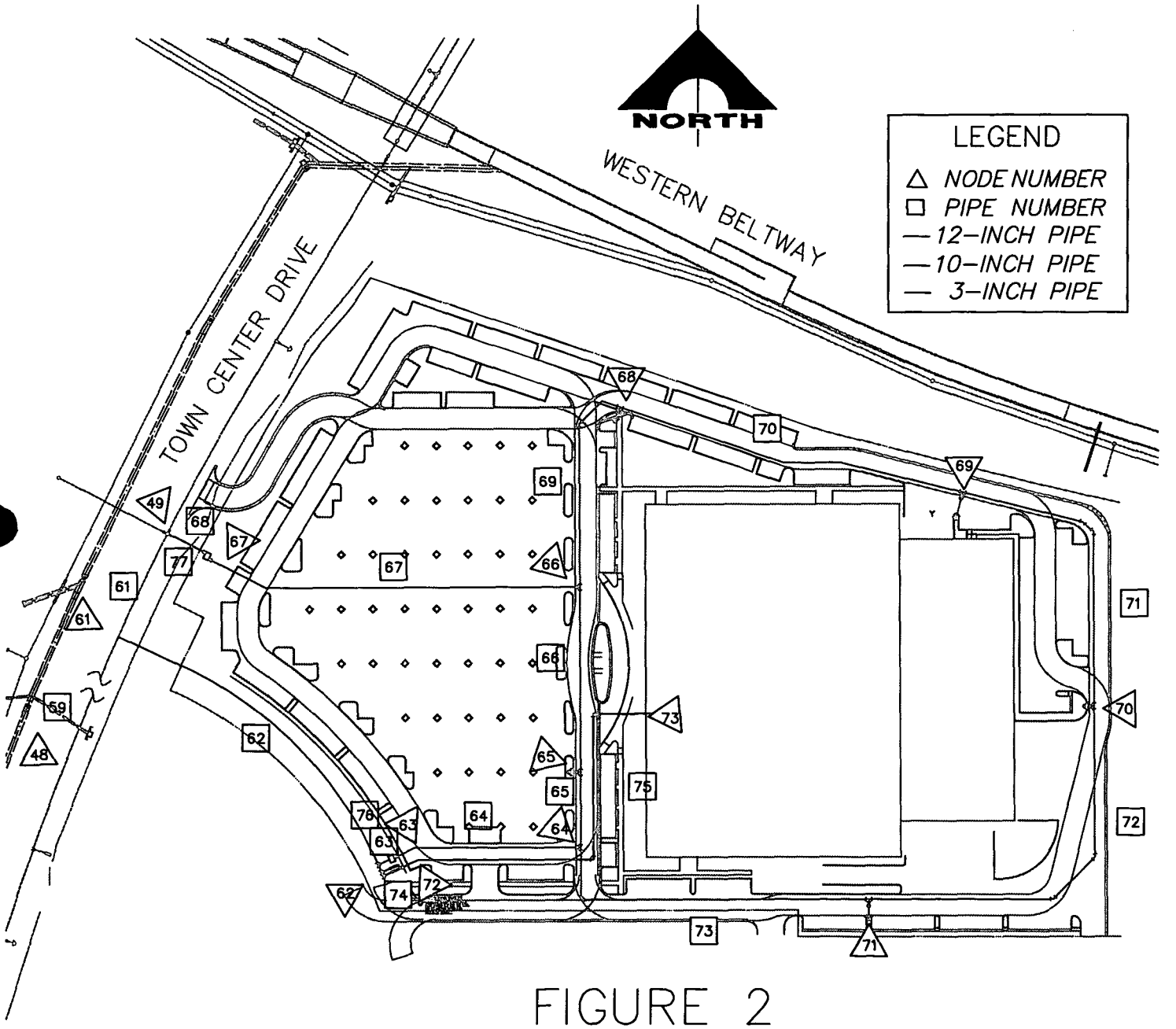



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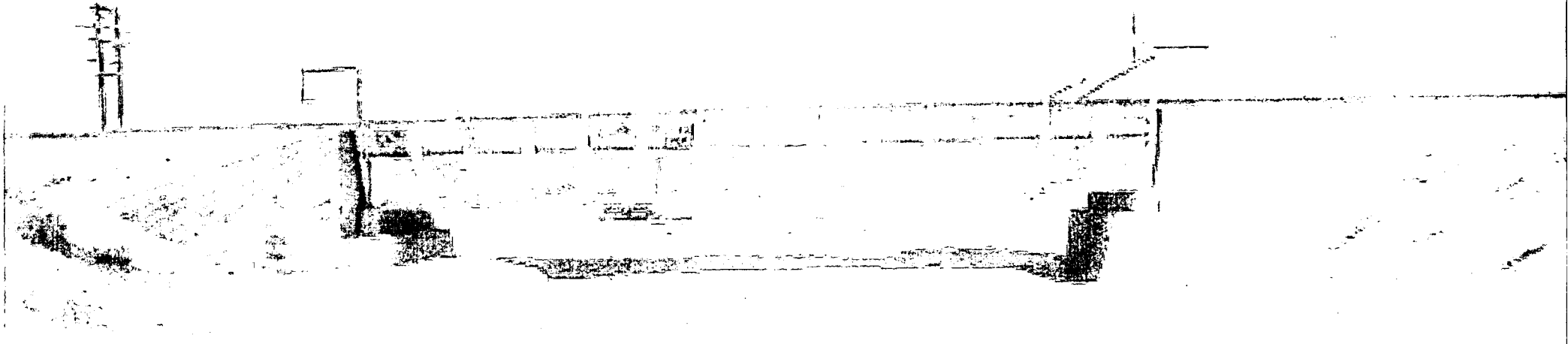

# FIGURE 2

## WATER DISTRIBUTION SYSTEM

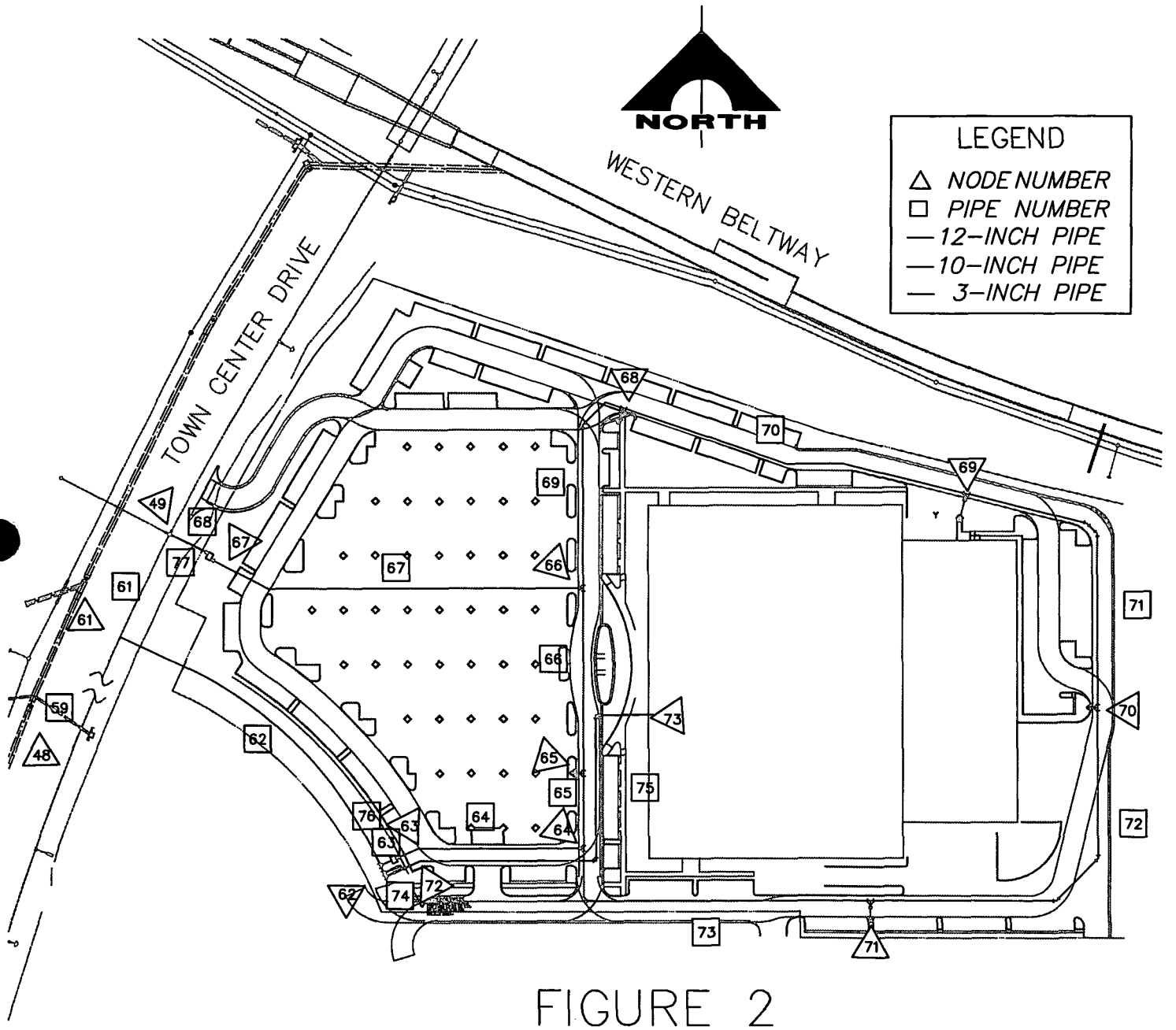
G.C. WALLACE, INC.
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FIREFLOW AVAILABILITY
2975 PRESSURE ZONE

# RAILROAD CROSSING #2
# PICTURE LOOKING WEST
# FIELDBOOK 436 PG-34,35,36,37



1
114



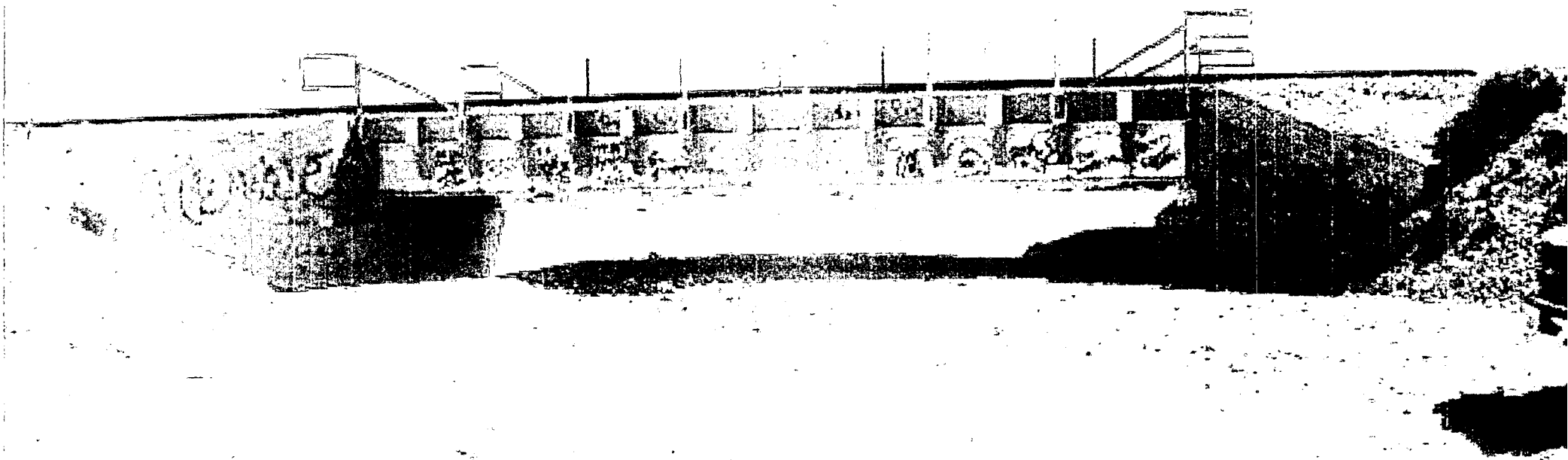

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# RAILROAD CROSSING #2
# PICTURE LOOKING EAST
# FIELDBOOK 436 PG-34,35,36,37



1
115

DUCK CREEK FIMA
TOPO BRIDGE #2 R/R

550.039
9-6-00

J. PATTON PC
B. STREETER π ED

TRIMBLE 4700-13
BASE LYWD "CREF"
FILE "DUK-BRIDGE"
SUNNY, CALM, 85° & CLEAR

OLD FILE "550.039

R/R MP 324.17
MARKED ON SWITCH BOX
WEST SIDE OF R/R

START = 1:50 PM
FINISH =

FILE "DUK-BRIDGE"

#1
R/R

436-35

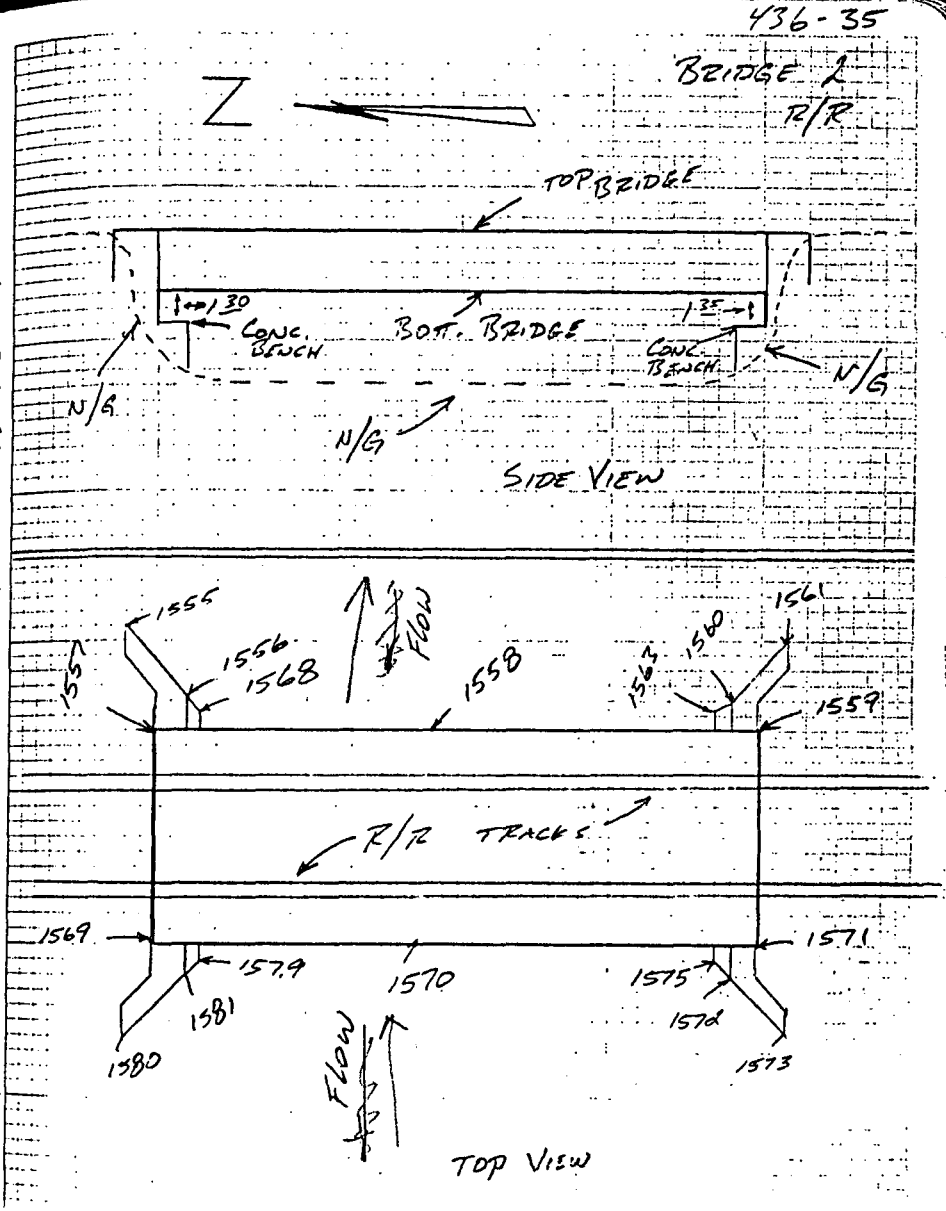
BRIDGE 1
R/R

| PT # | | QD PT | ANT HT |
|---|---|---|---|
| | | | 9.04 |
| 1539 | CHECK IN HOB + TACK | 813 | |

TOPO

EAST SIDE

| | |
|---|---|
| 1540 | NG = TOE |
| 1541 | NG = TOB |
| 1542 | NG = TOE WASH |
| 1543 | NG = @ FL + OZ - |
| 1544 | NG = TOE WASH |
| 1545 | NG = TOB |
| 1546 | NG = TOE |
| 1547 | NG = TOE R/R TRACKS |
| 1548 | NG = TOB |
| 1549 | NG = TOE WASH |
| 1550 | NG = @ FL + OZ - |
| 1551 | NG = TOE |
| 1552 | NG = TOB |
| 1553 | NG = TOE |
| 1554 | NG = END WING WALL CONC. |



#2

ANT HT 9 04

| | | |
|---|---|---|
| 1555 | SOUTH EDGE CONC. WING WALL END | |
| 1556 | ANGLE CONC WING WALL | 1' WIDE |
| 1557 | TOP BRIDGE NE | EL= 30 79 |
| 1558 | TOP BRIDGE EAST & WASH | EL= 30 84 |
| 1559 | TOP BRIDGE SE NORTH EDGE | EL= 31 10 |
| 1560 | ANGLE CONC WING WALL | 1' WIDE |
| 1561 | CONC. WING WALL END | 1' WIDE |
| 1562 | NG= AT END WING WALL | |
| 1563 | TOP CONC. BENCH | ANT HT= 12 79 |
| 1564 | NG= AT BENCH TOB | |
| 1565 | NG= TOE IN WASH | |
| 1566 | NG= ℄ FL + 02- | |
| 1567 | NG= AT BENCH TOB | |
| 1568 | TOP CONC BENCH | EL= 24 71 |
| 1569 | TOP BRIDGE NW | ANT HT= 9 04 EL= 30 55 |
| 1570 | TOP BRIDGE WEST & WASH | EL= 30 66 |
| 1571 | TOP BRIDGE SW | EL= 30 92 |
| 1572 | ANGLE CONC WING WALL | 1' WIDE |
| 1573 | CONC WING WALL END | |
| 1574 | NG= AT END WING WALL | |

1575 TOP CONC. BENCH — ANT HT 12.79

1576 NG = AT CONC BENCH

1577 NG = @ FL + 0.2 -

1578 NG AT CONC BENCH

1579 TOP CONC BENCH

SOUTH EDGE

1580 CONC. WING WALL END — 1± WIDE

1581 ANGLE PT CONC WING WALL 1± WIDE

1582 NG = TOE

1583 NG = TOE

1584 NG = @ FL WASH + 0.2 -

1585 NG = TOE

1586 NG = TOE

1587 NG @ FL AT WASH

1588 NG = TOB

1589 NG = TOB

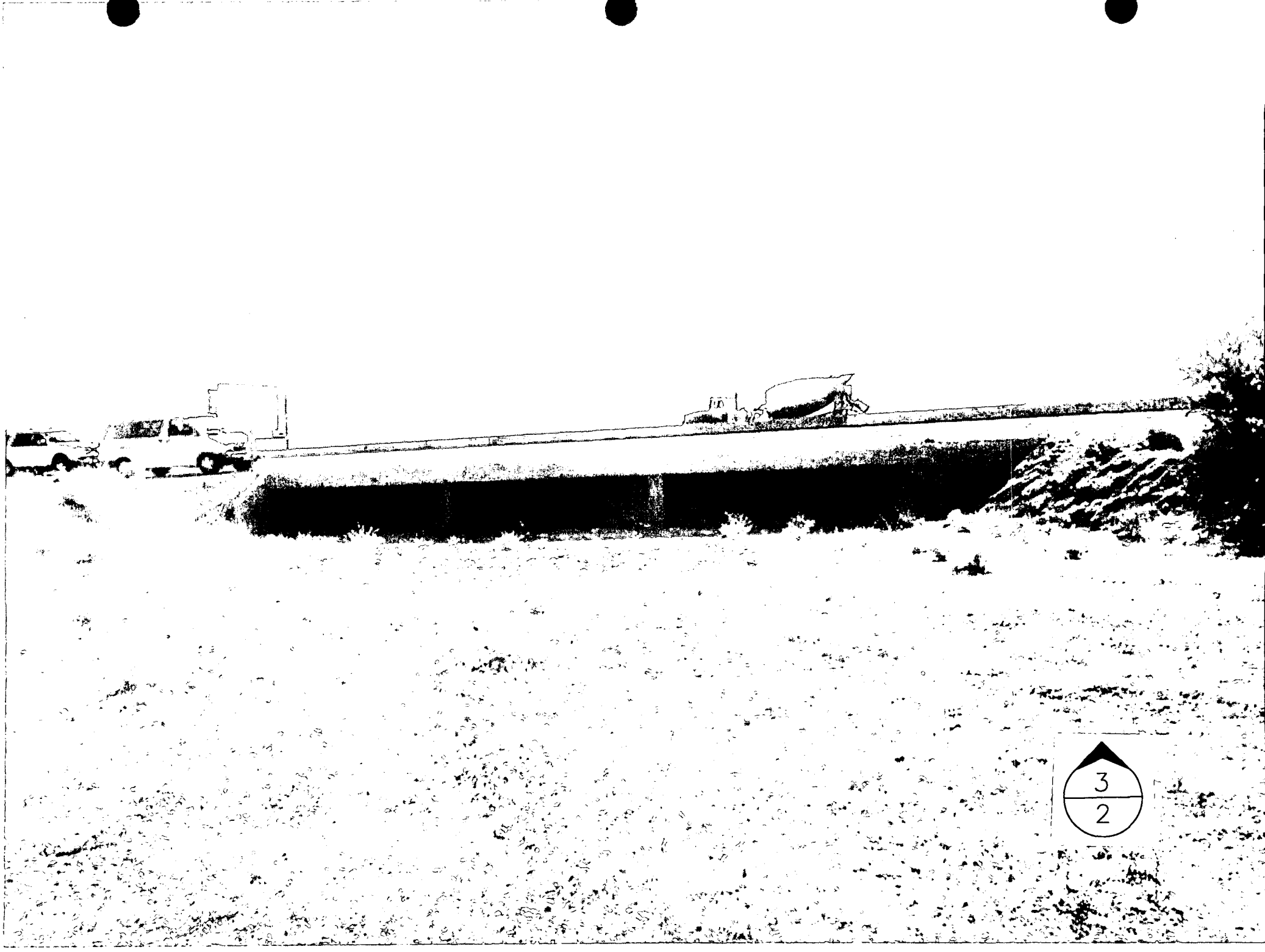
1590 NG = TOB

1591 NG = TOB

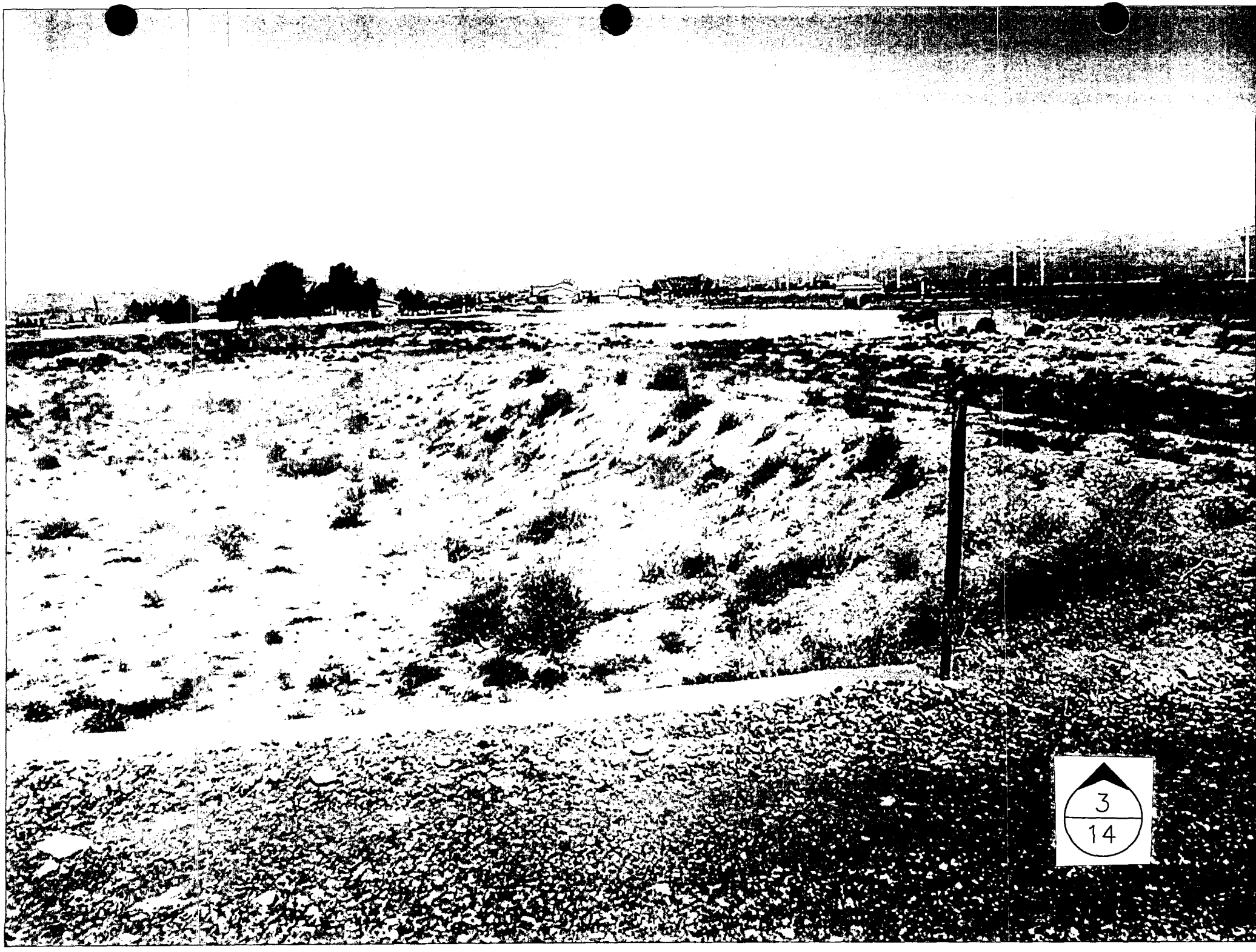
1592 CHECK IN HUB + TACK — 213 ANT HT 9.04

END #1

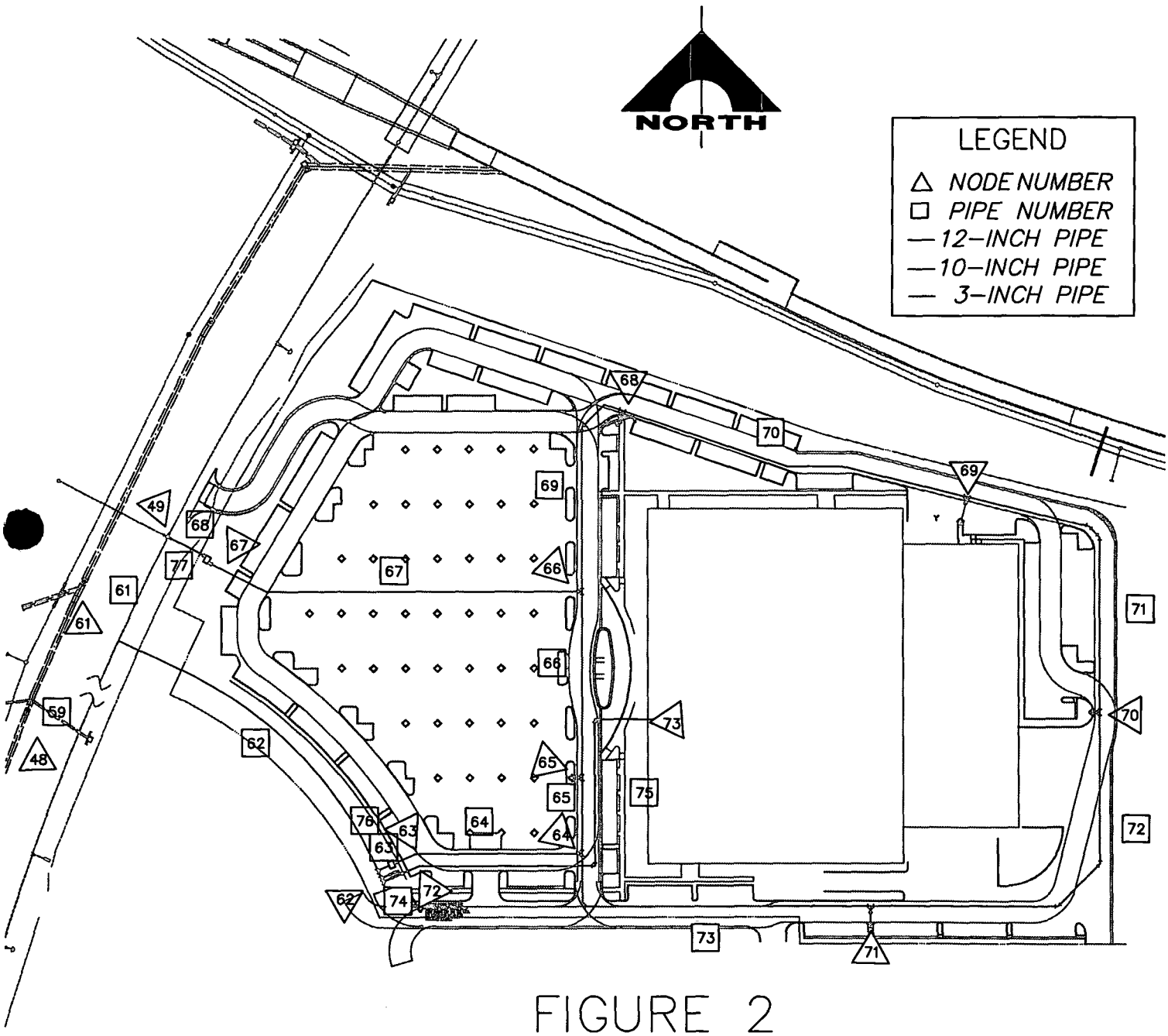
# I-15 SOUTH OF MIDDLE BRANCH BLUE DIAMOND WASH



3
2


3
14


3
15

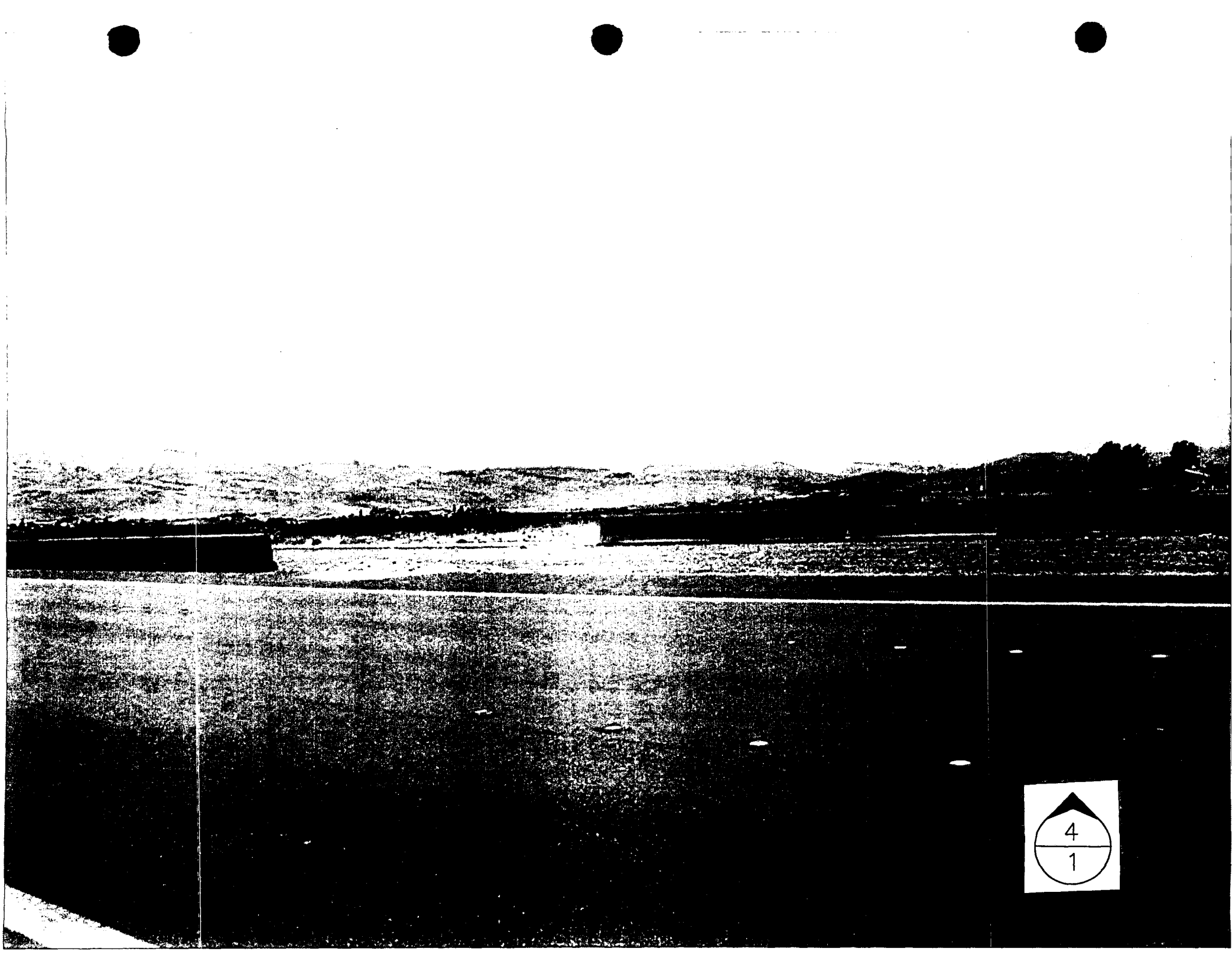


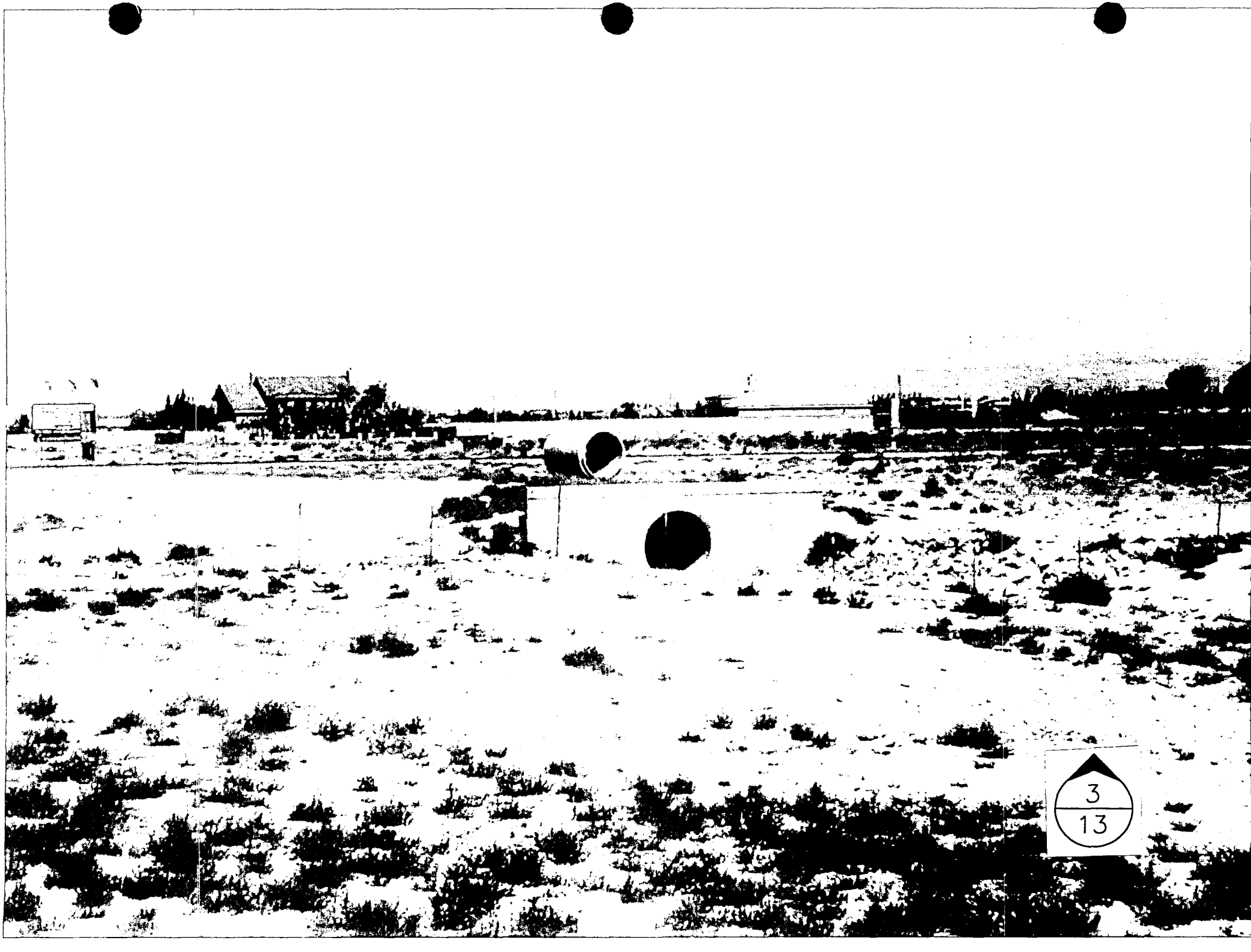

# FIGURE 2

## WATER DISTRIBUTION SYSTEM

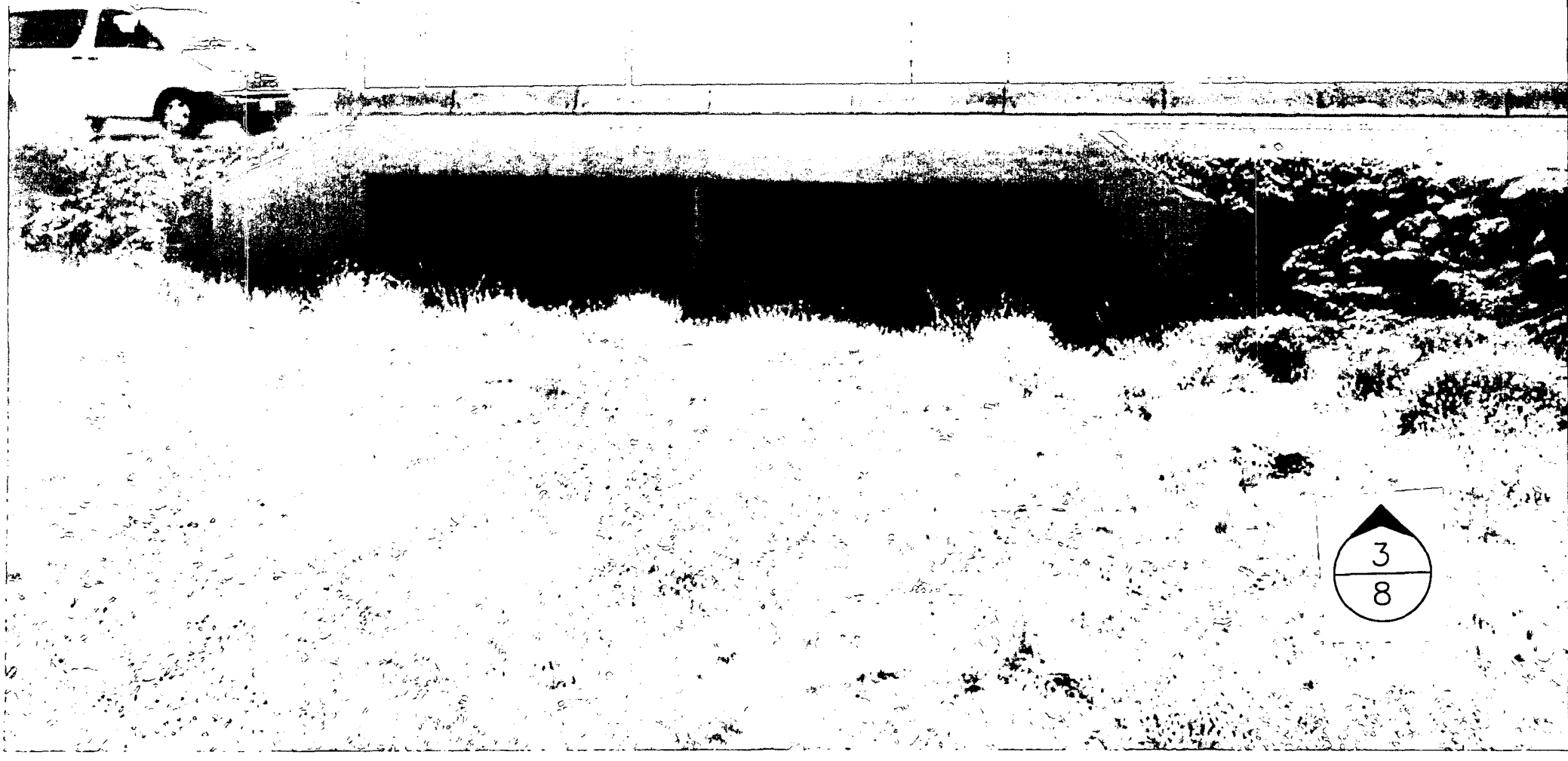
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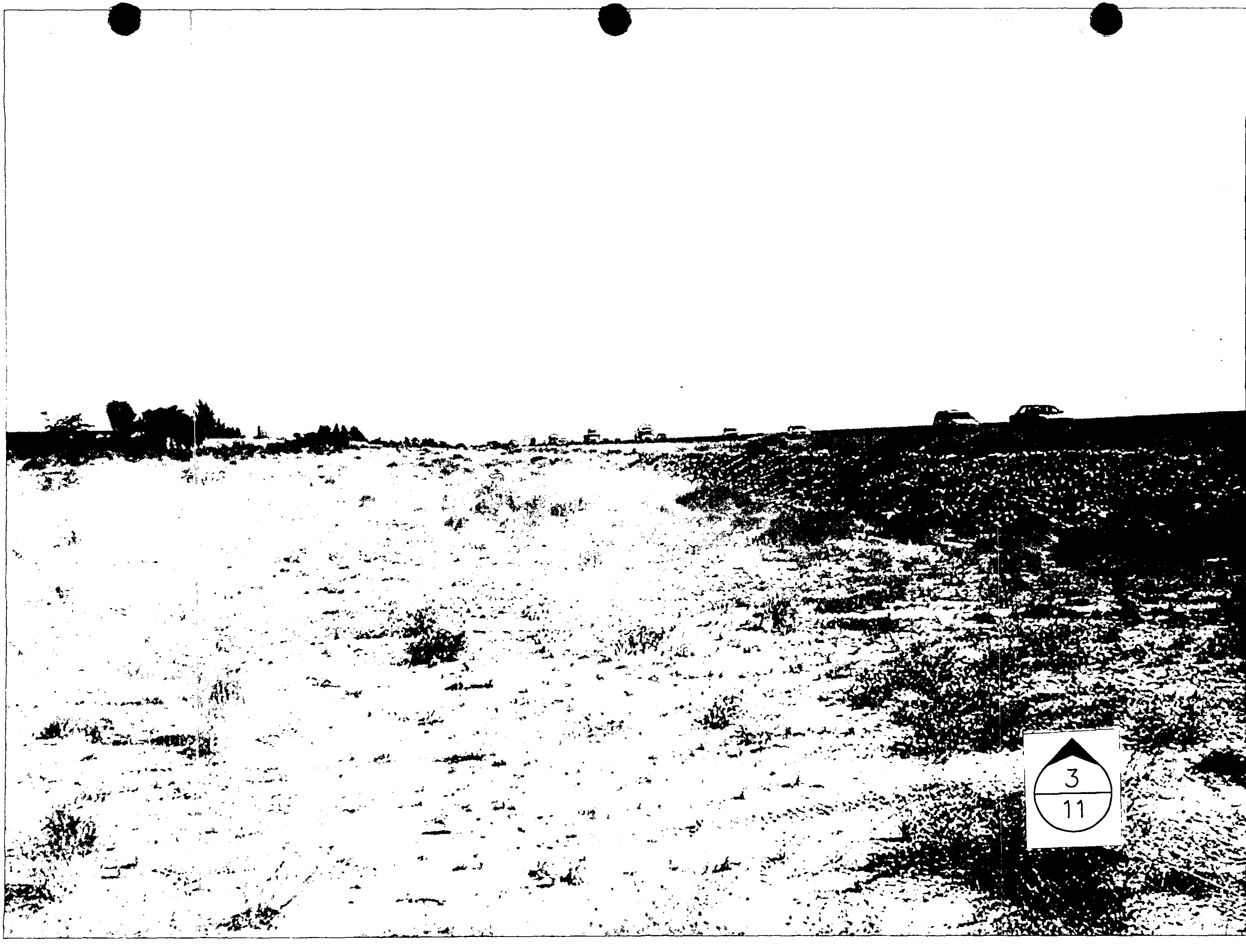

4
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13



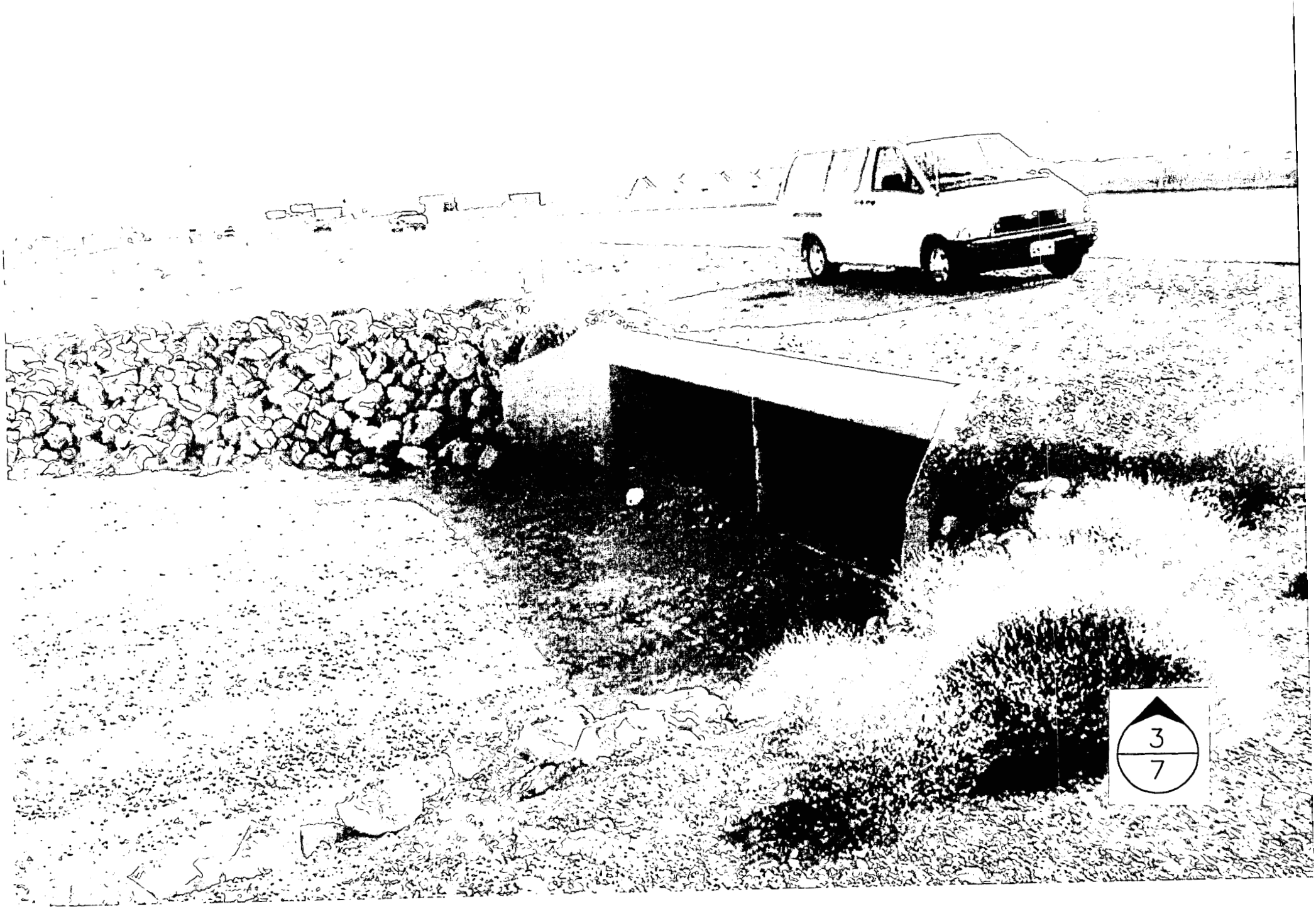
3
8


3
11

3
1

3/16


3
6




3
5

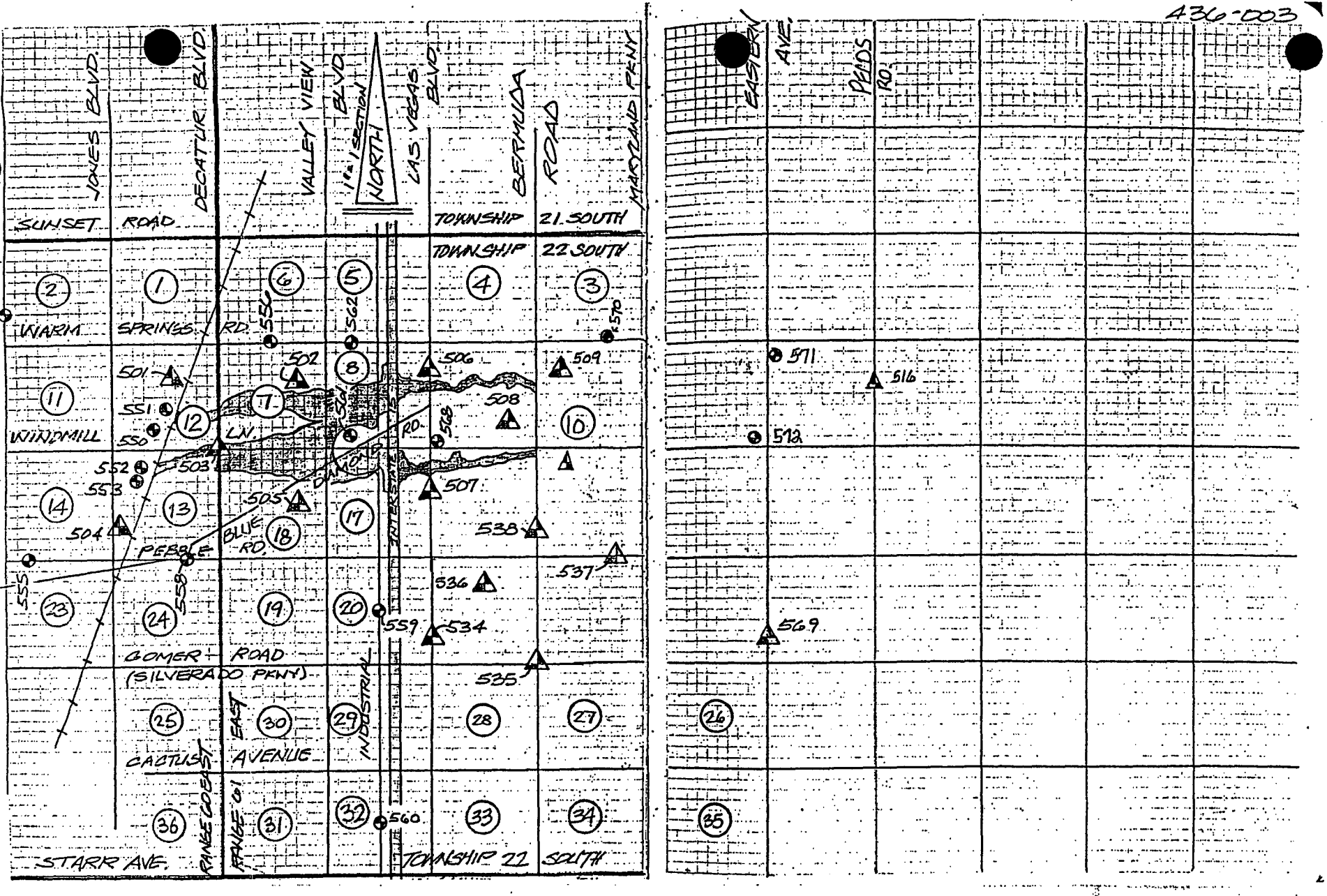


3
3


3
4



# OTHER FIELD SURVEY NOTES


JONES BLVD.
DECATUR BLVD.
VALLEY VIEW BLVD.
1/2 1 SECTION
NORTH
LAS VEGAS BLVD.
BERMUDA ROAD
MARYLAND PKWY
EASTERN AVE.
PEDS RD.
SUNSET ROAD
TOWNSHIP 21 SOUTH
TOWNSHIP 22 SOUTH
INARIA
SPRINGS RD.
WINDMILL
LN.
DURANGO
INTERSTATE 15
BLUE DIAMOND RD.
PEBBLE RD.
GOMER ROAD
(SILVERADO PKWY)
CACTUS AVENUE
EAST
INDUSTRIAL
RANGE 61
RANGE 60
STARR AVE.
TOWNSHIP 22 SOUTH
501
502
503
504
505
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571

| POINT | DESCRIPTION | ANT. HT. |
|---|---|---|
| 501 | SET 1x2 W/ TACK, 1.25 MI. SOUTH OF INT. OF I-215 & DECATUR, WEST OF R.R. TRACKS 150'+/- | 4.96' |
| 550 | SET SCRIBE ON N.W. CR OF "SNWS FIBER OPTICS" VAULT 100' W. OF R.R. TRACKS, 300' S. OF RR BRIDGE OVER WASH | 6.18' |
| 551 | FND. 3" BRASS CAP @ N.W. CR. OF VAULT (UNMARKED) 200'+/- W. OF R.R. TRACKS @ BRIDGE OVER WASH<br>" SOUTHERN NEVADA WATER SYSTEM<br>SVL<br>PHONE 564-7697<br>VAULT # 144<br>CLASS C<br>301 80 " | 4.86' |
| 552 | SET 1x2 IN WASH 100' W. OF RR TRACKS @ BRIDGE | 5.24' |
| 553 | SET 1x2 ALONG E. SIDE OF DIRT ROAD 100'+/- W. OF R.R. TRACKS AND SOUTH OF C.P. 552 | 5.34' |
| * 504 | SET 1x2, 100'+/- W. OF R.R. TRACKS, 1/2 MI. S. OF 552 | 5.12' |

| POINT | DESCRIPTION | ANT. HT. |
|---|---|---|
| 555 | FND. RIVET + SQUARE ALUM. PLATE IN N.E. WINGWALL OF A REINFORCED CONC. BOX, N. SIDE OF PEBBLE RD AND REDWOOD ST.<br>CLARK CO. BM Nº 2C20 14SSWG<br>NAVD 88 EL. = 772.959 MTRS<br>2535.950 FT. | 7.0' |
| * 503 | FND. CONC. NAIL + SHINER @ ℄ INT. OF WINDMILL + DECATUR | 5.19' |
| 556 | RIVET + SQ. ALUM. PLATE IN F.T.C. FOR BLK. WALL, N. SIDE OF KARN SPRINGS RD. E. SIDE OF CUL-DE-SAC ENT. 35' S. OF D/W INTO 4460 KARN SPRINGS RD.<br>CLARK CO. BM Nº 8C21 GSA<br>NAVD 88 EL. = 711.271 MTRS<br>2333.562 FT. | 5.27' |
| 557 | RIVET + SQUARE ALUM. PLATE IN A CONC. MON. NE CR OF RAINBOW BLVD + ARBY AVE. 30' N + 50' E. OF THE P.I.<br>CLARK CO. BM Nº 2C20 25NWG<br>NAVD 88 EL = 760.314 MTRS<br>2494.464 FT. | 4.58' |
| 558 | RIVET + SQUARE ALUM. PLATE IN A CONC. MON. N.E. CR (ACTUALLY NW. CR) OF PEBBLE RD + EDMOND ST. UNDER THE HIGH POWER LINES.<br>CLARK CO. BM Nº 2C20 13SSEG<br>NAVD 88 ELEV. = 732.839 MTRS<br>2404.323FT | 4.70' |

| POINT | DESCRIPTION | ANT. H.T. |
|---|---|---|
| 559 | RIVET + SQUARE ALUM. PLATE IN THE WEST CENTER OF A 4'X3' CONC. PAD IN THE NE CR. OF INDUSTRIAL ROAD + SERENE AVE. CLARK CO. BM No. OC21 20C4 NAVD 88 ELEV. = 696.158 MTRS 2283.978 FT. | 4.95' |
| 560 | STATE BRASS CAP HIGHWAY MARKER STAMPED A 106+75.91 ON THE EAST SIDE OF INDUSTRIAL RD AND ERIE AVE CLARK CO. BM No. OC21 32C4 NAVD 88 EL = 705.996 MTRS. 2316.255 FT. | 5.24' |
| 505 | SET 1X2 @ N.W. CR OF INT OF WIBWAM + HINSON | 5.04' |
| 561 | RIVET + SQUARE ALUM. PLATE IN T.C. ON THE EAST SIDE OF INDUSTRIAL RD. IN FRONT OF A F.H. 950' N. OF BLUE DIAMOND RD. CLARK CO. BM No. OC21 855W6 NAVD 88 EL. = 697.758 MTRS. 2289.228 FT. | 4.92' |
| 502 | FND. 5/8" REBAR @ ℄ INT. OF HINSON ST. + MAULDING AVE. | 4.96' |

550.039

AERIAL PANEL CONTROL

DUCK CREEK WASH

BLUE DIAMOND TO L.V. WASH

9 JULY 2000

V.P. HIGGINS PC

V. SILVA T

SUNNY 90°

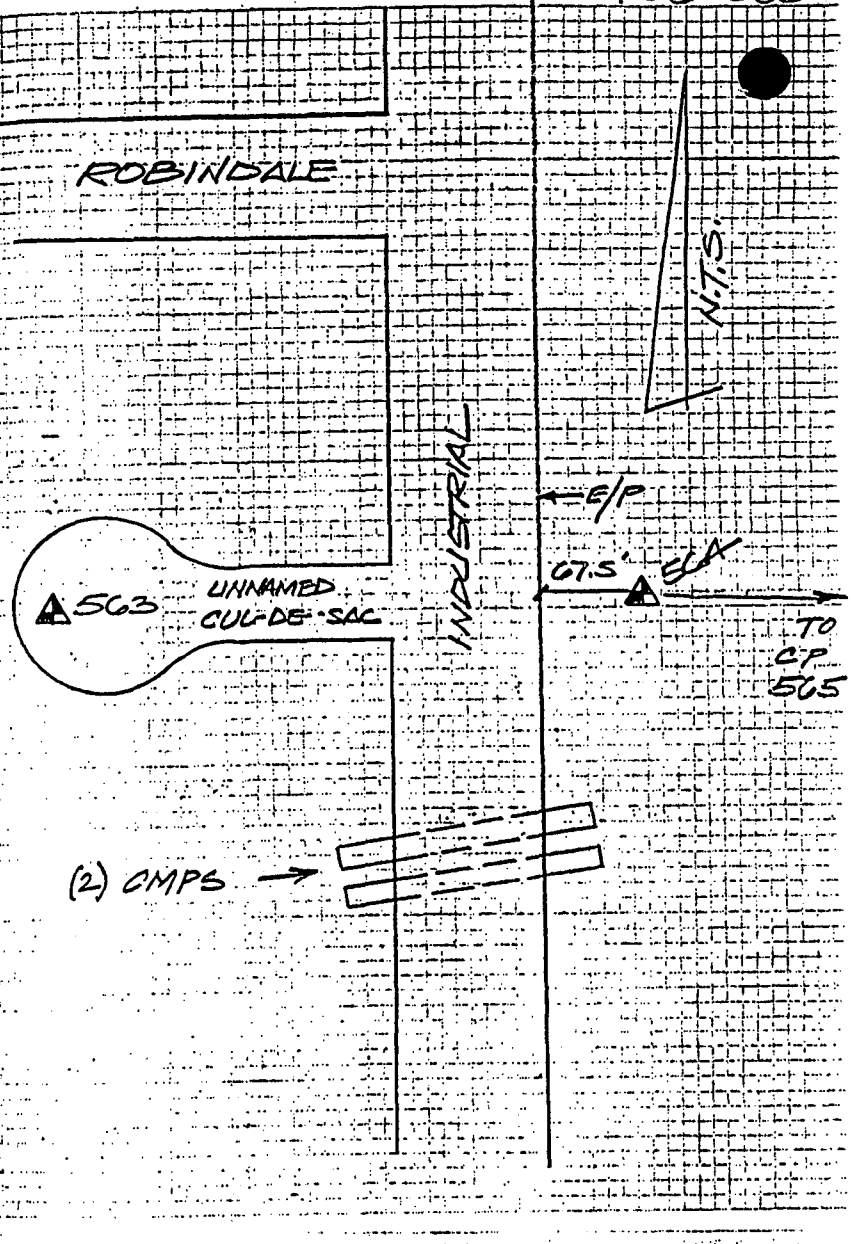
TRIMBLE 4700 #14

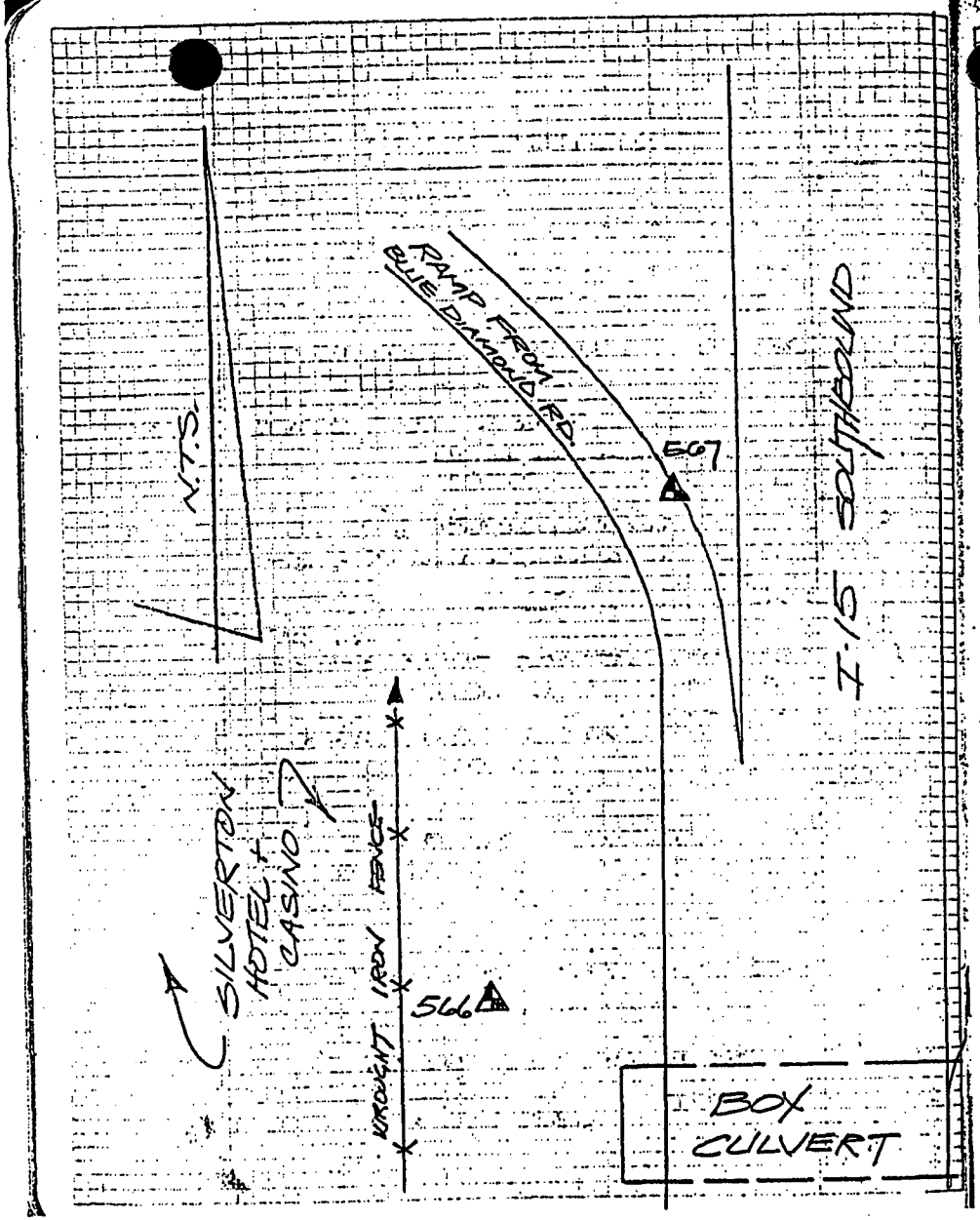
PPK W/ LV.VWD

7 AM – 3 PM

FILE: FEMA1.dc

| POINT | DESCRIPTION | ANT HT |
|---|---|---|
| 562 | RIVET + SQ. ALUM. PLATE IN T.C., SE CR OF WARM SPRINGS RD + POLARIS AVE. CLARK CO. BM No. 8C21 8NNW6 NAVD 88 ELEV. = 695.957 METERS 2283.319 FEET | 6.81' |
| 563 | SET P.K. NAIL + SHINER | 5.88' |
| 564 | SET 1x2 W/ TACK | 4.79' |
| 565 | SET 1x2 W/ TACK @ N. SIDE OF WASH, 75' +/- WEST OF BOX CULVERT @ S. BOUND I-15 | 5.98' |
| 566 | SET 1x2 W/ TACK | 5.81' |
| 567 | FND. P.K. NAIL ON E. SIDE OF RAMP - BLUE DIAMOND RD TO S. BOUND I-15, 8' +/- N. OF ELEC. BOX "PAINTED WHITE" | 5.83' |
| 506 | SET P.K. NAIL + SHINER IN ± +/- LAS VEGAS BLVD, 1/4 MILE +/- SOUTH OF WARM SPRINGS RD, ACROSS FROM EEZ FACTORY OUTLET | 5.24' |
| 568 | RNET + SQ. ALUM. PLATE IN TO NEAR 1/2 DELTA, W. PORTION OF PLANTER, NE CR. OF LAS VEGAS BLVD + WINDMILL LANE. CLARK CO. BM No. 0C21 95WS NAVD 88 ELEV. = 683.680 METERS 2243.040 FEET | 4.43' |



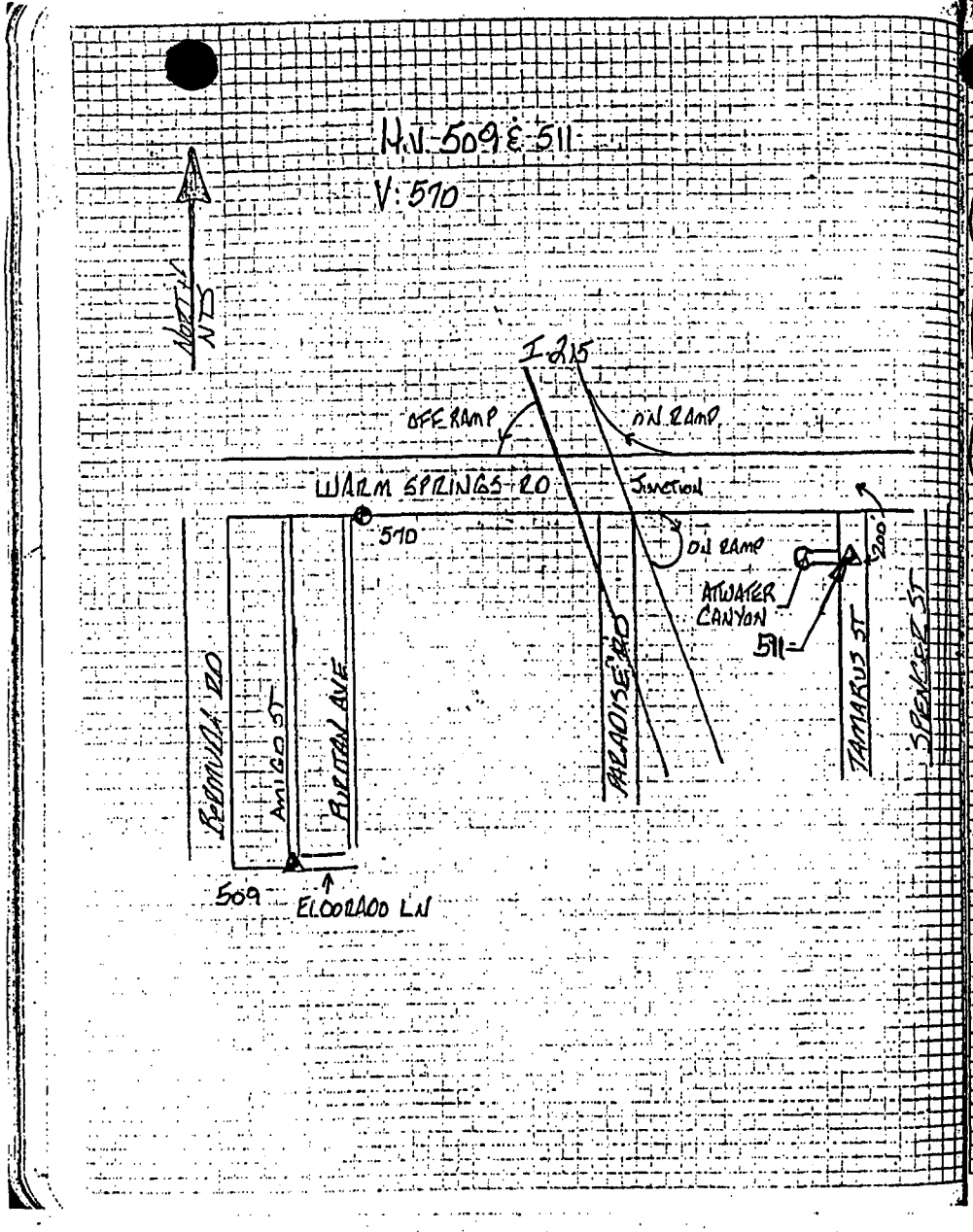



| POINT | DESCRIPTION | ANT. HT. |
|---|---|---|
| 508 | FND. 2" ALCAP IN CONC. "RLS 4046 SE 1/16 S.9" @ INT. OF S. PLACID STREET + E. MESA VERDE LN. | 5.84' |
| 507 | SET P.K. NAIL + SHINER IN ℄ +/- OF LAS VEGAS BLVD. 0.38 MILES SOUTH OF WINDMILL LANE. | 5.96' |
| 536 | SET P.K. + SHINER NEAR ℄ INT. OF S. GILESPIE STREET + EAST AGATE AVENUE. | 6.03' |
| 534 | SET P.K. NAIL + SHINER E. SIDE OF LAS VEGAS BLVD @ ℄ OF E. RICHMAR AVE. | 5.79' |
| 535 | SET GOD NAIL + FEATHER, NW OF INT. OF SILVERADO PKWY + BERMUDA RD. 75'+/- N. OF PAVEMENT. | 5.18' |
| 538 | SET GOD NAIL + FEATHER, 50'+/- NORTH AND 100'+/- WEST OF THE INT. OF BERMUDA RD + CLAUSER AVE. | 5.82' |
| 537 | SET GOD NAIL + FEATHER, 100'+/- NORTH AND 100'+/- EAST OF THE INT. OF PEBBLE RD. + PARADISE | 5.81' |
| 569 | RIVET + ALUM. PLATE, IN A 8'x12' CONC. SLAB W/ WELL CASING. 100' EAST OF EASTERN AVE., 1125' S. OF SERENE AVE. CLARK CO. BM № 8C21 245WW6 NAVD 88 EL. = 667.051 METERS 2188.483 FEET | 4.75' |

| POINT | DESCRIPTION | ANT. HT. |
|---|---|---|
| 509 | END AL CAP ILLEGIBLE ℄ OF ELDORADO LN & AMIGO ST. 2" AL CAP LEVEL W/ASPHALT | 5.21 |
| 570 | RIVET & SQUARE ALUMN PLATE IN TOP OF CURB, SOUTHEAST CORNER OF WARM SPRINGS AND PURITAN AVE. NEAR THE P.C. OF WARM SPRINGS CLARK CO BM NO BC21-1014 NAVD 88 ELEV = 640.796M = 2102.344 FT. | 5.49 |
| 511 | FND AL CAP ℄ INTERSECT OF TAMARUS ST & ATWATER CANYON AVENUE - PLS 7004 DTD 1999 2" CAP FLUSH WITH ASPHALT WITH 4 NAIL SHINERS STRADDLES | 5.00 |
| 513 | P.K. SHINER 0.50 miles South OF SUNSET ON THE EAST SIDE OF EASTERN - IN ASPHALT PARKING LOT - 1ST PRKNG LOT NORTH OF RAILROAD TRACKS CROSS EASTERN. NEAR NORTHWEST CORNER OF PARKING LOT - 105' EAST - 15 SOUTH CURB | 5.34 |
| 571 | RIVET and SQUARE ALUMINUM PLATE. IN TOP OF CURB Southeast CORNER OF EASTERN AVE. & WARM SPRINGS RD. Near P.C. OF EASTERN AVE. CLARK COUNTY BENCH MARK No. BC21-1811 NAVD 88 = 621.493 METERS | 5.61 |

550.039
AERIAL PANEL CONTROL
ROCK CREEK WASH
BLUE DIAMOND TO L.V. WASH

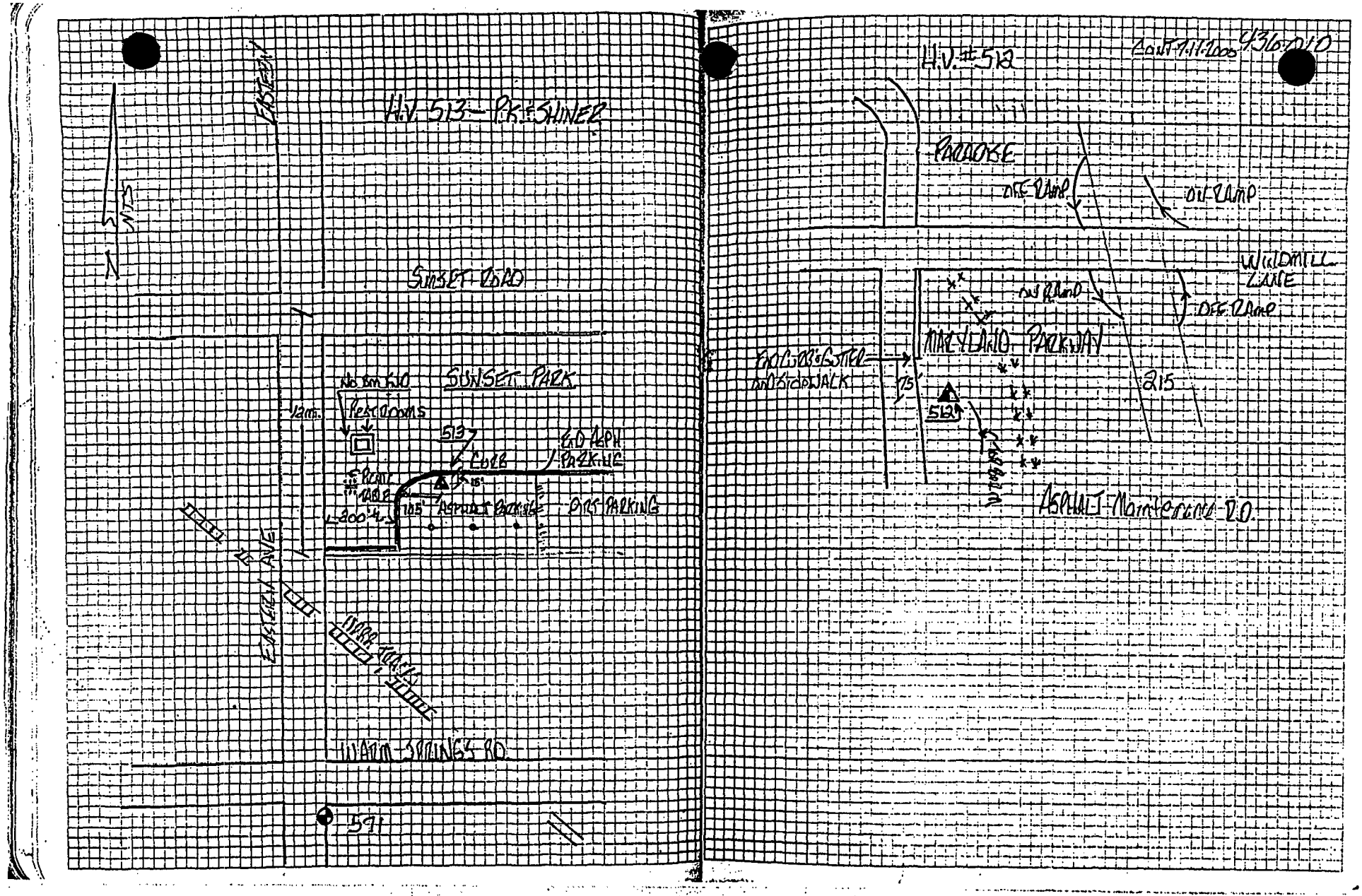
11 JULY 2000
J PATTON P.C.
G. BACA T
SUNNY - 96° →
TRIMBLE 4700 #14
PPK IN/LVVWD
5:30 AM - 6:00 P.M.
FILE FEMA2

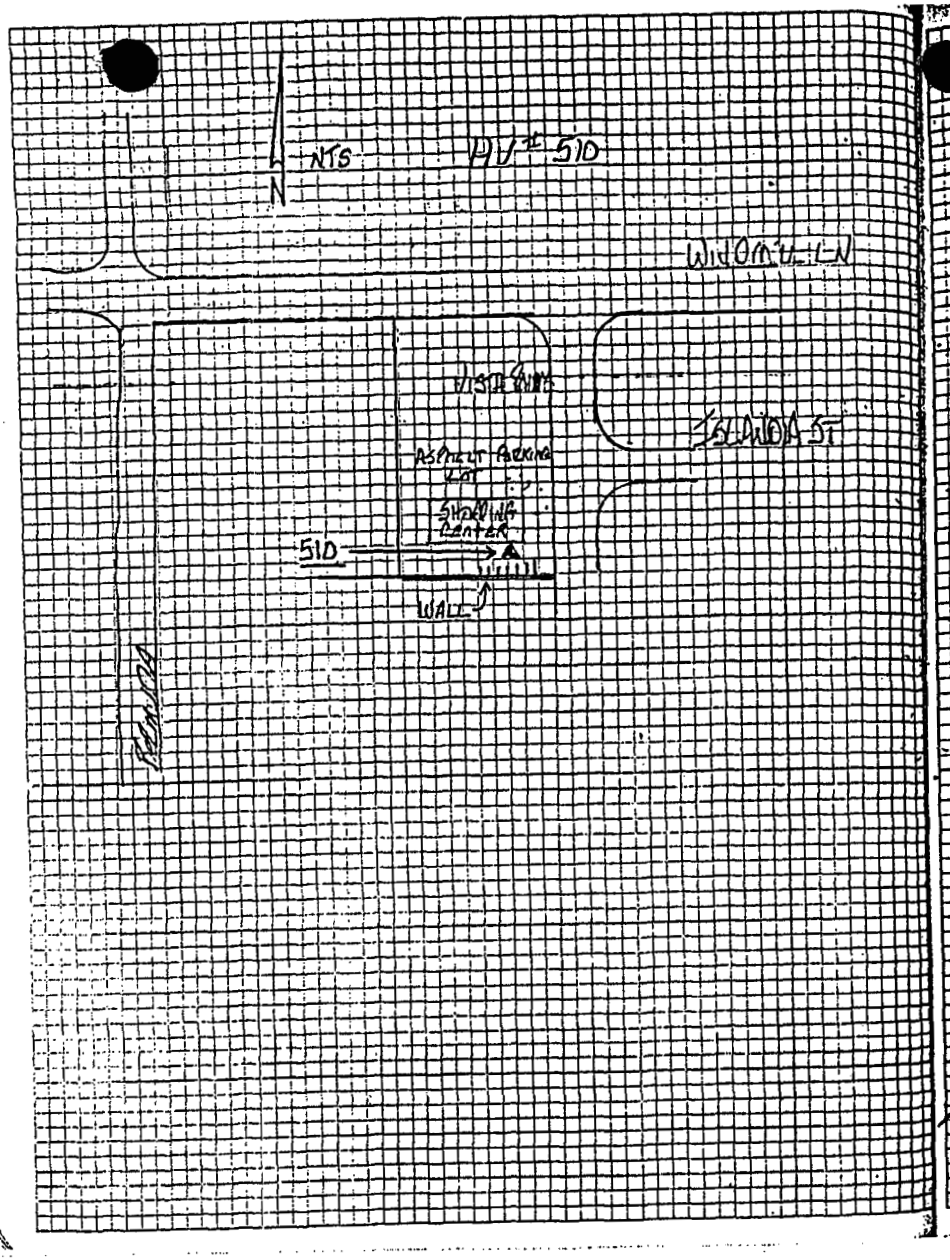



4356-009

COUNT 7-11-2009

| POINT | DESCRIPTION | ANGLE |
|---|---|---|
| 512 | CLACK COUNTY BENCH MARK # 3621 - 1985 ENDO RIVET NO SQUARE ALUMINUM PLATE - No #3 STAMPED: LOCATED @ NORTHWEST QUADRANT OF INTERSECTION OF EASTERN AVE & WINDMILL LN. 150' WEST OF PC (B.C.R.) = EXISTING BRASS RIVET FLUSH WITH TOP CURB 30' SOUTH OF POINT PAINTED GREEN CURB - DESCRIPTION IN CLACK COUNTY 1980 VERTICAL CONTROL BOOK: RIVET AND SQUARE ALUM PLATE IN TOP CURB NORTHWEST OF EASTERN AVE AND WINDMILL LN 10 FT WEST OF THE PC OF WINDMILL LN. 1988 DATUM = 639.229 METERS 2099.038 FEET | 5.62 |
| 512 | 1X2 HUB & TACK @ S.E. QUADRANT WINDMILL LN & PALADISE MARYLAND PARKWAY INTERSECTION 500' WEST OF INT 215 & WINDMILL LANE & 250' SOUTH WINDMILL LANE & 150' EAST OF MARYLAND PARKWAY. TOP OF KNOLL - 50' WEST FACE WASH. | 5.01 |


H.V. 513 – PARKSHINER
SUNSET ROAD
SUNSET PARK
NO SMOKING
Rest Rooms
513
CURB
END ASPH. PARKING
ASPHALT BACKING
DIRT PARKING
12 cm.
105'
200'
15'
1" RCMP 1200
CROSS WALK
STORM DRAIN INLET
WARM SPRINGS RD.
591
H.V. # 512
PADDOCK
DIP RAMP
DIP RAMP
WILDCAT LANE
DIP RAMP
MARE HAVEN PARKWAY
PAVED GUTTER AND SIDEWALK
175'
215
512
ASPHALT MAINTENANCE R.O.
Aout 1.11.2000 436:010




COUT 7-11-2000

| POINT | DESCRIPTION | ANT HT |
|---|---|---|
| 510 | PKG STRIPE SOUTHEAST CORNER SHOPPING CENTER NEAR THE SOUTHERLY PROPERTY LINE - IN ASPHALT JUST NORTH OF PARKING SPACES OPPOSITE BOLLARDS | 5'6" |

JULY 2000

| POINT | DESCRIPTION | ANT HT |
|---|---|---|
| 516 | SET P.K. @ SHINNERS & OF PECOS & JUST SOUTH OF & MACHADO INTERSECTION | 5.55 |
| 519 | FND 2" AL CAP & INTERSECTION HEAVENLY VIEW & REGAL OAK DR. JUST NORTH OF WARM SPRINGS | 5.50 |
| 518 | BRASS CAP IN PLS 4541 @ & INTERSECT SADDLEBACK AND POST RD. | 5.67 |



550039

AERIAL PANEL CONTROL

BUCK CREEK WASH

BLUE DIAMOND TO L.V. WASH

JULY 19 2000

T. PATTON / SC

G. BACA T.

SUNNY CALM 90°+ →

TRIMBLE 4700

#14

PRK W/ L.V. WIND

6:30 AM = 1:00 P.M.

FILE: FEND22.DC

| Point | Description | Elev. Adj. |
|---|---|---|
| | | 5.46 |
| 1514 | PREVIOUSLY Named 514<br>Panel Point N/E Quadrant<br>@ Intersection Windmill<br>EASTERN Ave. | |
| 1572 | PREVIOUSLY 572<br>NOTE: This Point Should NOT Be<br>Used as a VERTICAL Control<br>Point. DOUBTFUL That It is<br>ORIGINAL B.M. = No PLATE<br>RIVET ONLY - EASTERN has been<br>IMPROVED = Widened | 5.40 |
| 1503 | NAIL & SHINER - N.W. Panel @ Int. Decatur/Windmill<br>PREVIOUSLY 503 | 5.48 |
| 1551 | 50 JAKE ALUMINUM PLATE/RIVET IN CONC. MON<br>30' East of Existing Edge of Asphalt<br>On Line with Steel Power Pole Clear Co. Bm #<br>DC 20. PREVIOUSLY # 551. | 5.04 |
| 1553 | 1/2 Hub & Tack @ Railroad Tracks = West of<br>South of #554 Which is North @ West<br>Previously Called Ch. 5 Point 553. | 5.38 |
| 1504 | Panel Point N.W. 1/2 Mile South of 1553<br>APPROXIMATELY 350' South of Wigwam Alignment<br>& 100' West of RR TRACKS. | 5.29 |



550.039

# DUCK CREEK AERIAL PANEL CONTROL

EXISTING PANEL POINTS OR BENCH MARKS

ReMeasured for QUALITY CONTROL - Misc Points

SURVEY 27.2000 BEGIN SURVEY W/ #1514

3 PAIRED PC

100% CLEAR BREEZY

TRIMBLE 4700 #14 - Rec # 6 - PC Cold.

FILE: FEMA

SURVEY STYLE: P.O.W/L.V.U.W.O.

NOTE: Measured Points - 1000 = ORIGINAL Point #

550,039

DUCK CREEK RATES.

P. BRAMBLE
T. BREEDEN

8-23-00

*NOTE: ALL PTS WERE LOCATED FROM LVVWD BASE "CREP"
SURVEY STYLE - RTK-INFILL

PT-1000 OLD #551
HV-212A (3)

PT-128 HV-28
OLD PT# 528

PT-133 HV-33
OLD PT# 533

PT-127 HV-27
OLD PT# 527

PT-124 HV-24
OLD PT-524

PT-122 HV-22
OLD PT-522

PT-208 CCBM 6621 29CA
OLD PT-651 "PT PROBBLY NO GOOD"

PT-210 CCBM 6612 28NEL
OLD PT-653

PT-121 HV-21
OLD PT-521

PT-120 HV-20
OLD PT-526

PT-117 HV-17
OLD PT# 517

PT-212 CCBM 7612 31NW W6
OLD PT # 650

PT-21A CCBM 6612 32SW W5
OLD PT# 657

PT-216 CCBM 8621 24SW W6
OLD PT# 569

PT-135 HV-35
OLD PT# 535

PT-13A HV-3A
OLD PT-53A

PT-136 HV-36
OLD PT# 536

PT-107 HV-7
OLD PT # 507

550.029
MILL CREEK RETIE

START TIME 9:00AM
STOP TIME

CREW - SAME
EQUIPMENT - SAME

RTK PT- 205 OLD # 658
CITY OF HENDERSON BM = 225

RTK PT- 130 OLD # 530
HV-30

RTK PT- 132 OLD # 532
HV-32

RTK PT- 131 OLD # 531
HV-31

INFILL PT- 129 OLD # 529 INFILL 11.28 TO 11.32
HV-29

RTK PT- 206 OLD # 655
CCBM LOCK CHANNEL

RTK PT- 125 OLD # 525
HV-25

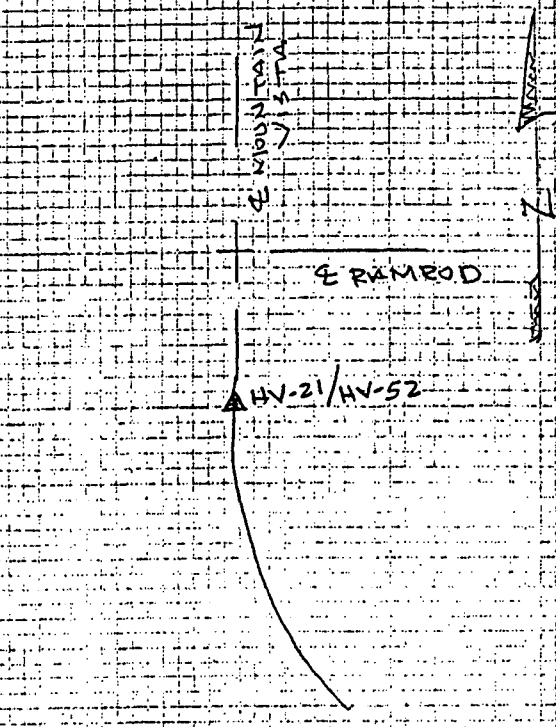
RTK PT- 207 OLD # 656
WHITNEY 2

RTK PT- 123 OLD # 523
HV-23

EDWARDS
BOREDEN

5-21-08

PT # 521 HV-21 FOUND 1½" ALCAP IN MEDIAN
HT = 5.67 ON MOUNTAIN VISTA, 250' SOUTH OF
THE ℄ INT. OF MOUNTAIN VISTA &
RAMROD, STAMPED AS FOLLOWS:
C.C.W. CONTROL
HV-52




PT # 6C12
HT = 5.50
FOUND RIVET & SQUARE ALUMINUM PLATE @ T.B.C. ON NORTHEAST CORNER OF SUNSET & GREEN VALLEY PARKWAY: STAMPED AS FOLLOWS: 6C12
325 W S

PT # 695
HT = 5.22
FOUND BRASS CAP @ N.E. CORNER OF OLEEN ST. & KEOKUCK ST STAMPED AS FOLLOWS: C.O.H. 22.7. 2" BRASS CAP.

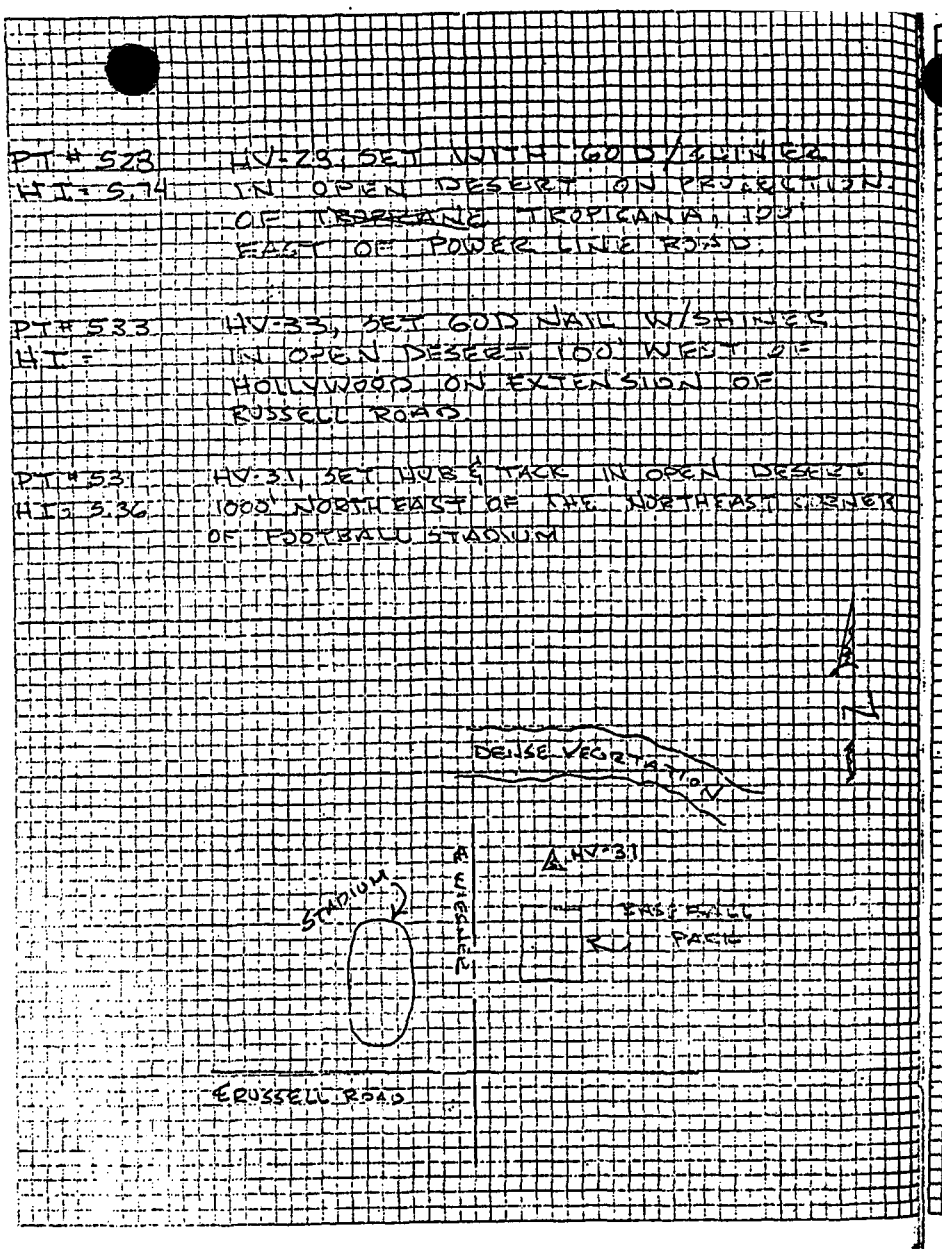
N
Proposed
Existing
20'
Existing
Proposed
N 23°-24'-22" E
N 23°-24'-22" E
N 23°-24'-22" E

436.018
7-15-00

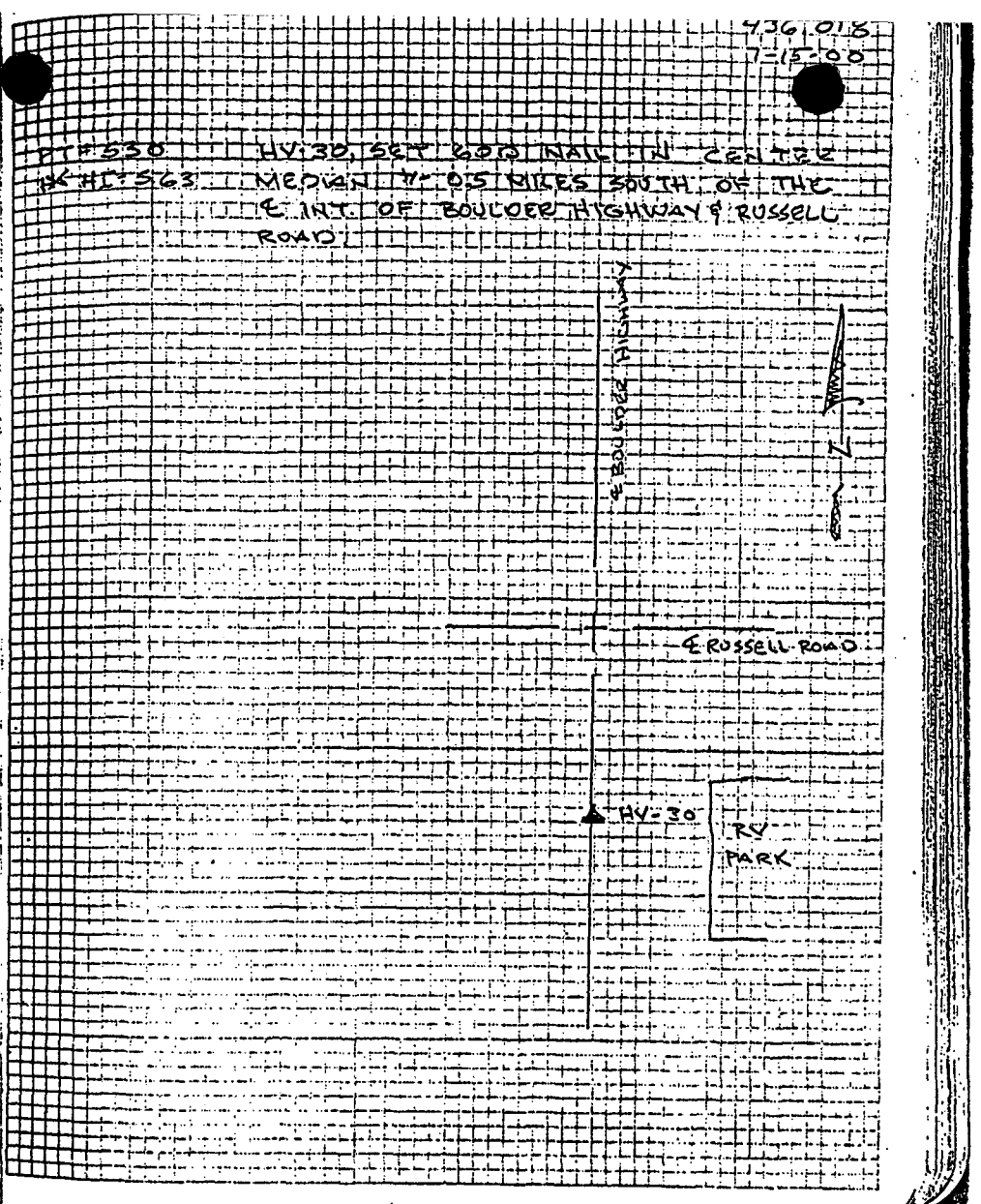
PT # 528 HV-29, SET WITH GOD/CHRIST
HI = 5.74 IN OPEN DESERT ON PROJECTION OF TROPICANA, 100' EAST OF POWER LINE ROAD.

PT # 533 HV-33, SET GOD NAIL W/SHINER
HI = IN OPEN DESERT 100' WEST OF HOLLYWOOD ON EXTENSION OF RUSSELL ROAD

PT # 531 HV-31, SET HUB & TACK IN OPEN DESERT
HI = 5.36 1000' NORTHEAST OF THE NORTHEAST CORNER OF FOOTBALL STADIUM




PT # 530 HV-30, SET GOD NAIL IN CENTER
HI = 5.63 MEDIAN 1/4 MILES SOUTH OF THE E INT. OF BOULDER HIGHWAY & RUSSELL ROAD

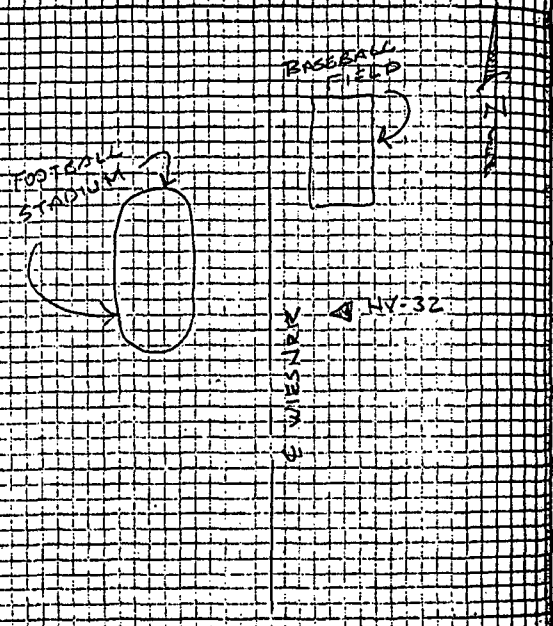


7-26-01
7-14-00

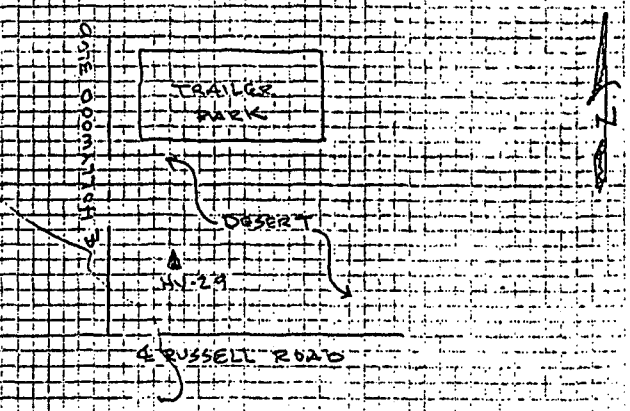
654

PT # 531 FOUND PK NAIL W/SHINER IN
HT = 5.39 LID @ LANDSCAPE AREA, @
NORTHWEST CORNER OF FOLIANA
& HOLLYWOOD CIRCLE.

PT = 532 HV-32, SET HUB & TACK IN OPEN DESERT
HT = 5.63 100' EAST OF WIESNER RD AND
300' SOUTH OF BASEBALL FIELD, WHICH
IS EAST OF FOOTBALL STADIUM




PT 529 HV-29, SET 60D NAIL W/SHINER & HUB IN
HT = 5.50 OPEN DESERT 150' NORTH OF ℄ INT. OF
RUSSELL ROAD & HOLLYWOOD BLVD, 150' EAST
OF EDGE OF PAVEMENT.



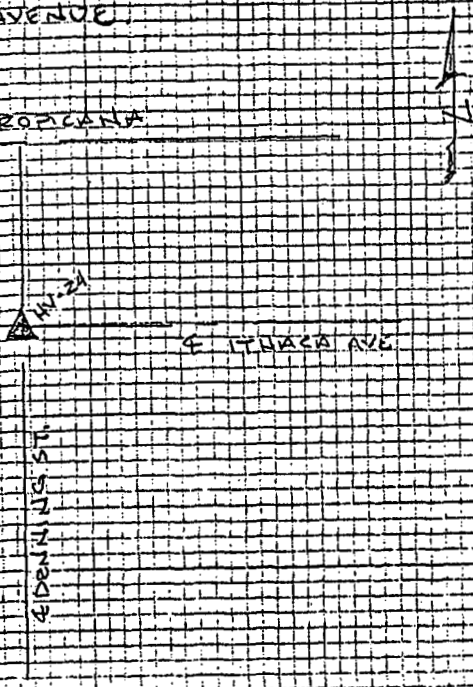

750
PT # 530 HV-2120, FOUND 60D NAIL W/WHISKER
IN OPEN DESERT

751
PT # 581 HV-2124, FOUND PK NAIL W/SHINER IN
ANT HT 5.62 ℄ OF HOLLYWOOD (POWER POLE #0)
POINT IS ALSO HV-226/27

752
PT # 582 HV-2123, FOUND 60D NAIL W/WHISKER
HT = 5.67 NEAR WASH

PT=524
H.I=5.65

HV-24, SET P.K. NAIL W/SHINER @ ℄ INT. OF DENNISON STREET & ITHACA AVENUE




PT=653
H.I=5.35

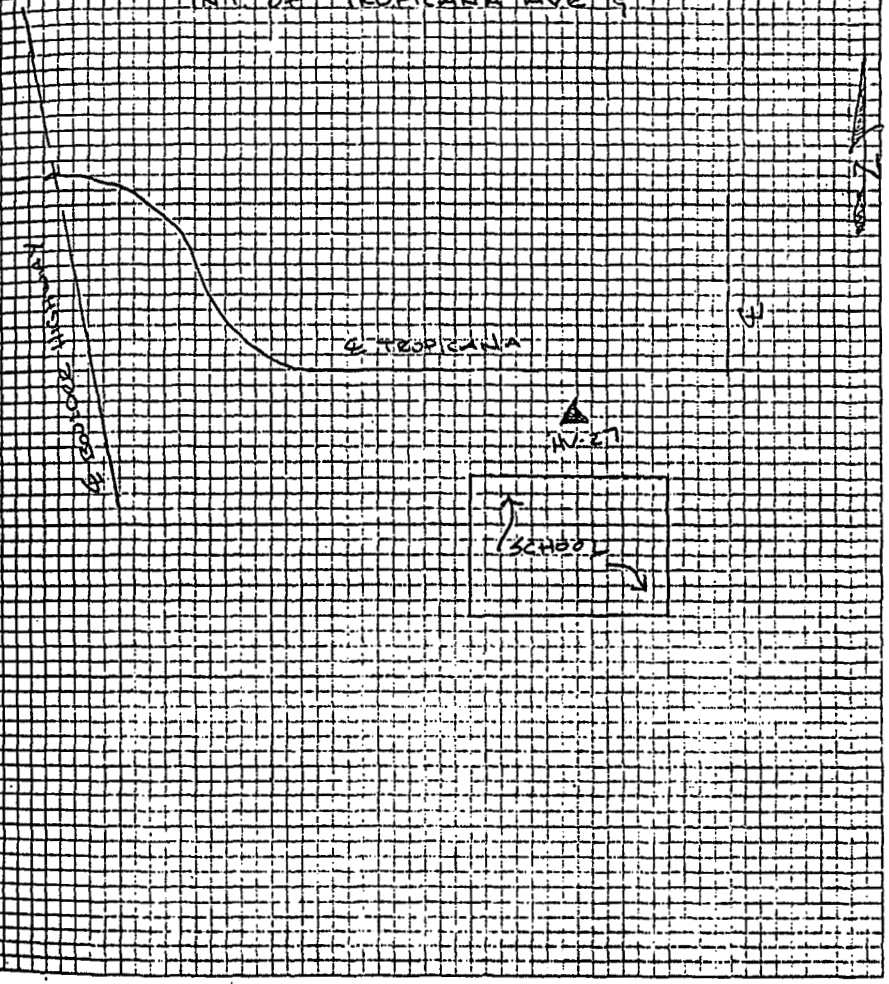
FOUND 5/8" ℄ SQUARE ALUMINUM PLATE @ SOUTHEAST CORNER OF BOULDER HIGHWAY & ENGLISH AVE. STAMPED AS FOLLOWS

GC 12

28 NE 6

PT=527
H.I=5.91

HV-27, SET P.K. NAIL W/SHINER IN A.C. ON SOUTH SIDE OF TROPICANA AVE. 25' NORTH OF L.B.C & 600 WEST OF THE ℄ INT. OF TROPICANA AVE. ℄



PT #510
HI = 5.55

HV-11, FOUND 1 1/2 BRASS [illegible]
INTO PEARL STREET IN
PRIVATE DRIVE +/- 150.0 SOUTH
OF THE ℄ INTERSECTION
℄ PEARL STREET.

PT #650
HI = 5.42

FOUND RIVET & SQUARE ALUMINUM
PLATE IN T.B.C @ SOUTHERN
TERMINUS OF RUSSELL ROAD AND
STREET ℄ INTERSECTION AS FOLLOWS

CC 12
31 NW 6

PT #635
HI = 5.56

FOUND BRASS CAP @ NORTH EAST
CORNER OF RENO AVENUE & PEARL
ROAD INTERSECTION STAMPED AS
FOLLOWS. RLS 5335

64.09
BM RM
6C 12
35 NW W 6

PT #520
HI = 5.65

HV-20, SET 60D NAIL W/LARGE WASHER IN
VACANT LOT +/- 200.0 NORTHWEST
OF ℄ INT OF LANE
ROAD

PT #617
HI = 5.23

FOUND RIVET & SQUARE ALUMINUM PLATE
IN T.B.C @ NORTHEAST CORNER OF
MOUNTAIN VISTA & HACIENDA AVE.
STAMPED AS FOLLOWS. 6C 12
2 N C H

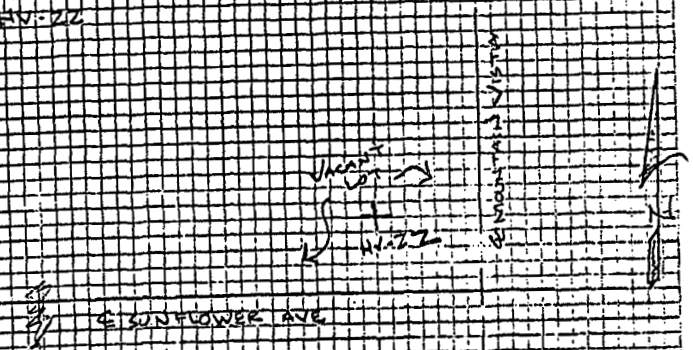
PT #622
HI = 5.16

FOUND BRASS DISK SET IN CONCRETE AT
MOUNTAIN VISTA & SAN RAFAEL WAY
@ T.B.C. RIVET & SQUARE ALUMINUM
PLATE SET STAMPED AS FOLLOWS:

6C 12
2 N C

PT #522
HI = 5.20

SET 60D NAIL W/LARGE WASHER IN VACANT
LOT +/- 250' NORTHWEST OF ℄ INT OF
MOUNTAIN VISTA & SUNFLOWER AVE.
HV-22



4/35-014

DUCK CREEK

INSTRUMENT #: TRIMBLE 4700 #1

JOB FILE: EEME, TSC1 #10

JOB #: 1552.039

WIT: PARTLY CLOUDY, 15-20 CALM

CREW: H. MCDOWELL P.E
R. HUNT I.M

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203,26732057.1311,793475.0044,2010.1595,CCBM 8C11 36NWW6
204,26722570.9479,793661.6939,2036.6018,CCBM 8C21 12NWS
205,26729789.6006,841143.5016,1662.1628,COH BM-227
206,26732910.4607,818995.6387,1638.1802,CCBM 6C134NNE6
207,26733145.0947,808788.0748,1905.6241,WHITNEY 2
208,26735908.5210,806927.1750,1783.9856,CCBM 6C12 29C4
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210,26737983.5252,814279.2827,1665.4139,CCBM 6C12 28NE6
211,26716205.9761,763741.5717,2430.7192,1X2 HUB&TAC
212,26733238.6126,800113.4784,1912.1297,CCBM 7C12 31NNW6
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215,26717367.2624,777779.1545,2240.6437,CCBM 0C21 9SWS
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1501,26718311.3371,764766.6061,2414.4417,NG TOP
1502,26718351.5535,764774.3003,2401.9025,NG TOE
1503,26718361.5599,764778.5180,2401.7005,NG CL WASH
1504,26718375.0652,764781.6447,2402.2613,NG TOE
1505,26718392.7996,764790.7986,2411.4713,NG TOP
1506,26718406.2043,764599.7021,2412.6822,CHECK IN
1507,26718365.0363,764805.2617,2402.2582,NG TOE
1508,26718350.2620,764802.3433,2401.6520,NG CL WASH +/-
1509,26718341.8133,764798.5267,2402.3047,NG TOE
1510,26718278.1464,764841.1649,2408.9322,NG TOP
1511,26718295.2356,764850.0263,2404.5478,NG TOP/TOE
1512,26718313.0957,764854.4716,2401.9247,NG TOE
1513,26718325.4915,764856.5503,2401.2757,NG CL WASH +/-
1514,26718340.8690,764860.1704,2401.3728,NG TOE
1515,26718364.8505,764873.7960,2407.5474,NG TOP
1516,26718361.7822,764854.2647,2408.3977,BM IREBAR 2C20/12S6
1517,26718361.1420,764855.6200,2406.1564,NG END CONC WINGWALL
1518,26718361.4234,764855.3934,2407.8289,TOP END CONC WINGWALL
1519,26718354.7991,764836.7315,2414.3640,TOP CONC ANG PNT
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1523,26718361.6497,764816.3463,2408.7490,TOP ANG CONC BENCH
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1525,26718347.3655,764811.7702,2414.5525,TOP STEEL CL WASH
1526,26718320.2364,764799.8298,2414.8012,TOP CORNER STEEL BRIDGE
1527,26718313.5998,764815.0772,2414.8268,TOP CORNER STEEL BRIDGE
1528,26718339.2946,764826.3827,2414.5271,TOP STEEL BRIDGE CL WASH
1529,26718356.7631,764834.0847,2414.3983,TOP CORNER STEEL BRIDGE
1530,26718312.8942,764818.0870,2414.6919,TOP CONC ANG PNT WING
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1532,26718322.3136,764796.8563,2414.7283,TOP CONC WING ANG PNT
1533,26718317.1718,764782.9118,2409.5777,END WING WALL TOP CONC/NG
1534,26718323.8095,764799.4999,2409.0232,CORNER CONC BENCH
1535,26718315.6129,764817.4289,2408.9788,CORNER CONC BENCH
1536,26718353.2566,764834.0105,2408.6314,CORNER CONC BENCH
1537,26718406.1970,764599.7162,2412.6065,CHECK IN BM# 222
1538,26718109.3932,764551.7898,2411.6796,221 CHECK
1539,26716514.5696,763881.1550,2424.9152,CHECK IN # 213 HV #552
1540,26716521.3668,764065.1022,2424.1537,TOE
1541,26716498.6006,764060.5129,2425.7980,NG TOP
1542,26716488.8755,764058.4800,2421.0971,NG TOE EDGE WASH
1543,26716462.3583,764044.7657,2421.1277,NG CL WASH+/-
1544,26716439.1083,764034.1943,2421.7069,NG TOE WASH
1545,26716423.1894,764026.4493,2428.5379,NG TOP @ WASH
1546,26716402.0209,764011.0634,2427.0940,NG TOP
1547,26716423.4937,763993.5160,2428.9407,NG TOE @ RR TRACKS
1548,26716430.6452,764006.9220,2428.1080,NG TOP @ WASH
1549,26716443.2196,764013.2432,2421.6547,NG TOE @ WASH
1550,26716466.2387,764016.5314,2422.0090,NG CL WASH
1551,26716487.7770,764028.7936,2421.5031,NG TOE WASH
1552,26716497.2627,764031.8139,2427.6166,NG TOP @ WASH
1553,26716516.6085,764036.4437,2426.1965,NG TOE @ RR TRACKS
1554,26716493.0995,764029.0744,2425.0557,NG @ WING WALL TOE
1555,26716493.0150,764028.7772,2427.1457,TOP CONC END WING
1556,26716488.6081,764016.1453,2430.7216,TOP CONC ANG PNT WING
1557,26716490.5905,764014.7471,2430.7894,END CORNER STEEL BRIDGE
1558,26716471.5431,764006.5236,2430.8379,ON STEEL BRIDGE CL WASH+/-
1559,26716446.2923,763995.3325,2431.1005,END STEEL BRIDGE ON TOP
1560,26716446.5638,763997.7947,2431.0804,TOP CONC ANG WING
1561,26716434.3382,764003.0985,2427.5547,TOP CONC END WING
1562,26716434.2909,764003.4676,2426.5464,NG @ WING

1563,26716449.2948,763997.1620,2425.0672,TOP CONC BENCH @ ANG PNT
1564,26716449.5462,763997.5649,2423.1421,GND @ BENCH TOP WASH
1565,26716458.0586,764000.7840,2421.5595,TOE WASH
1566,26716469.7547,764005.8915,2421.9271,CL WASH +/-
1567,26716486.9131,764013.7048,2420.6430,NG WASH @ CONC BENCH
1568,26716487.2743,764014.0821,2424.7134,TOP CONC ANG PNT BENCH
1569,26716497.3234,763999.3400,2430.5513,END STEEL BRIDGE TOP
1570,26716475.3588,763989.7523,2430.6586,CL WASH STEEL BRIDGE TOP
1571,26716453.2619,763979.9708,2430.9206,END STEEL BRIDGE TOP
1572,26716454.9696,763978.5428,2430.9383,TOP CONC ANG PNT WING
1573,26716450.5912,763965.9445,2427.4202,TOP CONC END WING
1574,26716451.0280,763965.7328,2425.4815, NG  END WING
1575,26716456.3278,763980.7957,2424.9314,TOP CONC BENCH ANG PNT
1576,26716456.8392,763980.9980,2422.0842,NG @ CONC BENCH
1577,26716475.3526,763989.3752,2422.0076,NG CL WASH +/-
1578,26716493.7478,763997.1571,2421.1849,NG WASH @ BENCH
1579,26716494.2988,763997.4011,2424.7832,TOP CONC @ ANG BENCH
1580,26716508.5981,763991.8716,2427.0922,TOP CONC @  END WING/NG
1581,26716497.0735,763996.8222,2430.5823,TOP CONC ANG PNT WING
1582,26716497.8163,763972.2763,2421.7637,NG TOE WASH
1583,26716497.0452,763934.0243,2422.4192,NG TOE WASH
1584,26716473.4746,763934.1773,2422.6906,NG WASH
1585,26716431.2446,763943.8036,2422.5362,NG TOE WASH
1586,26716451.8623,763958.9508,2422.3946,NG TOE WASH
1587,26716474.4026,763962.2549,2422.1856,NG WASH
1588,26716426.0966,763953.5267,2429.2349,NG TOP WASH
1589,26716440.8065,763960.2767,2428.3996,NG TOP WASH
1590,26716508.4006,763939.1530,2426.9537,NG TOP WASH
1591,26716510.0327,763974.2399,2428.4897,NG TOP WASH
1592,26716514.4478,763881.0965,2424.8800,CHECK IN # 213 CP # 552
1600,26719828.5317,774412.7234,2273.8943,CHECK IN  CP#164
1601,26719785.2949,774405.2273,2271.2485,100
1602,26719755.0947,774403.7653,2270.1627,101
1603,26719742.5659,774403.5984,2270.6602,100
1604,26719741.0834,774403.6482,2269.8836,101
1605,26719738.7291,774403.2778,2269.7949,98
1606,26719736.1191,774403.9986,2269.9001,101
1607,26719732.0029,774403.8294,2271.4616,100
1608,26719708.5062,774408.0462,2273.4833,97
1609,26719698.9423,774371.0743,2274.0996,97
1610,26719726.0538,774360.3640,2271.5021,100
1611,26719729.5245,774358.7864,2269.5393,65
1612,26719733.9488,774357.7388,2269.7030,65
1613,26719741.4210,774357.3534,2272.5283,100
1614,26719753.2785,774345.8473,2273.7759,116
1615,26719732.2510,774346.7887,2273.9308,116
1616,26719707.6108,774346.4706,2274.1626,116
1617,26719695.8714,774334.4865,2275.0141,114
1618,26719723.9289,774333.6922,2274.5543,114
1619,26719754.6200,774334.0674,2274.3291,114
1620,26719755.1965,774322.8618,2274.3404,116
1621,26719731.6642,774323.1201,2274.3149,116
1622,26719704.7761,774323.4288,2274.6721,116
1623,26719696.7874,774315.4645,2274.7508,100
1624,26719714.8360,774313.5570,2271.3321,101
1625,26719720.4871,774316.5464,2270.1229,65
1626,26719725.3348,774316.4120,2270.4030,65
1627,26719727.7152,774314.9487,2271.1449,101
1628,26719731.7808,774314.4282,2273.8321,100
1629,26719714.6355,774267.5747,2276.2276,100
1630,26719705.5365,774273.1027,2271.9057,101
1631,26719696.6588,774274.2132,2272.3209,98
1632,26719690.4853,774273.5589,2272.8594,101

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1633,26719678.0353,774275.5404,2279.2886,100
1634,26719828.5433,774412.7791,2273.9739,CHECK IN 564 #164
1635,26719990.8125,774931.9035,2266.2051,CHECK IN # 565 # 165
1636,26720004.9944,774981.3817,2266.4144,97
1637,26719998.5233,774984.5796,2265.5998,100
1638,26719997.0615,774984.7366,2261.4328,101
1639,26719990.8771,774932.0193,2266.0541,165 #565  CHECK IN
1640,26719978.7616,774985.6790,2262.4341,98
1641,26719972.3068,774986.8862,2262.0995,101
1642,26719964.7687,774989.6346,2263.5744,100
1643,26719956.0297,774993.4839,2264.9357,97
1644,26720006.9961,775053.6904,2259.5219,101
1645,26719990.7596,774931.9844,2266.0092,165 CHECK
1646,26720002.0062,775057.9939,2260.2249,119
1647,26719986.1928,775053.9295,2264.4057,149
1648,26719990.0650,775058.2811,2266.8011,149
1649,26719996.6712,775058.3256,2266.8039,149
1650,26720002.0752,775058.1489,2266.8182,149
1651,26720006.5151,775054.1684,2264.5082,149
1652,26720012.1559,775053.9648,2266.2874,100
1653,26719981.7494,775052.5581,2266.4731,100
1654,26719990.7697,774931.9747,2266.2129,165 # 565 CHECK IN
1655,26717367.2202,777779.0890,2240.7234,#215 BM # 568 CHECK IN
1656,26719925.2098,775392.0654,2259.9628, EAST I-15 @ WASH 2+2 CP
1657,26719968.3684,775062.0545,2267.7725,101
1658,26719996.0164,775062.7704,2267.1727,101
1659,26720025.5231,775062.8573,2266.7717,101
1660,26719968.7594,775072.6376,2268.9633,116
1661,26719996.3506,775073.6811,2268.8954,116
1662,26720025.5602,775074.3795,2268.8841,116
1663,26719954.0715,775146.4064,2270.2381,116
1664,26719967.8368,775146.1812,2270.1909,116
1665,26719995.3376,775146.3457,2270.1168,116
1666,26720029.8183,775146.2188,2270.0972,116
1667,26720031.3997,775163.2897,2267.6145,101
1668,26719999.5436,775163.3356,2267.6197,101
1669,26719971.8082,775162.9634,2267.8375,101
1670,26719962.3161,775162.8362,2267.9407,101
1671,26719943.5771,775163.6048,2267.9066,101
1672,26719961.7402,775158.0985,2268.4579,119
1673,26719970.6370,775158.1052,2268.4438,119
1674,26719970.6742,775167.4295,2268.2157,119
1675,26719961.7159,775167.2126,2268.1424,119
1676,26719965.0099,775164.1578,2267.8814,63
1677,26719965.2288,775161.2814,2267.8961,63
1678,26719967.6614,775161.3342,2267.8373,63
1679,26719967.7007,775164.2453,2267.8727,63
1680,26720029.6496,775177.8121,2268.2345,116
1681,26719999.4139,775178.1744,2268.3223,116
1682,26719967.5493,775178.2585,2268.3866,116
1683,26719936.9623,775178.4247,2268.4625,116
1684,26719959.1182,775253.6477,2266.9146,116
1685,26719995.6131,775253.4475,2266.8451,116
1686,26720036.8190,775253.9213,2266.7618,116
1687,26720036.1234,775265.1960,2264.7875,101
1688,26719996.0232,775265.2239,2265.2436,101
1689,26719961.5892,775266.1081,2265.0108,101
1690,26720017.5058,775281.8229,2263.4296,100
1691,26720018.4734,775330.0008,2262.2359,100
1692,26720006.2013,775328.8962,2255.6117,101
1693,26719996.4501,775328.5565,2256.4136,98
1694,26719984.6614,775328.5393,2256.5083,101
1695,26719973.4001,775329.2247,2262.7114,100
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1696,26719979.0706,775282.1182,2263.9419,100
1697,26719986.3786,775286.4829,2259.2909,97
1698,26719986.5697,775286.3690,2262.1170,149
1699,26719990.9458,775282.0291,2264.4824,149
1700,26719997.2981,775281.9505,2264.6094,149
1701,26720003.0890,775281.8601,2264.7207,149
1702,26720007.3343,775286.1740,2262.3717,149
1703,26720007.4857,775286.3264,2258.4778,97
1704,26720002.8666,775282.0129,2258.0388,119
1705,26719997.5425,775282.1311,2257.9221,119
1706,26719991.0958,775282.1718,2257.8040,119
1707,26719991.2261,775282.9135,2257.9315,101
1708,26720002.9566,775282.7913,2257.2129,101
1709,26719997.4071,775282.2590,2257.3975,98
1710,26719990.5363,775288.3350,2257.5245,101
1711,26719998.3224,775288.3132,2257.0850,98
1712,26720006.5616,775288.9228,2257.4554,101
1713,26719925.2784,775392.0009,2259.7321,1656
1714,26719925.2873,775392.0521,2259.8491,1656 CHECK IN
1715,26720996.3531,777648.8486,2234.9954,106 CHECK IN #506 HV
1716,26720461.8267,777610.6248,2231.6924,119
1717,26720446.3379,777610.8813,2231.5552,119
1718,26720441.3046,777610.9934,2231.5423,119
1719,26720434.9375,777610.9185,2231.6447,119
1720,26720428.8635,777611.0165,2231.6598,119
1721,26720421.1757,777611.0098,2231.6449,119
1722,26720416.6464,777611.1294,2231.6527,119
1723,26720401.7295,777611.2641,2231.6383,119
1724,26720371.1940,777614.2528,2231.3996,116
1725,26720401.8247,777614.2855,2231.5029,116
1726,26720425.6311,777614.4015,2231.6306,116
1727,26720462.1758,777614.1363,2231.8773,116
1728,26720499.3721,777613.3979,2231.9330,116
1729,26720535.9074,777613.7605,2232.1260,116
1730,26720467.2521,777610.7589,2230.6550,100
1731,26720475.1242,777591.0050,2229.9029,100
1732,26720476.5739,777566.3964,2229.3661,100
1733,26720500.8640,777556.5455,2230.2613,100
1734,26720505.5246,777552.1014,2230.4549,100
1735,26720509.4393,777540.1069,2230.3512,100
1736,26720508.8310,777523.1537,2226.9471,101
1737,26720507.7154,777539.3471,2226.9840,101
1738,26720493.3612,777555.5562,2225.8871,101
1739,26720477.5146,777563.0270,2225.7205,101
1740,26720460.3014,777580.3902,2226.4517,101
1741,26720452.9013,777610.4257,2226.2335,101
1742,26720437.6438,777599.0855,2225.2957,98
1743,26720447.7549,777577.0657,2225.6916,98
1744,26720463.3734,777556.7944,2226.4650,98
1745,26720484.3936,777534.9806,2226.6705,98
1746,26720470.4548,777521.9901,2227.4326,101
1747,26720450.5806,777549.6019,2227.0967,101
1748,26720433.6139,777579.0153,2225.8169,101
1749,26720418.2070,777595.5269,2226.3920,101
1750,26720512.1574,777760.3568,2229.9668,CONT PNT NAIL @ BELZ
1751,26720397.2411,777611.2013,2230.6304,100
1752,26720296.8070,778886.7639,2217.2058,CHECK IN SWCOR 3 BRIDGE
1754,26715386.7316,793404.4985,2138.9803,60D SET FOR CHECK IN
1900,26716204.4166,777800.7460,2233.2598,97
1901,26716195.1644,777802.1393,2232.8026,100
1902,26716185.1851,777804.1515,2229.8473,101
1903,26716166.5370,777806.1219,2230.8898,98
1904,26716155.8231,777807.0135,2231.2367,98

1905,26716147.4707,777807.4001,2231.4801,101
1906,26716134.1146,777807.9003,2233.7101,100
1907,26716117.1032,777808.8982,2234.5997,97
1908,26716117.2752,777764.2528,2236.8045,97
1909,26716127.0355,777760.9326,2237.1884,100
1910,26716140.6178,777760.7054,2232.5840,101
1911,26716152.8324,777758.6700,2231.9428,98
1912,26716172.9144,777756.6880,2231.5154,98
1913,26716183.0608,777755.2546,2232.0123,101
1914,26716189.6205,777756.0514,2232.6550,101
1915,26716202.0660,777754.4067,2235.3578,100
1916,26716220.5156,777751.6155,2235.3403,97
1917,26716217.8984,777737.8724,2237.6248,97
1918,26716200.5209,777736.7188,2238.7815,100
1919,26716192.5077,777731.1660,2240.0362,100
1920,26716134.2951,777731.8828,2239.8955,100
1921,26716127.1472,777737.0353,2238.4422,100
1922,26716126.3597,777747.3707,2237.2061,100
1923,26716141.4992,777747.8841,2232.5831,101
1924,26716138.3461,777737.8457,2233.1569,102
1925,26716145.4630,777731.8027,2231.5206,98 119
1926,26716154.8100,777731.7405,2231.5663,98 119
1927,26716165.7967,777731.8740,2231.5293,98 119
1928,26716176.2581,777731.9485,2231.4318,98 119
1929,26716183.0540,777738.4285,2232.8274,102
1930,26716183.2876,777737.5936,2237.3579,88
1931,26716176.7543,777731.4031,2240.8018,88
1932,26716166.3865,777731.1553,2240.7776,88
1933,26716155.6656,777731.2991,2240.7743,88
1934,26716144.7336,777731.6068,2240.7563,88
1935,26716138.1554,777737.9107,2237.3348,88
1936,26716219.7456,777707.2328,2240.5379,116
1937,26716176.2212,777707.1582,2240.6676,116
1938,26716155.4110,777707.2532,2240.6241,116
1939,26716139.6094,777707.3815,2240.5383,116
1940,26716117.5917,777673.3221,2241.3873,114
1941,26716158.0371,777673.2125,2241.3354,114
1942,26716221.9972,777673.1798,2241.3585,114
1943,26716227.6798,777632.1080,2240.9475,116
1944,26716170.3709,777632.6186,2241.0598,116
1945,26716126.7638,777632.8463,2241.0441,116
1946,26716137.1994,777601.8935,2237.3699,88
1947,26716144.5454,777608.9040,2241.0148,88
1948,26716154.4249,777608.4981,2240.9142,88
1949,26716165.4510,777608.3569,2240.8484,88
1950,26716176.1245,777608.0543,2240.8830,88
1951,26716182.8500,777601.6309,2237.2686,88
1952,26716175.8802,777608.0622,2231.3279,98
1953,26716144.3505,777608.5687,2231.2782,98
1954,26716142.4395,777600.2231,2233.8869,101
1955,26716144.4844,777577.1934,2233.9086,101
1956,26716179.9321,777589.7085,2232.1620,101
1957,26716184.4621,777572.9197,2232.9918,101
1958,26716160.2717,777550.6647,2233.1114,98
1959,26716157.9375,777587.9950,2233.1054,98
1960,26716144.2687,777589.5172,2234.7589,FL  16IN BLACK PVC FROM SOUTH
1961,26716197.6418,777576.4944,2234.0672,100
1962,26716204.5463,777557.6660,2234.5478,100
1963,26716124.5717,777580.4829,2237.5920,100
1964,26716125.0752,777559.8784,2237.8730,100
1965,26720415.2820,777754.4628,2227.7473,hdwall
1966,26720448.3257,777754.2685,2227.7314,hdwall
1967,26720448.0065,777754.4864,2220.4028,chnlbtm

1968,26720415.5216,777754.6544,2220.4239,chnlbtm
1969,26720417.9667,777754.6489,2221.0500,flrcp
1970,26720432.8707,777754.3265,2221.0754,flbox
1971,26720444.9990,777754.2789,2220.3997,flbox
1972,26720439.2629,777804.2049,2219.6568,flbox
1973,26720456.1061,777795.4098,2226.8528,edgcon
1974,26720454.3993,777795.3246,2226.8351,top
1975,26720440.7522,777794.8481,2219.8153,toe
1976,26720422.0762,777794.6813,2219.7841,toe
1977,26720410.5703,777795.6900,2227.2470,top
1978,26720398.3214,777795.7960,2227.6425,edgcon
1979,26720441.0541,777825.8961,2219.7396,flrcp
1980,26720439.1993,777825.6195,2219.2314,toechnl
1981,26720450.1478,777870.9520,2225.4900,edgcon
1982,26720448.8959,777870.7440,2225.4575,top
1983,26720434.6031,777868.2125,2218.4192,toe
1984,26720419.0815,777865.3697,2218.3794,toe
1985,26720404.2778,777862.5093,2225.4551,top
1986,26720403.3519,777862.3768,2225.4697,edgcon
1987,26720410.2841,777904.9482,2218.3670,flrcp
1988,26720416.0271,777998.6257,2223.1852,topendwngwall
1989,26720413.2838,778007.1102,2223.0593,topchnlatbrdg
1990,26720399.2209,778002.9312,2215.9090,toechnl
1991,26720384.5324,777997.8674,2215.8273,toechnl
1992,26720370.5609,777993.7692,2223.0947,topatbrdg
1993,26720373.1433,777985.1449,2223.2140,topatwngwall
1994,26720385.9100,777940.4061,2224.0497,edgcon
1995,26720387.2959,777940.8018,2223.9647,topchnl
1996,26720400.8641,777945.6897,2216.7032,toechnl
1997,26720415.3342,777951.0280,2216.7045,toechnl
1998,26720429.2754,777956.1575,2223.8710,topchnl
1999,26720430.2199,777956.3782,2223.9694,edgcon
2000,26720413.5145,778007.4407,2228.5971,topbrdg
2001,26720370.2822,777994.0175,2228.6398,topbrdg
2002,26720368.1750,777997.8775,2226.4097,tbc
2003,26720413.0062,778011.8803,2226.3293,tbc
2004,26720398.8109,778054.0170,2222.6389,topatwngwall
2005,26720401.3367,778045.5155,2222.7725,topatbrdg
2006,26720387.1067,778041.0825,2215.6053,toechnl
2007,26720372.4697,778036.6225,2215.5475,toechnl
2008,26720358.5716,778032.2176,2222.7899,topatbrdg
2009,26720355.7352,778040.6917,2222.7314,topatwngwall
2010,26720338.7598,778092.3768,2222.1847,edgcon
2011,26720339.8430,778092.6205,2222.0994,topchnl
2012,26720353.6967,778097.2407,2214.9505,toechnl
2013,26720367.9845,778103.2715,2215.0245,toechnl
2014,26720381.9505,778108.3010,2222.2370,topchnl
2015,26720382.8758,778108.4076,2222.2356,edgcon
2016,26720401.5708,778045.4614,2228.4526,topbrdg
2017,26720358.4536,778031.8693,2228.4404,topbrdg
2018,26720358.8873,778027.3798,2226.2563,tbc
2019,26720403.8207,778041.4753,2226.2729,tbc
2020,26720298.8485,778354.7640,2219.8832,top chal@brdg
2021,26720343.6769,778354.6358,2220.0388,top chal@brdg
2022,26720343.7402,778342.6201,2220.0749,top chal@wingwal
2023,26720298.7586,778342.6943,2219.9605,top chal@wingwal
2024,26720313.5227,778354.7323,2212.7703,toechanl@bridg
2025,26720328.8710,778354.7263,2212.7544,toechanl@bridg
2026,26720329.2944,778304.2537,2213.2051,toeofchanl
2027,26720313.8445,778305.3638,2213.1782,toeofchanl
2028,26720299.0726,778305.1180,2220.3724,top chanl
2029,26720298.0954,778304.9820,2220.3881,edgconc chanl
2030,26720344.9815,778306.2455,2220.4610,edg conc chanl

2031,26720343.7129,778306.2949,2220.4452,top chanl
2032,26720310.5042,778275.8993,2215.7621,ie 1.5 rcp
2033,26720338.6933,778232.4625,2215.3931,ie 1.5 rcp
2034,26720335.5275,778232.0386,2213.9784,toe chanl
2035,26720315.0434,778276.9560,2213.4025,toe chanl
2036,26720344.7451,778359.2274,2224.6527,tbc
2037,26720297.8826,778359.3260,2224.6449,tbc
2038,26720298.7208,778354.8663,2227.0061,top brigde
2039,26720343.7716,778354.7292,2227.0365,top brigde
2040,26720296.8646,778886.8155,2217.1602,cp
2041,26720298.8192,778394.9590,2219.4863,top chanl@bridg
2042,26720343.7259,778394.7818,2219.6335,top chanl@bridg
2043,26720343.6952,778406.7441,2219.5638,topchanl@wngwal
2044,26720298.7920,778406.8576,2219.4580,topchanl@wngwal
2045,26720313.6556,778394.7399,2212.3739,toechanl@bridg
2046,26720329.0560,778394.5934,2212.3466,toechanl@bridg
2047,26720329.1983,778447.1915,2211.6726,toe chanl
2048,26720313.8210,778447.1184,2211.7592,toe chanl
2049,26720299.0553,778447.3973,2219.0178,top chan
2050,26720298.1115,778447.2912,2219.0296,edg conc chanl
2051,26720344.9415,778446.7489,2219.1054,edg conc chanl
2052,26720343.9653,778446.6082,2219.0720,top chanl
2053,26720334.3255,778433.7637,2214.5412,ie 1.5 rcp
2054,26720329.1638,778433.8061,2211.8680,toe chanl
2055,26720343.8328,778394.6539,2226.6022,top bridge
2056,26720298.6691,778394.7977,2226.6404,top bridge
2057,26720297.8073,778390.3277,2224.2925,tbc
2058,26720344.8304,778390.2511,2224.3268,tbc
2059,26720464.7682,779607.2859,2212.4794,cp
2060,26720342.5636,778949.4587,2214.6439,top bridge
2061,26720386.7041,778948.9752,2214.8518,top bridge
2062,26720416.0366,778984.3353,2214.4868,top bridge
2063,26720407.6063,778983.7363,2214.5241,top bridge
2064,26720362.8044,778983.8114,2214.4525,top bridge
2065,26720355.4381,778983.9529,2214.4020,top bridge
2066,26720335.4776,778980.5936,2214.1368,edge pvmt
2067,26720373.1511,778979.6105,2214.2377,edge pvmt
2068,26720407.8117,778979.5539,2214.3887,edge pvmt
2069,26720390.1679,778954.4899,2214.2964,tbc
2070,26720335.8073,778954.7326,2214.0822,tbc
2071,26720386.7090,778949.2748,2207.2218,btm chanl
2072,26720343.3143,778949.4279,2207.1690,btm chanl
2073,26720337.6952,778947.5522,2209.9000,ie 1.5 rcp
2074,26720336.7100,778947.3084,2207.2961,btm chanl
2075,26720357.6986,778949.6432,2207.1298,btm chanl
2076,26720338.6279,778808.2700,2212.2485,ie 1.5 rcp
2077,26720330.7971,778808.4523,2208.7820,toe chanl
2078,26720357.6749,778885.1333,2215.1684,edge conc chanl
2079,26720356.4649,778885.6643,2215.1602,top chanl
2080,26720342.7365,778890.5047,2207.9332,toe chanl
2081,26720328.1181,778895.3412,2208.0385,toe chanl
2082,26720310.1731,778901.1359,2217.1006,top chanl
2083,26720309.5907,778901.3657,2217.1640,edge conc chanl
2084,26720334.1974,778944.0020,2216.5497,top chanl wall
2085,26720336.5199,778947.8149,2213.0146,top chanl wall
2086,26720342.4450,778949.4726,2213.7437,top chanl wall
2087,26720353.2647,778985.2986,2213.8458,pi top riprap
2088,26720367.8706,779010.0248,2207.8748,btm riprap
2089,26720421.1543,779016.9375,2207.3871,btm riprap
2090,26720423.0995,778989.0650,2213.4606,top riprap
2091,26720392.0923,778984.2992,2206.7881,btm chanl @barr
2092,26720377.5450,778984.3321,2206.8103,btm chanl @barr
2093,26720536.0430,779632.7919,2206.6333,eac

2094,26720536.5220,779654.8246,2206.4107,eac
2095,26720629.7711,779653.8241,2204.2135,eac
2096,26720629.9950,779632.0801,2204.1917,eac
2097,26720719.4229,779631.9307,2203.3647,eac
2098,26720719.8366,779654.4917,2203.3951,eac
2099,26720707.9902,779679.8871,2206.4325,top of bank
2100,26720687.0277,779682.9391,2199.2655,toe of slope
2101,26720607.7431,779675.5289,2196.3411,ie 48" cmp
2102,26720541.3932,779688.7582,2202.3035,toe of slope
2103,26720497.8438,779686.7651,2210.6153,top of bank
2104,26720494.1967,779726.6252,2208.4813,top of bank
2105,26720537.0530,779731.5654,2201.8809,toe of slope
2106,26720606.6077,779746.8758,2195.9786,flowline
2107,26720705.0193,779752.4215,2198.1488,toe of slope
2108,26720730.9876,779754.6170,2204.0344,top of bank
2109,26720709.8247,779601.8936,2205.6842,top of bank
2110,26720681.1182,779603.5460,2202.8924,toe of slope
2111,26720603.2475,779614.9488,2199.2314,ie 48" cmp
2112,26720534.6802,779604.5414,2204.8456,toe of slope
2113,26720524.2965,779609.3087,2209.1389,top of bank
2114,26720497.8781,779569.8151,2210.5284,top of bank
2115,26720530.7761,779562.6388,2203.9228,toe of slope
2116,26720580.0457,779540.6260,2199.9053,flowline
2117,26717435.9839,785017.7071,2124.2563,flowline
2118,26720693.2911,779556.8635,2206.6590,top of bank
2119,26720638.6466,781525.3188,2177.8319,eac
2120,26720638.9153,781580.4700,2177.7634,eac pc
2121,26720657.0428,781611.9511,2177.2170,eac pt
2122,26720638.3242,781632.6739,2178.4540,eac
2123,26720682.2582,781629.9664,2175.8961,eac
2124,26720680.4416,781611.6135,2176.2382,eac
2125,26720715.2133,781610.5374,2175.1671,eac
2126,26720715.7332,781628.6801,2174.8180,eac
2127,26720769.8783,781629.2600,2175.2876,eac
2128,26720775.6933,781629.1484,2175.3307,eac
2129,26720775.7197,781610.6276,2175.8377,eac
2130,26720780.3383,781610.6772,2175.9435,eac
2131,26720838.4147,781610.2397,2177.4113,eac
2132,26720838.8296,781629.4055,2177.4526,eac
2133,26720792.2608,781605.7476,2176.2400,top of bank
2134,26720780.7356,781605.3489,2170.8176,ie 37" cmp
2135,26720776.5366,781604.5393,2169.6818,ie 54" cmp
2136,26720767.7261,781604.2230,2175.5169,top of bank
2137,26720780.4819,781558.7050,2181.1565,top of bank
2138,26720822.8569,781558.6109,2179.8494,top of bank
2139,26720811.2034,781546.1903,2171.2747,flowline
2140,26720690.6837,781606.6442,2176.0485,top of ank
2141,26720677.4941,781574.1198,2179.4712,top of ank
2142,26720657.6544,781553.2909,2179.9496,top of ank
2143,26720646.9684,781549.4249,2177.4593,toe ofslope
2144,26720664.0726,781597.9779,2173.9898,toe ofslope
2145,26720681.9533,781594.8597,2173.5837,toe ofslope
2146,26720656.6293,781565.0050,2176.3802,toe ofslope
2147,26720680.4741,781605.9381,2172.7475,ie 24" cmp
2148,26720682.4057,781636.6180,2172.0692,ie 24" cmp
2149,26720674.2433,781636.5741,2176.7192,top of bank
2150,26720793.3373,781638.1168,2175.8468,top of bank
2151,26720791.3608,781673.6873,2177.5440,top of bank
2152,26720767.7326,781636.4299,2169.4278,ie 54" cmp
2153,26720773.6803,781639.7495,2169.4482,ie 37" cmp
2154,26720772.3185,781682.3603,2168.7217,flowline
2155,26720731.3754,781699.3274,2173.0995,top of bank
2156,26720668.7214,781670.0394,2177.3184,top of bank

2157,26720915.6295,782969.8225,2159.4575,eac
2158,26720916.8951,782946.4769,2159.4511,eac
2159,26720854.2640,782946.4719,2158.7065,eac
2160,26720853.2542,782970.2922,2158.4650,eac
2161,26720798.0422,782970.1002,2158.6479,eac
2162,26720798.3617,782946.7781,2158.6740,eac
2163,26720846.5277,782940.0789,2158.7966,top of bank
2164,26720854.6490,782939.9666,2155.2030,ie 36" cmp
2165,26720864.9404,782940.4508,2159.0056,top of bank
2166,26720865.0238,782893.0374,2159.6233,top of bank
2167,26720856.2378,782894.4292,2156.8489,flowline
2168,26720844.5279,782895.3003,2159.6253,top of bank
2169,26720818.7772,782978.6514,2158.5130,top of bank
2170,26720852.4869,782980.9453,2154.2083,flowline
2171,26720887.4731,782979.4953,2158.7474,top of bank
2172,26720883.0325,783025.8194,2157.8981,top of bank
2173,26720855.2943,783026.9797,2154.1417,toe of slope
2174,26720837.2508,783024.5704,2153.8371,toe of slope
2175,26720811.5632,783024.0733,2157.5910,top of bank
2180,26717428.8458,784305.0971,2150.0045,eac@bridge line
2181,26717405.4363,784305.8048,2149.3291,bridge
2182,26717394.4950,784296.1025,2149.1899,bridge
2183,26717390.9894,784296.1636,2149.3050,eac@bridge line
2184,26717392.1624,784353.3556,2149.0758,eac@bridge line
2185,26717396.3253,784353.1210,2149.3002,eac@bridge line
2186,26717406.6485,784343.5555,2149.6842,bridge
2187,26717429.9146,784342.9894,2150.1822,bridge
2188,26717429.7959,784337.4517,2149.4631,eac@bridge line
2189,26717396.5593,784353.2976,2145.5797,topchanl@bridge
2190,26717406.2789,784353.0501,2138.8391,flowline
2191,26717416.4368,784352.7669,2138.7951,flowline
2192,26717429.8711,784343.2013,2146.7973,edge coc
2193,26717428.1631,784343.1925,2146.7199,top chanl
2194,26717431.3103,784392.5436,2146.5658,edge conc
2195,26717429.3587,784392.4190,2146.6027,top chanl
2196,26717417.7368,784392.7833,2138.6070,flowline
2197,26717407.7424,784392.7362,2138.6043,flowline
2198,26717393.8954,784393.0694,2147.9315,flowline
2199,26717392.2190,784348.6273,2148.5878,eac@bridge line
2200,26717445.3888,784334.8057,2149.9418,eac
2201,26717444.6050,784308.5836,2150.4316,eac
2202,26717374.0803,784306.6663,2149.4383,eac
2203,26717374.4237,784344.2888,2148.8904,eac
2204,26717409.5344,784958.1187,2132.7451,bridge
2205,26717414.1129,784957.9910,2132.7944,bridge
2206,26717426.6023,784966.1001,2132.9879,bridge
2207,26717448.2639,784965.5644,2133.2196,bridge
2208,26717446.3241,784965.3314,2132.7588,topchanl@bridge
2209,26717414.2026,784957.8385,2131.4811,topchanl@bridge
2210,26717411.0506,784918.6051,2133.0905,top chanl
2211,26717423.2500,784918.3302,2125.1231,flowline
2212,26717432.9901,784918.3719,2125.0530,flowline
2213,26717445.0260,784918.8165,2133.1137,top chanl
2214,26717434.2547,784965.6260,2124.7471,flowlie
2215,26717424.2531,784957.6958,2124.8953,flowline
2216,26717426.2203,785025.7029,2124.2326,flowline
2217,26717449.6748,785017.4847,2133.0994,top bridge
2218,26717449.6743,785017.4797,2133.0995,top bridge
2219,26717428.1113,785018.0200,2132.7928,bridge
2220,26717416.1422,785025.9809,2132.4116,bridge
2221,26717412.2109,785026.0529,2132.3694,bridge
2222,26717436.9226,785055.2991,2123.8452,flowline
2223,26717449.0224,785055.1661,2131.9235,top chan

2224,26717448.0112,785017.5434,2132.1911,top chan
2225,26717416.2172,785026.2063,2130.7109,top chanl
2226,26717414.9741,785056.1224,2131.8952,top chanl
2227,26717427.1758,785055.9288,2123.8318,flowline
2228,26717412.0065,785021.4675,2131.6307,eac@curb/bridlin
2229,26717410.2531,784962.1650,2132.0837,eac@curb/bridlin
2230,26717390.1663,784966.8200,2132.3217,eac
2231,26717391.0592,785019.6183,2131.9239,eac
2232,26717449.9369,785010.1191,2132.2752,eac/bridge line
2233,26717448.5832,784972.1569,2132.3321,eac/bridge line
2234,26717475.1298,785009.5067,2132.7036,eac
2235,26717475.4349,784972.1364,2132.7092,eac
2236,26717442.3962,785971.8213,2118.5541,top chanl
2237,26717446.0298,786017.1449,2115.9262,top chanl
2238,26717445.8320,786017.2225,2119.0309,bridge
2239,26717471.5932,786027.0107,2118.6485,bridge
2240,26717480.0543,786026.7290,2118.6828,top chanl
2241,26717477.8717,786026.4262,2117.8334,top chanl
2242,26717476.0765,785971.1072,2118.6982,bridge
2243,26717480.5739,786032.9101,2117.8329,eac@bridgeline
2244,26717503.6643,786028.8786,2117.5368,eac
2245,26717511.0943,786073.9699,2116.8767,eac
2246,26717481.9671,786080.6474,2117.2602,eac@bridge line
2247,26717481.9961,786086.5375,2117.7775,bridge
2248,26717479.1505,786087.2198,2116.0180,top chanl
2249,26717464.9045,786087.3812,2117.6504,bridge
2250,26717448.8556,786101.4188,2117.5056,bridge
2251,26717448.6229,786102.0636,2115.4554,top chanl
2252,26717444.4427,786096.8685,2116.8751,eac@bridgeline
2253,26717442.3114,786022.7282,2118.1240,eac@bridgeline
2254,26717422.4375,786030.7548,2118.5215,eac
2255,26717425.1196,786088.2913,2117.5740,ac
2256,26717454.0664,786118.4009,2112.1268,ie 24" rcp
2257,26717448.2620,786131.4090,2116.0281,top chanl
2258,26717481.0406,786131.0286,2115.6985,top chanl
2259,26717469.4387,786130.9509,2108.0764,flowline
2260,26717459.4724,786131.5411,2108.1268,flowline
2261,26717468.0351,786087.6545,2108.8184,flowline
2262,26717458.3721,786101.4358,2108.5202,flowline
2263,26717466.0310,786024.5110,2110.0197,flowline
2264,26717455.7106,786016.8471,2110.1177,flowline
2265,26717454.4522,785971.5342,2110.9143,flowline
2266,26717464.2483,785971.1391,2110.8250,flowline
2267,26715221.5375,785535.0288,2144.3455,set cp
2268,26715458.0012,785701.5244,2121.1605,cntr pillar@chnl
2269,26715471.5296,785700.9479,2121.0081,chanl@bridge
2270,26715445.5795,785701.9074,2121.3162,chanl@bridge
2271,26715487.4537,785740.4877,2120.5633,chanl@bridge
2272,26715528.3789,785739.6465,2120.1453,chanl@bridge
2273,26715504.7843,785740.3347,2120.4855,cntr pillar@chnl
2274,26715414.0064,785702.3323,2132.4702,chnl lip
2275,26715416.8699,785702.4599,2132.4353,chnl lip
2276,26715417.0141,785702.2648,2130.4976,chnl lip
2277,26715423.6505,785702.2109,2130.3345,chnl lip
2278,26715464.4220,785742.7584,2132.5611,chnl lip
2279,26715467.1803,785743.0598,2132.5416,chnl lip
2280,26715469.5100,785742.8561,2130.3796,chnl lip
2281,26715502.4599,785700.7666,2131.4108,chnl lip
2282,26715501.3381,785702.0490,2130.7131,chnl lip
2283,26715553.1272,785741.1993,2130.7802,chnl lip
2284,26715550.5457,785741.1746,2130.7383,chnl lip
2285,26715516.2196,785699.9342,2142.5033,top chnl@bridge
2286,26715487.8191,785665.5888,2149.8293,tbc

2287,26715471.2707,785661.1472,2142.4042,top chnl
2288,26715421.0551,785663.5690,2121.7152,toe chnl
2289,26715397.3342,785664.2229,2121.9537,toe chnl
2290,26715511.6430,785762.6702,2120.0447,toe chnl
2291,26715557.8920,785761.3828,2119.6845,toe chnl
2292,26715347.9445,785667.4060,2143.3359,top chnl
2293,26715379.8462,785702.5570,2143.3602,topchnl @ bridge
2294,26715361.9409,785704.0850,2151.7946,bridge end
2295,26715541.2792,785699.4863,2149.1551,bridge end
2296,26715589.4578,785738.1449,2147.1982,bridge end
2297,26715428.4082,785741.9911,2149.9354,bridge end
2298,26715430.4049,785734.9869,2149.7859,ac@lip/bridge
2299,26715400.7989,785735.8011,2150.7604,ac@lip
2300,26715392.1779,785704.0204,2151.3030,ac@lip
2301,26715356.4675,785704.1850,2151.9925,ac@lip
2302,26715527.9115,785701.0277,2149.3071,ac@lip
2303,26715562.2030,785697.8863,2148.4037,ac@lip
2304,26715565.2616,785731.6639,2147.7294,ac@lip
2305,26715595.7884,785731.0168,2146.8317,ac@lip
2306,26715476.1083,785774.0271,2148.6772,top chnl
2307,26715437.7740,785742.1507,2148.9480,top chnl
2308,26715569.9612,785738.8896,2139.1236,top chnl
2309,26715598.5552,785761.6439,2139.1443,top chnl
2310,26717513.4614,786899.9813,2099.2577,top chnl
2311,26717521.3622,786891.7837,2091.5898,toe chnl
2312,26717548.0906,786833.6792,2091.4475,toe chnl
2313,26717552.7697,786818.1589,2098.9852,top chnl
2314,26717508.6851,786781.0219,2105.0341,top chnl
2315,26717496.4964,786784.0029,2096.7082,toe chnl
2316,26717486.2316,786785.7962,2096.7870,toe chnl
2317,26717471.6706,786788.6302,2104.0166,top chnl
2318,26717466.2466,786752.6965,2105.7631,top chnl
2319,26717479.5639,786752.2539,2097.3219,toe chnl
2320,26717490.4123,786751.8821,2097.2322,toe chnl
2321,26717504.1947,786750.4655,2105.3625,top chnl
2322,26717466.7593,786781.5144,2105.5041,top chnl
2323,26717466.9318,786793.5277,2101.8054,top chnl
2324,26717503.6966,786821.8656,2091.7664,toe chnl
2325,26717517.7813,786825.4912,2091.6458,toe chnl
2326,26717466.8598,786805.7363,2094.9495,toe chnl
2327,26717468.1606,786839.8506,2094.5022,toe chnl
2328,26717365.8944,786784.1103,2095.6130,toe chnl
2329,26717364.6390,786749.8446,2095.8814,toe chnl
2330,26717331.5250,786730.2474,2096.4761,toe chnl
2331,26717316.7633,786756.5682,2096.1575,toe chnl
2332,26717503.8967,786909.4660,2107.1061,top chnl
2333,26717469.5850,786878.2025,2109.4857,top chnl
2334,26717469.2375,786863.2669,2103.6220,top chnl
2335,26717468.9661,786851.6019,2101.2622,top chnl
2336,26717462.0144,786859.3568,2109.5056,ac @ bridge
2337,26717459.1543,786778.1152,2109.1306,ac @ bridge
2338,26717371.3345,786730.9069,2109.2876,ac @ bridge
2339,26717373.9014,786812.1862,2108.9717,ac @ bridge
2340,26717375.1106,786837.8876,2109.4739,ac @ bridge
2341,26717425.1076,786875.7610,2110.7319,crown
2342,26717463.1777,786900.4739,2110.2710,ac/curb
2343,26717458.5484,786755.5213,2109.3926,ac/curb
2344,26717420.1297,786732.7914,2110.3996,crown
2345,26717370.8594,786707.2946,2109.7282,ac/curb
2346,26717421.3248,786758.3377,2110.0376,crownbridge
2347,26717423.6594,786838.2845,2110.2325,crownbridge
2348,26717366.6191,786805.8861,2109.1936,top chnl/ bridge
2349,26717366.6609,786808.4950,2109.2459,top chnl/ bridge

2350,26717319.5842,786780.6569,2112.4811,top chnl/ bridge
2351,26717366.3850,786796.4026,2103.3384,top chnl/ bridge
2352,26717364.6854,786738.7159,2103.9362,top chnl/ bridge
2353,26717364.3913,786727.0951,2109.8791,top chnl/ bridge
2354,26717339.6026,786719.0174,2110.3840,top chnl
2355,26718444.2238,787516.8390,2089.1271,cl crown
2356,26718428.2001,787548.1452,2088.8234,cl crown@bridge
2357,26718397.8666,787602.4491,2088.4345,cl crown@bridge
2358,26718366.7852,787658.6135,2088.4767,cl crown@bridge
2359,26718395.8351,787694.7628,2087.5756,ac @ curb face
2360,26718396.7339,787697.1250,2088.0989,tbc
2361,26718382.8439,787718.4280,2087.8842,ac @ curb face
2362,26718401.1684,787689.5369,2090.1961,top barrier
2363,26718454.5699,787591.6624,2090.2899,top barrier
2364,26718458.4750,787584.6588,2087.9323,tbc
2365,26718457.0821,787583.0923,2087.5582,ac @ curb face
2366,26718470.0354,787559.6139,2087.8837,ac @ curb face
2367,26718413.7026,787483.7845,2088.2969,ac @ curb face
2368,26718398.7423,787511.4897,2087.9618,ac @ curb face
2369,26718397.3372,787509.9064,2088.4249,tbc
2370,26718393.4525,787517.0130,2090.5501,top barrier
2371,26718340.3442,787614.5917,2090.1274,top barrier
2372,26718336.5326,787621.5110,2088.0274,tbc
2373,26718337.6143,787622.7861,2087.5155,ac @ curb face
2374,26718325.2402,787645.6142,2087.7307,ac @ curb face
2375,26718336.8823,787610.1181,2087.3025,bw @ bridge
2376,26718338.3388,787606.9723,2084.9267,top chnl @ bridg
2377,26718313.3211,787579.2059,2086.5479,top chnl
2378,26718343.7022,787597.0727,2078.3516,toe chnl@bridge
2379,26718351.7477,787581.9976,2078.4391,chnl@pillar
2380,26718382.6287,787525.6269,2078.6696,toe chml@bridge
2381,26718387.9855,787515.7706,2085.1892,topchnl@bridge
2382,26718389.7216,787513.0063,2087.7057,bw@bridge
2383,26718368.0456,787488.6448,2086.7139,top chnl
2384,26718357.3175,787494.5137,2079.0249,toe chnl
2385,26718322.8276,787570.6760,2078.6292,toe chnl
2386,26718404.8829,787693.5759,2087.4596,bw @ bridge
2387,26718406.3359,787691.5034,2084.9560,top chnl@bridge
2388,26718412.2881,787680.8546,2077.4315,toe chnl
2389,26718420.1799,787666.0463,2077.4616,chnl@pillar
2390,26718442.2519,787625.3886,2077.6353,chnl@pillar
2391,26718451.2083,787609.3477,2077.7554,toechnl@bridge
2392,26718456.9746,787598.4005,2085.0153,topchnl@bridge
2393,26718473.8547,787637.8892,2077.5186,toe chnl
2394,26718483.7156,787630.9624,2085.0997,top chnl
2395,26718458.0328,787596.3181,2087.4655,bw@bridge
2396,26718431.4328,787703.9802,2077.1681,toe chnl
2397,26718438.2381,787712.6908,2077.0933,toe chnl
2398,26718428.6763,787711.2068,2077.9619,ie 48" rcp
2399,26718421.2495,787710.2513,2085.1130,top chnl
2400,26719365.8628,786911.9086,2095.5983,top chnl@hdwall
2401,26719399.6916,786910.9926,2095.6260,top chnl@hdwall
2402,26719395.4982,786809.5148,2095.4238,top chnl
2403,26719384.5536,786809.8499,2089.5610,toe chnl
2404,26719374.6644,786810.3426,2089.5338,toe chnl
2405,26719363.6203,786810.9837,2095.5241,top chnl
2406,26719365.9409,786911.8012,2088.8726,toe chnl
2407,26719376.8635,786911.5465,2088.8891,toe chnl@pillar
2408,26719388.7395,786911.1968,2088.9192,toe chnl@pillar
2409,26719399.4627,786910.8276,2088.8813,toe chnl
2410,26719411.5408,786963.3669,2095.2180,ac @ curb
2411,26719344.3686,786959.8056,2096.2294,ac @ curb
2412,26719301.1998,787023.9472,2095.5034,ac @ curb

2413,26719204.1113,787015.5698,2094.4457,ac @ curb
2414,26719275.9533,786984.9493,2095.9424,cntr ac
2415,26719338.4633,786992.8941,2095.8964,cntr ac
2416,26719411.5419,786996.2334,2095.1298,cntr ac
2417,26719266.9607,787028.2848,2095.4862,top chnl@hdwall
2418,26719270.4497,787062.8082,2095.4293,top chnl@hdwall
2419,26719214.3066,787034.5760,2093.1531,top chnl
2420,26719193.0931,787038.9707,2093.0161,top chnl
2421,26719216.8929,787054.3265,2093.0901,top chnl
2422,26719197.4574,787058.3852,2092.9850,top chnl
2423,26720026.9367,790391.1827,2153.5373,ac@gutter
2424,26720026.3245,790416.6475,2153.6883,ac@gutter
2425,26720029.9269,790277.2694,2153.8943,ac@gutter
2426,26720030.4524,790251.2747,2154.0065,ac@gutter
2427,26720022.7286,790278.2736,2154.2409,bw@topchnl
2428,26720011.4495,790270.1415,2154.6201,top chnl
2429,26719990.6843,790249.6445,2156.4095,top chnl
2430,26719983.9601,790256.0247,2149.5799,toechn@concend
2431,26720010.7746,790283.0479,2149.1567,ie lowheadpipe
2432,26720010.5933,790294.1678,2149.1724,ie lowheadpipe
2433,26720010.7650,790304.8063,2149.1157,ie lowheadpipe
2434,26720010.3604,790315.1173,2149.1072,ie lowheadpipe
2435,26720009.7985,790325.6499,2149.0157,ie lowheadpipe
2436,26720009.3611,790336.8177,2148.9935,ie lowheadpipe
2437,26720009.1816,790347.6673,2149.0677,ie lowheadpipe
2438,26720009.3187,790359.0635,2149.0481,ie lowheadpipe
2439,26720008.8598,790369.7458,2149.1550,ie lowheadpipe
2440,26720008.6843,790380.3073,2149.1572,ie lowheadpipe
2441,26719978.9280,790364.8400,2149.5929,toechnl@concend
2442,26719970.9274,790372.6590,2155.9439,top chnl
2443,26720008.2980,790389.7536,2154.1909,top chnl
2444,26720020.1425,790390.7681,2154.0430,top chnl
2445,26720094.6375,790351.7941,2152.4769,ac@guttr/end
2446,26720095.3256,790326.5818,2152.5670,ac@gutter
2447,26720101.8134,790355.8369,2152.5062,ac@top chnl
2448,26720099.6643,790386.7867,2152.3013,ac
2449,26720098.3167,790438.3154,2152.1773,ac
2450,26720097.1935,790498.9975,2152.3084,ac@ top chnl
2451,26720090.7490,790518.3670,2152.5739,ac@gutter/end
2452,26720090.0103,790543.3766,2152.7390,ac@ gutter
2453,26720102.5600,790503.3577,2152.8195,top chnl
2454,26720143.1059,790546.0849,2152.6131,top chnl
2455,26720152.0907,790536.8205,2146.8957,toe chnl
2456,26720103.4015,790485.7971,2147.3322,toe chnl
2457,26720103.2434,790481.2236,2146.9812,ie lowhead pipe
2458,26720103.7958,790471.0942,2147.2288,ie lowhead pipe
2459,26720103.7808,790460.4938,2147.1741,ie lowhead pipe
2460,26720103.9778,790448.8620,2147.1657,ie lowhead pipe
2461,26720104.2281,790438.3350,2147.2553,ie lowhead pipe
2462,26720104.9324,790427.5957,2147.2372,ie lowhead pipe
2463,26720105.1331,790416.7144,2147.1790,ie lowhead pipe
2464,26720105.4575,790405.8102,2147.1358,ie lowhead pipe
2465,26720105.5770,790395.7453,2147.2619,ie lowhead pipe
2466,26720105.7842,790384.0232,2147.3295,ie lowhead pipe
2467,26720106.4430,790378.6140,2148.3026,toe chnl
2468,26720106.2873,790361.0623,2153.1535,topchnl
2469,26720161.7204,790419.2622,2153.1196,topchnl
2470,26720152.9797,790428.1046,2147.3112,toe chnl
2471,26720062.3498,790280.9238,2153.3607,crown
2472,26720061.1729,790337.1424,2153.1271,crown
2473,26720058.6289,790457.9021,2153.0935,crown
2474,26720057.4690,790517.5247,2153.1825,crown
2475,26720652.8006,790952.1407,2056.4554,TOP CHNL

2476,26720649.9989,790945.3984,2056.5315,TOP CHNL
2477,26720625.4752,790927.5013,2058.2430,TOP CHNL QBRID
2478,26720625.8841,790927.1271,2060.0515,BRIDGE
2479,26720524.4164,790929.4609,2059.8283,BRIDGE
2480,26720525.2925,790929.6349,2058.0954,TOP CHNL @BRIDGE
2481,26720542.2405,790953.7345,2057.5491,TOP CHNL @BRIDGE
2482,26720548.8050,790953.7486,2051.1795,TOE CHNL
2483,26720525.5047,790929.7430,2051.3133,TOE CHNL @BRIDGE
2484,26720539.1510,790929.3747,2051.2412,CHNL@PILLAR
2485,26720553.4080,790929.0291,2051.1533,CHNL@PILLAR
2486,26720567.8957,790928.6603,2051.1485,CHNL@PILLAR
2487,26720582.0226,790928.3079,2051.0795,CHNL@PILLAR
2488,26720596.4131,790927.9741,2051.0287,CHNL@PILLAR
2489,26720610.7593,790927.6325,2050.9798,CHNL@PILLAR
2490,26720624.8696,790927.0900,2050.9373,CHNL @BRIDGE
2491,26720646.6256,790958.1443,2050.7317,TOE CHNL
2492,26720665.1668,790924.7845,2060.4653,EDGE AC
2493,26720623.2102,790895.1725,2059.6861,EDGE AC
2494,26720543.5200,790897.0196,2059.4218,EDGE AC
2495,26720467.7021,790898.8354,2059.7523,EDGE AC
2496,26720491.5680,790930.0797,2059.9875,EDGE AC
2497,26720573.3774,790928.0302,2060.1309,EDGE AC
2498,26720588.7653,790887.9563,2060.6568,BRIDGE
2499,26720589.2012,790887.8936,2059.9672,TOPCHNL@BRIDGE
2500,26720578.8720,790859.4370,2057.7080,TOP CHNL
2501,26720569.3705,790868.1144,2051.6665,TOE CHNL
2502,26720587.6526,790887.8458,2051.2901,TOE CHNL @BRIDGE
2503,26720573.6878,790887.9556,2051.2715,CHNL@PILLAR
2504,26720559.2502,790888.5386,2051.3314,CHNL@PILLAR
2505,26720545.0210,790888.7383,2051.4052,CHNL@PILLAR
2506,26720530.5168,790889.1015,2051.4415,CHNL@PILLAR
2507,26720516.1326,790889.5214,2051.5696,CHNL@PILLAR
2508,26720501.8409,790889.9096,2051.5193,CHNL@PILLAR
2509,26720488.0564,790890.1720,2051.6484,TOECHNL@BRIDGE
2510,26720471.0792,790871.5402,2051.7879,TOE CHNL
2511,26720461.7730,790878.1066,2057.8920,TOP CHNL
2512,26720487.8270,790890.2567,2060.0258,TOPCHNL @BRIDGE
2513,26720487.2835,790890.3665,2060.6754,BRIDGE
2514,26721439.0675,791574.7078,2050.4473,EDGE AC
2515,26721441.1583,791613.9330,2048.8125,EDGE AC
2516,26721436.6051,791668.1313,2047.1363,EDGE AC
2517,26721431.1635,791731.5282,2048.2470,EDGE AC
2518,26721429.3180,791757.4393,2048.7764,EDGE AC
2519,26721404.1606,791757.7295,2049.3614,EDGE AC
2520,26721406.3093,791732.1612,2048.6285,EDGE AC
2521,26721412.4589,791665.9400,2047.4098,EDGE AC
2522,26721417.2231,791611.2846,2049.0940,EDGE AC
2523,26721420.2407,791570.1258,2050.5369,EDGE AC
2524,26721410.6913,791628.1550,2048.4151,TOP CHNL
2525,26721404.9856,791641.5507,2046.0261,TOP CHNL
2526,26721403.6127,791671.6491,2044.5452,IE 12" ABS
2527,26721403.1862,791674.7077,2044.5089,IE 12" ABS
2528,26721399.1241,791674.6206,2044.6900,TOE CHNL
2529,26721404.1901,791680.9682,2047.2576,TOP CHNL
2530,26721367.5450,791688.4759,2050.8218,TOP CHNL
2531,26721367.8277,791677.6597,2044.4229,TOE CHNL
2532,26721371.8242,791630.6002,2045.5605,TOE CHNL
2533,26721372.0267,791620.1975,2050.8654,TOP CHNL
2534,26721454.6026,791619.3107,2048.1079,TOP CHNL
2535,26721460.9779,791633.5707,2043.4180,TOE CNL
2536,26721443.9707,791680.4111,2043.8131,IE 12" ABS
2537,26721443.7590,791682.7989,2043.8187,IE 12" ABS
2538,26721453.0627,791702.0136,2043.0372,TOE CHNL

2539,26721440.2459,791709.1333,2046.7708,TOE CHNL
2540,26721473.5253,791730.9947,2049.2590,TOE CHNL
2541,26721478.8792,791722.5113,2044.6696,TOE CHNL
2542,26721490.1859,791649.0541,2043.4270,TOE CHNL
2543,26721496.9515,791636.0610,2049.2426,TOP CHNL
2544,26721487.5745,791670.7223,2042.9532,CL CHNL
2545,26719153.0476,788387.8015,1985.3799,TOPCHNL
2546,26719155.8633,788443.9001,1984.7460,TOPCHNLANGLPNT
2547,26719191.6013,788489.3703,1984.0564,TOPCHNL
2548,26719251.3362,788559.7432,1983.4279,TOPCHNLPBRDG
2549,26719146.2323,788386.1170,1978.7138,TOECHNL
2550,26719127.4893,788397.5022,1978.5034,TOECHNL
2551,26719115.5682,788400.0623,1985.0157,TOPCHNL
2552,26719120.4266,788405.7909,1984.9249,TOPCHNLANGLPNT
2553,26719127.5497,788432.7102,1976.8014,TOECHNL
2554,26719109.4391,788411.3766,1976.9107,TOECHNL
2555,26719049.5176,788458.3867,1976.7939,TOECHNL
2556,26719040.9115,788466.6637,1984.5263,TOPCHNL
2557,26719094.1006,788529.0819,1984.0146,TOPCHNL
2558,26719165.2602,788612.6721,1983.4880,TOPCHNLATPBRDG
2559,26719174.9298,788605.9026,1975.7753,TOECHNL
2560,26719103.0805,788521.3912,1976.3711,TOECHNL
2561,26719148.2320,788456.8407,1976.7149,TOECHNLANGLPNT
2562,26719191.7775,788508.3812,1976.3130,TOECHNL
2563,26719239.9733,788566.2921,1975.6424,TOECHNLATPBRDG
2564,26719269.3298,788599.4657,1975.5051,TOECHNLATANGLPNT
2565,26719277.1224,788608.3305,1975.4904,TOECHNLATANGLPNT
2566,26719335.7288,788578.5854,1983.9350,TOPCHNL
2567,26719328.3849,788569.4133,1976.1297,TOECHNL
2568,26719321.2012,788559.6870,1976.1640,TOECHNL
2569,26719314.0951,788550.0451,1983.9643,TOPCHNL
2570,26719287.4985,788684.2803,1974.6447,FLCHNL
2571,26719251.4089,788696.0401,1975.1410,TOECHNLATBRDG
2572,26719238.0617,788698.5247,1982.8951,TOPCHNLATBRDG
2573,26719170.0589,788624.5821,1988.5149,BGNPBRDG
2574,26719163.9371,788614.5125,1988.5313,BGNPBRDG
2575,26719210.4124,788585.8008,1990.9418,MIDSPAN
2576,26719216.5489,788595.6929,1990.9290,MIDSPAN
2577,26719262.7989,788567.1476,1987.9429,ENDBRDG
2578,26719256.6033,788557.4050,1987.9324,ENDBRDG
2579,26719240.5948,788566.6157,1975.6813,TOECHNLATPBRDG
2580,26719208.6741,788587.1707,1975.2478,FLCHNATPBRDG
2581,26719325.7617,788623.4858,1983.8532,BTMWNGWALL
2582,26719355.0777,788660.9884,2004.8403,TOPWNGWALL
2583,26719357.4626,788663.9712,2004.8581,TOPWNGWALLATFRWY
2584,26719194.1392,788660.0455,1984.8371,BTMWNGWALL
2585,26719226.3100,788694.7660,2003.8890,TOPWNGWALL
2586,26719228.8117,788697.5229,2003.9074,TOPWNGWALLATFRWY
2587,26719294.8183,788610.3622,1983.3615,TOPCHNL ANG PT
2588,26719271.0710,788582.6161,1983.3695,TOPCHNL ANG PT
2589,26719331.7188,788673.5092,1974.9468,TOECHNLATBRDG
2590,26719344.0457,788669.3935,1982.7145,TOPCHNLATBRDG
2591,26719444.2519,788803.9697,1981.8058,TOPCHNLATBRDG
2592,26719505.2946,788853.1342,1982.8669,BTMWNGWALL
2593,26719467.4273,788804.9966,2009.2630,TOPWNGWALL
2594,26719464.7900,788801.6423,2009.2748,TOPWNGWALLATFRWY
2595,26719431.0842,788806.0586,1974.0412,TOEATBRDG
2596,26719393.2851,788818.2189,1973.6377,FLATBRDG
2597,26719354.3733,788828.9329,1974.1144,TOEATBRDG
2598,26719341.0756,788830.6066,1981.9173,TOPATBRDG
2599,26719371.5042,788889.1625,1982.9432,BTMWNGWALL
2600,26719339.0488,788839.3419,2008.4109,TOPWNGWALL
2601,26719336.9368,788836.3386,2008.4253,TOPWNGWALLATFRWY

2602,26719393.0258,788887.1308,1974.1067,FLRCP
2603,26719394.1003,788886.4191,1973.6629,TOECHNL
2604,26719479.1300,788875.4445,1974.7888,FLRCP
2605,26719477.5353,788876.0898,1973.6530,TOECHNL
2606,26719427.1130,788962.0299,1981.0960,TOPCHNL
2607,26719437.2799,788956.1601,1973.2912,TOECHNL
2608,26719503.4563,788918.9895,1973.2900,TOECHNL
2609,26719513.9656,788912.4508,1981.1716,TOPCHNL
2610,26721835.4893,793513.0338,2042.3191,topchnl
2611,26721856.4662,793558.4506,2041.7851,topchnl
2612,26721883.4265,793581.1241,2041.7728,bridge
2613,26721883.4630,793580.8578,2037.7270,topchnl@bridg
2614,26721890.4368,793580.9832,2041.7697,bridge
2615,26721890.5461,793580.9710,2043.8838,bridge
2616,26721983.2747,793578.9252,2043.5070,bridge
2617,26721983.3650,793578.9526,2041.3304,bridge
2618,26722004.9193,793578.5494,2041.1789,bridge
2619,26722004.8777,793578.3743,2040.0380,topchnl@bridg
2620,26722005.3944,793556.2090,2037.6184,topchnl
2621,26721956.8179,793512.4984,2041.3703,topchnl
2622,26721935.0172,793520.5049,2032.0955,toe chnl
2623,26721903.1286,793518.6955,2032.0069,cl chn
2624,26721879.5952,793484.6198,2032.1948,cl chn
2625,26721854.9953,793500.3406,2032.5445,cl chn
2626,26721886.7565,793558.0285,2032.3220,toechnl
2627,26721898.1462,793580.7047,2032.1086,toechnl
2628,26721904.9109,793580.6563,2029.6149,toechnl
2629,26721896.8789,793564.7906,2030.0123,toechnl
2630,26721925.2911,793557.1818,2032.2309,cl chl
2631,26721925.5985,793564.0499,2029.7747,toe @ cl
2632,26721960.7523,793562.9784,2029.6578,toe chnl
2633,26721963.9419,793556.2891,2032.0884,toe chnl
2634,26721975.4690,793578.9321,2031.7486,toe chnl
2635,26721968.7734,793579.1546,2029.3646,toe chnl
2636,26721952.8618,793579.5461,2029.4312,c chnl wall
2637,26721936.5671,793579.8997,2029.5000,c chnl wall
2638,26721920.3161,793580.2458,2029.5568,c chnl wall
2639,26721852.2989,793589.9010,2040.9735,ac lip
2640,26721894.7401,793588.9586,2040.6217,ac @ bridg
2641,26721987.3537,793586.8830,2040.2711,ac @ bridg
2642,26722022.2146,793586.1471,2040.1829,ac lip
2643,26722034.8156,793629.6055,2040.6854,cl crown
2644,26722047.3471,793671.5534,2039.5173,ac lip
2645,26722030.0606,793671.8728,2039.4203,ac @ bridge
2646,26721937.3271,793674.0520,2040.0783,ac @ bridge
2647,26721902.3572,793674.6543,2040.4221,ac lip
2648,26721882.8128,793631.7817,2041.2675,cl crown
2649,26721916.2614,793631.5580,2041.2085,cl crown @ bridg
2650,26721962.3747,793630.4047,2041.0154,cl photo pt
2651,26722009.3336,793629.9957,2040.8548,cl crown @ bridg
2652,26721959.6080,793689.7961,2038.5622,top chnl
2653,26721941.5200,793699.0314,2038.3648,top chnl
2654,26721951.1355,793716.8253,2038.5574,top chnl
2655,26721958.6669,793716.6178,2033.5428,toe @ ramp
2656,26721970.5848,793711.6194,2033.8014,toe @ ramp
2657,26721970.7483,793711.4145,2028.2193,toe chnl
2658,26721955.5253,793681.2967,2028.3133,toe chnl
2659,26721971.7001,793680.8929,2028.2936,c chnl wall
2660,26721987.4813,793680.9605,2028.2547,c chnl wall
2661,26722003.7732,793680.6467,2028.3064,c chnl wall
2662,26722019.6444,793680.2401,2028.3189,c chnl wall
2663,26722029.6084,793714.9105,2028.2377,toe chnl
2664,26722048.2561,793706.3015,2039.2550,top chnl

2665,26722019.7636,793680.2694,2039.1805,top chnl@bridg
2666,26722033.8793,793679.9415,2039.5009,btm wall
2667,26722033.8334,793679.8655,2042.0165,top wall
2668,26721955.4032,793681.5980,2039.5339,btm wall
2669,26721954.5134,793681.4349,2042.5897,top wall
2670,26722752.3007,795074.2529,2028.7534,cp
2671,26722621.4398,795035.2521,2032.6470,bridge
2672,26722623.6327,795141.1796,2032.2245,bridge
2673,26722621.1247,795143.3272,2030.4941,top chnl
2674,26722567.0027,795121.6219,2030.4867,top chnl
2675,26722623.0985,795111.9301,2018.8198,cntr chnl
2676,26722623.2558,795096.8413,2018.8924,cntr chnl
2677,26722622.6278,795080.2384,2018.8806,cntr chnl
2678,26722622.2247,795064.9386,2018.8423,cntr chnl
2679,26722622.1601,795057.2334,2018.7773,edg box
2680,26722623.4449,795119.0032,2018.7711,edg box
2681,26722572.9428,795103.2191,2019.0060,toe chnl
2682,26722573.2177,795052.3686,2020.4915,toe chnl
2683,26722579.2280,795027.6756,2031.5325,top chnl
2684,26722618.0981,795030.9306,2032.0057,top chnl
2685,26722629.8126,795043.0694,2029.6533,ac lip@bridg
2686,26722629.1665,795010.5510,2029.7545,ac lip
2687,26722632.2229,795167.7339,2029.1774,ac lip
2688,26722631.4503,795137.1698,2029.2349,ac lip@bridg
2689,26722675.9628,795174.5971,2029.5892,cl crown
2690,26722673.3377,795106.0177,2030.2060,cl crown
2691,26722671.3833,795024.6565,2030.5375,cl crown
2692,26722715.6149,795035.2067,2029.8218,ac lip
2693,26722716.4390,795065.3796,2029.5118,ac lip@bridg
2694,26722717.9965,795158.8487,2029.1105,ac lip@bridg
2695,26722718.5844,795191.9009,2029.0889,ac lip
2696,26722726.1258,795166.5730,2032.1367,bridge
2697,26722724.0360,795060.6133,2032.5541,bridge
2698,26722796.3258,795111.0157,2027.5704,top chnl
2699,26722795.6545,795120.2150,2019.2936,toe chnl
2700,26722782.8828,795163.8124,2019.8204,toe chnl
2701,26722780.8717,795181.6914,2027.1612,top chnl
2702,26722726.2547,795166.7817,2029.2350,top chnl@bridg
2703,26722725.7266,795144.6772,2018.4342,toe chnl@bridg
2704,26722725.4593,795136.8141,2018.4515,chtr chnl
2705,26722724.3994,795121.5585,2018.4529,chtr chnl
2706,26722724.8284,795105.7570,2018.3665,chtr chnl
2707,26722724.5935,795090.5660,2018.3702,chtr chnl
2708,26722724.2979,795082.9557,2018.3487,toe chnl@bridg
2709,26722724.1008,795060.4224,2029.6622,top chnl@bridg
2710,26722874.1200,795107.4602,2028.9784,top retain wall
2711,26722895.3139,795118.8467,2029.0056,top retain wall
2712,26722854.4960,795199.6746,2027.2120,top retain wall
2713,26722831.7720,795186.9477,2028.6112,top retain wall
2714,26722839.8881,795191.4683,2029.4254,top rail
2715,26722844.2147,795193.9678,2029.4088,top rail
2716,26722887.0002,795114.1868,2029.8253,top rail
2717,26722882.6431,795111.7880,2029.8314,top rail
2718,26722880.9114,795111.2124,2028.3625,edge i-beam
2719,26722888.4120,795115.2645,2028.2859,edge i-beam
2720,26722845.4759,795194.4325,2027.9676,edge i-beam
2721,26722838.7377,795190.4955,2027.9172,edge i-beam
2722,26722835.7336,795187.3576,2024.4458,cor conc
2723,26722848.6366,795161.9536,2019.9300,cntr conc
2724,26722863.1855,795135.4667,2022.8977,cntr conc
2725,26722863.6735,795121.6439,2023.7630,top chnl
2726,26722848.5833,795137.3592,2017.7306,toe chnl
2727,26722835.6510,795170.6431,2017.7303,toe chnl

2728,26722827.5881,795182.8533,2022.8119,top chnl
2729,26722791.3709,795181.6007,2027.1310,top chnl
2730,26722797.9310,795161.3318,2018.3781,toe chnl
2731,26722892.0149,795126.9304,2025.3254,top chnl
2732,26722878.2600,795152.2994,2017.5530,toe chnl
2733,26722869.7056,795186.2103,2017.4965,toe chnl
2734,26722863.3505,795206.2118,2024.1575,top chnl
2735,26722878.6006,795221.3755,2025.2055,top chnl
2736,26722889.6723,795207.3236,2018.5189,toe chnl
2737,26722911.8107,795170.6654,2017.0525,toe chnl
2738,26722922.8335,795146.2936,2024.3079,top chnl
2739,26722892.8665,795115.5533,2029.3152,cor catwalk
2740,26722848.5264,795197.8948,2028.7566,cor catwalk
2741,26726941.9507,802343.7728,1931.8208,top chnl
2742,26726924.2661,802349.6756,1922.7317,toe chnl
2743,26726873.2603,802364.7466,1923.6179,toe chnl
2744,26726854.5392,802371.2223,1933.1486,top chnl
2745,26726869.3050,802416.8249,1932.6608,top chnl
2746,26726888.1832,802405.8576,1923.3251,toe chnl
2747,26726935.1237,802388.2424,1923.3260,toe chnl
2748,26726956.0210,802388.5082,1931.6404,top chnl
2749,26726960.9986,802392.0717,1937.6115,bridge
2750,26726868.6970,802421.1860,1937.5715,bridge
2751,26726877.4185,802448.5607,1937.2388,bridge
2752,26726969.9606,802420.2240,1937.2084,bridge
2753,26726969.3843,802418.3149,1934.1679,road surface
2754,26726961.8482,802393.9966,1934.5475,road surface
2755,26726869.0703,802423.1861,1934.5749,road surface
2756,26726876.7491,802447.3898,1934.2206,road surface
2757,26726879.3887,802454.9905,1934.1194,bridge
2758,26726971.6916,802425.8546,1934.0334,bridge
2759,26726970.2819,802434.0836,1930.7653,top chnl
2760,26726980.3992,802471.2890,1931.0421,top chnl
2761,26726962.8563,802476.9575,1922.5441,toe chnl
2762,26726950.0565,802441.6949,1921.9295,toe chnl
2763,26726907.0856,802457.7270,1922.2280,toe chnl
2764,26726922.2730,802488.6019,1921.1661,toe chnl
2765,26726894.9336,802494.1259,1931.9126,top chnl
2766,26726883.8305,802460.8696,1932.2092,top chnl
2767,26727270.1686,803264.0351,1934.2385,top chnl
2768,26727291.8365,803234.5716,1916.3191,toe chnl
2769,26727316.5460,803195.7578,1916.6482,toe chnl
2770,26727339.1421,803160.8275,1930.9763,top chnl
2771,26727310.0026,803146.4763,1929.3977,top @ conc
2772,26727298.5129,803157.6874,1925.5623,con gb
2773,26727292.7368,803151.7734,1925.7989,edg cnc @bridg
2774,26727303.9676,803140.2402,1929.5195,edg cnc @bridg
2775,26727278.8443,803163.5844,1916.9391,toe @ bridge
2776,26727249.0885,803192.1408,1916.2024,toe @ bridge
2777,26727232.3861,803210.1685,1926.6982,ie 24" rcp
2778,26727241.1558,803213.0579,1926.4349,gb conc
2779,26727230.9487,803223.1527,1929.7653,top conc
2780,26727223.6969,803218.1392,1930.4152,cor conc@bridge
2781,26727210.2759,803223.4379,1931.2879,ac @curb
2782,26727230.2207,803204.3470,1930.7905,gutter@bridge
2783,26727289.8692,803146.7545,1929.8763,gutter@bridge
2784,26727310.2022,803127.1671,1929.6447,ac@curb
2785,26727285.9258,803104.5781,1929.7462,ac @ lip
2786,26727266.9109,803122.7903,1929.8319,ac/lip@bridge
2787,26727207.3943,803180.5443,1930.7647,ac/lip@bridge
2788,26727186.9324,803200.2267,1931.0997,ac@lip
2789,26727186.4268,803179.1309,1929.9343,top @cor conc
2790,26727192.3653,803185.8239,1930.3965,con conc

2791,26727197.3764,803169.2382,1926.5056,gb conc
2792,26727202.1597,803176.1840,1927.4765,gb conc
2793,26727174.1259,803159.6226,1930.6624,top chnl
2794,26727194.6966,803137.1736,1918.0668,toe chnl
2795,26727218.2516,803160.5993,1917.4094,toe chnl
2796,26727249.8455,803130.0371,1918.2169,toe chnl
2797,26727229.6041,803106.6586,1918.4996,toe chnl
2798,26727244.4780,803091.1011,1928.3806,top chnl
2799,26727255.6452,803113.4598,1925.5840,gb conc
2800,26727262.2329,803118.5072,1925.9816,gb conc
2801,26727273.0083,803108.3679,1929.6635,top chnl
2802,26727266.8432,803102.3237,1929.4584,top chnl
2804,26727879.9487,803481.7006,1911.7789,toe chnl
2805,26727876.7216,803476.4056,1912.1635,pillar
2806,26727879.6988,803439.2365,1912.9875,pillar
2807,26727881.1530,803432.2067,1913.7332,toe chnl
2808,26727859.6210,803415.6259,1919.6791,storm drain
2809,26727853.7547,803414.6452,1919.5429,storm drain
2810,26727940.9830,803491.6870,1911.7726,toe chnl
2811,26727953.0730,803459.2618,1913.0464,toe chnl
2812,26727963.4341,803424.4854,1926.2145,top chnl
2813,26727883.5186,803404.1517,1926.2252,top chnl @ bridg
2814,26727878.5188,803524.4922,1930.4696,top chnl @ bridg
2815,26727967.9519,803543.6589,1933.5403,top chnl
2816,26727879.1231,803510.3136,1925.3941,conc @ bridge
2817,26727883.4444,803406.6734,1923.8938,conc @ bridge
2818,26727877.5823,803353.0537,1926.4384,ac lip
2819,26727875.1166,803402.0913,1927.4681,ac/lip@bridg
2820,26727870.8477,803522.2034,1930.3764,ac/lip@bridg
2821,26727869.8794,803532.6915,1930.7338,ac lip
2822,26727834.3789,803530.3301,1931.4734,ac @ fac curb
2823,26727834.7767,803513.8702,1930.9327,ac @ fac curb
2824,26727821.7755,803528.8918,1931.5018,ac @ fac curb
2825,26727822.3322,803511.4270,1930.9452,ac @ fac curb
2826,26727828.1515,803379.0837,1927.8184,ac @ fac curb
2827,26727840.6036,803382.0236,1927.8966,ac @ fac curb
2828,26727829.7378,803342.4026,1927.1681,ac @ fac curb
2829,26727842.1239,803343.9109,1927.1763,ac @ fac curb
2830,26727794.1150,803339.6281,1926.3273,ac lip
2831,26727792.6723,803370.5914,1926.8495,ac/lip@"ridg
2832,26727787.1775,803502.8845,1929.9837,ac/lip@"ridg
2833,26727786.1944,803526.4414,1930.6454,ac lip
2834,26727776.8943,803502.3581,1930.2621,top chnl @bridg
2835,26727722.9142,803492.7628,1933.7139,op chnl
2836,26727779.5218,803486.4934,1925.9112,conc bridge
2837,26727784.1703,803382.8496,1924.4273,conc bridge
2838,26727785.5222,803369.0296,1927.2729,top chnl @ bridg
2839,26727735.3033,803361.9489,1929.3572,top chnl
2840,26727744.4095,803402.2000,1913.9161,toe chnl
2841,26727783.7393,803411.8049,1913.8289,toe chnl @ bridg
2842,26727784.6899,803417.4734,1913.8567,pillar
2843,26727783.3325,803452.9565,1913.5903,pillar
2844,26727781.2743,803458.8809,1913.3168,toe chnl @ bridg
2845,26727739.3933,803453.5301,1915.5295,toe chnl
2846,26729174.1550,803622.1207,1911.9889,sidwalk
2847,26729166.3005,803620.7517,1912.0317,sidwalk
2848,26729164.4702,803631.8029,1918.6108,bridge
2849,26729172.2946,803633.0328,1918.6707,bridge
2850,26729156.5352,803703.9382,1920.7437,cl bridg
2851,26729148.6388,803775.1865,1922.9463,bridge
2852,26729140.9153,803773.8343,1922.9040,bridge
2853,26729148.5660,803775.8572,1922.7135,ac
2854,26729140.7874,803774.5524,1922.7129,ac

2855,26729144.9433,803773.5028,1916.0132,cnt bridg toe re
2856,26729167.7743,803762.1559,1913.8796,top chnl
2857,26729147.2879,803758.6561,1914.5591,top chnl
2858,26729125.6927,803757.3660,1915.8455,top chnl
2859,26729130.4546,803715.2648,1898.8836,toe chnl
2860,26729155.7031,803721.7710,1898.4423,toe chnl
2861,26729173.2469,803725.4536,1898.3940,toe chnl
2862,26729170.9259,803684.6118,1897.4943,toe chnl
2863,26729156.9197,803683.7094,1898.3888,toe chnl
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4619,26733130.8240,807345.7404,1811.9179,flowline conc
4620,26733119.8614,807347.4652,1812.5000,edge conc
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4623,26733134.9705,807358.4204,1806.7299,outlet
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4625,26733129.4736,807369.9955,1801.0761,outlet
4626,26733146.8060,807367.5662,1801.0191,edge conc
4627,26733122.6727,807370.9375,1801.0236,edge conc
4628,26733148.6059,807377.9467,1799.1310,pi conc
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4693,26712183.9759,784728.3922,2153.9065,ie 30" rcp
4694,26712169.4837,784782.2912,2153.7416,ie 24" rcp
4695,26712170.6699,784754.3504,2152.9816,bridge support
4696,26712259.9202,784756.6387,2153.4024,ie 72" rcp
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4698,26712305.1415,784785.9956,2152.2222,toe chnl
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4713,26717082.9610,783013.5098,2175.8016,ac@lip
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4716,26717075.0008,782885.2547,2161.7413,toe chnl
4717,26717089.4153,782927.9038,2159.9659,toe chnl @ box
4718,26717073.5175,782928.8386,2159.8806,toe chnl @ box
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4720,26717087.3080,782929.8942,2160.4669,cor box
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4722,26717087.9511,782930.3055,2171.1830,top box
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4724,26716935.4533,782274.4465,2186.1691,top chnl
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4727,26716845.6405,782297.0565,2184.2197,edge ac
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4742,26716966.3762,782351.7899,2184.8191,top chnl wall
4743,26716966.3035,782377.3550,2184.1275,top chnl wall
4744,26716966.1563,782352.3681,2178.9422,toe chnl wall
4745,26716966.1881,782380.1044,2176.5405,toe chnl wall
4746,26716942.1750,782382.7292,2177.0856,toe chnl
4747,26716928.3801,782356.8017,2177.3819,toe chnl
4748,26716920.2531,782357.4126,2183.6284,top chnl
4749,26716932.3666,782380.5838,2181.7856,top chnl
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4752,26716937.5204,782352.1697,2181.5259,top pipe
4753,26716930.0523,782352.2770,2181.4738,top pipe
4754,26716993.9615,782327.8376,2184.7039,edge ac
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4757,26716762.6720,780970.9727,2199.6542,edge ac
4758,26716763.0460,780994.2018,2199.5367,edge ac
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5280,26716576.669,775163.497,2267.652,TOP
5281,26716576.574,775174.688,2269.155,TOE
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5283,26716629.840,775189.407,2270.358,EDGE ASPHALT
5284,26716629.871,775173.609,2268.924,TOE
5285,26716629.873,775162.206,2271.170,TOP
5286,26716684.490,775161.504,2270.980,TOP
5287,26716683.965,775174.307,2268.807,TOE
5288,26716683.846,775189.285,2270.266,EDGE ASPHALT
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5291,26716734.376,775160.851,2271.084,TOP
5292,26716739.303,775168.725,2269.723,EDGE CONC
5293,26716739.316,775177.538,2269.064,EDGE CONC
5294,26716748.174,775177.596,2269.146,EDGE CONC
5295,26716745.270,775174.200,2268.038,GRATE INLET EDGE
5296,26716745.293,775171.772,2267.988,GRATE INLET EDGE

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5298,26716788.172,775188.953,2270.118,EDGE ASPHALT
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5301,26716839.436,775161.235,2270.980,TOP
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5306,26716891.857,775160.068,2271.117,TOP
5307,26716943.218,775160.533,2270.920,TOP
5308,26716943.309,775174.185,2268.725,TOE
5309,26716943.508,775188.582,2270.230,EDGE ASPHALT
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5311,26716971.865,775169.858,2269.060,EDGE CONC
5312,26716971.762,775179.857,2269.137,EDGE CONC
5313,26716968.058,775176.917,2268.087,GRATE INLET EDGE
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5318,26716993.324,775159.424,2271.117,TOP
5319,26716990.452,775266.952,2264.212,EDGE ASPHALT
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5371,26716826.630,775363.012,2261.245,TOP
5372,26716829.816,775325.748,2262.106,TOP
5373,26716834.532,775298.148,2262.633,TOP
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5407,26716943.247,775295.859,2263.693,TOP
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5409,26716990.087,775278.842,2263.423,TOP
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6295,26734557.832,807886.404,1771.232,TOE
6296,26734573.053,807879.329,1771.414,TOE
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6326,26734582.914,807830.878,1778.136,TOP
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6328,26734543.619,807824.262,1778.492,GUY ANCHOR
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7119,26734421.700,808596.285,1763.306,TOP RIP RAP
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CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT



# OPERATIONS AND MAINTENANCE MANUAL

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# CLARK COUNTY
# REGIONAL FLOOD CONTROL DISTRICT

# OPERATIONS AND MAINTENANCE MANUAL

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*The Operations and Maintenance Manual has been updated in accordance with Regional Flood Control District Board action on December 9, 1999. The Board adopted amendments to Sections 2.50, 3.20, 4.11, 4.22, 4.25, 4.34, added Chapter 5, updated forms and charts, and added sample forms.*

# OPERATION AND MAINTENANCE PLAN

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT
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## CHAPTER 1
## EXECUTIVE SUMMARY

### 1.10 EXECUTIVE SUMMARY

The Clark County Regional Flood Control District (District) was created under NRS 543 with responsibility to plan, construct and maintain drainage and flood control facilities throughout Clark County. In order to comply with NRS 543.340(4), this Operations and Maintenance Manual has been prepared through the cooperation and support of all of the affected Entities in the County. The document sets forth both policies and procedures by which the maintenance of the drainage and flood control facilities will be achieved to assure their proper working order at the time of need. The overall goal of the maintenance program as adopted by the District Board is as follows:

> COMPLY WITH THE PROVISIONS OF NRS 543.340(4) AND ASSURE THAT FACILITIES IN THE MASTER PLAN ARE MAINTAINED IN A MANNER THAT MAXIMIZES THEIR USEFUL LIFE AND ENSURES THEIR OPERATION AT DESIGN CAPACITY DURING A STORM EVENT.

Ten policy statements were also adopted supporting the above goal.

In order to achieve the goal, and to comply with the adopted policies, the following procedures have been developed in an open and very participatory manner.

**Funding Procedure** - Provides for a means by which the Entities can be reimbursed for activities associated with maintenance of drainage and flood control facilities on the Master Plan provided they meet criteria as set forth in the manual.

**Administrative Procedure** - Provides for establishing standards and levels of service by which maintenance will be achieved. This procedure includes the steps and schedule by which an annual work plan is established and adopted by the District Board. It also provides for the certification of performance by each Entity in accordance with the annual interlocal contract. The ability for the Entity to contract maintenance activities to private contractors is also authorized under this procedure.

**Inventory Procedures** - A critical element of any maintenance program is the identification and condition of the overall drainage and flood control system. In the case of this program, the inventory also identifies those facilities that are "eligible" for reimbursement of maintenance activities, provided the work is a part of the annual plan. Facilities eligible are those identified in the Regional Flood Control District's Master Plan and any revisions, amendments, and/or changes subsequently approved. Only those facilities that exist as Master Plan facilities, or exist in the same alignment as a proposed Master Plan facility and appurtenant facilities are eligible.

Maintenance is an ongoing and very dynamic function of a successful drainage and flood control program. This Operations and Maintenance Manual sets forth an initial set of policies and procedures, including the various actions required to achieve the maintenance goal. The manual will need to be updated on a regular basis to reflect fiscal implications and the experience gained as the District continuous to grow and to serve the citizens and taxpayers of Clark County.

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## CHAPTER 2
## INTRODUCTION

### 2.10 BACKGROUND

The Clark County Regional Flood Control District (District) was established in 1986 to plan, construct, and maintain drainage and flood control facilities. These responsibilities focused on alleviating the potential for flooding and protecting the lives and property of District residents. The initial phases of the District's program succeeded in preparing a Master Plan, uniform design criteria, regulatory standards, and constructing facilities. As these areas have progressed, the District, along with other agencies and Entities in the County, has oriented its efforts towards assuring adequate maintenance of flood control facilities and conveyance systems. This orientation is consistent with the vital role maintenance plays in all comprehensive flood control programs. This Operations and Maintenance Manual has been prepared through the District with the support and cooperation of each affected Entity. It represents a commitment to uniform flood control system standards and establishes a blueprint for a cost effective and consistent maintenance program throughout the District.

### 2.20 AUTHORITY

Nevada Revised Statute (NRS) 543 mandates that the District shall undertake programs for both construction and maintenance of flood control facilities. A commitment to building and maintaining flood control facilities within Clark County is reiterated in the District's Uniform Regulations for the Control of Drainage which states that capital improvements, operation, and maintenance are all interrelated parts of the District's overall flood control program. In accordance with NRS 543.340(4) and the Uniform Regulations, the District authorized URS Consultants to prepare a specific Operations and Maintenance Manual, which was adopted by the District Board on November 8, 1990. To reflect fiscal implications and experience gained, the manual was updated in 1995 and 1999.

### 2.30 RESPONSIBILITY

The District was formed, in part, to fund and coordinate the construction and maintenance of facilities to alleviate flooding and protect the life and property of citizens within the boundaries of the District. It is the responsibility of the District to prepare and update the Master Plan for the control of floods, and manage the Regional Fund for the Control of Floods in a manner consistent with NRS 543.

## 2.40 APPROACH

The maintenance program must assure that the flood control projects funded by the District are maintained at a level which maximizes their useful life and assures that facilities operate to design capacity. As an interconnected network of conveyances and structures, failure of any flood control facility to operate properly may affect the performance of the overall system within a specific watershed.

Flood control facilities require regular maintenance if they are to be functional, visually attractive, and last through their design life. Accordingly, the development of a maintenance program is just as critical to the overall success of a comprehensive flood control effort as basin planning and regulation enforcement. As stormwater and flood control programs begin to address nonpoint pollution/water quality issues, the maintenance program will play an even greater role by enabling cost effective reductions in pollutant loadings to receiving waters. Finally, visibility of the program to the public, which a comprehensive maintenance program affords, is an important factor in demonstrating that flood control management is truly a full-time commitment and not simply a priority only after a storm event. The primary objectives of the District's maintenance program are:

- To develop a complete physical feature inventory for the system.
- To establish overall policies and levels of service.
- To develop operating procedures.

It is also critical that ongoing inspection and reporting procedures continue to assure all systems are ready when needed.

Due to the multiple jurisdictions involved with maintenance of the flood control system, a commitment to this program from all Entities within the Flood Control District was essential. This commitment was made through the Maintenance Technical Committee during the development of the manual in 1990. It was also recognized that coordination of this maintenance program with state transportation programs was critical. The level and consistency of the long range commitment has a direct impact on how effective the resulting maintenance system becomes. This commitment begins with a credible Operations and Maintenance Manual.

An essential building block for a successful flood control maintenance program in Clark County is a complete physical feature inventory of the system. It is also important to note that no maintenance program is ever truly "complete". Rather, these programs are constantly evolving as inventories are defined and standards/costs are further refined. A similar evolution is anticipated for this program. The flexibility to adjust to this evolutionary process has been built into this manual.

## 2.50 DEFINITIONS

In addition to the definitions of terms and phrases set forth in other District documents, the following apply to operation and maintenance:

**Acceptance for Maintenance:** "Acceptance for Maintenance" means that a project funded by the District, Entity, or other public/private funds is a part of the Master Plan and has been constructed in accordance with District standards and therefore eligible for maintenance funding by the District.

**Annual Budget:** "Annual Budget" means the anticipated costs associated with completion of each activity outlined within the annual work plan submitted by each of the Entities, and ultimately approved by the District Board of Directors prior to the start of each fiscal year.

**Annual Work Plan:** "Annual Work Plan" means a plan submitted by each of the Entities setting forth the type and quantity of maintenance to be performed during the ensuing budget year in a form prescribed by the District specifically requesting funds for budgeting purposes.

**Certification:** "Certification" means the documentation which evidences that required maintenance by an Entity has been completed in accordance with established standards.

**Maintenance Program:** The "Maintenance Program" has been established by the Board to provide funding of, and establish performance standards and guidelines for, the maintenance of flood control facilities located throughout Clark County and the incorporated areas. The Program provides funding to entities to perform maintenance of eligible flood control facilities. Projects eligible for District maintenance funding are those identified in the Regional Flood Control District's Master Plan and any revisions, amendments, and/or changes subsequently approved. Only those facilities that exist as Master Plan Facilities or exist in the same alignment as a proposed Master Plan facility, and appurtenant facilities are eligible. Subsequently, the District works with the entities annually to develop Maintenance Work Plans. The work plans undertaken through the Maintenance Program and budgets are funded through the annual interlocal contracts between each Entity and the District. No matching funds are required, except in those cases where an arrangement has been made to cooperatively fund a particular field activity. Work is performed using a combination of private contractors and entity maintenance staff. The Maintenance Program contains three broad categories of work:

1. Routine and/or Preventive Maintenance: "Routine and/or Preventive Maintenance" means work on existing facilities to keep them in proper working condition, including but not limited to, debris/sedimentation removal, vegetative control, and reshaping.

2. Restoration: "Restoration" means the repair to existing facilities after a storm event including erosion repair, fence replacement, repairing/replacing trash racks, inlets, storm sewer systems, major debris removal and similar "one time" work activity.

3. Rehabilitation: "Rehabilitation" means rebuilding a facility and/or conveyance system after it is destroyed by an event or it has been determined that it is not operating according to the intent of the design documents on file at the District causing a safety or maintenance problem or it has deteriorated to the extent that it must be replaced "in kind" including replacing or modifying drop structures, reshaping channels, bank protection restoration, inlets etc. In general, the rehabilitative projects are designed by consultants and the construction contracts are awarded through a bid process.

**Maintenance Program Exclusions:** "Exclusions" typically include local drainageway maintenance such as curb and gutter work, inlet maintenance, and repairs to small piped storm sewer systems, unless otherwise constructed as part of a regional facility. Maintenance work exclusions also include repair or replacement of existing flood control Master Plan facilities which undergo catastrophic damage of more than one-half (½) mile. These types of catastrophic damages will generally be classified as capital improvements, and requests for capital improvement funds must be reprogrammed as a capital improvement project in accordance with District Policies and Procedures.

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## CHAPTER 3
## POLICY STATEMENT

It is important that a maintenance policy statement be adopted which reflects the objectives of both the elected officials and the operations staff charged with its implementation. The initial policy document was prepared and reviewed by District staff and the Maintenance Committee. Following input from the group, it was reviewed by the respective Public Works Directors of all Entities and further revised to reflect their input. The document was then reviewed by the Technical Advisory Committee (TAC) and the Citizens Advisory Committee (CAC) before final adoption by the Board on November 8, 1990. The final adopted policy statement is as follows:

### 3.10 GOAL

Comply with the provisions of NRS 543.340 (4) and assure that facilities in the Master Plan are maintained in a manner that maximizes their useful life and ensures their operation at design capacity during a storm event.

### 3.20 POLICIES

1. Flood control facilities identified in the Master Plan are eligible for District maintenance funding.

2. As specified in the Uniform Regulations for the Control of Drainage Section 12.050, facilities funded through the District shall be inspected on an annual basis to assure proper maintenance has been provided.

3. In cases where funded maintenance by the lead Entity is not performed to the standards specified, the District shall perform or cause to be performed the maintenance necessary to assure proper operations of the facility. Costs incurred by the District shall be deducted from the amount authorized in the maintenance agreement between the lead Entity and the District.

4. Flood control facilities improved or constructed after adoption of this policy, must be designed in accordance with District criteria and standards to be eligible for maintenance funding.

5. Access to the facility must be guaranteed to the lead Entity and the District in order to be eligible for maintenance funding.

6. The maintenance requirements applied to these facilities shall be based on the standards contained in the District's Operations and Maintenance Manual.

7. The lead Entity must develop an annual work plan to be eligible for maintenance funds. Upon completion of the work, the Entity must certify that the work was completed in accordance with the standards contained in the District's Operations and Maintenance Manual.

8. Maintenance funding is available only for repair, restoration, rehabilitation, or maintenance of existing facilities and is not intended to supplement the District's capital improvement program. For example, if the intent of the field activity is to increase the designed capacity of a facility or conveyance, then that function is capital in nature.

9. Expenditures for repair and replacement of existing flood control Master Plan facilities which undergo catastrophic damage of one-half (½) mile or less will be classified as maintenance. These expenditures will be made from funds budgeted in the Facilities Maintenance Fund.

10. Expenditures for repair and replacement of existing flood control Master Plan facilities which undergo catastrophic damage of more than one-half (½) mile will generally be classified as capital improvements. Requests for capital improvement funds must be reprogrammed as a capital improvement project in accordance with District Policies and Procedures.

11. Expenditures for removal of debris and sediment captured or deposited in a debris basin, detention basin or a linear flood control facility will be classified as maintenance. Necessary repairs to a debris or detention basin will also be classified as maintenance. These expenditures will be made from funds budgeted in the Facilities Maintenance Fund.

12. Expenditures for repair and replacement of non-improved or "earth lined" flood control facilities and features will be classified as maintenance. These expenditures will be made from funds budgeted in the Facilities Maintenance Fund.

13. An entity may consider another option in lieu of repairing or rehabilitating facilities that have not been improved to Master Plan design specifications. This option is to build/implement the long-term solution for the damaged facility. Expediting the implementation of the Master Plan may be a viable alternative that maximizes the use of available resources. This should be considered as an alternative if the long-term solution

can be implemented in a timely manner. Requests for capital improvement funds to implement a Master Plan project must be reprogrammed as a capital improvement project in accordance with District Policies and Procedures.

14. All facilities eligible for maintenance funding must be publicly owned.

15. Funds may be provided by the District for maintenance of Master Plan facilities by outside contractors under conditions when the use of such an approach is deemed the most efficient and cost effective by the lead Entity.

16. Bridge structures, generally speaking, are not eligible for District funding unless it can be shown that the flood carrying aspects of the regional facility causes a safety or maintenance problem.

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT
# OPERATIONS AND MAINTENANCE MANUAL

## CHAPTER 4
## PROCEDURES

### 4.10 FUNDING PROCEDURES

### 4.11 Purpose

This element of the Operations and Maintenance Manual provides the Entities with procedures for the appropriation, expenditure and reimbursement of funds to perform maintenance activities. A principle role of the District shall be to manage and disburse payments to the Entities for maintenance that is performed in compliance with the approved plans. A diagram of the funding flow is shown on **Figure 4-1**.

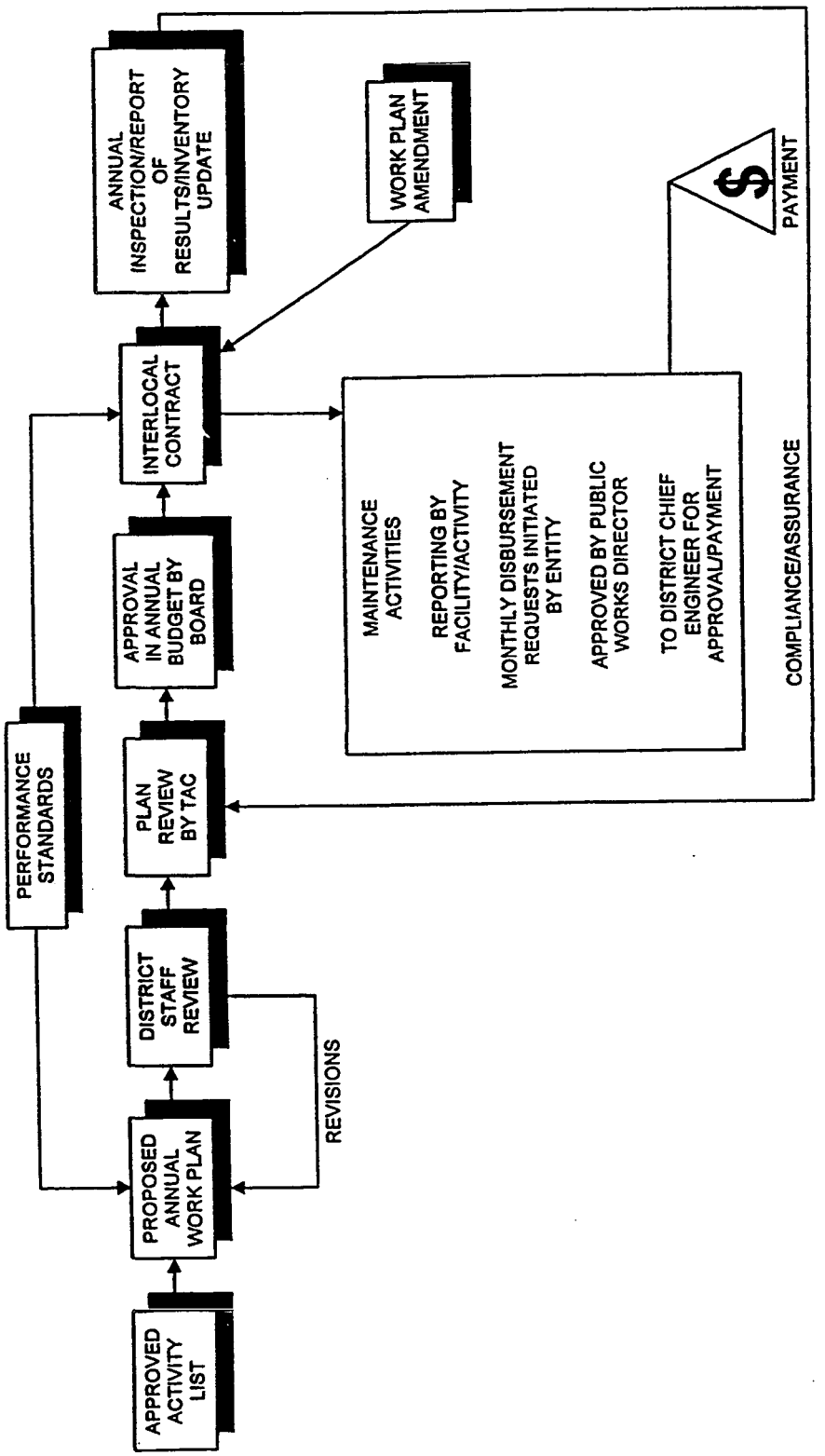
The District has authorized funding to assist the Entities with major drainageway maintenance in accordance with the priorities listed below:

- First priority: District owned facilities.
- Second priority: Facilities owned by other public agencies, but totally or partly financed by District funds. (Capital Improvement and Maintenance Project)
- Third priority: Facilities owned by others and constructed by others without District assistance.
- Fourth priority: Unimproved drainageways.

### 4.12 Payment Procedures

Payment for work performed will be made in accordance with the annual interlocal contract executed as part of the approved work plan and the payment procedures outlined herein. The primary mechanism for reimbursements shall occur through a purchase order established between the District and each Entity. In cases where the Entity directs the District to make payments to a contractor or supplier directly, the purchase orders will be established between the District and the contractor, consultant, or supplier, at the Entity's request. Unless otherwise contained within this manual, all District Policies and Procedures relating to disbursement of funds and reimbursement to Entities apply.

## Figure 4-1 Funding Flow Diagram



Schedule

Disbursement requests (invoices) from each Entity may only be submitted for completed work activity and may not be submitted more than once in a 30-day period. Disbursement requests must be accompanied by a verification statement from the Entity that the work for which payment is due has been completed in accordance with the standards contained in this manual. The disbursement request must identify the Master Plan facility maintained, specific plan activity or activities for which reimbursement is sought, and separately identify personnel, equipment, and other related costs. (**Figure 4-2** represents a sample of the reporting required, and can be obtained on diskette from the District.) Administrative costs incurred by the Entity in the management of the interlocal contract are not reimbursable. Examples include cost accounting work, secretarial/clerical work, the preparation of requests for payment, and certification statements for work performed under the contract.

All invoices from the Entities requesting reimbursement to the Entity or direct payment to the Entity contractor or vendor must first be submitted to and approved by the Entity's Public Works Director or other designated responsible person in charge of the project. The Chief Engineer or designated District staff will process and approve such payments within 30 days providing the required approval has been obtained and terms of the interlocal contract have been satisfied.

Direct payments to contractors must originate from the Entity and include the following:

1. Invoice to the Entity from the contractor.
2. Certification of work performed by the contractor signed by the Entity, if applicable.
3. Disbursement Request Form (**Figure 4-2**).

Reporting

Monthly and annual summaries of purchase order balances, budget status, and facility expenditures shall be prepared by the District as a part of the routine financial reporting procedures to the Board.

## REGIONAL FLOOD CONTROL DISTRICT

### MAINTENANCE WORK PROGRAM - FISCAL YEAR 20XX-XX

ENTITY: _____

[ ] Disbursement Request

Vendor Name: _____

Invoice Number: _____

Amount Requested: _____

RFCD Purchase Order #:

[ ] Amended Annual Budget Request

Approved: _____

General Manager/Chief Engineer Date

Clark County Regional Flood Control District

| MWP Facility #: | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Facility Name: | | | | | | | | | | | |
| Master Plan Facility ID: | | | | | | | | | | | ACTIVITY TOTAL |
| 05-Chnl Insp | | | | | | | | | | | 0.00 |
| 10-Reshape Chnl | | | | | | | | | | | 0.00 |
| 15-Chnl Repair | | | | | | | | | | | 0.00 |
| 20-Erosion Control | | | | | | | | | | | 0.00 |
| 25-Clean DB | | | | | | | | | | | 0.00 |
| 30-Erosion Repair | | | | | | | | | | | 0.00 |
| 35-Fence Repair | | | | | | | | | | | 0.00 |
| 40-Vege Control - C | | | | | | | | | | | 0.00 |
| 45-Vege Control - M | | | | | | | | | | | 0.00 |
| 50-Access Rd | | | | | | | | | | | 0.00 |
| 55-Clean In/Outlet | | | | | | | | | | | 0.00 |
| 60-Repair In/Out | | | | | | | | | | | 0.00 |
| 65-Clean Storm Drn | | | | | | | | | | | 0.00 |
| 70-Sewer Repair | | | | | | | | | | | 0.00 |
| 75-Clean Culverts | | | | | | | | | | | 0.00 |
| 80-Misc Maint | | | | | | | | | | | 0.00 |
| 85-Engr | | | | | | | | | | | 0.00 |
| Facility Total | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

I certify that the above described maintenance was/will be performed in accordance with the criteria/standards contained in the District's Operations and Maintenance Manual. Further, the information contained in this Request accurately reflects those costs incurred/to be incurred during the performance of this work.

Project Manager Date

Figure 4-2 Disbursement / Amended Budget Request

# 4.20 ADMINISTRATIVE PROCEDURES

## 4.21 Purpose

The purpose of this element of the Operations and Maintenance Manual is to provide specific procedures for establishing standards and levels of service, preparing the annual work plan, administrating the planning, approval and enforcement elements, and updating the manual over time. The principal role of the District shall be to review and approve annual maintenance work plans and monitor the performance of work activities. The principal role of the Entities shall be development of annual work plans that are consistent with the District's approved maintenance activity list; performance of the maintenance work set forth in the approved work plans; and the submittal of quarterly reports that summarize work performance while certifying compliance with maintenance activity performance standards as set forth in the Operations and Maintenance Manual.

## 4.22 Annual Work Plans

In accordance with the schedule on the following page, each Entity shall submit a proposed annual maintenance work plan containing the following components:

| | |
|---|---|
| Section 1: | Program Summary by Maintenance Project Including Cost for Each Project |
| Section 2: | Summary by Maintenance Activity |
| Section 3: | Individual Maintenance Projects Showing Narrative, Location Map, Work Activities, Results, Costs |

District staff shall review the proposed plans and work with the Entities to resolve any discrepancies found with District maintenance standards and policy objectives. After the initial staff review, the plans shall be forwarded to the Technical Advisory Committee. Lastly, the plans will be incorporated in the annual District budget and submitted to the Board for final approval.

The activities in the work plan shall be consistent with the District's approved activity list for maintenance of flood control and drainage facilities. Work plans should also describe locally funded work activities that may be linked to the District maintenance work activities to show overlapping areas of responsibility for personnel and equipment. Where local personnel and equipment are going to be used to perform both District funded activities and locally funded activities, the Entity will describe how these resources are to be managed and the procedures for tracking costs related to both sets of activities.

Entities may contract for the performance of maintenance work activities. The proposed work plan must specify that a contractor is to be utilized and the time frame for selection of a contractor. In the event that maintenance work is performed under contract, the contract must specify that the District has the authority to inspect all work performed under the contract and approve or deny payments to contractors based on inspection findings.

All work performed must comply with District approved maintenance activity performance standards as set forth in subsequent sections of this Manual. The Entity is required to inspect Master Plan facilities annually, including any maintenance work performed by Entities on Master Plan Facilities, and shall notify the District prior to the annual inspection of completed maintenance work. Entities shall facilitate the inspection of maintenance work by the District. The District may withhold funding, require additional maintenance work, or seek repayment of disbursed funds when an inspection reveals that work activities were not performed in conformance with activity performance standards.

Schedule

| | | |
|---|---|---|
| February 1 | - | Submittal of preliminary work plan proposal and tentative budget to District staff for review, recommendations, and coordination with entities. This is important for the following reasons:<br>1) Fiscal Year Budget Authority submittal and approval.<br>2) Prioritization of maintenance funding activities. |
| April 1 | - | Submittal of tentative annual work plans, budgets, and interlocal contracts to District staff for review, recommendations, and coordination with entities. |
| May<br>(TAC deadline) | - | Submittal of the Entities' final annual work plans, budgets, and interlocal contracts to the TAC and CAC for approval. |
| June | - | After receiving approval from the TAC and CAC, entities' final annual work plans, budgets, and interlocal contracts are submitted to the Board for approval. |
| July 1 | - | Beginning of maintenance plan contract period, which ends June 30. |

## Reporting

Each Entity will submit quarterly reports indicating the status of the work completed under the current fiscal year's program (**Figure 4-3**). The reports are due 30 days after the close of the quarter, and will be submitted to the Board for review. Also, each Entity shall submit an annual certification to the District stating that all work contained in the work plan and reimbursed through the interlocal contract has been performed to the specifications established in this manual.

## Figure 4-3 Quarterly Status Report

**REGIONAL FLOOD CONTROL DISTRICT**
**MAINTENANCE WORK PROGRAM**
**QUARTERLY STATUS REPORT - FY 20XX-XX**

MWP Facility #: _____ Entity: _____
Facility Name: _____ Date Prepared: _____
MP Facility ID: _____ Quarter: _____

| Force Account/ Contract | Activity | Approved Work Plan Amount ($) | Amended Work Plan Amount ($) | Expended To Date ($) | Percent Complete | Scheduled Completion Date |
|---|---|---|---|---|---|---|
| | 5 Inspect Channels | | | | | |
| | 10 Clean and Reshape Channels | | | | | |
| | 15 Repair Lined Channel | | | | | |
| | 20 Provide/Maintain Erosion Control | | | | | |
| | 25 Clean & Inspect Detention Debris Basins | | | | | |
| | 30 Erosion Repair | | | | | |
| | 35 Fence Repair | | | | | |
| | 40 Vegetation Control - Chemical | | | | | |
| | 45 Vegetation Control - Mechanical | | | | | |
| | 50 Maintain Access Road | | | | | |
| | 55 Clean & Inspect Inlet/Outlet Structures | | | | | |
| | 60 Repair Inlet/Outlet Structures | | | | | |
| | 65 Clean Storm Sewer Lines | | | | | |
| | 70 Storm Sewer Repair | | | | | |
| | 75 Clean/Flush Culverts & Bridges | | | | | |
| | 80 Miscellaneous Work Activities | | | | | |
| | 85 Engineering | | | | | |
| | **TOTALS** | $0.00 | $0.00 | $0.00 | 0% | |

**Delays or problem areas:**

**Work completed during current quarter:**

**Work to be completed during next quarter:**

Consultant/ Contractor: _____
Project Manager: _____ Phone Number: _____

Schedule

Amendment requests shall be reviewed by District staff and responded to in writing within 15 days of receipt of the original request. Work plan amendments which require an increase in the Entity's annual budget will require submittal of an agenda item and supplemental interlocal contract for approval by the District Board of Directors.

Reporting

Annual certification of results will include addressing all amendments made to the annual work plan.

## 4.25 Certification of Compliance

It is the intent of the District to rely to the maximum extent possible on the Entities to carry out the maintenance activities and comply "voluntarily" with the procedures and standards set forth in this manual. The District shall from time to time inspect facilities funded by the District or those on the Master Plan to assure compliance with the interlocal contract. Each Entity shall submit an annual certification to the District stating that all work contained in the work plan and reimbursed through the interlocal contract has been performed to the specifications established in this manual. This certification shall be signed by the person executing the interlocal contract or designee. The certification should summarize proposed and actual plan accomplishments. It should also describe any major maintenance problems that have implications for the District as a whole, such as significant deterioration of major conveyance system components or the failure of system components to perform as intended, and suggest revisions to the activity list provisions.

Schedule

The certification and final payment requests shall be submitted to the District within 30 calendar days of the termination of the annual interlocal contract for maintenance funding.

Reporting

The certification shall be attested to on the Final Accounting Report (**Figure 4-4**), and an attachment may be used to describe additional pertinent information.

## Figure 4-4 Final Accounting Report

(ENTITY)
MAINTENANCE WORK PROGRAM
FINAL ACCOUNTING REPORT - FY 20XX-XX
As of (Current Date)

| VENDOR | P.O. NUMBER | P.O. AMOUNT | TOTAL EXPENDED | P.O. BALANCE |
|---|---|---|---|---|
| Sample Vendor 1 | 123456 01 | 1,000.00 | 1,000.00 | 0.00 |
| Sample Vendor 2 | 123456 02 | 1,000.00 | 500.00 | 500.00 |
| Sample Vendor 3 | 123456 03 | 1,000.00 | 200.00 | 800.00 |
| | Total | $3,000 | $1,700 | $1,300 |

| | | | |
|---|---|---|---|
| FY XX-XX INTERLOCAL AMOUNT/BUDGET | 4,000.00 | Total Encumbered | 3,000.00 |
| Total Encumbered | 3,000.00 | Total Expended | 1,700.00 |
| Total Unencumbered | $1,000.00 | Total Unexpended | $1,300.00 |

| | |
|---|---|
| **Total Authorized** | **$4,000.00** |
| **Expended** | **$1,700.00** |
| **RETURN TO FUND 286** | **$2,300.00** |

**Regional Flood Control District** **(Entity)**

RFCD Date Project Manager Date

I certify that the above described maintenance was performed in accordance with the criteria/standards contained in the District's Operations and Maintenance Manual. Further, the information contained in this Final Accounting Report accurately reflects those costs incurred during the performance of this work. If there are any maintenance problems that have implications for the District as a whole, such as significant deterioration of major conveyence system components or failure of system components to perform as intended, a detailed description will accompany this report as an attachment.

## 4.26 Interlocal Contract Document

The performance of work outlined in the approved maintenance plan shall be guided by an interlocal contract entered into annually between the District and each Entity. Sample contracts are contained in **Appendices B and C**. Major provisions of the contract include: the adoption of the Board approved work plan as the document outlining the work to be performed; references to the performance standards, reimbursement and payment procedures, and plan amendment procedures outlined in this manual for governing maintenance work performance evaluations, and contract amendments; and a requirement for submittal of an annual certification of results.

Schedule

All Entities will enter into an "annual" interlocal contract in conjunction with adoption of the District and respective Entity budgets.

Reporting

Reporting requirements will be as prescribed in the respective interlocal contracts.

## 4.27 Contract for Maintenance Performance

If, in the opinion of the Entity, it appears to be most cost effective (or due to an emergency) to utilize the services of private contractors to perform maintenance functions, the Entity shall solicit bids from qualified contractors in compliance with their statutory procedures for the necessary work. The Entity will provide the District with copies of bid specifications and bid tabulations as well as copies of the respective contract documents. All expenditures must comply with NRS 332, Local Government Purchasing Act, NRS 338, the Public Works Act, and all relevant statutes, rules, regulations, and policies.

Schedule

All contracts for maintenance services shall be bid on an annual basis or for a specific project location.

Reporting

The Entity shall advise the District in advance that they intend to utilize a private contractor (may be included as part of annual work plan). They shall also provide a summary of work performed and a statement of inspection as part of the request for reimbursement to the Entity or directly by the District to the contractor.

## 4.30 MAINTENANCE PROCEDURES

### 4.31 Purpose

As a part of the overall operations and maintenance procedures adopted by the District, an outline for specific maintenance procedures has been developed. The accepted maintenance procedures are centered around specific elements of a management system for field maintenance, and include defined maintenance activities, standards, scheduling, and reporting procedures.

Due to the diversity in physical features among the various agencies involved, and the varied resources employed in maintenance activities, it is essential to treat these procedures as general guidelines which must be tailored to meet the situation at hand. It is also essential that these procedures remain dynamic, be actively reviewed, and periodically updated. An annual review is recommended.

### 4.32 Activities

Maintenance work activities identify all major maintenance work and include all activities which are performed frequently and in amounts that make them a significant part of the total work program. Each activity must be clearly defined so maintenance personnel at all levels of management uniformly understand the operation to be performed and the type of deficiency to be corrected.

Personnel who plan, schedule, perform, report, or evaluate maintenance work must know what each work activity means. Work activities are used for the following purposes:

- Planned maintenance work is identified in the annual maintenance work plan by activity name and number.
- Activity names and numbers are used for authorizing, assigning, and reporting work.
- Activity names and numbers are used on work scheduling guides and work performance summaries.

Work measurement units are established for the major maintenance activities. For example, "Acres Covered" is the work measurement unit for vegetation control while "Cubic Yards Removed" is the work unit for cleaning and reshaping channels. These measurement units are used to describe how much work is planned and to report how much work is accomplished for each activity.

For some activities, specific work measurement units--other than labor hours--would not be meaningful. For example, the miscellaneous maintenance activity includes a number of different operations. This activity cannot be measured by a common unit other than labor hours.

Following is the accepted maintenance Activity List for the District including work measure units.

| ACTIVITY NUMBER | ACTIVITY NAME | WORK MEASURE UNIT |
|---|---|---|
| 05 | Inspect Channels | Miles |
| 10 | Clean and Reshape Channels | Cubic Yards |
| 15 | Repair Lined Channel | Each |
| 20 | Provide/Maintain Erosion Control | Square Feet |
| 25 | Clean and Inspect Detention/Debris Basins | Cubic Yards |
| 30 | Erosion Repair | Cubic Yards |
| 35 | Fence Repair | Linear Feet |
| 40 | Vegetation Control - Chemical | Acres |
| 45 | Vegetation Control - Mechanical | Acres |
| 50 | Maintain Access Road | Miles |
| 55 | Clean and Inspect Inlet/Outlet Structures | Each |
| 60 | Repair Inlet/Outlet Structures | Each |
| 65 | Clean Storm Sewer Lines | Linear Feet |
| 70 | Storm Sewer Repair | Repairs |
| 75 | Clean/Flush Culverts & Bridges | Each |
| 80 | Miscellaneous Work Activities | Labor Hours |
| 85 | Engineering | Labor Hours |

## 4.33 Standards

"Performance Standards" have been established for each of the major maintenance work activities. These performance standards specify:

- The most effective crew size.
- The kinds and number of equipment required.
- The major types of material that should be used.
- Recommended procedures for performing the work.
- An estimate of expected average daily accomplishment with standard crew size, equipment and procedures.
- Authorization and scheduling criteria.

Following is an item-by-item description of the format of the performance standards.

1. Activity Identification/Date. The activity number and name are shown as well as the "effective date" of the performance standard--to be used when updating or replacing performance standards.

2. Description and Purpose. The Description and Purpose section of the performance standards explains the work activity and the kinds of defects to be corrected or reasons for doing the work.

3. Authorized By and Work Control Category. The level of management responsible for authorizing the work is identified. Certain activities requiring special equipment, coordination, or expertise are Engineer-authorized activities and should not be scheduled or performed without the Engineer's approval. The type of control to be placed on the quantity of work performed is identified. This control is unlimited or limited in terms of the amount of work done (accomplishment) or the amount of labor input (crew-day).

4. Performance Criteria. This section includes important information for the "scheduler" about when to schedule the work and for the crew leader to identify the work to be done.

5. Crew Size. The crew size outlines the numbers of personnel needed to do the work. The crew size is based on average conditions. Sometimes, there will be a need to add or delete people to satisfy special traffic safety conditions or hauling requirements.

6. Equipment. The basic requirements for major pieces of equipment are listed. Situations such as the breakdown or unavailability of equipment or special materials hauling requirements may require the addition, deletion or substitution of equipment.

7. Materials. The materials section includes a list of the major materials to be used for the activity.

8. Work Method. The work method outlines, step-by-step, the recommended procedures for performing the work. Each step should be performed in order to correctly maintain the feature as well as provide the quality of work desired.

9. Average Daily Production. The average daily production is an estimate of the amount of work a crew can accomplish during a day using the recommended crew size, equipment, materials and work method. This estimate is shown as a range and should be attainable over a period of time. Some days the accomplishment may be more or less than the estimate, but eventually, the average should fall in line.

10. Notes. Any other relevant, helpful information or instructions.

Use of Performance Standards

Maintenance supervisory personnel should become thoroughly familiar with these performance standards. It is important that the performance standards be used when making assignments and performing work. Some situations will require deviation from the performance standards--such as more or less flagmen or additional haul trucks. These situations are recognized, and crew leaders are expected to consider such situations when organizing and managing their activities.

Haul truck needs should be determined using factors such as haul distance and time estimates (spot, dump, load, and cycle times.)

The performance standards also provide guidance and a measure for supervisors to use when evaluating work in progress and completed.

Field personnel are in the best position to identify new or better work methods or difficulties with the current performance standards. These suggestions for improvements or questions should be directed to the crew leader or supervisor.

The performance standards should be reviewed and updated annually. If other changes occur that require more frequent review and update or development, the performance standards can be changed to suit these needs.

## 4.34 Scheduling

The objectives of work scheduling are:

- To do the planned amount of work.
- To perform the work when it should be done.
- To do the work where it should be done.
- To use the proper people, equipment and supplies to do the work.
- To ensure to the extent possible that all flood control facilities are functioning at design capacity during a storm event, noting that Flash Flood Season is July through September.

Three tools are available to help supervisors meet these objectives. The WORK PROGRAM defines the estimated amount of work and the estimated labor-days required for each activity to provide the desired levels of service; a WORK CALENDAR helps to establish when the various activities should be done; and the PERFORMANCE STANDARDS provide information about quantity standards, personnel requirements and how much work can be done in a given time.

The annual work program establishes the kinds and amount of work to be done during the year and the resources that will be required to do that work. This annual plan needs to be broken into a monthly plan for effective scheduling of work and to permit timely evaluations of work program performance.

The process of "distributing" the annual work load throughout the year is done by allocating a part of the work (in labor-hours, by activity) to specific months. Some types of work -- emergency or service activities -- must be done throughout the year as the need arises. Other types of work must be done on a regularly scheduled basis -- such as preventive maintenance work. Finally, some types of work can be done during certain periods but can be shifted from one month to the other, and still other work can be done almost any time during the year.

These factors must be considered when distributing the different types of work. Preventive maintenance and other types of work which must be performed on a regularly scheduled basis are distributed so as to level labor power needs as much as possible. Finally, work which can be performed any time is distributed to those months with the fewest labor-days. In this way, staffing needs are kept as uniform as possible resulting in more efficient use of available labor power.

A work calendar lists -- activity by activity -- the labor-hours for each month. These labor-hours are used in conjunction with the work program annual work quantities for work scheduling and

the preparation of periodic Activity Status Reports. A sample work calendar is included in **Figure 4-5**.

Once the work program and staffing levels have been set, the work load distribution can be finalized and the calendar prepared to summarize/communicate the planned monthly distribution of the work program.

Work scheduling is the process of using the Work Calendar and specific scheduling procedures to plan ahead, establish work priorities and accomplish the work.

The performance standards outlined in the previous sections apply to corrective and preventive maintenance activities. These procedures are not as rigid or foolproof as implied by the description. Equipment breakdowns, emergencies, or bad weather will disrupt a schedule -- but part of the scheduling process is to be aware that these situations will occur and to be prepared to respond with little or no difficulty. Because of these situations, supervisors should not expect to accomplish all of the work as scheduled. Generally, a supervisor can consider his scheduling efforts to be successful if 75 to 80 percent of the scheduled work is completed as planned.

# REGIONAL FLOOD CONTROL DISTRICT
## MAINTENANCE WORK PROGRAM
## WORK CALENDAR

MWP Facility #: _____ Entity: _____
Facility Name: _____ Fiscal Year: _____
MP Facility ID: _____ Date Prepared: _____

| ACTIVITY No. | Description | Monthly Distribution of Time (in hours) JUL | AUG | SEP | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | Total Per Activity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Inspect Channels | | | | | | | | | | | | | - |
| 10 | Clean and Reshape Channels | | | | | | | | | | | | | - |
| 15 | Repair Lined Channel | | | | | | | | | | | | | - |
| 20 | Provide/Maintain Erosion Control | | | | | | | | | | | | | - |
| 25 | Clean & Inspect Detention/Debris Basins | | | | | | | | | | | | | - |
| 30 | Erosion Repair | | | | | | | | | | | | | - |
| 35 | Fence Repair | | | | | | | | | | | | | - |
| 40 | Vegetation Control - Chemical | | | | | | | | | | | | | - |
| 45 | Vegetation Control - Mechanical | | | | | | | | | | | | | - |
| 50 | Maintain Access Road | | | | | | | | | | | | | - |
| 55 | Clean & Inspect Inlet/Outlet Structures | | | | | | | | | | | | | - |
| 60 | Repair Inlet/Outlet Structures | | | | | | | | | | | | | - |
| 65 | Clean Storm Sewer Lines | | | | | | | | | | | | | - |
| 70 | Storm Sewer Repair | | | | | | | | | | | | | - |
| 75 | Clean/Flush Culverts & Bridges | | | | | | | | | | | | | - |
| 80 | Miscellaneous Work Activities | | | | | | | | | | | | | - |
| 85 | Engineering | | | | | | | | | | | | | - |
| | Total Per Month | - | - | - | - | - | - | - | - | - | - | - | - | - |

I certify that the above described maintenance will be performed in accordance with the criteria/standards contained in the District's Operations and Maintenance Manual. Further the information contained in this Work Calendar accurately reflects the time expected to be incurred during the performance of this work.

_____
Project Manager Date

Figure 4-5 Work Calendar

Following are some additional hints or techniques to consider:

- It is not necessary to "formally schedule" the daily, routine activities. It is necessary, however, to regularly check the work reports and accomplishments to verify the distribution of work assignments. A periodic review and adjustment of the work assignments may be necessary to maintain a "balanced work load."

- It is usually best to prepare a schedule (and work assignments) assuming everything will work as planned -- no equipment breakdowns, no emergencies, etc. But make sure a backlog of "alternate" work is available so that little time is wasted when adjustments to the schedule must be made.

- Some guidelines for identifying alternate work:

  - Low priority work that needs to be done, but not necessarily during the next week or so.

  - Work that does not require special equipment or a lot of preparation time.

  - Preventive maintenance on light equipment.

- Take time to estimate the amount of work needed and the number of hours required to do the work. Good estimates will improve the scheduling process significantly. The performance standards, inspections and sound judgment based on experience all help the estimating process.

PERFORMANCE STANDARD

# CLARK COUNTY
# REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 05 | INSPECT CHANNELS | 12/99 |

DESCRIPTION & PURPOSE

Inspect both improved and unimproved flood channels for proper cross-section, sedimentation, debris and erosion damage, in order to schedule cleaning or repairs as needed.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

PERFORMANCE CRITERIA

Perform complete inspection of channels on an annual basis and after major storm events.

## CREW SIZE

- 1 Crew Supervisor
-
-
- 1 TOTAL

## EQUIPMENT

- 1 Pickup
-
-
-

## WORK METHOD

1. Use safety devices, as required.
2. Visually inspect channels for cross-section, sediment, debris, erosion, and vegetation.
3. Prioritize a list of channels requiring maintenance.
4. Schedule cleaning of channels referring to prioritized list.

## MATERIAL

-
-
-
-

## AVERAGE DAILY PRODUCTION

8 miles/day

NOTES:

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 10 | CLEAN & RESHAPE CHANNELS | 12/99 |

DESCRIPTION & PURPOSE

Mechanical silt, vegetation, and debris removal, and reshaping of unlined channels to restore adequate flow.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

PERFORMANCE CRITERIA

Improved earth channels should be scheduled for cleaning and reprofiling on an annual schedule, or as appropriate following a flood event. Natural channels on a 3-year cycle.

## CREW SIZE

- 2 Equipment Operators
- 1 Truck Driver
- .5 Foreman
- 3.5 TOTAL

## EQUIPMENT

- 1* 10-wheel Dump Truck
- 1 Scraper
- 1 Gradall

## WORK METHOD

1. Set up safety devices as required.
2. Remove silt and vegetation.
3. Load and haul removed material to proper disposal site.
4. Reshape channel.
5. Clean up work site.
6. Remove safety devices.

## MATERIAL

- Disposal Fees

## AVERAGE DAILY PRODUCTION

300 Cubic Yards/day

NOTES:

*Schedule sufficient trucks to insure maximum utilization of excavation equipment.

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 15 | REPAIR LINED CHANNELS | 12/99 |

**DESCRIPTION & PURPOSE**

Repair of damaged concrete, rip rap, gabion, or other channel linings, retaining walls, etc., to restore to original condition and prevent further deterioration.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

**PERFORMANCE CRITERIA**

Repairs of channel linings, retaining walls, and other structures critical to the protection of a facility are to be scheduled immediately upon detection of damage.

## CREW SIZE

- 1 Maintenance Foreman
- 2 Maintenance Workers
-
- 3 TOTAL

## EQUIPMENT

- Pickup
- Flatbed Dump
- Concrete Mixer
-

## WORK METHOD

1. Obtain from storekeeper safety equipment, materials, tools necessary for the day's work.
2. Begin applicable safety procedures and/or traffic control.
3. Clean and prepare damaged area.
4. Build and place forms as necessary.
5. Place and finish concrete.
6. Remove forms and back fill.

## MATERIAL

- Assorted lumber
- 6-30 bags sacked concrete
- 3-15 tons concrete gravel mix
- 2-10 CY ready-mix concrete

## AVERAGE DAILY PRODUCTION

1Each/Day

**NOTES:**

Crew size and equipment may vary significantly depending on urgency, extent and complexity of repair.

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 20 | PROVIDE / MAINTAIN EROSION CONTROL | 12/99 |

DESCRIPTION & PURPOSE

Placement of rip rap, sand bags, or other erosion control materials and repair of damaged areas of erosion protection to restore material to original condition. This work is done to prevent further deterioration and eliminate potential erosion problems.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

PERFORMANCE CRITERIA

Work is to be scheduled when damage or deterioration is severe enough to present potential erosion problems. Erosion undercutting roadways, sidewalks, or prepared embankments/improvements shall be repaired immediately. Repair of undermined stabilizers shall be scheduled immediately.

## CREW SIZE

- 1 Foreman
- 2 Equipment Operators
- 2 Maintenance Workers
- 5 TOTAL

## EQUIPMENT

- 1 Truck Crane
- -or- Backhoe
- 1 Dump Truck
- 1 Pickup

## WORK METHOD

1. Obtain from storekeeper safety equipment, materials and tools necessary for the day's work.
2. Begin applicable safety procedures and/or traffic control.
3. Shape work area to receive riprap, or other erosion control materials.
4. Place material and grout where applicable.
5. Back fill as necessary.

## MATERIAL

- 20-50 Tons Rock for riprap (delivered)
- 5-12 yards ready mix concrete (if needed)
- 5,000-15,000 gal Water

## AVERAGE DAILY PRODUCTION

1300 Square Feet/day

NOTES:

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 30 | EROSION REPAIR | 12/99 |

DESCRIPTION & PURPOSE

The replacement and compaction of material removed by erosion, using hand tools or other methods, to restore Flood Control channels, supporting embankments, levees or access roads.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

PERFORMANCE CRITERIA

As needed when damage has occurred which has affected or will affect the structural integrity of a channel embankment, levee, or access road,at a location where mechanical methods cannot be used.

## CREW SIZE

- 1 Foreman
- 2 Maintenance Workers
- 
- 
- 3 TOTAL

## EQUIPMENT

- 1 1-Ton Dump -or- Flatbed
- 1 Air Compressor w/compactor
- 1 Pickup w/Water Tank
- -or- Auxiliary Spray Truck

## WORK METHOD

1. Obtain from storekeeper safety equipment, materials, and tools necessary for the day's work.
2. Begin applicable safety procedures and/or traffic control.
3. Remove debris and growth from damage location.
4. Haul fill material from pre-determined source.
5. Place and compact fill material in lifts.
6. Shape repair area to conform to adjacent areas.
7. Clean up work area as necessary.

## MATERIAL

- 15-30 Tons Select Fill Material
- 
- 
- 

## AVERAGE DAILY PRODUCTION

15 Cubic Yards

NOTES:

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 35 | FENCE REPAIR | 12/99 |

DESCRIPTION & PURPOSE

The repair and/or re-establishment of downed or damaged fences to restore fence to proper condition and to provide right-of-way control.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

PERFORMANCE CRITERIA

Repair of downed or open fence areas to be performed upon detection. Repairs to damaged locations that remain partially functional are to be scheduled in priority with other work.

## CREW SIZE

- 2 Maintenance Workers
- 2 TOTAL

## EQUIPMENT

- 1 Fence Truck
- 1 Concrete Mixer (if needed)

## WORK METHOD

1. Obtain from storekeeper safety equipment, materials and tools necessary for the day's work.
2. Begin applicable safety procedures and/or traffic control.
3. Perform necessary repairs to:
   - Posts
   - Fabric
   - Top rail

## MATERIAL

- 40-50 Linear Ft Fence Fabric
- Miscellaneous Hardware
- 5 bags "Readycrete"

## AVERAGE DAILY PRODUCTION

100 Linear Feet/day

NOTES:

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 40 | VEGETATION CONTROL - CHEMICAL | 12/99 |

DESCRIPTION & PURPOSE

The application of herbicides, to designated areas, with a boom-mounted spray bar to prevent new growth and/or control existing vegetation, for the purpose of insuring the capacity and integrity of Flood Control facilities.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

PERFORMANCE CRITERIA

Spray pre-emergence herbicide and post-emergence herbicide annually to designated areas combining applications where possible.

## CREW SIZE

- 2 Maintenance Workers
-
-
- 2 TOTAL

## EQUIPMENT

- 1 Truck-mounted chemical tank with spray bar and hand sprayer
-
-

## WORK METHOD

1. Set up safety devices as required.
2. Treat channel areas as required.
3. Remove safety devices.

## MATERIAL

- Pre 12.5-25 lb/Ac
- Emerg Contact: 12.5-25 lb/Ac
- Post Brush: 120 lb/Ac
- Emerg Grass: 30 lb/Ac
- Waterweed: 1 gal/Ac
- Spreader: 1 gal/Ac
- Water 200 gal/Ac

## AVERAGE DAILY PRODUCTION

Acres

NOTES:

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 45 | VEGETATION CONTROL - MECHANICAL | 12/99 |

**DESCRIPTION & PURPOSE**

The mechanical removal of brush and weeds to maintain detention, debris basins, and channels free of vegetation.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

**PERFORMANCE CRITERIA**

Work to be scheduled when weeds and willows grow up at unsprayable locations, or when growth is too high for effective spraying.

## CREW SIZE

- 1 Equipment Operator
- 1 TOTAL

## EQUIPMENT

- 1 Mower or Grader
- 1 Tilt Trailer (if needed)
- 1 Pickup

## WORK METHOD

1. Obtain from storekeeper safety equipment, materials, and tools necessary for the day's work.
2. Begin applicable safety procedures and/or traffic control.
3. Mow, blade down, or turn under unwanted vegetation.

## MATERIAL

## AVERAGE DAILY PRODUCTION

4 Acres/day

NOTES:

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 50 | MAINTAIN ACCESS ROADS | 12/99 |

DESCRIPTION & PURPOSE

Mechanical grading of access roads to remove minor ruts and erosion,and restore normal shape and cross slope, for access to Flood Control facilities.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

PERFORMANCE CRITERIA

As needed prior to rainy season, or when the weather affects the road condition. Plan to re-profile access roads on a bi-annual (two year) frequency.

## CREW SIZE

- 2 Equipment Operators
- 1 Maintenance Workers
- 3 TOTAL

## EQUIPMENT

- 1 Grader
- 0-1 Water Truck
- 0-1 Roller
- 1 Pickup

## WORK METHOD

1. Obtain from storekeeper equipment and tools necessary for the day's work.
2. Begin applicable safety procedures and/or traffic control.
3. Grade access roads:
   - Restoring X-section shape
   - Filling potholes
   - Grading out ruts
   - Restoring ditches and drainage.
4. Roll and compact regraded.

## MATERIAL

- 10,000 Gal Water (if needed)

## AVERAGE DAILY PRODUCTION

.5 Mile/day

NOTES:

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 55 | CLEAN & INSPECT INLET/OUTLET STRUCTURES | 12/99 |

DESCRIPTION & PURPOSE

Cleaning and inspection of catch basins, inlets, sumps, grates, outflow and other structures to remove silt and debris and to inspect for structural integrity and proper functioning.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

PERFORMANCE CRITERIA

Plan for structures to be inspected and cleaned a minimum of once per year. Annual cleaning shall be the major effort to allow thorough inspection of structure in order to schedule repairs.

## CREW SIZE

- .25 Foreman
- 2 Maintenance Workers
-
-
- 2.25 TOTAL

## EQUIPMENT

- 1 1-Ton Truck
- 1 Water Tanker (1500 gal)
- -or- High Pressure Vacuum (Vactor)
- Appropriate Hand Tools

## WORK METHOD

1. Perform daily vehicle P.M. check and check equipment.
2. Place signs/traffic control devices as required.
3. Locate truck in the best working position and as far off roadway as practical.
4. Remove grate. Then remove debris, trash & sediment from grate.
5. Loosen solids with spade if necessary.
6. Flush/vacuum basin.
7. Inspect structure visually to determine if further cleaning or repair is necessary.
8. Dispose of debris at designated dump site.
9. Check and clean equipment after use.

## MATERIAL

- Water
-
-
-

## AVERAGE DAILY PRODUCTION

15 Each/day

NOTES:

Structures that cannot be cleaned shall be reported to the Maintenance Supervisor for initiation of corrective action.

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 60 | REPAIR INLET / OUTLET STRUCTURES | 12/99 |

DESCRIPTION & PURPOSE

Repair of catch basins, grates, inlets, control gates, outfalls, weirs, manholes, sumps, and other spot structures to restore elements to their original operational condition.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

PERFORMANCE CRITERIA

Based on detailed inspection of repair, replace components, or entire structure as conditions warrant. Plan repair of five percent (5%) of system structures per year.

## CREW SIZE

- 1 Foreman
- 2 Maintenance Workers
- 3 TOTAL

## EQUIPMENT

- 1 Pickup
- 1 Compressor w/accessories

## WORK METHOD

1. Obtain necessary safety equipment, tools, and materials.
2. Initiate applicable safety procedures and traffic control.
3. Remove and clean area of damage/failure.
4. Repair as necessary to original condition and test operation as appropriate.

## MATERIAL

- Concrete
- Aggregates
- Miscellaneous parts, as required

## AVERAGE DAILY PRODUCTION

1 Each/day

NOTES:

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 65 | CLEAN STORM SEWER LINES | 12/99 |

**DESCRIPTION & PURPOSE**

The removal of debris of any type from within conduits by: flushing with water; the use of a sewer cleaning machine; or by physically entering the conduit and manually removing debris, to restore full capacity.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

**PERFORMANCE CRITERIA**

Plan cleaning of storm sewer lines on an average 5-year cycle. Specific areas may require annual cleaning while others will require less than 5-year cleaning.

## CREW SIZE

- 1 Maintenance Foreman
- 2 Maintenance Workers
- 
- 3 TOTAL

## EQUIPMENT

- 1 Sewer Cleaner
- 
- 
- 

## WORK METHOD

1. Obtain from storekeeper safety equipment and tools necessary for the day's work.
2. Begin applicable safety procedures and/or traffic control.
3. Remove debris from conduit.
4. Load debris and haul to designated disposal site if necessary.
5. Clean up work area as necessary.

## MATERIAL

- 0-5,000 Gallons Water
- 
- 
- 

## AVERAGE DAILY PRODUCTION

1500 linear feet/day

**NOTES:**

Work should be scheduled whenever possible, in conjunction with annual cleaning of adjacent structures.

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 70 | STORM SEWER LINE REPAIR | 12/99 |

DESCRIPTION & PURPOSE

Excavation and repair of storm sewer lines to eliminate blockages and repair failed pipes.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

PERFORMANCE CRITERIA

Priority of repairs:
1. eliminate blockages and hazards to public safety;
2. remove flow restrictions and repair damaged/failed pipe sections.

## CREW SIZE

- 1 Foreman
- 1 Equipment Operator
- 2 Maintenance Workers
- 4 TOTAL

## EQUIPMENT

- 1 Dump Truck
- 1 Backhoe/Util Tractor
- 1 Air Compressor w/accessories
- Appropriate Hand Tools

## MATERIAL

- Pipe/fittings
- Sand
- Cement
- Rock
- Asphalt, as required

## WORK METHOD

1. Set up warning signs and traffic control devices.
2. Take necessary measures to control flow – providing uninterrupted service whenever possible.
3. Cut pavement and/or excavate to the extent required to determine necessary scope of repairs.
4. Remove flow restrictions, as necessary.
5. Back fill and compact in lifts to within 10 inches of surface.
6. Place select material (rock or shell) and compact to within 2 inches of surface* (See Note below.)
7. Coordinate density test and request repaving as required.
8. Clean work area. Remove signs and warning devices.
9. Record work accomplishment.

## AVERAGE DAILY PRODUCTION

1 Repair/day

NOTES:

Verify location of other utilities prior to excavation.

* Back fill specifications apply to paved areas. In easements and other unpaved areas, back fill and compact in 2-foot lifts to grade; re-sod as necessary. Install safety fence and secure job site at end of workday as required.

PERFORMANCE STANDARD

# CLARK COUNTY
# REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 75 | CLEAN / FLUSH CULVERTS & BRIDGES | 12/99 |

**DESCRIPTION & PURPOSE**

Cleaning/flushing of culverts and bridges to remove silt and debris, and eliminate restriction to flow.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

**PERFORMANCE CRITERIA**

Plan for all culverts to be cleaned/flushed annually.

## CREW SIZE

- 1 Maintenance Supervisor
- 1 Maintenance Worker
-
-
- 2 TOTAL

## EQUIPMENT

- 1 1-Ton Dump Truck
- 1 Water Tanker (1500 gal)
- -or- High Pressure/Vacuum cleaner/Vactor
- Safety Equipment
- Appropriate Hand Tools

## WORK METHOD

1. Place signs and safety devices.
2. Locate truck in best working position and as far off roadway as possible.
3. Clean out ends of culvert.
4. Flush culverts until flow is unrestricted.
5. Load excess material/debris into truck for disposal at designated dump area.
6. Pick up signs and safety devices.

## MATERIAL

- Water
-

## AVERAGE DAILY PRODUCTION

5-7 Each/Day

**NOTES:**

1. Inform Maintenance Supervisor of any non-cleanable culverts or those that can only be partially cleaned.
2. Avoid damaging downstream property when flushing culverts.
3. Work should be scheduled, whenever possible, in conjunction with annual cleaning of adjacent structures.

PERFORMANCE STANDARD

# CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 80 | MISCELLANEOUS WORK ACTIVITIES | 12/99 |

DESCRIPTION & PURPOSE

All work performed that is not described in previous activities. This includes, among others, activities such as catwalk repair, rodent control, pump maintenance, concrete spalled area repair, painting, building and grounds maintenance, trash pickup*, graffiti abatement, sign installation and maintenance.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Maintenance Supervisor | |

PERFORMANCE CRITERIA

Plan 8 labor hours per channel mile per year for miscellaneous maintenance work.

| CREW SIZE | WORK METHOD |
|---|---|
| ■ 1 Maintenance Worker<br>■<br>■<br>■ 1 TOTAL | 1. Obtain from storekeeper safety equipment, materials, and tools necessary for the day's work.<br>2. Begin applicable safety procedures and/or traffic control. |
| **EQUIPMENT** | |
| ■ 1 Pickup<br>■ Hand tools<br>■<br>■ | |
| **MATERIAL** | **AVERAGE DAILY PRODUCTION** |
| ■ As required<br>■<br>■<br>■ | 8 Labor Hours |

NOTES:

*Includes appliances, tires, car bodies, and other large objects dumped in channels/basins.

PERFORMANCE STANDARD

# CLARK COUNTY
# REGIONAL FLOOD CONTROL DISTRICT

| ACTIVITY NUMBER | NAME | DATE |
|---|---|---|
| 85 | ENGINEERING | 12/99 |

DESCRIPTION & PURPOSE

All work that is by nature engineering. This includes, among others, surveying and preparation of plans and specifications for maintenance work.

| AUTHORIZED BY | LIMITS ON WORK |
|---|---|
| Director of Public Works for designee | |

PERFORMANCE CRITERIA

| CREW SIZE | WORK METHOD |
|---|---|
| ■ N/A<br>■<br>■<br>■ TOTAL | 1. As deemed most cost effective. |
| **EQUIPMENT** | |
| ■ N/A<br>■<br>■<br>■ | |
| **MATERIAL** | **AVERAGE DAILY PRODUCTION** |
| ■ N/A<br>■<br>■<br>■ | 8 Hours/Day |

NOTES:

## 4.35 Reporting

Comprehensive maintenance programs include procedures for reporting and summarizing work accomplished and labor-hours used for maintenance activities. This information enables managers and supervisors to compare actual performance with the planned work program. These planned-actual comparisons -- on a regular basis -- are essential for effective management and control of the work program.

The reporting procedures provide specific information:

- What Master Plan facility required work.
- What work was done by activity.
- How much of each activity was done.
- The labor-hours used to accomplish the work.

This information is used by managers in their effort to:

- Make sure the right kinds and amounts of maintenance work are done.
- Identify the problem areas and related corrective actions.
- Develop future work programs and budgets.
- Identify opportunities for improved productivity.

The work reporting process can consist of a simple form as outlined in the following section.

Daily Work Activity Report

The Daily Work Activity Report may be used to record and summarize (1) the kinds and amounts of work performed by maintenance personnel, and (2) the number of labor-hours used to do that work. The report can be used to summarize all work activities. Each Entity may use its standard accounting/reporting procedures for the Daily Work Activity Report.

The Maintenance Supervisor or crew leader usually prepares the Daily Work Activity Report. Following are instructions for the completion of the sample report shown on **Figure 4-6**.

1. Identification Data - Fill in all blanks: the Entity, date, name of person preparing the report, and the names and employee numbers of all persons to perform work to be reported for the day. (The form provides for several combinations of activities and employees. If additional pages are needed, number the pages accordingly).

2. Master Plan Facility ID/Name - Enter the specific 4 letter-4 digit Master Plan Facility number and reach, which indicates the "from" and "to," if applicable. This number directly corresponds to the specific Master Plan location as identified on current Master Plan maps. Also, indicate the Facility Name.

3. MWP Facility Number - Enter the identifying Maintenance Work Plan facility number. (This number directly corresponds to the budget approved for the facility and will typically include a range of Master Plan facilities and reach.)

4. Activity Number - Enter the number of each activity performed. Use the Work Activity Directory or Performance Standards to complete the blank.

5. Employee Number - Enter the employee number of the person working a specific activity at the specific facility.

6. Hours Worked by Each Employee - Record the number of hours worked by each employee, by the appropriate activity. Record the time spent to the nearest quarter-hour. For example, record 1 hour and 45 minutes as 1.75 hours and 3 hours and 20 minutes as 3.25 hours.

7. Equipment Number - Enter the assigned equipment number for any mechanical equipment on which work was performed for preventive and corrective maintenance only.

8. Work Performed - Enter the location and a brief description of the work performed.

9. Accomplishment - Measure and record the amount of work done for each activity. Use the correct measurement unit for each activity. (See the Activity List in **Section 4.32.**) Record the amount of work done to the nearest whole unit. Record labor-hours to the nearest hour. For activities with labor-hours as the unit of measure, the "quantity" will be exactly the same as "total hours" for the activity.

10. Notes/Comments - Record any additional relevant information that may be of use in summarizing and analyzing work activity data.

The completed reports can be used for monthly summarization and report preparation, and serve as completion certification backup for the monthly force account reimbursement billings.

## REGIONAL FLOOD CONTROL DISTRICT
## DAILY WORK ACTIVITY REPORT

**ENTITY:** _____

Date Work Performed: _____ 20 ____

*Supervisor Name:* _____

Employee Name: _____ No. _____

Employee Name: _____ No. _____

Employee Name: _____ No. _____

Employee Name: _____ No. _____

Employee Name: _____ No. _____

| MWP Facility Number | Master Plan Facility ID/Facility Name | Activity Number Worked | Empl. Number | Hours Worked by Activity | Equip. Number Used | Work Performance (Location, Brief Description, Materials Used, Etc.) | Accomplishment | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Amount | Unit of Measure |
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |

NOTES/COMMENTS: _____

The undersigned hereby certifies that the above described maintenance was performed in accordance with the criteria/standards contained in the District's Operations and Maintenance Manual. Further, the information contained herein accurately reflects the time and accomplishments reported during the performance of this work.

_____ _____ _____

Supervisor's Signature Date Title

Page _____ of _____

Figure 4-6 Daily Work Activity Report

# 4.40 INVENTORY PROCEDURES

## 4.41 Purpose

The purpose of this element of the Operations and Maintenance Manual is to provide a record of the existing physical flood control system that is eligible for maintenance funding assistance by the District. The physical facilities that make up the collection and conveyance system have in many instances been paid for in whole or in part by the District, however, they are not "owned," operated, or maintained by the District. If, however, the total flood control system does not function properly when needed, it is ultimately the responsibility of the District to determine why and to take corrective action. A critical key to assuring the system functions properly is an up-to-date inventory of the physical system.

## 4.42 Physical System

In 1990, each Entity provided a list of the physical system that makes up the flood control system in their jurisdiction. Facilities eligible for maintenance funding are those identified in the Regional Flood Control District's Master Plan and any revisions, amendments, and/or changes subsequently approved. Only those facilities that exist as Master Plan facilities, or exist in the same alignment as a proposed Master Plan facility and appurtenant facilities are eligible.

Schedule

The inventory work sheets must be expanded to represent a true and accurate accounting of facilities on the Master Plan and tributary (drainage) systems and updated as part of the annual certification process.

Reporting

The Entities should submit annual updates of the physical system inventory on the form required by the District (**Figure C-1**).

## 4.43 Physical System Maps

Each Entity must have a map that shows the physical system for drainage and flood control. This map should reflect that portion that is on the Master Plan and also that portion that is eligible for maintenance funding by the District.

# APPENDIX A

## KEY STATUTORY, REGULATORY, AND POLICY REFERENCES

### NEVADA REVISED STATUTES

1. CHAPTER 332 PURCHASING: LOCAL GOVERNMENTS
2. CHAPTER 338 PUBLIC WORKS PROJECTS
3. CHAPTER 543 CONTROL OF FLOODS

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### UNIFORM REGULATIONS FOR THE CONTROL OF DRAINAGE

1. SECTION 12 DESIGN/IMPROVEMENT STANDARDS
   a. 12.050 Construction/Operation/Maintenance

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### HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

1. SECTION 300 DRAINAGE POLICY
   a. 303.10 Drainage Facilities Maintenance

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### REGIONAL FLOOD CONTROL DISTRICT POLICIES AND PROCEDURES MANUAL

1. CHAPTER 16.0 FACILITY MAINTENANCE
   a. 16.1 Annual Maintenance Work Program
   b. 16.2 Catastrophic Damage to Flood Control Facilities

# APPENDIX B

## SAMPLE AUTHORIZATION-TO-PROCEED INTERLOCAL CONTRACT

### INTERLOCAL CONTRACT
### ANNUAL MAINTENANCE WORK PROGRAM

THIS CONTRACT, made and entered into this ___ day of _____, 20____, by and between the [legal name of CITY or COUNTY], a political subdivision of the State of Nevada, hereinafter referred to as "CITY" (or "COUNTY"), and the CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT, hereinafter referred to as "DISTRICT".

W I T N E S S E T H:

WHEREAS, pursuant to Chapter 543 of the Nevada Revised Statutes, the DISTRICT may approve and fund projects to maintain flood control improvements; and

WHEREAS, the CITY (or COUNTY) desires to maintain flood control improvements within the CITY (or COUNTY) in accordance with the maintenance program set forth herein, and hereinafter referred to as "Project"; and

WHEREAS, the facilities upon which maintenance will be done are facilities described in the District's Master Plan.

NOW, THEREFORE, in consideration of the covenants, conditions, agreements, and promises of the parties hereto, the DISTRICT authorizes the Project as it is mutually understood and agreed as follows:

### SECTION I - SCOPE OF PROJECT

This Interlocal Contract applies to the maintenance of flood control facilities, which are identified in the District's Master Plan facilities including updates and amendments subsequently approved. The basic maintenance to the facilities will be in accordance with performance standards set forth in the current District *Operations and Maintenance Manual*.

The Project is more specifically described in Exhibit "A" which is attached hereto and by this reference incorporated herein.

## SECTION II - PROJECT COSTS

The DISTRICT agrees to provide reimbursement for Project costs within the limits specified below:

1. The Projects costs shall not exceed $_____.

The amounts allocated to each individual facility within the Project must be specified in **Exhibit "A"**. Any changes to said allocated amounts must be approved by the DISTRICT's Chief Engineer in accordance with **Section 4.24** of the District *Operations and Maintenance Manual.*

2. "Authorization to Proceed" is herein granted for maintenance of facilities in Exhibit "A" in an amount not to exceed _____, effective _____.

3. A separate request for an "Authorization to Proceed" will be required for additional facility maintenance funds.

4. A written request must be made to the DISTRICT and a Supplemental Interlocal Contract approved to increase the amount noted above prior to payment of any additional funds.

5. The CITY (or COUNTY) and DISTRICT will comply with **Section 4.12** of the *Operations and Maintenance Manual.* In accordance with said manual the CITY (or COUNTY) shall submit invoices together with a detailed summary report of the maintenance service performed. The CITY (or COUNTY) shall submit an invoice voucher in the manner prescribed by the DISTRICT. The vouchers shall include such information as is necessary for the DISTRICT to determine the nature of all expenditures. Each voucher will clearly indicate that it is for services rendered in performance under this contract. Each voucher will also be accompanied by a written certification from the CITY (or COUNTY) stating that it is for performance of maintenance activities under this contract and is composed of completed elements set forth in the annual work program.

All invoices must be submitted for payment to:

Clark County Regional Flood Control District
Accounts Payable
600 S. Grand Central Parkway, Suite 300
Las Vegas, Nevada 89106-4511

Payment shall be considered timely if made by the DISTRICT within 30 days. Pursuant to **Section IV, Paragraph 6,** the DISTRICT may, in its sole discretion, withhold payments to the CITY (or COUNTY) for services rendered if the CITY (or COUNTY) fails to satisfactorily comply with any term or condition of this contract and/or the District *Operations and Maintenance Manual.*

SECTION III - PROJECT TIME

The CITY (or COUNTY) agrees to perform the Project to the satisfaction of the DISTRICT on or before June 30, 20____. The DISTRICT may grant extensions or terminate this contract and require all sums advanced to the CITY (or COUNTY) to be repaid if the CITY (or COUNTY) fails to perform by said date.

SECTION IV - GENERAL

1. The CITY (or COUNTY) will complete the Project as set forth in **Exhibit "A".** The CITY (or COUNTY) staff personnel responsible for coordination work under this contract are as listed below:

(list names and titles of CITY or COUNTY staff)

It is understood that staff named above will be responsible for work coordination throughout the period of this contract unless the DISTRICT is informed in writing of changes in these personnel assignments.

2. In addition to the specific terms set forth in this Contract, the parties hereto shall be subject to and governed by the District *Operations and Maintenance Manual,* and any applicable portions of the *Policies and Procedures* adopted by the DISTRICT.

3. It is the intent of the DISTRICT that scheduling of maintenance and repair of drainage and flood control facilities in general and Master Plan Facilities specifically be coordinated among entities. Therefore, in those cases where Master Plan approved, and District-funded projects have regional fund control significance impacting more than one entity, the CITY (or COUNTY) will allow all impacted entities an opportunity to review the maintenance schedule in order to coordinate maintenance efforts.

4. The Chief Engineer of the DISTRICT shall be responsible for monitoring the performance of the CITY (or COUNTY), approval for payment of billings and expenses submitted by the CITY (or COUNTY) and the acceptance of any report provided by the CITY (or COUNTY). The CITY (or COUNTY) shall be responsible for monitoring performance of CITY (or COUNTY) staff or private contractors, and the CITY (or COUNTY) shall maintain detailed records of all payments made to contractors and make such records available to the DISTRICT upon request.

5. The CITY (or COUNTY) shall provide right of access to its facilities to the DISTRICT or Chief Engineer at all reasonable times, in order to monitor and evaluate performance, compliance, and/or quality assurance under this contract.

6. In the event the CITY (or COUNTY) fails to perform the maintenance according to the standards specified in this contract and in the District *Operations and Maintenance Manual,* the DISTRICT may perform or cause to be performed the maintenance necessary to assure proper operation of the facility. Cost incurred by the DISTRICT shall be reimbursed by the CITY (or COUNTY) or be deducted from the amount authorized by this contract. The DISTRICT may not exercise this right without giving the CITY (or COUNTY) specific written notice of the maintenance required and allowing the CITY (or COUNTY) 60 days within which to perform said maintenance. The notice required by this provision must be sent to:

(insert name of City or County staff)
(insert title)
(insert City or County mailing address)

7. The records of the CITY (or COUNTY) and/or private contractors pertaining to the subject matter of this contract shall at all reasonable times be subject to inspection and audit by the DISTRICT or an Agent of the DISTRICT.

8. If any provision of this contract shall be deemed in conflict with any statute or rule of law, such provision shall be deemed modified to be in conformance with said statute or rule of law.

9. All parties to this contract shall comply with applicable local, state, and federal laws.

10. Any costs found to be improperly allocated in the Project will be refunded by the CITY (or COUNTY) to the DISTRICT.

11. It is specifically understood and agreed to by and between the parties hereto that it is not intended by any of the provisions of any part of this contract to create in the public or any member thereof a third party beneficiary hereunder, or to authorize anyone not a party to this contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this contract.

12. The CITY (or COUNTY) hereby indemnifies and shall defend and hold harmless the DISTRICT, its representatives and their employees (or their authorized representatives) from and against any and all suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities, interest, attorney's fees, costs and expenses whatsoever of any kind or nature whether arising before or after completion of the work hereunder and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part, by reason of any act, omission, fault or negligence whether active or passive of the CITY (or COUNTY), of anyone acting under its direction or control, or on its behalf in connection with or incident to the performance of this Contract. The CITY'S (or COUNTY'S) aforesaid indemnity and hold harmless obligations, or portions or applications thereof, shall apply to the fullest extent permitted by law, but in no event shall they apply to liability caused by the sole negligence or willful misconduct of the party indemnified or held harmless.

IN WITNESS WHEREOF, the parties have caused this contract to be executed the day and year first above written.

Date of District Action:

REGIONAL FLOOD CONTROL DISTRICT

_____ BY:_____
ATTEST: Chairman

_____
Secretary to the Board

Approved as to Form:

BY:_____
Deputy District Attorney

**********

Date of Council Action:
(or Commission Action)

CITY (or COUNTY) OF_____

_____ BY:_____
ATTEST: (Mayor or Board Chairman)

_____
City (or County Clerk)

# APPENDIX C

## SAMPLE INTERLOCAL CONTRACT

### INTERLOCAL CONTRACT
### ANNUAL MAINTENANCE WORK PROGRAM

THIS CONTRACT, made and entered into this ___ day of _____, 20____, by and between the [legal name of CITY or COUNTY], a political subdivision of the State of Nevada, hereinafter referred to as "CITY" (or "COUNTY"), and the CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT, hereinafter referred to as "DISTRICT".

W I T N E S S E T H:

WHEREAS, pursuant to Chapter 543 of the Nevada Revised Statutes, the DISTRICT may approve and fund projects to maintain flood control improvements; and

WHEREAS, the CITY (or COUNTY) desires to maintain flood control improvements within the CITY (or COUNTY) in accordance with the maintenance program set forth herein, and hereinafter referred to as "Project"; and

WHEREAS, the facilities upon which maintenance will be done are facilities described in the District's Master Plan.

NOW, THEREFORE, in consideration of the covenants, conditions, agreements, and promises of the parties hereto, the DISTRICT authorizes the Project as it is mutually understood and agreed as follows:

SECTION I - SCOPE OF PROJECT

This Interlocal Contract applies to the maintenance of flood control facilities, which are identified in the District's Master Plan facilities including updates and amendments subsequently approved. The basic maintenance to the facilities will be in accordance with performance standards set forth in the current District *Operations and Maintenance Manual*.

The Project is more specifically described in Exhibit "A" which is attached hereto and by this reference incorporated herein.

SECTION II - PROJECT COSTS

The DISTRICT agrees to provide reimbursement for Project costs within the limits specified below:

1. The Projects costs shall not exceed $_____.

The amounts allocated to each individual facility within the Project must be specified in Exhibit "A". Any changes to said allocated amounts must be approved by the DISTRICT's Chief Engineer in accordance with **Section 4.24** of the District *Operations and Maintenance Manual.*

A written request must be made to the DISTRICT and a Supplemental Interlocal Contract approved to increase the amount noted above prior to payment of any additional funds.

2. The CITY (or COUNTY) and DISTRICT will comply with **Section 4.12** of the *Operations and Maintenance Manual.* In accordance with said manual the CITY (or COUNTY) shall submit invoices together with a detailed summary report of the maintenance service performed. The CITY (or COUNTY) shall submit an invoice voucher in the manner prescribed by the DISTRICT. The vouchers shall include such information as is necessary for the DISTRICT to determine the nature of all expenditures. Each voucher will clearly indicate that it is for services rendered in performance under this contract. Each voucher will also be accompanied by a written certification from the CITY (or COUNTY) stating that it is for performance of maintenance activities under this contract and is composed of completed elements set forth in the annual work program.

All invoices must be submitted for payment to:

Clark County Regional Flood Control District
Accounts Payable
600 S. Grand Central Parkway, Suite 300
Las Vegas, Nevada 89106-4511

Payment shall be considered timely if made by the DISTRICT within 30 days. Pursuant to **Section IV, Paragraph 6**, the DISTRICT may, in its sole discretion, withhold payments to the CITY (or COUNTY) for services rendered if the CITY (or COUNTY) fails to satisfactorily comply with any term or condition of this contract and/or the District *Operations and Maintenance Manual.*

SECTION III - PROJECT TIME

The CITY (or COUNTY) agrees to perform the Project to the satisfaction of the DISTRICT on or before June 30, 20___. The DISTRICT may grant extensions or terminate this contract and require all sums advanced to the CITY (or COUNTY) to be repaid if the CITY (or COUNTY) fails to perform by said date.

SECTION IV - GENERAL

1. The CITY (or COUNTY) will complete the Project as set forth in **Exhibit "A"**. The CITY (or COUNTY) staff personnel responsible for coordination work under this contract are as listed below:

(list names and titles of CITY or COUNTY staff)

It is understood that staff named above will be responsible for work coordination throughout the period of this contract unless the DISTRICT is informed in writing of changes in these personnel assignments.

2. In addition to the specific terms set forth in this Contract, the parties hereto shall be subject to and governed by the District *Operations and Maintenance Manual*, and any applicable portions of the *Policies and Procedures* adopted by the DISTRICT.

3. It is the intent of the DISTRICT that scheduling of maintenance and repair of drainage and flood control facilities in general and Master Plan Facilities specifically be coordinated among entities. Therefore, in those cases where Master Plan approved, and District-funded projects have regional fund control significance impacting more than one entity, the CITY (or COUNTY) will allow all impacted entities an opportunity to review the maintenance schedule in order to coordinate maintenance efforts.

4. The Chief Engineer of the DISTRICT shall be responsible for monitoring the performance of the CITY (or COUNTY), approval for payment of billings and expenses submitted by the CITY (or COUNTY) and the acceptance of any report provided by the CITY (or COUNTY). The CITY (or COUNTY) shall be responsible for monitoring performance of CITY (or COUNTY) staff or private contractors, and the CITY (or COUNTY) shall maintain detailed records of all payments made to contractors and make such records available to the DISTRICT upon request.

5. The CITY (or COUNTY) shall provide right of access to its facilities to the DISTRICT or Chief Engineer at all reasonable times, in order to monitor and evaluate performance, compliance, and/or quality assurance under this contract.

6. In the event the CITY (or COUNTY) fails to perform the maintenance according to the standards specified in this contract and in the District *Operations and Maintenance Manual,* the DISTRICT may perform or cause to be performed the maintenance necessary to assure proper operation of the facility. Cost incurred by the DISTRICT shall be reimbursed by the CITY (or COUNTY) or be deducted from the amount authorized by this contract. The DISTRICT may not exercise this right without giving the CITY (or COUNTY) specific written notice of the maintenance required and allowing the CITY (or COUNTY) 60 days within which to perform said maintenance. The notice required by this provision must be sent to:

(insert name of City or County staff)

(insert title)

(insert City or County mailing address)

7. The records of the CITY (or COUNTY) and/or private contractors pertaining to the subject matter of this contract shall at all reasonable times be subject to inspection and audit by the DISTRICT or an Agent of the DISTRICT.

8. If any provision of this contract shall be deemed in conflict with any statute or rule of law, such provision shall be deemed modified to be in conformance with said statute or rule of law.

9. All parties to this contract shall comply with applicable local, state, and federal laws.

10. Any costs found to be improperly allocated in the Project will be refunded by the CITY (or COUNTY) to the DISTRICT.

11. It is specifically understood and agreed to by and between the parties hereto that it is not intended by any of the provisions of any part of this contract to create in the public or any member thereof a third party beneficiary hereunder, or to authorize anyone not a party to this contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this contract.

12. The CITY (or COUNTY) hereby indemnifies and shall defend and hold harmless the DISTRICT, its representatives and their employees (or their authorized representatives) from and against any and all suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities, interest, attorney's fees, costs and expenses whatsoever of any kind or nature whether arising before or after completion of the work hereunder and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part, by reason of any act, omission, fault or negligence whether active or passive of the CITY (or COUNTY), of anyone acting under its direction or control, or on its behalf in connection with or incident to the performance of this Contract. The CITY'S (or COUNTY'S) aforesaid indemnity and hold harmless obligations, or portions or applications thereof, shall apply to the fullest extent permitted by law, but in no event shall they apply to liability caused by the sole negligence or willful misconduct of the party indemnified or held harmless.

IN WITNESS WHEREOF, the parties have caused this contract to be executed the day and year first above written.

Date of District Action:

REGIONAL FLOOD CONTROL DISTRICT

_____

ATTEST:

BY:_____
Chairman

_____
Secretary to the Board

Approved as to Form:

BY:_____
Deputy District Attorney

**********

Date of Council Action:
(or Commission Action)

CITY (or COUNTY) OF _____

_____

ATTEST:

BY:_____
(Mayor or Board Chairman)

_____
City (or County Clerk)

# SAMPLE EXHIBIT A

PART I

Summary of overall work plan listing specific projects and associated costs attributable to each. (See **Figure C-1**)

PART II

Facility map(s) which identify location of planned maintenance work by project.

PART III

Summary of work plan broken into maintenance activities to be completed, with associated budgeted costs, for all projects identified in Part I. (See **Figure C-2**)

## Figure C-1 Maintenance Work Plan Summary

(ENTITY)
MAINTENANCE WORK PLAN SUMMARY
FISCAL YEAR 20XX-XX

| Master Plan Facility ID | MWP Facility Number | Facility Description | Cost |
|---|---|---|---|
| | | | |
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| | | | |
| | | | |
| | | | |
| | | TOTAL | $ 0.00 |

## Figure C-2 Annual Budget

**REGIONAL FLOOD CONTROL DISTRICT**
**MAINTENANCE WORK PROGRAM**
**ANNUAL BUDGET - FY 20XX-XX**

MWP Facility #: _____ Entity: _____
Facility Name: _____ Date Prepared: _____
MP Facility ID: _____

| Force Account/ Contract | Activity | Requested Work Plan Amount ($) | Amended Work Plan Amount ($) | Percent Complete | Scheduled Completion Date |
|---|---|---|---|---|---|
| | 5 Inspect Channels | | | | |
| | 10 Clean and Reshape Channels | | | | |
| | 15 Repair Lined Channel | | | | |
| | 20 Provide/Maintain Erosion Control | | | | |
| | 25 Clean & Inspect Detention Debris Basins | | | | |
| | 30 Erosion Repair | | | | |
| | 35 Fence Repair | | | | |
| | 40 Vegetation Control - Chemical | | | | |
| | 45 Vegetation Control - Mechanical | | | | |
| | 50 Maintain Access Road | | | | |
| | 55 Clean & Inspect Inlet/Outlet Structures | | | | |
| | 60 Repair Inlet/Outlet Structures | | | | |
| | 65 Clean Storm Sewer Lines | | | | |
| | 70 Storm Sewer Repair | | | | |
| | 75 Clean/Flush Culverts & Bridges | | | | |
| | 80 Miscellaneous Work Activities | | | | |
| | 85 Engineering | | | | |
| | **TOTALS** | **$0.00** | **$0.00** | | |

**Delays or problem areas:**

**Work completed during prior fiscal year:**

**Work to be completed during current fiscal year:**

Consultant/ Contractor: _____
Project Manager: _____ Phone Number: _____

# OPEN-CHANNEL HYDRAULICS

**VEN TE CHOW, Ph.D.**

*Professor of Hydraulic Engineering*
*University of Illinois*

McGRAW-HILL BOOK COMPANY

New York Toronto London

1959

factory results it lends to practical applications, the Manning formula has become the most widely used of all uniform-flow formulas for open-channel flow computations.[1] A nomographic solution of the formula is given in Appendix C.

Within the normal ranges of slope and hydraulic radius, the values of Manning's $n$ and Kutter's $n$ are generally found to be numerically very close. For practical purposes, the two values may be considered identical when the slope is equal to or greater than 0.0001 and the hydraulic radius is between 1.0 and 30 ft. Typical values good for both Kutter's $n$ and Manning's $n$ are shown in Table 5-6 and illustrated in Fig. 5-5.

Comparing the Chézy formula with the Manning formula, it can be seen that

$$C = \frac{1.49}{n} R^{1/6} \tag{5-7}$$

This equation provides an important relationship[2] between Chézy's $C$ and Manning's $n$.

The exponent of the hydraulic radius in the Manning formula is actually not a constant but varies in a range depending mainly on the channel shape and roughness (see a previous footnote). For this reason, some hydraulicians prefer to use the formula with a variable exponent. For example, the uniform-flow formula widely used in the U.S.S.R. is of this type; this is the *Pavlovskii formula* [21], proposed in 1925.* This formula in *metric* units is

$$C = \frac{1}{n} R^y \tag{5-8}$$

where $$y = 2.5\sqrt{n} - 0.13 - 0.75\sqrt{R}(\sqrt{n} - 0.10) \tag{5-9}$$

and where $C$ is the resistance factor in the Chézy formula expressed in *metric* units. The exponent $y$ depends on the roughness coefficient and hydraulic radius. The formula is valid for $R$ between 0.1 and 3.0 m and

basis of other later studies, some authors suggested a value of $\frac{3}{4}$ [20], and others suggested a variable depending on $R$ and $n$ [21].

[1] The Manning formula was suggested for international use by Lindquist [3] at the Scandinavia Sectional Meeting of the World Power Conference in 1933 in Stockholm. The final recommendation for such use was made by the Executive Committee at the 3d World Power Conference in 1936 in Washington, D.C.

[2] On account of this relationship, the Manning formula is sometimes considered a variation of the Chézy formula with Chézy's $C$ defined by Eq. (5-7).

* The Pavlovskii formula was published in several editions of Pavlovskii's "Handbook of Hydraulics" [21]. An article about this formula entitled *Formula dlia koeffitsienta Chézy* (*Formula for a Chézy coefficient*) is given in pp. 140–149 of the 1937 edition of the book. A footnote in this article reads: "The formula was proposed in 1925."



for $n$ between 0.011 and 0.040. For practical purposes, the following approximate forms of Eq. (5-9) are generally suggested for use:

$$y = 1.5\sqrt{n} \quad \text{for } R < 1.0 \text{ m} \tag{5-10}$$
$$y = 1.3\sqrt{n} \quad \text{for } R > 1.0 \text{ m} \tag{5-11}$$

**5-7. Determination of Manning's Roughness Coefficient.** In applying the Manning formula or the G. K. formula, the greatest difficulty lies in the determination of the roughness coefficient $n$; for there is no exact method of selecting the $n$ value. At the present stage of knowledge, to select a value of $n$ actually means to estimate the resistance to flow in a given channel, which is really a matter of intangibles. To veteran engineers, this means the exercise of sound engineering judgment and experience; for beginners, it can be no more than a guess, and different individuals will obtain different results.

In order to give guidance in the proper determination of the roughness coefficient, four general approaches will be discussed; namely, (1) to understand the factors that affect the value of $n$ and thus to acquire a basic knowledge of the problem and narrow the wide range of guesswork, (2) to consult a table of typical $n$ values for channels of various types, (3) to examine and become acquainted with the appearance of some typical channels whose roughness coefficients are known, and (4) to determine the value of $n$ by an analytical procedure based on the theoretical velocity distribution in the channel cross section and on the data of either velocity or roughness measurement. The first three approaches will be given in the next three articles, and the fourth approach will be taken up in Art. 8-7.

**5-8. Factors Affecting Manning's Roughness Coefficient.** It is not uncommon for engineers to think of a channel as having a single value of $n$ for all occasions. In reality, the value of $n$ is highly variable and depends on a number of factors. In selecting a proper value of $n$ for various design conditions, a basic knowledge of these factors should be found very useful. The factors that exert the greatest influence upon the coefficient of roughness in both artificial and natural channels are therefore described below. It should be noted that these factors are to a certain extent interdependent; hence discussion about one factor may be repeated in connection with another.

*A. Surface Roughness.* The surface roughness is represented by the size and shape of the grains of the material forming the wetted perimeter and producing a retarding effect on the flow. This is often considered the only factor in selecting a roughness coefficient, but it is actually just one of several major factors. Generally speaking, fine grains result in a relatively low value of $n$ and coarse grains, in a high value of $n$.

In alluvial streams where the material is fine in grain, such as sand,

clay, loam, or silt, the retarding effect is much less than where the material is coarse, such as gravels or boulders. When the material is fine, the value of $n$ is low and relatively unaffected by change in flow stage. When the material consists of gravels and boulders, the value of $n$ is generally high, particularly at low or high stage. Larger boulders usually collect at the bottom of the stream, making the channel bottom rougher than the banks and increasing the value of $n$ at low stages. At high stages, a portion of the energy of flow is used in rolling the boulders downstream, thus increasing the value of $n$. A theoretical discussion of surface roughness will be given in Art. 8-2.

*B. Vegetation.* Vegetation may be regarded as a kind of surface roughness, but it also markedly reduces the capacity of the channel and retards the flow. This effect depends mainly on height, density, distribution, and type of vegetation, and it is very important in designing small drainage channels.

At the University of Illinois an investigation has been made to determine the effect of vegetation on the coefficient of roughness [22]. On one of the drainage ditches in central Illinois under investigation, an average $n$ value of 0.033 was measured in March, 1925, when the channel was in good condition. In April, 1926, there were bushy willows and dry weeds on the side slopes, and $n$ was found to be 0.055. This increase in $n$ represents the result of one year's growth of vegetation. During the summers of 1925 and 1926 there was a thick growth of cattails on the bottom of the channel. The $n$ value at medium summer stages was about 0.115, and at a nearly bankfull stage it was 0.099. The cattails in the channel were washed out by the high water in September, 1926; the average value of $n$ found after this occurrence was 0.072. The conclusions drawn from this investigation were, in part, as follows:

1. The minimum value of $n$ that should be used for designing drainage ditches in central Illinois is 0.040. This value is obtainable at high stages during the summer months in the most carefully maintained channels, where the bottom of the channel is clear of vegetation and the side slopes are covered with grass or low weeds, but no bushes. This low value of $n$ should not be used unless the channel is to be cleared annually of all weeds and bushes.

2. A value of $n = 0.050$ should be used if the channel is to be cleared in alternate years only. Large weeds and bushy willows from 3 to 4 ft high on the side slopes will produce this value of $n$.

3. In channels that are not cleared for a number of years, the growth may become so abundant that values of $n > 0.100$ may be found.

4. Trees from 6 to 8 in. in diameter growing on the side slopes do not impede the flow so much as do small bushy growths, provided overhanging branches are cut off.



The U.S. Soil Conservation Service has made studies on flow of water in small shallow channels protected by vegetative linings (Chap. 7, Sec. C). It was found that $n$ values for these channels varied with the shape and cross section of the channel, the slope of the channel bed, and the depth of flow. Comparing two channels, all other factors being equal, the lesser average depth gives the higher $n$ value, owing to a larger proportion of affected vegetation. Thus, a triangular channel has a higher $n$ value than a trapezoidal channel, and a wide channel has a lower $n$ value than a narrow channel. A flow of sufficient depth tends to bend over and submerge the vegetation and to produce low $n$ values. A steep slope causes greater velocity, greater flattening of the vegetation, and low $n$ values.

The effect of vegetation on flood plains will be discussed later in item *H*.

*C. Channel Irregularity.* Channel irregularity comprises irregularities in wetted perimeter and variations in cross section, size, and shape along the channel length. In natural channels, such irregularities are usually introduced by the presence of sand bars, sand waves, ridges and depressions, and holes and humps on the channel bed. These irregularities definitely introduce roughness in addition to that caused by surface roughness and other factors. Generally speaking, a gradual and uniform change in cross section, size, and shape will not appreciably affect the value of $n$, but abrupt changes or alternation of small and large sections necessitates the use of a large value of $n$. In this case, the increase in $n$ may be 0.005 or more. Changes that cause sinuous flow from side to side of the channel will produce the same effect.

*D. Channel Alignment.* Smooth curvature with large radius will give a relatively low value of $n$, whereas sharp curvature with severe meandering will increase $n$. On the basis of flume tests, Scobey [23] suggested that the value of $n$ be increased 0.001 for each 20 degrees of curvature in 100 ft of channel. Although it is doubtful whether curvature ever increases $n$ more than 0.002 or 0.003, its effect should not be ignored, for curvature may induce the accumulation of drift and thus indirectly increase the value of $n$. Generally speaking, the increase of roughness in unlined channels carrying water at low velocities is negligible. An increase of 0.002 in $n$ value would constitute an adequate allowance for curve losses in most flumes containing pronounced curvatures, whether built of concrete or other materials. The meandering of natural streams, however, may increase the $n$ value as high as 30%.

*E. Silting and Scouring.* Generally speaking, silting may change a very irregular channel into a comparatively uniform one and decrease $n$, whereas scouring may do the reverse and increase $n$. However, the dominant effect of silting will depend on the nature of the material deposited. Uneven deposits such as sand bars and sand waves are

channel irregularities and will increase the roughness. The amount and uniformity of scouring will depend on the material forming the wetted perimeter. Thus, a sandy or gravelly bed will be eroded more uniformly than a clay bed. The deposition of silt eroded from the uplands will tend to even out the irregularities in a channel dredged through clay. The energy used in eroding and carrying the material in suspension or rolling it along the bed will also increase the $n$ value. The effect of scouring is not significant as long as the erosion on channel bed caused by high velocities is progressing evenly and uniformly.

*F. Obstruction.* The presence of log jams, bridge piers, and the like tends to increase $n$. The amount of increase depends on the nature of the obstructions, their size, shape, number, and distribution.

*G. Size and Shape of Channel.* There is no definite evidence about the size and shape of a channel as an important factor affecting the value of $n$. An increase in hydraulic radius may either increase or decrease $n$, depending on the condition of the channel (Fig. 5-4).

*H. Stage and Discharge.* The $n$ value in most streams decreases with increase in stage and in discharge. When the water is shallow, the irregularities of the channel bottom are exposed and their effects become pronounced. However, the $n$ value may be large at high stages if the banks are rough and grassy.

When the discharge is too high, the stream may overflow its banks and a portion of the flow will be along the flood plain. The $n$ value of the flood plains is generally larger than that of the channel proper, and its magnitude depends on the surface condition or vegetation. If the bed and banks of a channel are equally smooth and regular and the bottom slope is uniform, the value of $n$ may remain almost the same at all stages; so a constant $n$ is usually assumed in the flow computation. This happens mostly in artificial channels. On flood plains the value of $n$ usually varies with the stage of submergence of the vegetation at low stages. This can be seen, for example, from Table 5-4, which shows the $n$ values for various flood stages according to the type of cover and depth

TABLE 5-4. VALUES OF $n$ FOR VARIOUS STAGES IN THE NISHNABOTNA RIVER, IOWA, FOR THE AVERAGE GROWING SEASON

| Depth of water, ft | Channel section | Flood-plain cover | | | | |
|---|---|---|---|---|---|---|
| | | Corn | Pasture | Meadow | Small grains | Brush and waste |
| Under 1 | 0.03 | 0.06 | 0.05 | 0.10 | 0.10 | 0.12 |
| 1 to 2 | 0.03 | 0.06 | 0.05 | 0.08 | 0.09 | 0.11 |
| 2 to 3 | 0.03 | 0.07 | 0.04 | 0.07 | 0.08 | 0.10 |
| 3 to 4 | 0.03 | 0.07 | 0.04 | 0.06 | 0.07 | 0.09 |
| Over 4 | 0.03 | 0.06 | 0.04 | 0.05 | 0.06 | 0.08 |



of inundation, as observed in the Nishnabotna River, Iowa, for the average growing season [24]. It should be noted, however, that vegetation has a marked effect only up to a certain stage and that the roughness coefficient can be considered to remain constant for practical purposes in determining overbank flood discharges.

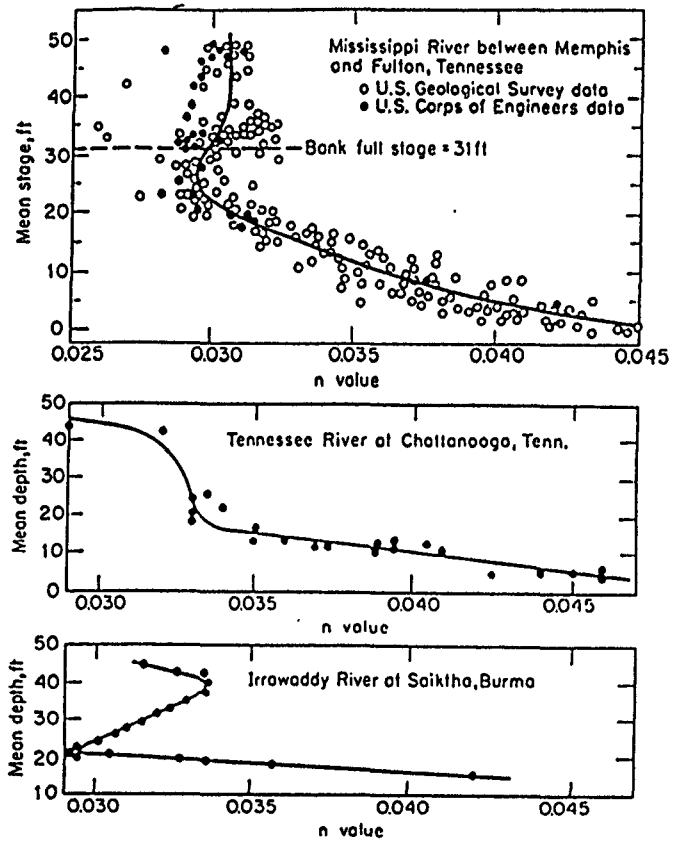



FIG. 5-4. Variations of the $n$ value with the mean stage or depth.

Curves of $n$ value versus stage (Fig. 5-4) in streams have been given by Lane [25], showing how value of $n$ varies with stage in three large river channels. For the roughness of large canals, a study in connection with the design of the Panama Canal was made by Meyers and Schultz [26].[1] The two most important conclusions reached from this study were (1) that the $n$ value for a river channel is least when the stage is at or somewhat above normal bankfull stage, and tends to increase for both

[1] A table of $n$ values for eleven large channels at the most efficient depths and the curves showing the variations of $n$ value with hydraulic radius in eight river channels are also given in this reference.

higher and lower stages; and (2) that the bankfull $n$ values do not vary greatly for rivers and canals in different kinds of material and in widely separated locations.

For circular conduits, Camp [27,28] was able to show that the $n$ value for a conduit flowing partially full is greater than that for a full conduit. Using measurements on clean sewer pipe and drain tile, both clay and concrete, from 4 to 12 in. in size, he found an increase of about 24% in the $n$ value at the half-depth (Fig. 6-5).[1] The $n$ value for the pipe flowing full was found to vary from 0.0095 to 0.011. Taking an average value of 0.0103, the $n$ value at half-depth should be about 0.013. This is identical with the usual design value, which is based largely on measured values in sewers flowing partially full.

*I. Seasonal Change.* Owing to the seasonal growth of aquatic plants, grass, weeds, willow, and trees in the channel or on the banks, the value of $n$ may increase in the growing season and diminish in the dormant season. This seasonal change may cause changes in other factors.

*J. Suspended Material and Bed Load.* The suspended material and the bed load, whether moving or not moving, would consume energy and cause head loss or increase the apparent channel roughness.

All the above factors should be studied and evaluated with respect to conditions regarding type of channel, state of flow, degree of maintenance, and other related considerations. They provide a basis for determining the proper value of $n$ for a given problem. As a general guide to judgment, it may be accepted that conditions tending to induce turbulence and cause retardance will increase $n$ value and that those tending to reduce turbulence and retardance will decrease $n$ value.

Recognizing several primary factors affecting the roughness coefficient, Cowan [32] developed a procedure for estimating the value of $n$. By this procedure, the value of $n$ may be computed by

$$n = (n_0 + n_1 + n_2 + n_3 + n_4)m_5 \qquad (5\text{-}12)$$

where $n_0$ is a basic $n$ value for a straight, uniform, smooth channel in the natural materials involved, $n_1$ is a value added to $n_0$ to correct for the effect of surface irregularities, $n_2$ is a value for variations in shape and size of the channel cross section, $n_3$ is a value for obstructions, $n_4$ is a value for vegetation and flow conditions, and $m_5$ is a correction factor for meandering of channel. Proper values of $n_0$ to $n_4$ and $m_5$ may be selected from Table 5-5 according to the given conditions.

[1] The $n/n_0$ curve was based on measurements by Wilcox [29] on 8-in. clay and concrete sewer pipes and by Yarnell and Woodward [30] on open-butt-joint concrete and clay drain tiles 4 to 12 in. in size. For depths less than about $0.15d_0$, the curve was verified by the data of Johnson [31] for large sewers.



In selecting the value of $n_1$, the degree of irregularity is considered *smooth* for surfaces comparable to the best attainable for the materials involved; *minor* for good dredged channels, slightly eroded or scoured side slopes of canals or drainage channels; *moderate* for fair to poor dredged channels, moderately sloughed or eroded side slopes of canals or drainage channels; and *severe* for badly sloughed banks of natural streams, badly eroded or sloughed sides of canals or drainage channels, and unshaped, jagged, and irregular surfaces of channels excavated in rock.

In selecting the value of $n_2$, the character of variations in size and shape of cross section is considered *gradual* when the change in size or shape occurs gradually, *alternating occasionally* when large and small sections alternate occasionally or when shape changes cause occasional shifting of main flow from side to side, and *alternating frequently* when large and small sections alternate frequently or when shape changes cause frequent shifting of main flow from side to side.

The selection of the value of $n_3$ is based on the presence and characteristics of obstructions such as debris deposits, stumps, exposed roots, boulders, and fallen and lodged logs. One should recall that conditions considered in other steps must not be reevaluated or double-counted in this selection. In judging the relative effect of obstructions, consider the following: the extent to which the obstructions occupy or reduce the average water area, the character of obstructions (sharp-edged or angular objects induce greater turbulence than curved, smooth-surfaced objects), and the position and spacing of obstructions transversely and longitudinally in the reach under consideration.

In selecting the value of $n_4$, the degree of effect of vegetation is considered

(1) *Low* for conditions comparable to the following: (*a*) dense growths of flexible turf grasses or weeds, of which Bermuda and blue grasses are examples, where the average depth of flow is 2 to 3 times the height of vegetation, and (*b*) supple seedling tree switches, such as willow, cottonwood, or salt cedar where the average depth of flow is 3 to 4 times the height of the vegetation.

(2) *Medium* for conditions comparable to the following: (*a*) turf grasses where the average depth of flow is 1 to 2 times the height of vegetation, (*b*) stemmy grasses, weeds, or tree seedlings with moderate cover where the average depth of flow is 2 to 3 times the height of vegetation, and (*c*) brushy growths, moderately dense, similar to willows 1 to 2 years old, dormant season, along side slopes of a channel with no significant vegetation along the channel bottom, where the hydraulic radius is greater than 2 ft.

(3) *High* for conditions comparable to the following: (*a*) turf grasses where the average depth of flow is about equal to the height of vegetation,

(*b*) dormant season—willow or cottonwood trees 8 to 10 years old, intergrown with some weeds and brush, none of the vegetation in foliage, where the hydraulic radius is greater than 2 ft, and (*c*) growing season—bushy willows about 1 year old intergrown with some weeds in full foliage along side slopes, no significant vegetation along channel bottom, where hydraulic radius is greater than 2 ft.

(4) *Very high* for conditions comparable to the following: (*a*) turf grasses where the average depth of flow is less than one-half the height of vegetation, (*b*) growing season—bushy willows about 1 year old, intergrown with weeds in full foliage along side slopes, or dense growth of cattails along channel bottom, with any value of hydraulic radius up to 10 or 15 ft, and (*c*) growing season—trees intergrown with weeds and brush, all in full foliage, with any value of hydraulic radius up to 10 or 15 ft.

In selecting the value of $m_5$, the degree of meandering depends on the ratio of the meander length to the straight length of the channel reach. The meandering is considered *minor* for ratios of 1.0 to 1.2, *appreciable* for ratios of 1.2 to 1.5, and *severe* for ratios of 1.5 and greater.

In applying the above method for determining the $n$ value, several things should be noted. The method does not consider the effect of suspended and bed loads. The values given in Table 5-5 were developed from a study of some 40 to 50 cases of small and moderate channels. Therefore, the method is questionable when applied to large channels whose hydraulic radii exceed, say, 15 ft. The method applies only to unlined natural streams, floodways, and drainage channels and shows a minimum value of 0.02 for the $n$ value of such channels. The minimum value of $n$ in general, however, may be as low as 0.012 in lined channels and as 0.008 in artificial laboratory flumes.

5-9. The Table of Manning's Roughness Coefficient. Table 5-6 gives a list of $n$ values for channels of various kinds.[1] For each kind of channel the minimum, normal, and maximum values of $n$ are shown. The normal values for artificial channels given in the table are recommended only for channels with good maintenance. The boldface figures are values generally recommended in design. For the case in which poor maintenance is expected in the future, values should be increased according to the situation expected. Table 5-6 will be found very useful as a guide to the quick selection of the $n$ value to be used in a given problem. A popular table of this type was prepared by Horton [34] from an examination of the best available experiments at his time.[2] Table 5-6 is compiled

[1] The minimum value for Lucite was observed in the Hydraulic Engineering Laboratory at the University of Illinois [33]. Such a low $n$ value may perhaps be obtained also for smooth brass and glass, but no observations have yet been reported.

[2] A table showing $n$ values and other elements from 269 observations made on many existing artificial channels is also given by King [35].



TABLE 5-5. VALUES FOR THE COMPUTATION OF THE ROUGHNESS COEFFICIENT BY EQ. (5-12)

| Channel conditions | | Values | |
|---|---|---|---|
| Material involved | Earth | $n_0$ | 0.020 |
| | Rock cut | | 0.025 |
| | Fine gravel | | 0.024 |
| | Coarse gravel | | 0.028 |
| Degree of irregularity | Smooth | $n_1$ | 0.000 |
| | Minor | | 0.005 |
| | Moderate | | 0.010 |
| | Severe | | 0.020 |
| Variations of channel cross section | Gradual | $n_2$ | 0.000 |
| | Alternating occasionally | | 0.005 |
| | Alternating frequently | | 0.010–0.015 |
| Relative effect of obstructions | Negligible | $n_3$ | 0.000 |
| | Minor | | 0.010–0.015 |
| | Appreciable | | 0.020–0.030 |
| | Severe | | 0.040–0.060 |
| Vegetation | Low | $n_4$ | 0.005–0.010 |
| | Medium | | 0.010–0.025 |
| | High | | 0.025–0.050 |
| | Very high | | 0.050–0.100 |
| Degree of meandering | Minor | $m_5$ | 1.000 |
| | Appreciable | | 1.150 |
| | Severe | | 1.300 |

TABLE 5-6. VALUES OF THE ROUGHNESS COEFFICIENT $n$
(Boldface figures are values generally recommended in design)

| Type of channel and description | Minimum | Normal | Maximum |
|---|---|---|---|
| A. CLOSED CONDUITS FLOWING PARTLY FULL | | | |
| A-1. Metal | | | |
| *a.* Brass, smooth | 0.009 | 0.010 | 0.013 |
| *b.* Steel | | | |
| 1. Lockbar and welded | 0.010 | 0.012 | 0.014 |
| 2. Riveted and spiral | 0.013 | 0.016 | 0.017 |
| *c.* Cast iron | | | |
| 1. Coated | 0.010 | 0.013 | 0.014 |
| 2. Uncoated | 0.011 | 0.014 | 0.016 |
| *d.* Wrought iron | | | |
| 1. Black | 0.012 | 0.014 | 0.015 |
| 2. Galvanized | 0.013 | 0.016 | 0.017 |
| *e.* Corrugated metal | | | |
| 1. Subdrain | 0.017 | 0.019 | 0.021 |
| 2. Storm drain | 0.021 | 0.024 | 0.030 |
| A-2. Nonmetal | | | |
| *a.* Lucite | 0.008 | 0.009 | 0.010 |
| *b.* Glass | 0.009 | 0.010 | 0.013 |
| *c.* Cement | | | |
| 1. Neat, surface | 0.010 | 0.011 | 0.013 |
| 2. Mortar | 0.011 | 0.013 | 0.015 |
| *d.* Concrete | | | |
| 1. Culvert, straight and free of debris | 0.010 | 0.011 | 0.013 |
| 2. Culvert with bends, connections, and some debris | 0.011 | 0.013 | 0.014 |
| 3. Finished | 0.011 | 0.012 | 0.014 |
| 4. Sewer with manholes, inlet, etc., straight | 0.013 | 0.015 | 0.017 |
| 5. Unfinished, steel form | 0.012 | 0.013 | 0.014 |
| 6. Unfinished, smooth wood form | 0.012 | 0.014 | 0.016 |
| 7. Unfinished, rough wood form | 0.015 | 0.017 | 0.020 |
| *e.* Wood | | | |
| 1. Stave | 0.010 | 0.012 | 0.014 |
| 2. Laminated, treated | 0.015 | 0.017 | 0.020 |
| *f.* Clay | | | |
| 1. Common drainage tile | 0.011 | 0.013 | 0.017 |
| 2. Vitrified sewer | 0.011 | 0.014 | 0.017 |
| 3. Vitrified sewer with manholes, inlet, etc. | 0.013 | 0.015 | 0.017 |
| 4. Vitrified subdrain with open joint | 0.014 | 0.016 | 0.018 |
| *g.* Brickwork | | | |
| 1. Glazed | 0.011 | 0.013 | 0.015 |
| 2. Lined with cement mortar | 0.012 | 0.015 | 0.017 |
| *h.* Sanitary sewers coated with sewage slimes, with bends and connections | 0.012 | 0.013 | 0.016 |
| *i.* Paved invert, sewer, smooth bottom | 0.016 | 0.019 | 0.020 |
| *j.* Rubble masonry, cemented | 0 018 | 0.025 | 0.030 |



TABLE 5-6. VALUES OF THE ROUGHNESS COEFFICIENT $n$ *(continued)*

| Type of channel and description | Minimum | Normal | Maximum |
|---|---|---|---|
| B. LINED OR BUILT-UP CHANNELS | | | |
| B-1. Metal | | | |
| *a.* Smooth steel surface | | | |
| 1. Unpainted | 0.011 | 0.012 | 0.014 |
| 2. Painted | 0.012 | 0.013 | 0.017 |
| *b.* Corrugated | 0.021 | 0.025 | 0.030 |
| B-2. Nonmetal | | | |
| *a.* Cement | | | |
| 1. Neat, surface | 0.010 | 0.011 | 0.013 |
| 2. Mortar | 0.011 | 0.013 | 0.015 |
| *b.* Wood | | | |
| 1. Planed, untreated | 0.010 | 0.012 | 0.014 |
| 2. Planed, creosoted | 0.011 | 0.012 | 0.015 |
| 3. Unplaned | 0.011 | 0.013 | 0.015 |
| 4. Plank with battens | 0.012 | 0.015 | 0.018 |
| 5. Lined with roofing paper | 0.010 | 0.014 | 0.017 |
| *c.* Concrete | | | |
| 1. Trowel finish | 0.011 | 0.013 | 0.015 |
| 2. Float finish | 0.013 | 0.015 | 0.016 |
| 3. Finished, with gravel on bottom | 0.015 | 0.017 | 0.020 |
| 4. Unfinished | 0.014 | 0.017 | 0.020 |
| 5. Gunite, good section | 0.016 | 0.019 | 0.023 |
| 6. Gunite, wavy section | 0.018 | 0.022 | 0.025 |
| 7. On good excavated rock | 0.017 | 0.020 | |
| 8. On irregular excavated rock | 0.022 | 0.027 | |
| *d.* Concrete bottom float finished with sides of | | | |
| 1. Dressed stone in mortar | 0.015 | 0.017 | 0.020 |
| 2. Random stone in mortar | 0.017 | 0.020 | 0.024 |
| 3. Cement rubble masonry, plastered | 0.016 | 0.020 | 0.024 |
| 4. Cement rubble masonry | 0.020 | 0.025 | 0.030 |
| 5. Dry rubble or riprap | 0.020 | 0.030 | 0.035 |
| *e.* Gravel bottom with sides of | | | |
| 1. Formed concrete | 0.017 | 0.020 | 0.025 |
| 2. Random stone in mortar | 0.020 | 0.023 | 0.026 |
| 3. Dry rubble or riprap | 0.023 | 0.033 | 0.036 |
| *f.* Brick | | | |
| 1. Glazed | 0.011 | 0.013 | 0.015 |
| 2. In cement mortar | 0.012 | 0.015 | 0.018 |
| *g.* Masonry | | | |
| 1. Cemented rubble | 0.017 | 0.025 | 0.030 |
| 2. Dry rubble | 0.023 | 0.032 | 0.035 |
| *h.* Dressed ashlar | 0.013 | 0.015 | 0.017 |
| *i.* Asphalt | | | |
| 1. Smooth | 0.013 | 0.013 | |
| 2. Rough | 0.016 | 0.016 | |
| *j.* Vegetal lining | 0.030 | ..... | 0.500 |

TABLE 5-6. VALUES OF THE ROUGHNESS COEFFICIENT $n$ (*continued*)

| Type of channel and description | Minimum | Normal | Maximum |
|---|---|---|---|
| C. EXCAVATED OR DREDGED | | | |
| *a.* Earth, straight and uniform | | | |
| 1. Clean, recently completed | 0.016 | 0.018 | 0.020 |
| 2. Clean, after weathering | 0.018 | 0.022 | 0.025 |
| 3. Gravel, uniform section, clean | 0.022 | 0.025 | 0.030 |
| 4. With short grass, few weeds | 0.022 | 0.027 | 0.033 |
| *b.* Earth, winding and sluggish | | | |
| 1. No vegetation | 0.023 | 0.025 | 0.030 |
| 2. Grass, some weeds | 0.025 | 0.030 | 0.033 |
| 3. Dense weeds or aquatic plants in deep channels | 0.030 | 0.035 | 0.040 |
| 4. Earth bottom and rubble sides | 0.028 | 0.030 | 0.035 |
| 5. Stony bottom and weedy banks | 0.025 | 0.035 | 0.040 |
| 6. Cobble bottom and clean sides | 0.030 | 0.040 | 0.050 |
| *c.* Dragline-excavated or dredged | | | |
| 1. No vegetation | 0.025 | 0.028 | 0.033 |
| 2. Light brush on banks | 0.035 | 0.050 | 0.060 |
| *d.* Rock cuts | | | |
| 1. Smooth and uniform | 0.025 | 0.035 | 0.040 |
| 2. Jagged and irregular | 0.035 | 0.040 | 0.050 |
| *e.* Channels not maintained, weeds and brush uncut | | | |
| 1. Dense weeds, high as flow depth | 0.050 | 0.080 | 0.120 |
| 2. Clean bottom, brush on sides | 0.040 | 0.050 | 0.080 |
| 3. Same, highest stage of flow | 0.045 | 0.070 | 0.110 |
| 4. Dense brush, high stage | 0.080 | 0.100 | 0.140 |
| D. NATURAL STREAMS | | | |
| D-1. Minor streams (top width at flood stage <100 ft) | | | |
| *a.* Streams on plain | | | |
| 1. Clean, straight, full stage, no rifts or deep pools | 0.025 | 0.030 | 0.033 |
| 2. Same as above, but more stones and weeds | 0.030 | 0.035 | 0.040 |
| 3. Clean, winding, some pools and shoals | 0.033 | 0.040 | 0.045 |
| 4. Same as above, but some weeds and stones | 0.035 | 0.045 | 0.050 |
| 5. Same as above, lower stages, more ineffective slopes and sections | 0.040 | 0.048 | 0.055 |
| 6. Same as 4, but more stones | 0.045 | 0.050 | 0.060 |
| 7. Sluggish reaches, weedy, deep pools | 0.050 | 0.070 | 0.080 |
| 8. Very weedy reaches, deep pools, or floodways with heavy stand of timber and underbrush | 0.075 | 0.100 | 0.150 |



TABLE 5-6. VALUES OF THE ROUGHNESS COEFFICIENT $n$ (*continued*)

| Type of channel and description | Minimum | Normal | Maximum |
|---|---|---|---|
| *b.* Mountain streams, no vegetation in channel, banks usually steep, trees and brush along banks submerged at high stages | | | |
| 1. Bottom: gravels, cobbles, and few boulders | 0.030 | 0.040 | 0.050 |
| 2. Bottom: cobbles with large boulders | 0.040 | 0.050 | 0.070 |
| D-2. Flood plains | | | |
| *a.* Pasture, no brush | | | |
| 1. Short grass | 0.025 | 0.030 | 0.035 |
| 2. High grass | 0.030 | 0.035 | 0.050 |
| *b.* Cultivated areas | | | |
| 1. No crop | 0.020 | 0.030 | 0.040 |
| 2. Mature row crops | 0.025 | 0.035 | 0.045 |
| 3. Mature field crops | 0.030 | 0.040 | 0.050 |
| *c.* Brush | | | |
| 1. Scattered brush, heavy weeds | 0.035 | 0.050 | 0.070 |
| 2. Light brush and trees, in winter | 0.035 | 0.050 | 0.060 |
| 3. Light brush and trees, in summer | 0.040 | 0.060 | 0.080 |
| 4. Medium to dense brush, in winter | 0.045 | 0.070 | 0.110 |
| 5. Medium to dense brush, in summer | 0.070 | 0.100 | 0.160 |
| *d.* Trees | | | |
| 1. Dense willows, summer, straight | 0.110 | 0.150 | 0.200 |
| 2. Cleared land with tree stumps, no sprouts | 0.030 | 0.040 | 0.050 |
| 3. Same as above, but with heavy growth of sprouts | 0.050 | 0.060 | 0.080 |
| 4. Heavy stand of timber, a few down trees, little undergrowth, flood stage below branches | 0.080 | 0.100 | 0.120 |
| 5. Same as above, but with flood stage reaching branches | 0.100 | 0.120 | 0.160 |
| D-3. Major streams (top width at flood stage >100 ft). The $n$ value is less than that for minor streams of similar description, because banks offer less effective resistance. | | | |
| *a.* Regular section with no boulders or brush | 0.025 | ..... | 0.060 |
| *b.* Irregular and rough section | 0.035 | ..... | 0.100 |

# EFFECTIVE FIRM HEC-2 MODELING - BREAK1.OUT

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*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    11FEB02     TIME   14:58:08 *
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*  U.S. ARMY CORPS OF ENGINEERS           *
*  HYDROLOGIC ENGINEERING CENTER          *
*  609 SECOND STREET, SUITE D             *
*  DAVIS, CALIFORNIA 95616-4687           *
*           (916) 756-1104                *
*****************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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   11FEB02      14:58:08                                                                    PAGE    1


                                                                  THIS RUN EXECUTED 11FEB02    14:58:08

 ************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************


SPLIT FLOW BEING PERFORMED


SF    SPLIT FLOW ANALYSIS


JC    WEIR FLOW ANALYSIS
JP     0       0      40      -1       0

TW    WEIR FLOW OVER BOULDER HIGHWAY BETWEEN SECTIONS 201 AND 202
WS     2     201     202     124     3.0
WC     0  1642.0     240  1642.7

TW    WEIR FLOW OVER BOULDER HIGHWAY BETWEEN SECTIONS 202 AND 203
WS     3     202     203     124     3.0
WC     0  1642.7     255    1644     565  1646.1

TW    WEIR FLOW OVER BOULDER HIGHWAY BETWEEN SECTIONS 203 AND 204
WS     3     203     204     124     3.0
WC     0  1646.1     210    1648     335  1649.2

TW    WEIR FLOW OVER BOULDER HIGHWAY BETWEEN SECTIONS 204 AND 205
WS     3     204     205     124     3.0
WC     0  1649.2      85    1650     115  1650.3

TW    WEIR BETWEEN SECTIONS 205.2 AND 205.3
WS     3   205.2   205.3     205     2.7
WC     0  1652.7     270    1654     375  1655.2

TW    WEIR BETWEEN SECTIONS 205.3 AND 205.4
WS     5   205.3   205.4     205     2.7
WC     0  1655.2      95    1656     230    1658     260    1660     295  1662.3
1
   11FEB02      14:58:08                                                                    PAGE    2


T1    DUCK CREEK FLOOD INSURANCE STUDY              CONTRACT #: FIS-94-21
T2    PREPARED BY NIMBUS ENGINEERS, RENO,NV         FILENAME:   Break1.dat
T3            DUCK CREEK                            DATE: APRIL 1997

      Downstream limit of study
      Start WSEL with slope-area method
      Q100 = 11,500 cfs


J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2          0         0    0.0045         0         0         0      1560         0

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      -1         0        -1                                                                    15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     150        38        43        13        14        15        26         1        53        54
       4        25

      .045      .045      .035        .1        .3

QT       1     11500

    CROSS SECTION A1
X1      100        34      1720      2012         0         0         0
GR     1566      1000      1564      1050    1562.05      1200    1562.25      1300      1562      1325
GR   1561.2      1430      1560      1510    1559.15      1575      1558      1670      1556      1720
GR     1554      1728      1552      1740      1550      1850      1548      1880    1546.2      1920
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GR   1546.2      1970      1548      1980      1550      1995      1552      2005      1554      2010
GR      1556      2012      1558      2028    1559.3      2100      1559      2220      1558      2280
GR    1557.8      2320      1558      2350      1560      2540    1560.5      2600      1560      2690
GR    1559.9      2770    1559.5      2850      1560      2930      1562      2950
   CROSS SECTION A2

[redacted]  102        32      1850      2046      1590      1500      1530
      1576      1000      1574      1030      1572      1200      1570      1270      1568      1320
      1567      1430   1566.25      1530      1566      1620      1564      1650      1562      1920
GR    1560      1932      1558      1960    1556.3      1990    1556.4      2020      1558      2035
GR    1560      2040      1562      2043      1564      2046      1566      2050      1568      2070
GR  1568.6      2090      1568      2160    1567.9      2210      1568      2310      1568      2420
GR  1567.8      2470      1568      2510   1568.45      2610      1568      2730      1568      2800
GR    1570      3150      1572      3220
   CROSS SECTION A3
1
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X1     103        20      1532      1700       720       720       720
GR    1572      1000      1575      1131      1574      1175      1572      1225      1570      1270
GR  1568.4      1334    1568.7      1412      1568      1532      1566      1575      1562      1598
GR    1560      1618    1559.3      1635    1559.2      1647    1559.3      1655      1560      1670
GR    1568      1700      1570      1740      1571      1860      1571      2035      1572      2245
   CROSS SECTION A11

ET               7.1                                           1650      3370
X1     104        52      2180      2420       510       510       510
GR    1584      1000      1582      1020      1580      1047      1578      1058    1577.4      1105
GR  1577.1      1142      1576      1215      1574      1230      1572      1236    1571.2      1265
GR  1571.2      1295      1572      1331      1574      1364      1576      1445    1576.3      1500
GR  1576.4      1542      1576      1585    1575.6      1650    1574.8      1717      1576      1755
GR  1576.1      1762      1576      1780      1576      1830    1575.5      1870      1576      1940
GR  1575.2      2020    1575.3      2070      1574      2180      1572      2250      1570      2280
GR    1568      2286      1566      2290    1564.5      2310      1566      2330      1568      2340
GR    1570      2380      1572      2395      1574      2420    1574.2      2450    1574.3      2480
GR    1574      2520      1572      2595      1570      2670      1568      2680    1567.6      2710
GR  1567.5      2730      1568      2745      1570      2755      1572      2820      1574      3150
GR  1575.5      3230      1576      3370
   CROSS SECTION A6

ET               7.1                                           1500      3050
X1     106        36      2320      2995      1120      1040      1100
GR    1590      1000      1588      1010      1586      1017   1584.65      1090      1584      1200
GR    1582      1270      1580      1300      1578      1315      1577      1330      1578      1345
GR    1580      1350      1582      1356      1584      1390      1585      1500    1584.7      1650
GR    1584      1795      1582      2100      1580      2320      1578      2380      1578      2400
GR    1580      2510    1580.3      2570    1580.3      2630      1580      2690      1578      2820
GR  1576.9      2850    1576.7      2875      1578      2915      1580      2995   1581.75      3050
GR    1580      3125      1580      3150      1582      3210   1583.25      3265      1584      3340
[redacted]  1586      3380
   ROSS SECTION A13

NC    0.055     0.065     0.055       0.1       0.3
   ET CARD USED TO ENCROACH AN INEFFECTIVE FLOW AREA.
ET               7.1                                           1600      3085
X1     108        48      2640      2920      1000      1000      1100
GR    1596      1000      1594      1040   1592.35      1205      1592      1225      1590      1250
GR    1588      1255      1586      1260    1585.5      1295      1586      1320      1588      1330
GR    1590      1350    1590.4      1500    1590.5      1600      1590      1720      1588      1910
GR    1586      2080    1585.2      2250    1584.6      2410      1584      2640    1583.7      2750
GR  1582.8      2880      1584      2920    1585.5      2940      1584      2968    1583.7      3000
GR    1584      3045      1586      3065    1587.4      3085      1586      3110    1585.5      3130
GR  1585.5      3155      1586      3200    1587.2      3220      1586      3240      1586      3290
GR    1584      3310    1582.8      3360    1582.9      3400      1584      3445      1586      3490
GR    1588      3500      1588      3520    1587.7      3550      1588      3570      1590      3610
GR    1592      3640      1594      3720   1594.25      3730
   CROSS SECTION A14
1
   11FEB02      14:58:08                                                                    PAGE    4


NC    0.065     0.065     0.055
ET               7.1                                           2060      4000
X1     110        27      3330      3680      1010      1150      1000
GR  1595.8      2060    1595.8   2060.01    1595.8   2060.02    1595      2190      1594      2334
GR  1593.3      2460    1592.9      2610      1592      2805      1591      3060    1591.3      3260
GR  1591.6      3330      1591      3490    1590.4      3610      1592      3680      1594      3740
GR    1596      3880      1598      3960    1598.6      4040    1599.5      4160      1598      4230
GR    1596      4239      1594      4242    1592.4      4280    1593.6      4360      1594      4410
GR    1596      4610      1598      4730
   CROSS SECTION A15

X1     112        26      2975      3165      1050      1030      1050
GR    1602      1000      1600      1240      1598      1650      1596      2190    1595.9      2220
GR    1596      2242      1598      2650    1596.5      2715      1598      2760    1599.3      2855
GR  1599.3      2975      1598      3060    1597.7      3080      1598      3095    1599.7      3165
GR    1600      3310    1600.5      3320    1600.5      3345      1600      3400      1598      3440
GR  1597.6      3460    1597.6      3500      1598      3530      1600      3642      1602      3728
GR    1604      3890
   CROSS SECTION A16
   Ignore Culverts under Rebel Road.  Clogged and ineffective.

[redacted]  0.016     0.016     0.016       0.5       0.8
   BEL ROAD
      117        23      1000      4490      1350      1000       940
GR    1614       765      1615      1000      1614      1150   1613.45      1260    1613.2      1370
GR  1612.8      1560    1612.6      1660    1612.1      1760   1611.81      1860   1611.25      2010
GR    1610      2180    1608.9      2280      1610      2410      1612      2630      1614      2880
GR    1614      2930    1614.1      3280    1612.2      3430      1612      3450   1610.35      3910
GR    1612      4230    1613.2      4320      1614      4490
   CROSS SECTION A17
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NC      0.07      0.055      0.045
X1       118         40       3240       3360         60         60         60
GR      1614        765       1612       1000     1611.3       1250       1611       1350     1610.8       1450
GR      1610       1545     1609.9       1700     1609.7       1850     1609.5       2000     1609.3       2100
GR    1609.1       2200     1608.9       2280       1608       2430     1607.8       2480       1608       2580
GR      1608       2620       1607       2700     1606.4       2800       1606       2870     1606.7       2920
[redacted]
GR      1604       3275       1603       3295       1604       3310       1606       3340     1606.3       3360
GR      1607       3460     1607.8       3610       1608       3770     1609.2       3870       1610       4040
GR    1611.4       4140       1612       4250       1613       4280     1612.7       4420       1614       4490
   CROSS SECTION A

X1       120         25       2000       2170        260        835        440
X4         2       1614       1000       1614       3670
GR      1616        880     1612.1       1200       1612       1360     1611.7       1500       1611       1650
GR    1611.1       1850     1611.2       2000       1610       2100       1612       2170   1615.35       2190
GR      1612       2200       1610       2220       1610       2245       1611       2400     1610.8       2550
GR      1612       2700       1612       2760     1612.8       2820     1612.6       2850       1612       2900
GR    1611.1       3030     1611.3       3250     1610.8       3450       1612       3620       1616       3840
   CROSS SECTION B
1
   11FEB02      14:58:08                                                                                  PAGE     5


NC      0.07       0.07      0.045        0.1        0.3
X1       122         34       2040       2183        520        700        570
X3                                                             3150       1616
GR      1618       1000       1616       1150     1614.9       1350     1614.5       1450       1614       1570
GR      1614       1650     1613.9       1750     1613.8       1820       1614       1925     1614.2       1980
GR    1614.2       2000       1614       2040       1612       2140       1610       2150     1609.5       2156
GR      1610       2170       1612       2176       1614       2183       1616       2200       1618       2205
GR      1618       2220       1616       2330     1615.2       2400     1615.4       2600     1615.6       2800
GR      1616       3000       1616       3050     1615.8       3075       1616       3090     1617.1       3150
GR      1616       3220     1614.5       3265       1616       3280       1618       3350                            [redacted]
   CROSS SECTION C

X1       124         31       1955       2040        525        530        525
X4         1       1620       1000
GR      1622        892       1618       1180       1618       1330     1618.5       1390     1618.5       1430
GR      1618       1470     1617.2       1550     1617.4       1650       1618       1730     1618.2       1760
GR      1618       1790       1616       1955       1614       1995       1612       2005       1612       2022
GR      1614       2028       1616       2040       1618       2050       1620       2052       1622       2060
GR      1622       2077       1620       2087     1619.2       2100       1619       2190       1619       2440
GR      1620       2758     1619.2       2880     1619.3       2930       1620       3020     1620.2       3135
GR      1622       3570
   CROSS SECTION D

NC      0.07       0.07       0.06        0.1        0.3
X1       126         32       1940       2110       1000        630        840
GR      1630       1000       1628       1055     1627.8       1220       1626       1390     1625.2       1450
[redacted]
GR    1625.8       1550       1626       1630       1626       1660     1624.4       1750     1624.2       1840
GR    1625.2       1940       1624       1980       1622       1995     1621.7       2020     1621.7       2050
GR      1622       2075       1624       2100       1626       2110       1626       2140       1624       2180
GR      1623       2220       1623       2243       1623       2270       1623       2320     1623.9       2385
GR      1623       2455       1623       2655     1623.1       2855     1623.3       3055     1623.7       3255
GR      1624       3485       1626       3790
   CROSS SECTION E

NC      0.07       0.05       0.06        0.1        0.3
X1       128         30       1820       1970        750        750        820
X4         1       1630       1000
GR      1632        762       1628       1190       1626       1250       1626       1285       1626       1330
GR    1627.8       1460     1627.8       1560       1628       1670     1628.2       1740       1628       1820
GR      1626       1895       1625       1920       1626       1935       1628       1970     1628.2       1990
GR      1628       2010     1627.8       2060     1627.3       2110       1628       2160     1628.6       2210
GR    1629.6       2310     1629.2       2410     1629.6       2510       1630       2590       1630       2640
GR    1629.8       2760     1629.2       2860     1629.5       2960       1630       3105     1630.5       3160

      Cross Section 1 of Special Culvert at Boulder Highway.
      Note:  North Bound Lane of Boulder Highway is a bridge with piers.  South
             Bound Lane is two-triple cell RCB's.  Will use triple RCB's for
             analysis.  (upstream lane)
   CROSS SECTION F
1
   11FEB02      14:58:08                                                                                  PAGE     6


NC                                              0.3        0.5
X1       130         31       1865       1970        460        520        480
GR      1634       1000       1632       1150     1631.5       1270       1631       1370     1630.6       1460
GR    1630.1       1690       1632       1820       1634       1843       1636       1850       1636       1860
GR      1634       1865       1632       1880       1630       1887       1628       1890     1627.8       1905
GR    1627.8       1920       1628       1934       1630       1938       1632       1945       1634       1970
GR      1634       1990     1634.7       2020       1635       2040       1634       2075       1632       2110
GR    1631.4       2170     1631.5       2270       1631       2370       1632       2420       1634       2480
GR      1635       2570


QT         1       8159

   CROSS SECTION G
NC      0.055      0.055       0.06
X1       198         96     1790.7     1897.1        470        470        470
[redacted]
GR    1641.9       1000     1641.8     1015.4     1641.3       1028       1641     1048.3     1640.9     1077.4
GR    1640.8     1085.4     1639.2     1104.5     1639.2     1107.7     1640.4     1126.7     1640.1     1133.4
GR    1639.9       1141     1639.9     1162.8     1639.2     1172.8     1639.2     1180.1     1639.8     1190.3
GR    1639.5     1205.4     1639.5     1216.9     1639.3     1229.7     1638.8     1244.8     1638.7     1250.6
GR    1638.6       1264     1638.3     1272.1     1638.5     1315.8     1638.5     1331.5     1638.4     1344.5
GR    1638.4     1359.5     1638.5     1372.3     1638.3     1413.3     1638.1     1435.9     1638.2     1446.4
GR    1637.8     1463.4     1637.4     1492.1     1637.4     1500.9     1637.2     1516.4       1637     1540.1
GR      1637     1553.3     1637.3     1591.8     1637.4     1596.6     1637.5     1623.3     1637.8     1638.6
GR    1638.1     1681.7       1638     1687.5     1637.9     1709.2       1638     1710.2     1637.7     1748.5
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1637.6 | 1778.1 | 1637.7 | 1790.7 | 1637.2 | 1798.8 | 1635.4 | 1806.3 | 1634.6 | 1812.1 |
| GR | 1633.1 | 1821.5 | 1633 | 1856.8 | 1632.8 | 1887.4 | 1636.2 | 1893.7 | 1637.9 | 1897.1 |
| GR | 1638.2 | 1916.3 | 1638.3 | 1920.8 | 1637.6 | 1933 | 1638.7 | 1987.1 | 1638.8 | 1994.9 |
| GR | 1639.6 | 2026.3 | 1638.3 | 2055.1 | 1638.3 | 2068.8 | 1639.3 | 2096.7 | 1638.2 | 2132.4 |
| GR | 1638.5 | 2142.8 | 1638.6 | 2190.7 | 1638.4 | 2203.2 | 1638.6 | 2216.9 | 1638.5 | 2229.8 |
| GR | 1638.4 | 2232.4 | 1638.6 | 2248.2 | 1638.9 | 2258.6 | 1638.9 | 2290.8 | 1639.7 | 2326.3 |
| [redacted] | 1639.9 | 2344.8 | 1639.6 | 2394.2 | 1639.6 | 2415.5 | 1639.5 | 2438.6 | 1639 | 2459.3 |
| | 1638.6 | 2470 | 1638.2 | 2491.9 | 1638.3 | 2493.7 | 1638.3 | 2497.7 | 1638.6 | 2514.8 |
| GR | 1638.6 | 2523.2 | 1638.9 | 2530.7 | 1639 | 2554.4 | 1639.6 | 2582.8 | 1639.9 | 2591.7 |
| GR | 1640.2 | 2595 | 1640.3 | 2610.3 | 1640.9 | 2636.5 | 1640.7 | 2657.8 | 1640.6 | 2680.7 |
| GR | 1640.2 | 2722 | | | | | | | | |

BOULDER HIGHWAY NORTH BOUND CROSSING TWO-TRIPLE 12X6 RCB'S, SEE
NDOT PROJECT #: SP-F-006-1(4), CONTRACT #: 1444
MOSTLY CLOGGED, USED 12x2 RCB TOP OF ROAD ELEVATION TAKEN FROM TOPO

CROSS SECTION H

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0.055 | 0.055 | 0.035 | | | | | | | |
| SC | 6.013 | .2 | 2.9 | 1000 | 2 | 12 | 54 | 10.1 | 1633.5 | 1633 |
| X1 | 200 | 93 | 1803.2 | 1910.9 | 188 | 188 | 188 | | | |
| X2 | 0 | 0 | 2 | 1635.5 | 1638.4 | | | | | |
| X3 | 10 | | | | | | | | | |
| GR | 1642.0 | 1000 | 1641.9 | 1020.0 | 1641.8 | 1039.2 | 1641.7 | 1048.9 | 1641.4 | 1074.5 |
| GR | 1640.6 | 1091.1 | 1641 | 1092.8 | 1641 | 1100.3 | 1640.7 | 1107.5 | 1641 | 1112.3 |
| GR | 1640.9 | 1130.1 | 1641.1 | 1135.5 | 1641 | 1154.7 | 1640.6 | 1179.6 | 1640.5 | 1180.5 |
| GR | 1640.4 | 1188.3 | 1639.2 | 1229.3 | 1639.7 | 1250.2 | 1639.6 | 1250.7 | 1639.6 | 1272.2 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1639.7 | 1274.5 | 1639.6 | 1294.9 | 1639.1 | 1316.43 | 1638.6 | 1392.6 | 1638.5 | 1393.8 |
| GR | 1638.6 | 1423.2 | 1638.5 | 1461.7 | 1637.9 | 1496 | 1637.5 | 1559.5 | 1638 | 1604.3 |
| GR | 1638.2 | 1611.9 | 1638.1 | 1614.7 | 1638.2 | 1617.8 | 1637.9 | 1632.5 | 1637.8 | 1670.1 |
| GR | 1638.2 | 1686.2 | 1637.7 | 1710.8 | 1637.6 | 1743.1 | 1638 | 1750.9 | 1638.1 | 1757.6 |
| GR | 1637.5 | 1776.7 | 1637.5 | 1790.3 | 1637.9 | 1803.2 | 1636.9 | 1808 | 1636.5 | 1810.8 |
| GR | 1634.1 | 1819.72 | 1633.9 | 1827 | 1633.5 | 1879.6 | 1633.5 | 1893.1 | 1635.5 | 1896.8 |
| GR | 1636.2 | 1898.5 | 1636.3 | 1901.4 | 1637.1 | 1906.2 | 1638.2 | 1910.9 | 1638 | 1921.3 |
| GR | 1638 | 1927.9 | 1638.5 | 1950.1 | 1638.4 | 1970.9 | 1638.5 | 1978 | 1638 | 1996.5 |
| GR | 1638.6 | 2027.5 | 1638.3 | 2068 | 1637.9 | 2082.8 | 1638.4 | 2092.5 | 1638.3 | 2098.8 |
| GR | 1638.3 | 2117.1 | 1638.1 | 2141.4 | 1637.3 | 2165.4 | 1637.2 | 2180.2 | 1637.5 | 2205.7 |
| GR | 1637.4 | 2206.9 | 1637.6 | 2225.8 | 1639.1 | 2276.8 | 1638.7 | 2287.3 | 1638.9 | 2297.1 |
| GR | 1638.9 | 2317.4 | 1639.6 | 2350.6 | 1639.6 | 2365.1 | 1640.4 | 2433 | 1640.6 | 2464.3 |
| GR | 1640.4 | 2501 | 1638.5 | 2521.6 | 1640.1 | 2563 | 1640.5 | 2572.3 | 1641 | 2606.1 |
| GR | 1640.8 | 2636.8 | 1640.9 | 2641.4 | 1640.7 | 2644.2 | 1640.5 | 2695 | 1640.7 | 2705 |
| GR | 1640.6 | 2740 | 1641.2 | 2764.5 | 1641.3 | 2776.7 | | | | |

CROSS SECTION I

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NH | 3 | 0.016 | 1093.8 | 0.035 | 1139.5 | 0.06 | 2147.5 | | | |
| ET | | 7.1 | | | | | 1069.2 | 2147.5 | | |
| [redacted] | 201 | 95 | 1000 | 2147.5 | 220 | 640 | 430 | | | |
| | 1642 | 1000 | 1641.9 | 1022 | 1642 | 1040 | 1642.1 | 1064 | 1642 | 1071 |
| | 1640.6 | 1093.8 | 1640.1 | 1096 | 1638.9 | 1105 | 1639.1 | 1108.8 | 1640.8 | 1139.5 |
| GR | 1640.7 | 1140 | 1640.8 | 1140.9 | 1641.2 | 1201.3 | 1641.2 | 1213.8 | 1641.3 | 1218.4 |
| GR | 1641.2 | 1235.2 | 1641.4 | 1270.5 | 1641 | 1296.4 | 1640.8 | 1323.9 | 1640.9 | 1350.3 |
| GR | 1640.7 | 1368.5 | 1641.2 | 1394.8 | 1641.3 | 1419.3 | 1641.2 | 1453.4 | 1641.2 | 1469.4 |
| GR | 1641 | 1515 | 1641 | 1523.2 | 1641.3 | 1533.1 | 1641.3 | 1533.31 | 1641.7 | 1546.3 |
| GR | 1641.2 | 1554.2 | 1640.8 | 1563 | 1640.8 | 1567.3 | 1640.7 | 1570.5 | 1640.7 | 1570.7 |
| GR | 1640.8 | 1572.8 | 1641.9 | 1586.6 | 1642 | 1587 | 1641.9 | 1587.2 | 1641.5 | 1603.4 |
| GR | 1643.1 | 1611.4 | 1643.4 | 1612.1 | 1645.2 | 1619 | 1643.9 | 1621.4 | 1642.7 | 1630.2 |
| GR | 1642.6 | 1633.9 | 1644.3 | 1640.1 | 1644.6 | 1641.7 | 1643.3 | 1666.1 | 1642.1 | 1688.3 |
| GR | 1641.7 | 1695.3 | 1641.5 | 1700.2 | 1641.8 | 1701.8 | 1642 | 1702.6 | 1642.5 | 1704 |
| GR | 1644.4 | 1712.7 | 1644.4 | 1712.8 | 1643.9 | 1716.5 | 1644 | 1717.9 | 1642 | 1727.5 |
| GR | 1641.2 | 1738.3 | 1640.8 | 1742.5 | 1640.8 | 1749.1 | 1641.3 | 1756.9 | 1641.3 | 1770.8 |
| GR | 1641.6 | 1789.6 | 1641.8 | 1793.7 | 1641.8 | 1816.8 | 1641.9 | 1823.7 | 1642 | 1824.9 |
| GR | 1642.7 | 1848.2 | 1642.9 | 1853.6 | 1643 | 1854.8 | 1643.4 | 1869.3 | 1643.3 | 1874.2 |
| GR | 1643.4 | 1901.1 | 1643.5 | 1924.9 | 1643.4 | 1928.1 | 1643.4 | 1929.8 | 1643.2 | 1932.1 |
| GR | 1643 | 1934.8 | 1642.6 | 1942 | 1642.6 | 1969.6 | 1642.5 | 1985.7 | 1642.5 | 2019.6 |
| GR | 1643.7 | 2031.9 | 1643.9 | 2043.5 | 1644.2 | 2082.5 | 1644.2 | 2119.7 | 1643.9 | 2130.1 |
| GR | 1643.9 | 2138.3 | 1643.8 | 2141.2 | 1643.7 | 2143.5 | 1643.7 | 2147.3 | 1643.8 | 2147.5 |

CROSS SECTION J

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | | | | 0.1 | 0.3 | | | | | |
| NH | 4 | 0.016 | 1083.0 | 0.06 | 1238.0 | 0.016 | 1275.0 | 0.06 | 2327.2 | |
| ET | | 7.1 | | | | | 1049.0 | 2327.2 | | |
| X1 | 202 | 86 | 1742 | 1799.2 | 165 | 165 | 165 | | | |
| GR | 1641.9 | 1000 | 1642.4 | 1015 | 1642.6 | 1028 | 1642.7 | 1049 | 1642.3 | 1083 |
| GR | 1642.4 | 1142 | 1642.6 | 1238 | 1642.2 | 1275 | 1641.8 | 1291 | 1642.4 | 1310 |
| GR | 1642.3 | 1349 | 1642.5 | 1386.8 | 1642.4 | 1388.4 | 1642.3 | 1413.4 | 1642.5 | 1499.5 |
| GR | 1642.5 | 1500.4 | 1642.2 | 1562.6 | 1642.7 | 1599.1 | 1642.6 | 1649.2 | 1642.7 | 1700.6 |
| GR | 1643.4 | 1742 | 1643.1 | 1744.2 | 1643.1 | 1746.2 | 1642.9 | 1747.5 | 1642.7 | 1749.8 |
| GR | 1641.7 | 1756.1 | 1643.1 | 1767.1 | 1643.2 | 1768.5 | 1643.3 | 1799.2 | 1643.2 | 1807.6 |
| GR | 1645.4 | 1814.6 | 1645 | 1819.4 | 1643.6 | 1827.4 | 1644 | 1836.3 | 1645.3 | 1841.5 |
| GR | 1645.7 | 1843.4 | 1645.9 | 1845.4 | 1643.4 | 1891.2 | 1642.8 | 1898.9 | 1642.3 | 1899.4 |
| GR | 1644.9 | 1908.8 | 1646 | 1912.1 | 1644.5 | 1917 | 1642.4 | 1925 | 1642.6 | 1939 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1642.7 | 1942.9 | 1642.6 | 1955.5 | 1642 | 1976.2 | 1642.9 | 1983.4 | 1643.7 | 1992.1 |
| GR | 1643.6 | 1993.5 | 1643.5 | 1997.4 | 1643.8 | 2002.2 | 1644.2 | 2044.8 | 1643.9 | 2066.5 |
| GR | 1645.1 | 2077.5 | 1646.4 | 2091 | 1646.7 | 2095.4 | 1646.9 | 2099.7 | 1647 | 2103.8 |
| GR | 1646.9 | 2106.5 | 1646.6 | 2109 | 1645.9 | 2121.9 | 1645.6 | 2129.5 | 1644.8 | 2140.2 |
| GR | 1644.8 | 2142.3 | 1644 | 2152.1 | 1643.7 | 2160.4 | 1643.5 | 2170.6 | 1643.7 | 2179.9 |
| GR | 1643.8 | 2182.2 | 1644.2 | 2205.7 | 1644 | 2214.5 | 1644 | 2220.5 | 1644.1 | 2230.7 |
| [redacted] | 1644.3 | 2241.7 | 1644.4 | 2244.7 | 1644.4 | 2250.5 | 1644.8 | 2275.2 | 1644.9 | 2286.9 |
| | 1645.1 | 2296.2 | 1645.1 | 2300 | 1644.9 | 2306.1 | 1645.9 | 2321.5 | 1646.1 | 2323.7 |
| | 1646 | 2327.2 | | | | | | | | |

CROSS SECTION K

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NH | 5 | 0.016 | 1132.0 | 0.055 | 1800.8 | 0.016 | 1818.4 | 0.06 | 2307.3 | 0.045 |
| NH | 2806 | | | | | | | | | |
| ET | | 7.1 | | | | | 1105 | 2806 | | |
| X1 | 203 | 87 | 2064.6 | 2173.3 | 390 | 390 | 390 | | | |
| GR | 1645.4 | 1000 | 1644 | 1021 | 1643 | 1033 | 1643 | 1042 | 1644 | 1058 |

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GR    1645      1071      1646      1085      1646.1      1105      1646      1117      1645.3      1132
GR    1645      1147      1645.1    1206      1645.3      1261      1645.2    1372      1645.4      1416
GR    1645.1    1434.3    1645.6    1466.3    1645.7      1478.9    1646.2    1511      1646.3      1515.4
GR    1646.3    1523.8    1646.4    1568.9    1646.6      1596.8    1646.7    1616      1646.7      1619.4
GR    1646.3    1678.4    1646.1    1761.1    1645.9      1773.4    1645.6    1778.2    1645.3      1781
GR    1646      1800.8    1646.2    1818.4    1644.8      1826.6    1645.6    1846.8    1646        1856.1
[redacted]
GR    1645.5    1964.5    1645.5    1984.6    1645.5      2064.6    1645.2    2100.6    1644.9      2115.3
GR    1645.2    2173.3    1648.3    2225.6    1649        2265      1646.3    2278.3    1646.7      2296.4
GR    1647      2307.3    1647.5    2320.9    1648        2339.7    1648.6    2353.8    1649.4      2365.9
GR    1649.1    2366.9    1648.7    2371.9    1647.9      2378.3    1647.4    2390.3    1646.6      2419.1
GR    1646.5    2427.6    1646.3    2439.7    1645.9      2454.3    1645.8    2457      1645.6      2458.6
GR    1645.5    2459.9    1645.5    2463.9    1645.8      2478.1    1645.8    2480.2    1645.4      2485.2
GR    1645.7    2512      1645.8    2517.7    1645.9      2538      1646.6    2565.8    1646.4      2579.3
GR    1646.3    2583.3    1646.3    2610.9    1646.2      2612.1    1646.1    2625.1    1645.5      2651.9
GR    1645.4    2653.8    1646      2673.8    1646.7      2709.4    1647.1    2715.9    1647.1      2730.2
GR    1646.9    2732.6    1646.6    2765.9    1646.9      2795.2    1646.9    2797.5    1647.3      2802.1
GR    1647.7    2804.9    1647.8    2806
   CROSS SECTION L

NH       7      0.016     1024.00   0.03      1090.90     0.016     1139.50   0.05      2066.20     0.016
NH    2104.9    0.06      2364.20   0.045     2884.40
X1       204    90        2021.50   2364.20   350         350       350
GR    1649.2    1000      1648.1    1024      1648        1032      1646      1051      1645.9      1057
GR    1646      1063      1648      1078      1648.60     1090.90   1649.10   1104.20   1648.20     1139.50
GR    1647.7    1162.80   1647.70   1169.20   1647.80     1187.00   1648.30   1230.00   1648.40     1238.70
GR    1648.4    1241.20   1648.40   1246.40   1648.40     1255.00   1648.40   1304.10   1648.50     1346.90
GR    1648.5    1352.50   1648.70   1396.00   1648.70     1398.60   1648.70   1436.70   1648.90     1483.40
GR    1649.1    1502.50   1648.80   1534.00   1648.60     1550.00   1648.80   1604.80   1648.90     1618.10
GR    1648.8    1624.60   1648.50   1653.70   1648.50     1653.80   1648.40   1655.50   1648.20     1664.10
GR    1648.1    1668.20   1648.10   1669.70   1648.20     1671.60   1648.80   1681.20   1648.70     1693.60
GR    1648.4    1702.40   1648.40   1712.70   1648.40     1752.50   1648.10   1791.40   1648.10     1802.50
GR    1648.2    1813.70   1648.50   1852.50   1648.30     1875.40   1647.80   1963.00   1648.80     1998.80
GR    1648.9    2017.60   1648.90   2021.50   1648.70     2032.30   1648.30   2055.70   1648.20     2062.70
GR    1648.2    2063.10   1648.20   2063.12   1648.10     2066.20   1647.00   2104.90   1647.00     2106.70
GR    1647.2    2112.40   1647.30   2114.60   1647.70     2151.20   1648.10   2205.50   1648.20     2212.80
GR    1648.6    2364.20   1647.80   2458.00   1647.70     2485.40   1647.90   2502.50   1647.80     2521.50
GR    1647.7    2552.50   1647.60   2582.90   1647.60     2602.50   1648.00   2632.40   1648.20     2652.60
GR    1648.4    2673.20   1648.60   2702.50   1649.00     2731.30   1649.20   2752.50   1649.50     2774.30
1
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GR    1649.3    2802.60   1649.10   2811.50   1649.20     2812.10   1649.40   2824.00   1649.40     2825.90
GR    1649.6    2842.50   1649.70   2854.90   1650.00     2876.10   1650.00   2880.20   1650.10     2884.40
   CROSS SECTION M

NC                                    0.1       0.3
NH       8      0.016     1025      0.03      1082        0.016     1138      0.05      2069.4      0.035
NH    2183.1    0.016     2226.1    0.05      2401.3      0.045     3192.3
ET                7.1                                               1000      3192.3
X1       205      95      1976.9    2306      160         255       240
[redacted]
GR    1650.2    1000      1649      1025      1648        1045      1646.8    1057      1648        1066
GR    1649.7    1082      1650.3    1105      1650.2      1138      1649.6    1166      1649.4      1173.3
GR    1649      1176.6    1649      1186.6    1649.4      1215.2    1650.1    1296.4    1650        1358
GR    1650.1    1367.1    1650.3    1420.1    1650.3      1446.6    1650.4    1467.7    1650.3      1470.1
GR    1650.1    1518      1649.7    1546.1    1649.9      1644.1    1649.5    1697.4    1649.6      1716.1
GR    1649.4    1741.8    1649.4    1775.3    1649.7      1805.8    1649.8    1827.4    1650.2      1869.7
GR    1650.9    1970.3    1650.9    1976.9    1649.6      2062.6    1649.7    2065.6    1649.8      2066.7
GR    1649.6    2069.4    1649.5    2121.1    1649.5      2162.2    1650.8    2168.5    1651.2      2169.6
GR    1651.2    2177.1    1651      2178      1649.2      2183.1    1648.7    2226.1    1650.7      2232.4
GR    1651.3    2237.8    1651.3    2239.1    1650.9      2242.8    1650.3    2246.6    1650.1      2247.3
GR    1648.9    2253.6    1649.7    2280.9    1650        2289.2    1652.2    2302.5    1652.5      2306
GR    1650.5    2320.2    1650.4    2322      1649.8      2327.7    1649.4    2364.9    1649.4      2369.5
GR    1649.1    2378.9    1649      2379.9    1648.3      2401.3    1648.4    2403      1648.8      2437.5
GR    1649      2468.3    1649.1    2472.9    1649.3      2573.4    1649.7    2605.2    1649.8      2623.7
GR    1649.6    2649.7    1649.4    2652.2    1649.4      2654      1649      2665.1    1649.6      2672.5
GR    1649.7    2672.9    1649.7    2685.5    1650.2      2724.2    1650.5    2758.6    1650.7      2774.5
GR    1650.7    2787.5    1651      2824.8    1651.2      2875      1651.2    2926      1651.7      2953.3
GR    1652.3    2973.5    1652.6    2978.7    1652.8      2994.3    1653.4    3076.1    1653.5      3081
GR    1653.7    3126.4    1653.5    3152.2    1653.4      3176.6    1653.6    3188.4    1653.6      3192.3


QT       1      6342

   CROSS SECTION N
NC    0.055     0.055     0.035     0.1       0.3
X1    205.2        88     1021.90   1203.90   350         580       500
GR    1652.6    1000.00   1652.70   1011.90   1652.50     1020.70   1652.70   1021.90   1652.60     1025.80
GR    1652.4    1040.10   1652.30   1045.40   1651.80     1049.50   1650.80   1056.80   1650.30     1071.90
GR    1650.0    1075.50   1650.00   1079.20   1651.30     1100.50   1651.30   1100.70   1651.40     1100.72
GR    1649.9    1127.10   1649.50   1133.90   1649.50     1139.60   1649.70   1152.80   1651.30     1156.90
GR    1652.0    1158.70   1652.00   1161.70   1652.20     1171.50   1652.50   1178.80   1655.20     1199.10
GR    1655.7    1203.90   1655.50   1204.90   1653.70     1217.30   1652.70   1224.20   1652.50     1232.80
GR    1652.3    1238.50   1652.20   1245.70   1652.10     1262.10   1652.40   1268.50   1652.80     1278.40
GR    1652.8    1281.10   1652.50   1290.70   1653.00     1298.90   1653.00   1309.70   1652.70     1327.20
GR    1652.4    1345.30   1652.40   1386.30   1652.40     1398.60   1652.40   1405.80   1652.00     1451.90
GR    1650.7    1502.80   1650.80   1506.80   1650.60     1507.20   1652.00   1554.70   1652.00     1557.90
GR    1652.0    1562.60   1651.90   1611.90   1652.00     1628.80   1651.80   1665.10   1651.80     1674.60
GR    1652.1    1718.40   1652.30   1745.50   1652.40     1771.80   1652.80   1818.60   1652.90     1823.30
GR    1652.9    1825.10   1652.90   1829.70   1653.20     1879.50   1653.20   1900.40   1652.90     1931.70
GR    1653.1    1962.60   1653.30   1983.10   1652.70     2000.10   1652.70   2004.40   1653.30     2016.50
GR    1653.8    2022.60   1653.70   2026.10   1653.80     2040.50   1653.90   2049.40   1653.70     2091.60
GR    1653.7    2096.50   1653.70   2097.10   1653.90     2107.00   1654.30   2144.90   1654.80     2163.40
GR    1654.8    2191.50   1654.60   2198.30   1654.60     2203.80   1654.80   2216.70   1654.80     2251.00
GR    1654.8    2251.40   1654.80   2251.60   1655.10     2288.80
   CROSS SECTION O
[redacted]
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X1    205.3        75     1000.00   1173.20   375         395       372
GR    1655.0    1000.00   1655.20   1001.20   1655.10     1009.00   1654.90   1016.10   1653.50     1019.30
GR    1651.4    1024.00   1651.40   1032.40   1651.20     1041.70   1651.00   1056.60   1651.00     1056.70
GR    1651.0    1056.72   1651.00   1056.80   1651.00     1057.10   1652.40   1099.80   1652.10     1100.60
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1649.9 | 1105.00 | 1649.90 | 1115.20 | 1649.90 | 1120.80 | 1653.20 | 1130.30 | 1653.80 | 1132.10 |
| GR | 1653.9 | 1133.70 | 1654.00 | 1140.00 | 1654.70 | 1152.00 | 1657.50 | 1169.40 | 1658.20 | 1173.20 |
| GR | 1657.4 | 1174.90 | 1656.80 | 1176.30 | 1654.80 | 1186.60 | 1653.20 | 1194.40 | 1652.00 | 1221.60 |
| GR | 1651.1 | 1247.50 | 1651.80 | 1250.40 | 1654.30 | 1259.80 | 1654.20 | 1270.30 | 1653.90 | 1288.40 |
| GR | 1653.7 | 1288.70 | 1653.40 | 1300.20 | 1653.00 | 1327.40 | 1653.10 | 1341.10 | 1653.00 | 1364.70 |
| GR | 1652.7 | 1397.00 | 1652.70 | 1401.90 | 1652.70 | 1411.70 | 1652.80 | 1453.00 | 1652.50 | 1494.70 |
| [redacted] | 1652.4 | 1508.90 | 1652.40 | 1523.00 | 1652.50 | 1536.40 | 1652.90 | 1578.40 | 1653.10 | 1592.60 |
| | 1653.2 | 1598.00 | 1653.40 | 1612.40 | 1652.90 | 1633.70 | 1652.90 | 1634.60 | 1653.90 | 1636.40 |
| | 1654.0 | 1639.10 | 1654.00 | 1641.10 | 1654.00 | 1642.80 | 1654.20 | 1669.30 | 1654.20 | 1670.50 |
| GR | 1654.2 | 1691.40 | 1654.10 | 1726.60 | 1654.10 | 1735.90 | 1654.80 | 1748.80 | 1654.30 | 1754.70 |
| GR | 1654.2 | 1755.50 | 1654.80 | 1761.30 | 1655.20 | 1763.20 | 1654.70 | 1767.90 | 1654.40 | 1781.80 |
| GR | 1654.4 | 1785.30 | 1654.60 | 1795.00 | 1654.90 | 1844.70 | 1655.20 | 1854.90 | 1656.00 | 1884.50 |

CROSS SECTION P

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 205.4 | 95 | 1000.00 | 1160.70 | 510 | 480 | 510 | | | |
| GR | 1662.3 | 1000.00 | 1662.20 | 1002.80 | 1662.10 | 1008.50 | 1659.80 | 1013.30 | 1654.80 | 1024.30 |
| GR | 1652.8 | 1030.30 | 1652.70 | 1038.50 | 1652.30 | 1082.90 | 1652.90 | 1093.50 | 1653.00 | 1093.70 |
| GR | 1652.4 | 1095.80 | 1652.20 | 1096.70 | 1652.10 | 1096.90 | 1651.80 | 1098.10 | 1651.30 | 1111.10 |
| GR | 1651.1 | 1115.80 | 1653.60 | 1120.90 | 1654.70 | 1122.90 | 1654.80 | 1127.70 | 1655.30 | 1140.80 |
| GR | 1660.0 | 1157.90 | 1660.90 | 1160.70 | 1660.80 | 1161.70 | 1660.20 | 1168.80 | 1660.30 | 1169.60 |
| GR | 1660.6 | 1171.40 | 1661.40 | 1176.60 | 1659.30 | 1187.70 | 1658.30 | 1193.30 | 1658.10 | 1200.40 |
| GR | 1657.6 | 1222.40 | 1657.40 | 1231.30 | 1657.40 | 1231.70 | 1657.30 | 1235.60 | 1656.70 | 1301.80 |
| GR | 1656.7 | 1304.20 | 1656.60 | 1338.40 | 1656.40 | 1372.30 | 1656.40 | 1372.80 | 1656.40 | 1374.50 |
| GR | 1656.0 | 1422.80 | 1655.40 | 1468.10 | 1655.30 | 1472.90 | 1656.00 | 1503.50 | 1656.00 | 1510.80 |
| GR | 1656.0 | 1516.40 | 1655.90 | 1524.50 | 1655.90 | 1527.30 | 1655.80 | 1530.60 | 1655.80 | 1538.70 |
| GR | 1655.8 | 1573.00 | 1655.10 | 1613.30 | 1655.10 | 1622.90 | 1655.00 | 1633.30 | 1655.00 | 1672.90 |
| GR | 1655.0 | 1685.00 | 1655.00 | 1723.00 | 1655.00 | 1736.80 | 1655.10 | 1773.00 | 1655.20 | 1788.50 |
| GR | 1655.5 | 1823.10 | 1656.30 | 1841.70 | 1657.00 | 1867.10 | 1656.20 | 1870.80 | 1656.10 | 1871.70 |
| GR | 1655.9 | 1871.90 | 1656.30 | 1875.60 | 1657.00 | 1878.70 | 1656.30 | 1886.10 | 1655.90 | 1888.10 |
| GR | 1655.7 | 1892.00 | 1656.30 | 1903.50 | 1656.20 | 1911.00 | 1655.90 | 1923.20 | 1655.90 | 1943.90 |
| GR | 1655.9 | 1973.10 | 1656.70 | 2012.40 | 1657.10 | 2020.30 | 1656.80 | 2022.70 | 1656.40 | 2027.20 |
| GR | 1656.5 | 2029.50 | 1657.20 | 2031.80 | 1656.40 | 2047.00 | 1656.10 | 2047.30 | 1656.20 | 2073.20 |
| GR | 1656.7 | 2076.90 | 1656.60 | 2079.10 | 1656.50 | 2080.50 | 1656.70 | 2081.30 | 1656.60 | 2082.70 |
| GR | 1656.1 | 2091.20 | 1656.10 | 2091.50 | 1657.80 | 2095.50 | 1659.30 | 2099.30 | 1659.30 | 2099.60 |

CROSS SECTION Q

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 205.5 | 96 | 1000 | 1139.9 | 380 | 290 | 370 | | | |
| GR | 1662.5 | 1000 | 1662.4 | 1006.7 | 1659.6 | 1014.4 | 1655 | 1025 | 1654.7 | 1051 |
| GR | 1656 | 1058.6 | 1653.4 | 1067.1 | 1653 | 1085.1 | 1657.3 | 1095.6 | 1659.1 | 1101.1 |
| GR | 1659.7 | 1113.9 | 1660.2 | 1119.2 | 1663.3 | 1139.9 | 1659.8 | 1149.7 | 1658.4 | 1192.8 |
| GR | 1659 | 1233.2 | 1657.4 | 1242.1 | 1656.7 | 1259 | 1655.9 | 1343.1 | 1656.5 | 1373.5 |
| GR | 1657.4 | 1377.4 | 1657.3 | 1377.9 | 1657.5 | 1378.8 | 1657.8 | 1384.4 | 1658.9 | 1389.5 |
| GR | 1658.8 | 1407.3 | 1658.3 | 1432.8 | 1658.6 | 1458.3 | 1658.5 | 1462.9 | 1662.2 | 1473.2 |
| GR | 1659.6 | 1498.8 | 1658.5 | 1550.9 | 1660.9 | 1581.8 | 1658.3 | 1594.1 | 1658.5 | 1619.2 |
| GR | 1659.1 | 1621.6 | 1661.6 | 1636.2 | 1660.3 | 1648.7 | 1659.2 | 1669.6 | 1658.4 | 1676.7 |
| GR | 1659.3 | 1737.7 | 1659.2 | 1741.4 | 1660.5 | 1743.4 | 1661.1 | 1752.5 | 1661.4 | 1754.2 |
| GR | 1661 | 1762.3 | 1659.9 | 1767.6 | 1659.5 | 1770.8 | 1660.5 | 1776.8 | 1660 | 1779.9 |
| GR | 1660.2 | 1780.9 | 1659.9 | 1795.4 | 1660.4 | 1796.9 | 1659.5 | 1804.5 | 1659.2 | 1823.7 |
| GR | 1660.2 | 1852.9 | 1659.9 | 1858.5 | 1659.9 | 1864.2 | 1660.4 | 1869 | 1662 | 1877.6 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [redacted] | 1661.1 | 1881.8 | 1661.3 | 1885.3 | 1660.9 | 1892.3 | 1660.9 | 1902.4 | 1662.1 | 1910.4 |
| GR | 1660.5 | 1923 | 1659.6 | 1929.1 | 1659.8 | 1939.2 | 1661.8 | 1948.3 | 1661.2 | 1954.9 |
| GR | 1661.3 | 1957.2 | 1660.7 | 1977.6 | 1660.1 | 1982.7 | 1660.1 | 2028.6 | 1659.9 | 2036.6 |
| GR | 1660.6 | 2041.5 | 1661 | 2041.8 | 1661.4 | 2041.9 | 1661.4 | 2043.6 | 1661.8 | 2046.9 |
| GR | 1661.3 | 2059 | 1660.8 | 2062.5 | 1660.1 | 2088.1 | 1660.2 | 2102.2 | 1659.7 | 2126.6 |
| GR | 1661.1 | 2165.3 | 1659.8 | 2180.6 | 1659.7 | 2186 | 1660.1 | 2199.6 | 1660.6 | 2251.7 |
| GR | 1661 | 2257.5 | 1661.2 | 2276.6 | 1660.3 | 2287.8 | 1660.9 | 2294.9 | 1660.5 | 2306.8 |
| GR | 1660.6 | 2338 | | | | | | | | |

CROSS SECTION R

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 205.6 | 90 | 1000 | 1131.1 | 490 | 420 | 490 | | | |
| GR | 1667 | 1000 | 1666.8 | 1009.2 | 1658.9 | 1022.3 | 1658.4 | 1039.1 | 1658.4 | 1043.2 |
| GR | 1657.7 | 1045 | 1655.3 | 1052.9 | 1655.3 | 1062.4 | 1656 | 1063.7 | 1656 | 1064 |
| GR | 1656.8 | 1065.4 | 1659.4 | 1070.6 | 1659.7 | 1081 | 1659.8 | 1093.1 | 1664 | 1112.1 |
| GR | 1664.7 | 1115.7 | 1664.8 | 1127.2 | 1665.5 | 1131.1 | 1663.7 | 1137.1 | 1663.1 | 1140.8 |
| GR | 1661.5 | 1146.6 | 1661.1 | 1170.8 | 1660.6 | 1190.6 | 1660.8 | 1202.3 | 1661 | 1227 |
| GR | 1658.8 | 1234.4 | 1658.2 | 1295.1 | 1659.2 | 1347.8 | 1660.4 | 1366.5 | 1661.7 | 1377.8 |
| GR | 1661.2 | 1383.7 | 1660.8 | 1399.6 | 1661.2 | 1418.9 | 1661.3 | 1420.4 | 1661.7 | 1450.3 |
| GR | 1661.3 | 1500.4 | 1660.1 | 1529.9 | 1660 | 1534.5 | 1660.6 | 1545.6 | 1660.8 | 1547.4 |
| GR | 1660.8 | 1549.1 | 1661.4 | 1560.6 | 1662.2 | 1582.8 | 1662.3 | 1597.2 | 1662.6 | 1615.7 |
| GR | 1662.7 | 1650.4 | 1663.2 | 1671.2 | 1663.1 | 1675.9 | 1663.1 | 1692.8 | 1663.3 | 1695.4 |
| GR | 1663.5 | 1696.6 | 1664.7 | 1710.1 | 1664.8 | 1715.2 | 1664.9 | 1716.8 | 1664.3 | 1733.5 |
| GR | 1664.7 | 1737 | 1664.6 | 1751.7 | 1662.7 | 1760 | 1662.7 | 1776.3 | 1662.3 | 1783.9 |
| GR | 1662.3 | 1786.4 | 1661.7 | 1800.4 | 1661.6 | 1823.9 | 1661.7 | 1833.9 | 1663.7 | 1839.1 |
| GR | 1663.9 | 1839.8 | 1663.5 | 1841.2 | 1661.5 | 1846 | 1661.7 | 1850.5 | 1661.7 | 1859.2 |
| GR | 1661.9 | 1866.9 | 1661.5 | 1900.4 | 1661.5 | 1937.6 | 1661.8 | 1988.4 | 1661.9 | 2050.4 |
| GR | 1662 | 2061.4 | 1662.1 | 2100.5 | 1662.5 | 2150.4 | 1662.5 | 2191.3 | 1662.6 | 2209.4 |
| GR | 1662.4 | 2250.5 | 1662.8 | 2292.7 | 1663 | 2350.5 | 1663.2 | 2355.6 | 1663.9 | 2400.3 |
| GR | 1663.8 | 2400.4 | 1664.6 | 2429.7 | 1665.5 | 2444.8 | 1665.2 | 2444.9 | 1665.4 | 2458.1 |

CROSS SECTION S

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | .045 | .035 | .045 | | | | | | | |
| ET | | 7.1 | | | | | 2300.0 | 3015 | | |
| X1 | 210 | 91 | 2298 | 2431.3 | 110 | 255 | 245 | | | |
| GR | 1663 | 1000 | 1663.3 | 1008.9 | 1663 | 1092.8 | 1663.5 | 1106.4 | 1663 | 1145.5 |
| GR | 1663.4 | 1190.9 | 1664.2 | 1196.4 | 1665 | 1210.9 | 1664 | 1226.4 | 1663.6 | 1242.5 |
| GR | 1662.4 | 1246.8 | 1663.5 | 1249.7 | 1664.5 | 1351.2 | 1663.3 | 1394.1 | 1662.3 | 1411.9 |
| GR | 1663.4 | 1420.1 | 1664 | 1421.2 | 1664.5 | 1443.7 | 1663.9 | 1454.2 | 1664 | 1463.4 |
| GR | 1664.5 | 1467.9 | 1664.2 | 1498.7 | 1664.5 | 1529.9 | 1663.5 | 1544.8 | 1665.2 | 1568.6 |
| GR | 1663.9 | 1574.6 | 1664.6 | 1636.7 | 1662.6 | 1712.8 | 1664.4 | 1752.7 | 1664.2 | 1904.6 |
| GR | 1663.6 | 1924.7 | 1663.6 | 1959.4 | 1665.1 | 1964.7 | 1663.5 | 1979.2 | 1664 | 1984.1 |
| GR | 1664 | 2143.4 | 1665.2 | 2293 | 1665.3 | 2298 | 1662 | 2307 | 1661 | 2331.5 |
| [redacted] | 1658.1 | 2345.9 | 1657.9 | 2356.5 | 1659.8 | 2359.9 | 1661.4 | 2364.1 | 1660.7 | 2372.2 |
| | 1659.9 | 2375.3 | 1661.9 | 2397.8 | 1665.9 | 2431.3 | 1663.5 | 2444.7 | 1662.4 | 2511.1 |
| | 1663.7 | 2516 | 1661.5 | 2561.2 | 1662 | 2575.5 | 1660.8 | 2607.9 | 1661.7 | 2654.5 |
| GR | 1661.1 | 2662.4 | 1662.1 | 2687.5 | 1661.8 | 2711.7 | 1662.3 | 2824 | 1662.7 | 2837.5 |
| GR | 1661.7 | 2866.8 | 1663.4 | 2910.8 | 1664.4 | 2917.3 | 1663.7 | 2919.8 | 1666.1 | 3027.7 |
| GR | 1664.1 | 3135.8 | 1664.6 | 3150.9 | 1663 | 3186.6 | 1663.7 | 3214.2 | 1663.1 | 3254.5 |
| GR | 1664 | 3259.8 | 1662.3 | 3267.8 | 1664.3 | 3283.6 | 1665.4 | 3313.9 | 1664.5 | 3362.5 |
| GR | 1664.9 | 3382.6 | 1664.6 | 3388.4 | 1665.3 | 3419.1 | 1664.8 | 3448.1 | 1665.4 | 3476.9 |
| GR | 1665.2 | 3520.2 | 1664.7 | 3543.2 | 1665.5 | 3565.7 | 1666.4 | 3675 | 1664.7 | 3685.6 |
| GR | 1664.6 | 3718.8 | 1665.9 | 3849.7 | 1665.6 | 3863.5 | 1666.8 | 3957.1 | 1667 | 4136.5 |

GR 1667.1 4233.4

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 100.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 100.000 | 8.04 | 1554.24 | .00 | 1560.00 | 1555.28 | 1.04 | .00 | .00 | 1556.00 |
| 11500.0 | .0 | 11500.0 | .0 | .0 | 1404.3 | .0 | .0 | .0 | 1556.00 |
| .00 | .00 | 8.19 | .00 | .000 | .035 | .000 | .000 | 1546.20 | 1727.05 |
| .004426 | 0. | 0. | 0. | 0 | 0 | 5 | .00 | 283.19 | 2010.24 |

FLOW DISTRIBUTION FOR SECNO= 100.00 CWSEL= 1554.24

STA= 1727. 2012.
PER Q= 100.0
AREA= 1404.3
VEL= 8.2
DEPTH= 5.0

*SECNO 102.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 102.000 | 8.36 | 1564.66 | 1564.66 | .00 | 1566.91 | 2.25 | 9.76 | .36 | 1564.00 |
| 11500.0 | 39.7 | 11459.7 | .6 | 25.1 | 949.6 | .4 | 41.8 | 9.8 | 1564.00 |
| .04 | 1.58 | 12.07 | 1.46 | .045 | .035 | .045 | .000 | 1556.30 | 1773.97 |
| .009989 | 1590. | 1530. | 1500. | 2 | 8 | 0 | .00 | 273.35 | 2047.32 |

FLOW DISTRIBUTION FOR SECNO= 102.00 CWSEL= 1564.66

STA= 1774. 1850. 2046. 2047.
PER Q= .3 99.6 .0
AREA= 25.1 949.6 .4
VEL= 1.6 12.1 1.5
DEPTH= .3 4.8 .3

*SECNO 103.000

1



| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.65

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 103.000 | 10.68 | 1569.88 | .00 | .00 | 1571.10 | 1.22 | 4.09 | .10 | 1568.00 |
| 11500.0 | 808.6 | 10623.8 | 67.6 | 331.1 | 1153.0 | 35.3 | 62.4 | 15.9 | 1568.00 |
| .06 | 2.44 | 9.21 | 1.91 | .045 | .035 | .045 | .000 | 1559.20 | 1274.81 |
| .003656 | 720. | 720. | 720. | 3 | 0 | 0 | .00 | 462.79 | 1737.60 |

FLOW DISTRIBUTION FOR SECNO= 103.00 CWSEL= 1569.88

STA= 1275. 1334. 1412. 1532. 1700. 1738.
PER Q= .6 2.2 4.2 92.4 .6
AREA= 43.8 103.7 183.6 1153.0 35.3
VEL= 1.6 2.4 2.7 9.2 1.9
DEPTH= .7 1.3 1.5 6.9 .9

*SECNO 104.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .62

3470 ENCROACHMENT STATIONS= 1650.0 3370.0 TYPE= 1 TARGET= 1720.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 104.000 | 8.32 | 1572.82 | 1572.70 | 1572.82 | 1573.96 | 1.15 | 2.85 | .01 | 1574.00 |
| 11500.0 | .0 | 6366.9 | 5133.1 | .0 | 657.9 | 731.5 | 79.4 | 22.0 | 1574.00 |
| .08 | .00 | 9.68 | 7.02 | .000 | .035 | .045 | .000 | 1564.50 | 2221.29 |
| .009595 | 510. | 510. | 510. | 8 | 19 | 0 | .00 | 575.08 | 2955.35 |

FLOW DISTRIBUTION FOR SECNO= 104.00 CWSEL= 1572.82

STA= 2221. 2420. 2595. 2670. 2680. 2710. 2730. 2745. 2755. 2820. 2955.
PER Q= 55.4 .2 5.7 2.6 12.4 9.0 6.3 2.6 5.0 .9

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| AREA= | 657.9 | 12.6 | 136.5 | 38.2 | 150.6 | 105.4 | 76.1 | 38.2 | 118.3 | 55.5 |
| VEL= | 9.7 | 1.8 | 4.8 | 7.8 | 9.5 | 9.8 | 9.5 | 7.8 | 4.8 | 1.8 |
| DEPTH= | 3.6 | .1 | 1.8 | 3.8 | 5.0 | 5.3 | 5.1 | 3.8 | 1.8 | .4 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 106.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1500.0 3050.0 TYPE= 1 TARGET= 1550.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 106.000 | 4.95 | 1581.65 | .00 | 1581.65 | 1582.24 | .59 | 8.22 | .06 | 1580.00 |
| 11500.0 | 339.3 | 11063.8 | 96.9 | 149.4 | 1759.1 | 42.7 | 121.1 | 40.4 | 1580.00 |
| .12 | 2.27 | 6.29 | 2.27 | .045 | .035 | .045 | .000 | 1576.70 | 2138.69 |
| .006120 | 1120. | 1100. | 1040. | 6 | 0 | 0 | .00 | 908.12 | 3046.80 |

FLOW DISTRIBUTION FOR SECNO= 106.00 CWSEL= 1581.65

| | | | | |
|---|---|---|---|---|
| STA= | 2139. | 2320. | 2995. | 3047. |
| PER Q= | 3.0 | 96.2 | .8 | |
| AREA= | 149.4 | 1759.1 | 42.7 | |
| VEL= | 2.3 | 6.3 | 2.3 | |
| DEPTH= | .8 | 2.6 | .8 | |

CCHV= .100 CEHV= .300

*SECNO 108.000

3470 ENCROACHMENT STATIONS= 1600.0 3085.0 TYPE= 1 TARGET= 1485.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 108.000 | 4.66 | 1587.46 | .00 | 1587.46 | 1587.69 | .22 | 5.41 | .04 | 1584.00 |
| 11500.0 | 5102.5 | 4888.4 | 1509.1 | 1548.1 | 1108.8 | 473.6 | 182.8 | 64.9 | 1584.00 |
| .20 | 3.30 | 4.41 | 3.19 | .055 | .055 | .065 | .000 | 1582.80 | 1955.29 |
| .004250 | 1000. | 1100. | 1000. | 3 | 0 | 0 | .00 | 1129.71 | 3085.00 |

FLOW DISTRIBUTION FOR SECNO= 108.00 CWSEL= 1587.46

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STA= | 1955. | 2080. | 2250. | 2410. | 2640. | 2920. | 2940. | 2968. | 3000. | 3045. | 3065. | 3085. |
| PER Q= | 1.1 | 7.4 | 11.8 | 24.1 | 42.5 | 1.4 | 1.9 | 3.5 | 5.0 | 1.2 | .2 | |
| AREA= | 91.5 | 317.4 | 410.8 | 728.5 | 1108.8 | 54.3 | 76.1 | 115.8 | 162.8 | 49.3 | 15.3 | |
| VEL= | 1.4 | 2.7 | 3.3 | 3.8 | 4.4 | 2.9 | 2.9 | 3.5 | 3.5 | 2.7 | 1.2 | |
| DEPTH= | .7 | 1.9 | 2.6 | 3.2 | 4.0 | 2.7 | 2.7 | 3.6 | 3.6 | 2.5 | .8 | |

*SECNO 110.000

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .64

3470 ENCROACHMENT STATIONS= 2060.0 4000.0 TYPE= 1 TARGET= 1940.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 110.000 | 3.40 | 1593.80 | .00 | 1593.80 | 1594.11 | .32 | 6.40 | .03 | 1591.60 |
| 11500.0 | 6317.6 | 5078.5 | 103.8 | 1664.4 | 951.3 | 48.2 | 250.5 | 94.1 | 1592.00 |
| .27 | 3.80 | 5.34 | 2.16 | .065 | .055 | .065 | .000 | 1590.40 | 2371.38 |
| .010292 | 1010. | 1000. | 1150. | 4 | 0 | 0 | .00 | 1362.39 | 3733.77 |

FLOW DISTRIBUTION FOR SECNO= 110.00 CWSEL= 1593.80

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| STA= | 2371. | 2460. | 2610. | 2805. | 3060. | 3260. | 3330. | 3680. | 3734. |
| PER Q= | .2 | 1.6 | 6.4 | 20.5 | 20.4 | 5.8 | 44.2 | .9 | |
| AREA= | 21.8 | 103.8 | 261.8 | 584.6 | 528.5 | 164.0 | 951.3 | 48.2 | |
| VEL= | .9 | 1.8 | 2.8 | 4.0 | 4.4 | 4.1 | 5.3 | 2.2 | |
| DEPTH= | .2 | .7 | 1.3 | 2.3 | 2.6 | 2.3 | 2.7 | .9 | |

*SECNO 112.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 112.000 | 4.07 | 1599.97 | .00 | 1599.97 | 1600.07 | .10 | 5.93 | .02 | 1599.30 |
| 11500.0 | 10284.0 | 532.5 | 683.4 | 3925.6 | 264.6 | 368.0 | 337.5 | 138.0 | 1599.70 |
| .38 | 2.62 | 2.01 | 1.86 | .065 | .055 | .065 | .000 | 1595.90 | 1246.36 |
| .003568 | 1050. | 1050. | 1030. | 5 | 0 | 0 | .00 | 2288.30 | 3640.26 |

FLOW DISTRIBUTION FOR SECNO= 112.00 CWSEL= 1599.97

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| STA= | 1246. | 1650. | 2190. | 2220. | 2650. | 2715. | 2855. | 2975. | 3165. | 3500. | 3640. |
| PER Q= | 4.7 | 39.3 | 3.6 | 32.4 | 4.1 | 4.6 | .7 | 4.6 | 3.4 | 2.6 | |
| AREA= | 397.4 | 1603.3 | 120.6 | 1299.8 | 176.7 | 247.7 | 80.3 | 264.6 | 194.4 | 173.6 | |
| VEL= | 1.4 | 2.8 | 3.5 | 2.9 | 2.7 | 2.1 | 1.0 | 2.0 | 2.0 | 1.7 | |
| DEPTH= | 1.0 | 3.0 | 4.0 | 3.0 | 2.7 | 1.8 | .7 | 1.4 | .6 | 1.2 | |

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

[redacted]V= .500 CEHV= .800
*SECNO 117.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 117.000 | 3.22 | 1612.12 | 1612.12 | 1612.12 | 1612.66 | .54 | 3.86 | .35 | 1615.00 |
| 11500.0 | .0 | 11500.0 | .0 | .0 | 1955.8 | .0 | 426.5 | 189.3 | 1614.00 |
| .43 | .00 | 5.88 | .00 | .000 | .016 | .000 | .000 | 1608.90 | 1756.36 |
| .003296 | 1350. | 940. | 1000. | 20 | 14 | 0 | .00 | 1689.09 | 4238.86 |

FLOW DISTRIBUTION FOR SECNO= 117.00 CWSEL= 1612.12

| STA= | 1756. | 4490. |
|---|---|---|
| PER Q= | 100.0 | |
| AREA= | 1955.8 | |
| VEL= | 5.9 | |
| DEPTH= | 1.2 | |

*SECNO 118.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.81

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 118.000 | 9.93 | 1612.93 | 1608.14 | 1612.93 | 1612.94 | .01 | .02 | .26 | 1606.00 |
| 11500.0 | 6781.1 | 1483.9 | 3235.0 | 9285.7 | 950.5 | 3641.6 | 437.4 | 192.9 | 1606.30 |
| .45 | .73 | 1.56 | .89 | .070 | .045 | .055 | .000 | 1603.00 | 891.28 |
| .000142 | 60. | 60. | 60. | 12 | 17 | 0 | .00 | 3503.76 | 4432.13 |

FLOW DISTRIBUTION FOR SECNO= 118.00 CWSEL= 1612.93

1
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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| STA= | 891. | 1545. | 1850. | 2100. | 2280. | 2430. | 2580. | 2700. | 2800. | 2870. | 2980. | 3110. | 3240. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 3.2 | 4.3 | 4.2 | 3.7 | 4.0 | 4.9 | 4.2 | 4.6 | 3.7 | 5.6 | 8.1 | 8.5 | |
| AREA= | 989.1 | 930.0 | 851.3 | 686.6 | 671.3 | 753.8 | 631.0 | 622.5 | 470.8 | 723.3 | 965.3 | 990.8 | |
| VEL= | .4 | .5 | .6 | .6 | .7 | .7 | .8 | .9 | .9 | .9 | 1.0 | 1.0 | |
| DEPTH= | 1.5 | 3.0 | 3.4 | 3.8 | 4.5 | 5.0 | 5.3 | 6.2 | 6.7 | 6.6 | 7.4 | 7.6 | |

| STA= | 3240. | 3360. | 3460. | 3610. | 3770. | 3870. | 4040. | 4432. |
|---|---|---|---|---|---|---|---|---|
| PER Q= | 12.9 | 6.0 | 7.3 | 6.6 | 3.2 | 3.5 | 1.5 | |
| AREA= | 950.5 | 627.5 | 828.8 | 804.0 | 432.5 | 565.3 | 383.4 | |
| VEL= | 1.6 | 1.1 | 1.0 | .9 | .9 | .7 | .5 | |
| DEPTH= | 7.9 | 6.3 | 5.5 | 5.0 | 4.3 | 3.3 | 1.0 | |

*SECNO 120.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .18

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 120.000 | 3.13 | 1613.13 | .00 | 1613.13 | 1613.25 | .12 | .22 | .08 | 1611.20 |
| 11500.0 | 2699.5 | 1524.2 | 7276.3 | 1386.2 | 401.8 | 2647.6 | 536.4 | 228.0 | 1612.00 |
| .51 | 1.95 | 3.79 | 2.75 | .070 | .045 | .055 | .000 | 1610.00 | 1091.77 |
| .004193 | 260. | 440. | 835. | 3 | 0 | 0 | .00 | 2536.54 | 3648.20 |

FLOW DISTRIBUTION FOR SECNO= 120.00 CWSEL= 1613.13

| STA= | 1092. | 1500. | 1650. | 1850. | 2000. | 2170. | 2245. | 2400. | 2550. | 2700. | 3030. | 3250. | 3450. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 5.1 | 4.7 | 8.1 | 5.6 | 13.3 | 3.7 | 11.8 | 8.7 | 5.7 | 6.6 | 10.0 | 10.3 | |
| AREA= | 407.1 | 266.7 | 415.6 | 296.7 | 401.8 | 126.5 | 407.4 | 334.2 | 259.2 | 370.8 | 424.2 | 415.6 | |
| VEL= | 1.4 | 2.0 | 2.2 | 2.2 | 3.8 | 3.3 | 3.3 | 3.0 | 2.5 | 2.0 | 2.7 | 2.8 | |
| DEPTH= | 1.0 | 1.8 | 2.1 | 2.0 | 2.4 | 1.7 | 2.6 | 2.2 | 1.7 | 1.1 | 1.9 | 2.1 | |

| STA= | 3450. | 3620. | 3648. |
|---|---|---|---|
| PER Q= | 6.4 | .2 | |
| AREA= | 293.8 | 15.9 | |
| VEL= | 2.5 | 1.2 | |
| DEPTH= | 1.7 | .6 | |

[redacted]V= .100 CEHV= .300

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |

```
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 122.000

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69

3470 ENCROACHMENT STATIONS=         .0    3150.0  TYPE=      1  TARGET=     3149.999
   122.000      6.89   1616.39   1616.10   1616.39   1616.86       .47      3.51       .10   1614.00
   11500.0    5753.1    4561.4    1185.5    1756.7     582.0     672.8     588.2     260.0   1614.00
       .54      3.28      7.84      1.76      .070      .045      .070      .000   1609.50   1120.64
   .008738      520.      570.      700.        14        20         0       .00   1981.84   3293.70


FLOW DISTRIBUTION FOR SECNO=    122.00          CWSEL=   1616.39

STA=    1121.    1350.    1450.    1570.    1650.    1750.    1820.    1925.    1980.    2040.    2183.    2600.    3000.
  PER Q=      3.2      4.1      7.4      5.9      7.6      5.7      8.3      3.8      4.0     39.7      5.3      4.3
   AREA=    194.0    169.1    257.0    191.3    244.1    177.9    261.6    126.0    135.5    582.0    301.8    296.6
    VEL=      1.9      2.8      3.3      3.5      3.6      3.7      3.6      3.4      3.4      7.8      2.0      1.7
  DEPTH=       .8      1.7      2.1      2.4      2.4      2.5      2.5      2.3      2.3      4.1       .7       .7

STA=    3000.    3294.
  PER Q=      .7
   AREA=    74.5
    VEL=     1.0
  DEPTH=       .3

*SECNO 124.000

3265 DIVIDED FLOW

   124.000      8.11   1620.11       .00   1620.11   1620.60       .49      3.73       .01   1616.00
   11500.0    5992.9    4351.5    1155.6    2079.2     517.7     756.5     626.7     284.5   1616.00
       .57      2.88      8.41      1.53      .070      .045      .070      .000   1612.00    993.84
   .005892      525.      525.      530.         4         0         0       .00   2057.76   3085.57


FLOW DISTRIBUTION FOR SECNO=    124.00          CWSEL=   1620.11

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   11FEB02      14:58:08                                                                          PAGE   20

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

STA=     994.    1180.    1330.    1430.    1550.    1650.    1730.    1955.    2040.    2440.    2930.    3086.
  PER Q=      3.1      7.4      3.7      6.9      7.9      4.9     18.3     37.8      6.6      3.1       .4
   AREA=    200.9    317.1    176.4    275.7    281.4    193.1    634.7    517.7    409.9    301.2     45.5
    VEL=      1.7      2.7      2.4      2.9      3.2      2.9      3.3      8.4      1.8      1.2       .9
  DEPTH=      1.1      2.1      1.8      2.3      2.8      2.4      2.8      6.1      1.0       .6       .3

CCHV=     .100 CEHV=     .300
*SECNO 126.000

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64

   126.000      3.43   1625.13       .00   1625.14   1625.23       .10      4.60       .04   1625.20
    7239.0     161.8    1234.3    5842.8     134.0     377.3    2470.3     684.0     318.7   1626.00
       .66      1.21      3.27      2.37      .070      .060      .070      .000   1621.70   1708.68
   .005736      1000.     840.      630.         5         0         0       .00   1888.97   3658.01


FLOW DISTRIBUTION FOR SECNO=    126.00          CWSEL=   1625.13

STA=    1709.    1933.    2110.    2243.    2320.    2385.    2455.    2655.    2855.    3055.    3255.    3485.    3658.
  PER Q=      2.2     17.1      4.0      6.1      3.4      3.7     15.7     15.1     13.3     10.1      7.8      1.5
   AREA=    134.0    377.3    127.3    164.4    109.5    117.9    426.9    416.9    386.9    326.9    295.4     98.1
    VEL=      1.2      3.3      2.3      2.7      2.3      2.3      2.7      2.6      2.5      2.2      1.9      1.1
  DEPTH=       .6      2.3      1.0      2.1      1.7      1.7      2.1      2.1      1.9      1.6      1.3       .6

CCHV=     .100 CEHV=     .300
*SECNO 128.000

3265 DIVIDED FLOW

   128.000      4.55   1629.55       .00   1629.56   1629.70       .15      4.45       .01   1628.00
    7239.0    4084.6    1739.7    1414.7    1474.5     443.4     508.6     731.3     349.1   1628.00
       .73      2.77      3.92      2.78      .070      .060      .050      .000   1625.00   1042.15
   .005921      750.      820.      750.         4         0         0       .00   1617.32   2976.32


FLOW DISTRIBUTION FOR SECNO=    128.00          CWSEL=   1629.55

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

```
STA=    1042.    1250.    1285.    1330.    1460.    1560.    1670.    1820.    1970.    2060.    2110.    2160.    2306.
  PER Q=     8.7      6.5      8.4     14.9      5.8      5.8      6.3     24.0      6.0      5.0      4.6      3.2
   AREA=   268.4    124.5    160.0    345.3    175.6    182.2    218.4    443.4    141.1    100.3     95.3    108.5
    VEL=     2.3      3.8      3.8      3.1      2.4      2.3      2.1      3.9      3.1      3.6      3.5      2.1
  DEPTH=     1.3      3.6      3.6      2.7      1.8      1.7      1.5      3.0      1.6      2.0      1.9       .7

      2306.    2976.
R Q=      .7
AREA=    63.4
    VEL=      .7
  DEPTH=      .1

CCHV=     .300 CEHV=     .500
*SECNO 130.000

3265 DIVIDED FLOW

   130.000      5.08   1632.88       .00   1632.88   1633.09       .21      3.36       .03   1634.00
    7239.0    4192.8    1441.9    1604.3    1341.7     282.1     465.4     755.9     364.6   1634.00
       .77      3.13      5.11      3.45      .070      .060      .050      .000   1627.80   1083.74
   .008520       460.      480.      520.         4         0         0       .00   1181.05   2446.50


FLOW DISTRIBUTION FOR SECNO=    130.00          CWSEL=   1632.88

STA=    1084.    1270.    1370.    1460.    1690.    1820.    1830.    1970.    2170.    2270.    2370.    2420.    2447.
  PER Q=     4.5      6.1      8.3     29.3      9.7       .1     19.9      3.2      6.9      8.6      3.3       .3
   AREA=   165.3    163.3    187.5    582.7    238.3      4.5    282.1     77.8    143.3    163.3     69.2     11.7
    VEL=     2.0      2.7      3.2      3.6      2.9      1.1      5.1      2.9      3.5      3.8      3.4      1.6
  DEPTH=      .9      1.6      2.1      2.5      1.8       .4      3.4       .4      1.4      1.6      1.4       .4

*SECNO 198.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   198.000      5.32   1638.12   1638.12   1638.12   1638.94       .82      4.77       .30   1637.70
    3898.0    477.2    3407.3      13.4     184.0     442.8      10.7     770.6     373.7   1637.90
       .79      2.59      7.70      1.25      .055      .060      .055      .000   1632.80   1433.31
   .014724       470.      470.      470.         1         8         0       .00    501.53   1958.72


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   11FEB02      14:58:08                                                                                    PAGE   22

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=    198.00          CWSEL=   1638.12

STA=    1433.    1540.    1592.    1778.    1791.    1897.    1959.
  PER Q=     4.3      4.4      3.2       .3     87.4       .3
   AREA=    60.6     52.3     65.2      6.0    442.8     10.7
    VEL=     2.8      3.3      1.9      2.0      7.7      1.3
  DEPTH=      .6      1.0       .3       .5      4.2       .2


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     6          .013      .20      2.90   1000.00      2.00     12.00     54.00     10         1      1633.50   1633.00

CHART 10 - BOX CULVERT; 90-DEGREE HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE  1 - INLET EDGES CHAMFERED 3/4-INCH

5130, EGIC= 1662.55..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 1655.50 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 200.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =   1639.28

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.76

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
  1662.55   1655.50       .34      2374.     1525.     7.400     144.0   1638.40     1000.


   200.000      5.06   1638.56       .00   1638.60   1639.28       .71       .34       .00   1637.90
    3898.0    393.1    3239.8     265.0     252.0     437.8     174.5     773.9     376.6   1638.20
       .79      1.56      7.40      1.52      .055      .035      .055      .000   1633.50   1392.94
   .004757       188.      188.      188.         8         0         0       .00    844.24   2523.46


 DISTRIBUTION FOR SECNO=    200.00          CWSEL=   1638.56

STA=    1393.    1604.    1743.    1803.    1911.    2180.    2259.
  PER Q=     4.3      3.6      2.2     83.1      3.5      3.3
   AREA=   106.7     95.2     50.1    437.8    105.6     68.8
    VEL=     1.6      1.5      1.7      7.4      1.3      1.8
  DEPTH=      .5       .7       .8      4.1       .4       .9

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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

1490 NH CARD USED
*SECNO 201.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .54

3470 ENCROACHMENT STATIONS= 1069.2 2147.5 TYPE= 1 TARGET= 1078.300

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 201.000 | 3.71 | 1642.61 | .00 | 1642.57 | 1642.86 | .24 | 3.44 | .14 | 100000.00 |
| 3898.0 | .0 | 3897.9 | .0 | .0 | 989.9 | .0 | 782.9 | 384.5 | 100000.00 |
| .82 | .00 | 3.94 | .00 | .000 | .058 | .000 | .000 | 1638.90 | 1069.20 |
| .016537 | 220. | 430. | 640. | 4 | 0 | 0 | .00 | 765.95 | 2020.77 |

FLOW DISTRIBUTION FOR SECNO= 201.00 CWSEL= 1642.61

| STA= | 1069. | 2032. |
|---|---|---|
| PER Q= | 100.0 | |
| AREA= | 989.9 | |
| VEL= | 3.9 | |
| DEPTH= | 1.3 | |

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 202.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.98

3470 ENCROACHMENT STATIONS= 1049.0 2327.2 TYPE= 1 TARGET= 1278.200

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 202.000 | 2.46 | 1644.16 | .00 | 1644.15 | 1644.33 | .18 | 1.47 | .01 | 1643.40 |
| 4633.6 | 4103.3 | 151.6 | 378.7 | 1172.1 | 69.7 | 181.8 | 787.4 | 387.9 | 1643.30 |
| .84 | 3.50 | 2.18 | 2.08 | .047 | .060 | .060 | .000 | 1641.70 | 1049.00 |
| .005961 | 165. | 165. | 165. | 4 | 0 | 0 | .00 | 1025.48 | 2233.87 |



| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

FLOW DISTRIBUTION FOR SECNO= 202.00 CWSEL= 1644.16

| STA= | 1049. | 1083. | 1142. | 1238. | 1275. | 1310. | 1349. | 1387. | 1500. | 1563. | 1599. | 1649. | 1701. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 11.9 | 6.5 | 9.2 | 14.7 | 5.0 | 4.3 | 4.0 | 12.0 | 7.0 | 3.7 | 4.1 | 4.2 | |
| AREA= | 56.4 | 106.6 | 159.1 | 65.0 | 73.6 | 70.5 | 66.4 | 199.2 | 113.9 | 62.3 | 75.5 | 77.5 | |
| VEL= | 9.8 | 2.8 | 2.7 | 10.4 | 3.1 | 2.8 | 2.8 | 2.8 | 2.8 | 2.7 | 2.5 | 2.5 | |
| DEPTH= | 1.7 | 1.8 | 1.7 | 1.8 | 2.1 | 1.8 | 1.8 | 1.8 | 1.8 | 1.7 | 1.5 | 1.5 | |

| STA= | 1701. | 1742. | 1799. | 1943. | 1976. | 2234. |
|---|---|---|---|---|---|---|
| PER Q= | 2.0 | 3.3 | 3.0 | 3.4 | 1.7 | |
| AREA= | 45.9 | 69.7 | 68.6 | 57.4 | 55.7 | |
| VEL= | 2.0 | 2.2 | 2.0 | 2.8 | 1.4 | |
| DEPTH= | 1.1 | 1.2 | .5 | 1.7 | .2 | |

1490 NH CARD USED
*SECNO 203.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1105.0 2806.0 TYPE= 1 TARGET= 1701.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 203.000 | 4.16 | 1647.16 | .00 | 1647.16 | 1647.37 | .21 | 3.02 | .01 | 1645.50 |
| 7370.2 | 5213.4 | 827.5 | 1329.3 | 1390.6 | 217.7 | 408.9 | 802.8 | 399.3 | 1645.20 |
| .87 | 3.75 | 3.80 | 3.25 | .052 | .060 | .046 | .000 | 1643.00 | 1105.00 |
| .009329 | 390. | 390. | 390. | 8 | 0 | 0 | .00 | 1539.75 | 2800.40 |

FLOW DISTRIBUTION FOR SECNO= 203.00 CWSEL= 1647.16

| STA= | 1105. | 1132. | 1206. | 1261. | 1372. | 1416. | 1466. | 1569. | 1761. | 1818. | 1856. | 1965. | 2065. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 5.2 | 8.9 | 5.9 | 11.5 | 4.4 | 4.9 | 3.9 | 4.5 | 4.8 | 3.1 | 6.2 | 7.5 | |
| AREA= | 35.8 | 154.1 | 107.4 | 211.1 | 81.5 | 92.5 | 104.8 | 146.6 | 73.9 | 65.6 | 152.0 | 165.4 | |
| VEL= | 10.8 | 4.3 | 4.1 | 4.0 | 3.9 | 3.9 | 2.7 | 2.2 | 4.8 | 3.5 | 3.0 | 3.3 | |
| DEPTH= | 1.3 | 2.1 | 2.0 | 1.9 | 1.9 | 1.8 | 1.0 | .8 | 1.3 | 1.7 | 1.4 | 1.7 | |

| | 2065. | 2173. | 2460. | 2512. | 2579. | 2652. | 2766. | 2800. |
|---|---|---|---|---|---|---|---|---|
| PER Q= | 11.2 | 3.1 | 4.8 | 3.1 | 3.6 | 3.2 | .3 | |
| AREA= | 217.7 | 92.3 | 81.5 | 68.3 | 77.1 | 77.0 | 12.7 | |
| VEL= | 3.8 | 2.5 | 4.3 | 3.3 | 3.4 | 3.1 | 1.7 | |
| DEPTH= | 2.0 | .3 | 1.6 | 1.0 | 1.1 | .7 | .4 | |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

[redacted]NH CARD USED
[redacted]NO 204.000
3280 CROSS SECTION 204.00 EXTENDED .41 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.43

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 204.000 | 3.71 | 1649.61 | .00 | 1649.61 | 1649.79 | .18 | 2.42 | .00 | 1648.90 |
| 8043.7 | 4166.9 | 1921.8 | 1954.9 | 1261.6 | 516.5 | 603.0 | 820.5 | 412.9 | 1648.60 |
| .90 | 3.30 | 3.72 | 3.24 | .041 | .039 | .045 | .000 | 1645.90 | 1000.00 |
| .005431 | 350. | 350. | 350. | 4 | 0 | 0 | .00 | 1843.50 | 2843.50 |

FLOW DISTRIBUTION FOR SECNO= 204.00 CWSEL= 1649.61

| STA= | 1000. | 1051. | 1063. | 1078. | 1140. | 1187. | 1246. | 1347. | 1483. | 1654. | 1753. | 1853. | 1963. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 6.9 | 4.7 | 3.3 | 4.4 | 3.3 | 3.1 | 3.6 | 3.2 | 3.4 | 3.5 | 4.5 | 5.8 | |
| AREA= | 85.0 | 43.9 | 39.1 | 60.8 | 83.9 | 87.2 | 119.3 | 124.8 | 139.5 | 115.4 | 134.7 | 164.1 | |
| VEL= | 6.5 | 8.7 | 6.9 | 5.9 | 3.2 | 2.8 | 2.5 | 2.1 | 1.9 | 2.5 | 2.7 | 2.9 | |
| DEPTH= | 1.7 | 3.7 | 2.6 | 1.0 | 1.8 | 1.5 | 1.2 | .9 | .8 | 1.2 | 1.3 | 1.5 | |

| STA= | 1963. | 2022. | 2066. | 2105. | 2364. | 2458. | 2503. | 2553. | 2603. | 2653. | 2812. | 2843. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 1.9 | 1.4 | 11.0 | 11.5 | 5.0 | 3.7 | 4.1 | 4.7 | 3.6 | 3.0 | .1 | |
| AREA= | 63.8 | 49.2 | 79.6 | 387.6 | 132.1 | 81.8 | 91.0 | 98.9 | 84.5 | 108.6 | 6.1 | |
| VEL= | 2.4 | 2.3 | 11.1 | 2.4 | 3.1 | 3.7 | 3.6 | 3.8 | 3.5 | 2.2 | .9 | |
| DEPTH= | 1.1 | 1.1 | 2.1 | 1.5 | 1.4 | 1.8 | 1.8 | 2.0 | 1.7 | .7 | .2 | |

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 205.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1000.0 3192.3 TYPE= 1 TARGET= 2192.300

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 205.000 | 4.04 | 1650.84 | .00 | 1650.84 | 1651.13 | .29 | 1.31 | .03 | 1650.90 |
| 8159.0 | 3861.6 | 1879.4 | 2417.9 | 985.9 | 339.2 | 636.9 | 830.6 | 421.2 | 1652.50 |
| .91 | 3.92 | 5.54 | 3.80 | .039 | .026 | .046 | .000 | 1646.80 | 1000.00 |
| .007614 | 160. | 240. | 255. | 2 | 0 | 0 | .00 | 1742.80 | 2804.89 |



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [redacted]ECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

FLOW DISTRIBUTION FOR SECNO= 205.00 CWSEL= 1650.84

| STA= | 1000. | 1025. | 1045. | 1057. | 1066. | 1105. | 1187. | 1296. | 1518. | 1644. | 1716. | 1775. | 1870. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 3.5 | 4.4 | 5.0 | 3.7 | 4.4 | 3.7 | 5.1 | 3.6 | 4.1 | 3.0 | 3.3 | 3.3 | |
| AREA= | 31.0 | 46.8 | 41.3 | 31.0 | 51.2 | 79.4 | 135.4 | 146.2 | 128.3 | 84.9 | 82.7 | 98.4 | |
| VEL= | 9.2 | 7.6 | 9.8 | 9.8 | 7.0 | 3.8 | 3.0 | 2.0 | 2.6 | 2.9 | 3.2 | 2.7 | |
| DEPTH= | 1.2 | 2.3 | 3.4 | 3.4 | 1.3 | 1.0 | 1.2 | .7 | 1.0 | 1.2 | 1.4 | 1.0 | |

| STA= | 1870. | 1962. | 2069. | 2183. | 2226. | 2303. | 2401. | 2438. | 2468. | 2573. | 2650. | 2724. | 2805. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | .4 | 1.4 | 6.8 | 12.3 | 2.5 | 5.3 | 4.9 | 3.3 | 8.5 | 3.7 | 3.4 | .4 | |
| AREA= | 29.4 | 58.5 | 129.9 | 81.3 | 69.5 | 121.7 | 81.5 | 59.7 | 173.0 | 92.4 | 84.8 | 23.7 | |
| VEL= | 1.2 | 2.0 | 4.3 | 12.4 | 2.9 | 3.6 | 5.0 | 4.5 | 4.0 | 3.3 | 3.3 | 1.5 | |
| DEPTH= | .3 | .7 | 1.3 | 1.9 | 1.2 | 1.2 | 2.3 | 1.9 | 1.6 | 1.2 | 1.1 | .3 | |

CCHV= .100 CEHV= .300
*SECNO 205.200

3265 DIVIDED FLOW

3280 CROSS SECTION 205.20 EXTENDED 1.23 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 205.200 | 4.33 | 1653.83 | .00 | 1653.83 | 1654.09 | .26 | 2.96 | .00 | 1652.70 |
| 5463.9 | 51.2 | 2446.8 | 2965.9 | 26.4 | 452.6 | 1191.2 | 851.4 | 436.8 | 1655.70 |
| .95 | 1.94 | 5.41 | 2.49 | .055 | .035 | .055 | .000 | 1649.50 | 1000.00 |
| .004315 | 350. | 500. | 580. | 3 | 0 | 0 | .00 | 1055.36 | 2103.59 |

FLOW DISTRIBUTION FOR SECNO= 205.20 CWSEL= 1653.83

| STA= | 1000. | 1022. | 1204. | 1269. | 1386. | 1452. | 1503. | 1555. | 1612. | 1665. | 1718. | 1772. | 1880. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | .9 | 44.8 | 3.0 | 5.4 | 4.5 | 7.5 | 8.2 | 5.3 | 5.1 | 5.1 | 3.6 | 3.6 | |
| AREA= | 26.4 | 452.6 | 72.2 | 143.2 | 103.1 | 126.3 | 133.8 | 107.2 | 101.9 | 101.7 | 83.2 | 107.1 | |
| VEL= | 1.9 | 5.4 | 2.3 | 2.1 | 2.4 | 3.3 | 3.3 | 2.7 | 2.7 | 2.7 | 2.4 | 1.8 | |
| DEPTH= | 1.2 | 2.7 | 1.1 | 1.2 | 1.6 | 2.5 | 2.6 | 1.9 | 1.9 | 1.9 | 1.6 | 1.0 | |

| STA= | 1880. | 2104. |
|---|---|---|
| PER Q= | 3.0 | |
| [redacted]REA= | 111.5 | |
| [redacted]EL= | 1.4 | |
| [redacted]PTH= | .5 | |



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |

| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
|---|---|---|---|---|---|---|---|---|---|
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 205.300

[redacted]DIVIDED FLOW

[redacted]CROSS SECTION 205.30 EXTENDED .34 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 205.300 | 5.44 | 1655.34 | .00 | 1655.34 | 1655.60 | .26 | 1.51 | .00 | 1655.00 |
| 6338.4 | .0 | 2606.7 | 3731.7 | .0 | 484.2 | 1315.3 | 866.9 | 445.2 | 1658.20 |
| .97 | .00 | 5.38 | 2.84 | .000 | .035 | .055 | .000 | 1649.90 | 1000.00 |
| .003623 | 375. | 372. | 395. | 2 | 0 | 0 | .00 | 832.32 | 1860.14 |

FLOW DISTRIBUTION FOR SECNO= 205.30 CWSEL= 1655.34

| STA= | 1000. | 1173. | 1222. | 1246. | 1300. | 1341. | 1397. | 1453. | 1495. | 1523. | 1578. | 1612. | 1669. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 41.1 | 4.1 | 6.1 | 3.5 | 3.9 | 6.2 | 7.1 | 5.6 | 4.3 | 7.5 | 3.2 | 3.6 | |
| AREA= | 484.2 | 85.8 | 98.2 | 88.7 | 89.6 | 134.6 | 145.9 | 112.2 | 82.5 | 149.7 | 74.5 | 95.1 | |
| VEL= | 5.4 | 3.0 | 4.0 | 2.5 | 2.7 | 2.9 | 3.1 | 3.1 | 3.3 | 3.2 | 2.7 | 2.4 | |
| DEPTH= | 3.1 | 1.8 | 3.8 | 1.7 | 2.2 | 2.4 | 2.6 | 2.7 | 2.9 | 2.7 | 2.2 | 1.7 | |

| STA= | 1669. | 1782. | 1860. |
|---|---|---|---|
| PER Q= | 3.0 | .8 | |
| AREA= | 114.2 | 44.2 | |
| VEL= | 1.7 | 1.2 | |
| DEPTH= | 1.0 | .6 | |

*SECNO 205.400

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 205.400 | 6.08 | 1657.18 | .00 | 1657.18 | 1657.69 | .52 | 2.01 | .08 | 1662.30 |
| 6342.0 | .0 | 3743.0 | 2599.0 | .0 | 518.5 | 1069.4 | 885.9 | 455.3 | 1660.90 |
| 1.00 | .00 | 7.22 | 2.43 | .000 | .035 | .055 | .000 | 1651.10 | 1019.07 |
| .004605 | 510. | 510. | 480. | 3 | 0 | 0 | .00 | 972.65 | 2094.03 |

FLOW DISTRIBUTION FOR SECNO= 205.40 CWSEL= 1657.18

| STA= | 1019. | 1161. | 1468. | 1527. | 1613. | 1673. | 1723. | 1773. | 1823. | 1944. | 2073. | 2094. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 59.0 | 4.9 | 3.1 | 5.1 | 6.2 | 5.3 | 5.1 | 4.2 | 3.6 | 3.2 | .3 | |
| AREA= | 518.5 | 170.1 | 84.1 | 132.2 | 128.2 | 109.0 | 106.9 | 94.5 | 117.9 | 111.9 | 14.6 | |
| VEL= | 7.2 | 1.8 | 2.3 | 2.5 | 3.1 | 3.1 | 3.0 | 2.8 | 1.9 | 1.8 | 1.5 | |
| DEPTH= | 4.0 | .6 | 1.4 | 1.5 | 2.2 | 2.2 | 2.1 | 1.9 | 1.0 | .9 | .7 | |

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*SECNO 205.500

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 205.500 | 6.45 | 1659.45 | 1659.45 | 1659.45 | 1660.39 | .94 | 2.04 | .13 | 1662.50 |
| 6342.0 | .0 | 3664.4 | 2677.6 | .0 | 379.8 | 660.0 | 895.5 | 460.7 | 1663.30 |
| 1.01 | .00 | 9.65 | 4.06 | .000 | .035 | .055 | .000 | 1653.00 | 1014.74 |
| .008296 | 380. | 370. | 290. | 2 | 8 | 0 | .00 | 591.50 | 1831.02 |

FLOW DISTRIBUTION FOR SECNO= 205.50 CWSEL= 1659.45

| STA= | 1015. | 1140. | 1259. | 1343. | 1374. | 1458. | 1738. | 1831. |
|---|---|---|---|---|---|---|---|---|
| PER Q= | 57.8 | 4.7 | 22.1 | 8.4 | 3.8 | 3.2 | .0 | |
| AREA= | 379.8 | 99.0 | 265.0 | 98.8 | 87.5 | 105.9 | 3.7 | |
| VEL= | 9.6 | 3.0 | 5.3 | 5.4 | 2.7 | 1.9 | .7 | |
| DEPTH= | 4.0 | .8 | 3.2 | 3.3 | 1.0 | .4 | .0 | |

*SECNO 205.600

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.41

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 205.600 | 7.39 | 1662.69 | .00 | 1662.69 | 1663.03 | .34 | 2.58 | .06 | 1667.00 |
| 6342.0 | .0 | 2377.3 | 3964.7 | .0 | 355.6 | 1342.0 | 909.2 | 469.0 | 1665.50 |
| 1.04 | .00 | 6.69 | 2.95 | .000 | .035 | .055 | .000 | 1655.30 | 1016.02 |
| .004148 | 490. | 490. | 420. | 3 | 0 | 0 | .00 | 1091.65 | 2280.85 |

FLOW DISTRIBUTION FOR SECNO= 205.60 CWSEL= 1662.69

| [redacted] | 1016. | 1131. | 1202. | 1295. | 1348. | 1367. | 1419. | 1530. | 1583. | 1938. | 2101. | 2281. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R Q= | 37.5 | 3.7 | 21.0 | 14.5 | 3.0 | 3.2 | 5.5 | 3.4 | 4.2 | 3.4 | .5 | |
| AREA= | 355.6 | 95.8 | 319.0 | 210.2 | 54.0 | 85.2 | 155.8 | 83.4 | 159.4 | 137.7 | 41.6 | |
| VEL= | 6.7 | 2.5 | 4.2 | 4.4 | 3.5 | 2.4 | 2.3 | 2.6 | 1.7 | 1.6 | .7 | |
| DEPTH= | 3.9 | 1.3 | 3.4 | 4.0 | 2.9 | 1.6 | 1.4 | 1.6 | .4 | .8 | .2 | |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

[redacted] 210.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 2300.0 3015.0 TYPE= 1 TARGET= 715.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 210.000 | 6.02 | 1663.92 | .00 | 1663.92 | 1664.37 | .45 | 1.30 | .03 | 100000.00 |
| 6342.0 | .0 | 1894.1 | 4447.9 | .0 | 340.7 | 833.8 | 917.6 | 473.9 | 1665.90 |
| 1.05 | .00 | 5.56 | 5.33 | .000 | .045 | .035 | .000 | 1657.90 | 2301.76 |
| .006639 | 110. | 245. | 255. | 3 | 0 | 0 | .00 | 595.49 | 2929.71 |

FLOW DISTRIBUTION FOR SECNO= 210.00 CWSEL= 1663.92

| STA= | 2302. | 2431. | 2511. | 2561. | 2608. | 2655. | 2688. | 2712. | 2824. | 2867. | 2911. | 2930. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 29.9 | 3.5 | 4.1 | 11.1 | 13.1 | 7.6 | 4.1 | 17.4 | 5.3 | 4.1 | .9 | |
| AREA= | 340.7 | 64.9 | 63.9 | 112.7 | 124.4 | 78.2 | 47.7 | 210.0 | 69.6 | 60.3 | 2.1 | |
| VEL= | 5.6 | 3.4 | 4.1 | 6.2 | 6.7 | 6.1 | 5.4 | 5.3 | 4.8 | 4.3 | 1.9 | |
| DEPTH= | 3.0 | .8 | 1.3 | 2.4 | 2.7 | 2.4 | 2.0 | 1.9 | 1.6 | 1.4 | .1 | |



TW WEIR FLOW OVER BOULDER HIGHWAY BETWEEN SECTIONS 201 AND 202

| ASQ | QCOMP | ERRAC | TASQ | TCQ | TABER | NITER | DSWS | USWS | DSSNO | USSNO |
|---|---|---|---|---|---|---|---|---|---|---|
| 735.63 | 775.04 | 5.22 | 735.63 | 775.04 | 5.22 | 27 | 1642.615 | 1644.157 | 201.000 | 202.000 |

TW WEIR FLOW OVER BOULDER HIGHWAY BETWEEN SECTIONS 202 AND 203

| ASQ | QCOMP | ERRAC | TASQ | TCQ | TABER | NITER | DSWS | USWS | DSSNO | USSNO |
|---|---|---|---|---|---|---|---|---|---|---|
| 2736.62 | 2743.81 | .26 | 3472.26 | 3518.85 | 1.33 | 27 | 1644.157 | 1647.158 | 202.000 | 203.000 |

TW WEIR FLOW OVER BOULDER HIGHWAY BETWEEN SECTIONS 203 AND 204

| ASQ | QCOMP | ERRAC | TASQ | TCQ | TABER | NITER | DSWS | USWS | DSSNO | USSNO |
|---|---|---|---|---|---|---|---|---|---|---|
| 673.45 | 675.09 | .24 | 4145.70 | 4193.94 | 1.16 | 27 | 1647.158 | 1649.610 | 203.000 | 204.000 |

TW WEIR FLOW OVER BOULDER HIGHWAY BETWEEN SECTIONS 204 AND 205

| [redacted]SQ | QCOMP | ERRAC | TASQ | TCQ | TABER | NITER | DSWS | USWS | DSSNO | USSNO |
|---|---|---|---|---|---|---|---|---|---|---|
| 115.34 | 115.32 | .02 | 4261.05 | 4309.26 | 1.13 | 27 | 1649.610 | 1650.839 | 204.000 | 205.000 |

TW WEIR BETWEEN SECTIONS 205.2 AND 205.3

| ASQ | QCOMP | ERRAC | TASQ | TCQ | TABER | NITER | DSWS | USWS | DSSNO | USSNO |
|---|---|---|---|---|---|---|---|---|---|---|
| 874.45 | 874.23 | .03 | 5135.50 | 5183.49 | .93 | 27 | 1653.832 | 1655.340 | 205.200 | 205.300 |

TW WEIR BETWEEN SECTIONS 205.3 AND 205.4

| ASQ | QCOMP | ERRAC | TASQ | TCQ | TABER | NITER | DSWS | USWS | DSSNO | USSNO |
|---|---|---|---|---|---|---|---|---|---|---|
| 3.60 | 3.61 | .26 | 5139.10 | 5187.10 | .93 | 27 | 1655.340 | 1657.175 | 205.300 | 205.400 |



THIS RUN EXECUTED 11FEB02 14:58:11

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DUCK CREEK

SUMMARY PRINTOUT

| | SECNO | Q | QLOB | QCH | QROB | VCH | CWSEL | SSTA | ENDST | TOPWID | AREA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 100.000 | 11500.00 | .00 | 11500.00 | .00 | 8.19 | 1554.24 | 1727.05 | 2010.24 | 283.19 | 1404.31 |
| * | 102.000 | 11500.00 | 39.65 | 11459.70 | .64 | 12.07 | 1564.66 | 1773.97 | 2047.32 | 273.35 | 975.15 |
| [redacted] | 103.000 | 11500.00 | 808.57 | 10623.79 | 67.64 | 9.21 | 1569.88 | 1274.81 | 1737.60 | 462.79 | 1519.42 |
| | 104.000 | 11500.00 | .00 | 6366.86 | 5133.14 | 9.68 | 1572.82 | 2221.29 | 2955.35 | 575.08 | 1389.38 |
| | 106.000 | 11500.00 | 339.33 | 11063.75 | 96.92 | 6.29 | 1581.65 | 2138.69 | 3046.80 | 908.12 | 1951.23 |
| | 108.000 | 11500.00 | 5102.52 | 4888.38 | 1509.09 | 4.41 | 1587.46 | 1955.29 | 3085.00 | 1129.71 | 3130.55 |
| * | 110.000 | 11500.00 | 6317.61 | 5078.54 | 103.85 | 5.34 | 1593.80 | 2371.38 | 3733.77 | 1362.39 | 2663.92 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 112.000 | 11500.00 | 10284.02 | 532.53 | 683.45 | 2.01 | 1599.97 | 1246.36 | 3640.26 | 2288.30 | 4558.28 |
| * | 117.000 | 11500.00 | .00 | 11500.00 | .00 | 5.88 | 1612.12 | 1756.36 | 4238.86 | 1689.09 | 1955.85 |
| * | 118.000 | 11500.00 | 6781.14 | 1483.86 | 3235.00 | 1.56 | 1612.93 | 891.28 | 4432.13 | 3503.76 | 13877.78 |
| * | 120.000 | 11500.00 | 2699.48 | 1524.20 | 7276.32 | 3.79 | 1613.13 | 1091.77 | 3648.20 | 2536.54 | 4435.58 |
| | 122.000 | 11500.00 | 5753.07 | 4561.44 | 1185.48 | 7.84 | 1616.39 | 1120.64 | 3293.70 | 1981.84 | 3011.46 |
| | 124.000 | 11500.00 | 5992.87 | 4351.48 | 1155.65 | 8.41 | 1620.11 | 993.84 | 3085.57 | 2057.76 | 3353.47 |
| * | 126.000 | 7238.95 | 161.83 | 1234.30 | 5842.83 | 3.27 | 1625.13 | 1708.68 | 3658.01 | 1888.97 | 2981.59 |
| | 128.000 | 7238.95 | 4084.55 | 1739.74 | 1414.66 | 3.92 | 1629.55 | 1042.15 | 2976.32 | 1617.32 | 2426.57 |
| | 130.000 | 7238.95 | 4192.77 | 1441.87 | 1604.32 | 5.11 | 1632.88 | 1083.74 | 2446.50 | 1181.05 | 2089.18 |
| * | 198.000 | 3897.95 | 477.20 | 3407.34 | 13.41 | 7.70 | 1638.12 | 1433.31 | 1958.72 | 501.53 | 637.51 |

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| | SECNO | Q | QLOB | QCH | QROB | VCH | CWSEL | SSTA | ENDST | TOPWID | AREA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 200.000 | 3897.95 | 393.13 | 3239.81 | 265.01 | 7.40 | 1638.56 | 1392.94 | 2523.46 | 844.24 | 864.32 |
| * | 201.000 | 3897.95 | .00 | 3897.95 | .00 | 3.94 | 1642.61 | 1069.20 | 2020.77 | 765.95 | 989.95 |
| * | 202.000 | 4633.59 | 4103.30 | 151.59 | 378.69 | 2.18 | 1644.16 | 1049.00 | 2233.87 | 1025.48 | 1423.57 |
| | 203.000 | 7370.21 | 5213.37 | 827.51 | 1329.33 | 3.80 | 1647.16 | 1105.00 | 2800.40 | 1539.75 | 2017.29 |
| * | 204.000 | 8043.66 | 4166.92 | 1921.79 | 1954.94 | 3.72 | 1649.61 | 1000.00 | 2843.50 | 1843.50 | 2381.18 |
| | 205.000 | 8159.00 | 3861.64 | 1879.42 | 2417.94 | 5.54 | 1650.84 | 1000.00 | 2804.89 | 1742.80 | 1961.89 |
| | 205.200 | 5463.95 | 51.18 | 2446.84 | 2965.93 | 5.41 | 1653.83 | 1000.00 | 2103.59 | 1055.36 | 1670.16 |
| | 205.300 | 6338.40 | .00 | 2606.66 | 3731.74 | 5.38 | 1655.34 | 1000.00 | 1860.14 | 832.32 | 1799.53 |
| | 205.400 | 6342.00 | .00 | 3742.95 | 2599.05 | 7.22 | 1657.18 | 1019.07 | 2094.03 | 972.65 | 1587.88 |
| * | 205.500 | 6342.00 | .00 | 3664.44 | 2677.55 | 9.65 | 1659.45 | 1014.74 | 1831.02 | 591.50 | 1039.81 |
| * | 205.600 | 6342.00 | .00 | 2377.25 | 3964.75 | 6.69 | 1662.69 | 1016.02 | 2280.85 | 1091.65 | 1697.62 |
| | 210.000 | 6342.00 | .00 | 1894.10 | 4447.90 | 5.56 | 1663.92 | 2301.76 | 2929.71 | 595.49 | 1174.57 |

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DUCK CREEK

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 100.000 | .00 | .00 | .00 | 1546.20 | 11500.00 | 1554.24 | .00 | 1555.28 | 44.26 | 8.19 | 1404.31 | 1728.63 |
| * | 102.000 | 1530.00 | .00 | .00 | 1556.30 | 11500.00 | 1564.66 | 1564.66 | 1566.91 | 99.89 | 12.07 | 975.15 | 1150.66 |
| * | 103.000 | 720.00 | .00 | .00 | 1559.20 | 11500.00 | 1569.88 | .00 | 1571.10 | 36.56 | 9.21 | 1519.42 | 1902.00 |
| * | 104.000 | 510.00 | .00 | .00 | 1564.50 | 11500.00 | 1572.82 | 1572.70 | 1573.96 | 95.95 | 9.68 | 1389.38 | 1174.05 |
| | 106.000 | 1100.00 | .00 | .00 | 1576.70 | 11500.00 | 1581.65 | .00 | 1582.24 | 61.20 | 6.29 | 1951.23 | 1470.01 |
| | 108.000 | 1100.00 | .00 | .00 | 1582.80 | 11500.00 | 1587.46 | .00 | 1587.69 | 42.50 | 4.41 | 3130.55 | 1764.04 |
| * | 110.000 | 1000.00 | .00 | .00 | 1590.40 | 11500.00 | 1593.80 | .00 | 1594.11 | 102.92 | 5.34 | 2663.92 | 1133.57 |
| * | 112.000 | 1050.00 | .00 | .00 | 1595.90 | 11500.00 | 1599.97 | .00 | 1600.07 | 35.68 | 2.01 | 4558.28 | 1925.16 |
| * | 117.000 | 940.00 | .00 | .00 | 1608.90 | 11500.00 | 1612.12 | 1612.12 | 1612.66 | 32.96 | 5.88 | 1955.85 | 2003.02 |
| * | 118.000 | 60.00 | .00 | .00 | 1603.00 | 11500.00 | 1612.93 | 1608.14 | 1612.94 | 1.42 | 1.56 | 13877.78 | 9639.76 |
| * | 120.000 | 440.00 | .00 | .00 | 1610.00 | 11500.00 | 1613.13 | .00 | 1613.25 | 41.93 | 3.79 | 4435.58 | 1776.02 |
| * | 122.000 | 570.00 | .00 | .00 | 1609.50 | 11500.00 | 1616.39 | 1616.10 | 1616.86 | 87.38 | 7.84 | 3011.46 | 1230.25 |
| | 124.000 | 525.00 | .00 | .00 | 1612.00 | 11500.00 | 1620.11 | .00 | 1620.60 | 58.92 | 8.41 | 3353.47 | 1498.17 |
| * | 126.000 | 840.00 | .00 | .00 | 1621.70 | 7238.95 | 1625.13 | .00 | 1625.23 | 57.36 | 3.27 | 2981.59 | 955.81 |
| | 128.000 | 820.00 | .00 | .00 | 1625.00 | 7238.95 | 1629.55 | .00 | 1629.70 | 59.21 | 3.92 | 2426.57 | 940.75 |
| | 130.000 | 480.00 | .00 | .00 | 1627.80 | 7238.95 | 1632.88 | .00 | 1633.09 | 85.20 | 5.11 | 2089.18 | 784.27 |
| * | 198.000 | 470.00 | .00 | .00 | 1632.80 | 3897.95 | 1638.12 | 1638.12 | 1638.94 | 147.24 | 7.70 | 637.51 | 321.23 |
| * | 200.000 | 188.00 | 1638.40 | 1635.50 | 1633.50 | 3897.95 | 1638.56 | .00 | 1639.28 | 47.57 | 7.40 | 864.32 | 565.16 |
| | 201.000 | 430.00 | .00 | .00 | 1638.90 | 3897.95 | 1642.61 | .00 | 1642.86 | 165.37 | 3.94 | 989.95 | 303.11 |
| * | 202.000 | 165.00 | .00 | .00 | 1641.70 | 4633.59 | 1644.16 | .00 | 1644.33 | 59.61 | 2.18 | 1423.57 | 600.17 |
| | 203.000 | 390.00 | .00 | .00 | 1643.00 | 7370.21 | 1647.16 | .00 | 1647.37 | 93.29 | 3.80 | 2017.29 | 763.06 |
| * | 204.000 | 350.00 | .00 | .00 | 1645.90 | 8043.66 | 1649.61 | .00 | 1649.79 | 54.31 | 3.72 | 2381.18 | 1091.47 |

← XS "C"

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 205.000 | 240.00 | .00 | .00 | 1646.80 | 8159.00 | 1650.84 | .00 | 1651.13 | 76.14 | 5.54 | 1961.89 | 935.01 |
| | 205.200 | 500.00 | .00 | .00 | 1649.50 | 5463.95 | 1653.83 | .00 | 1654.09 | 43.15 | 5.41 | 1670.16 | 831.79 |

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| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 205.300 | 372.00 | .00 | .00 | 1649.90 | 6338.40 | 1655.34 | .00 | 1655.60 | 36.23 | 5.38 | 1799.53 | 1053.02 |
| | 205.400 | 510.00 | .00 | .00 | 1651.10 | 6342.00 | 1657.18 | .00 | 1657.69 | 46.05 | 7.22 | 1587.88 | 934.52 |
| * | 205.500 | 370.00 | .00 | .00 | 1653.00 | 6342.00 | 1659.45 | 1659.45 | 1660.39 | 82.96 | 9.65 | 1039.81 | 696.29 |
| • | 205.600 | 490.00 | .00 | .00 | 1655.30 | 6342.00 | 1662.69 | .00 | 1663.03 | 41.48 | 6.69 | 1697.62 | 984.71 |
| | 210.000 | 245.00 | .00 | .00 | 1657.90 | 6342.00 | 1663.92 | .00 | 1664.37 | 66.39 | 5.56 | 1174.57 | 778.37 |

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DUCK CREEK

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 100.000 | 11500.00 | 1554.24 | .00 | .00 | -5.76 | 283.19 | .00 |
| • | 102.000 | 11500.00 | 1564.66 | .00 | 10.42 | .00 | 273.35 | 1530.00 |
| • | 103.000 | 11500.00 | 1569.88 | .00 | 5.22 | .00 | 462.79 | 720.00 |
| * | 104.000 | 11500.00 | 1572.82 | .00 | 2.94 | .00 | 575.08 | 510.00 |
| | 106.000 | 11500.00 | 1581.65 | .00 | 8.83 | .00 | 908.12 | 1100.00 |
| | 108.000 | 11500.00 | 1587.46 | .00 | 5.82 | .00 | 1129.71 | 1100.00 |
| • | 110.000 | 11500.00 | 1593.80 | .00 | 6.33 | .00 | 1362.39 | 1000.00 |
| • | 112.000 | 11500.00 | 1599.97 | .00 | 6.17 | .00 | 2288.30 | 1050.00 |
| • | 117.000 | 11500.00 | 1612.12 | .00 | 12.15 | .00 | 1689.09 | 940.00 |
| * | 118.000 | 11500.00 | 1612.93 | .00 | .81 | .00 | 3503.76 | 60.00 |
| | 120.000 | 11500.00 | 1613.13 | .00 | .20 | .00 | 2536.54 | 440.00 |
| * | 122.000 | 11500.00 | 1616.39 | .00 | 3.26 | .00 | 1981.84 | 570.00 |
| | 124.000 | 11500.00 | 1620.11 | .00 | 3.72 | .00 | 2057.76 | 525.00 |
| * | 126.000 | 7238.95 | 1625.13 | .00 | 5.02 | .00 | 1888.97 | 840.00 |
| | 128.000 | 7238.95 | 1629.55 | .00 | 4.42 | .00 | 1617.32 | 820.00 |
| | 130.000 | 7238.95 | 1632.88 | .00 | 3.33 | .00 | 1181.05 | 480.00 |
| • | 198.000 | 3897.95 | 1638.12 | .00 | 5.24 | .00 | 501.53 | 470.00 |
| • | 200.000 | 3897.95 | 1638.56 | .00 | .44 | -.04 | 844.24 | 188.00 |
| • | 201.000 | 3897.95 | 1642.61 | .00 | 4.05 | .05 | 765.95 | 430.00 |
| • | 202.000 | 4633.59 | 1644.16 | .00 | 1.54 | .00 | 1025.48 | 165.00 |
| | 203.000 | 7370.21 | 1647.16 | .00 | 3.00 | .00 | 1539.75 | 390.00 |
| * | 204.000 | 8043.66 | 1649.61 | .00 | 2.45 | .00 | 1843.50 | 350.00 |
| | 205.000 | 8159.00 | 1650.84 | .00 | 1.23 | .00 | 1742.80 | 240.00 |
| | 205.200 | 5463.95 | 1653.83 | .00 | 2.99 | .00 | 1055.36 | 500.00 |

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| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 205.300 | 6338.40 | 1655.34 | .00 | 1.51 | .00 | 832.32 | 372.00 |
| | 205.400 | 6342.00 | 1657.18 | .00 | 1.84 | .00 | 972.65 | 510.00 |
| • | 205.500 | 6342.00 | 1659.45 | .00 | 2.28 | .00 | 591.50 | 370.00 |
| • | 205.600 | 6342.00 | 1662.69 | .00 | 3.24 | .00 | 1091.65 | 490.00 |
| | 210.000 | 6342.00 | 1663.92 | .00 | 1.23 | .00 | 595.49 | 245.00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 102.000 PROFILE= 1 CRITICAL DEPTH ASSUMED

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CAUTION SECNO=    102.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    103.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    104.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 ING SECNO=    110.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 ING SECNO=    112.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    117.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    117.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    117.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=    118.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    120.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    122.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    126.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    198.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    198.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    200.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    201.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

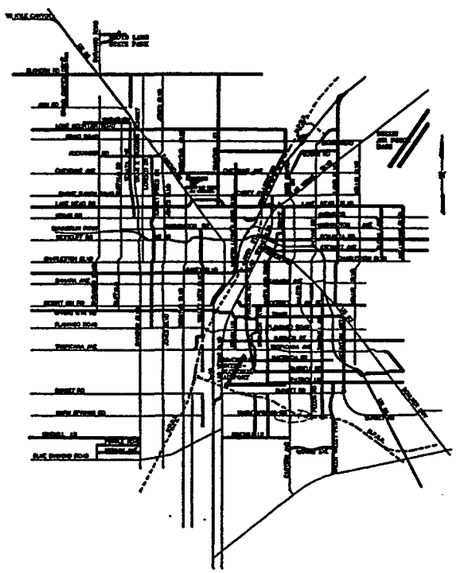
WARNING SECNO=    202.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    204.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    205.500  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    205.500  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    205.600  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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# DEPARTMENT OF PUBLIC WORKS




**Vicinity Map**
NOT TO SCALE

"Progress as Promised"

**County Commissioners**

Jay Bingham, Chairman
Don Schlesinger, Vice Chairman
Paul J. Christensen
Thalia M. Dondero
Yvonne Atkinson Gates
Karen Hayes
Bruce L. Woodbury

# 1993
## IMPROVEMENT PLANS FOR
# WARM SPRINGS ROAD
## FROM
# TAMARUS STREET TO PECOS ROAD

**FUNDED BY**
**1987 TRANSPORTATION BONDS**

**CLARK COUNTY SPECIAL IMPROVEMENT DISTRICT #69A**

CONSULTING ENGINEERS

**County Manager**

Donald L. Shalmy

**Director of Public Works**

Approved:

M.J. Manning R.P.E. 7299

| AGENCY | PLANS REVIEWED BY | DATE |
|---|---|---|
| SPRINT CENTRAL TELEPHONE COMPANY | | 6293 |
| LAS VEGAS VALLEY WATER DISTRICT | | 7/16/93 |
| SOUTHWEST GAS COMPANY | | 7/9/93 |
| NEVADA POWER COMPANY | | 6/30/93 |
| CLARK COUNTY SANITATION DISTRICT | | 6-30-93 |
| REGIONAL TRANSPORTATION COMM. | | 6/9/93 |
| COMMUNITY CABLE TV. | | 7-16-93 |

| DEPARTMENT OF PUBLIC WORKS | PLANS REVIEWED BY | DATE OF APPROVAL |
|---|---|---|
| DEPUTY DIRECTOR FOR PROFESSIONAL SERVICES | | 6/30/93 |
| DEPUTY DIRECTOR FOR FIELD OPERATIONS | | 8/4/93 |
| COMMUNITY DEVELOPMENT DIVISION | | 6/29/93 |
| CONSTRUCTION MANAGEMENT DIVISION | | 6/29/93 |
| DESIGN ENGINEERING DIVISION | | 6-29-93 |
| MAINTENANCE MANAGEMENT DIVISION | | 6-30-93 |
| TRAFFIC MANAGEMENT DIVISION | | 6-29-93 |
| COUNTY SURVEYOR'S OFFICE | | 6/30/93 |

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| REVISION No. | DESCRIPTION | BY | DATE | APPROVAL | DATE |
| | | | | | |
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**DESIGN ENGINEERING DIVISION**

COVER SHEET

L—1343

## GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "CLARK COUNTY STANDARD DRAWINGS" AS REVISED AND "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" CLARK COUNTY AREA, NEVADA, LATEST ISSUE, UNLESS OTHERWISE SPECIFIED BY NOTE ON THE PLANS AND/OR SPECIAL PROVISIONS.
2. LOCATIONS OF UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES LIKELY TO BE AFFECTED BY HIS WORK. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED PROMPTLY IN A SATISFACTORY MANNER AT THE CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR RECONSTRUCTED SATISFACTORILY TO THE OWNER AT THE EXPENSE OF THE CONTRACTOR.
4. ALL UTILITY COMPANIES SHALL BE NOTIFIED BY THE CONTRACTOR AT LEAST 48 (FORTY-EIGHT) HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. THE OWNING UTILITY COMPANY SHALL BE RESPONSIBLE FOR THE REMOVAL OR RELOCATION OF ALL POWER POLES, TELEPHONE POLES, JOINTLY OWNED POLES AND RELATIVE APPURTENANCES THAT INTERFERE WITH THE REQUIRED IMPROVEMENTS AS SHOWN ON THE PLANS.
6. THE SOUTHWEST GAS COMPANY SHALL BE RESPONSIBLE FOR THE REMOVAL OR RELOCATION OF ALL GAS LINES AND APPURTENANCES THAT INTERFERE WITH THE REQUIRED IMPROVEMENTS AS SHOWN ON THE PLANS.
7. THE CENTRAL TELEPHONE COMPANY SHALL BE RESPONSIBLE FOR THE ADJUSTMENT OF TELEPHONE MANHOLES AND UNDERGROUND TELEPHONE LINES THAT INTERFERE WITH THE REQUIRED IMPROVEMENTS AS SHOWN ON THE PLANS.
8. THE NEVADA POWER COMPANY SHALL BE RESPONSIBLE FOR THE RELOCATION OF OVERHEAD AND UNDERGROUND POWER FACILITIES THAT INTERFERE WITH THE REQUIRED IMPROVEMENTS AS SHOWN ON THE PLANS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERTICAL ADJUSTMENT OF ALL LAS VEGAS VALLEY WATER DISTRICT FACILITIES AS INDICATED ON THE PLANS OR IN THE SPECIAL PROVISIONS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERTICAL ADJUSTMENT OF ALL CLARK COUNTY SANITATION DISTRICT MANHOLES UNLESS NOTIFIED OTHERWISE BY THE ENGINEER.
11. A MINIMUM VERTICAL DISTANCE OF 18 INCHES (18") MUST BE MAINTAINED WHEN A STORM DRAIN IS INSTALLED UNDER A WATER LINE. IF THIS DISTANCE CAN NOT BE MAINTAINED, OR THE STORM DRAIN MUST BE PLACED OVER THE WATER LINE, THE STORM DRAIN MUST BE ENCASED WITH 6 INCHES (6") MINIMUM OF CONCRETE EXTENDED FOR 10 FEET (10') ON EITHER SIDE OF THE WATER LINE AT 90 DEGREES TO THE CROSSING.
12. ALL STATIONING FOR TYPE "C" DROP INLETS ARE TO THE CENTER OF THE DROP INLET. ALL TYPE "C" DROP INLETS WILL BE CONSTRUCTED AS PER STANDARD DRAWING NO. 413 AS INDICATED IN THE APPENDIX OF THE SPECIAL PROVISIONS.
13. LVACTS INTERCONNECT CABLE POLICY IS IN EFFECT. INTERCONNECT CABLE MUST BE MAINTAINED AT ALL TIMES. THE CONTRACTOR SHALL PROVIDE TEMPORARY OVERHEAD INTERCONNECT CABLE, WHILE PERMANENT CABLE IS BEING RELOCATED. ANY DAMAGE TO THIS CABLE IS DEEMED AN EMERGENCY BY LVACTS, CITY OF LAS VEGAS, CLARK COUNTY AND NDOT. TEMPORARY AERIAL INSTALLATION MUST BE ACCEPTABLE TO COUNTY TRAFFIC MANAGER AND LVACTS. PLEASE REFERENCE THE PROJECT SPECIAL PROVISIONS.
14. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS. ANY ALTERATIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE ENGINEER.
15. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY KLEINFELDER, INC. (JOB No. 31-157327) AND PER THESE PLANS.
16. EXACT LOCATION OF ALL SAWCUT LINES MAY BE DETERMINED IN THE FIELD BY THE ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN OR EXISTING PAVEMENT CONDITIONS REQUIRE EXACT LOCATION.
17. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH NRS. STATUTE No. 625.550, AT THE CONTRACTOR'S EXPENSE.
18. ALL WHEELCHAIR RAMPS SHALL COMPLY WITH STANDARD DRAWING NO. 235, 1 THROUGH 4, AS INDICATED IN THE APPENDIX OF THE SPECIAL PROVISIONS.
19. TYPE 3 AND TYPE 11 DROP INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH R-4.3.1 (602) AND R-4.6.2 (608) RESPECTIVELY, OF THE STATE OF NEVADA STANDARD PLANS AS INDICATED IN THE APPENDIX OF THE SPECIAL PROVISIONS.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR POTHOLING EXISTING UNDERGROUND UTILITIES AT THOSE LOCATIONS WHERE THE ENGINEER OR CONTRACTOR DETERMINE THAT A POTENTIAL CONFLICT EXISTS, OR SPECIAL CARE MAY BE REQUIRED TO PRESERVE EXISTING UNDERGROUND FACILITIES. DURING CONSTRUCTION OF NEW FACILITIES, THE VERTICAL AND/OR HORIZONTAL DATA OBTAINED DURING POTHOLING SHALL BE PROVIDED TO THE ENGINEER A MINIMUM OF 3 WORKING DAYS PRIOR TO COMMENCEMENT OF WORK ON THE PROPOSED NEW FACILITIES.

## LAS VEGAS VALLEY WATER DISTRICT (LVVWD) NOTES

1. NO WORK SHALL BEGIN ON THE WATER PLANS UNTIL THEY HAVE BEEN RELEASED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING APPROVAL OF THE PLANS, NOTICE MUST BE GIVEN TO THE LVVWD CUSTOMER SERVICE DEPARTMENT (870-4149), 48 HOURS PRIOR TO ACTUAL CONSTRUCTION AND 24 HOURS PRIOR TO AN INSPECTION.
2. CALL BEFORE YOU DIG 1-800-227-2600
3. ALL WORK SHALL CONFORM TO LVVWD LATEST STANDARD PLATES, DRAWINGS AND SPECIFICATIONS.
4. ALL WORK, EXCEPT AS MODIFIED HEREON OR BY NOTE 3, SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT DRAFT OR ADDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY, AREA.
5. DISTRICT APPROVED SERVICE SADDLES OR TAPPED COLLARS WILL BE REQUIRED ON ALL 3/4" AND 1" SERVICE LATERALS. SERVICE SADDLES ONLY WILL BE PERMITTED ON 1 1/2" AND 2" SERVICE LATERAL. DOUBLE TAPPED COLLARS ARE NOT PERMITTED.
6. COPPER SERVICE LATERALS: ALL 3/4" TO 2" SERVICE LATERAL SHALL BE OF COPPER TUBING IN ACCORDANCE WITH THE DISTRICT'S SPECIFICATIONS AND STANDARD PLATES.
7. THE MAXIMUM ALLOWABLE JOINT DEFLECTION FOR 20 FOOT LONG LENGTHS OF ACP AND DUCTILE IRON PIPE SHALL BE AS FOLLOWS:

| PIPE SIZES | ACP | DUCTILE IRON SLIP JOINT | DUCTILE IRON MECHANICAL JOINT |
|---|---|---|---|
| 6 INCH | 2.5° | 2.5° | 3.5° |
| 8 – 12 INCH | 2.5° | 2.5° | 2.5° |
| 14 – 16 INCH | 2° | 1.5° | 1.5° |
| 18 – 24 INCH | N/A | 1.5° | 1.5° |

ON PVC PIPE, THE MAXIMUM OFFSET FOR A 20 FOOT LENGTH OF FACTORY BELLED PIPE SHALL BE 16 INCHES FOR 6" PIPE, 12 INCHES FOR 8" PIPE AND 8 INCHES FOR 10" AND 12" PIPE. IF THE OFFSETS CONFLICT WITH THE PIPE MANUFACTURER'S RECOMMENDATION, THE MORE STRINGENT REQUIREMENT SHALL APPLY.

8. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
9. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS AND VALLEY GUTTERS.
10. DETECTOR TAPE IS REQUIRED IN ACCORDANCE WITH STANDARD PLATE No. 27 WHERE INDICATED AND AS FOLLOWS:
    A) OVER ALL MAINS NOT INSTALLED 6 FEET FROM BACK OF CURB.
    B) OVER ALL SERVICE LATERALS NOT INSTALLED AT RIGHT ANGLES TO MAIN.
11. ALL WATER MAINS ARE TO BE PRESSURE TESTED AT 200 PSI FOR A CONTINUOUS TWO HOUR PERIOD, IN ACCORDANCE WITH DISTRICT STANDARDS.
12. ALL WATER MAINS AND LATERALS SHALL BE DISINFECTED, FLUSHED AND AN ACCEPTABLE HEALTH SAMPLE OBTAINED, PRIOR TO THE CONNECTION OF THE WATER MAIN(S) AND/OR LATERAL(S) TO THE DISTRICT'S SYSTEM.

LAS VEGAS VALLEY WATER DISTRICT — DATE 7/16/93

## SANITATION DISTRICT (SAND) NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IN ALL CASES, THESE STANDARDS SHALL SUPERCEDE THE UNIFORM STANDARD SPECIFICATIONS. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATION BOOKS.
2. ALL SEWER LATERALS WILL BE PVC SEWER PIPE.
3. SEWER MAINS ONLY TO BE LAID IN SEWER TRENCHES.
4. ALL LATERALS TO BE LAID AT NOT LESS THAN MINIMUM SLOPES AS SHOWN IN THESE STANDARDS.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CONTROLLING AGENCY.
6. SOIL TESTING SHALL BE IN ACCORDANCE WITH SECTION 3.11 OF THESE STANDARDS.
7. ALL EXFILTRATION, INFILTRATION, AIR TESTING AND TELEVISING OF LINES SHALL BE IN ACCORDANCE WITH THESE STANDARDS.
8. CUT SHEETS MUST BE SUBMITTED TO THE AGENCY BEFORE CONSTRUCTIONS WILL BE PERMITTED TO START.
9. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CONTROLLING AGENCY MUST BE CLASS "A" CONTRACTORS.
10. THE CONTRACTOR WILL VERIFY THE INVERT ELEVATION OF THE SEWER MAIN AND MANHOLES PRIOR TO CONSTRUCTION OF SEWER LATERALS.
11. A CCSD INSPECTOR MUST INSPECT THE SEWER INSTALLATION ON THIS PROJECT. CALL 434-8822
12. ⚠ ANY LATERALS INSTALLED TO IMPROVE PROPERTY WILL REQUIRE THE PAYMENT OF CONNECTION FEES PRIOR TO INSTALLATION OF THE PIPE. CONTACT THE DISTRICT'S CUSTOMER SERVICE OFFICE (458-1180) FOR INFORMATION.

CLARK COUNTY SANITATION DISTRICT — DATE 8.18.93

THE FOLLOWING DISCLAIMER IS REQUIRED WITH ALL CLARK COUNTY SANITATION DISTRICT SIGNATURE BLOCKS.

"SIGNATURE ON THESE PLANS WILL NOT BE CONSTRUED TO BE A PERMIT FOR OR THE APPROVAL OF ANY VIOLATION OF CLARK COUNTY SANITATION DISTRICT RULES, REGULATIONS, OR DESIGN AND CONSTRUCTION STANDARDS. THE APPROVAL OF THESE DRAWINGS DOES NOT GUARANTEE CAPACITY IN THE DISTRICT'S COLLECTION OR TREATMENT SYSTEM."

## TRAFFIC NOTES

1. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING COUNTY AND CITY STREETS IN THE AREA IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED.
2. ALL CONSTRUCTION SIGNING, BARRICADING AND TRAFFIC DELINEATION SHALL CONFORM TO THE "NEVADA WORK ZONE TRAFFIC CONTROL HANDBOOK-1986" AND TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES-1988.
3. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE COUNTY TRAFFIC MANAGER.
4. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HEREUNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
5. TYPE "F" MARKERS WILL BE USED ON ALL STORAGE LANES AND LANE LINES AS INDICATED ON SHT D-2 OF THESE PLANS.

## BASIS OF BEARING

BEING THE LINE BETWEEN G.L.S. MONUMENTS 844 AND 853, SAID LINE BEARING NORTH 1° 06' 06" WEST, AS SHOWN ON THE RECORD OF SURVEY IN FILE 58, PAGE 45 AT THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

## BENCHMARK

CLARK COUNTY BENCHMARK BC21 12NW5
PIN AND PLATE IN THE TOP OF CURB NEAR THE CURB RETURN
ON THE SOUTHEAST CORNER OF EASTERN AVENUE AND WARM SPRINGS ROAD.
ELEVATION 2036.63

## NOTICE

THE FOLLOWING CLARK COUNTY UNDERGROUND FACILITIES MAY BE LOCATED IN YOUR PROJECT AREA:

STREET LIGHTING, TRAFFIC SIGNALS AND/OR INTERCONNECT CABLE.

THE CONTRACTOR MUST CONTACT CLARK COUNTY TRAFFIC AT 455-7511 OR 455-7544 LOCATIONS AT LEAST 48 HOURS PRIOR TO WORKING IN THE AREA. CLARK COUNTY IS NOT A MEMBER OF "CALL BEFORE YOU DIG" (UNDERGROUND ALERT SERVICE) AND A CALL TO THAT ORGANIZATION DOES NOT RELIEVE YOU OF LIABILITY FOR CLARK COUNTY FACILITIES.

## INDEX OF DRAWINGS


| TOTAL | SHEET No. | DESCRIPTION |
|---|---|---|
| 1 | 1 | COVER SHEET |
| 2 | 2 | GENERAL NOTES / INDEX OF DRAWINGS |
| 3 | 3 | CONSTRUCTION NOTES and LEGEND / APPROXIMATE QUANTITIES |
| 4 | D-1 | TYPICAL SECTIONS |
| 5 | D-2 | STRIPING PLAN and DETAILS |
| 6 | D-3 | IMPROVEMENT DETAILS |
| 7 | C-1 | PLAN and PROFILE / STA. 129+72 to 135+11 |
| 8 | C-2 | PLAN and PROFILE / STA. 135+11 to 147+11 |
| 9 | C-3 | PLAN and PROFILE / STA. 147+11 to 159+11 |
| 10 | C-4 | PLAN and PROFILE / STA. 159+11 to 171+11 |
| 11 | C-5 | PLAN and PROFILE / STA. 171+11 to 182+00 |
| 12 | C-6 | PLAN and PROFILE / STA. 182+00 to 194+00 |
| 13 | C-7 | PLAN and PROFILE / STA. 194+00 to 206+00 |
| 14 | C-8 | PLAN and PROFILE / STA. 206+00 to 217+00 |
| 15 | C-9 | PLAN and PROFILE / STA. 217+00 to 223+08 |
| 16 | C-10 | PLAN and PROFILE / SPENCER STREET |
| 17 | C-11 | PLAN and PROFILE / BRUCE STREET |
| 18 | C-12 | PLAN and PROFILE / TOMIYASU LANE |
| 19 | C-13 | PLAN and PROFILE / PECOS ROAD |
| 20 | SD-1 | STORM DRAIN PLAN and PROFILE / STA. 129+72 to 135+11 |
| 21 | SD-2 | STORM DRAIN PLAN and PROFILE / STA. 135+11 to 147+11 |
| 22 | SD-3 | STORM DRAIN PLAN and PROFILE / STA. 147+11 to 159+11 |
| 23 | SD-4 | STORM DRAIN PLAN and PROFILE / STA. 159+11 to 171+11 |
| 24 | SD-5 | STORM DRAIN PLAN and PROFILE / STA 208+50 to 219+50 |
| 25 | SD-6 | PINE STREET STORM DRAIN / PLAN and PROFILE |
| 26 | SD-7 | PINE STREET STORM DRAIN / PLAN and PROFILE |
| 27 | SD-8 | STORM DRAIN DETAILS |
| 28 | SD-9 | STORM DRAIN DETAILS |
| 29 | SD-10 | STORM DRAIN DETAILS |
| 30 | T-1 | STRIPING and SIGNAGE PLAN / BRUCE STREET and PECOS ROAD (INCLUDES STREET LIGHTING) |
| 31 | T-2 | STRIPING and SIGNAGE PLAN / STA. 129+72 to 163+00 |
| 32 | T-3 | STRIPING and SIGNAGE PLAN / STA. 163+00 to 194+00 |
| 33 | T-4 | STRIPING and SIGNAGE PLAN / STA. 194+00 to END PROJECT |
| 34 | E-1 | SYMBOL LIST, ABBREVIATIONS, GENERAL NOTES and STREET LIGHTING PLAN |
| 35 | E-2 | STREET LIGHTING PLAN / STA. 129+72 to 150+11 |
| 36 | E-3 | STREET LIGHTING PLAN / STA. 150+11 to 194+00 |
| 37 | E-4 | STREET LIGHTING PLAN / STA. 194+00 to END PROJECT |
| 38 | E-5 | TRAFFIC SIGNAL SYSTEM / SPENCER STREET |
| 39 | E-6 | TRAFFIC SIGNAL SYSTEM / EASTERN AVENUE |
| 40 | 40 | GENERAL NOTES, INDEX OF SHEETS, ABBREVIATIONS, LEGEND, CONSTRUCTION NOTES, TYPICAL SECTION, AND S.D. LATERAL DETAILS |
| 41 | 41 | PLAN and PROFILE – STA 116+00 to 121+50 |
| 42 | 42 | PLAN and PROFILE – STA 121+50 to 129+72 |
| 43 | 43 | STORM DRAIN PLAN and PROFILE – STA 116+00 to 121+50 |
| 44 | 44 | STORM DRAIN PLAN and PROFILE – STA 121+50 to 130+08 |
| 45 | 45 | STREET LIGHTING and DELINEATION – STA 116+00 to 129+72 |
| 46 | 46 | NOTES and APPROVALS – WATER MAIN EXTENSION – STA 197+94 to 201+30 |
| 47 | 47 | PLAN and PROFILE – WATER MAIN EXTENSION – STA 197+64 to 201+30 |
| 48 | 48 | NOTES and APPROVALS – WATER and SEWER MAIN EXTENSIONS – STA 201+30 to 220+70 |
| 49 | 49 | PLAN and PROFILE – WATER AND SEWER MAIN EXTENTIONS – STA 200+00 to 211+00 |
| 50 | 50 | PLAN and PROFILE – WATER AND SEWER MAIN EXTENTIONS – STA 211+00 to 220+70 |


Call before you Dig. 1-800-227-2600

| No. | Date | REVISIONS | Checked | Approved |
|---|---|---|---|---|
| ⚠ | 7/22/93 | REVISED NOTE 12 (ADDENDUM #3) | KRB | KRB |

DESIGNED: CK
DRAWN: CK
CHECKED: ARS
JOB No: 592-91
SCALE:
HORIZ:
VERT:


MEA CONSULTING ENGINEERS
1055 EAST TROPICANA
SUITE 800
LAS VEGAS, NEVADA 89119
(702)798-1007

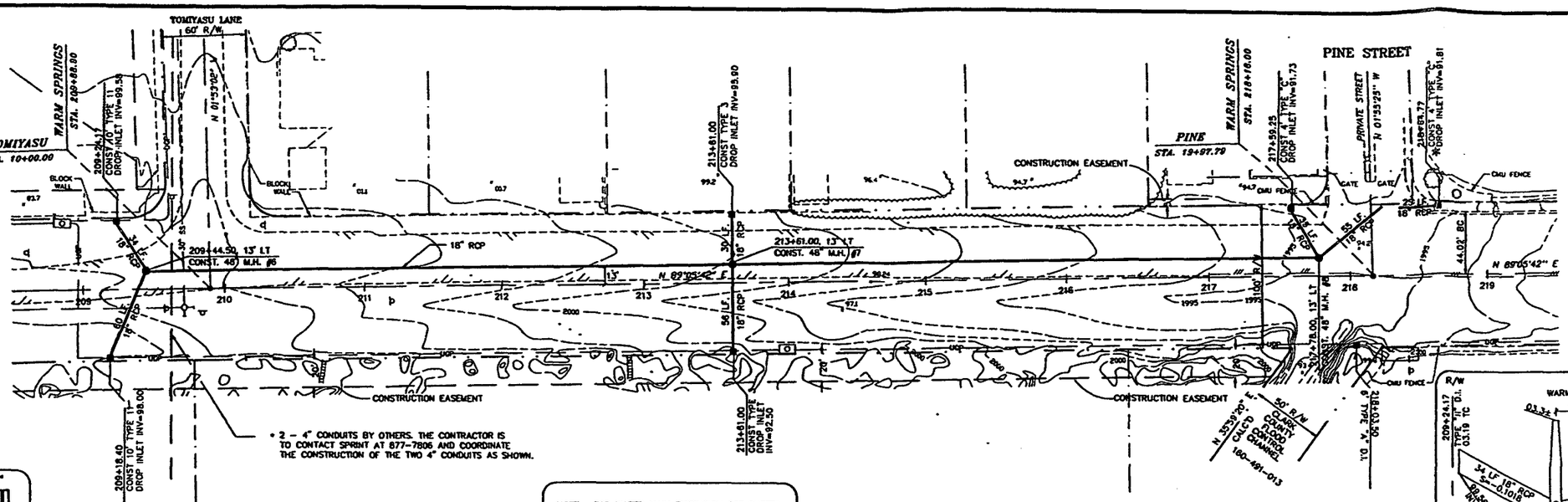

PROJECT: WARM SPRINGS ROAD

DESCRIPTION: GENERAL NOTES
INDEX OF DRAWINGS

SHEET L-1343 2.

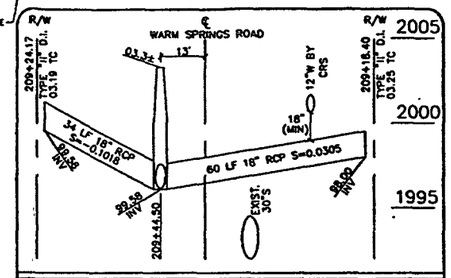
2 OF 50

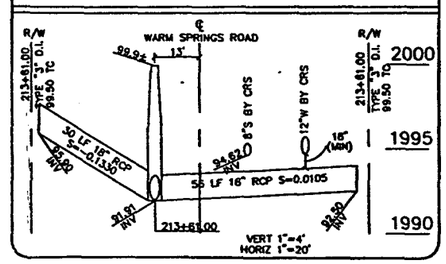
Proj #5.34 CONTINUED QS 9 RM 11 9-27-93 XC-1343

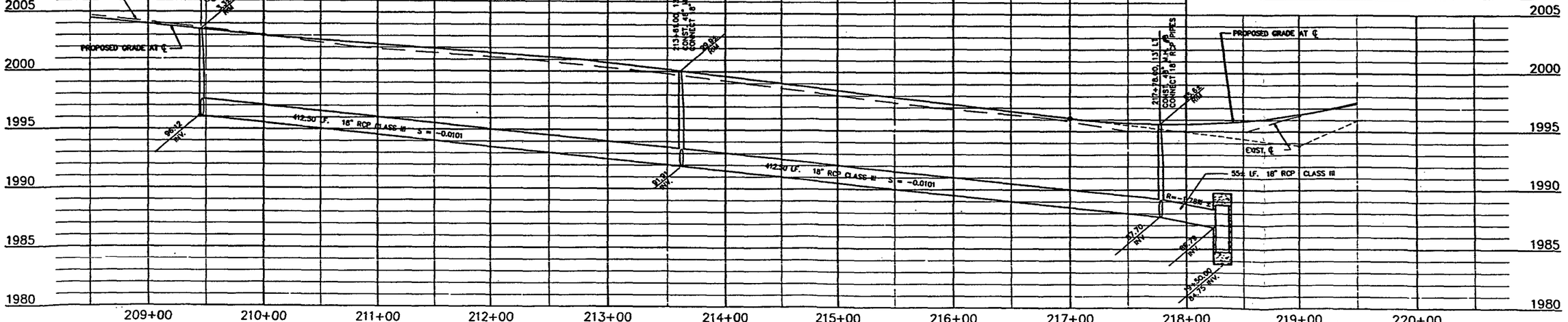



NOTE: FOR WATER MAIN EXTENSION SEE SHEETS 46 THROUGH 50. FOR SEWER MAIN EXTENTION SEE SHEETS 46 THROUGH 50.

Call before you Dig. 1-800-227-2600




| No. | Date | REVISIONS | Checked | Approved |
|---|---|---|---|---|
| 1 | 7/30/93 | DELETE SHT SD-5 and INSERT "REVISED SD-5" (ADDENDUM #3) | GAB | LWE |

LUCILLE R. SELTER — STATE OF NEVADA — REGISTERED PROFESSIONAL ENGINEER — No. 3131 — CIVIL — 6/4/93

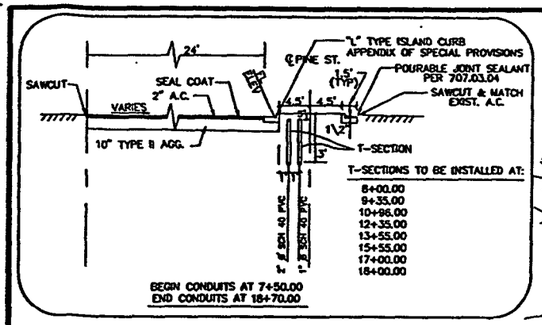
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|---|---|
| DESIGNED: | ARS |
| DRAWN: | CK / PSM |
| CHECKED: | LRS |
| JOB No: | 332-91 |
| SCALE: | |
| HORIZ: | 1" = 40' |
| VERT: | 1" = 4' |

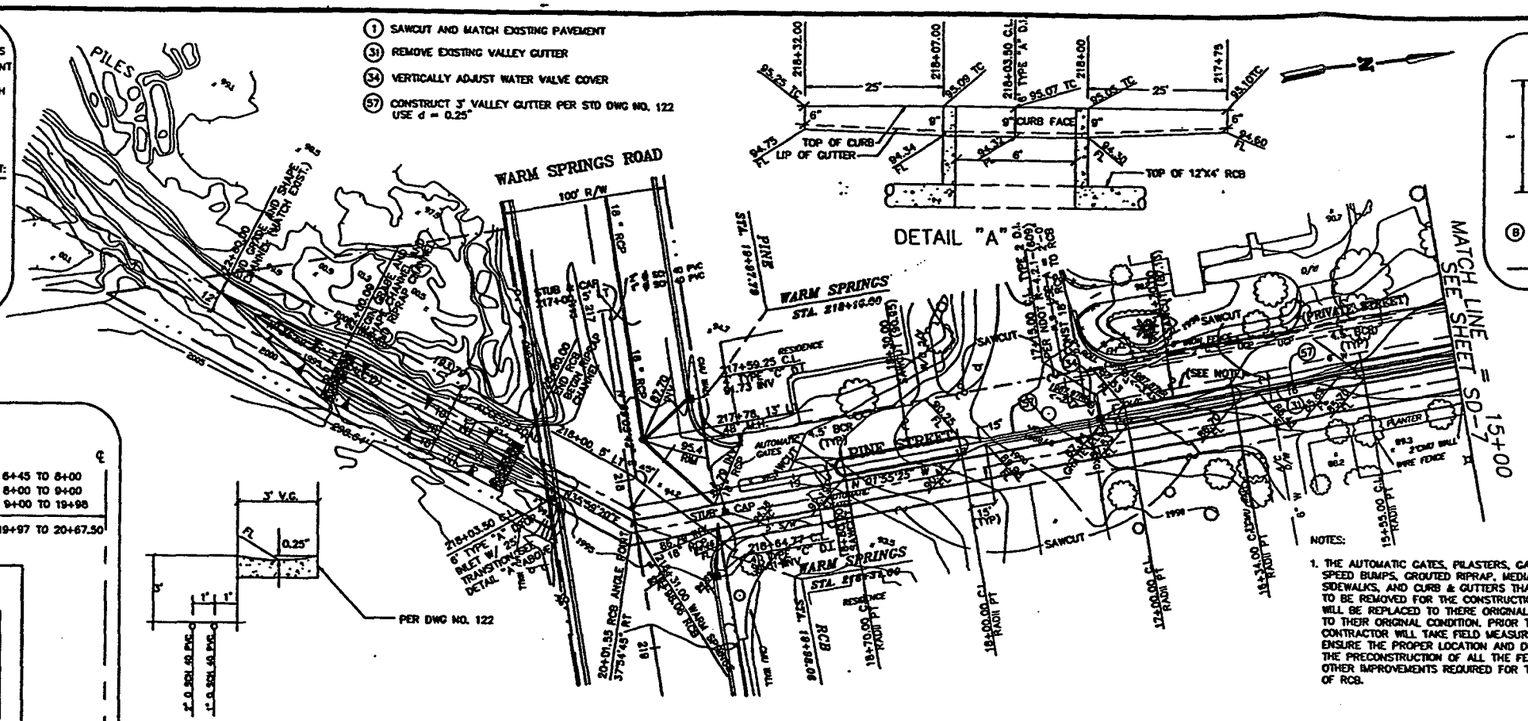
MEA CONSULTING ENGINEERS
1055 EAST TROPICANA
SUITE 600
LAS VEGAS, NEVADA 89119
(702)798-1007

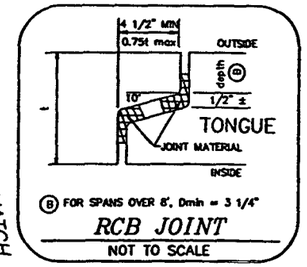
PROJECT: WARM SPRINGS ROAD

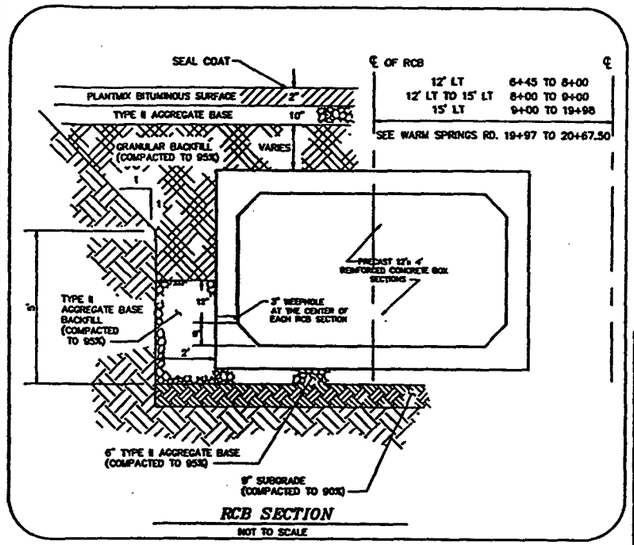
DESCRIPTION: PLAN and PROFILE
STA. 206+00 to 217+00

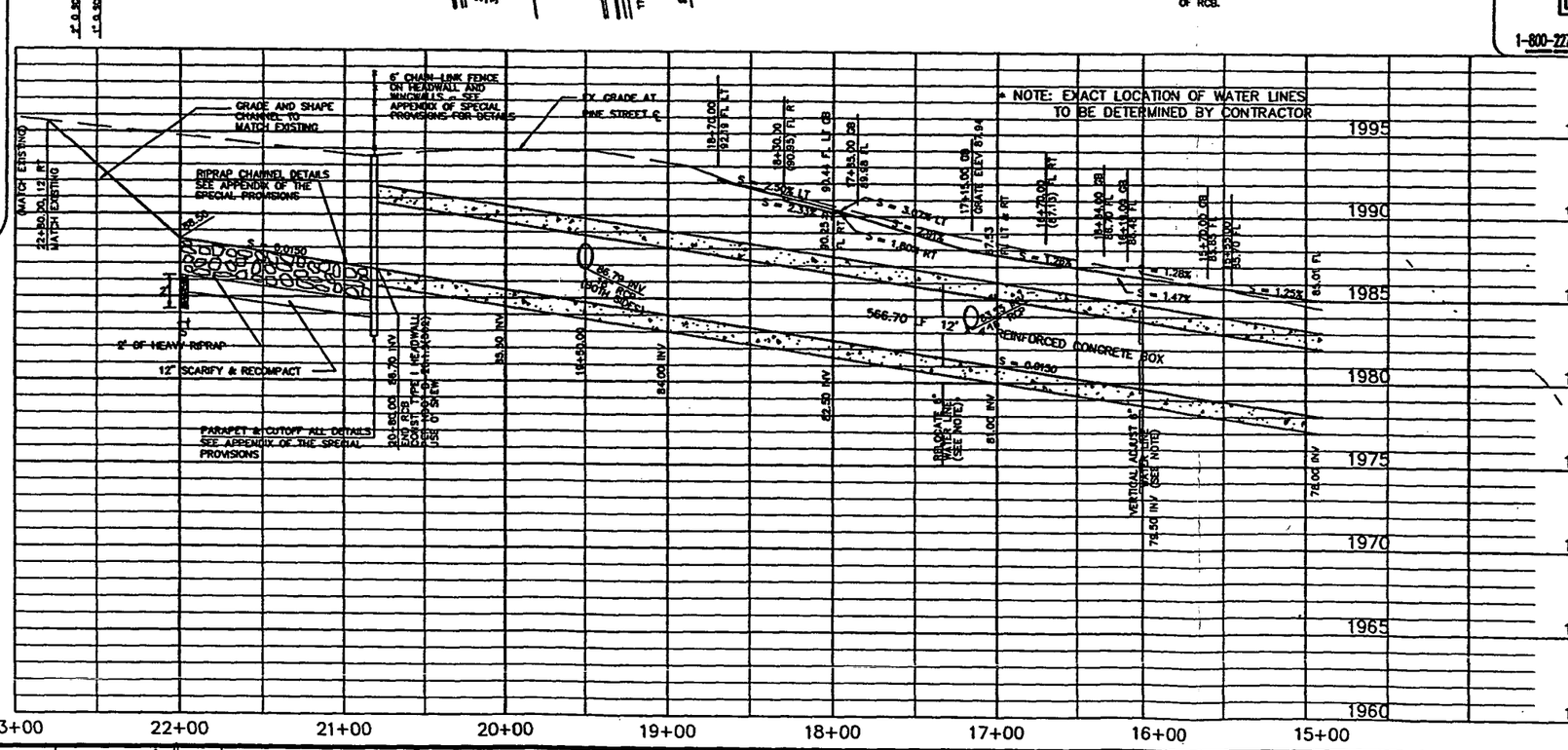
SHEET L-1343 SD-5
⚠ REVISED
24 OF 50




## CONSTRUCTION NOTES

DESIGN SPECIFICATIONS: AASHTO "Standard Specifications for Highway Bridges 1983" and "Interim Specifications Bridges 1985" and ASTM Specifications C 850-88 Table 1.

CONSTRUCTION SPECIFICATIONS: "Uniform Standard Specifications for Public Works Construction Off-Site Improvements, Clark County Area, Nevada 1986", except as noted in the Special Provisions for this Contract.

LIVE LOADS: Standard HS 20-44 Loading.

CONCRETE: All concrete to be Class AA Modified or Class BA modified with a twenty-eight (28) day compressive strength of 5,000 P.S.I.

REINFORCING STEEL: All reinforcing steel to be ASTM A 615 Grade 60. Welded wire fabric shall conform to ASTM A815, smooth wire, or ASTM A497, deformed wire.

WEEP HOLES: 6" square aluminum or galvanized steel wire 1/4" mesh hardware cloth (minimum wire diameter- 0.025") shall be firmly anchored to backface at each weephole.

JOINT MATERIAL: Joint material shall be preformed joint material meeting AASHTO Specifications M198, Type B. The material shall be installed according to manufacturers recommendations. A double application shall be used. One application shall be applied to the tongue and the other to the groove. The minimum size of joint material shall be 1 1/4". Any joint material extruding from the interior of the joint shall be removed flush with the box wall. (see Joint Detail)

Call before you Dig. 1-800-227-2600

| No. | Date | REVISIONS | Checked | Approved |
|---|---|---|---|---|
| ⚠ | 7/30/93 | DELETE SHT SD-6 and INSERT "REVISED SD-6" (ADDENDUM #3) | GRB | Lille |

DESIGNED: RKB
DRAWN: CK
CHECKED: LRC
JOB No: 882-91
SCALE:
HORIZ: 1" = 40'
VERT: 1" = 4'

MEA CONSULTING ENGINEERS
1055 EAST TROPICANA SUITE 200
LAS VEGAS, NEVADA 89119
(702)798-1007

PROJECT: WARM SPRINGS ROAD
DESCRIPTION: PINE STREET STORM DRAIN PLAN and PROFILE

SHEET L-1343 SD-6
⚠ REVISED
25 of 50

(1) SAWCUT AND MATCH EXISTING PAVEMENT
(31) REMOVE EXISTING VALLEY GUTTER AS SHOWN
(57) CONSTRUCT 3-FOOT VALLEY GUTTER PER CLARK COUNTY STANDARD DRAWING NO. 122 — USE d=0.25"

MATCH LINE = 15+00
SEE SHEET SD-6

PINE STREET

EQUESTRIAN ESTATES

FOR OUTLET STRUCTURE DETAILS SEE SHT SD-10

TRANSITION 12'X4' RCB FROM 15' TO 12' FROM C.L.

DUCK CREEK

CONCRETE BRIDGE

6+68± PRIOR TO REMOVAL OF EXISTING PILEASTER, GATE AND FENCE, THE CONTRACTOR WILL TAKE FIELD MEASUMENTS TO ENSURE THE PROPER LOCATION AND DIMENSIONS FOR THE RECONSTRUCTION OF THE PILEASTERS, GATE AND FENCE. PILEASTERS THAT ARE LOCATED ON TOP OF THE 12'X4' RCB WILL HAVE TO BE TIED INTO THE TOP SLAB WITH 4 - #5 DOWELS SEE DETAIL BELOW.

PILEASTERS
4 - #5 DOWELS
TOP SLAB OF 12'X4' RCB
TOP VIEW
PILEASTERS

"L" TYPE ISLAND CURB (SEE APPENDIX OF SPECIAL PROVISIONS)

TYPICAL ISLAND NOSE
N.T.S.

ADJUST GRADE RINGS AS REQUIRED
RING AND COVER
48" FLAT-TOP SLAB
INSTALL STEPS PER DWG. NO. 308
12'X4' RCB

FLAT-TOP MANHOLE
N.T.S.

Call before you Dig.
1-800-227-2600

1990 1985 1980 1975 1970 1965 1960 1955

EX. GRADE AT PINE STREET ℄

850 LF 12' x 4' REINFORCED CONCRETE BOX

15+00 14+00 13+00 12+00 11+00 10+00 9+00 8+00 7+00 6+00

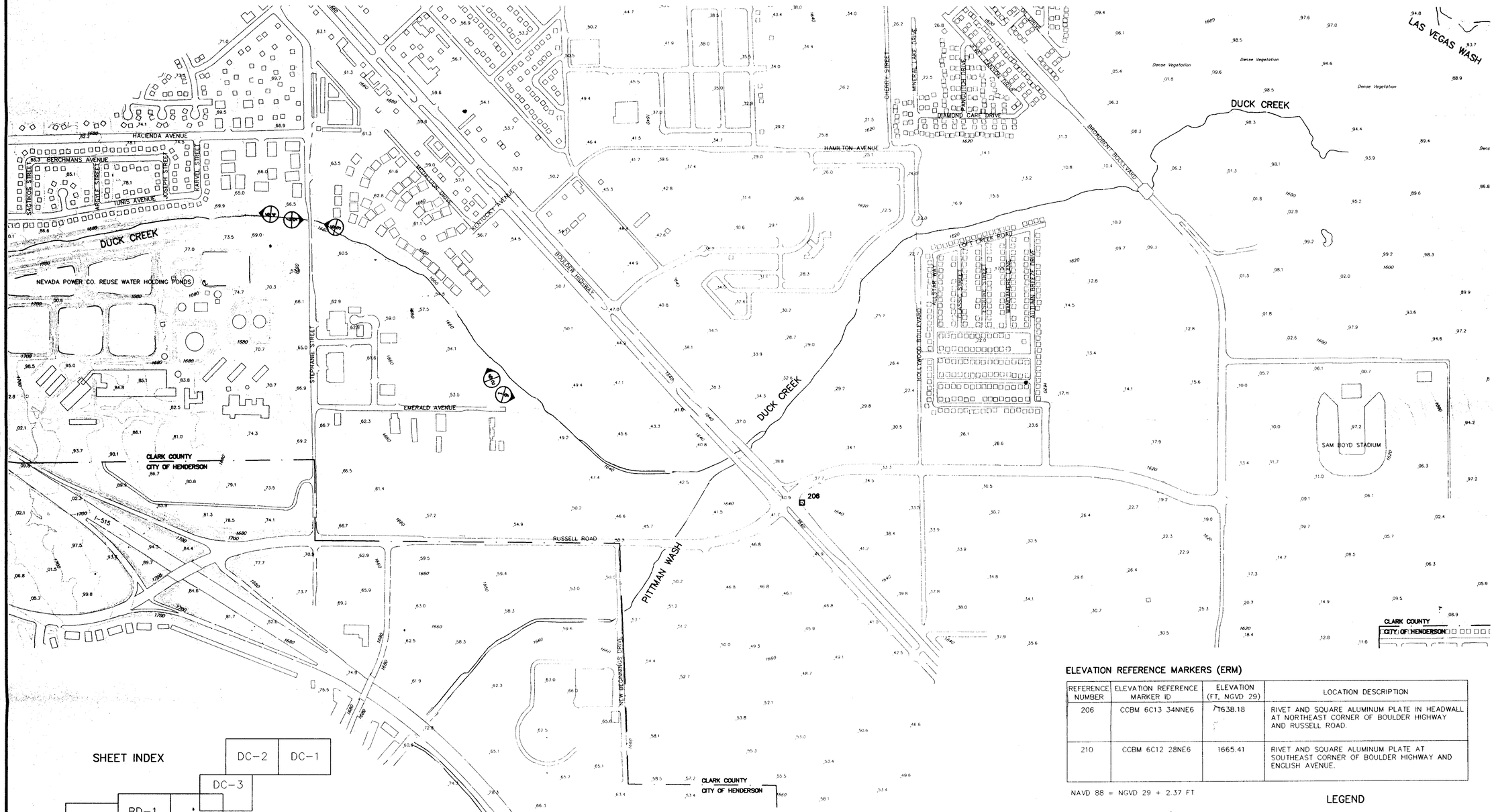
| No. | Date | REVISIONS | Checked | Approved |
|---|---|---|---|---|
| 1 | 6/2/93 | CHANGED BEARING (ADDENDUM #3) | | |

DESIGNED: RMR
DRAWN: CK
CHECKED: LSTZ
JOB No: 852-91
SCALE:
HORIZ: 1" = 40'
VERT: 1" = 4'

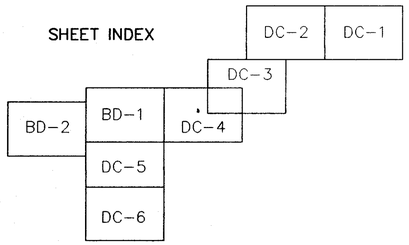
MEA CONSULTING ENGINEERS
1555 EAST TROPICANA SUITE 800 LAS VEGAS, NEVADA 89119 (702)798-1007

PROJECT: WARM SPRINGS ROAD
DESCRIPTION: PINE STREET STORM DRAIN PLAN and PROFILE

SHEET L-1343 SD-7
26 OF 50




SHEET INDEX




## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 206 | CCBM 6C13 34NNE6 | 1638.18 | RIVET AND SQUARE ALUMINUM PLATE IN HEADWALL AT NORTHEAST CORNER OF BOULDER HIGHWAY AND RUSSELL ROAD. |
| 210 | CCBM 6C12 28NE6 | 1665.41 | RIVET AND SQUARE ALUMINUM PLATE AT SOUTHEAST CORNER OF BOULDER HIGHWAY AND ENGLISH AVENUE. |

NAVD 88 = NGVD 29 + 2.37 FT

## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA
HENDERSON, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2585 D, DATED AUGUST 16, 1995

NORTH

SCALE 1" = 400'

400 0 400 800

SCALE FEET

## LEGEND

ELEVATION REFERENCE MARKER

VIEW DIRECTION
SITE VISIT NUMBER
PHOTO NUMBER

SITE VISIT/ PHOTOGRAPH DATES
1. SEPTEMBER - NOVEMBER 2000
2. APRIL 2001
3. JUNE 2001
4. JUNE 2001
5. AUGUST 2001
6. SEPTEMBER 2001
7. SEPTEMBER 2001
8. OCTOBER 2001
9. NOVEMBER 2001

DESIGN:
DRAWN:
CHECK:
ISSUE DATE: 03-14-02
ISSUE EDITOR:
PLOT DATE
PLOT TIME 19:43:01
Mludwig

DATE | DESCRIPTION | REV | DATE | AGEN. APP | DATE | GCW APP | DATE

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD. • LAS VEGAS, NEVADA 89146
TELEPHONE (702) 804-2000 • FAX (702) 804-2399

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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM DENNING STREET TO HOLLYWOOD BLVD.

# PHOTOGRAPH LOCATION MAP

SHEET
DC-1
1 OF 8 SHTS

F:\550-039\dwg\mop\photomap\dc-1.dwg Mludwig 03-14-02 19:43:01

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 207 | WHITNEY #2 USC&GS | 1905.62 | USC&GS BRASS CAP, WHITNEY #2, 1972. LOCATED ON THE TOP OF THE NORTHEAST PORTION OF THE MESA THAT VO-TECH IS ON. ALSO 70 FEET OF PP #67761NP, (1 OF 3 POWER POLES SET ON WEST EDGE OF MESA). |
| 208 | CCBM 6C12 29C4 | 1783.99 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF MOUNTAIN VISTA STREET AND HACIENDA AVENUE NEAR THE PC OF MOUNTAIN VISTA STREET. |
| 212 | CCBM 7C12 31NNW6 | 1912.27 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, SOUTHEAST CORNER OF RUSSELL ROAD AND PEARL STREET NEAR THE PC OF RUSSELL ROAD. |

NAVD 88 = NGVD 29 + 2.37 FT

## NOTES

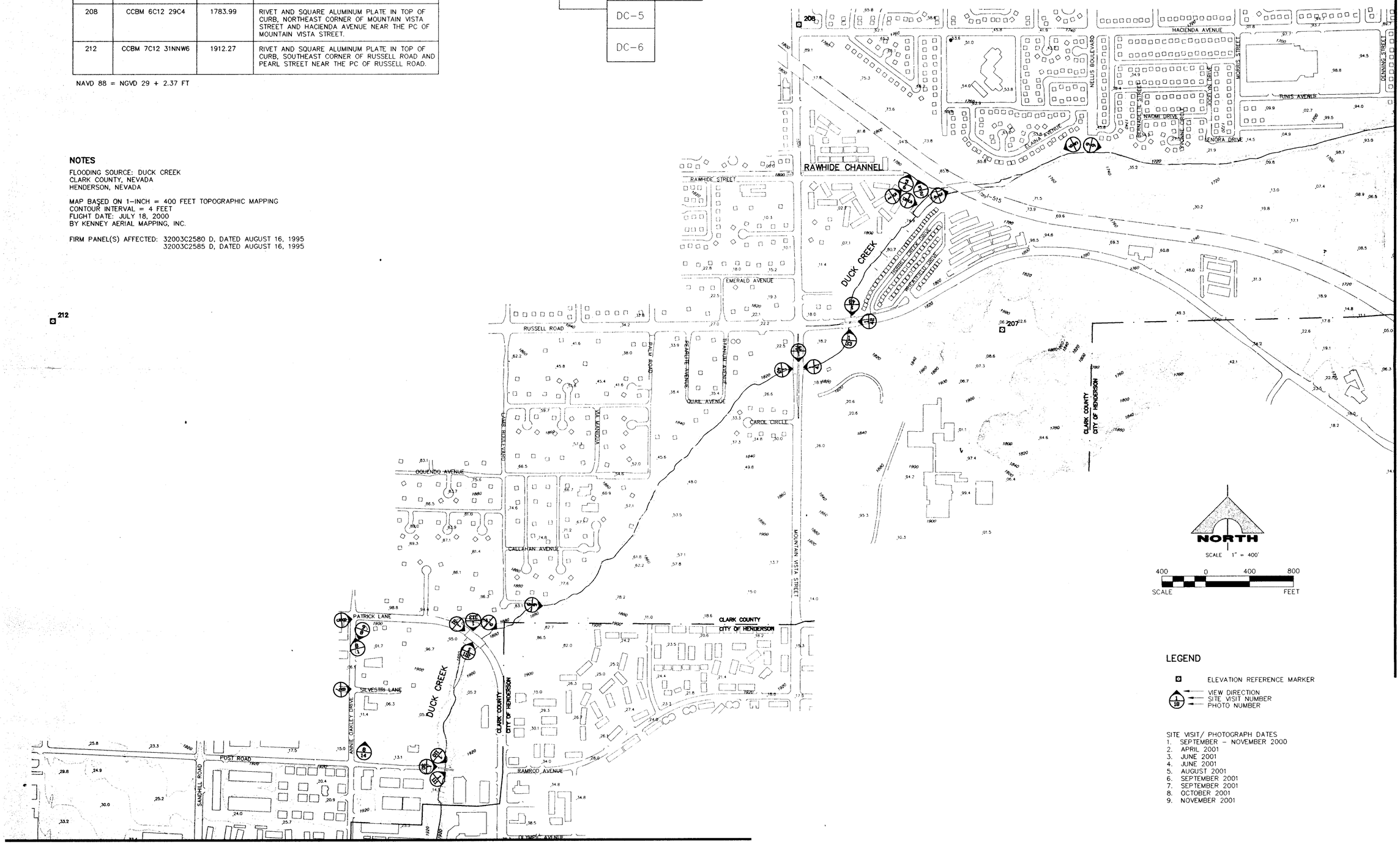
FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA
HENDERSON, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2580 D, DATED AUGUST 16, 1995
32003C2585 D, DATED AUGUST 16, 1995

SHEET INDEX

DC-2 | DC-1
DC-3
BD-2 | BD-1 | DC-4
DC-5
DC-6




NORTH

SCALE 1" = 400'

400 0 400 800
SCALE FEET

### LEGEND

- ELEVATION REFERENCE MARKER
- VIEW DIRECTION / SITE VISIT NUMBER / PHOTO NUMBER

SITE VISIT/ PHOTOGRAPH DATES
1. SEPTEMBER - NOVEMBER 2000
2. APRIL 2001
3. JUNE 2001
4. JUNE 2001
5. AUGUST 2001
6. SEPTEMBER 2001
7. SEPTEMBER 2001
8. OCTOBER 2001
9. NOVEMBER 2001

SEE SHEET DC-1

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-12-02
PLOT TIME: 16:23:41
Mludwig

DATE | DESCRIPTION | REV | DATE | DATE AGENCY APP | DATE CCRFCD APP | DATE

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299
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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM SUNSET ROAD TO DENNING STREET

# PHOTOGRAPH LOCATION MAP

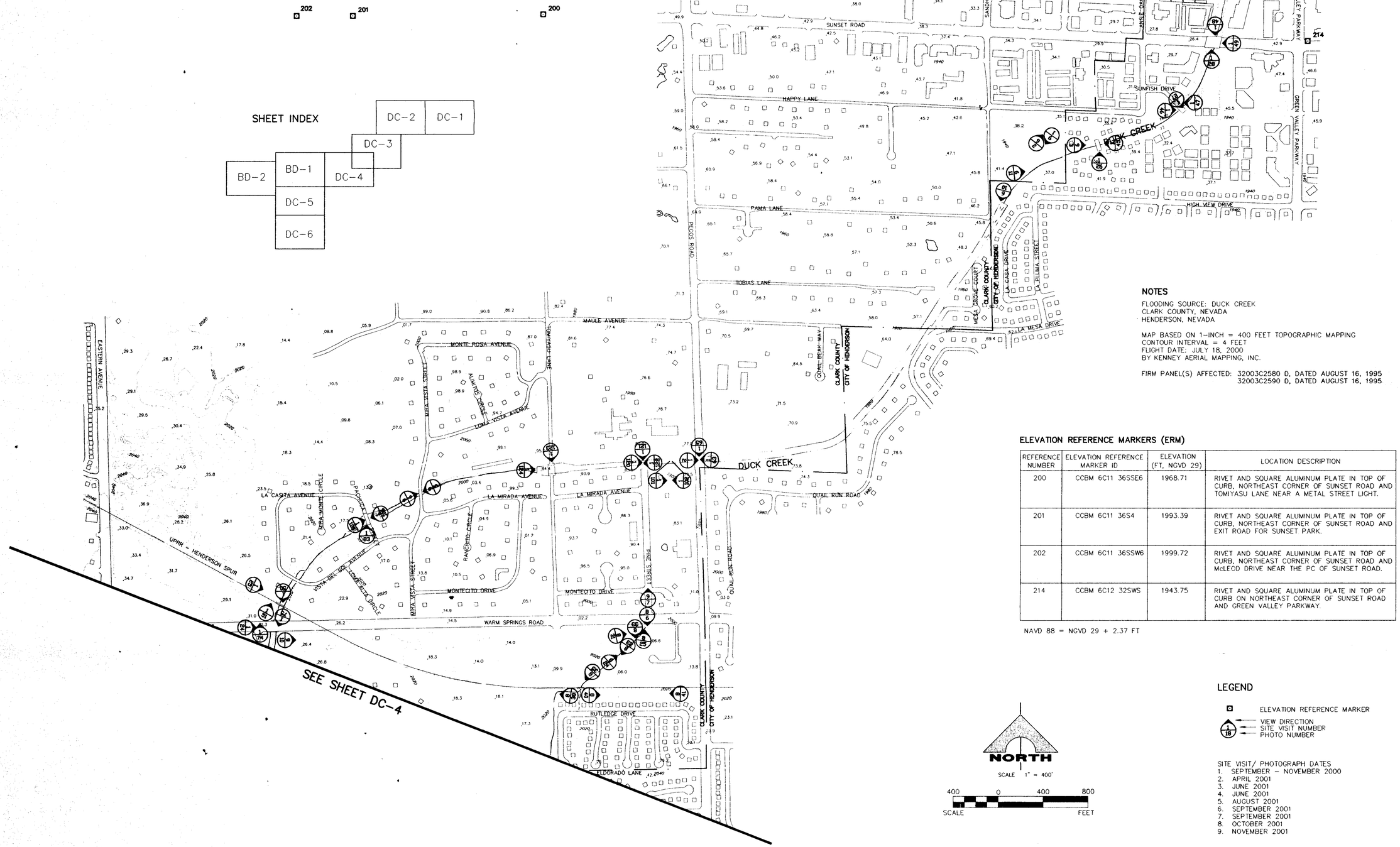
SHEET
DC-2
2 OF 8 SHTS

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SEE SHEET DC-2

SHEET INDEX

DC-2 | DC-1
DC-3
BD-2 | BD-1 | DC-4
DC-5
DC-6




## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA
HENDERSON, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2580 D, DATED AUGUST 16, 1995
32003C2590 D, DATED AUGUST 16, 1995

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 200 | CCBM 6C11 36SSE6 | 1968.71 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND TOMIYASU LANE NEAR A METAL STREET LIGHT. |
| 201 | CCBM 6C11 36S4 | 1993.39 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND EXIT ROAD FOR SUNSET PARK. |
| 202 | CCBM 6C11 36SSW6 | 1999.72 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB, NORTHEAST CORNER OF SUNSET ROAD AND McLEOD DRIVE NEAR THE PC OF SUNSET ROAD. |
| 214 | CCBM 6C12 32SWS | 1943.75 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB ON NORTHEAST CORNER OF SUNSET ROAD AND GREEN VALLEY PARKWAY. |

NAVD 88 = NGVD 29 + 2.37 FT

NORTH
SCALE 1" = 400'
400 0 400 800
SCALE FEET

## LEGEND

- ELEVATION REFERENCE MARKER
- VIEW DIRECTION / SITE VISIT NUMBER / PHOTO NUMBER

SITE VISIT/ PHOTOGRAPH DATES
1. SEPTEMBER – NOVEMBER 2000
2. APRIL 2001
3. JUNE 2001
4. JUNE 2001
5. AUGUST 2001
6. SEPTEMBER 2001
7. SEPTEMBER 2001
8. OCTOBER 2001
9. NOVEMBER 2001

DESIGN:
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CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE:03-12-02
PLOT TIME: 16:24:52

| REV | DATE | DESCRIPTION | DATE AGEN. APP | DATE BOW APP | DATE |
|---|---|---|---|---|---|


G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

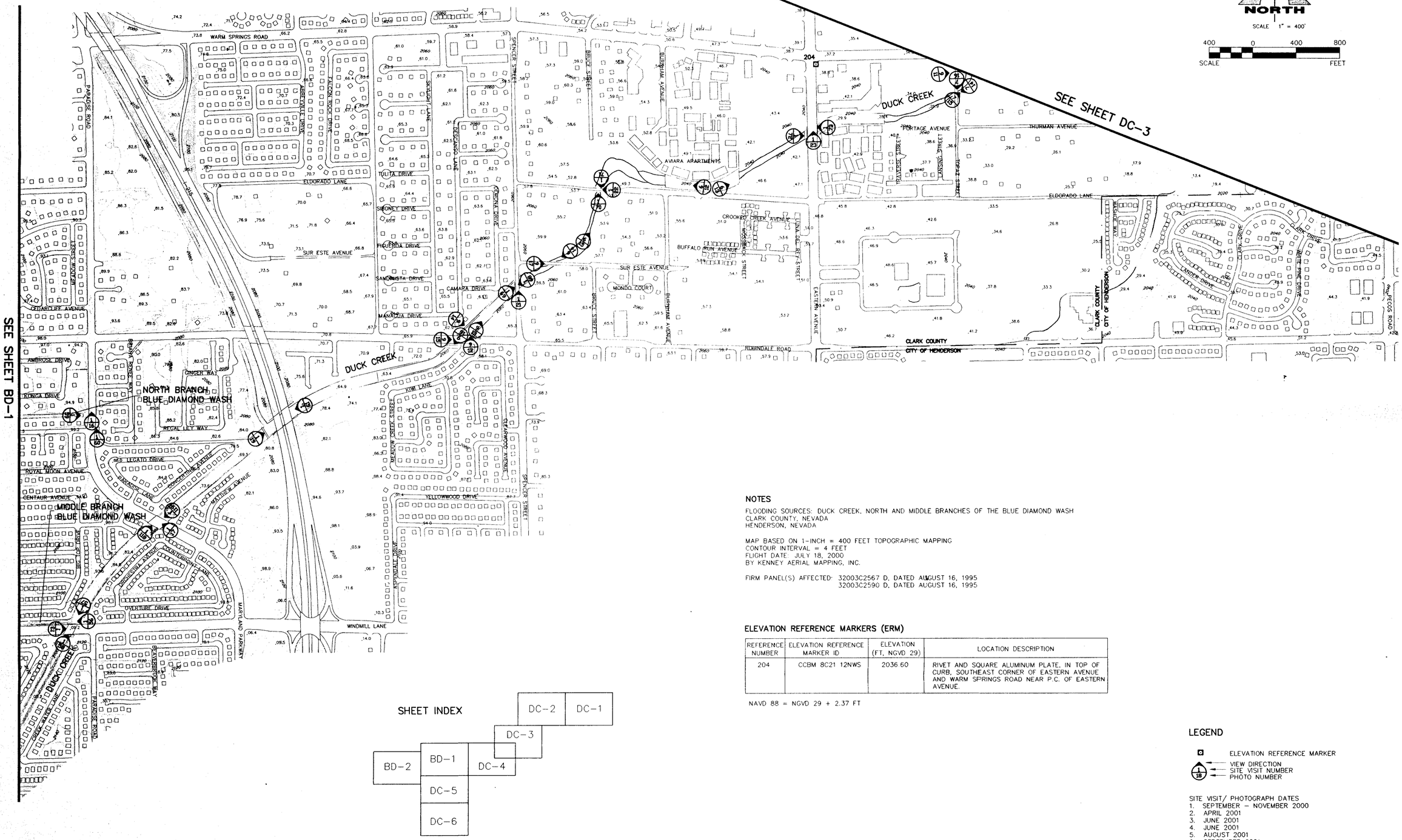

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DUCK CREEK/ BLUE DIAMOND WASHES FS RESTUDY
DUCK CREEK FROM WARM SPRINGS ROAD TO SUNSET ROAD

# PHOTOGRAPH LOCATION MAP

SHEET
DC-3
3 OF 8 SHTS

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SHEET INDEX




## NOTES

FLOODING SOURCES: DUCK CREEK, NORTH AND MIDDLE BRANCHES OF THE BLUE DIAMOND WASH
CLARK COUNTY, NEVADA
HENDERSON, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2567 D, DATED AUGUST 16, 1995
32003C2590 D, DATED AUGUST 16, 1995

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 204 | CCBM 8C21 12NWS | 2036.60 | RIVET AND SQUARE ALUMINUM PLATE, IN TOP OF CURB, SOUTHEAST CORNER OF EASTERN AVENUE AND WARM SPRINGS ROAD NEAR P.C. OF EASTERN AVENUE. |

NAVD 88 = NGVD 29 + 2.37 FT

## LEGEND

ELEVATION REFERENCE MARKER
VIEW DIRECTION
SITE VISIT NUMBER
PHOTO NUMBER

SITE VISIT/ PHOTOGRAPH DATES
1. SEPTEMBER – NOVEMBER 2000
2. APRIL 2001
3. JUNE 2001
4. JUNE 2001
5. AUGUST 2001
6. SEPTEMBER 2001
7. SEPTEMBER 2001
8. OCTOBER 2001
9. NOVEMBER 2001

DESIGN:
DRAWN:
CHECK:
ISSUE DATE: 03-12-02
ISSUE EDITOR:
PLOT DATE: 03-12-02
PLOT TIME: 16:26:18
Mludwig

DATE | DESCRIPTION | REV. DATE | DATE: AGEN. APP | DATE: CONV. APP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
(702) 804-2100 • FAX: (702) 804-2398
F:\550-039\dwg\vmap\photomap\dc-4.dwg

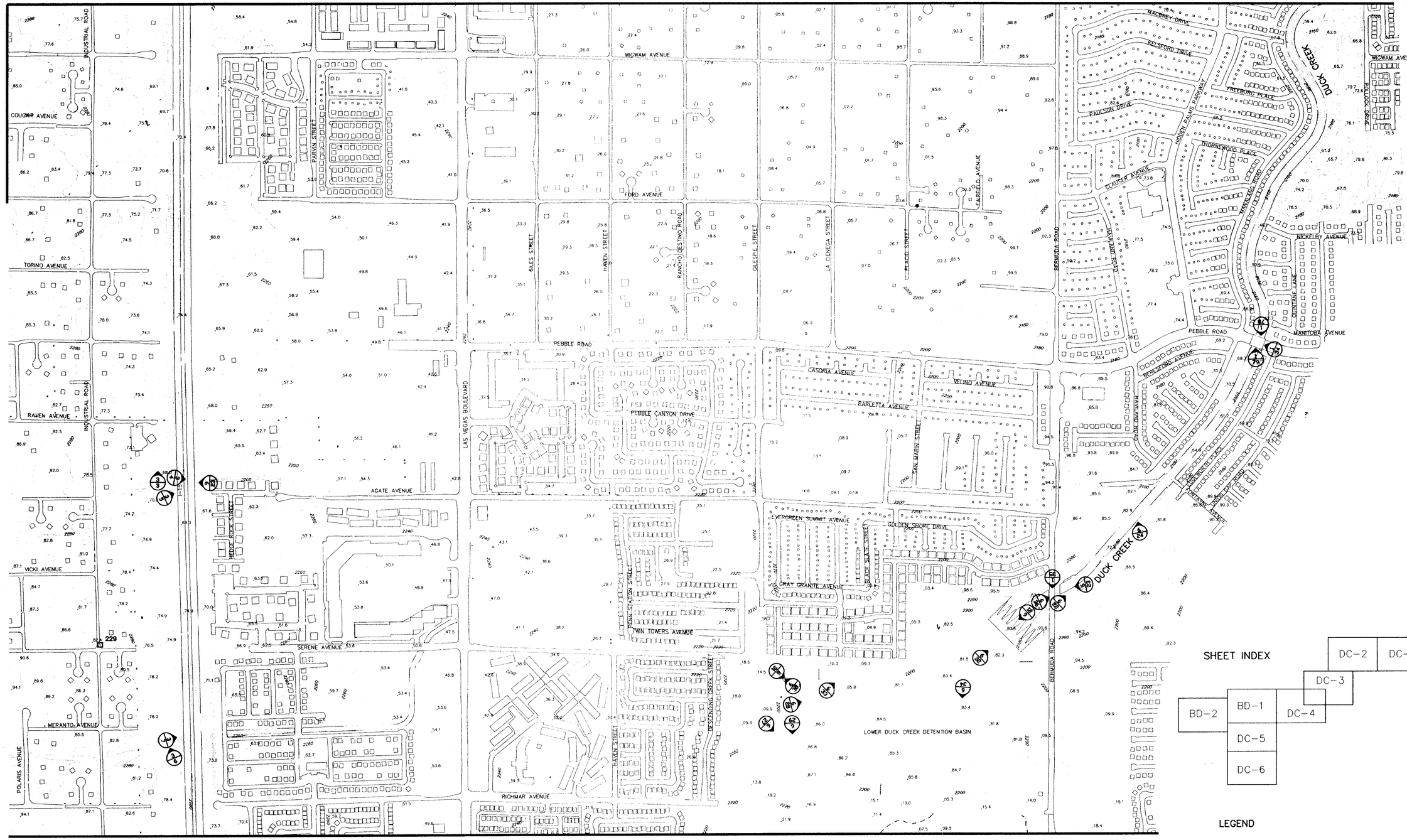
DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM WINDMILL LANE TO WARM SPRINGS ROAD
**PHOTOGRAPH LOCATION MAP**

SHEET
**DC-4**
4 OF 8 SHTS

F:\550-039\dwg\vmap\photomap\dc-4.dwg 03-12-02 16:26:18 Mludwig

SEE SHEET BD-1

SEE SHEET BD-2




SEE SHEET DC-6

## SHEET INDEX




## LEGEND

- ELEVATION REFERENCE MARKER
- VIEW DIRECTION
- SITE VISIT NUMBER
- PHOTO NUMBER

SITE VISIT/ PHOTOGRAPH DATES
1. SEPTEMBER – NOVEMBER 2000
2. APRIL 2001
3. JUNE 2001
4. JUNE 2001
5. AUGUST 2001
6. SEPTEMBER 2001
7. SEPTEMBER 2001
8. OCTOBER 2001
9. NOVEMBER 2001

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 229 | CCBM OC21 20C4 | 2281.61 | RIVET AND SQUARE ALUMINUM PLATE, IN THE WEST CENTER OF A 4 FT. X 3 FT. CONCRETE PAD IN THE NORTHEAST CORNER OF INDUSTRIAL ROAD AND SERENE AVENUE. |

NAVD 88 = NGVD 29 + 2.37 FT

## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2566 D, DATED AUGUST 16, 1995
32003C2567 D, DATED AUGUST 16, 1995
32003C2568 D, DATED AUGUST 16, 1995
32003C2569 D, DATED AUGUST 16, 1995

NORTH

SCALE 1" = 400'

400 0 400 800

SCALE FEET

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ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-11-02
PLOT TIME: 19:50:24
Mudwg

| REV. | DATE | DESCRIPTION | DATE: AGEN. APP | DATE: GCW. APP. | DATE: |
|---|---|---|---|---|---|

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD., LAS VEGAS, NEVADA 89146
TEL: (702) 804-2000 • FAX: (702) 804-2299
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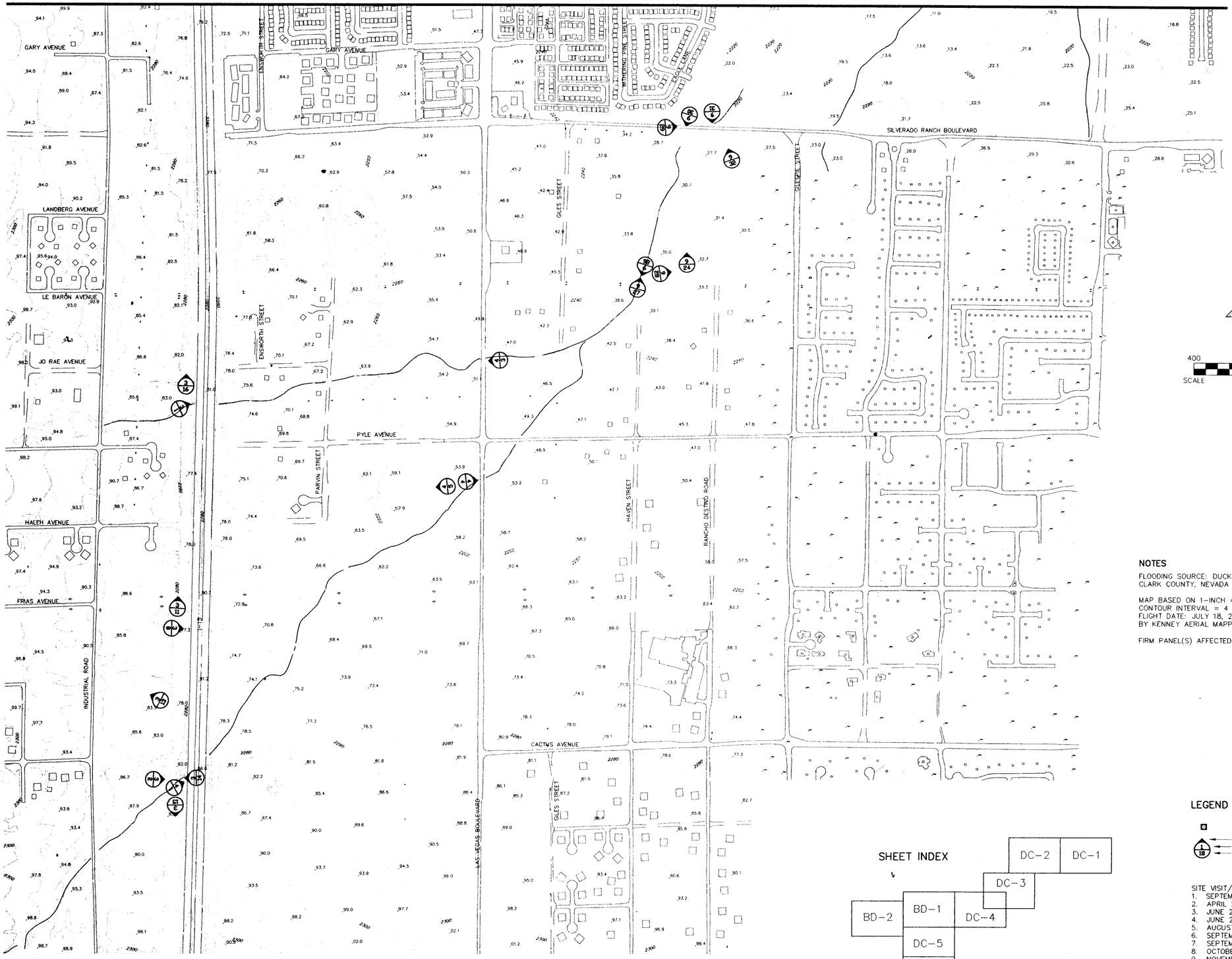
DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM RICHMAR AVENUE TO WIGWAM AVENUE

# PHOTOGRAPH LOCATION MAP

SHEET
DC-5
5 OF 8 SHTS

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SEE SHEET DC-5




## NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001
BY KENNEY AERIAL MAPPING, INC.

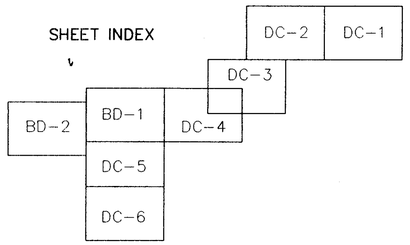
FIRM PANEL(S) AFFECTED: 32003C2569 D, DATED AUGUST 16, 1995
32003C2568 D, DATED AUGUST 16, 1995
32003C2910 D, DATED AUGUST 16, 1995

## LEGEND

ELEVATION REFERENCE MARKER
VIEW DIRECTION
SITE VISIT NUMBER
PHOTO NUMBER

SITE VISIT/ PHOTOGRAPH DATES
1. SEPTEMBER – NOVEMBER 2000
2. APRIL 2001
3. JUNE 2001
4. JUNE 2001
5. AUGUST 2001
6. SEPTEMBER 2001
7. SEPTEMBER 2001
8. OCTOBER 2001
9. NOVEMBER 2001

## SHEET INDEX




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ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-14-02
PLOT TIME: 19:41:52
Mludwig

| NO. | DESCRIPTION | REV. DATE | DATE: AGEN. APP. | DATE: CCRW APP. | DATE: |
|---|---|---|---|---|---|

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD. LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299
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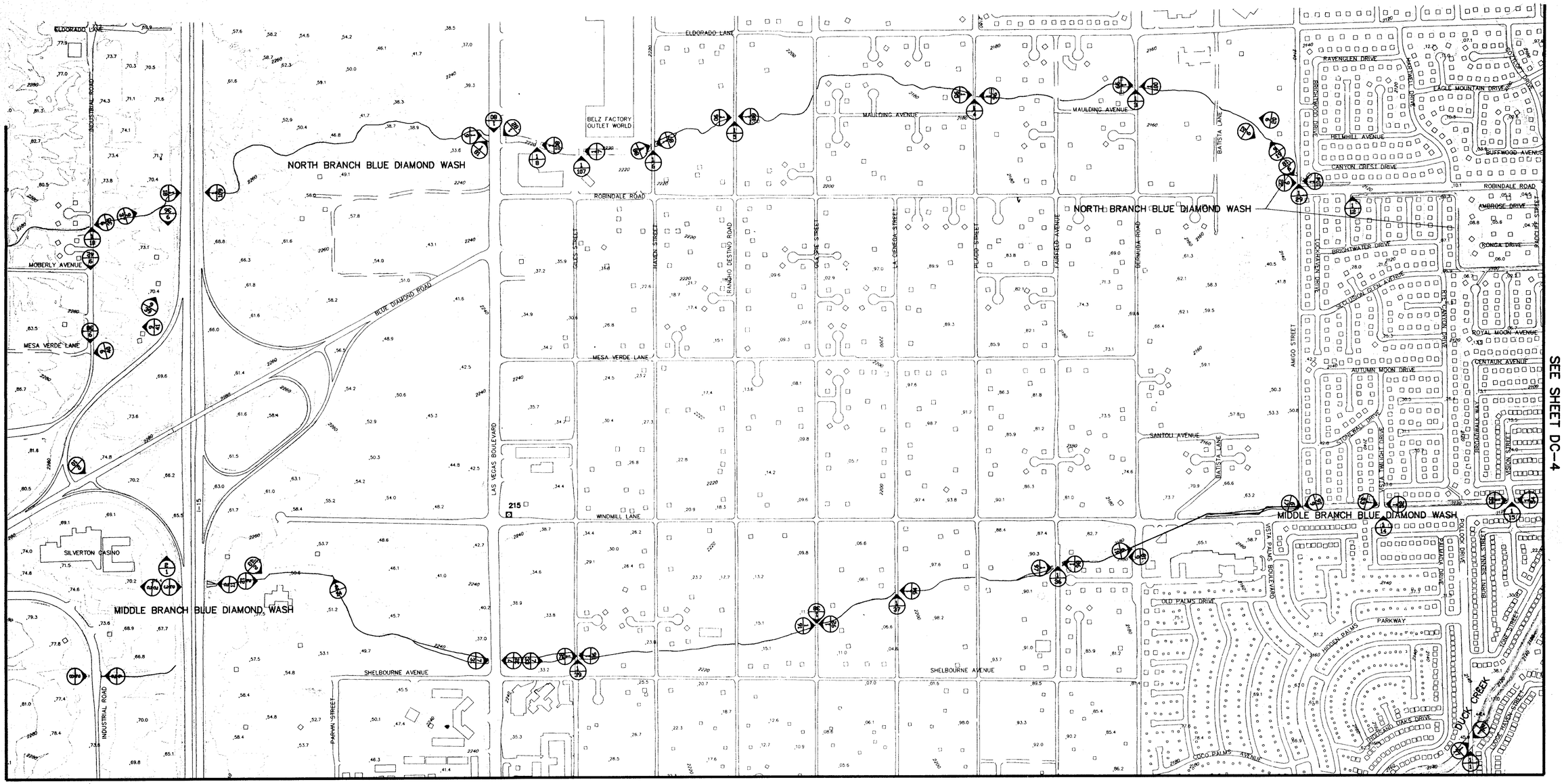
# DUCK CREEK/ BLUE DIAMOND WASHES FRS RESTUDY

## DUCK CREEK FROM I-15 TO RICHMAR AVENUE

## PHOTOGRAPH LOCATION MAP

SHEET
DC-6
6 OF 8 SHTS

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## NOTES

FLOODING SOURCE: NORTH AND MIDDLE BRANCHES OF BLUE DIAMOND WASH; DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001
BY KENNEY AERIAL MAPPING, INC.

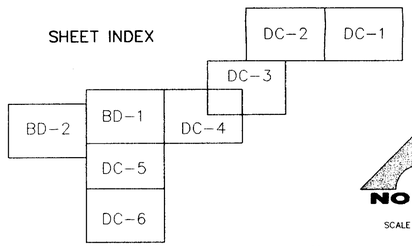
FIRM PANEL(S) AFFECTED: 32003C2566 D, DATED AUGUST 16, 1995
32003C2567 D, DATED AUGUST 16, 1995

## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 215 | CCBM 0C21 9SWS | 2240.64 | RIVET AND SQUARE ALUMINUM PLATE, IN TOP OF CURB NEAR 1/2 DELTA, WEST PORTION OF PLANTER, NORTHEAST CORNER OF LAS VEGAS BOULEVARD AND WINDMILL LANE. |

NAVD 88 = NGVD 29 + 2.37 FT

SHEET INDEX




NORTH

SCALE 1" = 400'

400 0 400 800
SCALE FEET

LEGEND

ELEVATION REFERENCE MARKER

VIEW DIRECTION
SITE VISIT NUMBER
PHOTO NUMBER

SITE VISIT/ PHOTOGRAPH DATES
1. SEPTEMBER – NOVEMBER 2000
2. APRIL 2001
3. JUNE 2001
4. JUNE 2001
5. AUGUST 2001
6. SEPTEMBER 2001
7. SEPTEMBER 2001
8. OCTOBER 2001
9. NOVEMBER 2001

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ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 03-14-02
PLOT TIME: 19:39:53
Mludwig

DATE | DESCRIPTION | REV. DATE | DATE AGEN. APP | DATE BOW APP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299
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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
BLUE DIAMOND WASHES FROM INDUSTRIAL ROAD TO PARADISE ROAD

# PHOTOGRAPH LOCATION MAP

SHEET
BD-1
7 OF 8 SHTS

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## ELEVATION REFERENCE MARKERS (ERM)

| REFERENCE NUMBER | ELEVATION REFERENCE MARKER ID | ELEVATION (FT, NGVD 29) | LOCATION DESCRIPTION |
|---|---|---|---|
| 217 | CCBM OC21 8SSW6 | 2286.91 | RIVET AND SQUARE ALUMINUM PLATE IN TOP OF CURB ON THE EAST SIDE OF INDUSTRIAL ROAD IN FRONT OF A FIRE HYDRANT 950'± NORTH OF BLUE DIAMOND ROAD. |
| 222 | SNWA BRASS CAP | 2412.57 | FOUND 3" BRASS CAP AT NORTHWEST CORNER OF VAULT (UNMARKED) 200'± WEST OF RAILROAD TRACKS AT BRIDGE OVER WASH "SOUTHERN NEVADA WATER SYSTEM". |

NAVD 88 = NGVD 29 + 2.37 FT

## NOTES

FLOODING SOURCE: NORTH AND MIDDLE BRANCHES OF BLUE DIAMOND WASH
CLARK COUNTY, NEVADA

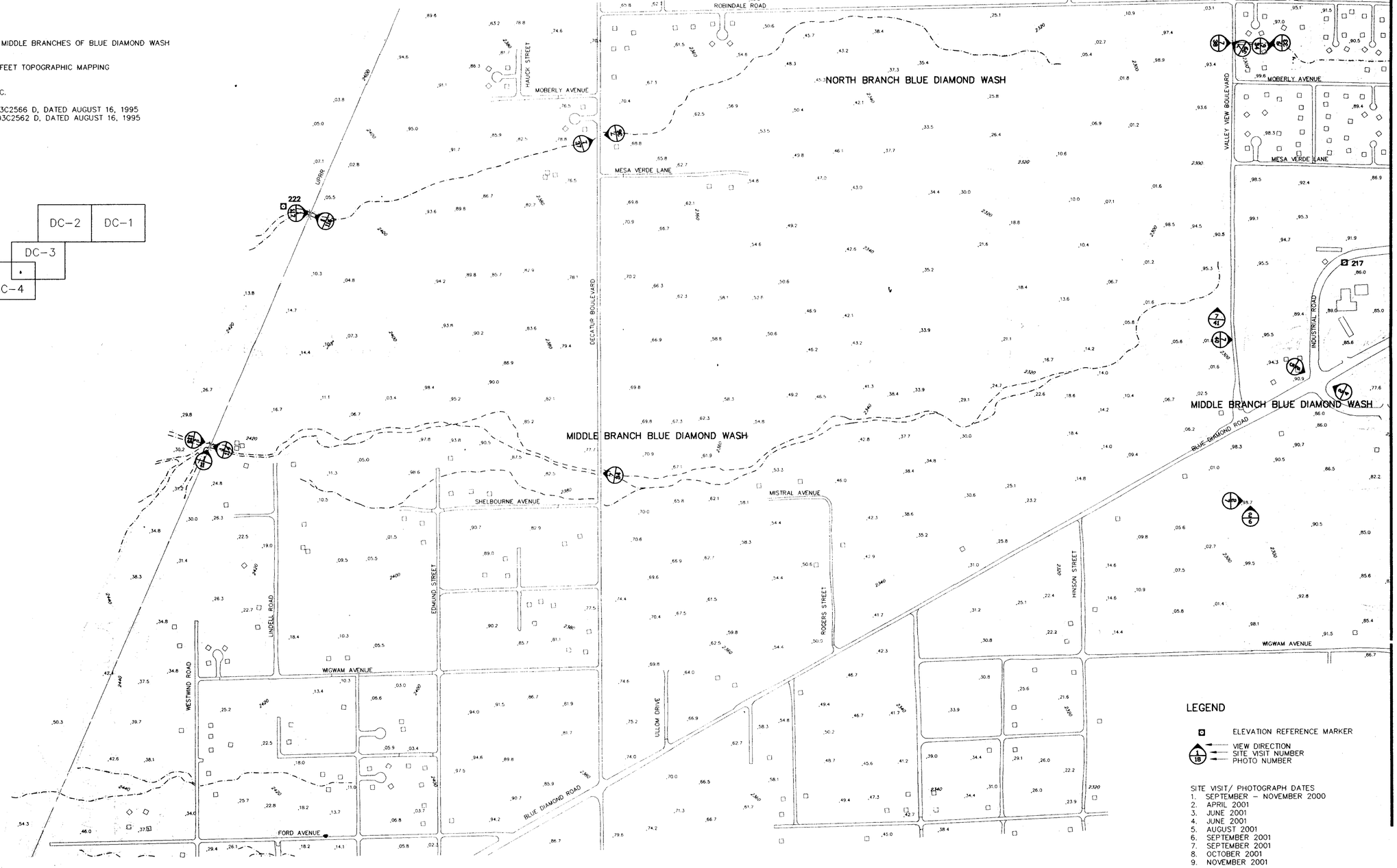
MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000
BY KENNEY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2566 D, DATED AUGUST 16, 1995
32003C2562 D, DATED AUGUST 16, 1995

## SHEET INDEX

DC-2 | DC-1
DC-3
BD-2 | BD-1 | DC-4
DC-5
DC-6

NORTH
SCALE 1" = 400'
400 0 400 800
SCALE FEET




SEE SHEET BD-1

SEE SHEET DC-5

LEGEND

- ELEVATION REFERENCE MARKER
- VIEW DIRECTION / SITE VISIT NUMBER / PHOTO NUMBER

SITE VISIT/ PHOTOGRAPH DATES
1. SEPTEMBER - NOVEMBER 2000
2. APRIL 2001
3. JUNE 2001
4. JUNE 2001
5. AUGUST 2001
6. SEPTEMBER 2001
7. SEPTEMBER 2001
8. OCTOBER 2001
9. NOVEMBER 2001

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ISSUE EDITOR:
PLOT DATE: 03-11-02
PLOT TIME: 19:47:11
Mudwig

DATE | DESCRIPTION | REV. DATE | DATE AGEN. APP. | DATE SCHW. APP.


G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE (702) 804-2000 • FAX (702) 804-2299
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DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
BLUE DIAMOND WASHES FROM UPRR TO INDUSTRIAL ROAD

# PHOTOGRAPH LOCATION MAP

SHEET
BD-2
8 OF 8 SHTS

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EXHIBIT 6

# Duck Creek Hydraulic Work Map

| Legend | |
|---|---|
| 100-YEAR FLOODPLAIN BOUNDARY | |
| HYDRAULIC BASE LINE | 11 — 12 |
| CROSS SECTION | 21.3 — D — A |
| ELEVATION REFERENCE MARKS | RM B0000 |
| BASE FLOOD ELEVATION | 4210 |
| ZONE DESIGNATION | Zone AE |
| ZONE LIMIT | XXXXXXX |
| MATCHLINE | |

| INTERSECT MARK | ELEVATION (FT NGVD) | DESCRIPTION OF LOCATION |
|---|---|---|
| B0032 | 1657.60 | 100' S OF INTERSECTION OF NEVADA AV AND BOULDER HIGHWAY |
| B0031 | 1647.38 | BOULDER HIGHWAY AT BOULDER LAKES RESORT |
| B0030 | 1639.79 | 250' S OF INTERSECTION OF RUSSELL ROAD AND BOULDER HIGHWAY |


Boulder Hwy.
RM B0030
RM B0031
RM B0032
2-TRIPLE 12'x6' RCB'S
MATCHLINE (See Exhibit 5)
MATCHLINE (See Exhibit 7)
DRAFT OF DFIRM STUDY
ZONE A
ZONE AE
ZONE X (Shaded)
ZONE X
ZONE AH
Russell Rd.
Hamilton Ave.
Desert Lake Dr.
Foothill Dr.
Foothill Dr.
Foothill

Stantec Consulting Inc.
6763 W. Charleston Blvd.
Las Vegas NV 89146
Tel: (702) 258-0115 Fax: (702) 258-4956
stantec.com

Stantec

88100091

April 1, 2002

Michael Baker Jr., Inc.
3601 Eisenhower Avenue, Suite 600
Alexandria, VA 22304

**Subject:** **Conditional Letter of Map Revision (C-LOMR) request for Green Park Channel/Culvert System for Flood Insurance Rate Maps (FIRM) 32003C2568 D, 32003C2569 D, and 32003C2910 D**

**Attention:** **Ms. Pernille Buch-Pedersen**

Dear Ms Buch-Pedersen:

Stantec Consultants is submitting the Green Park Channel/Culvert System for your review and approval of this Conditional Letter of Map Revision (C-LOMR) request. Enclosed within this request is the hydraulic analysis, HEC-RAS and WSPG, for the future Green Park Channel/Culvert System. Also provided are the C-LOMR application forms, ALTA (Plat Maps), and a revised flood map showing that effect of the Green Park Holdings development. The Green Park Channel/Culvert System is comprised of two distinct conveyance facilities, the North Box and the South Box. The basis of this C-LOMR request is the revised hydrology determined by G. C. Wallace for the Duck Creek Flood Insurance Study (FIS) that is also being submitted at this time.

Should you have additional questions and/or require further information please do not hesitate to call Alexander Kingston at Stantec Consultants at (702) 258-0115

Sincerely,
STANTEC CONSULTANTS

Alexander Kingston, E.I.T.
Senior Hydrologist

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>REVISION REQUESTER AND COMMUNITY OFFICIAL | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

**PUBLIC BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 2.13 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

**You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.**

## 1. REQUESTED RESPONSE FROM FEMA

This request is for a:

- ☒ CLOMR — A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60,65 & 72).
- ☐ LOMR — A letter from FEMA officially revising the current NFIP map to show the changes to floodplains, floodway or flood elevations. LOMRs typically decrease flood hazards. (See 44 CFR Ch. 1 Parts 60 & 65.)
- ☐ Other — Describe: _____

## 2. OVERVIEW

1. The basis for this revision request is (are): (check all that apply)

☒ Physical Change ☐ Improved Methodology/Data ☒ Floodway Revision

☐ Other Describe: _____

Note: A photograph is not required, but is very helpful during review.

2. Flooding Source: Duck Creek

3. Project Name/Identifier: Green Park Channel/Culvert System

4. FEMA zone designations affected: "AE" "A"

(example: A, AH, AO, A1-A30, A99, AE, V, V1-V30, VE, B, C, D, X)

5. The NFIP map panel(s) affected for all impacted communities is (are):

| Community No. | Community Name | State | Map No. | Panel No. | Effective Date |
|---|---|---|---|---|---|
| Ex: 480301 | Katy, City | TX | 480301 | 0005D | 02/08/83 |
| 480287 | Harris County | TX | 48201C | 0220G | 09/28/90 |
| 32003 | Clark County | NV | 32003C | 2569D | 08/16/95 |
| | | | | 2568D | 08/16/95 |
| | | | | 2010D | 08/16/95 |

6. The area of revision encompasses the following types of flooding and structures. Check all that apply.

| Types of Flooding | Structures |
|---|---|
| ☒ Riverine | ☒ Channelization |
| ☐ Coastal | ☐ Levee/Floodwall |
| ☐ Alluvial fan | ☒ Bridge/Culvert |
| ☐ Shallow Flooding (e.g. Zones AO and AH) | ☐ Dam |
| ☐ Lakes | ☐ Fill |
| ☐ Other (describe) | ☐ Other (describe) |

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 4. ENCROACHMENT INFORMATION

1. *Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?* ☐ Yes ☒ No

**If Yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.**

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? ☐ Yes ☒ No ☐ N/A

3. Does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the base flood elevation to increase at any location by more than one foot (or other increase limit if community or state has adopted more stringent criteria - even if a floodway has not been delineated by FEMA)? ☐ Yes ☒ No

**If the answer to either items is Yes, please attach documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.**

## 5. MAINTENANCE RESPONSIBILITY

The community is willing to assume responsibility for ☐ performing ☒ overseeing compliance with the maintenance and operation plans of the Green Park Channel/Culvert System (Name) flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

**Operation and maintenance plans are attached.** ☐ **Yes** ☒ **No** ☐ **N/A**

## 6. REVIEW FEE

The review fee for the appropriate request category has been included. ☒ Yes Fee amount: $3,100.00

**OR**

This request is based on a federally sponsored flood-control project where 50 percent or more of the project's cost is federally sponsored, or the request is based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective FIRM; thus the project is fee exempt. ☐ Yes

**Please see Instructions for Fee Amounts**

## 7. SIGNATURE

***Note:* I understand that my signature indicates that all information submitted in support of this request is correct**

Alexander Kingston
Signature of Revision Requester

Alexander Kingston
Printed Name and Title of Revision Requester

Stantec Consulting
Company Name

(702) 258-0115
Telephone No. Date

***Note:* Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.**

Signature of Community Official

Printed Name and Title of Community Official

Community Name

Telephone No. Date

**CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR**

This certification is in accordance with 44 CFR Ch. 1, Sect 65.2

DENNIS WERTZLER
Signature

Dennis P Wertzler
Printed Name and Title of Revision Requester

Registr No. 11970 Expires (Date) 6/30 State NV

Type of License/Expertise: CIVIL

**Check which forms have been included with this request**

| Form Name and (Number) | Required if ..... |
|---|---|
| ☐ **Hydrologic** (3) | new or revised discharges |
| ☒ **Hydraulic** (4) | new or revised water-surface elevations |
| ☐ **Mapping** (5) | floodplain/floodway changes |
| ☒ **Channelization** (6) | channel is modified |
| ☒ **Bridge/Culvert** (7) | addition/revision of bridge/culvert |
| ☐ **Levee/Floodwall** (8) | addition/revision of levee/floodwall |
| ☐ **Coastal** (9) | new or revised coastal elevations |
| ☐ **Coastal Structures** (10) | addition/revision of coastal structure |
| ☐ **Dam** (11) | addition/revision of dam |
| ☐ **Alluvial Fan** (12) | structures proposed on alluvial fan |

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>RIVERINE/COASTAL MAPPING | O.M.B No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

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***Note: Fill out one form for each flooding source studied***

Community Name: Clark County

Flooding Source: Duck Creek

Project Name/Identifier: Green Park Channel/Culvert System

This is a ☒ Manual ☐ Digital submission. *Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance as possible.*

## 1. MAPPING CHANGES

1. A topographic workmap must be submitted showing the following information (check N/A when not applicable):

| | | | |
|---|---|---|---|
| a. Revised approximate 100-year floodplain boundaries (Zone A) | ☒ Yes | ☐ No | ☐ N/A |
| b. Revised detailed 100- and 500-year floodplain boundaries. | ☒ Yes | ☐ No | ☐ N/A |
| c. Revised floodway boundaries | ☒ Yes | ☐ No | ☐ N/A |
| d. Location and alignment of all cross sections with stationing control indicated. | ☒ Yes | ☐ No | ☐ N/A |
| e. Stream alignments, road alignments and dam alignments. | ☒ Yes | ☐ No | ☐ N/A |
| f. Current community boundaries. | ☐ Yes | ☐ No | ☒ N/A |
| g. Effective 100-year floodplain and floodway boundaries from FIRM/FBFM reduced or enlarged to the scale of the topographic workmap | ☒ Yes | ☐ No | ☐ N/A |
| h. Tie-ins between the effective and revised 100-, 500-year and floodway boundaries | ☒ Yes | ☐ No | ☐ N/A |
| i. The requester's property boundaries and community easements | ☒ Yes | ☐ No | ☐ N/A |
| j. The signed certification of a registered professional engineer | ☒ Yes | ☐ No | ☐ N/A |
| k. Location and description of reference marks | ☒ Yes | ☐ No | ☐ N/A |
| l. Vertical datum (example: NGVD, NAVD) | ☒ Yes | ☐ No | ☐ N/A |
| m. Coastal zone designations tie into adjacent areas not being revised | ☐ Yes | ☐ No | ☒ N/A |
| n. Location and alignment of all coastal transects used to revise the coastal analyze | ☐ Yes | ☐ No | ☒ N/A |
| o. V-zone has been delineated to extend landward to the heel of the primary frontal dune | ☐ Yes | ☐ No | ☒ N/A |

**If any items are marked No or N/A please attach an explanation.**

2. What is the source and date of the updated topographic information (example: orthophoto maps, July 1985; filed survey, May 1979, beach profile, June 1987 etc.)?

Orthophoto/Grading Plan Map October, 2000

3. What is the scale and contour interval of the following workmaps?

| | | |
|---|---|---|
| Effective FIS | Scale 1"=400 | Contour Interval 4-foot |
| Revision Request | Scale 1"=400 | Contour Interval 4-foot |

*NOTE: Revised topographic information must be of equal or greater detail than effective.*

4. Attach an annotated FIRM/FBFM at the scale of the effective FIRM/FBFM showing the revised 100- and 500-year floodplain and the floodway boundaries and how they tie into those shown on the effective FIRM/FBFM downstream and upstream of the revisions or adjacent to the area of revision for coastal studies. **FIRM/FBFM attached?** ☒ **Yes** ☐ **No**

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 2. EARTH FILL PLACEMENT

1. The fill is: ☒ Existing ☐ Proposed

2. Has fill been/will be placed in the regulatory floodway? ☐ Yes ☒ No
   If Yes, please attach completed Riverine Hydraulic Analysis Form (Form 4).

3. Has fill been/will be placed in floodway fringe (*area between the floodway and 100-year floodplain boundaries*)? ☐ Yes ☒ No

   If Yes, then complete A, B, C, and D below.

   a. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ☐ Yes ☐ No

      If Yes, justify steeper slopes _____

      _____

   b. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? (*Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)*

      ☐ Yes ☐ No

      If No, describe erosion protection provided _____

      _____

   c. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No

   d. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No

   **If Yes, attach certification of fill compaction (item 3c. above) by the community's NFIP permit official, a registered professional Engineer, or an accredited soils engineer in accordance with Subparagraph 65.5(a)(6) of the NFIP regulations.**

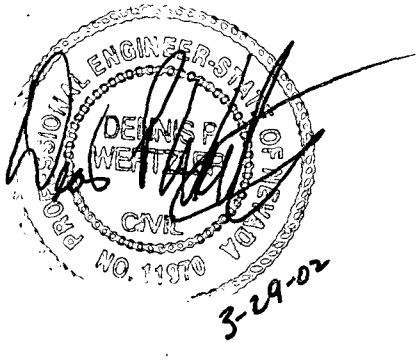
   **Fill certification attached** ☐ **Yes** ☐ **No**

4. Has fill been/will be placed in a V zone? ☐ Yes ☒ No

   If Yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall?

   ☐ Yes ☐ No

   If Yes, attach the Coastal Structures Form (Form 10).



| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**CHANNELIZATION** | O.M.B. Burden No. 3067-0148<br>Expires April 30, 2001 |
|---|---|

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Community Name: Clark County

Flooding Source: Duck Creek

Project Name/Identifier: Green Park Channel/Culvert System

## 1. REACH TO BE REVISED

Describe the limits of the revision **OR** submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: Las Vegas Blvd (North Box) Las Vegas Blvd (South Box)

Upstream Limit: Parvin Street (North Box) I-15 (South Box)

## 2. CHANNEL DESCRIPTION

**Attach the following information about the channel (check box if information has been provided):**

☒ Description of the inlet and outlet

☒ Description of the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)*:

## 3. ACCESSORY STRUCTURES

The channelization includes:

☐ Levees *(Attach Levee/Floodwall System Analysis Form - Form 8)*
☒ Drop structures
☐ Superelevated sections
☒ Transitions in cross sectional geometry
☐ Debris basin/detention basin
☒ Energy dissipater
☐ Other (Describe):

## 4. DRAWING CHECKLIST

**Attach the plans of the channelization certified by a registered professional engineer. *The plan detail and information* should include (check box if information has been provided):**

☒ Channel alignment and locations of inlet, outlet, and accessory structures

☒ Channel lining

☒ Typical cross sections and profiles of channel banks and invert

**PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS**

## 5. HYDRAULIC CONSIDERATIONS

1. The channel was designed to carry 5080 (cfs) and/or the 100 -year flood. (North Box)
   1808 cfs 100-year
   2543 cfs 100-year (South Box)
2. The design elevation in the channel based on:

- [X] Subcritical flow
- [ ] Critical flow
- [X] Supercritical flow
- [ ] Energy grade line

3. **If there is the potential for a hydraulic jump at the following locations, check the box(es) that apply and attach an explanation of how the hydraulic jump is controlled without affecting the stability of the channel.**

N/A

| | |
|---|---|
| Inlet to channel? | [ ] Yes |
| Outlet of channel? | [ ] Yes |
| At Drop Structures? | [ ] Yes |
| At Transitions? | [ ] Yes |
| *Other locations?* | [ ] Yes |

**Explanation Attached?** [X] **Yes** [ ] **No** [ ] **N/A**

## 6. SEDIMENT TRANSPORT CONSIDERATIONS

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year (base flood) water-surface elevations; and/or based on the stream geomorphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including sewer and deposition) to affect the base flood water-surface elevations, then provide the following information **(Check the box if provided):**

N/A

- [ ] Estimated sediment load
- [ ] Method used to estimate sediment transport
- [ ] Method used to estimate scour and/or deposition
- [ ] *Method used to revise* hydraulic or hydrologic analysis (model) to account for sediment transport

# 1.0 GENERAL LOCATION AND DEVELOPMENT DESCRIPTION

## 1.1 Scope

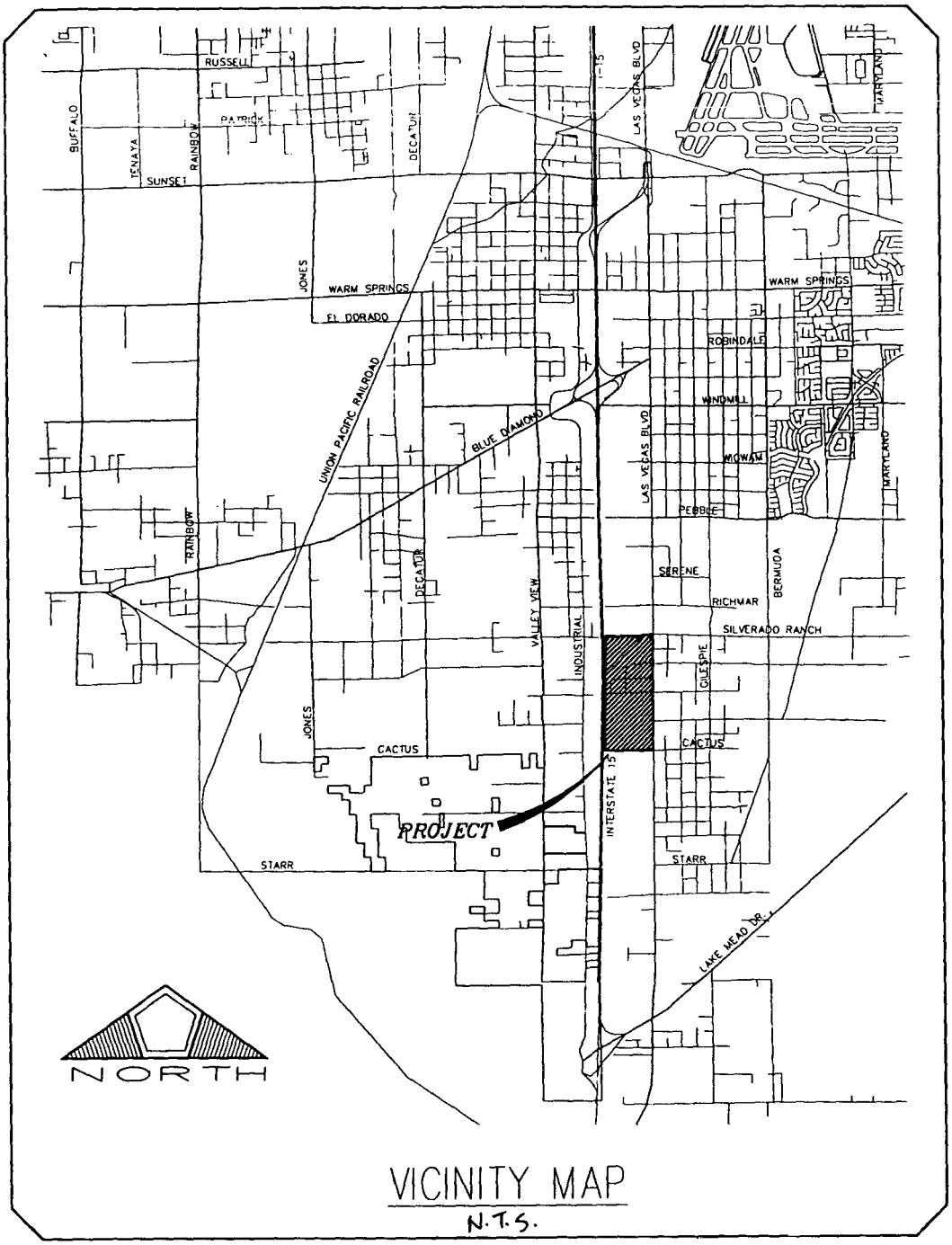
The purpose of this report is to provide detailed hydrologic and hydraulic analyses to support the design of several major storm drain facilities that will collect and convey the most significant offsite storm flows across the proposed site. This study will address the existing conditions that affect the proposed storm drain facilities onsite and offsite drainage. It is our intention that the construction of these facilities will allow the overall subject site to be removed from the FEMA designated flood zone. It is expected that this study will be submitted to FEMA with the F.I.S. restudy currently being prepared by the Clark County Regional Flood Control District (CCRFCD) to obtain a Conditional Letter of Map Revision (CLOMR) for our subject site. Upon construction of the proposed facilities a Letter of Map Revision (LOMR) will be obtained. The criteria set forth in the Clark County Regional Flood Control District "Hydrologic Criteria and Drainage Design Manual, " hereafter referred to as the "Drainage Criteria Manual," (Reference 6) has been used as the technical basis for this study. It is expected that the subject site will eventually be developed as a mixed-use commercial property. Additional technical drainage studies will be required to support the design of any onsite development and perimeter streets.

## 1.2 Location

The subject is located within Clark County, Nevada. The project site lies south of Silverado Ranch Parkway (Gomer Road), west of Las Vegas Boulevard, north of Cactus Avenue, and east of Interstate I-15 (See Figure 1, Vicinity Map). The proposed project is within a portion of Section 29, Township 22 South, Range 61 East, M.D.M., Clark County Nevada.

## 1.3 Description of Project

The overall project site consists of approximately 200 acres. The future land use of the subject site has not been determined beyond the general




VICINITY MAP

N.T.S.

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# VICINITY MAP

**Greenpark Development**
**Greenpark**

**FIGURE 1**

**Job #: 0288.0040**

designation of "mixed commercial". At this time, the proposed facilities are limited to the construction of extensive storm drain facilities consisting of multiple arch culverts (See Figure 2, *Master Drainage Facility Exhibit*). The site itself is typical and undeveloped desert, with the exception of a few scattered single-family homes. There are several natural washes throughout the site and existing bridges and culverts along the eastern and western property boundaries (I-15 to the west and Las Vegas Blvd to the east). The north portion of the site generally slopes to the east at approximately 1.3 %. The south portion of the site generally slopes to the northeast at approximately 1%.

The proposed storm drains will collect flow from the culvert crossings under I-15, and the flows that impact Cactus Road from the south (flow comes from under Lake Mead Boulevard). All the flows will be collected into the proposed storm drains and will be conveyed to Las Vegas Boulevard. The flows will be released on the east side of Las Vegas Boulevard in the approximate location of the historic flows. Historically, the offsite flows that impacted the site from the south and southwest have been routed to Las Vegas Boulevard where the flows pond up and weir over the top of Las Vegas Boulevard. Some flows would be conveyed under Las Vegas Boulevard via several small, undersized, existing box culverts.

A large portion of the overall site lies within FEMA designated flood zones. The flood zones have been analyzed in the past and water surface elevations have been determined. The limits of the established flood zone within the proposed site was based on an assumption in the original Duck Creek Hydrologic Unit F.I.S. Study (Ref 9) that a significant amount of flows weir over the top of I-15 from the west. However, the recently submitted FIS study by G.C. Wallace (Ref 8) has shown that a reduced flow overtops I-15. The majority of the flows impacting I-15 are forced north by the elevated freeway.

We have met the CCRFCD and it is our understanding that they are in the process of preparing a Duck Creek F.I.S. restudy that would incorporate

GRAPHIC SCALE

200 0 100 200 400 800

( IN FEET )
1 inch = 400 ft

NORTH
SCALE: 1" = 400'

LEGEND

INDICATES PROPOSED FACILITY
INDICATES EXISTING FACILITY
INDICATES FLOW QUANTITY

(4) 12'x4' EX. CONC. BOX CULVERT
(2) 12'x4' EX. CONC. BOX CULVERT
(3) 12'x4' EX. CONC. BOX CULVERT
INTERSTATE I-15
INTERSTATE I-15
INTERSTATE I-15
INTERSTATE I-15
INTERSTATE I-15
INTERSTATE I-15
1336 CFS
482 CFS
5080 CFS
PROPOSED 10'X6' ARCH CULVERT
PROPOSED 16'X7' ARCH CULVERT
ENSWORTH STREET
ENSWORTH STREET
FRIAS AVENUE
PYLE AVENUE
J.G. RAE AVENUE
PARVIN STREET
PARVIN STREET
CACTUS AVENUE
RUSH AVENUE
HALEH AVENUE
LANDBERG AVENUE
SILVERADO RANCH PARKWAY
SUBJECT SITE
Concrete Collector Channels
GABRIEL STREET
GABRIEL STREET
GABRIEL STREET
LEBARON AVENUE
2543 CFS
Concrete Collector Channel
PROPOSED (3) 7'x5' BOX CULVERTS
PROPOSED 16'X7' ARCH CULVERT
12'X6' EX. CONC. BOX CULVERT
(3) 10'x5' EX. CONC. BOX CULVERT
PROPOSED 24'X8' ARCH CULVERT
LAS VEGAS BOULEVARD SOUTH
LAS VEGAS BOULEVARD SOUTH
PROPOSED (3)9'x5' BOX CULVERTS

ORIGINAL SHEET - ARCH D

KurtS


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www.stantec.com


Stantec


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Consultants

Legend

Notes

| Revision | By | Appd. | YY.MM.DD |
|---|---|---|---|
| 1 | | | |
| 2 | | | |

| Issued | By | Appd. | YY.MM.DD |
|---|---|---|---|
| File Name: | Dwn. | Chkd. | Dsgn. YY.MM.DD |

Permit-Seal

Client/Project
GREEN PARK HOLDINGS, LLC

Las Vegas NV U.S.A.

Title
MASTER DRAINAGE FACILITY EXHIBIT

| Project No. | Scale | |
|---|---|---|
| 88100091 | 1"=400' | |
| Drawing No. | Sheet | Revision |
| | 1 of 1 | 0 |

Figure 2

these latest findings. This F.I.S. restudy would redefine the flood zones across the subject site. It is anticipated that the new flood zones would show that the flows were contained within the proposed storm drain. Stantec has met with CCRFCD and G.C. Wallace, who is preparing the new Duck Creek F.I.S. study. The meeting was to discuss issues such as: what hydrologic data is available, which data presents the most accurate representation of the flows that impact the subject site, timing of the F.I.S. restudy, scope of the F.I.S. restudy, possible impacts of the F.I.S. restudy on the MPU, and discussion on how our proposed facilities would tie into the MPU facilities. It was mutually agreed that the offsite flows impacting the site have been well quantified by several previously approved studies.

The flow that impacts the site from the south was quantified in the Nimbus "*Pittman Wash F.I.S. Restudy*" (Ref 7). This information was incorporated in the hydrology used by G.C. Wallace for the Duck Creek FIS study. This hydrology has been accepted by Stantec for the purposes of determining all onsite hydraulics.

As a result of our meeting with CCRFCD, it has been determined that because of the timing of this study and the new Duck Creek F.I.S. study, our project could be included as an appendix to the F.I.S. submittal to FEMA later this year. This FEMA submittal will be the equivalent to a CLOMR (conditional letter of map revision). Once the Duck Creek F.I.S. study is approved and the storm drains built, we will submit for a LOMR (letter of map revision)

# 2.0 DRAINAGE BASIN DESCRIPTION

## 2.1 Offsite Drainage Description

The offsite drainage basins that contribute flows impacting the subject site are quite large and the flows are significant. The offsite basins that impact the subject site are from two distinct watersheds relative to the subject site, southern and southwestern (See Figure 3, *Watershed Map*).

Southern Watershed

The southern watershed is approximately 35 square miles. The majority of the flows are generated from basins located south of Lake Mead Boulevard (St. Rose Parkway). The delineation of the drainage basins, the hydrology, and the direction of the flows from the area south of Lake Mead Boulevard were studied extensively as part of the approved *Pittman Wash F.I.S* study (Ref 7). In our meetings with CCRFCD, during the research portion of preparing this study, the attendees (include Stantec Staff, CCRFCD staff and GC Wallace staff) agreed that the *Pittman Wash F.I.S.* study represented the best available information that describes the flows south of Lake Mead Boulevard. The hydrology used by G.C. Wallace incorporated this information. The most important aspect as it relates to our subject site, is the determination of the flow diversions south of Lake Mead Boulevard. A review of the hydrology shows that 2,534 cfs at Cactus Avenue during a 100 year storm event.

Southwestern Watershed

The southwestern watershed is approximately 85 square miles of land west of Interstate 15. This area includes the recently developed Southern Highlands master planned community.

This southwestern watershed area has been extensively studied as part of the recently submitted G.C. Wallace Duck Creek FIS study (Ref 8). This study not only quantified the flows from basins west of I-15 but also determined the diversion of the flows through existing drainage facilities under and over I-15 from Cactus Avenue to Blue Diamond interchange.

This study clearly shows that I-15 acts as a dike just west of the subject site. Attached is the exhibits (Figure 3A and 3B, *Duck Creek FIS Maps 6A and 6B*) that best shows the accepted flow diversions. There are three culverts that impact the site which are identified in the FIS study as I-151, I-152 and I-153. These culverts carry 1,336 cfs, 482 cfs, and 1,571 cfs (This flow when combined with the flow over I-15 is 5080 cfs) respectively.

In our meetings with CCRFCD during the research portion of preparing this study, the attendees (include Stantec staff, CCRFCD staff and GC Wallace staff) agreed that this study represented the best available information that describes the flows west of the subject site.

## 2.2 Onsite Drainage Description

The subject site is predominately undeveloped desert with several large washes that cut through the site generally from west and southwest to the east. The vegetation and terrain are typical of the local desert.

The subject site is the historical confluence point for large offsite flows from the south and west. The onsite drainage patterns for the northern portion of subject site is generally from the west to the east at a slope of approximately 1.3%. The onsite drainage patterns for the southern portion of the subject sire are generally from the south to the northeast at a slope of approximately 1%. The sire currently drains towards Las Vegas Boulevard, which appears to have been constructed well above the grade of the natural ground. The existing storm drain facilities under Las Vegas Boulevard are undersized causing the existing flows to pond up and weir over the roadway during major storm events.

.

## 2.3 FEMA Flood Hazard Zone

The Special Flood Hazard Areas for Clark County, Nevada are outlined in the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps dated August 16, 1995. Upon reviewing Community Panel No. 32003 C 2568 D and No. 32003 C 2910 D (Figure 4, *FEMA Map*) it was determined that the subject site lies within the following zones:

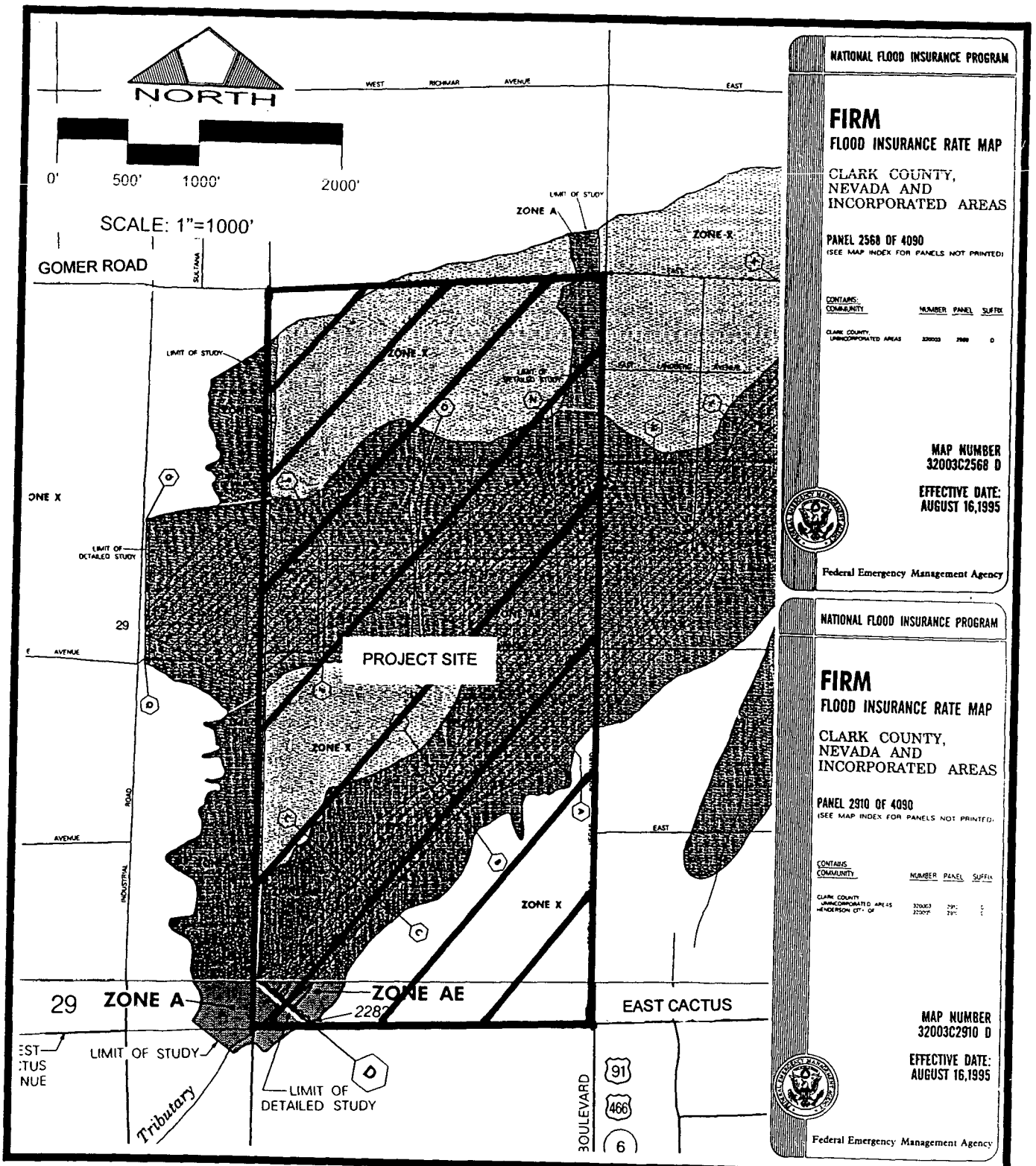
- Zone "A", and area determined to be inside the 100-year floodplain without available base flood elevation.
- Zone "AE" with Floodway, an area determined to be inside the 100-year floodplain where base flood elevations have been determined.
- Zone "X" with portions determined to be outside and inside of the 500-year floodplain.

It is expected that the limits of all the flood zones on the site will be substantially revised as a result of the pending F.I.S. restudy. The F.I.S. study will also include a CLOMR for the proposed storm drains contained within this study (See Figure 5, *Flood Zone Exhibit).*

## 2.4 Regional Flood Control Master Plan Update

Existing Facilities

There are existing local and proposed CCRFCD facilities that cross the subject site (See Figure 6A, Figure 6B, and Figure 7, *CCRFCD MPU Facilities*). The proposed site has three existing bridge spans on the western boundary that convey flows under Interstate I-15 identified as local facilities in the CCRFCD Master Plan. The most northerly is a 36-foot wide, 4-foot deep, three span bridge (CCRFCD local facility IS15 0233). The middle structure is a 24-foot wide, 4-foot deep two span bridge (CCRFCD local facility IS15 0199). The southern most structure is at Cactus Avenue and does not have a local identifier but consists of a 36-foot wide, 4-foot deep three span bridge. Several box culverts currently cross under Las Vegas Boulevard. The existing facilities under Las Vegas Boulevard are unaccounted for in the Master Plan Update.




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# FIRM MAP

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Greenpark

Figure 4

Job #: 0288.0040

CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT

# FLOOD CONTROL MASTER PLAN UPDATE LAS VEGAS VALLEY 1996

LEGEND

- EXISTING MASTER PLAN FACILITIES
- PROPOSED MASTER PLAN FACILITIES
- LOCAL OR UNSTUDIED FACILITIES
- DETENTION/DEBRIS BASIN
- CULVERT
- BRIDGE
- PIPELINE
- LINED CHANNEL
- UNLINED CHANNEL
- DIKE
- NATURAL WASH
- ULTIMATE DEVELOPMENT BOUNDARY
- SECONDARY FACILITIES

GRAPHIC SCALE

3000 1500 0 1000 2000 3000

(IN FEET)

SCALE: 1 INCH = 3000 FEET

## FLOOD CONTROL FACILITIES

FIGURE F-22

POST, BUCKLEY, SCHUH & JERNIGAN, INC.

nevada

PHOTOS BY LANDISCOR
DATED: AUGUST 1995

| | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | |

Figure 6A

# 1996 FLOOD CONTROL MASTER PLAN UPDATE LAS VEGAS VALLEY

## LEGEND

| | |
|---|---|
| STREAM NAME DESIGNATOR | AABB |
| PARENT STREAM NAME | |
| STREAM NAME | |
| ID / RIVER MILE | 0000 |
| DISTANCE ABOVE CONFLUENCE WITH PARENT STREAM: | |
| MILES | |
| TENTHS OF A MILE | |
| EXISTING FACILITY | E |
| PROPOSED OR MODIFIED FACILITY | P |
| CONTINGENCY LEVEL: | |
| MASTER PLAN | P1 |
| FACILITY PLAN | P2 |
| PRELIMINARY DESIGN | P3 |
| DESIGN | P4 |
| BOTTOM WIDTH | W |
| DEPTH | D |
| SIDE SLOPE, H:V | SS |
| CORRUGATED METAL PIPE CULVERT | CMP |
| CORRUGATED METAL ARCH PIPE CULVERT | CMAP |
| REINFORCED CONCRETE BOX | RCB |
| RCB CULVERT | RCBC |
| REINFORCED CONCRETE PIPE | RCP |
| RCP CULVERT | RCPC |
| REINFORCED CONCRETE ARCH PIPE CULVERT | RCACP |
| GENERAL COMMENT | G1 |
| FACILITY SPECIFIC COMMENT | S1 |

NOTES:

(1) "E" FACILITIES NOT FOLLOWED BY "P" FACILITIES ARE ADEQUATE AS IS

(2) FLOW = 100 YEAR DESIGN FLOW

**FLOOD CONTROL FACILITIES INVENTORY**

FIGURE F-22

PBS&J, INC
VTN NEVADA

| ID/ River Mile | E/P | Facility Description | Facility Length (ft) | Flow (cfs) |
|---|---|---|---|---|
| *BD01* | | BLUE DIAMOND CHANNEL 01 | | |
| 0000 | P4 | Gabion Chnl 15'W 5.5'D 2:1 SS | 800 | 510 |
| 0010 | P1 | 2: 6' x 5' RCBC @ LV Blvd | 100 | 510 |
| 0012 | P1 | Gabion Chnl 15'W 4.5'D 2:1 SS | 2,300 | 510 |
| 0061 | P1 | Gabion Chnl 15'W 4.5'D 2:1 SS | 750 | 510 |
| 0072 | P1 | 2: 6' x 5' RCBC @ Industrial | 60 | 510 |
| BD02 | | BLUE DIAMOND CHANNEL 02 | | |
| 0000 | P1 | Gabion Chnl 25'W 6.5'D 2:1 SS | 1,300 | 1,780 |
| 0026 | P1 | Gabion Chnl 20'W 6'D 2:1 SS | 2,550 | 1,250 |
| 0074 | E | 2: 12' x 7' RCBC @ LV Blvd | 80 | 1,250 |
| 0075 | E | Concrete Chnl 20'W 5'D 2:1 SS | 350 | 1,250 |
| 0082 | E | 2: 10' x 6' RCBC @ Serene | 50 | 1,250 |
| 0083 | P1 | Gabion Chnl 20'W 6'D 2:1 SS | 2,050 | 1,250 |
| 0123 | P1 | Gabion Chnl 20'W 6'D 2:1 SS | 700 | 1,140 |
| 0148 | P1 | 2: 10' x 6' RCBC @ Industrial | 60 | 1,140 |
| 0150 | P1 | Gabion Chnl 20'W 6'D 2:1 SS | 660 | 1,140 |
| BD03 | | BLUE DIAMOND CHANNEL 03 | | |
| 0000 | P1 | Gabion Chnl 20'W 6'D 2:1 SS | 2,600 | 1,220 |
| 0049 | E | 2: 12' x 7' RCBC @ LV Blvd | 80 | 1,220 |
| 0051 | E | Earth Chnl 20'W 8'D 2:1 SS | 1,260 | 1,220 |
| 0051 | P1 | Gabion Chnl 20'W 6'D 2:1 SS | 1,260 | 1,220 |
| 0076 | P1 | Gabion Chnl 20'W 6'D 2:1 SS | 1,450 | 1,220 |
| BDWM | | BLUE DIAMOND - WINDMILL BRANCH | | |
| 0000 | P1 | 84" RCP | 2,600 | 860 |
| DCBD | | DUCK CREEK/BLUE DIAMOND | | |
| 0065 | E | 12' x 10' RCB @ Bermuda | 400 | 1,300 |
| 0073 | P1 | Gabion Chnl 10'W 5'D 2:1 SS | 600 | 560 |
| 0082 | E | 4: 48" RCP @ Fairfield | 80 | 560 |
| 0083 | P1 | Gabion Chnl 10'W 5.5'D 2:1 SS | 4,700 | 560 |
| 0176 | P1 | 2: 7' x 4' RCBC @ LV Blvd | 80 | 445 |
| 0177 | P1 | Gabion Chnl 10'W 5'D 2:1 SS | 1,550 | 445 |
| 0206 | E | 2: 60" CMP | 1,300 | 445 |
| 0206 | P1 | 2: 7' x 4' RCB | 1,300 | 445 |
| 0221 | P1 | 48" RCP | 3,200 | 125 |
| 0282 | P1 | 385 ac-ft Lower Blue Diamond DB | | 2,275 / 125 |
| 0282 | P1 | 2,275 cfs 100-yr Spillway | | 2,275 |
| 0282 | P1 | 36" Outlet Pipe | 200 | 125 |
| 0421 | E | 3 Span Bridge 45'W 10'D | | 2,050 |
| 0422 | P1 | 3' Unlined Levee | 600 | 2,050 |
| 0423 | P1 | Gabion Chnl 20'W 8'D 2:1 SS | 6,700 | 2,050 |
| 0550 | P1 | Gabion Chnl 20'W 7.5'D 2:1 SS | 7,000 | 1,370 |
| 0683 | P1 | 6' x 6' RCBC @ UPRR | 50 | 945 |
| 0684 | P1 | Gabion Chnl 10'W 6.5'D 2:1 SS | 1,320 | 945 |
| 0709 | P1 | 3: 6' x 6' RCBC @ UPRR | 50 | 945 |
| 0710 | P1 | Gabion Chnl 10'W 6.5'D 2:1 SS | 1,830 | 945 |
| 0744 | P1 | 3: 7' x 5' RCBC @ Rainbow | 50 | 945 |
| 0745 | P1 | Gabion Chnl 10'W 6.5'D 2:1 SS | 4,800 | 945 |
| 0835 | P1 | 4: 5' x 5' RCBC @ Blue Diamond | 75 | 910 |

| ID/ River Mile | E/P | Facility Description | Facility Length (ft) | Flow (cfs) |
|---|---|---|---|---|
| DCCD | | DUCK CREEK - CENTRAL DUCK CHANNEL | | |
| 0000 | P1 | Gabion Chnl 65'W 6.5'D 2:1SS | 8,850 | 5,300 |
| DCW1 | | DUCK CREEK - TRIBUTARY 1 | | |
| 0000 | P1 | Gabion Chnl 40'W 7'D 2:1SS | 4,370 | 2,790 |
| 0062 | P1 | Gabion Chnl 15'W 7.5'D 2:1 SS | 2,180 | 950 |
| DCW2 | | DUCK CREEK - TRIBUTARY 2 | | |
| 0000 | P1 | Gabion Chnl 20'W 7'D 2:1SS | 3,050 | 1,230 |
| 0058 | P1 | Gabion Chnl 10'W 6.5'D 2:1 SS | 2,180 | 950 |
| DCWA | | DUCK CREEK WASH | | |
| 1216 | P3 | Lower Duck Creek Detention Basin - 885 ac-ft | | 4,920 / 340 |
| 1216 | P3 | 146,590 cfs PMF Spillway | | 146,590 |
| 1216 | P3 | 54" Outlet Pipe | 250 | 340 |
| 1241 | P1 | Gabion Chnl 50'W 8'D 2:1SS | 4,650 | 3,860 |
| 1338 | P1 | Gabion Chnl 40'W 7.5'D 2:1SS | 1,250 | 3,260 |
| 1358 | E | 12' x 6' RCBC @ LV Blvd. | 120 | 815 |
| 1358 | P1 | Add 3: 12' x 6' RCBC @ LV Blvd | 120 | 2,445 |
| 1362 | P1 | Gabion Chnl 40'W 7.5'D 2:1SS | 750 | 3,260 |
| 1378 | P1 | Gabion Chnl 40'W 7'D 2:1SS | 2,500 | 3,260 |
| 1429 | E | 3: 12' x 4' RCBC | 200 | 3,260 |
| 1429 | P1 | 5: 9' x 6' RCBC | 200 | 3,260 |
| 1435 | P1 | Gabion Chnl 40'W 7'D 2:1SS | 850 | 2,690 |
| 1447 | P1 | 5: 9' x 6' RCBC | 60 | 2,690 |
| 1448 | P1 | 60" RCP | 8,300 | 320 |
| 1594 | P1 | 66" RCP | 3,100 | 320 |
| 1658 | P1 | 1,950 ac-ft Central Duck Detention Basin | | 6,950 / 195 |
| 1658 | P1 | 69,500 cfs PMF Spillway | | 69,500 |
| 1658 | P1 | 36" Outlet Pipe | 200 | 195 |
| 1658 | P1 | 6' Unlined Levee | 900 | 910 |
| 1669 | P1 | Concrete Chnl 45'W 7'D 2:1SS | 3,150 | 6,000 |
| 1716 | P1 | Concrete Chnl 45'W 6'D 2:1SS | 1,980 | 6,000 |
| 1753 | P1 | Concrete Chnl 45'W 7.5'D 2:1SS | 2,800 | 6,000 |
| 1808 | E | 5 Span Bridge 130'W 6' D | | 5,200 |
| 1811 | P1 | Concrete Chnl 40'W 6'D 2:1SS | 3,750 | 4,700 |
| 1884 | P1 | Gabion Chnl 45'W 7.5'D 2:1SS | 2,250 | 3,070 |
| 1929 | P1 | Gabion Chnl 45'W 6'D 2:1SS | 4,600 | 2,780 |
| 2018 | P1 | Gabion Chnl 25'W 6'D 2:1SS | 4,450 | 1,500 |
| IS15 | | INTERSTATE 15 | | |
| 0199 | E | 2 Span Bridge 24'W 4'D | | 480 |
| 0233 | E | 3 Span Bridge 36'W 4'D | | 510 |
| 0315 | E | 2 Span Bridge 24'W 4'D | | 1,140 |
| 0343 | E | 60" CMP Culvert | | 140 |
| 0359 | E | 3 Span Bridge 36'W 5'D | | 1,220 |
| 0424 | E | 60" CMP Culvert | | 140 |
| 0450 | E | 60" CMP Culvert | | 140 |
| 0490 | E | 4 Span Bridge 48'W 4'D | | 445 |
| TRBD | | BLUE DIAMOND CHANNEL | | |
| 0665 | P1 | Conc Chnl 4'D 10'W 2:1 SS | 14,000 | 500 |

| ID/ River Mile | E/P | Facility Description | Facility Length (ft) | Flow (cfs) |
|---|---|---|---|---|
| UPRR | | UNION PACIFIC RAILROAD | | |
| 0171 | E | 3 Span Bridge 36'W 8'D | | 750 |
| 0181 | E | 13' x 3.5' RCB Culvert | | 750 |
| 0210 | E | 2 Span Bridge 24'W 4'D | | 1,500 |
| 0303 | E | 2: 8' x 6' RCB Culverts | | 320 |
| 0331 | E | 2: 6' x 4' RCB Culverts | | 120 |
| 0471 | E | 2: 36" CMP Culverts | | 160 |
| 0511 | E | 8' x 5' RCB Culvert | | 500 |
| 0534 | E | 2: 36" RCP Culverts | | 160 |
| 0555 | E | 2: 24" RCP Culverts | | 160 |
| 0593 | E | 3 Span Bridge 40'W 7'D | | |

Figure 6B

PROPOSED FACILITIES

EXISTING FACILITIES

I-15 WIDENING DESIGNATIONS

GRAPHIC SCALE

200 0 100 200 400 800

( IN FEET )
1 inch = 400 ft.

NORTH
SCALE: 1" = 400'

I-151

DCWA 1429
3: 12' x 4' RCBC

I-152

IS15 0199
2 Span Bridge 24'W 4'D

I-153

IS15 0233
3 Span Bridge 36'W 4'D

INTERSTATE I-15

DCWA 1378
GABION CHANNEL
40'W 7'D 2:1SS

PROPOSED
10'X6' ARCH CULVERT

PROPOSED
16X7' ARCH CULVERT

ENSWORTH STREET

PROPOSED
14'x7' ARCH. PIPE

PARVIN STREET

CACTUS AVENUE

RUSH AVENUE

FRIAS AVENUE

HALEH AVENUE

KYLE AVENUE

JO RAE AVENUE

LANDBERG AVENUE

SILVERADO RANCH PARKWAY

SUBJECT SITE

DCWA 1362
GABION CHANNEL
40'W 7.5'D 2:1SS

BD01 0012
GABION CHANNEL
15'W 4.5'D 2:1SS

GABRIEL STREET

PROPOSED
16'x5' ARCH. PIPE

LEBAR

BDO1 0010
2: 6' X 5' RCBC @ LV Blvd.

PROPOSED
(3) 7'x5' BOX CULVERTS

12'X6' EX. CONC.
BOX CULVERT

(3) 10'x5' EX. CONC.
BOX CULVERT

PROPOSED
16'X7' ARCH CULVERT

PROPOSED
24'X8' ARCH CULVERT

LAS VEGAS BOULEVARD SOUTH

PROPOSED
(3)"9'x5' BOX CULVERTS

PROPOSED CACTUS
AVE. COLLECTION FACILITY

DCWA 1358
Add 3: 12' x 6' RCBC @ LV Blvd.

Figure 1

| NO. | DESCRIPTION | DATE | APP'D |
|---|---|---|---|

DATE : 5/31/2001
PM :
DRAWN BY :
DESIGNED BY :
CHECKED BY :
ADA CHECKED :
JOB NO. : 0288.0040
SCALE :

PENTACORE
CIVIL ENGINEERING - LAND SURVEYING - PLANNING
CONSTRUCTION MANAGEMENT - ADA CONSULTING
6763 WEST CHARLESTON BOULEVARD
LAS VEGAS, NEVADA 89146 (702)258-0115

GREEN PARK HOLDINGS, LLC

CCRFCD MPU FACILITIES

SHEET 1 OF 1

G:\0288\0040\exhibits\PROP-mpu-facilities.dwg dannaw Thu, 31 May 2001 - 5:45pm

Proposed Facilities Across The Subject Site

A proposed 15-foot wide, 4.5-foot depth, 2:1 side sloped Gabion Channel (CCRFCD facility BD01 0012) will convey flows, from (CCRFCD local facility IS15 0233), easterly across the site and exit through two proposed 6' x 5' Reinforced Concrete Box Culverts at Las Vegas Boulevard (CCRFCD facility BD01 0010).

Five additional 9' x 6' Reinforced Concrete Box Culverts are proposed to be added to the existing unidentified 3-12' x 4' Reinforced Box Culverts at Cactus and I-15 (CCRFCD facility DCWA 1429) to deliver flows originating west of Interstate I-15. This flow is then proposed to be carried by a 40-foot width, 7-foot depth, 2:1 side sloped Gabion Channel (CCRFCD) facility DCWA 1378) that transitions downstream to a depth of 7.5 foot depth (CCRFCD) facility DCWA 1362). This flow will exit through one existing 12' x 6' Reinforced Box Culvert and three proposed 12' x 6' Reinforced Concrete Box Culverts (CCRFCD facility DCWA 1358).

It is our intention that the proposed arch culvert storm drains will replace or supplement the proposed MPU facilities. CCRFCD facility BD01 0012 will be replaced by our north box facility. The north arch culvert is designed to convey 5,080 cfs. Currently, the proposed CCRFCD facility at this location is planned to convey only 500 cfs.

The south box facility is designed to convey a combined flow of 4,343 cfs. Currently the proposed CCRFCD facility at this location is planned to convey only 3,260 cfs. Our facility is more than adequately sized for the future condition of 3,260 cfs. A portion of the arch system will have to be extended west to I-15 in the future (by CCRFCD or others). Cactus Avenue right-of-way will be available for this extension. The flow being conveyed by these Master Plan facilities will eventually reach the existing Lower Duck Detention Basin. Once this study is approved, a CCRFCD Master Plan Update revision will be required to show the revised conveyance facilities and alignments. It should be noted that by constructing the proposed facilities, Greenpark would have provided an

important part of the master planned infrastructure at no cost to CCRFCD or the Public. The proposed development of this site is in compliance with the Clark County Regional Flood Control District Master Plan Update (Ref 5).

## 2.5 Previous Drainage Studies

The offsite drainage areas have been previously analyzed by the approved "*Pittman Wash F.I.S. Restudy" (Ref 7),* and the recently submitted FIS study "*Duck Creek / Blue Diamond Washes FIS Restudy*" by G.C. Wallace (Ref 8). The onsite area was analyzed in the approved "Duck Creek Hydrologic Unit F.I.S. Restudy" (Ref 9). Both studies have been reviewed and conceptually agreed with for this study.

# 3.0 PROPOSED DRAINAGE FACILITIES

## 3.1 General Description

The purpose of this study is to support the design of storm water conveyance facilities that are needed to mitigate the negative impact on the subject site caused by the significant flows from offsite basins. It is expected that these proposed facilities will provide the same function as the facilities identified in the MPU. This study is not intended to address any onsite development activity beyond the previously described storm water conveyance facilities, nor is it intended to support perimeter street improvements. Further technical studies will be needed to support those improvements.

North Box Drainage Improvements

The north box flows will be collected at Parvin Street. The natural topography is such that the existing flows will be centered at the intersection of Parvin Street and Jo Rae Avenue. This flow will be allowed to weir over the eastern curb into two parallel collector channels. Parvin street is the exact location of the G.C. Wallace FIS study cross section 26000. The weir places the flow at critical while the existing section is subcritical. This results in a reduction of the water surface elevation at this point.

FIS Section WSE = 2266.46 Greenpark Weir WSE = 2266.22

The flows that weir into each of the collection channels were calculated to be 2492 cfs in the south channel and 2588 cfs in the north channel. The collection channels merge together after both flows have been turned east. A wall separates the flows until the flows are going in the same direction. A review of the collection channels hydraulics shows that the channels HGL and EGL are contained within the channel and are lower than the

weir crest in Parvin Street. The hydraulics through the collector channels was modeled using HEC-RAS. This analysis was compared to two other methodologies to determine accuracy. The first was a weir calculation at the confluence. This calculation showed a weir height of 2263.70. Another check was performed using the spillway analysis as outlined in the Bureau of Reclamation's ***Design of Small Dams*** *(Ref 10).* The calculations contained within the book outline how to design a side channel spillway. The crux of the design procedure involves determining the depth at a control section (20-00) and calculating the losses as you move up the collection channel. We have included the calculations and a copy of the pertinent section from the ***Design of Small Dams***. The result of the calculations is a water surface that is approximately 1 foot higher then calculated by the HEC-RAS. The channel as designed will contain the higher water surface elevation with applicable freeboard. The water surface at the low point in Parvin Street is higher then the TC that was used as the weir crest. This will not effect the operation of the weir, as the channel flow depth is less then 2/3 of the crest height (per ***Design of Small Dams)***. These calculations are intended to be a back up to the HEC-RAS analysis. The numbers from the HEC-RAS analysis are still being used to set the HGL's in the collection system

The north box continues east toward Las Vegas Boulevard. Approximately 500 east of the confluence the flow will be collected in two arch-culverts. These arch culverts are then transitioned into a set of NDOT standard box culverts under Las Vegas Boulevard. The transition will end outside of the NDOT right-of-way and the flow will be released in the historical flow path (Please table in the appendix for all cross section comparisons).

South Box Drainage Improvements

The South Box Drainage Improvements generally applies to the proposed facilities that run west to east along Cactus Avenue and then turn north along the western edge of the Las Vegas Boulevard right of way. The South Box drainage improvements consist of two parallel drainage

systems that we will identify as "South Box A" and "South Box B" for discussion purposes within this study.

"South Box A" consists of proposed facilities that connect to two existing storm drain facilities under I-15 adjacent to the southern portion of the subject site. The southern most existing facility under I-15 consists of three 12' x 4' RCB's. The proposed improvements consists of extending the three 12' x 4' RCB's already in place under Interstate I-15. The existing boxes will be extended (approx. 170 ft) to the limits of the (NDOT) right-of-way. Once outside of the NDOT right-of-way the boxes will be transitioned, over a length of 160 ft, to a 16' x7' arch culvert. The alignment of the proposed facility will be curved to get the proposed facility within the future Cactus Avenue right of way.

This arch culvert will be joined by another arch culvert (10' x 6' arch culvert). This 10' x 6' arch culvert that connects into the 16' x 7' arch culvert will convey flows from the other existing drainage facility under I-15 that is located approximately 1000 linear feet north of Cactus Avenue. The existing facility consists of two 12' x 4' RCB already in place under Interstate I-15. The proposed improvements include extending the existing boxes (approx. 107 ft) to the limits of the NDOT right-of-way. Once outside of the NDOT right-of-way the boxes will be transitioned, over a length of 112 t, to a 10' x 6' arch culvert. This 10' x 6' arch culvert will join the 16' x 7' arch culvert with an entrance angle of less than 12 degrees. South box A will follow along Cactus Avenue and will curve north along side of Las Vegas Boulevard crossing. At Las Vegas Boulevard the 16' x 7' arch culvert will be transitioned into three 7' x 5' RCB. The transition will end outside of the NDOT right-of-way. The three 7' x 5' RCB will cross under Las Vegas Boulevard and the flow will be released in the historical flow path. Grouted rip-rap and cut-off walls have been placed at the outlet (See appendix for rip-rap sizing).

South Box B consists of a 24' x 8' arch culvert. The flow that enters this culvert will be from the Cactus Avenue Collector. A large, natural swale to the south is the obvious path of the offsite flows. This existing swale can be seen on aerial photographs (See Figure 11, Aerial Photo) and on

field visits. The natural swale fans out and becomes less defined as it approaches Cactus Avenue. Besides viewing aerials and performing field visits, we prepared a normal depth calculation that showed that flow will be contained in the swale and will impact the proposed collection facility. The Cactus Avenue Collector will collect the 2,543-cfs that impacts Cactus Avenue from the south. The flows from the south will flow in its existing condition across an out parcel at the intersection of Cactus Avenue and Las Vegas Boulevard and into the concrete lined collection channel. The channel will route the flow east into a 24' x 8' arch culvert. South box B continues north until it reaches an existing Las Vegas Boulevard crossing. At Las Vegas Boulevard the 24' x 8' arch culvert will be transitioned into three 10' x 5' RCB. The transition will end outside of the NDOT right-of-way. The three 10' x 5' RCB will cross under Las Vegas Boulevard and the flow will be released in the historical flow path (Please table in the appendix for all cross section comparisons).

3.2 Compliance with Regulations and Adopted Plans

The proposed storm facilities will alter two adopted plans. These plans include the CCRFCD Las Vegas Master Plan Update and the FEMA flood plain map as proposed in accompanying FIS study.

The changes to the Las Vegas Master Plan consist of building the majority of the proposed future facilities that cross the site. The facilities will be a different design than was previously anticipated and along a slightly different alignment. It should be noted that by constructing the proposed facilities, Greenpark would have provided an important part of the master planned infrastructure at no cost to CCRFCD or the public. The proposed development of this site is in compliance with the Clark County Regional Flood Control District Master Plan Update (Ref 5).

The FEMA floodplain will be remapped as a part of the CCRFCD Duck Creek FIS restudy. Once the CLOMR is approved our client will construct the facilities and apply for a LOMR. It is anticipated that the LOMR will change the flood zone designation across the entire site to a zone "x" with

a designation, which shows the flows contained within the storm drain facilities.

## 3.3 Facility Design Calculations

A WSPGW analysis has been performed for all underground storm drains within the site and all open channel analysis has been performed using HEC-RAS. Each of the models input and output data can be found in the appendix. The "North Box", which carries 5080 cfs, delivers flow from I-Parvin Street to Las Vegas Blvd. The north box system consists of a HEC-RAS analysis for the collector channel and open channel, WSPGW for the portion of the system that is underground, and HEC-RAS for the outlet of the system and the tie in to the FIS study.

The run for "South Box A", also delivers flow from I-15 to Las Vegas Blvd., but across the southern portion of the site. This system carries an initial flow of 1336 cfs, and collects 482 cfs from the "South Box A Lateral". This combined flow of 1808 cfs is contained through the system to the outlet. The "South Box B" system (24' x 8' arch) is structurally connected (no flow exchange between systems) to "South Box A", which leads to a common outlet for the two systems.

The run for "South Box A Lateral" conveys 482 cfs. The outlet water surface elevation for the South Box A Lateral was determined from the "South Box A" results.

The "South Box B" analysis conveys flows impacting the site from the south. The flow is completely contained inside the structure after all of the flow is introduced. The outlet water surface was determined by using the HEC-RAS and iterating to a WSE that was consistent with both analyses.

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

1. The major offsite flows impacting the project site can be safely conveyed around and through the subject site via the proposed storm drain facilities and open channels. The proposed storm drains will collect flow from the culvert crossings under I-15, and the flows that impact Cactus Road from the south (flow comes from under Lake Mead Boulevard). All the flows will be collected into the proposed arch culverts and be conveyed to Las Vegas Boulevard. The flows will be released on the east side of Las Vegas Boulevard in the approximate location of the historic flows.

2. Hydrology was based on the HEC-1 computer model as determined in the G.C. Wallace FIS study (Volume 1) and on generally accepted engineering practices in accordance with the Drainage Criteria Manual.

3. A considerable portion of the site is located within a Special Flood Hazard Zone. It is expected that the limits of all the flood zones on the site will be substantially revised as a result of the pending F.I.S. restudy. The F.I.S. study will also include a CLOMR for the proposed arch-culverts contained within the study.

4. The development of this site is in compliance with the Clark County Regional Flood Control District Flood Control Master Plan Update.

5. Additional technical drainage studies will be required to support the design of any onsite development and perimeter streets. Also numerous easements and dedications will have to be obtained prior to approval of these improvement plans.

6. Historically, the flows through the site have been collected at Las Vegas Boulevard. Due to elevated nature of Las Vegas Boulevard the flow would have had to pond up to considerable depth before weiring over. The proposed storm drain alleviated this condition by conveying all of the considerable offsite flows under Las Vegas Boulevard and releasing them back to the historical flow path.

## 5.0 REFERENCES


1. Department of Public Works, Clark County, Nevada, "Improvement Standards," 1993

2. U.S. Department of Agriculture, Soils Conservation Services, Technical Release 55, "Urban Hydrology for Small Watersheds," Washington, D.C. January 1975,

3. U.S. Department of Agriculture, Soils Conservation Services, "Soil Survey of Las Vegas Valley Area," July 1985

4. U.S. Army Corps of Engineers, "HEC-1 Flood Hydrograph Package," September 1981, Revised January 1985

5. PBS&J and VTN Nevada, Flood Control Master Plan Update of The Las Vegas Valley," February 1997.

6. Clark County Regional Food Control District, "Hydrologic Criteria and Drainage Design Manual," October 1990

7. Nimbus, "Pittman Was Flood Insurance Study Restudy," June 1995

8. G.C. Wallace "Duck Creek / Blue Diamond Washes FIS Restudy" March 2002

9. Michael Baker Jr., Inc., "Duck Creek Hydrologic Unit," August 1992

10. Bureau of Reclamation, "Design of Small Dams," 1987

11. CivilDesign, Inc., "User's Manual – Program Package WSPGW," 1994

12. U.S. Department of Commerce, "Design of Riprap Revetment," March 1989

□ □
HEC1 S/N: 1333000362 HMVersion: 6.40 Data File: duck5.txt

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**************************************
*                                    *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             SEPTEMBER 1990             *
*              VERSION 4.0               *
*                                        *
*  RUN DATE  03/21/2002  TIME  09:09:37  *
*                                        *
**************************************
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*                          *
*    U.S. ARMY CORPS OF ENGI
*    HYDROLOGIC ENGINEERING
*          609 SECOND STREET
*        DAVIS, CALIFORNIA 95
*            (916) 756-1104
*                          *
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X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
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:::                                      :::
:::  Full Microcomputer Implementation   :::
:::                by                    :::
:::        Haestad Methods, Inc.         :::
:::                                      :::
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37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUC
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSIO
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL  LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
          *DIAGRAM
*** FREE ***
    1     ID   DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
    2     ID   "G.C. WALLACE, INC. BY MJL"
    3     ID   DUCK5.XLS
    4     ID   "MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
    5     ID   "BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
    6     ID   UPDATED PRECIPITATION VALUES
    7     ID   % IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
    8     ID   ADDITIONAL DIVERSIONS ADDED
    9     ID   DESIGN STORM = 100-YEAR 6-HOUR STORM
   10     ID   STORM DISTRIBUTION = SDN5
          *
   11     ID     JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
   12     ID
   13     ID     AREA (SQUARE MILES)    DARF
   14     ID    12 - 16    0.832
   15     ID    16 - 20    0.804
   16     ID    20 - 30    0.765
   17     ID    30 - 40    0.725
   18     ID    40 - 50    0.695
   19     ID    50 -100    0.640
   20     ID    100 - 150    0.580
   21     ID    150 - 200    0.530
   22     ID
   23     IT       5        0        0     120
   24     IO       5        0        0
   25     JR    PREC   0.832   0.804   0.765   0.725   0.695   0.640   0.580    0.53
          *

   26     KK    B13A
   27     BA   1.290
   28     PB    3.14
   29     PC   0.000   0.020   0.059   0.080   0.110   0.144   0.150   0.160   0.168   0.171
   30     PC   0.180   0.182   0.187   0.190   0.197   0.202   0.210   0.220   0.230   0.241
   31     PC   0.250   0.259   0.265   0.280   0.290   0.300   0.305   0.309   0.310   0.317
   32     PC   0.321   0.327   0.333   0.346   0.361   0.381   0.408   0.430   0.477   0.514
   33     PC   0.561   0.630   0.710   0.720   0.731   0.752   0.779   0.790   0.795   0.804
   34     PC   0.810   0.820   0.826   0.840   0.859   0.889   0.910   0.938   0.966   0.970
   35     PC   0.974   0.979   0.981   0.983   0.985   0.989   0.990   0.992   0.993   0.996
   36     PC   0.997   0.999   1.000
   37     LS       0    88.0
   38     UD   0.680
          *

   39     KK   RB13A
   40     KM   ROUTE B13A TO PT1
   41     RM       7    0.64     0.1
          *
```

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  42      KK    B13B
  43      BA   0.538
  44      PB    2.96
  45      LS       0    88.0
  46      UD   1.440
          *

  47      KK     PT1
  48      KM   COMBINE BASINS B13A AND B13B
  49      HC       2
          *

  50      KK    RPT1
  51      KM   ROUTE PT1 TO PT2
  52      RM       3    0.28    0.15
          *

  53      KK     B17
  54      BA   0.816
  55      PB    2.80
  56      LS       0    88.0
  57      UD   0.940
          *

  58      KK     PT2
  59      KM   COMBINE PT1 AND BASIN B17
  60      HC       2
          *

  61      KK   DVBD2
  62      KM   "DIVERSION EAST THRU 2-36"" RCP'S AT UPRR LOCATED 300 FT SOUTH OF BLUE DIAMON
  63      DT   DVBD2
  64      DI       0     121     500    1000    1500    2000
  65      DQ       0     121     240     391     540     690
          *

  66      KK    RPT2
  67      KM   ROUTE BYPASS TO PT3
  68      RD    2000   0.008    0.03       0    TRAP      35       3
          *

  69      KK    B13C
  70      BA   2.005
  71      PB    2.82
  72      LS       0    88.1
  73      UD   0.510
          *

  74      KK     PT3
  75      KM   COMBINE BYPASS FROM DVBD2 AND BASIN B13C
  76      HC       2
          *
```

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  77      KK   DVBD3
  78      KM   DIVERSION EAST THRU 8'x4' RCB AT UPRR LOCATED 1700 FT NORTH OF BLUE DIAMOND
  79      DT   DVBD3
  80      DI       0     238     500    1000    1500    2000
  81      DQ       0     238     252     271     288     304
          *

  82      KK   RPT3A
  83      KM   ROUTE BYPASS FROM DVBD3 NORTH ALONG WEST SIDE OF UPRR TO UPPR CULVERT BD4
  84      KM   MUSKINGUM ROUTING UNSTABLE
  85      RD    1200   0.008    0.03       0    TRAP      35       3
          *

  86      KK   DVBD4
  87      KM   "DIVERSION EAST THRU 2-36"" RCP'S AT UPRR LOCATED 3000 FT NORTH OF BLUE DIAMO
  88      DT   DVBD4
  89      DI       0      97     500    1000    1500    2000
  90      DQ       0      97     149     202     252     296
          *

  91      KK   RPT3B
  92      KM   ROUTE BYPASS FROM DVBD4 NORTH ALONG WEST SIDE OF UPRR TO UPPR BRIDGE
  93      RM       1   0.119    0.15
          *

  94      KK    B11S
  95      KM   SOUTHERN PORTION OF BASIN B11 TIES INTO HYDRO1 BOUNDARY AREA
  96      BA   1.121
  97      PB    2.82
  98      LS       0    78.0
  99      UD   0.580
          *

 100      KK  HYDRO1
 101      KM   INFLOW HYDROGRAPH
 102      KM   "REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B."""
 103      KM   "SEE COMBINATION POINT C-5, DARF RATIO 0.98, OF HEC-1 FROM REFERENCED LOMR"
 104      BA   0.630
 105      QI       0       0       0       0       0       0       0       0       0       0
 106      QI       0       0       0       0       0       0       0       0       0       0
 107      QI       0       0       1       7      14      29      45      58      69      76
 108      QI      82      86      90      94      99     100     101     100     100     100
 109      QI     102     109     126     161     223     318     430     538     604     623
 110      QI     607     569     525     480     437     397     363     335     316     306
 111      QI     304     310     321     333     339     332     314     289     264     239
 112      QI     217     198     182     169     159     150     143     137     131     127
 113      QI     122     118     114     110     107     104     102     101     100      99
 114      QI      98      98      97      97      97      97      97      96      96      96
 115      QI      96      96      96      97      96      96      96      96      96      96
 116      QI      96      96      96      96      96      96      96      96      96      96
 117      QI      96      96      96      96      96      96      96      96      96      96
 118      QI      96      96      96      96      96      96      96      96      96      96
 119      QI      96      96      96      96      96      96      96      96      96      96
 120      QI      96      96      96      96      96      95      95      95      95      95
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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
  121         QI      95      95      95      95      95      95      95      95      95      95
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  123         QI      95      95      95      95      95      95      95      95      95      95
  124         QI      95      95      95      95      95      95      95      95      95      95
  125         QI      95      95      95      95      95      95      95      95      95      95
  126         QI      95      95      95      95      95      95      95      95      95      95
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  128         QI      95      95      94      94      94      94      94      94      94      94
  129         QI      94      94      94      94      94      94      94      94      94      94
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  131         QI      94      94      94      94      94      94      94      94      94      94
  132         QI      94      94      94      94      94      94      94      94      94      94
  133         QI      94      94      94      94      94      94      94      94      94      94
  134         QI      94      94      94      94      94      94      94      94      94      94
              *

  135         KK     PT4
  136         KM    "COMBINE BASIN B11S, HYDRO2, AND BYPASS FROM DVBD4"
  137         KM    SEE COMBINATION POINT C-5 OF HEC-1 FROM REFERENCED LOMR
  138         KM    "PT C-5 REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B.
  139         HC        3
              *

  140         KK    RPT4A
  141         KM    ROUTE PT4 TO DIVERSION DVBD7
  142         RM        3    0.22    0.15
              *

  143         KK    DVBD7
  144         KM    DIVERSION NORTH TO NORTH BRANCH BLUE DIAMOND WASH
  145         KM    DIVERSION LOCATED NEAR INTERSECTION OF HINSON AND WINDMILL
  146         KM    "REFERENCED FROM BLUE DIAMOND/I-15 INTERCHANGE REPORT, BY PBS&J, JAN 2001"
  147         DT    DVBD7
  148         DI        0    1200    1500    1800    2100    2400    2700    3000
  149         DQ        0     800    1000    1200    1400    1600    1800    2000
              *

  150         KK    RPT4B
  151         KM    ROUTE BYPASS TO PT22W
  152         RM        1    0.11    0.15
              *

  153         KK     B14B
  154         BA    0.992
  155         PB     2.77
  156         LS        0    73.4     9.0
  157         UD    0.42
              *

  158         KK    PT22W
  159         KM    COMBINE PT4 AND BASIN B14B
  160         HC        2
              *
```

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  161     KK   D012A
  162     BA  10.211
  163     PB   2.95
  164     LS      0    83.0
  165     UD   1.320
          *

  166     KK  RD012A
  167     KM   ROUTE BASIN D012A TO I15 CULVERT 3 - 12'x4' RCB'S (DCWA 1429)
  168     KM   MUSKINGUM ROUTING UNSTABLE
  169     RD    750   0.007   0.030       0    TRAP      65      10
          *

  170     KK  DVI151
  171     KM   DIVERSION EAST THRU I15 CULVERT 3 - 12'x4' RCB'S (DCWA 1429)
  172     DT  DVI151
  173     DI       0     993    1305    1778    2400    3146
  174     DQ       0     992    1100    1200    1298    1389
          *

  175     KK   RI151
  176     KM   ROUTE BYPASS FROM 3 - 12'x4' RCB'S TO I15 BRIDGE 24'x4' (IS15 0199)
  177     RM       1   0.071   0.150
          *

  178     KK  DVI152
  179     KM   DIVERSION EAST THRU I15 BRIDGE 24'x4' (IS15 0199)
  180     DT  DVI152
  181     DI       0     128     466     929    1506    2268    3133    3815
  182     DQ       0      47     190     362     550     733     896    1040
          *

  183     KK   RI152
  184     KM   ROUTE BYPASS FROM I15 BRIDGE 24'x4' TO I15 BRIDGE 36'x4' (IS15 0233)
  185     RM       1   0.123   0.150
          *

  186     KK    D01
  187     BA  9.536
  188     PB   3.42
  189     LS      0    83.0
  190     UD  1.000
          *

  191     KK   RD01
  192     KM   ROUTE BASIN D01 TO PT9
  193     RM       3    0.64   0.150
          *
```

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 194          KK    D005
 195          BA   2.732
 196          PB    3.27
 197          LS       0     82.0
 198          UD   0.750
              *

 199          KK     PT9
 200          KM   COMBINE BASINS D01 AND D005
 201          HC       2
              *

 202          KK   RD005
 203          KM   ROUTE BASIN D005 TO PT12
 204          RM       1      0.2    0.150
              *

 205          KK     D02
 206          BA   5.915
 207          PB    3.44
 208          LS       0     83.0
 209          UD   1.030
              *

 210          KK    RD02
 211          KM   ROUTE BASIN D02 TO PT11
 212          RM       3     0.62    0.150
              *

 213          KK     D03
 214          BA  11.991
 215          PB    3.42
 216          LS       0     83.0
 217          UD   0.960
              *

 218          KK     D04
 219          BA   6.950
 220          PB    3.37
 221          LS       0     84.0
 222          UD   1.060
              *

 223          KK    PT10
 224          KM   COMBINE BASINS D03 AND D04
 225          HC       2
              *

 226          KK   RPT10
 227          KM   ROUTE PT10 TO PT11
 228          RM       3     0.82    0.150
              *
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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 229          KK    D006
 230          BA   8.518
 231          PB    3.24
 232          LS       0    83.0
 233          UD   0.850
              *

 234          KK    PT11
 235          KM   "COMBINE PT10, BASINS D002 AND D006"
 236          HC       3
              *

 237          KK   RPT11
 238          KM   ROUTE PT11 TO PT12
 239          RM       1    0.18   0.150
              *

 240          KK     D2A
 241          BA   0.988
 242          PB    3.16
 243          LS       0    84.0
 244          UD   0.280
              *

 245          KK    PT12
 246          KM   "COMBINE PT9, PT11 AND BASIN D2A"
 247          HC       3
              *

 248          KK   RPT12
 249          KM   ROUTE PT12 TO PT13
 250          RM       3    0.83   0.150
              *

 251          KK     D2B
 252          BA   7.503
 253          PB    3.06
 254          LS       0    80.1
 255          UD   1.180
              *

 256          KK    PT13
 257          KM   COMBINE PT12 AND BASIN D2B
 258          HC       2
              *

 259          KK   RPT13
 260          KM   ROUTE PT13 TO PT14
 261          RM       4     0.9   0.100
              *
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  262     KK     D06
  263     BA  11.677
  264     PB    3.21
  265     LS       0    84.0
  266     UD   1.190
          *

  267     KK    RD06
  268     KM   ROUTE BASIN D06 TO PT14
  269     RM       3    0.78   0.150
          *

  270     KK      D3
  271     BA   6.637
  272     PB    2.90
  273     LS       0    77.0
  274     UD   1.130
          *

  275     KK    PT14
  276     KM   "COMBINE BASINS D3, D06, PT13, AND BYPASS FROM I-15 CULVERT, I152 (IS15 0199)
  277     HC       4
          *

  278     KK  DVI153
  279     KM   DIVERSION EAST THRU I15 BRIDGE 36'x4' (IS15 0233)
  280     DT  DVI153
  281     DI    1910    3220    6620    8040    8770    9390   10030   10740
  282     DQ    1190    1450    3280    4130    4550    5000    5470    5990
          *

  283     KK   RPT14
  284     KM   ROUTE BYPASS FROM I15 BRIDGE 36'x4' TO I15 BRIDGE 24'x4' (IS15 0315)
  285     RM       6   0.484   0.150
          *

  286     KK     D1A
  287     BA   2.290
  288     PB    3.25
  289     LS       0    83.0
  290     UD   0.830
          *

  291     KK    RD1A
  292     KM   ROUTE BASIN D1A TO PT15
  293     RM       2    0.17   0.150
          *

  294     KK     D1B
  295     BA   0.316
  296     PB    3.10
  297     LS       0    84.0
  298     UD   1.060
          *
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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  299         KK    PT15
  300         KM   COMBINE BASINS D1A AND D1B
  301         HC       2
              *

  302         KK   RPT15
  303         KM   ROUTE PT15 TO PT16
  304         RM       4     0.33   0.150
              *

  305         KK     D1C
  306         BA   0.565
  307         PB    2.97
  308         LS       0     83.0
  309         UD   1.290
              *

  310         KK    PT16
  311         KM   COMBINE PT15 AND BASIN D1C
  312         HC       2
              *

  313         KK   RPT16
  314         KM   ROUTE PT16 TO PT17
  315         RM       3     0.26   0.150
              *

  316         KK     D1D
  317         BA   1.231
  318         PB    2.99
  319         LS       0     82.0
  320         UD   0.500
              *

  321         KK    RD1D
  322         KM   ROUTE BASIN D1D TO PT17
  323         RM       2     0.16   0.150
              *

  324         KK     D1E
  325         BA   0.224
  326         PB    2.83
  327         LS       0     81.5
  328         UD   1.060
              *

  329         KK     D1F
  330         BA   0.805
  331         PB    2.86
  332         LS       0     75.2
  333         UD   1.500
              *
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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 334          KK    PT17
 335          KM   "COMBINE PT16, BASINS D1D, D1E, AND D1F"
 336          HC       4
              *

 337          KK   RPT17
 338          KM   ROUTE PT17 TO PT18
 339          RM       6      0.5    0.100
              *

 340          KK    B18A
 341          BA   1.503
 342          PB    2.79
 343          LS       0     69.4      1.0
 344          UD   0.700
              *

 345          KK    PT18
 346          KM   "COMBINE PT17, BASIN B18A, AND BYPASS FROM PT14 (IS15 0233)"
 347          HC       3
              *

 348          KK  DVI154
 349          KM   DIVERSION EAST THRU I15 BRIDGE 24'x4' (IS15 0315)
 350          DT  DVI154
 351          DI       0     2318     4128     5274     6452     7636     8617     9479
 352          DQ       0     1040     1205     1252     1297     1341     1373     1404
              *

 353          KK   RPT18
 354          KM   ROUTE BYPASS FROM I15 BRIDGE 24'x4' TO I15 BRIDGE 36'x5' (IS15 0359)
 355          RM       1    0.113    0.150
              *

 356          KK    B18B
 357          BA   1.916
 358          PB    2.77
 359          LS       0     86.4
 360          UD   0.640
              *

 361          KK   DVBD2
 362          KM   RETURN FLOW PASSING THRU UPPR CULVERT AT PT2 (UPRR 0471)
 363          DR   DVBD2
              *

 364          KK  RDVBD2
 365          KM   ROUTE DVBD2 TO PT19
 366          RM       6     0.52    0.100
              *
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  367     KK    PT19
  368     KM   "COMBINE BASIN B18B, DVBD2, AND BYPASS FROM PT18"
  369     HC       3
          *

  370     KK  DVI155
  371     KM   DIVERSION EAST THRU I15 BRIDGE 36'x5' (IS15 0359)
  372     DT  DVI155
  373     DT       0    2716    3378    4083    4548    4960    5791    6843
  374     DQ       0    1980    2192    2367    2531    2651    3141    3890
          *

  375     KK   RPT19
  376     KM   ROUTE BYPASS AT PT19 TO PT21
  377     RM       8   0.641   0.150
          *

  378     KK    B14A
  379     BA   1.351
  380     PB    2.77
  381     LS       0    88.0     5.0
  382     UD   0.400
          *

  383     KK  RDVBD3
  384     KM   "RETURN FLOW PASSING THRU UPPR CULVERT AT PT3, BD3 (UPRR 0511)"
  385     DR   DVBD3
          *

  386     KK  RDVBD4
  387     KM   "RETURN FLOW PASSING THRU UPPR CULVERT, BD4 (UPRR 0534)"
  388     DR   DVBD4
          *

  389     KK    PT20
  390     KM   COMBINE DVBD3 AND DVBD4
  391     HC       2
          *

  392     KK  RDVBD4
  393     KM   ROUTE PT20 TO PT21
  394     RM       6    0.51   0.100
          *

  395     KK    PT21
  396     KM   "COMBINE PT20, BASIN B14A, AND BYPASS FROM PT19"
  397     HC       3
          *
```

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 398          KK    PT22
 399          KM   COMBINE PT21 AND PT22W
 400          HC       2
              *

 401          KK   RPT22
 402          KM   ROUTE PT22 TO PT23
 403          RM       4      0.3   0.100
              *

 404          KK    B15B
 405          BA   0.954
 406          PB    2.77
 407          LS       0    75.0    13.0
 408          UD    0.71
              *

 409          KK    PT23
 410          KM   COMBINE PT22 AND BASIN B15B
 411          HC       2
              *

 412          KK RDVI151
 413          KM   RETURN FLOW PASSING THRU I151 (DCWA 1429)
 414          DR  DVI151
              *

 415          KK RDVI151
 416          KM   ROUTE DVI151 TO PT24
 417          RM       1   0.099   0.150
              *

 418          KK RDVI152
 419          KM   RETURN FLOW PASSING THRU I152 (IS15 0199)
 420          DR  DVI152
              *

 421          KK RDVI152
 422          KM   ROUTE DVI152 TO PT24
 423          RM       1   0.089   0.150
              *

 424          KK    PT24
 425          KM   COMBINE DVI151 AND DVI152
 426          HC       2
              *

 427          KK   RPT24
 428          KM   ROUTE PT24 TO PT25
 429          RM       1   0.086   0.150
              *
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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 430          KK    D009
 431          BA   3.621
 432          PB    3.31
 433          LS       0     83.0
 434          UD   0.510
              *

 435          KK   RD009
 436          KM   ROUTE BASIN D009 TO PT5
 437          RM       1      0.1      0.1
              *

 438          KK    D004
 439          BA   2.400
 440          PB    3.30
 441          LS       0     85.0
 442          UD   0.700
              *

 443          KK     PT5
 444          KM   COMBINE BASINS D009 AND D004
 445          HC       2
              *

 446          KK    RPT5
 447          KM   ROUTE PT5 TO PT6
 448          RM       2     0.44     0.15
              *

 449          KK     D08
 450          BA  11.912
 451          PB    3.28
 452          LS       0     85.0
 453          UD   1.650
              *

 454          KK     PT6
 455          KM   COMBINE PT5 AND BASIN D08
 456          HC       2
              *

 457          KK    RPT6
 458          KM   ROUTE PT6 TO PT7
 459          RM       3     0.81    0.150
              *

 460          KK    D010
 461          BA  10.434
 462          PB    3.15
 463          LS       0     84.0
 464          UD   1.050
              *
```

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 465          KK     D07
 466          BA   4.280
 467          PB    3.20
 468          LS       0     84.0
 469          UD   1.100
              *

 470          KK     PT7
 471          KM   "COMBINE PT6, BASINS D010 AND D07"
 472          HC       3
              *

 473          KK    RPT7
 474          KM   ROUTE PT7 TO PT8
 475          RM       3   0.224   0.150
              *

 476          KK   D012B
 477          BA   0.566
 478          PB    2.77
 479          LS       0     83.0
 480          UD   0.642
              *

 481          KK     PT8
 482          KM   COMBINE BASIN D012B AND PT7
 483          HC       2
              *

 484          KK  DVPITT
 485          KM   DIVERSION EAST ACROSS LAS VEGAS BLVD. TO PITTMAN WATERSHED - DOES NOT RETURN
 486          KM   REFERENCED FROM 1995 PITTMAN WASH FIS RESTUDY BY NIMBUS
 487          KM   "MODIFIED TO RETAIN 10% OF ACTUAL DIVERTED FLOW TO DIVERT LATER AT ""DVROSE""
 488          DT  DVPITT
 489          DI       0     3586     3710     3835     3961     5795     7737
 490          DQ       0     1554     1618     1681     1747     2774     3933
              *

 491          KK  DVROSE
 492          KM   DIVERSION NORTH ACROSS ST. ROSE PARKWAY (FORMERLY LAKE MEAD DRIVE)
 493          KM   DIVERSION BYPASSES LDCDB VIA BASIN D5A AND COMBINES AT PT29
 494          KM   REFERENCED FROM 1995 PITTMAN WASH FIS RESTUDY BY NIMBUS
 495          DT  DVROSE
 496          DI       0     1673     1721     1770     2214     3021     3803
 497          DQ       0      359      371      384      396      579      774
              *

 498          KK    RPT8
 499          KM   ROUTE BYPASS FROM DVROSE AT PT8 TO PT25
 500          RM       6     0.49   0.150
              *
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 501      KK     D4A
 502      BA   1.873
 503      PB    2.80
 504      LS       0     83.8      0.0
 505      UD   0.245
          *
          *    THE FOLLOWING COMBINE POINT IS ADDED TO CLARIFY THE EXISTING FLOWS
          *    BETWEEN LAS VEGAS BLVD AND PT25(B)

 506      KK   PT25A COMBINES FLOWS WEST OF LAS VEGAS BLVD
 507      KM   "COMBINE PT24, BASIN D4A, AND BYPASS FROM PT8"
 508      HC       3
          *
          *

 509      KK RDVI153
 510      KM   RETURN FLOW PASSING THRU I153 AT PT14 (IS15 0233)
 511      DR  DVI153
          *

 512      KK RDVI153
 513      KM   ROUTE DVI153 TO PT25
 514      RM       1   0.112   0.150

 515      KK   RPT25
 516      KM   ROUTE PT25 TO PT26
 517      RM       1   0.099   0.150
          *

 518      KK   PT25B
 519      KM     COMBINE PT25A AND DVI153
 520      HC       2
          *

 521      KK     D4B
 522      BA   2.033
 523      PB    2.80
 524      LS       0     83.8      8.0
 525      UD   0.243
          *

 526      KK    PT26
 527      KM   COMBINE PT25 AND BASIN D4
 528      HC       2
          *

 529      KK   RPT26
 530      KM   ROUTE PT26 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
 531      RM       1   0.083   0.150
          *
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  532     KK RDVI154
  533     KM   "RETURN FLOW PASSING THRU I15 BRIDGE, I154 (IS15 0315)"
  534     DR  DVI154
          *

  535     KK RDVI154
  536     KM   ROUTE DVI154 TO LAS VEGAS BLVD.
  537     RD    2700   0.007   0.015       0    TRAP      25       2
          *

  538     KK RDVI154
  539     KM   ROUTE DVI154 FROM LAS VEGAS BLVD. TO PT27
  540     KM   "2-78"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
  541     RD    1300   0.017   0.015       0    TRAP      28       0
          *

  542     KK RDVI155
  543     KM   "RETURN FLOW PASSING THRU I15 BRIDGE, I155 (IS15 0359)"
  544     DR  DVI155
          *

  545     KK RDVI155
  546     KM   ROUTE DVI155 TO AGATE AVENUE
  547     RD    1100    0.01   0.040       0    TRAP      15       3
          *

  548     KK RDVI155
  549     KM   ROUTE DVI155 FROM AGATE AVENUE TO LAS VEGAS BLVD.
  550     KM   "3-10'x5' RCB, INCLUDES PORTION OF TRAP CHANNEL"
  551     RD    1530    0.01   0.015       0    TRAP      30       0
          *

  552     KK RDVI155
  553     KM   ROUTE DVI155 FROM LAS VEGAS BLVD. TO PT27
  554     KM   "2-96"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
  555     RD     800   0.006   0.015       0    TRAP      35       0
          *

  556     KK RDVI155
  557     KM   ROUTE DVI155 FROM LAS VEGAS BLVD. TO PT27
  558     KM   "2-84"" CMP (EQUIVALENT RECTANGULAR CHANNEL DETERMINED BY COMPARING VELOCITY)
  559     RD    1100   0.012   0.015       0    TRAP      30       0
          *

  560     KK    PT27
  561     KM   COMBINE DVI154 AND DVI155
  562     HC       2
          *
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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  563         KK   RPT27
  564         KM   ROUTE PT27 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
  565         KM   "3-96"" CIPCP (EQUIVALENT RECTANGULAR CHANNEL)"
  566         RD    1100   0.009   0.015       0    TRAP      56       0
              *

  567         KK   RPT27
  568         KM   ROUTE PT27 TO LOWER DUCK CREEK DETENTION BASIN (LDCDB)
  569         KM   3-8'x8' RCB (EQUIVALENT RECTANGULAR CHANNEL)
  570         RD     570   0.004   0.015       0    TRAP      24       0
              *

  571         KK    B18C
  572         BA   1.259
  573         PB    2.77
  574         LS       0    75.4    25.0
  575         UD   0.380
              *

  576         KK    PT28
  577         KM   "COMBINE PT26, PT27, AND BASIN B18C AT LDCDB"
  578         HC       3
              *

  579         KK   LDCDB
  580         KM   LOWER DUCK CREEK DETENTION BASIN
  581         RS       1    STOR       0
  582         SV       0     2.8    37.5   120.3     229     340   453.8     570     689     810
  583         SV     934    1061    1190
  584         SE    2183    2184    2186    2188    2190    2192    2194    2196    2198    2200
  585         SE    2202    2204    2206
  586         SQ       0     126     654    1825    3310    4310    5118    5815    6437    7004
  587         SQ    7528    8018    8480
  588         SE    2183    2184    2186    2188    2190    2192    2194    2196    2198    2200
  589         SE    2202    2204    2206
  590         KO       1
              *

  591         KK  RLDCDB
  592         KM   ROUTE THE OUTFALL FROM THE LOWER DUCK CREEK DETENTION BASIN TO PT29
  593         RD    1100   0.004   0.015       0    TRAP      46     1.5
              *

  594         KK     D5A
  595         BA   1.325
  596         PB    2.79
  597         LS       0    88.0    15.0
  598         UD   0.350
              *
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  599     KK    RD5A
  600     KM   ROUTE BASIN D5A TO PT29
  601     RM       1     0.12    0.150
          *

  602     KK RDVROSE
  603     KM   RETURN FLOW CROSSING ST. ROSE PARKWAY (FORMERLY LAKE MEAD DRIVE)
  604     DR  DVROSE
          *

  605     KK RDVROSE
  606     KM   ROUTE DIVERSION DVROSE TO PT29
  607     RM       6     0.49    0.150
          *

  608     KK    PT29
  609     KM   "COMBINE BASIN D5A, BYPASS FROM DVROSE, AND OUTFALL FROM LDCDB"
  610     HC       3
          *

  611     KK   RPT29
  612     KM   ROUTE PT29 TO PT30
  613     RD    1800   0.011   0.015       0    TRAP      46     1.5
          *

  614     KK    B16B
  615     BA   0.701
  616     PB    2.77
  617     LS       0    83.1    32.0
  618     UD   0.380
          *

  619     KK   RB16B
  620     KM   ROUTE BASIN B16B TO PT30
  621     RD    1900   0.008   0.015       0    TRAP       0      50
          *

  622     KK    PT30
  623     KM   COMBINE PT29 AND BASIN B16B
  624     HC       2
          *

  625     KK   RPT30
  626     KM   ROUTE PT30 TO PT31
  627     RD    2900   0.005   0.015       0    TRAP      20       3
          *

  628     KK    B16A
  629     BA   0.906
  630     PB    2.77
  631     LS       0    78.2    17.0
  632     UD   0.710
          *
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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  633         KK     D5B
  634         BA   0.602
  635         PB    2.77
  636         LS       0    82.8    46.0
  637         UD   0.710
              *

  638         KK    PT31
  639         KM   "COMBINE PT30, BASINS B16A AND D5B"
  640         HC       3
              *

  641         KK   RPT31
  642         KM   ROUTE PT31 TO PT32
  643         RD    3200   0.016   0.015       0    TRAP      15       1
              *

  644         KK    PT32
  645         KM   COMBINE PT23 AND PT31 AT DUCK CREEK/MIDDLE BRANCH BLUE DIAMOND CONFLUENCE
  646         HC       2
              *

  647         KK   RPT32
  648         KM   ROUTE PT32 TO PT34
  649         RD    2700   0.009   0.015       0    TRAP      70       2
              *

  650         KK  HYDRO2
  651         KM   INFLOW HYDROGRAPH
  652         KM   "PT C-11 REFERENCED FROM ""LOMR FOR AREA DOWNSTREAM OF UPPER BLUE DIAMOND D.B
  653         KM   "SEE COMBINATION POINT C-11, DARF RATIO 0.98 OF HEC-1 FROM REFERENCED LOMR"
  654         BA   0.380
  655         QI       0       0       0       0       0       0       0       0       0       0
  656         QI       0       0       0       0       0       0       0       0       0       0
  657         QI       0       0       0       0       0       0       0       0       0       0
  658         QI       0       0       0       0       0       0       0       0       0       0
  659         QI       0       0       1       3       5       9      14      19      23      27
  660         QI      30      32      33      33      32      31      29      28      27      27
  661         QI      27      27      32      36      36      35      33      31      29      26
  662         QI      24      22      20      19      17      16      15      14      13      12
  663         QI      11      10       9       8       8       7       6       6       5       5
  664         QI       4       4       4       3       3       3       3       3       2       2
  665         QI       2       2       2       2       2       2       1       1       1       1
  666         QI       1       1       1       1       1       1       1       1       1       1
  667         QI       1       1       1       1       1       1       1       0       0       0
  668         QI       0       0       0       0       0       0       0       0       0       0
  669         QI       0       0       0       0       0       0       0       0       0       0
  670         QI       0       0       0       0       0       0       0       0       0       0
  671         QI       0       0       0       0       0       0       0       0       0       0
  672         QI       0       0       0       0       0       0       0       0       0       0
  673         QI       0       0       0       0       0       0       0       0       0       0
  674         QI       0       0       0       0       0       0       0       0       0       0
  675         QI       0       0       0       0       0       0       0       0       0       0
  676         QI       0       0       0       0       0       0       0       0       0       0
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
 677      QI       0       0       0       0       0       0       0       0       0       0
 678      QI       0       0       0       0       0       0       0       0       0       0
 679      QI       0       0       0       0       0       0       0       0       0       0
 680      QI       0       0       0       0       0       0       0       0       0       0
 681      QI       0       0       0       0       0       0       0       0       0       0
 682      QI       0       0       0       0       0       0       0       0       0       0
 683      QI       0       0       0       0       0       0       0       0       0       0
 684      QI       0       0       0       0       0       0       0       0       0       0
          *

 685      KK RHYDRO2
 686      KM   ROUTE HYDRO2 TO PT33W
 687      RM       8    0.76   0.150
          *

 688      KK     B12
 689      BA   0.969
 690      PB    2.77
 691      LS       0    68.4     1.0
 692      UD   0.390
          *

 693      KK   PT33W
 694      KM   COMBINE HYDRO2 AND BASIN B12
 695      HC       2
          *

 696      KK  RDVBD7
 697      KM   "RETURN FLOW SPLIT, DVBD7, FROM MIDDLE BRANCH "
 698      DR   DVBD7
          *

 699      KK  RDVBD7
 700      KM   ROUTE DVBD7 TO PT33
 701      RM       2     0.2   0.150
          *

 702      KK    PT33
 703      KM   COMBINE PT33W AND DVBD7
 704      HC       2
          *

 705      KK   RPT33
 706      KM   ROUTE PT33 TO PT34W
 707      RM       4     0.3   0.100
          *

 708      KK    B15A
 709      BA   0.959
 710      PB    2.77
 711      LS       0    77.6    14.0
 712      UD   0.500
          *
```

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  713         KK   PT34W
  714         KM   COMBINE PT33 AND BASIN B15A
  715         HC       2
              *

  716         KK    PT34
  717         KM   COMBINE PT34W AND PT32
  718         HC       2
              *

  719         KK    MNWB
  720         BA   0.442
  721         PB    2.77
  722         LS       0     85.0      2.0
  723         UD   0.742
              *

  724         KK   RMNWB
  725         KM   ROUTE MNWB NORTH ALONG I15 TO PT35
  726         RD    2200   0.007   0.025        0    TRAP       20       10
              *

  727         KK    MNWC
  728         BA   0.596
  729         PB    2.77
  730         LS       0     85.0      7.0
  731         UD   0.738
              *

  732         KK    PT35
  733         KM   COMBINE BASINS MNWB AND MNWC
  734         HC       2
              *

  735         KK   RPT35
  736         KM   ROUTE PT35 TO PT36
  737         RM       1   0.055   0.150
              *

  738         KK    MNWD
  739         BA   0.078
  740         PB    2.77
  741         LS       0     85.0     13.0
  742         UD   0.321
              *

  743         KK    PT36
  744         KM   COMBINE PT35 AND BASIN MNWD
  745         HC       2
              *
```

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  746         KK   RPT36
  747         KM   ROUTE PT36 TO PT37
  748         RM       2   0.192   0.150
              *

  749         KK     MC2
  750         BA   0.919
  751         PB    2.77
  752         LS       0    74.9    28.0
  753         UD   0.873
              *

  754         KK    PT37
  755         KM   COMBINE PT36 AND BASIN MC2
  756         HC       2
              *

  757         KK   RPT37
  758         KM   ROUTE PT37 TO PT38
  759         RD    5200    0.01   0.015       0    TRAP      20       2
              *

  760         KK    B10A
  761         BA   1.601
  762         PB    2.77
  763         LS       0    74.9    32.0
  764         UD   0.217
              *

  765         KK    PT38
  766         KM   COMBINE PT37 AND BASIN B10A
  767         HC       2
              *

  768         KK   RPT38
  769         KM   ROUTE PT38 TO PT39
  770         RD    2100   0.002   0.015       0    TRAP      20       2
              *

  771         KK    PT39
  772         KM   COMBINE PT34 AND PT38
  773         HC       2
              *

  774         KK   RPT39
  775         KM   ROUTE PT39 TO PT40
  776         RD    2500   0.006   0.025       0    TRAP      70       2
              *
```

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 777          KK      D6
 778          BA   1.564
 779          PB    2.77
 780          LS       0    78.3    43.0
 781          UD   0.500
              *

 782          KK    PT40
 783          KM   COMBINE PT39 AND BASIN D6
 784          HC       2
              *

 785          KK   RPT40
 786          KM   ROUTE PT40 TO PT41
 787          RM       1    0.08   0.200
              *

 788          KK      D7
 789          BA   0.850
 790          PB    2.77
 791          LS       0    77.3    23.0
 792          UD   0.710
              *

 793          KK    PT41
 794          KM   COMBINE PT40 AND BASIN D7
 795          HC       2
              *

 796          KK   RPT41
 797          KM   ROUTE PT41 TO PT42
 798          RD    4150   0.006   0.015       0    TRAP      50       0
              *

 799          KK      D8
 800          BA   1.258
 801          PB    2.77
 802          LS       0    77.8    34.0
 803          UD   0.230
              *

 804          KK     RD8
 805          KM   ROUTE BASIN D8 TO PT42
 806          RM       1   0.088   0.150
              *

 807          KK    PT42
 808          KM   COMBINE PT41 AND BASIN D8
 809          HC       2
              *
```

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  810         KK   RPT42
  811         KM   ROUTE PT42 TO PT44
  812         RD    3650   0.011   0.015       0    TRAP      28       2
              *

  813         KK    B10B
  814         BA   0.848
  815         PB    2.77
  816         LS       0    74.9    44.0
  817         UD   0.687
              *

  818         KK   RB10B
  819         KM   ROUTE BASIN B10B TO PT43
  820         RM       6    0.46   0.100
              *

  821         KK     D9A
  822         BA   0.861
  823         PB    2.77
  824         LS       0    72.8    16.0
  825         UD   1.100
              *

  826         KK    PT43
  827         KM   COMBINE BASINS B10B AND D9A
  828         HC       2
              *

  829         KK   RPT43
  830         KM   ROUTE PT43 TO PT44
  831         RD    4050    0.01   0.016       0    TRAP       0      16
              *

  832         KK    PT44
  833         KM   COMBINE PT42 AND PT43
  834         HC       2
              *

  835         KK   RPT44
  836         KM   ROUTE PT44 TO PT45
  837         RM       1   0.119   0.150
              *

  838         KK     D9B
  839         BA   1.544
  840         PB    2.77
  841         LS       0    77.8    17.0
  842         UD   0.410
              *
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 843      KK    PT45
 844      KM   COMBINE PT44 AND BASIN D9B
 845      HC       2
          *

 846      KK   RPT45
 847      KM   ROUTE PT45 TO PT46
 848      RM       2   0.184   0.150
          *

 849      KK     D10
 850      BA   2.508
 851      PB    2.77
 852      LS       0    79.0    33.0
 853      UD   0.440
          *

 854      KK    PT46
 855      KM   COMBINE PT45 AND BASIN D10
 856      HC       2
          *

 857      KK   RPT46
 858      KM   ROUTE PT46 TO PT48
 859      RD    2500   0.018   0.035       0    TRAP      75       2
          *

 860      KK      MC
 861      KM   "TLAG AND AREA CALCULATED, CN REFERENCED FROM 1996 MPU"
 862      KM   THEREFORE NO INCREASE IN PERCENT IMPERVIOUS
 863      BA   2.804
 864      PB    2.77
 865      LS       0    91.0
 866      UD   0.244
          *

 867      KK   TORAW
 868      KM   DIVERT FLOW WHICH BYPASSES DETENTION BASIN
 869      DT   TORAW
 870      DI       0     100     500    1000    2000    3000    4000
 871      DQ       0      40     100     200     400     570     760
          *

 872      KK    MCDB
 873      KM   MCCARRAN AIRPORT DETENTION FACILITIES
 874      KM   SIMULATION OF TWO DETENTION BASINS - MCCARRAN EAST AND SPENCER
 875      RS       1    STOR      -1
 876      SV       0       8      40      70     100     160     210     500
 877      SQ       0      30      40      55      65      80      85      87
 878      SE       0       2       4       6       8      12      15      16
 879      KO       1
          *
```

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  880         KK   RMCDB
  881         KM   ROUTE OUTFALL FROM MCDB TO PT47
  882         RD    3300    0.006    0.013        0     CIRC        4        0
              *

  883         KK  RTORAW
  884         KM   FLOW BYPASSING THE MCCARRAN DETENTION FACILITIES RETURNED IN RAWHIDE CHANNEL
  885         DR   TORAW
              *

  886         KK    PT47
  887         KM   COMBINE OUTFALL FROM MCCARRAN DETENTION FACILITIES AND BYPASSED FLOW
  888         HC       2
              *

  889         KK   RPT47
  890         KM   ROUTE PT47 THRU RAWHIDE CHANNEL TO PT48W
  891         RD   15700    0.015    0.015        0     TRAP       11      1.5
              *

  892         KK      RH
  893         BA   1.355
  894         PB    2.77
  895         LS       0     72.0      6.0
  896         UD   0.340
              *

  897         KK   PT48W
  898         KM   COMBINE PT47 AND BASIN RH
  899         HC       2
              *

  900         KK     B20
  901         BA   0.790
  902         PB    2.77
  903         LS       0     82.4      8.0
  904         UD   0.710
              *

  905         KK    RB20
  906         KM   ROUTE BASIN B20 TO PT48
  907         KM   MUSKINGUM ROUTING UNSTABLE
  908         RD    1800    0.017    0.030        0     TRAP       30       10
              *

  909         KK    PT48
  910         KM   "COMBINE PT46, PT48W, AND BASIN B20"
  911         HC       3
              *
```

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 912          KK   RPT48
 913          KM   ROUTE PT48 TO PT50
 914          RM      1   0.067   0.150
              *

 915          KK     D12
 916          BA   0.176
 917          PB    2.77
 918          LS       0    77.8     7.0
 919          UD   0.710
              *

 920          KK    RD12
 921          KM   ROUTE BASIN D12 TO PT49
 922          KM   MUSKINGUM ROUTING UNSTABLE
 923          RD    1850   0.044   0.150       0    TRAP      50      10
              *

 924          KK    D11A
 925          BA   0.159
 926          PB    2.77
 927          LS       0    77.3     5.0
 928          UD   0.160
              *

 929          KK    PT49
 930          KM   COMBINE BASINS D12 AND D11A
 931          HC       2
              *

 932          KK   RPT49
 933          KM   ROUTE PT49 TO PT50
 934          KM   MUSKINGUM ROUTING UNSTABLE
 935          RD    1050   0.019   0.150       0    TRAP      45      10
              *

 936          KK    PT50
 937          KM   COMBINE PT48 AND PT49
 938          HC       2
              *

 939          KK   RPT50
 940          KM   ROUTE PT50 TO PT51
 941          RD    7000   0.003   0.015       0    TRAP      60       2
              *

 942          KK    D11B
 943          BA   0.987
 944          PB    2.77
 945          LS       0    82.2    12.0
 946          UD   0.220
              *
```

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

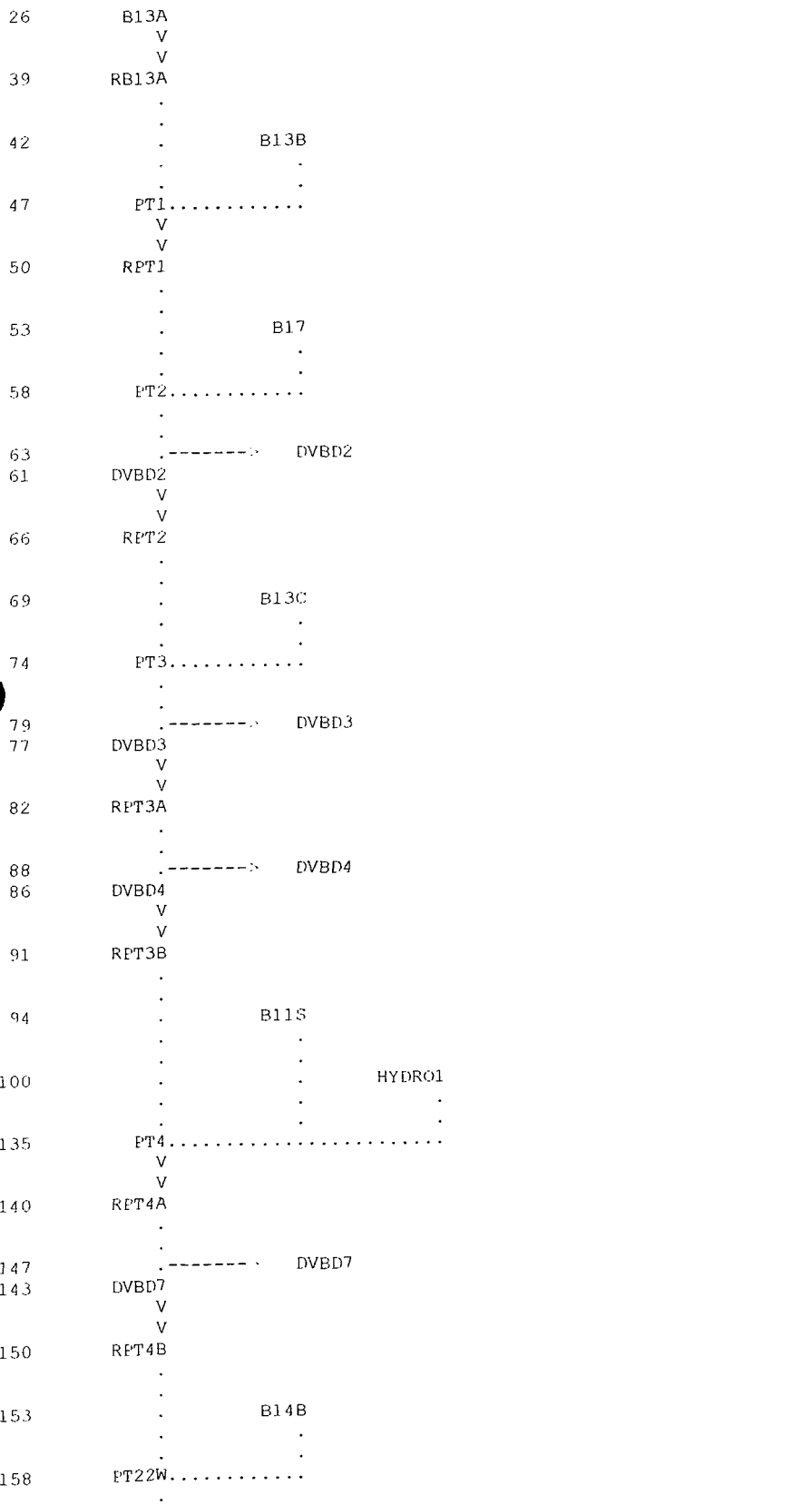
  947     KK     PT51
  948     KM    COMBINE PT50 AND BASIN D11B
  949     HC         2
  950     ZZ
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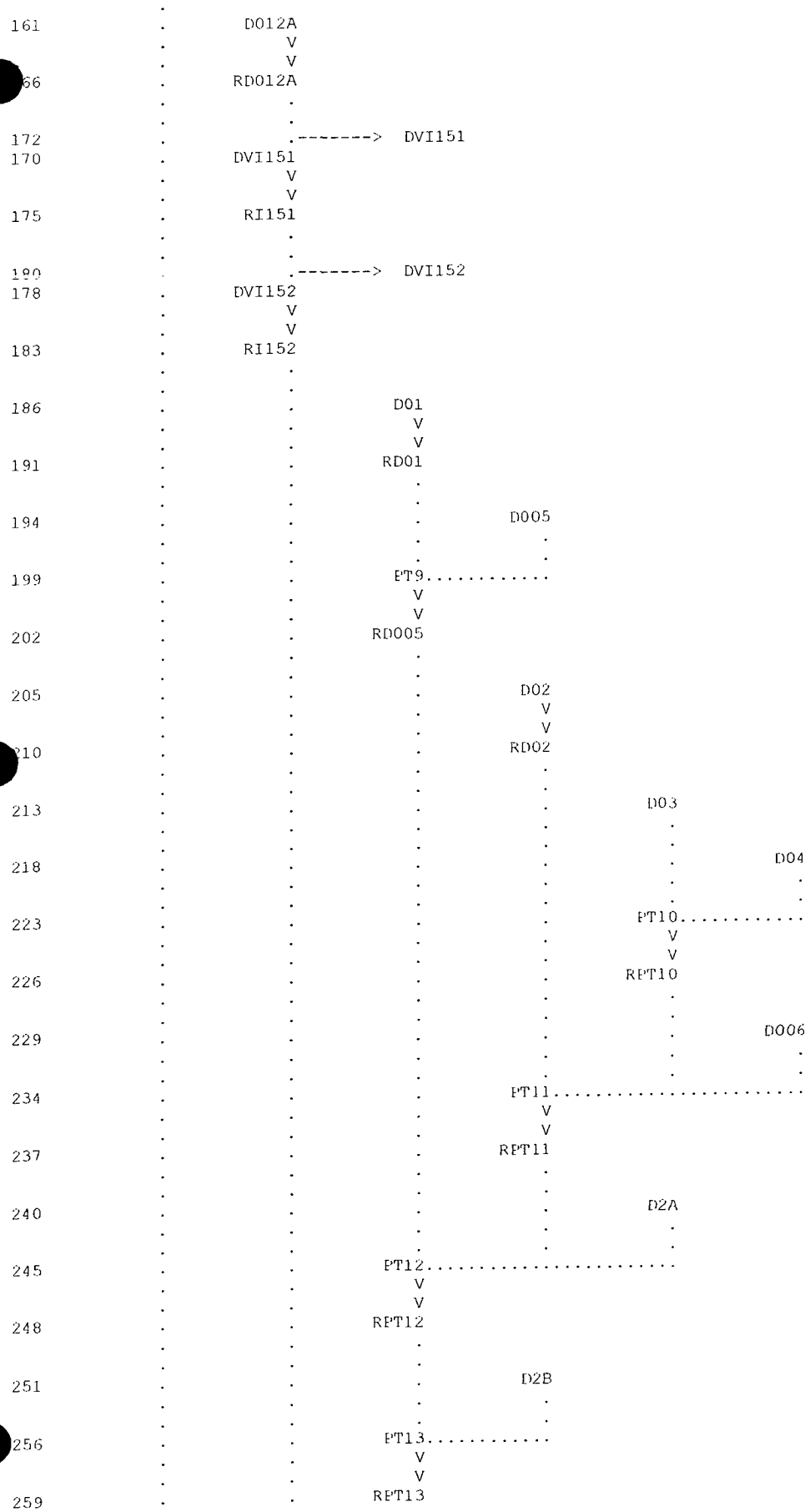
SCHEMATIC DIAGRAM OF STREAM NETWORK

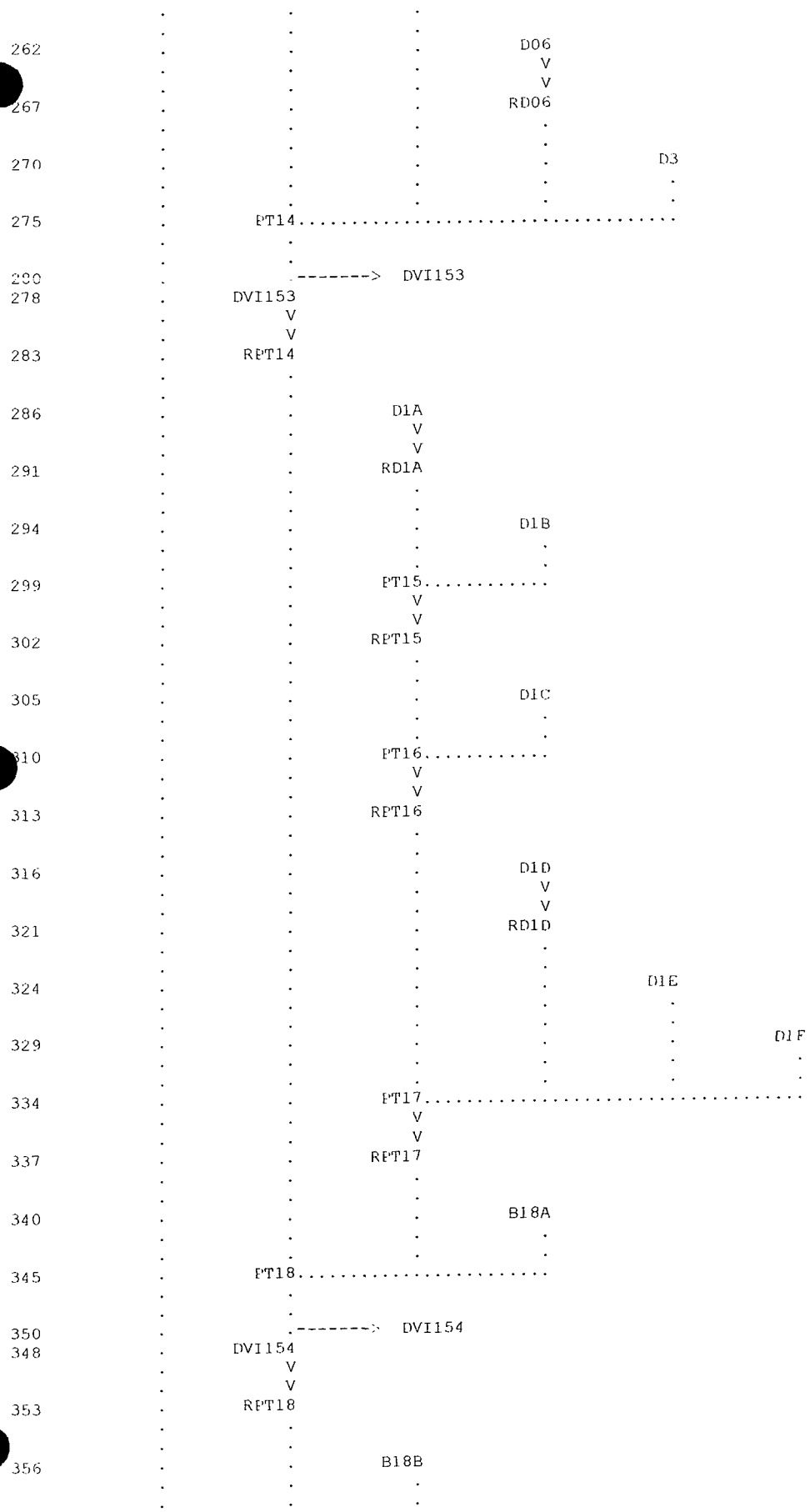
INPUT LINE NO.

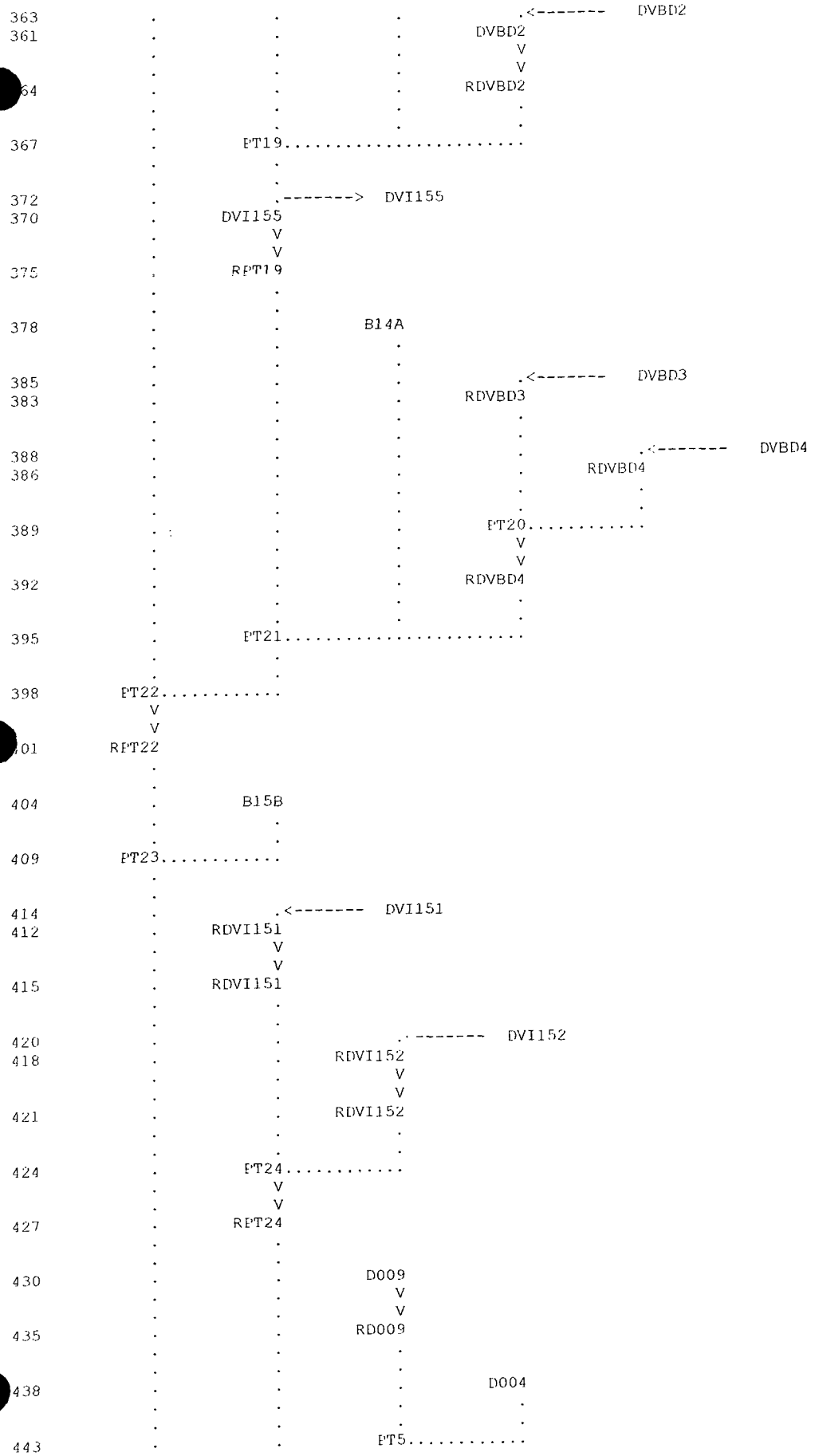
(V) ROUTING (---->) DIVERSION OR PUMP FLOW

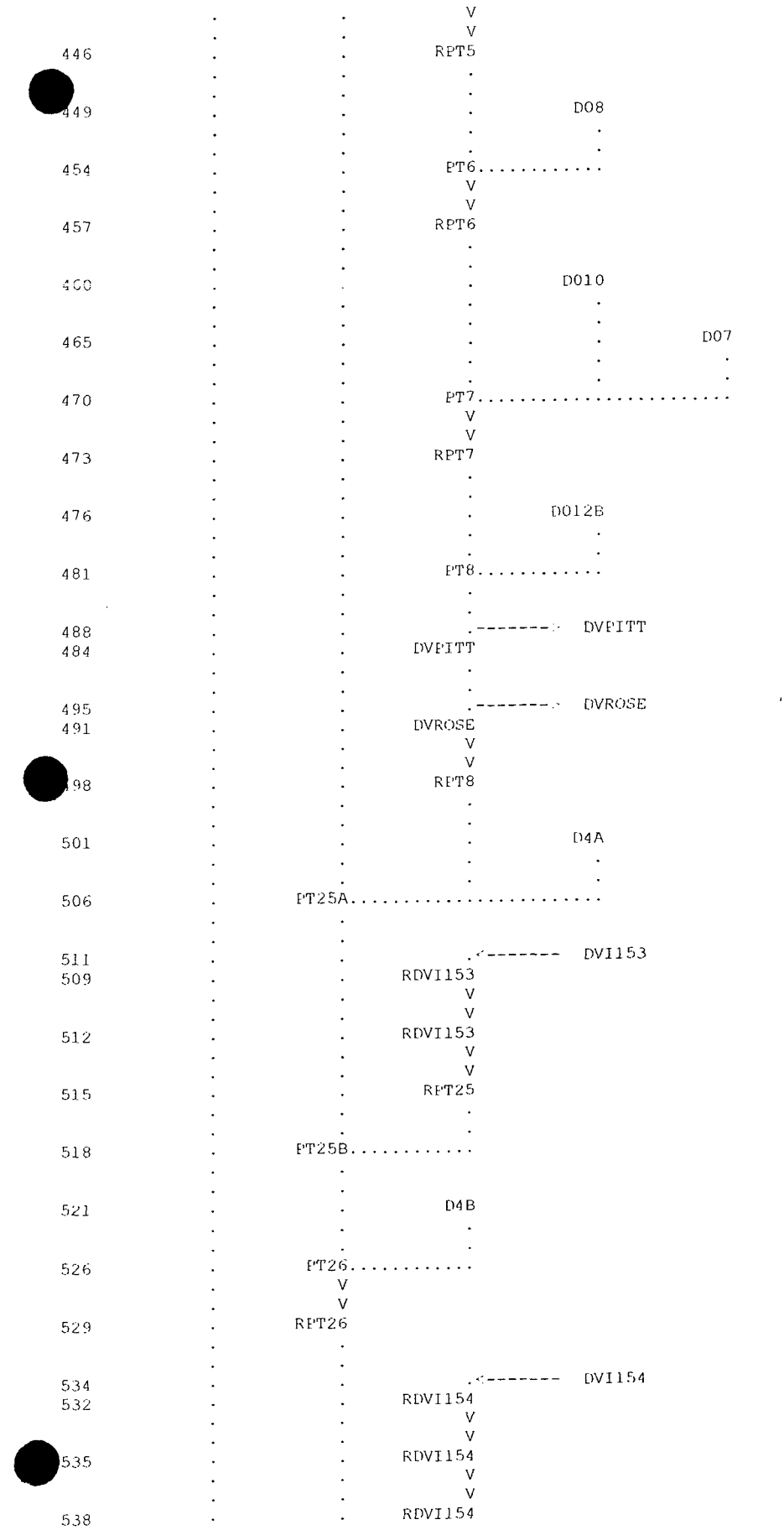
(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW

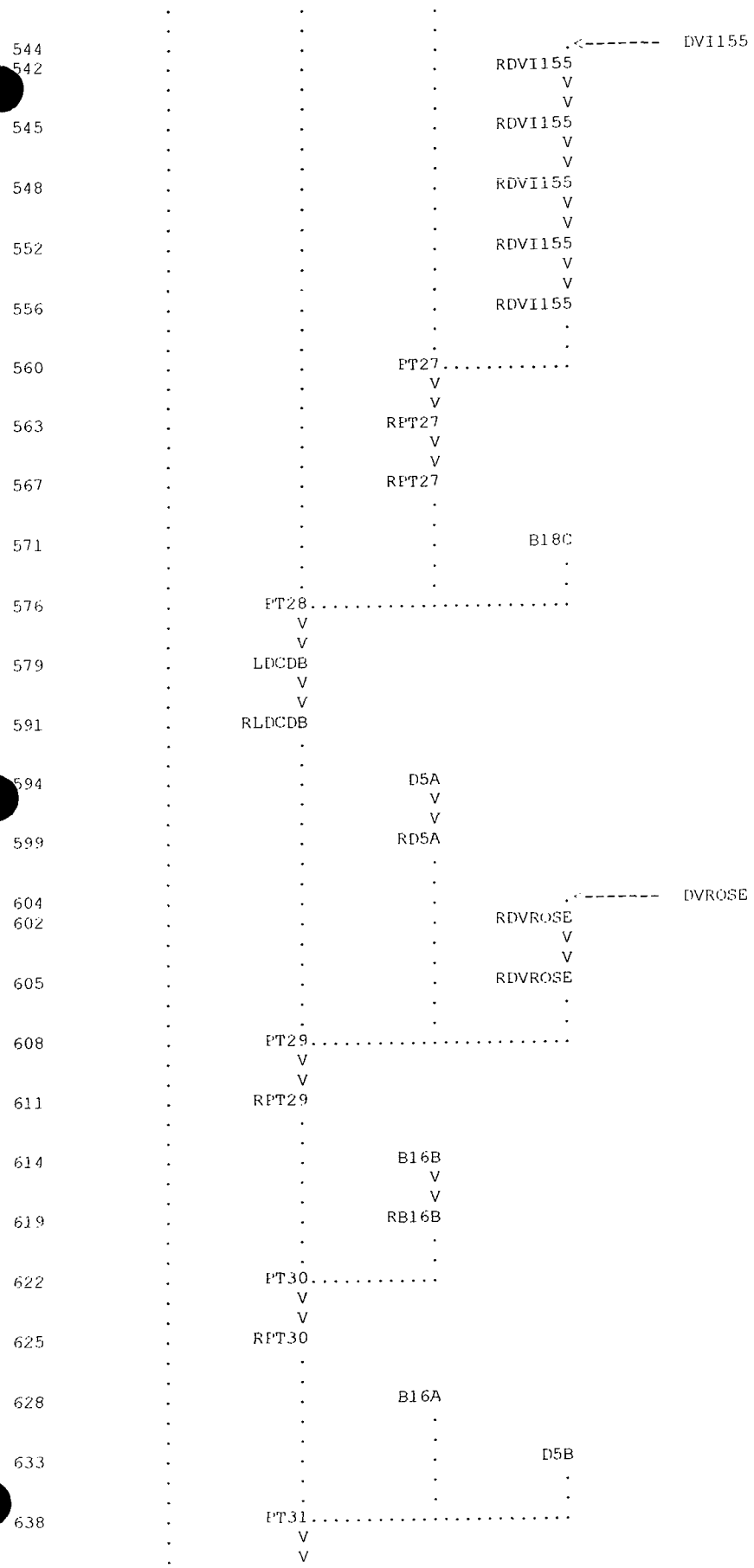


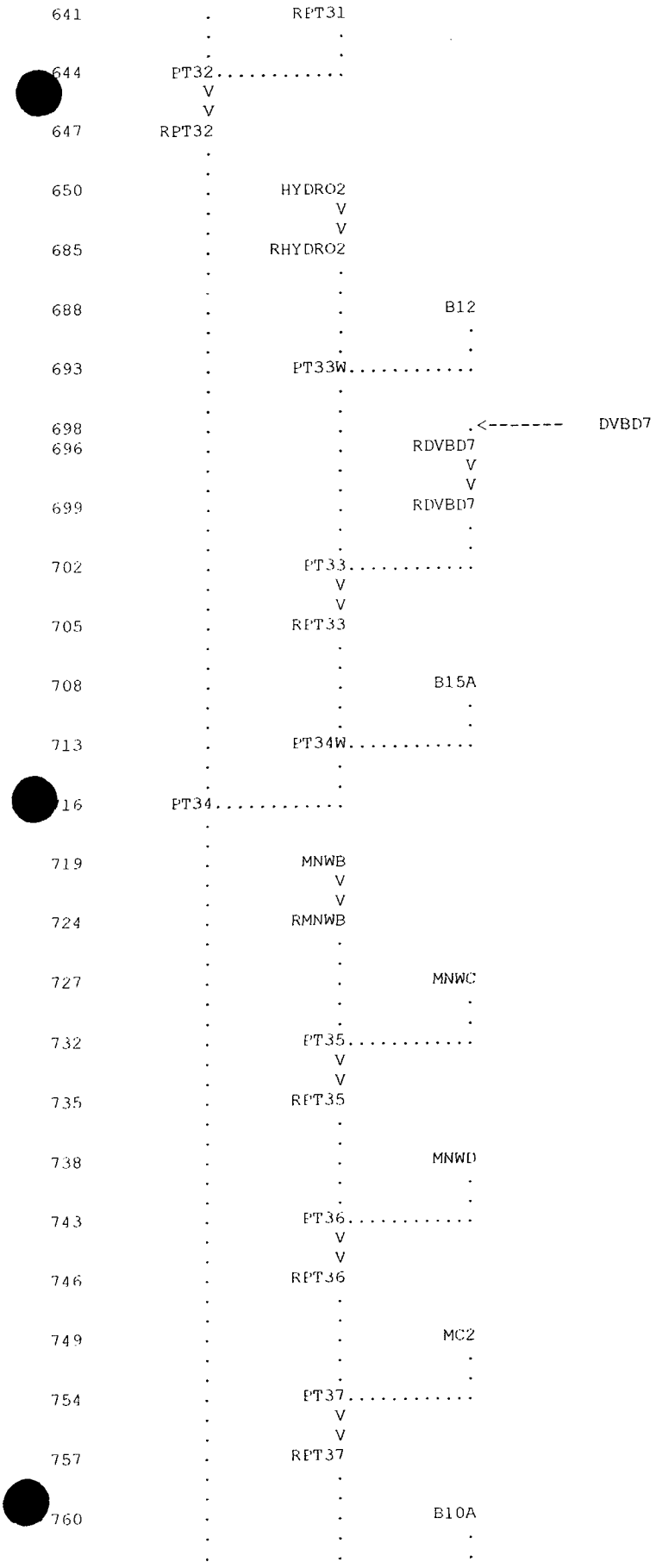

161
D012A
V
V
166
RD012A
172
.-------> DVI151
170
DVI151
V
V
175
RI151
190
.-------> DVI152
178
DVI152
V
V
183
RI152
186
D01
V
V
191
RD01
194
D005
199
PT9
V
V
202
RD005
205
D02
V
V
210
RD02
213
D03
218
D04
223
PT10
V
V
226
RPT10
229
D006
234
PT11
V
V
237
RPT11
240
D2A
245
PT12
V
V
248
RPT12
251
D2B
256
PT13
V
V
259
RPT13

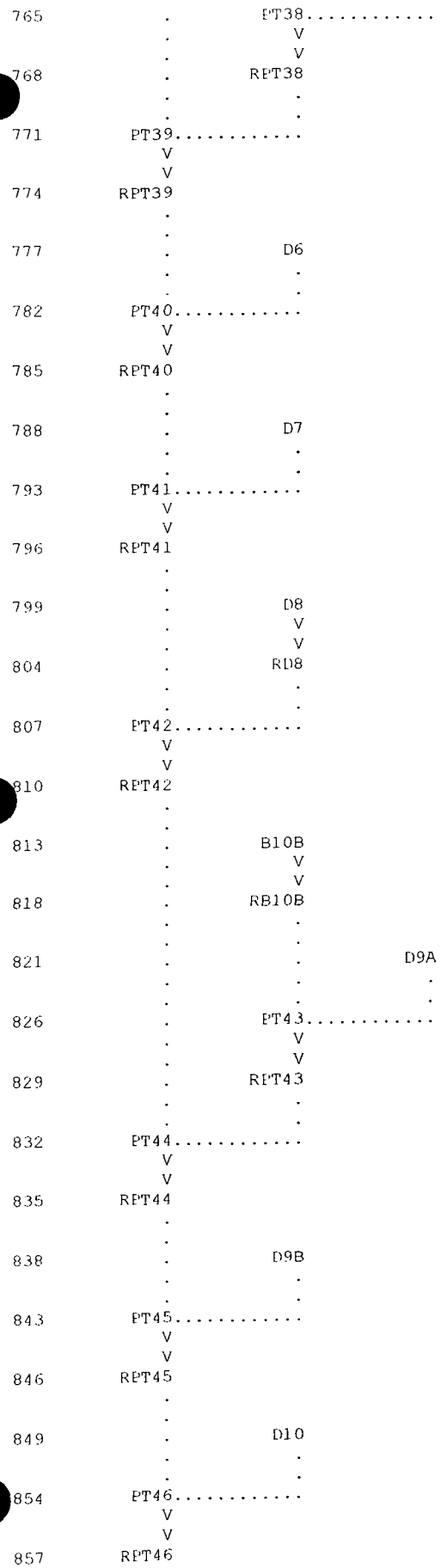

262
D06
V
V
267
RD06
270
D3
275
PT14
280
DVI153
278
DVI153
V
V
283
RPT14
286
D1A
V
V
291
RD1A
294
D1B
299
PT15
V
V
302
RPT15
305
D1C
310
PT16
V
V
313
RPT16
316
D1D
V
V
321
RD1D
324
D1E
329
D1F
334
PT17
V
V
337
RPT17
340
B18A
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PT18
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DVI154
348
DVI154
V
V
353
RPT18
356
B18B

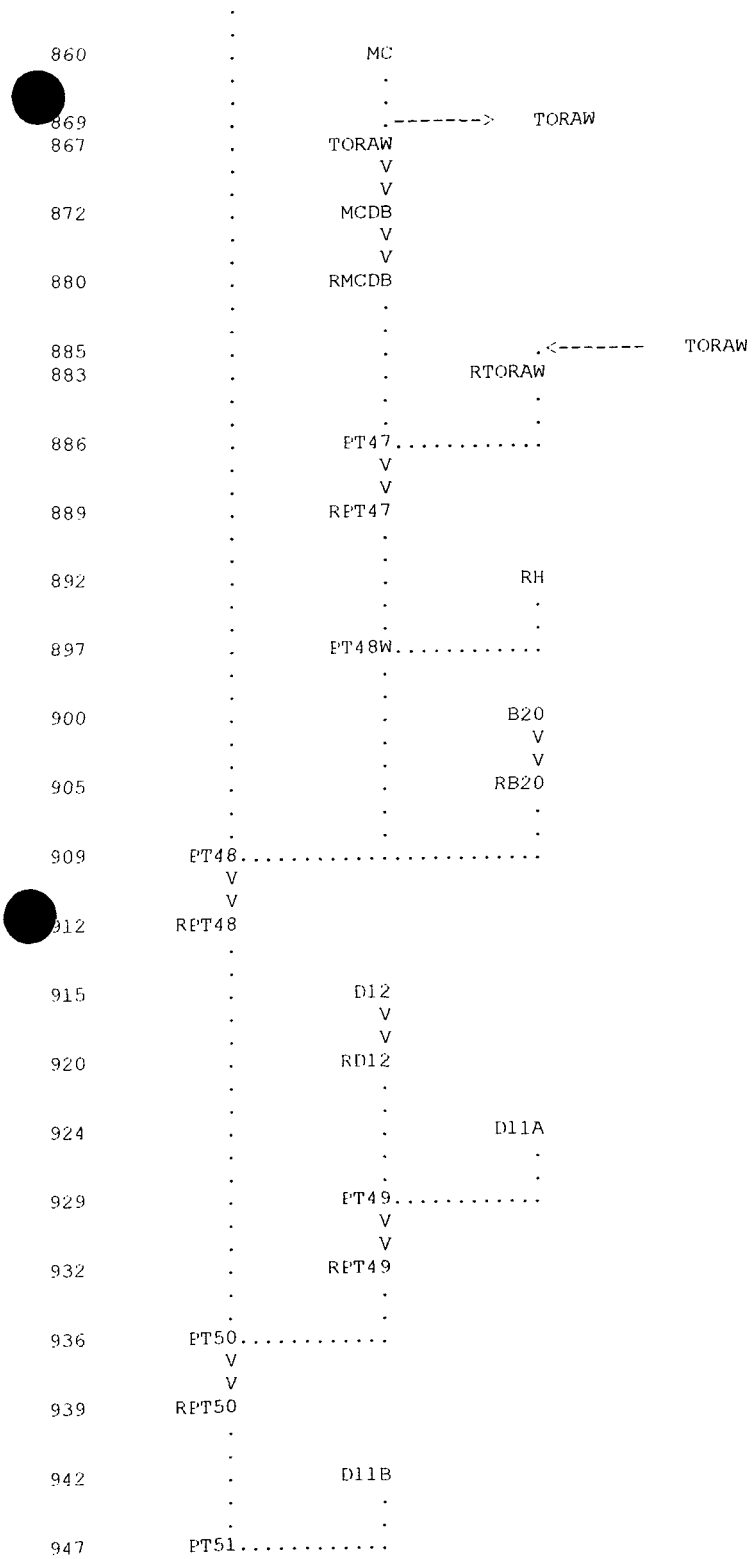

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421
424
427
430
435
438
443
DVBD2
DVBD2
RDVBD2
PT19
DVI155
DVI155
RPT19
B14A
DVBD3
RDVBD3
DVBD4
RDVBD4
PT20
RDVBD4
PT21
PT22
RPT22
B15B
PT23
DVI151
RDVI151
RDVI151
DVI152
RDVI152
RDVI152
PT24
RPT24
D009
RD009
D004
PT5


V
V
446 RPT5
449 D08
454 PT6
V
V
457 RPT6
460 D010
465 D07
470 PT7
V
V
473 RPT7
476 D012B
481 PT8
488 DVPITT
484 DVPITT
495 DVROSE
491 DVROSE
V
V
498 RPT8
501 D4A
506 PT25A
511 DVI153
509 RDVI153
V
V
512 RDVI153
V
V
515 RPT25
518 PT25B
521 D4B
526 PT26
V
V
529 RPT26
534 DVI154
532 RDVI154
V
V
535 RDVI154
V
V
538 RDVI154


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560
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571
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614
619
622
625
628
633
638
DVI155
RDVI155
RDVI155
RDVI155
RDVI155
RDVI155
PT27
RPT27
RPT27
B18C
PT28
LDCDB
RLDCDB
D5A
RD5A
DVROSE
RDVROSE
RDVROSE
PT29
RPT29
B16B
RB16B
PT30
RPT30
B16A
D5B
PT31


641 RPT31
644 PT32
647 RPT32
650 HYDRO2
685 RHYDRO2
688 B12
693 PT33W
698 DVBD7
696 RDVBD7
699 RDVBD7
702 PT33
705 RPT33
708 B15A
713 PT34W
716 PT34
719 MNWB
724 RMNWB
727 MNWC
732 PT35
735 RPT35
738 MNWD
743 PT36
746 RPT36
749 MC2
754 PT37
757 RPT37
760 B10A


765 PT38
768 RPT38
771 PT39
774 RPT39
777 D6
782 PT40
785 RPT40
788 D7
793 PT41
796 RPT41
799 D8
804 RD8
807 PT42
810 RPT42
813 B10B
818 RB10B
821 D9A
826 PT43
829 RPT43
832 PT44
835 RPT44
838 D9B
843 PT45
846 RPT45
849 D10
854 PT46
857 RPT46




(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

HEC1 S/N: 1333000362 HMVersion: 6.40 Data File: duck5.txt

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**************************************                  ****************************
*                                    *                  *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                  *    U.S. ARMY CORPS OF ENGI
*            SEPTEMBER 1990          *                  *    HYDROLOGIC ENGINEERING
*             VERSION 4.0            *                  *         609 SECOND STREET
*                                    *                  *       DAVIS, CALIFORNIA 95
*  RUN DATE  03/21/2002  TIME  09:09:37*                 *           (916) 756-1104
*                                    *                  *
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DUCK CREEK/BLUE DIAMOND WASHES FIS RESTUDY
"G.C. WALLACE, INC. BY MJL"
DUCK5.XLS
"MODEL BASED FROM HEC-1 FILE, BDE100UN, FROM 1991 LAS VEGAS VALLEY FIS"
"BY JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC."
UPDATED PRECIPITATION VALUES
% IMPERVIOUS ADDED TO LS CARD FOR DEVELOPMENT SINCE 1990
ADDITIONAL DIVERSIONS ADDED
DESIGN STORM = 100-YEAR 6-HOUR STORM
STORM DISTRIBUTION = SDN5
JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

| AREA (SQUARE MILES) | DARF |
|---|---|
| 12 - 16 | 0.832 |
| 16 - 20 | 0.804 |
| 20 - 30 | 0.765 |
| 30 - 40 | 0.725 |
| 40 - 50 | 0.695 |
| 50 -100 | 0.640 |
| 100 - 150 | 0.580 |
| 150 - 200 | 0.530 |

```
 24 IO          OUTPUT CONTROL VARIABLES
                      IPRNT            5  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN            5  MINUTES IN COMPUTATION INTERVAL
                      IDATE       1    0  STARTING DATE
                      ITIME         0000  STARTING TIME
                         NQ          120  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE       1    0  ENDING DATE
                     NDTIME         0955  ENDING TIME
                     ICENT            19  CENTURY MARK

                   COMPUTATION INTERVAL      .08 HOURS
                        TOTAL TIME BASE     9.92 HOURS

         ENGLISH UNITS
              DRAINAGE AREA          SQUARE MILES
              PRECIPITATION DEPTH    INCHES
              LENGTH, ELEVATION      FEET
              FLOW                   CUBIC FEET PER SECOND
              STORAGE VOLUME         ACRE-FEET
              SURFACE AREA           ACRES
              TEMPERATURE            DEGREES FAHRENHEIT

    JP          MULTI-PLAN OPTION
                      NPLAN            1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                    RATIOS OF PRECIPITATION
                    .83       .80       .76       .73       .69       .64       .58       .53
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          **************
          *            *
579 KK    *    LDCDB   *
          *            *
          **************

590 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

581 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        .00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

582 SV            STORAGE          .0        2.8       37.5      120.3      229.0      340.0      453.8      570.0      689.0
                                 934.0     1061.0     1190.0

584 SE            ELEVATION     2183.00   2184.00   2186.00   2188.00   2190.00   2192.00   2194.00   2196.00   2198.00
                                2202.00   2204.00   2206.00

586 SQ            DISCHARGE        0.       126.       654.      1825.      3310.      4310.      5118.      5815.      6437.
                                 7528.     8018.     8480.

588 SE            ELEVATION     2183.00   2184.00   2186.00   2188.00   2190.00   2192.00   2194.00   2196.00   2198.00
                                2202.00   2204.00   2206.00

                                                    ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                  STORAGE          .00       2.80      37.50     120.30     229.00     340.00     453.80     570.00     689.00     810.00
                  OUTFLOW          .00     126.00     654.00    1825.00    3310.00    4310.00    5118.00    5815.00    6437.00    7004.00
                ELEVATION      2183.00    2184.00    2186.00    2188.00    2190.00    2192.00    2194.00    2196.00    2198.00    2200.00

                  STORAGE       934.00    1061.00    1190.00
                  OUTFLOW      7528.00    8018.00    8480.00
                ELEVATION      2202.00    2204.00    2206.00

WARNING --- ROUTED OUTFLOW (   8505.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   8704.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   8902.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   9100.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   9297.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   9491.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   9682.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   9868.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (  10048.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (  10222.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (  10388.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (  10545.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (  10692.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (  10829.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (  10955.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (  11069.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (  11172.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (  11262.) IS GREATER THAN MAXIMUM OUTFLOW (   8480.) IN STORAGE-OUTFLOW TABLE
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WARNING --- ROUTED OUTFLOW ( 11341.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11407.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11460.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11501.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11529.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11544.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11547.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11537.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11516.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11482.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11438.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11384.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11321.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11249.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11169.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 11081.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10986.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10883.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10773.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10656.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10532.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10402.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10265.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10124.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9978.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9829.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO - .83

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | * | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | * | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | * | 1 | | 0320 | 41 | 724. | 42.4 | 2186.1 | * | 1 | | 0640 | 81 | 9297. | 1418 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | * | 1 | | 0325 | 42 | 852. | 51.5 | 2186.3 | * | 1 | | 0645 | 82 | 9491. | 1472 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | * | 1 | | 0330 | 43 | 1010. | 62.7 | 2186.6 | * | 1 | | 0650 | 83 | 9682. | 1525 |
| 1 | | 0015 | 4 | 8. | .2 | 2183.1 | * | 1 | | 0335 | 44 | 1207. | 76.6 | 2186.9 | * | 1 | | 0655 | 84 | 9868. | 1577 |
| 1 | | 0020 | 5 | 21. | .5 | 2183.2 | * | 1 | | 0340 | 45 | 1441. | 93.1 | 2187.3 | * | 1 | | 0700 | 85 | 10048. | 1628 |
| 1 | | 0025 | 6 | 41. | .9 | 2183.3 | * | 1 | | 0345 | 46 | 1695. | 111.1 | 2187.8 | * | 1 | | 0705 | 86 | 10222. | 1676 |
| 1 | | 0030 | 7 | 66. | 1.5 | 2183.5 | * | 1 | | 0350 | 47 | 1944. | 129.0 | 2188.2 | * | 1 | | 0710 | 87 | 10388. | 1722 |
| 1 | | 0035 | 8 | 91. | 2.0 | 2183.7 | * | 1 | | 0355 | 48 | 2176. | 146.0 | 2188.5 | * | 1 | | 0715 | 88 | 10545. | 1766 |
| 1 | | 0040 | 9 | 113. | 2.5 | 2183.9 | * | 1 | | 0400 | 49 | 2396. | 162.1 | 2188.8 | * | 1 | | 0720 | 89 | 10692. | 1807 |
| 1 | | 0045 | 10 | 127. | 2.8 | 2184.0 | * | 1 | | 0405 | 50 | 2608. | 177.6 | 2189.1 | * | 1 | | 0725 | 90 | 10829. | 1845 |
| 1 | | 0050 | 11 | 129. | 3.0 | 2184.0 | * | 1 | | 0410 | 51 | 2811. | 192.5 | 2189.3 | * | 1 | | 0730 | 91 | 10955. | 1881 |
| 1 | | 0055 | 12 | 129. | 3.0 | 2184.0 | * | 1 | | 0415 | 52 | 3007. | 206.8 | 2189.6 | * | 1 | | 0735 | 92 | 11069. | 1912 |
| 1 | | 0100 | 13 | 128. | 2.9 | 2184.0 | * | 1 | | 0420 | 53 | 3201. | 221.0 | 2189.9 | * | 1 | | 0740 | 93 | 11172. | 1941 |
| 1 | | 0105 | 14 | 122. | 2.7 | 2184.0 | * | 1 | | 0425 | 54 | 3372. | 235.9 | 2190.1 | * | 1 | | 0745 | 94 | 11262. | 1966 |
| 1 | | 0110 | 15 | 113. | 2.5 | 2183.9 | * | 1 | | 0430 | 55 | 3522. | 252.5 | 2190.4 | * | 1 | | 0750 | 95 | 11341. | 1988 |
| 1 | | 0115 | 16 | 104. | 2.3 | 2183.8 | * | 1 | | 0435 | 56 | 3696. | 271.8 | 2190.8 | * | 1 | | 0755 | 96 | 11407. | 2007 |
| 1 | | 0120 | 17 | 97. | 2.2 | 2183.8 | * | 1 | | 0440 | 57 | 3902. | 294.8 | 2191.2 | * | 1 | | 0800 | 97 | 11460. | 2022 |
| 1 | | 0125 | 18 | 93. | 2.1 | 2183.7 | * | 1 | | 0445 | 58 | 4147. | 321.9 | 2191.7 | * | 1 | | 0805 | 98 | 11501. | 2033 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0130 | 19 | 92. | 2.0 | 2183.7 | * | 1 | 0450 | 59 | 4404. | 353.3 | 2192.2 | * | 1 | 0810 | 99 | 11529. | 2041 |
| 1 | 0135 | 20 | 95. | 2.1 | 2183.8 | * | 1 | 0455 | 60 | 4656. | 388.8 | 2192.9 | * | 1 | 0815 | 100 | 11544. | 2045 |
| 1 | 0140 | 21 | 104. | 2.3 | 2183.8 | * | 1 | 0500 | 61 | 4934. | 427.9 | 2193.5 | * | 1 | 0820 | 101 | 11547. | 2046 |
| | 0145 | 22 | 117. | 2.6 | 2183.9 | * | 1 | 0505 | 62 | 5213. | 469.6 | 2194.3 | * | 1 | 0825 | 102 | 11537. | 2043 |
| | 0150 | 23 | 129. | 3.0 | 2184.0 | * | 1 | 0510 | 63 | 5470. | 512.5 | 2195.0 | * | 1 | 0830 | 103 | 11516. | 2037 |
| 1 | 0155 | 24 | 136. | 3.5 | 2184.0 | * | 1 | 0515 | 64 | 5730. | 555.8 | 2195.8 | * | 1 | 0835 | 104 | 11482. | 2028 |
| 1 | 0200 | 25 | 145. | 4.0 | 2184.1 | * | 1 | 0520 | 65 | 5969. | 599.4 | 2196.5 | * | 1 | 0840 | 105 | 11438. | 2016 |
| 1 | 0205 | 26 | 156. | 4.8 | 2184.1 | * | 1 | 0525 | 66 | 6198. | 643.3 | 2197.2 | * | 1 | 0845 | 106 | 11384. | 2001 |
| 1 | 0210 | 27 | 170. | 5.7 | 2184.2 | * | 1 | 0530 | 67 | 6431. | 687.9 | 2198.0 | * | 1 | 0850 | 107 | 11321. | 1983 |
| 1 | 0215 | 28 | 186. | 6.7 | 2184.2 | * | 1 | 0535 | 68 | 6646. | 733.5 | 2198.7 | * | 1 | 0855 | 108 | 11249. | 1963 |
| 1 | 0220 | 29 | 203. | 7.9 | 2184.3 | * | 1 | 0540 | 69 | 6866. | 780.5 | 2199.5 | * | 1 | 0900 | 109 | 11169. | 1940 |
| 1 | 0225 | 30 | 221. | 9.0 | 2184.4 | * | 1 | 0545 | 70 | 7083. | 828.7 | 2200.3 | * | 1 | 0905 | 110 | 11081. | 1916 |
| 1 | 0230 | 31 | 238. | 10.1 | 2184.4 | * | 1 | 0550 | 71 | 7292. | 878.2 | 2201.1 | * | 1 | 0910 | 111 | 10986. | 1889 |
| 1 | 0235 | 32 | 255. | 11.3 | 2184.5 | * | 1 | 0555 | 72 | 7506. | 928.9 | 2201.9 | * | 1 | 0915 | 112 | 10883. | 1861 |
| 1 | 0240 | 33 | 275. | 12.6 | 2184.6 | * | 1 | 0600 | 73 | 7708. | 980.7 | 2202.7 | * | 1 | 0920 | 113 | 10773. | 1830 |
| 1 | 0245 | 34 | 297. | 14.1 | 2184.6 | * | 1 | 0605 | 74 | 7912. | 1033.6 | 2203.6 | * | 1 | 0925 | 114 | 10656. | 1797 |
| 1 | 0250 | 35 | 325. | 15.9 | 2184.8 | * | 1 | 0610 | 75 | 8113. | 1087.4 | 2204.4 | * | 1 | 0930 | 115 | 10532. | 1763 |
| 1 | 0255 | 36 | 359. | 18.1 | 2184.9 | * | 1 | 0615 | 76 | 8308. | 1142.0 | 2205.3 | * | 1 | 0935 | 116 | 10402. | 1726 |
| 1 | 0300 | 37 | 403. | 21.0 | 2185.0 | * | 1 | 0620 | 77 | 8505. | 1197.1 | 2206.1 | * | 1 | 0940 | 117 | 10265. | 1688 |
| 1 | 0305 | 38 | 459. | 24.7 | 2185.3 | * | 1 | 0625 | 78 | 8704. | 1252.5 | 2207.0 | * | 1 | 0945 | 118 | 10124. | 1649 |
| 1 | 0310 | 39 | 530. | 29.3 | 2185.5 | * | 1 | 0630 | 79 | 8902. | 1307.9 | 2207.8 | * | 1 | 0950 | 119 | 9978. | 1608 |
| 1 | 0315 | 40 | 618. | 35.1 | 2185.9 | * | 1 | 0635 | 80 | 9100. | 1363.2 | 2208.7 | * | 1 | 0955 | 120 | 9829. | 1566 |
| | | | | | | * | | | | | | | * | | | | | |

**********

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 11547. | 8.33 | | 8513. | 5292. | 5292. | 5292. |
| | | (INCHES) | 2.062 | 2.119 | 2.119 | 2.119 |
| | | (AC-FT) | 4221. | 4337. | 4337. | 4337. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 2046. | 8.33 | 1297. | 793. | 793. | 793. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2219.28 | 8.33 | 2207.43 | 2198.41 | 2198.41 | 2198.41 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8552.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8736.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8918.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9098.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9275.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9447.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9615.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9776.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9930.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10076.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10213.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10340.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10456.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10563.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10658.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10743.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10816.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10878.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10928.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10966.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10992.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11006.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 11008.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10998.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10977.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10946.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10905.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10855.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10796.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10729.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10654.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10571.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10481.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10384.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10279.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10168.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 10049.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9925.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9795.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9660.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9521.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9379.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .80

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 646. | 37.0 | 2186.0 | 1 | | 0640 | 81 | 8918. | 1312 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 763. | 45.2 | 2186.2 | 1 | | 0645 | 82 | 9098. | 1362 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | 1 | | 0330 | 43 | 908. | 55.5 | 2186.4 | 1 | | 0650 | 83 | 9275. | 1411 |
| 1 | | 0015 | 4 | 8. | .2 | 2183.1 | 1 | | 0335 | 44 | 1090. | 68.3 | 2186.7 | 1 | | 0655 | 84 | 9447. | 1460 |
| 1 | | 0020 | 5 | 21. | .5 | 2183.2 | 1 | | 0340 | 45 | 1306. | 83.6 | 2187.1 | 1 | | 0700 | 85 | 9615. | 1506 |
| 1 | | 0025 | 6 | 40. | .9 | 2183.3 | 1 | | 0345 | 46 | 1542. | 100.3 | 2187.5 | 1 | | 0705 | 86 | 9776. | 1552 |
| 1 | | 0030 | 7 | 64. | 1.4 | 2183.5 | 1 | | 0350 | 47 | 1777. | 116.9 | 2187.9 | 1 | | 0710 | 87 | 9930. | 1595 |
| 1 | | 0035 | 8 | 88. | 2.0 | 2183.7 | 1 | | 0355 | 48 | 1994. | 132.7 | 2188.2 | 1 | | 0715 | 88 | 10076. | 1635 |
| 1 | | 0040 | 9 | 109. | 2.4 | 2183.9 | 1 | | 0400 | 49 | 2200. | 147.7 | 2188.5 | 1 | | 0720 | 89 | 10213. | 1673 |
| 1 | | 0045 | 10 | 124. | 2.7 | 2184.0 | 1 | | 0405 | 50 | 2401. | 162.4 | 2188.8 | 1 | | 0725 | 90 | 10340. | 1709 |
| 1 | | 0050 | 11 | 127. | 2.9 | 2184.0 | 1 | | 0410 | 51 | 2596. | 176.7 | 2189.0 | 1 | | 0730 | 91 | 10456. | 1741 |
| 1 | | 0055 | 12 | 127. | 2.9 | 2184.0 | 1 | | 0415 | 52 | 2785. | 190.6 | 2189.3 | 1 | | 0735 | 92 | 10563. | 1771 |
| 1 | | 0100 | 13 | 124. | 2.7 | 2184.0 | 1 | | 0420 | 53 | 2971. | 204.2 | 2189.5 | 1 | | 0740 | 93 | 10658. | 1798 |
| 1 | | 0105 | 14 | 115. | 2.6 | 2183.9 | 1 | | 0425 | 54 | 3162. | 218.2 | 2189.8 | 1 | | 0745 | 94 | 10743. | 1821 |
| 1 | | 0110 | 15 | 106. | 2.3 | 2183.8 | 1 | | 0430 | 55 | 3349. | 233.3 | 2190.1 | 1 | | 0750 | 95 | 10816. | 1842 |
| 1 | | 0115 | 16 | 97. | 2.2 | 2183.8 | 1 | | 0435 | 56 | 3505. | 250.6 | 2190.4 | 1 | | 0755 | 96 | 10878. | 1859 |
| 1 | | 0120 | 17 | 90. | 2.0 | 2183.7 | 1 | | 0440 | 57 | 3690. | 271.2 | 2190.8 | 1 | | 0800 | 97 | 10928. | 1873 |
| 1 | | 0125 | 18 | 85. | 1.9 | 2183.7 | 1 | | 0445 | 58 | 3912. | 295.8 | 2191.2 | 1 | | 0805 | 98 | 10966. | 1884 |
| 1 | | 0130 | 19 | 83. | 1.9 | 2183.7 | 1 | | 0450 | 59 | 4171. | 324.6 | 2191.7 | 1 | | 0810 | 99 | 10992. | 1891 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0135 | 20 | 86. | 1.9 | 2183.7 | * | 1 | 0455 | 60 | 4433. | 357.3 | 2192.3 | * | 1 | 0815 | 100 | 11006. | 1895 |
| 1 | 0140 | 21 | 93. | 2.1 | 2183.7 | * | 1 | 0500 | 61 | 4689. | 393.4 | 2192.9 | * | 1 | *0820* | *101* | *11008.* | 1895 |
| 1 | 0145 | 22 | 104. | 2.3 | 2183.8 | * | 1 | 0505 | 62 | 4963. | 432.0 | 2193.6 | * | 1 | 0825 | 102 | 10998. | 1893 |
| | 0150 | 23 | 118. | 2.6 | 2183.9 | * | 1 | 0510 | 63 | 5227. | 472.0 | 2194.3 | * | 1 | 0830 | 103 | 10977. | 1887 |
| | 0155 | 24 | 129. | 3.0 | 2184.0 | * | 1 | 0515 | 64 | 5471. | 512.6 | 2195.0 | * | 1 | 0835 | 104 | 10946. | 1878 |
| 1 | 0200 | 25 | 136. | 3.5 | 2184.0 | * | 1 | 0520 | 65 | 5716. | 553.5 | 2195.7 | * | 1 | 0840 | 105 | 10905. | 1867 |
| 1 | 0205 | 26 | 145. | 4.0 | 2184.1 | * | 1 | 0525 | 66 | 5944. | 594.7 | 2196.4 | * | 1 | 0845 | 106 | 10855. | 1853 |
| 1 | 0210 | 27 | 156. | 4.8 | 2184.1 | * | 1 | 0530 | 67 | 6162. | 636.4 | 2197.1 | * | 1 | 0850 | 107 | 10796. | 1836 |
| 1 | 0215 | 28 | 170. | 5.7 | 2184.2 | * | 1 | 0535 | 68 | 6384. | 678.9 | 2197.8 | * | 1 | 0855 | 108 | 10729. | 1817 |
| 1 | 0220 | 29 | 184. | 6.6 | 2184.2 | * | 1 | 0540 | 69 | 6594. | 722.4 | 2198.6 | * | 1 | 0900 | 109 | 10654. | 1796 |
| 1 | 0225 | 30 | 199. | 7.6 | 2184.3 | * | 1 | 0545 | 70 | 6803. | 767.1 | 2199.3 | * | 1 | 0905 | 110 | 10571. | 1773 |
| 1 | 0230 | 31 | 213. | 8.5 | 2184.3 | * | 1 | 0550 | 71 | 7016. | 812.9 | 2200.0 | * | 1 | 0910 | 111 | 10481. | 1748 |
| 1 | 0235 | 32 | 227. | 9.5 | 2184.4 | * | 1 | 0555 | 72 | 7215. | 859.9 | 2200.8 | * | 1 | 0915 | 112 | 10384. | 1721 |
| 1 | 0240 | 33 | 243. | 10.5 | 2184.4 | * | 1 | 0600 | 73 | 7418. | 908.0 | 2201.6 | * | 1 | 0920 | 113 | 10279. | 1692 |
| 1 | 0245 | 34 | 262. | 11.8 | 2184.5 | * | 1 | 0605 | 74 | 7617. | 956.9 | 2202.4 | * | 1 | 0925 | 114 | 10168. | 1661 |
| 1 | 0250 | 35 | 286. | 13.3 | 2184.6 | * | 1 | 0610 | 75 | 7809. | 1006.7 | 2203.1 | * | 1 | 0930 | 115 | 10049. | 1628 |
| 1 | 0255 | 36 | 315. | 15.2 | 2184.7 | * | 1 | 0615 | 76 | 8003. | 1057.1 | 2203.9 | * | 1 | 0935 | 116 | 9925. | 1595 |
| 1 | 0300 | 37 | 353. | 17.7 | 2184.9 | * | 1 | 0620 | 77 | 8186. | 1107.9 | 2204.7 | * | 1 | 0940 | 117 | 9795. | 1557 |
| 1 | 0305 | 38 | 403. | 21.0 | 2185.0 | * | 1 | 0625 | 78 | 8369. | 1159.0 | 2205.5 | * | 1 | 0945 | 118 | 9660. | 1519 |
| 1 | 0310 | 39 | 466. | 25.1 | 2185.3 | * | 1 | 0630 | 79 | 8552. | 1210.2 | 2206.3 | * | 1 | 0950 | 119 | 9521. | 1480 |
| 1 | 0315 | 40 | 546. | 30.4 | 2185.6 | * | 1 | 0635 | 80 | 8736. | 1261.4 | 2207.1 | * | 1 | 0955 | 120 | 9379. | 1440 |
| | | | | | | * | | | | | | | * | | | | | |

**********

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 11008. | 8.33 | | 8127. | 5045. | 5045. | 5045. |
| | | (INCHES) | 1.969 | 2.020 | 2.020 | 2.020 |
| | | (AC-FT) | 4030. | 4135. | 4135. | 4135. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 1896. | 8.33 | 1200. | 733. | 733. | 733. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2216.94 | 8.33 | 2205.91 | 2197.45 | 2197.45 | 2197.45 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8581.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8739.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8894.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9044.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9188.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9325.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9456.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9578.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9692.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9798.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9894.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9980.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10057.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10123.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10178.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10223.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10256.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10278.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10289.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10290.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10280.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10261.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10232.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10195.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10149.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10095.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 10034.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9965.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9889.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9805.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9714.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9616.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9511.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9400.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9284.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9162.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9036.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8906.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8773.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LOCDB
PLAN 1, RATIO = .76

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 540. | 30.0 | 2185.6 | 1 | | 0640 | 81 | 8420. | 1173 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 649. | 37.2 | 2186.0 | 1 | | 0645 | 82 | 8581. | 1218 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | 1 | | 0330 | 43 | 776. | 46.2 | 2186.2 | 1 | | 0650 | 83 | 8739. | 1262 |
| 1 | | 0015 | 4 | 8. | .2 | 2183.1 | 1 | | 0335 | 44 | 937. | 57.5 | 2186.5 | 1 | | 0655 | 84 | 8894. | 1305 |
| 1 | | 0020 | 5 | 20. | .4 | 2183.2 | 1 | | 0340 | 45 | 1129. | 71.1 | 2186.8 | 1 | | 0700 | 85 | 9044. | 1347 |
| 1 | | 0025 | 6 | 38. | .8 | 2183.3 | 1 | | 0345 | 46 | 1340. | 86.0 | 2187.2 | 1 | | 0705 | 86 | 9188. | 1387 |
| 1 | | 0030 | 7 | 61. | 1.3 | 2183.5 | 1 | | 0350 | 47 | 1550. | 100.9 | 2187.5 | 1 | | 0710 | 87 | 9325. | 1426 |
| 1 | | 0035 | 8 | 84. | 1.9 | 2183.7 | 1 | | 0355 | 48 | 1749. | 115.0 | 2187.9 | 1 | | 0715 | 88 | 9456. | 1462 |
| 1 | | 0040 | 9 | 104. | 2.3 | 2183.8 | 1 | | 0400 | 49 | 1937. | 128.5 | 2188.2 | 1 | | 0720 | 89 | 9578. | 1496 |
| 1 | | 0045 | 10 | 117. | 2.6 | 2183.9 | 1 | | 0405 | 50 | 2119. | 141.8 | 2188.4 | 1 | | 0725 | 90 | 9692. | 1528 |
| 1 | | 0050 | 11 | 123. | 2.7 | 2184.0 | 1 | | 0410 | 51 | 2301. | 155.2 | 2188.6 | 1 | | 0730 | 91 | 9798. | 1557 |
| 1 | | 0055 | 12 | 122. | 2.7 | 2184.0 | 1 | | 0415 | 52 | 2481. | 168.3 | 2188.9 | 1 | | 0735 | 92 | 9894. | 1584 |
| 1 | | 0100 | 13 | 116. | 2.6 | 2183.9 | 1 | | 0420 | 53 | 2658. | 181.3 | 2189.1 | 1 | | 0740 | 93 | 9980. | 1609 |
| 1 | | 0105 | 14 | 108. | 2.4 | 2183.9 | 1 | | 0425 | 54 | 2838. | 194.4 | 2189.4 | 1 | | 0745 | 94 | 10057. | 1630 |
| 1 | | 0110 | 15 | 99. | 2.2 | 2183.8 | 1 | | 0430 | 55 | 3027. | 208.3 | 2189.6 | 1 | | 0750 | 95 | 10123. | 1648 |
| 1 | | 0115 | 16 | 90. | 2.0 | 2183.7 | 1 | | 0435 | 56 | 3235. | 223.5 | 2189.9 | 1 | | 0755 | 96 | 10178. | 1664 |
| 1 | | 0120 | 17 | 82. | 1.8 | 2183.6 | 1 | | 0440 | 57 | 3419. | 241.1 | 2190.2 | 1 | | 0800 | 97 | 10223. | 1676 |
| 1 | | 0125 | 18 | 76. | 1.7 | 2183.6 | 1 | | 0445 | 58 | 3609. | 262.2 | 2190.6 | 1 | | 0805 | 98 | 10256. | 1685 |
| 1 | | 0130 | 19 | 74. | 1.6 | 2183.6 | 1 | | 0450 | 59 | 3834. | 287.2 | 2191.0 | 1 | | 0810 | 99 | 10278. | 1692 |
| 1 | | 0135 | 20 | 75. | 1.7 | 2183.6 | 1 | | 0455 | 60 | 4094. | 316.0 | 2191.6 | 1 | | 0815 | 100 | 10289. | 1695 |
| 1 | | 0140 | 21 | 79. | 1.8 | 2183.6 | 1 | | 0500 | 61 | 4367. | 348.0 | 2192.1 | 1 | | 0820 | 101 | 10290. | 1695 |
| 1 | | 0145 | 22 | 88. | 2.0 | 2183.7 | 1 | | 0505 | 62 | 4610. | 382.3 | 2192.7 | 1 | | 0825 | 102 | 10280. | 1692 |
| 1 | | 0150 | 23 | 99. | 2.2 | 2183.8 | 1 | | 0510 | 63 | 4864. | 418.0 | 2193.4 | 1 | | 0830 | 103 | 10261. | 1687 |
| 1 | | 0155 | 24 | 112. | 2.5 | 2183.9 | 1 | | 0515 | 64 | 5123. | 454.6 | 2194.0 | 1 | | 0835 | 104 | 10232. | 1679 |
| 1 | | 0200 | 25 | 126. | 2.8 | 2184.0 | 1 | | 0520 | 65 | 5345. | 491.6 | 2194.7 | 1 | | 0840 | 105 | 10195. | 1668 |
| 1 | | 0205 | 26 | 132. | 3.2 | 2184.0 | 1 | | 0525 | 66 | 5570. | 529.2 | 2195.3 | 1 | | 0845 | 106 | 10149. | 1656 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0210 | 27 | 141. | 3.8 | 2184.1 | * | 1 | 0530 | 67 | 5798. | 567.2 | 2196.0 | * | 1 | 0850 107 | 10095. | 1641 |
| 1 | 0215 | 28 | 151. | 4.4 | 2184.1 | * | 1 | 0535 | 68 | 6002. | 605.8 | 2196.6 | * | 1 | 0855 108 | 10034. | 1623 |
| 1 | 0220 | 29 | 161. | 5.1 | 2184.1 | * | 1 | 0540 | 69 | 6208. | 645.2 | 2197.3 | * | 1 | 0900 109 | 9965. | 1604 |
| 1 | 0225 | 30 | 172. | 5.8 | 2184.2 | * | 1 | 0545 | 70 | 6418. | 685.4 | 2197.9 | * | 1 | 0905 110 | 9889. | 1583 |
| 1 | 0230 | 31 | 183. | 6.5 | 2184.2 | * | 1 | 0550 | 71 | 6612. | 726.4 | 2198.6 | * | 1 | 0910 111 | 9805. | 1560 |
| 1 | 0235 | 32 | 193. | 7.2 | 2184.3 | * | 1 | 0555 | 72 | 6809. | 768.3 | 2199.3 | * | 1 | 0915 112 | 9714. | 1534 |
| 1 | 0240 | 33 | 205. | 8.0 | 2184.3 | * | 1 | 0600 | 73 | 7009. | 811.2 | 2200.0 | * | 1 | 0920 113 | 9616. | 1507 |
| 1 | 0245 | 34 | 219. | 8.9 | 2184.4 | * | 1 | 0605 | 74 | 7194. | 855.0 | 2200.7 | * | 1 | 0925 114 | 9511. | 1478 |
| 1 | 0250 | 35 | 237. | 10.1 | 2184.4 | * | 1 | 0610 | 75 | 7382. | 899.6 | 2201.4 | * | 1 | 0930 115 | 9400. | 1447 |
| 1 | 0255 | 36 | 260. | 11.6 | 2184.5 | * | 1 | 0615 | 76 | 7569. | 944.7 | 2202.2 | * | 1 | 0935 116 | 9284. | 1414 |
| 1 | 0300 | 37 | 291. | 13.7 | 2184.6 | * | 1 | 0620 | 77 | 7745. | 990.3 | 2202.9 | * | 1 | 0940 117 | 9162. | 1380 |
| 1 | 0305 | 38 | 332. | 16.4 | 2184.8 | * | 1 | 0625 | 78 | 7922. | 1036.1 | 2203.6 | * | 1 | 0945 118 | 9036. | 1345 |
| 1 | 0310 | 39 | 385. | 19.8 | 2185.0 | * | 1 | 0630 | 79 | 8093. | 1082.0 | 2204.3 | * | 1 | 0950 119 | 8906. | 1308 |
| 1 | 0315 | 40 | 453. | 24.3 | 2185.2 | * | 1 | 0635 | 80 | 8257. | 1127.8 | 2205.0 | * | 1 | 0955 120 | 8773. | 1271 |
| | | | | | | * | | | | | | | * | | | | |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 10290. | 8.33 | | 7605. | 4712. | 4712. | 4712. |
| | | (INCHES) | 1.842 | 1.887 | 1.887 | 1.887 |
| | | (AC-FT) | 3771. | 3862. | 3862. | 3862. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 1695. | 8.33 | 1071. | 654. | 654. | 654. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2213.83 | 8.33 | 2203.88 | 2196.16 | 2196.16 | 2196.16 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8489.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8617.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8739.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8855.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8964.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9065.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9159.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9244.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9320.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9387.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9445.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9492.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9530.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9558.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9576.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9585.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9584.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9575.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9557.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9531.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9497.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9455.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9406.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9350.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9286.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9214.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9136.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 9050.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8958.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8859.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8755.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8646.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW ( 8532.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .73

**********

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 445. | 23.7 | 2185.2 | 1 | | 0640 | 81 | 7930. | 1038 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 538. | 29.9 | 2185.6 | 1 | | 0645 | 82 | 8079. | 1078 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | 1 | | 0330 | 43 | 656. | 37.7 | 2186.0 | 1 | | 0650 | 83 | 8219. | 1117 |
| 1 | | 0015 | 4 | 7. | .2 | 2183.1 | 1 | | 0335 | 44 | 796. | 47.5 | 2186.2 | 1 | | 0655 | 84 | 8356. | 1155 |
| 1 | | 0020 | 5 | 19. | .4 | 2183.1 | 1 | | 0340 | 45 | 965. | 59.5 | 2186.5 | 1 | | 0700 | 85 | 8489. | 1192 |
| 1 | | 0025 | 6 | 36. | .8 | 2183.3 | 1 | | 0345 | 46 | 1151. | 72.6 | 2186.8 | 1 | | 0705 | 86 | 8617. | 1228 |
| 1 | | 0030 | 7 | 57. | 1.3 | 2183.5 | 1 | | 0350 | 47 | 1336. | 85.7 | 2187.2 | 1 | | 0710 | 87 | 8739. | 1262 |
| 1 | | 0035 | 8 | 80. | 1.8 | 2183.6 | 1 | | 0355 | 48 | 1512. | 98.1 | 2187.5 | 1 | | 0715 | 88 | 8855. | 1294 |
| 1 | | 0040 | 9 | 99. | 2.2 | 2183.8 | 1 | | 0400 | 49 | 1680. | 110.0 | 2187.8 | 1 | | 0720 | 89 | 8964. | 1325 |
| 1 | | 0045 | 10 | 111. | 2.5 | 2183.9 | 1 | | 0405 | 50 | 1846. | 121.9 | 2188.0 | 1 | | 0725 | 90 | 9065. | 1353 |
| 1 | | 0050 | 11 | 117. | 2.6 | 2183.9 | 1 | | 0410 | 51 | 2010. | 133.9 | 2188.2 | 1 | | 0730 | 91 | 9159. | 1379 |
| 1 | | 0055 | 12 | 116. | 2.6 | 2183.9 | 1 | | 0415 | 52 | 2177. | 146.0 | 2188.5 | 1 | | 0735 | 92 | 9244. | 1403 |
| 1 | | 0100 | 13 | 110. | 2.5 | 2183.9 | 1 | | 0420 | 53 | 2345. | 158.3 | 2188.7 | 1 | | 0740 | 93 | 9320. | 1424 |
| 1 | | 0105 | 14 | 102. | 2.3 | 2183.8 | 1 | | 0425 | 54 | 2515. | 170.8 | 2188.9 | 1 | | 0745 | 94 | 9387. | 1443 |
| 1 | | 0110 | 15 | 93. | 2.1 | 2183.7 | 1 | | 0430 | 55 | 2692. | 183.7 | 2189.2 | 1 | | 0750 | 95 | 9445. | 1459 |
| 1 | | 0115 | 16 | 84. | 1.9 | 2183.7 | 1 | | 0435 | 56 | 2882. | 197.6 | 2189.4 | 1 | | 0755 | 96 | 9492. | 1472 |
| 1 | | 0120 | 17 | 76. | 1.7 | 2183.6 | 1 | | 0440 | 57 | 3094. | 213.2 | 2189.7 | 1 | | 0800 | 97 | 9530. | 1483 |
| 1 | | 0125 | 18 | 70. | 1.6 | 2183.6 | 1 | | 0445 | 58 | 3329. | 231.1 | 2190.0 | 1 | | 0805 | 98 | 9558. | 1491 |
| 1 | | 0130 | 19 | 66. | 1.5 | 2183.5 | 1 | | 0450 | 59 | 3519. | 252.2 | 2190.4 | 1 | | 0810 | 99 | 9576. | 1496 |
| 1 | | 0135 | 20 | 65. | 1.5 | 2183.5 | 1 | | 0455 | 60 | 3741. | 276.8 | 2190.9 | 1 | | 0815 | 100 | 9585. | 1498 |
| 1 | | 0140 | 21 | 68. | 1.5 | 2183.5 | 1 | | 0500 | 61 | 3991. | 304.6 | 2191.4 | 1 | | 0820 | 101 | 9584. | 1498 |
| 1 | | 0145 | 22 | 74. | 1.7 | 2183.6 | 1 | | 0505 | 62 | 4262. | 334.6 | 2191.9 | 1 | | 0825 | 102 | 9575. | 1495 |
| 1 | | 0150 | 23 | 83. | 1.8 | 2183.7 | 1 | | 0510 | 63 | 4494. | 365.9 | 2192.5 | 1 | | 0830 | 103 | 9557. | 1490 |
| 1 | | 0155 | 24 | 93. | 2.1 | 2183.7 | 1 | | 0515 | 64 | 4723. | 398.1 | 2193.0 | 1 | | 0835 | 104 | 9531. | 1483 |
| 1 | | 0200 | 25 | 105. | 2.3 | 2183.8 | 1 | | 0520 | 65 | 4956. | 431.0 | 2193.6 | 1 | | 0840 | 105 | 9497. | 1473 |
| 1 | | 0205 | 26 | 118. | 2.6 | 2183.9 | 1 | | 0525 | 66 | 5183. | 464.6 | 2194.2 | 1 | | 0845 | 106 | 9455. | 1462 |
| 1 | | 0210 | 27 | 129. | 3.0 | 2184.0 | 1 | | 0530 | 67 | 5388. | 498.8 | 2194.8 | 1 | | 0850 | 107 | 9406. | 1448 |
| 1 | | 0215 | 28 | 136. | 3.4 | 2184.0 | 1 | | 0535 | 68 | 5597. | 533.7 | 2195.4 | 1 | | 0855 | 108 | 9350. | 1432 |
| 1 | | 0220 | 29 | 143. | 3.9 | 2184.1 | 1 | | 0540 | 69 | 5810. | 569.2 | 2196.0 | 1 | | 0900 | 109 | 9286. | 1415 |
| 1 | | 0225 | 30 | 151. | 4.4 | 2184.1 | 1 | | 0545 | 70 | 6000. | 605.5 | 2196.6 | 1 | | 0905 | 110 | 9214. | 1395 |
| 1 | | 0230 | 31 | 158. | 4.9 | 2184.1 | 1 | | 0550 | 71 | 6193. | 642.4 | 2197.2 | 1 | | 0910 | 111 | 9136. | 1373 |
| 1 | | 0235 | 32 | 165. | 5.4 | 2184.1 | 1 | | 0555 | 72 | 6389. | 679.9 | 2197.8 | 1 | | 0915 | 112 | 9050. | 1349 |
| 1 | | 0240 | 33 | 173. | 5.9 | 2184.2 | 1 | | 0600 | 73 | 6573. | 718.0 | 2198.5 | 1 | | 0920 | 113 | 8958. | 1323 |
| 1 | | 0245 | 34 | 183. | 6.5 | 2184.2 | 1 | | 0605 | 74 | 6755. | 756.8 | 2199.1 | 1 | | 0925 | 114 | 8859. | 1295 |
| 1 | | 0250 | 35 | 196. | 7.4 | 2184.3 | 1 | | 0610 | 75 | 6939. | 796.1 | 2199.8 | 1 | | 0930 | 115 | 8755. | 1266 |
| 1 | | 0255 | 36 | 214. | 8.6 | 2184.3 | 1 | | 0615 | 76 | 7114. | 836.0 | 2200.4 | 1 | | 0935 | 116 | 8646. | 1236 |
| 1 | | 0300 | 37 | 238. | 10.2 | 2184.4 | 1 | | 0620 | 77 | 7284. | 876.2 | 2201.1 | 1 | | 0940 | 117 | 8532. | 1204 |
| 1 | | 0305 | 38 | 271. | 12.3 | 2184.5 | 1 | | 0625 | 78 | 7455. | 916.7 | 2201.7 | 1 | | 0945 | 118 | 8415. | 1171 |
| 1 | | 0310 | 39 | 314. | 15.2 | 2184.7 | 1 | | 0630 | 79 | 7618. | 957.3 | 2202.4 | 1 | | 0950 | 119 | 8294. | 1138 |
| 1 | | 0315 | 40 | 371. | 18.9 | 2184.9 | 1 | | 0635 | 80 | 7774. | 997.8 | 2203.0 | 1 | | 0955 | 120 | 8172. | 1103 |

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PEAK FLOW TIME MAXIMUM AVERAGE FLOW
6-HR 24-HR 72-HR 9.92-HR

| (CFS) | (HR) | | | | | |
|---|---|---|---|---|---|---|
| | | (CFS) | | | | |
| 9585. | 8.25 | | 7082. | 4380. | 4380. | 4380. |
| | | (INCHES) | 1.716 | 1.754 | 1.754 | 1.754 |
| | | (AC-FT) | 3512. | 3590. | 3590. | 3590. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 1498. | 8.25 | 945. | 576. | 576. | 576. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2210.79 | 8.25 | 2201.88 | 2194.91 | 2194.91 | 2194.91 |

CUMULATIVE AREA = 38.38 SQ MI

WARNING --- ROUTED OUTFLOW ( 8518.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8609.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8693.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8770.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8838.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8898.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8949.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8991.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9024.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9048.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9064.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9071.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9070.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9061.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9044.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 9020.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8988.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8949.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8902.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8849.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8787.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8719.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8644.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW ( 8562.) IS GREATER THAN MAXIMUM OUTFLOW ( 8480.) IN STORAGE-OUTFLOW TABLE

HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .69

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | 1 | | 0320 | 41 | 381. | 19.6 | 2185.0 | 1 | | 0640 | 81 | 7558. | 941 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | 1 | | 0325 | 42 | 464. | 25.0 | 2185.3 | 1 | | 0645 | 82 | 7697. | 977 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | 1 | | 0330 | 43 | 569. | 31.9 | 2185.7 | 1 | | 0650 | 83 | 7833. | 1013 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0015 | 4 | 7. | .2 | 2183.1 | * | 1 | 0335 | 44 | 700. | 40.8 | 2186.1 | * | 1 | 0655 | 84 | 7967. | 1047 |
| 1 | 0020 | 5 | 18. | .4 | 2183.1 | * | 1 | 0340 | 45 | 853. | 51.5 | 2186.3 | * | 1 | 0700 | 85 | 8090. | 1081 |
| 1 | 0025 | 6 | 35. | .8 | 2183.3 | * | 1 | 0345 | 46 | 1021. | 63.4 | 2186.6 | * | 1 | 0705 | 86 | 8205. | 1113 |
| 1 | 0030 | 7 | 55. | 1.2 | 2183.4 | * | 1 | 0350 | 47 | 1188. | 75.2 | 2186.9 | * | 1 | 0710 | 87 | 8315. | 1144 |
| 1 | 0035 | 8 | 76. | 1.7 | 2183.6 | * | 1 | 0355 | 48 | 1346. | 86.4 | 2187.2 | * | 1 | 0715 | 88 | 8420. | 1173 |
| 1 | 0040 | 9 | 95. | 2.1 | 2183.8 | * | 1 | 0400 | 49 | 1497. | 97.1 | 2187.4 | * | 1 | 0720 | 89 | 8518. | 1200 |
| 1 | 0045 | 10 | 107. | 2.4 | 2183.8 | * | 1 | 0405 | 50 | 1648. | 107.8 | 2187.7 | * | 1 | 0725 | 90 | 8609. | 1226 |
| 1 | 0050 | 11 | 112. | 2.5 | 2183.9 | * | 1 | 0410 | 51 | 1801. | 118.6 | 2188.0 | * | 1 | 0730 | 91 | 8693. | 1249 |
| 1 | 0055 | 12 | 111. | 2.5 | 2183.9 | * | 1 | 0415 | 52 | 1955. | 129.8 | 2188.2 | * | 1 | 0735 | 92 | 8770. | 1270 |
| 1 | 0100 | 13 | 106. | 2.3 | 2183.8 | * | 1 | 0420 | 53 | 2113. | 141.4 | 2188.4 | * | 1 | 0740 | 93 | 8838. | 1290 |
| 1 | 0105 | 14 | 98. | 2.2 | 2183.8 | * | 1 | 0425 | 54 | 2276. | 153.3 | 2188.6 | * | 1 | 0745 | 94 | 8898. | 1306 |
| 1 | 0110 | 15 | 89. | 2.0 | 2183.7 | * | 1 | 0430 | 55 | 2446. | 165.8 | 2188.8 | * | 1 | 0750 | 95 | 8949. | 1320 |
| 1 | 0115 | 16 | 80. | 1.8 | 2183.6 | * | 1 | 0435 | 56 | 2626. | 178.9 | 2189.1 | * | 1 | 0755 | 96 | 8991. | 1332 |
| 1 | 0120 | 17 | 73. | 1.6 | 2183.6 | * | 1 | 0440 | 57 | 2824. | 193.4 | 2189.3 | * | 1 | 0800 | 97 | 9024. | 1341 |
| 1 | 0125 | 18 | 66. | 1.5 | 2183.5 | * | 1 | 0445 | 58 | 3048. | 209.8 | 2189.6 | * | 1 | 0805 | 98 | 9048. | 1348 |
| 1 | 0130 | 19 | 62. | 1.4 | 2183.5 | * | 1 | 0450 | 59 | 3284. | 228.5 | 2190.0 | * | 1 | 0810 | 99 | 9064. | 1353 |
| 1 | 0135 | 20 | 60. | 1.3 | 2183.5 | * | 1 | 0455 | 60 | 3500. | 250.1 | 2190.4 | * | 1 | 0815 | 100 | 9071. | 1354 |
| 1 | 0140 | 21 | 62. | 1.4 | 2183.5 | * | 1 | 0500 | 61 | 3720. | 274.5 | 2190.8 | * | 1 | 0820 | 101 | 9070. | 1354 |
| 1 | 0145 | 22 | 66. | 1.5 | 2183.5 | * | 1 | 0505 | 62 | 3961. | 301.3 | 2191.3 | * | 1 | 0825 | 102 | 9061. | 1352 |
| 1 | 0150 | 23 | 73. | 1.6 | 2183.6 | * | 1 | 0510 | 63 | 4214. | 329.4 | 2191.8 | * | 1 | 0830 | 103 | 9044. | 1347 |
| 1 | 0155 | 24 | 81. | 1.8 | 2183.6 | * | 1 | 0515 | 64 | 4439. | 358.2 | 2192.3 | * | 1 | 0835 | 104 | 9020. | 1340 |
| 1 | 0200 | 25 | 91. | 2.0 | 2183.7 | * | 1 | 0520 | 65 | 4649. | 387.8 | 2192.8 | * | 1 | 0840 | 105 | 8988. | 1331 |
| 1 | 0205 | 26 | 102. | 2.3 | 2183.8 | * | 1 | 0525 | 66 | 4864. | 418.1 | 2193.4 | * | 1 | 0845 | 106 | 8949. | 1320 |
| 1 | 0210 | 27 | 115. | 2.6 | 2183.9 | * | 1 | 0530 | 67 | 5085. | 449.2 | 2193.9 | * | 1 | 0850 | 107 | 8902. | 1307 |
| 1 | 0215 | 28 | 127. | 2.9 | 2184.0 | * | 1 | 0535 | 68 | 5282. | 481.1 | 2194.5 | * | 1 | 0855 | 108 | 8849. | 1292 |
| 1 | 0220 | 29 | 133. | 3.2 | 2184.0 | * | 1 | 0540 | 69 | 5478. | 513.9 | 2195.0 | * | 1 | 0900 | 109 | 8787. | 1275 |
| 1 | 0225 | 30 | 138. | 3.6 | 2184.0 | * | 1 | 0545 | 70 | 5679. | 547.3 | 2195.6 | * | 1 | 0905 | 110 | 8719. | 1256 |
| 1 | 0230 | 31 | 143. | 3.9 | 2184.1 | * | 1 | 0550 | 71 | 5874. | 581.2 | 2196.2 | * | 1 | 0910 | 111 | 8644. | 1235 |
| 1 | 0235 | 32 | 147. | 4.2 | 2184.1 | * | 1 | 0555 | 72 | 6054. | 615.8 | 2196.8 | * | 1 | 0915 | 112 | 8562. | 1212 |
| 1 | 0240 | 33 | 153. | 4.6 | 2184.1 | * | 1 | 0600 | 73 | 6238. | 650.9 | 2197.4 | * | 1 | 0920 | 113 | 8474. | 1188 |
| 1 | 0245 | 34 | 160. | 5.0 | 2184.1 | * | 1 | 0605 | 74 | 6424. | 686.5 | 2198.0 | * | 1 | 0925 | 114 | 8380. | 1162 |
| 1 | 0250 | 35 | 170. | 5.7 | 2184.2 | * | 1 | 0610 | 75 | 6593. | 722.4 | 2198.6 | * | 1 | 0930 | 115 | 8281. | 1134 |
| 1 | 0255 | 36 | 184. | 6.6 | 2184.2 | * | 1 | 0615 | 76 | 6763. | 758.7 | 2199.2 | * | 1 | 0935 | 116 | 8177. | 1105 |
| 1 | 0300 | 37 | 204. | 7.9 | 2184.3 | * | 1 | 0620 | 77 | 6935. | 795.2 | 2199.8 | * | 1 | 0940 | 117 | 8069. | 1075 |
| 1 | 0305 | 38 | 231. | 9.7 | 2184.4 | * | 1 | 0625 | 78 | 7096. | 831.9 | 2200.4 | * | 1 | 0945 | 118 | 7954. | 1044 |
| 1 | 0310 | 39 | 268. | 12.1 | 2184.5 | * | 1 | 0630 | 79 | 7252. | 868.6 | 2200.9 | * | 1 | 0950 | 119 | 7831. | 1012 |
| 1 | 0315 | 40 | 317. | 15.4 | 2184.7 | * | 1 | 0635 | 80 | 7407. | 905.3 | 2201.5 | * | 1 | 0955 | 120 | 7707. | 980 |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 9071. | 8.25 | | 6693. | 4134. | 4134. | 4134. |
| | | (INCHES) | 1.621 | 1.655 | 1.655 | 1.655 |
| | | (AC-FT) | 3319. | 3388. | 3388. | 3388. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 1355. | 8.25 | 853. | 520. | 520. | 520. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 2208.56 | 8.25 | 2200.42 | 2193.99 | 2193.99 | 2193.99 |

CUMULATIVE AREA = 38.38 SQ MI

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .64

**********

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | * | 1 | | 0320 | 41 | 284. | 13.2 | 2184.6 | * | 1 | | 0640 | 81 | 6841. | 775 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | * | 1 | | 0325 | 42 | 348. | 17.4 | 2184.8 | * | 1 | | 0645 | 82 | 6979. | 804 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | * | 1 | | 0330 | 43 | 432. | 22.9 | 2185.2 | * | 1 | | 0650 | 83 | 7103. | 833 |
| 1 | | 0015 | 4 | 6. | .1 | 2183.1 | * | 1 | | 0335 | 44 | 540. | 30.0 | 2185.6 | * | 1 | | 0655 | 84 | 7222. | 861 |
| 1 | | 0020 | 5 | 16. | .4 | 2183.1 | * | 1 | | 0340 | 45 | 671. | 38.7 | 2186.0 | * | 1 | | 0700 | 85 | 7337. | 888 |
| 1 | | 0025 | 6 | 32. | .7 | 2183.3 | * | 1 | | 0345 | 46 | 808. | 48.4 | 2186.3 | * | 1 | | 0705 | 86 | 7447. | 914 |
| 1 | | 0030 | 7 | 51. | 1.1 | 2183.4 | * | 1 | | 0350 | 47 | 943. | 58.0 | 2186.5 | * | 1 | | 0710 | 87 | 7551. | 939 |
| 1 | | 0035 | 8 | 70. | 1.6 | 2183.6 | * | 1 | | 0355 | 48 | 1071. | 67.0 | 2186.7 | * | 1 | | 0715 | 88 | 7642. | 963 |
| 1 | | 0040 | 9 | 87. | 1.9 | 2183.7 | * | 1 | | 0400 | 49 | 1193. | 75.6 | 2186.9 | * | 1 | | 0720 | 89 | 7727. | 985 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0045 | 10 | 98. | 2.2 | 2183.8 | * | 1 | 0405 | 50 | 1314. | 84.2 | 2187.1 | * | 1 | 0725 | 90 | 7807. | 1006 |
| 1 | 0050 | 11 | 103. | 2.3 | 2183.8 | * | 1 | 0410 | 51 | 1438. | 92.9 | 2187.3 | * | 1 | 0730 | 91 | 7879. | 1025 |
| 1 | 0055 | 12 | 102. | 2.3 | 2183.8 | * | 1 | 0415 | 52 | 1567. | 102.1 | 2187.6 | * | 1 | 0735 | 92 | 7944. | 1041 |
| 1 | 0100 | 13 | 97. | 2.2 | 2183.8 | * | 1 | 0420 | 53 | 1704. | 111.8 | 2187.8 | * | 1 | 0740 | 93 | 8002. | 1056 |
| 1 | 0105 | 14 | 90. | 2.0 | 2183.7 | * | 1 | 0425 | 54 | 1851. | 122.2 | 2188.0 | * | 1 | 0745 | 94 | 8049. | 1069 |
| 1 | 0110 | 15 | 82. | 1.8 | 2183.7 | * | 1 | 0430 | 55 | 2006. | 133.5 | 2188.2 | * | 1 | 0750 | 95 | 8089. | 1080 |
| 1 | 0115 | 16 | 74. | 1.6 | 2183.6 | * | 1 | 0435 | 56 | 2172. | 145.7 | 2188.5 | * | 1 | 0755 | 96 | 8121. | 1089 |
| 1 | 0120 | 17 | 67. | 1.5 | 2183.5 | * | 1 | 0440 | 57 | 2351. | 158.8 | 2188.7 | * | 1 | 0800 | 97 | 8147. | 1097 |
| 1 | 0125 | 18 | 61. | 1.3 | 2183.5 | * | 1 | 0445 | 58 | 2547. | 173.1 | 2189.0 | * | 1 | 0805 | 98 | 8165. | 1102 |
| 1 | 0130 | 19 | 56. | 1.2 | 2183.4 | * | 1 | 0450 | 59 | 2764. | 189.0 | 2189.3 | * | 1 | 0810 | 99 | 8177. | 1105 |
| 1 | 0135 | 20 | 54. | 1.2 | 2183.4 | * | 1 | 0455 | 60 | 3004. | 206.6 | 2189.6 | * | 1 | 0815 | 100 | 8182. | 1106 |
| 1 | 0140 | 21 | 53. | 1.2 | 2183.4 | * | 1 | 0500 | 61 | 3265. | 225.7 | 2189.9 | * | 1 | 0820 | 101 | 8179. | 1106 |
| 1 | 0145 | 22 | 55. | 1.2 | 2183.4 | * | 1 | 0505 | 62 | 3465. | 246.2 | 2190.3 | * | 1 | 0825 | 102 | 8170. | 1103 |
| 1 | 0150 | 23 | 59. | 1.3 | 2183.5 | * | 1 | 0510 | 63 | 3662. | 268.0 | 2190.7 | * | 1 | 0830 | 103 | 8153. | 1098 |
| 1 | 0155 | 24 | 64. | 1.4 | 2183.5 | * | 1 | 0515 | 64 | 3868. | 290.9 | 2191.1 | * | 1 | 0835 | 104 | 8130. | 1092 |
| 1 | 0200 | 25 | 70. | 1.5 | 2183.6 | * | 1 | 0520 | 65 | 4091. | 314.6 | 2191.5 | * | 1 | 0840 | 105 | 8100. | 1083 |
| 1 | 0205 | 26 | 77. | 1.7 | 2183.6 | * | 1 | 0525 | 66 | 4300. | 338.9 | 2192.0 | * | 1 | 0845 | 106 | 8062. | 1073 |
| 1 | 0210 | 27 | 87. | 1.9 | 2183.7 | * | 1 | 0530 | 67 | 4480. | 363.9 | 2192.4 | * | 1 | 0850 | 107 | 8018. | 1060 |
| 1 | 0215 | 28 | 97. | 2.2 | 2183.8 | * | 1 | 0535 | 68 | 4664. | 389.9 | 2192.9 | * | 1 | 0855 | 108 | 7962. | 1046 |
| 1 | 0220 | 29 | 107. | 2.4 | 2183.8 | * | 1 | 0540 | 69 | 4855. | 416.8 | 2193.3 | * | 1 | 0900 | 109 | 7900. | 1030 |
| 1 | 0225 | 30 | 114. | 2.5 | 2183.9 | * | 1 | 0545 | 70 | 5052. | 444.5 | 2193.8 | * | 1 | 0905 | 110 | 7831. | 1012 |
| 1 | 0230 | 31 | 119. | 2.7 | 2183.9 | * | 1 | 0550 | 71 | 5232. | 472.9 | 2194.3 | * | 1 | 0910 | 111 | 7756. | 993 |
| 1 | 0235 | 32 | 123. | 2.7 | 2184.0 | * | 1 | 0555 | 72 | 5407. | 502.0 | 2194.8 | * | 1 | 0915 | 112 | 7675. | 972 |
| 1 | 0240 | 33 | 127. | 2.8 | 2184.0 | * | 1 | 0600 | 73 | 5585. | 531.7 | 2195.3 | * | 1 | 0920 | 113 | 7588. | 949 |
| 1 | 0245 | 34 | 129. | 3.0 | 2184.0 | * | 1 | 0605 | 74 | 5766. | 561.8 | 2195.9 | * | 1 | 0925 | 114 | 7494. | 925 |
| 1 | 0250 | 35 | 134. | 3.3 | 2184.0 | * | 1 | 0610 | 75 | 5931. | 592.3 | 2196.4 | * | 1 | 0930 | 115 | 7388. | 900 |
| 1 | 0255 | 36 | 142. | 3.9 | 2184.1 | * | 1 | 0615 | 76 | 6092. | 622.9 | 2196.9 | * | 1 | 0935 | 116 | 7279. | 875 |
| 1 | 0300 | 37 | 154. | 4.7 | 2184.1 | * | 1 | 0620 | 77 | 6252. | 653.7 | 2197.4 | * | 1 | 0940 | 117 | 7167. | 848 |
| 1 | 0305 | 38 | 173. | 5.9 | 2184.2 | * | 1 | 0625 | 78 | 6413. | 684.4 | 2197.9 | * | 1 | 0945 | 118 | 7052. | 821 |
| 1 | 0310 | 39 | 199. | 7.6 | 2184.3 | * | 1 | 0630 | 79 | 6558. | 714.9 | 2198.4 | * | 1 | 0950 | 119 | 6927. | 793 |
| 1 | 0315 | 40 | 236. | 10.0 | 2184.4 | * | 1 | 0635 | 80 | 6700. | 745.2 | 2198.9 | * | 1 | 0955 | 120 | 6796. | 765 |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 8182. | 8.25 | | 5982. | 3687. | 3687. | 3687. |
| | | (INCHES) | 1.449 | 1.476 | 1.476 | 1.476 |
| | | (AC-FT) | 2966. | 3022. | 3022. | 3022. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 1107. | 8.25 | | 693. | 423. | 423. | 423. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 2204.71 | 8.25 | | 2197.86 | 2192.38 | 2192.38 | 2192.38 |

CUMULATIVE AREA = 38.38 SQ MI

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .58

**********

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | * | 1 | | 0320 | 41 | 208. | 8.2 | 2184.3 | * | 1 | | 0640 | 81 | 5994. | 604 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | * | 1 | | 0325 | 42 | 254. | 11.2 | 2184.5 | * | 1 | | 0645 | 82 | 6119. | 628 |
| 1 | | 0010 | 3 | 2. | .0 | 2183.0 | * | 1 | | 0330 | 43 | 316. | 15.3 | 2184.7 | * | 1 | | 0650 | 83 | 6241. | 651 |
| 1 | | 0015 | 4 | 6. | .1 | 2183.0 | * | 1 | | 0335 | 44 | 397. | 20.6 | 2185.0 | * | 1 | | 0655 | 84 | 6360. | 674 |
| 1 | | 0020 | 5 | 15. | .3 | 2183.1 | * | 1 | | 0340 | 45 | 500. | 27.4 | 2185.4 | * | 1 | | 0700 | 85 | 6470. | 696 |
| 1 | | 0025 | 6 | 29. | .6 | 2183.2 | * | 1 | | 0345 | 46 | 613. | 34.8 | 2185.8 | * | 1 | | 0705 | 86 | 6568. | 716 |
| 1 | | 0030 | 7 | 46. | 1.0 | 2183.4 | * | 1 | | 0350 | 47 | 720. | 42.2 | 2186.1 | * | 1 | | 0710 | 87 | 6660. | 736 |
| 1 | | 0035 | 8 | 64. | 1.4 | 2183.5 | * | 1 | | 0355 | 48 | 817. | 49.1 | 2186.3 | * | 1 | | 0715 | 88 | 6748. | 755 |
| 1 | | 0040 | 9 | 79. | 1.8 | 2183.6 | * | 1 | | 0400 | 49 | 910. | 55.6 | 2186.4 | * | 1 | | 0720 | 89 | 6829. | 772 |
| 1 | | 0045 | 10 | 89. | 2.0 | 2183.7 | * | 1 | | 0405 | 50 | 1001. | 62.0 | 2186.6 | * | 1 | | 0725 | 90 | 6903. | 788 |
| 1 | | 0050 | 11 | 93. | 2.1 | 2183.7 | * | 1 | | 0410 | 51 | 1094. | 68.6 | 2186.8 | * | 1 | | 0730 | 91 | 6971. | 802 |
| 1 | | 0055 | 12 | 93. | 2.1 | 2183.7 | * | 1 | | 0415 | 52 | 1192. | 75.5 | 2186.9 | * | 1 | | 0735 | 92 | 7029. | 815 |
| 1 | | 0100 | 13 | 88. | 2.0 | 2183.7 | * | 1 | | 0420 | 53 | 1296. | 82.9 | 2187.1 | * | 1 | | 0740 | 93 | 7077. | 827 |
| 1 | | 0105 | 14 | 82. | 1.8 | 2183.6 | * | 1 | | 0425 | 54 | 1411. | 91.1 | 2187.3 | * | 1 | | 0745 | 94 | 7119. | 837 |
| 1 | | 0110 | 15 | 74. | 1.7 | 2183.6 | * | 1 | | 0430 | 55 | 1541. | 100.2 | 2187.5 | * | 1 | | 0750 | 95 | 7154. | 845 |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0115 | 16 | 67. | 1.5 | 2183.5 | * | 1 | 0435 | 56 | 1688. | 110.6 | 2187.8 | * | 1 | 0755 | 96 | 7182. | 852 |
| 1 | 0120 | 17 | 60. | 1.3 | 2183.5 | * | 1 | 0440 | 57 | 1851. | 122.2 | 2188.0 | * | 1 | 0800 | 97 | 7204. | 857 |
| 1 | 0125 | 18 | 55. | 1.2 | 2183.4 | * | 1 | 0445 | 58 | 2027. | 135.1 | 2188.3 | * | 1 | 0805 | 98 | 7218. | 860 |
| 1 | 0130 | 19 | 51. | 1.1 | 2183.4 | * | 1 | 0450 | 59 | 2217. | 149.0 | 2188.5 | * | 1 | 0810 | 99 | 7226. | 862 |
| 1 | 0135 | 20 | 48. | 1.1 | 2183.4 | * | 1 | 0455 | 60 | 2421. | 163.9 | 2188.8 | * | 1 | 0815 | 100 | 7225. | 862 |
| 1 | 0140 | 21 | 47. | 1.1 | 2183.4 | * | 1 | 0500 | 61 | 2635. | 179.6 | 2189.1 | * | 1 | 0820 | 101 | 7218. | 860 |
| 1 | 0145 | 22 | 48. | 1.1 | 2183.4 | * | 1 | 0505 | 62 | 2856. | 195.8 | 2189.4 | * | 1 | 0825 | 102 | 7203. | 857 |
| 1 | 0150 | 23 | 49. | 1.1 | 2183.4 | * | 1 | 0510 | 63 | 3079. | 212.1 | 2189.7 | * | 1 | 0830 | 103 | 7181. | 851 |
| 1 | 0155 | 24 | 52. | 1.1 | 2183.4 | * | 1 | 0515 | 64 | 3302. | 228.4 | 2190.0 | * | 1 | 0835 | 104 | 7151. | 844 |
| 1 | 0200 | 25 | 54. | 1.2 | 2183.4 | * | 1 | 0520 | 65 | 3455. | 245.1 | 2190.3 | * | 1 | 0840 | 105 | 7115. | 836 |
| 1 | 0205 | 26 | 58. | 1.3 | 2183.5 | * | 1 | 0525 | 66 | 3613. | 262.6 | 2190.6 | * | 1 | 0845 | 106 | 7071. | 825 |
| 1 | 0210 | 27 | 64. | 1.4 | 2183.5 | * | 1 | 0530 | 67 | 3780. | 281.2 | 2190.9 | * | 1 | 0850 | 107 | 7021. | 814 |
| 1 | 0215 | 28 | 70. | 1.6 | 2183.6 | * | 1 | 0535 | 68 | 3956. | 300.8 | 2191.3 | * | 1 | 0855 | 108 | 6960. | 800 |
| 1 | 0220 | 29 | 76. | 1.7 | 2183.6 | * | 1 | 0540 | 69 | 4141. | 321.2 | 2191.7 | * | 1 | 0900 | 109 | 6891. | 785 |
| 1 | 0225 | 30 | 80. | 1.8 | 2183.6 | * | 1 | 0545 | 70 | 4327. | 342.4 | 2192.0 | * | 1 | 0905 | 110 | 6815. | 769 |
| 1 | 0230 | 31 | 83. | 1.8 | 2183.7 | * | 1 | 0550 | 71 | 4482. | 364.3 | 2192.4 | * | 1 | 0910 | 111 | 6733. | 752 |
| 1 | 0235 | 32 | 84. | 1.9 | 2183.7 | * | 1 | 0555 | 72 | 4643. | 386.9 | 2192.8 | * | 1 | 0915 | 112 | 6646. | 733 |
| 1 | 0240 | 33 | 86. | 1.9 | 2183.7 | * | 1 | 0600 | 73 | 4807. | 410.1 | 2193.2 | * | 1 | 0920 | 113 | 6554. | 714 |
| 1 | 0245 | 34 | 89. | 2.0 | 2183.7 | * | 1 | 0605 | 74 | 4975. | 433.7 | 2193.6 | * | 1 | 0925 | 114 | 6458. | 693 |
| 1 | 0250 | 35 | 95. | 2.1 | 2183.8 | * | 1 | 0610 | 75 | 5141. | 457.7 | 2194.1 | * | 1 | 0930 | 115 | 6350. | 672 |
| 1 | 0255 | 36 | 106. | 2.4 | 2183.8 | * | 1 | 0615 | 76 | 5287. | 482.0 | 2194.5 | * | 1 | 0935 | 116 | 6237. | 650 |
| 1 | 0300 | 37 | 124. | 2.7 | 2184.0 | * | 1 | 0620 | 77 | 5434. | 506.5 | 2194.9 | * | 1 | 0940 | 117 | 6121. | 628 |
| 1 | 0305 | 38 | 135. | 3.4 | 2184.0 | * | 1 | 0625 | 78 | 5581. | 531.1 | 2195.3 | * | 1 | 0945 | 118 | 6003. | 605 |
| 1 | 0310 | 39 | 151. | 4.5 | 2184.1 | * | 1 | 0630 | 79 | 5729. | 555.6 | 2195.8 | * | 1 | 0950 | 119 | 5883. | 582 |
| 1 | 0315 | 40 | 175. | 6.0 | 2184.2 | * | 1 | 0635 | 80 | 5868. | 580.1 | 2196.2 | * | 1 | 0955 | 120 | 5754. | 559 |
| | | | | | | * | | | | | | | * | | | | | |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (CFS) | (HR) | | | | |
| | | (CFS)□ | | | |
| 7226. | 8.17 | 5180. | 3186. | 3186. | 3186. |
| | | (INCHES) 1.255 | 1.276 | 1.276 | 1.276 |
| | | (AC-FT) 2568. | 2611. | 2611. | 2611. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (AC-FT) | (HR) | | | | |
| 862. | 8.17 | 535. | 326. | 326. | 326. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (FEET) | (HR) | | | | |
| 2200.85 | 8.17 | 2195.25 | 2190.73 | 2190.73 | 2190.73 |

CUMULATIVE AREA = 38.38 SQ MI

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HYDROGRAPH AT STATION LDCDB
PLAN 1, RATIO = .53

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | * | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | * | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | * | | | | | | | | * | | | | | | |
| 1 | | 0000 | 1 | 0. | .0 | 2183.0 | * | 1 | | 0320 | 41 | 165. | 5.3 | 2184.1 | * | 1 | | 0640 | 81 | 5215. | 470 |
| 1 | | 0005 | 2 | 0. | .0 | 2183.0 | * | 1 | | 0325 | 42 | 197. | 7.5 | 2184.3 | * | 1 | | 0645 | 82 | 5326. | 488 |
| 1 | | 0010 | 3 | 1. | .0 | 2183.0 | * | 1 | | 0330 | 43 | 243. | 10.5 | 2184.4 | * | 1 | | 0650 | 83 | 5435. | 506 |
| 1 | | 0015 | 4 | 5. | .1 | 2183.0 | * | 1 | | 0335 | 44 | 305. | 14.6 | 2184.7 | * | 1 | | 0655 | 84 | 5541. | 524 |
| 1 | | 0020 | 5 | 14. | .3 | 2183.1 | * | 1 | | 0340 | 45 | 384. | 19.8 | 2185.0 | * | 1 | | 0700 | 85 | 5643. | 541 |
| 1 | | 0025 | 6 | 26. | .6 | 2183.2 | * | 1 | | 0345 | 46 | 473. | 25.6 | 2185.3 | * | 1 | | 0705 | 86 | 5741. | 557 |
| 1 | | 0030 | 7 | 42. | .9 | 2183.3 | * | 1 | | 0350 | 47 | 560. | 31.3 | 2185.6 | * | 1 | | 0710 | 87 | 5831. | 573 |
| 1 | | 0035 | 8 | 58. | 1.3 | 2183.5 | * | 1 | | 0355 | 48 | 641. | 36.6 | 2185.9 | * | 1 | | 0715 | 88 | 5907. | 587 |
| 1 | | 0040 | 9 | 72. | 1.6 | 2183.6 | * | 1 | | 0400 | 49 | 712. | 41.6 | 2186.1 | * | 1 | | 0720 | 89 | 5977. | 601 |
| 1 | | 0045 | 10 | 81. | 1.8 | 2183.6 | * | 1 | | 0405 | 50 | 781. | 46.4 | 2186.2 | * | 1 | | 0725 | 90 | 6042. | 613 |
| 1 | | 0050 | 11 | 85. | 1.9 | 2183.7 | * | 1 | | 0410 | 51 | 851. | 51.4 | 2186.3 | * | 1 | | 0730 | 91 | 6102. | 624 |
| 1 | | 0055 | 12 | 85. | 1.9 | 2183.7 | * | 1 | | 0415 | 52 | 924. | 56.6 | 2186.5 | * | 1 | | 0735 | 92 | 6155. | 635 |
| 1 | | 0100 | 13 | 81. | 1.8 | 2183.6 | * | 1 | | 0420 | 53 | 1003. | 62.2 | 2186.6 | * | 1 | | 0740 | 93 | 6201. | 643 |
| 1 | | 0105 | 14 | 75. | 1.7 | 2183.6 | * | 1 | | 0425 | 54 | 1091. | 68.4 | 2186.7 | * | 1 | | 0745 | 94 | 6240. | 651 |
| 1 | | 0110 | 15 | 68. | 1.5 | 2183.5 | * | 1 | | 0430 | 55 | 1191. | 75.5 | 2186.9 | * | 1 | | 0750 | 95 | 6273. | 657 |
| 1 | | 0115 | 16 | 61. | 1.4 | 2183.5 | * | 1 | | 0435 | 56 | 1308. | 83.7 | 2187.1 | * | 1 | | 0755 | 96 | 6297. | 662 |
| 1 | | 0120 | 17 | 55. | 1.2 | 2183.4 | * | 1 | | 0440 | 57 | 1443. | 93.3 | 2187.3 | * | 1 | | 0800 | 97 | 6315. | 665 |
| 1 | | 0125 | 18 | 50. | 1.1 | 2183.4 | * | 1 | | 0445 | 58 | 1599. | 104.3 | 2187.6 | * | 1 | | 0805 | 98 | 6324. | 667 |
| 1 | | 0130 | 19 | 46. | 1.0 | 2183.4 | * | 1 | | 0450 | 59 | 1772. | 116.6 | 2187.9 | * | 1 | | 0810 | 99 | 6326. | 667 |
| 1 | | 0135 | 20 | 44. | 1.0 | 2183.3 | * | 1 | | 0455 | 60 | 1955. | 129.8 | 2188.2 | * | 1 | | 0815 | 100 | 6321. | 666 |
| 1 | | 0140 | 21 | 43. | 1.0 | 2183.3 | * | 1 | | 0500 | 61 | 2143. | 143.6 | 2188.4 | * | 1 | | 0820 | 101 | 6308. | 664 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0145 | 22 | 44. | 1.0 | 2183.3 | * | 1 | 0505 | 62 | 2331. | 157.4 | 2188.7 | * | 1 | 0825 | 102 | 6287. | 660 |
| 1 | 0150 | 23 | 45. | 1.0 | 2183.4 | * | 1 | 0510 | 63 | 2517. | 170.9 | 2188.9 | * | 1 | 0830 | 103 | 6259. | 655 |
| 1 | 0155 | 24 | 46. | 1.0 | 2183.4 | * | 1 | 0515 | 64 | 2698. | 184.2 | 2189.2 | * | 1 | 0835 | 104 | 6224. | 648 |
| 1 | 0200 | 25 | 47. | 1.1 | 2183.4 | * | 1 | 0520 | 65 | 2877. | 197.3 | 2189.4 | * | 1 | 0840 | 105 | 6182. | 640 |
| 1 | 0205 | 26 | 49. | 1.1 | 2183.4 | * | 1 | 0525 | 66 | 3056. | 210.4 | 2189.7 | * | 1 | 0845 | 106 | 6133. | 630 |
| 1 | 0210 | 27 | 52. | 1.1 | 2183.4 | * | 1 | 0530 | 67 | 3239. | 223.8 | 2189.9 | * | 1 | 0850 | 107 | 6078. | 620 |
| 1 | 0215 | 28 | 55. | 1.2 | 2183.4 | * | 1 | 0535 | 68 | 3388. | 237.6 | 2190.2 | * | 1 | 0855 | 108 | 6016. | 608 |
| 1 | 0220 | 29 | 58. | 1.3 | 2183.5 | * | 1 | 0540 | 69 | 3520. | 252.3 | 2190.4 | * | 1 | 0900 | 109 | 5948. | 595 |
| 1 | 0225 | 30 | 60. | 1.3 | 2183.5 | * | 1 | 0545 | 70 | 3661. | 267.9 | 2190.7 | * | 1 | 0905 | 110 | 5875. | 581 |
| 1 | 0230 | 31 | 61. | 1.3 | 2183.5 | * | 1 | 0550 | 71 | 3810. | 284.5 | 2191.0 | * | 1 | 0910 | 111 | 5794. | 566 |
| 1 | 0235 | 32 | 61. | 1.3 | 2183.5 | * | 1 | 0555 | 72 | 3965. | 301.7 | 2191.3 | * | 1 | 0915 | 112 | 5700. | 550 |
| 1 | 0240 | 33 | 61. | 1.3 | 2183.5 | * | 1 | 0600 | 73 | 4126. | 319.6 | 2191.6 | * | 1 | 0920 | 113 | 5602. | 534 |
| 1 | 0245 | 34 | 62. | 1.4 | 2183.5 | * | 1 | 0605 | 74 | 4290. | 337.7 | 2192.0 | * | 1 | 0925 | 114 | 5502. | 517 |
| 1 | 0250 | 35 | 65. | 1.4 | 2183.5 | * | 1 | 0610 | 75 | 4425. | 356.3 | 2192.3 | * | 1 | 0930 | 115 | 5399. | 500 |
| 1 | 0255 | 36 | 71. | 1.6 | 2183.6 | * | 1 | 0615 | 76 | 4559. | 375.1 | 2192.6 | * | 1 | 0935 | 116 | 5292. | 482 |
| 1 | 0300 | 37 | 83. | 1.8 | 2183.7 | * | 1 | 0620 | 77 | 4694. | 394.1 | 2193.0 | * | 1 | 0940 | 117 | 5184. | 464 |
| 1 | 0305 | 38 | 101. | 2.3 | 2183.8 | * | 1 | 0625 | 78 | 4830. | 413.2 | 2193.3 | * | 1 | 0945 | 118 | 5065. | 446 |
| 1 | 0310 | 39 | 127. | 2.9 | 2184.0 | * | 1 | 0630 | 79 | 4965. | 432.3 | 2193.6 | * | 1 | 0950 | 119 | 4934. | 427 |
| 1 | 0315 | 40 | 142. | 3.8 | 2184.1 | * | 1 | 0635 | 80 | 5100. | 451.2 | 2194.0 | * | 1 | 0955 | 120 | 4803. | 409 |
| | | | | | | * | | | | | | | * | | | | | |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (CFS) | (HR) | | | | | |
| | | (CFS)□ | | | | |
| 6326. | 8.17 | | 4452. | 2735. | 2735. | 2735. |
| | | (INCHES) | 1.079 | 1.095 | 1.095 | 1.095 |
| | | (AC-FT) | 2208. | 2241. | 2241. | 2241. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (AC-FT) | (HR) | | | | |
| 668. | 8.17 | 412. | 251. | 251. | 251. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (FEET) | (HR) | | | | |
| 2197.64 | 8.17 | 2193.15 | 2189.41 | 2189.41 | 2189.41 |

CUMULATIVE AREA = 38.38 SQ MI

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          *            *
872 KK    *     MCDB   *
          *            *
          **************

879 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

875 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

876 SV            STORAGE        .0      8.0     40.0     70.0    100.0    160.0    210.0    500.0

877 SQ          DISCHARGE        0.      30.     40.      55.     65.      80.      85.      87.

878 SE          ELEVATION       .00     2.00    4.00     6.00    8.00     12.00    15.00    16.00
                                                         ***
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HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .83

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 * | 1 | | 0320 | 41 | 38. | 32.1 | 3.5 * | 1 | | 0640 | 81 | 76. | 142 |
| 1 | | 0005 | 2 | 0. | .0 | .0 * | 1 | | 0325 | 42 | 39. | 38.2 | 3.9 * | 1 | | 0645 | 82 | 75. | 141 |
| 1 | | 0010 | 3 | 0. | .0 | .0 * | 1 | | 0330 | 43 | 43. | 45.8 | 4.4 * | 1 | | 0650 | 83 | 75. | 141 |
| 1 | | 0015 | 4 | 0. | .0 | .0 * | 1 | | 0335 | 44 | 48. | 55.1 | 5.0 * | 1 | | 0655 | 84 | 75. | 140 |
| 1 | | 0020 | 5 | 0. | .0 | .0 * | 1 | | 0340 | 45 | 53. | 65.2 | 5.7 * | 1 | | 0700 | 85 | 75. | 140 |
| 1 | | 0025 | 6 | 0. | .1 | .0 * | 1 | | 0345 | 46 | 57. | 74.6 | 6.3 * | 1 | | 0705 | 86 | 75. | 139 |
| 1 | | 0030 | 7 | 1. | .2 | .1 * | 1 | | 0350 | 47 | 59. | 82.4 | 6.8 * | 1 | | 0710 | 87 | 75. | 139 |
| 1 | | 0035 | 8 | 2. | .5 | .1 * | 1 | | 0355 | 48 | 61. | 88.8 | 7.3 * | 1 | | 0715 | 88 | 75. | 138 |
| 1 | | 0040 | 9 | 3. | .9 | .2 * | 1 | | 0400 | 49 | 63. | 94.2 | 7.6 * | 1 | | 0720 | 89 | 75. | 138 |
| 1 | | 0045 | 10 | 5. | 1.3 | .3 * | 1 | | 0405 | 50 | 65. | 98.7 | 7.9 * | 1 | | 0725 | 90 | 74. | 137 |
| 1 | | 0050 | 11 | 6. | 1.7 | .4 * | 1 | | 0410 | 51 | 66. | 102.4 | 8.2 * | 1 | | 0730 | 91 | 74. | 137 |
| 1 | | 0055 | 12 | 8. | 2.1 | .5 * | 1 | | 0415 | 52 | 66. | 105.2 | 8.3 * | 1 | | 0735 | 92 | 74. | 136 |
| 1 | | 0100 | 13 | 9. | 2.4 | .6 * | 1 | | 0420 | 53 | 67. | 107.4 | 8.5 * | 1 | | 0740 | 93 | 74. | 136 |
| 1 | | 0105 | 14 | 10. | 2.7 | .7 * | 1 | | 0425 | 54 | 67. | 109.3 | 8.6 * | 1 | | 0745 | 94 | 74. | 135 |
| 1 | | 0110 | 15 | 11. | 3.0 | .8 * | 1 | | 0430 | 55 | 68. | 111.2 | 8.7 * | 1 | | 0750 | 95 | 74. | 135 |
| 1 | | 0115 | 16 | 12. | 3.3 | .8 * | 1 | | 0435 | 56 | 68. | 113.3 | 8.9 * | 1 | | 0755 | 96 | 74. | 134 |
| 1 | | 0120 | 17 | 13. | 3.5 | .9 * | 1 | | 0440 | 57 | 69. | 116.1 | 9.1 * | 1 | | 0800 | 97 | 74. | 134 |
| 1 | | 0125 | 18 | 14. | 3.8 | 1.0 * | 1 | | 0445 | 58 | 70. | 119.7 | 9.3 * | 1 | | 0805 | 98 | 73. | 133 |
| 1 | | 0130 | 19 | 16. | 4.2 | 1.1 * | 1 | | 0450 | 59 | 71. | 124.0 | 9.6 * | 1 | | 0810 | 99 | 73. | 133 |
| 1 | | 0135 | 20 | 18. | 4.8 | 1.2 * | 1 | | 0455 | 60 | 72. | 128.8 | 9.9 * | 1 | | 0815 | 100 | 73. | 132 |
| 1 | | 0140 | 21 | 20. | 5.4 | 1.4 * | 1 | | 0500 | 61 | 73. | 133.5 | 10.2 * | 1 | | 0820 | 101 | 73. | 132 |
| 1 | | 0145 | 22 | 23. | 6.2 | 1.6 * | 1 | | 0505 | 62 | 74. | 137.6 | 10.5 * | 1 | | 0825 | 102 | 73. | 131 |
| 1 | | 0150 | 23 | 26. | 7.0 | 1.8 * | 1 | | 0510 | 63 | 75. | 140.6 | 10.7 * | 1 | | 0830 | 103 | 73. | 131 |
| 1 | | 0155 | 24 | 30. | 7.9 | 2.0 * | 1 | | 0515 | 64 | 76. | 142.7 | 10.8 * | 1 | | 0835 | 104 | 73. | 130 |
| 1 | | 0200 | 25 | 30. | 8.8 | 2.0 * | 1 | | 0520 | 65 | 76. | 144.1 | 10.9 * | 1 | | 0840 | 105 | 73. | 130 |
| 1 | | 0205 | 26 | 31. | 9.7 | 2.1 * | 1 | | 0525 | 66 | 76. | 144.9 | 11.0 * | 1 | | 0845 | 106 | 72. | 129 |
| 1 | | 0210 | 27 | 31. | 10.8 | 2.2 * | 1 | | 0530 | 67 | 76. | 145.4 | 11.0 * | 1 | | 0850 | 107 | 72. | 129 |
| 1 | | 0215 | 28 | 31. | 11.9 | 2.2 * | 1 | | 0535 | 68 | 76. | 145.7 | 11.0 * | 1 | | 0855 | 108 | 72. | 128 |
| 1 | | 0220 | 29 | 32. | 12.8 | 2.3 * | 1 | | 0540 | 69 | 76. | 145.8 | 11.1 * | 1 | | 0900 | 109 | 72. | 128 |
| 1 | | 0225 | 30 | 32. | 13.6 | 2.3 * | 1 | | 0545 | 70 | 76. | 145.8 | 11.1 * | 1 | | 0905 | 110 | 72. | 127 |
| 1 | | 0230 | 31 | 32. | 14.1 | 2.4 * | 1 | | 0550 | 71 | 76. | 145.7 | 11.0 * | 1 | | 0910 | 111 | 72. | 127 |
| 1 | | 0235 | 32 | 32. | 14.6 | 2.4 * | 1 | | 0555 | 72 | 76. | 145.6 | 11.0 * | 1 | | 0915 | 112 | 72. | 126 |
| 1 | | 0240 | 33 | 32. | 15.0 | 2.4 * | 1 | | 0600 | 73 | 76. | 145.4 | 11.0 * | 1 | | 0920 | 113 | 72. | 126 |
| 1 | | 0245 | 34 | 32. | 15.6 | 2.5 * | 1 | | 0605 | 74 | 76. | 145.2 | 11.0 * | 1 | | 0925 | 114 | 71. | 125 |
| 1 | | 0250 | 35 | 33. | 16.2 | 2.5 * | 1 | | 0610 | 75 | 76. | 145.0 | 11.0 * | 1 | | 0930 | 115 | 71. | 125 |
| 1 | | 0255 | 36 | 33. | 17.2 | 2.6 * | 1 | | 0615 | 76 | 76. | 144.6 | 11.0 * | 1 | | 0935 | 116 | 71. | 124 |
| 1 | | 0300 | 37 | 33. | 18.7 | 2.7 * | 1 | | 0620 | 77 | 76. | 144.3 | 11.0 * | 1 | | 0940 | 117 | 71. | 124 |
| 1 | | 0305 | 38 | 34. | 20.8 | 2.8 * | 1 | | 0625 | 78 | 76. | 143.8 | 10.9 * | 1 | | 0945 | 118 | 71. | 123 |
| 1 | | 0310 | 39 | 35. | 23.6 | 3.0 * | 1 | | 0630 | 79 | 76. | 143.4 | 10.9 * | 1 | | 0950 | 119 | 71. | 123 |
| 1 | | 0315 | 40 | 36. | 27.4 | 3.2 * | 1 | | 0635 | 80 | 76. | 142.9 | 10.9 * | 1 | | 0955 | 120 | 71. | 122 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 76. | 5.67 | | 73. | 53. | 53. | 53. |
| | | (INCHES) | .242 | .293 | .293 | .293 |
| | | (AC-FT) | 36. | 44. | 44. | 44. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 146. | 5.67 | | 132. | 86. | 86. | 86. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 11.05 | 5.67 | | 10.12 | 6.91 | 6.91 | 6.91 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .80

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 * | 1 | | 0320 | 41 | 37. | 29.7 | 3.4 * | 1 | | 0640 | 81 | 74. | 134 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0005 | 2 | 0. | .0 | .0 * | 1 | 0325 | 42 | 39. | 35.5 | 3.7 * | 1 | 0645 | 82 | 74. | 134 |
| 1 | 0010 | 3 | 0. | .0 | .0 * | 1 | 0330 | 43 | 41. | 42.7 | 4.2 * | 1 | 0650 | 83 | 73. | 133 |
| 1 | 0015 | 4 | 0. | .0 | .0 * | 1 | 0335 | 44 | 46. | 51.6 | 4.8 * | 1 | 0655 | 84 | 73. | 133 |
| 1 | 0020 | 5 | 0. | .0 | .0 * | 1 | 0340 | 45 | 51. | 61.2 | 5.4 * | 1 | 0700 | 85 | 73. | 132 |
| 1 | 0025 | 6 | 0. | .0 | .0 * | 1 | 0345 | 46 | 55. | 70.2 | 6.0 * | 1 | 0705 | 86 | 73. | 132 |
| 1 | 0030 | 7 | 1. | .2 | .0 * | 1 | 0350 | 47 | 58. | 77.7 | 6.5 * | 1 | 0710 | 87 | 73. | 131 |
| 1 | 0035 | 8 | 2. | .4 | .1 * | 1 | 0355 | 48 | 60. | 83.8 | 6.9 * | 1 | 0715 | 88 | 73. | 131 |
| 1 | 0040 | 9 | 3. | .7 | .2 * | 1 | 0400 | 49 | 61. | 88.9 | 7.3 * | 1 | 0720 | 89 | 73. | 130 |
| 1 | 0045 | 10 | 4. | 1.1 | .3 * | 1 | 0405 | 50 | 63. | 93.2 | 7.5 * | 1 | 0725 | 90 | 73. | 130 |
| 1 | 0050 | 11 | 6. | 1.5 | .4 * | 1 | 0410 | 51 | 64. | 96.7 | 7.8 * | 1 | 0730 | 91 | 72. | 129 |
| 1 | 0055 | 12 | 7. | 1.8 | .5 * | 1 | 0415 | 52 | 65. | 99.4 | 8.0 * | 1 | 0735 | 92 | 72. | 129 |
| 1 | 0100 | 13 | 8. | 2.1 | .5 * | 1 | 0420 | 53 | 65. | 101.5 | 8.1 * | 1 | 0740 | 93 | 72. | 128 |
| 1 | 0105 | 14 | 9. | 2.4 | .6 * | 1 | 0425 | 54 | 66. | 103.3 | 8.2 * | 1 | 0745 | 94 | 72. | 128 |
| 1 | 0110 | 15 | 10. | 2.6 | .7 * | 1 | 0430 | 55 | 66. | 105.1 | 8.3 * | 1 | 0750 | 95 | 72. | 127 |
| 1 | 0115 | 16 | 11. | 2.9 | .7 * | 1 | 0435 | 56 | 67. | 107.1 | 8.5 * | 1 | 0755 | 96 | 72. | 127 |
| 1 | 0120 | 17 | 12. | 3.1 | .8 * | 1 | 0440 | 57 | 67. | 109.8 | 8.7 * | 1 | 0800 | 97 | 72. | 126 |
| 1 | 0125 | 18 | 13. | 3.4 | .9 * | 1 | 0445 | 58 | 68. | 113.2 | 8.9 * | 1 | 0805 | 98 | 72. | 126 |
| 1 | 0130 | 19 | 14. | 3.8 | .9 * | 1 | 0450 | 59 | 69. | 117.4 | 9.2 * | 1 | 0810 | 99 | 71. | 125 |
| 1 | 0135 | 20 | 16. | 4.3 | 1.1 * | 1 | 0455 | 60 | 70. | 122.0 | 9.5 * | 1 | 0815 | 100 | 71. | 125 |
| 1 | 0140 | 21 | 18. | 4.9 | 1.2 * | 1 | 0500 | 61 | 72. | 126.5 | 9.8 * | 1 | 0820 | 101 | 71. | 124 |
| 1 | 0145 | 22 | 21. | 5.6 | 1.4 * | 1 | 0505 | 62 | 73. | 130.4 | 10.0 * | 1 | 0825 | 102 | 71. | 124 |
| 1 | 0150 | 23 | 24. | 6.3 | 1.6 * | 1 | 0510 | 63 | 73. | 133.3 | 10.2 * | 1 | 0830 | 103 | 71. | 123 |
| 1 | 0155 | 24 | 27. | 7.1 | 1.8 * | 1 | 0515 | 64 | 74. | 135.3 | 10.4 * | 1 | 0835 | 104 | 71. | 123 |
| 1 | 0200 | 25 | 30. | 7.9 | 2.0 * | 1 | 0520 | 65 | 74. | 136.6 | 10.4 * | 1 | 0840 | 105 | 71. | 122 |
| 1 | 0205 | 26 | 30. | 8.8 | 2.1 * | 1 | 0525 | 66 | 74. | 137.4 | 10.5 * | 1 | 0845 | 106 | 71. | 122 |
| 1 | 0210 | 27 | 31. | 9.8 | 2.1 * | 1 | 0530 | 67 | 74. | 137.8 | 10.5 * | 1 | 0850 | 107 | 70. | 121 |
| 1 | 0215 | 28 | 31. | 10.8 | 2.2 * | 1 | 0535 | 68 | 75. | 138.1 | 10.5 * | 1 | 0855 | 108 | 70. | 121 |
| 1 | 0220 | 29 | 31. | 11.7 | 2.2 * | 1 | 0540 | 69 | 75. | 138.2 | 10.5 * | 1 | 0900 | 109 | 70. | 121 |
| 1 | 0225 | 30 | 31. | 12.4 | 2.3 * | 1 | 0545 | 70 | 75. | 138.2 | 10.5 * | 1 | 0905 | 110 | 70. | 120 |
| 1 | 0230 | 31 | 32. | 12.9 | 2.3 * | 1 | 0550 | 71 | 75. | 138.1 | 10.5 * | 1 | 0910 | 111 | 70. | 120 |
| 1 | 0235 | 32 | 32. | 13.3 | 2.3 * | 1 | 0555 | 72 | 74. | 137.9 | 10.5 * | 1 | 0915 | 112 | 70. | 119 |
| 1 | 0240 | 33 | 32. | 13.7 | 2.4 * | 1 | 0600 | 73 | 74. | 137.8 | 10.5 * | 1 | 0920 | 113 | 70. | 119 |
| 1 | 0245 | 34 | 32. | 14.1 | 2.4 * | 1 | 0605 | 74 | 74. | 137.6 | 10.5 * | 1 | 0925 | 114 | 70. | 118 |
| 1 | 0250 | 35 | 32. | 14.8 | 2.4 * | 1 | 0610 | 75 | 74. | 137.3 | 10.5 * | 1 | 0930 | 115 | 70. | 118 |
| 1 | 0255 | 36 | 32. | 15.7 | 2.5 * | 1 | 0615 | 76 | 74. | 137.0 | 10.5 * | 1 | 0935 | 116 | 69. | 117 |
| 1 | 0300 | 37 | 33. | 17.1 | 2.6 * | 1 | 0620 | 77 | 74. | 136.6 | 10.4 * | 1 | 0940 | 117 | 69. | 117 |
| 1 | 0305 | 38 | 33. | 19.0 | 2.7 * | 1 | 0625 | 78 | 74. | 136.2 | 10.4 * | 1 | 0945 | 118 | 69. | 116 |
| 1 | 0310 | 39 | 34. | 21.7 | 2.9 * | 1 | 0630 | 79 | 74. | 135.8 | 10.4 * | 1 | 0950 | 119 | 69. | 116 |
| 1 | 0315 | 40 | 35. | 25.2 | 3.1 * | 1 | 0635 | 80 | 74. | 135.3 | 10.4 * | 1 | 0955 | 120 | 69. | 115 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 75. | 5.67 | | 71. | 52. | 52. | 52. |
| | | (INCHES) | .236 | .285 | .285 | .285 |
| | | (AC-FT) | 35. | 43. | 43. | 43. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | | |
| 138. | 5.67 | | 125. | 81. | 81. | 81. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | | |
| 10.55 | 5.67 | | 9.64 | 6.58 | 6.58 | 6.58 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .76

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | * 1 | 1 | | 0320 | 41 | 36. | 26.5 | 3.2 | * 1 | 1 | | 0640 | 81 | 71. | 124 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | * 1 | 1 | | 0325 | 42 | 37. | 31.8 | 3.5 | * 1 | 1 | | 0645 | 82 | 71. | 123 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | * 1 | 1 | | 0330 | 43 | 40. | 38.5 | 3.9 | * 1 | 1 | | 0650 | 83 | 71. | 123 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | * 1 | 1 | | 0335 | 44 | 43. | 46.8 | 4.5 | * 1 | 1 | | 0655 | 84 | 71. | 122 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | * 1 | 1 | | 0340 | 45 | 48. | 55.8 | 5.1 | * 1 | 1 | | 0700 | 85 | 71. | 122 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | * 1 | 1 | | 0345 | 46 | 52. | 64.2 | 5.6 | * 1 | 1 | | 0705 | 86 | 70. | 122 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | * 1 | 1 | | 0350 | 47 | 55. | 71.2 | 6.1 | * 1 | 1 | | 0710 | 87 | 70. | 121 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0035 | 8 | 1. | .3 | .1 * | 1 | 0355 | 48 | 57. | 76.9 | 6.5 * | 1 | 0715 | 88 | 70. | 121 |
| 1 | 0040 | 9 | 2. | .6 | .1 * | 1 | 0400 | 49 | 59. | 81.7 | 6.8 * | 1 | 0720 | 89 | 70. | 120 |
| 1 | 0045 | 10 | 3. | .9 | .2 * | 1 | 0405 | 50 | 60. | 85.8 | 7.1 * | 1 | 0725 | 90 | 70. | 120 |
| 1 | 0050 | 11 | 4. | 1.2 | .3 * | 1 | 0410 | 51 | 61. | 89.0 | 7.3 * | 1 | 0730 | 91 | 70. | 119 |
| 1 | 0055 | 12 | 6. | 1.5 | .4 * | 1 | 0415 | 52 | 62. | 91.5 | 7.4 * | 1 | 0735 | 92 | 70. | 119 |
| 1 | 0100 | 13 | 7. | 1.7 | .4 * | 1 | 0420 | 53 | 63. | 93.5 | 7.6 * | 1 | 0740 | 93 | 70. | 118 |
| 1 | 0105 | 14 | 7. | 2.0 | .5 * | 1 | 0425 | 54 | 63. | 95.2 | 7.7 * | 1 | 0745 | 94 | 70. | 118 |
| 1 | 0110 | 15 | 8. | 2.2 | .6 * | 1 | 0430 | 55 | 64. | 96.8 | 7.8 * | 1 | 0750 | 95 | 69. | 117 |
| 1 | 0115 | 16 | 9. | 2.4 | .6 * | 1 | 0435 | 56 | 65. | 98.7 | 7.9 * | 1 | 0755 | 96 | 69. | 117 |
| 1 | 0120 | 17 | 10. | 2.6 | .7 * | 1 | 0440 | 57 | 65. | 101.2 | 8.1 * | 1 | 0800 | 97 | 69. | 116 |
| 1 | 0125 | 18 | 11. | 2.9 | .7 * | 1 | 0445 | 58 | 66. | 104.4 | 8.3 * | 1 | 0805 | 98 | 69. | 116 |
| 1 | 0130 | 19 | 12. | 3.2 | .8 * | 1 | 0450 | 59 | 67. | 108.3 | 8.6 * | 1 | 0810 | 99 | 69. | 115 |
| 1 | 0135 | 20 | 14. | 3.6 | .9 * | 1 | 0455 | 60 | 68. | 112.6 | 8.8 * | 1 | 0815 | 100 | 69. | 115 |
| 1 | 0140 | 21 | 16. | 4.2 | 1.0 * | 1 | 0500 | 61 | 69. | 116.8 | 9.1 * | 1 | 0820 | 101 | 69. | 114 |
| 1 | 0145 | 22 | 18. | 4.8 | 1.2 * | 1 | 0505 | 62 | 70. | 120.5 | 9.4 * | 1 | 0825 | 102 | 69. | 114 |
| 1 | 0150 | 23 | 20. | 5.5 | 1.4 * | 1 | 0510 | 63 | 71. | 123.2 | 9.5 * | 1 | 0830 | 103 | 68. | 113 |
| 1 | 0155 | 24 | 23. | 6.2 | 1.5 * | 1 | 0515 | 64 | 71. | 125.1 | 9.7 * | 1 | 0835 | 104 | 68. | 113 |
| 1 | 0200 | 25 | 26. | 6.9 | 1.7 * | 1 | 0520 | 65 | 72. | 126.3 | 9.8 * | 1 | 0840 | 105 | 68. | 112 |
| 1 | 0205 | 26 | 29. | 7.7 | 1.9 * | 1 | 0525 | 66 | 72. | 127.0 | 9.8 * | 1 | 0845 | 106 | 68. | 112 |
| 1 | 0210 | 27 | 30. | 8.6 | 2.0 * | 1 | 0530 | 67 | 72. | 127.4 | 9.8 * | 1 | 0850 | 107 | 68. | 111 |
| 1 | 0215 | 28 | 30. | 9.4 | 2.1 * | 1 | 0535 | 68 | 72. | 127.6 | 9.8 * | 1 | 0855 | 108 | 68. | 111 |
| 1 | 0220 | 29 | 31. | 10.2 | 2.1 * | 1 | 0540 | 69 | 72. | 127.7 | 9.8 * | 1 | 0900 | 109 | 68. | 111 |
| 1 | 0225 | 30 | 31. | 10.8 | 2.2 * | 1 | 0545 | 70 | 72. | 127.7 | 9.8 * | 1 | 0905 | 110 | 68. | 110 |
| 1 | 0230 | 31 | 31. | 11.2 | 2.2 * | 1 | 0550 | 71 | 72. | 127.5 | 9.8 * | 1 | 0910 | 111 | 68. | 110 |
| 1 | 0235 | 32 | 31. | 11.5 | 2.2 * | 1 | 0555 | 72 | 72. | 127.4 | 9.8 * | 1 | 0915 | 112 | 67. | 109 |
| 1 | 0240 | 33 | 31. | 11.9 | 2.2 * | 1 | 0600 | 73 | 72. | 127.2 | 9.8 * | 1 | 0920 | 113 | 67. | 109 |
| 1 | 0245 | 34 | 31. | 12.3 | 2.3 * | 1 | 0605 | 74 | 72. | 127.0 | 9.8 * | 1 | 0925 | 114 | 67. | 108 |
| 1 | 0250 | 35 | 32. | 12.8 | 2.3 * | 1 | 0610 | 75 | 72. | 126.8 | 9.8 * | 1 | 0930 | 115 | 67. | 108 |
| 1 | 0255 | 36 | 32. | 13.6 | 2.4 * | 1 | 0615 | 76 | 72. | 126.5 | 9.8 * | 1 | 0935 | 116 | 67. | 107 |
| 1 | 0300 | 37 | 32. | 14.9 | 2.4 * | 1 | 0620 | 77 | 72. | 126.1 | 9.7 * | 1 | 0940 | 117 | 67. | 107 |
| 1 | 0305 | 38 | 33. | 16.7 | 2.5 * | 1 | 0625 | 78 | 71. | 125.7 | 9.7 * | 1 | 0945 | 118 | 67. | 106 |
| 1 | 0310 | 39 | 33. | 19.1 | 2.7 * | 1 | 0630 | 79 | 71. | 125.3 | 9.7 * | 1 | 0950 | 119 | 67. | 106 |
| 1 | 0315 | 40 | 34. | 22.3 | 2.9 * | 1 | 0635 | 80 | 71. | 124.8 | 9.7 * | 1 | 0955 | 120 | 66. | 105 |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (CFS) | (HR) | | | | | |
| | | (CFS)□ | | | | |
| 72. | 5.67 | | 69. | 50. | 50. | 50. |
| | | (INCHES) | .227 | .274 | .274 | .274 |
| | | (AC-FT) | 34. | 41. | 41. | 41. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (AC-FT) | (HR) | | | | |
| 128. | 5.67 | 115. | 75. | 75. | 75. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (FEET) | (HR) | | | | |
| 9.85 | 5.67 | 8.98 | 6.13 | 6.13 | 6.13 |

CUMULATIVE AREA = 2.80 SQ MI

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HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .73

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE * | | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE * | | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 * | 1 | 1 | | 0320 | 41 | 35. | 23.4 | 3.0 * | 1 | 1 | | 0640 | 81 | 68. | 113 |
| 1 | | 0005 | 2 | 0. | .0 | .0 * | 1 | 1 | | 0325 | 42 | 36. | 28.2 | 3.3 * | 1 | 1 | | 0645 | 82 | 68. | 113 |
| 1 | | 0010 | 3 | 0. | .0 | .0 * | 1 | 1 | | 0330 | 43 | 38. | 34.4 | 3.7 * | 1 | 1 | | 0650 | 83 | 68. | 112 |
| 1 | | 0015 | 4 | 0. | .0 | .0 * | 1 | 1 | | 0335 | 44 | 41. | 42.1 | 4.1 * | 1 | 1 | | 0655 | 84 | 68. | 112 |
| 1 | | 0020 | 5 | 0. | .0 | .0 * | 1 | 1 | | 0340 | 45 | 45. | 50.4 | 4.7 * | 1 | 1 | | 0700 | 85 | 68. | 111 |
| 1 | | 0025 | 6 | 0. | .0 | .0 * | 1 | 1 | | 0345 | 46 | 49. | 58.2 | 5.2 * | 1 | 1 | | 0705 | 86 | 68. | 111 |
| 1 | | 0030 | 7 | 0. | .1 | .0 * | 1 | 1 | | 0350 | 47 | 52. | 64.7 | 5.6 * | 1 | 1 | | 0710 | 87 | 68. | 111 |
| 1 | | 0035 | 8 | 1. | .2 | .1 * | 1 | 1 | | 0355 | 48 | 55. | 70.0 | 6.0 * | 1 | 1 | | 0715 | 88 | 68. | 110 |
| 1 | | 0040 | 9 | 2. | .4 | .1 * | 1 | 1 | | 0400 | 49 | 56. | 74.4 | 6.3 * | 1 | 1 | | 0720 | 89 | 68. | 110 |
| 1 | | 0045 | 10 | 3. | .7 | .2 * | 1 | 1 | | 0405 | 50 | 58. | 78.2 | 6.5 * | 1 | 1 | | 0725 | 90 | 67. | 109 |
| 1 | | 0050 | 11 | 3. | .9 | .2 * | 1 | 1 | | 0410 | 51 | 59. | 81.2 | 6.7 * | 1 | 1 | | 0730 | 91 | 67. | 109 |
| 1 | | 0055 | 12 | 4. | 1.2 | .3 * | 1 | 1 | | 0415 | 52 | 60. | 83.5 | 6.9 * | 1 | 1 | | 0735 | 92 | 67. | 108 |
| 1 | | 0100 | 13 | 5. | 1.4 | .3 * | 1 | 1 | | 0420 | 53 | 60. | 85.3 | 7.0 * | 1 | 1 | | 0740 | 93 | 67. | 108 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0105 | 14 | 6. | 1.6 | .4 | * | 1 | 0425 | 54 | 61. | 86.9 | 7.1 | * | 1 | 0745 | 94 | 67. | 107 |
| 1 | 0110 | 15 | 7. | 1.8 | .4 | * | 1 | 0430 | 55 | 61. | 88.4 | 7.2 | * | 1 | 0750 | 95 | 67. | 107 |
| 1 | 0115 | 16 | 7. | 2.0 | .5 | * | 1 | 0435 | 56 | 62. | 90.2 | 7.3 | * | 1 | 0755 | 96 | 67. | 106 |
| 1 | 0120 | 17 | 8. | 2.2 | .5 | * | 1 | 0440 | 57 | 62. | 92.5 | 7.5 | * | 1 | 0800 | 97 | 67. | 106 |
| 1 | 0125 | 18 | 9. | 2.4 | .6 | * | 1 | 0445 | 58 | 63. | 95.5 | 7.7 | * | 1 | 0805 | 98 | 66. | 105 |
| 1 | 0130 | 19 | 10. | 2.7 | .7 | * | 1 | 0450 | 59 | 65. | 99.1 | 7.9 | * | 1 | 0810 | 99 | 66. | 105 |
| 1 | 0135 | 20 | 11. | 3.0 | .8 | * | 1 | 0455 | 60 | 66. | 103.1 | 8.2 | * | 1 | 0815 | 100 | 66. | 105 |
| 1 | 0140 | 21 | 13. | 3.5 | .9 | * | 1 | 0500 | 61 | 67. | 107.1 | 8.5 | * | 1 | 0820 | 101 | 66. | 104 |
| 1 | 0145 | 22 | 15. | 4.0 | 1.0 | * | 1 | 0505 | 62 | 68. | 110.5 | 8.7 | * | 1 | 0825 | 102 | 66. | 104 |
| 1 | 0150 | 23 | 17. | 4.6 | 1.2 | * | 1 | 0510 | 63 | 68. | 113.0 | 8.9 | * | 1 | 0830 | 103 | 66. | 103 |
| 1 | 0155 | 24 | 20. | 5.2 | 1.3 | * | 1 | 0515 | 64 | 69. | 114.8 | 9.0 | * | 1 | 0835 | 104 | 66. | 103 |
| 1 | 0200 | 25 | 22. | 5.9 | 1.5 | * | 1 | 0520 | 65 | 69. | 115.8 | 9.1 | * | 1 | 0840 | 105 | 66. | 102 |
| 1 | 0205 | 26 | 25. | 6.6 | 1.6 | * | 1 | 0525 | 66 | 69. | 116.5 | 9.1 | * | 1 | 0845 | 106 | 66. | 102 |
| 1 | 0210 | 27 | 28. | 7.3 | 1.8 | * | 1 | 0530 | 67 | 69. | 116.8 | 9.1 | * | 1 | 0850 | 107 | 65. | 101 |
| 1 | 0215 | 28 | 30. | 8.1 | 2.0 | * | 1 | 0535 | 68 | 69. | 117.0 | 9.1 | * | 1 | 0855 | 108 | 65. | 101 |
| 1 | 0220 | 29 | 30. | 8.7 | 2.0 | * | 1 | 0540 | 69 | 69. | 117.1 | 9.1 | * | 1 | 0900 | 109 | 65. | 100 |
| 1 | 0225 | 30 | 30. | 9.2 | 2.1 | * | 1 | 0545 | 70 | 69. | 117.0 | 9.1 | * | 1 | 0905 | 110 | 65. | 100 |
| 1 | 0230 | 31 | 30. | 9.6 | 2.1 | * | 1 | 0550 | 71 | 69. | 116.9 | 9.1 | * | 1 | 0910 | 111 | 65. | 100 |
| 1 | 0235 | 32 | 31. | 9.9 | 2.1 | * | 1 | 0555 | 72 | 69. | 116.8 | 9.1 | * | 1 | 0915 | 112 | 65. | 99 |
| 1 | 0240 | 33 | 31. | 10.1 | 2.1 | * | 1 | 0600 | 73 | 69. | 116.6 | 9.1 | * | 1 | 0920 | 113 | 65. | 99 |
| 1 | 0245 | 34 | 31. | 10.5 | 2.2 | * | 1 | 0605 | 74 | 69. | 116.4 | 9.1 | * | 1 | 0925 | 114 | 65. | 98 |
| 1 | 0250 | 35 | 31. | 10.9 | 2.2 | * | 1 | 0610 | 75 | 69. | 116.2 | 9.1 | * | 1 | 0930 | 115 | 64. | 98 |
| 1 | 0255 | 36 | 31. | 11.6 | 2.2 | * | 1 | 0615 | 76 | 69. | 115.9 | 9.1 | * | 1 | 0935 | 116 | 64. | 97 |
| 1 | 0300 | 37 | 31. | 12.7 | 2.3 | * | 1 | 0620 | 77 | 69. | 115.5 | 9.0 | * | 1 | 0940 | 117 | 64. | 97 |
| 1 | 0305 | 38 | 32. | 14.3 | 2.4 | * | 1 | 0625 | 78 | 69. | 115.1 | 9.0 | * | 1 | 0945 | 118 | 64. | 96 |
| 1 | 0310 | 39 | 33. | 16.6 | 2.5 | * | 1 | 0630 | 79 | 69. | 114.7 | 9.0 | * | 1 | 0950 | 119 | 64. | 96 |
| 1 | 0315 | 40 | 34. | 19.5 | 2.7 | * | 1 | 0635 | 80 | 69. | 114.2 | 8.9 | * | 1 | 0955 | 120 | 64. | 96 |

**********

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (CFS) | (HR) | | | | | |
| | | (CFS)□ | | | | |
| 69. | 5.67 | | 66. | 48. | 48. | 48. |
| | | (INCHES) | .219 | .262 | .262 | .262 |
| | | (AC-FT) | 33. | 39. | 39. | 39. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (AC-FT) | (HR) | | | | | |
| 117. | 5.67 | | 105. | 68. | 68. | 68. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (FEET) | (HR) | | | | | |
| 9.14 | 5.67 | | 8.32 | 5.67 | 5.67 | 5.67 |

CUMULATIVE AREA = 2.80 SQ MI

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HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .69

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | * | 1 | | 0320 | 41 | 34. | 21.1 | 2.8 | * | 1 | | 0640 | 81 | 66. | 106 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | * | 1 | | 0325 | 42 | 36. | 25.6 | 3.1 | * | 1 | | 0645 | 82 | 66. | 105 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | * | 1 | | 0330 | 43 | 37. | 31.4 | 3.5 | * | 1 | | 0650 | 83 | 66. | 105 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | * | 1 | | 0335 | 44 | 40. | 38.6 | 3.9 | * | 1 | | 0655 | 84 | 66. | 104 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | * | 1 | | 0340 | 45 | 43. | 46.4 | 4.4 | * | 1 | | 0700 | 85 | 66. | 104 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | * | 1 | | 0345 | 46 | 47. | 53.8 | 4.9 | * | 1 | | 0705 | 86 | 66. | 103 |
| 1 | | 0030 | 7 | 0. | .1 | .0 | * | 1 | | 0350 | 47 | 50. | 59.9 | 5.3 | * | 1 | | 0710 | 87 | 66. | 103 |
| 1 | | 0035 | 8 | 1. | .2 | .0 | * | 1 | | 0355 | 48 | 52. | 64.9 | 5.7 | * | 1 | | 0715 | 88 | 66. | 102 |
| 1 | | 0040 | 9 | 1. | .3 | .1 | * | 1 | | 0400 | 49 | 55. | 69.1 | 5.9 | * | 1 | | 0720 | 89 | 66. | 102 |
| 1 | | 0045 | 10 | 2. | .5 | .1 | * | 1 | | 0405 | 50 | 56. | 72.6 | 6.2 | * | 1 | | 0725 | 90 | 65. | 101 |
| 1 | | 0050 | 11 | 3. | .7 | .2 | * | 1 | | 0410 | 51 | 57. | 75.5 | 6.4 | * | 1 | | 0730 | 91 | 65. | 101 |
| 1 | | 0055 | 12 | 4. | .9 | .2 | * | 1 | | 0415 | 52 | 58. | 77.6 | 6.5 | * | 1 | | 0735 | 92 | 65. | 101 |
| 1 | | 0100 | 13 | 4. | 1.1 | .3 | * | 1 | | 0420 | 53 | 58. | 79.4 | 6.6 | * | 1 | | 0740 | 93 | 65. | 100 |
| 1 | | 0105 | 14 | 5. | 1.3 | .3 | * | 1 | | 0425 | 54 | 59. | 80.8 | 6.7 | * | 1 | | 0745 | 94 | 65. | 100 |
| 1 | | 0110 | 15 | 6. | 1.5 | .4 | * | 1 | | 0430 | 55 | 59. | 82.2 | 6.8 | * | 1 | | 0750 | 95 | 65. | 99 |
| 1 | | 0115 | 16 | 6. | 1.7 | .4 | * | 1 | | 0435 | 56 | 60. | 83.9 | 6.9 | * | 1 | | 0755 | 96 | 65. | 99 |
| 1 | | 0120 | 17 | 7. | 1.8 | .5 | * | 1 | | 0440 | 57 | 60. | 86.0 | 7.1 | * | 1 | | 0800 | 97 | 65. | 98 |
| 1 | | 0125 | 18 | 8. | 2.0 | .5 | * | 1 | | 0445 | 58 | 61. | 88.9 | 7.3 | * | 1 | | 0805 | 98 | 64. | 98 |
| 1 | | 0130 | 19 | 9. | 2.3 | .6 | * | 1 | | 0450 | 59 | 62. | 92.3 | 7.5 | * | 1 | | 0810 | 99 | 64. | 97 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0135 | 20 | 10. | 2.6 | .7 | * | 1 | 0455 | 60 | 64. | 96.1 | 7.7 | * | 1 | 0815 | 100 | 64. | 97 |
| 1 | 0140 | 21 | 11. | 3.0 | .8 | * | 1 | 0500 | 61 | 65. | 99.9 | 8.0 | * | 1 | 0820 | 101 | 64. | 97 |
| 1 | 0145 | 22 | 13. | 3.5 | .9 | * | 1 | 0505 | 62 | 66. | 103.1 | 8.2 | * | 1 | 0825 | 102 | 64. | 96 |
| 1 | 0150 | 23 | 15. | 4.0 | 1.0 | * | 1 | 0510 | 63 | 66. | 105.5 | 8.4 | * | 1 | 0830 | 103 | 64. | 96 |
| 1 | 0155 | 24 | 17. | 4.6 | 1.1 | * | 1 | 0515 | 64 | 67. | 107.1 | 8.5 | * | 1 | 0835 | 104 | 64. | 95 |
| 1 | 0200 | 25 | 19. | 5.1 | 1.3 | * | 1 | 0520 | 65 | 67. | 108.1 | 8.5 | * | 1 | 0840 | 105 | 63. | 95 |
| 1 | 0205 | 26 | 22. | 5.8 | 1.4 | * | 1 | 0525 | 66 | 67. | 108.7 | 8.6 | * | 1 | 0845 | 106 | 63. | 94 |
| 1 | 0210 | 27 | 24. | 6.5 | 1.6 | * | 1 | 0530 | 67 | 67. | 109.0 | 8.6 | * | 1 | 0850 | 107 | 63. | 94 |
| 1 | 0215 | 28 | 27. | 7.2 | 1.8 | * | 1 | 0535 | 68 | 67. | 109.2 | 8.6 | * | 1 | 0855 | 108 | 63. | 93 |
| 1 | 0220 | 29 | 29. | 7.7 | 1.9 | * | 1 | 0540 | 69 | 67. | 109.2 | 8.6 | * | 1 | 0900 | 109 | 63. | 93 |
| 1 | 0225 | 30 | 30. | 8.2 | 2.0 | * | 1 | 0545 | 70 | 67. | 109.1 | 8.6 | * | 1 | 0905 | 110 | 63. | 93 |
| 1 | 0230 | 31 | 30. | 8.5 | 2.0 | * | 1 | 0550 | 71 | 67. | 109.0 | 8.6 | * | 1 | 0910 | 111 | 63. | 92 |
| 1 | 0235 | 32 | 30. | 8.7 | 2.0 | * | 1 | 0555 | 72 | 67. | 108.9 | 8.6 | * | 1 | 0915 | 112 | 62. | 92 |
| 1 | 0240 | 33 | 30. | 8.9 | 2.1 | * | 1 | 0600 | 73 | 67. | 108.7 | 8.6 | * | 1 | 0920 | 113 | 62. | 91 |
| 1 | 0245 | 34 | 30. | 9.2 | 2.1 | * | 1 | 0605 | 74 | 67. | 108.5 | 8.6 | * | 1 | 0925 | 114 | 62. | 91 |
| 1 | 0250 | 35 | 30. | 9.6 | 2.1 | * | 1 | 0610 | 75 | 67. | 108.3 | 8.6 | * | 1 | 0930 | 115 | 62. | 90 |
| 1 | 0255 | 36 | 31. | 10.2 | 2.1 | * | 1 | 0615 | 76 | 67. | 108.0 | 8.5 | * | 1 | 0935 | 116 | 62. | 90 |
| 1 | 0300 | 37 | 31. | 11.2 | 2.2 | * | 1 | 0620 | 77 | 67. | 107.6 | 8.5 | * | 1 | 0940 | 117 | 62. | 90 |
| 1 | 0305 | 38 | 31. | 12.7 | 2.3 | * | 1 | 0625 | 78 | 67. | 107.2 | 8.5 | * | 1 | 0945 | 118 | 62. | 89 |
| 1 | 0310 | 39 | 32. | 14.7 | 2.4 | * | 1 | 0630 | 79 | 67. | 106.8 | 8.5 | * | 1 | 0950 | 119 | 61. | 89 |
| 1 | 0315 | 40 | 33. | 17.5 | 2.6 | * | 1 | 0635 | 80 | 67. | 106.4 | 8.4 | * | 1 | 0955 | 120 | 61. | 88 |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (CFS) | (HR) | | | | | |
| | | (CFS)□ | | | | |
| 67. | 5.67 | | 64. | 46. | 46. | 46. |
| | | (INCHES) | .212 | .253 | .253 | .253 |
| | | (AC-FT) | 32. | 38. | 38. | 38. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (AC-FT) | (HR) | | | | |
| 109. | 5.67 | 97. | 63. | 63. | 63. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (FEET) | (HR) | | | | |
| 8.61 | 5.67 | 7.83 | 5.33 | 5.33 | 5.33 |

CUMULATIVE AREA = 2.80 SQ MI

**********

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .64

**********

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | * | 1 | | 0320 | 41 | 33. | 17.2 | 2.6 | * | 1 | | 0640 | 81 | 62. | 92 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | * | 1 | | 0325 | 42 | 34. | 21.2 | 2.8 | * | 1 | | 0645 | 82 | 62. | 91 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | * | 1 | | 0330 | 43 | 36. | 26.3 | 3.1 | * | 1 | | 0650 | 83 | 62. | 91 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | * | 1 | | 0335 | 44 | 38. | 32.6 | 3.5 | * | 1 | | 0655 | 84 | 62. | 90 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | * | 1 | | 0340 | 45 | 40. | 39.6 | 4.0 | * | 1 | | 0700 | 85 | 62. | 90 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | * | 1 | | 0345 | 46 | 43. | 46.1 | 4.4 | * | 1 | | 0705 | 86 | 62. | 90 |
| 1 | | 0030 | 7 | 0. | .0 | .0 | * | 1 | | 0350 | 47 | 46. | 51.5 | 4.8 | * | 1 | | 0710 | 87 | 62. | 89 |
| 1 | | 0035 | 8 | 0. | .1 | .0 | * | 1 | | 0355 | 48 | 48. | 55.9 | 5.1 | * | 1 | | 0715 | 88 | 61. | 89 |
| 1 | | 0040 | 9 | 1. | .2 | .0 | * | 1 | | 0400 | 49 | 50. | 59.7 | 5.3 | * | 1 | | 0720 | 89 | 61. | 88 |
| 1 | | 0045 | 10 | 1. | .3 | .1 | * | 1 | | 0405 | 50 | 51. | 62.8 | 5.5 | * | 1 | | 0725 | 90 | 61. | 88 |
| 1 | | 0050 | 11 | 2. | .5 | .1 | * | 1 | | 0410 | 51 | 53. | 65.4 | 5.7 | * | 1 | | 0730 | 91 | 61. | 87 |
| 1 | | 0055 | 12 | 2. | .6 | .2 | * | 1 | | 0415 | 52 | 54. | 67.3 | 5.8 | * | 1 | | 0735 | 92 | 61. | 87 |
| 1 | | 0100 | 13 | 3. | .8 | .2 | * | 1 | | 0420 | 53 | 54. | 68.8 | 5.9 | * | 1 | | 0740 | 93 | 61. | 87 |
| 1 | | 0105 | 14 | 3. | .9 | .2 | * | 1 | | 0425 | 54 | 55. | 70.0 | 6.0 | * | 1 | | 0745 | 94 | 61. | 86 |
| 1 | | 0110 | 15 | 4. | 1.0 | .3 | * | 1 | | 0430 | 55 | 55. | 71.3 | 6.1 | * | 1 | | 0750 | 95 | 60. | 86 |
| 1 | | 0115 | 16 | 4. | 1.2 | .3 | * | 1 | | 0435 | 56 | 56. | 72.7 | 6.2 | * | 1 | | 0755 | 96 | 60. | 85 |
| 1 | | 0120 | 17 | 5. | 1.3 | .3 | * | 1 | | 0440 | 57 | 57. | 74.7 | 6.3 | * | 1 | | 0800 | 97 | 60. | 85 |
| 1 | | 0125 | 18 | 5. | 1.5 | .4 | * | 1 | | 0445 | 58 | 57. | 77.2 | 6.5 | * | 1 | | 0805 | 98 | 60. | 84 |
| 1 | | 0130 | 19 | 6. | 1.7 | .4 | * | 1 | | 0450 | 59 | 58. | 80.2 | 6.7 | * | 1 | | 0810 | 99 | 60. | 84 |
| 1 | | 0135 | 20 | 7. | 1.9 | .5 | * | 1 | | 0455 | 60 | 60. | 83.7 | 6.9 | * | 1 | | 0815 | 100 | 60. | 84 |
| 1 | | 0140 | 21 | 8. | 2.2 | .6 | * | 1 | | 0500 | 61 | 61. | 87.0 | 7.1 | * | 1 | | 0820 | 101 | 60. | 83 |
| 1 | | 0145 | 22 | 10. | 2.6 | .7 | * | 1 | | 0505 | 62 | 62. | 89.9 | 7.3 | * | 1 | | 0825 | 102 | 59. | 83 |
| 1 | | 0150 | 23 | 11. | 3.0 | .8 | * | 1 | | 0510 | 63 | 62. | 92.1 | 7.5 | * | 1 | | 0830 | 103 | 59. | 82 |
| 1 | | 0155 | 24 | 13. | 3.4 | .9 | * | 1 | | 0515 | 64 | 63. | 93.5 | 7.6 | * | 1 | | 0835 | 104 | 59. | 82 |
| 1 | | 0200 | 25 | 15. | 3.9 | 1.0 | * | 1 | | 0520 | 65 | 63. | 94.4 | 7.6 | * | 1 | | 0840 | 105 | 59. | 82 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0205 | 26 | 17. | 4.4 | 1.1 | * | 1 | 0525 | 66 | 63. | 94.9 | 7.7 | * | 1 | 0845 | 106 | 59. | 81 |
| 1 | 0210 | 27 | 19. | 5.0 | 1.2 | * | 1 | 0530 | 67 | 63. | 95.1 | 7.7 | * | 1 | 0850 | 107 | 59. | 81 |
| 1 | 0215 | 28 | 21. | 5.6 | 1.4 | * | 1 | 0535 | 68 | 63. | 95.2 | 7.7 | * | 1 | 0855 | 108 | 59. | 80 |
| 1 | 0220 | 29 | 23. | 6.0 | 1.5 | * | 1 | 0540 | 69 | 63. | 95.2 | 7.7 | * | 1 | 0900 | 109 | 58. | 80 |
| 1 | 0225 | 30 | 24. | 6.4 | 1.6 | * | 1 | 0545 | 70 | 63. | 95.1 | 7.7 | * | 1 | 0905 | 110 | 58. | 80 |
| 1 | 0230 | 31 | 25. | 6.6 | 1.7 | * | 1 | 0550 | 71 | 63. | 95.0 | 7.7 | * | 1 | 0910 | 111 | 58. | 79 |
| 1 | 0235 | 32 | 26. | 6.8 | 1.7 | * | 1 | 0555 | 72 | 63. | 94.9 | 7.7 | * | 1 | 0915 | 112 | 58. | 79 |
| 1 | 0240 | 33 | 26. | 7.0 | 1.7 | * | 1 | 0600 | 73 | 63. | 94.7 | 7.6 | * | 1 | 0920 | 113 | 58. | 78 |
| 1 | 0245 | 34 | 27. | 7.2 | 1.8 | * | 1 | 0605 | 74 | 63. | 94.5 | 7.6 | * | 1 | 0925 | 114 | 58. | 78 |
| 1 | 0250 | 35 | 28. | 7.5 | 1.9 | * | 1 | 0610 | 75 | 63. | 94.3 | 7.6 | * | 1 | 0930 | 115 | 58. | 78 |
| 1 | 0255 | 36 | 30. | 8.0 | 2.0 | * | 1 | 0615 | 76 | 63. | 94.0 | 7.6 | * | 1 | 0935 | 116 | 58. | 77 |
| 1 | 0300 | 37 | 30. | 8.8 | 2.1 | * | 1 | 0620 | 77 | 63. | 93.7 | 7.6 | * | 1 | 0940 | 117 | 57. | 77 |
| 1 | 0305 | 38 | 31. | 10.0 | 2.1 | * | 1 | 0625 | 78 | 63. | 93.3 | 7.6 | * | 1 | 0945 | 118 | 57. | 76 |
| 1 | 0310 | 39 | 31. | 11.8 | 2.2 | * | 1 | 0630 | 79 | 63. | 92.9 | 7.5 | * | 1 | 0950 | 119 | 57. | 76 |
| 1 | 0315 | 40 | 32. | 14.1 | 2.4 | * | 1 | 0635 | 80 | 62. | 92.5 | 7.5 | * | 1 | 0955 | 120 | 57. | 76 |

| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (CFS) | (HR) | | | | | |
| | | (CFS) | | | | |
| 63. | 5.58 | | 60. | 43. | 43. | 43. |
| | | (INCHES) | .198 | .234 | .234 | .234 |
| | | (AC-FT) | 30. | 35. | 35. | 35. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (AC-FT) | (HR) | | | | |
| 95. | 5.58 | 84. | 54. | 54. | 54. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR |
| (FEET) | (HR) | | | | |
| 7.68 | 5.58 | 6.96 | 4.72 | 4.72 | 4.72 |

CUMULATIVE AREA = 2.80 SQ MI

HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .58

| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | * | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | * | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | * | 1 | | 0320 | 41 | 32. | 13.5 | 2.3 | * | 1 | | 0640 | 81 | 58. | 77 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | * | 1 | | 0325 | 42 | 33. | 16.9 | 2.6 | * | 1 | | 0645 | 82 | 57. | 77 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | * | 1 | | 0330 | 43 | 34. | 21.2 | 2.8 | * | 1 | | 0650 | 83 | 57. | 76 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | * | 1 | | 0335 | 44 | 36. | 26.6 | 3.2 | * | 1 | | 0655 | 84 | 57. | 76 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | * | 1 | | 0340 | 45 | 38. | 32.6 | 3.5 | * | 1 | | 0700 | 85 | 57. | 76 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | * | 1 | | 0345 | 46 | 39. | 38.2 | 3.9 | * | 1 | | 0705 | 86 | 57. | 75 |
| 1 | | 0030 | 7 | 0. | .0 | .0 | * | 1 | | 0350 | 47 | 41. | 42.9 | 4.2 | * | 1 | | 0710 | 87 | 57. | 75 |
| 1 | | 0035 | 8 | 0. | .0 | .0 | * | 1 | | 0355 | 48 | 43. | 46.7 | 4.4 | * | 1 | | 0715 | 88 | 57. | 74 |
| 1 | | 0040 | 9 | 0. | .1 | .0 | * | 1 | | 0400 | 49 | 45. | 50.0 | 4.7 | * | 1 | | 0720 | 89 | 56. | 74 |
| 1 | | 0045 | 10 | 1. | .1 | .0 | * | 1 | | 0405 | 50 | 46. | 52.7 | 4.8 | * | 1 | | 0725 | 90 | 56. | 74 |
| 1 | | 0050 | 11 | 1. | .2 | .1 | * | 1 | | 0410 | 51 | 47. | 54.9 | 5.0 | * | 1 | | 0730 | 91 | 56. | 73 |
| 1 | | 0055 | 12 | 1. | .3 | .1 | * | 1 | | 0415 | 52 | 48. | 56.5 | 5.1 | * | 1 | | 0735 | 92 | 56. | 73 |
| 1 | | 0100 | 13 | 2. | .4 | .1 | * | 1 | | 0420 | 53 | 49. | 57.8 | 5.2 | * | 1 | | 0740 | 93 | 56. | 72 |
| 1 | | 0105 | 14 | 2. | .5 | .1 | * | 1 | | 0425 | 54 | 49. | 58.9 | 5.3 | * | 1 | | 0745 | 94 | 56. | 72 |
| 1 | | 0110 | 15 | 2. | .6 | .2 | * | 1 | | 0430 | 55 | 50. | 59.9 | 5.3 | * | 1 | | 0750 | 95 | 56. | 72 |
| 1 | | 0115 | 16 | 3. | .7 | .2 | * | 1 | | 0435 | 56 | 51. | 61.2 | 5.4 | * | 1 | | 0755 | 96 | 56. | 71 |
| 1 | | 0120 | 17 | 3. | .8 | .2 | * | 1 | | 0440 | 57 | 51. | 62.8 | 5.5 | * | 1 | | 0800 | 97 | 55. | 71 |
| 1 | | 0125 | 18 | 3. | .9 | .2 | * | 1 | | 0445 | 58 | 53. | 65.0 | 5.7 | * | 1 | | 0805 | 98 | 55. | 71 |
| 1 | | 0130 | 19 | 4. | 1.1 | .3 | * | 1 | | 0450 | 59 | 54. | 67.7 | 5.8 | * | 1 | | 0810 | 99 | 55. | 70 |
| 1 | | 0135 | 20 | 5. | 1.3 | .3 | * | 1 | | 0455 | 60 | 55. | 70.7 | 6.0 | * | 1 | | 0815 | 100 | 55. | 70 |
| 1 | | 0140 | 21 | 6. | 1.5 | .4 | * | 1 | | 0500 | 61 | 56. | 73.6 | 6.2 | * | 1 | | 0820 | 101 | 55. | 69 |
| 1 | | 0145 | 22 | 7. | 1.8 | .5 | * | 1 | | 0505 | 62 | 57. | 76.2 | 6.4 | * | 1 | | 0825 | 102 | 55. | 69 |
| 1 | | 0150 | 23 | 8. | 2.1 | .5 | * | 1 | | 0510 | 63 | 58. | 78.0 | 6.5 | * | 1 | | 0830 | 103 | 55. | 69 |
| 1 | | 0155 | 24 | 9. | 2.4 | .6 | * | 1 | | 0515 | 64 | 58. | 79.2 | 6.6 | * | 1 | | 0835 | 104 | 54. | 68 |
| 1 | | 0200 | 25 | 10. | 2.8 | .7 | * | 1 | | 0520 | 65 | 58. | 80.0 | 6.7 | * | 1 | | 0840 | 105 | 54. | 68 |
| 1 | | 0205 | 26 | 12. | 3.2 | .8 | * | 1 | | 0525 | 66 | 58. | 80.4 | 6.7 | * | 1 | | 0845 | 106 | 54. | 68 |
| 1 | | 0210 | 27 | 13. | 3.6 | .9 | * | 1 | | 0530 | 67 | 59. | 80.6 | 6.7 | * | 1 | | 0850 | 107 | 54. | 67 |
| 1 | | 0215 | 28 | 15. | 4.0 | 1.0 | * | 1 | | 0535 | 68 | 59. | 80.6 | 6.7 | * | 1 | | 0855 | 108 | 54. | 67 |
| 1 | | 0220 | 29 | 16. | 4.4 | 1.1 | * | 1 | | 0540 | 69 | 59. | 80.6 | 6.7 | * | 1 | | 0900 | 109 | 53. | 66 |
| 1 | | 0225 | 30 | 17. | 4.7 | 1.2 | * | 1 | | 0545 | 70 | 58. | 80.5 | 6.7 | * | 1 | | 0905 | 110 | 53. | 66 |
| 1 | | 0230 | 31 | 18. | 4.9 | 1.2 | * | 1 | | 0550 | 71 | 58. | 80.4 | 6.7 | * | 1 | | 0910 | 111 | 53. | 66 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0235 | 32 | 19. | 5.0 | 1.3 * | 1 | 0555 | 72 | 58. | 80.2 | 6.7 * | 1 | 0915 | 112 | 53. | 65 |
| 1 | 0240 | 33 | 19. | 5.2 | 1.3 * | 1 | 0600 | 73 | 58. | 80.0 | 6.7 * | 1 | 0920 | 113 | 53. | 65 |
| 1 | 0245 | 34 | 20. | 5.4 | 1.3 * | 1 | 0605 | 74 | 58. | 79.9 | 6.7 * | 1 | 0925 | 114 | 53. | 65 |
| 1 | 0250 | 35 | 21. | 5.6 | 1.4 * | 1 | 0610 | 75 | 58. | 79.6 | 6.6 * | 1 | 0930 | 115 | 52. | 64 |
| 1 | 0255 | 36 | 23. | 6.0 | 1.5 * | 1 | 0615 | 76 | 58. | 79.4 | 6.6 * | 1 | 0935 | 116 | 52. | 64 |
| 1 | 0300 | 37 | 25. | 6.7 | 1.7 * | 1 | 0620 | 77 | 58. | 79.1 | 6.6 * | 1 | 0940 | 117 | 52. | 64 |
| 1 | 0305 | 38 | 29. | 7.7 | 1.9 * | 1 | 0625 | 78 | 58. | 78.7 | 6.6 * | 1 | 0945 | 118 | 52. | 63 |
| 1 | 0310 | 39 | 30. | 9.0 | 2.1 * | 1 | 0630 | 79 | 58. | 78.4 | 6.6 * | 1 | 0950 | 119 | 52. | 63 |
| 1 | 0315 | 40 | 31. | 11.0 | 2.2 * | 1 | 0635 | 80 | 58. | 78.0 | 6.5 * | 1 | 0955 | 120 | 51. | 62 |
| | | | | | * | | | | | | * | | | | | |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (CFS) | (HR) | | | | | |
| | | (CFS)□ | | | | |
| 59. | 5.58 | | 55. | 39. | 39. | 39. |
| | | (INCHES) | .182 | .212 | .212 | .212 |
| | | (AC-FT) | 27. | 32. | 32. | 32. |

| PEAK STORAGE | TIME | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (AC-FT) | (HR) | | | | |
| 81. | 5.58 | 71. | 46. | 46. | 46. |

| PEAK STAGE | TIME | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|
| | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (FEET) | (HR) | | | | |
| 6.71 | 5.58 | 6.05 | 4.08 | 4.08 | 4.08 |

CUMULATIVE AREA = 2.80 SQ MI

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HYDROGRAPH AT STATION MCDB
PLAN 1, RATIO = .53

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| DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORAGE | STAGE | | DA | MON | HRMN | ORD | OUTFLOW | STORA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0000 | 1 | 0. | .0 | .0 | * | 1 | | 0320 | 41 | 31. | 10.8 | 2.2 | * | 1 | | 0640 | 81 | 53. | 66 |
| 1 | | 0005 | 2 | 0. | .0 | .0 | * | 1 | | 0325 | 42 | 32. | 13.7 | 2.4 | * | 1 | | 0645 | 82 | 53. | 65 |
| 1 | | 0010 | 3 | 0. | .0 | .0 | * | 1 | | 0330 | 43 | 33. | 17.4 | 2.6 | * | 1 | | 0650 | 83 | 53. | 65 |
| 1 | | 0015 | 4 | 0. | .0 | .0 | * | 1 | | 0335 | 44 | 34. | 22.0 | 2.9 | * | 1 | | 0655 | 84 | 52. | 64 |
| 1 | | 0020 | 5 | 0. | .0 | .0 | * | 1 | | 0340 | 45 | 36. | 27.2 | 3.2 | * | 1 | | 0700 | 85 | 52. | 64 |
| 1 | | 0025 | 6 | 0. | .0 | .0 | * | 1 | | 0345 | 46 | 38. | 32.0 | 3.5 | * | 1 | | 0705 | 86 | 52. | 64 |
| 1 | | 0030 | 7 | 0. | .0 | .0 | * | 1 | | 0350 | 47 | 39. | 36.1 | 3.8 | * | 1 | | 0710 | 87 | 52. | 63 |
| 1 | | 0035 | 8 | 0. | .0 | .0 | * | 1 | | 0355 | 48 | 40. | 39.4 | 4.0 | * | 1 | | 0715 | 88 | 52. | 63 |
| 1 | | 0040 | 9 | 0. | .0 | .0 | * | 1 | | 0400 | 49 | 41. | 42.3 | 4.2 | * | 1 | | 0720 | 89 | 52. | 63 |
| 1 | | 0045 | 10 | 0. | .1 | .0 | * | 1 | | 0405 | 50 | 42. | 44.7 | 4.3 | * | 1 | | 0725 | 90 | 51. | 62 |
| 1 | | 0050 | 11 | 0. | .1 | .0 | * | 1 | | 0410 | 51 | 43. | 46.5 | 4.4 | * | 1 | | 0730 | 91 | 51. | 62 |
| 1 | | 0055 | 12 | 1. | .1 | .0 | * | 1 | | 0415 | 52 | 44. | 48.0 | 4.5 | * | 1 | | 0735 | 92 | 51. | 62 |
| 1 | | 0100 | 13 | 1. | .2 | .1 | * | 1 | | 0420 | 53 | 45. | 49.0 | 4.6 | * | 1 | | 0740 | 93 | 51. | 61 |
| 1 | | 0105 | 14 | 1. | .3 | .1 | * | 1 | | 0425 | 54 | 45. | 50.0 | 4.7 | * | 1 | | 0745 | 94 | 51. | 61 |
| 1 | | 0110 | 15 | 1. | .3 | .1 | * | 1 | | 0430 | 55 | 45. | 50.9 | 4.7 | * | 1 | | 0750 | 95 | 51. | 61 |
| 1 | | 0115 | 16 | 1. | .4 | .1 | * | 1 | | 0435 | 56 | 46. | 51.9 | 4.8 | * | 1 | | 0755 | 96 | 50. | 60 |
| 1 | | 0120 | 17 | 2. | .5 | .1 | * | 1 | | 0440 | 57 | 47. | 53.4 | 4.9 | * | 1 | | 0800 | 97 | 50. | 60 |
| 1 | | 0125 | 18 | 2. | .6 | .1 | * | 1 | | 0445 | 58 | 48. | 55.3 | 5.0 | * | 1 | | 0805 | 98 | 50. | 60 |
| 1 | | 0130 | 19 | 3. | .7 | .2 | * | 1 | | 0450 | 59 | 49. | 57.6 | 5.2 | * | 1 | | 0810 | 99 | 50. | 59 |
| 1 | | 0135 | 20 | 3. | .8 | .2 | * | 1 | | 0455 | 60 | 50. | 60.3 | 5.4 | * | 1 | | 0815 | 100 | 50. | 59 |
| 1 | | 0140 | 21 | 4. | 1.0 | .3 | * | 1 | | 0500 | 61 | 51. | 62.9 | 5.5 | * | 1 | | 0820 | 101 | 49. | 59 |
| 1 | | 0145 | 22 | 5. | 1.2 | .3 | * | 1 | | 0505 | 62 | 53. | 65.1 | 5.7 | * | 1 | | 0825 | 102 | 49. | 58 |
| 1 | | 0150 | 23 | 6. | 1.5 | .4 | * | 1 | | 0510 | 63 | 53. | 66.7 | 5.8 | * | 1 | | 0830 | 103 | 49. | 58 |
| 1 | | 0155 | 24 | 7. | 1.7 | .4 | * | 1 | | 0515 | 64 | 54. | 67.8 | 5.9 | * | 1 | | 0835 | 104 | 49. | 57 |
| 1 | | 0200 | 25 | 8. | 2.0 | .5 | * | 1 | | 0520 | 65 | 54. | 68.4 | 5.9 | * | 1 | | 0840 | 105 | 49. | 57 |
| 1 | | 0205 | 26 | 9. | 2.3 | .6 | * | 1 | | 0525 | 66 | 54. | 68.7 | 5.9 | * | 1 | | 0845 | 106 | 49. | 57 |
| 1 | | 0210 | 27 | 10. | 2.6 | .7 | * | 1 | | 0530 | 67 | 54. | 68.8 | 5.9 | * | 1 | | 0850 | 107 | 48. | 56 |
| 1 | | 0215 | 28 | 11. | 3.0 | .7 | * | 1 | | 0535 | 68 | 54. | 68.9 | 5.9 | * | 1 | | 0855 | 108 | 48. | 56 |
| 1 | | 0220 | 29 | 12. | 3.2 | .8 | * | 1 | | 0540 | 69 | 54. | 68.8 | 5.9 | * | 1 | | 0900 | 109 | 48. | 56 |
| 1 | | 0225 | 30 | 13. | 3.5 | .9 | * | 1 | | 0545 | 70 | 54. | 68.7 | 5.9 | * | 1 | | 0905 | 110 | 48. | 55 |
| 1 | | 0230 | 31 | 14. | 3.7 | .9 | * | 1 | | 0550 | 71 | 54. | 68.6 | 5.9 | * | 1 | | 0910 | 111 | 48. | 55 |
| 1 | | 0235 | 32 | 14. | 3.8 | 1.0 | * | 1 | | 0555 | 72 | 54. | 68.4 | 5.9 | * | 1 | | 0915 | 112 | 48. | 55 |
| 1 | | 0240 | 33 | 15. | 3.9 | 1.0 | * | 1 | | 0600 | 73 | 54. | 68.3 | 5.9 | * | 1 | | 0920 | 113 | 47. | 54 |
| 1 | | 0245 | 34 | 15. | 4.1 | 1.0 | * | 1 | | 0605 | 74 | 54. | 68.1 | 5.9 | * | 1 | | 0925 | 114 | 47. | 54 |
| 1 | | 0250 | 35 | 16. | 4.3 | 1.1 | * | 1 | | 0610 | 75 | 54. | 67.9 | 5.9 | * | 1 | | 0930 | 115 | 47. | 54 |
| 1 | | 0255 | 36 | 17. | 4.6 | 1.2 | * | 1 | | 0615 | 76 | 54. | 67.6 | 5.8 | * | 1 | | 0935 | 116 | 47. | 54 |
| 1 | | 0300 | 37 | 19. | 5.2 | 1.3 | * | 1 | | 0620 | 77 | 54. | 67.3 | 5.8 | * | 1 | | 0940 | 117 | 47. | 53 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0305 | 38 | 22. | 6.0 | 1.5 | * | 1 | 0625 | 78 | 54. | 67.0 | 5.8 | * | 1 | 0945 | 118 | 47. | 53 |
| 1 | 0310 | 39 | 27. | 7.1 | 1.8 | * | 1 | 0630 | 79 | 53. | 66.7 | 5.8 | * | 1 | 0950 | 119 | 47. | 53 |
| 1 | 0315 | 40 | 30. | 8.7 | 2.0 | * | 1 | 0635 | 80 | 53. | 66.3 | 5.8 | * | 1 | 0955 | 120 | 46. | 52 |
| | | | | | | * | | | | | | | * | | | | | |

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| PEAK FLOW | TIME | | MAXIMUM AVERAGE FLOW | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (CFS) | (HR) | | | | | |
| | | (CFS)□ | | | | |
| 54. | 5.58 | | 50. | 35. | 35. | 35. |
| | | (INCHES) | .166 | .191 | .191 | .191 |
| | | (AC-FT) | 25. | 29. | 29. | 29. |

| PEAK STORAGE | TIME | | MAXIMUM AVERAGE STORAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (AC-FT) | (HR) | | | | | |
| 69. | 5.58 | | 60. | 38. | 38. | 38. |

| PEAK STAGE | TIME | | MAXIMUM AVERAGE STAGE | | | |
|---|---|---|---|---|---|---|
| | | | 6-HR | 24-HR | 72-HR | 9.92-HR□ |
| (FEET) | (HR) | | | | | |
| 5.92 | 5.58 | | 5.34 | 3.58 | 3.58 | 3.58 |

CUMULATIVE AREA = 2.80 SQ MI

□ □

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
*FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES*
TIME TO PEAK IN HOURS

| OPERATION | STATION | AREA | PLAN | | RATIOS APPLIED TO PRECIPITATION RATIO 1 .83 | RATIO 2 .80 | RATIO 3 .76 | RATIO 4 .73 | RATIO 5 .69 | RATIO 6 .64 | RATIO 7 .58 | RATIO . |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT□ | B13A | 1.29 | 1 | FLOW | 580. | 551. | 512. | 471. | 441. | 387. | 329. | 28 |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4. |
| ROUTED TO□ | RB13A | 1.29 | 1 | FLOW | 533. | 507. | 470. | 433. | 406. | 356. | 302. | 25 |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4. |
| HYDROGRAPH AT□ | B13B | .54 | 1 | FLOW | 148. | 140. | 130. | 120. | 112. | 98. | 84. | 7 |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.17 | 5.17 | 5.25 | 5.33 | 5. |
| 2 COMBINED AT□ | PT1 | 1.83 | 1 | FLOW | 675. | 641. | 595. | 547. | 512. | 448. | 380. | 32 |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4. |
| ROUTED TO□ | RPT1 | 1.83 | 1 | FLOW | 658. | 626. | 581. | 535. | 501. | 439. | 372. | 31 |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5. |
| HYDROGRAPH AT□ | B17 | .82 | 1 | FLOW | 258. | 244. | 226. | 207. | 193. | 168. | 142. | 12 |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.42 | 4.42 | 4.42 | 4. |
| 2 COMBINED AT□ | PT2 | 2.64 | 1 | FLOW | 864. | 821. | 762. | 702. | 657. | 577. | 490. | 42 |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.08 | 5.08 | 5.08 | 5. |
| VERSION TO□ | DVBD2 | 2.64 | 1 | FLOW | 350. | 337. | 319. | 301. | 288. | 263. | 237. | 21 |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.08 | 5.08 | 5.08 | 5. |
| HYDROGRAPH AT□ | DVBD2 | 2.64 | 1 | FLOW | 514. | 484. | 443. | 401. | 370. | 314. | 253. | 20 |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.08 | 5.08 | 5.08 | 5. |
| ROUTED TO□ | RPT2 | 2.64 | 1 | FLOW | 513. | 483. | 442. | 400. | 370. | 313. | 253. | 20 |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.17 | 5.17 | 5. |
| HYDROGRAPH AT□ | B13C | 2.01 | 1 | FLOW | 893. | 848. | 785. | 721. | 674. | 588. | 496. | 42 |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3. |
| 2 COMBINED AT□ | PT3 | 4.65 | 1 | FLOW | 1052. | 998. | 924. | 848. | 792. | 688. | 577. | 48 |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5. |
| DIVERSION TO□ | DVBD3 | 4.65 | 1 | FLOW | 273. | 271. | 268. | 265. | 263. | 259. | 255. | 25 |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5. |
| HYDROGRAPH AT□ | DVBD3 | 4.65 | 1 | FLOW | 779. | 727. | 655. | 583. | 529. | 429. | 322. | 23 |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5. |
| ROUTED TO□ | RPT3A | 4.65 | 1 | FLOW | 773. | 722. | 653. | 581. | 526. | 429. | 322. | 23 |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5. |
| DIVERSION TO□ | DVBD4 | 4.65 | 1 | FLOW | 178. | 173. | 165. | 158. | 152. | 140. | 126. | 11 |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5. |
| DROGRAPH AT□ | DVBD4 | 4.65 | 1 | FLOW | 595. | 549. | 488. | 424. | 375. | 289. | 196. | 12 |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT3B | 4.65 | 1 | FLOW | 583. | 537. | 476. | 412. | 364. | 279. | 187. | 11 |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5. |
| DROGRAPH AT□ | | | | | | | | | | | | |
| | B11S | 1.12 | 1 | FLOW | 259. | 240. | 214. | 189. | 170. | 138. | 104. | 8 |
| | | | | TIME | 4.00 | 4.00 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | HYDRO1 | .63 | 1 | FLOW | 623. | 623. | 623. | 623. | 623. | 623. | 623. | 62 |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4. |
| 3 COMBINED AT□ | | | | | | | | | | | | |
| | PT4 | 6.40 | 1 | FLOW | 1428. | 1359. | 1265. | 1171. | 1099. | 977. | 847. | 75 |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT4A | 6.40 | 1 | FLOW | 1377. | 1310. | 1218. | 1126. | 1057. | 939. | 813. | 72 |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4. |
| DIVERSION TO□ | | | | | | | | | | | | |
| | DVBD7 | 6.40 | 1 | FLOW | 918. | 873. | 812. | 751. | 705. | 626. | 542. | 48 |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | DVBD7 | 6.40 | 1 | FLOW | 459. | 437. | 406. | 375. | 352. | 313. | 271. | 24 |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT4B | 6.40 | 1 | FLOW | 446. | 424. | 394. | 364. | 341. | 303. | 262. | 23 |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 | 4.42 | 4. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | B14B | .99 | 1 | FLOW | 226. | 209. | 186. | 163. | 146. | 118. | 89. | 6 |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.92 | 3. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT22W | 7.39 | 1 | FLOW | 563. | 533. | 492. | 451. | 421. | 369. | 314. | 27 |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4. |
| DROGRAPH AT□ | | | | | | | | | | | | |
| | D012A | 10.21 | 1 | FLOW | 2260. | 2129. | 1950. | 1770. | 1639. | 1403. | 1157. | 96 |
| | | | | TIME | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5.25 | 5.33 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RD012A | 10.21 | 1 | FLOW | 2260. | 2129. | 1950. | 1770. | 1639. | 1403. | 1156. | 96 |
| | | | | TIME | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5. |
| DIVERSION TO□ | | | | | | | | | | | | |
| | DVI151 | 10.21 | 1 | FLOW | 1276. | 1255. | 1227. | 1198. | 1171. | 1121. | 1049. | 96 |
| | | | | TIME | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | DVI151 | 10.21 | 1 | FLOW | 984. | 874. | 723. | 572. | 468. | 282. | 108. | |
| | | | | TIME | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RI151 | 10.21 | 1 | FLOW | 983. | 873. | 722. | 571. | 467. | 281. | 107. | |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5. |
| DIVERSION TO□ | | | | | | | | | | | | |
| | DVI152 | 10.21 | 1 | FLOW | 380. | 341. | 285. | 229. | 190. | 112. | 39. | |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | DVI152 | 10.21 | 1 | FLOW | 604. | 532. | 437. | 342. | 277. | 169. | 68. | |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RI152 | 10.21 | 1 | FLOW | 601. | 530. | 435. | 340. | 275. | 168. | 66. | |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.42 | 5.42 | 5.50 | 5.58 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D01 | 9.54 | 1 | FLOW | 3126. | 2950. | 2709. | 2466. | 2286. | 1962. | 1621. | 134 |
| | | | | TIME | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RD01 | 9.54 | 1 | FLOW | 2893. | 2732. | 2510. | 2286. | 2121. | 1825. | 1512. | 126 |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.25 | 5.25 | 5.25 | 5. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D005 | 2.73 | 1 | FLOW | 934. | 879. | 803. | 727. | 670. | 569. | 465. | 38 |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.25 | 4.25 | 4. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT9 | 12.27 | 1 | FLOW | 3580. | 3384. | 3114. | 2843. | 2642. | 2280. | 1895. | 158 |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RD005 | 12.27 | 1 | FLOW | 3529. | 3337. | 3072. | 2803. | 2604. | 2245. | 1868. | 156 |
| | | | | TIME | 5.42 | 5.42 | 5.42 | 5.42 | 5.42 | 5.42 | 5.50 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D02 | 5.91 | 1 | FLOW | 1927. | 1819. | 1671. | 1521. | 1409. | 1210. | 999. | 83 |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.58 | 4. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RD02 | 5.91 | 1 | FLOW | 1798. | 1698. | 1561. | 1423. | 1321. | 1137. | 943. | 78 |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.25 | 5.25 | 5.33 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D03 | 11.99 | 1 | FLOW | 4032. | 3806. | 3495. | 3180. | 2947. | 2528. | 2086. | 173 |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D04 | 6.95 | 1 | FLOW | 2254. | 2131. | 1960. | 1787. | 1660. | 1432. | 1190. | 99 |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.58 | 4.58 | 4.58 | 4. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT10 | 18.94 | 1 | FLOW | 6270. | 5920. | 5438. | 4950. | 4589. | 3945. | 3266. | 272 |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT10 | 18.94 | 1 | FLOW | 5597. | 5291. | 4870. | 4443. | 4130. | 3565. | 2974. | 250 |
| | | | | TIME | 5.42 | 5.42 | 5.42 | 5.50 | 5.50 | 5.50 | 5.67 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D006 | 8.52 | 1 | FLOW | 2804. | 2643. | 2421. | 2199. | 2034. | 1739. | 1428. | 117 |
| | | | | TIME | 4.25 | 4.25 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4. |
| 3 COMBINED AT□ | | | | | | | | | | | | |
| | PT11 | 33.37 | 1 | FLOW | 9528. | 9015. | 8307. | 7588. | 7056. | 6096. | 5082. | 427 |
| | | | | TIME | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.33 | 5.42 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT11 | 33.37 | 1 | FLOW | 9430. | 8921. | 8218. | 7506. | 6978. | 6030. | 5031. | 422 |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.58 | 5.58 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D2A | .99 | 1 | FLOW | 573. | 541. | 497. | 453. | 420. | 361. | 299. | 24 |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3. |
| 3 COMBINED AT□ | | | | | | | | | | | | |
| | PT12 | 46.63 | 1 | FLOW | 13034. | 12325. | 11346. | 10363. | 9635. | 8323. | 6931. | 581 |
| | | | | TIME | 5.42 | 5.42 | 5.42 | 5.50 | 5.50 | 5.50 | 5.50 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT12 | 46.63 | 1 | FLOW | 12288. | 11624. | 10708. | 9780. | 9092. | 7853. | 6548. | 549 |
| | | | | TIME | 6.25 | 6.33 | 6.33 | 6.33 | 6.33 | 6.33 | 6.42 | 6. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D2B | 7.50 | 1 | FLOW | 1583. | 1482. | 1344. | 1207. | 1109. | 936. | 760. | 62 |
| | | | | TIME | 4.75 | 4.83 | 4.83 | 4.92 | 5.08 | 5.17 | 5.33 | 5. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT13 | 54.13 | 1 | FLOW | 13326. | 12595. | 11587. | 10572. | 9822. | 8471. | 7040. | 590 |
| | | | | TIME | 6.17 | 6.17 | 6.17 | 6.25 | 6.25 | 6.25 | 6.33 | 6. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT13 | 54.13 | 1 | FLOW | 12688. | 11992. | 11031. | 10066. | 9352. | 8065. | 6705. | 561 |
| | | | | TIME | 7.08 | 7.08 | 7.17 | 7.17 | 7.17 | 7.17 | 7.25 | 7. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D06 | 11.68 | 1 | FLOW | 3284. | 3103. | 2852. | 2598. | 2410. | 2072. | 1718. | 143 |
| | | | | TIME | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.75 | 4.83 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RD06 | 11.68 | 1 | FLOW | 3098. | 2929. | 2699. | 2465. | 2292. | 1981. | 1654. | 139 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TIME | 5.67 | 5.67 | 5.75 | 5.75 | 5.75 | 5.83 | 5.83 | 5. |
| HYDROGRAPH AT□ | D3 | 6.64 | 1 | FLOW | 1056. | 981. | 883. | 790. | 722. | 601. | 477. | 38 |
| | | | | TIME | 4.83 | 5.00 | 5.33 | 5.42 | 5.42 | 5.42 | 5.50 | 5. |
| 4 COMBINED AT□ | PT14 | 82.66 | 1 | FLOW | 15109. | 14252. | 13078. | 11900. | 11044. | 9510. | 7891. | 660 |
| | | | | TIME | 6.75 | 6.83 | 6.83 | 6.83 | 6.92 | 6.92 | 7.00 | 7. |
| DIVERSION TO□ | DVI153 | 82.66 | 1 | FLOW | 9190. | 8562. | 7702. | 6840. | 6212. | 5088. | 4041. | 326 |
| | | | | TIME | 6.75 | 6.83 | 6.83 | 6.83 | 6.92 | 6.92 | 7.00 | 7. |
| HYDROGRAPH AT□ | DVI153 | 82.66 | 1 | FLOW | 5919. | 5690. | 5376. | 5060. | 4831. | 4422. | 3850. | 333 |
| | | | | TIME | 6.75 | 6.83 | 6.83 | 6.83 | 6.92 | 6.92 | 7.00 | 7. |
| ROUTED TO□ | RPT14 | 82.66 | 1 | FLOW | 5894. | 5666. | 5355. | 5043. | 4812. | 4405. | 3829. | 331 |
| | | | | TIME | 7.25 | 7.25 | 7.33 | 7.33 | 7.33 | 7.42 | 7.42 | 7. |
| HYDROGRAPH AT□ | D1A | 2.29 | 1 | FLOW | 770. | 725. | 665. | 603. | 558. | 476. | 391. | 32 |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.33 | 4. |
| ROUTED TO□ | RD1A | 2.29 | 1 | FLOW | 758. | 714. | 655. | 594. | 549. | 469. | 386. | 31 |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4. |
| HYDROGRAPH AT□ | D1B | .32 | 1 | FLOW | 89. | 84. | 77. | 70. | 65. | 56. | 46. | 3 |
| | | | | TIME | 4.50 | 4.50 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4. |
| 2 COMBINED AT□ | PT15 | 2.61 | 1 | FLOW | 846. | 798. | 731. | 663. | 613. | 525. | 431. | 35 |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 | 4. |
| ROUTED TO□ | RPT15 | 2.61 | 1 | FLOW | 825. | 777. | 713. | 647. | 599. | 513. | 421. | 34 |
| | | | | TIME | 4.75 | 4.75 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4. |
| HYDROGRAPH AT□ | D1C | .56 | 1 | FLOW | 128. | 120. | 110. | 100. | 92. | 79. | 65. | 5 |
| | | | | TIME | 4.92 | 5.00 | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5. |
| 2 COMBINED AT□ | PT16 | 3.17 | 1 | FLOW | 951. | 897. | 822. | 746. | 690. | 590. | 484. | 39 |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4. |
| ROUTED TO□ | RPT16 | 3.17 | 1 | FLOW | 936. | 883. | 809. | 734. | 679. | 580. | 476. | 39 |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5. |
| HYDROGRAPH AT□ | D1D | 1.23 | 1 | FLOW | 443. | 416. | 379. | 341. | 314. | 265. | 213. | 17 |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3. |
| ROUTED TO□ | RD1D | 1.23 | 1 | FLOW | 431. | 405. | 369. | 332. | 305. | 257. | 207. | 16 |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4. |
| HYDROGRAPH AT□ | D1E | .22 | 1 | FLOW | 47. | 44. | 40. | 35. | 32. | 27. | 22. | 1 |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.67 | 5.33 | 5. |
| HYDROGRAPH AT□ | D1F | .81 | 1 | FLOW | 104. | 97. | 86. | 76. | 69. | 56. | 43. | 3 |
| | | | | TIME | 5.58 | 5.58 | 5.67 | 5.67 | 5.67 | 5.67 | 5.75 | 5. |
| 4 COMBINED AT□ | PT17 | 5.43 | 1 | FLOW | 1351. | 1274. | 1167. | 1060. | 981. | 838. | 690. | 57 |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.25 | 5. |
| ROUTED TO□ | RPT17 | 5.43 | 1 | FLOW | 1315. | 1240. | 1136. | 1031. | 953. | 815. | 670. | 55 |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.75 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B18A | 1.50 | 1 | FLOW | 162. | 150. | 133. | 116. | 104. | 82. | 61. | 4 |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.33 | 5.33 | 5. |
| [redacted] COMBINED AT□ | | | | | | | | | | | | |
| | PT18 | 89.59 | 1 | FLOW | 6565. | 6295. | 5922. | 5549. | 5274. | 4781. | 4114. | 353 |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.08 | 7.25 | 7. |
| DIVERSION TO□ | | | | | | | | | | | | |
| | DVI154 | 89.59 | 1 | FLOW | 1301. | 1291. | 1277. | 1263. | 1252. | 1232. | 1204. | 115 |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.08 | 7.25 | 7. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | DVI154 | 89.59 | 1 | FLOW | 5264. | 5004. | 4646. | 4286. | 4022. | 3549. | 2910. | 238 |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.08 | 7.25 | 7. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT18 | 89.59 | 1 | FLOW | 5255. | 4995. | 4639. | 4280. | 4015. | 3541. | 2905. | 238 |
| | | | | TIME | 7.00 | 7.08 | 7.08 | 7.08 | 7.08 | 7.17 | 7.33 | 7. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | B18B | 1.92 | 1 | FLOW | 677. | 640. | 589. | 538. | 500. | 431. | 358. | 30 |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | DVBD2 | .00 | 1 | FLOW | 350. | 337. | 319. | 301. | 288. | 263. | 237. | 21 |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.08 | 5.08 | 5.08 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RDVBD2 | .00 | 1 | FLOW | 343. | 331. | 314. | 296. | 283. | 259. | 233. | 21 |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5. |
| 3 COMBINED AT□ | | | | | | | | | | | | |
| | PT19 | 91.51 | 1 | FLOW | 5508. | 5238. | 4868. | 4496. | 4221. | 3721. | 3058. | 251 |
| | | | | TIME | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.08 | 7.25 | 7. |
| DIVERSION TO□ | | | | | | | | | | | | |
| | DVI155 | 91.51 | 1 | FLOW | 2974. | 2815. | 2624. | 2513. | 2416. | 2277. | 2089. | 183 |
| | | | | TIME | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.08 | 7.25 | 7. |
| [redacted]DROGRAPH AT□ | | | | | | | | | | | | |
| | DVI155 | 91.51 | 1 | FLOW | 2534. | 2423. | 2244. | 1983. | 1806. | 1444. | 968. | 68 |
| | | | | TIME | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.08 | 7.25 | 7. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT19 | 91.51 | 1 | FLOW | 2522. | 2412. | 2226. | 1967. | 1790. | 1423. | 953. | 67 |
| | | | | TIME | 7.58 | 7.58 | 7.58 | 7.67 | 7.67 | 7.75 | 7.92 | 8. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | B14A | 1.35 | 1 | FLOW | 670. | 637. | 590. | 543. | 507. | 443. | 375. | 32 |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | RDVBD3 | .00 | 1 | FLOW | 273. | 271. | 268. | 265. | 263. | 259. | 255. | 25 |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | RDVBD4 | .00 | 1 | FLOW | 178. | 173. | 165. | 158. | 152. | 140. | 126. | 11 |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT20 | .00 | 1 | FLOW | 450. | 443. | 433. | 423. | 415. | 399. | 381. | 36 |
| | | | | TIME | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5.17 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RDVBD4 | .00 | 1 | FLOW | 444. | 436. | 427. | 416. | 408. | 392. | 375. | 36 |
| | | | | TIME | 5.58 | 5.58 | 5.58 | 5.58 | 5.58 | 5.67 | 5.67 | 5. |
| 3 COMBINED AT□ | | | | | | | | | | | | |
| | PT21 | 92.86 | 1 | FLOW | 2750. | 2618. | 2361. | 2075. | 1873. | 1462. | 966. | 68 |
| | | | | TIME | 7.00 | 7.00 | 7.17 | 7.25 | 7.42 | 7.67 | 7.83 | 7. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT22 | 100.25 | 1 | FLOW | 2808. | 2668. | 2404. | 2115. | 1910. | 1496. | 1000. | 88 |
| | | | | TIME | 6.92 | 7.00 | 7.08 | 7.25 | 7.42 | 7.67 | 7.83 | 5. |
| [redacted]UTED TO□ | | | | | | | | | | | | |
| | RPT22 | 100.25 | 1 | FLOW | 2800. | 2658. | 2398. | 2110. | 1903. | 1487. | 994. | 87 |
| | | | | TIME | 7.17 | 7.25 | 7.42 | 7.58 | 7.67 | 7.92 | 8.08 | 5. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | B15B | .95 | 1 | FLOW | 199. | 186. | 168. | 149. | 136. | 113. | 90. | 7 |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4. |
| [redacted]COMBINED AT□ | | | | | | | | | | | | |
| | PT23 | 101.20 | 1 | FLOW | 2809. | 2664. | 2402. | 2113. | 1905. | 1488. | 1063. | 94 |
| | | | | TIME | 7.17 | 7.25 | 7.42 | 7.50 | 7.67 | 7.92 | 5.33 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | RDVI151 | .00 | 1 | FLOW | 1276. | 1255. | 1227. | 1198. | 1171. | 1121. | 1049. | 96 |
| | | | | TIME | 5.08 | 5.08 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RDVI151 | .00 | 1 | FLOW | 1276. | 1255. | 1227. | 1198. | 1170. | 1120. | 1048. | 95 |
| | | | | TIME | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5.42 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | RDVI152 | .00 | 1 | FLOW | 380. | 341. | 285. | 229. | 190. | 112. | 39. | |
| | | | | TIME | 5.17 | 5.17 | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RDVI152 | .00 | 1 | FLOW | 379. | 341. | 285. | 228. | 190. | 111. | 39. | |
| | | | | TIME | 5.25 | 5.25 | 5.33 | 5.33 | 5.42 | 5.42 | 5.50 | 5. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT24 | .00 | 1 | FLOW | 1655. | 1595. | 1511. | 1426. | 1359. | 1231. | 1087. | 95 |
| | | | | TIME | 5.25 | 5.25 | 5.33 | 5.33 | 5.33 | 5.42 | 5.50 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT24 | .00 | 1 | FLOW | 1654. | 1595. | 1510. | 1426. | 1359. | 1230. | 1086. | 95 |
| | | | | TIME | 5.33 | 5.33 | 5.42 | 5.42 | 5.42 | 5.50 | 5.58 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D009 | 3.62 | 1 | FLOW | 1626. | 1535. | 1408. | 1280. | 1185. | 1015. | 836. | 69 |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RD009 | 3.62 | 1 | FLOW | 1586. | 1496. | 1372. | 1247. | 1154. | 988. | 812. | 67 |
| | | | | TIME | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4. |
| [redacted]DROGRAPH AT□ | | | | | | | | | | | | |
| | D004 | 2.40 | 1 | FLOW | 1001. | 947. | 873. | 798. | 743. | 643. | 537. | 45 |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.17 | 4.17 | 4. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT5 | 6.02 | 1 | FLOW | 2567. | 2426. | 2232. | 2035. | 1889. | 1626. | 1347. | 112 |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT5 | 6.02 | 1 | FLOW | 2262. | 2137. | 1965. | 1790. | 1661. | 1429. | 1183. | 98 |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D08 | 11.91 | 1 | FLOW | 3172. | 3008. | 2780. | 2551. | 2381. | 2074. | 1746. | 148 |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.58 | 5.58 | 5.58 | 5.58 | 5. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT6 | 17.93 | 1 | FLOW | 4808. | 4564. | 4228. | 3885. | 3630. | 3169. | 2677. | 228 |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.58 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT6 | 17.93 | 1 | FLOW | 4692. | 4448. | 4111. | 3769. | 3515. | 3059. | 2574. | 218 |
| | | | | TIME | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6.17 | 6.17 | 6. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D010 | 10.43 | 1 | FLOW | 3045. | 2873. | 2636. | 2397. | 2220. | 1905. | 1573. | 130 |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.58 | 4.58 | 4. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D07 | 4.28 | 1 | FLOW | 1249. | 1180. | 1083. | 986. | 914. | 785. | 650. | 54 |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.67 | 4.67 | 4. |
| 3 COMBINED AT□ | | | | | | | | | | | | |
| | PT7 | 32.65 | 1 | FLOW | 8018. | 7594. | 7008. | 6413. | 5972. | 5180. | 4341. | 366 |
| | | | | TIME | 5.50 | 5.50 | 5.50 | 5.50 | 5.50 | 5.58 | 5.58 | 5. |
| [redacted]ROUTED TO□ | | | | | | | | | | | | |
| | RPT7 | 32.65 | 1 | FLOW | 7984. | 7562. | 6979. | 6388. | 5950. | 5158. | 4323. | 364 |
| | | | | TIME | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.83 | 5. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D012B | .57 | 1 | FLOW | 165. | 155. | 141. | 127. | 117. | 98. | 79. | 6 |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT8 | 33.21 | 1 | FLOW | 8053. | 7625. | 7037. | 6442. | 6000. | 5202. | 4355. | 367 |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5. |
| DIVERSION TO□ | | | | | | | | | | | | |
| | DVPITT | 33.21 | 1 | FLOW | 4122. | 3866. | 3516. | 3160. | 2896. | 2442. | 1967. | 160 |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | DVPITT | 33.21 | 1 | FLOW | 3931. | 3759. | 3522. | 3282. | 3104. | 2760. | 2387. | 207 |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5. |
| DIVERSION TO□ | | | | | | | | | | | | |
| | DVROSE | 33.21 | 1 | FLOW | 806. | 763. | 704. | 644. | 600. | 520. | 435. | 39 |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | DVROSE | 33.21 | 1 | FLOW | 3125. | 2996. | 2818. | 2638. | 2504. | 2240. | 1952. | 168 |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT8 | 33.21 | 1 | FLOW | 3105. | 2976. | 2799. | 2620. | 2487. | 2224. | 1938. | 166 |
| | | | | TIME | 6.17 | 6.17 | 6.25 | 6.25 | 6.25 | 6.25 | 6.25 | 6. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D4A | 1.87 | 1 | FLOW | 918. | 864. | 791. | 717. | 662. | 564. | 460. | 37 |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3. |
| 3 COMBINED AT□ | | | | | | | | | | | | |
| | PT25A | 35.09 | 1 | FLOW | 4682. | 4480. | 4243. | 3982. | 3783. | 3397. | 2973. | 253 |
| | | | | TIME | 5.92 | 5.92 | 6.00 | 6.00 | 6.00 | 6.00 | 6.08 | 6. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | RDVI153 | .00 | 1 | FLOW | 9190. | 8562. | 7702. | 6840. | 6212. | 5088. | 4041. | 326 |
| | | | | TIME | 6.75 | 6.83 | 6.83 | 6.83 | 6.92 | 6.92 | 7.00 | 7. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RDVI153 | .00 | 1 | FLOW | 9169. | 8543. | 7683. | 6825. | 6197. | 5071. | 4032. | 326 |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.08 | 7. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT25 | .00 | 1 | FLOW | 9152. | 8527. | 7668. | 6813. | 6184. | 5060. | 4024. | 325 |
| | | | | TIME | 7.00 | 7.00 | 7.08 | 7.08 | 7.08 | 7.17 | 7.17 | 7. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT25B | 35.09 | 1 | FLOW | 13083. | 12296. | 11211. | 10107. | 9275. | 7766. | 6368. | 523 |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D4B | 2.03 | 1 | FLOW | 1061. | 1003. | 923. | 842. | 782. | 674. | 560. | 46 |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT26 | 37.12 | 1 | FLOW | 13084. | 12297. | 11212. | 10108. | 9276. | 7767. | 6369. | 523 |
| | | | | TIME | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT26 | 37.12 | 1 | FLOW | 13069. | 12283. | 11198. | 10093. | 9263. | 7760. | 6361. | 523 |
| | | | | TIME | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | RDVI154 | .00 | 1 | FLOW | 1301. | 1291. | 1277. | 1263. | 1252. | 1232. | 1204. | 115 |
| | | | | TIME | 6.92 | 6.92 | 6.92 | 7.00 | 7.00 | 7.08 | 7.25 | 7. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RDVI154 | .00 | 1 | FLOW | 1301. | 1291. | 1277. | 1262. | 1252. | 1232. | 1204. | 115 |
| | | | | TIME | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 | 7.25 | 7. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RDVI154 | .00 | 1 | FLOW | 1301. | 1291. | 1277. | 1262. | 1252. | 1232. | 1204. | 115 |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.17 | 7.25 | 7. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | RDVI155 | .00 | 1 | FLOW | 2974. | 2815. | 2624. | 2513. | 2416. | 2277. | 2089. | 183 |

Flow from South of Cactus

Flow @ Southern Crossing of CV Blvd

Flow @ Northern Crossing of CV Blvd

Total Flow From Site

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TIME | 6.92 | 6.92 | 7.00 | 7.00 | 7.00 | 7.08 | 7.25 | 7. |
| ROUTED TO | | | | | | | | | | | | |
| | RDVI155 | .00 | 1 | FLOW | 2973. | 2814. | 2624. | 2512. | 2415. | 2277. | 2089. | 183 |
| | | | | TIME | 6.92 | 7.00 | 7.00 | 7.00 | 7.00 | 7.17 | 7.33 | 7. |
| ROUTED TO | | | | | | | | | | | | |
| | RDVI155 | .00 | 1 | FLOW | 2973. | 2814. | 2624. | 2512. | 2415. | 2277. | 2089. | 183 |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.17 | 7.33 | 7. |
| ROUTED TO | | | | | | | | | | | | |
| | RDVI155 | .00 | 1 | FLOW | 2972. | 2814. | 2624. | 2512. | 2415. | 2277. | 2089. | 183 |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 | 7.17 | 7.33 | 7. |
| ROUTED TO | | | | | | | | | | | | |
| | RDVI155 | .00 | 1 | FLOW | 2972. | 2814. | 2624. | 2512. | 2415. | 2277. | 2089. | 183 |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 | 7.17 | 7.33 | 7. |
| 2 COMBINED AT | | | | | | | | | | | | |
| | PT27 | .00 | 1 | FLOW | 4273. | 4105. | 3900. | 3774. | 3667. | 3508. | 3292. | 298 |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 | 7.17 | 7.33 | 7. |
| ROUTED TO | | | | | | | | | | | | |
| | RPT27 | .00 | 1 | FLOW | 4273. | 4104. | 3900. | 3774. | 3667. | 3508. | 3292. | 298 |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.00 | 7.08 | 7.17 | 7.33 | 7. |
| ROUTED TO | | | | | | | | | | | | |
| | RPT27 | .00 | 1 | FLOW | 4273. | 4104. | 3900. | 3774. | 3666. | 3508. | 3292. | 298 |
| | | | | TIME | 7.00 | 7.00 | 7.00 | 7.08 | 7.08 | 7.17 | 7.33 | 7. |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | B18C | 1.26 | 1 | FLOW | 445. | 419. | 384. | 349. | 324. | 278. | 231. | 19 |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3. |
| 3 COMBINED AT | | | | | | | | | | | | |
| | PT28 | 38.38 | 1 | FLOW | 17333. | 16376. | 15092. | 13857. | 12917. | 11242. | 9593. | 806 |
| | | | | TIME | 6.83 | 6.83 | 6.83 | 6.83 | 6.83 | 6.92 | 6.92 | 7. |
| ROUTED TO | | | | | | | | | | | | |
| | LDCDB | 38.38 | 1 | FLOW | 11547. | 11008. | 10290. | 9585. | 9071. | 8182. | 7226. | 632 |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.25 | 8.25 | 8.25 | 8.17 | 8. |
| | | | ** PEAK STAGES IN FEET ** | | | | | | | | | |
| | | | 1 | STAGE | 2219.28 | 2216.94 | 2213.83 | 2210.78 | 2208.56 | 2204.71 | 2200.85 | 2197. |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.25 | 8.25 | 8.25 | 8.17 | 8. |
| ROUTED TO | | | | | | | | | | | | |
| | RLDCDB | 38.38 | 1 | FLOW | 11547. | 11007. | 10290. | 9584. | 9070. | 8181. | 7225. | 632 |
| | | | | TIME | 8.33 | 8.33 | 8.33 | 8.33 | 8.25 | 8.25 | 8.25 | 8. |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | D5A | 1.33 | 1 | FLOW | 738. | 703. | 654. | 605. | 568. | 502. | 431. | 37 |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3. |
| ROUTED TO | | | | | | | | | | | | |
| | RD5A | 1.33 | 1 | FLOW | 702. | 669. | 623. | 575. | 540. | 477. | 409. | 35 |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3. |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | RDVROSE | .00 | 1 | FLOW | 806. | 763. | 704. | 644. | 600. | 520. | 435. | 39 |
| | | | | TIME | 5.67 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5. |
| ROUTED TO | | | | | | | | | | | | |
| | RDVROSE | .00 | 1 | FLOW | 799. | 756. | 698. | 638. | 594. | 515. | 431. | 39 |
| | | | | TIME | 6.17 | 6.17 | 6.25 | 6.25 | 6.25 | 6.25 | 6.25 | 6. |
| 3 COMBINED AT | | | | | | | | | | | | |
| | PT29 | 39.70 | 1 | FLOW | 11892. | 11343. | 10609. | 9886. | 9358. | 8439. | 7452. | 652 |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8.08 | 8.00 | 8. |
| ROUTED TO | | | | | | | | | | | | |
| | RPT29 | 39.70 | 1 | FLOW | 11891. | 11342. | 10609. | 9885. | 9357. | 8439. | 7452. | 652 |
| | | | | TIME | 8.25 | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8.08 | 8. |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | B16B | .70 | 1 | FLOW | 348. | 332. | 309. | 285. | 268. | 236. | 203. | 17 |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3. |
| ROUTED TO | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RB16B | .70 | 1 | FLOW | 344. | 327. | 305. | 282. | 264. | 235. | 202. | 17 |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3. |
| [redacted]COMBINED AT□ | | | | | | | | | | | | |
| | PT30 | 40.40 | 1 | FLOW | 11891. | 11342. | 10609. | 9885. | 9357. | 8439. | 7452. | 652 |
| | | | | TIME | 8.25 | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8.08 | 8. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT30 | 40.40 | 1 | FLOW | 11891. | 11340. | 10607. | 9885. | 9355. | 8438. | 7452. | 652 |
| | | | | TIME | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | B16A | .91 | 1 | FLOW | 236. | 222. | 203. | 184. | 170. | 144. | 118. | 9 |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D5B | .60 | 1 | FLOW | 242. | 231. | 216. | 201. | 190. | 170. | 148. | 13 |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4. |
| 3 COMBINED AT□ | | | | | | | | | | | | |
| | PT31 | 41.91 | 1 | FLOW | 11892. | 11341. | 10608. | 9886. | 9356. | 8439. | 7453. | 652 |
| | | | | TIME | 8.25 | 8.25 | 8.17 | 8.17 | 8.08 | 8.08 | 8.08 | 8. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT31 | 41.91 | 1 | FLOW | 11891. | 11340. | 10607. | 9885. | 9356. | 8439. | 7452. | 652 |
| | | | | TIME | 8.25 | 8.25 | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT32 | 143.12 | 1 | FLOW | 14470. | 13813. | 12891. | 11920. | 11216. | 9921. | 8447. | 724 |
| | | | | TIME | 8.08 | 8.08 | 8.00 | 8.00 | 8.00 | 8.00 | 8.08 | 8. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT32 | 143.12 | 1 | FLOW | 14469. | 13811. | 12889. | 11918. | 11215. | 9920. | 8445. | 724 |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.00 | 8.00 | 8.08 | 8.08 | 8. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | HYDRO2 | .38 | 1 | FLOW | 36. | 36. | 36. | 36. | 36. | 36. | 36. | 3 |
| | | | | TIME | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5.25 | 5. |
| [redacted]UTED TO□ | | | | | | | | | | | | |
| | RHYDRO2 | .38 | 1 | FLOW | 32. | 32. | 32. | 32. | 32. | 32. | 32. | 3 |
| | | | | TIME | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6.08 | 6. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | B12 | .97 | 1 | FLOW | 119. | 110. | 98. | 86. | 77. | 61. | 45. | 3 |
| | | | | TIME | 5.00 | 5.00 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT33W | 1.35 | 1 | FLOW | 149. | 140. | 128. | 115. | 107. | 91. | 75. | 6 |
| | | | | TIME | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5.08 | 5. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | RDVBD7 | .00 | 1 | FLOW | 918. | 873. | 812. | 751. | 705. | 626. | 542. | 48 |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RDVBD7 | .00 | 1 | FLOW | 879. | 836. | 777. | 718. | 674. | 597. | 516. | 45 |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT33 | 1.35 | 1 | FLOW | 956. | 907. | 841. | 775. | 725. | 640. | 550. | 48 |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT33 | 1.35 | 1 | FLOW | 929. | 881. | 815. | 750. | 702. | 618. | 530. | 46 |
| | | | | TIME | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4.92 | 4. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | B15A | .96 | 1 | FLOW | 279. | 262. | 238. | 214. | 197. | 166. | 134. | 10 |
| | | | | TIME | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT34W | 2.31 | 1 | FLOW | 1103. | 1046. | 968. | 889. | 831. | 729. | 622. | 54 |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 4. |
| [redacted]2 COMBINED AT□ | | | | | | | | | | | | |
| | PT34 | 145.42 | 1 | FLOW | 14546. | 13888. | 12967. | 11996. | 11293. | 9997. | 8521. | 731 |
| | | | | TIME | 8.08 | 8.08 | 8.00 | 8.00 | 8.00 | 8.00 | 8.08 | 8. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HYDROGRAPH AT□ | MNWB | .44 | 1 | FLOW | 136. | 128. | 118. | 107. | 99. | 85. | 70. | 5 |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4. |
| [redacted]TED TO□ | RMNWB | .44 | 1 | FLOW | 136. | 128. | 117. | 107. | 99. | 85. | 70. | 5 |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.33 | 4.33 | 4.33 | 4.33 | 4. |
| HYDROGRAPH AT□ | MNWC | .60 | 1 | FLOW | 191. | 180. | 166. | 151. | 141. | 121. | 101. | 8 |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4. |
| 2 COMBINED AT□ | PT35 | 1.04 | 1 | FLOW | 324. | 306. | 281. | 256. | 238. | 205. | 169. | 14 |
| | | | | TIME | 4.17 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4. |
| ROUTED TO□ | RPT35 | 1.04 | 1 | FLOW | 324. | 306. | 281. | 256. | 237. | 203. | 169. | 14 |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.33 | 4. |
| HYDROGRAPH AT□ | MNWD | .08 | 1 | FLOW | 39. | 37. | 34. | 31. | 29. | 25. | 21. | 1 |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3. |
| 2 COMBINED AT□ | PT36 | 1.12 | 1 | FLOW | 340. | 321. | 295. | 269. | 250. | 215. | 178. | 14 |
| | | | | TIME | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4. |
| ROUTED TO□ | RPT36 | 1.12 | 1 | FLOW | 333. | 315. | 289. | 263. | 244. | 210. | 174. | 14 |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.50 | 4.50 | 4. |
| HYDROGRAPH AT□ | MC2 | .92 | 1 | FLOW | 218. | 206. | 190. | 173. | 161. | 140. | 118. | 10 |
| | | | | TIME | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4.33 | 4. |
| 2 COMBINED AT□ | PT37 | 2.03 | 1 | FLOW | 548. | 518. | 476. | 434. | 403. | 347. | 289. | 24 |
| | | | | TIME | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4.42 | 4. |
| [redacted]UTED TO□ | RPT37 | 2.03 | 1 | FLOW | 548. | 518. | 476. | 434. | 403. | 347. | 289. | 24 |
| | | | | TIME | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4. |
| HYDROGRAPH AT□ | B10A | 1.60 | 1 | FLOW | 776. | 735. | 678. | 621. | 579. | 504. | 427. | 36 |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3. |
| 2 COMBINED AT□ | PT38 | 3.64 | 1 | FLOW | 917. | 866. | 795. | 725. | 678. | 594. | 504. | 43 |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 4.83 | 4.83 | 4.83 | 4. |
| ROUTED TO□ | RPT38 | 3.64 | 1 | FLOW | 907. | 851. | 784. | 721. | 674. | 591. | 502. | 43 |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 4.92 | 4.92 | 4.92 | 4.92 | 4. |
| 2 COMBINED AT□ | PT39 | 149.06 | 1 | FLOW | 14559. | 13901. | 12983. | 12011. | 11308. | 10011. | 8531. | 732 |
| | | | | TIME | 8.08 | 8.08 | 8.00 | 8.00 | 8.00 | 8.00 | 8.08 | 8. |
| ROUTED TO□ | RPT39 | 149.06 | 1 | FLOW | 14557. | 13899. | 12980. | 12008. | 11307. | 10009. | 8529. | 732 |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.00 | 8.00 | 8.08 | 8.08 | 8. |
| HYDROGRAPH AT□ | D6 | 1.56 | 1 | FLOW | 655. | 624. | 582. | 539. | 507. | 451. | 390. | 34 |
| | | | | TIME | 3.83 | 3.83 | 3.92 | 3.92 | 3.92 | 3.92 | 3.92 | 3. |
| 2 COMBINED AT□ | PT40 | 150.62 | 1 | FLOW | 14557. | 13900. | 12980. | 12008. | 11307. | 10009. | 8530. | 732 |
| | | | | TIME | 8.08 | 8.08 | 8.08 | 8.00 | 8.00 | 8.08 | 8.08 | 8. |
| ROUTED TO□ | RPT40 | 150.62 | 1 | FLOW | 14553. | 13895. | 12975. | 12004. | 11303. | 10005. | 8527. | 732 |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8.17 | 8.17 | 8. |
| [redacted]HYDROGRAPH AT□ | D7 | .85 | 1 | FLOW | 231. | 218. | 200. | 182. | 169. | 145. | 121. | 10 |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT41 | 151.47 | 1 | FLOW | 14554. | 13896. | 12976. | 12005. | 11304. | 10006. | 8527. | 732 |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.08 | 8.08 | 8.17 | 8.17 | 8. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT41 | 151.47 | 1 | FLOW | 14552. | 13894. | 12975. | 12003. | 11301. | 10005. | 8526. | 732 |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.08 | 8.17 | 8.25 | 8. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D8 | 1.26 | 1 | FLOW | 661. | 627. | 581. | 534. | 500. | 439. | 374. | 32 |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RD8 | 1.26 | 1 | FLOW | 626. | 595. | 551. | 507. | 474. | 416. | 355. | 30 |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT42 | 152.73 | 1 | FLOW | 14552. | 13894. | 12975. | 12003. | 11301. | 10005. | 8526. | 732 |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.08 | 8.17 | 8.25 | 8. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT42 | 152.73 | 1 | FLOW | 14550. | 13892. | 12974. | 12002. | 11300. | 10004. | 8526. | 732 |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.25 | 8. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | B10B | .85 | 1 | FLOW | 284. | 271. | 252. | 233. | 220. | 195. | 170. | 14 |
| | | | | TIME | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4.08 | 4. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RB10B | .85 | 1 | FLOW | 270. | 257. | 239. | 221. | 208. | 185. | 161. | 14 |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D9A | .86 | 1 | FLOW | 133. | 124. | 112. | 100. | 92. | 77. | 63. | 5 |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 5. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT43 | 1.71 | 1 | FLOW | 402. | 381. | 351. | 321. | 300. | 262. | 223. | 19 |
| | | | | TIME | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4.58 | 4. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT43 | 1.71 | 1 | FLOW | 402. | 381. | 351. | 321. | 300. | 262. | 223. | 19 |
| | | | | TIME | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4.67 | 4. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT44 | 154.44 | 1 | FLOW | 14563. | 13905. | 12986. | 12013. | 11310. | 10013. | 8532. | 732 |
| | | | | TIME | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.17 | 8.25 | 8. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT44 | 154.44 | 1 | FLOW | 14554. | 13895. | 12975. | 12004. | 11301. | 10002. | 8526. | 732 |
| | | | | TIME | 8.33 | 8.33 | 8.25 | 8.25 | 8.25 | 8.25 | 8.33 | 8. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D9B | 1.54 | 1 | FLOW | 518. | 487. | 445. | 402. | 371. | 316. | 258. | 21 |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT45 | 155.99 | 1 | FLOW | 14554. | 13895. | 12975. | 12004. | 11301. | 10002. | 8526. | 732 |
| | | | | TIME | 8.33 | 8.33 | 8.25 | 8.25 | 8.25 | 8.25 | 8.33 | 8. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT45 | 155.99 | 1 | FLOW | 14544. | 13885. | 12961. | 11991. | 11289. | 9993. | 8517. | 731 |
| | | | | TIME | 8.50 | 8.50 | 8.42 | 8.42 | 8.42 | 8.50 | 8.50 | 8. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | D10 | 2.51 | 1 | FLOW | 1032. | 980. | 908. | 836. | 783. | 687. | 586. | 50 |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3. |
| 2 COMBINED AT□ | | | | | | | | | | | | |
| | PT46 | 158.49 | 1 | FLOW | 14544. | 13885. | 12961. | 11991. | 11289. | 9993. | 8517. | 731 |
| | | | | TIME | 8.50 | 8.50 | 8.42 | 8.42 | 8.42 | 8.50 | 8.50 | 8. |
| ROUTED TO□ | | | | | | | | | | | | |
| | RPT46 | 158.49 | 1 | FLOW | 14543. | 13883. | 12960. | 11989. | 11287. | 9992. | 8516. | 731 |
| | | | | TIME | 8.50 | 8.50 | 8.50 | 8.50 | 8.50 | 8.50 | 8.58 | 8. |
| HYDROGRAPH AT□ | | | | | | | | | | | | |
| | MC | 2.80 | 1 | FLOW | 1911. | 1824. | 1704. | 1582. | 1490. | 1323. | 1142. | 99 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3. |
| DIVERSION TO | | | | | | | | | | | | |
| | TORAW | 2.80 | 1 | FLOW | 382. | 365. | 341. | 316. | 298. | 265. | 228. | 19 |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3. |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | TORAW | 2.80 | 1 | FLOW | 1528. | 1459. | 1364. | 1265. | 1192. | 1058. | 913. | 79 |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3. |
| ROUTED TO | | | | | | | | | | | | |
| | MCDB | 2.80 | 1 | FLOW | 76. | 75. | 72. | 69. | 67. | 63. | 59. | 5 |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.58 | 5.58 | 5. |
| | | | ** | *PEAK STAGES IN FEET* ** | | | | | | | | |
| | | | 1 | STAGE | 11.05 | 10.55 | 9.85 | 9.14 | 8.61 | 7.68 | 6.71 | 5. |
| | | | | TIME | 5.67 | 5.67 | 5.67 | 5.67 | 5.67 | 5.58 | 5.58 | 5. |
| ROUTED TO | | | | | | | | | | | | |
| | *RMCDB* | *2.80* | *1* | *FLOW* | 76. | 75. | 72. | 69. | 67. | 63. | 59. | 5 |
| | | | | TIME | 5.75 | 5.75 | 5.75 | 5.75 | 5.75 | 5.67 | 5.67 | 5. |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | RTORAW | .00 | 1 | FLOW | 382. | 365. | 341. | 316. | 298. | 265. | 228. | 19 |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3. |
| 2 COMBINED AT | | | | | | | | | | | | |
| | PT47 | 2.80 | 1 | FLOW | 430. | 411. | 384. | 357. | 338. | 302. | 264. | 23 |
| | | | | TIME | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3.67 | 3. |
| ROUTED TO | | | | | | | | | | | | |
| | RPT47 | 2.80 | 1 | FLOW | 434. | 414. | 386. | 358. | 337. | 302. | 266. | 23 |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.92 | 3.92 | 3. |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | RH | 1.36 | 1 | FLOW | 288. | 263. | 231. | 199. | 176. | 136. | 107. | 8 |
| | | | | TIME | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 3.75 | 5.00 | 5. |
| 2 COMBINED AT | | | | | | | | | | | | |
| | PT48W | 4.16 | 1 | FLOW | 712. | 669. | 611. | 552. | 509. | 433. | 360. | 30 |
| | | | | TIME | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.83 | 3.92 | 3. |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | B20 | .79 | 1 | FLOW | 228. | 215. | 197. | 178. | 165. | 140. | 115. | 9 |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4. |
| ROUTED TO | | | | | | | | | | | | |
| | RB20 | .79 | 1 | FLOW | 227. | 214. | 196. | 178. | 164. | 140. | 115. | 9 |
| | | | | TIME | 4.17 | 4.17 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4. |
| 3 COMBINED AT | | | | | | | | | | | | |
| | PT48 | 163.44 | 1 | FLOW | 14617. | 13955. | 13030. | 12056. | 11352. | 10052. | 8572. | 736 |
| | | | | TIME | 8.50 | 8.50 | 8.50 | 8.50 | 8.50 | 8.50 | 8.58 | 8. |
| ROUTED TO | | | | | | | | | | | | |
| | RPT48 | 163.44 | 1 | FLOW | 14614. | 13952. | 13026. | 12054. | 11350. | 10049. | 8569. | 736 |
| | | | | TIME | 8.58 | 8.58 | 8.50 | 8.50 | 8.50 | 8.58 | 8.58 | 8. |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | D12 | .18 | 1 | FLOW | 39. | 36. | 33. | 29. | 26. | 22. | 17. | 1 |
| | | | | TIME | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.25 | 4. |
| ROUTED TO | | | | | | | | | | | | |
| | RD12 | .18 | 1 | FLOW | 39. | 36. | 33. | 29. | 26. | 22. | 17. | 1 |
| | | | | TIME | 4.42 | 4.42 | 4.50 | 4.50 | 4.50 | 4.50 | 4.58 | 4. |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | D11A | .16 | 1 | FLOW | 67. | 63. | 56. | 50. | 46. | 37. | 29. | 2 |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3. |
| 2 COMBINED AT | | | | | | | | | | | | |
| | PT49 | .33 | 1 | FLOW | 72. | 68. | 62. | 56. | 52. | 44. | 36. | 3 |
| | | | | TIME | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4.83 | 4. |
| OUTED TO | | | | | | | | | | | | |
| | RPT49 | .33 | 1 | FLOW | 71. | 67. | 61. | 55. | 51. | 44. | 36. | 2 |
| | | | | TIME | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5. |
| 2 COMBINED AT | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PT50 | 163.78 | 1 | FLOW | 14615. | 13953. | 13027. | 12055. | 11351. | 10050. | 8570. | 736 |
| | | | | TIME | 8.58 | 8.58 | 8.50 | 8.50 | 8.50 | 8.58 | 8.58 | 8. |
| TED TO | | | | | | | | | | | | |
| | RPT50 | 163.78 | 1 | FLOW | 14610. | 13949. | 13024. | 12052. | 11350. | 10049. | 8570. | 736 |
| | | | | TIME | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.67 | 8.67 | 8. |
| HYDROGRAPH AT | | | | | | | | | | | | |
| | D11B | .99 | 1 | FLOW | 504. | 476. | 437. | 397. | 368. | 316. | 261. | 21 |
| | | | | TIME | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3.58 | 3. |
| 2 COMBINED AT | | | | | | | | | | | | |
| | PT51 | 164.76 | 1 | FLOW | 14610. | 13949. | 13024. | 12052. | 11350. | 10049. | 8570. | 736 |
| | | | | TIME | 8.58 | 8.58 | 8.58 | 8.58 | 8.58 | 8.67 | 8.67 | 8. |

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

| ISTAQ | ELEMENT | DT | PEAK | TIME TO PEAK | VOLUME | INTERPOLATED TO COMPUTATION INTERVAL DT | PEAK | TIME TO PEAK | VOLUME |
|---|---|---|---|---|---|---|---|---|---|
| | | (MIN) | (CFS) | (MIN) | (IN) | (MIN) | (CFS) | (MIN) | (IN) |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.57 | 513.74 | 306.00 | .66 | 5.00 | 513.39 | 305.00 | .66 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9296E+02 EXCESS= .0000E+00 OUTFLOW= .9298E+02 BASIN STORAGE= .3577E-02 PERCENT ERR

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.66 | 483.39 | 303.03 | .62 | 5.00 | 483.38 | 305.00 | .62 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8677E+02 EXCESS= .0000E+00 OUTFLOW= .8679E+02 BASIN STORAGE= .4353E-02 PERCENT ERR

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.81 | 442.44 | 307.67 | .56 | 5.00 | 442.12 | 305.00 | .56 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7833E+02 EXCESS= .0000E+00 OUTFLOW= .7836E+02 BASIN STORAGE= .3619E-02 PERCENT ERR

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.98 | 400.54 | 308.48 | .50 | 5.00 | 400.28 | 305.00 | .50 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6987E+02 EXCESS= .0000E+00 OUTFLOW= .6990E+02 BASIN STORAGE= .3813E-02 PERCENT ERR

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 5.00 | 369.94 | 305.00 | .45 | 5.00 | 369.94 | 305.00 | .45 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6367E+02 EXCESS= .0000E+00 OUTFLOW= .6370E+02 BASIN STORAGE= .3740E-02 PERCENT ERR

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.75 | 313.26 | 308.75 | .37 | 5.00 | 312.61 | 310.00 | .37 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5263E+02 EXCESS= .0000E+00 OUTFLOW= .5266E+02 BASIN STORAGE= .3643E-02 PERCENT ERR

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 4.25 | 252.88 | 310.25 | .29 | 5.00 | 252.85 | 310.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4109E+02 EXCESS= .0000E+00 OUTFLOW= .4112E+02 BASIN STORAGE= .3370E-02 PERCENT ERR

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT2 | MANE | 3.75 | 204.53 | 311.25 | .23 | 5.00 | 204.46 | 310.00 | .23 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3200E+02 EXCESS= .0000E+00 OUTFLOW= .3202E+02 BASIN STORAGE= .3489E-02 PERCENT ERR

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT3A | MANE | 2.38 | 776.46 | 308.81 | .52 | 5.00 | 773.44 | 310.00 | .52 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1299E+03 EXCESS= .0000E+00 OUTFLOW= .1299E+03 BASIN STORAGE= .2096E-02 PERCENT ERR

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT3A | MANE | 2.43 | 724.62 | 308.93 | .48 | 5.00 | 721.99 | 310.00 | .48 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1191E+03 EXCESS= .0000E+00 OUTFLOW= .1191E+03 BASIN STORAGE= .2715E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.52 | 653.94 | 307.53 | .42 | 5.00 | 653.06 | 310.00 | .42 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1044E+03 EXCESS= .0000E+00 OUTFLOW= .1044E+03 BASIN STORAGE= .2081E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.50 | 581.15 | 307.50 | .36 | 5.00 | 581.10 | 310.00 | .36 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8961E+02 EXCESS= .0000E+00 OUTFLOW= .8964E+02 BASIN STORAGE= .2347E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.71 | 527.57 | 309.35 | .32 | 5.00 | 526.42 | 310.00 | .32 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7893E+02 EXCESS= .0000E+00 OUTFLOW= .7895E+02 BASIN STORAGE= .2328E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.50 | 429.06 | 310.00 | .24 | 5.00 | 429.06 | 310.00 | .24 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5990E+02 EXCESS= .0000E+00 OUTFLOW= .5993E+02 BASIN STORAGE= .2076E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.25 | 322.16 | 310.50 | .16 | 5.00 | 322.01 | 310.00 | .16 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4055E+02 EXCESS= .0000E+00 OUTFLOW= .4055E+02 BASIN STORAGE= .2685E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT3A | MANE | 2.25 | 236.32 | 310.50 | .11 | 5.00 | 236.02 | 310.00 | .11 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2605E+02 EXCESS= .0000E+00 OUTFLOW= .2607E+02 BASIN STORAGE= .2439E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.48 | 2260.12 | 306.05 | 1.02 | 5.00 | 2260.09 | 305.00 | 1.02 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5551E+03 EXCESS= .0000E+00 OUTFLOW= .5550E+03 BASIN STORAGE= .2618E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.51 | 2129.13 | 307.49 | .96 | 5.00 | 2128.77 | 305.00 | .96 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5217E+03 EXCESS= .0000E+00 OUTFLOW= .5215E+03 BASIN STORAGE= .2548E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.55 | 1950.06 | 311.70 | .87 | 5.00 | 1949.96 | 310.00 | .87 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4759E+03 EXCESS= .0000E+00 OUTFLOW= .4758E+03 BASIN STORAGE= .2423E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.60 | 1770.40 | 313.61 | .79 | 5.00 | 1770.34 | 315.00 | .79 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4301E+03 EXCESS= .0000E+00 OUTFLOW= .4299E+03 BASIN STORAGE= .2303E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.64 | 1638.72 | 316.61 | .73 | 5.00 | 1638.61 | 315.00 | .73 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3964E+03 EXCESS= .0000E+00 OUTFLOW= .3963E+03 BASIN STORAGE= .2197E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.73 | 1403.14 | 317.41 | .62 | 5.00 | 1402.58 | 320.00 | .62 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3367E+03 EXCESS= .0000E+00 OUTFLOW= .3366E+03 BASIN STORAGE= .2025E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.84 | 1156.79 | 321.31 | .50 | 5.00 | 1156.42 | 320.00 | .50 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2747E+03 EXCESS= .0000E+00 OUTFLOW= .2746E+03 BASIN STORAGE= .1777E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RD012A | MANE | 1.95 | 961.15 | 323.63 | .41 | 5.00 | 961.12 | 325.00 | .41 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2259E+03 EXCESS= .0000E+00 OUTFLOW= .2258E+03 BASIN STORAGE= .1608E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.64 | 1301.16 | 417.91 | -1.00 | 5.00 | 1301.12 | 415.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.65 | 1290.94 | 419.04 | -1.00 | 5.00 | 1290.91 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.66 | 1276.77 | 420.64 | -1.00 | 5.00 | 1276.77 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.67 | 1262.48 | 419.60 | -1.00 | 5.00 | 1262.47 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.68 | 1251.97 | 420.81 | -1.00 | 5.00 | 1251.93 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.70 | 1231.74 | 425.87 | -1.00 | 5.00 | 1231.69 | 425.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.72 | 1203.64 | 434.70 | -1.00 | 5.00 | 1203.64 | 435.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | 2.76 | 1151.04 | 441.44 | -1.00 | 5.00 | 1151.02 | 440.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .79 | 1301.12 | 416.32 | -1.00 | 5.00 | 1301.10 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .80 | 1290.90 | 420.03 | -1.00 | 5.00 | 1290.90 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .80 | 1276.75 | 420.29 | -1.00 | 5.00 | 1276.74 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI154 | MANE | .80 | 1262.46 | 420.57 | -1.00 | 5.00 | 1262.44 | 420.00 | -1.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI154 MANE | .81 | 1251.93 | 421.18 | -1.00 | 5.00 | 1251.88 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI154 MANE | .81 | 1231.69 | 426.37 | -1.00 | 5.00 | 1231.65 | 430.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI154 MANE | .82 | 1203.62 | 436.05 | -1.00 | 5.00 | 1203.56 | 435.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI154 MANE | .83 | 1150.99 | 440.58 | -1.00 | 5.00 | 1150.96 | 440.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.46 | 2973.79 | 417.19 | -1.00 | 5.00 | 2972.91 | 415.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.49 | 2814.95 | 416.92 | -1.00 | 5.00 | 2814.29 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.52 | 2624.17 | 420.02 | -1.00 | 5.00 | 2624.17 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.54 | 2512.50 | 421.09 | -1.00 | 5.00 | 2512.35 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.56 | 2415.66 | 421.58 | -1.00 | 5.00 | 2415.27 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.59 | 2277.15 | 427.79 | -1.00 | 5.00 | 2277.06 | 430.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.63 | 2089.31 | 437.73 | -1.00 | 5.00 | 2088.92 | 440.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | 1.70 | 1836.00 | 442.03 | -1.00 | 5.00 | 1835.04 | 440.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .81 | 2972.91 | 416.28 | -1.00 | 5.00 | 2972.50 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .83 | 2814.18 | 419.71 | -1.00 | 5.00 | 2814.15 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .85 | 2624.07 | 420.56 | -1.00 | 5.00 | 2624.01 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .87 | 2512.26 | 421.01 | -1.00 | 5.00 | 2512.07 | 420.00 | -1.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .88 | 2415.22 | 421.54 | -1.00 | 5.00 | 2414.85 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .90 | 2276.98 | 430.70 | -1.00 | 5.00 | 2276.94 | 430.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .93 | 2088.90 | 439.29 | -1.00 | 5.00 | 2088.88 | 440.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .98 | 1835.04 | 441.05 | -1.00 | 5.00 | 1834.57 | 445.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .53 | 2972.46 | 420.02 | -1.00 | 5.00 | 2972.46 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .54 | 2814.01 | 420.20 | -1.00 | 5.00 | 2813.98 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .55 | 2623.93 | 420.53 | -1.00 | 5.00 | 2623.89 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .56 | 2512.01 | 420.63 | -1.00 | 5.00 | 2511.85 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .57 | 2414.86 | 421.04 | -1.00 | 5.00 | 2414.81 | 425.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .58 | 2276.87 | 430.48 | -1.00 | 5.00 | 2276.83 | 430.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .60 | 2088.83 | 440.14 | -1.00 | 5.00 | 2088.82 | 440.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .64 | 1834.49 | 445.13 | -1.00 | 5.00 | 1834.48 | 445.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .55 | 2972.36 | 420.09 | -1.00 | 5.00 | 2972.34 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .56 | 2813.84 | 420.39 | -1.00 | 5.00 | 2813.77 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |
| RDVI155 MANE | .58 | 2623.81 | 420.73 | -1.00 | 5.00 | 2623.72 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RDVI155 | MANE | .59 | 2511.79 | 421.06 | -1.00 | 5.00 | 2511.59 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RDVI155 | MANE | .60 | 2414.77 | 424.75 | -1.00 | 5.00 | 2414.76 | 425.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RDVI155 | MANE | .61 | 2276.79 | 430.57 | -1.00 | 5.00 | 2276.70 | 430.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RDVI155 | MANE | .63 | 2088.75 | 440.60 | 1.00 | 5.00 | 2088.74 | 440.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RDVI155 | MANE | .67 | 1834.34 | 445.36 | -1.00 | 5.00 | 1834.32 | 445.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT27 | MANE | .67 | 4273.25 | 420.32 | -1.00 | 5.00 | 4273.21 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT27 | MANE | .68 | 4104.46 | 420.37 | -1.00 | 5.00 | 4104.33 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT27 | MANE | .69 | 3900.40 | 420.73 | -1.00 | 5.00 | 3900.24 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT27 | MANE | .70 | 3774.00 | 420.70 | -1.00 | 5.00 | 3773.67 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT27 | MANE | .71 | 3666.57 | 424.88 | -1.00 | 5.00 | 3666.56 | 425.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT27 | MANE | .72 | 3508.24 | 431.00 | -1.00 | 5.00 | 3508.14 | 430.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT27 | MANE | .74 | 3292.01 | 440.63 | -1.00 | 5.00 | 3292.00 | 440.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT27 | MANE | .77 | 2984.76 | 445.15 | -1.00 | 5.00 | 2984.73 | 445.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT27 | MANE | .31 | 4273.08 | 420.08 | -1.00 | 5.00 | 4273.06 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT27 | MANE | .32 | 4104.16 | 420.20 | -1.00 | 5.00 | 4104.12 | 420.00 | -1.00 |
| FOR PLAN = 1 RATIO= .00 | | | | | | | | | |
| RPT27 | MANE | .33 | 3900.15 | 420.38 | -1.00 | 5.00 | 3900.09 | 420.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .33 | 3773.64 | 421.02 | -1.00 | 5.00 | 3773.57 | 425.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .33 | 3666.49 | 424.90 | -1.00 | 5.00 | 3666.49 | 425.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .34 | 3508.06 | 430.42 | -1.00 | 5.00 | 3508.02 | 430.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .35 | 3291.91 | 440.13 | -1.00 | 5.00 | 3291.90 | 440.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT27 | MANE | .36 | 2984.60 | 445.02 | -1.00 | 5.00 | 2984.59 | 445.00 | -1.00 |

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .64 | 11546.51 | 500.36 | 2.11 | 5.00 | 11546.51 | 500.00 | 2.11 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4341E+04 EXCESS= .0000E+00 OUTFLOW= .4331E+04 BASIN STORAGE= .1129E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .65 | 11007.49 | 500.18 | 2.01 | 5.00 | 11007.46 | 500.00 | 2.02 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4133E+04 EXCESS= .0000E+00 OUTFLOW= .4123E+04 BASIN STORAGE= .1097E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .67 | 10289.53 | 499.48 | 1.88 | 5.00 | 10289.50 | 500.00 | 1.88 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3864E+04 EXCESS= .0000E+00 OUTFLOW= .3855E+04 BASIN STORAGE= .1051E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .68 | 9584.50 | 496.33 | 1.75 | 5.00 | 9583.94 | 500.00 | 1.75 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3592E+04 EXCESS= .0000E+00 OUTFLOW= .3584E+04 BASIN STORAGE= .1005E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .70 | 9070.50 | 496.07 | 1.65 | 5.00 | 9069.83 | 495.00 | 1.65 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3387E+04 EXCESS= .0000E+00 OUTFLOW= .3379E+04 BASIN STORAGE= .9691E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .73 | 8181.38 | 495.75 | 1.47 | 5.00 | 8181.08 | 495.00 | 1.47 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3020E+04 EXCESS= .0000E+00 OUTFLOW= .3012E+04 BASIN STORAGE= .8958E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .76 | 7225.62 | 491.71 | 1.27 | 5.00 | 7225.43 | 495.00 | 1.27 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2608E+04 EXCESS= .0000E+00 OUTFLOW= .2602E+04 BASIN STORAGE= .8073E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RLDCDB | MANE | .80 | 6326.03 | 490.14 | 1.09 | 5.00 | 6325.99 | 490.00 | 1.09 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2242E+04 EXCESS= .0000E+00 OUTFLOW= .2236E+04 BASIN STORAGE= .7203E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .75 | 11892.36 | 491.07 | 2.19 | 5.00 | 11890.97 | 495.00 | 2.19 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4661E+04 EXCESS= .0000E+00 OUTFLOW= .4648E+04 BASIN STORAGE= .1351E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .77 | 11342.60 | 491.31 | 2.09 | 5.00 | 11341.75 | 490.00 | 2.09 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4439E+04 EXCESS= .0000E+00 OUTFLOW= .4426E+04 BASIN STORAGE= .1313E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .78 | 10609.02 | 490.27 | 1.95 | 5.00 | 10608.84 | 490.00 | 1.95 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4142E+04 EXCESS= .0000E+00 OUTFLOW= .4130E+04 BASIN STORAGE= .1258E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .81 | 9885.72 | 486.34 | 1.81 | 5.00 | 9884.97 | 490.00 | 1.81 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3842E+04 EXCESS= .0000E+00 OUTFLOW= .3831E+04 BASIN STORAGE= .1204E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .82 | 9357.33 | 485.63 | 1.71 | 5.00 | 9356.84 | 485.00 | 1.71 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3632E+04 EXCESS= .0000E+00 OUTFLOW= .3621E+04 BASIN STORAGE= .1160E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .85 | 8438.53 | 484.92 | 1.52 | 5.00 | 8438.53 | 485.00 | 1.52 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3228E+04 EXCESS= .0000E+00 OUTFLOW= .3218E+04 BASIN STORAGE= .1074E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .89 | 7452.13 | 481.81 | 1.31 | 5.00 | 7451.73 | 485.00 | 1.31 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2789E+04 EXCESS= .0000E+00 OUTFLOW= .2780E+04 BASIN STORAGE= .9676E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT29 | MANE | .94 | 6527.45 | 480.65 | 1.13 | 5.00 | 6527.02 | 480.00 | 1.13 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2397E+04 EXCESS= .0000E+00 OUTFLOW= .2389E+04 BASIN STORAGE= .8649E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 347.01 | 228.00 | 1.36 | 5.00 | 343.73 | 230.00 | 1.36 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5087E+02 EXCESS= .0000E+00 OUTFLOW= .5088E+02 BASIN STORAGE= .1161E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 330.25 | 228.00 | 1.30 | 5.00 | 327.28 | 230.00 | 1.30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4851E+02 EXCESS= .0000E+00 OUTFLOW= .4852E+02 BASIN STORAGE= .1127E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 307.12 | 228.00 | 1.21 | 5.00 | 304.56 | 230.00 | 1.21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4526E+02 EXCESS= .0000E+00 OUTFLOW= .4527E+02 BASIN STORAGE= .1078E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 283.68 | 228.00 | 1.12 | 5.00 | 281.52 | 230.00 | 1.12 |

TINUITY SUMMARY (AC-FT) - INFLOW= .4197E+02 EXCESS= .0000E+00 OUTFLOW= .4198E+02 BASIN STORAGE= .1028E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 4.00 | 266.30 | 228.00 | 1.06 | 5.00 | 264.43 | 230.00 | 1.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3954E+02 EXCESS= .0000E+00 OUTFLOW= .3955E+02 BASIN STORAGE= .1524E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 3.75 | 235.20 | 228.75 | .94 | 5.00 | 234.66 | 230.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3516E+02 EXCESS= .0000E+00 OUTFLOW= .3517E+02 BASIN STORAGE= .1424E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 3.75 | 201.89 | 228.75 | .82 | 5.00 | 201.66 | 230.00 | .82 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3054E+02 EXCESS= .0000E+00 OUTFLOW= .3054E+02 BASIN STORAGE= .1302E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RB16B | MANE | 3.75 | 174.98 | 228.75 | .72 | 5.00 | 174.98 | 230.00 | .72 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2682E+02 EXCESS= .0000E+00 OUTFLOW= .2682E+02 BASIN STORAGE= .1154E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.62 | 11891.10 | 493.19 | 2.16 | 5.00 | 11890.65 | 495.00 | 2.17 |

TINUITY SUMMARY (AC-FT) - INFLOW= .4686E+04 EXCESS= .0000E+00 OUTFLOW= .4659E+04 BASIN STORAGE= .2782E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.64 | 11341.23 | 492.55 | 2.06 | 5.00 | 11339.68 | 495.00 | 2.06 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4477E+04 EXCESS= .0000E+00 OUTFLOW= .4451E+04 BASIN STORAGE= .2693E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.68 | 10608.14 | 491.52 | 1.92 | 5.00 | 10607.12 | 490.00 | 1.93 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4172E+04 EXCESS= .0000E+00 OUTFLOW= .4147E+04 BASIN STORAGE= .2575E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.72 | 9884.83 | 489.10 | 1.78 | 5.00 | 9884.64 | 490.00 | 1.79 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3873E+04 EXCESS= .0000E+00 OUTFLOW= .3850E+04 BASIN STORAGE= .2455E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.75 | 9356.44 | 487.35 | 1.68 | 5.00 | 9355.11 | 490.00 | 1.69 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3654E+04 EXCESS= .0000E+00 OUTFLOW= .3632E+04 BASIN STORAGE= .2360E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.81 | 8437.96 | 485.78 | 1.50 | 5.00 | 8437.83 | 485.00 | 1.50 |

ONTINUITY SUMMARY (AC-FT) - INFLOW= .3257E+04 EXCESS= .0000E+00 OUTFLOW= .3236E+04 BASIN STORAGE= .2172E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.88 | 7451.61 | 484.96 | 1.29 | 5.00 | 7451.60 | 485.00 | 1.30 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2811E+04 EXCESS= .0000E+00 OUTFLOW= .2793E+04 BASIN STORAGE= .1945E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT30 | MANE | 1.96 | 6526.70 | 482.57 | 1.11 | 5.00 | 6525.77 | 485.00 | 1.11 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2420E+04 EXCESS= .0000E+00 OUTFLOW= .2403E+04 BASIN STORAGE= .1725E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .96 | 11891.27 | 495.39 | 2.12 | 5.00 | 11891.07 | 495.00 | 2.12 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4759E+04 EXCESS= .0000E+00 OUTFLOW= .4743E+04 BASIN STORAGE= .1683E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | .97 | 11340.54 | 494.70 | 2.02 | 5.00 | 11340.49 | 495.00 | 2.02 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4533E+04 EXCESS= .0000E+00 OUTFLOW= .4518E+04 BASIN STORAGE= .1631E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.00 | 10608.29 | 491.14 | 1.89 | 5.00 | 10606.96 | 490.00 | 1.89 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4238E+04 EXCESS= .0000E+00 OUTFLOW= .4224E+04 BASIN STORAGE= .1560E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.02 | 9885.57 | 490.85 | 1.75 | 5.00 | 9885.32 | 490.00 | 1.75 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3937E+04 EXCESS= .0000E+00 OUTFLOW= .3923E+04 BASIN STORAGE= .1489E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.04 | 9356.43 | 486.63 | 1.65 | 5.00 | 9356.24 | 490.00 | 1.65 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3710E+04 EXCESS= .0000E+00 OUTFLOW= .3697E+04 BASIN STORAGE= .1433E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.08 | 8438.89 | 485.73 | 1.47 | 5.00 | 8438.53 | 485.00 | 1.47 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3301E+04 EXCESS= .0000E+00 OUTFLOW= .3288E+04 BASIN STORAGE= .1323E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.12 | 7452.43 | 485.40 | 1.27 | 5.00 | 7452.31 | 485.00 | 1.27 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2849E+04 EXCESS= .0000E+00 OUTFLOW= .2837E+04 BASIN STORAGE= .1189E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT31 | MANE | 1.18 | 6526.73 | 481.99 | 1.09 | 5.00 | 6526.66 | 485.00 | 1.09 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2453E+04 EXCESS= .0000E+00 OUTFLOW= .2443E+04 BASIN STORAGE= .1058E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.27 | 14469.61 | 486.25 | .76 | 5.00 | 14468.71 | 485.00 | .76 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5851E+04 EXCESS= .0000E+00 OUTFLOW= .5827E+04 BASIN STORAGE= .2655E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.29 | 13811.99 | 485.75 | .72 | 5.00 | 13811.33 | 485.00 | .73 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5560E+04 EXCESS= .0000E+00 OUTFLOW= .5536E+04 BASIN STORAGE= .2571E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.33 | 12890.95 | 481.24 | .67 | 5.00 | 12889.14 | 485.00 | .67 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5150E+04 EXCESS= .0000E+00 OUTFLOW= .5128E+04 BASIN STORAGE= .2458E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.37 | 11919.46 | 481.92 | .62 | 5.00 | 11917.91 | 480.00 | .62 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4740E+04 EXCESS= .0000E+00 OUTFLOW= .4719E+04 BASIN STORAGE= .2344E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.40 | 11215.25 | 480.47 | .58 | 5.00 | 11214.61 | 480.00 | .58 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4452E+04 EXCESS= .0000E+00 OUTFLOW= .4431E+04 BASIN STORAGE= .2253E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.46 | 9921.06 | 482.58 | .51 | 5.00 | 9919.80 | 485.00 | .51 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3893E+04 EXCESS= .0000E+00 OUTFLOW= .3873E+04 BASIN STORAGE= .2088E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.55 | 8446.42 | 486.16 | .43 | 5.00 | 8445.10 | 485.00 | .43 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3314E+04 EXCESS= .0000E+00 OUTFLOW= .3297E+04 BASIN STORAGE= .1880E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT32 | MANE | 1.65 | 7241.15 | 485.41 | .37 | 5.00 | 7241.11 | 485.00 | .37 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2824E+04 EXCESS= .0000E+00 OUTFLOW= .2809E+04 BASIN STORAGE= .1689E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 135.71 | 255.00 | 1.05 | 5.00 | 135.71 | 255.00 | 1.05 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2476E+02 EXCESS= .0000E+00 OUTFLOW= .2477E+02 BASIN STORAGE= .2236E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 127.98 | 255.00 | .99 | 5.00 | 127.98 | 255.00 | .99 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2335E+02 EXCESS= .0000E+00 OUTFLOW= .2335E+02 BASIN STORAGE= .2167E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 117.32 | 255.00 | .91 | 5.00 | 117.32 | 255.00 | .91 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2141E+02 EXCESS= .0000E+00 OUTFLOW= .2141E+02 BASIN STORAGE= .1994E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 106.60 | 260.00 | .83 | 5.00 | 106.60 | 260.00 | .83 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1946E+02 EXCESS= .0000E+00 OUTFLOW= .1946E+02 BASIN STORAGE= .1895E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMNWB | MANE | 5.00 | 98.79 | 260.00 | .76 | 5.00 | 98.79 | 260.00 | .76 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1802E+02 EXCESS= .0000E+00 OUTFLOW= .1802E+02 BASIN STORAGE= .1820E-02 PERCENT ERR

```
          FOR PLAN = 1  RATIO=  .00
             RMNWB  MANE          5.00      84.74     260.00        .66       5.00      84.74     260.00         .66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1546E+02 EXCESS= .0000E+00 OUTFLOW= .1546E+02 BASIN STORAGE= .2188E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
             RMNWB  MANE          5.00      69.85     260.00        .54       5.00      69.85     260.00         .54

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1279E+02 EXCESS= .0000E+00 OUTFLOW= .1279E+02 BASIN STORAGE= .2061E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
             RMNWB  MANE          5.00      57.90     260.00        .45       5.00      57.90     260.00         .45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1067E+02 EXCESS= .0000E+00 OUTFLOW= .1067E+02 BASIN STORAGE= .1794E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
             RPT37  MANE          5.00     547.98     270.00       1.07       5.00     547.98     270.00        1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1157E+03 EXCESS= .0000E+00 OUTFLOW= .1157E+03 BASIN STORAGE= .1818E-01 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
             RPT37  MANE          5.00     517.61     270.00       1.01       5.00     517.61     270.00        1.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1095E+03 EXCESS= .0000E+00 OUTFLOW= .1095E+03 BASIN STORAGE= .1764E-01 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
             RPT37  MANE          5.00     475.85     270.00        .93       5.00     475.85     270.00         .93

NTINUITY SUMMARY (AC-FT) - INFLOW= .1011E+03 EXCESS= .0000E+00 OUTFLOW= .1011E+03 BASIN STORAGE= .1686E-01 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
             RPT37  MANE          5.00     433.76     270.00        .85       5.00     433.76     270.00         .85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9263E+02 EXCESS= .0000E+00 OUTFLOW= .9265E+02 BASIN STORAGE= .1606E-01 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
             RPT37  MANE          5.00     402.79     270.00        .80       5.00     402.79     270.00         .80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8641E+02 EXCESS= .0000E+00 OUTFLOW= .8642E+02 BASIN STORAGE= .1736E-01 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
             RPT37  MANE          5.00     347.36     270.00        .69       5.00     347.36     270.00         .69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7533E+02 EXCESS= .0000E+00 OUTFLOW= .7534E+02 BASIN STORAGE= .1608E-01 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
             RPT37  MANE          5.00     289.36     270.00        .59       5.00     289.36     270.00         .59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6377E+02 EXCESS= .0000E+00 OUTFLOW= .6378E+02 BASIN STORAGE= .1563E-01 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
             RPT37  MANE          5.00     243.42     270.00        .50       5.00     243.42     270.00         .50

NTINUITY SUMMARY (AC-FT) - INFLOW= .5462E+02 EXCESS= .0000E+00 OUTFLOW= .5463E+02 BASIN STORAGE= .1433E-01 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
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      RPT38  MANE          3.39     909.98     220.30       1.08       5.00     906.65     220.00         1.08

TINUITY SUMMARY (AC-FT) - INFLOW= .2098E+03 EXCESS= .0000E+00 OUTFLOW= .2098E+03 BASIN STORAGE= .1834E-01 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT38  MANE          3.46     856.55     221.16       1.03       5.00     850.67     220.00         1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1991E+03 EXCESS= .0000E+00 OUTFLOW= .1991E+03 BASIN STORAGE= .1739E-01 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT38  MANE          3.50     788.85     220.50        .95       5.00     783.82     220.00          .95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1844E+03 EXCESS= .0000E+00 OUTFLOW= .1844E+03 BASIN STORAGE= .1786E-01 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT38  MANE          3.50     722.86     294.00        .87       5.00     720.89     295.00          .87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1697E+03 EXCESS= .0000E+00 OUTFLOW= .1697E+03 BASIN STORAGE= .1704E-01 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT38  MANE          3.50     676.04     294.00        .82       5.00     674.37     295.00          .82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1589E+03 EXCESS= .0000E+00 OUTFLOW= .1589E+03 BASIN STORAGE= .1958E-01 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT38  MANE          3.50     591.67     294.00        .72       5.00     590.55     295.00          .72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1396E+03 EXCESS= .0000E+00 OUTFLOW= .1396E+03 BASIN STORAGE= .1823E-01 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT38  MANE          3.50     502.39     294.00        .62       5.00     501.80     295.00          .62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1196E+03 EXCESS= .0000E+00 OUTFLOW= .1195E+03 BASIN STORAGE= .1762E-01 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT38  MANE          3.75     430.65     296.25        .53       5.00     429.53     295.00          .53

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1037E+03 EXCESS= .0000E+00 OUTFLOW= .1036E+03 BASIN STORAGE= .1753E-01 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT39  MANE          1.83   14557.38     485.61        .78       5.00   14556.94     485.00          .78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6268E+04 EXCESS= .0000E+00 OUTFLOW= .6[illegible]E+04 BASIN STORAGE= .4875E+02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT39  MANE          1.86   13899.61     486.64        .74       5.00   13899.41     485.00          .75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5969E+04 EXCESS= .0000E+00 OUTFLOW= .5934E+04 BASIN STORAGE= .3748E+02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT39  MANE          1.91   12981.92     482.05        .69       5.00   12979.80     485.00          .69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5534E+04 EXCESS= .0000E+00 OUTFLOW= .5501E+04 BASIN STORAGE= .3584E+02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT39  MANE          1.97   12009.67     482.51        .63       5.00   12008.09     480.00          .64
```

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5092E+04 EXCESS= .0000E+00 OUTFLOW= .5060E+04 BASIN STORAGE= .3419E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 2.01 | 11307.11 | 481.45 | .59 | 5.00 | 11306.70 | 480.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4762E+04 EXCESS= .0000E+00 OUTFLOW= .4731E+04 BASIN STORAGE= .3292E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 2.11 | 10009.85 | 482.86 | .52 | 5.00 | 10008.78 | 485.00 | .52 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4182E+04 EXCESS= .0000E+00 OUTFLOW= .4154E+04 BASIN STORAGE= .3049E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 2.24 | 8530.20 | 488.04 | .44 | 5.00 | 8529.41 | 485.00 | .44 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3541E+04 EXCESS= .0000E+00 OUTFLOW= .3515E+04 BASIN STORAGE= .2759E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT39 | MANE | 2.37 | 7326.15 | 483.51 | .38 | 5.00 | 7325.95 | 485.00 | .38 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3043E+04 EXCESS= .0000E+00 OUTFLOW= .3020E+04 BASIN STORAGE= .2476E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.66 | 14552.93 | 490.88 | .78 | 5.00 | 14551.94 | 490.00 | .78 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6320E+04 EXCESS= .0000E+00 OUTFLOW= .6286E+04 BASIN STORAGE= .3679E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.70 | 13895.47 | 491.57 | .74 | 5.00 | 13894.21 | 490.00 | .74 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6017E+04 EXCESS= .0000E+00 OUTFLOW= .5984E+04 BASIN STORAGE= .3563E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.74 | 12975.73 | 487.81 | .68 | 5.00 | 12975.31 | 490.00 | .68 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5564E+04 EXCESS= .0000E+00 OUTFLOW= .5533E+04 BASIN STORAGE= .3418E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.80 | 12004.91 | 487.04 | .63 | 5.00 | 12002.93 | 490.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5131E+04 EXCESS= .0000E+00 OUTFLOW= .5102E+04 BASIN STORAGE= .3260E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.84 | 11302.50 | 487.87 | .59 | 5.00 | 11300.76 | 485.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4802E+04 EXCESS= .0000E+00 OUTFLOW= .4773E+04 BASIN STORAGE= .3145E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 1.93 | 10005.70 | 489.07 | .52 | 5.00 | 10005.32 | 490.00 | .52 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4200E+04 EXCESS= .0000E+00 OUTFLOW= .4173E+04 BASIN STORAGE= .2927E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 2.06 | 8527.25 | 492.51 | .44 | 5.00 | 8526.27 | 495.00 | .44 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3570E+04 EXCESS= .0000E+00 OUTFLOW= .3545E+04 BASIN STORAGE= .2662E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT41 | MANE | 2.19 | 7323.83 | 490.55 | .37 | 5.00 | 7323.70 | 490.00 | .38 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3057E+04 EXCESS= .0000E+00 OUTFLOW= .3035E+04 BASIN STORAGE= .2411E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.36 | 14551.66 | 491.64 | .78 | 5.00 | 14549.53 | 490.00 | .78 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6379E+04 EXCESS= .0000E+00 OUTFLOW= .6352E+04 BASIN STORAGE= .2840E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.38 | 13893.92 | 491.34 | .74 | 5.00 | 13891.92 | 490.00 | .74 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6057E+04 EXCESS= .0000E+00 OUTFLOW= .6032E+04 BASIN STORAGE= .2744E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.41 | 12974.48 | 490.47 | .68 | 5.00 | 12974.05 | 490.00 | .69 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5597E+04 EXCESS= .0000E+00 OUTFLOW= .5572E+04 BASIN STORAGE= .2627E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.45 | 12002.46 | 490.89 | .63 | 5.00 | 12002.28 | 490.00 | .63 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5155E+04 EXCESS= .0000E+00 OUTFLOW= .5131E+04 BASIN STORAGE= .2495E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.48 | 11300.88 | 487.96 | .59 | 5.00 | 11299.81 | 490.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4835E+04 EXCESS= .0000E+00 OUTFLOW= .4813E+04 BASIN STORAGE= .2396E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.55 | 10004.39 | 490.53 | .52 | 5.00 | 10004.02 | 490.00 | .52 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4236E+04 EXCESS= .0000E+00 OUTFLOW= .4215E+04 BASIN STORAGE= .2217E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.64 | 8525.75 | 495.73 | .44 | 5.00 | 8525.73 | 495.00 | .44 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3596E+04 EXCESS= .0000E+00 OUTFLOW= .3577E+04 BASIN STORAGE= .2002E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT42 | MANE | 1.73 | 7323.54 | 491.64 | .37 | 5.00 | 7322.41 | 490.00 | .38 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3075E+04 EXCESS= .0000E+00 OUTFLOW= .3058E+04 BASIN STORAGE= .1800E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 402.37 | 280.00 | 1.03 | 5.00 | 402.37 | 280.00 | 1.03 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9403E+02 EXCESS= .0000E+00 OUTFLOW= .9402E+02 BASIN STORAGE= .3309E-01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 380.62 | 280.00 | .98 | 5.00 | 380.62 | 280.00 | .98 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8937E+02 EXCESS= .0000E+00 OUTFLOW= .8937E+02 BASIN STORAGE= .3173E-01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 350.95 | 280.00 | .91 | 5.00 | 350.95 | 280.00 | .91 |

TINUITY SUMMARY (AC-FT) - INFLOW= .8301E+02 EXCESS= .0000E+00 OUTFLOW= .8301E+02 BASIN STORAGE= .2982E-01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 321.35 | 280.00 | .84 | 5.00 | 321.35 | 280.00 | .84 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7665E+02 EXCESS= .0000E+00 OUTFLOW= .7665E+02 BASIN STORAGE= .2786E-01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 299.78 | 280.00 | .79 | 5.00 | 299.78 | 280.00 | .79 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7200E+02 EXCESS= .0000E+00 OUTFLOW= .7199E+02 BASIN STORAGE= .2638E-01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 261.81 | 280.00 | .70 | 5.00 | 261.81 | 280.00 | .70 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6373E+02 EXCESS= .0000E+00 OUTFLOW= .6373E+02 BASIN STORAGE= .2365E-01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 223.06 | 280.00 | .61 | 5.00 | 223.06 | 280.00 | .61 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5515E+02 EXCESS= .0000E+00 OUTFLOW= .5515E+02 BASIN STORAGE= .2066E-01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT43 | MANE | 5.00 | 193.25 | 280.00 | .53 | 5.00 | 193.25 | 280.00 | .53 |

TINUITY SUMMARY (AC-FT) - INFLOW= .4838E+02 EXCESS= .0000E+00 OUTFLOW= .4838E+02 BASIN STORAGE= .1816E-01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.63 | 14543.18 | 510.86 | .75 | 5.00 | 14542.70 | 510.00 | .75 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6374E+04 EXCESS= .0000E+00 OUTFLOW= .6339E+04 BASIN STORAGE= .3684E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.66 | 13883.90 | 511.55 | .71 | 5.00 | 13883.35 | 510.00 | .71 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6060E+04 EXCESS= .0000E+00 OUTFLOW= .6027E+04 BASIN STORAGE= .3569E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.70 | 12961.39 | 507.91 | .66 | 5.00 | 12960.28 | 510.00 | .66 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5619E+04 EXCESS= .0000E+00 OUTFLOW= .5588E+04 BASIN STORAGE= .3411E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.76 | 11991.35 | 507.20 | .61 | 5.00 | 11989.47 | 510.00 | .61 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5171E+04 EXCESS= .0000E+00 OUTFLOW= .5141E+04 BASIN STORAGE= .3249E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.80 | 11288.83 | 508.06 | .57 | 5.00 | 11286.97 | 510.00 | .57 |

NTINUITY SUMMARY (AC-FT) - INFLOW= .4831E+04 EXCESS= .0000E+00 OUTFLOW= .4801E+04 BASIN STORAGE= .3130E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 1.88 | 9992.11 | 511.24 | .50 | 5.00 | 9991.95 | 510.00 | .50 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4233E+04 EXCESS= .0000E+00 OUTFLOW= .4206E+04 BASIN STORAGE= .2901E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 2.00 | 8517.17 | 512.96 | .42 | 5.00 | 8516.06 | 515.00 | .42 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3605E+04 EXCESS= .0000E+00 OUTFLOW= .3581E+04 BASIN STORAGE= .2631E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT46 | MANE | 2.11 | 7317.89 | 509.26 | .36 | 5.00 | 7317.87 | 510.00 | .36 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3082E+04 EXCESS= .0000E+00 OUTFLOW= .3060E+04 BASIN STORAGE= .2391E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 76.45 | 345.00 | .29 | 5.00 | 76.45 | 345.00 | .29 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4407E+02 EXCESS= .0000E+00 OUTFLOW= .4354E+02 BASIN STORAGE= .5432E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 74.54 | 345.00 | .28 | 5.00 | 74.54 | 345.00 | .28 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4287E+02 EXCESS= .0000E+00 OUTFLOW= .4234E+02 BASIN STORAGE= .5323E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 71.92 | 345.00 | .27 | 5.00 | 71.92 | 345.00 | .27 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4119E+02 EXCESS= .0000E+00 OUTFLOW= .4068E+02 BASIN STORAGE= .5172E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 69.27 | 345.00 | .26 | 5.00 | 69.27 | 345.00 | .26 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3945E+02 EXCESS= .0000E+00 OUTFLOW= .3895E+02 BASIN STORAGE= .4999E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 67.30 | 345.00 | .25 | 5.00 | 67.30 | 345.00 | .25 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3806E+02 EXCESS= .0000E+00 OUTFLOW= .3758E+02 BASIN STORAGE= .4847E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 63.41 | 340.00 | .23 | 5.00 | 63.41 | 340.00 | .23 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3520E+02 EXCESS= .0000E+00 OUTFLOW= .3475E+02 BASIN STORAGE= .4577E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 58.54 | 340.00 | .21 | 5.00 | 58.54 | 340.00 | .21 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3184E+02 EXCESS= .0000E+00 OUTFLOW= .3142E+02 BASIN STORAGE= .4220E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RMCDB | MANE | 5.00 | 54.43 | 340.00 | .19 | 5.00 | 54.43 | 340.00 | .19 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2875E+02 EXCESS= .0000E+00 OUTFLOW= .2837E+02 BASIN STORAGE= .3881E+00 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 434.09 | 230.00 | .59 | 5.00 | 434.09 | 230.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9135E+02 EXCESS= .0000E+00 OUTFLOW= .8874E+02 BASIN STORAGE= .3006E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 414.04 | 230.00 | .57 | 5.00 | 414.04 | 230.00 | .57 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8806E+02 EXCESS= .0000E+00 OUTFLOW= .8551E+02 BASIN STORAGE= .2954E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 386.17 | 230.00 | .54 | 5.00 | 386.17 | 230.00 | .54 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8347E+02 EXCESS= .0000E+00 OUTFLOW= .8099E+02 BASIN STORAGE= .2883E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 357.73 | 230.00 | .51 | 5.00 | 357.73 | 230.00 | .51 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7877E+02 EXCESS= .0000E+00 OUTFLOW= .7637E+02 BASIN STORAGE= .2804E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 336.61 | 230.00 | .49 | 5.00 | 336.61 | 230.00 | .49 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7520E+02 EXCESS= .0000E+00 OUTFLOW= .7287E+02 BASIN STORAGE= .2731E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 301.52 | 235.00 | .44 | 5.00 | 301.52 | 235.00 | .44 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6835E+02 EXCESS= .0000E+00 OUTFLOW= .6603E+02 BASIN STORAGE= .2601E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 265.91 | 235.00 | .39 | 5.00 | 265.91 | 235.00 | .39 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6062E+02 EXCESS= .0000E+00 OUTFLOW= .5847E+02 BASIN STORAGE= .2433E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT47 | MANE | 5.00 | 235.53 | 235.00 | .35 | 5.00 | 235.53 | 235.00 | .35 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5390E+02 EXCESS= .0000E+00 OUTFLOW= .5191E+02 BASIN STORAGE= .2266E+01 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.83 | 227.91 | 250.97 | .99 | 5.00 | 227.12 | 250.00 | .99 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4181E+02 EXCESS= .0000E+00 OUTFLOW= .4181E+02 BASIN STORAGE= .1945E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 4.91 | 214.51 | 250.52 | .94 | 5.00 | 214.04 | 250.00 | .94 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3942E+02 EXCESS= .0000E+00 OUTFLOW= .3942E+02 BASIN STORAGE= .1864E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 196.29 | 255.00 | .86 | 5.00 | 196.29 | 255.00 | .86 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3613E+02 EXCESS= .0000E+00 OUTFLOW= .3613E+02 BASIN STORAGE= .1700E-02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB20 | MANE | 5.00 | 177.97 | 255.00 | .78 | 5.00 | 177.97 | 255.00 | .78 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3284E+02 EXCESS= .0000E+00 OUTFLOW= .3284E+02 BASIN STORAGE= .1613E-02 PERCENT ERR

```
          FOR PLAN = 1  RATIO=  .00
              RB20  MANE          5.00    164.47    255.00        .72       5.00    164.47    255.00         .72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3042E+02 EXCESS= .0000E+00 OUTFLOW= .3043E+02 BASIN STORAGE= .1547E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE          5.00    140.29    255.00        .62       5.00    140.29    255.00         .62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2614E+02 EXCESS= .0000E+00 OUTFLOW= .2614E+02 BASIN STORAGE= .1965E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE          5.00    114.92    255.00        .51       5.00    114.92    255.00         .51

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2168E+02 EXCESS= .0000E+00 OUTFLOW= .2168E+02 BASIN STORAGE= .1771E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
              RB20  MANE          5.00     94.73    255.00        .43       5.00     94.73    255.00         .43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1817E+02 EXCESS= .0000E+00 OUTFLOW= .1817E+02 BASIN STORAGE= .1538E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     38.88    265.00        .77       5.00     38.88    265.00         .77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7236E+01 EXCESS= .0000E+00 OUTFLOW= .7240E+01 BASIN STORAGE= .6424E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     36.21    265.00        .72       5.00     36.21    265.00         .72

NTINUITY SUMMARY (AC-FT) - INFLOW= .6774E+01 EXCESS= .0000E+00 OUTFLOW= .6779E+01 BASIN STORAGE= .6181E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     32.61    270.00        .66       5.00     32.61    270.00         .66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6147E+01 EXCESS= .0000E+00 OUTFLOW= .6151E+01 BASIN STORAGE= .7172E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     29.07    270.00        .59       5.00     29.07    270.00         .59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5524E+01 EXCESS= .0000E+00 OUTFLOW= .5528E+01 BASIN STORAGE= .6750E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     26.46    270.00        .54       5.00     26.46    270.00         .54

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5071E+01 EXCESS= .0000E+00 OUTFLOW= .5075E+01 BASIN STORAGE= .6460E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     21.81    270.00        .46       5.00     21.81    270.00         .46

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4275E+01 EXCESS= .0000E+00 OUTFLOW= .4279E+01 BASIN STORAGE= .7033E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
              RD12  MANE          5.00     17.16    275.00        .37       5.00     17.16    275.00         .37

NTINUITY SUMMARY (AC-FT) - INFLOW= .3464E+01 EXCESS= .0000E+00 OUTFLOW= .3467E+01 BASIN STORAGE= .6231E-02 PERCENT ERR

          FOR PLAN = 1  RATIO=  .00
```

```
      RD12  MANE          5.00      13.52     280.00        .30       5.00      13.52     280.00         .30

TINUITY SUMMARY (AC-FT) - INFLOW= .2839E+01 EXCESS= .0000E+00 OUTFLOW= .2842E+01 BASIN STORAGE= .6715E-02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT49  MANE          5.00      70.77     300.00        .75       5.00      70.77     300.00         .75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1332E+02 EXCESS= .0000E+00 OUTFLOW= .1332E+02 BASIN STORAGE= .8174E-02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT49  MANE          5.00      66.72     300.00        .70       5.00      66.72     300.00         .70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1246E+02 EXCESS= .0000E+00 OUTFLOW= .1246E+02 BASIN STORAGE= .7943E-02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT49  MANE          5.00      61.12     300.00        .63       5.00      61.12     300.00         .63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1128E+02 EXCESS= .0000E+00 OUTFLOW= .1128E+02 BASIN STORAGE= .8720E-02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT49  MANE          5.00      55.44     300.00        .57       5.00      55.44     300.00         .57

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1011E+02 EXCESS= .0000E+00 OUTFLOW= .1011E+02 BASIN STORAGE= .8331E-02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT49  MANE          5.00      51.24     300.00        .52       5.00      51.24     300.00         .52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9264E+01 EXCESS= .0000E+00 OUTFLOW= .9267E+01 BASIN STORAGE= .8035E-02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT49  MANE          5.00      43.74     300.00        .44       5.00      43.74     300.00         .44

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7777E+01 EXCESS= .0000E+00 OUTFLOW= .7778E+01 BASIN STORAGE= .9167E-02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT49  MANE          5.00      35.76     300.00        .35       5.00      35.76     300.00         .35

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6264E+01 EXCESS= .0000E+00 OUTFLOW= .6266E+01 BASIN STORAGE= .8386E-02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT49  MANE          4.75      29.37     304.00        .29       5.00      29.12     305.00         .29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5103E+01 EXCESS= .0000E+00 OUTFLOW= .5103E+01 BASIN STORAGE= .9324E-02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT50  MANE          4.46   14612.59     517.77        .73       5.00   14609.97     515.00         .73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6468E+04 EXCESS= .0000E+00 OUTFLOW= .6373E+04 BASIN STORAGE= .1025E+03 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT50  MANE          4.54   13951.06     517.66        .69       5.00   13948.68     515.00         .69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6162E+04 EXCESS= .0000E+00 OUTFLOW= .6070E+04 BASIN STORAGE= .9918E+02 PERCENT ERR

 FOR PLAN = 1  RATIO=  .00
      RPT50  MANE          4.66   13025.36     517.05        .63       5.00   13024.07     515.00         .64
```

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5657E+04 EXCESS= .0000E+00 OUTFLOW= .5569E+04 BASIN STORAGE= .9527E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 4.79 | 12051.94 | 517.77 | .59 | 5.00 | 12051.65 | 515.00 | .59 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5246E+04 EXCESS= .0000E+00 OUTFLOW= .5162E+04 BASIN STORAGE= .9041E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 4.90 | 11350.34 | 514.75 | .55 | 5.00 | 11350.11 | 515.00 | .55 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4892E+04 EXCESS= .0000E+00 OUTFLOW= .4811E+04 BASIN STORAGE= .8716E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 5.00 | 10049.07 | 520.00 | .48 | 5.00 | 10049.07 | 520.00 | .48 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4310E+04 EXCESS= .0000E+00 OUTFLOW= .4236E+04 BASIN STORAGE= .8054E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 5.00 | 8569.97 | 520.00 | .41 | 5.00 | 8569.97 | 520.00 | .41 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3660E+04 EXCESS= .0000E+00 OUTFLOW= .3593E+04 BASIN STORAGE= .7310E+02 PERCENT ERR

FOR PLAN = 1 RATIO= .00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RPT50 | MANE | 5.00 | 7367.02 | 520.00 | .35 | 5.00 | 7367.02 | 520.00 | .35 |

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3136E+04 EXCESS= .0000E+00 OUTFLOW= .3075E+04 BASIN STORAGE= .6642E+02 PERCENT ERR

HEC-1 INPUT

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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
              *
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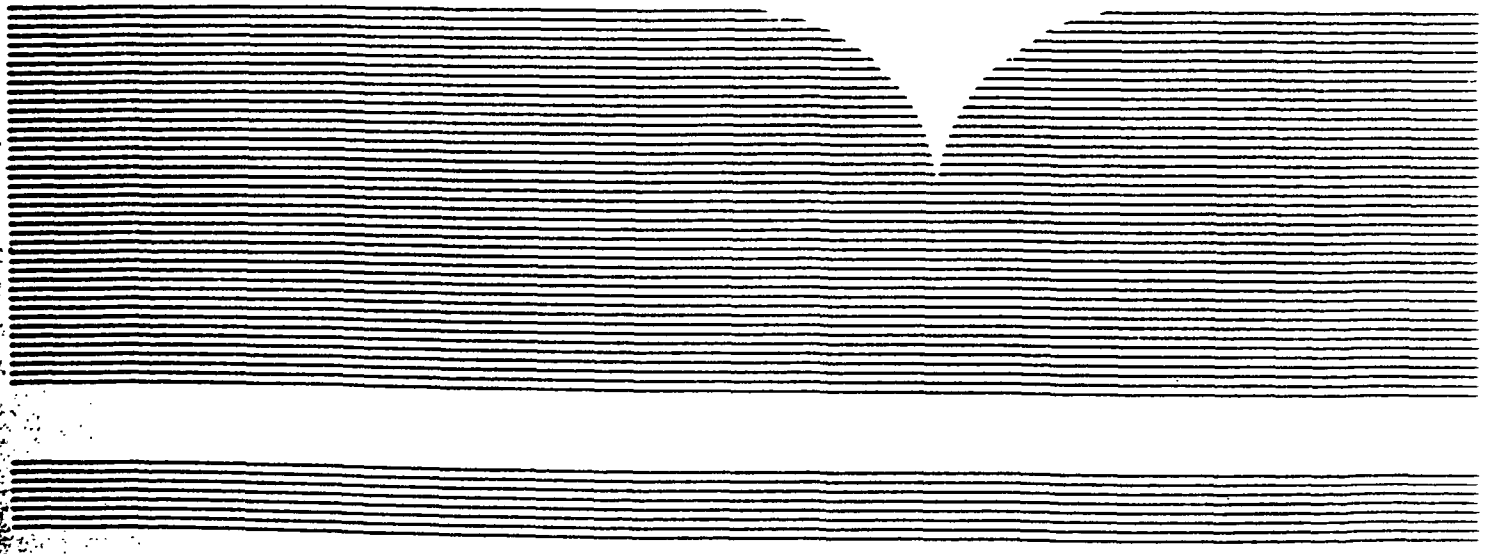
*** NORMAL END OF HEC-1 ***
NORMAL END OF HEC-1

PB89-218424

# DESIGN OF RIPRAP REVETMENT

SUTRON CORPORATION
HERNDON, VA

MAR 89



U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
NTIS

South Box Outlet

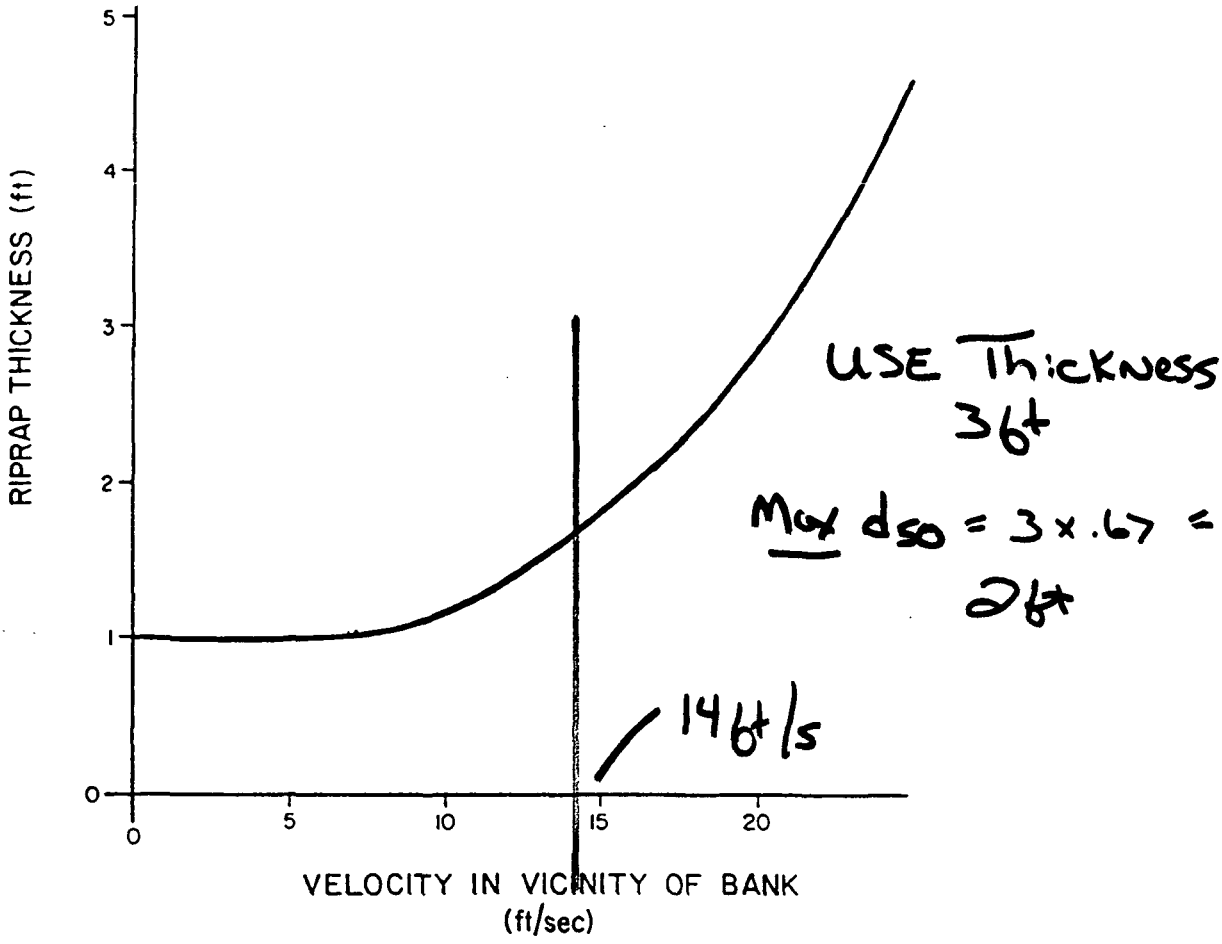



Figure 57. Required blanket thickness as a function of flow velocity.

Rock Grading: Table 6 provides guidelines for rock gradation in grouted riprap installations. Six size classes are listed.

Rock Quality: Rock used in grouted rock slope-protection is usually the same as that used in ordinary rock slope-protection. However, the specifications for specific gravity and hardness may be lowered if necessary as the rocks are protected by the surrounding grout.

In addition, the rock used in grouted riprap installations should be free of fines in order that penetration of grout may be achieved.

Grout Quality and Characteristics: Grout should consist of good strength concrete using a maximum aggregate size of 3/4 in and a slump of 3 to 4 in (7.6 to 10.2 cm). Sand mixes may be used where roughness of the grout surface is unnecessary, provided sufficient cement is added to give good strength and workability.

The volume of grout required will be that necessary to provide penetration to the depths shown in table 6.

The finished grout should leave face stones exposed for one-fourth to one-third their depth and the surface of the grout should expose a matrix of coarse aggregate.

North Box Outlet

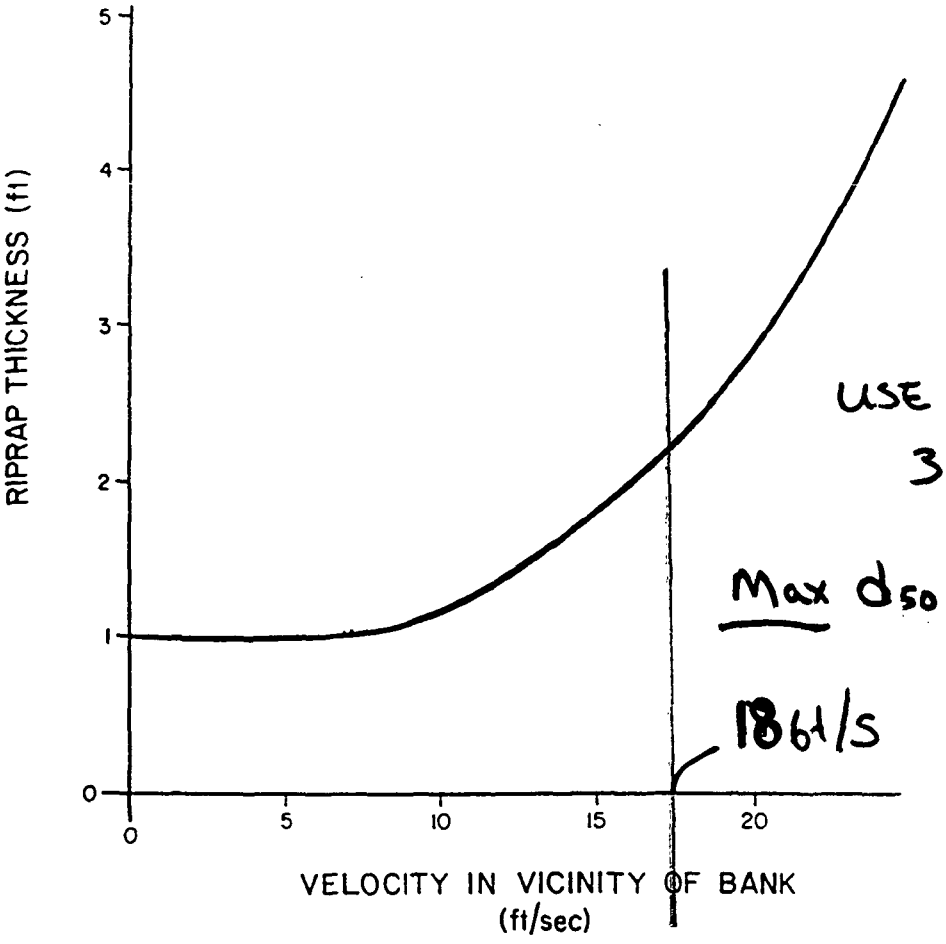



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## 6.3 GROUTED ROCK

Grouted rock revetment consists of rock slope-protection having voids filled with concrete grout to form a monolithic armor. See section 2.5 for additional descriptive information and general performance characteristics for grouted rock. Sample specifications for components of grouted rock revetments are provided in appendix A.

### 6.3.1 Design Guidelines for Grouted Rock

Components of grouted rock riprap design include layout of a general scheme or concept, bank preparation, bank slope, rock size and blanket thickness, rock grading, rock quality, grout quality, edge treatment, filter design, and pressure relief.

General: Grouted riprap designs are rigid monolithic bank protection schemes. When complete, they form a continuous surface. A typical grouted riprap section is shown in figure 56.

Grouted riprap should extend from below the anticipated channel bed scour depth to the design high water level plus additional height for freeboard (see section 3.6.2). The longitudinal extent of protection should be as described in section 3.6.1.

During the design phase for a grouted riprap revetment, special attention needs to be paid to edge treatment, foundation design, and mechanisms for hydrostatic pressure relief. Each of these items is discussed below.

Bank and Foundation Preparation: The bank should be prepared by first clearing all trees and debris from the bank, and grading the bank surface to the desired slope. In general, the graded surface should not deviate from the specified slope line by more than six in (15.2 cm). However, local depressions larger than this can be accommodated since initial placement of filter material and/or rock for the revetment will fill these depressions.

Since grouted riprap is rigid but not extremely strong, support by the embankment must be maintained. To form a firm foundation, it is recommended that the bank surface be tamped or lightly compacted. Care must be taken during bank compaction to maintain a soil permeability similar to that of the natural, undisturbed bank material. The foundation for the grouted riprap revetment should have a bearing capacity sufficient to support either the dry weight of the revetment alone, or the submerged weight of the revetment plus the weight of the water in the wedge above the revetment for design conditions, whichever is greater.

Any large boulders or debris found buried near the edges of the revetment should be removed.

Bank Slope: Bank slopes for grouted riprap revetments should not exceed 1.5:1.

Rock Size and Blanket Thickness: Blanket thickness and rock size requirements for grouted riprap installations are interrelated. Figure 57 illustrates a relationship between the design velocity and the required riprap blanket thickness for grouted riprap designs. The median rock size in the revetment should not exceed 0.67 times the blanket thickness. The largest rock used in the revetment should not exceed the blanket thickness.

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UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

# DESIGN OF SMALL DAMS

A Water Resources Technical Publication

First Edition, 1960
Second Edition, 1973
Revised Reprint, 1977
Third Edition, 1987

to a magnitude where cavitation conditions can develop.

The negative pressure on the crest may be resolved into a system of forces acting both upward and downstream. These forces should be considered in analyzing the structural stability of the crest structure.

An approximate force diagram of the subatmospheric pressures when the design head used to determine the crest shape is 75 percent of the maximum head is shown on figure 9-29. These data are based on average results of tests made on ideally shaped weirs with negligible approach velocities. Pressures for intermediate head ratios can be assumed to vary linearly, considering that no subatmospheric pressure prevails when $H_o/H_e = 1$.

**9.15. *Gate-Controlled Ogee Crests.*—**Releases for partial gate openings for gated crests occur as orifice flow. With full head on a gate that is opened a small amount, a free discharging trajectory will follow the path of a jet issuing from an orifice. For a vertical orifice the path of the jet can be expressed by the parabolic equation:

$$-y = \frac{x^2}{4H} \tag{5}$$

where $H$ is the head on the center of the opening. For an orifice inclined an angle $\theta$ from the vertical, the equation is:

$$-y = x \tan\theta + \frac{x^2}{4H\cos^2\theta} \tag{6}$$

If subatmospheric pressures are to be avoided along the crest contact, the shape of the ogee downstream from the gate sill must conform to the trajectory profile.

Gates operated with small openings under high heads produce negative pressures along the crest in the region immediately below the gate if the ogee profile drops below the trajectory profile. Tests showed the subatmospheric pressures would be equal to about one-tenth of the design head when the gate is operated at small openings and the ogee is shaped to the ideal nappe profile, equation (2), for maximum head $H_o$. The force diagram for this condition is shown on figure 9-30.

The adoption of a trajectory profile rather than a nappe profile downstream from the gate sill will result in a wider ogee, and reduced discharge efficiency for full gate opening. Where the discharge efficiency is unimportant and where a wider ogee shape is needed for structural stability, the trajectory profile may be adopted to avoid subatmospheric pressure zones along the crest. Where the ogee is shaped to the ideal nappe profile for maximum head, the subatmospheric pressure area can be minimized by placing the gate sill downstream from the crest of the ogee. This will provide an orifice that is inclined downstream for small gate openings and will result in a steeper trajectory closer to the nappe-shaped profile.

**9.16. *Discharge Over Gate-Controlled Ogee Crests.*—**The discharge for a gated ogee crest at partial gate openings will be similar to flow through an orifice and may be computed by the equation:

$$Q = CDL\sqrt{2gH} \tag{7}$$

where:

$H$ = head to the center of the gate opening (including the velocity head of approach),
$D$ = shortest distance from the gate lip to the crest curve, and
$L$ = crest width.

The coefficient, $C$, is primarily dependent upon the characteristics of the flow lines approaching and leaving the orifice. In turn, these flow lines are dependent on the shape of the crest and the type of gate. Figure 9-31, which shows coefficients of discharge for orifice flows for different $\theta$ angles, can be used for leaf gates or radial gates located at the crest or downstream of the crest. The $\theta$ angle for a particular opening is that angle formed by the tangent to the gate lip and the tangent to the crest curve at the nearest point of the crest curve for radial gates. This angle is affected by the gate radius and the location of the trunnion pin. For additional information and geometric computations see [20].

**9.17. *Side Channel Spillways.*—**(a) *General.*—The theory of flow in a side channel spillway [21] is based principally on the law of conservation of linear momentum, assuming that the only forces producing motion in the channel result from the fall in the water surface in the direction of the axis. This premise assumes that the entire energy of the flow over the crest is dissipated through its intermingling with the channel flow and is therefore of

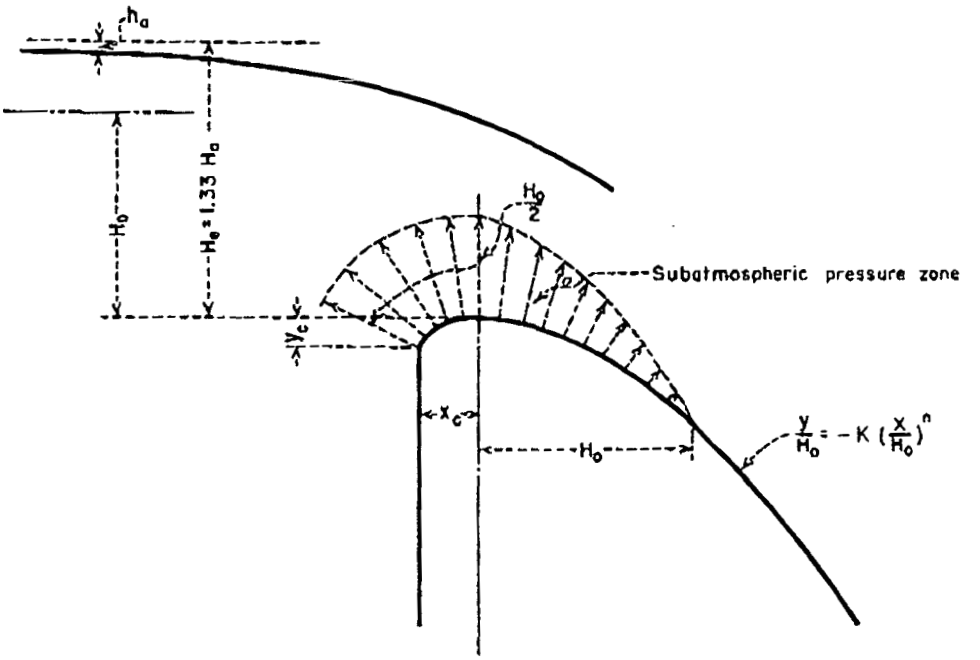



Figure 9-29.—Subatmospheric crest pressures for $H_a/H_e = 0.75$. 288-D-2415.

no assistance in moving the water along the channel. Axial velocity is produced only after the incoming water particles join the channel stream.

For any short reach of the side channel, the momentum at the beginning of the reach plus any increase in momentum from external forces must equal the momentum at the end of the reach. If a short reach, $\Delta x$ in length, is considered and the velocity and discharge at the upstream section are $v$ and $Q$, respectively, then the velocity and discharge at the downstream section will be $v + \Delta v$ and $Q + q(\Delta x)$, where $q$ is the inflow per foot of length of weir crest. Therefore, the momentum[2] at the upstream section will be:

$$M_u = \frac{Qv}{g} \tag{8}$$

And the momentum at the downstream section will be:

$$M_d = \frac{[Q + q(\Delta x)]}{g}(v + \Delta v) \tag{9}$$

[2]The weight of 1 ft³ of water is taken as a unit force to eliminate the necessity of multiplying all forces and moments by 62.4 to convert them into pounds.

Subtracting equation (8) from equation (9):

$$\Delta M = \frac{Q(\Delta v)}{g} + \frac{q(\Delta x)}{g}(v + \Delta v) \tag{10}$$

Dividing by $\Delta x$:

$$\frac{\Delta M}{\Delta x} = \frac{Q(\Delta v)}{g(\Delta x)} + \frac{q}{g}(v + \Delta v) \tag{11}$$

Since the rate of change of momentum with respect to time is $v$ times the rate of change with respect to $x$, and considering the average velocity = $v+(\Delta v/2)$, equation (11) can be written:

$$\frac{\Delta M}{\Delta t} = \frac{Q(\Delta v)}{g(\Delta x)}\left[v + \frac{1}{2}(\Delta v)\right] + \frac{q}{g}(v + \Delta v)\left[v + \frac{1}{2}(\Delta v)\right] \tag{12}$$

Since $\Delta M/\Delta t$ is the accelerating force, which is equal to the slope of the water surface, $\Delta y/\Delta x$, times the average discharge, equation (12) becomes:

$$\frac{\Delta y}{\Delta x}\left[Q+\frac{1}{2}(\Delta Q)\right]=\frac{Q(\Delta v)}{g(\Delta x)}\left[v+\frac{1}{2}(\Delta v)\right]+\frac{q}{g}(v+\Delta v)\left[v+\frac{1}{2}(\Delta v)\right] \quad (13)$$

from which the change in water surface elevation is:

$$\Delta y=\frac{Q\left[v+\frac{1}{2}(\Delta v)\right]}{g\left[Q+\frac{1}{2}(\Delta Q)\right]}\left[\Delta v+\frac{g(\Delta x)}{Q}(v+\Delta v)\right] \quad (14)$$

If $Q_1$ and $v_1$ are values at the beginning of the reach, and $Q_2$ and $v_2$ are the values at the end of the reach, the equation can be written:

$$\Delta y=\frac{Q_1}{g}\frac{(v_1+v_2)}{(Q_1+Q_2)}\left[(v_2-v_1)+\frac{v_2(Q_2-Q_1)}{Q_1}\right] \quad (15)$$

Similarly, the derivation can be developed so that:

$$\Delta y=\frac{Q_2}{g}\frac{(v_1+v_2)}{(Q_1+Q_2)}\left[(v_2-v_1)+\frac{v_1(Q_2-Q_1)}{Q_2}\right] \quad (16)$$

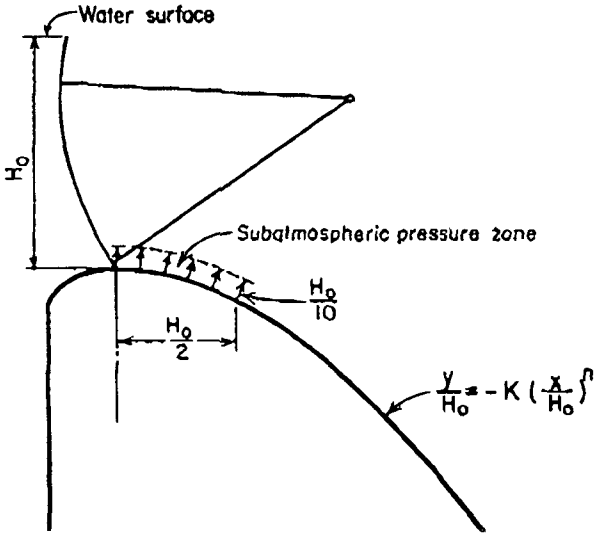


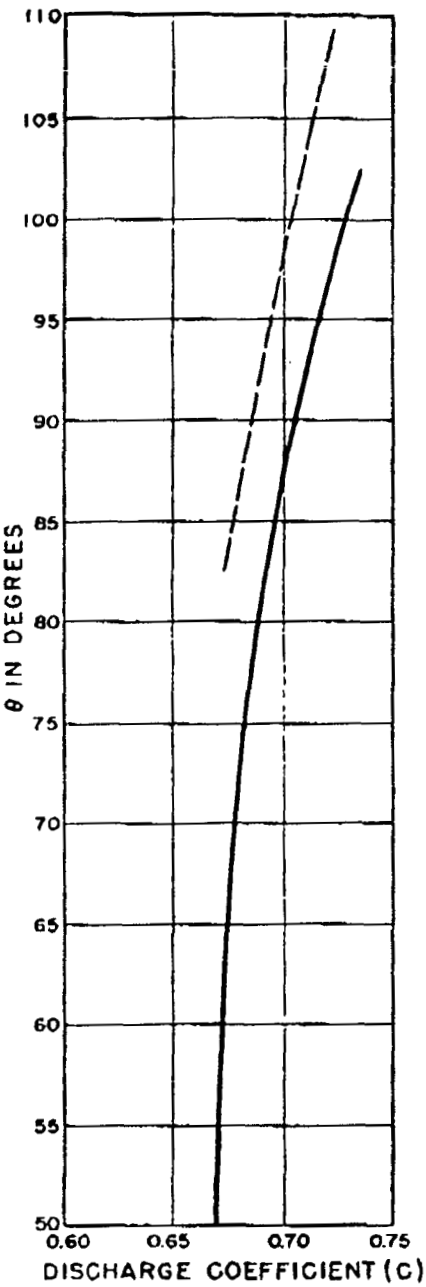

Figure 9-30.—Subatmospheric crest pressures for undershot gate flow. 288-D-2416.

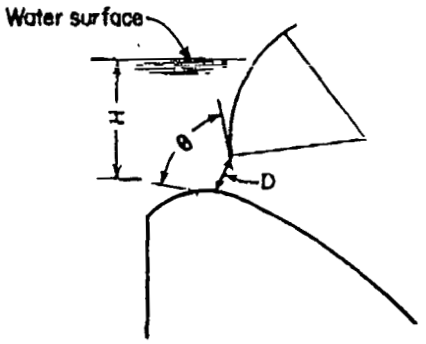
By use of equation (15) or (16), the water surface profile can be determined for any particular side channel by assuming successive short reaches of channel once a starting point is found. The solution of equation (15) or (16) is obtained by a trial-and-error procedure. For a reach of length $\Delta x$ in a specific location, $Q_1$ and $Q_2$ will be known. If the depth at one end of the reach has been established, a trial depth at the other end of the reach can be found that will satisfy the indicated and computed values of $\Delta y$.

As in other water surface profile determinations, the depth of flow and the hydraulic characteristics of the flow will be affected by backwater influences from some control point or by critical conditions along the reach of the channel under consideration. The selection of a control for starting the water surface profile computations is treated in the subsequent discussion.

When the bottom of the side channel trough is selected so that its depth below the hydraulic gradient is greater than the minimum specific energy depth, flow will be either at the subcritical or supercritical stage, depending either on the relation of the bottom profile to critical slope or on the influences of a downstream control section. If the slope of the bottom is greater than critical and a control section is not established below the side channel trough, supercritical flow will prevail throughout the length of the channel. For this stage, velocities will be high and water depths will be shallow, resulting in a relatively high fall from the reservoir water level to the water surface in the trough. This flow condition is illustrated by profile B' on figure 9-32. Conversely, if a control section is established downstream from the side channel trough to increase the upstream depths, the channel can be made to flow at the subcritical stage. Velocities at this stage will be less than critical, and the greater depths will result in a smaller drop from the reservoir water surface to the side channel water surface profile. The condition of flow for subcritical depths is illustrated on figure 9-32 by water surface profile A'.

The effect of the fall distance from the reservoir to the channel water surface for each type of flow is depicted on figure 9-32(B). It can be seen that for the subcritical stage, the incoming flow will not develop high transverse velocities because of the low drop before it meets the channel flow, thus effecting a good diffusion with the water bulk in the trough.




**EQUATION FOR DISCHARGE**

$Q = CDL\sqrt{2gH}$

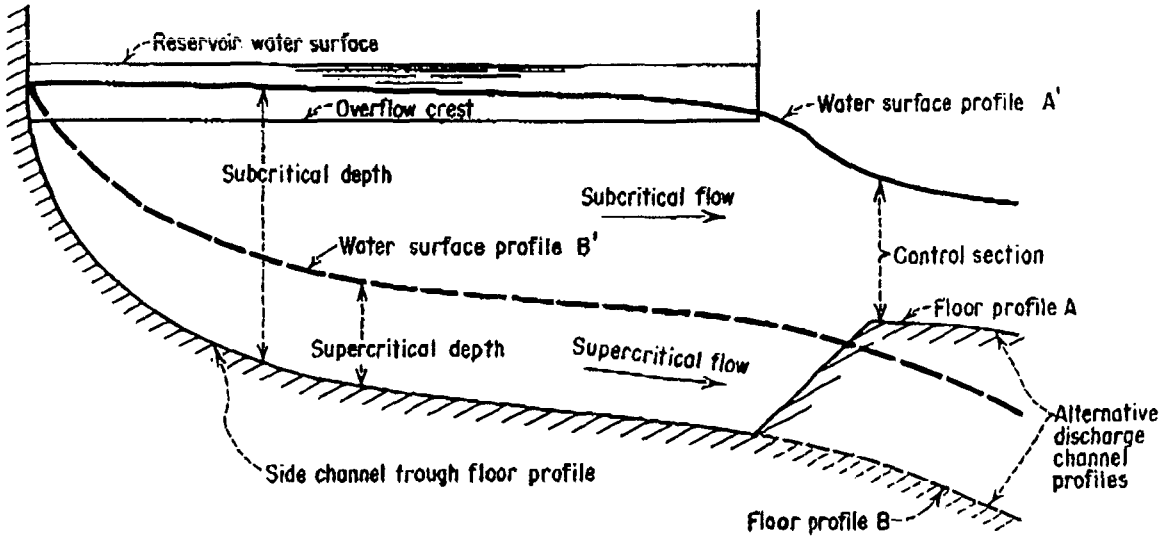
D = Net gate opening
L = Crest width
H = Head to center of gate opening
For C, use dashed line when gate seats on crest and solid line when gate seats below crest.

**REFERENCE**

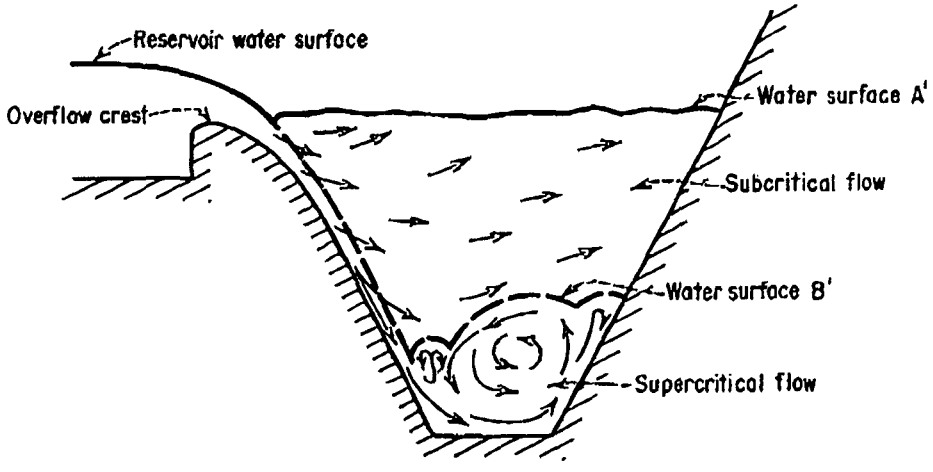
U.S. Army
Corps Of Engineers
Hydraulic Design Criteria
Design Chart 311-1

Figure 9-31.—Discharge coefficient for flow under gates. 103-D-1875.

Because both the incoming velocities and the channel velocities will be relatively slow, a fairly complete intermingling of the flows will occur, thereby producing a comparatively smooth flow in the side channel. Where the channel flow is at the supercritical stage, the channel velocities will be high, and the intermixing of the high-energy transverse flow with the channel stream will be rough and turbulent. The transverse flows will tend to sweep the channel flow to the far side of the channel, producing violent wave action with attendant vibrations. Therefore, it is evident that flows should be




(A) SIDE CHANNEL PROFILE




(B) SIDE CHANNEL CROSS SECTION

**Figure 9-32.—Side channel flow characteristics. 288-D-2418.**

maintained at subcritical stage for good hydraulic performance. This can be achieved by establishing a control section downstream from the side channel trough.

The cross-sectional shape of the side channel trough will be influenced by the overflow crest on the one side and by the bank conditions on the opposite side. Because of turbulence and vibrations inherent in side channel flow, a side channel design is ordinarily not considered except where a competent foundation such as rock exists. The channel sides will, therefore, usually be a concrete lining placed on a slope and anchored directly to the rock. A trapezoidal cross section is the one most often used for a side channel trough. The width of such a channel in relation to the depth should be considered. If the width to depth ratio is large, the depth of flow in the channel will be shallow, similar

to that depicted by the cross section *abfg* on figure 9-33. It is evident that for this condition a poor diffusion of the incoming flow with the channel flow will result. A cross section with a minimum width to depth ratio will provide the best hydraulic performance; this indicates that a cross section approaching *adj* (on fig. 9-33) would be the ideal choice both from the standpoint of hydraulics and economy. However, some bottom width is needed to avoid construction difficulties caused by confined working space. Furthermore, the stability of both the structure and the hillside, which might be jeopardized by an extremely deep cut in the abutment, must also be considered. Therefore, the minimum bottom width selected must be commensurate with both the practical and structural aspects of the problem.

A control section downstream from the side channel trough is achieved by constricting the channel sides or elevating the channel bottom to produce a point of critical flow. Flows upstream from the control will be at the subcritical stage and will provide a maximum of depth in the side channel trough. The side channel bottom and control dimensions are then selected so that flow in the trough opposite the crest will be at the greatest depth possible without submerging the flow over the crest. Flow in the discharge channel downstream from the control will be the same as that in an ordinary channel or chute spillway.

(b) *Design Example.*—A design example illustrates the procedures for determining the hydraulic design of a side channel spillway control structure. The problem is to design a side channel spillway 100 feet long (station 0+00 to station 1+00) to discharge a maximum of 2,000 ft³/s. The spillway crest is at elevation 1000.0 feet, and the discharge per foot of length $q = 2{,}000/100 = 20$ ft³/s. Assume the crest coefficient $C = 3.6$, $H_o = (q/C)^{2/3} = 3.1$ feet.

For the side channel trough, assume a trapezoidal section with ½:1 side slopes and a bottom width of 10 feet, whose rise in bottom profile is 1.0 foot in the 100 feet of channel length. (The slope of the channel profile is arbitrary; however, a relatively flat slope will provide greater depths and lower velocities and, consequently, will ensure better intermingling of flows at the upstream end of the channel and avoid the possibility of accelerating or supercritical flows occurring in the channel for smaller discharges.) Furthermore, assume that a control section is placed downstream from the side channel trough with its bottom at the same elevation as the bottom of the side channel floor at the downstream end. Assume that a transition is made from the ½:1 slopes of the trough section to a rectangular section at the control. Arbitrarily assume a datum for the control section bottom at elevation 100.0.

Therefore, the critical depth for flow at the control is $d_c = (q_1^2/g)^{1/3}$.

For this example:

$$q_1 = \frac{2{,}000}{10} = 200 \text{ ft}^3/\text{s per foot of width}$$

$$d_c = \left(\frac{200^2}{32.2}\right)^{1/3} = 10.75 \text{ feet}$$

$$v_c = \frac{q_1}{d_c} = \frac{200}{10.75} = 18.6 \text{ ft/s}$$

$$h_{v_c} = \frac{v_c^2}{2g} = \frac{18.6^2}{64.4} = 5.37 \text{ feet}$$

Assume a transition loss from the end of the side channel trough to the control section (to provide for losses caused by contraction, by diffusion of the flows not affected in the side channel proper, and by friction losses) equal to 0.2 of the difference in velocity heads between the ends of the transition. The flow characteristics at the downstream end of the side channel can be obtained from Bernoulli's equation (app. B). For figure 9-34, Bernoulli's equation may be written as follows:

$$d_{(1+00)} + h_{v_{(1+00)}} = d_c + h_{v_c} + 0.2(h_{v_c} - h_{r_{(1+00)}})$$

This expression must be solved by trial and error. First, assume a value of $d_{(1+00)}$, and solve for $h_{v\,(1+00)}$. If the use of these values does not result in a balanced equation, a new value must be assumed for $d_{(1+00)}$ and the process repeated. A value of 16.34 feet for $d_{(1+00)}$ was found to satisfy the equation as follows:

For $d_{(1+00)} = 16.34$, the area of flow at station 1+00 in the trapezoidal cross section with 10-foot bottom width and ½:1 side slopes = 297 ft².

$$v_{(1+00)} = \frac{2{,}000}{297} = 6.73 \text{ ft/s}$$

$$h_{v(1+00)} = \frac{6.73^2}{64.4} = 0.70 \text{ foot}$$

$$0.2(h_{v_c} - h_{v(1+00)}) = 0.2\ (5.37 - 0.70) = 0.93 \text{ foot}$$

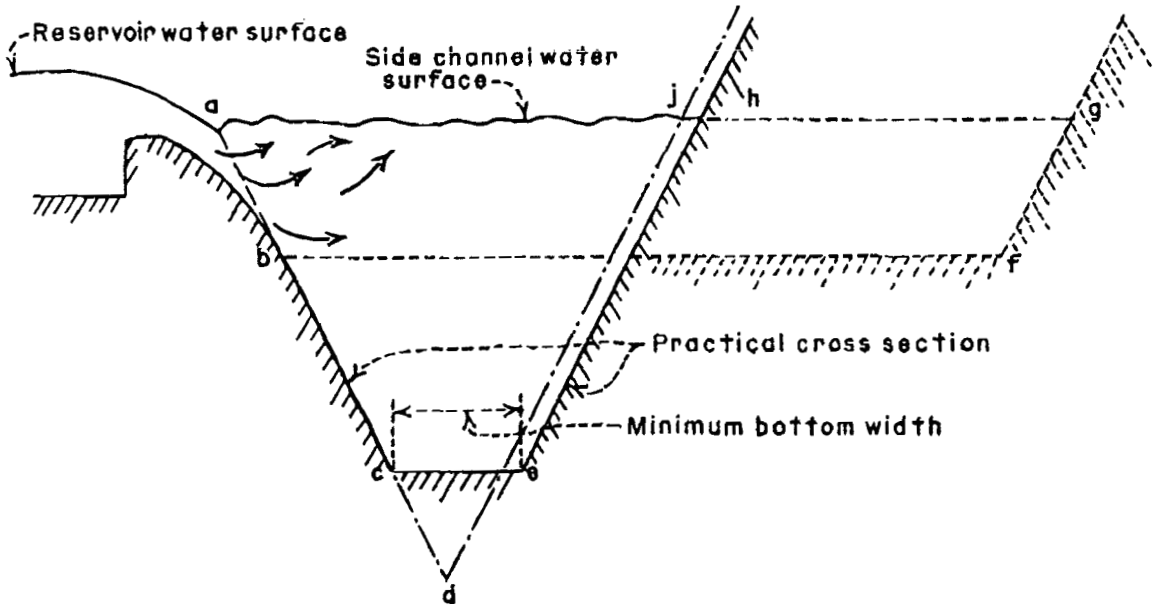



Figure 9-33.—Comparison of side channel cross sections. 288-D-2419.

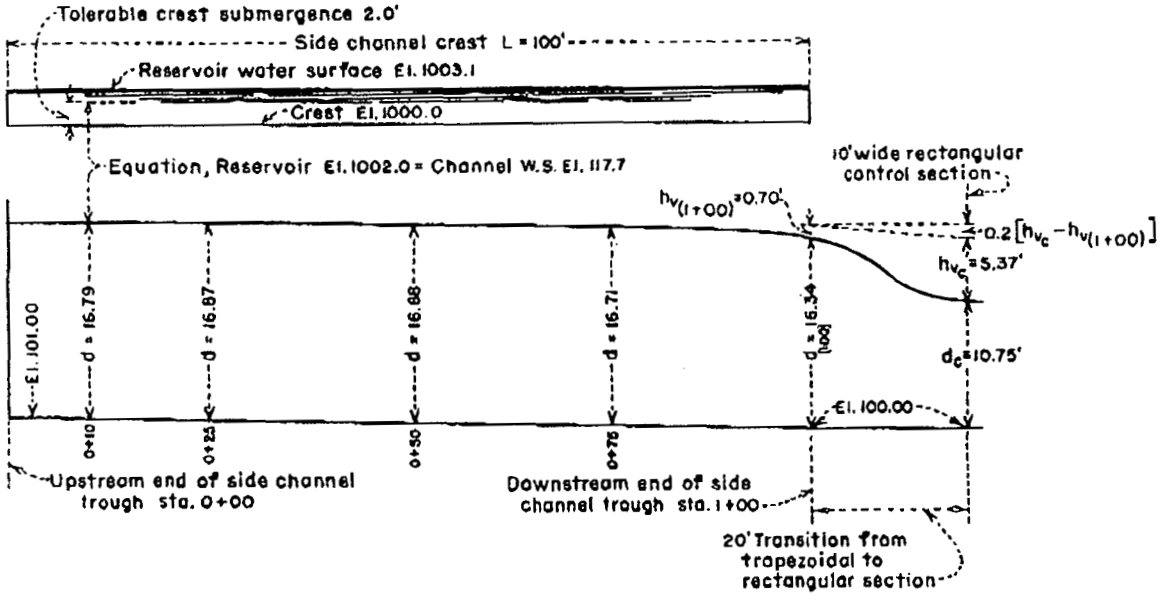



Figure 9-34.—Example of hydraulic design for side channel spillway. 288-D-2420.

Substituting the values in Bernoulli's equation:

$$16.34 + 0.70 = 10.75 + 5.37 + 0.93$$
$$17.04 = 17.05 \text{ (A satisfactory check)}$$

With the hydraulic properties of the side channel at station 1+00 determined, the water surface profile along the side channel trough can be determined from equation (15). The trial-and-error computations are shown in table 9-3. The resulting water surface profile is shown on figure 9-34.

Next, the channel profile is fitted to the crest datum by relating the water surface profile to the

Table 9-3.—Side channel spillway computations. Using eq(15) for design example in section 9.17(b): given $Q$ = 2,000 ft³/s, bottom width = 10 feet, side slopes = ½:1, and bottom slope = 1 foot in 100 feet.

| (1) Station | (2) $\Delta x$ | (3) Elevation bottom | (4) Trial $\Delta y$ | (5) Water surface elevation | (6) $d$ | (7) $A$ | (8) $Q$ | (9) $v$ | (10) $Q_1+Q_2$ | (11) $\frac{Q_1}{g(Q_1+Q_2)}$ | (12) $v_1+v_2$ | (13) $v_2-v_1$ | (14) $Q_2-Q_1$ | (15) $\frac{Q_2-Q_1}{Q_1}$ | (16) $\frac{v_2(Q_2-Q_1)}{Q_1}$ | (17) (13)+(16) | (18) $\Delta y$ = (11) ×(12)×(17) | (19) Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1+00 | – | 100.0 | – | 116.24 | 16.24 | 237 | 2,000 | 6.73 | – | – | – | – | – | – | – | – | – | – |
| 0+75 | 25 | 100.25 | 1.00 | 117.34 | 17.09 | 317 | 1,500 | 4.73 | 3,500 | 0.01332 | 11.46 | 2.00 | 500 | 0.333 | 2.24 | 4.24 | 0.64 | Too low |
| | | | .62 | 116.96 | 16.71 | 307 | – | 4.89 | – | – | 11.62 | 1.84 | – | – | – | 4.08 | .63 | OK |
| 0+50 | 25 | 100.50 | .50 | 117.46 | 16.96 | 313 | 1,000 | 3.19 | 2,500 | .01244 | 8.08 | 1.70 | 500 | .50 | 2.44 | 4.14 | .42 | Too low |
| | | | .42 | 117.36 | 16.88 | 311 | – | 3.22 | – | – | 8.11 | 1.67 | – | – | – | 4.11 | .41 | OK |
| 0+25 | 25 | 100.75 | .30 | 117.68 | 16.93 | 313 | 500 | 1.60 | 1,500 | .01036 | 4.82 | 1.62 | 500 | 1.00 | 3.22 | 4.84 | .24 | Too low |
| | | | .24 | 117.62 | 16.87 | 311 | – | 1.61 | – | – | 4.83 | 1.61 | – | – | – | 4.83 | .24 | OK |
| 0+00 | 15 | 100.90 | .10 | 117.72 | 16.82 | 310 | 200 | .64 | 700 | .00688 | 2.25 | .97 | 300 | 1.50 | 2.41 | 3.38 | .07 | Too low |
| | | | .07 | 117.69 | 16.79 | 309 | – | .65 | – | – | 2.26 | .96 | – | – | – | 3.37 | .07 | OK |

reservoir water level. To obtain the assumed crest coefficient value of 3.6, excessive submergence of the overflow must be avoided. If it is assumed that a maximum of two-thirds submergence at the upstream end of the channel can be tolerated, the maximum water surface level in the channel will be $\frac{2}{3}H_o$ above the crest, or elevation 1002.0. Then at station 0+10, the channel datum water surface level elevation 117.7 will become elevation 1002.0, placing the channel floor level for station 0+00 at approximately elevation 985.3, and for station 1+00 at approximately elevation 984.3.

The design of the side channel control structure would be completed by designing the uncontrolled ogee crest by the methods shown in section 9.13, to obtain the crest coefficient value of 3.6 that was assumed.

Variations in the design can be made by assuming different bottom widths, different channel slopes, and varying control sections. A proper and economical design can usually be achieved after comparing several alternatives.

## D. HYDRAULICS OF FREE-FLOW DISCHARGE CHANNELS

9.18. *General.*—Discharge generally passes through the critical stage in the spillway control structure and enters the discharge channel as supercritical or shooting flow. To avoid a hydraulic jump below the control, the flow must remain at the supercritical stage throughout the length of the channel. The flow in the channel may be uniform or it may be accelerated or decelerated, depending on the slopes and dimensions of the channel and on the total drop. Where it is desired to minimize the grade to reduce excavation at the upstream end of a channel, the flow might be uniform or decelerating, followed by accelerating flow in the steep drop leading to the downstream river level. Flow at any point along the channel will depend upon the specific energy, $d+h_v$, available at that point. This energy will equal the total drop from the reservoir water level to the floor of the channel at the point under consideration, less the head losses accumulated to that point. The velocities and depths of flow along the channel can be fixed by selecting the grade and the cross-sectional dimensions of the channel.

The velocities and depths of free surface flow in a channel, whether it be an open channel, a conduit, or a tunnel, conform to the principle of the conservation of energy as expressed by Bernoulli's theorem, which states "the absolute energy of flow at any cross section is equal to the absolute energy at a downstream section plus intervening losses of energy." As applied to figure 9-35 this relationship can be expressed as follows:

$$\Delta Z + d_1 + h_{v_2} = d_2 + h_{v_2} + \Delta h_L \qquad (17)$$

When the channel grades are not too steep, for practical purposes the normal depth, $d_n$, can be considered equal to the vertical depth $d$. The term $\Delta h_L$ includes all losses that occur in the reach of channel, such as friction, turbulence, impact, and transition losses. Because changes in most channels are made gradually, all losses except those from friction

## Spillway Channel Design **SOUTH**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | dX | Channel bottom | trial dY | WSE | d | A | Q | v | Q1+Q2 | Q1 / g(Q1+Q2) | v1+v2 | v2-v1 | Q2-Q1 | Q2-Q1 / Q1 | v2(Q2-Q1) / Q1 | (13) + (16) | dy (11)*(12)*(17) | Notes |
| 2000.00 | x | 53.40 | x | 63.25 | 9.85 | 343.27 | 2496.20 | 7.27 | x | x | x | x | x | x | x | x | x | |
| 2100.00 | 100.00 | 54.50 | 1.02 | 64.27 | 9.77 | 339.70 | 1528.00 | 4.50 | 4024.20 | 0.02 | 11.77 | 2.77 | 968.20 | 0.39 | 1.74 | 4.52 | 1.02 | ok |
| 2150.00 | 50.00 | 55.30 | 0.35 | 64.62 | 9.32 | 319.86 | 990.90 | 3.10 | 2518.90 | 0.02 | 7.60 | 1.40 | 537.10 | 0.35 | 1.09 | 2.49 | 0.36 | ok |
| 2200.00 | 50.00 | 56.00 | 0.20 | 64.82 | 8.82 | 298.29 | 576.00 | 1.93 | 1566.90 | 0.02 | 5.03 | 1.17 | 414.90 | 0.42 | 0.81 | 1.98 | 0.20 | ok |
| 2250.00 | 50.00 | 56.70 | 0.08 | 64.90 | 8.20 | 272.24 | 296.00 | 1.09 | 872.00 | 0.02 | 3.02 | 0.84 | 280.00 | 0.49 | 0.53 | 1.37 | 0.08 | ok |
| 2300.00 | 50.00 | 57.40 | 0.03 | 64.93 | 7.53 | 244.95 | 132.00 | 0.54 | 428.00 | 0.02 | 1.63 | 0.55 | 164.00 | 0.55 | 0.30 | 0.85 | 0.03 | ok |
| 2350.00 | 50.00 | 58.10 | 0.01 | 64.94 | 6.84 | 217.79 | 44.00 | 0.20 | 176.00 | 0.02 | 0.74 | 0.34 | 88.00 | 0.67 | 0.13 | 0.47 | 0.01 | ok |

## Spillway Channel Design **NORTH**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Station | dX | Channel bottom | trial dY | WSE | d | A | Q | v | Q1+Q2 | Q1 / g(Q1+Q2) | v1+v2 | v2-v1 | Q2-Q1 | Q2-Q1 / Q1 | v2(Q2-Q1) / Q1 | (13) • (16) | dy (11)*(12)*(17) | Notes |
| 2000.00 | x | 53.40 | x | 63.50 | 10.10 | 354.51 | 2588.00 | 7.30 | x | x | x | x | x | x | x | x | x | |
| 2100.00 | 100.00 | 54.50 | 0.92 | 64.42 | 9.92 | 346.41 | 1717.00 | 4.96 | 4305.00 | 0.02 | 12.26 | 2.34 | 871.00 | 0.34 | 1.67 | 4.01 | 0.92 | ok |
| 2150.00 | 50.00 | 55.30 | 0.30 | 64.72 | 9.42 | 324.24 | 1311.00 | 4.04 | 3028.00 | 0.02 | 9.00 | 0.91 | 406.00 | 0.24 | 0.96 | 1.87 | 0.30 | ok |
| 2200.00 | 50.00 | 55.80 | 0.22 | 64.94 | 9.14 | 312.04 | 968.00 | 3.10 | 2279.00 | 0.02 | 7.15 | 0.94 | 343.00 | 0.26 | 0.81 | 1.75 | 0.22 | ok |
| 2250.00 | 50.00 | 56.50 | 0.14 | 65.08 | 8.58 | 288.12 | 684.00 | 2.37 | 1652.00 | 0.02 | 5.48 | 0.73 | 284.00 | 0.29 | 0.70 | 1.42 | 0.14 | ok |
| 2300.00 | 50.00 | 57.10 | 0.09 | 65.17 | 8.07 | 266.87 | 454.00 | 1.70 | 1138.00 | 0.02 | 4.08 | 0.67 | 230.00 | 0.34 | 0.57 | 1.24 | 0.09 | ok |
| 2350.00 | 50.00 | 57.80 | 0.06 | 65.23 | 7.43 | 240.95 | 274.00 | 1.14 | 728.00 | 0.02 | 2.84 | 0.56 | 180.00 | 0.40 | 0.45 | 1.01 | 0.06 | ok |

| Station | South WSE | v | Freeboard | Parvin Weir Ht | Min TW | TW* |
|---|---|---|---|---|---|---|
| 2000.00 | 63.25 | 7.27 | 1.32 ft | 66.22 | 64.57 | 65.00 |
| 2100.00 | 64.27 | 4.50 | 1.00 ft | 66.22 | 65.27 | 66.00 |
| 2150.00 | 64.62 | 3.10 | 1.00 ft | 66.22 | 65.62 | 66.00 |
| 2200.00 | 64.82 | 1.93 | 1.00 ft | 66.22 | 65.82 | 66.00 |
| 2250.00 | 64.90 | 1.09 | 1.00 ft | 66.22 | 65.90 | 66.00 |
| 2300.00 | 64.93 | 0.54 | 1.00 ft | 66.22 | 65.93 | 66.00 |
| 2350.00 | 64.94 | 0.20 | 1.00 ft | 66.22 | 65.94 | 66.00 |

| Station | North WSE | v | Freeboard | Parvin Weir Ht | Min TW | TW* |
|---|---|---|---|---|---|---|
| 2000.00 | 63.50 | 7.30 | 1.33 ft | 66.22 | 64.83 | 65.00 |
| 2100.00 | 64.42 | 4.96 | 1.00 ft | 66.22 | 65.42 | 66.00 |
| 2150.00 | 64.72 | 4.04 | 1.00 ft | 66.22 | 65.72 | 66.00 |
| 2200.00 | 64.94 | 3.10 | 1.00 ft | 66.22 | 65.94 | 66.00 |
| 2250.00 | 65.08 | 2.37 | 1.00 ft | 66.22 | 66.08 | 66.10 |
| 2300.00 | 65.17 | 1.70 | 1.00 ft | 66.22 | 66.17 | 66.20 |
| 2350.00 | 65.23 | 1.14 | 1.00 ft | 66.22 | 66.23 | 66.30 |

* Wall is proposed to be this high or greater

**South**

| Station | elevation bottom | Q | Bottom | Depth | q1 | dc | vc | hvc | v | area | hv | **Check # Depth** | **Check # Balance** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20-00 | 53.40 | 2496.20 | 25.00 | 9.85 | 99.85 | 6.77 | 14.76 | 3.38 | 7.27 | 343.27 | 0.82 | 10.67 | 10.66 |

**North**

| Station | elevation bottom | Q | Bottom | Depth | q1 | dc | vc | hvc | v | area | hv | **Check # Depth** | **Check # Balance** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20-00 | 53.40 | 2587.90 | 25.00 | 10.10 | 103.52 | 6.93 | 14.94 | 3.46 | 7.30 | 354.51 | 0.83 | 10.93 | 10.92 |

Calculation to determine starting WSE

# *NORTH BOX*
# *WSPGW MODEL*

```
T1 Green Park
0
T2 Alternative 1 for North Channel
T3 1/25/02
SO     631.900   47.200   9                                  50.000
TS     632.000   47.200   9        .030                                    .000
TS     652.000   46.800   8        .030                                    .000
TS     675.000   46.300   7        .013                                    .000
TS     689.900   46.000   6        .013                                    .000
R      690.000   46.000   5        .013                                    .000
R      815.000   46.400   5        .013                                    .000
.000 0
TS     865.000   46.600   2        .013                                    .000
R     1477.000   48.200   2        .013                                    .000
.000 0
WE    1477.000   48.200   2        .500
TS    1502.000   48.890   4        .013                                    .000
TS    1502.100   48.900   3        .013                                    .000
R     1578.000   50.790   3        .013                                    .000
SH    1578.000   50.790   3                                  58.060
CD    1  2    0     .000    7.000    91.000   .000   .000    .00
CD    3  2    0     .000   10.000    50.000   .000   .000    .00
CD    5  3    5     .830    5.000    64.150   .000   .000    .00
CD    6  2    0     .000    7.000    65.000   .000   .000    .00
CD    7  2    0     .000    7.000    90.000   .000   .000    .00
CD    8  2    0     .000    7.000   160.000   .000   .000    .00
CD    9  2    0     .000    7.000   300.000   .000   .000    .00
CD    2  6    0     .000              .00     .00    .00    .00    .00    .00    .00
.00    .00    .00
CD    4  6    0     .000              .00     .00    .00    .00    .00    .00    .00
.00    .00    .00
PTS   235    .000    .000 48.000    .000 47.750   1.400 47.000   3.200 46.000   4.530
PTS        44.000   6.030 42.000   6.740 40.000   7.160 38.000   7.420 37.000   7.480
PTS        36.000   7.500 35.000   7.480 34.000   7.420 32.000   7.160 30.000   6.740
PTS        28.000   6.030 26.000   4.530 25.000   3.200 24.000    .010 23.000   3.200
PTS        22.000   4.530 20.000   6.030 18.000   6.740 16.000   7.160 14.000   7.420
PTS        13.000   7.480 12.000   7.500 11.000   7.480 10.000   7.420  8.000   7.160
PTS         6.000   6.740  4.000   6.030  2.000   4.530  1.000   3.200   .250   1.400
PTS   435    .000    .000 48.000    .000 47.750   3.400 47.000   5.200 46.000   6.530
PTS        44.000   8.030 42.000   8.740 40.000   9.160 38.000   9.420 37.000   9.480
PTS        36.000   9.500 35.000   9.480 34.000   9.420 32.000   9.160 30.000   9.740
PTS        28.000   8.030 26.000   7.530 25.000   5.200 24.000    .010 23.000   5.200
PTS        22.000   6.530 20.000   8.030 18.000   8.740 16.000   9.160 14.000   9.420
PTS        13.000   9.480 12.000   9.500 11.000   9.480 10.000   9.420  8.000   9.160
PTS         6.000   8.740  4.000   8.030  2.000   6.530  1.000   5.200   .250   3.400
Q          5080.000   .0
```

FILE: ngreenalt3.WSW

W S P G W - CIVILDESIGN Version 12.91
For: PENTACORE Engineering, Las Vegas, Nevada - S/N 791
WATER SURFACE PROFILE LISTING

Green Park
Alternative 1 for North Channel
1/25/02

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Wid |
|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm |
| 631.900 | 47.200 | 1.216 | 48.416 | 5080.00 | 13.93 | 3.01 | 51.43 | .00 | 2.07 | 300. |
| TRANS STR | .0000 | | | | | .0619 | .01 | 1.22 | 2.23 | |
| 632.000 | 47.200 | 1.213 | 48.413 | 5080.00 | 13.96 | 3.03 | 51.44 | .00 | 2.07 | 300. |
| TRANS STR | -.0200 | | | | | .0725 | 1.45 | 1.21 | 2.23 | |
| 652.000 | 46.800 | 1.630 | 48.430 | 5080.00 | 19.48 | 5.89 | 54.32 | .00 | 3.15 | 160. |
| TRANS STR | -.0217 | | | | | .0111 | .25 | 1.63 | 2.69 | |
| 675.000 | 46.300 | 3.033 | 49.333 | 5080.00 | 18.61 | 5.38 | 54.71 | .00 | 4.63 | 90. |
| TRANS STR | -.0201 | | | | | .0050 | .07 | 3.03 | 1.88 | |
| 689.900 | 46.000 | 4.653 | 50.653 | 5080.00 | 18.20 | 5.14 | 55.79 | .00 | 5.00 | 64. |
| .100 | .0000 | | | | | .0078 | .00 | 4.65 | 1.54 | . |
| | | ---------- WARNING - Flow depth near top of box conduit ------- | | | | | | | | |
| 690.000 | 46.000 | 4.652 | 50.652 | 5080.00 | 18.20 | 5.14 | 55.80 | .00 | 5.00 | 64. |
| 11.167 | .0032 | | | | | .0079 | .09 | 4.65 | 1.54 | 5. |
| | | ---------- WARNING - Flow depth near top of box conduit ------- | | | | | | | | |
| 701.167 | 46.036 | 4.609 | 50.645 | 5080.00 | 18.37 | 5.24 | 55.88 | .00 | 5.00 | 64. |
| 57.340 | .0032 | | | | | .0086 | .49 | 4.61 | 1.56 | 5. |
| | | ---------- WARNING - Flow depth near top of box conduit ------- | | | | | | | | |

FILE: ngreenalt3.WSW

W S P G W - CIVILDESIGN Version 12.91
For: PENTACORE Engineering, Las Vegas, Nevada - S/N 791
WATER SURFACE PROFILE LISTING

Green Park
Alternative 1 for North Channel
1/25/02

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Wid |
|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE | Dpth | Froude N | Norm |
| 758.508 | 46.219 | 4.395 | 50.614 | 5080.00 | 19.26 | 5.76 | 56.38 | .00 | 5.00 | | 64. |
| 56.492 | .0032 | | | | | .0098 | .55 | 4.39 | | 1.67 | 5. |
| 815.000 | 46.400 | 4.190 | 50.590 | 5080.00 | 20.21 | 6.34 | 56.93 | .00 | 5.00 | | 64. |
| TRANS STR | .0040 | | | | | .0067 | .33 | 4.19 | | 1.80 | |
| 865.000 | 46.600 | 6.833 | 53.433 | 5080.00 | 16.70 | 4.33 | 57.77 | .00 | 6.83 | | 35. |
| 276.010 | .0026 | | | | | .0027 | .75 | 6.83 | | 1.00 | 7.4 |
| 1141.010 | 47.322 | 7.284 | 54.606 | 5080.00 | 15.93 | 3.94 | 58.54 | .00 | 6.83 | | 30. |
| 335.990 | .0026 | | | | | .0027 | .92 | 7.28 | | .86 | 7.4 |
| 1477.000 | 48.200 | 7.416 | 55.616 | 5080.00 | 15.74 | 3.85 | 59.46 | .00 | 6.83 | | 28. |
| HYDRAULIC JUMP | | | | | | | | | | | |
| 1477.000 | 48.200 | 6.289 | 54.489 | 5080.00 | 17.89 | 4.97 | 59.46 | .00 | 6.83 | | 38. |
| HYDRAULIC DROP | | | | | | | | | | | |
| 1502.000 | 48.890 | 6.960 | 55.850 | 5080.00 | 15.63 | 3.79 | 59.64 | .00 | 6.96 | | 42. |
| TRANS STR | .1000 | | | | | | | 6.960 | | 1.000 | |
| 1502.100 | 48.900 | 4.751 | 53.651 | 5080.00 | 21.38 | 7.10 | 60.75 | .00 | 6.85 | | 50. |
| 14.290 | .0249 | | | | | .0053 | .08 | 4.75 | | 1.73 | 2. |

FILE: ngreenalt3.WSW

W S P G W - CIVILDESIGN Version 12.91
For: PENTACORE Engineering, Las Vegas, Nevada - S/N 791
WATER SURFACE PROFILE LISTING

Green Park
Alternative 1 for North Channel
1/25/02

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Wid |
|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm |
| 1516.390 | 49.256 | 4.903 | 54.159 | 5080.00 | 20.72 | 6.67 | 60.83 | .00 | 6.85 | 50. |
| 18.132 | .0249 | | | | | .0047 | .08 | 4.90 | 1.65 | 2. |
| 1534.522 | 49.707 | 5.142 | 54.849 | 5080.00 | 19.76 | 6.06 | 60.91 | .00 | 6.85 | 50. |
| 14.375 | .0249 | | | | | .0040 | .06 | 5.14 | 1.54 | 2. |
| 1548.897 | 50.065 | 5.393 | 55.458 | 5080.00 | 18.84 | 5.51 | 60.97 | .00 | 6.85 | 50. |
| 11.095 | .0249 | | | | | .0035 | .04 | 5.39 | 1.43 | 2. |
| 1559.992 | 50.342 | 5.656 | 55.998 | 5080.00 | 17.96 | 5.01 | 61.01 | .00 | 6.85 | 50. |
| 8.189 | .0249 | | | | | .0030 | .02 | 5.66 | 1.33 | 2. |
| 1568.181 | 50.545 | 5.932 | 56.478 | 5080.00 | 17.13 | 4.55 | 61.03 | .00 | 6.85 | 50. |
| 5.579 | .0249 | | | | | .0026 | .01 | 5.93 | 1.24 | 2. |
| 1573.760 | 50.684 | 6.222 | 56.906 | 5080.00 | 16.33 | 4.14 | 61.05 | .00 | 6.85 | 50. |
| 3.209 | .0249 | | | | | .0022 | .01 | 6.22 | 1.15 | 2. |
| 1576.969 | 50.764 | 6.526 | 57.290 | 5080.00 | 15.57 | 3.76 | 61.05 | .00 | 6.85 | 50. |
| 1.031 | .0249 | | | | | .0019 | .00 | 6.53 | 1.07 | 2. |
| 1578.000 | 50.790 | 6.845 | 57.635 | 5080.00 | 14.84 | 3.42 | 61.06 | .00 | 6.85 | 50. |

# *COLLECTER SYSTEM*
# *HEC-RAS MODEL*

HEC-RAS Plan: Plan 01

| Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| South | 2600 | 44.00 | 63.30 | 64.40 | 64.40 | 64.86 | 0.002739 | 5.69 | 8.30 | 9.19 | 0.96 |
| South | 2550 | 44.00 | 63.04 | 63.96 | 63.53 | 64.02 | 0.000384 | 2.06 | 21.98 | 25.76 | 0.38 |
| South | 2500 | 44.00 | 60.60 | 64.00 | | 64.00 | 0.000004 | 0.49 | 93.39 | 30.93 | 0.05 |
| South | 2450 | 44.00 | 59.50 | 64.00 | | 64.00 | 0.000003 | 0.44 | 105.78 | 28.00 | 0.04 |
| South | 2400 | 44.00 | 58.80 | 64.00 | | 64.00 | 0.000001 | 0.36 | 132.40 | 30.91 | 0.03 |
| South | 2350 | 44.00 | 58.10 | 64.00 | | 64.00 | 0.000001 | 0.30 | 159.28 | 32.97 | 0.02 |
| South | 2300 | 132.00 | 57.40 | 63.99 | | 64.00 | 0.000005 | 0.75 | 187.99 | 35.02 | 0.05 |
| South | 2250 | 296.00 | 56.70 | 63.97 | | 64.00 | 0.000018 | 1.51 | 210.51 | 35.94 | 0.10 |
| South | 2200 | 576.00 | 56.00 | 63.89 | | 63.99 | 0.000050 | 2.62 | 236.04 | 36.81 | 0.16 |
| South | 2150 | 991.00 | 55.30 | 63.72 | | 63.97 | 0.000116 | 4.16 | 255.09 | 36.58 | 0.25 |
| South | 2100 | 1528.00 | 54.50 | 63.46 | | 63.93 | 0.000204 | 5.75 | 291.03 | 43.11 | 0.34 |
| South | 2050 | 2496.00 | 53.80 | 63.10 | | 63.84 | 0.000326 | 7.45 | 373.28 | 56.58 | 0.43 |
| South | 2000 | 2496.00 | 53.40 | 61.95 | | 63.70 | 0.000942 | 10.62 | 234.99 | 27.50 | 0.64 |
| North | 2550 | 274.00 | 63.50 | 65.39 | 65.39 | 66.06 | 0.002052 | 7.23 | 43.54 | 32.46 | 0.93 |
| North | 2500 | 274.00 | 60.80 | 61.77 | 62.66 | 65.28 | 0.020372 | 15.38 | 18.57 | 21.38 | 2.76 |
| North | 2450 | 274.00 | 59.10 | 63.99 | | 64.07 | 0.000065 | 2.27 | 131.58 | 34.77 | 0.18 |
| North | 2400 | 274.00 | 58.70 | 64.01 | | 64.06 | 0.000036 | 1.81 | 164.09 | 38.80 | 0.14 |
| North | 2350 | 274.00 | 57.80 | 64.02 | | 64.05 | 0.000017 | 1.38 | 212.34 | 41.26 | 0.10 |
| North | 2300 | 454.00 | 57.10 | 63.99 | | 64.04 | 0.000032 | 2.02 | 240.69 | 41.91 | 0.14 |
| North | 2250 | 684.00 | 56.50 | 63.92 | | 64.03 | 0.000058 | 2.84 | 257.35 | 41.38 | 0.18 |
| North | 2200 | 968.00 | 55.80 | 63.83 | | 64.02 | 0.000089 | 3.66 | 283.23 | 42.56 | 0.23 |
| North | 2150 | 1311.00 | 55.30 | 63.69 | | 64.00 | 0.000136 | 4.65 | 301.02 | 42.79 | 0.28 |
| North | 2100 | 1717.00 | 54.50 | 63.53 | | 63.96 | 0.000174 | 5.49 | 333.76 | 43.93 | 0.32 |
| North | 2050 | 2588.00 | 53.80 | 63.38 | | 63.89 | 0.000204 | 6.16 | 464.71 | 66.01 | 0.35 |
| North | 2000 | 2588.00 | 53.40 | 61.74 | | 63.72 | 0.001085 | 11.29 | 229.26 | 27.50 | 0.69 |
| East System | 2000 | 5080.00 | 53.40 | 61.80 | | 63.68 | 0.000772 | 10.99 | 462.26 | 55.00 | 0.67 |
| East System | 1950 | 5080.00 | 53.20 | 60.02 | 60.02 | 63.47 | 0.001808 | 14.89 | 341.24 | 50.00 | 1.00 |
| East System | 1778 | 5080.00 | 52.29 | 58.72 | 59.11 | 62.60 | 0.002172 | 15.81 | 321.32 | 50.00 | 1.10 |
| East System | 1578 | 5080.00 | 50.79 | 57.63 | 57.63 | 61.06 | 0.001793 | 14.85 | 342.18 | 50.00 | 1.00 |

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX         XXXX        XX       XXXX
X     X  X        X    X       X   X      X  X     X
X     X  X        X            X   X     X    X    X
XXXXXXX  XXXX     X       XXX  XXXX      XXXXXX    XXXX
X     X  X        X            X  X      X    X        X
X     X  X        X    X       X   X     X    X        X
X     X  XXXXXX    XXXX        X    X    X    X   XXXXX
```

PROJECT DATA
Project Title: Greenpark Junction
Project File : gpl.prj
Run Date and Time: 3/15/2002 10:16:30 AM

Project in English units

PLAN DATA

Plan Title: Plan 01
Plan File : w:\HYDRO\Greenpark HEC-RAS\gpl.p01

Geometry Title: Geom 01
Geometry File : w:\HYDRO\Greenpark HEC-RAS\gpl.g01

Flow Title : Flow 01
Flow File : w:\HYDRO\Greenpark HEC-RAS\gpl.f01

Plan Summary Information:
Number of: Cross Sections = 66 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Flow 01
Flow File : w:\HYDRO\Greenpark HEC-RAS\gpl.f01

Flow Data (cfs)

| River | Reach | RS | PF 1 |
|---|---|---|---|
| Collector | SystemSouth | 2600 | 44 |
| Collector | SystemSouth | 2350 | 44 |
| Collector | SystemSouth | 2300 | 132 |
| Collector | SystemSouth | 2250 | 296 |
| Collector | SystemSouth | 2200 | 576 |
| Collector | SystemSouth | 2150 | 991 |
| Collector | SystemSouth | 2100 | 1528 |
| Collector | SystemSouth | 2050 | 2496 |
| Collector | SystemNorth | 2550 | 274 |
| Collector | SystemNorth | 2350 | 274 |

| | | |
|---|---|---|
| Collector SystemNorth | 2300 | 454 |
| Collector SystemNorth | 2250 | 684 |
| Collector SystemNorth | 2200 | 968 |
| Collector SystemNorth | 2150 | 1311 |
| Collector SystemNorth | 2100 | 1717 |
| Collector SystemNorth | 2050 | 2588 |
| Collector SystemEast System | 2000 | 5080 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstre |
|---|---|---|---|---|
| Collector SystemSouth | | PF 1 | Critical | |
| Collector SystemNorth | | PF 1 | Critical | |
| Collector SystemEast System | | PF 1 | | Critic |

GEOMETRY DATA

Geometry Title: Geom 01
Geometry File : w:\HYDRO\Greenpark HEC-RAS\gpl.g01

Reach Connection Table

| River | Reach | Upstream Boundary | Downstream Boundary |
|---|---|---|---|
| Collector System | South | | Jct1 |
| Collector System | North | | Jct1 |
| Collector System | East System | Jct1 | |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2600

INPUT
Description:
Station Elevation Data num= 8

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 68 | 67.07 | 74 | 67 | 80 | 66 | 96 | 65 | 99 | 64 |
| 101 | 63.3 | 107 | 63.3 | 107 | 68 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 68 | .013 | 101 | .013 | 107 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 101 | 107 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2575.*

INPUT
Description:
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 68.5 | 66.93 | 73.41 | 66.71 | 78.32 | 66.02 | 78.79 | 65.98 | 85.21 | 65.24 |
| 91.41 | 64.41 | 93.86 | 63.68 | 95.5 | 63.17 | 109.5 | 63.17 | 109.5 | 68 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 68.5 | .013 | 95.5 | .013 | 109.5 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 95.5 | 109.5 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2550

INPUT
Description:
Station Elevation Data num= 6

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 69 | 66.79 | 77 | 66 | 82 | 65 | 90 | 63.04 | 112 | 63.04 |
| 112 | 68 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 69 | .013 | 90 | .013 | 112 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 90 | 112 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2525.*

INPUT
Description:
Station Elevation Data num= 7

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 68 | 66.65 | 75.43 | 66.01 | 75.58 | 65.98 | 80.07 | 64.48 | 87.5 | 61.82 |
| 110.5 | 61.82 | 110.5 | 68 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 68 | .013 | 87.5 | .013 | 110.5 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 87.5 | 110.5 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2500

INPUT
Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 67 | 66.51 | 74 | 66 | 85 | 60.6 | 109 | 60.6 | 109 | 68 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 67 | .013 | 85 | .013 | 109 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 85 | 109 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2475.*

INPUT
Description:
Station Elevation Data num= 6

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 67 | 66.37 | 74.43 | 66.01 | 74.58 | 65.96 | 86.5 | 60.05 | 108 | 60.05 |
| 108 | 68 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 67 | .013 | 86.5 | .013 | 108 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 86.5 | 108 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2450

INPUT
Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 67 | 66.23 | 75 | 66 | 88 | 59.5 | 107 | 59.5 | 107 | 68 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 67 | .013 | 88 | .013 | 107 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 88 | 107 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2425.*

INPUT
Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|

```
      67   66.09      75    65.5      88   59.15   107.5   59.15   107.5      68

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      67    .013       88    .013    107.5    .013

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
             88   107.5                    25       25       25             .1      .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2400

INPUT
Description:
Station Elevation Data     num=        5
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      67   65.95       75      65       88    58.8      108    58.8      108      68

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      67    .013       88    .013      108    .013

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
             88     108                    25       25       25             .1      .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2375.*

INPUT
Description:
Station Elevation Data     num=        6
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      66   65.82    74.38   65.01    74.61   64.95       88   58.45    108.5   58.45
   108.5      68

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      66    .013       88    .013    108.5    .013

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
             88   108.5                    25       25       25             .1      .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2350

INPUT
Description:
Station Elevation Data     num=        5
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      65   65.68       74      65       88    58.1      109    58.1      109      68

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      65    .013       88    .013      109    .013

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
             88     109                    25       25       25             .1      .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2325.*

INPUT
Description:
Station Elevation Data     num=        6
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      66   65.54    72.29   65.09    74.61   64.44       88   57.75    109.5   57.75
   109.5      68

Manning's n Values:         num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      66    .013       88    .013    109.5    .013

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
             88   109.5                    25       25       25             .1      .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2300

INPUT
```

Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 67 | 65.4 | 73 | 65 | 88 | 57.4 | 110 | 57.4 | 110 | 68 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 67 | .013 | 88 | .013 | 110 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 88 | 110 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2275.*

INPUT
Description:
Station Elevation Data num= 6

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 67 | 65.18 | 73 | 64.57 | 74 | 64.25 | 88 | 57.05 | 110 | 57.05 |
| 110 | 67 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 67 | .013 | 88 | .013 | 110 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 88 | 110 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2250

INPUT
Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 67 | 64.96 | 74 | 64 | 88 | 56.7 | 110 | 56.7 | 110 | 66 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 67 | .013 | 88 | .013 | 110 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 88 | 110 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2225.*

INPUT
Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 67 | 64.74 | 74 | 64 | 88 | 56.35 | 110.5 | 56.35 | 110.5 | 66 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 67 | .013 | 88 | .013 | 110.5 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 88 | 110.5 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2200

INPUT
Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 67 | 64.51 | 74 | 64 | 88 | 56 | 111 | 56 | 111 | 66 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 67 | .013 | 88 | .013 | 111 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 88 | 111 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: South RS: 2175.*

```
INPUT
Description:
Station Elevation Data    num=       6
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      67    64.29       74       64       75    63.71       88    55.65    111.5    55.65
   111.5     65.5

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
      67     .013       88     .013    111.5     .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
           88   111.5                  25       25       25              .1       .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2150

INPUT
Description:
Station Elevation Data    num=       5
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      67    64.07       75       64       88     55.3      112     55.3      112       65

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
      67     .013       88     .013      112     .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
           88     112                  25       25       25              .1       .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2125.*

INPUT
Description:
Station Elevation Data    num=       6
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      67    63.93       74     63.5       75     63.2       88     54.9    112.5     54.9
   112.5       65

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
      67     .013       88     .013    112.5     .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
           88   112.5                  25       25       25              .1       .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2100

INPUT
Description:
Station Elevation Data    num=       5
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      67    63.79       74       63       88     54.5      113     54.5      113       65

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
      67     .013       88     .013      113     .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
           88     113                 37.5       25       20              .1       .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2075.*

INPUT
Description:
Station Elevation Data    num=       6
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    58.5    63.58    66.26    63.08    68.33    62.56       88    54.15    113.5    54.15
   113.5     64.5

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
    58.5     .013       88     .013    113.5     .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
```

```
            88    113.5              37.5       25       20              .1        .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2050

INPUT
Description:
Station Elevation Data     num=        5
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       50    63.37       60       63       88     53.8      114     53.8      114       64

Manning's n Values         num=        3
      Sta    n Val      Sta    n Val      Sta    n Val
       50     .013       88     .013      114     .013

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
             88      114              40.01       25       20              .1        .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2025.*

INPUT
Description:
Station Elevation Data     num=        6
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       69    62.93       74    62.75       88    58.15       88     53.6   114.75     53.6
   114.75     63.5

Manning's n Values         num=        3
      Sta    n Val      Sta    n Val      Sta    n Val
       69     .013       88     .013   114.75     .013

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
             88   114.75              40.01       25       20              .1        .3

CROSS SECTION           RIVER: Collector System
REACH: South               RS: 2000

INPUT
Description:
Station Elevation Data     num=        4
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       88     62.5       88     53.4    115.5     53.4    115.5       63

Manning's n Values         num=        3
      Sta    n Val      Sta    n Val      Sta    n Val
       88     .013       88     .013    115.5     .013

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
             88    115.5                 0        0        0              .1        .3

CROSS SECTION           RIVER: Collector System
REACH: North               RS: 2550

INPUT
Description:
Station Elevation Data     num=        5
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
       69    66.05       78       65       94     63.5      107     63.5      107       65

Manning's n Values         num=        3
      Sta    n Val      Sta    n Val      Sta    n Val
       69     .013       94     .013      107     .013

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
             94      107                25       25       25              .1        .3

CROSS SECTION           RIVER: Collector System
REACH: North               RS: 2525.*

INPUT
Description:
Station Elevation Data     num=        6
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     68.5    65.92     71.7    65.32    76.96    64.46       92    62.15      107    62.15
      107       65

Manning's n Values         num=        3
      Sta    n Val      Sta    n Val      Sta    n Val
```

```
    68.5    .013      92    .013     107    .013

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             92     107                 25        25        25              .1      .3

 CROSS SECTION          RIVER: Collector System
 REACH: North           RS: 2500

 INPUT
 Description:
 Station Elevation Data    num=      5
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       68   65.82      71      65      90    60.8     107    60.8     107      65

 Manning's n Values        num=      3
      Sta   n Val     Sta   n Val     Sta   n Val
       68    .013      90    .013     107    .013

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             90     107                 25        25        25              .1      .3

 CROSS SECTION          RIVER: Collector System
 REACH: North           RS: 2475.*

 INPUT
 Description:
 Station Elevation Data    num=      5
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     67.5   65.72   70.43   64.87      89   59.95     107   59.95     107    65.5

 Manning's n Values        num=      3
      Sta   n Val     Sta   n Val     Sta   n Val
     67.5    .013      89    .013     107    .013

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             89     107                 25        25        25              .1      .3

 CROSS SECTION          RIVER: Collector System
 REACH: North           RS: 2450

 INPUT
 Description:
 Station Elevation Data    num=      4
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       67   65.62      88    59.1     107    59.1     107      66

 Manning's n Values        num=      3
      Sta   n Val     Sta   n Val     Sta   n Val
       67    .013      88    .013     107    .013

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             88     107                 25        25        25              .1      .3

 CROSS SECTION          RIVER: Collector System
 REACH: North           RS: 2425.*

 INPUT
 Description:
 Station Elevation Data    num=      4
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       67   65.52    87.5    58.9   108.5    58.9   108.5    65.5

 Manning's n Values        num=      3
      Sta   n Val     Sta   n Val     Sta   n Val
       67    .013    87.5    .013   108.5    .013

 Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           87.5   108.5                 25        25        25              .1      .3

 CROSS SECTION          RIVER: Collector System
 REACH: North           RS: 2400

 INPUT
 Description:
 Station Elevation Data    num=      4
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       67   65.42      87    58.7     110    58.7     110      65

 Manning's n Values        num=      3
```

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 67 | .013 | 87 | .013 | 110 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 87 | 110 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: North RS: 2375.*

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 66.5 | 65.32 | 85 | 58.25 | 110 | 58.25 | 110 | 65 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 66.5 | .013 | 85 | .013 | 110 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 85 | 110 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: North RS: 2350

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 66 | 65.22 | 83 | 57.8 | 110 | 57.8 | 110 | 65 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 66 | .013 | 83 | .013 | 110 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 83 | 110 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: North RS: 2325.*

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 66 | 65.12 | 82.5 | 57.45 | 110 | 57.45 | 110 | 65 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 66 | .013 | 82.5 | .013 | 110 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 82.5 | 110 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: North RS: 2300

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 66 | 65.02 | 82 | 57.1 | 110 | 57.1 | 110 | 65 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 66 | .013 | 82 | .013 | 110 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 82 | 110 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: North RS: 2275.*

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 66.5 | 64.92 | 82 | 56.8 | 110 | 56.8 | 110 | 65 |

```
Manning's n Values          num=        3
     Sta    n Val      Sta    n Val      Sta    n Val
    66.5     .013       82     .013      110     .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
             82     110                  25       25        25              .1       .3

CROSS SECTION           RIVER: Collector System
REACH: North              RS: 2250

INPUT
Description:
Station Elevation Data      num=        4
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      67    64.82       82     56.5      110     56.5      110       65

Manning's n Values          num=        3
     Sta    n Val      Sta    n Val      Sta    n Val
      67     .013       82     .013      110     .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
             82     110                  25       25        25              .1       .3

CROSS SECTION           RIVER: Collector System
REACH: North              RS: 2225.*

INPUT
Description:
Station Elevation Data      num=        4
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     66.5    64.72       82    56.15      110    56.15      110       65

Manning's n Values          num=        3
     Sta    n Val      Sta    n Val      Sta    n Val
     66.5     .013       82     .013      110     .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
             82     110                  25       25        25              .1       .3

CROSS SECTION           RIVER: Collector System
REACH: North              RS: 2200

INPUT
Description:
Station Elevation Data      num=        4
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      66    64.62       82     55.8      110     55.8      110       65

Manning's n Values          num=        3
     Sta    n Val      Sta    n Val      Sta    n Val
      66     .013       82     .013      110     .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
             82     110                  25       25        25              .1       .3

CROSS SECTION           RIVER: Collector System
REACH: North              RS: 2175.*

INPUT
Description:
Station Elevation Data      num=        4
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
     66.5    64.52       82    55.55     110.5    55.55     110.5    64.5

Manning's n Values          num=        3
     Sta    n Val      Sta    n Val      Sta    n Val
     66.5     .013       82     .013     110.5     .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
             82   110.5                  25       25        25              .1       .3

CROSS SECTION           RIVER: Collector System
REACH: North              RS: 2150

INPUT
Description:
Station Elevation Data      num=        4
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
      67    64.42       82     55.3      111     55.3      111       64
```

```
Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      67    .013       82    .013      111    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
             82     111              22.5       25    32.5             .1       .3

CROSS SECTION           RIVER: Collector System
REACH: North               RS: 2125.*

INPUT
Description:
Station Elevation Data     num=        4
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      67   64.32       82    54.9    111.5    54.9    111.5      64

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      67    .013       82    .013    111.5    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
             82   111.5              22.5       25    32.5             .1       .3

CROSS SECTION           RIVER: Collector System
REACH: North               RS: 2100

INPUT
Description:
Station Elevation Data     num=        4
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      67   64.22       82    54.5      112    54.5      112      64

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      67    .013       82    .013      112    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
             82     112                20       25       30             .1       .3

CROSS SECTION           RIVER: Collector System
REACH: North               RS: 2075.*

INPUT
Description:
Station Elevation Data     num=        4
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    58.5   64.21       85   54.15    115.5   54.15    115.5      64

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
    58.5    .013       85    .013    115.5    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
             85   115.5                20       25       30             .1       .3

CROSS SECTION           RIVER: Collector System
REACH: North               RS: 2050

INPUT
Description:
Station Elevation Data     num=        4
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      50    64.2       88    53.8      119    53.8      119      64

Manning's n Values:         num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      50    .013       88    .013      119    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
             88     119              17.5       25       40             .1       .3

CROSS SECTION           RIVER: Collector System
REACH: North               RS: 2025.*

INPUT
Description:
Station Elevation Data     num=        5
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
```

```
      69   63.35       88   58.15       88    53.6  117.25    53.6  117.25    63.5

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      69    .013       88    .013   117.25    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
             88  117.25              17.5       25       40            .1       .3

CROSS SECTION           RIVER: Collector System
REACH: North            RS: 2000

INPUT
Description:
Station Elevation Data     num=        4
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      88    62.5       88    53.4    115.5    53.4    115.5      63

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      88    .013       88    .013    115.5    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
             88  115.5                    0       0        0            .1       .3

CROSS SECTION           RIVER: Collector System
REACH: East System      RS: 2000

INPUT
Description:
Station Elevation Data     num=        5
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    72.5      63     72.5    53.4      100    53.4    127.5    53.4    127.5    63.1

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
    72.5    .013     72.5    .013    127.5    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
           72.5  127.5                   25       25       25            .1       .3

CROSS SECTION           RIVER: Collector System
REACH: East System      RS: 1975.*

INPUT
Description:
Station Elevation Data     num=        5
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
   73.75    62.6    73.75    53.3      100    53.3  126.25    53.3  126.25   62.65

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
   73.75    .013    73.75    .013   126.25    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
         73.75  126.25                  25       25       25            .1       .3

CROSS SECTION           RIVER: Collector System
REACH: East System      RS: 1950

INPUT
Description:
Station Elevation Data     num=        5
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      75    62.2       75    53.2      100    53.2      125    53.2      125    62.2

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
      75    .013       75    .013      125    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
             75    125                24.57   24.57   24.57            .1       .3

CROSS SECTION           RIVER: Collector System
REACH: East System      RS: 1925.42*

INPUT
Description:
Station Elevation Data     num=        5
```

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 75 | 62.03 | 75 | 53.07 | 100 | 53.07 | 125 | 53.07 | 125 | 62.03 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 75 | .013 | 75 | .013 | 125 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 75 | 125 | 24.57 | 24.57 | 24.57 | .1 .3 |

CROSS SECTION RIVER: Collector System
REACH: East System RS: 1900.85*

INPUT
Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 75 | 61.86 | 75 | 52.94 | 100 | 52.94 | 125 | 52.94 | 125 | 61.86 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 75 | .013 | 75 | .013 | 125 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 75 | 125 | 24.57 | 24.57 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: East System RS: 1876.28*

INPUT
Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 75 | 61.69 | 75 | 52.81 | 100 | 52.81 | 125 | 52.81 | 125 | 61.69 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 75 | .013 | 75 | .013 | 125 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 75 | 125 | 24.57 | 24.57 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: East System RS: 1851.71*

INPUT
Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 75 | 61.51 | 75 | 52.68 | 100 | 52.68 | 125 | 52.68 | 125 | 61.51 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 75 | .013 | 75 | .013 | 125 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 75 | 125 | 24.57 | 24.57 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: East System RS: 1827.14*

INPUT
Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 75 | 61.34 | 75 | 52.55 | 100 | 52.55 | 125 | 52.55 | 125 | 61.34 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 75 | .013 | 75 | .013 | 125 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 75 | 125 | 24.57 | 24.57 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: East System RS: 1802.57*

INPUT
Description:

```
Station Elevation Data    num=       5
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      75   61.17       75   52.42      100   52.42      125   52.42      125   61.17

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
      75    .013       75    .013      125    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           75     125              24.57   24.57   24.57             .1      .3

CROSS SECTION          RIVER: Collector System
REACH: East System       RS: 1778

INPUT
Description:
Station Elevation Data    num=       4
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      75      61       75   52.29      125   52.29      125      61

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
      75    .013       75    .013      125    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           75     125                  25      25      25             .1      .3

CROSS SECTION          RIVER: Collector System
REACH: East System       RS: 1753.*

INPUT
Description:
Station Elevation Data    num=       4
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      75   60.88       75    52.1      125    52.1      125   60.88

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
      75    .013       75    .013      125    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           75     125                  25      25      25             .1      .3

CROSS SECTION          RIVER: Collector System
REACH: East System       RS: 1728.*

INPUT
Description:
Station Elevation Data    num=       4
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      75   60.75       75   51.92      125   51.92      125   60.75

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
      75    .013       75    .013      125    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           75     125                  25      25      25             .1      .3

CROSS SECTION          RIVER: Collector System
REACH: East System       RS: 1703.*

INPUT
Description:
Station Elevation Data    num=       4
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
      75   60.62       75   51.73      125   51.73      125   60.62

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
      75    .013       75    .013      125    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           75     125                  25      25      25             .1      .3

CROSS SECTION          RIVER: Collector System
REACH: East System       RS: 1678.*

INPUT
```

Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 75 | 60.5 | 75 | 51.54 | 125 | 51.54 | 125 | 60.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 75 | .013 | 75 | .013 | 125 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 75 | 125 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: East System RS: 1653.*

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 75 | 60.38 | 75 | 51.35 | 125 | 51.35 | 125 | 60.38 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 75 | .013 | 75 | .013 | 125 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 75 | 125 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: East System RS: 1628.*

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 75 | 60.25 | 75 | 51.17 | 125 | 51.17 | 125 | 60.25 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 75 | .013 | 75 | .013 | 125 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 75 | 125 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: East System RS: 1603.*

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 75 | 60.12 | 75 | 50.98 | 125 | 50.98 | 125 | 60.12 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 75 | .013 | 75 | .013 | 125 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 75 | 125 | 25 | 25 | .1 | .3 |

CROSS SECTION RIVER: Collector System
REACH: East System RS: 1578

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 75 | 60 | 75 | 50.79 | 125 | 50.79 | 125 | 60 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 75 | .013 | 75 | .013 | 125 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 75 | 125 | 0 | 0 | .1 | .3 |

SUMMARY OF MANNING'S N VALUES

River:Collector System

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| South | 2600 | .013 | .013 | .013 |
| South | 2575.* | .013 | .013 | .013 |
| South | 2550 | .013 | .013 | .013 |
| South | 2525.* | .013 | .013 | .013 |
| South | 2500 | .013 | .013 | .013 |
| South | 2475.* | .013 | .013 | .013 |
| South | 2450 | .013 | .013 | .013 |
| South | 2425.* | .013 | .013 | .013 |
| South | 2400 | .013 | .013 | .013 |
| South | 2375.* | .013 | .013 | .013 |
| South | 2350 | .013 | .013 | .013 |
| South | 2325.* | .013 | .013 | .013 |
| South | 2300 | .013 | .013 | .013 |
| South | 2275.* | .013 | .013 | .013 |
| South | 2250 | .013 | .013 | .013 |
| South | 2225.* | .013 | .013 | .013 |
| South | 2200 | .013 | .013 | .013 |
| South | 2175.* | .013 | .013 | .013 |
| South | 2150 | .013 | .013 | .013 |
| South | 2125.* | .013 | .013 | .013 |
| South | 2100 | .013 | .013 | .013 |
| South | 2075.* | .013 | .013 | .013 |
| South | 2050 | .013 | .013 | .013 |
| South | 2025.* | .013 | .013 | .013 |
| South | 2000 | .013 | .013 | .013 |
| North | 2550 | .013 | .013 | .013 |
| North | 2525.* | .013 | .013 | .013 |
| North | 2500 | .013 | .013 | .013 |
| North | 2475.* | .013 | .013 | .013 |
| North | 2450 | .013 | .013 | .013 |
| North | 2425.* | .013 | .013 | .013 |
| North | 2400 | .013 | .013 | .013 |
| North | 2375.* | .013 | .013 | .013 |
| North | 2350 | .013 | .013 | .013 |
| North | 2325.* | .013 | .013 | .013 |
| North | 2300 | .013 | .013 | .013 |
| North | 2275.* | .013 | .013 | .013 |
| North | 2250 | .013 | .013 | .013 |
| North | 2225.* | .013 | .013 | .013 |
| North | 2200 | .013 | .013 | .013 |
| North | 2175.* | .013 | .013 | .013 |
| North | 2150 | .013 | .013 | .013 |
| North | 2125.* | .013 | .013 | .013 |
| North | 2100 | .013 | .013 | .013 |
| North | 2075.* | .013 | .013 | .013 |
| North | 2050 | .013 | .013 | .013 |
| North | 2025.* | .013 | .013 | .013 |
| North | 2000 | .013 | .013 | .013 |
| East System | 2000 | .013 | .013 | .013 |
| East System | 1975.* | .013 | .013 | .013 |
| East System | 1950 | .013 | .013 | .013 |
| East System | 1925.42* | .013 | .013 | .013 |
| East System | 1900.85* | .013 | .013 | .013 |
| East System | 1876.28* | .013 | .013 | .013 |
| East System | 1851.71* | .013 | .013 | .013 |
| East System | 1827.14* | .013 | .013 | .013 |
| East System | 1802.57* | .013 | .013 | .013 |
| East System | 1778 | .013 | .013 | .013 |
| East System | 1753.* | .013 | .013 | .013 |
| East System | 1728.* | .013 | .013 | .013 |
| East System | 1703.* | .013 | .013 | .013 |
| East System | 1678.* | .013 | .013 | .013 |
| East System | 1653.* | .013 | .013 | .013 |
| East System | 1628.* | .013 | .013 | .013 |
| East System | 1603.* | .013 | .013 | .013 |
| East System | 1578 | .013 | .013 | .013 |

SUMMARY OF REACH LENGTHS

River: Collector System

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| South | 2600 | 25 | 25 | 25 |
| South | 2575.* | 25 | 25 | 25 |
| South | 2550 | 25 | 25 | 25 |
| South | 2525.* | 25 | 25 | 25 |
| South | 2500 | 25 | 25 | 25 |
| South | 2475.* | 25 | 25 | 25 |
| South | 2450 | 25 | 25 | 25 |
| South | 2425.* | 25 | 25 | 25 |
| South | 2400 | 25 | 25 | 25 |
| South | 2375.* | 25 | 25 | 25 |
| South | 2350 | 25 | 25 | 25 |
| South | 2325.* | 25 | 25 | 25 |
| South | 2300 | 25 | 25 | 25 |
| South | 2275.* | 25 | 25 | 25 |
| South | 2250 | 25 | 25 | 25 |
| South | 2225.* | 25 | 25 | 25 |
| South | 2200 | 25 | 25 | 25 |
| South | 2175.* | 25 | 25 | 25 |
| South | 2150 | 25 | 25 | 25 |
| South | 2125.* | 25 | 25 | 25 |
| South | 2100 | 37.5 | 25 | 20 |
| South | 2075.* | 37.5 | 25 | 20 |
| South | 2050 | 40.01 | 25 | 20 |
| South | 2025.* | 40.01 | 25 | 20 |
| South | 2000 | 0 | 0 | 0 |
| North | 2550 | 25 | 25 | 25 |
| North | 2525.* | 25 | 25 | 25 |
| North | 2500 | 25 | 25 | 25 |
| North | 2475.* | 25 | 25 | 25 |
| North | 2450 | 25 | 25 | 25 |
| North | 2425.* | 25 | 25 | 25 |
| North | 2400 | 25 | 25 | 25 |
| North | 2375.* | 25 | 25 | 25 |
| North | 2350 | 25 | 25 | 25 |
| North | 2325.* | 25 | 25 | 25 |
| North | 2300 | 25 | 25 | 25 |
| North | 2275.* | 25 | 25 | 25 |
| North | 2250 | 25 | 25 | 25 |
| North | 2225.* | 25 | 25 | 25 |
| North | 2200 | 25 | 25 | 25 |
| North | 2175.* | 25 | 25 | 25 |
| North | 2150 | 22.5 | 25 | 32.5 |
| North | 2125.* | 22.5 | 25 | 32.5 |
| North | 2100 | 20 | 25 | 30 |
| North | 2075.* | 20 | 25 | 30 |
| North | 2050 | 17.5 | 25 | 40 |
| North | 2025.* | 17.5 | 25 | 40 |
| North | 2000 | 0 | 0 | 0 |
| East System | 2000 | 25 | 25 | 25 |
| East System | 1975.* | 25 | 25 | 25 |
| East System | 1950 | 24.57 | 24.57 | 24.57 |
| East System | 1925.42* | 24.57 | 24.57 | 24.57 |
| East System | 1900.85* | 24.57 | 24.57 | 24.57 |
| East System | 1876.28* | 24.57 | 24.57 | 24.57 |
| East System | 1851.71* | 24.57 | 24.57 | 24.57 |
| East System | 1827.14* | 24.57 | 24.57 | 24.57 |
| East System | 1802.57* | 24.57 | 24.57 | 24.57 |
| East System | 1778 | 25 | 25 | 25 |
| East System | 1753.* | 25 | 25 | 25 |
| East System | 1728.* | 25 | 25 | 25 |
| East System | 1703.* | 25 | 25 | 25 |
| East System | 1678.* | 25 | 25 | 25 |
| East System | 1653.* | 25 | 25 | 25 |
| East System | 1628.* | 25 | 25 | 25 |
| East System | 1603.* | 25 | 25 | 25 |
| East System | 1578 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Collector System

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| South | 2600 | .1 | .3 |

| | | | |
|---|---|---|---|
| South | 2575.* | .1 | .3 |
| South | 2550 | .1 | .3 |
| South | 2525.* | .1 | .3 |
| South | 2500 | .1 | .3 |
| South | 2475.* | .1 | .3 |
| South | 2450 | .1 | .3 |
| South | 2425.* | .1 | .3 |
| South | 2400 | .1 | .3 |
| South | 2375.* | .1 | .3 |
| South | 2350 | .1 | .3 |
| South | 2325.* | .1 | .3 |
| South | 2300 | .1 | .3 |
| South | 2275.* | .1 | .3 |
| South | 2250 | .1 | .3 |
| South | 2225.* | .1 | .3 |
| South | 2200 | .1 | .3 |
| South | 2175.* | .1 | .3 |
| South | 2150 | .1 | .3 |
| South | 2125.* | .1 | .3 |
| South | 2100 | .1 | .3 |
| South | 2075.* | .1 | .3 |
| South | 2050 | .1 | .3 |
| South | 2025.* | .1 | .3 |
| South | 2000 | .1 | .3 |
| North | 2550 | .1 | .3 |
| North | 2525.* | .1 | .3 |
| North | 2500 | .1 | .3 |
| North | 2475.* | .1 | .3 |
| North | 2450 | .1 | .3 |
| North | 2425.* | .1 | .3 |
| North | 2400 | .1 | .3 |
| North | 2375.* | .1 | .3 |
| North | 2350 | .1 | .3 |
| North | 2325.* | .1 | .3 |
| North | 2300 | .1 | .3 |
| North | 2275.* | .1 | .3 |
| North | 2250 | .1 | .3 |
| North | 2225.* | .1 | .3 |
| North | 2200 | .1 | .3 |
| North | 2175.* | .1 | .3 |
| North | 2150 | .1 | .3 |
| North | 2125.* | .1 | .3 |
| North | 2100 | .1 | .3 |
| North | 2075.* | .1 | .3 |
| North | 2050 | .1 | .3 |
| North | 2025.* | .1 | .3 |
| North | 2000 | .1 | .3 |
| East System | 2000 | .1 | .3 |
| East System | 1975.* | .1 | .3 |
| East System | 1950 | .1 | .3 |
| East System | 1925.42* | .1 | .3 |
| East System | 1900.85* | .1 | .3 |
| East System | 1876.28* | .1 | .3 |
| East System | 1851.71* | .1 | .3 |
| East System | 1827.14* | .1 | .3 |
| East System | 1802.57* | .1 | .3 |
| East System | 1778 | .1 | .3 |
| East System | 1753.* | .1 | .3 |
| East System | 1728.* | .1 | .3 |
| East System | 1703.* | .1 | .3 |
| East System | 1678.* | .1 | .3 |
| East System | 1653.* | .1 | .3 |
| East System | 1628.* | .1 | .3 |
| East System | 1603.* | .1 | .3 |
| East System | 1578 | .1 | .3 |

# *FREEBOARD TABLE*

## FREEBOARD TABLE NORTH BOX

| Reach | River Sta | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Depth (ft) | E.G. Elev (ft) | Vel Chnl (ft/s) | Froude # Chl | Freeboard | Flow Type | Minimum Top of Channel (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| South | 2600 | 44 | **63.3** | 64.4 | **1.1** | 64.86 | 5.69 | 0.96 | **1.00 ft** | Sub | **65.4** |
| South | 2550 | 44 | **63.04** | 63.96 | **0.92** | 64.02 | 2.06 | 0.38 | **1.00 ft** | Sub | **65.0** |
| South | 2500 | 44 | **60.6** | 64 | **3.4** | 64 | 0.49 | 0.05 | **1.00 ft** | Sub | **65.0** |
| South | 2450 | 44 | **59.5** | 64 | **4.5** | 64 | 0.44 | 0.04 | **1.00 ft** | Sub | **65.0** |
| South | 2400 | 44 | **58.8** | 64 | **5.2** | 64 | 0.36 | 0.03 | **1.00 ft** | Sub | **65.0** |
| South | 2350 | 44 | **58.1** | 64 | **5.9** | 64 | 0.3 | 0.02 | **1.04 ft** | Sub | **65.0** |
| South | 2300 | 132 | **57.4** | 63.99 | **6.59** | 64 | 0.75 | 0.05 | **1.17 ft** | Sub | **65.2** |
| South | 2250 | 296 | **56.7** | 63.97 | **7.27** | 64 | 1.51 | 0.1 | **1.32 ft** | Sub | **65.3** |
| South | 2200 | 576 | **56** | 63.89 | **7.89** | 63.99 | 2.62 | 0.16 | **1.47 ft** | Sub | **65.4** |
| South | 2150 | 991 | **55.3** | 63.72 | **8.42** | 63.97 | 4.16 | 0.25 | **1.60 ft** | Sub | **65.3** |
| South | 2100 | 1528 | **54.5** | 63.46 | **8.96** | 63.93 | 5.75 | 0.34 | **1.75 ft** | Sub | **65.2** |
| South | 2050 | 2496 | **53.8** | 63.1 | **9.3** | 63.84 | 7.45 | 0.43 | **1.84 ft** | Sub | **64.9** |
| South | 2000 | 2496 | **53.4** | 61.95 | **8.55** | 63.7 | 10.62 | 0.64 | **1.64 ft** | Sub | **63.6** |
| North | 2550 | 274 | **63.5** | 65.39 | **1.89** | 66.06 | 7.23 | 0.93 | **1.00 ft** | Sub | **66.4** |
| North | 2500 | 274 | **60.8** | 61.77 | **0.97** | 65.28 | 15.38 | 2.76 | **1.06 ft** | Super | **62.8** |
| North | 2450 | 274 | **59.1** | 63.99 | **4.89** | 64.07 | 2.27 | 0.18 | **1.00 ft** | Sub | **65.0** |
| North | 2400 | 274 | **58.7** | 64.01 | **5.31** | 64.06 | 1.81 | 0.14 | **1.00 ft** | Sub | **65.0** |
| North | 2350 | 274 | **57.8** | 64.02 | **6.22** | 64.05 | 1.38 | 0.1 | **1.10 ft** | Sub | **65.1** |
| North | 2300 | 454 | **57.1** | 63.99 | **6.89** | 64.04 | 2.02 | 0.14 | **1.24 ft** | Sub | **65.2** |
| North | 2250 | 684 | **56.5** | 63.92 | **7.42** | 64.03 | 2.84 | 0.18 | **1.35 ft** | Sub | **65.3** |
| North | 2200 | 968 | **55.8** | 63.83 | **8.03** | 64.02 | 3.66 | 0.23 | **1.50 ft** | Sub | **65.3** |
| North | 2150 | 1311 | **55.3** | 63.69 | **8.39** | 64 | 4.65 | 0.28 | **1.59 ft** | Sub | **65.3** |
| North | 2100 | 1717 | **54.5** | 63.53 | **9.03** | 63.96 | 5.49 | 0.32 | **1.77 ft** | Sub | **65.3** |
| North | 2050 | 2588 | **53.8** | 63.38 | **9.58** | 63.89 | 6.16 | 0.35 | **1.93 ft** | Sub | **65.3** |
| North | 2000 | 2588 | **53.4** | 61.74 | **8.34** | 63.72 | 11.29 | 0.69 | **1.58 ft** | Sub | **63.3** |
| East System | 2000 | 5080 | **53.4** | 61.8 | **8.4** | 63.68 | 10.99 | 0.67 | **1.60 ft** | Sub | **63.4** |
| East System | 1950 | 5080 | **53.2** | 60.02 | **6.82** | 63.47 | 14.89 | 1 | **1.42 ft** | Super | **61.4** |
| East System | 1778 | 5080 | **52.29** | 58.72 | **6.43** | 62.6 | 15.81 | 1.1 | **1.40 ft** | Super | **60.1** |
| East System | 1578 | 5080 | **50.79** | 57.63 | **6.84** | 61.06 | 14.85 | 1 | **1.42 ft** | Super | **59.1** |

**Supercritical Flow (Froude >1)**

$F_b$=1+.025*V*d^(1/3)

**Subcritical Flow (Froude <1)**

$F_b$=.5+((V^2)/2g)

# *OUTLET SYSTEM*
# *HEC-RAS MODEL*

HEC-RAS Plan: Plan 01 River: North Box outlet Reach: 1

| Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 690 | 5080.00 | 46.00 | 50.65 | 51.80 | 55.17 | 0.003439 | 17.06 | 297.73 | 64.00 | 1.39 |
| 1 | 675 | 5080.00 | 45.90 | 48.52 | 50.38 | 54.83 | 0.042696 | 20.36 | 257.84 | 116.82 | 2.22 |
| 1 | 652 | 5080.00 | 46.20 | 52.64 | 49.68 | 52.68 | 0.000130 | 2.01 | 3187.83 | 783.00 | 0.14 |
| 1 | 632 | 5080.00 | 47.00 | 52.64 | 49.26 | 52.67 | 0.000097 | 1.66 | 3630.15 | 833.00 | 0.12 |
| 1 | 256 | 5834.00 | 50.37 | 51.94 | 51.94 | 52.60 | 0.023201 | 6.79 | 915.85 | 680.25 | 0.96 |
| 1 | 239 | 6470.00 | 44.37 | 48.32 | | 48.44 | 0.008406 | 3.53 | 2399.09 | 1317.79 | 0.55 |
| 1 | 238 | 6470.00 | 42.37 | 44.30 | 44.26 | 44.89 | 0.021798 | 7.56 | 1071.17 | 833.06 | 0.96 |

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Northbox Outlet
Project File : nbox.prj
Run Date and Time: 3/19/2002 9:27:29 AM

Project in English units

PLAN DATA

Plan Title: Plan 01
Plan File : C:\HEC\RAS\nbox.p01

Geometry Title: Geom 01
Geometry File : C:\HEC\RAS\nbox.g01

Flow Title : Flow 01
Flow File : C:\HEC\RAS\nbox.f01

Plan Summary Information:
Number of: Cross Sections = 21 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Flow 01
Flow File : C:\HEC\RAS\nbox.f01

Flow Data (cfs)

| River | Reach | RS | PF 1 |
|---|---|---|---|
| North Box outlet | 1 | 690 | 5080 |
| North Box outlet | 1 | 256 | 5834 |
| North Box outlet | 1 | 239 | 6470 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstre |
|---|---|---|---|---|
| North Box outlet | 1 | PF 1 | Known WS = 50.652 | Known WS = |

GEOMETRY DATA

Geometry Title: Geom 01
Geometry File : C:\HEC\RAS\nbox.g01

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 690

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 968 | 51 | 968 | 46 | 1032 | 46 | 1032 | 51 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 968 | .013 | 968 | .013 | 1032 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 968 | 1032 | 15 | 15 | .1 | .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 675

INPUT
Description:
Station Elevation Data num= 6

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 910 | 51 | 953 | 48 | 953 | 45.9 | 1046 | 45.9 | 1046 | 47 |
| 1100 | 52 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 910 | .028 | 953 | .028 | 1046 | .028 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 953 | 1046 | 23.02 | 23.02 | .1 | .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 652

INPUT
Description:
Station Elevation Data num= 7

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 677 | 51 | 885 | 48.5 | 922 | 47 | 1000 | 46.2 | 1084 | 47 |
| 1134 | 48.5 | 1460 | 49.5 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 677 | .028 | 922 | .028 | 1084 | .028 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 922 | 1084 | 20 | 20 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Sta L | Sta R | Elev |
|---|---|---|---|---|---|
| 677 | 885 | 48.5 | 1134 | 1460 | 48.5 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 632

INPUT
Description:
Station Elevation Data num= 8

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 677 | 50 | 687 | 48.1 | 867 | 48.1 | 960 | 47 | 1000 | 47 |
| 1019 | 47 | 1157 | 48.1 | 1510 | 50 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 677 | .028 | 960 | .028 | 1019 | .028 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 960 | 1019 | 20 | 20 | .1 | .3 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Sta L | Sta R | Elev |
|---|---|---|---|---|---|
| 677 | 867 | 48.1 | 1157 | 1510 | 48.1 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 256

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 750 | 51.77 | 910.51 | 50.37 | 1380 | 50.37 | 1508.06 | 54.37 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 750 | .045 | 910.51 | .045 | 1380 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 910.51 | 1380 | 45 | 45 | .1 | .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 251.75*

INPUT
Description:
Station Elevation Data num= 16

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 747.5 | 51.42 | 788.76 | 50.32 | 809.04 | 50.27 | 1003.8 | 49.78 | 1008.34 | 49.77 |
| 1043.31 | 49.68 | 1054.5 | 49.66 | 1057.29 | 49.65 | 1169.88 | 49.37 | 1170.13 | 50.37 |
| 1174.38 | 49.37 | 1178.38 | 48.87 | 1530.5 | 48.87 | 1533 | 49.37 | 1599 | 50.32 |
| 1695.05 | 53.32 | | | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 747.5 | .054 | 1169.88 | .045 | 1599 | .04 | 1695.05 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1169.88 | 1599 | 45 | 45 | .1 | .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 247.5*

INPUT
Description:
Station Elevation Data num= 16

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 745 | 51.07 | 811.84 | 49 | 844.69 | 48.97 | 1160.2 | 48.65 | 1167.56 | 48.64 |
| 1224.21 | 48.58 | 1242.33 | 48.56 | 1246.86 | 48.56 | 1429.26 | 48.37 | 1429.76 | 50.37 |
| 1438.26 | 48.37 | 1446.26 | 47.37 | 1681 | 47.37 | 1686 | 48.37 | 1818 | 50.27 |
| 1882.03 | 52.27 | | | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 745 | .062 | 1429.26 | .045 | 1818 | .04 | 1882.03 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1429.26 | 1818 | 45 | 45 | .1 | .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 243.25*

INPUT
Description:
Station Elevation Data num= 16

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 742.5 | 50.72 | 834.92 | 47.69 | 880.35 | 47.67 | 1316.6 | 47.51 | 1326.78 | 47.5 |
| 1405.1 | 47.47 | 1430.17 | 47.47 | 1436.43 | 47.46 | 1688.63 | 47.37 | 1689.38 | 50.37 |
| 1702.13 | 47.37 | 1714.13 | 45.87 | 1831.5 | 45.87 | 1839 | 47.37 | 2037 | 50.22 |
| 2069.02 | 51.22 | | | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 742.5 | .071 | 1688.63 | .045 | 2037 | .04 | 2069.02 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1688.63 | 2037 | 45 | 45 | .1 | .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 239

INPUT
Description:
Station Elevation Data num= 14

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 740 | 50.37 | 858 | 46.37 | 916 | 46.37 | 1473 | 46.37 | 1486 | 46.37 |
| 1586 | 46.37 | 1618 | 46.37 | 1626 | 46.37 | 1948 | 46.37 | 1949 | 50.37 |
| 1966 | 46.37 | 1982 | 44.37 | 1992 | 46.37 | 2256 | 50.17 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 740 | .08 | 1948 | .045 | 2256 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1948 | 2256 | 31.76 | 46.22 | 45.24 | .1 | .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 238.916*

INPUT
Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 725 | 50.04 | 814.22 | 46.97 | 837.69 | 46.2 | 893.08 | 46.19 | 1015.49 | 46.16 |
| 1425.03 | 46.05 | 1437.45 | 46.05 | 1488.58 | 46.04 | 1532.95 | 46.04 | 1563.51 | 46.04 |
| 1571.15 | 46.04 | 1878.67 | 46.04 | 1879.58 | 49.7 | 1895.17 | 46.04 | 1909.83 | 44.2 |
| 1914.42 | 44.2 | 1915.25 | 44.2 | 1918.42 | 44.2 | 1927.58 | 46.04 | 2169.58 | 49.52 |
| 2189.5 | 49.69 | 2232.83 | 49.77 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 725 | .077 | 1878.67 | .045 | 2169.58 | .04 | 2232.83 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1878.67 | 2169.58 | 31.76 | 46.22 | 45.24 | .1 | .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 238.833*

INPUT
Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 710 | 49.7 | 795.02 | 46.73 | 817.39 | 46.03 | 870.17 | 46 | 986.81 | 45.95 |
| 1377.06 | 45.74 | 1388.89 | 45.73 | 1437.62 | 45.7 | 1479.9 | 45.7 | 1509.02 | 45.7 |
| 1516.3 | 45.7 | 1809.33 | 45.7 | 1810.17 | 49.04 | 1824.33 | 45.7 | 1837.67 | 44.04 |
| 1846.83 | 44.04 | 1848.5 | 44.04 | 1854.83 | 44.04 | 1863.17 | 45.7 | 2083.17 | 48.87 |
| 2123 | 49.2 | 2209.67 | 49.37 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 710 | .074 | 1809.33 | .045 | 2083.17 | .04 | 2209.67 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1809.33 | 2083.17 | 31.76 | 46.22 | 45.24 | .1 | .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 238.75*

INPUT
Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 695 | 49.37 | 775.82 | 46.49 | 797.08 | 45.86 | 847.25 | 45.82 | 958.13 | 45.74 |
| 1329.09 | 45.42 | 1340.34 | 45.41 | 1386.65 | 45.37 | 1426.85 | 45.37 | 1454.53 | 45.37 |
| 1461.45 | 45.37 | 1740 | 45.37 | 1740.75 | 48.37 | 1753.5 | 45.37 | 1765.5 | 43.87 |
| 1779.25 | 43.87 | 1781.75 | 43.87 | 1791.25 | 43.87 | 1798.75 | 45.37 | 1996.75 | 48.22 |
| 2056.5 | 48.72 | 2186.5 | 48.97 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 695 | .071 | 1740 | .045 | 1996.75 | .04 | 2186.5 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1740 | 1996.75 | 31.76 | 46.22 | 45.24 | .1 | .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 238.666*

INPUT

Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 680 | 49.04 | 756.62 | 46.26 | 776.77 | 45.68 | 824.34 | 45.64 | 929.45 | 45.54 |
| 1281.12 | 45.1 | 1291.79 | 45.09 | 1335.69 | 45.04 | 1373.79 | 45.04 | 1400.04 | 45.04 |
| 1406.6 | 45.04 | 1670.67 | 45.04 | 1671.33 | 47.7 | 1682.67 | 45.04 | 1693.33 | 43.7 |
| 1711.67 | 43.7 | 1715 | 43.7 | 1727.67 | 43.7 | 1734.33 | 45.04 | 1910.33 | 47.57 |
| 1990 | 48.24 | 2163.33 | 48.57 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 680 | .068 | 1670.67 | .045 | 1910.33 | .04 | 2163.33 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1670.67 | 1910.33 | 31.76 | 46.22 | 45.24 | .1 .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 238.583*

INPUT
Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 665 | 48.7 | 737.41 | 46.02 | 756.46 | 45.51 | 801.42 | 45.46 | 900.77 | 45.33 |
| 1233.16 | 44.79 | 1243.23 | 44.77 | 1284.73 | 44.7 | 1320.74 | 44.7 | 1345.55 | 44.7 |
| 1351.75 | 44.7 | 1601.33 | 44.7 | 1601.92 | 47.04 | 1611.83 | 44.7 | 1621.17 | 43.54 |
| 1644.08 | 43.54 | 1648.25 | 43.54 | 1664.08 | 43.54 | 1669.92 | 44.7 | 1823.92 | 46.92 |
| 1923.5 | 47.75 | 2140.17 | 48.17 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 665 | .065 | 1601.33 | .045 | 1823.92 | .04 | 2140.17 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1601.33 | 1823.92 | 31.76 | 46.22 | 45.24 | .1 .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 238.5*

INPUT
Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 650 | 48.37 | 718.21 | 45.79 | 736.16 | 45.34 | 778.5 | 45.27 | 872.09 | 45.12 |
| 1185.19 | 44.47 | 1194.68 | 44.45 | 1233.77 | 44.37 | 1267.69 | 44.37 | 1291.06 | 44.37 |
| 1296.9 | 44.37 | 1532 | 44.37 | 1532.5 | 46.37 | 1541 | 44.37 | 1549 | 43.37 |
| 1576.5 | 43.37 | 1581.5 | 43.37 | 1600.5 | 43.37 | 1605.5 | 44.37 | 1737.5 | 46.27 |
| 1857 | 47.27 | 2117 | 47.77 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 650 | .062 | 1532 | .045 | 1737.5 | .04 | 2117 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1532 | 1737.5 | 31.76 | 46.22 | 45.24 | .1 .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 238.416*

INPUT
Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 635 | 48.04 | 699.01 | 45.55 | 715.85 | 45.17 | 755.59 | 45.09 | 843.41 | 44.91 |
| 1137.22 | 44.15 | 1146.13 | 44.13 | 1182.81 | 44.04 | 1214.64 | 44.04 | 1236.57 | 44.04 |
| 1242.05 | 44.04 | 1462.67 | 44.04 | 1463.08 | 45.7 | 1470.17 | 44.04 | 1476.83 | 43.2 |
| 1508.92 | 43.2 | 1514.75 | 43.2 | 1536.92 | 43.2 | 1541.08 | 44.04 | 1651.08 | 45.62 |
| 1790.5 | 46.79 | 2093.83 | 47.37 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 635 | .06 | 1462.67 | .045 | 1651.08 | .04 | 2093.83 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1462.67 | 1651.08 | 31.76 | 46.22 | 45.24 | .1 .3 |

CROSS SECTION RIVER: North Box outlet
REACH: 1 RS: 238.333*

```
INPUT
Description:
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     620    47.7  679.81   45.31  695.54      45  732.67   44.91  814.72    44.7
 1089.25   43.84 1097.57   43.81 1131.85    43.7 1161.59    43.7 1182.08    43.7
  1187.2    43.7 1393.33    43.7 1393.67   45.04 1399.33    43.7 1404.67   43.04
 1441.33   43.04    1448   43.04 1473.33   43.04 1476.67    43.7 1564.67   44.97
    1724    46.3 2070.67   46.97

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     620    .057 1393.33    .045 1564.67     .04 2070.67     .04

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1393.33 1564.67              31.76   46.22   45.24             .1      .3

CROSS SECTION            RIVER: North Box outlet
REACH: 1                    RS: 238.25*

INPUT
Description:
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     605   47.37  660.61   45.08  675.23   44.83  709.76   44.72  786.04   44.49
 1041.28   43.52 1049.02   43.49 1080.88   43.37 1108.54   43.37 1127.58   43.37
 1132.35   43.37    1324   43.37 1324.25   44.37  1328.5   43.37  1332.5   42.87
 1373.75   42.87 1381.25   42.87 1409.75   42.87 1412.25   43.37 1478.25   44.32
  1657.5   45.82  2047.5   46.57

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     605    .054    1324    .045 1478.25     .04  2047.5     .04

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1324 1478.25              31.76   46.22   45.24             .1      .3

CROSS SECTION            RIVER: North Box outlet
REACH: 1                    RS: 238.166*

INPUT
Description:
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     590   47.04   641.4   44.84  654.93   44.65  686.84   44.54  757.36   44.29
  993.31    43.2 1000.46   43.17 1029.92   43.04 1055.49   43.04 1073.09   43.04
  1077.5   43.04 1254.67   43.04 1254.83    43.7 1257.67   43.04 1260.33    42.7
 1306.17    42.7  1314.5    42.7 1346.17    42.7 1347.83   43.04 1391.83   43.67
    1591   45.34 2024.33   46.17

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     590    .051 1254.67    .045 1391.83     .04 2024.33     .04

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1254.67 1391.83              31.76   46.22   45.24             .1      .3

CROSS SECTION            RIVER: North Box outlet
REACH: 1                    RS: 238.083*

INPUT
Description:
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     575    46.7   622.2   44.61  634.62   44.48  663.92   44.36  728.68   44.08
  945.34   42.89  951.91   42.85  978.96    42.7 1002.44    42.7  1018.6    42.7
 1022.65    42.7 1185.33    42.7 1185.42   43.04 1186.83    42.7 1188.17   42.54
 1238.58   42.54 1247.75   42.54 1282.58   42.54 1283.42    42.7 1305.42   43.02
  1524.5   44.85 2001.17   45.77

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     575    .048 1185.33    .045 1305.42     .04 2001.17     .04

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1185.33 1305.42              31.76   46.22   45.24             .1      .3

CROSS SECTION            RIVER: North Box outlet
REACH: 1                    RS: 238
```

INPUT
Description:
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 560 | 46.37 | 603 | 44.37 | 700 | 43.87 | 928 | 42.37 | 1116 | 42.37 |
| 1171 | 42.37 | 1181 | 42.37 | 1219 | 42.37 | 1458 | 44.37 | 1978 | 45.37 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 560 | .045 | 1116 | .045 | 1219 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1116 | 1219 | 0 | 0 | .1 | .3 |

SUMMARY OF MANNING'S N VALUES

River:North Box outlet

| Reach | River Sta. | n1 | n2 | n3 | n4 |
|---|---|---|---|---|---|
| 1 | 690 | .013 | .013 | .013 | |
| 1 | 675 | .028 | .028 | .028 | |
| 1 | 652 | .028 | .028 | .028 | |
| 1 | 632 | .028 | .028 | .028 | |
| 1 | 256 | .045 | .045 | .04 | |
| 1 | 251.75* | .054 | .045 | .04 | .04 |
| 1 | 247.5* | .062 | .045 | .04 | .04 |
| 1 | 243.25* | .071 | .045 | .04 | .04 |
| 1 | 239 | .08 | .045 | .04 | |
| 1 | 238.916* | .077 | .045 | .04 | .04 |
| 1 | 238.833* | .074 | .045 | .04 | .04 |
| 1 | 238.75* | .071 | .045 | .04 | .04 |
| 1 | 238.666* | .068 | .045 | .04 | .04 |
| 1 | 238.583* | .065 | .045 | .04 | .04 |
| 1 | 238.5* | .062 | .045 | .04 | .04 |
| 1 | 238.416* | .06 | .045 | .04 | .04 |
| 1 | 238.333* | .057 | .045 | .04 | .04 |
| 1 | 238.25* | .054 | .045 | .04 | .04 |
| 1 | 238.166* | .051 | .045 | .04 | .04 |
| 1 | 238.083* | .048 | .045 | .04 | .04 |
| 1 | 238 | .045 | .045 | .04 | |

SUMMARY OF REACH LENGTHS

River: North Box outlet

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| 1 | 690 | 15 | 15 | 15 |
| 1 | 675 | 23.02 | 23.02 | 23.02 |
| 1 | 652 | 20 | 20 | 20 |
| 1 | 632 | 20 | 20 | 20 |
| 1 | 256 | 45 | 45 | 45 |
| 1 | 251.75* | 45 | 45 | 45 |
| 1 | 247.5* | 45 | 45 | 45 |
| 1 | 243.25* | 45 | 45 | 45 |
| 1 | 239 | 31.76 | 46.22 | 45.24 |
| 1 | 238.916* | 31.76 | 46.22 | 45.24 |
| 1 | 238.833* | 31.76 | 46.22 | 45.24 |
| 1 | 238.75* | 31.76 | 46.22 | 45.24 |
| 1 | 238.666* | 31.76 | 46.22 | 45.24 |
| 1 | 238.583* | 31.76 | 46.22 | 45.24 |
| 1 | 238.5* | 31.76 | 46.22 | 45.24 |
| 1 | 238.416* | 31.76 | 46.22 | 45.24 |
| 1 | 238.333* | 31.76 | 46.22 | 45.24 |
| 1 | 238.25* | 31.76 | 46.22 | 45.24 |
| 1 | 238.166* | 31.76 | 46.22 | 45.24 |
| 1 | 238.083* | 31.76 | 46.22 | 45.24 |
| 1 | 238 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: North Box outlet

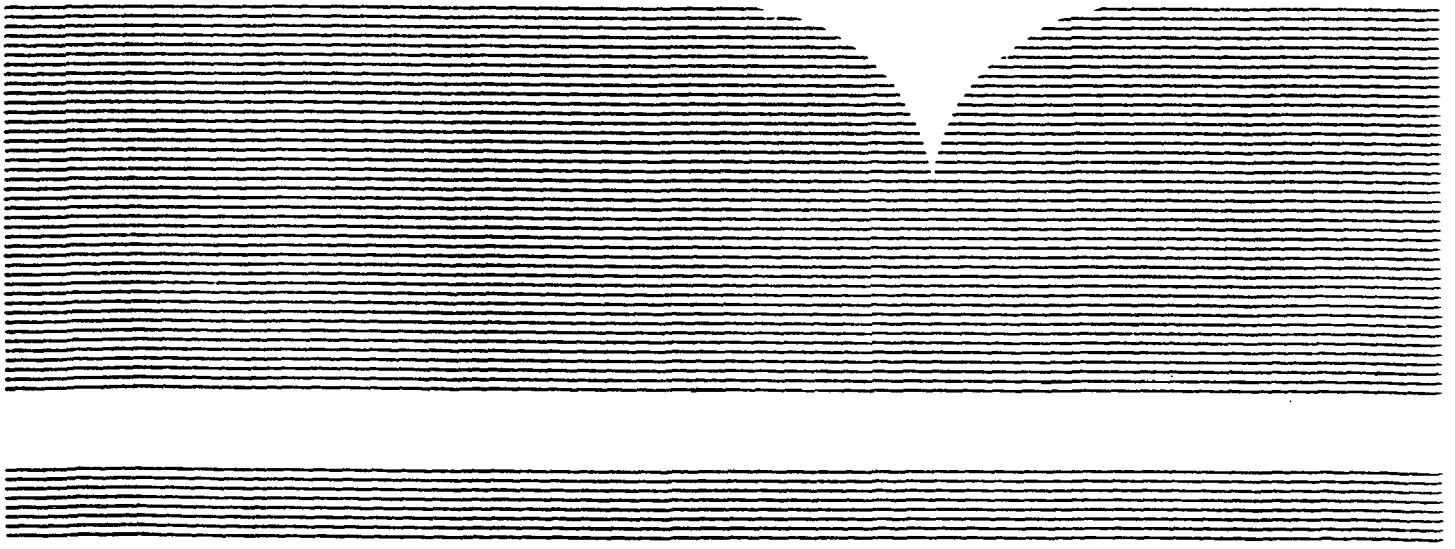
| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| 1 | 690 | .1 | .3 |
| 1 | 675 | .1 | .3 |
| 1 | 652 | .1 | .3 |
| 1 | 632 | .1 | .3 |
| 1 | 256 | .1 | .3 |
| 1 | 251.75* | .1 | .3 |
| 1 | 247.5* | .1 | .3 |
| 1 | 243.25* | .1 | .3 |
| 1 | 239 | .1 | .3 |
| 1 | 238.916* | .1 | .3 |
| 1 | 238.833* | .1 | .3 |
| 1 | 238.75* | .1 | .3 |
| 1 | 238.666* | .1 | .3 |
| 1 | 238.583* | .1 | .3 |
| 1 | 238.5* | .1 | .3 |
| 1 | 238.416* | .1 | .3 |
| 1 | 238.333* | .1 | .3 |
| 1 | 238.25* | .1 | .3 |
| 1 | 238.166* | .1 | .3 |
| 1 | 238.083* | .1 | .3 |
| 1 | 238 | .1 | .3 |

PB89-218424

# DESIGN OF RIPRAP REVETMENT

SUTRON CORPORATION
HERNDON, VA

MAR 89



U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
NTIS

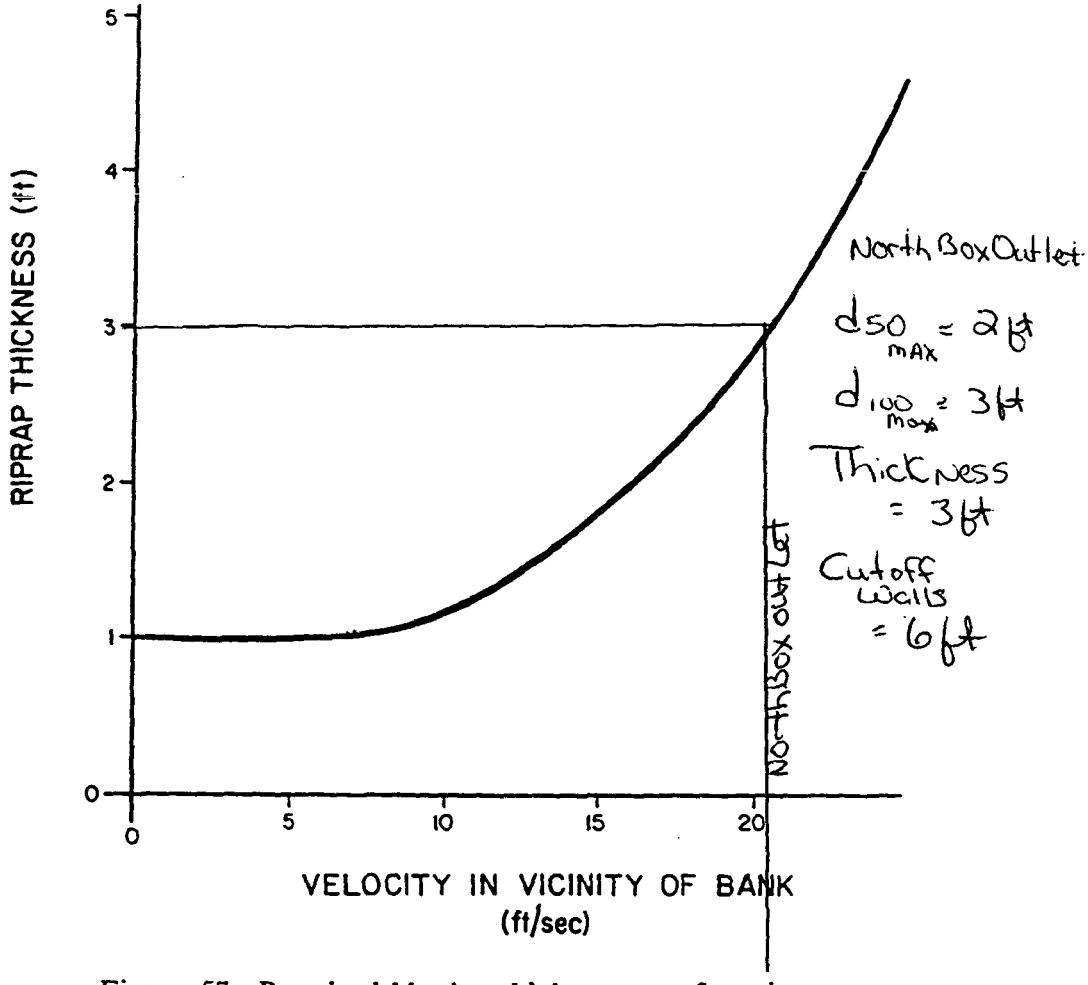



Figure 57. Required blanket thickness as a function of flow velocity.

Rock Grading: Table 6 provides guidelines for rock gradation in grouted riprap installations. Six size classes are listed.

Rock Quality: Rock used in grouted rock slope-protection is usually the same as that used in ordinary rock slope-protection. However, the specifications for specific gravity and hardness may be lowered if necessary as the rocks are protected by the surrounding grout.

In addition, the rock used in grouted riprap installations should be free of fines in order that penetration of grout may be achieved.

Grout Quality and Characteristics: Grout should consist of good strength concrete using a maximum aggregate size of 3/4 in and a slump of 3 to 4 in (7.6 to 10.2 cm). Sand mixes may be used where roughness of the grout surface is unnecessary, provided sufficient cement is added to give good strength and workability.

The volume of grout required will be that necessary to provide penetration to the depths shown in table 6.

The finished grout should leave face stones exposed for one-fourth to one-third their depth and the surface of the grout should expose a matrix of coarse aggregate.

## 6.3 GROUTED ROCK

Grouted rock revetment consists of rock slope-protection having voids filled with concrete grout to form a monolithic armor. See section 2.5 for additional descriptive information and general performance characteristics for grouted rock. Sample specifications for components of grouted rock revetments are provided in appendix A.

### 6.3.1 Design Guidelines for Grouted Rock

Components of grouted rock riprap design include layout of a general scheme or concept, bank preparation, bank slope, rock size and blanket thickness, rock grading, rock quality, grout quality, edge treatment, filter design, and pressure relief.

General: Grouted riprap designs are rigid monolithic bank protection schemes. When complete, they form a continuous surface. A typical grouted riprap section is shown in figure 56.

Grouted riprap should extend from below the anticipated channel bed scour depth to the design high water level plus additional height for freeboard (see section 3.6.2). The longitudinal extent of protection should be as described in section 3.6.1.

During the design phase for a grouted riprap revetment, special attention needs to be paid to edge treatment, foundation design, and mechanisms for hydrostatic pressure relief. Each of these items is discussed below.

Bank and Foundation Preparation: The bank should be prepared by first clearing all trees and debris from the bank, and grading the bank surface to the desired slope. In general, the graded surface should not deviate from the specified slope line by more than six in (15.2 cm). However, local depressions larger than this can be accommodated since initial placement of filter material and/or rock for the revetment will fill these depressions.

Since grouted riprap is rigid but not extremely strong, support by the embankment must be maintained. To form a firm foundation, it is recommended that the bank surface be tamped or lightly compacted. Care must be taken during bank compaction to maintain a soil permeability similar to that of the natural, undisturbed bank material. The foundation for the grouted riprap revetment should have a bearing capacity sufficient to support either the dry weight of the revetment alone, or the submerged weight of the revetment plus the weight of the water in the wedge above the revetment for design conditions, whichever is greater.

Any large boulders or debris found buried near the edges of the revetment should be removed.

Bank Slope: Bank slopes for grouted riprap revetments should not exceed 1.5:1.

Rock Size and Blanket Thickness: Blanket thickness and rock size requirements for grouted riprap installations are interrelated. Figure 57 illustrates a relationship between the design velocity and the required riprap blanket thickness for grouted riprap designs. The median rock size in the revetment should not exceed 0.67 times the blanket thickness. The largest rock used in the revetment should not exceed the blanket thickness.

```
T1 Green Park Holdings, LLC                                                    0
T2 Culvert from I-15 South to Main South Box, 482cfs
T3 File: gpsb588  By Alex Kingston
SO    1000.0002265.540  1                          2275.735
R     1147.4402266.500  1       .013                          80.454    .000 2
R     1950.5702269.710  1       .013                           0.000    .000 0
R     2100.0002270.310  1       .013                           0.000    .000 0
R     2118.6302270.880  1       .013                         -55.024    .000 1
TS    2230.4502274.310  2       .013                         -36.188
R     2337.9302277.600  2       .013                           0.000    .000 0
R     2530.8202279.460  2       .013                           0.000    .000 0
WE    2530.8202279.460  3       .500
R     2560.8202279.960  3       .025                           0.000    .000 0
SH    2560.8202279.960  3                          2283.960
CD    2  3   1    .500   4.000   24.500  .000  .000   .00
CD    3  1   0    .000   6.000   30.000  .330  .330   .00
CD    1  6   0    .000             .00   .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
PTS   121   .000   .000 10.000   .000 10.000  4.000  9.820  4.530  9.490  5.000
PTS       9.000  5.390  8.500  5.590  8.000  5.730  7.520  5.830  7.000  5.930
PTS       6.000  6.050  5.000  6.090  4.000  6.050  3.000  5.930  2.480  5.830
PTS       2.000  5.730  1.500  5.590  1.000  5.390   .510  5.000   .180  4.530
PTS        .000  4.000
Q          482.000   .0
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FILE: gpsb588.WSW

W S P G W - CIVILDESIGN Version 14.05
Program Package Serial Number: 1439
WATER SURFACE PROFILE LISTING



Date: 3-29-2002 Time:11: 1:58

Green Park Holdings, LLC
Culvert from I-15 South to Main South Box, 482cfs
File: gpsb588 By Alex Kingston

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 1000.000 | 2265.540 | 10.195 | 2275.735 | 482.00 | 8.50 | 1.12 | 2276.86 | .00 | 4.15 | .00 | | | 1 | 0 .0 |
| 147.440 | .0065 | | | | | .0023 | .34 | .00 | .00 | 3.304 | .013 | | | IR-COV |
| 1147.440 | 2266.500 | 9.904 | 2276.404 | 482.00 | 8.50 | 1.12 | 2277.53 | .00 | 4.15 | .00 | | | 1 | 0 .0 |
| 803.130 | .0040 | | | | | .0023 | 1.87 | 9.90 | .00 | 3.939 | .013 | | | IR-COV |
| 1950.570 | 2269.710 | 8.568 | 2278.278 | 482.00 | 8.50 | 1.12 | 2279.40 | .00 | 4.15 | .00 | | | 1 | 0 .0 |
| 149.430 | .0040 | | | | | .0023 | .35 | 8.57 | .00 | 3.932 | .013 | | | IR-COV |
| 2100.000 | 2270.310 | 8.316 | 2278.626 | 482.00 | 8.50 | 1.12 | 2279.75 | .00 | 4.15 | .00 | | | 1 | 0 .0 |
| 18.630 | .0306 | | | | | .0023 | .04 | .00 | .00 | 1.932 | .013 | | | IR-COV |
| 2118.630 | 2270.880 | 8.022 | 2278.901 | 482.00 | 8.50 | 1.12 | 2280.02 | .00 | 4.15 | .00 | | | 1 | 0 .0 |
| TRANS STR | .0307 | | | | | .0023 | .26 | .00 | .00 | | .013 | | | IR-COV |
| 2230.450 | 2274.310 | 5.601 | 2279.911 | 482.00 | 5.02 | .39 | 2280.30 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 54.305 | .0306 | | | | | .0011 | .06 | 5.60 | .45 | 1.07 | .013 | .00 | .00 | BOX |
| 2284.755 | 2275.972 | 4.000 | 2279.972 | 482.00 | 5.02 | .39 | 2280.36 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 4.903 | .0306 | | | | | .0006 | .00 | 4.00 | .45 | 1.07 | .013 | .00 | .00 | BOX |
| 2289.658 | 2276.123 | 3.813 | 2279.936 | 482.00 | 5.27 | .43 | 2280.37 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 2.391 | .0306 | | | | | .0007 | .00 | 3.81 | .48 | 1.07 | .013 | .00 | .00 | BOX |

---------- WARNING - Flow depth near top of box conduit ----------

Green Park Holdings, LLC
Culvert from I-15 South to Main South Box, 482cfs
File: gpsb588 By Alex Kingston

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 2292.049 | 2276.196 | 3.721 | 2279.917 | 482.00 | 5.40 | .45 | 2280.37 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| HYDRAULIC JUMP | | | | | | | | | | | | | | |
| | | WARNING - Flow depth near top of box conduit | | | | | | | | | | | | |
| 2292.049 | 2276.196 | 1.329 | 2277.524 | 482.00 | 15.12 | 3.55 | 2281.07 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| .542 | .0306 | | | | | .0155 | .01 | 1.33 | 2.33 | 1.07 | .013 | .00 | .00 | BOX |
| 2292.590 | 2276.212 | 1.334 | 2277.546 | 482.00 | 15.05 | 3.52 | 2281.06 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 15.689 | .0306 | | | | | .0144 | .23 | 1.33 | 2.32 | 1.07 | .013 | .00 | .00 | BOX |
| 2308.279 | 2276.692 | 1.399 | 2278.092 | 482.00 | 14.35 | 3.20 | 2281.29 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 12.224 | .0306 | | | | | .0124 | .15 | 1.40 | 2.16 | 1.07 | .013 | .00 | .00 | BOX |
| 2320.503 | 2277.067 | 1.468 | 2278.534 | 482.00 | 13.68 | 2.91 | 2281.44 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 9.689 | .0306 | | | | | .0107 | .10 | 1.47 | 2.01 | 1.07 | .013 | .00 | .00 | BOX |
| 2330.192 | 2277.363 | 1.539 | 2278.903 | 482.00 | 13.05 | 2.64 | 2281.55 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 7.738 | .0306 | | | | | .0093 | .07 | 1.54 | 1.87 | 1.07 | .013 | .00 | .00 | BOX |
| 2337.930 | 2277.600 | 1.614 | 2279.214 | 482.00 | 12.44 | 2.40 | 2281.62 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 63.092 | .0096 | | | | | .0082 | .52 | 1.61 | 1.74 | 1.55 | .013 | .00 | .00 | BOX |
| 2401.022 | 2278.208 | 1.663 | 2279.871 | 482.00 | 12.08 | 2.27 | 2282.14 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 53.848 | .0096 | | | | | .0073 | .39 | 1.66 | 1.67 | 1.55 | .013 | .00 | .00 | BOX |

Green Park Holdings, LLC
Culvert from I-15 South to Main South Box, 482cfs
File: gpsb588 By Alex Kingston

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/ Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 2454.870 | 2278.727 | 1.744 | 2280.471 | 482.00 | 11.52 | 2.06 | 2282.53 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 30.910 | .0096 | | | | | .0063 | .20 | 1.78 | 1.55 | 1.55 | .013 | .00 | .00 | BOX |
| 2485.780 | 2279.025 | 1.829 | 2280.854 | 482.00 | 10.98 | 1.87 | 2282.73 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 19.485 | .0096 | | | | | .0055 | .11 | 1.83 | 1.45 | 1.55 | .013 | .00 | .00 | BOX |
| 2505.265 | 2279.213 | 1.918 | 2281.132 | 482.00 | 10.47 | 1.70 | 2282.83 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 12.502 | .0096 | | | | | .0048 | .06 | 1.92 | 1.35 | 1.55 | .013 | .00 | .00 | BOX |
| 2517.768 | 2279.334 | 2.012 | 2281.346 | 482.00 | 9.98 | 1.55 | 2282.89 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 7.692 | .0096 | | | | | .0041 | .03 | 2.01 | 1.25 | 1.55 | .013 | .00 | .00 | BOX |
| 2525.460 | 2279.408 | 2.110 | 2281.518 | 482.00 | 9.52 | 1.41 | 2282.93 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 4.101 | .0096 | | | | | .0036 | .01 | 2.11 | 1.17 | 1.55 | .013 | .00 | .00 | BOX |
| 2529.561 | 2279.448 | 2.213 | 2281.661 | 482.00 | 9.07 | 1.28 | 2282.94 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| 1.259 | .0096 | | | | | .0031 | .00 | 2.21 | 1.09 | 1.55 | .013 | .00 | .00 | BOX |
| 2530.820 | 2279.460 | 2.322 | 2281.782 | 482.00 | 8.65 | 1.16 | 2282.94 | .00 | 2.32 | 24.50 | 4.000 | 24.500 | .00 | 1 .5 |
| WALL | ENTRANCE | | | | | | | | | | | | | |
| 2530.820 | 2279.460 | 3.444 | 2282.904 | 482.00 | 4.49 | .31 | 2283.22 | .00 | 1.99 | 32.27 | 6.000 | 30.000 | .33 | 0 .0 |
| 8.147 | .0167 | | | | | .0015 | .01 | 3.44 | .43 | 1.60 | .025 | .00 | .33 | TRAP |
| 2538.967 | 2279.596 | 3.289 | 2282.885 | 482.00 | 4.71 | .35 | 2283.23 | .00 | 1.99 | 32.17 | 6.000 | 30.000 | .33 | 0 .0 |
| 7.615 | .0167 | | | | | .0017 | .01 | 3.29 | .47 | 1.60 | .025 | .00 | .33 | TRAP |

FILE: gpsb588.WSW

W S P G W - CIVILDESIGN Version 14.05



Program Package Serial Number: 1439

WATER SURFACE PROFILE LISTING

Date: 3-29-2002 Time:11: 1:58

Green Park Holdings, LLC
Culvert from I-15 South to Main South Box, 482cfs
File: gpsb588 By Alex Kingston

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/Dia.-FT or I.D. | Base Wt ZL | ZR | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | | Type Ch |
| 2546.583 | 2279.723 | 3.141 | 2282.864 | 482.00 | 4.94 | .38 | 2283.24 | .00 | 1.99 | 32.07 | 6.000 | 30.000 | .33 | 0 .0 |
| 7.083 | .0167 | | | | | .0020 | .01 | 3.14 | .50 | 1.60 | .025 | .00 | .33 | TRAP |
| 2553.665 | 2279.841 | 2.999 | 2282.840 | 482.00 | 5.19 | .42 | 2283.26 | .00 | 1.99 | 31.98 | 6.000 | 30.000 | .33 | 0 .0 |
| 6.544 | .0167 | | | | | .0023 | .02 | 3.00 | .54 | 1.60 | .025 | .00 | .33 | TRAP |
| 2560.209 | 2279.950 | 2.864 | 2282.814 | 482.00 | 5.44 | .46 | 2283.27 | .00 | 1.99 | 31.89 | 6.000 | 30.000 | .33 | 0 .0 |
| .611 | .0167 | | | | | .0025 | .00 | 2.86 | .57 | 1.60 | .025 | .00 | .33 | TRAP |
| 2560.820 | 2279.960 | 2.852 | 2282.812 | 482.00 | 5.46 | .46 | 2283.28 | .00 | 1.99 | 31.88 | 6.000 | 30.000 | .33 | 0 .0 |

```
T1 Green Park Holdings, LLC                                                    0
T2 Parallel System to Main Culvert
T3 File: gpsb2543  By: Alex Kingston
SO    1000.0002250.200  1                          2254.490
      1000.1002250.200  1       .028                              .000
      1050.3402250.400  1       .028                              .000
      1050.3402250.400  2
R     1237.8902251.150  2       .013                              .000    .000 0
R     1290.8302251.360  2       .013                            -32.268   .000 0
TS    1348.9302251.600  3       .013                            -38.708
R     2939.3702257.960  3       .013                              .000    .000 0
TS    2939.3802257.970  4       .013                              .000    .000 0
R     3007.0002260.575  4       .013                             25.000
SH    3007.0002260.575  4                          2266.050
CD    2  3   2    .500   5.000   31.000  .000  .000   .00
CD    4  2   0    .000  14.000   20.000  .000  .000   .00
CD    1  5   0    .000             .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
CD    3  6   0    .000             .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
CD    5  5   0    .000             .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
CD    6  5   0    .000             .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
CD    7  4   0    .000   3.000     .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
PTS   1 4    .000  5.000 10.000   .000 90.000   .000100.000  5.000
PTS   329    .000   .000 24.000   .000 23.750  1.900 23.500  2.660 23.000  3.700
PTS        22.000  5.030 21.000  5.920 20.000  6.530 19.000  6.950 18.000  7.240
PTS        17.000  7.470 16.000  7.660 15.000  7.810 14.000  7.920 13.000  7.980
PTS        12.000  8.000 11.000  7.980 10.000  7.920  9.000  7.810  8.000  7.660
PTS         7.000  7.470  6.000  7.240  5.000  6.950  4.000  6.530  3.000  5.920
PTS         2.000  5.030  1.000  3.700   .500  2.660   .250  1.900
PTS   5 5    .000  7.500   .100   .000 20.000   .000 35.000  7.500 40.000  7.600
PTS   6 5    .000  7.500   .100   .000 15.000   .000 35.000   .000 50.000  7.500
Q           2543.000   .0
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FILE: gpsb2543.WSW

W S P G W - CIVILDESIGN Version 14.05



Program Package Serial Number: 1439

WATER SURFACE PROFILE LISTING

Date: 3-25-2002 Time: 3:59: 0

Green Park Holdings, LLC
Parallel System to Main Culvert
File: gpsb2543 By: Alex Kingston

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/Dia.-FT or I.D. | Base Wt "N" | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE | Dpth Froude N | Norm Dp | | X-Fall | ZR | Type Ch |
| 1000.000 | 2250.200 | 2.063 | 2252.263 | 2543.00 | 14.65 | 3.33 | 2255.60 | .00 | 3.07 | 88.25 | | | 1 | 0 .0 |
| .100 | .0000 | | | | | .0314 | .00 | 2.06 | 1.84 | .000 | .028 | | | IR-OPEN |
| 1000.100 | 2250.200 | 2.062 | 2252.262 | 2543.00 | 14.66 | 3.34 | 2255.60 | .00 | 3.07 | 88.25 | | | 1 | 0 .0 |
| 7.294 | .0040 | | | | | .0338 | .25 | 2.06 | 1.84 | 3.806 | .028 | | | IR-OPEN |
| 1007.394 | 2250.229 | 1.979 | 2252.208 | 2543.00 | 15.30 | 3.64 | 2255.84 | .00 | 3.07 | 87.92 | | | 1 | 0 .0 |
| 7.857 | .0040 | | | | | .0391 | .31 | 1.98 | 1.96 | 3.806 | .028 | | | IR-OPEN |
| 1015.251 | 2250.260 | 1.891 | 2252.151 | 2543.00 | 16.05 | 4.00 | 2256.15 | .00 | 3.07 | 87.56 | | | 1 | 0 .0 |
| 7.583 | .0040 | | | | | .0455 | .35 | 1.89 | 2.10 | 3.806 | .028 | | | IR-OPEN |
| 1022.834 | 2250.290 | 1.806 | 2252.096 | 2543.00 | 16.83 | 4.40 | 2256.50 | .00 | 3.07 | 87.22 | | | 1 | 0 .0 |
| 7.335 | .0040 | | | | | .0531 | .39 | 1.81 | 2.25 | 3.806 | .028 | | | IR-OPEN |
| 1030.169 | 2250.320 | 1.726 | 2252.046 | 2543.00 | 17.65 | 4.84 | 2256.89 | .00 | 3.07 | 86.90 | | | 1 | 0 .0 |
| 7.014 | .0040 | | | | | .0619 | .43 | 1.73 | 2.42 | 3.806 | .028 | | | IR-OPEN |
| 1037.182 | 2250.347 | 1.648 | 2251.996 | 2543.00 | 18.52 | 5.32 | 2257.32 | .00 | 3.07 | 86.59 | | | 1 | 0 .0 |
| 6.725 | .0040 | | | | | .0721 | .49 | 1.65 | 2.59 | 3.806 | .028 | | | IR-OPEN |
| 1043.908 | 2250.374 | 1.574 | 2251.948 | 2543.00 | 19.42 | 5.86 | 2257.80 | .00 | 3.07 | 86.30 | | | 1 | 0 .0 |
| 6.432 | .0040 | | | | | .0841 | .54 | 1.57 | 2.78 | 3.806 | .028 | | | IR-OPEN |
| 1050.340 | 2250.400 | 1.504 | 2251.904 | 2543.00 | 20.37 | 6.44 | 2258.35 | .00 | 3.07 | 86.02 | | | 1 | 0 .0 |

WALL EXIT

Green Park Holdings, LLC
Parallel System to Main Culvert
File: gpsb2543 By: Alex Kingston

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/ Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 1050.340 | 2250.400 | 4.827 | 2255.227 | 2543.00 | 17.56 | 4.79 | 2260.02 | .00 | 5.00 | 31.00 | 5.000 | 31.000 | .00 | 2 .5 |
| 54.802 | .0040 | | | | | .0075 | .41 | 4.83 | 1.43 | 5.00 | .013 | .00 | .00 | BOX |
| | | ---------- WARNING - Flow depth near top of box conduit ---------- | | | | | | | | | | | | |
| 1105.142 | 2250.619 | 4.653 | 2255.272 | 2543.00 | 18.22 | 5.15 | 2260.43 | .00 | 5.00 | 31.00 | 5.000 | 31.000 | .00 | 2 .5 |
| 67.896 | .0040 | | | | | .0084 | .57 | 4.65 | 1.51 | 5.00 | .013 | .00 | .00 | BOX |
| | | ---------- WARNING - Flow depth near top of box conduit ---------- | | | | | | | | | | | | |
| 1173.038 | 2250.891 | 4.436 | 2255.327 | 2543.00 | 19.11 | 5.67 | 2261.00 | .00 | 5.00 | 31.00 | 5.000 | 31.000 | .00 | 2 .5 |
| 64.852 | .0040 | | | | | .0096 | .62 | 4.44 | 1.63 | 5.00 | .013 | .00 | .00 | BOX |
| 1237.890 | 2251.150 | 4.230 | 2255.380 | 2543.00 | 20.04 | 6.24 | 2261.62 | 5.00 | 5.00 | 31.00 | 5.000 | 31.000 | .00 | 2 .5 |
| 52.940 | .0040 | | | | | .0108 | .57 | 5.00 | 1.75 | 5.00 | .013 | .00 | .00 | BOX |
| 1290.830 | 2251.360 | 4.061 | 2255.421 | 2543.00 | 20.87 | 6.77 | 2262.19 | 5.00 | 5.00 | 31.00 | 5.000 | 31.000 | .00 | 2 .5 |
| TRANS STR | .0041 | | | | | .0079 | .46 | 5.00 | 1.86 | | .013 | .00 | .00 | BOX |
| 1348.930 | 2251.600 | 6.732 | 2258.332 | 2543.00 | 17.59 | 4.81 | 2263.14 | .00 | 6.73 | 15.04 | | 3 | | 0 .0 |
| 257.777 | .0040 | | | | | .0042 | 1.08 | 6.73 | 1.00 | 7.300 | .013 | | | IR-COV |
| 1606.707 | 2252.631 | 7.250 | 2259.881 | 2543.00 | 16.77 | 4.37 | 2264.25 | .00 | 6.73 | 11.91 | | 3 | | 0 .0 |
| 86.610 | .0040 | | | | | .0042 | .36 | 7.25 | .83 | 7.300 | .013 | | | IR-COV |

Green Park Holdings, LLC
Parallel System to Main Culvert
File: gpsb2543 By: Alex Kingston

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/ Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 1693.318 | 2252.977 | 7.300 | 2260.277 | 2543.00 | 16.71 | 4.34 | 2264.61 | .00 | 6.73 | 11.48 | | 3 | 0 | .0 |
| 327.406 | .0040 | | | | | .0042 | 1.37 | 7.30 | .81 | 7.300 | .013 | | | IR-COV |
| 2020.724 | 2254.287 | 7.300 | 2261.587 | 2543.00 | 16.71 | 4.34 | 2265.92 | .00 | 6.73 | 11.48 | | 3 | 0 | .0 |
| HYDRAULIC JUMP | | | | | | | | | | | | | | |
| 2020.724 | 2254.287 | 6.171 | 2260.458 | 2543.00 | 18.77 | 5.47 | 2265.93 | .00 | 6.73 | 17.18 | | 3 | 0 | .0 |
| 131.320 | .0040 | | | | | .0054 | .70 | 6.17 | 1.18 | 7.300 | .013 | | | IR-COV |
| 2152.044 | 2254.812 | 5.838 | 2260.650 | 2543.00 | 19.63 | 5.98 | 2266.63 | .00 | 6.73 | 18.18 | | 3 | 0 | .0 |
| 135.451 | .0040 | | | | | .0060 | .81 | 5.84 | 1.30 | 7.300 | .013 | | | IR-COV |
| 2287.495 | 2255.354 | 5.513 | 2260.867 | 2543.00 | 20.58 | 6.58 | 2267.45 | .00 | 6.73 | 18.91 | | 3 | 0 | .0 |
| 127.841 | .0040 | | | | | .0068 | .87 | 5.51 | 1.42 | 7.300 | .013 | | | IR-COV |
| 2415.335 | 2255.865 | 5.215 | 2261.080 | 2543.00 | 21.59 | 7.24 | 2268.32 | .00 | 6.73 | 19.58 | | 3 | 0 | .0 |
| 119.632 | .0040 | | | | | .0077 | .93 | 5.22 | 1.55 | 7.300 | .013 | | | IR-COV |
| 2534.968 | 2256.343 | 4.939 | 2261.282 | 2543.00 | 22.64 | 7.96 | 2269.24 | .00 | 6.73 | 20.14 | | 3 | 0 | .0 |
| 111.554 | .0040 | | | | | .0088 | .99 | 4.94 | 1.69 | 7.300 | .013 | | | IR-COV |
| 2646.522 | 2256.789 | 4.682 | 2261.471 | 2543.00 | 23.75 | 8.76 | 2270.23 | .00 | 6.73 | 20.52 | | 3 | 0 | .0 |
| 103.963 | .0040 | | | | | .0101 | 1.05 | 4.68 | 1.83 | 7.300 | .013 | | | IR-COV |
| 2750.485 | 2257.205 | 4.441 | 2261.646 | 2543.00 | 24.91 | 9.63 | 2271.28 | .00 | 6.73 | 20.89 | | 3 | 0 | .0 |
| 97.347 | .0040 | | | | | .0116 | 1.13 | 4.44 | 1.99 | 7.300 | .013 | | | IR-COV |

Green Park Holdings, LLC
Parallel System to Main Culvert
File: gpsb2543 By: Alex Kingston

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/ Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 2847.833 | 2257.594 | 4.215 | 2261.809 | 2543.00 | 26.12 | 10.60 | 2272.41 | .00 | 6.73 | 21.23 | | 3 | | 0 .0 |
| 91.538 | .0040 | | | | | .0133 | 1.21 | 4.22 | 2.15 | 7.300 | .013 | | | IR-COV |
| 2939.370 | 2257.960 | 4.004 | 2261.964 | 2543.00 | 27.40 | 11.66 | 2273.62 | .00 | 6.73 | 21.54 | | 3 | | 0 .0 |
| TRANS STR | 1.0250 | | | | | .0128 | .00 | 4.00 | 2.33 | | .013 | | | IR-COV |
| 2939.380 | 2257.970 | 4.769 | 2262.739 | 2543.00 | 26.66 | 11.04 | 2273.78 | 2.85 | 7.95 | 20.00 | 14.000 | 20.000 | .00 | 0 .0 |
| 25.086 | .0385 | | | | | .0107 | .27 | 7.62 | 2.15 | 3.16 | .013 | .00 | .00 | RECTANG |
| 2964.466 | 2258.936 | 4.977 | 2263.914 | 2543.00 | 25.55 | 10.13 | 2274.05 | 2.62 | 7.95 | 20.00 | 14.000 | 20.000 | .00 | 0 .0 |
| 23.309 | .0385 | | | | | .0094 | .22 | 7.59 | 2.02 | 3.16 | .013 | .00 | .00 | RECTANG |
| 2987.774 | 2259.834 | 5.220 | 2265.054 | 2543.00 | 24.36 | 9.21 | 2274.27 | 2.38 | 7.95 | 20.00 | 14.000 | 20.000 | .00 | 0 .0 |
| 19.226 | .0385 | | | | | .0082 | .16 | 7.60 | 1.88 | 3.16 | .013 | .00 | .00 | RECTANG |
| 3007.000 | 2260.575 | 5.475 | 2266.050 | 2543.00 | 23.22 | 8.37 | 2274.42 | 2.16 | 7.95 | 20.00 | 14.000 | 20.000 | .00 | 0 .0 |

```
T1 Green Park Holdings                                                    0
T2 Flow From I-15 to Las Vegas BLVD
T3 gpsbalt3
SO    945.1602248.900  1                          2254.490
      1000.0002249.200  1      .028                                .000
      1040.3402249.360  1      .028                                .000
      1050.3402249.400  1  4   .028   10.000         2249.400          .0          .000
WX    1050.3402249.400  5
R     1237.8902250.150  5      .013                                .000    .000 0
TS    1316.5402250.450  6      .013                             -47.074
R     1400.0002250.800  6      .013                                .000    .000 0
R     2200.0002254.000  6      .013                                .000    .000 0
R     2600.0002255.600  6      .013                                .000    .000 0
R     2938.2902256.950  6      .013                                .000    .000 0
R     3093.3902257.570  6      .013                              88.866    .000 0
R     3545.4702259.380  6      .013                                .000    .000 0
R     3729.7002260.120  6      .013                             -88.866    .000 0
R     3880.2502260.720  6      .013                                .000    .000 0
R     4029.5902261.320  6      .013                              85.566    .000 0
R     4200.0002262.000  6      .013                                .000    .000 0
R     4600.0002263.600  6      .013                                .000    .000 0
R     4835.6902264.500  6      .013                                .000    .000 0
R     4862.0002264.200  6      .013                                .000    .000 0
JX    4872.0002265.450  6  9   .013  482.000         2264.68          12.0        10.000
R     4887.3802268.800  6      .013                               6.287    .000 0
R     5092.0002270.840  6      .013                              23.674    .000 0
R     5168.7902272.750  6      .013                                .000    .000 0
TS    5327.9602276.770  7      .013                             -60.798
R     5361.7202277.620  7      .013                             -12.895    .000 0
R     5497.9802281.100  7      .013                                .000    .000 0
R     5773.0002282.700  7      .013                                .000    .000 0
WE    5773.0002282.700  8      .500
R     5803.0302283.190  8      .013                                .000
SH    5803.0302283.190  8                          2283.190
CD  2  3   0    .000   7.000   10.000  .000  .000   .00
CD  3  3   2    .500   5.000   22.000  .000  .000   .00
CD  4  3   2    .500   5.000   22.000  .000  .000   .00
CD  5  3   2    .500   5.000   22.000  .000  .000   .00
CD  7  3   2    .500   4.000   37.000  .000  .000   .00
CD  8  1   0    .000   4.000   60.000  .330  .330   .00
CD  1  5   0    .000             .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
CD  6  6   0    .000             .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
CD  9  6   0    .000             .00   .00   .00   .00   .00   .00   .00   .00   .00   .00
PTS 1 4   .000  5.000 10.000   .000 90.000   .000100.000  5.000
PTS 621   .000   .000 16.000   .000 16.000  1.000 15.640  3.000 15.410  3.540
PTS      15.160 4.000 14.770  4.550 14.380  5.000 13.090  6.000 12.000  6.480
PTS      11.000 6.720  8.000  7.000  5.000  6.720  4.000  6.480  2.910  6.000
PTS       1.620 5.000  1.230  4.550   .840  4.000   .590  3.540   .360  3.000
PTS        .000 1.000
      921   .000   .000 10.000   .000 10.000  4.000  9.820  4.530  9.490  5.000
            9.000 5.390  8.500  5.590  8.000  5.730  7.520  5.830  7.000  5.930
PTS         6.000 6.050  5.000  6.090  4.000  6.050  3.000  5.930  2.480  5.830
PTS         2.000 5.730  1.500  5.590  1.000  5.390   .510  5.000   .180  4.530
PTS         .000 4.000
Q          1326.000   .0
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FILE: gpsbalt3.WSW W S P G W - CIVILDESIGN Version 14.05 PAGE 1

Program Package Serial Number: 1439

WATER SURFACE PROFILE LISTING Date: 3-26-2002 Time: 4:27:14

Green Park Holdings
Flow From I-15 to Las Vegas BLVD
gpsbalt3

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/Dia.-FT or I.D. | Base Wt ZL | ZR | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | | Type Ch |
| 945.160 | 2248.900 | 5.590 | 2254.490 | 1818.00 | 3.57 | .20 | 2254.69 | .00 | 2.47 | 100.00 | | 1 | | 0 .0 |
| 44.460 | .0055 | | | | | .0006 | .03 | 5.59 | .28 | 2.840 | .028 | | | IR-OPEN |
| 989.620 | 2249.143 | 5.353 | 2254.496 | 1818.00 | 3.75 | .22 | 2254.71 | .00 | 2.47 | 100.00 | | 1 | | 0 .0 |
| 10.380 | .0055 | | | | | .0006 | .01 | 5.35 | .30 | 2.840 | .028 | | | IR-OPEN |
| 1000.000 | 2249.200 | 5.298 | 2254.498 | 1818.00 | 3.79 | .22 | 2254.72 | .00 | 2.47 | 100.00 | | 1 | | 0 .0 |
| 40.340 | .0040 | | | | | .0007 | .03 | 5.30 | .30 | 3.124 | .028 | | | IR-OPEN |
| 1040.340 | 2249.360 | 5.152 | 2254.512 | 1818.00 | 3.91 | .24 | 2254.75 | .00 | 2.47 | 100.00 | | 1 | | 0 .0 |
| JUNCT STR | .0040 | | | | | .0007 | .01 | 5.15 | .32 | | .028 | | | IR-OPEN |

---------- WARNING - Junction Analysis - Irregular Channel----------

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1050.340 | 2249.400 | 5.121 | 2254.521 | 1808.00 | 3.91 | .24 | 2254.76 | .00 | 2.46 | 100.00 | | 1 | | 0 .0 |
| HYDRAULIC JUMP | | | | | | | | | | | | | | |
| 1050.340 | 2249.400 | 4.727 | 2254.127 | 1808.00 | 18.21 | 5.15 | 2259.28 | .00 | 5.00 | 22.00 | 5.000 | 22.000 | .00 | 2 .5 |
| HYDRAULIC DROP | | | | | | | | | | | | | | |

---------- WARNING - Flow depth near top of box conduit ----------

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1050.340 | 2249.400 | 5.121 | 2254.521 | 1808.00 | 17.22 | 4.60 | 2259.12 | .00 | 5.00 | 22.00 | 5.000 | 22.000 | .00 | 2 .5 |
| 187.550 | .0040 | | | | | .0137 | 2.57 | 5.12 | 1.39 | 5.00 | .013 | .00 | .00 | BOX |

Green Park Holdings
Flow From I-15 to Las Vegas BLVD
gpsbalt3

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/ Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 1237.890 | 2250.150 | 6.945 | 2257.094 | 1808.00 | 17.22 | 4.60 | 2261.70 | .00 | 5.00 | 22.00 | 5.000 | 22.000 | .00 | 2 .5 |
| TRANS STR | .0038 | | | | | | | .00 | 1.39 | | .013 | .00 | .00 | BOX |
| 1316.540 | 2250.450 | 6.523 | 2256.973 | 1808.00 | 19.68 | 6.02 | 2262.99 | .00 | 6.52 | 7.64 | | 6 | | 0 .0 |
| .114 | .0042 | | | | | .0075 | .00 | 6.52 | 1.00 | 6.500 | .013 | | | IR-COV |
| 1316.654 | 2250.450 | 6.500 | 2256.950 | 1808.00 | 19.72 | 6.04 | 2262.99 | .00 | 6.52 | 7.83 | | 6 | | 0 .0 |
| 83.346 | .0042 | | | | | .0075 | .62 | 6.50 | 1.02 | 6.500 | .013 | | | IR-COV |
| 1400.000 | 2250.800 | 6.500 | 2257.300 | 1808.00 | 19.72 | 6.04 | 2263.34 | .00 | 6.52 | 7.83 | | 6 | | 0 .0 |
| 1400.000 | 2250.800 | 6.523 | 2257.323 | 1808.00 | 19.68 | 6.02 | 2263.34 | .00 | 6.52 | 7.64 | | 6 | | 0 .0 |
| .108 | .0040 | | | | | .0075 | .00 | 6.52 | 1.00 | 6.500 | .013 | | | IR-COV |
| 1400.108 | 2250.801 | 6.500 | 2257.301 | 1808.00 | 19.72 | 6.04 | 2263.34 | .00 | 6.52 | 7.83 | | 6 | | 0 .0 |
| 799.892 | .0040 | | | | | .0075 | 5.99 | 6.50 | 1.02 | 6.500 | .013 | | | IR-COV |
| 2200.000 | 2254.000 | 6.500 | 2260.500 | 1808.00 | 19.72 | 6.04 | 2266.54 | .00 | 6.52 | 7.83 | | 6 | | 0 .0 |
| 2200.000 | 2254.000 | 6.523 | 2260.523 | 1808.00 | 19.68 | 6.02 | 2266.54 | .00 | 6.52 | 7.64 | | 6 | | 0 .0 |
| .108 | .0040 | | | | | .0075 | .00 | 6.52 | 1.00 | 6.500 | .013 | | | IR-COV |
| 2200.108 | 2254.000 | 6.500 | 2260.500 | 1808.00 | 19.72 | 6.04 | 2266.54 | .00 | 6.52 | 7.83 | | 6 | | 0 .0 |
| 399.892 | .0040 | | | | | .0075 | 2.99 | 6.50 | 1.02 | 6.500 | .013 | | | IR-COV |
| 2600.000 | 2255.600 | 6.500 | 2262.100 | 1808.00 | 19.72 | 6.04 | 2268.14 | .00 | 6.52 | 7.83 | | 6 | | 0 .0 |
| 600.000 | 2255.600 | 6.523 | 2262.123 | 1808.00 | 19.68 | 6.02 | 2268.14 | .00 | 6.52 | 7.64 | | 6 | | 0 .0 |
| .107 | .0040 | | | | | .0075 | .00 | 6.52 | 1.00 | 6.500 | .013 | | | IR-COV |
| 2600.107 | 2255.601 | 6.500 | 2262.101 | 1808.00 | 19.72 | 6.04 | 2268.14 | .00 | 6.52 | 7.83 | | 6 | | 0 .0 |
| 338.183 | .0040 | | | | | .0075 | 2.53 | 6.50 | 1.02 | 6.500 | .013 | | | IR-COV |

Green Park Holdings
Flow From I-15 to Las Vegas BLVD
gpsbalt3

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 2938.290 | 2256.950 | 6.500 | 2263.450 | 1808.00 | 19.72 | 6.04 | 2269.49 | .00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 2938.290 | 2256.950 | 6.523 | 2263.473 | 1808.00 | 19.68 | 6.02 | 2269.49 | 7.00 | 6.52 | 7.64 | | 6 | 0 | .0 |
| .108 | .0040 | | | | | .0075 | .00 | 7.00 | 1.00 | 6.500 | .013 | | | IR-COV |
| 2938.398 | 2256.950 | 6.500 | 2263.450 | 1808.00 | 19.72 | 6.04 | 2269.49 | 7.00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 154.992 | .0040 | | | | | .0075 | 1.16 | 7.00 | 1.02 | 6.500 | .013 | | | IR-COV |
| 3093.390 | 2257.570 | 6.500 | 2264.070 | 1808.00 | 19.72 | 6.04 | 2270.11 | 7.00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 3093.390 | 2257.570 | 6.523 | 2264.093 | 1808.00 | 19.68 | 6.02 | 2270.11 | .00 | 6.52 | 7.64 | | 6 | 0 | .0 |
| .108 | .0040 | | | | | .0075 | .00 | 6.52 | 1.00 | 6.500 | .013 | | | IR-COV |
| 3093.498 | 2257.571 | 6.500 | 2264.071 | 1808.00 | 19.72 | 6.04 | 2270.11 | .00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 451.972 | .0040 | | | | | .0075 | 3.38 | 6.50 | 1.02 | 6.500 | .013 | | | IR-COV |
| 3545.470 | 2259.380 | 6.500 | 2265.880 | 1808.00 | 19.72 | 6.04 | 2271.92 | .00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 3545.470 | 2259.380 | 6.523 | 2265.903 | 1808.00 | 19.68 | 6.02 | 2271.92 | 7.00 | 6.52 | 7.64 | | 6 | 0 | .0 |
| .108 | .0040 | | | | | .0075 | .00 | 7.00 | 1.00 | 6.500 | .013 | | | IR-COV |
| 3545.578 | 2259.380 | 6.500 | 2265.880 | 1808.00 | 19.72 | 6.04 | 2271.92 | 7.00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 184.122 | .0040 | | | | | .0075 | 1.38 | 7.00 | 1.02 | 6.500 | .013 | | | IR-COV |
| 3729.700 | 2260.120 | 6.500 | 2266.620 | 1808.00 | 19.72 | 6.04 | 2272.66 | 7.00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 3729.700 | 2260.120 | 6.523 | 2266.643 | 1808.00 | 19.68 | 6.02 | 2272.66 | .00 | 6.52 | 7.64 | | 6 | 0 | .0 |
| .107 | .0040 | | | | | .0075 | .00 | 6.52 | 1.00 | 6.500 | .013 | | | IR-COV |
| 3729.807 | 2260.121 | 6.500 | 2266.621 | 1808.00 | 19.72 | 6.04 | 2272.66 | .00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 150.443 | .0040 | | | | | .0075 | 1.13 | 6.50 | 1.02 | 6.500 | .013 | | | IR-COV |
| 3880.250 | 2260.720 | 6.500 | 2267.220 | 1808.00 | 19.72 | 6.04 | 2273.26 | .00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 3880.250 | 2260.720 | 6.523 | 2267.243 | 1808.00 | 19.68 | 6.02 | 2273.26 | 7.00 | 6.52 | 7.64 | | 6 | 0 | .0 |
| .108 | .0040 | | | | | .0075 | .00 | 7.00 | 1.00 | 6.500 | .013 | | | IR-COV |

Green Park Holdings
Flow From 1-15 to Las Vegas BLVD
gpsbalt3

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/Dia.-FT or "N" | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 3880.358 | 2260.720 | 6.500 | 2267.220 | 1808.00 | 19.72 | 6.04 | 2273.26 | 7.00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 149.232 | .0040 | | | | | .0075 | 1.12 | 7.00 | 1.02 | 6.500 | .013 | | | IR-COV |
| 4029.590 | 2261.320 | 6.500 | 2267.820 | 1808.00 | 19.72 | 6.04 | 2273.86 | 7.00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 4029.590 | 2261.320 | 6.523 | 2267.843 | 1808.00 | 19.68 | 6.02 | 2273.86 | .00 | 6.52 | 7.64 | | 6 | 0 | .0 |
| .107 | .0040 | | | | | .0075 | .00 | 6.52 | 1.00 | 6.500 | .013 | | | IR-COV |
| 4029.698 | 2261.321 | 6.500 | 2267.821 | 1808.00 | 19.72 | 6.04 | 2273.86 | .00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 170.302 | .0040 | | | | | .0075 | 1.27 | 6.50 | 1.02 | 6.500 | .013 | | | IR-COV |
| 4200.000 | 2262.000 | 6.500 | 2268.500 | 1808.00 | 19.72 | 6.04 | 2274.54 | .00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 4200.000 | 2262.000 | 6.523 | 2268.523 | 1808.00 | 19.68 | 6.02 | 2274.54 | .00 | 6.52 | 7.64 | | 6 | 0 | .0 |
| .108 | .0040 | | | | | .0075 | .00 | 6.52 | 1.00 | 6.500 | .013 | | | IR-COV |
| 4200.108 | 2262.000 | 6.500 | 2268.500 | 1808.00 | 19.72 | 6.04 | 2274.54 | .00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 399.892 | .0040 | | | | | .0075 | 2.99 | 6.50 | 1.02 | 6.500 | .013 | | | IR-COV |
| 4600.000 | 2263.600 | 6.500 | 2270.100 | 1808.00 | 19.72 | 6.04 | 2276.14 | .00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 4600.000 | 2263.600 | 6.523 | 2270.123 | 1808.00 | 19.68 | 6.02 | 2276.14 | .00 | 6.52 | 7.64 | | 6 | 0 | .0 |
| .103 | .0038 | | | | | .0075 | .00 | 6.52 | 1.00 | 6.500 | .013 | | | IR-COV |
| 4600.103 | 2263.601 | 6.500 | 2270.101 | 1808.00 | 19.72 | 6.04 | 2276.14 | .00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 235.587 | .0038 | | | | | .0075 | 1.76 | 6.50 | 1.02 | 6.500 | .013 | | | IR-COV |
| 4835.690 | 2264.500 | 6.500 | 2271.000 | 1808.00 | 19.72 | 6.04 | 2277.04 | .00 | 6.52 | 7.83 | | 6 | 0 | .0 |
| 4835.690 | 2264.500 | 6.523 | 2271.023 | 1808.00 | 19.68 | 6.02 | 2277.04 | .00 | 6.52 | 7.64 | | 6 | 0 | .0 |
| 4.145 | -.0114 | | | | | .0083 | .03 | 6.52 | 1.00 | .000 | .013 | | | IR-COV |
| 4839.834 | 2264.453 | 6.849 | 2271.302 | 1808.00 | 19.28 | 5.77 | 2277.07 | .00 | 6.52 | 3.23 | | 6 | 0 | .0 |
| 5.988 | -.0114 | | | | | .0092 | .06 | 6.85 | .63 | .000 | .013 | | | IR-COV |

Green Park Holdings
Flow From I-15 to Las Vegas BLVD
gpsbalt3

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip | L/Elem | Ch Slope | SF Ave | HF | SE | Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4845.823 | 2264.385 | 7.000 | 2271.385 | 1808.00 | 19.23 | 5.74 | 2277.12 | .00 | 6.52 | .00 | | 6 | 0 | .0 | 16.177 | -.0114 | .0092 | .15 | 7.00 | .00 | .000 | .013 | | | IR-COV |
| 4862.000 | 2264.200 | 7.334 | 2271.534 | 1808.00 | 19.23 | 5.74 | 2277.27 | .00 | 6.52 | .00 | | 6 | 0 | .0 | JUNCT STR | .1250 | .0050 | .05 | .00 | .00 | | .013 | | | IR-COV |

---------- WARNING - Junction Analysis - Irregular Channel----------

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4872.000 | 2265.450 | 10.136 | 2275.586 | 1326.00 | 14.10 | 3.09 | 2278.67 | .00 | 5.72 | .00 | | 6 | 0 | .0 | 8.446 | .2178 | .0050 | .04 | .00 | .00 | 1.391 | .013 | | | IR-COV |
| 4880.446 | 2267.290 | 8.425 | 2275.715 | 1326.00 | 14.10 | 3.09 | 2278.80 | .00 | 5.72 | .00 | | 6 | 0 | .0 | HYDRAULIC JUMP | | | | | | | | | | |
| 4880.446 | 2267.290 | 3.546 | 2270.836 | 1326.00 | 23.89 | 8.86 | 2279.70 | 2.44 | 5.72 | 14.81 | | 6 | 0 | .0 | 1.792 | .2178 | .0132 | .02 | 5.98 | 2.18 | 1.391 | .013 | | | IR-COV |
| 4882.238 | 2267.680 | 3.650 | 2271.330 | 1326.00 | 23.25 | 8.39 | 2279.72 | 2.29 | 5.72 | 14.70 | | 6 | 0 | .0 | 2.777 | .2178 | .0119 | .03 | 5.94 | 2.08 | 1.391 | .013 | | | IR-COV |
| 4885.015 | 2268.285 | 3.841 | 2272.126 | 1326.00 | 22.17 | 7.63 | 2279.76 | 2.05 | 5.72 | 14.49 | | 6 | 0 | .0 | 2.365 | .2178 | .0104 | .02 | 5.89 | 1.92 | 1.391 | .013 | | | IR-COV |
| 4887.380 | 2268.800 | 4.044 | 2272.844 | 1326.00 | 21.13 | 6.94 | 2279.78 | .52 | 5.72 | 14.26 | | 6 | 0 | .0 | 204.620 | .0100 | .0096 | 1.96 | 4.56 | 1.78 | 4.001 | .013 | | | IR-COV |

FILE: gpsbalt3.WSW

W S P G W - CIVILDESIGN Version 14.05



Program Package Serial Number: 1439

WATER SURFACE PROFILE LISTING

Date: 3-26-2002 Time: 4:27:14

Green Park Holdings
Flow From I-15 to Las Vegas BLVD
gpsbalt3

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/Dia.-FT | Base Wt or I.D. | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE | Dpth Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 5092.000 | 2270.840 | 4.080 | 2274.920 | 1326.00 | 20.97 | 6.83 | 2281.75 | .00 | 5.72 | 14.21 | | 6 | 0 | .0 |
| 24.878 | .0249 | | | | | .0089 | .22 | 4.08 | 1.75 | 2.865 | .013 | | | IR-COV |
| 5116.878 | 2271.459 | 4.297 | 2275.756 | 1326.00 | 20.00 | 6.21 | 2281.97 | .00 | 5.72 | 13.90 | | 6 | 0 | .0 |
| 19.283 | .0249 | | | | | .0078 | .15 | 4.30 | 1.61 | 2.865 | .013 | | | IR-COV |
| 5136.161 | 2271.938 | 4.533 | 2276.472 | 1326.00 | 19.07 | 5.64 | 2282.12 | .00 | 5.72 | 13.56 | | 6 | 0 | .0 |
| 14.425 | .0249 | | | | | .0069 | .10 | 4.53 | 1.48 | 2.865 | .013 | | | IR-COV |
| 5150.585 | 2272.297 | 4.787 | 2277.084 | 1326.00 | 18.18 | 5.13 | 2282.22 | .00 | 5.72 | 13.13 | | 6 | 0 | .0 |
| 10.100 | .0249 | | | | | .0061 | .06 | 4.79 | 1.36 | 2.865 | .013 | | | IR-COV |
| 5160.686 | 2272.549 | 5.064 | 2277.613 | 1326.00 | 17.33 | 4.66 | 2282.28 | .00 | 5.72 | 12.59 | | 6 | 0 | .0 |
| 6.078 | .0249 | | | | | .0054 | .03 | 5.06 | 1.24 | 2.865 | .013 | | | IR-COV |
| 5166.763 | 2272.700 | 5.370 | 2278.070 | 1326.00 | 16.53 | 4.24 | 2282.31 | .00 | 5.72 | 11.81 | | 6 | 0 | .0 |
| 2.027 | .0249 | | | | | .0049 | .01 | 5.37 | 1.12 | 2.865 | .013 | | | IR-COV |
| 5168.790 | 2272.750 | 5.716 | 2278.466 | 1326.00 | 15.75 | 3.85 | 2282.32 | .73 | 5.72 | 10.91 | | 6 | 0 | .0 |
| TRANS STR | .0253 | | | | | | | 6.445 | 1.000 | | .013 | | | IR-COV |
| 5327.960 | 2276.770 | 1.908 | 2278.678 | 1326.00 | 19.30 | 5.79 | 2284.46 | 4.00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 33.760 | .0252 | | | | | .0166 | .56 | 4.00 | 2.50 | 1.69 | .013 | .00 | .00 | BOX |
| 5361.720 | 2277.620 | 1.968 | 2279.588 | 1326.00 | 18.72 | 5.44 | 2285.03 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 19.164 | .0255 | | | | | .0154 | .29 | 1.97 | 2.38 | 1.68 | .013 | .00 | .00 | BOX |

Green Park Holdings
Flow From I-15 to Las Vegas BLVD
gpsbalt3

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/ Dia.-FT or I.D. | Base Wt "N" | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | "N" | X-Fall | ZR | Type Ch |
| 5380.884 | 2278.109 | 2.013 | 2280.122 | 1326.00 | 18.30 | 5.20 | 2285.32 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 32.040 | .0255 | | | | | .0138 | .44 | 2.01 | 2.30 | 1.68 | .013 | .00 | .00 | BOX |
| 5412.924 | 2278.928 | 2.111 | 2281.039 | 1326.00 | 17.45 | 4.73 | 2285.77 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 24.157 | .0255 | | | | | .0120 | .29 | 2.11 | 2.15 | 1.68 | .013 | .00 | .00 | BOX |
| 5437.081 | 2279.545 | 2.214 | 2281.759 | 1326.00 | 16.64 | 4.30 | 2286.06 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 18.702 | .0255 | | | | | .0104 | .19 | 2.21 | 2.00 | 1.68 | .013 | .00 | .00 | BOX |
| 5455.782 | 2280.022 | 2.322 | 2282.344 | 1326.00 | 15.86 | 3.91 | 2286.25 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 14.671 | .0255 | | | | | .0091 | .13 | 2.32 | 1.86 | 1.68 | .013 | .00 | .00 | BOX |
| 5470.453 | 2280.397 | 2.435 | 2282.832 | 1326.00 | 15.12 | 3.55 | 2286.38 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 11.546 | .0255 | | | | | .0079 | .09 | 2.44 | 1.73 | 1.68 | .013 | .00 | .00 | BOX |
| 5481.999 | 2280.692 | 2.554 | 2283.246 | 1326.00 | 14.42 | 3.23 | 2286.48 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 9.032 | .0255 | | | | | .0068 | .06 | 2.55 | 1.61 | 1.68 | .013 | .00 | .00 | BOX |
| 5491.031 | 2280.923 | 2.679 | 2283.601 | 1326.00 | 13.75 | 2.94 | 2286.54 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 6.949 | .0255 | | | | | .0059 | .04 | 2.68 | 1.50 | 1.68 | .013 | .00 | .00 | BOX |
| 5497.980 | 2281.100 | 2.810 | 2283.910 | 1326.00 | 13.11 | 2.67 | 2286.58 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 119.408 | .0058 | | | | | .0054 | .64 | 2.81 | 1.40 | 2.76 | .013 | .00 | .00 | BOX |
| 5617.388 | 2281.795 | 2.875 | 2284.670 | 1326.00 | 12.81 | 2.55 | 2287.22 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 93.849 | .0058 | | | | | .0048 | .45 | 2.88 | 1.35 | 2.76 | .013 | .00 | .00 | BOX |

FILE: gpsbalt3.WSW W S P G W - CIVILDESIGN Version 14.05 PAGE 8
Program Package Serial Number: 1439
WATER SURFACE PROFILE LISTING Date: 3-26-2002 Time: 4:27:14

Green Park Holdings
Flow From I-15 to Las Vegas BLVD
gpsbalt3

| Station | Invert Elev | Depth (FT) | Water Elev | Q (CFS) | Vel (FPS) | Vel Head | Energy Grd.El. | Super Elev | Critical Depth | Flow Top Width | Height/Dia.-FT or I.D. | Base Wt "N" | ZL | No Wth Prs/Pip |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L/Elem | Ch Slope | | | | | SF Ave | HF | SE Dpth | Froude N | Norm Dp | X-Fall | ZR | Type Ch | |
| 5711.237 | 2282.341 | 3.016 | 2285.356 | 1326.00 | 12.21 | 2.32 | 2287.67 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 39.737 | .0058 | | | | | .0042 | .17 | 3.02 | 1.26 | 2.76 | .013 | .00 | .00 | BOX |
| 5750.974 | 2282.572 | 3.163 | 2285.735 | 1326.00 | 11.65 | 2.11 | 2287.84 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 17.362 | .0058 | | | | | .0037 | .06 | 3.16 | 1.17 | 2.76 | .013 | .00 | .00 | BOX |
| 5768.336 | 2282.673 | 3.317 | 2285.990 | 1326.00 | 11.10 | 1.91 | 2287.90 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| 4.664 | .0058 | | | | | .0032 | .01 | 3.32 | 1.09 | 2.76 | .013 | .00 | .00 | BOX |
| 5773.000 | 2282.700 | 3.480 | 2286.180 | 1326.00 | 10.58 | 1.74 | 2287.92 | .00 | 3.48 | 37.00 | 4.000 | 37.000 | .00 | 2 .5 |
| WALL | ENTRANCE | | | | | | | | | | | | | |
| 5773.000 | 2282.700 | 6.168 | 2288.868 | 1326.00 | 3.47 | .19 | 2289.05 | .00 | 2.46 | 64.07 | 4.000 | 60.000 | .33 | 0 .0 |
| 16.021 | .0163 | | | | | .0001 | .00 | 6.17 | .25 | 1.30 | .013 | .00 | .33 | TRAP |
| 5789.021 | 2282.961 | 5.890 | 2288.851 | 1326.00 | 3.63 | .21 | 2289.06 | .00 | 2.46 | 63.89 | 4.000 | 60.000 | .33 | 0 .0 |
| 14.008 | .0163 | | | | | .0001 | .00 | 5.89 | .27 | 1.30 | .013 | .00 | .33 | TRAP |
| 5803.030 | 2283.190 | 5.644 | 2288.834 | 1326.00 | 3.80 | .22 | 2289.06 | .00 | 2.46 | 63.73 | 4.000 | 60.000 | .33 | 0 .0 |

# *SOUTH BOX OUTLET HEC-RAS MODEL*

HEC-RAS Plan: Plan 01 River: Outlet Reach: 1

| Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| 1 | 242 | 2973.00 | 50.40 | 54.93 | 54.89 | 57.14 | 0.001786 | 11.94 | 248.96 | 55.00 | 0.99 |
| 1 | 241.5 | 2973.00 | 50.00 | 54.93 | 54.86 | 56.83 | 0.005517 | 11.42 | 303.58 | 99.25 | 0.91 |
| 1 | 241 | 2973.00 | 50.37 | 53.64 | 53.56 | 54.14 | 0.010973 | 6.99 | 584.26 | 423.00 | 0.73 |
| 1 | 240 | 2973.00 | 50.37 | 52.70 | | 53.11 | 0.013695 | 6.78 | 607.87 | 507.28 | 0.78 |
| 1 | 239 | 6470.00 | 44.37 | 48.62 | | 48.77 | 0.008506 | 6.06 | 2276.58 | 1214.19 | 0.69 |
| 1 | 238 | 6470.00 | 42.37 | 44.87 | 44.31 | 45.19 | 0.007540 | 5.94 | 1559.52 | 1048.73 | 0.66 |

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Southbox Outlet
*Project File : sbox.prj*
Run Date and Time: 3/25/2002 1:37:42 PM

Project in English units

PLAN DATA

Plan Title: Plan 01
Plan File : *C:\HEC\RAS\sbox.p01*

Geometry Title: Geom 01
Geometry File : C:\HEC\RAS\sbox.g01

Flow Title : *Flow 01*
Flow File : C:\HEC\RAS\sbox.f01

Plan Summary Information:
Number of: Cross Sections = 17 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 0

putational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = *0.01*
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Flow 01
Flow File : *C:\HEC\RAS\sbox.f01*

Flow Data (cfs)

| River | Reach | RS | PF 1 |
|---|---|---|---|
| Outlet | 1 | 242 | 2973 |
| Outlet | 1 | 239 | 0470 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Outlet | 1 | PF 1 | Known WS = 55.2 | Known WS = 44.87 |

GEOMETRY DATA

etry Title: Geom 01
metry File : C:\HEC\RAS\sbox.g01

CROSS SECTION RIVER: Outlet
REACH: 1 RS: 242

INPUT
Description:
Station Elevation Data num= 4

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|
| 1000 | 55.4 | 1000 | 50.4 | 1055 | 50.4 | 1055 | 55.4 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 1000 | .013 | 1000 | .013 | 1055 | .013 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1000 | 1055 | 77 | 77 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 57.14 | Element | | | |
| Vel Head (ft) | 2.21 | Wt. n-Val. | | 0.013 | |
| W.S. Elev (ft) | 54.93 | Reach Len. (ft) | 77.00 | 77.00 | 77.00 |
| Crit W.S. (ft) | 54.89 | Flow Area (sq ft) | | 248.96 | |
| E.G. Slope (ft/ft) | 0.001786 | Area (sq ft) | | 248.96 | |
| Q Total (cfs) | 2973.00 | Flow (cfs) | | 2973.00 | |
| Top Width (ft) | 55.00 | Top Width (ft) | | 55.00 | |
| Vel Total (ft/s) | 11.94 | Avg. Vel. (ft/s) | | 11.94 | |
| Max Chl Dpth (ft) | 4.53 | Hydr. Depth (ft) | | 4.53 | |
| Conv. Total (cfs) | 70346.8 | Conv. (cfs) | | 70346.8 | |
| Length Wtd. (ft) | 77.00 | Wetted Per. (ft) | | 64.05 | |
| Min Ch El (ft) | 50.40 | Shear (lb/sq ft) | | 0.43 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 5.18 | |
| Frctn Loss (ft) | 0.22 | Cum Volume (acre-ft) | 19.62 | 6.10 | 7.21 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 12.68 | 1.92 | 7.37 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Outlet
REACH: 1 RS: 241.5

INPUT
Description:
Station Elevation Data num= 7

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 1007 | 56 | 1020 | 50 | 1069 | 50 | 1076 | 54 | 1111 | 55 |
| 1158 | 56 | 1238 | 57 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 1007 | .04 | 1020 | .028 | 1069 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1020 | 1069 | 58.85 | 87.57 | 78.26 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 56.83 | Element | | | |
| Vel Head (ft) | 1.90 | Wt. n-Val. | 0.040 | 0.028 | 0.040 |
| W.S. Elev (ft) | 54.93 | Reach Len. (ft) | 58.85 | 87.57 | 78.26 |
| Crit W.S. (ft) | 54.86 | Flow Area (sq ft) | 26.33 | 241.59 | 35.66 |
| E.G. Slope (ft/ft) | 0.005517 | Area (sq ft) | 26.33 | 241.59 | 35.66 |
| Q Total (cfs) | 2973.00 | Flow (cfs) | 124.33 | 2758.49 | 90.18 |
| Top Width (ft) | 99.25 | Top Width (ft) | 10.68 | 49.00 | 39.56 |
| Vel Total (ft/s) | 9.79 | Avg. Vel. (ft/s) | 4.72 | 11.42 | 2.53 |
| Max Chl Dpth (ft) | 4.93 | Hydr. Depth (ft) | 2.47 | 4.93 | 0.90 |
| Conv. Total (cfs) | 40027.4 | Conv. (cfs) | 1673.9 | 37139.2 | 1214.2 |
| Length Wtd. (ft) | 85.47 | Wetted Per. (ft) | 11.77 | 49.00 | 40.64 |
| Min Ch El (ft) | 50.00 | Shear (lb/sq ft) | 0.77 | 1.70 | 0.30 |
| Alpha | 1.27 | Stream Power (lb/ft s) | 3.64 | 19.39 | 0.76 |
| Frctn Loss (ft) | 0.47 | Cum Volume (acre-ft) | 19.60 | 5.67 | 7.18 |
| C & E Loss (ft) | 0.18 | Cum SA (acres) | 12.67 | 1.82 | 7.33 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Outlet
REACH: 1 RS: 241.375*

INPUT
Description:
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 990.75 | 55.59 | 1015 | 50.33 | 1022.5 | 50.09 | 1024.22 | 50.09 | 1065.5 | 50.09 |
| 1070.5 | 50.47 | 1078.9 | 53.48 | 1120.89 | 54.31 | 1177.27 | 55.16 | 1273.25 | 56.08 |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 990.75 | .041 | 1015 | .032 | 1070.5 | .04 | 1273.25 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1015 | 1070.5 | 58.85 | 87.57 | 78.26 | .1 | .3 |

CROSS SECTION RIVER: Outlet
REACH: 1 RS: 241.25*

INPUT
Description:
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 974.5 | 55.18 | 1010 | 50.67 | 1025 | 50.18 | 1026.48 | 50.18 | 1062 | 50.18 |
| 1072 | 50.93 | 1081.8 | 52.96 | 1130.78 | 53.61 | 1196.55 | 54.31 | 1308.5 | 55.15 |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 974.5 | .043 | 1010 | .036 | 1072 | .04 | 1308.5 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1010 | 1072 | 58.85 | 87.57 | 78.26 | .1 | .3 |

CROSS SECTION RIVER: Outlet
REACH: 1 RS: 241.125*

INPUT
Description:
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 958.25 | 54.78 | 1005 | 51 | 1027.5 | 50.28 | 1028.74 | 50.28 | 1058.5 | 50.28 |
| 1073.5 | 51.4 | 1084.69 | 52.45 | 1140.66 | 52.92 | 1215.82 | 53.47 | 1343.75 | 54.23 |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 958.25 | .044 | 1005 | .041 | 1073.5 | .04 | 1343.75 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1005 | 1073.5 | 58.85 | 87.57 | 78.26 | .1 | .3 |

CROSS SECTION RIVER: Outlet
REACH: 1 RS: 241

INPUT
Description:
Station Elevation Data num= 7

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 942 | 54.37 | 1000 | 51.33 | 1030 | 50.37 | 1031 | 50.37 | 1055 | 50.37 |
| 1075 | 51.87 | 1379 | 53.31 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 942 | .045 | 1000 | .045 | 1075 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1000 | 1075 | 51.4 | 90.06 | 83.44 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 54.14 | Element | | | |
| Vel Head (ft) | 0.51 | Wt. n-Val. | 0.045 | 0.045 | 0.040 |
| W.S. Elev (ft) | 53.64 | Reach Len. (ft) | 51.40 | 90.06 | 83.44 |
| Crit W.S. (ft) | 53.56 | Flow Area (sq ft) | 50.73 | 215.55 | 317.98 |
| E.G. Slope (ft/ft) | 0.010973 | Area (sq ft) | 50.73 | 215.55 | 317.98 |
| Q Total (cfs) | 2973.00 | Flow (cfs) | 192.75 | 1506.16 | 1274.09 |
| Top Width (ft) | 423.00 | Top Width (ft) | 44.00 | 75.00 | 304.00 |
| Vel Total (ft/s) | 5.09 | Avg. Vel. (ft/s) | 3.80 | 6.99 | 4.01 |
| Max Chl Dpth (ft) | 3.27 | Hydr. Depth (ft) | 1.15 | 2.87 | 1.05 |
| Conv. Total (cfs) | 28381.5 | Conv. (cfs) | 1840.1 | 14378.4 | 12163.0 |
| Length Wtd. (ft) | 82.49 | Wetted Per. (ft) | 44.06 | 75.07 | 304.33 |
| Min Ch El (ft) | 50.37 | Shear (lb/sq ft) | 0.79 | 1.97 | 0.72 |
| Alpha | 1.26 | Stream Power (lb/ft s) | 3.00 | 13.74 | 2.87 |
| Frctn Loss (ft) | 1.00 | Cum Volume (acre-ft) | 19.31 | 3.63 | 6.02 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 12.51 | 1.32 | 6.08 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Outlet
REACH: 1 RS: 240

INPUT
Description:
Station Elevation Data num= 5

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 853 | 54.17 | 1000 | 50.37 | 1047 | 50.37 | 1334 | 52.37 | 1462 | 52.87 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 853 | .045 | 1000 | .045 | 1047 | .04 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1000 | 1047 | 101.5 | 87.25 | 84 | .1 | .3 |

SS SECTION OUTPUT  Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 53.11 | Element | | | |
| Vel Head (ft) | 0.41 | Wt. n-Val. | 0.045 | 0.045 | 0.040 |
| W.S. Elev (ft) | 52.70 | Reach Len. (ft) | 101.50 | 87.25 | 84.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 104.60 | 109.30 | 393.97 |
| E.G. Slope (ft/ft) | 0.013695 | Area (sq ft) | 104.60 | 109.30 | 393.97 |
| Q Total (cfs) | 2973.00 | Flow (cfs) | 446.84 | 741.33 | 1784.83 |
| Top Width (ft) | 507.28 | Top Width (ft) | 89.96 | 47.00 | 370.32 |
| Vel Total (ft/s) | 4.89 | Avg. Vel. (ft/s) | 4.27 | 6.78 | 4.53 |
| Max Chl Dpth (ft) | 2.33 | Hydr. Depth (ft) | 1.16 | 2.33 | 1.06 |
| Conv. Total (cfs) | 25404.7 | Conv. (cfs) | 3818.3 | 6334.8 | 15251.6 |
| Length Wtd. (ft) | 88.80 | Wetted Per. (ft) | 89.99 | 47.00 | 370.33 |
| Min Ch El (ft) | 50.37 | Shear (lb/sq ft) | 0.99 | 1.99 | 0.91 |
| Alpha | 1.11 | Stream Power (lb/ft s) | 4.25 | 13.49 | 4.12 |
| Frctn Loss (ft) | 1.13 | Cum Volume (acre-ft) | 19.22 | 3.29 | 5.34 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 12.43 | 1.20 | 5.43 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION  RIVER: Outlet
REACH: 1  RS: 239.75*

INPUT
Description:
Station Elevation Data  num=  16

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 860.22 | 53.22 | 900.44 | 51.94 | 920.19 | 51.81 | 1109.85 | 50.5 | 1118.03 | 50.45 |
| 1152.08 | 50.21 | 1162.97 | 50.14 | 1165.36 | 50.12 | 1275 | 50.37 | 1275.25 | 50.37 |
| 1279.75 | 49.37 | 1281 | 48.87 | 1316.25 | 48.87 | 1319 | 49.37 | 1581.62 | 51.53 |
| 1698.75 | 52.19 | | | | | | | | |

Manning's n Values  num=  4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 860.22 | .054 | 1275 | .044 | 1319 | .041 | 1698.75 | .041 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1275 | 1319 | 101.5 | 87.25 | 84 | .1 | .3 |

SS SECTION  RIVER: Outlet
REACH: 1  RS: 239.5*

INPUT
Description:
Station Elevation Data  num=  16

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 867.43 | 52.27 | 933.63 | 50.09 | 966.13 | 50 | 1278.24 | 49.13 | 1291.68 | 49.09 |
| 1347.72 | 48.93 | 1365.65 | 48.88 | 1369.57 | 48.87 | 1550 | 50.37 | 1550.5 | 50.37 |
| 1559.5 | 48.37 | 1562 | 47.37 | 1585.5 | 47.37 | 1591 | 48.37 | 1829.24 | 50.68 |
| 1935.5 | 51.52 | | | | | | | | |

Manning's n Values  num=  4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 867.43 | .062 | 1550 | .043 | 1591 | .043 | 1935.5 | .043 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1550 | 1591 | 101.5 | 87.25 | 84 | .1 | .3 |

CROSS SECTION  RIVER: Outlet
REACH: 1  RS: 239.25*

INPUT
Description:
Station Elevation Data  num=  16

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 874.65 | 51.32 | 966.81 | 48.23 | 1012.06 | 48.18 | 1446.62 | 47.75 | 1465.34 | 47.73 |
| 1543.36 | 47.65 | 1568.32 | 47.63 | 1573.79 | 47.62 | 1825 | 50.37 | 1825.75 | 50.37 |
| 1839.25 | 47.37 | 1843 | 45.87 | 1854.75 | 45.87 | 1863 | 47.37 | 2076.87 | 49.84 |
| 2172.25 | 50.84 | | | | | | | | |

Manning's n Values  num=  4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 874.65 | .071 | 1825 | .041 | 1863 | .044 | 2172.25 | .044 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1825 | 1863 | 101.5 | 87.26 | 84 | .1 | .3 |

CROSS SECTION  RIVER: Outlet
CH: 1  RS: 239

INPUT
Description:
Station Elevation Data  num=  14

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 881.87 | 50.37 | 1000 | 46.37 | 1058 | 46.37 | 1615 | 46.37 | 1639 | 46.37 |
| 1739 | 46.37 | 1771 | 46.37 | 1778 | 46.37 | 2100 | 50.37 | 2101 | 50.37 |
| 2119 | 46.37 | 2124 | 44.37 | 2135 | 46.37 | 2409 | 50.17 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 881.87 | .08 | 2100 | .04 | 2135 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 2100 | 2135 | 63.5 | 92.46 | 92.14 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 48.77 | Element | | | |
| Vel Head (ft) | 0.15 | Wt. n-Val. | 0.080 | 0.040 | 0.045 |
| W.S. Elev (ft) | 48.62 | Reach Len. (ft) | 63.50 | 92.46 | 92.14 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2030.42 | 63.43 | 182.74 |
| E.G. Slope (ft/ft) | 0.008506 | Area (sq ft) | 2030.42 | 63.43 | 182.74 |
| Q Total (cfs) | 6470.00 | Flow (cfs) | 5483.29 | 384.54 | 602.17 |
| Top Width (ft) | 1214.19 | Top Width (ft) | 1025.72 | 26.13 | 162.34 |
| Vel Total (ft/s) | 2.84 | Avg. Vel. (ft/s) | 2.70 | 6.06 | 3.30 |
| Max Chl Dpth (ft) | 4.25 | Hydr. Depth (ft) | 1.98 | 2.43 | 1.13 |
| Conv. Total (cfs) | 70152.6 | Conv. (cfs) | 59453.9 | 4169.5 | 6529.2 |
| Length Wtd. (ft) | 69.16 | Wetted Per. (ft) | 1025.78 | 26.94 | 162.35 |
| Min Ch El (ft) | 44.37 | Shear (lb/sq ft) | 1.05 | 1.25 | 0.60 |
| Alpha | 1.16 | Stream Power (lb/ft s) | 2.84 | 7.58 | 1.97 |
| Frctn Loss (ft) | 0.58 | Cum Volume (acre-ft) | 12.36 | 2.52 | 3.46 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 7.05 | 0.89 | 3.66 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION RIVER: Outlet
REACH: 1 RS: 238.833*

INPUT
Description:
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 901.56 | 49.7 | 988.23 | 46.68 | 1008.87 | 46.03 | 1061.56 | 46.01 | 1183.75 | 45.95 |
| 1567.57 | 45.74 | 1589.37 | 45.73 | 1643.33 | 45.7 | 1680.22 | 45.7 | 1709.29 | 45.7 |
| 1715.65 | 45.7 | 2008.17 | 49.04 | 2009 | 49.04 | 2024 | 45.7 | 2028.17 | 44.04 |
| 2038.33 | 44.04 | 2040 | 44.04 | 2046.33 | 44.04 | 2055.5 | 45.7 | 2167.21 | 47.07 |
| 2210.37 | 49.38 | | | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 901.56 | .074 | 2008.17 | .04 | 2055.5 | .045 | 2410.37 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 2008.17 | 2055.5 | 63.5 | 92.46 | 92.14 | .1 | .3 |

CROSS SECTION RIVER: Outlet
REACH: 1 RS: 238.666*

INPUT
Description:
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 921.25 | 49.04 | 999.19 | 46.22 | 1017.75 | 45.69 | 1065.13 | 45.64 | 1175 | 45.54 |
| 1520.14 | 45.12 | 1539.74 | 45.1 | 1588.26 | 45.04 | 1621.43 | 45.04 | 1647.57 | 45.04 |
| 1653.29 | 45.04 | 1916.33 | 47.7 | 1917 | 47.7 | 1929 | 45.04 | 1932.33 | 43.7 |
| 1952.67 | 43.7 | 1956 | 43.7 | 1968.67 | 43.7 | 1976 | 45.04 | 2113.17 | 46.57 |
| 2411.74 | 48.58 | | | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 921.25 | .068 | 1916.33 | .04 | 1976 | .045 | 2411.74 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1916.33 | 1976 | 63.5 | 92.46 | 92.14 | .1 | .3 |

CROSS SECTION RIVER: Outlet
REACH: 1 RS: 238.5*

INPUT
Description:
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 940.93 | 48.37 | 1010.14 | 45.75 | 1026.62 | 45.34 | 1068.69 | 45.28 | 1160.25 | 45.12 |
| 1472.71 | 44.49 | 1490.12 | 44.46 | 1533.2 | 44.37 | 1562.65 | 44.37 | 1585.86 | 44.37 |
| 1590.94 | 44.37 | 1824.5 | 46.37 | 1825 | 46.37 | 1834 | 44.37 | 1836.5 | 43.37 |
| 1867 | 43.37 | 1872 | 43.37 | 1891 | 43.37 | 1896.5 | 44.37 | 2059.13 | 46.07 |
| 2413.11 | 47.78 | | | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 940.93 | .062 | 1824.5 | .04 | 1896.5 | .045 | 2413.11 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1824.5 | 1896.5 | 63.5 | 92.46 | 92.14 | .1 | .3 |

[redacted]SS SECTION RIVER: Outlet
[redacted]ACH: 1 RS: 238.333*

INPUT
Description:
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 960.62 | 47.7 | 1021.09 | 45.29 | 1035.49 | 45 | 1072.25 | 44.91 | 1157.5 | 44.7 |
| 1425.28 | 43.87 | 1440.49 | 43.82 | 1478.13 | 43.7 | 1503.87 | 43.7 | 1524.15 | 43.7 |
| 1528.59 | 43.7 | 1732.67 | 45.04 | 1733 | 45.04 | 1739 | 43.7 | 1740.67 | 43.04 |
| 1781.33 | 43.04 | 1788 | 43.04 | 1813.33 | 43.04 | 1817 | 43.7 | 2005.08 | 45.58 |
| 2414.48 | 46.99 | | | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 960.62 | .057 | 1732.67 | .04 | 1817 | .045 | 2414.48 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1732.67 | 1817 | 63.5 | 92.46 | 92.14 | .1 | .3 |

CROSS SECTION RIVER: Outlet
REACH: 1 RS: 238.166*

INPUT
Description:
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 980.31 | 47.04 | 1032.05 | 44.83 | 1044.37 | 44.66 | 1075.82 | 44.55 | 1148.75 | 44.29 |
| 1377.85 | 43.24 | 1390.86 | 43.18 | 1423.07 | 43.04 | 1445.08 | 43.04 | 1462.44 | 43.04 |
| 1466.23 | 43.04 | 1640.83 | 43.7 | 1641 | 43.7 | 1644 | 43.04 | 1644.83 | 42.7 |
| 1695.67 | 42.7 | 1704 | 42.7 | 1735.67 | 42.7 | 1737.5 | 43.04 | 1951.04 | 45.08 |
| 2415.85 | 46.19 | | | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 980.31 | .051 | 1640.83 | .04 | 1737.5 | .045 | 2415.85 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1640.83 | 1737.5 | 63.5 | 92.46 | 92.14 | .1 | .3 |

[redacted]S SECTION RIVER: Outlet
[redacted]CH: 1 RS: 238

INPUT
Description:
Station Elevation Data num= 10

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 1000 | 46.37 | 1043 | 44.37 | 1140 | 43.87 | 1368 | 42.37 | 1549 | 42.37 |
| 1610 | 42.37 | 1620 | 42.37 | 1658 | 42.37 | 1897 | 44.58 | 2417.22 | 45.4 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 1000 | .045 | 1549 | .04 | 1658 | .045 |

| Bank Sta: Left | Right | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|
| 1549 | 1658 | 0 | 0 | 0 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 45.19 | Element | | | |
| Vel Head (ft) | 0.32 | Wt. n-Val. | 0.045 | 0.040 | 0.045 |
| W.S. Elev (ft) | 44.87 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 44.31 | Flow Area (sq ft) | 926.94 | 272.50 | 360.08 |
| E.G. Slope (ft/ft) | 0.007540 | Area (sq ft) | 926.94 | 272.50 | 360.08 |
| Q Total (cfs) | 6470.00 | Flow (cfs) | 3923.56 | 1619.09 | 927.35 |
| Top Width (ft) | 1048.73 | Top Width (ft) | 516.75 | 109.00 | 422.98 |
| Vel Total (ft/s) | 4.15 | Avg. Vel. (ft/s) | 4.23 | 5.94 | 2.58 |
| Max Chl Dpth (ft) | 2.50 | Hydr. Depth (ft) | 1.79 | 2.50 | 0.85 |
| Conv. Total (cfs) | 74512.1 | Conv. (cfs) | 45185.9 | 18646.4 | 10679.8 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 516.77 | 109.00 | 422.99 |
| Min Ch El (ft) | 42.37 | Shear (lb/sq ft) | 0.84 | 1.18 | 0.40 |
| Alpha | 1.20 | Stream Power (lb/ft s) | 3.57 | 6.99 | 1.03 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

SUMMARY OF MANNING'S N VALUES

[redacted]r:Outlet

| Reach | River Sta. | n1 | n2 | n3 | n4 |
|---|---|---|---|---|---|
| 1 | 242 | .013 | .013 | .013 | |

| | | | | | |
|---|---|---|---|---|---|
| 1 | 241.5 | .04 | .028 | .04 | |
| 1 | 241.375* | .041 | .032 | .04 | .04 |
| 1 | 241.25* | .043 | .036 | .04 | .04 |
| 1 | 241.125* | .044 | .041 | .04 | .04 |
| 1 | 241 | .045 | .045 | .04 | |
| 1 | 240 | .045 | .045 | .04 | |
| 1 | 239.75* | .054 | .044 | .041 | .041 |
| 1 | 239.5* | .062 | .043 | .043 | .043 |
| 1 | 239.25* | .071 | .041 | .044 | .044 |
| 1 | 239 | .08 | .04 | .045 | |
| 1 | 238.833* | .074 | .04 | .045 | .045 |
| 1 | 238.666* | .068 | .04 | .045 | .045 |
| 1 | 238.5* | .062 | .04 | .045 | .045 |
| 1 | 238.333* | .057 | .04 | .045 | .045 |
| 1 | 238.166* | .051 | .04 | .045 | .045 |
| 1 | 238 | .045 | .04 | .045 | |

SUMMARY OF REACH LENGTHS

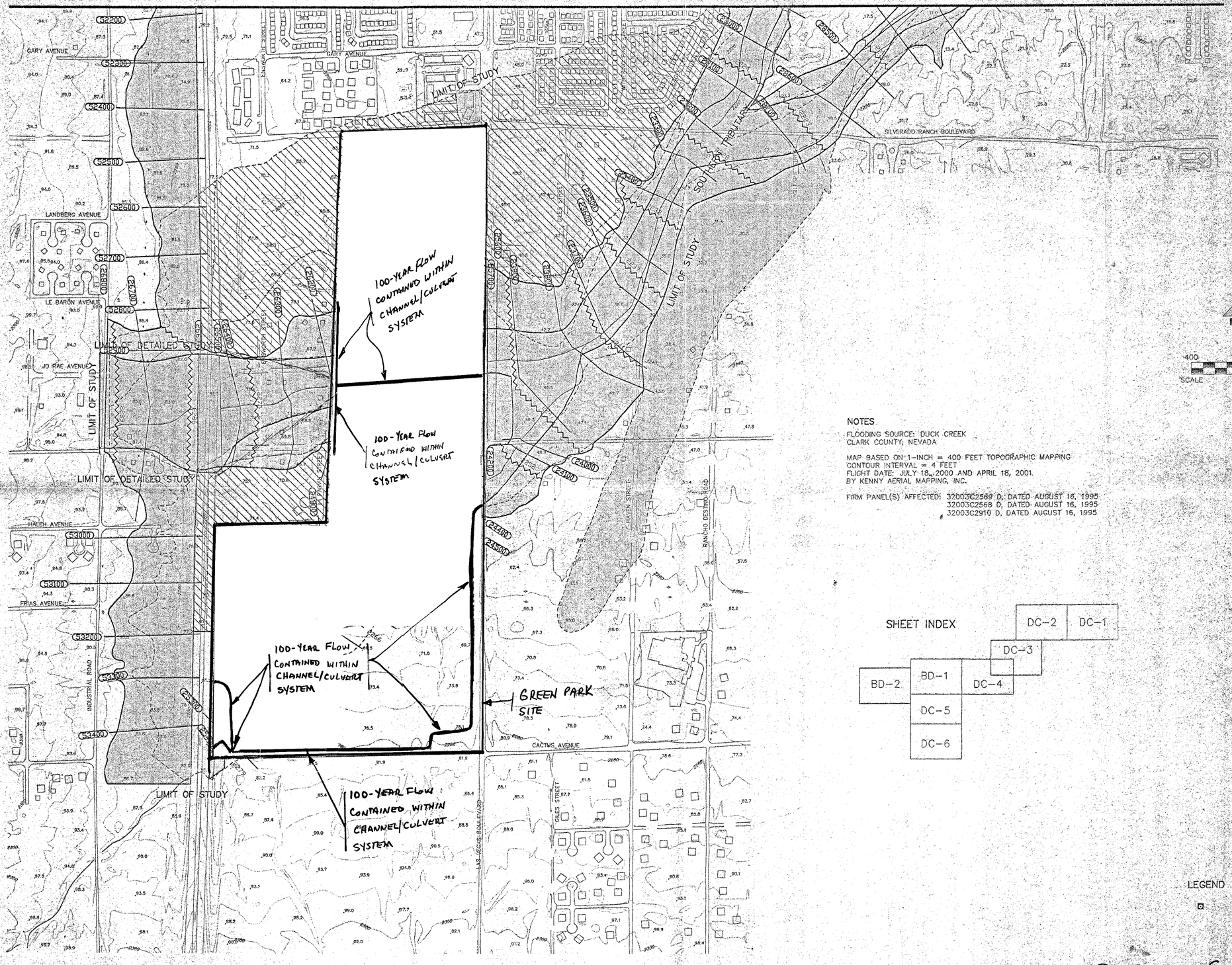
River: Outlet

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| 1 | 242 | 77 | 77 | 77 |
| 1 | 241.5 | 58.85 | 87.57 | 78.26 |
| 1 | 241.375* | 58.85 | 87.57 | 78.26 |
| 1 | 241.25* | 58.85 | 87.57 | 78.26 |
| 1 | 241.125* | 58.85 | 87.57 | 78.26 |
| 1 | 241 | 51.4 | 90.06 | 83.44 |
| 1 | 240 | 101.5 | 87.25 | 84 |
| 1 | 239.75* | 101.5 | 87.25 | 84 |
| 1 | 239.5* | 101.5 | 87.25 | 84 |
| 1 | 239.25* | 101.5 | 87.26 | 84 |
| 1 | 239 | 63.5 | 92.46 | 92.14 |
| 1 | 238.833* | 63.5 | 92.46 | 92.14 |
| 1 | 238.666* | 63.5 | 92.46 | 92.14 |
| 1 | 238.5* | 63.5 | 92.46 | 92.14 |
| 1 | 238.333* | 63.5 | 92.46 | 92.14 |
| 1 | 238.166* | 63.5 | 92.46 | 92.14 |
| 1 | 238 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Outlet

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| 1 | 242 | .1 | .3 |
| 1 | 241.5 | .1 | .3 |
| 1 | 241.375* | .1 | .3 |
| 1 | 241.25* | .1 | .3 |
| 1 | 241.125* | .1 | .3 |
| 1 | 241 | .1 | .3 |
| 1 | 240 | .1 | .3 |
| 1 | 239.75* | .1 | .3 |
| 1 | 239.5* | .1 | .3 |
| 1 | 239.25* | .1 | .3 |
| 1 | 239 | .1 | .3 |
| 1 | 238.833* | .1 | .3 |
| 1 | 238.666* | .1 | .3 |
| 1 | 238.5* | .1 | .3 |
| 1 | 238.333* | .1 | .3 |
| 1 | 238.166* | .1 | .3 |
| 1 | 238 | .1 | .3 |

SEE SHEET DC-5




NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18, 2000 AND APRIL 18, 2001.
BY KENNY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2569 D, DATED AUGUST 16, 1995
32003C2568 D, DATED AUGUST 16, 1995
32003C2910 D, DATED AUGUST 16, 1995

SHEET INDEX




LEGEND

ELEVATION REFERENCE MARKER

PROPOSED CONDITION FIRM

RECEIVED
FEB 01 2002
STANTEC

DESIGN
DRAWN
CHECK
ISSUE DATE
ISSUE EDITOR
PLOT DATE: 01-31-02
PLOT TIME: 14:28:45

| REV | DATE | DESCRIPTION | DATE | AGEN. | APP. | DATE | CNTY. APP. | DATE |
|---|---|---|---|---|---|---|---|---|

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

F:\550-039\Lag\map\samp\dc-5.dwg

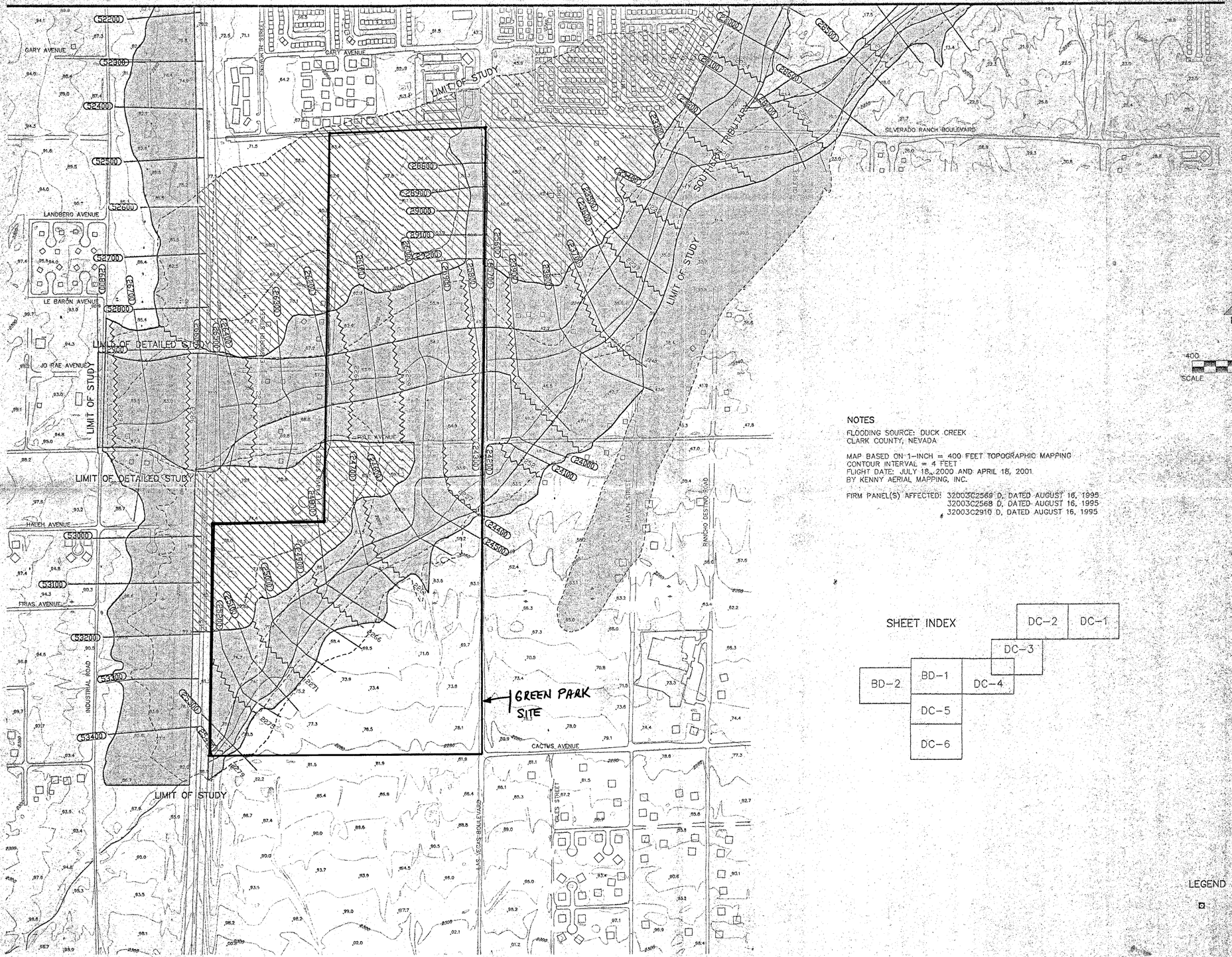
DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM I-15 TO RICHMAR AVENUE
CROSS SECTION EXHIBIT

SHEET
DC-6
6 OF 8 SHTS

01-31-02 14:28:45 Mlu.dwg

FEB 0 1 2002

SEE SHEET DC-5




NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18th, 2000 AND APRIL 18, 2001
BY KENNY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2569 D, DATED AUGUST 16, 1995
32003C2568 D, DATED AUGUST 16, 1995
32003C2910 D, DATED AUGUST 16, 1995

SHEET INDEX




LEGEND

ELEVATION REFERENCE MARKER

EXISTING CONDITION FIRM

RECEIVED
FEB 0 1 2002
STANTEC

DESIGN
DRAWN
CHECK
ISSUE DATE
ISSUE EDITOR
PLOT DATE 01-31-02
PLOT TIME 14:28:45

| REV | DATE | DESCRIPTION | DATE AGEN. APP | DATE COM. APP | DATE |
|---|---|---|---|---|---|


G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299


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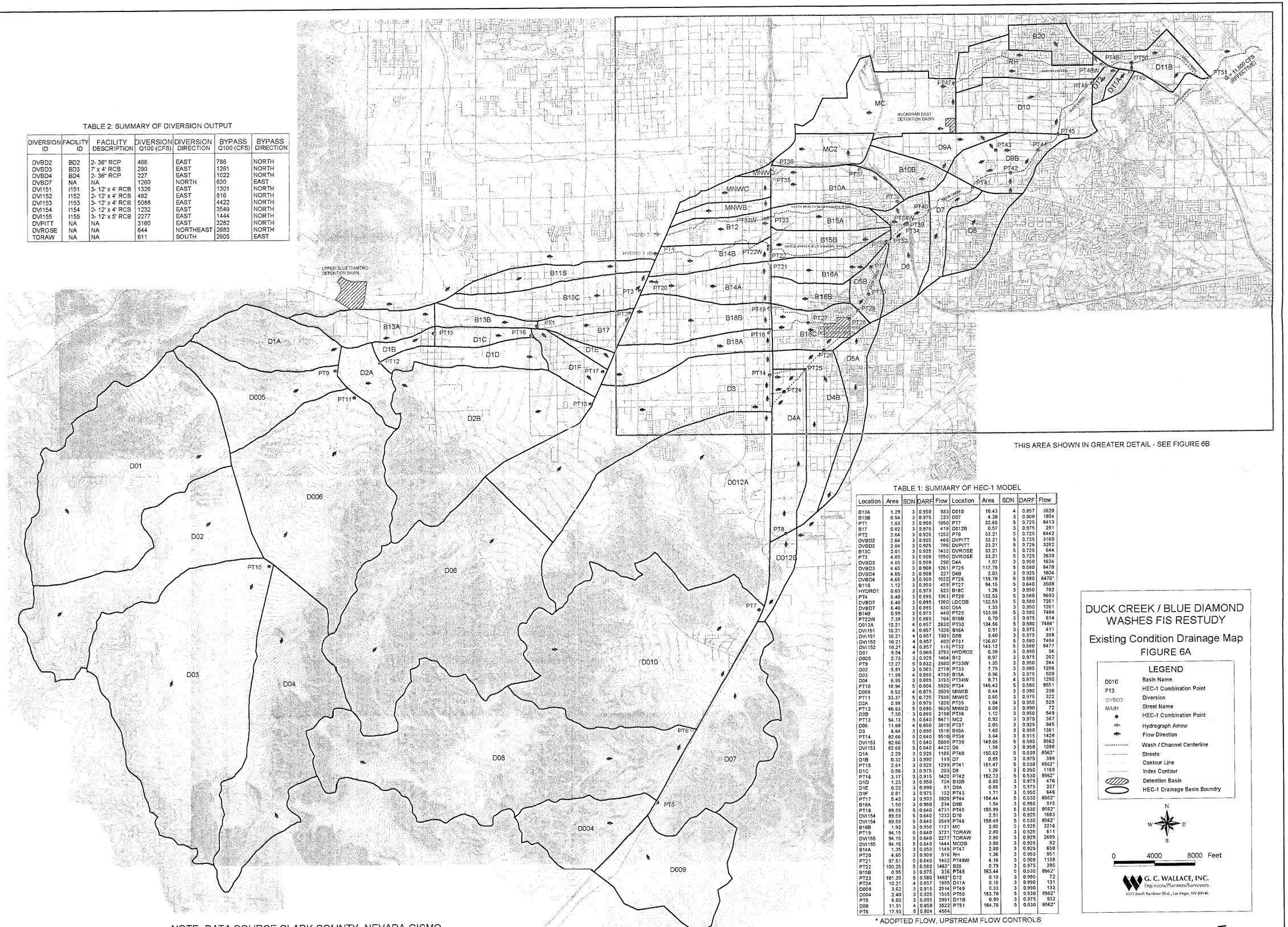
DUCK CREEK/ BLUE DIAMOND WASHES, FIS RESTUDY
DUCK CREEK FROM I-15 TO RICHMAR AVENUE
CROSS SECTION EXHIBIT

SHEET
DC-6
6 OF 8 SHTS

01-31-02 14:28:45 Mhuberg

TABLE 2: SUMMARY OF DIVERSION OUTPUT

| DIVERSION ID | FACILITY ID | FACILITY DESCRIPTION | DIVERSION Q100 (CFS) | DIVERSION DIRECTION | BYPASS Q100 (CFS) | BYPASS DIRECTION |
|---|---|---|---|---|---|---|
| DVBD2 | BD2 | 2- 36" RCP | 466 | EAST | 786 | NORTH |
| DVBD3 | BD3 | 7' x 4' RCB | 290 | EAST | 1261 | NORTH |
| DVBD4 | BD4 | 2- 36" RCP | 227 | EAST | 1022 | NORTH |
| DVBD7 | NA | NA | 1260 | NORTH | 630 | EAST |
| DVI151 | I151 | 3- 12' x 4' RCB | 1326 | EAST | 1301 | NORTH |
| DVI152 | I152 | 2- 12' x 4' RCB | 482 | EAST | 816 | NORTH |
| DVI153 | I153 | 3- 12' x 4' RCB | 5088 | EAST | 4422 | NORTH |
| DVI154 | I154 | 2- 12' x 4' RCB | 1232 | EAST | 3549 | NORTH |
| DVI155 | I155 | 3- 12' x 5' RCB | 2277 | EAST | 1444 | NORTH |
| DVPITT | NA | NA | 3160 | EAST | 3282 | NORTH |
| DVROSE | NA | NA | 644 | NORTHEAST | 2683 | NORTH |
| TORAW | NA | NA | 611 | SOUTH | 2605 | EAST |




THIS AREA SHOWN IN GREATER DETAIL - SEE FIGURE 6B

TABLE 1: SUMMARY OF HEC-1 MODEL

| Location | Area | SDN | DARF | Flow | Location | Area | SDN | DARF | Flow |
|---|---|---|---|---|---|---|---|---|---|
| B13A | 1.29 | 3 | 0.950 | 933 | D010 | 10.43 | 4 | 0.857 | 3620 |
| B13B | 0.54 | 3 | 0.975 | 223 | D07 | 4.28 | 3 | 0.908 | 1804 |
| PT1 | 1.83 | 3 | 0.950 | 1050 | PT7 | 32.65 | 5 | 0.725 | 6413 |
| B17 | 0.82 | 3 | 0.975 | 418 | D012B | 0.57 | 3 | 0.975 | 291 |
| PT2 | 2.64 | 3 | 0.925 | 1252 | PT8 | 33.21 | 5 | 0.725 | 6442 |
| DVBD2 | 2.64 | 3 | 0.925 | 466 | DVPITT | 33.21 | 5 | 0.725 | 3160 |
| DVBD2 | 2.64 | 3 | 0.925 | 786 | DVPITT | 33.21 | 5 | 0.725 | 3282 |
| B13C | 2.01 | 3 | 0.925 | 1432 | DVROSE | 33.21 | 5 | 0.725 | 644 |
| PT3 | 4.65 | 3 | 0.908 | 1550 | DVROSE | 33.21 | 5 | 0.725 | 2638 |
| DVBD3 | 4.65 | 3 | 0.908 | 290 | D4A | 1.87 | 3 | 0.950 | 1634 |
| DVBD3 | 4.65 | 3 | 0.908 | 1261 | PT25 | 117.75 | 5 | 0.580 | 6470 |
| DVBD4 | 4.65 | 3 | 0.908 | 227 | D4B | 2.03 | 3 | 0.925 | 1804 |
| DVBD4 | 4.65 | 3 | 0.908 | 1022 | PT26 | 119.78 | 5 | 0.580 | 6470* |
| B11S | 1.12 | 3 | 0.950 | 459 | PT27 | 94.16 | 5 | 0.640 | 3508 |
| HYDRO1 | 0.63 | 3 | 0.975 | 623 | B18C | 1.26 | 3 | 0.950 | 782 |
| PT4 | 6.40 | 3 | 0.895 | 1961 | PT28 | 132.53 | 5 | 0.580 | 9693 |
| DVBD7 | 6.40 | 3 | 0.895 | 1260 | LDCDB | 132.53 | 5 | 0.580 | 7261 |
| DVBD7 | 6.40 | 3 | 0.895 | 630 | D5A | 1.33 | 3 | 0.950 | 1261 |
| B14B | 0.99 | 3 | 0.975 | 440 | PT29 | 133.86 | 5 | 0.580 | 7484 |
| PT22W | 7.39 | 3 | 0.885 | 764 | B16B | 0.70 | 3 | 0.975 | 614 |
| D012A | 10.21 | 4 | 0.857 | 2630 | PT30 | 134.56 | 5 | 0.580 | 7484* |
| DVI151 | 10.21 | 4 | 0.857 | 1326 | B16A | 0.91 | 3 | 0.975 | 411 |
| DVI151 | 10.21 | 4 | 0.857 | 1301 | D5B | 0.60 | 3 | 0.975 | 398 |
| DVI152 | 10.21 | 4 | 0.857 | 482 | PT31 | 136.07 | 5 | 0.580 | 7484 |
| DVI152 | 10.21 | 4 | 0.857 | 516 | PT32 | 143.12 | 5 | 0.580 | 8477 |
| D01 | 9.54 | 4 | 0.865 | 3793 | HYDRO2 | 0.38 | 3 | 0.990 | 36 |
| D005 | 2.73 | 3 | 0.925 | 1464 | B12 | 0.97 | 3 | 0.975 | 262 |
| PT9 | 12.27 | 5 | 0.832 | 3580 | PT33W | 1.35 | 3 | 0.950 | 244 |
| D02 | 5.91 | 3 | 0.903 | 2778 | PT33 | 7.75 | 3 | 0.885 | 1286 |
| D03 | 11.99 | 4 | 0.850 | 4758 | B15A | 0.96 | 3 | 0.975 | 509 |
| D04 | 6.95 | 3 | 0.895 | 3193 | PT34W | 8.71 | 4 | 0.875 | 1290 |
| PT10 | 16.94 | 5 | 0.804 | 5920 | PT34 | 145.42 | 5 | 0.580 | 8551 |
| D006 | 8.52 | 4 | 0.875 | 3509 | MNWB | 0.44 | 3 | 0.990 | 236 |
| PT11 | 33.37 | 5 | 0.725 | 7598 | MNWC | 0.60 | 3 | 0.975 | 322 |
| D2A | 0.98 | 3 | 0.975 | 1028 | PT35 | 1.04 | 3 | 0.950 | 529 |
| PT12 | 46.63 | 5 | 0.695 | 9635 | MNWD | 0.08 | 3 | 0.990 | 72 |
| D2B | 7.50 | 3 | 0.885 | 2198 | PT36 | 1.12 | 3 | 0.950 | 549 |
| PT13 | 54.13 | 5 | 0.640 | 9471 | MC2 | 0.92 | 3 | 0.975 | 367 |
| D06 | 11.68 | 4 | 0.850 | 3819 | PT37 | 2.03 | 3 | 0.925 | 845 |
| D3 | 6.64 | 3 | 0.895 | 1518 | B10A | 1.60 | 3 | 0.950 | 1361 |
| PT14 | 82.66 | 5 | 0.640 | 9510 | PT38 | 3.64 | 3 | 0.915 | 1428 |
| DVI153 | 82.66 | 5 | 0.640 | 5088 | PT39 | 149.06 | 5 | 0.580 | 8562 |
| DVI153 | 82.66 | 5 | 0.640 | 4422 | D6 | 1.56 | 3 | 0.950 | 1098 |
| D1A | 2.29 | 3 | 0.925 | 1186 | PT40 | 150.62 | 5 | 0.530 | 8562* |
| D1B | 0.32 | 3 | 0.990 | 119 | D7 | 0.85 | 3 | 0.975 | 399 |
| PT15 | 2.61 | 3 | 0.925 | 1299 | PT41 | 151.47 | 5 | 0.530 | 8562* |
| D1C | 0.56 | 3 | 0.975 | 203 | D8 | 1.26 | 3 | 0.950 | 1169 |
| PT16 | 3.17 | 3 | 0.915 | 1420 | PT42 | 152.73 | 5 | 0.530 | 8562* |
| D1D | 1.23 | 3 | 0.950 | 734 | B10B | 0.85 | 3 | 0.975 | 476 |
| D1E | 0.22 | 3 | 0.990 | 81 | D9A | 0.86 | 3 | 0.975 | 227 |
| D1F | 0.81 | 3 | 0.975 | 192 | PT43 | 1.71 | 3 | 0.950 | 646 |
| PT17 | 5.43 | 3 | 0.903 | 1820 | PT44 | 154.44 | 5 | 0.530 | 8562* |
| B18A | 1.50 | 3 | 0.950 | 294 | D9B | 1.54 | 3 | 0.950 | 915 |
| PT18 | 89.59 | 5 | 0.640 | 4731 | PT45 | 155.99 | 5 | 0.530 | 8562* |
| DVI154 | 89.59 | 5 | 0.640 | 1232 | D10 | 2.51 | 3 | 0.925 | 1683 |
| DVI154 | 89.59 | 5 | 0.640 | 3549 | PT46 | 158.49 | 5 | 0.530 | 8562* |
| B18B | 1.92 | 3 | 0.950 | 1121 | MC | 2.80 | 3 | 0.925 | 3216 |
| PT19 | 94.15 | 5 | 0.640 | 3721 | TORAW | 2.80 | 3 | 0.925 | 611 |
| DVI155 | 94.15 | 5 | 0.640 | 2277 | TORAW | 2.80 | 3 | 0.925 | 2605 |
| DVI155 | 94.15 | 5 | 0.640 | 1444 | MCDB | 2.80 | 3 | 0.925 | 82 |
| B14A | 1.35 | 3 | 0.950 | 1145 | PT47 | 2.80 | 3 | 0.925 | 658 |
| PT20 | 4.65 | 3 | 0.908 | 516 | RH | 1.36 | 3 | 0.950 | 551 |
| PT21 | 97.51 | 5 | 0.640 | 1462 | PT48W | 4.16 | 3 | 0.908 | 1138 |
| PT22 | 100.25 | 5 | 0.580 | 1462* | B20 | 0.79 | 3 | 0.975 | 395 |
| B15B | 0.95 | 3 | 0.975 | 336 | PT48 | 163.44 | 5 | 0.530 | 8562* |
| PT23 | 101.20 | 5 | 0.580 | 1462* | D12 | 0.18 | 3 | 0.990 | 72 |
| PT24 | 10.21 | 4 | 0.857 | 1805 | D11A | 0.16 | 3 | 0.990 | 131 |
| D009 | 3.62 | 3 | 0.915 | 2534 | PT49 | 0.33 | 3 | 0.990 | 133 |
| D004 | 2.40 | 3 | 0.925 | 1555 | PT50 | 163.78 | 5 | 0.530 | 8562* |
| PT5 | 6.02 | 3 | 0.895 | 3901 | D11B | 0.99 | 3 | 0.975 | 932 |
| D08 | 11.91 | 4 | 0.850 | 3522 | PT51 | 164.76 | 5 | 0.530 | 8562* |
| PT6 | 17.93 | 5 | 0.804 | 4564 | | | | | |

* ADOPTED FLOW, UPSTREAM FLOW CONTROLS
AREA IN SQUARE MILES / FLOW IN CFS

NOTE: DATA SOURCE CLARK COUNTY, NEVADA GISMO

DUCK CREEK / BLUE DIAMOND WASHES FIS RESTUDY

Existing Condition Drainage Map

FIGURE 6A

LEGEND

| | |
|---|---|
| D010 | Basin Name |
| P13 | HEC-1 Combination Point |
| DVBD2 | Diversion |
| MAIN | Street Name |
| | HEC-1 Combination Point |
| | Hydrograph Arrow |
| | Flow Direction |
| | Wash / Channel Centerline |
| | Streets |
| | Contour Line |
| | Index Contour |
| | Detention Basin |
| | HEC-1 Drainage Basin Boundry |

N W E S

0 4000 8000 Feet

G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 South Rainbow Blvd., Las Vegas, NV 89146

Figure 3A

TABLE 2: SUMMARY OF DIVERSION OUTPUT

| DIVERSION ID | FACILITY ID | FACILITY DESCRIPTION | DIVERSION Q100 (CFS) | DIVERSION DIRECTION | BYPASS Q100 (CFS) | BYPASS DIRECTION |
|---|---|---|---|---|---|---|
| DVBD2 | BD2 | 2- 36" RCP | 466 | EAST | 786 | NORTH |
| DVBD3 | BD3 | 7' x 4' RCB | 290 | EAST | 1261 | NORTH |
| DVBD4 | BD4 | 2- 36" RCP | 227 | EAST | 1022 | NORTH |
| DVBD7 | NA | NA | 1260 | NORTH | 630 | EAST |
| DVI151 | I151 | 3- 12' x 4' RCB | 1326 | EAST | 1301 | NORTH |
| DVI152 | I152 | 2- 12' x 4' RCB | 482 | EAST | 816 | NORTH |
| DVI153 | I153 | 3- 12' x 4' RCB | 5125 | EAST | 4385 | NORTH |
| DVI154 | I154 | 2- 12' x 4' RCB | 1230 | EAST | 3516 | NORTH |
| DVI155 | I155 | 3- 12' x 5' RCB | 2270 | EAST | 1421 | NORTH |
| DVPITT | NA | NA | 3160 | EAST | 3282 | NORTH |
| DVROSE | NA | NA | 644 | NORTHEAST | 2683 | NORTH |
| TORAW | NA | NA | 611 | SOUTH | 2605 | EAST |

TABLE 1: SUMMARY OF HEC-1 MODEL

| Location | Area | SDN | DARF | Flow | Location | Area | SDN | DARF | Flow |
|---|---|---|---|---|---|---|---|---|---|
| B13A | 1.29 | 3 | 0.950 | 933 | D010 | 10.43 | 4 | 0.857 | 3620 |
| B13B | 0.54 | 3 | 0.975 | 223 | D07 | 4.28 | 3 | 0.908 | 1804 |
| PT1 | 1.83 | 3 | 0.950 | 1050 | PT7 | 32.65 | 5 | 0.725 | 6413 |
| B17 | 0.82 | 3 | 0.975 | 418 | D012B | 0.57 | 3 | 0.975 | 291 |
| PT2 | 2.64 | 3 | 0.925 | 1252 | PT8 | 33.21 | 5 | 0.725 | 6442 |
| DVBD2 | 2.64 | 3 | 0.925 | 466 | DVPITT | 33.21 | 5 | 0.725 | 3160 |
| DVBD2 | 2.64 | 3 | 0.925 | 786 | DVPITT | 33.21 | 5 | 0.725 | 3282 |
| B13C | 2.01 | 3 | 0.925 | 1432 | DVROSE | 33.21 | 5 | 0.725 | 644 |
| PT3 | 4.65 | 3 | 0.908 | 1550 | DVROSE | 33.21 | 5 | 0.725 | 2638 |
| DVBD3 | 4.65 | 3 | 0.908 | 290 | D4A | 1.87 | 3 | 0.950 | 1634 |
| DVBD3 | 4.65 | 3 | 0.908 | 1261 | PT25 | 117.75 | 5 | 0.580 | 6470 |
| DVBD4 | 4.65 | 3 | 0.908 | 227 | D4B | 2.03 | 3 | 0.925 | 1804 |
| DVBD4 | 4.65 | 3 | 0.908 | 1022 | PT26 | 119.78 | 5 | 0.580 | 6470* |
| B11S | 1.12 | 3 | 0.950 | 459 | PT27 | 94.15 | 5 | 0.640 | 3499 |
| HYDRO1 | 0.63 | 3 | 0.975 | 623 | B18C | 1.26 | 3 | 0.950 | 782 |
| PT4 | 6.40 | 3 | 0.895 | 1961 | PT28 | 132.53 | 5 | 0.580 | 9693 |
| DVBD7 | 6.40 | 3 | 0.895 | 1260 | LDCDB | 132.53 | 5 | 0.580 | 7261 |
| DVBD7 | 6.40 | 3 | 0.895 | 630 | D5A | 1.33 | 3 | 0.950 | 1261 |
| B14B | 0.99 | 3 | 0.975 | 440 | PT29 | 133.86 | 5 | 0.580 | 7484 |
| PT22W | 7.39 | 3 | 0.885 | 764 | B16B | 0.70 | 3 | 0.975 | 614 |
| D012A | 10.21 | 4 | 0.857 | 2630 | PT30 | 134.56 | 5 | 0.580 | 7484* |
| DVI151 | 10.21 | 4 | 0.857 | 1326 | B16A | 0.91 | 3 | 0.975 | 411 |
| DVI151 | 10.21 | 4 | 0.857 | 1301 | D5B | 0.60 | 3 | 0.975 | 398 |
| DVI152 | 10.21 | 4 | 0.857 | 482 | PT31 | 135.07 | 5 | 0.580 | 7484 |
| DVI152 | 10.21 | 4 | 0.857 | 816 | PT32 | 143.12 | 5 | 0.580 | 8477 |
| D01 | 9.54 | 4 | 0.865 | 3793 | HYDRO2 | 0.38 | 3 | 0.990 | 36 |
| D005 | 2.73 | 3 | 0.925 | 1464 | B12 | 0.97 | 3 | 0.975 | 262 |
| PT9 | 12.27 | 5 | 0.832 | 3580 | PT33W | 1.35 | 3 | 0.950 | 244 |
| D02 | 5.91 | 3 | 0.903 | 2778 | PT33 | 7.75 | 3 | 0.885 | 1286 |
| D03 | 11.99 | 4 | 0.850 | 4758 | B15A | 0.96 | 3 | 0.975 | 509 |
| D04 | 6.95 | 3 | 0.895 | 3193 | PT34W | 8.71 | 4 | 0.875 | 1290 |
| PT10 | 18.94 | 5 | 0.804 | 5920 | PT34 | 145.42 | 5 | 0.580 | 8551 |
| D006 | 8.52 | 4 | 0.875 | 3505 | MNWB | 0.44 | 3 | 0.990 | 236 |
| PT11 | 33.37 | 5 | 0.725 | 7588 | MNWC | 0.60 | 3 | 0.975 | 322 |
| D2A | 0.99 | 3 | 0.975 | 1028 | PT35 | 1.04 | 3 | 0.950 | 529 |
| PT12 | 46.83 | 5 | 0.695 | 9635 | MNWD | 0.08 | 3 | 0.990 | 72 |
| D2B | 7.50 | 3 | 0.885 | 2188 | PT36 | 1.12 | 3 | 0.950 | 549 |
| PT13 | 54.13 | 5 | 0.640 | 8471 | MC2 | 0.92 | 3 | 0.975 | 367 |
| D08 | 11.68 | 4 | 0.850 | 3819 | PT37 | 2.03 | 3 | 0.925 | 845 |
| D3 | 6.64 | 3 | 0.895 | 1518 | B10A | 1.60 | 3 | 0.950 | 1361 |
| PT14 | 82.66 | 5 | 0.640 | 9510 | PT38 | 3.64 | 3 | 0.915 | 1428 |
| DVI153 | 82.66 | 5 | 0.640 | 5125 | PT39 | 149.06 | 5 | 0.580 | 8562 |
| DVI153 | 82.66 | 5 | 0.640 | 4385 | D6 | 1.56 | 3 | 0.950 | 1098 |
| D1A | 2.29 | 3 | 0.925 | 1186 | PT40 | 150.62 | 5 | 0.530 | 8562* |
| D1B | 0.32 | 3 | 0.990 | 149 | D7 | 0.85 | 3 | 0.975 | 399 |
| PT15 | 2.61 | 3 | 0.925 | 1299 | PT41 | 151.47 | 5 | 0.530 | 8562* |
| D1C | 0.86 | 3 | 0.975 | 203 | D8 | 1.26 | 3 | 0.950 | 1169 |
| PT16 | 3.17 | 3 | 0.915 | 1420 | PT42 | 152.73 | 5 | 0.530 | 8562* |
| D1D | 1.23 | 3 | 0.950 | 764 | B10B | 0.85 | 3 | 0.975 | 476 |
| D1E | 0.22 | 3 | 0.990 | 81 | D9A | 0.86 | 3 | 0.975 | 227 |
| D1F | 0.81 | 3 | 0.975 | 162 | PT43 | 1.71 | 3 | 0.950 | 648 |
| PT17 | 5.43 | 3 | 0.903 | 1820 | PT44 | 154.44 | 5 | 0.530 | 8562* |
| B18A | 1.50 | 3 | 0.950 | 294 | D9B | 1.54 | 3 | 0.950 | 915 |
| PT18 | 89.59 | 5 | 0.640 | 4746 | PT45 | 155.99 | 5 | 0.530 | 8562* |
| DVI154 | 89.59 | 5 | 0.640 | 1230 | D10 | 2.51 | 3 | 0.925 | 1683 |
| DVI154 | 89.59 | 5 | 0.640 | 3516 | PT46 | 158.49 | 5 | 0.530 | 8562* |
| B18B | 1.92 | 3 | 0.950 | 1121 | MC | 2.80 | 3 | 0.925 | 3216 |
| PT19 | 94.15 | 5 | 0.640 | 3890 | TORAW | 2.80 | 3 | 0.925 | 611 |
| DVI155 | 94.15 | 5 | 0.640 | 2270 | TORAW | 2.80 | 3 | 0.925 | 2605 |
| DVI155 | 94.15 | 5 | 0.640 | 1421 | MCDB | 2.80 | 3 | 0.925 | 82 |
| B14A | 1.35 | 3 | 0.950 | 1145 | PT47 | 2.80 | 3 | 0.925 | 658 |
| PT20 | 4.65 | 3 | 0.908 | 516 | RH | 1.36 | 3 | 0.950 | 551 |
| PT21 | 97.51 | 5 | 0.640 | 1441 | PT48W | 4.16 | 3 | 0.908 | 1138 |
| PT22 | 100.25 | 5 | 0.580 | 1441* | B20 | 0.79 | 3 | 0.975 | 395 |
| B15B | 0.95 | 3 | 0.975 | 356 | PT48 | 163.44 | 5 | 0.530 | 8562* |
| PT23 | 101.20 | 5 | 0.580 | 1441* | D12 | 0.18 | 3 | 0.990 | 72 |
| PT24 | 10.21 | 4 | 0.857 | 1805 | D11A | 0.16 | 3 | 0.990 | 131 |
| D009 | 3.82 | 3 | 0.915 | 2594 | PT49 | 0.33 | 3 | 0.990 | 133 |
| D004 | 2.40 | 3 | 0.925 | 1565 | PT50 | 163.78 | 5 | 0.530 | 8562* |
| PT5 | 6.02 | 3 | 0.895 | 3901 | D11B | 0.99 | 3 | 0.975 | 932 |
| D08 | 11.91 | 4 | 0.850 | 3522 | PT51 | 164.76 | 5 | 0.530 | 8562* |
| PT6 | 17.93 | 5 | 0.804 | 4564 | | | | | |

* ADOPTED FLOW, UPSTREAM FLOW CONTROLS
AREA IN SQUARE MILES / FLOW IN CFS

PT25A — 2973
PT25B — 6368

# DUCK CREEK / BLUE DIAMOND WASHES FIS RESTUDY

## Existing Condition Drainage Map

FIGURE 6B

LEGEND

- D010 — Basin Name
- BD2 — Bridge / Culvert ID
- P13 — HEC-1 Combination Point
- DVBD2 — Diversion / Inflow Hydrograph
- MAIN — Street Name
- HEC-1 Combination Point
- Bridge / Culvert Location
- Inflow Hydrograph
- Flow Direction
- Wash / Channel Centerline
- Streets
- Contour Line
- Index Contour
- Detention Basin
- HEC-1 Drainage Basin Boundry

N E S W

0 2000 4000 Feet

G. C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 South Rainbow Blvd., Las Vegas, NV 89146

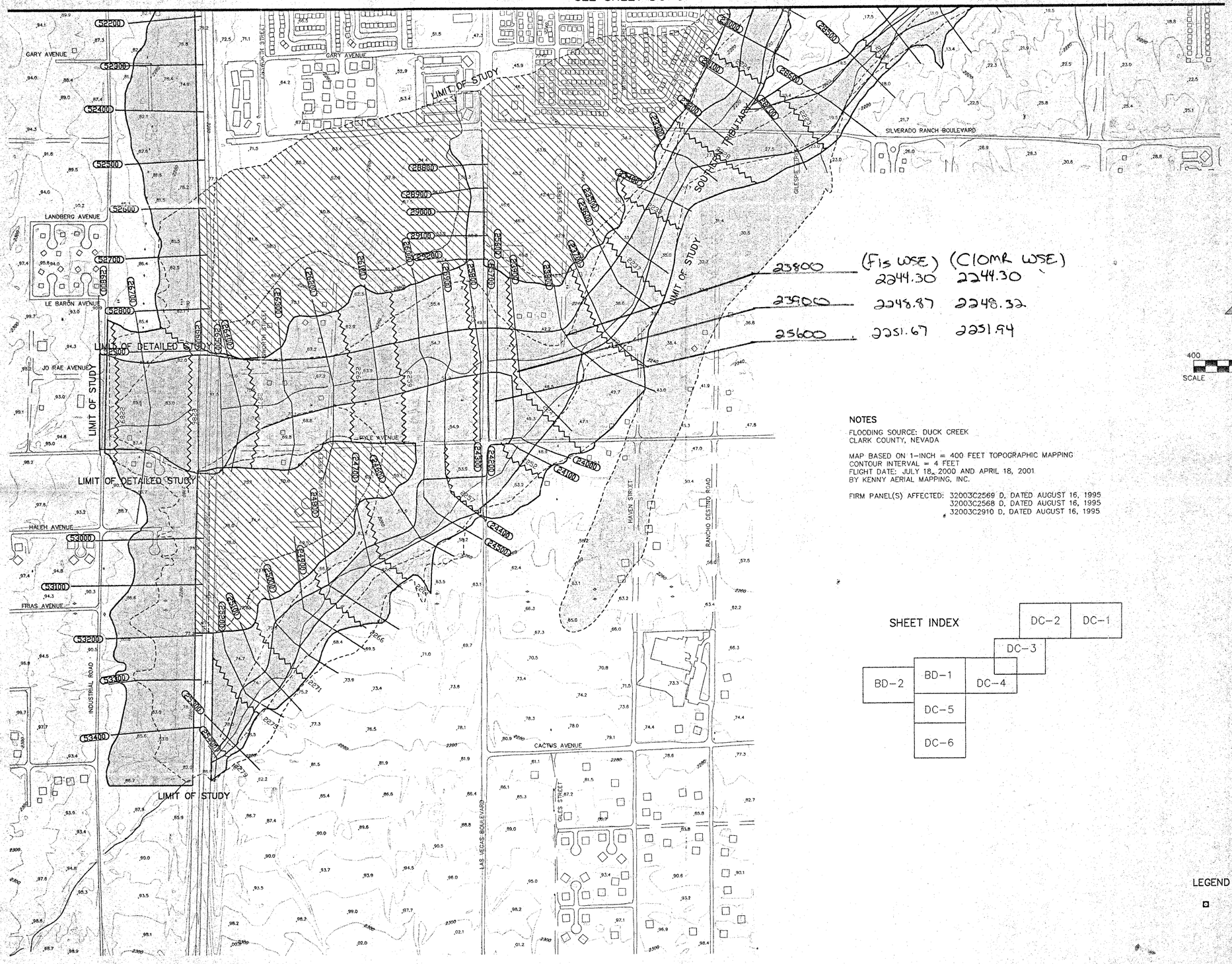
Figure 3B

SEE FIGURE 6A

SEE FIGURE 6A

NOTE: DATA SOURCE CLARK COUNTY, NEVADA GISMO

SEE SHEET DC-5




NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 18,, 2000 AND APRIL 18, 2001
BY KENNY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2569 D, DATED AUGUST 16, 1995
32003C2568 D, DATED AUGUST 16, 1995
32003C2910 D, DATED AUGUST 16, 1995

SHEET INDEX




LEGEND

ELEVATION REFERENCE MARKER

NORTH

SCALE 1" = 400'

400 0 400 800
SCALE FEET

RECEIVED
FEB 0 1 2002
STANTEC

North Box Figure 6

FEB 0 5 2002

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE:01-31-02
PLOT TIME: 14:28:45

| REV | DATE | DESCRIPTION | DATE AGEN. APP | DATE BCCW. APP | DATE |
|---|---|---|---|---|---|

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 364-2000 • FAX: (702) 364-2299
F:\5501-039\dwg\top\dc-6.dwg

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM I-15 TO RICHMAR AVENUE
CROSS SECTION EXHIBIT

SHEET
DC-6
6 OF 8 SHTS

F:\5501-039\dwg\mop\samop\dc-6.dwg Mladwig 01-31-02 14:28:45

## LEGAL DESCRIPTION (CONTINUED)

### PARCEL 25–H:

THE EAST HALF (E 1/2) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE SOUTH 40 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 25–I:

THE NORTH HALF (N 1/2) OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE NORTH 30 FEET AND THE WEST 30 FEET TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE NORTHWEST CORNER THEREOF CONCAVE SOUTHEASTERLY AND BEING TANGENT TO THE SOUTH LINE OF SAID NORTH 30 FEET AND TANGENT TO THE EAST LINE OF SAID WEST 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL TWENTY–SIX (26):

THE EAST HALF (E 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM THE NORTH THIRTY (30) FEET AND THE EAST THIRTY (30) FEET AS CONVEYED TO CLARK COUNTY BY DEED RECORDED AUGUST 13, 1979 AS DOCUMENT NO. 1060130, OF OFFICIAL RECORDS.

### PARCEL TWENTY–SEVEN (27):

THE NORTH HALF (N 1/2) OF THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL TWENTY–EIGHT (28):

THE SOUTH HALF (S 1/2) OF THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM:
ANY PORTION OF SAID LAND LYING WITHIN STATE HIGHWAY 91–466 AS THE SAME EXISTS NOW.

### PARCEL TWENTY–NINE (29):

THE NORTH HALF (N 1/2) OF THE SOUTH HALF (S 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM ANY PORTION OF SAID LAND LYING WITHIN THE BOUNDARIES OF STATE HIGHWAY 91–465.

### PARCEL THIRTY (30):

THE WEST HALF (W 1/2) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL THIRTY–ONE (31):

THE EAST HALF (E 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22, RANGE 61 EAST, M.D.B. & M.

### PARCEL THIRTY–TWO (32):

THE EAST HALF (E 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M., CLARK COUNTY, NEVADA.

### PARCEL THIRTY–THREE (33):

THE WEST HALF (W 1/2) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM THAT PORTION CONVEYED TO CLARK COUNTY IN DEED RECORDED JANUARY 13, 1995 IN BOOK 950113 AS DOCUMENT NO. 00968, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

### PARCEL THIRTY–FOUR (34):

THE NORTH HALF (N 1/2) OF THE SOUTH HALF (S 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM ANY PORTION OF SAID LAND LYING WITHIN THE STATE HIGHWAY 91–466 AS THE SAME NOW EXISTS.

### PARCEL THIRTY–FIVE (35):

THE SOUTH HALF (S 1/2) OF THE SOUTH HALF (S 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE WEST 30 FEET AND THE SOUTH 40 FEET TOGETHER WITH A 20 FOOT SPANDREL AREA IN THE SOUTHWEST CORNER THEREOF CONCAVE NORTHEASTERLY AND BEING TANGENT TO THE EAST LINE OF SAID WEST 30 FEET AND TANGENT TO THE NORTH LINE OF SAID SOUTH 40 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL THIRTY–SIX (36):

THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL THIRTY–SEVEN (37):

THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M., CLARK COUNTY, NEVADA.

### PARCEL THIRTY–EIGHT (38):

THE NORTH HALF (N 1/2) OF THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. M.

### PARCEL THIRTY–NINE (39):

THE SOUTH HALF (S 1/2) OF THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM ANY PORTION LYING WITHIN STATE HIGHWAY 91–466.

### PARCEL FORTY (40):

THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M., CLARK COUNTY, NEVADA.

### PARCEL FORTY–ONE (41):

THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M., CLARK COUNTY, NEVADA.

### PARCEL FORTY–TWO (42):

THE NORTH HALF (N 1/2) OF THE SOUTH HALF (S 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M., CLARK COUNTY, NEVADA.
EXCEPTING THEREFROM ANY PORTION LYING EASTERLY OF THE WESTERLY RIGHT OF WAY LINE OF STATE HIGHWAY 91–466 AS ESTABLISHED BY CERTIFICATE OF ABANDONMENT RECORDED JANUARY 21, 1982 AS DOCUMENT NO. 1472122, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

## LEGAL DESCRIPTION (CONTINUED)

### PARCEL FORTY–THREE (43):

THE SOUTH HALF (S 1/2) OF THE SOUTH HALF (S 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM THE SOUTH THIRTY (30) FEET OF LAND, AS CONVEYED TO CLARK COUNTY FOR ROAD AND INCIDENTAL PURPOSES, BY GRANT DEED RECORDED MAY 9, 1973, IN BOOK 326 AS INSTRUMENT NO. 285365, OF OFFICIAL RECORDS, CLARK COUNTY, NEVADA.
ALSO SAVING AND EXCEPTING THEREFROM ANY PORTION LYING WITHIN STATE HIGHWAY 91–466 THEREOF.

### PARCEL FORTY–FOUR "A" (44 "A") THROUGH FORTY–FOUR "E" (44 "E"):

### PARCEL 44–A:

THE WEST HALF (W 1/2) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE NORTH 30 FEET, THE WEST 30 FEET AND THE SOUTH 30 FEET TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE NORTHWEST CORNER THEREOF CONCAVE SOUTHEASTERLY AND BEING TANGENT TO THE SOUTH LINE OF SAID NORTH 30 FEET AND TANGENT TO THE EAST LINE OF SAID WEST 30 FEET, ALSO TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE SOUTHWEST CORNER THEREOF CONCAVE NORTHEASTERLY AND BEING TANGENT TO THE EAST LINE OF SAID WEST 30 FEET AND TANGENT TO THE NORTH LINE OF SAID SOUTH 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 44–B:

THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE SOUTH 30 FEET AND THE EAST 30 FEET TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE SOUTHEAST CORNER THEREOF CONCAVE NORTHWESTERLY AND BEING TANGENT TO THE NORTH LINE OF SAID SOUTH 30 FEET AND TANGENT TO THE WEST LINE OF SAID EAST 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 44–C:

THE SOUTH HALF (S 1/2) OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE WEST 30 FEET AND THE SOUTH 30 FEET TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE SOUTHWEST CORNER THEREOF CONCAVE NORTHEASTERLY AND BEING TANGENT TO THE EAST LINE OF THE WEST 30 FEET AND TANGENT TO THE NORTH LINE OF THE SOUTH 30 FEET, FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 44–D:

THE NORTH HALF (N 1/2) OF THE SOUTH HALF (S 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE WEST 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 44–E:

THE SOUTH HALF (S 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE WEST 30 FEET, THE SOUTH 30 FEET AND THE EAST 30 FEET TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE SOUTHWEST CORNER THEREOF CONCAVE NORTHEASTERLY AND BEING TANGENT TO THE EAST LINE OF SAID WEST 30 FEET AND TANGENT TO THE NORTH LINE OF SAID SOUTH 30 FEET, ALSO TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE SOUTHEAST CORNER THEREOF CONCAVE NORTHWESTERLY AND BEING TANGENT TO THE NORTH LINE OF SAID SOUTH 30 FEET AND TANGENT TO THE WEST LINE OF SAID EAST 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL FORTY–FIVE (45):

THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL FORTY–SIX (46):

THE NORTH HALF (N 1/2) OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM ANY PORTION LYING WITHIN LAS VEGAS BOULEVARD SOUTH (STATE HIGHWAY 91–466) ON THE EAST.

### PARCEL FORTY–SEVEN (47):

THE SOUTH HALF (S 1/2) OF THE SOUTH HALF (S 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPT THE INTEREST IN THE SOUTH THIRTY (30) FEET OF SAID LAND AS CONVEYED TO COUNTY OF CLARK BY DEED RECORDED APRIL 9, 1973 AS DOCUMENT NO. 275856, OFFICIAL RECORDS.

### PARCEL FORTY–EIGHT (48):

THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL FORTY–NINE (49):

THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL FIFTY (50):

THE NORTH HALF (N 1/2) OF THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM THAT PORTION CONVEYED TO CLARK COUNTY IN DEED RECORDED APRIL 25, 1973 IN BOOK 321 OF OFFICIAL RECORDS AS DOCUMENT NO. 280899, CLARK COUNTY, NEVADA.

### PARCEL FIFTY–ONE (51):

THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL FIFTY–TWO A (52 A) THROUGH FIFTY–TWO D (52 D):

### PARCEL 52–A:

THE NORTH HALF (N 1/2) OF THE SOUTH HALF (S 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE WEST 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 52–B:

THE SOUTH HALF (S 1/2) OF THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE WEST 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

## LEGAL DESCRIPTION (CONTINUED)

### PARCEL 52–C:

THE SOUTH HALF (S 1/2) OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE WEST 30 FEET, THE SOUTH 30 FEET AND THE EAST 30 FEET TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE SOUTHWEST CORNER THEREOF CONCAVE NORTHEASTERLY AND BEING TANGENT TO THE EAST LINE OF SAID WEST 30 FEET AND TANGENT TO THE NORTH LINE OF SAID SOUTH 30 FEET, ALSO TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE SOUTHEAST CORNER THEREOF CONCAVE NORTHWESTERLY AND BEING TANGENT TO THE NORTH LINE OF SAID SOUTH 30 FEET AND TANGENT TO THE WEST LINE OF SAID EAST 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 52–D:

THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE NORTH 30 FEET AND THE EAST 30 FEET TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE NORTHEAST CORNER THEREOF CONCAVE SOUTHWESTERLY AND BEING TANGENT TO THE WEST LINE OF THE EAST 30 FEET AND TANGENT TO THE SOUTH LINE OF SAID NORTH 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL FIFTY–THREE (53):

THE SOUTH HALF (S 1/2) OF THE SOUTH HALF (S 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
ANY PORTION OF SAID LAND LYING WITHIN STATE HIGHWAY 91–466 AS THE SAME EXISTS NOW.

### PARCEL FIFTY–FOUR (54):

THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL FIFTY–FIVE (55):

THE NORTH HALF (N 1/2) OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM THAT PORTION LYING WITHIN STATE HIGHWAY 41–466 (LAS VEGAS BLVD. SOUTH)

### PARCEL FIFTY–SIX (56):

THE SOUTH HALF (S 1/2) OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM ANY PORTION LYING WITHIN STATE HIGHWAY NO. 91–466.

### PARCEL FIFTY–SEVEN (57):

THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL FIFTY–EIGHT (58):

THE EAST HALF (E 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL FIFTY–NINE (59):

THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE SOUTH 60 FEET AND THE WEST 30 FEET TOGETHER WITH A 54 FOOT SPANDREL AREA IN THE SOUTHWEST CORNER THEREOF CONCAVE NORTHEASTERLY AND BEING TANGENT TO THE EAST LINE OF THE WEST 30 FEET AND THE NORTH LINE OF THE SOUTH 60 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.
EXCEPTING THEREFROM ANY PORTION OF SAID LAND LYING WITHIN THE BOUNDARIES OF STATE HIGHWAY 91–466.

### PARCEL SIXTY (60):

THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL SIXTY–ONE (61):

THAT PORTION OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M., DESCRIBED AS FOLLOWS:
LOT ONE (1) OF THE CERTAIN PARCEL MAP ON FILE IN FILE 32, PAGE 45, IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA.

### PARCEL SIXTY–TWO (62):

THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL SIXTY–THREE (63):

THAT PORTION OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M., DESCRIBED AS FOLLOWS:
LOT ONE (1) OF THAT CERTAIN PARCEL MAP ON FILE IN FILE 70, PAGE 89, IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA.

### PARCEL SIXTY–FOUR (64):

THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL SIXTY–FIVE (65):

THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

| NO. | DESCRIPTION | DATE | APP'D |
|---|---|---|---|
| 0 | ORIGINAL CERTIFICATION | 11/09/00 | |

DATE : 11/8/00
P.M. :
DRAWN BY : PD
DESIGNED BY :
CHECKED BY : FWO
JOB NO. : 0288.0020
SCALE :

PENTACORE
CIVIL ENGINEERING • LAND SURVEYING • PLANNING
CONSTRUCTION MANAGEMENT • ADA CONSULTING
6763 WEST CHARLESTON BOULEVARD
LAS VEGAS, NEVADA 89146 (702)258–0115

GREEN PARK HOLDINGS, LLC

ALTA/ACSM LAND TITLE SURVEY

SHEET 2 OF 10

S:\0288\00201\ALTA\0288020-ALTA1.DWG

NOV 2 5 2002

# ALTA/ACSM LAND TITLE SURVEY

## A PORTION OF THE WEST HALF (W 1/2) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.M., CLARK COUNTY, NEVADA

## LEGAL DESCRIPTION

### PARCEL ONE (1):

THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL TWO (2):

THE WEST HALF (W 1/2) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M. NEVADA.

### PARCEL THREE (3):

THE EAST HALF (E 1/2) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL FOUR (4):

THE WEST HALF (W 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL FIVE (5):

THE EAST HALF (E 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL SIX (6):

THE NORTH ONE-HALF (N 1/2) OF THE NORTH ONE-HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M. NEVADA.

EXCEPTING THEREFROM THE NORTH FIFTY (50) FEET AS CONVEYED TO CLARK COUNTY, BY DEED RECORDED APRIL 9, 1973 IN BOOK 316 OF OFFICIAL RECORDS, CLARK COUNTY, NEVADA RECORDS, AS DOCUMENT NO. 275855.

EXCEPTING THEREFROM ANY PORTION OF SAID LAND LYING WITHIN STATE HIGHWAY 91-466.

### PARCEL SEVEN (7):

THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL EIGHT (8):

THE EAST HALF (E 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B & M.

### PARCEL NINE (9):

THE SOUTH HALF (S 1/2) OF THE NORTH HALF (N 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL TEN (10):

THE NORTH HALF (N 1/2) OF THE SOUTH HALF (S 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL ELEVEN (11):

THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL TWELVE (12):

THE WEST HALF (W 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL THIRTEEN (13):

THE EAST HALF (E 1/2) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4)OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL FOURTEEN (14):

THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL FIFTEEN (15):

THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B & M.

EXCEPTING THEREFROM THOSE PORTIONS DESIGNATED AS COUNTY ROADS BY CLARK COUNTY IN DOCUMENT RECORDED NOVEMBER 6, 1975 IN BOOK 568 AS DOCUMENT NO. 527123, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

### PARCEL SIXTEEN (16):

THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL SEVENTEEN (17):

THE WEST HALF (W 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL EIGHTEEN (18):

THE SOUTH HALF (S 1/2) OF THE SOUTH HALF (S 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

EXCEPTING THEREFROM THOSE PORTIONS CONVEYED TO CLARK COUNTY FOR ROAD PURPOSES BY GRANT, BARGAIN, SALE DEED, RECORDED APRIL 9, 1973 IN BOOK 316 AS INSTRUMENT NO. 275855 OF OFFICIAL RECORDS.

### PARCEL NINETEEN (19):

THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL TWENTY (20):

THE EAST HALF (E 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

### PARCEL TWENTY-ONE (21):

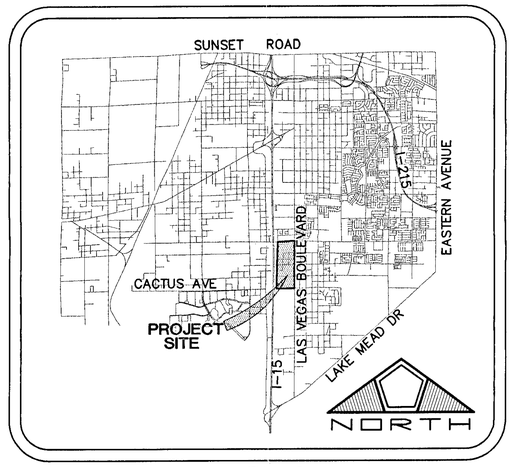
THE NORTH HALF (N 1/2) OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

EXCEPTING THEREFROM THE NORTH THIRTY (30) FEET AS CONVEYED TO CLARK COUNTY BY DEED RECORDED APRIL 25, 1973 AS DOCUMENT NO. 280898 OF OFFICIAL RECORDS.
FURTHER EXCEPTING THEREFROM ANY PORTION LYING WITHIN STATE HIGHWAY NO. 91-466.

### PARCEL TWENTY-TWO (22):

THE SOUTH HALF (S 1/2) OF THE NORTH HALF (N 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

EXCEPTING THEREFROM ANY PORTION OF SAID LAND LYING WITHIN LAS VEGAS BOULEVARD (STATE HIGHWAY 91-466)




VICINITY MAP
NOT TO SCALE

## LEGAL DESCRIPTION (CONTINUED)

### PARCEL TWENTY-THREE (23):

THE NORTH HALF (N 1/2) OF THE SOUTH HALF (S 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M., CLARK COUNTY, NEVADA.

### PARCEL TWENTY-FOUR (24):

THE SOUTH HALF (S 1/2) OF THE SOUTH HALF (S 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
EXCEPTING THEREFROM THAT PORTION LYING WITHIN HIGHWAY 91.
ALSO EXCEPTING THEREFROM THAT PORTION RELINQUISHED TO CLARK COUNTY IN RESOLUTION OF RELINQUISHMENT RECORDED JANUARY 21, 1982 IN BOOK 1513 AS DOCUMENT NO. 1472121, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.

### PARCEL TWENTY-FIVE A (25 A) THROUGH TWENTY-FIVE I (25 I):

### PARCEL 25-A:

THE SOUTH HALF (S 1/2) OF THE SOUTH HALF (S 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE WEST 30 FEET AND THE SOUTH 30 FEET TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE SOUTHWEST CORNER THEREOF CONCAVE NORTHEASTERLY AND BEING TANGENT TO THE EAST LINE OF SAID WEST 30 FEET AND TANGENT TO THE NORTH LINE OF SAID SOUTH 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 25-B:

THE WEST HALF (W 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE NORTH 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 25-C:

THE WEST HALF (W 1/2) OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.

SUBJECT TO AN EASEMENT OVER THE NORTH 30 FEET, THE WEST 30 FEET AND THE SOUTH 30 FEET TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE NORTHWEST CORNER THEREOF CONCAVE SOUTHEASTERLY AND BEING TANGENT TO THE SOUTH LINE OF SAID NORTH 30 FEET AND TANGENT TO THE EAST LINE OF SAID WEST 30 FEET, ALSO TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE SOUTHWEST CORNER THEREOF CONCAVE NORTHEASTERLY AND BEING TANGENT TO THE EAST LINE OF SAID WEST 30 FEET AND TANGENT TO THE NORTH LINE OF SAID SOUTH 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 25-D:

THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE SOUTH 30 FEET AND THE EAST 30 FEET, TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE SOUTHEAST CORNER THEREOF CONCAVE NORTHWESTERLY AND BEING TANGENT TO THE NORTH LINE OF SAID SOUTH 30 FEET AND TANGENT TO THE WEST LINE OF SAID EAST 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 25-E:

THE WEST HALF (W 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE NORTH 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 25-F:

THE WEST HALF (W 1/2) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE SOUTH 40 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

### PARCEL 25-G:

THE NORTHWEST QUARTER (NW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.B. & M.
SUBJECT TO AN EASEMENT OVER THE NORTH 30 FEET AND THE WEST 30 FEET TOGETHER WITH A 15 FOOT SPANDREL AREA IN THE NORTHWEST CORNER THEREOF CONCAVE SOUTHEASTERLY AND BEING TANGENT TO THE SOUTH LINE OF SAID NORTH 30 FEET AND TANGENT TO THE EAST LINE OF SAID WEST 30 FEET FOR ROAD, PUBLIC UTILITIES, AND FLOOD CONTROL PURPOSES TO INSURE CONTINUED INGRESS AND EGRESS TO ADJACENT LANDS IN FAVOR OF THE COUNTY OF CLARK, STATE OF NEVADA.

## SURVEYOR'S COMMENTS

1. THE PROPERTY DESCRIBED HEREON IS LOCATED IN THE FOLLOWING ZONES: ZONE X AREAS OF 500-YEAR FLOOD; AREAS OF 100-YEAR FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 100-YEAR FLOOD, ZONE A NO BASE FLOOD ELEVATIONS DETERMINED AND IN ZONE AE BASE FLOOD ELEVATIONS DETERMINED AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP FOR CLARK COUNTY, NEVADA AND INCORPORATED AREAS, COMMUNITY PANEL NO. 2568 OF 4090, MAP NUMBER 32003C2568 D, EFFECTIVE DATE: AUGUST 16, 1995.

2. NET AREA = 179.46 ACRES
   - PARCEL A 0.14 ACRES
   - PARCEL C 0.83 ACRES
   - PARCEL D 0.47 ACRES
   - PARCEL E 0.18 ACRES
   - PARCEL F 0.35 ACRES
   - PARCEL G 0.14 ACRES
   - PARCEL H 0.32 ACRES
   - PARCEL I 0.14 ACRES
   - PARCEL J 0.70 ACRES
   - PARCEL K 0.74 ACRES

   GROSS AREA = 183.47 ACRES

3. NO VISIBLE EVIDENCE OF CEMETERIES OR BURIAL GROUNDS.

4. ANY BURIED UTILITIES OR PIPELINES ARE AS SHOWN PER SURFACE EVIDENCE. PENTACORE WAS NOT SUPPLIED WITH "AS-BUILT" DRAWINGS OF CONSTRUCTED UTILITY LINES. PENTACORE AND THE SURVEYOR OF RECORD WILL NOT BE LIABLE FOR THE LOCATION OR THE FAILURE TO NOTE THE LOCATION OF NONVISIBLE UTILITIES.

5. NO ATTEMPT HAS BEEN MADE TO RESEARCH UTILITY SERVICE CONNECTIONS. FOR FURTHER INFORMATION REGARDING LOCATION, DEPTH OR SIZE OF UTILITIES, CONTACT THE APPROPRIATE UTILITY COMPANY:

   CALL BEFORE YOU DIG / 1-800-227-2600

| | | |
|---|---|---|
| ELECTRIC | NEVADA POWER COMPANY<br>6226 W. SAHARA AVE., LAS VEGAS, NEVADA | (702) 367-5000 |
| TELEPHONE | SPRINT<br>330 S. VALLEY VIEW, LAS VEGAS, NEVADA | (702) 877-7963 |
| GAS | SOUTHWEST GAS<br>4300 W. TROPICANA, LAS VEGAS, NEVADA | (702) 365-1555 |
| WATER | LAS VEGAS VALLEY WATER DISTRICT<br>3700 W. CHARLESTON, LAS VEGAS, NEVADA | (702) 870-2011 |
| SEWER | CLARK COUNTY SANITATION DISTRICT<br>5857 E. FLAMINGO, LAS VEGAS, NEVADA | (702) 458-1180 |
| CABLE TV | COX COMMUNICATIONS LAS VEGAS, INC.<br>121 S. MARTIN LUTHER KING, LAS VEGAS, NEVADA | (702) 384-8084 |

6. THE FOLLOWING PARCELS ARE ZONED (R-E) RURAL ESTATES:
   1, 2, 3, 7, 11, 12, 13, 14, 15, 16, 19, 26, 30, 33, 36, 40, 44A-44E, 48, 51, 54, 57, 58, 59, 61, 62, 63, 64, 65
   MINIMUM SETBACKS (R-E) ZONING
   - FRONT: 40'
   - SIDE: 10'
   - CORNER: 15'
   - REAR: 30'

   THE FOLLOWING PARCELS ARE ZONED (H-1) LIMITED RESORT AND APARTMENT:
   4, 5, 6, 8, 9, 10, 17, 18, 20, 21, 22, 23, 24, 25A-25I, 27, 28, 29, 31, 32, 34, 35, 37, 38, 39, 41, 42, 43, 45, 46, 47, 49, 50, 52A-52D, 53, 55, 56, 60
   MINIMUM SETBACKS (H-1) ZONING
   - FRONT: 10'
   - SIDE: 10% WIDTH OF LOT, 5' MIN-50' MAX
   - CORNER: 10% WIDTH OF LOT, 20' MIN-50' MAX
   - REAR: 20' ADJACENT TO RESIDENTIAL

## BASIS OF BEARINGS

SOUTH 89°08'18" WEST, BEING THE BEARING OF THE SOUTH LINE OF THE SOUTHEAST QUARTER (SE 1/4) OF THE SOUTHEAST QUARTER (SE 1/4) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.M., CLARK COUNTY, NEVADA, AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE CLARK COUNTY RECORDER'S OFFICE IN FILE 100 OF SURVEYS, AT PAGE 65.

## REFERENCE MAPS

FILE 41, PAGE 28 OF SURVEYS
FILE 51, PAGE 46 OF SURVEYS
FILE 56, PAGE 64 OF SURVEYS
FILE 92, PAGE 48 OF SURVEYS
FILE 32, PAGE 45 OF PARCEL MAPS
FILE 64, PAGE 46 OF PARCEL MAPS
FILE 67, PAGE 39 OF PARCEL MAPS
FILE 70, PAGE 89 OF PARCEL MAPS
FILE 79, PAGE 36 OF PARCEL MAPS

## SURVEYOR'S CERTIFICATE

TO: GREEN PARK HOLDINGS, LLC
LAND TITLE OF NEVADA, INC

THIS IS TO CERTIFY THAT THIS PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY THE AMERICAN LAND TITLE ASSOCIATION, THE AMERICAN CONGRESS ON SURVEYING AND MAPPING AND THE NATIONAL SOCIETY OF PROFESSIONAL SURVEYORS IN 1999, AND INCLUDES OPTIONAL ITEMS 1, 2, 3, 4, 5, 6, 8, 10, 11, 13, 14, AND 16 OF TABLE A THEREOF. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY THE AMERICAN LAND TITLE ASSOCIATION, THE NATIONAL SOCIETY OF PROFESSIONAL SURVEYORS AND THE AMERICAN CONGRESS ON SURVEYING AND MAPPING AND IN EFFECT ON THE DATE THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT THE POSITIONAL UNCERTAINTIES RESULTING FROM THE SURVEY MEASUREMENTS MADE ON THE SURVEY DO NOT EXCEED THE ALLOWABLE POSITIONAL TOLERANCE.

THE EASEMENTS AND OTHER RECORDED DATA SHOWN HEREON WERE OBTAINED FROM TITLE REPORT BY LAND TITLE OF NEVADA, INC, NO. 00218578 DJG, DATED SEPTEMBER 11, 2000. THE CERTIFYING SURVEYOR HAS NOT MADE AN INDEPENDENT TITLE SEARCH AND HAS RELIED ON THE SUPPLIED DOCUMENTS AND SPECIFICALLY DISCLAIMS ANY ITEMS NOT SHOWN WHICH MAY BE OF RECORD OR NOT OF RECORD THAT MAY AFFECT THE PROPERTY SHOWN ON THE SURVEY. THIS SURVEY WAS COMPLETED ON NOVEMBER 8, 2000.

FREDERICK W. ORBAN
PROFESSIONAL LAND SURVEYOR
NEVADA LICENSE NO. 4541

| NO. | DESCRIPTION | DATE | APP'D |
|---|---|---|---|
| 3 | REVISED LOCATION OF EXCEPTION NO. 65 | 03/11/02 | |
| 2 | REVISED RIGHTS-OF-WAY | 11/29/00 | |
| 1 | REVISED AREAS | 11/27/00 | |
| 0 | ORIGINAL CERTIFICATION | 11/09/00 | |

DATE : 11/8/00
P.M. : PD
DRAWN BY :
DESIGNED BY :
CHECKED BY : FWO
JOB NO. : 02880020
SCALE :

PENTACORE
CIVIL ENGINEERING • LAND SURVEYING • PLANNING
CONSTRUCTION MANAGEMENT • COST ESTIMATING
6763 WEST CHARLESTON BOULEVARD
LAS VEGAS, NEVADA 89146 (702)258-0115

GREEN PARK HOLDINGS, LLC
ALTA/ACSM LAND TITLE SURVEY

SHEET 1 OF 10

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MAR 26 2002

## EASEMENTS AND EXCEPTIONS

LAND TITLE OF NEVADA, INC., PRELIMINARY TITLE REPORT NO. 00218578 DJG, DATED: SEPTEMBER 11, 2000

⬡ INDICATES PLOTTABLE EASEMENTS

EXCEPTIONS

### THE FOLLOWING ITEMS AFFECT ALL PARCELS:

⑥ THE TERMS EASEMENTS AND PROVISIONS, CONTAINED IN AN INSTRUMENT
ENTITLED : DECISION RIGHT-OF-WAY GRANTED
RECORDED : JANUARY 2, 1970
BOOK NO. : 1
DOCUMENT NO. : 204, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

(AFFECTS A PORTION OF SAID LAND)

⑦ THE TERMS AND PROVISIONS, CONTAINED IN AN INSTRUMENT
ENTITLED : RESOLUTION RELATIVE TO ACQUISITION OF RIGHTS-OF WAY
RECORDED : NOVEMBER 6, 1975
BOOK NO. : 568
DOCUMENT NO. : 527123, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

8. THE TERMS AND PROVISIONS, CONTAINED IN AN INSTRUMENT
ENTITLED : RESOLUTION OF RELINQUISHMENT
RECORDED : JANUARY 21, 1982
BOOK NO. : 1513
DOCUMENT NO. : 1472121, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

9. ANY BOUNDARY DISCREPANCIES OR RIGHTS WHICH MAY EXIST OR ARISE BY REASON OF A RECORD OF SURVEY:
FILE : 51
PAGE : 46
RECORDED : MAY 3, 1989
BOOK NO. : 890503
DOCUMENT NO. : 00506, OFFICIAL RECORDS

10. ANY BOUNDARY DISCREPANCIES OR RIGHTS WHICH MAY EXIST OR ARISE BY REASON OF A RECORD OF SURVEY:
FILE : 92
PAGE : 48
RECORDED : NOVEMBER 18, 1997
BOOK NO. : 971118
DOCUMENT NO. : 00979, OFFICIAL RECORDS

11. ANY BOUNDARY DISCREPANCIES OR RIGHTS WHICH MAY EXIST OR ARISE BY REASON OF A RECORD OF SURVEY:
FILE : 100
PAGE : 65
RECORDED : FEBRUARY 17, 1999
BOOK NO. : 990217
DOCUMENT NO. : 02313, OFFICIAL RECORDS

12. ANY BOUNDARY DISCREPANCIES OR RIGHTS WHICH MAY EXIST OR ARISE BY REASON OF A RECORD OF SURVEY:
FILE : 102
PAGE : 16
RECORDED : APRIL 26, 1999
BOOK NO. : 990426
DOCUMENT NO. : 00439, OFFICIAL RECORDS

13. SUBJECT TO THE RIGHTS OF THE PUBLIC TO USE THAT PORTION OF SAID LAND LYING WITHIN LAS VEGAS BOULEVARD SOUTH, STATE HIGHWAY 91-466

### THE FOLLOWING ITEMS AFFECT PARCEL 1:

⑮ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 22, 1997
BOOK NO. : 970822
DOCUMENT NO. : 00851, OFFICIAL RECORDS

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 22, 1997 IN BOOK 970822 OF OFFICIAL RECORDS AS DOCUMENT NO. 00851.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

16. ANY EASEMENT FOR THE CONSTRUCTION AND MAINTENANCE OF WATER PIPELINES AND INCIDENTAL PURPOSES, SAID EASEMENT BEING DISCLOSED BY THAT RELINQUISHMENT OF TEMPORARY CONSTRUCTION EASEMENT RECORDED JANUARY 20, 1998, IN BOOK 980120, OF OFFICIAL RECORDS, AS INSTRUMENT NO. 00518.

### THE FOLLOWING ITEMS AFFECT PARCEL 2:

⑱ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : OCTOBER 2, 1961
BOOK NO. : 321
DOCUMENT NO. : 259307, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

19. ANY BOUNDARY DISCREPANCIES OR RIGHTS WHICH MAY EXIST OR ARISE BY REASON OF A RECORD OF SURVEY:
FILE : 51
PAGE : 46
RECORDED : MAY 3, 1989
BOOK NO. : 890503
DOCUMENT NO. : 00056, OFFICIAL RECORDS

⑳ AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : PIPELINES
IN FAVOR OF : SOUTHERN NEVADA WATER AUTHORITY
RECORDED : JUNE 13, 1996
BOOK NO. : 960613
DOCUMENT NO. : 01347, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 3:

㉒ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : FEBRUARY 27, 1961
DOCUMENT NO. : 230170, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

## EASEMENTS AND EXCEPTIONS (CONTINUED)

23. ANY EASEMENT OR LESSER RIGHT FOR THE PURPOSES STATED HEREIN INCLUDING INCIDENTAL PURPOSES DISCLOSED BY A SURVEY OR INSPECTION OF SAID LAND:
FOR : ROADWAY
AFFECTS : THE NORTHWEST CORNER OF SAID LAND

㉔ AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : PIPELINES
IN FAVOR OF : SOUTHERN NEVADA WATER AUTHORITY
RECORDED : NOVEMBER 22, 1996
BOOK NO. : 961122
DOCUMENT NO. : 00799, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 4:

㉖ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JULY 12, 1984
BOOK NO. : 1954
DOCUMENT NO. : 1913797, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

27. ANY BOUNDARY DISCREPANCIES OR RIGHTS WHICH MAY EXIST OR ARISE BY REASON OF A RECORD OF SURVEY:
FILE : 51
PAGE : 46
RECORDED : MAY 3, 1989
BOOK NO. : 890503
DOCUMENT NO. : 00506, OFFICIAL RECORDS

㉘ AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : PIPELINES
IN FAVOR OF : SOUTHERN NEVADA WATER AUTHORITY
RECORDED : AUGUST 21, 1996
BOOK NO. : 960821
DOCUMENT NO. : 01300, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 5:

㉚ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : DECEMBER 5, 1960
BOOK NO. : 271
DOCUMENT NO. : 219946, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

31. AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : ELECTRIC TRANSMISSION AND/OR DISTRIBUTION LINE OR SYSTEM
IN FAVOR OF : AMARGOSA VALLEY COOPERATIVE, INC., A COOPERATIVE CORPORATION
RECORDED : JUNE 3, 1985
BOOK NO. : 2119
DOCUMENT NO. : 2078853, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.
(BLANKET EASEMENT)

㉜ AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : PIPELINES
IN FAVOR OF : SOUTHERN NEVADA WATER AUTHORITY
RECORDED : AUGUST 7, 1996
BOOK NO. : 960807
DOCUMENT NO. : 00433, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

㉝ AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : TEMPORARY CONSTRUCTION PURPOSES
IN FAVOR OF : SOUTHERN NEVADA WATER AUTHORITY
RECORDED : AUGUST 7, 1996
BOOK NO. : 960807
DOCUMENT NO. : 00434, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

34. A DEED OF TRUST TO SECURE INDEBTEDNESS OF THE AMOUNT STATED HEREIN AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF:
DATED : DECEMBER 29, 1997
TRUSTOR : PERMA-BILT, A NEVADA CORPORATION
TRUSTEE : LAND TITLE OF NEVADA, INC., A NEVADA CORPORATION
BENEFICIARY : JOE GUSKI, A WIDOWER
AMOUNT : $150,000.00
RECORDED : JANUARY 9, 1998
BOOK NO. : 980109
DOCUMENT NO. : 00231, OFFICIAL RECORDS

### THE FOLLOWING ITEM AFFECT PARCEL 6:

㊱ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JUNE 13, 1961
BOOK NO. : 302
DOCUMENT NO. : 244662, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED JUNE 13, 1961 IN BOOK 302 OF OFFICIAL RECORDS AS DOCUMENT NO. 244662.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCELS 7 THROUGH 14:

㊴ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 22, 1997
BOOK NO. : 970822
DOCUMENT NO. : 00851, OFFICIAL RECORDS

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 22, 1997 IN BOOK 970822 OF OFFICIAL RECORDS AS DOCUMENT NO. 00851.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

## EASEMENTS AND EXCEPTIONS (CONTINUED)

### THE FOLLOWING ITEMS AFFECT PARCEL 15:

㊶ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JUNE 18, 1976
BOOK NO. : 632
DOCUMENT NO. : 591272, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

42. A DEED OF TRUST TO SECURE INDEBTEDNESS OF THE AMOUNT STATED HEREIN AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF:
DATED : JULY 23, 1996
TRUSTOR : PERMA-BILT, A NEVADA CORPORATION
TRUSTEE : LAND TITLE OF NEVADA, INC., A NEVADA CORPORATION
BENEFICIARY : SUSAN L. YUSI MANION
AMOUNT : $90,000.00
RECORDED : JULY 31, 1996
BOOK NO. : 960731
DOCUMENT NO. : 02206, OFFICIAL RECORDS

### THE FOLLOWING ITEMS AFFECT PARCEL 16:

㊹ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 31, 1976
BOOK NO. : 655
DOCUMENT NO. : 614938, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

45. A DEED OF TRUST TO SECURE INDEBTEDNESS OF THE AMOUNT STATED HEREIN AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF:
DATED : JULY 1, 1996
TRUSTOR : PERMA-BILT, A NEVADA CORPORATION
TRUSTEE : LAND TITLE OF NEVADA, INC., A NEVADA CORPORATION
BENEFICIARY : NORMA VANGELOS, SUCCESSOR TRUSTEE OF THE ROBERT FREDERICK PICARDO TRUST U/A DATED APRIL 23, 1981
AMOUNT : $88,000.00
RECORDED : AUGUST 9, 1996
BOOK NO. : 960809
DOCUMENT NO. : 00284, OFFICIAL RECORDS

### THE FOLLOWING ITEMS AFFECT PARCEL 17:

㊼ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JANUARY 15, 1997
BOOK NO. : 970115
DOCUMENT NO. : 00357, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 18:

㊾ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JULY 5, 1961
BOOK NO. : 306
DOCUMENT NO. : 247681, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED JULY 5, 1961 IN BOOK 306 OF OFFICIAL RECORDS AS DOCUMENT NO. 247681.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 19:

㊿ RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JULY 20, 1983
BOOK NO. : 1773
DOCUMENT NO. : 1732959, OFFICIAL RECORDS

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 20:

(53) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : DECEMBER 29, 1960
BOOK NO. : 275
DOCUMENT NO. : 222721, OFFICIAL RECORDS

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 21:

(55) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JANUARY 13, 1961
BOOK NO. : 278
DOCUMENT NO. : 225320, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED JANUARY 13, 1961 IN BOOK 278 OF OFFICIAL RECORDS AS DOCUMENT NO. 225320.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 22:

(57) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : OCTOBER 2, 1961
DOCUMENT NO. : 259308, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

(58) AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : POWER AND COMMUNICATION
IN FAVOR OF : NEVADA POWER COMPANY AND CENTRAL TELEPHONE COMPANY
RECORDED : JULY 11, 1973
BOOK NO. : 345
DOCUMENT NO. : 304094, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

| NO. | DESCRIPTION | DATE | APP'D |
|---|---|---|---|
| 0 | ORIGINAL CERTIFICATION | 11/09/00 | |

DATE : 11/8/00
P.M. :
DRAWN BY : PD
DESIGNED BY :
CHECKED BY : FWD
JOB NO. : 0288.0020
SCALE :

PENTACORE
CIVIL ENGINEERING • LAND SURVEYING • PLANNING
CONSTRUCTION MANAGEMENT • ADA CONSULTING
6763 WEST CHARLESTON BOULEVARD
LAS VEGAS, NEVADA 89146 (702)258-0115

GREEN PARK HOLDINGS, LLC
ALTA/ACSM LAND TITLE SURVEY

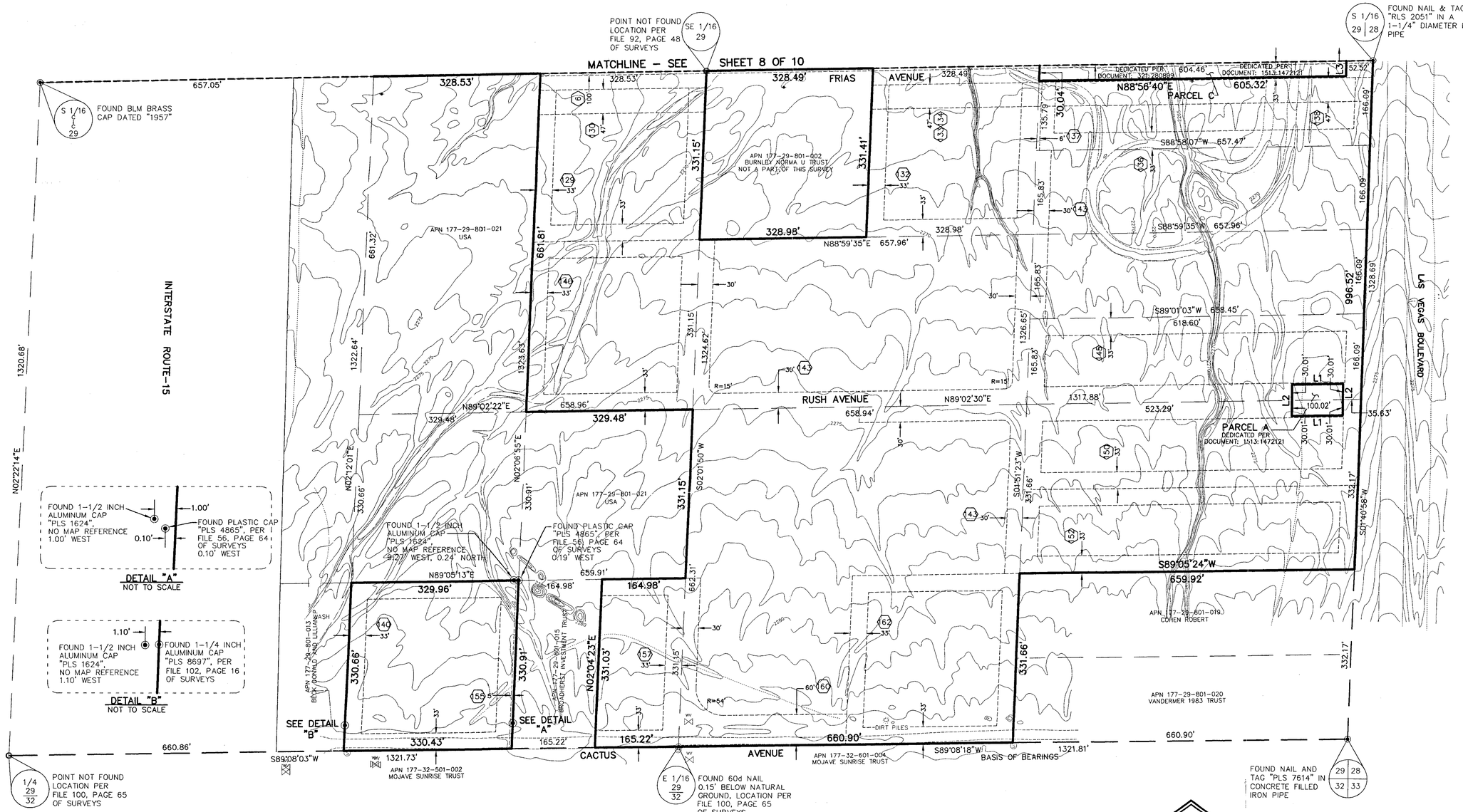
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OF 10

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# ALTA/ACSM LAND TITLE SURVEY

## A PORTION OF THE WEST HALF (W 1/2) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.M., CLARK COUNTY, NEVADA




NORTH
SCALE: 1" =100'

| LINE | BEARING | DISTANCE |
|---|---|---|
| L1 | N89°02'30"E | 100.02' |
| L2 | N00°13'35"E | 60.01' |
| L3 | N00°13'35"E | 60.02' |

### LEGEND

- BOUNDARY LINE
- RIGHT-OF-WAY LINE
- SECTION LINE
- ALIQUOT PART LINE
- EASEMENT LINE
- ASSESSOR'S PARCEL LINE
- MATCHLINE
- EDGE OF ASPHALT
- CURB AND GUTTER
- DIRT ROAD
- BUILDING
- BLOCK WALL
- CHAIN LINK FENCE

- FOUND MONUMENT AS DESCRIBED
- POINT NOT FOUND OR SET LOCATION PER FILE 92, PAGE 48 OF SURVEYS
- FOUND 1-INCH PLASTIC CAP "RE 2002" PER FILE 70, PAGE 89 OF PARCEL MAPS
- STREET LIGHT
- SIGN
- WATER VALVE
- FIRE HYDRANT
- POWER POLE
- SEWER MANHOLE
- TP TRANSFORMER PAD
- TPN TRANSFORMER PAD (NO TRANSFORMER)

- ELEC ELECTRICAL PULLBOX
- TELE TELEPHONE PULL BOX
- CONC. CONCRETE PAD
- WMH WATER MANHOLE
- APN ASSESSOR'S PARCEL NUMBER
- (4) CURVE DATA
- L1 COURSE NUMBER
- (6) TITLE REPORT EXCEPTION NUMBER

| NO. | DESCRIPTION | DATE | APP'D |
|---|---|---|---|
| 2 | REVISED LOCATION OF EXCEPTION NO. 65 | 03/11/02 | |
| 1 | REVISED AREAS | 11/27/00 | |
| 0 | ORIGINAL CERTIFICATION | 11/09/00 | |

DATE : 11/6/00
P.M. :
DRAWN BY : PD
DESIGNED BY :
CHECKED BY : FWO
JOB NO. : 0288.0020
SCALE : 1"=100'


PENTACORE
CIVIL ENGINEERING • LAND SURVEYING • PLANNING
CONSTRUCTION MANAGEMENT • ADA CONSULTING
6763 WEST CHARLESTON BOULEVARD
LAS VEGAS, NEVADA 89146 (702)258-0115


GREEN PARK HOLDINGS, INC

ALTA/ACSM LAND TITLE SURVEY

SHEET 7 OF 10

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## EASEMENTS AND EXCEPTIONS (CONTINUED)

59. A DEED OF TRUST TO SECURE INDEBTEDNESS OF THE AMOUNT STATED HEREIN AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF:
DATED : AUGUST 2, 1995
TRUSTOR : BIJAN ANJOMI, AN UNMARRIED MAN
TRUSTEE : LAND TITLE OF NEVADA, INC., A NEVADA CORPORATION
BENEFICIARY : SIDNEY DROBKIN AND DORIS DROBKIN, TRUSTEES OF THE DROBKIN FAMILY TRUST
AMOUNT : $150,000.00
RECORDED : SEPTEMBER 25, 1995
BOOK NO. : 950925
DOCUMENT NO. : 00240, OFFICIAL RECORDS

### THE FOLLOWING ITEMS AFFECT PARCEL 23:

(61) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : OCTOBER 24, 1978
BOOK NO. : 960
DOCUMENT NO. : 919483, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED OCTOBER 24, 1978 IN BOOK 960 OF OFFICIAL RECORDS AS DOCUMENT NO. 919483.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 24:

(63) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JULY 10, 1961
BOOK NO. : 307
DOCUMENT NO. : 248260, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED JULY 10, 1961 IN BOOK 307 OF OFFICIAL RECORDS AS DOCUMENT NO. 248260.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCELS 25A THROUGH 25I:

(65) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 22, 1997
BOOK NO. : 970822
DOCUMENT NO. : 00851, OFFICIAL RECORDS

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 22, 1997 IN BOOK 970822 OF OFFICIAL RECORDS AS DOCUMENT NO. 00851.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 26:

(67) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JUNE 12, 1961
BOOK NO. : 302
DOCUMENT NO. : 244420, OFFICIAL RECORDS
NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

68. ANY BOUNDARY DISCREPANCIES OR RIGHTS WHICH MAY EXIST OR ARISE BY REASON OF A RECORD OF SURVEY:
FILE : 10
PAGE : 21
RECORDED : JUNE 8, 1961
BOOK NO. : 302
DOCUMENT NO. : 244096, OFFICIAL RECORDS

69. A COVENANT AND AGREEMENT EXECUTED BY TONY AND DIANE DECKER IN FAVOR OF COUNTY OF CLARK, RECORDED AUGUST 1, 1979, IN BOOK 1095, OF OFFICIAL RECORDS, AS DOCUMENT NO. 1054645, WHICH AMONG OTHER THINGS, PROVIDED: OFFSITE IMPROVEMENTS.

(70) A GRANT OF EASEMENT FOR THE PERPETUAL RIGHT OF FLIGHT OVER AND ACROSS SAID LAND AS GRANTED TO CLARK COUNTY BY INSTRUMENT:
RECORDED : AUGUST 8, 1979
BOOK NO. : 1099
DOCUMENT NO. : 1058196, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

(71) AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : POWER AND COMMUNICATION
IN FAVOR OF : NEVADA POWER COMPANY AND CENTRAL TELEPHONE COMPANY
RECORDED : AUGUST 23, 1979
DOCUMENT NO. : 1065984, OFFICIAL RECORDS
REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

72. AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : UNDERGROUND ELECTRIC SERVICE CABLES
IN FAVOR OF : NEVADA POWER COMPANY
RECORDED : AUGUST 23, 1979
DOCUMENT NO. : 1065985, OFFICIAL RECORDS
REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.
(BLANKET EASEMENT)

### THE FOLLOWING ITEMS AFFECT PARCEL 27:

(74) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 22, 1997
BOOK NO. : 970822
DOCUMENT NO. : 00851, OFFICIAL RECORDS

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 22, 1997 IN BOOK 970822 OF OFFICIAL RECORDS AS DOCUMENT NO. 00851.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 28:

(76) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JULY 5, 1961
BOOK NO. : 306
DOCUMENT NO. : 247680, OFFICIAL RECORDS
NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

## EASEMENTS AND EXCEPTIONS (CONTINUED)

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED JULY 5, 1961 IN BOOK 306 OF OFFICIAL RECORDS AS DOCUMENT NO. 247680.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

77. A DEED OF TRUST TO SECURE INDEBTEDNESS OF THE AMOUNT STATED HEREIN AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF:
DATED : SEPTEMBER 5, 1996
TRUSTOR : PERMA-BILT, A NEVADA CORPORATION
TRUSTEE : LAND TITLE OF NEVADA, INC., A NEVADA CORPORATION
BENEFICIARY : MARINA PLON, M.D., TRUSTEE OF THE MARINA PLON, M.D. LTD. PENSION TRUST, AND MARK PLON M.D., TRUSTEE OF THE MARK PLON, M.D., P.C. PENSION PLAN TRUST AND MARINA PLON, A MARRIED WOMAN
AMOUNT : $400,000.00
RECORDED : SEPTEMBER 11, 1996
BOOK NO. : 960911
DOCUMENT NO. : 01380, OFFICIAL RECORDS
RE-RECORDED : DECEMBER 14, 1998
BOOK NO. : 981214
DOCUMENT NO. : 00316, OFFICIAL RECORDS
(WITH OTHER PROPERTY)

### THE FOLLOWING ITEMS AFFECT PARCEL 29:

(79) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : DECEMBER 16, 1980
BOOK NO. : 1281
DOCUMENT NO. : 1240259, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED DECEMBER 16, 1980 IN BOOK 1281 OF OFFICIAL RECORDS AS DOCUMENT NO. 1240259.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

80. A DEED OF TRUST TO SECURE INDEBTEDNESS OF THE AMOUNT STATED HEREIN AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF:
DATED : APRIL 3, 1996
TRUSTOR : PERMA-BILT, A NEVADA CORPORATION
TRUSTEE : FIDELITY NATIONAL TITLE AGENCY OF NEVADA INC., A NEVADA CORPORATION
BENEFICIARY : LYNDEL H. WEST AND DOLORES I. WEST, HUSBAND AND WIFE AS JOINT TENANTS
AMOUNT : $200,000.00
RECORDED : JUNE 20, 1996
BOOK NO. : 960620
DOCUMENT NO. : 01285, OFFICIAL RECORDS

### THE FOLLOWING ITEMS AFFECT PARCEL 30:

(82) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : SEPTEMBER 15, 1980
BOOK NO. : 1281
DOCUMENT NO. : 1240258, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

83. ANY EASEMENT OR LESSER RIGHT FOR THE PURPOSES STATED HEREIN INCLUDING INCIDENTAL PURPOSES DISCLOSED BY A SURVEY OR INSPECTION OF SAID LAND
FOR: POWER LINES
AFFECTS: THE SOUTH 23 1/2 FEET OF SAID LAND

### THE FOLLOWING ITEMS AFFECT PARCEL 31:

85. RESERVATIONS AS CONTAINED IN THE PATENT CONVEYING SAID LAND.

86. ANY EASEMENT OR LESSER RIGHT FOR THE PURPOSES STATED HEREIN INCLUDING INCIDENTAL PURPOSES DISCLOSED BY A SURVEY OR INSPECTION OF SAID LAND
FOR: POLE LINES
AFFECTS: ALONG THE SOUTHERLY BOUNDARY

### THE FOLLOWING ITEMS AFFECT PARCEL 32:

(88) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : FEBRUARY 27, 1961
DOCUMENT NO. : 230145, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECTS PARCEL 33:

(90) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JUNE 27, 1980
BOOK NO. : 1246
DOCUMENT NO. : 1205255, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

91. ANY BOUNDARY DISCREPANCIES OR RIGHTS WHICH MAY EXIST OR ARISE BY REASON OF A RECORD OF SURVEY:
FILE : 68
PAGE : 99
RECORDED : DECEMBER 21, 1993
BOOK NO. : 931221
DOCUMENT NO. : 01964, OFFICIAL RECORDS

92. A GRANT OF EASEMENT FOR THE PERPETUAL RIGHT OF FLIGHT OVER AND ACROSS SAID LAND AS GRANTED TO CLARK COUNTY BY INSTRUMENT:
RECORDED : JANUARY 18, 1995
BOOK NO. : 950118
DOCUMENT NO. : 00639, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

93. THE TERMS AND PROVISIONS, CONTAINED IN AN INSTRUMENT
ENTITLED : RESTRICTIVE COVENANT RUNNING WITH THE LAND
RECORDED : JANUARY 19, 1995
BOOK NO. : 950119
DOCUMENT NO. : 00874, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

## EASEMENTS AND EXCEPTIONS (CONTINUED)

### THE FOLLOWING ITEMS AFFECT PARCEL 34:

(95) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : FEBRUARY 24, 1989
BOOK NO. : 890224
DOCUMENT NO. : 00263, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 35:

(97) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 22, 1997
BOOK NO. : 970822
DOCUMENT NO. : 00851, OFFICIAL RECORDS

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 22, 1997 IN BOOK 970822 OF OFFICIAL RECORDS AS DOCUMENT NO. 00851.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 36:

(99) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 22, 1997
BOOK NO. : 970822
DOCUMENT NO. : 00851, OFFICIAL RECORDS

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 22, 1997 IN BOOK 970822 OF OFFICIAL RECORDS AS DOCUMENT NO. 00851.

REFERENCE SHOULD BE MADE TO THE RECORD(S) FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 37:

(101) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JANUARY 23, 1997
BOOK NO. : 970123
DOCUMENT NO. : 00353, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 38:

(103) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 22, 1997
BOOK NO. : 970822
DOCUMENT NO. : 00851, OFFICIAL RECORDS

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 22, 1997 IN BOOK 970822 OF OFFICIAL RECORDS AS DOCUMENT NO. 00851.

REFERENCE SHOULD BE MADE TO THE RECORD(S) FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 39:

(105) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : OCTOBER 1, 1979
BOOK NO. : 1125
DOCUMENT NO. : 1084896, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED OCTOBER 1, 1979 IN BOOK 1125 OF OFFICIAL RECORDS AS DOCUMENT NO. 1084896.

REFERENCE SHOULD BE MADE TO THE RECORD(S) FOR FULL PARTICULARS.

(106) AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : POWER AND COMMUNICATION
IN FAVOR OF : NEVADA POWER COMPANY AND CENTRAL TELEPHONE COMPANY
RECORDED : JULY 11, 1973
BOOK NO. : 345
DOCUMENT NO. : 304096, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 40:

(108) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : MARCH 27, 1961
BOOK NO. : 289
DOCUMENT NO. : 234161, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 41:

(110) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 17, 1960
DOCUMENT NO. : 208159, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 42:

(113) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : APRIL 11, 1975
DOCUMENT NO. : 468659, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED APRIL 11, 1975 AS DOCUMENT NO. 468659 OFFICIAL RECORDS.

REFERENCE SHOULD BE MADE TO THE RECORD(S) FOR FULL PARTICULARS.

| NO. | DESCRIPTION | DATE | APP'D |
|---|---|---|---|
| 0 | ORIGINAL CERTIFICATION | 11/09/00 | |

DATE : 11/8/00
P.M. :
DRAWN BY : PD
DESIGNED BY :
CHECKED BY : FWO
JOB NO. : 0288.0020
SCALE :

PENTACORE
CIVIL ENGINEERING • LAND SURVEYING • PLANNING
CONSTRUCTION MANAGEMENT • ADA CONSULTING
6763 WEST CHARLESTON BOULEVARD
LAS VEGAS, NEVADA 89146 (702)258-0115

GREEN PARK HOLDINGS, LLC

ALTA/ACSM LAND TITLE SURVEY

SHEET 4 OF 10

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## EASEMENTS AND EXCEPTIONS (CONTINUED)

(114) AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : POWER AND COMMUNICATION FACILITIES
IN FAVOR OF : NEVADA POWER COMPANY AND CENTRAL TELEPHONE COMPANY
RECORDED : JULY 11, 1973
BOOK NO. : 345
DOCUMENT NO. : 304095, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 43:

(116) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : MARCH 20, 1959
BOOK NO. : 191
DOCUMENT NO. : 155403, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT 44A THROUGH 44E:

(118) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 22, 1997
BOOK NO. : 970822
DOCUMENT NO. : 00851, OFFICIAL RECORDS

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 22, 1997 IN BOOK 970822 OF OFFICIAL RECORDS AS DOCUMENT NO. 00851.

REFERENCE SHOULD BE MADE TO THE RECORD(S) FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 45:

(120) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : MARCH 23, 1981
BOOK NO. : 1372
DOCUMENT NO. : 1331394, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 46:

(22) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : NOVEMBER 16, 1981
BOOK NO. : 1487
DOCUMENT NO. : 1446748, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED NOVEMBER 16, 1981 IN BOOK 1487 OF OFFICIAL RECORDS AS DOCUMENT NO. 1446748.

REFERENCE SHOULD BE MADE TO THE RECORD(S) FOR FULL PARTICULARS.

123. THE TERMS AND PROVISIONS, CONTAINED IN AN INSTRUMENT
ENTITLED : RESOLUTION OF ABANDONMENT
RECORDED : JANUARY 21, 1982
BOOK NO. : 1513
DOCUMENT NO. : 1472122, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 47:

(125) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : DECEMBER 22, 1958
DOCUMENT NO. : 148030, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

(126) AN EASEMENT AS SHOWN BELOW AND INCIDENTAL PURPOSES RELATING THERETO AS CONDEMNED BY FINAL DECREE:
FOR : ELECTRIC TRANSMISSION LINE
IN FAVOR OF : NEVADA POWER COMPANY
CASE NO. : A62196
RECORDED: FEBRUARY 23, 1973
BOOK NO. : 304
DOCUMENT NO. : 263445, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

127. A DEED OF TRUST TO SECURE INDEBTEDNESS OF THE AMOUNT STATED HEREIN AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF:
DATED : MAY 30, 1996
TRUSTOR : PERMA-BILT, A NEVADA CORPORATION
TRUSTEE : LAND TITLE OF NEVADA, INC., A NEVADA CORPORATION
BENEFICIARY : THE LUCILLE KAMINSKI REVOCABLE TRUST, DATED JULY 24, 1991; LUCILLE KAMINSKI AS TRUSTEE
AMOUNT : $135,000.00
RECORDED : JUNE 7, 1996
BOOK NO. : 960607
DOCUMENT NO. : 00438, OFFICIAL RECORDS

### THE FOLLOWING ITEMS AFFECT PARCEL 48:

(29) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : DECEMBER 17, 1969
BOOK NO. : 999
DOCUMENT NO. : 801918, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

(30) AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : ELECTRICAL AND COMMUNICATION FACILITIES
IN FAVOR OF : NEVADA POWER COMPANY
RECORDED : MARCH 13, 1990
BOOK NO. : 900313
DOCUMENT NO. : 00544, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

## EASEMENTS AND EXCEPTIONS (CONTINUED)

### THE FOLLOWING ITEMS AFFECT PARCEL 49:

(32) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : DECEMBER 14, 1978
BOOK NO. : 982
DOCUMENT NO. : 941908, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

(33) AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : ELECTRICAL AND COMMUNICATION FACILITIES
IN FAVOR OF : NEVADA POWER COMPANY
RECORDED : MAY 18, 1990
BOOK NO. : 900518
DOCUMENT NO. : 00759, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

(34) AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : ELECTRICAL AND COMMUNICATION FACILITIES
IN FAVOR OF : NEVADA POWER COMPANY
RECORDED : MAY 21, 1990
BOOK NO. : 900521
DOCUMENT NO. : 00789, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 50:

(136) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : FEBRUARY 17, 1961
DOCUMENT NO. : 229051, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED FEBRUARY 17, 1961 AS DOCUMENT NO. 229051, OFFICIAL RECORDS.

REFERENCE SHOULD BE MADE TO THE RECORD(S) FOR FULL PARTICULARS.

(137) AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : POWER AND COMMUNICATION
IN FAVOR OF : NEVADA POWER COMPANY AND CENTRAL TELEPHONE COMPANY
RECORDED : JULY 11, 1973
BOOK NO. : 345
DOCUMENT NO. : 304097, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

(138) AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : ELECTRICAL AND COMMUNICATION LINES
IN FAVOR OF : NEVADA POWER COMPANY
RECORDED : AUGUST 10, 1990
BOOK NO. : 900810
DOCUMENT NO. : 01020, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 51:

(140) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 2, 1978
DOCUMENT NO. : 882554, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

141. A DEED OF TRUST TO SECURE INDEBTEDNESS OF THE AMOUNT STATED HEREIN AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF:
DATED : AUGUST 12, 1997
TRUSTOR : PERMA-BILT, A NEVADA CORPORATION
TRUSTEE : LAND TITLE OF NEVADA, INC., A NEVADA CORPORATION
BENEFICIARY : SAM A. BRUNI AND PATRICIA J. BRUNI, HUSBAND AND WIFE AS JOINT TENANTS
AMOUNT : $181,000.00
RECORDED : AUGUST 19, 1997
BOOK NO. : 970819
DOCUMENT NO. : 00148, OFFICIAL RECORDS

### THE FOLLOWING ITEMS AFFECT PARCEL 52A THROUGH 52D:

(143) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 22, 1997
BOOK NO. : 970822
DOCUMENT NO. : 00851, OFFICIAL RECORDS

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 22, 1997 IN BOOK 970822 OF OFFICIAL RECORDS AS DOCUMENT NO. 00851.

REFERENCE SHOULD BE MADE TO THE RECORD(S) FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 53:

(145) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : APRIL 9, 1993
BOOK NO. : 930409
DOCUMENT NO. : 00441, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED APRIL 9, 1993 IN BOOK 930409 OF OFFICIAL RECORDS AS DOCUMENT NO. 00441.

REFERENCE SHOULD BE MADE TO THE RECORD(S) FOR FULL PARTICULARS.

146. A DEED OF TRUST TO SECURE INDEBTEDNESS OF THE AMOUNT STATED HEREIN AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF:
DATED : SEPTEMBER 5, 1996
TRUSTOR : PERMA-BILT, A NEVADA CORPORATION
TRUSTEE : LAND TITLE OF NEVADA, INC., A NEVADA CORPORATION
BENEFICIARY : MARINA PLON, M.D., TRUSTEE OF THE MARINA PLON, M.D. LTD. PENSION TRUST AND MARK PLON, M.D., TRUSTEE OF THE MARK PLON, M.D., P.C. PENSION PLAN TRUST AND MARINA PLON, A MARRIED WOMAN
AMOUNT : $400,000.00
RECORDED : SEPTEMBER 11, 1996
BOOK NO. : 960911
DOCUMENT NO. : 01380, OFFICIAL RECORDS
RE-RECORDED : DECEMBER 14, 1998
BOOK NO. : 981214
DOCUMENT NO. : 00316, OFFICIAL RECORDS

(WITH OTHER PROPERTY)

## EASEMENTS AND EXCEPTIONS (CONTINUED)

### THE FOLLOWING ITEMS AFFECT PARCEL 54:

148. RESERVATIONS AS CONTAINED IN THE PATENT CONVEYING SAID LAND.

### THE FOLLOWING ITEMS AFFECT PARCEL 55:

(150) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : FEBRUARY 26, 1960
BOOK NO. : 233
DOCUMENT NO. : 189416, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED FEBRUARY 26, 1960 IN BOOK 233 OF OFFICIAL RECORDS AS DOCUMENT NO. 189416.

REFERENCE SHOULD BE MADE TO THE RECORD(S) FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 56:

(152) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : APRIL 26, 1996
BOOK NO. : 960426
DOCUMENT NO. : 00076, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM
THE UNITED STATES OF AMERICA, RECORDED APRIL 26, 1996 IN BOOK 960426 OF OFFICIAL RECORDS AS DOCUMENT NO. 00076.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 57:

(154) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 8, 1960
DOCUMENT NO. : 207255, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

(155) AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : ELECTRICAL AND COMMUNICATION LINES
IN FAVOR OF : NEVADA POWER COMPANY AND CENTRAL TELEPHONE COMPANY
RECORDED : JULY 26, 1973
DOCUMENT NO. : 308372, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 58:

(157) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : JANUARY 28, 1960
BOOK NO. : 230
DOCUMENT NO. : 186511, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

158. A DEED OF TRUST TO SECURE INDEBTEDNESS OF THE AMOUNT STATED HEREIN AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF:
DATED : JUNE 11, 1996
TRUSTOR : PERMA-BILT, A NEVADA CORPORATION
TRUSTEE : LAND TITLE OF NEVADA, INC., A NEVADA CORPORATION
BENEFICIARY : LAWRENCE H. SKENANDORE AND BONITA V. SKENANDORE, HUSBAND AND WIFE AS JOINT TENANTS
AMOUNT : $46,000.00
RECORDED : JUNE 19, 1996
BOOK NO. : 960619
DOCUMENT NO. : 00473, OFFICIAL RECORDS

### THE FOLLOWING ITEMS AFFECT PARCEL 59:

(160) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 22, 1997
BOOK NO. : 970822
DOCUMENT NO. : 00851, OFFICIAL RECORDS

A RIGHT-OF-WAY FOR A FEDERAL AID HIGHWAY, EXACT LOCATION UNDISCLOSED, AS REFERRED TO IN PATENT FROM THE UNITED STATES OF AMERICA, RECORDED AUGUST 22, 1997 IN BOOK 970822 OF OFFICIAL RECORDS AS DOCUMENT NO. 00851.

REFERENCE SHOULD BE MADE TO THE RECORD(S) FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 60:

(162) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : AUGUST 9, 1957
DOCUMENT NO. : 112453, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 61

(164) RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : MARCH 17, 1978
BOOK NO. : 860
DOCUMENT NO. : 819725, OFFICIAL RECORDS

NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

165. AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : ELECTRICAL LINES
IN FAVOR OF : NEVADA POWER COMPANY
RECORDED : MAY 14, 1980
BOOK NO. : 1227
DOCUMENT NO. : 1186289, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.
(BLANKET EASEMENT)

| NO. | DESCRIPTION | DATE | APP'D |
|---|---|---|---|
| 0 | ORIGINAL CERTIFICATION | 11/09/00 | |

DATE : 11/8/00
P.M. :
DRAWN BY : PD
DESIGNED BY :
CHECKED BY : FWO
JOB NO. : 0288.0020
SCALE :

PENTACORE
CIVIL ENGINEERING • LAND SURVEYING • PLANNING
CONSTRUCTION MANAGEMENT • ADA CONSULTING
6725 WEST CHARLESTON BOULEVARD
LAS VEGAS, NEVADA 89146 (702)256-0115

GREEN PARK HOLDINGS, LLC

ALTA/ACSM LAND TITLE SURVEY

SHEET 5 OF 10

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MAR 3 0 2002

## EASEMENTS AND EXCEPTIONS (CONTINUED)

166 AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : ELECTRICAL LINES
IN FAVOR OF : NEVADA POWER COMPANY
RECORDED : MAY 14, 1980
BOOK NO. : 1227
DOCUMENT NO. : 1186290, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

167. EASEMENTS AND DEDICATIONS AND RESTRICTIONS AS PROVIDED FOR OR DELINEATED ON THE PLAT OF SAID PARCEL MAP ON FILE IN FILE 32 OF PARCEL MAPS, PAGE 45 IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA.

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 62:

169. RESERVATIONS AS CONTAINED IN THE PATENT CONVEYING SAID LAND.
NOTE: IT IS REQUIRED THAT THE ORIGINAL PATENT, OR CERTIFIED COPY THEREOF, BE RECORDED PRIOR TO THE CLOSE OF THIS TRANSACTION

### THE FOLLOWING ITEMS AFFECT PARCEL 63:

173. RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : OCTOBER 2, 1962
BOOK NO. : 390
DOCUMENT NO. : 314830, OFFICIAL RECORDS

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.

174. AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : ELECTRICAL LINES
IN FAVOR OF : NEVADA POWER COMPANY
RECORDED : NOVEMBER 30, 1983
BOOK NO. : 1840
DOCUMENT NO. : 1799264, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.
(DOES NOT AFFECTS PROPERTY)

175. ANY BOUNDARY DISCREPANCIES OR RIGHTS WHICH MAY EXIST OR ARISE BY REASON OF A RECORD OF SURVEY:
FILE : 41
PAGE : 28
RECORDED : FEBRUARY 27, 1984
BOOK NO. : 1881
DOCUMENT NO. : 1840335, OFFICIAL RECORDS

176. COVENANTS, CONDITIONS AND RESTRICTIONS AND EASEMENTS, IF ANY, (BUT DELETING ANY COVENANT, CONDITION OR RESTRICTIONS INDICATING A PREFERENCE, LIMITATION OR DISCRIMINATION BASED UPON RACE, COLOR, RELIGION, SEX, HANDICAP, FAMILIAL STATUS OR NATIONAL ORIGIN TO THE EXTENT SUCH COVENANTS, CONDITIONS OR RESTRICTIONS VIOLATE 42 USC 3604 ( C )), IN AN INSTRUMENT:
RECORDED : MAY 24, 1984
BOOK NO. : 1926
DOCUMENT NO. : 1885327, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

177. EASEMENTS AND DEDICATIONS AND RESTRICTIONS AS PROVIDED FOR OR DELINEATED ON THE PLAT OF SAID PARCEL MAP ON FILE IN FILE 70 OF PARCEL MAPS, PAGE 89 IN THE OFFICE OF THE COUNTY RECORDER, CLARK COUNTY, NEVADA.

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

178 AN EASEMENT SHOWN BELOW AND INCIDENTAL PURPOSES RELATED THERETO:
FOR : ELECTRICAL LINES
IN FAVOR OF : NEVADA POWER COMPANY
RECORDED : DECEMBER 31, 1992
BOOK NO. : 921231
DOCUMENT NO. : 01957, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

179. ANY EASEMENT NOT VACATED BY THAT CERTAIN ORDER OF VACATION:
RECORDED : MARCH 4, 1993
BOOK NO. : 930304
DOCUMENT NO. : 00550, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

180. A DEED OF TRUST TO SECURE INDEBTEDNESS OF THE AMOUNT STATED HEREIN AND ANY OTHER AMOUNTS PAYABLE UNDER THE TERMS THEREOF:
DATED : APRIL 1, 1996
TRUSTOR : PHIL DAVIS, A MARRIED MAN AS HIS SOLE AND SEPARATE PROPERTY
TRUSTEE : NEVADA TITLE COMPANY, A NEVADA CORPORATION
BENEFICIARY : RUTH D. HAMPE, TRUSTEE OF THE STEPHEN J. HAMPE AND RUTH D. HAMPE FAMILY TRUST DATED DECEMBER 23, 1992
AMOUNT : $50,000.00
RECORDED : APRIL 2, 1996
BOOK NO. : 960402
DOCUMENT NO. : 00217, OFFICIAL RECORDS

### THE FOLLOWING ITEMS AFFECT PARCEL 64:

182. RESERVATIONS AS CONTAINED IN THE PATENT CONVEYING SAID LAND.
NOTE: IT IS REQUIRED THAT THE ORIGINAL PATENT, OR A CERTIFIED COPY THEREOF, BE RECORDED PRIOR TO THE CLOSE OF THIS TRANSACTION.

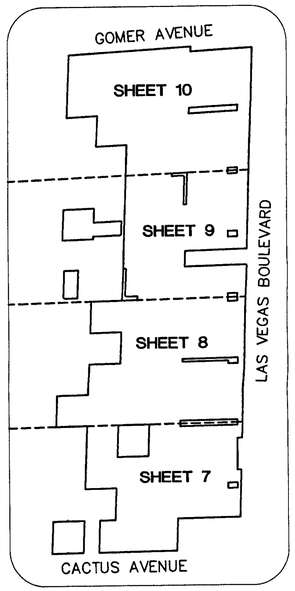
183 EASEMENTS, TERMS AND PROVISIONS, CONTAINED IN AN INSTRUMENT
ENTITLED : UNITED STATES, DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT, RIGHT-OF-WAY/TEMPORARY USE PERMIT
RECORDED : AUGUST 31, 1993
BOOK NO. : 930831
DOCUMENT NO. : 01745, OFFICIAL RECORDS

REFERENCE TO SAID INSTRUMENT IS MADE FOR FULL PARTICULARS.

### THE FOLLOWING ITEMS AFFECT PARCEL 65:

187 RESERVATIONS AND EASEMENTS IN THE PATENT FROM THE UNITED STATES OF AMERICA:
RECORDED : APRIL 10, 1973
BOOK NO. : 317
DOCUMENT NO. : 276264, OFFICIAL RECORDS
NOTE: SAID PATENT FURTHER RESERVED AND IS SUBJECT TO A RIGHT-OF-WAY NOT EXCEEDING 33 FEET IN WIDTH FOR ROADWAY AND PUBLIC UTILITIES.
AFFECTS : A PORTION OF SAID LAND.

REFERENCE SHOULD BE MADE TO THE RECORD FOR FULL PARTICULARS.




KEY MAP

| NO. | DESCRIPTION | DATE | APP'D |
|---|---|---|---|
| 0 | ORIGINAL CERTIFICATION | 11/09/00 | |

DATE : 11/8/00
P.M. :
DRAWN BY : PD
DESIGNED BY :
CHECKED BY : FWD
JOB NO. : 0288.0020
SCALE :

PENTACORE
CIVIL ENGINEERING • LAND SURVEYING • PLANNING
CONSTRUCTION MANAGEMENT • ADA CONSULTING
6763 WEST CHARLESTON BOULEVARD
LAS VEGAS, NEVADA 89146 (702)258-0115

GREEN PARK HOLDINGS, LLC

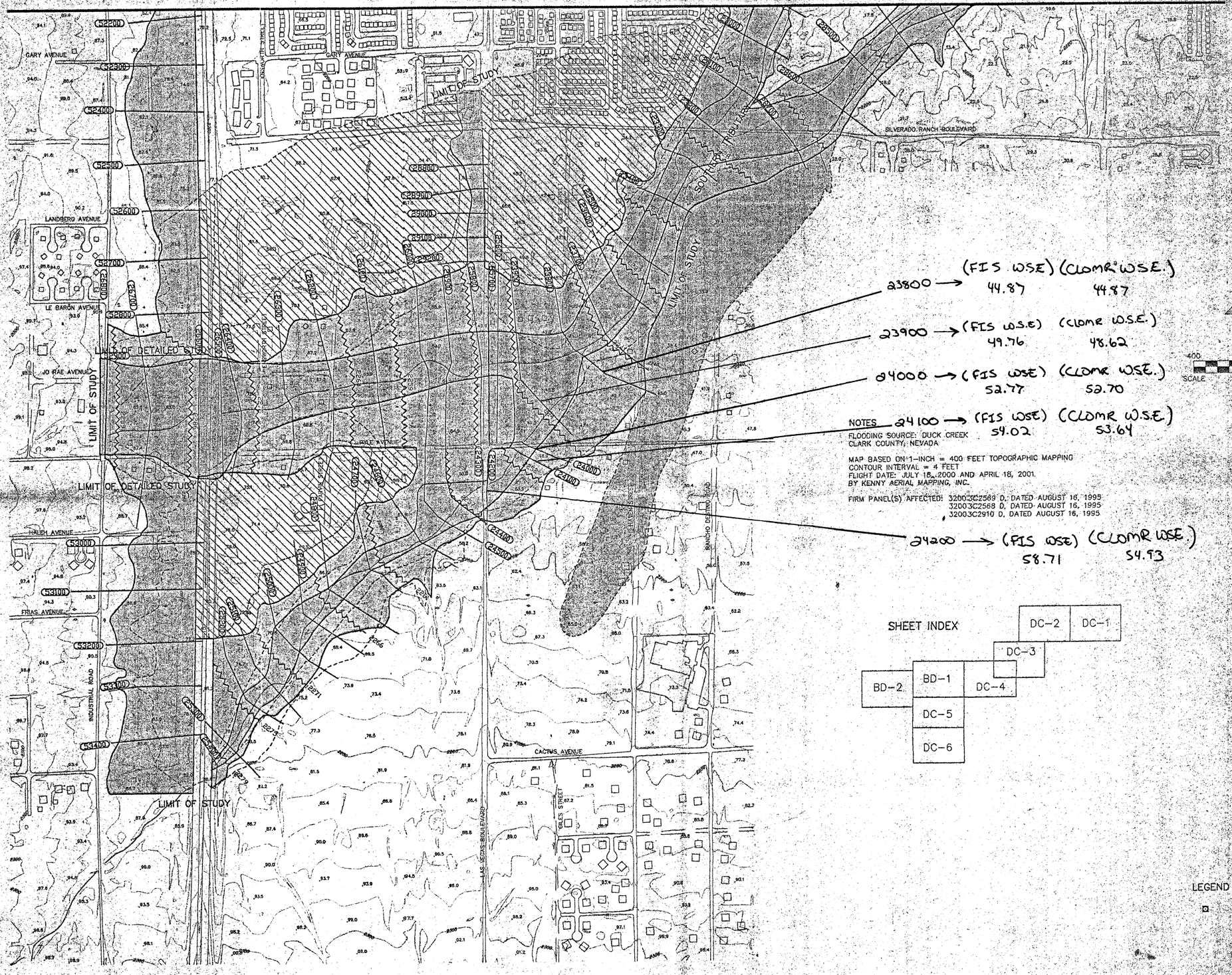
ALTA/ACSM LAND TITLE SURVEY

SHEET 6 OF 10

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MAR 8 6 2002

SEE SHEET DC-5




(FIS WSE) (CLOMR WSE.)

23800 → 44.87 44.87

23900 → (FIS W.S.E.) (CLOMR W.S.E.) 49.76 48.62

24000 → (FIS WSE) (CLOMR WSE.) 52.77 52.70

24100 → (FIS WSE) (CLOMR W.S.E.) 54.02 53.64

24200 → (FIS WSE) (CLOMR WSE.) 58.71 54.93

NOTES

FLOODING SOURCE: DUCK CREEK
CLARK COUNTY, NEVADA

MAP BASED ON 1-INCH = 400 FEET TOPOGRAPHIC MAPPING
CONTOUR INTERVAL = 4 FEET
FLIGHT DATE: JULY 15, 2000 AND APRIL 15, 2001.
BY KENNY AERIAL MAPPING, INC.

FIRM PANEL(S) AFFECTED: 32003C2569 D, DATED AUGUST 16, 1995
32003C2568 D, DATED AUGUST 16, 1995
32003C2910 D, DATED AUGUST 16, 1995

NORTH
SCALE 1" = 400'

400 0 400 800
SCALE FEET

SHEET INDEX




LEGEND

ELEVATION REFERENCE MARKER

RECEIVED
FEB 01 2002
STANTEC

South Box Figure 5

DUCK CREEK/ BLUE DIAMOND WASHES FIS RESTUDY
DUCK CREEK FROM I-15 TO RICHMAR AVENUE
CROSS SECTION EXHIBIT

SHEET DC-6
6 OF 8 SHTS

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
PHONE (702) 804-2100 • FAX (702) 804-2299
F:\1500-039\dwg\comp\1500-039-comp.dwg Mon, Jan 28, 2002 - 2:04pm Mbaden

DESIGN:
DRAWN:
CHECK:
ISSUE DATE:
ISSUE EDITOR:
PLOT DATE: 01-31-02
PLOT TIME: 14:28:45

NO. DESCRIPTION DATE / AGENCY APP. DATE / CHK. APP.

REV. DATE

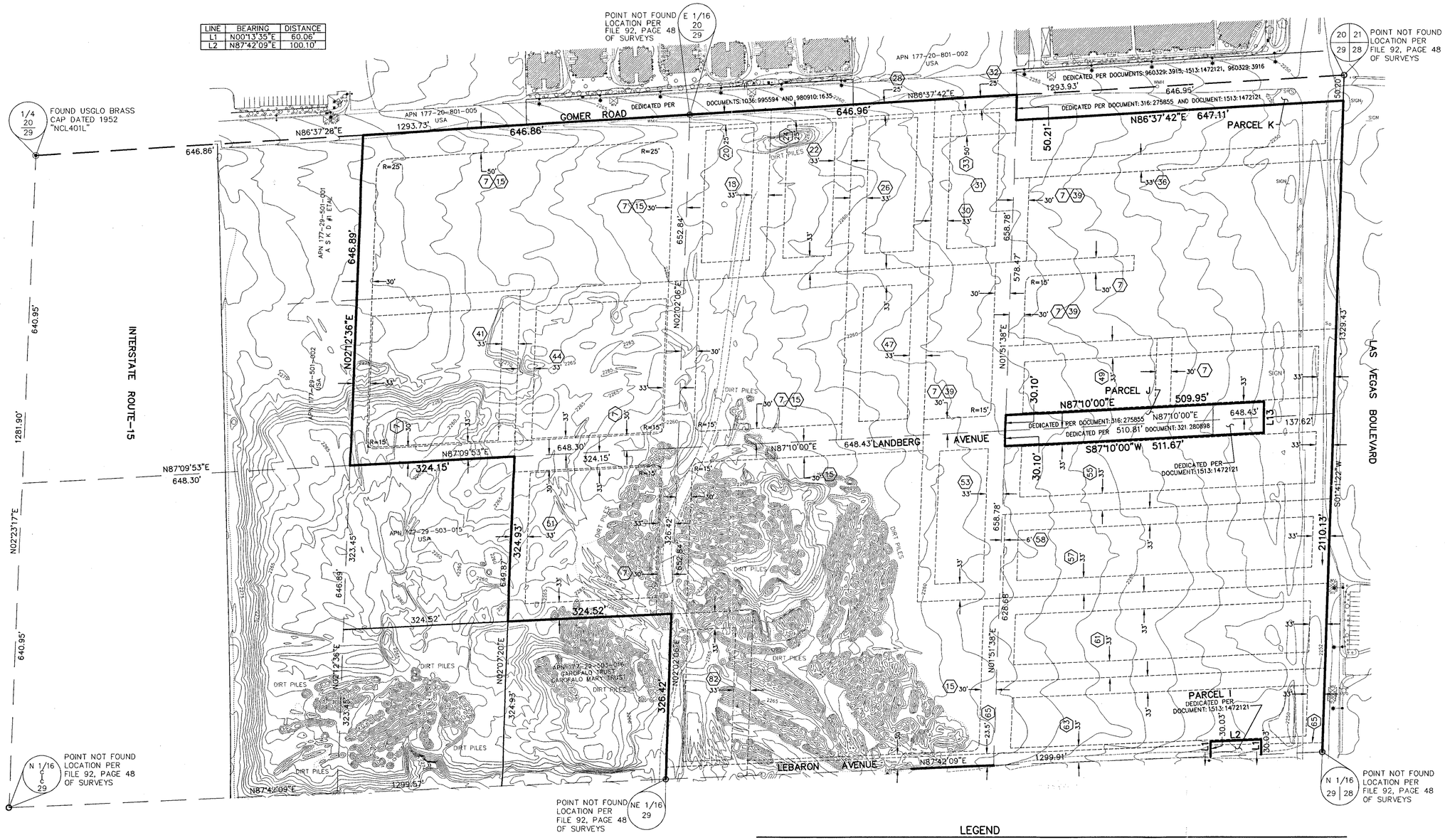
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# ALTA/ACSM LAND TITLE SURVEY

## A PORTION OF THE WEST HALF (W 1/2) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.M., CLARK COUNTY, NEVADA

| LINE | BEARING | DISTANCE |
|---|---|---|
| L1 | N00°13'35"E | 60.06' |
| L2 | N87°42'09"E | 100.10' |




## LEGEND

- BOUNDARY LINE
- RIGHT-OF-WAY LINE
- SECTION LINE
- ALIQUOT PART LINE
- EASEMENT LINE
- ASSESSOR'S PARCEL LINE
- MATCHLINE
- EDGE OF ASPHALT
- CURB AND GUTTER
- DIRT ROAD
- BUILDING
- BLOCK WALL
- CHAIN LINK FENCE

- FOUND MONUMENT AS DESCRIBED
- POINT NOT FOUND OR SET LOCATION PER FILE 92, PAGE 48 OF SURVEYS
- FOUND 1-INCH PLASTIC CAP "RE 2002" PER FILE 70, PAGE 89 OF PARCEL MAPS
- STREET LIGHT
- SIGN
- WATER VALVE
- FIRE HYDRANT
- POWER POLE
- SEWER MANHOLE
- TP TRANSFORMER PAD
- TPN TRANSFORMER PAD (NO TRANSFORMER)

- ELEC ELECTRICAL PULLBOX
- TELE TELEPHONE PULL BOX
- CONC. CONCRETE PAD
- WMH WATER MANHOLE
- APN ASSESSOR'S PARCEL NUMBER
- (4) CURVE DATA
- L1 COURSE NUMBER
- (6) TITLE REPORT EXCEPTION NUMBER

NORTH
SCALE: 1" =100'

| NO. | DESCRIPTION | DATE | APP'D |
|---|---|---|---|
| 2 | REVISED LOCATION OF EXCEPTION NO. 6S | 03/11/02 | |
| 1 | REVISED AREAS | 11/27/00 | |
| 0 | ORIGINAL CERTIFICATION | 11/09/00 | |

DATE : 11/6/00
P.M. :
DRAWN BY : PD
DESIGNED BY :
CHECKED BY : FWD
JOB NO. : 0288.0020
SCALE : 1"=100'


PENTACORE
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CONSTRUCTION MANAGEMENT • ADA CONSULTING
6763 WEST CHARLESTON BOULEVARD
LAS VEGAS, NEVADA 89146 (702)258-0115


GREEN PARK HOLDINGS, INC

ALTA/ACSM LAND TITLE SURVEY

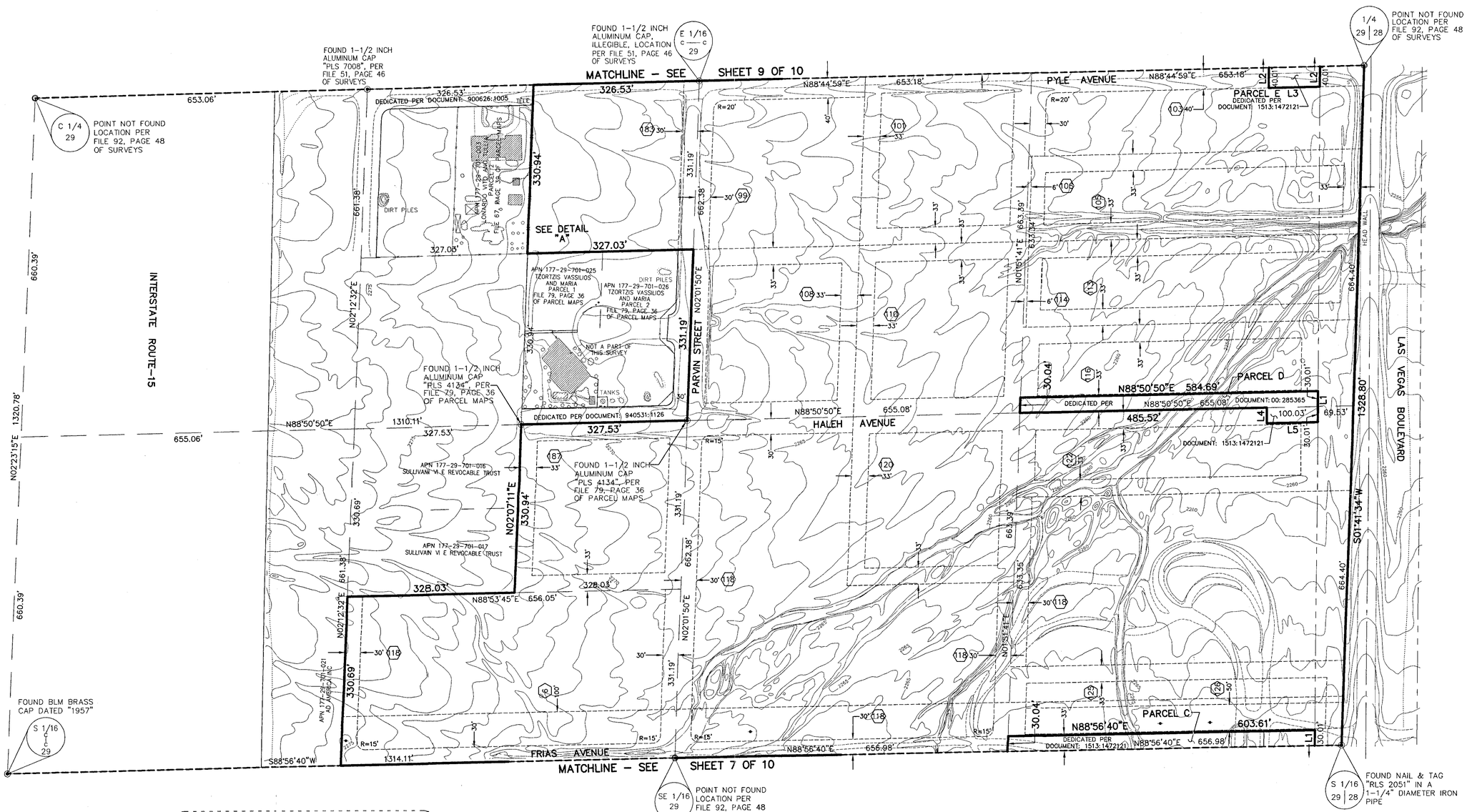
SHEET 10 OF 10

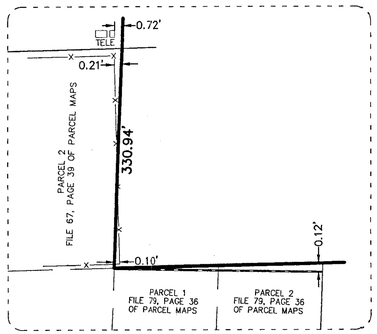
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MAR 8 5 2002

# ALTA/ACSM LAND TITLE SURVEY

## A PORTION OF THE WEST HALF (W 1/2) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.M., CLARK COUNTY, NEVADA




DETAIL "A"
NOT SCALE

| LINE | BEARING | DISTANCE |
|---|---|---|
| L1 | N00°13'35"E | 60.02' |
| L2 | S00°13'35"W | 80.03' |
| L3 | N88°44'59"E | 100.03' |
| L4 | N00°13'35"E | 30.01' |
| L5 | N88°50'50"E | 100.03' |

NORTH
SCALE: 1" =100'

LEGEND

| | |
|---|---|
| BOUNDARY LINE | FOUND MONUMENT AS DESCRIBED |
| RIGHT-OF-WAY LINE | POINT NOT FOUND OR SET LOCATION PER FILE 92, PAGE 48 OF SURVEYS |
| SECTION LINE | FOUND 1-INCH PLASTIC CAP "RE 2002" PER FILE 70, PAGE 89 OF PARCEL MAPS |
| ALIQUOT PART LINE | STREET LIGHT |
| EASEMENT LINE | SIGN |
| ASSESSOR'S PARCEL LINE | WATER VALVE |
| MATCHLINE | FIRE HYDRANT |
| EDGE OF ASPHALT | POWER POLE |
| CURB AND GUTTER | SEWER MANHOLE |
| DIRT ROAD | TP TRANSFORMER PAD |
| BUILDING | TPN TRANSFORMER PAD (NO TRANSFORMER) |
| BLOCK WALL | ELEC ELECTRICAL PULLBOX |
| CHAIN LINK FENCE | TELE TELEPHONE PULL BOX |
| | CONC. CONCRETE PAD |
| | WMH WATER MANHOLE |
| | APN ASSESSOR'S PARCEL NUMBER |
| | (4) CURVE DATA |
| | L1 COURSE NUMBER |
| | (6) TITLE REPORT EXCEPTION NUMBER |

| NO. | DESCRIPTION | DATE | APP'D |
|---|---|---|---|
| 2 | REVISED LOCATION OF EXCEPTION NO. 65 | 03/11/02 | |
| 1 | REVISED AREAS | 11/27/00 | |
| 0 | ORIGINAL CERTIFICATION | 11/09/00 | |

DATE : 11/6/00
P.M. :
DRAWN BY : PD
DESIGNED BY :
CHECKED BY : FWO
JOB NO. : 0288.0020
SCALE : 1"=100'

PENTACORE
CIVIL ENGINEERING • LAND SURVEYING • PLANNING
CONSTRUCTION MANAGEMENT • ADA CONSULTING
6671 WEST CHARLESTON BOULEVARD
LAS VEGAS, NEVADA 89146 (702)258-3115

GREEN PARK HOLDINGS, LLC
ALTA/ACSM LAND TITLE SURVEY

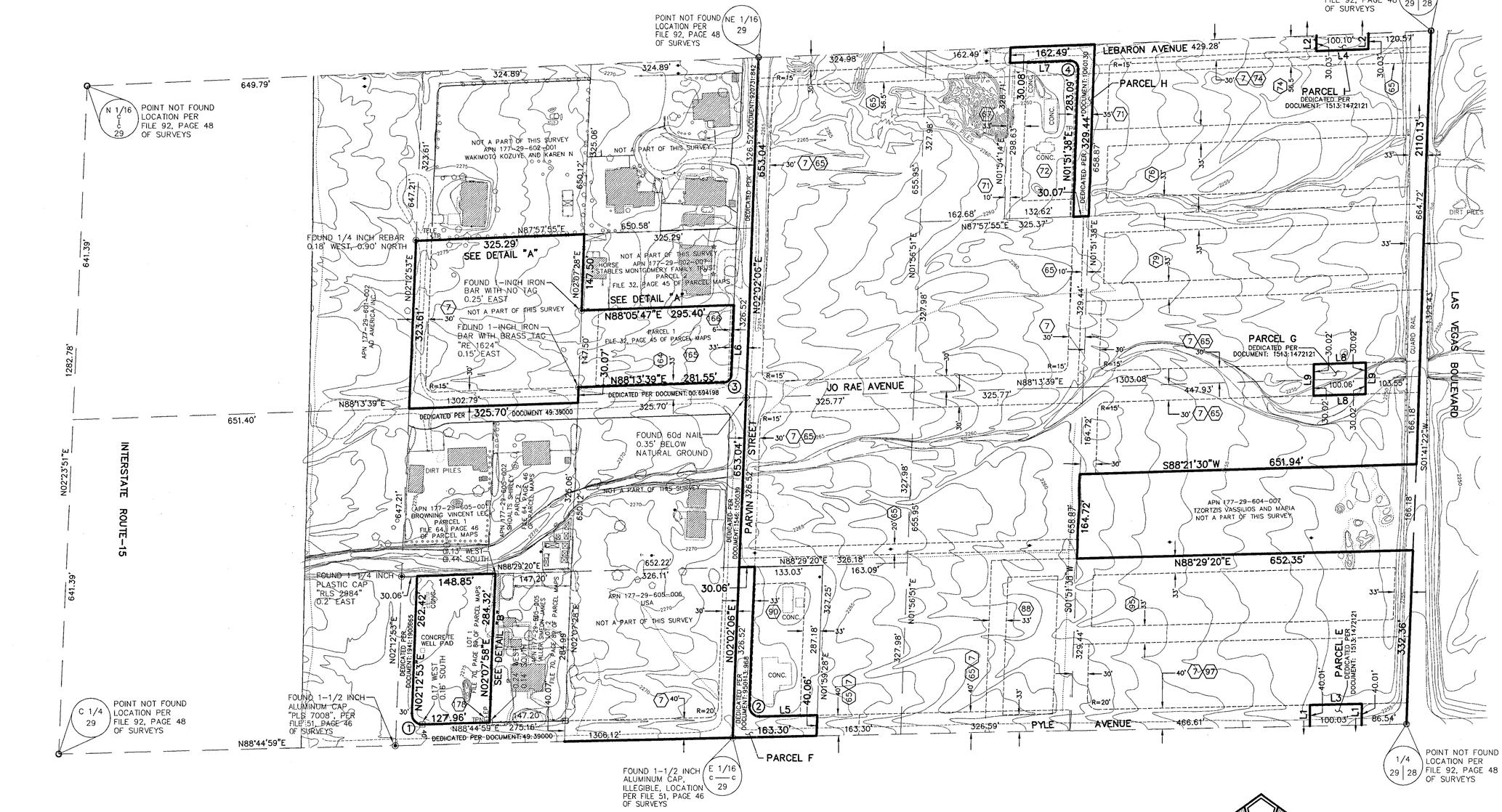
SHEET 8 OF 10

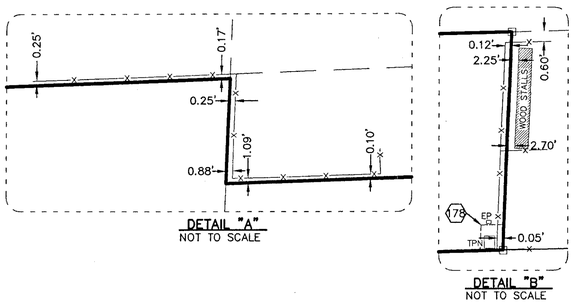
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MAR 28 2002

# ALTA/ACSM LAND TITLE SURVEY

## A PORTION OF THE WEST HALF (W 1/2) OF SECTION 29, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.M., CLARK COUNTY, NEVADA




| LINE | BEARING | DISTANCE |
|---|---|---|
| L1 | N00°13'35"E | 80.03' |
| L2 | S00°13'35"W | 60.06' |
| L3 | N88°44'59"E | 100.03' |
| L4 | N87°42'09"E | 100.10' |
| L5 | N88°44'59"E | 112.03' |
| L6 | N02°02'06"E | 134.12' |
| L7 | N87°42'09"E | 116.30' |
| L8 | N88°13'39"E | 100.06' |
| L9 | N00°13'35"E | 60.04' |

| CURVE | DELTA | RADIUS | LENGTH | TANGENT |
|---|---|---|---|---|
| 1 | 93°27'54" | 20.00' | 32.63' | 21.25' |
| 2 | 93°17'08" | 20.00' | 32.56' | 21.18' |
| 3 | 86°11'32" | 15.00' | 22.57' | 14.03' |
| 4 | 94°09'29" | 15.00' | 24.65' | 16.13' |

SCALE: 1" =100'

### LEGEND

- BOUNDARY LINE
- RIGHT-OF-WAY LIINE
- SECTION LINE
- ALIQUOT PART LINIE
- EASEMENT LINE
- ASSESSOR'S PARCIEL LINE
- MATCHLINE
- EDGE OF ASPHALT
- CURB AND GUTTER
- DIRT ROAD
- BUILDING
- BLOCK WALL
- CHAIN LINK FENCE
- FOUND MONUMENT AS DESCRIBED
- POINT NOT FOUND OR SET LOCATION PER FILE 92, PAGE 48 OF SURVEYS
- FOUND 1-INCH PLASTIC CAP "RE 2002" PER FILE 70, PAGE 89 OF PARCEL MAPS
- STREET LIGHT
- SIGN
- WATER VALVE
- FIRE HYDRANT
- POWER POLE
- SEWER MANHOLE
- TP TRANSFORMER PAD
- TPN TRANSFORMER PAD (NO TRANSFORMER)
- ELEC ELECTRICAL PULLBOX
- TELE TELEPHONE PULL BOX
- CONC. CONCRETE PAD
- WMH WATER MANHOLE
- APN ASSESSOR'S PARCEL NUMBER
- (4) CURVE DATA
- L1 COURSE NUMBER
- (6) TITLE REPORT EXCEPTION NUMBER

| NO. | DESCRIPTION | DATE | APP'D |
|---|---|---|---|
| 2 | REVISED LOCATION OF EXCEPTION NO. 65 | 03/11/02 | |
| 1 | REVISED AREAS | 11/27/00 | |
| 0 | ORIGINAL CERTIFICATION | 11/09/00 | |

DATE : 11/6/00
P.M. :
DRAWN BY : PD
DESIGNED BY :
CHECKED BY : FWG
JOB NO. : 1"=100'
SCALE :


PENTACORE
CIVIL ENGINEERING • LAND SURVEYING • PLANNING
CONSTRUCTION MANAGEMENT • FEASIBILITY STUDIES
8763 WEST CHARLESTON BOULEVARD
LAS VEGAS, NEVADA 89146 (702)258-0115


GREEN PARK HOLDINGS, LLC
ALTA/ACSM LAND TITLE SURVEY

SHEET 9 OF 10

S:\G288\0020\ALTA\02880020-ALTA4.DWG

MAR 2 8 2002

G. C. WALLACE, INC.
Engineers / Planners / Surveyors

# LETTER OF TRANSMITTAL

**To:** Clark County Regional Flood Control District
600 South Grand Central Parkway, Ste. 300
Las Vegas, Nevada 89106-4511

**Date:** August 5, 2003

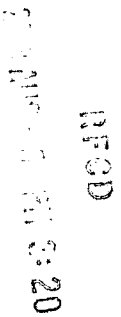
**Project No.:** 550.041

ATTN: Kevin Eubanks, P.E. – Ass't. General Manager

**Subject: Duck Creek Improvements – Warm Spring Road to Topaz Street**

| | | | |
|---|---|---|---|
| ☒ Herein *VIA* | ☒ Hand Delivery | ☐ Federal Express | ☐ First Class Mail |
| ☐ Returned | ☐ Other _____ | ☐ UPS | ☐ MDS |

One (1) Copy – Summary of Hydraulic Analysis of subject w/CD



| These items are submitted: | | Acknowledgment of receipt: | |
|---|---|---|---|
| ☐ At your request | ☐ For your action | | Received by: _____ |
| ☐ For your approval | ☒ For your files | ☐ Not required | Date: _____ |
| ☐ For your review and comments | ☐ For your information | ☒ Acknowledgment required | Time: _____ |

Remarks: If you have any questions or need additional information, please contact me at 804-2011.

Very truly yours,

G. C. WALLACE, INC.

By: _____

Jerry E. Pruitt, P.E.
Senior Vice President
Flood Control Division

Copies to: Dave Betley, CCDSD

jj

# SUMMARY OF HYDRAULIC ANALYSIS

# for the

# DUCK CREEK IMPROVEMENTS

# WARM SPRINGS ROAD TO TOPAZ STREET

## 550.041

## June 2003


**Prepared for:**

**Clark County Regional Flood Control District**
**600 South Grand Central Parkway, Suite 300**
**Las Vegas, Nevada 89155**
**Phone: (702) 455-3139**
**Fax: (702) 444-3870**

**G. C. WALLACE, INC.**
**Engineers/Planners/Surveyors**

# SUMMARY OF HYDRAULIC ANALYSIS

# for the

# DUCK CREEK IMPROVEMENTS

# WARM SPRINGS ROAD TO TOPAZ STREET

## 550.041

## June 2003


Prepared for:

Clark County Regional Flood Control District
600 South Grand Central Parkway, Suite 300
Las Vegas, Nevada 89155
Phone: (702) 455-3139
Fax: (702) 444-3870

## Purpose and Authorization

This hydraulic analysis is based on recent improvements to Duck Creek as shown in the *Improvement Plans for Duck Creek - Warm Springs Road and Topaz Street* (Reference 1). The purpose of this analysis is to determine the breakout flow from Duck Creek at this location and propose revisions to the Effective FIRM based on these revised flows. G. C. Wallace, Inc. (GCW) was authorized by the Clark County Regional Flood Control District (CCRFCD) to perform this hydraulic analysis under contract, *Agreement of Professional Services for the Topaz Street Improvements*, dated May 23, 2003.

## Previous Studies

The study area consists of Duck Creek from 2,000 feet downstream of Pecos Road to 600 feet upstream of Topaz Street. This reach of Duck Creek was previously studied in the *Duck Creek/ Blue Diamond Washes FIS Restudy* (Reference 2), hereafter referred to as the *2002 FIS Restudy*. The *2002 FIS Restudy* was approved by FEMA in April 2003. The 100-year flow of 8,562 cfs was referenced from the *Summary of Design* Flows from the *2002 FIS Restudy.* The Effective HEC-2 model from the 2002 FIS Restudy, DCL1SUBC.OUT, identified a split flow of 3,000 cfs at this location. The study area is shown on Figures 1 and 2.

## Channel Improvements

The channel improvements for Duck Creek – Warm Springs Road and Topaz Street were completed in May 2002. The channel improvements extend approximately 600 feet from 200 feet downstream of Warm Springs Road to Topaz Street. The channel improvements consist of:

- 11-foot high retaining wall constructed along right overbank.
- 7 to 8-foot high retaining wall that extends 50 feet south along Topaz Street.
- Channel bottom and left overbank rough graded and vegetation removed.
- Gabion lining where retaining wall meets rough graded channel bottom.
- Concrete channel constructed from Warm Springs Road culvert to 200 feet downstream. This includes channel widening at Equestrian Bridge.

- Piers reinforced and extended on the UPRR-Henderson Spur Bridge.

Note that elevations shown on the as-built plans are based on the NAVD 88 datum. All HEC-2 models used in this hydraulic analysis originate from HEC-2 models in the *2002 FIS Restudy*, which are based on NGVD 29 datum. The conversion between the NAVD 88 datum and the NGVD 29 datum for this project is shown below:

NAVD 88 = NGVD 29 + 2.37 feet

There are a few important differences between the as-built plans and what was actually constructed. A field investigation by GCW showed that the finished grade behind the wall is approximately 3-5 feet below the top of wall. In addition, the 2 feet of fill proposed along the channel bottom was not put in. The field investigation also showed that there has been a significant increase in vegetation upstream of Topaz Street since the area was studied in the *2002 FIS Restudy*. Photos from the field investigation are attached in the Appendix. See the attached set of as-built plans.

## Hydraulic Modeling

Three (3) separate alternatives were modeled to determine the breakout flow. HEC-2 models were run using the U.S. Army Corps of Engineers (USACOE) HEC-2 Water Surface Profiles computer program (Reference 3) which runs inside BOSS International's RMS 2000 for AutoCAD (Reference 4). All HEC-2 models are based from the Effective HEC-2 model, DCL1SUBC.OUT. Each HEC-2 model alternative ties into the cross section geometry of the Effective HEC-2 model. The upstream tie-in is located at Section 15100 and the downstream tie-in is located at Section 14200. See Figure 3 for the Effective FIRM.

### Alternative "A"

The split flow elevations along the right overbank are set at the top of wall as shown on the as-built plans. Note that the finished grade along the right overbank is below the top of wall. The weir split flow method was used to determine the breakout flow. See Figure 4 and the HEC-2 model, ALT-A.OUT.

Alternative "B"

The split flow elevations along the right overbank are set at the finished grade along the outside of the wall as shown on the as-built plans. The weir split flow method was used to determine the breakout flow. See Figure 5 and the HEC-2 model, ALT-B.OUT.

Alternative "C"

The split flow elevations along the right overbank are set at the finished grade along the outside of the wall as determined from a field investigation by GCW. The field investigation indicated that the finished grade was 3-5 feet below the top of wall. The weir split flow method was used to determine the breakout flow. See Figure 6 and the HEC-2 model, ALT-C.OUT.

## Summary and Recommendations

The following table summarizes the results of the hydraulic analysis:

**Table 1**

| HEC-2 Model | Total Flow (CFS) | Split Flow (CFS) | Remaining Flow (CFS) |
|---|---|---|---|
| Effective, DCL1SUBC.OUT | 8,562 | 3,000 | 5,562 |
| Alternative "A", ALT-A.OUT | 8,562 | 1,517 | 7,045 |
| Alternative "B", ALT-B.OUT | 8,562 | 2,040 | 6,522 |
| Alternative "C", ALT-C.OUT | 8,562 | 2,689 | 5,873 |

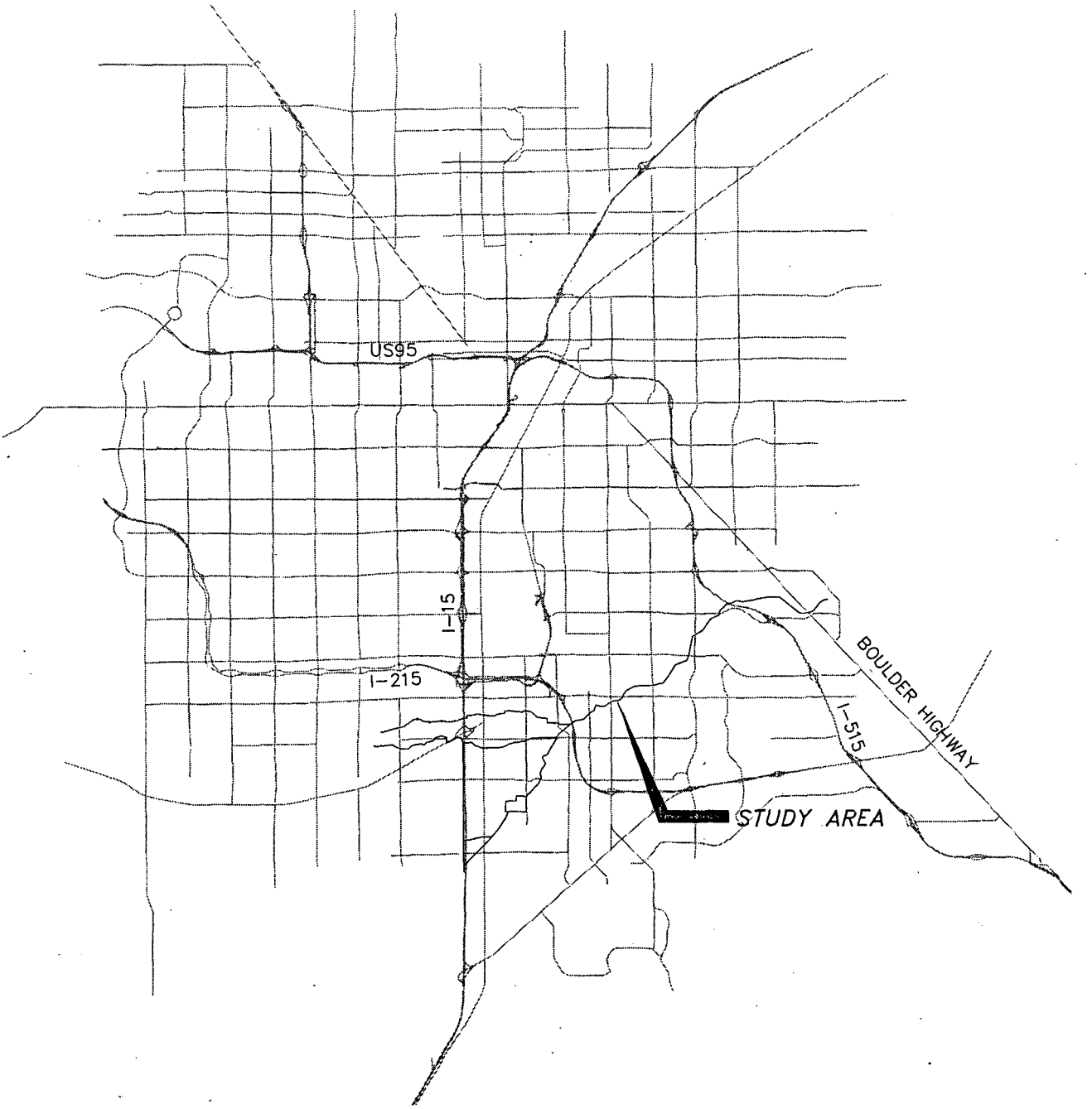
Based on these results, a revision to the Effective FIRM does not appear to be warranted at this time. In order to revise the Effective FIRM under FEMA criteria, the only acceptable option would be Alternative "C". Alternative "C" is the most viable because the split flow elevations are set at the actual finished grade along the right overbank and do not take credit for the wall height above the finished grade. The split flow results show that 2,689 cfs will break out during the 100-year storm event. Since Alternative "C" only reduces the breakout flow by 311 cfs, the resulting change to the floodplain mapping and base flood elevations (BFE) would be negligible.

Additionally, FIRM revisions based on HEC-2 model results from Alternative "A" and Alternative "B" would have to pass FEMA levee criteria which states that a minimum 3 feet of freeboard be provided above the 100-year water surface elevation. From the field investigation and spot elevations shown on the as-built plans, it appears that this requirement cannot be met. The topography along the right overbank slopes down and away from the channel. See the attached Tables 2 through Table 4 for detailed output from the HEC-2 models.

Note that a preliminary HEC-2 run of the Duck Creek Channel with the entire 100-year flow of 8,562 cfs was run and the flow was found to be confined within the channel and bridges from Pecos Road to Warms Springs Road.

## REFERENCES

1. Clark County Department of Public Works, *Improvement Plans for Duck Creek – Warm Springs Road and Topaz Street,* May 2002.
2. G.C. Wallace Inc., *Duck Creek/ Blue Diamond Washes FIS Restudy,* March 2002.
3. U.S. Army Corps of Engineers (USACOE), Hydrologic Engineering Center, HEC-2 Water Surface Profiles computer program Version 4.6.2, September 1990.
4. BOSS International, RMS 2000 for AutoCAD.




NORTH

NOT TO SCALE

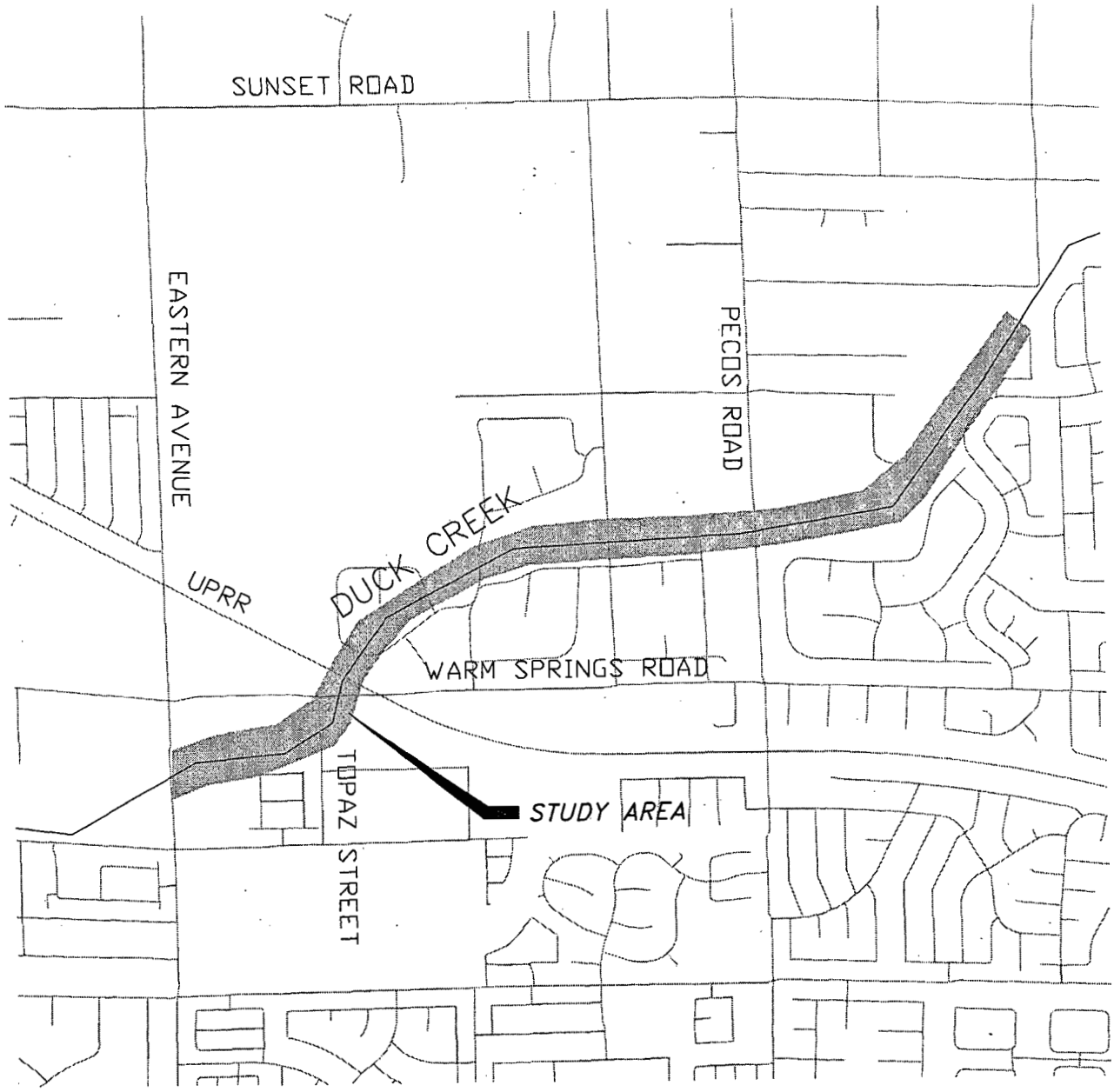
TOPAZ STREET IMPROVEMENTS
HYDRAULIC ANALYSIS

# FIGURE 1

VICINITY MAP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

F:\550-041\clomr\FIG-1B.DWG 06-30-03 11:15:08 mludwig




NORTH

1" = 1500'

# TOPAZ STREET IMPROVEMENTS HYDRAULIC ANALYSIS

## FIGURE 2

LOCATION MAP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146

F:\550-041\clomr\FIG-2B.DWG 06-30-03 11:09:01 mludwig

## TABLE 2: HEC-2 MODEL SUMMARY FOR ALTERNATIVE "A" (ALT-A.OUT)

| HEC-2 SECTION | INVERT (FT, NGVD 29) | FLOW (CFS) | CWSEL (FT, NGVD 29) | CRIWSE (FT, NGVD 29) | EGL (FT, NGVD 29) | DEPTH (FT, NGVD 29) | VELOCITY (FT/S) |
|---|---|---|---|---|---|---|---|
| 10800 | 1952.00 | 8562 | 1961.4 | 1961.4 | 1964.4 | 9.3 | 13.9 |
| 10900 | 1956.00 | 8562 | 1965.6 | 1965.6 | 1969.1 | 9.6 | 15.0 |
| 11000 | 1960.00 | 8562 | 1969.8 | 1969.8 | 1973.0 | 9.8 | 14.5 |
| 11100 | 1960.00 | 8562 | 1971.6 | 1971.6 | 1975.1 | 11.6 | 15.0 |
| 11200 | 1962.00 | 8562 | 1972.8 | 1972.8 | 1977.0 | 10.8 | 16.3 |
| 11300 | 1964.00 | 8562 | 1974.5 | 1974.5 | 1978.7 | 10.5 | 16.5 |
| 11400 | 1964.02 | 8562 | 1974.9 | 1974.9 | 1980.4 | 10.8 | 18.8 |
| 11500 | 1964.52 | 8562 | 1975.4 | 1975.4 | 1980.9 | 10.8 | 18.8 |
| 11550 | 1965.92 | 7045 | 1976.3 | 1976.3 | 1981.5 | 10.4 | 18.3 |
| 11600 | 1967.32 | 7045 | 1978.2 | 1978.2 | 1983.7 | 10.9 | 18.8 |
| 11700 | 1968.25 | 7045 | 1982.1 | NA | 1985.5 | 13.8 | 14.8 |
| 11800 | 1969.57 | 7045 | 1981.3 | 1980.5 | 1986.0 | 11.8 | 17.4 |
| 11900 | 1970.88 | 7045 | 1981.8 | 1981.8 | 1987.3 | 10.9 | 18.8 |
| 12000 | 1970.97 | 7045 | 1981.9 | 1981.9 | 1987.4 | 10.9 | 18.8 |
| 12100 | 1974.60 | 7045 | 1984.3 | 1984.3 | 1989.2 | 9.7 | 17.8 |
| 12200 | 1978.83 | 7045 | 1987.9 | 1987.9 | 1992.5 | 9.1 | 17.2 |
| 12300 | 1982.84 | 7045 | 1990.4 | 1990.4 | 1993.8 | 7.6 | 14.6 |
| 12400 | 1983.11 | 7045 | 1991.9 | NA | 1994.3 | 8.7 | 12.5 |
| 12500 | 1983.70 | 7045 | 1991.5 | 1991.4 | 1994.6 | 7.8 | 14.3 |
| 12600 | 1985.63 | 7045 | 1994.1 | 1994.1 | 1998.4 | 8.5 | 16.6 |
| 12700 | 1988.15 | 7045 | 1996.6 | 1996.6 | 2000.9 | 8.5 | 16.6 |
| 12800 | 1991.35 | 7045 | 1999.8 | 1999.8 | 2004.1 | 8.5 | 16.6 |
| 12900 | 1993.47 | 7045 | 2002.0 | 2002.0 | 2006.2 | 8.5 | 16.6 |
| 13000 | 1993.90 | 7045 | 2002.4 | 2002.4 | 2006.7 | 8.5 | 16.6 |
| 13100 | 1998.99 | 7045 | 2007.5 | 2007.5 | 2011.8 | 8.5 | 16.6 |
| 13200 | 2001.40 | 7045 | 2009.9 | 2009.9 | 2014.2 | 8.5 | 16.6 |
| 13300 | 2002.29 | 7045 | 2013.0 | 2009.9 | 2014.5 | 10.7 | 9.8 |
| 13400 | 2002.77 | 7045 | 2013.0 | 2010.4 | 2014.6 | 10.2 | 10.4 |
| 13500 | 2003.07 | 7045 | 2012.9 | 2010.7 | 2014.7 | 9.8 | 10.8 |
| 13600 | 2006.11 | 7045 | 2013.7 | 2013.7 | 2017.0 | 7.6 | 14.5 |
| 13700 | 2006.56 | 7045 | 2015.1 | 2015.1 | 2019.3 | 8.5 | 16.6 |
| 13800 | 2008.40 | 7045 | 2016.9 | 2016.9 | 2021.2 | 8.5 | 16.6 |
| 13900 | 2010.21 | 7045 | 2018.7 | 2018.7 | 2023.0 | 8.5 | 16.6 |
| 14000 | 2010.89 | 7045 | 2019.4 | 2019.4 | 2023.7 | 8.5 | 16.6 |
| 14100 | 2012.82 | 7045 | 2021.7 | 2021.7 | 2025.3 | 8.9 | 15.1 |
| 14200 | 2014.24 | 7045 | 2021.8 | 2021.8 | 2025.6 | 7.5 | 15.6 |
| 14220 | 2014.62 | 7045 | 2022.1 | 2022.1 | 2025.9 | 7.5 | 15.6 |
| 14240 | 2015.00 | 7045 | 2022.5 | 2022.5 | 2026.3 | 7.5 | 15.6 |
| 14300 | 2015.30 | 7045 | 2022.8 | 2022.8 | 2026.6 | 7.5 | 15.6 |
| 14400 | 2015.80 | 7045 | 2026.7 | NA | 2028.5 | 10.9 | 10.8 |
| 14450 | 2016.13 | 7045 | 2026.6 | 2023.6 | 2028.5 | 10.4 | 11.2 |
| 14500 | 2017.10 | 7045 | 2026.2 | 2024.6 | 2028.8 | 9.1 | 12.9 |
| 14550 | 2017.93 | 7045 | 2025.4 | 2025.4 | 2029.2 | 7.5 | 15.6 |
| 14600 | 2018.37 | 7045 | 2025.9 | 2025.9 | 2029.7 | 7.5 | 15.6 |
| 14700 | 2018.71 | 7045 | 2028.1 | NA | 2030.5 | 9.4 | 12.5 |
| 14780 | 2019.00 | 7045 | 2029.7 | 2025.7 | 2030.8 | 10.7 | 8.2 |
| 14790 | 2019.70 | 7045 | 2029.8 | 2026.2 | 2030.8 | 10.1 | 8.1 |
| 14800 | 2020.40 | 7045 | 2029.6 | 2027.3 | 2031.0 | 9.2 | 9.5 |
| 14810 | 2021.00 | 7045 | 2029.4 | 2028.2 | 2031.3 | 8.4 | 11.2 |
| 14820 | 2021.30 | 7045 | 2029.1 | 2029.1 | 2031.7 | 7.8 | 13.1 |
| 14910 | 2024.10 | 7045 | 2031.2 | 2031.2 | 2033.2 | 7.1 | 11.3 |
| 15010 | 2022.60 | 7046 | 2032.8 | 2030.8 | 2033.5 | 10.2 | 6.5 |
| 15025 | 2023.60 | 8561 | 2032.8 | 2032.2 | 2034.0 | 9.2 | 8.9 |
| 15100 | 2024.00 | 8562 | 2033.9 | 2032.3 | 2034.7 | 9.9 | 7.1 |
| 15200 | 2024.90 | 8562 | 2034.2 | 2033.1 | 2036.2 | 9.3 | 11.4 |
| 15300 | 2025.80 | 8562 | 2035.9 | 2034.4 | 2038.0 | 10.1 | 11.5 |
| 15400 | 2027.50 | 8562 | 2038.3 | 2035.1 | 2039.9 | 10.8 | 10.2 |

## TABLE 3: HEC-2 MODEL SUMMARY FOR ALTERNATIVE "B" (ALT-B.OUT)

| HEC-2 SECTION | INVERT (FT, NGVD 29) | FLOW (CFS) | CWSEL (FT, NGVD 29) | CRIWSE (FT, NGVD 29) | EGL (FT, NGVD 29) | DEPTH (FT, NGVD 29) | VELOCITY (FT/S) |
|---|---|---|---|---|---|---|---|
| 10800 | 1952.00 | 8562 | 1961.4 | 1961.4 | 1964.4 | 9.4 | 13.9 |
| 10900 | 1956.00 | 8562 | 1965.6 | 1965.6 | 1969.1 | 9.6 | 15.0 |
| 11000 | 1960.00 | 8562 | 1969.8 | 1969.8 | 1973.0 | 9.8 | 14.5 |
| 11100 | 1960.00 | 8562 | 1971.6 | 1971.6 | 1975.1 | 11.6 | 15.0 |
| 11200 | 1962.00 | 8562 | 1972.8 | 1972.8 | 1977.0 | 10.8 | 16.3 |
| 11300 | 1964.00 | 8562 | 1974.5 | 1974.5 | 1978.7 | 10.5 | 16.5 |
| 11400 | 1964.02 | 8562 | 1974.9 | 1974.9 | 1980.4 | 10.9 | 18.8 |
| 11500 | 1964.52 | 8562 | 1975.4 | 1975.4 | 1980.9 | 10.9 | 18.8 |
| 11550 | 1965.92 | 6522 | 1978.0 | 1975.8 | 1981.3 | 12.0 | 14.7 |
| 11600 | 1967.32 | 6522 | 1977.7 | 1977.7 | 1982.9 | 10.4 | 18.3 |
| 11700 | 1968.25 | 6522 | 1981.4 | NA | 1984.6 | 13.1 | 14.4 |
| 11800 | 1969.57 | 6522 | 1980.6 | 1979.9 | 1985.2 | 11.0 | 17.2 |
| 11900 | 1970.88 | 6522 | 1981.2 | 1981.2 | 1986.5 | 10.4 | 18.4 |
| 12000 | 1970.97 | 6522 | 1981.4 | 1981.4 | 1986.6 | 10.4 | 18.3 |
| 12100 | 1974.60 | 6522 | 1983.8 | 1983.8 | 1988.5 | 9.2 | 17.3 |
| 12200 | 1978.83 | 6522 | 1987.5 | 1987.5 | 1991.8 | 8.6 | 16.8 |
| 12300 | 1982.84 | 6522 | 1990.1 | 1990.1 | 1993.3 | 7.3 | 14.3 |
| 12400 | 1983.11 | 6522 | 1991.5 | NA | 1993.8 | 8.4 | 12.2 |
| 12500 | 1983.70 | 6522 | 1991.1 | 1991.1 | 1994.1 | 7.4 | 14.1 |
| 12600 | 1985.63 | 6522 | 1993.7 | 1993.7 | 1997.8 | 8.1 | 16.2 |
| 12700 | 1988.15 | 6522 | 1996.2 | 1996.2 | 2000.3 | 8.1 | 16.2 |
| 12800 | 1991.35 | 6522 | 1999.4 | 1999.4 | 2003.5 | 8.1 | 16.2 |
| 12900 | 1993.47 | 6522 | 2001.5 | 2001.5 | 2005.6 | 8.1 | 16.2 |
| 13000 | 1993.90 | 6522 | 2002.0 | 2002.0 | 2006.0 | 8.1 | 16.2 |
| 13100 | 1998.99 | 6522 | 2007.1 | 2007.1 | 2011.1 | 8.1 | 16.2 |
| 13200 | 2001.40 | 6522 | 2009.5 | 2009.5 | 2013.5 | 8.1 | 16.2 |
| 13300 | 2002.29 | 6522 | 2012.4 | 2009.6 | 2013.9 | 10.1 | 9.7 |
| 13400 | 2002.77 | 6522 | 2012.3 | 2010.1 | 2014.0 | 9.6 | 10.3 |
| 13500 | 2003.07 | 6522 | 2012.3 | 2010.4 | 2014.1 | 9.2 | 10.8 |
| 13600 | 2006.11 | 6522 | 2013.4 | 2013.4 | 2016.5 | 7.3 | 14.2 |
| 13700 | 2006.56 | 6522 | 2014.6 | 2014.6 | 2018.7 | 8.1 | 16.2 |
| 13800 | 2008.40 | 6522 | 2016.5 | 2016.5 | 2020.5 | 8.1 | 16.2 |
| 13900 | 2010.21 | 6522 | 2018.3 | 2018.3 | 2022.3 | 8.1 | 16.2 |
| 14000 | 2010.89 | 6522 | 2019.0 | 2019.0 | 2023.0 | 8.1 | 16.2 |
| 14100 | 2012.82 | 6522 | 2021.3 | 2021.3 | 2024.8 | 8.5 | 14.9 |
| 14200 | 2014.24 | 6522 | 2021.4 | 2021.4 | 2025.0 | 7.2 | 15.2 |
| 14220 | 2014.62 | 6522 | 2021.8 | 2021.8 | 2025.4 | 7.1 | 15.2 |
| 14240 | 2015.00 | 6522 | 2022.1 | 2022.1 | 2025.7 | 7.1 | 15.2 |
| 14300 | 2015.30 | 6522 | 2022.4 | 2022.4 | 2026.0 | 7.1 | 15.2 |
| 14400 | 2015.80 | 6522 | 2025.4 | NA | 2027.4 | 9.6 | 11.3 |
| 14450 | 2016.13 | 6522 | 2025.3 | 2023.3 | 2027.5 | 9.1 | 11.9 |
| 14500 | 2017.10 | 6522 | 2024.6 | 2024.2 | 2027.9 | 7.5 | 14.5 |
| 14550 | 2017.93 | 6522 | 2025.1 | 2025.1 | 2028.7 | 7.2 | 15.2 |
| 14600 | 2018.37 | 6522 | 2025.5 | 2025.5 | 2029.1 | 7.1 | 15.2 |
| 14700 | 2018.71 | 6522 | 2027.6 | NA | 2029.9 | 8.9 | 12.3 |
| 14780 | 2019.00 | 6530 | 2029.2 | 2025.3 | 2030.2 | 10.2 | 8.1 |
| 14790 | 2019.70 | 6592 | 2029.2 | 2025.9 | 2030.2 | 9.5 | 8.2 |
| 14800 | 2020.40 | 6665 | 2028.9 | 2027.0 | 2030.5 | 8.5 | 10.0 |
| 14810 | 2021.00 | 6714 | 2028.5 | 2028.0 | 2030.9 | 7.5 | 12.6 |
| 14820 | 2021.30 | 6748 | 2028.9 | 2028.9 | 2031.5 | 7.6 | 12.9 |
| 14910 | 2024.10 | 7004 | 2031.7 | 2031.7 | 2033.2 | 7.6 | 9.9 |
| 15010 | 2022.60 | 7532 | 2032.4 | 2031.0 | 2033.3 | 9.8 | 7.8 |
| 15025 | 2023.60 | 8561 | 2032.5 | 2032.2 | 2034.0 | 8.9 | 9.6 |
| 15100 | 2024.00 | 8562 | 2033.9 | 2032.3 | 2034.7 | 9.9 | 7.1 |
| 15200 | 2024.90 | 8562 | 2034.2 | 2033.1 | 2036.2 | 9.3 | 11.4 |
| 15300 | 2025.80 | 8562 | 2035.9 | 2034.4 | 2038.0 | 10.1 | 11.5 |
| 15400 | 2027.50 | 8562 | 2038.3 | 2035.1 | 2039.9 | 10.8 | 10.2 |

## TABLE 4: HEC-2 MODEL SUMMARY FOR ALTERNATIVE "C" (ALT-C.OUT)

| HEC-2 SECTION | INVERT (FT, NGVD 29) | FLOW (CFS) | CWSEL (FT, NGVD 29) | CRIWSE (FT, NGVD 29) | EGL (FT, NGVD 29) | DEPTH (FT, NGVD 29) | VELOCITY (FT/S) |
|---|---|---|---|---|---|---|---|
| 10800 | 1952.00 | 8562 | 1961.4 | 1961.4 | 1964.4 | 9.3 | 13.9 |
| 10900 | 1956.00 | 8562 | 1965.6 | 1965.6 | 1969.1 | 9.6 | 15.0 |
| 11000 | 1960.00 | 8562 | 1969.8 | 1969.8 | 1973.0 | 9.8 | 14.5 |
| 11100 | 1960.00 | 8562 | 1971.6 | 1971.6 | 1975.1 | 11.6 | 15.0 |
| 11200 | 1962.00 | 8562 | 1972.8 | 1972.8 | 1977.0 | 10.8 | 16.3 |
| 11300 | 1964.00 | 8562 | 1974.5 | 1974.5 | 1978.7 | 10.5 | 16.5 |
| 11400 | 1964.02 | 8562 | 1974.9 | 1974.9 | 1980.4 | 10.8 | 18.8 |
| 11500 | 1964.52 | 8562 | 1975.4 | 1975.4 | 1980.9 | 10.8 | 18.8 |
| 11550 | 1965.92 | 5873 | 1979.1 | 1975.1 | 1981.4 | 13.2 | 12.1 |
| 11600 | 1967.32 | 5873 | 1978.1 | 1977.0 | 1982.0 | 10.8 | 15.8 |
| 11700 | 1968.25 | 5873 | 1980.5 | NA | 1983.5 | 12.3 | 13.9 |
| 11800 | 1969.57 | 5873 | 1979.7 | 1979.2 | 1984.1 | 10.1 | 16.9 |
| 11900 | 1970.88 | 5873 | 1980.6 | 1980.6 | 1985.4 | 9.7 | 17.7 |
| 12000 | 1970.97 | 5873 | 1980.6 | 1980.6 | 1985.5 | 9.6 | 17.7 |
| 12100 | 1974.60 | 5873 | 1983.2 | 1983.2 | 1987.6 | 8.6 | 16.7 |
| 12200 | 1978.83 | 5873 | 1986.9 | 1986.9 | 1991.0 | 8.1 | 16.2 |
| 12300 | 1982.84 | 5873 | 1989.7 | 1989.7 | 1992.6 | 6.9 | 13.8 |
| 12400 | 1983.11 | 5873 | 1991.0 | NA | 1993.1 | 7.8 | 11.8 |
| 12500 | 1983.70 | 5873 | 1990.6 | 1990.6 | 1993.5 | 6.9 | 13.7 |
| 12600 | 1985.63 | 5873 | 1993.2 | 1993.2 | 1996.9 | 7.5 | 15.6 |
| 12700 | 1988.15 | 5873 | 1995.7 | 1995.7 | 1999.5 | 7.5 | 15.6 |
| 12800 | 1991.35 | 5873 | 1998.9 | 1998.9 | 2002.7 | 7.5 | 15.6 |
| 12900 | 1993.47 | 5873 | 2001.0 | 2001.0 | 2004.8 | 7.5 | 15.6 |
| 13000 | 1993.90 | 5873 | 2001.4 | 2001.4 | 2005.2 | 7.5 | 15.6 |
| 13100 | 1998.99 | 5873 | 2006.5 | 2006.5 | 2010.3 | 7.5 | 15.6 |
| 13200 | 2001.40 | 5873 | 2008.9 | 2008.9 | 2012.7 | 7.5 | 15.6 |
| 13300 | 2002.29 | 5873 | 2011.6 | 2009.2 | 2013.0 | 9.3 | 9.6 |
| 13400 | 2002.77 | 5873 | 2011.5 | 2009.7 | 2013.2 | 8.8 | 10.3 |
| 13500 | 2003.07 | 5873 | 2011.4 | 2010.0 | 2013.3 | 8.4 | 10.9 |
| 13600 | 2006.11 | 5873 | 2013.0 | 2013.0 | 2015.9 | 6.9 | 13.7 |
| 13700 | 2006.56 | 5873 | 2014.1 | 2014.1 | 2017.9 | 7.5 | 15.6 |
| 13800 | 2008.40 | 5873 | 2015.9 | 2015.9 | 2019.7 | 7.5 | 15.6 |
| 13900 | 2010.21 | 5873 | 2017.7 | 2017.7 | 2021.5 | 7.5 | 15.6 |
| 14000 | 2010.89 | 5873 | 2018.4 | 2018.4 | 2022.2 | 7.5 | 15.6 |
| 14100 | 2012.82 | 5873 | 2020.7 | 2020.7 | 2024.0 | 7.9 | 14.7 |
| 14200 | 2014.24 | 5873 | 2020.9 | 2020.9 | 2024.3 | 6.7 | 14.7 |
| 14220 | 2014.62 | 5873 | 2021.3 | 2021.3 | 2024.6 | 6.7 | 14.7 |
| 14240 | 2015.00 | 5873 | 2021.7 | 2021.7 | 2025.0 | 6.7 | 14.7 |
| 14300 | 2015.30 | 5873 | 2022.0 | 2022.0 | 2025.3 | 6.7 | 14.7 |
| 14400 | 2015.80 | 5873 | 2024.8 | NA | 2026.6 | 9.0 | 10.9 |
| 14450 | 2016.13 | 5873 | 2024.6 | 2022.8 | 2026.7 | 8.5 | 11.5 |
| 14500 | 2017.10 | 5873 | 2023.9 | 2023.8 | 2027.1 | 6.8 | 14.4 |
| 14550 | 2017.93 | 5873 | 2024.6 | 2024.6 | 2027.9 | 6.6 | 14.8 |
| 14600 | 2018.37 | 5873 | 2025.0 | 2025.0 | 2028.4 | 6.7 | 14.7 |
| 14700 | 2018.71 | 5873 | 2027.0 | NA | 2029.2 | 8.3 | 11.9 |
| 14780 | 2019.00 | 5976 | 2028.4 | 2025.0 | 2029.4 | 9.4 | 8.1 |
| 14790 | 2019.70 | 6155 | 2028.4 | 2025.6 | 2029.5 | 8.7 | 8.5 |
| 14800 | 2020.40 | 6247 | 2028.0 | 2026.7 | 2029.8 | 7.6 | 10.8 |
| 14810 | 2021.00 | 6338 | 2027.9 | 2027.9 | 2030.6 | 6.9 | 13.2 |
| 14820 | 2021.30 | 6524 | 2028.8 | 2028.8 | 2031.3 | 7.5 | 12.8 |
| 14910 | 2024.10 | 6874 | 2031.2 | 2031.2 | 2033.1 | 7.1 | 11.1 |
| 15010 | 2022.60 | 7433 | 2032.3 | 2030.9 | 2033.2 | 9.7 | 7.8 |
| 15025 | 2023.60 | 8561 | 2032.4 | 2032.2 | 2033.9 | 8.8 | 9.8 |
| 15100 | 2024.00 | 8562 | 2033.9 | 2032.3 | 2034.7 | 9.9 | 7.1 |
| 15200 | 2024.90 | 8562 | 2034.2 | 2033.1 | 2036.2 | 9.3 | 11.4 |
| 15300 | 2025.80 | 8562 | 2035.9 | 2034.4 | 2038.0 | 10.1 | 11.5 |
| 15400 | 2027.50 | 8562 | 2038.3 | 2035.1 | 2039.9 | 10.8 | 10.2 |

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER-SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION[2] | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NAVD) | | | |
| Duck Creek | | | | | | | | |
| X | 27449 | 93 | 730 | 11.7 | 1,891.5 | 1,891.5 | 1,891.6 | 0.1 |
| Y | 28218 | 88 | 582 | 14.7 | 1,913.9 | 1,913.9 | 1,914.2 | 0.3 |
| Z | 29108 | 84 | 705 | 12.2 | 1,926.3 | 1,926.3 | 1,926.7 | 0.4 |
| AA | 29805 | 103 | 951 | 9.0 | 1,931.2 | 1,931.2 | 1,931.7 | 0.5 |
| AB | 30196 | 105 | 1105 | 7.7 | 1,934.5 | 1,934.5 | 1,935.2 | 0.7 |
| AC | 31113 | 131 | 1338 | 6.4 | 1,939.8 | 1,939.8 | 1,940.7 | 0.9 |
| AD | 32111 | 325 | 1090 | 7.9 | 1,949.0 | 1,949.0 | 1,949.0 | 0.0 |
| AE | 32908 | 83 | 345 | 24.8 | 1,957.1 | 1,957.1 | 1,957.1 | 0.0 |
| AF | 33682 | 77 | 374 | 22.9 | 1,965.6 | 1,965.6 | 1,965.6 | 0.0 |
| AG | 34486 | 80 | 552 | 15.5 | 1,973.7 | 1,973.7 | 1,973.7 | 0.0 |
| AH | 35391 | 61 | 366 | 21.0 | 1,974.2 | 1,974.2 | 1,974.5 | 0.3 |
| AI | 35949 | 34 | 293 | 22.4 | 1,977.4 | 1,977.4 | 1,978.4 | 1.0 |
| AJ | 36400 | 41 | 228 | 24.4 | 1,982.3 | 1,982.3 | 1,982.6 | 0.3 |
| AK | 37205 | 50 | 244 | 22.8 | 1,992.9 | 1,992.9 | 1,992.9 | 0.0 |
| AL | 37923 | 50 | 220 | 25.3 | 1,998.2 | 1,998.2 | 1,998.2 | 0.0 |
| AM | 38704 | 64 | 223 | 25.0 | 2,009.1 | 2,009.1 | 2,009.1 | 0.0 |
| AN | 39209 | 50 | 253 | 22.0 | 2,015.8 | 2,015.8 | 2,015.9 | 0.1 |
| AO | 39742 | 60 | 243 | 22.8 | 2,020.6 | 2,020.6 | 2,020.7 | 0.1 |
| AP | 40418 | 259 | 1449 | 5.8 | 2,036.0 | 2,036.0 | 2,036.3 | 0.3 |
| AQ | 41089 | 103 | 775 | 11.0 | 2,038.3 | 2,038.3 | 2,038.6 | 0.3 |
| AR | 41726 | 57 | 547 | 15.7 | 2,040.2 | 2,040.2 | 2,040.2 | 0.0 |
| AS | 42184 | 82 | 569 | 15.0 | 2,043.1 | 2,043.1 | 2,043.1 | 0.0 |
| AT | 42839 | 80 | 566 | 15.1 | 2,047.4 | 2,047.4 | 2,047.4 | 0.0 |
| AU | 44390 | 501 | 2241 | 3.8 | 2,058.0 | 2,058.0 | 2,058.9 | 0.9 |
| AV | 44840 | 308 | 1072 | 8.0 | 2,060.5 | 2,060.5 | 2,060.8 | 0.3 |

[1]Feet Above Confluence With Las Vegas Wash [2]For Cross sections A to W No Floodway Was Computed

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

CLARK COUNTY, NV
AND INCORPORATED AREAS

REVISED TO REFLECT LOMR DATED APR 21 2003

# FLOODWAY DATA

DUCK CREEK

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER-SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NAVD) | | | |
| Duck Creek (Continued) | | | | | | | | |
| AW | 45751 | 150 | 1110 | 7.7 | 2,066.8 | 2,066.8 | 2,066.8 | 0.0 |
| AX | 46476 | 129 | 625 | 13.7 | 2,071.5 | 2,071.5 | 2,071.5 | 0.0 |
| AY | 47165 | 97 | 463 | 18.5 | 2,072.7 | 2,072.7 | 2,072.7 | 0.0 |
| AZ | 47978 | 114 | 636 | 13.5 | 2,080.9 | 2,080.9 | 2,080.9 | 0.0 |
| BA | 48773 | 89 | 387 | 21.9 | 2,081.3 | 2,081.3 | 2,081.7 | 0.4 |
| BB | 49564 | 90 | 307 | 27.6 | 2,088.2 | 2,088.2 | 2,088.2 | 0.0 |
| BC | 50202 | 97 | 251 | 33.7 | 2,097.1 | 2,097.1 | 2,097.1 | 0.0 |
| BD | 50769 | 45 | 236 | 31.7 | 2,108.7 | 2,108.7 | 2,108.7 | 0.0 |
| BE | 51547 | 46 | 258 | 29.0 | 2,120.9 | 2,120.9 | 2,121.0 | 0.1 |
| BF | 52338 | 48 | 247 | 30.3 | 2,128.2 | 2,128.2 | 2,128.6 | 0.4 |
| BG | 53161 | 51 | 253 | 29.6 | 2,145.4 | 2,145.4 | 2,145.4 | 0.0 |
| BH | 53934 | 63 | 375 | 19.9 | 2,155.6 | 2,155.6 | 2,155.6 | 0.0 |
| BI | 54735 | 83 | 519 | 14.4 | 2,160.7 | 2,160.7 | 2,160.7 | 0.0 |
| BJ | 55536 | 81 | 519 | 14.4 | 2,161.6 | 2,161.6 | 2,161.6 | 0.0 |
| BK | 56328 | 67 | 359 | 20.9 | 2,159.4 | 2,159.4 | 2,160.0 | 0.6 |
| BL | 57099 | 64 | 287 | 26.1 | 2,165.1 | 2,165.1 | 2,165.1 | 0.0 |
| BM | 57902 | 64 | 354 | 21.1 | 2,175.5 | 2,175.5 | 2,175.5 | 0.0 |
| BN | 58582 | 69 | 435 | 17.2 | 2,180.3 | 2,180.3 | 2,180.3 | 0.0 |
| BO | 59067 | 76 | 358 | 20.9 | 2,180.3 | 2,180.3 | 2,180.3 | 0.0 |
| BP | 59675 | 120 | 468 | 16.0 | 2,184.6 | 2,184.6 | 2,184.6 | 0.0 |
| BQ | 63045 | 226 | 520 | 8.0 | 2,220.7 | 2,220.7 | 2,220.7 | 0.0 |
| BR | 63833 | 222 | 490 | 8.5 | 2,223.9 | 2,223.9 | 2,224.6 | 0.7 |

[1]Feet Above Confluence With Las Vegas Wash

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

CLARK COUNTY, NV
AND INCORPORATED AREAS

# FLOODWAY DATA

DUCK CREEK

REVISED TO
REFLECT LOMR
DATED APR 21 2003

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER-SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NAVD) | | | |
| Duck Creek (Continued) | | | | | | | | |
| BS | 65967 | 262 | 1022 | 6.3 | 2,238.3 | 2,238.3 | 2,239.1 | 0.8 |
| BT | 66685 | 440 | 1245 | 5.2 | 2,243.2 | 2,243.2 | 2,243.9 | 0.7 |
| BU | 69540 | 190 | 453 | 4.0 | 2,264.2 | 2,264.2 | 2,264.9 | 0.7 |
| BV | 70232 | 268 | 472 | 3.8 | 2,270.2 | 2,270.2 | 2,270.9 | 0.7 |
| BW | 70956 | 206 | 275 | 6.6 | 2,275.0 | 2,275.0 | 2,275.7 | 0.7 |
| BX | 71768 | 62 | 183 | 7.2 | 2,282.5 | 2,282.5 | 2,282.6 | 0.1 |

[1]Feet Above Confluence With Las Vegas Wash

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

CLARK COUNTY, NV
AND INCORPORATED AREAS

# FLOODWAY DATA

DUCK CREEK

REVISED TO
REFLECT LOMR
DATED APR 2 1 2003

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER-SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NAVD) | | | |
| *DUCK CREEK TRIBUTARY* | | | | | | | | |
| A | 1058 | 409 | 1035 | 4.9 | 2,255.3 | 2,255.3 | 2,255.8 | 0.5 |
| B | 2036 | 429 | 851 | 6.0 | 2,263.4 | 2,263.4 | 2,264.4 | 1.0 |
| C | 2811 | 510 | 1067 | 4.8 | 2,273.2 | 2,273.2 | 2,273.6 | 0.4 |
| D | 3392 | 1000 | 927 | 5.5 | 2,288.2 | 2,288.2 | 2,288.2 | 0.0 |
| E | 4384 | 823 | 1332 | 7.1 | 2,292.6 | 2,292.6 | 2,293.4 | 0.8 |

[1]Feet Above Confluence With Duck Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

CLARK COUNTY, AZ
AND INCORPORATED AREAS

# FLOODWAY DATA

## DUCK CREEK TRIBUTARY

REVISED TO REFLECT LOMR DATED APR 21 2003

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER-SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NGVD) | | | |
| DUCK CREEK - SOUTH CHANNEL | | | | | | | | |
| A | 240 | 102 | 287 | 8.1 | 2,210.37 | 2,210.37 | 2,210.37 | 0.0 |
| B | 1041 | 99 | 255 | 9.1 | 2,216.37 | 2,216.37 | 2,216.97 | 0.6 |
| C | 1830 | 127 | 282 | 8.2 | 2,222.17 | 2,222.17 | 2,222.67 | 0.5 |
| D | 2273 | 396 | 566 | 4.1 | 2,227.47 | 2,227.47 | 2,228.27 | 0.8 |

[1]Feet Above Lower Duck Creek Detention Basin

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

CLARK COUNTY, AZ
AND INCORPORATED AREAS

# FLOODWAY DATA

## DUCK CREEK-SOUTH CHANNEL

REVISED TO
REFLECT LOMR
DATED APR 21 2003

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER-SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NAVD) | | | |
| Blue Diamond Wash-North Branch | | | | | | | | |
| A | 100 | 30 | 54 | 23.8 | 2,076.4 | 2,076.4 | 2,076.4 | 0.0 |
| B | 800 | 10 | 60 | 21.5 | 2,089.8 | 2,089.8 | 2,089.8 | 0.0 |
| C | 1300 | 10 | 80 | 16.1 | 2,097.2 | 2,097.2 | 2,097.2 | 0.0 |
| D | 2099 | 10 | 71 | 18.3 | 2,101.6 | 2,101.6 | 2,101.6 | 0.0 |
| E | 2892 | 10 | 78 | 16.5 | 2,109.0 | 2,109.0 | 2,109.0 | 0.0 |
| F | 3562 | 10 | 70 | 18.4 | 2,113.8 | 2,113.8 | 2,113.8 | 0.0 |
| G | 4507 | 23 | 56 | 23.1 | 2,120.7 | 2,120.7 | 2,120.7 | 0.0 |
| H | 5000 | 116 | 386 | 3.3 | 2,137.2 | 2,137.2 | 2,137.2 | 0.0 |
| I | 5897 | 32 | 129 | 10.0 | 2,152.7 | 2,152.7 | 2,153.6 | 0.9 |
| J | 6602 | 90 | 167 | 7.7 | 2,162.7 | 2,162.7 | 2,162.9 | 0.2 |
| K | 7526 | 42 | 129 | 10.0 | 2,172.1 | 2,172.1 | 2,172.1 | 0.0 |
| L | 8295 | 134 | 202 | 6.4 | 2,183.5 | 2,183.5 | 2,183.5 | 0.0 |
| M | 9079 | 92 | 179 | 7.2 | 2,192.0 | 2,192.0 | 2,192.1 | 0.1 |
| N | 9898 | 39 | 162 | 8.0 | 2,199.0 | 2,199.0 | 2,199.9 | 0.9 |
| O | 10689 | 98 | 236 | 5.5 | 2,211.9 | 2,211.9 | 2,212.7 | 0.8 |
| P | 11486 | 29 | 75 | 17.2 | 2,217.1 | 2,217.1 | 2,217.1 | 0.0 |
| Q | 12100 | 26 | 55 | 23.5 | 2,220.9 | 2,220.9 | 2,220.9 | 0.0 |
| R | 12681 | 48 | 217 | 6.0 | 2,235.0 | 2,235.0 | 2,235.8 | 0.8 |
| S | 13500 | 68 | 210 | 6.1 | 2,244.7 | 2,244.7 | 2,245.6 | 0.9 |
| T | 14295 | 41 | 130 | 9.9 | 2,253.2 | 2,253.2 | 2,253.8 | 0.6 |
| U | 15089 | 32 | 119 | 10.8 | 2,262.3 | 2,262.3 | 2,262.9 | 0.6 |

[1]Feet Above Confluence With Duck Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

CLARK COUNTY, NV
AND INCORPORATED AREAS

# FLOODWAY DATA

## BLUE DIAMOND WASH-NORTH BRANCH

REVISED TO
REFLECT LOMR
DATED APR 21 2003

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER-SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NAVD) | | | |
| Blue Diamond Wash-Middle Branch | | | | | | | | |
| A | 100 | 25 | 65 | 22.6 | 2,103.9 | 2,103.9 | 2,103.9 | 0.0 |
| B | 668 | 25 | 63 | 23.3 | 2,114.5 | 2,114.5 | 2,114.5 | 0.0 |
| C | 1058 | 25 | 68 | 21.6 | 2,121.6 | 2,121.6 | 2,121.6 | 0.0 |
| D | 1708 | 23 | 56 | 26.3 | 2,130.4 | 2,130.4 | 2,130.5 | 0.0 |
| E | 2312 | 12 | 78 | 18.9 | 2,147.7 | 2,147.7 | 2,147.7 | 0.0 |
| F | 3797 | 12 | 93 | 15.8 | 2,171.4 | 2,171.4 | 2,171.4 | 0.0 |
| G | 4402 | 81 | 174 | 8.4 | 2,187.8 | 2,187.8 | 2,188.3 | 0.5 |
| H | 4715 | 41 | 139 | 10.5 | 2,191.9 | 2,191.9 | 2,191.9 | 0.0 |
| I | 5490 | 142 | 210 | 6.9 | 2,200.2 | 2,200.2 | 2,200.2 | 0.0 |
| J | 6194 | 114 | 252 | 5.8 | 2,209.2 | 2,209.2 | 2,209.2 | 0.0 |
| K | 6595 | 160 | 253 | 5.8 | 2,213.0 | 2,213.0 | 2,213.0 | 0.0 |
| L | 7543 | 132 | 205 | 7.1 | 2,221.0 | 2,221.0 | 2,221.0 | 0.0 |
| M | 8314 | 119 | 289 | 5.1 | 2,228.8 | 2,228.8 | 2,228.8 | 0.0 |
| N | 8789 | 143 | 415 | 3.5 | 2,234.4 | 2,234.4 | 2,235.1 | 0.7 |
| O | 9478 | 98 | 393 | 3.7 | 2,242.1 | 2,242.1 | 2,242.1 | 0.0 |
| P | 10215 | 49 | 208 | 7.0 | 2,247.4 | 2,247.4 | 2,248.2 | 0.8 |
| Q | 10833 | 135 | 416 | 3.5 | 2,252.7 | 2,252.7 | 2,253.4 | 0.7 |
| R | 11775 | 59 | 157 | 9.3 | 2,263.5 | 2,263.5 | 2,264.0 | 0.5 |

[1]Feet Above Confluence With Duck Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

CLARK COUNTY, NV
AND INCORPORATED AREAS

# FLOODWAY DATA

## BLUE DIAMOND WASH-MIDDLE BRANCH

REVISED TO REFLECT LOMR DATED APR 21 2003

# Federal Emergency Management Agency

Washington, D.C. 20472

**APR 2 1 2003**

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 03-09-0861X

The Honorable Mary J. Kincaid-Chauncey
Chair, Clark County Board
of Commissioners
500 South Grand Central Parkway
Las Vegas, NV 89155

Community: Clark County, NV
Community No.: 320003
Panels Affected: 32003C2562 E, 2566 E, 2567 E, 2568 E, 2569 E, 2580 E, 2583 E, 2585 E, 2590 E, and 2910 E
Effective Date of This Revision: **APR 2 1 2003**

102-I-A-C

Dear Ms. Kincaid-Chauncey:

This responds to a request that the Federal Emergency Management Agency (FEMA) revise the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Clark County, Nevada and Incorporated Areas, in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated April 30, 2002, Mr. Kevin Eubanks, P.E., Assistant General Manager, Clark County Regional Flood Control District, requested that FEMA revise the FIRM and FIS report to show the effects of an updated floodplain delineation study based on a revised hydrologic analysis and a revised hydraulic analysis that incorporated more detailed topographic information and construction of the Lower Duck Creek Detention Basin to reflect existing watershed conditions along Duck Creek from approximately 300 feet east of Hollywood Boulevard to just downstream of Industrial Road and along Blue Diamond Wash – North Branch (North Branch) and Blue Diamond Wash – Middle Branch (Middle Branch) from their respective confluences with Duck Creek to the Union Pacific Railroad (UPRR). In addition, this request included revisions to Duck Creek Tributary from its confluence with Duck Creek to approximately 300 feet west of Interstate Highway 15 (I-15) and to Duck Creek South Channel (South Channel) from its confluence with Duck Creek to its divergence from Duck Creek. In response to Mr. Eubanks's request, we issued a Letter of Map Revision (LOMR) on April 7, 2003 (Case No. 02-09-913P). On the annotated FIRM panels attached to that LOMR, we inadvertently used an incorrect digital projection of the floodplain and floodway boundary delineations. This LOMR revises and supersedes the April 7 LOMR.

All data required to complete our review of this request were submitted with letters from Mr. Eubanks.

We have completed our review of the submitted data and the flood data shown on the effective FIRM and in the effective FIS report. We have revised the FIRM and FIS report to modify the elevations, floodplain and floodway boundary delineations, and zone designations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) along the revised reaches of Duck Creek, Duck Creek Tributary, South Channel, North Branch, and Middle Branch. The revision request renamed the

reach of Duck Creek shown on the effective FIRM from approximately 200 feet downstream of Giles Street to just downstream of Industrial Road as Duck Creek Tributary, and the reach of Duck Creek Tributary shown on the effective FIRM from its confluence with Duck Creek to approximately 300 feet west of I-15 was renamed as Duck Creek.

As a result of the modifications along Duck Creek, the effective Special Flood Hazard Area (SFHA), the area that would be inundated by the base flood, designated Zone A, with no Base Flood Elevations (BFEs) determined, from approximately 300 feet upstream of U.S. Highway 95 to approximately 200 feet upstream of Pebble Road was redesignated Zone AE, with BFEs determined; a regulatory floodway was added from just upstream of Patrick Lane to approximately 200 feet upstream of Pebble Road; the width of the SFHA and the BFEs increased in some areas and decreased in other areas; and new BFEs were added. As a result of the modifications along North Branch, the effective SFHAs designated Zone A and Zone AO (Depth 1), an SFHA subject to shallow flooding with an average depth of 1 foot, from the confluence with Duck Creek to just downstream of Amigo Street were redesignated Zone AE, and a regulatory floodway was added; the effective SFHA designated Zone AO (Depth 1, Velocity 3), an SFHA subject to alluvial fan flooding with an average depth of 1 foot and flood velocity of 3 feet per second, from I-15 to the UPRR was redesignated Zone A; and the width of the SFHA and the BFEs decreased. As a result of the modifications along Middle Branch, the effective SFHAs designated Zone AO (Depth 1) and Zone A were redesignated Zone AE, and a regulatory floodway was added, from the confluence with Duck Creek to Amigo Street; from Amigo Street to approximately 1,600 feet upstream, the base flood is contained in a culvert; the effective SFHA designated Zone AO (Depth 1, Velocity 4) from I-15 to the UPRR was redesignated Zone AE; the width of the SFHA and the BFEs decreased; and SFHAs resulting from the Blue Diamond Wash – Middle Branch (Right Bank Overflow) and (Left Bank Overflow) designated Zone A were added from I-15 to Valley View Boulevard. As a result of the modifications along South Channel, the width of the SFHA and the BFEs increased, and the width of the regulatory floodway decreased.

The modifications are shown on the enclosed annotated copies of FIRM Panels 32003C2562 E, 32003C2566 E, 32003C2567 E, 32003C2568 E, 32003C2569 E, 32003C2580 E, 32003C2583 E, 32003C2585 E, 32003C2590 E, and 32003C2910 E; Profile Panels 01P, 02P, 14P, and 15P; and affected portions of the Summary of Discharges Table and Floodway Data Table. In addition, Profile Panels 03P and 04P were added for Middle Branch; Profile Panels 07P and 08P were added for Blue Diamond Wash – Middle Branch (Right Bank Overflow) and Blue Diamond Wash – Middle Branch (Left Bank Overflow), respectively; Profile Panels 03P and 04P for North Branch were renumbered as Profile Panels 09P and 10P, and Profile Panel 11P was added; Profile Panels 07P, 08P, and 09P for Duck Creek and Profile Panels 10P through 13P for Duck Creek Downstream of Blue Diamond were deleted; and Profile Panels 102P through 113P were added to the FIS report. This LOMR hereby revises the above-referenced panels of the effective FIRM and the affected portions of the FIS report, both dated September 27, 2002.

Because this revision request also affects the City of Henderson, a separate LOMR for that community was issued on the same date as this LOMR.

The modifications are effective as of the date shown above. The map panels as listed above and as modified by this letter will be used for all flood insurance policies and renewals issued for your community.

The following table is a partial listing of existing and modified BFEs:

| Location | Existing BFE (feet) | Modified BFE (feet) |
|---|---|---|
| Duck Creek: | | |
| At Stephanie Street | 1,667* | 1,656* |
| At Patrick Lane | None | 1,886* |
| At Interstate Highway 215 | None | 2,074* |
| At Silverado Ranch Boulevard | 2,229* | 2,230* |
| At I-15 | 2,284* | 2,282* |
| Duck Creek Tributary: | | |
| At Gabriel Street | 2,258* | 2,260* |
| At Industrial Road | 2,289* | 2,292* |
| Duck Creek South Channel: | | |
| At Silverado Ranch Boulevard | 2,224* | 2,225* |
| Blue Diamond Wash – North Branch: | | |
| At Paradise Road | 1# | 2,098* |
| At Las Vegas Boulevard | 2,235* | 2,230* |
| At UPRR | 1# | None |
| Blue Diamond Wash – Middle Branch: | | |
| At Vision Street | 1# | 2,114* |
| At Las Vegas Boulevard | 2,240* | 2,238* |
| At I-15 | 2,268* | 2,264* |
| At Industrial Road | 1# | 2,292* |
| At UPRR | 1# | 2,428* |
| Blue Diamond Wash – Middle Branch (Right Bank Overflow): | | |
| At Industrial Road | 1# | 2,277* |
| Blue Diamond Wash – Middle Branch (Left Bank Overflow): | | |
| At Industrial Road | None | 2,276* |

*Referenced to the North American Vertical Datum, rounded to the nearest whole foot
#Depth in feet above ground, rounded to the nearest whole foot

The BFEs have not been modified from the April 7 LOMR; therefore, the publication dates remain unchanged. Public notification of the proposed modified BFEs will be given in the *Las Vegas Review-Journal* on or about May 1 and May 8, 2003. A copy of this notification is enclosed. In addition, a notice of changes will be published in the *Federal Register*. Within 90 days of the second publication in the *Las Vegas Review-Journal*, any interested party may request that FEMA reconsider the determination made by this LOMR. Any request for reconsideration must be based on scientific or technical data. All interested parties are on notice that, until the 90-day period elapses, the determination to modify the BFEs made by this LOMR may itself be modified.

Because this LOMR will not be printed and distributed to primary users, such as local insurance agents and mortgage lenders, your community will serve as a repository for these new data. We encourage you to disseminate the information reflected by this LOMR throughout the community, so that interested persons, such as property owners, local insurance agents, and mortgage lenders, may benefit from the information. We also encourage you to prepare a related article for publication in your community's local newspaper. This article should describe the assistance that officials of your community will give to interested persons by providing these data and interpreting the NFIP maps.

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panels and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

The floodway is provided to your community as a tool to regulate floodplain development. Therefore, the floodway modifications described in this LOMR, while acceptable to FEMA, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

This LOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

This determination has been made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and is in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed minimum NFIP criteria. These criteria are the minimum and do not supersede any State or local requirements of a more stringent nature. This includes adoption of the effective FIRM to which the regulations apply and the modifications described in this LOMR. Our records show that your community has met this requirement.

A Consultation Coordination Officer (CCO) has been designated to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Mr. Jack Eldridge
Chief, National Flood Insurance Program Branch
Federal Emergency Management Agency, Region IX
1111 Broadway Street, Suite 1200
Oakland, CA 94607-4052
(510) 627-7184

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please call the CCO for your community at the telephone number cited above. If you have any questions regarding this LOMR, please call our Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,

Max H. Yuan, P.E., Project Engineer
Hazard Study Branch
Federal Insurance and
Mitigation Administration

For: Mary Jean Pajak, P.E., Acting Chief
Hazard Study Branch
Federal Insurance and
Mitigation Administration

Enclosures

cc: The Honorable James Gibson
Mayor, City of Henderson

Mr. Kevin Eubanks, P.E.
Assistant General Manager
Clark County Regional Flood
Control District

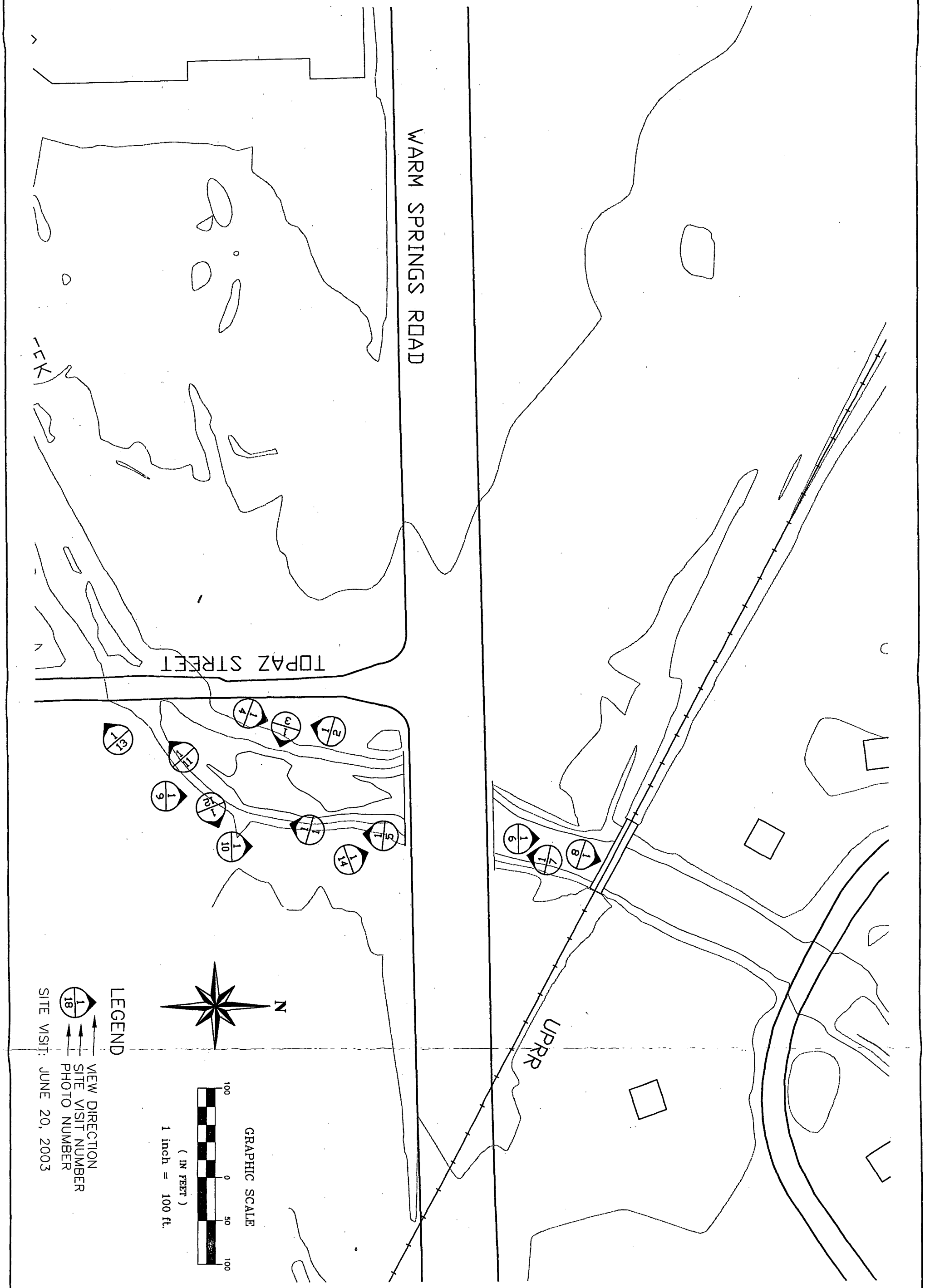
Mr. Robert Thompson, P.E.
Department of Public Works
Clark County

Mr. Curt Chandler, P.E.
Land Development Manager
Department of Public Works
City of Henderson

Mr. Jerry E. Pruitt, P.E.
Vice President
G. C. Wallace, Inc.

# PHOTOS FROM FIELD INVESTIGATION 6/20/03

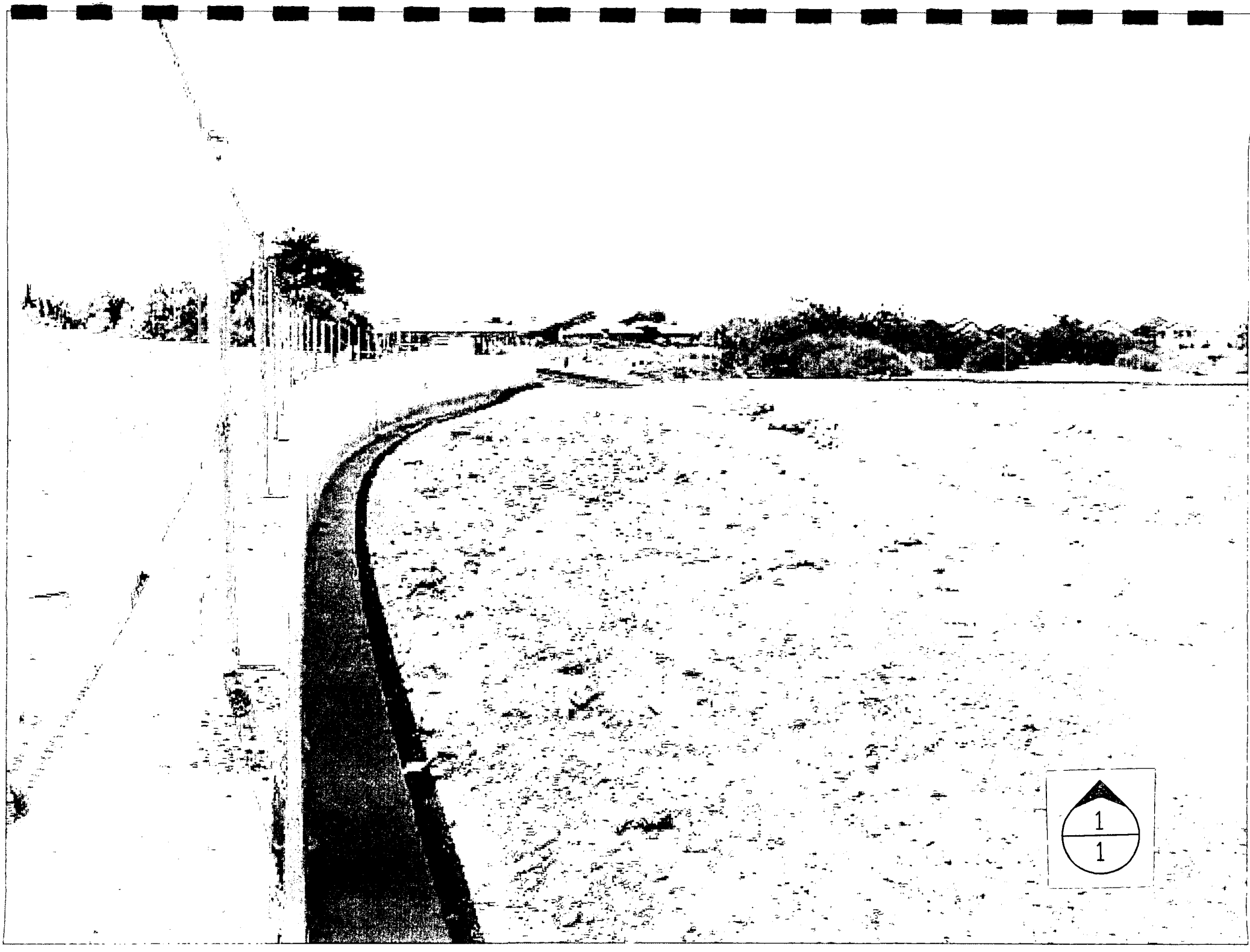
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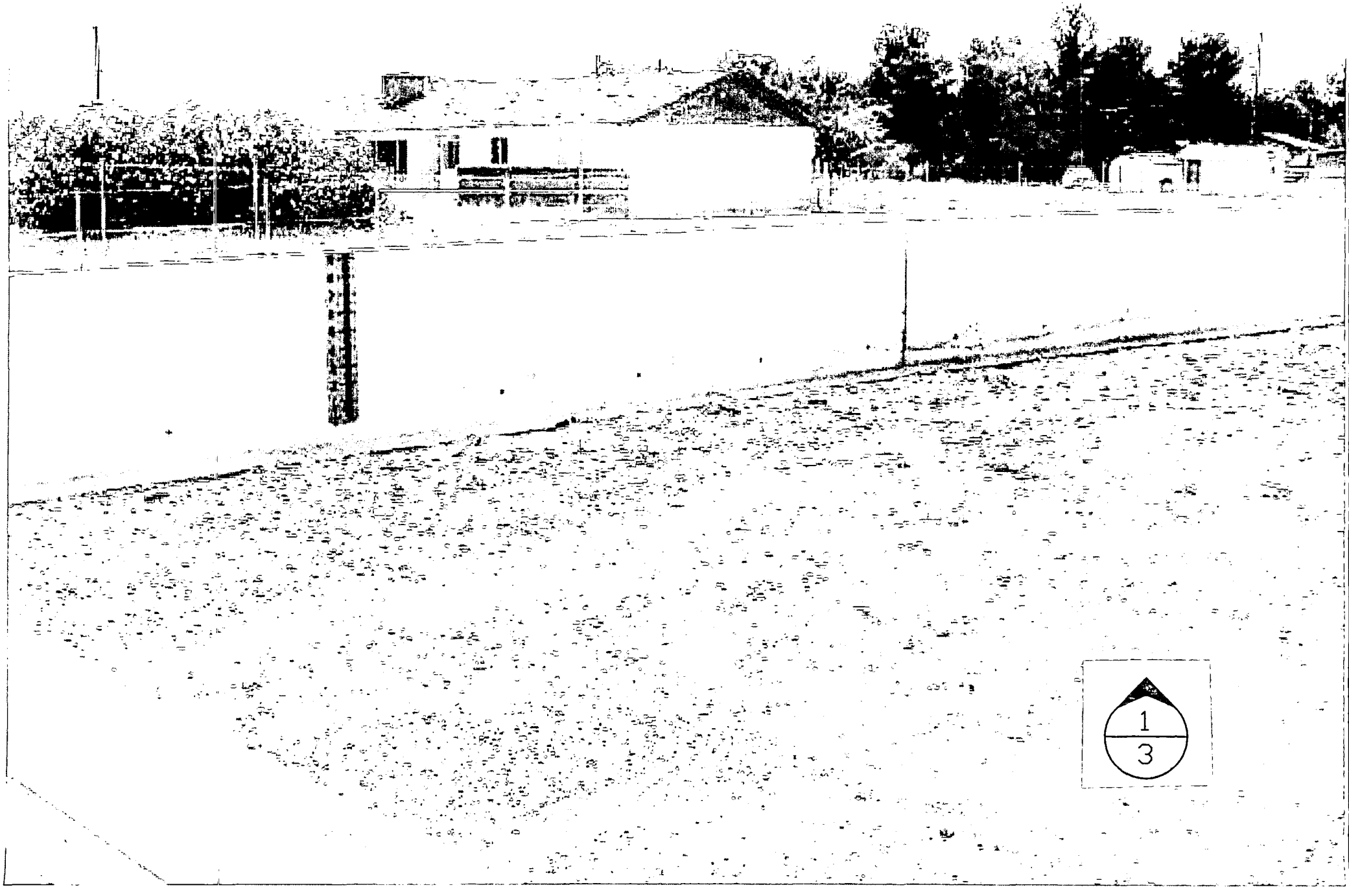

# HYDRAULIC ANALYSIS FOR THE
# TOPAZ STREET IMPROVEMENTS
## PHOTOGRAPH LOCATION MAP

SHEET 1 OF 1 SHTS

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

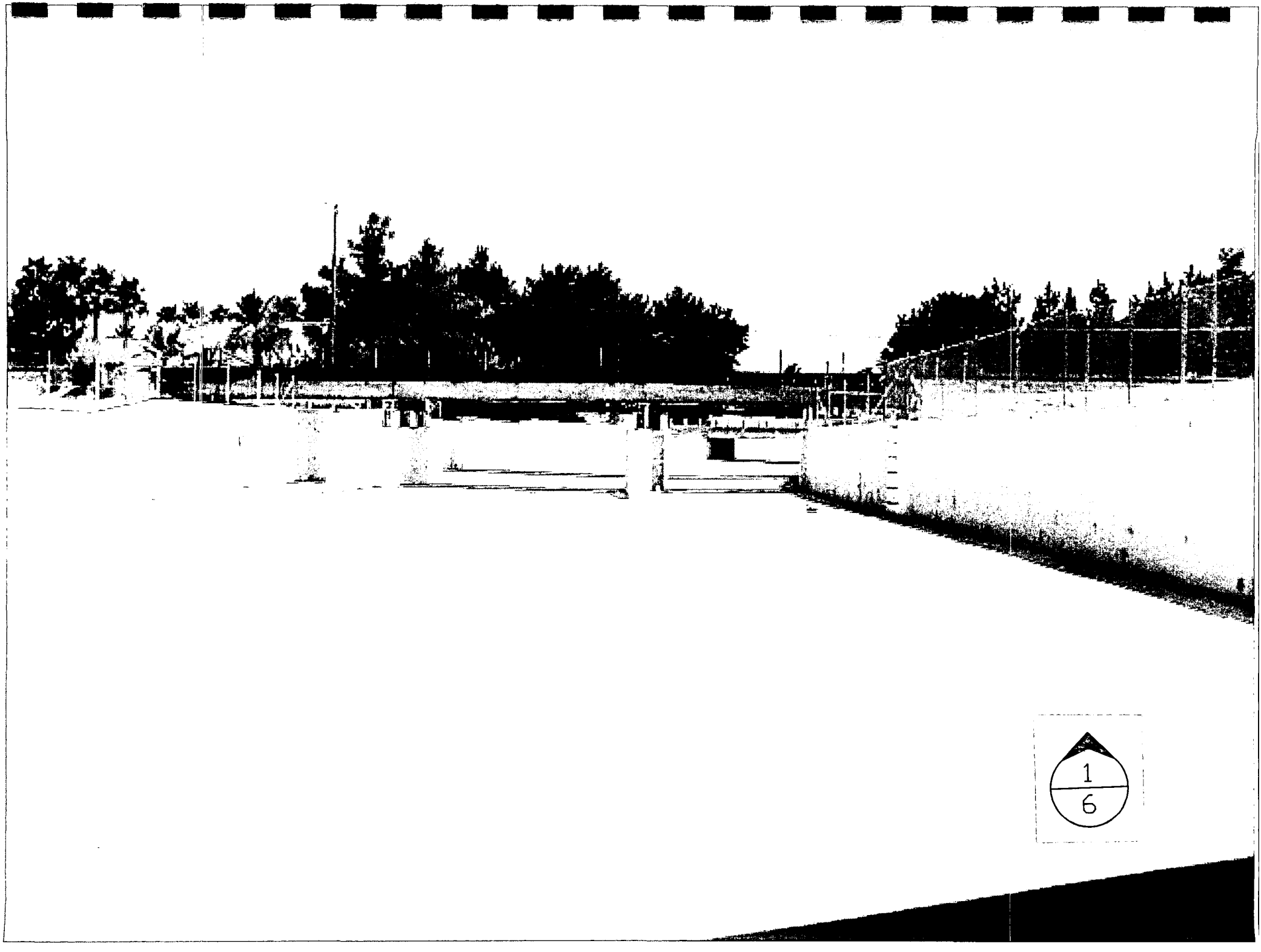

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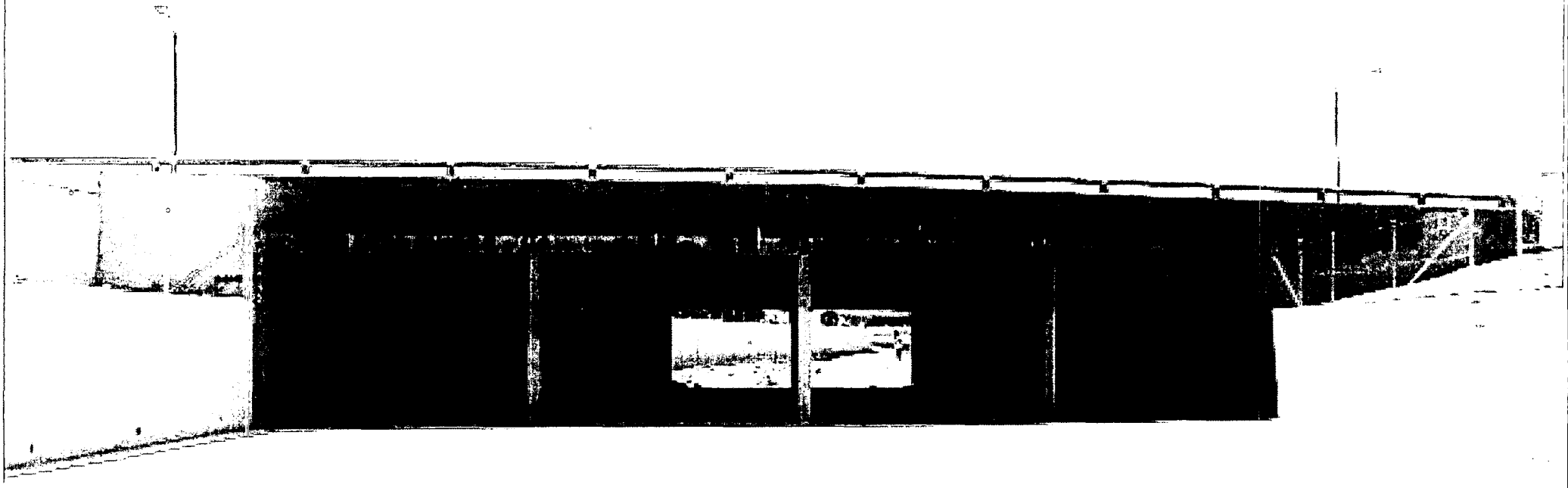

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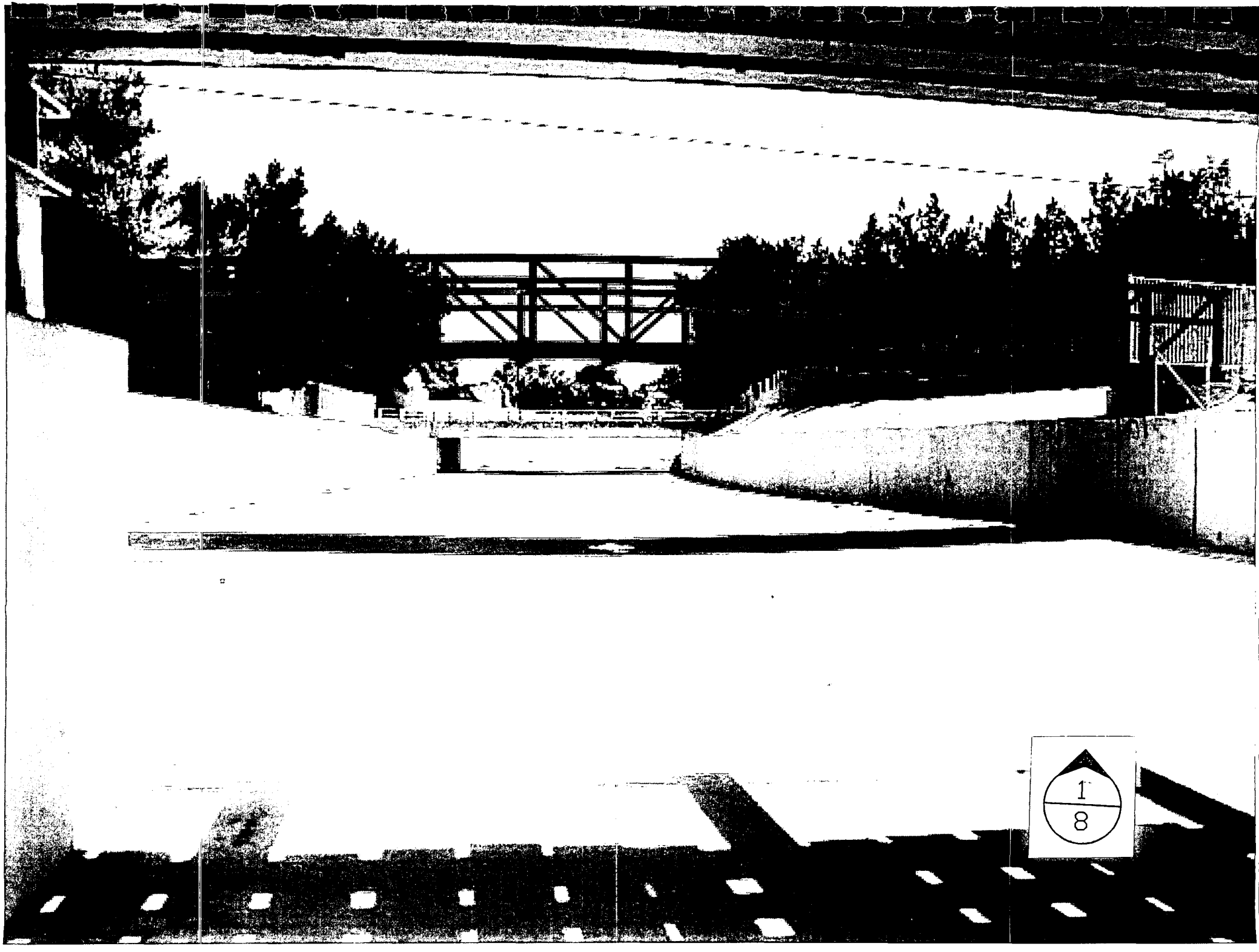

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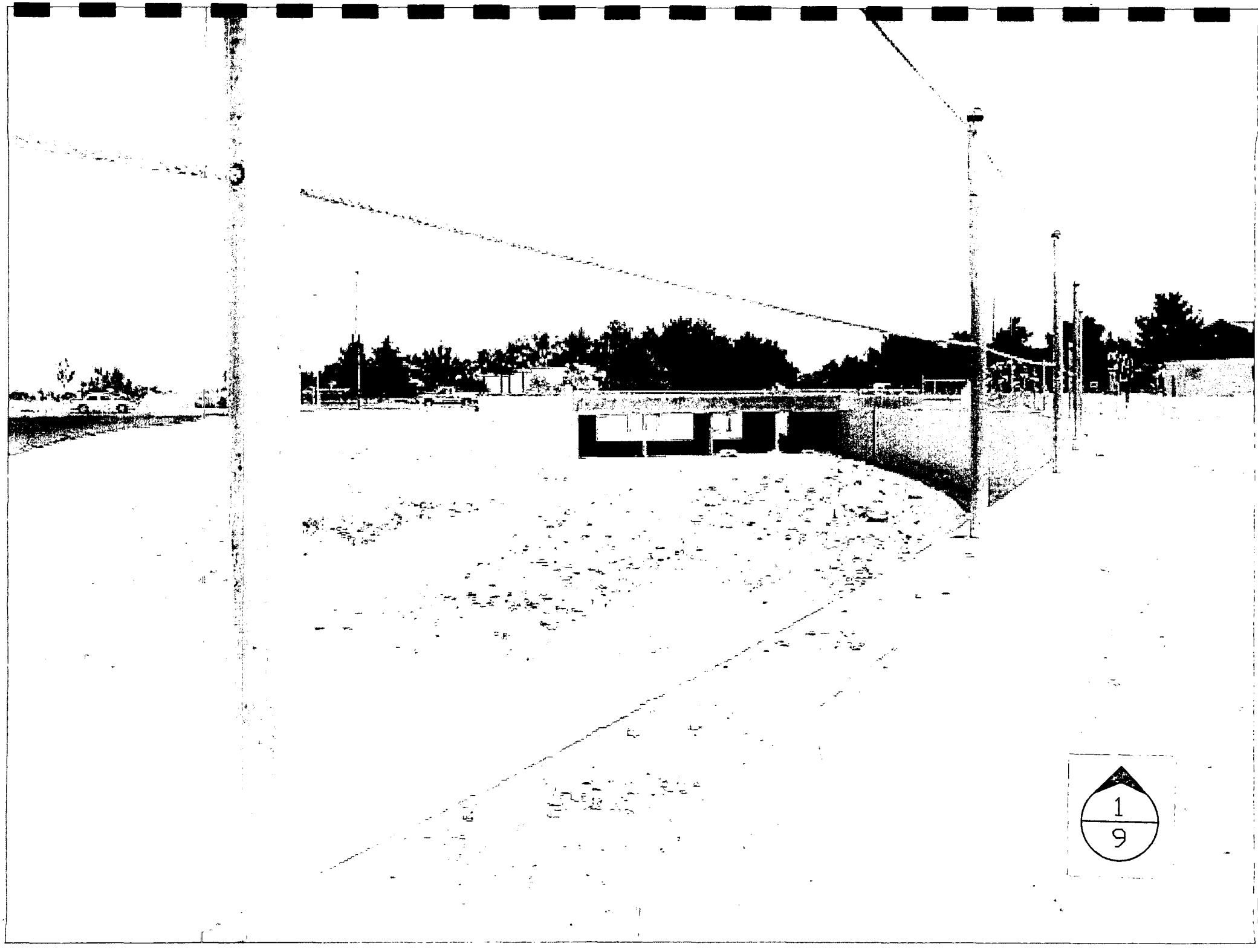

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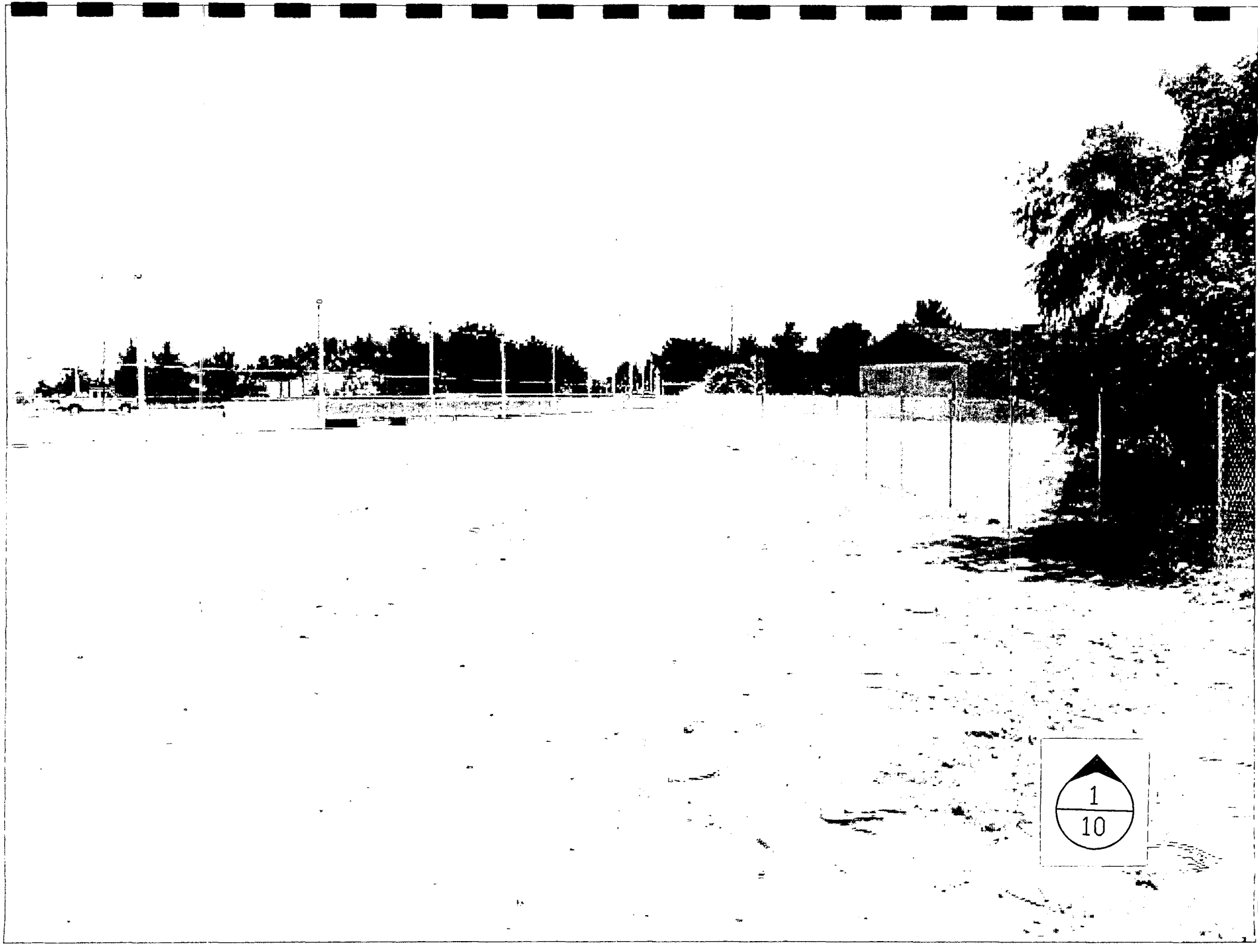

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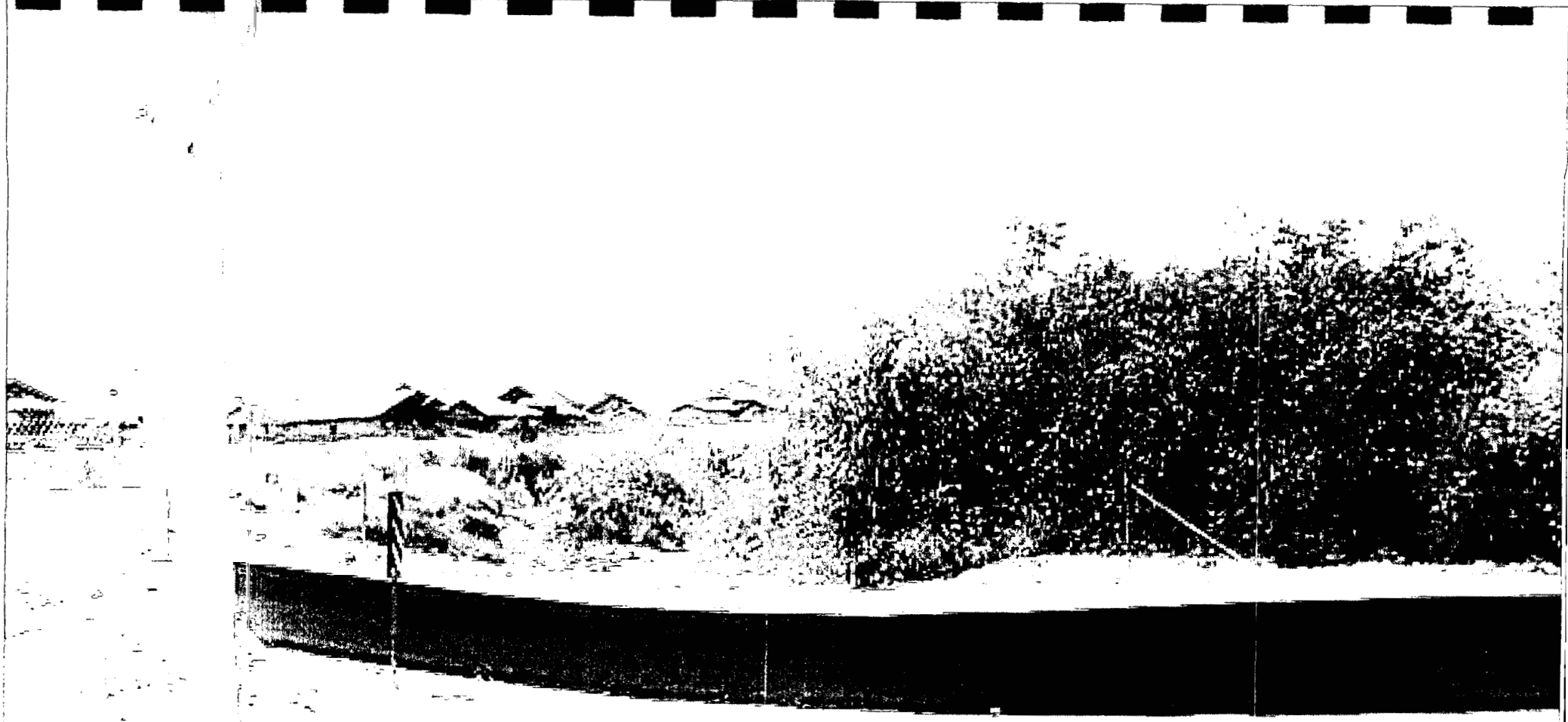


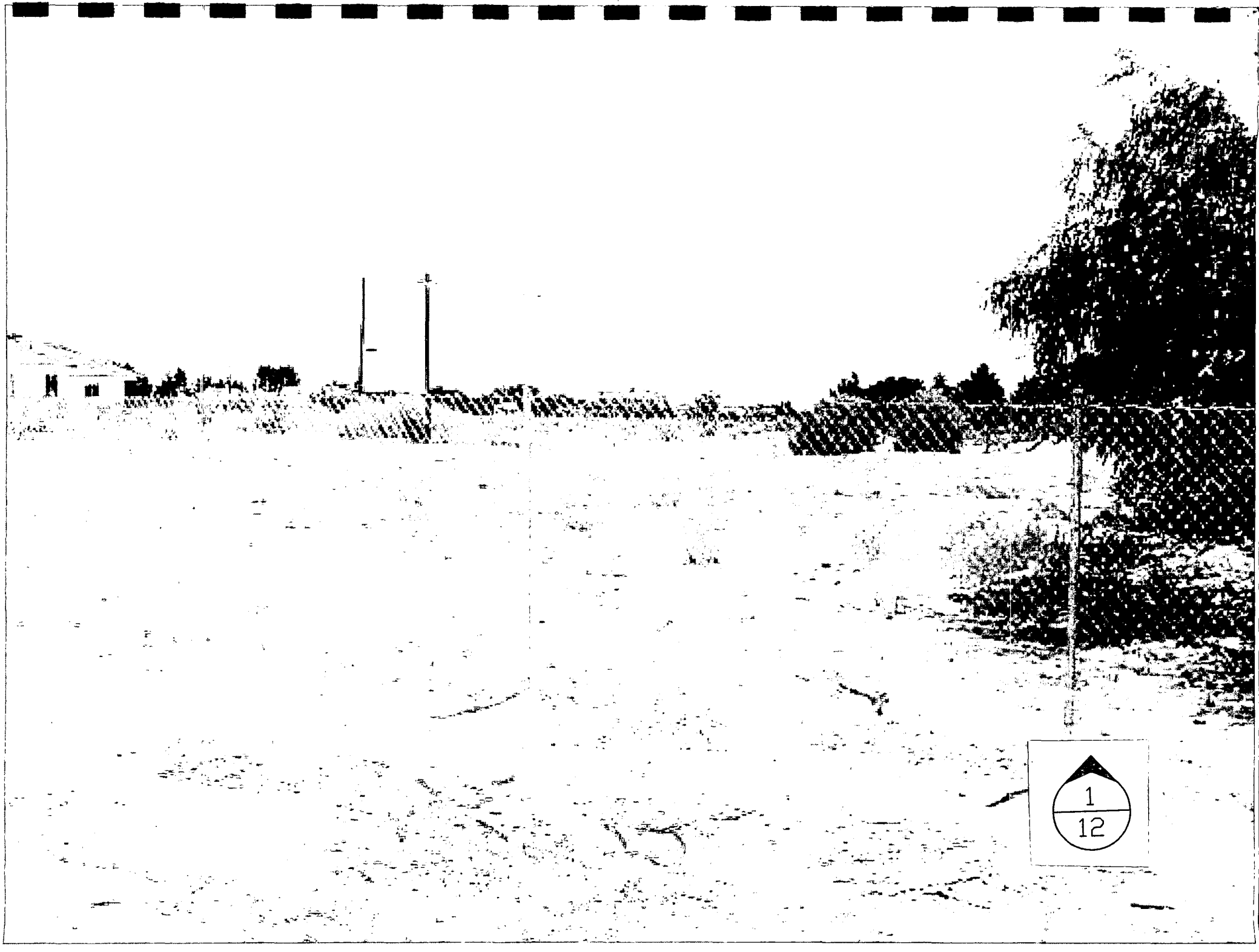
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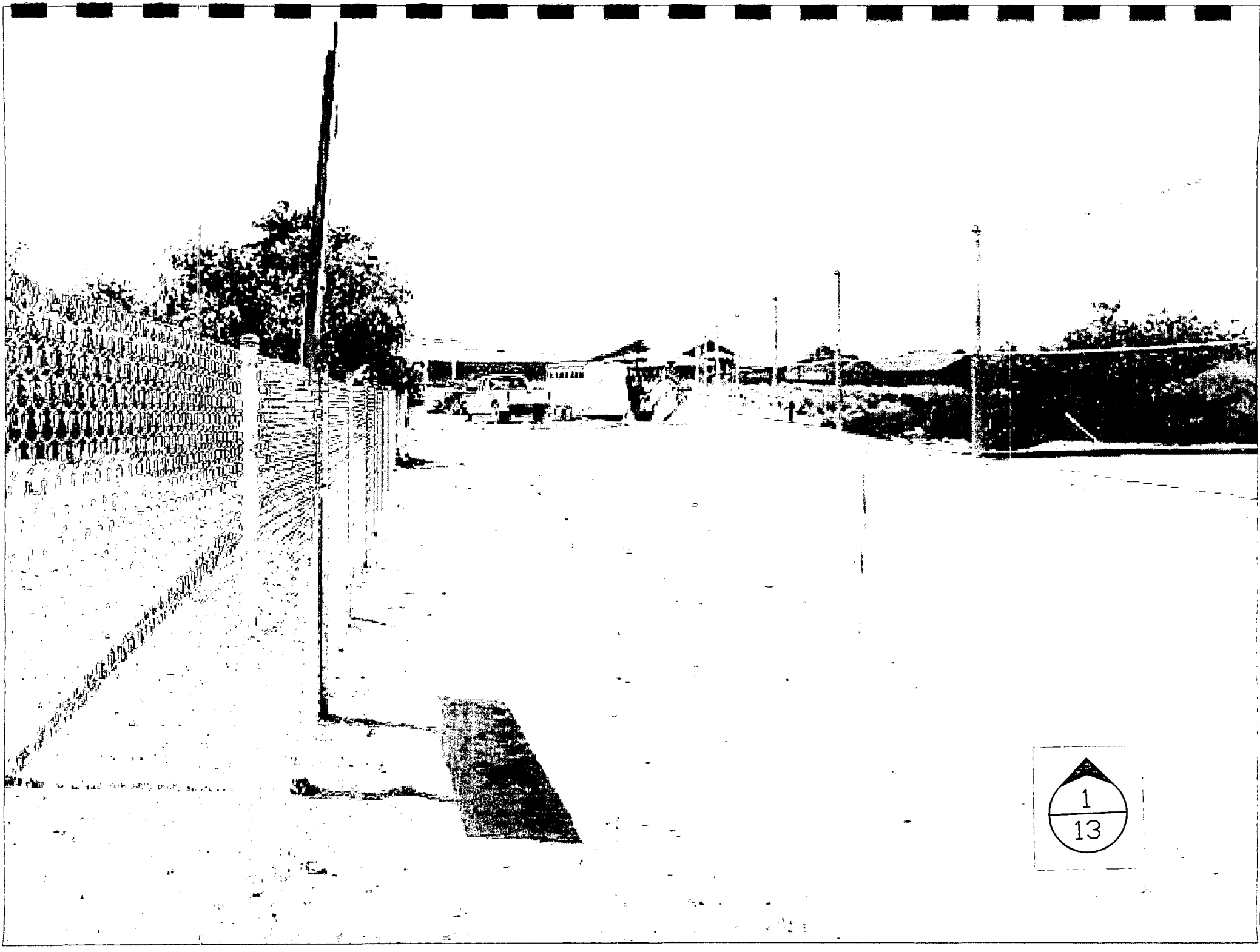

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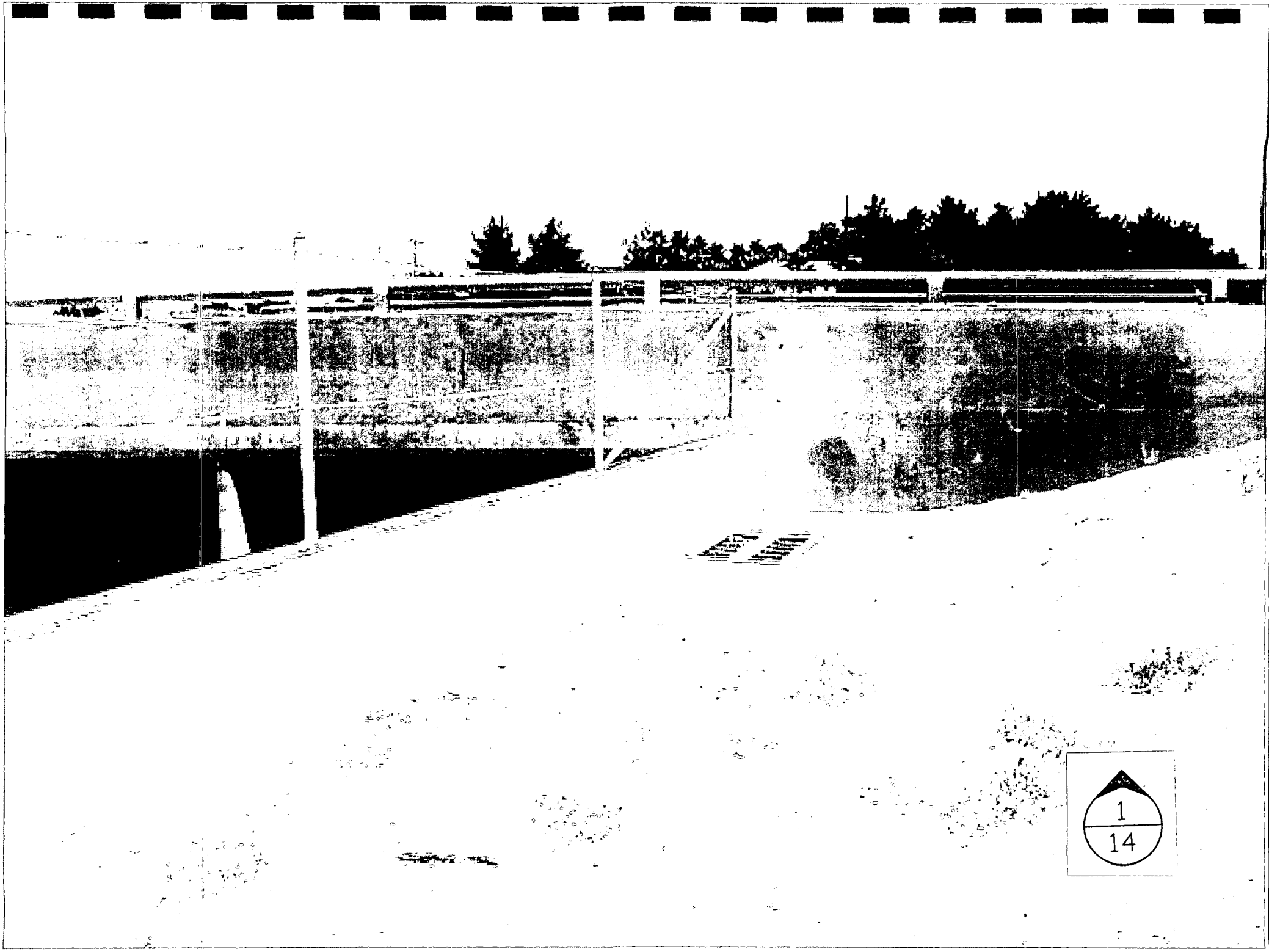

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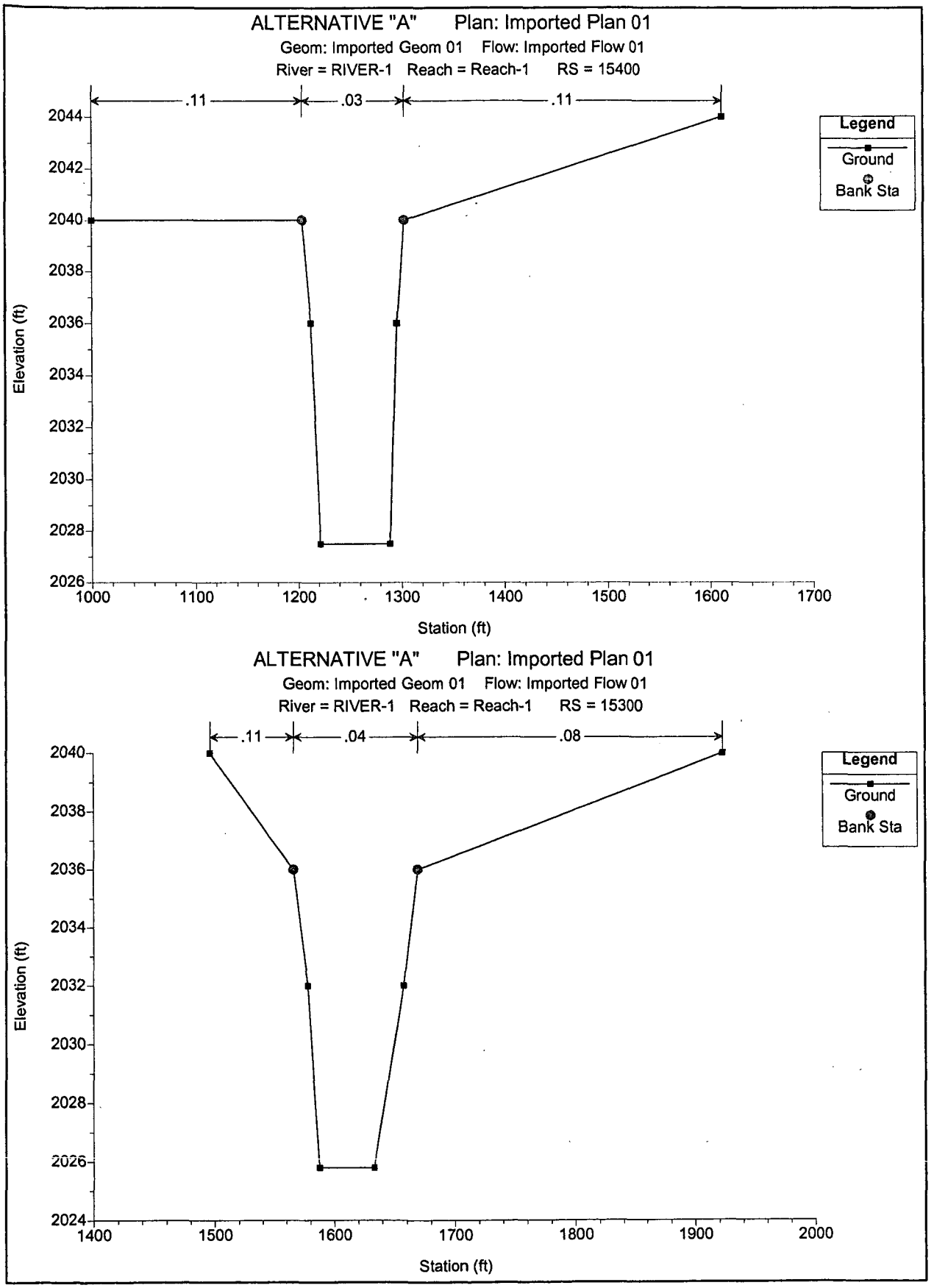


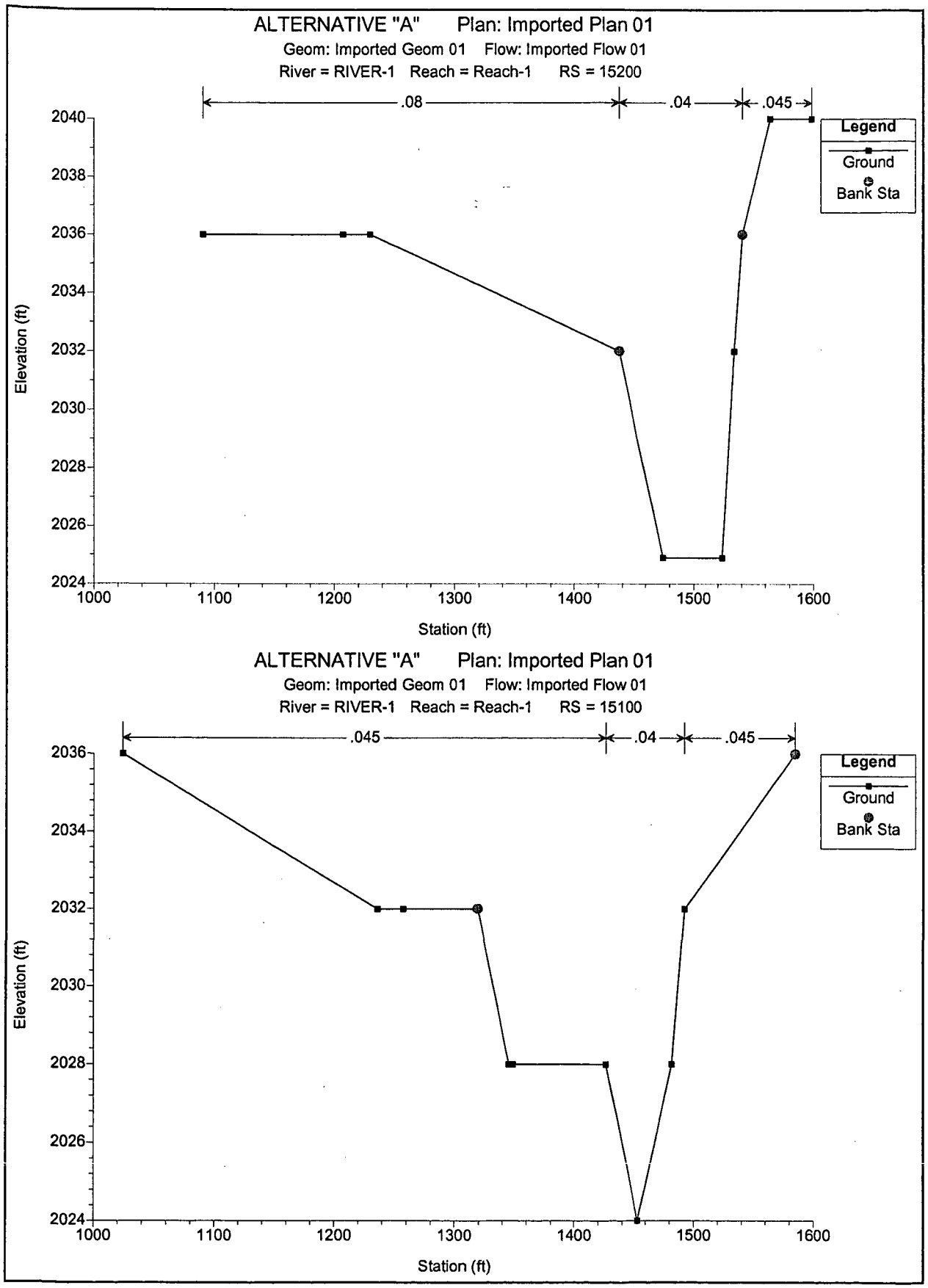

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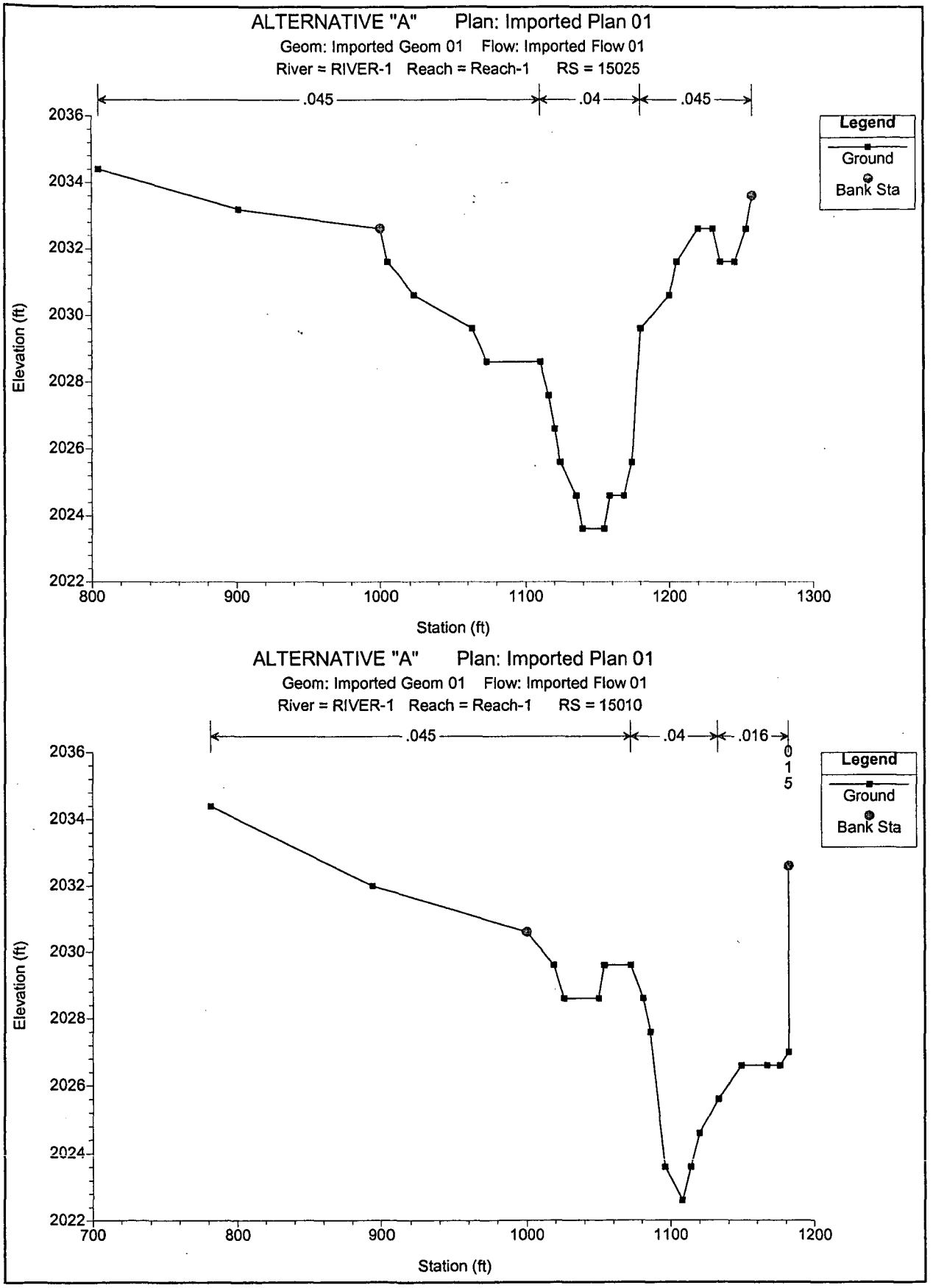

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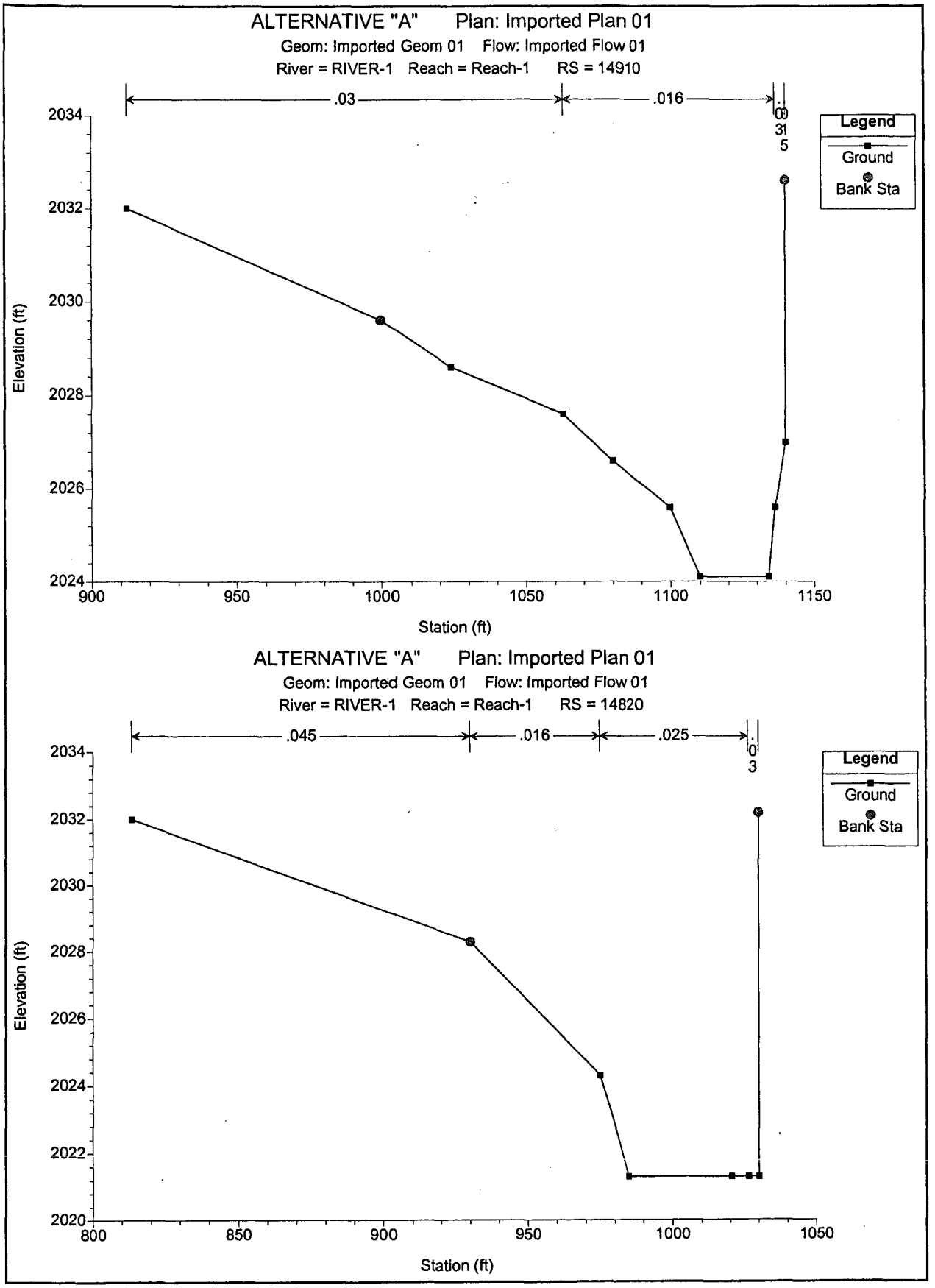

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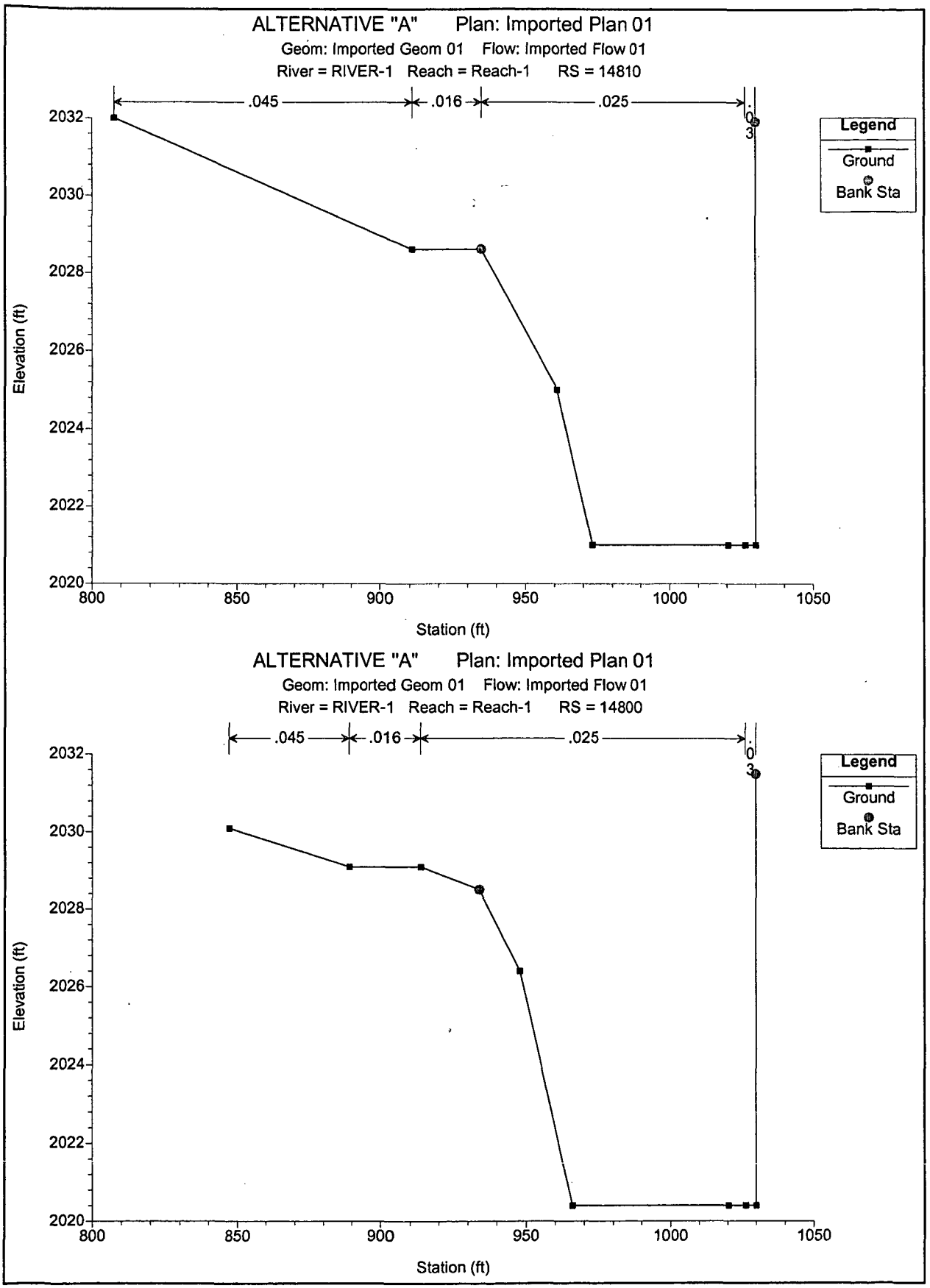
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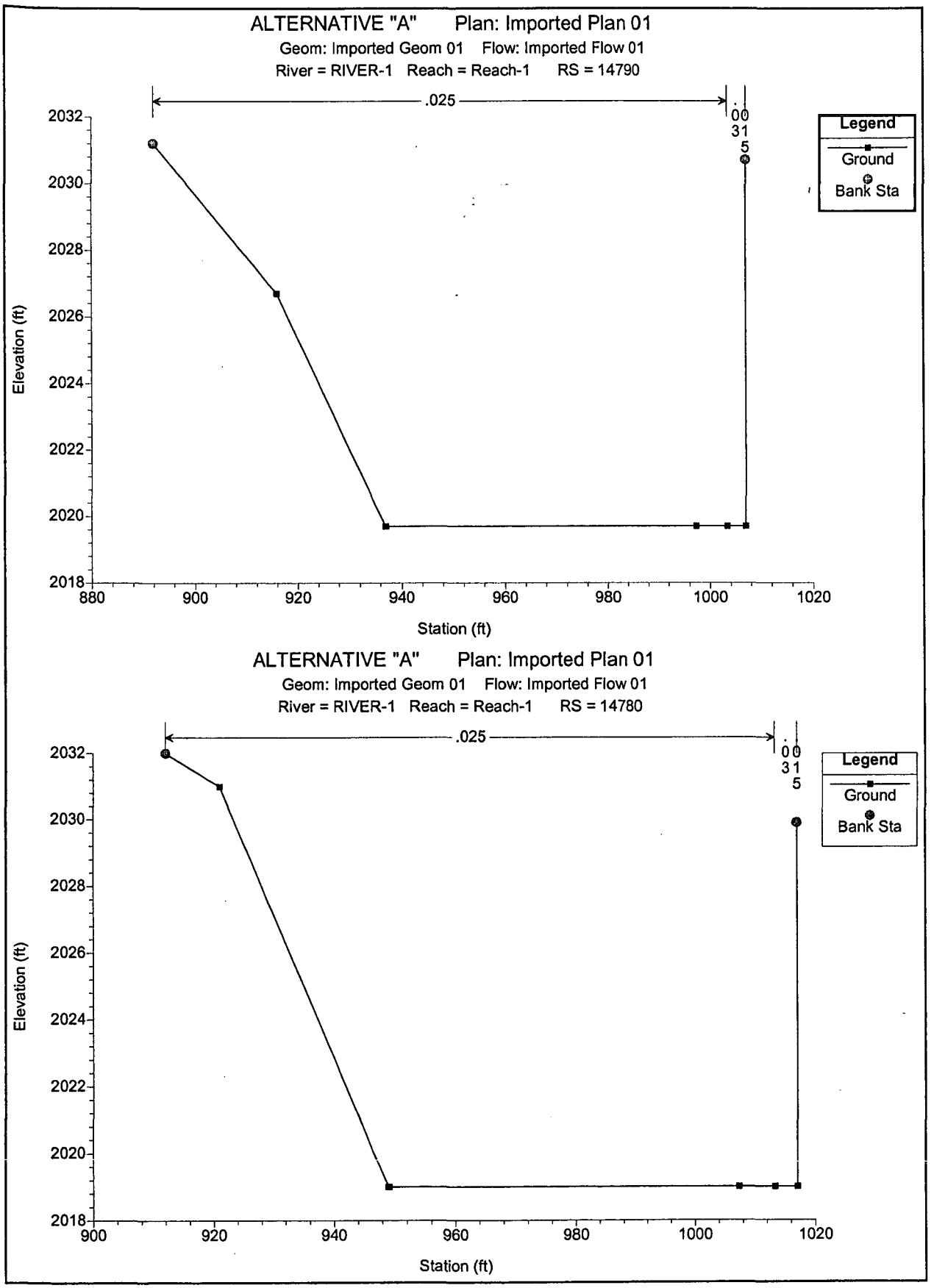

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.11
.03
.11
Legend
Ground
Bank Sta
Elevation (ft)
2044
2042
2040
2038
2036
2034
2032
2030
2028
2026
1000
1100
1200
1300
1400
1500
1600
1700
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15300
.11
.04
.08
Legend
Ground
Bank Sta
Elevation (ft)
2040
2038
2036
2034
2032
2030
2028
2026
2024
1400
1500
1600
1700
1800
1900
2000
Station (ft)

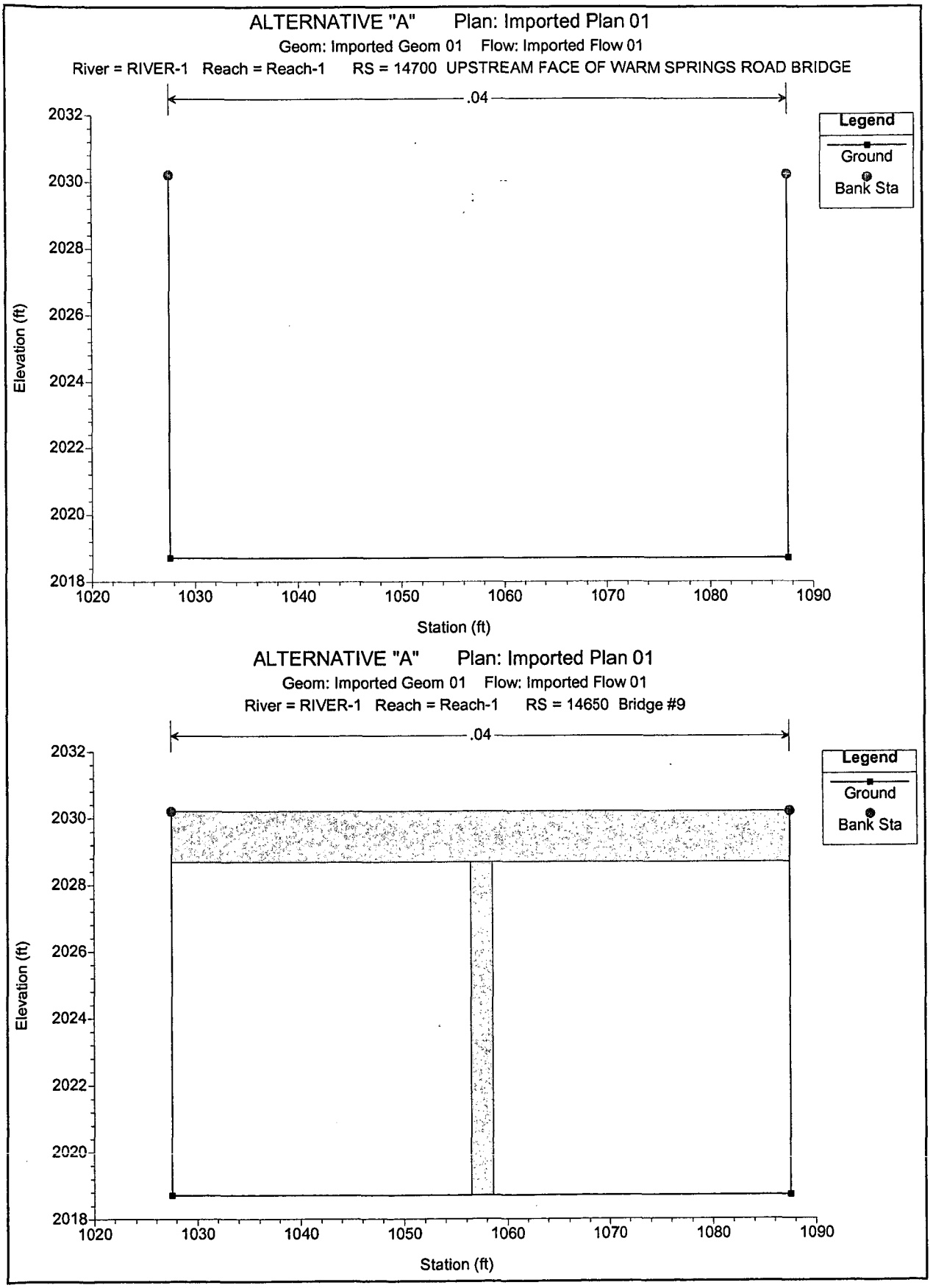

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.08
.04
.045
Legend
Ground
Bank Sta
Elevation (ft)
2040
2038
2036
2034
2032
2030
2028
2026
2024
1000
1100
1200
1300
1400
1500
1600
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15100
.045
.04
.045
Legend
Ground
Bank Sta
Elevation (ft)
2036
2034
2032
2030
2028
2026
2024
1000
1100
1200
1300
1400
1500
1600
Station (ft)

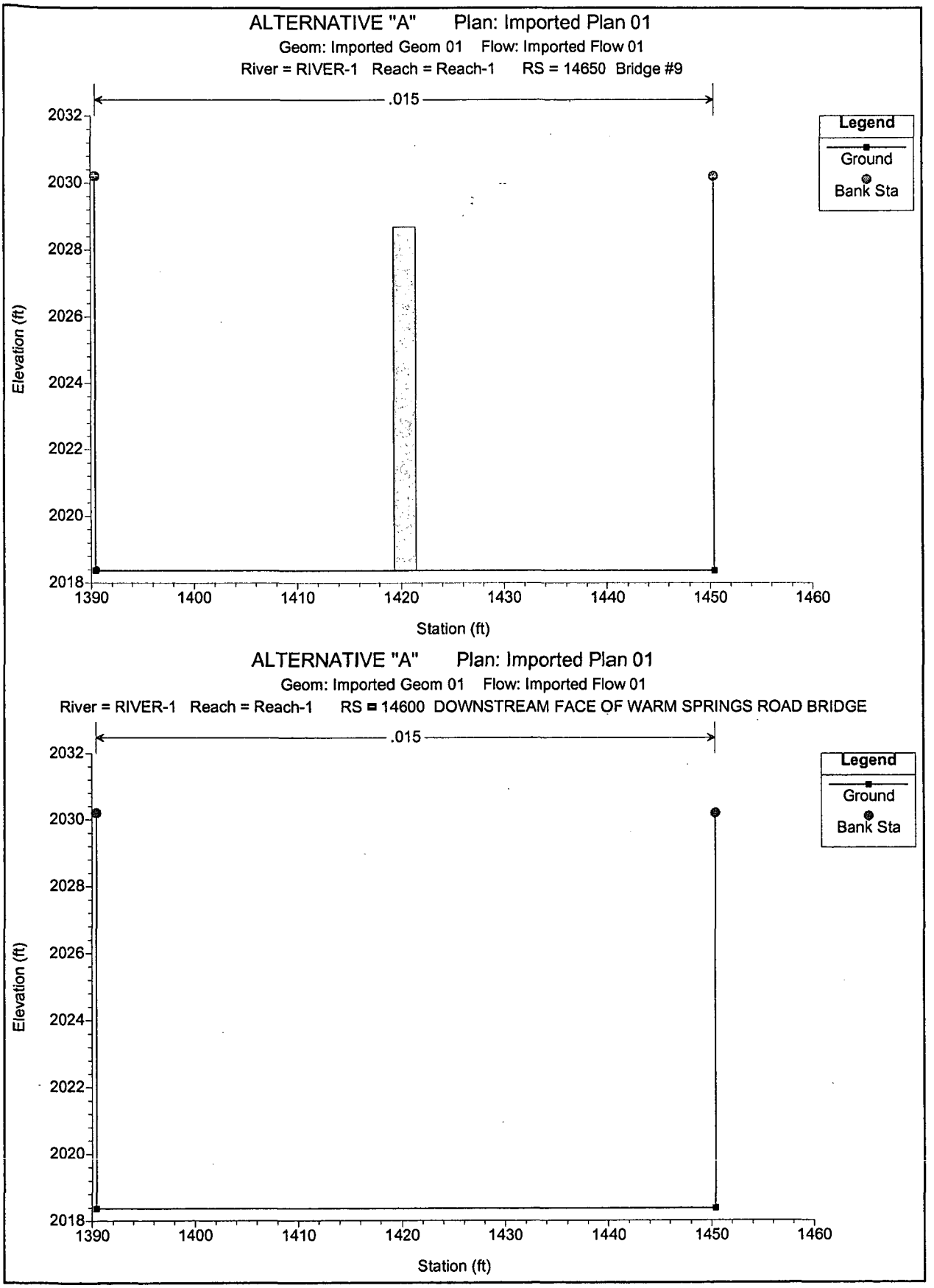

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.04
.045
Legend
Ground
Bank Sta
Elevation (ft)
2036
2034
2032
2030
2028
2026
2024
2022
800
900
1000
1100
1200
1300
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
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.045
.04
.016
0
1
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Ground
Bank Sta
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1000
1100
1200
Station (ft)

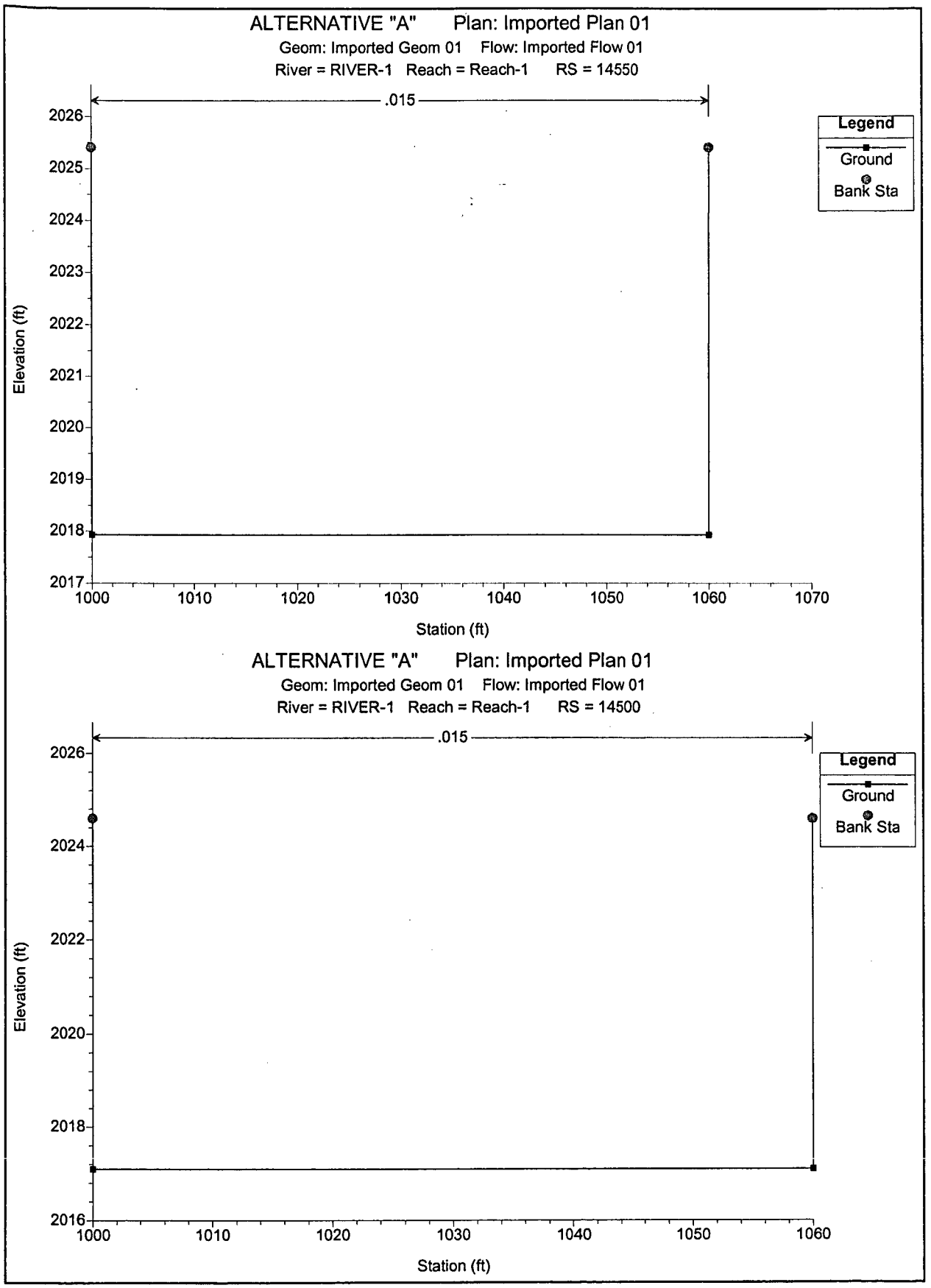

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.016
Legend
Ground
Bank Sta
Elevation (ft)
Station (ft)
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Geom: Imported Geom 01 Flow: Imported Flow 01
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.016
.025
Legend
Ground
Bank Sta
Elevation (ft)
Station (ft)

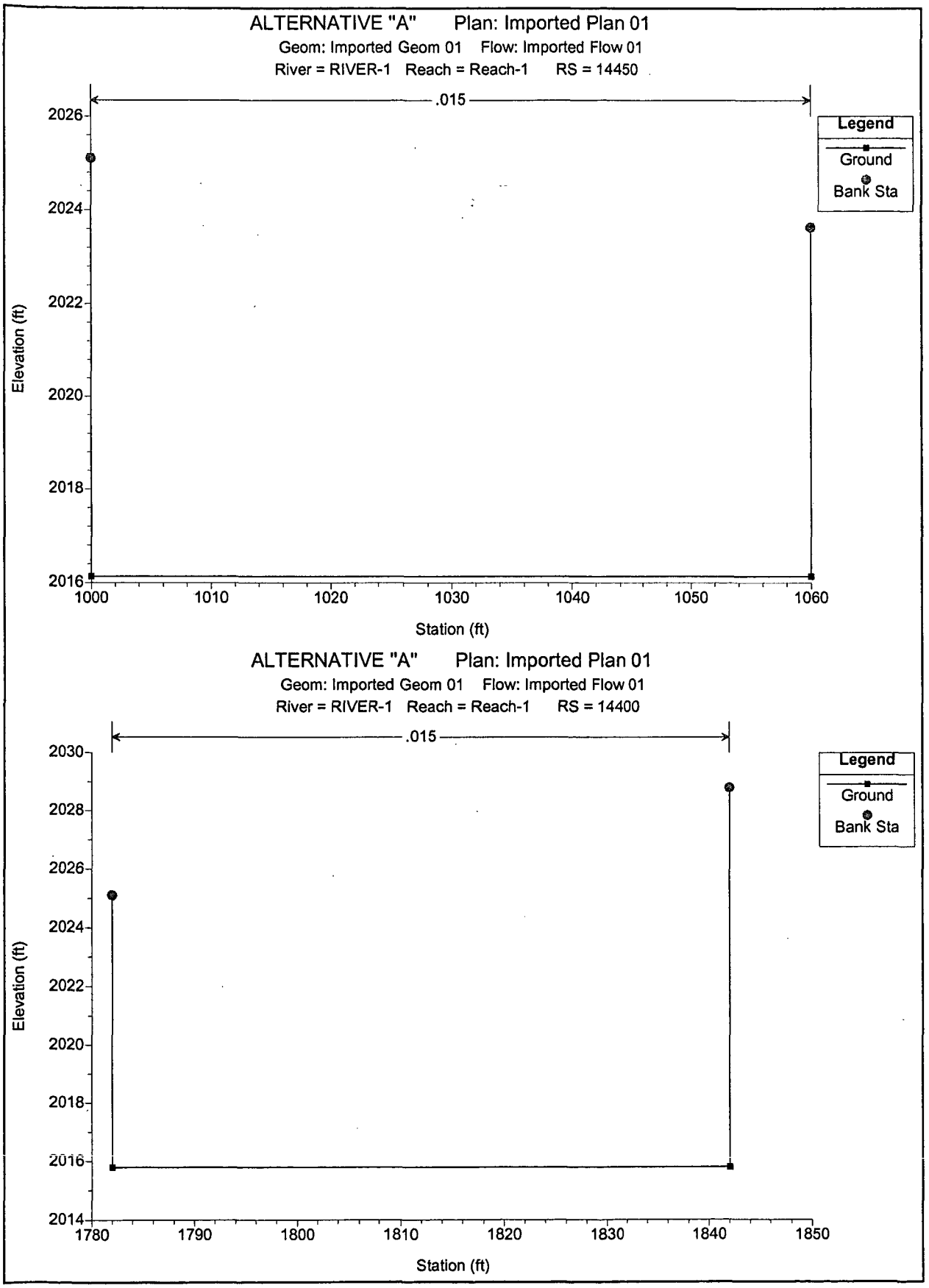

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.016
.025
Legend
Ground
Bank Sta
Elevation (ft)
Station (ft)
2032
2030
2028
2026
2024
2022
2020
800
850
900
950
1000
1050
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Geom: Imported Geom 01 Flow: Imported Flow 01
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.016
.025
Legend
Ground
Bank Sta
Elevation (ft)
Station (ft)

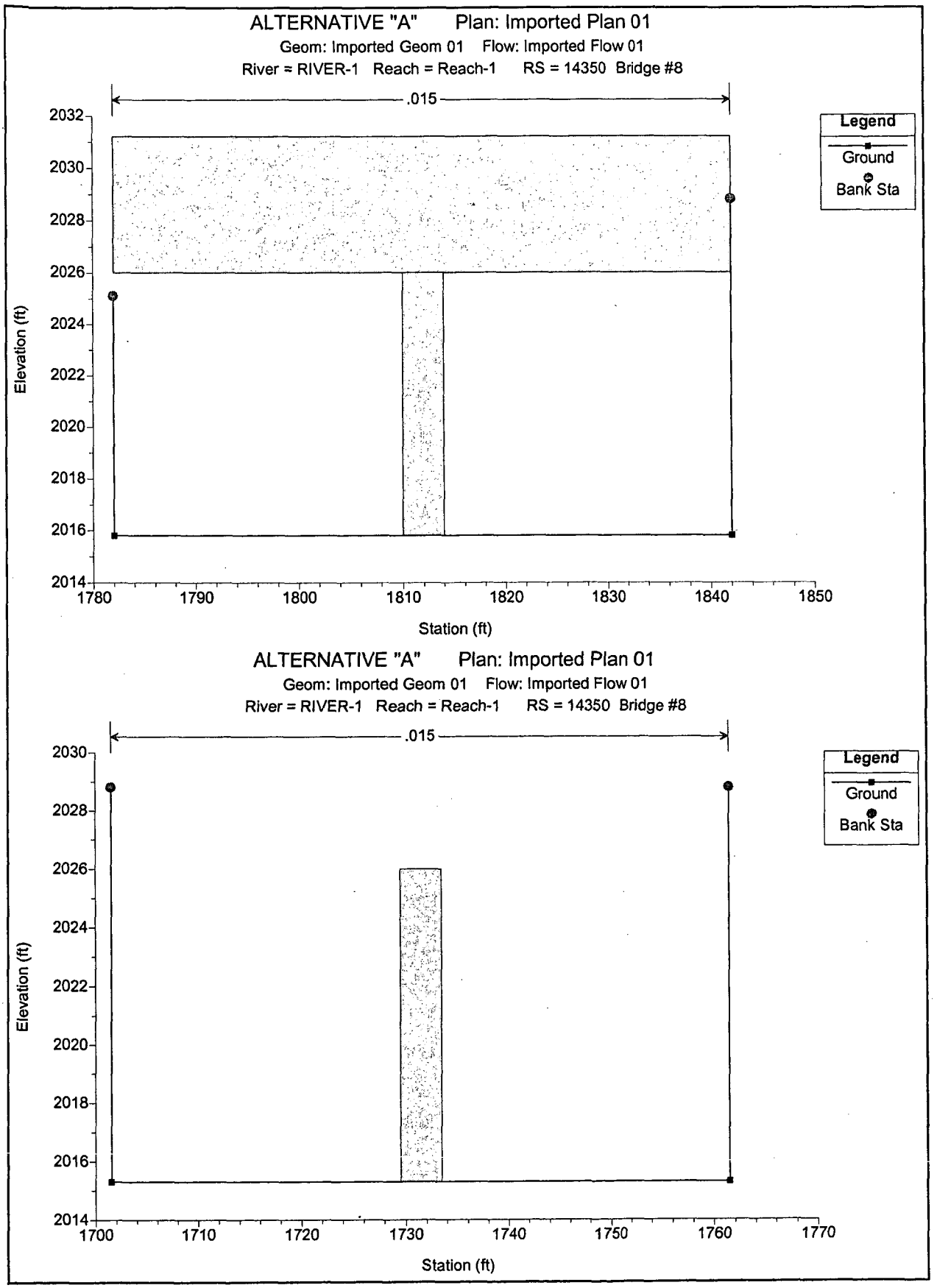

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.025
.00315
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
880
900
920
940
960
980
1000
1020
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
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Legend
Ground
Bank Sta
Elevation (ft)
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980
1000
1020
Station (ft)

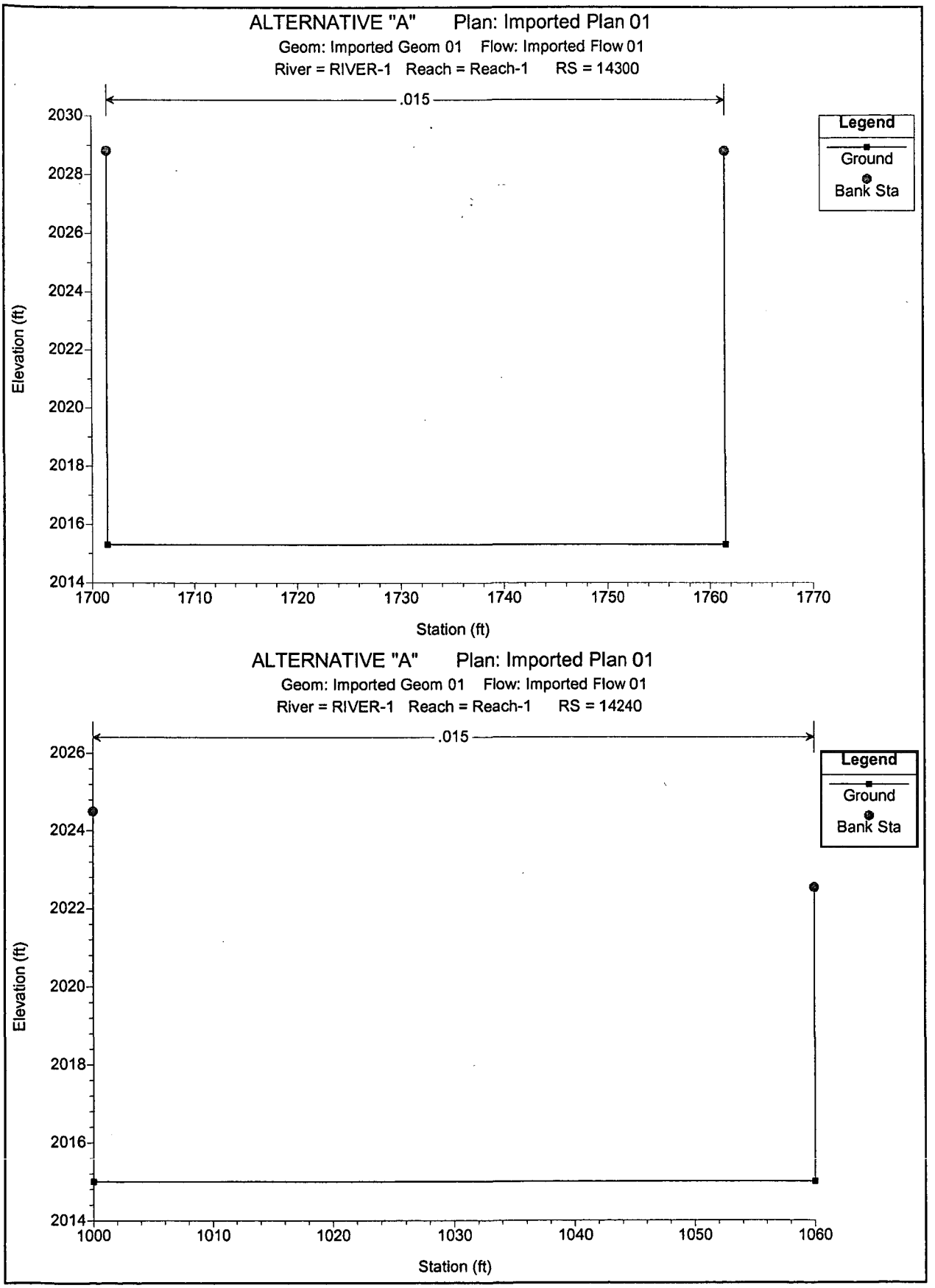

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Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
1020
1030
1040
1050
1060
1070
1080
1090
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14650 Bridge #9
.04
Legend
Ground
Bank Sta
Elevation (ft)
2032
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Station (ft)

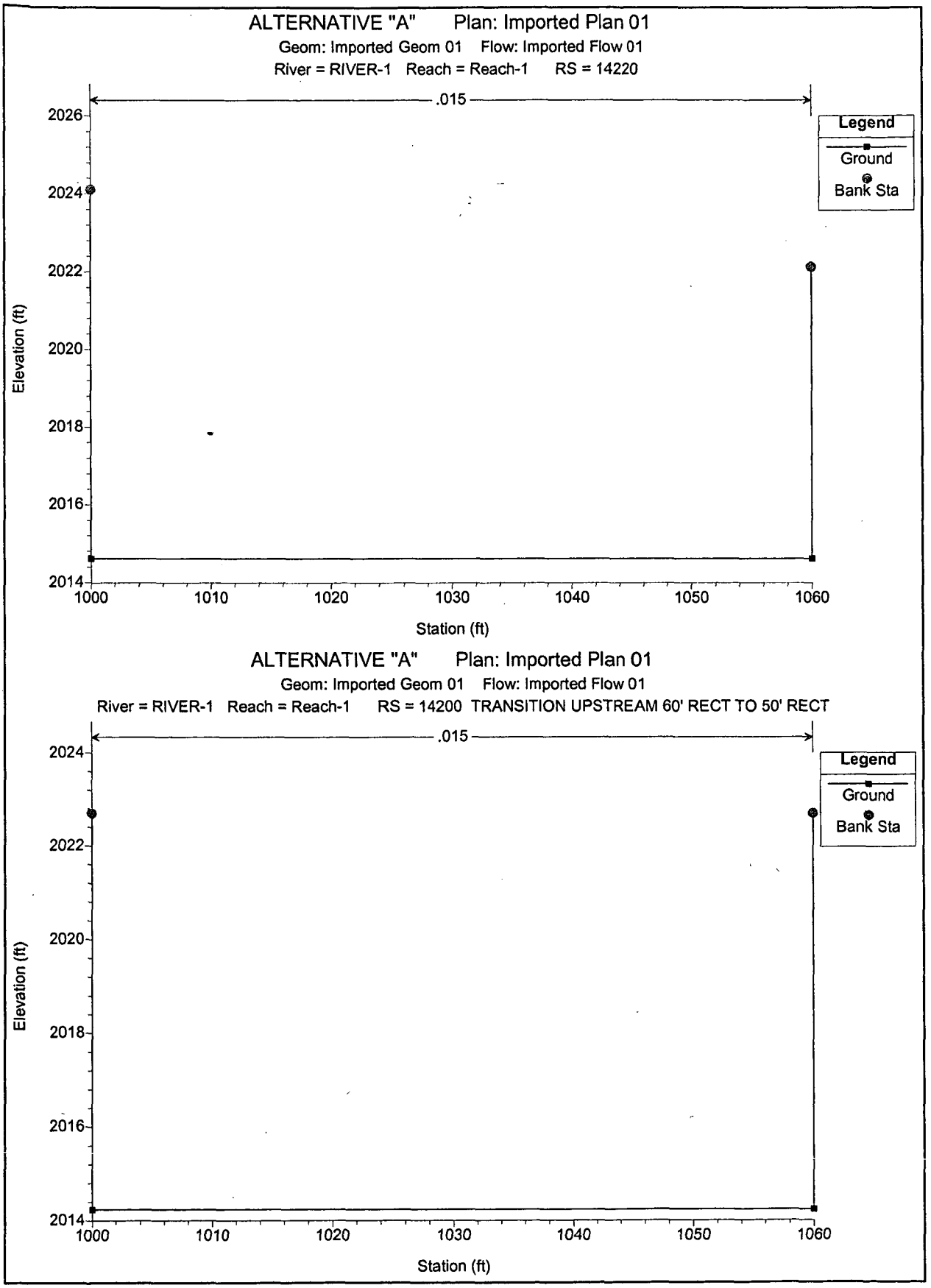

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Geom: Imported Geom 01 Flow: Imported Flow 01
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.015
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
1390
1400
1410
1420
1430
1440
1450
1460
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14600 DOWNSTREAM FACE OF WARM SPRINGS ROAD BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
1390
1400
1410
1420
1430
1440
1450
1460
Station (ft)

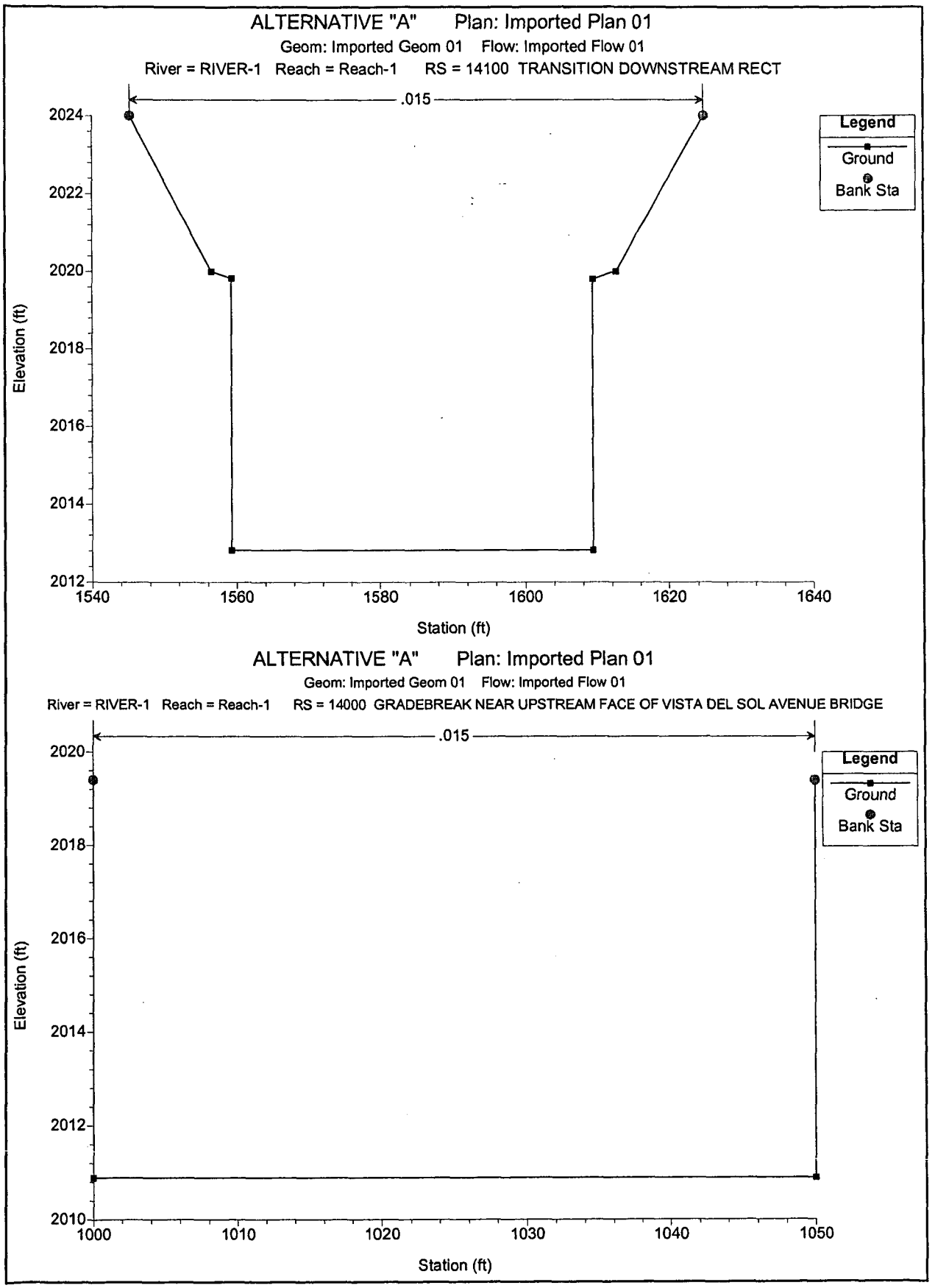

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14550
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2025
2024
2023
2022
2021
2020
2019
2018
2017
1000
1010
1020
1030
1040
1050
1060
1070
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14500
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
1000
1010
1020
1030
1040
1050
1060
Station (ft)

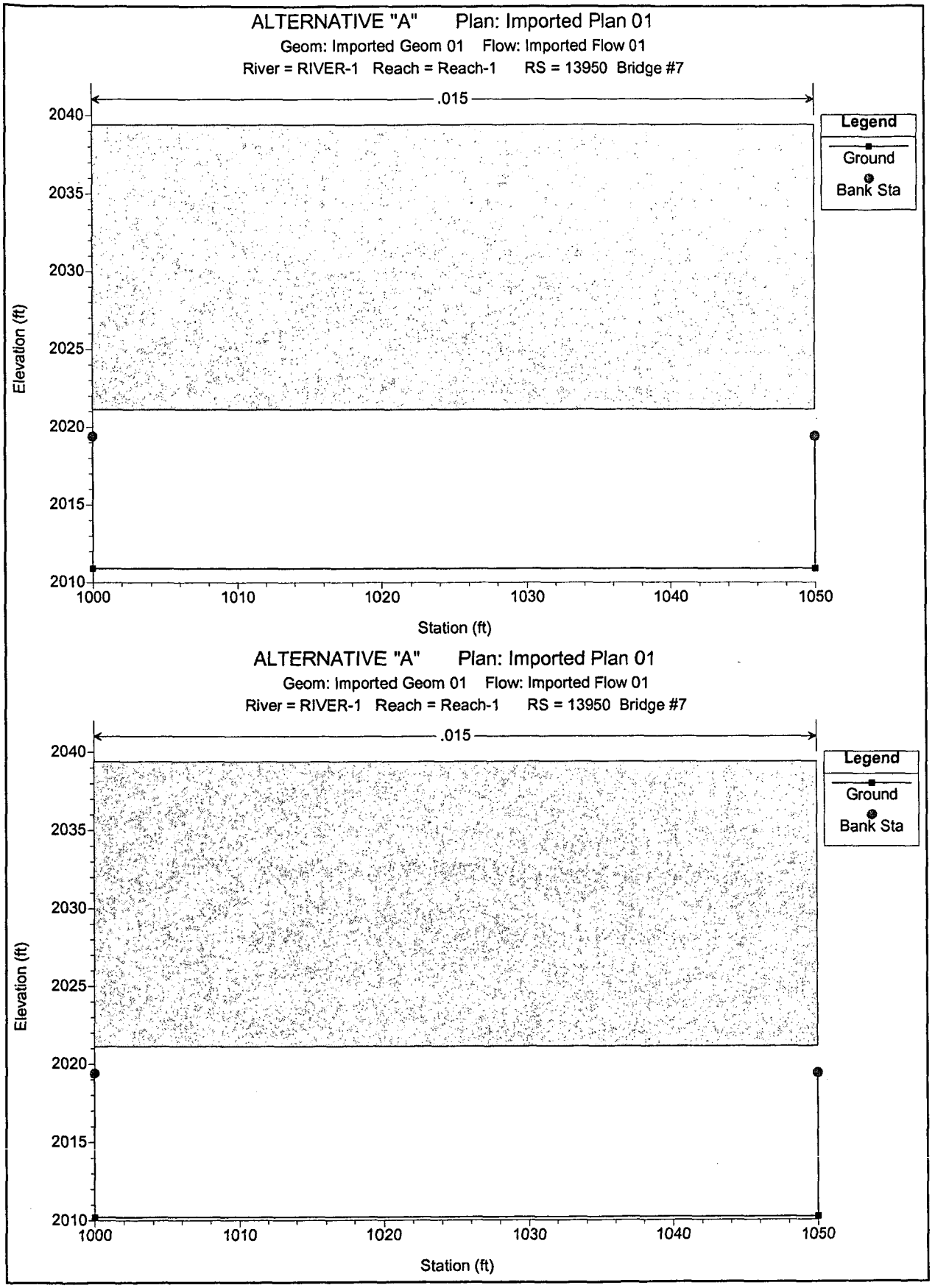

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14450
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
1000
1010
1020
1030
1040
1050
1060
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14400
.015
Legend
Ground
Bank Sta
Elevation (ft)
2030
2028
2026
2024
2022
2020
2018
2016
2014
1780
1790
1800
1810
1820
1830
1840
1850
Station (ft)

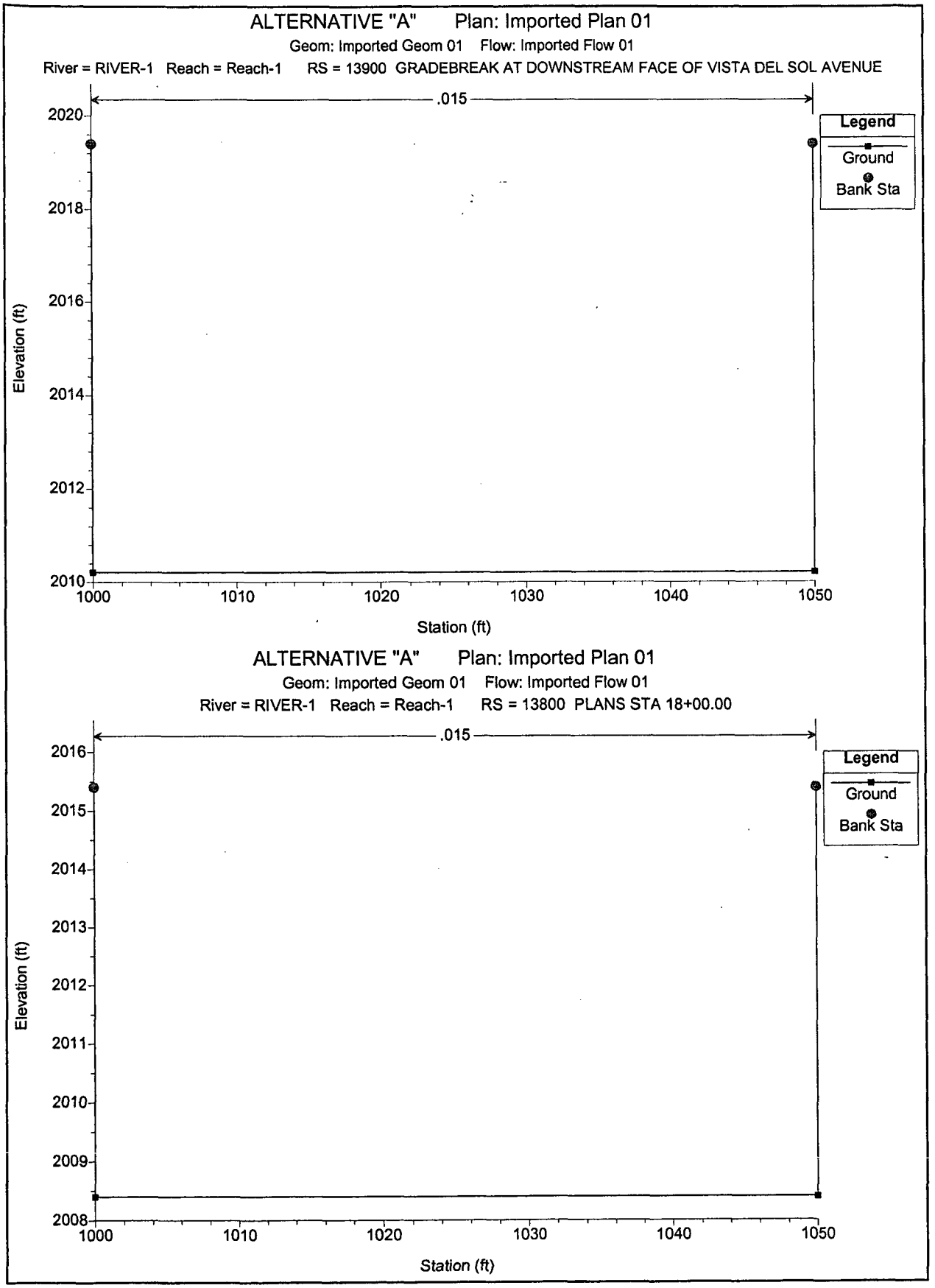

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14350 Bridge #8
.015
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
2016
2014
1780
1790
1800
1810
1820
1830
1840
1850
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14350 Bridge #8
.015
Legend
Ground
Bank Sta
Elevation (ft)
2030
2028
2026
2024
2022
2020
2018
2016
2014
1700
1710
1720
1730
1740
1750
1760
1770
Station (ft)

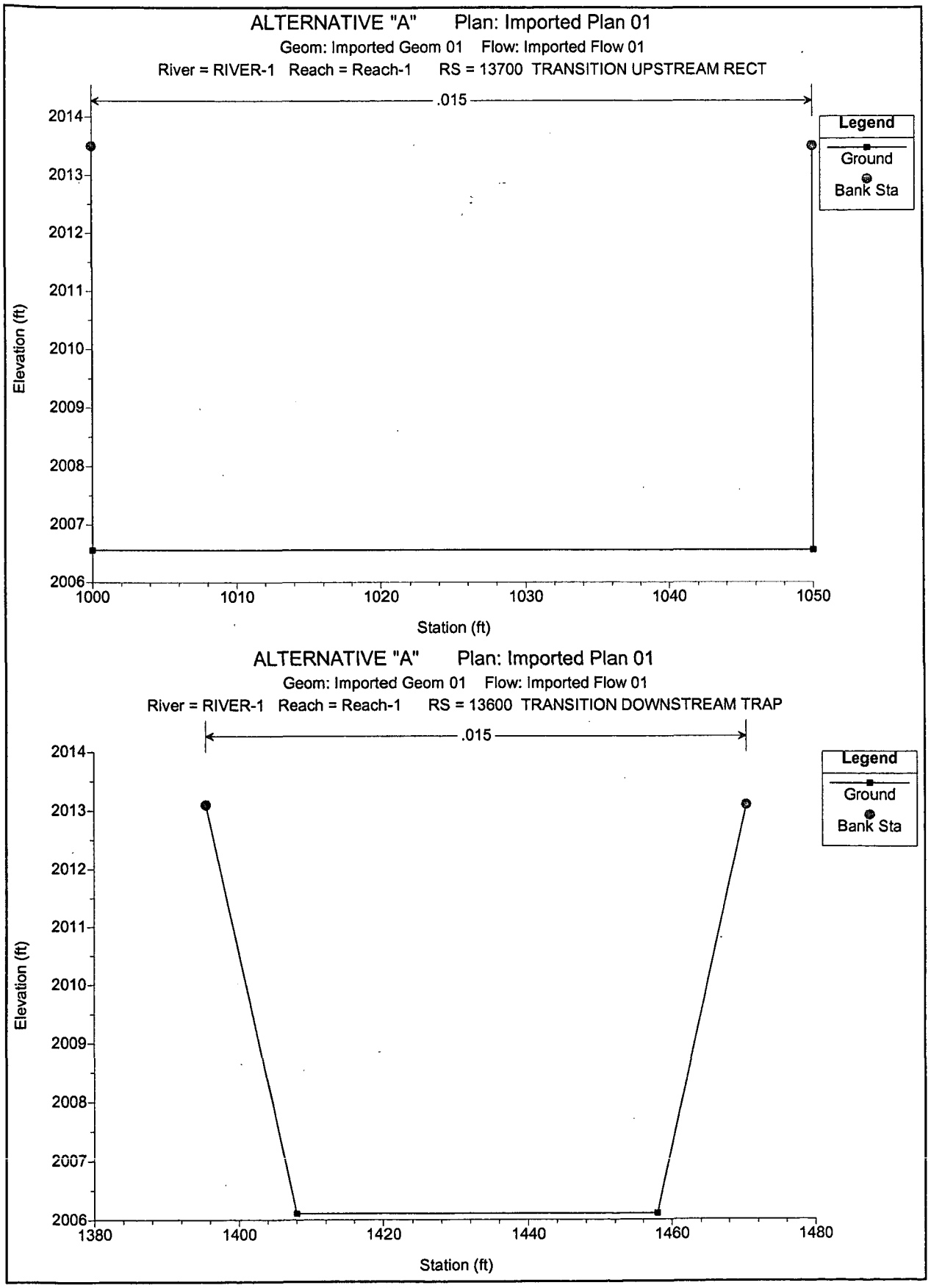

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14300
.015
Legend
Ground
Bank Sta
Elevation (ft)
2030
2028
2026
2024
2022
2020
2018
2016
2014
1700
1710
1720
1730
1740
1750
1760
1770
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14240
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
2014
1000
1010
1020
1030
1040
1050
1060
Station (ft)

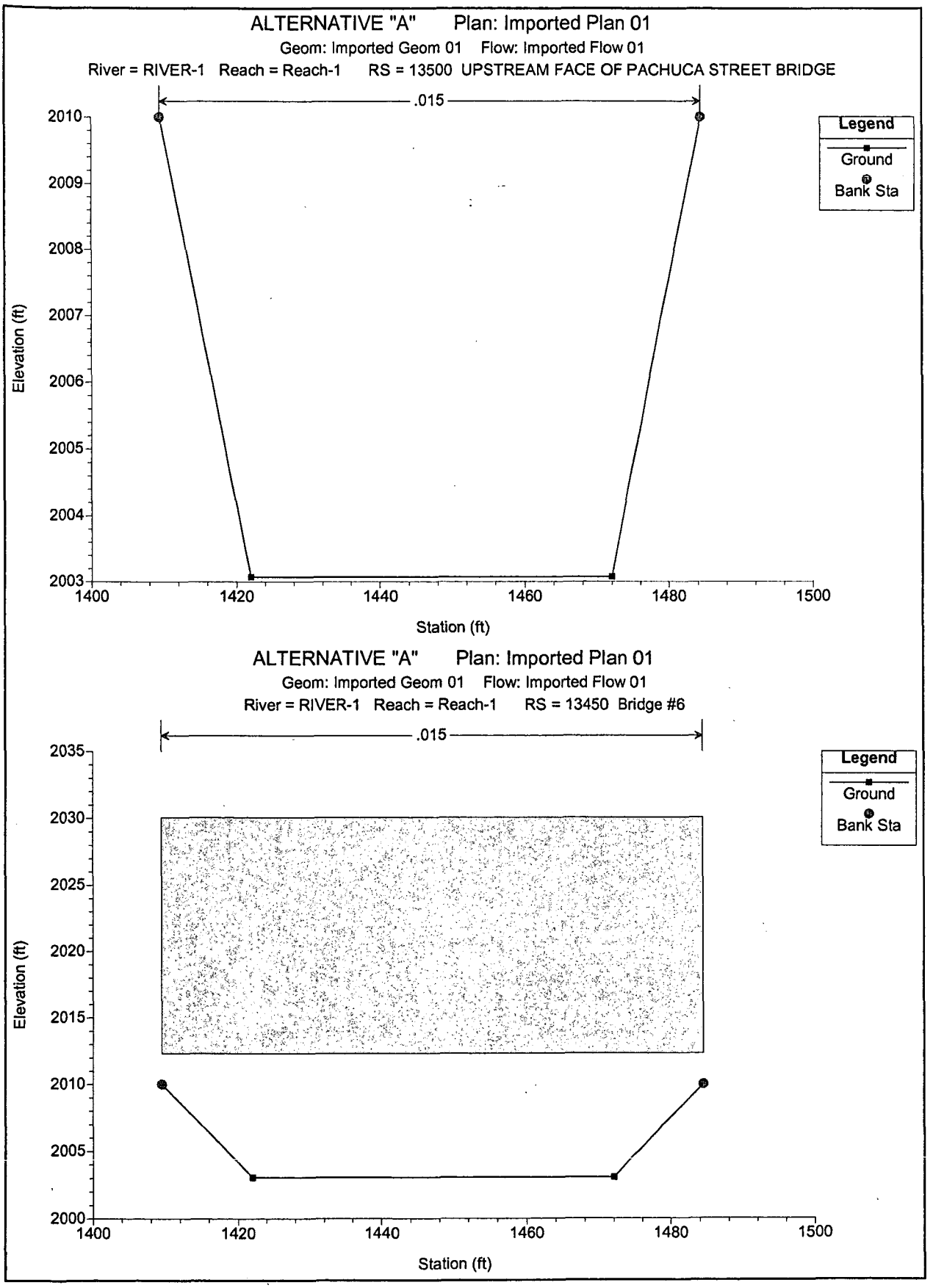

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14220
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
2014
1000
1010
1020
1030
1040
1050
1060
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14200 TRANSITION UPSTREAM 60' RECT TO 50' RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2024
2022
2020
2018
2016
2014
1000
1010
1020
1030
1040
1050
1060
Station (ft)

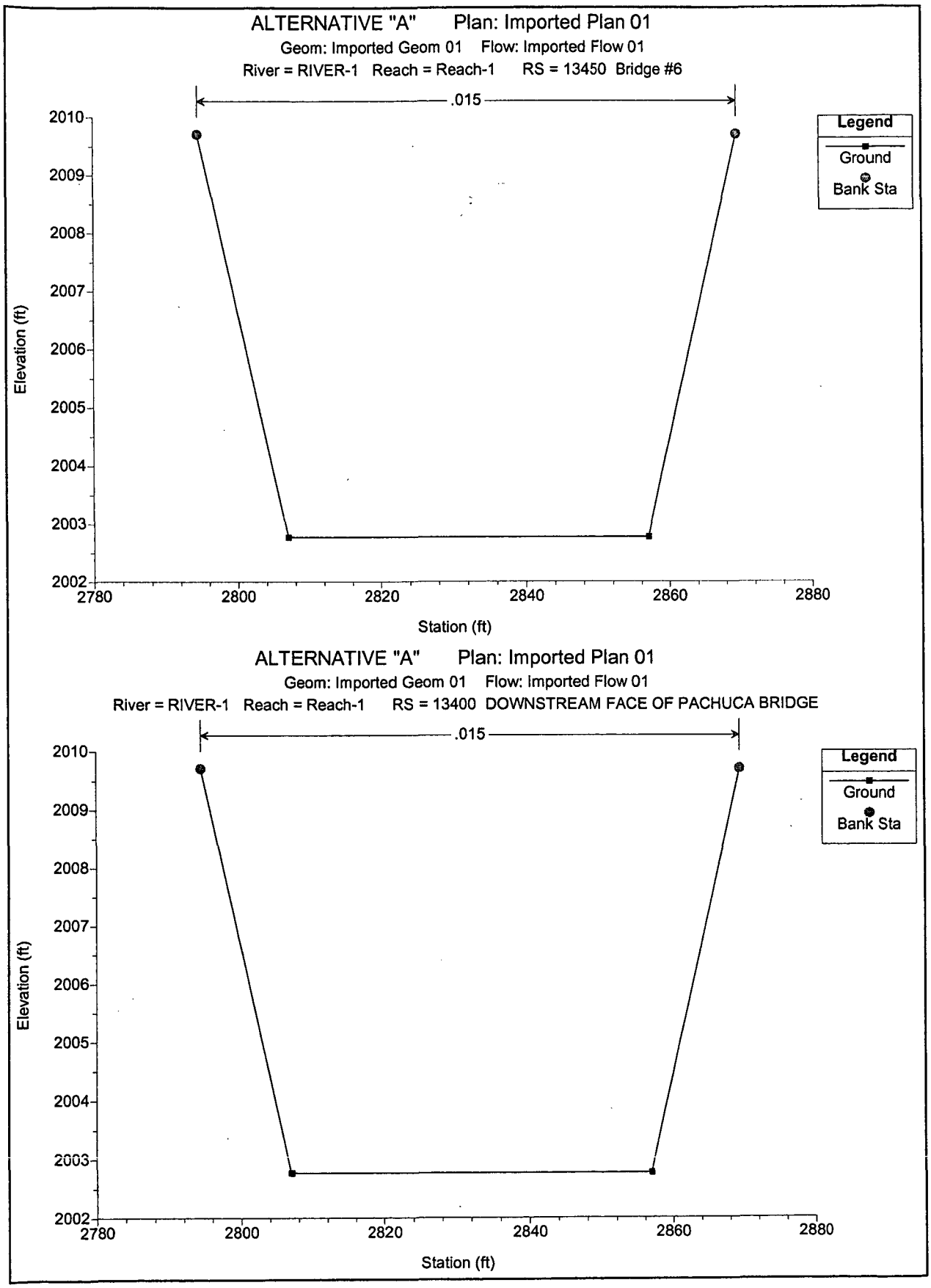

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14100 TRANSITION DOWNSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2024
2022
2020
2018
2016
2014
2012
1540
1560
1580
1600
1620
1640
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14000 GRADEBREAK NEAR UPSTREAM FACE OF VISTA DEL SOL AVENUE BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2020
2018
2016
2014
2012
2010
1000
1010
1020
1030
1040
1050
Station (ft)

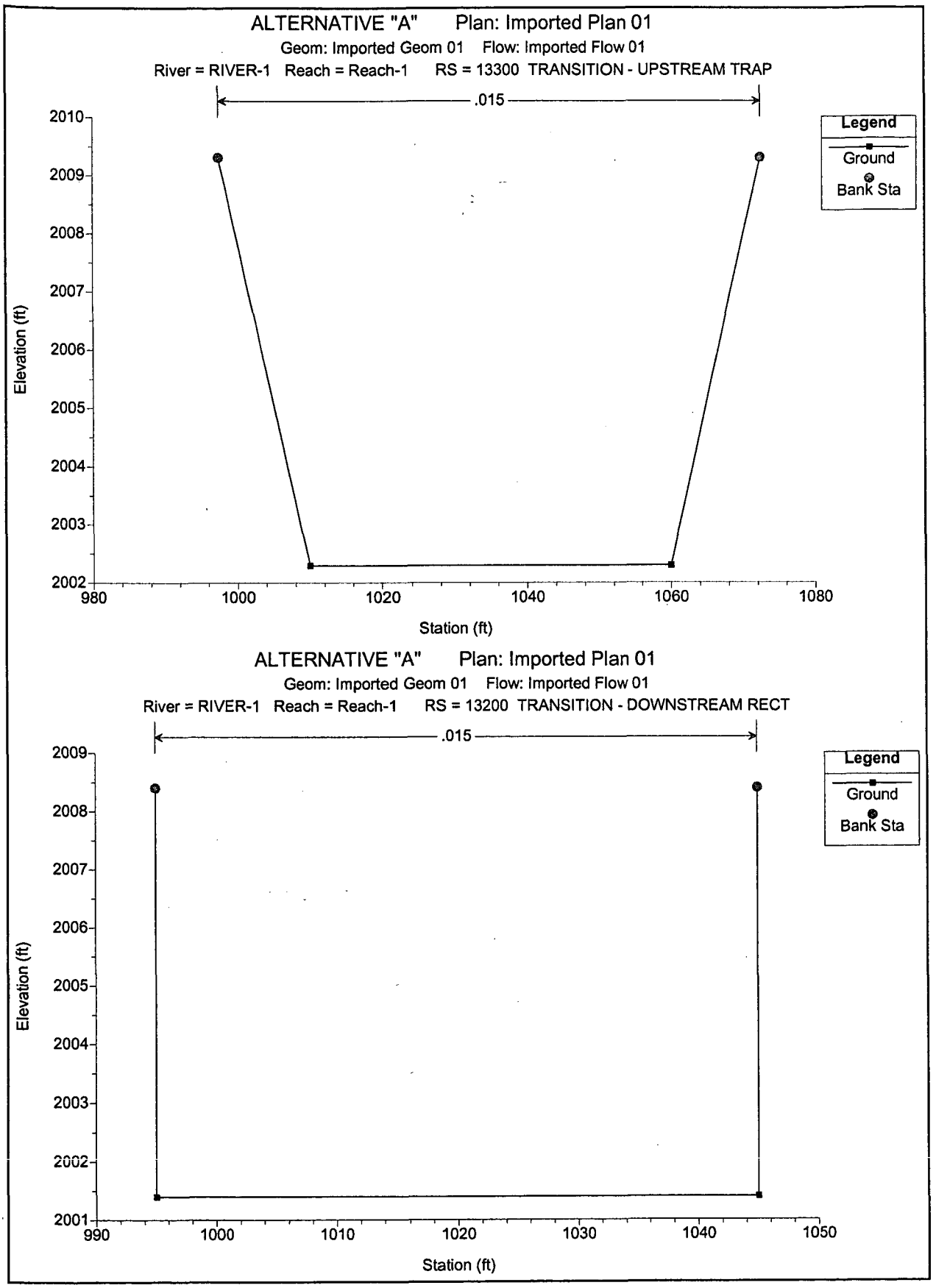

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13950 Bridge #7
.015
Legend
Ground
Bank Sta
Elevation (ft)
2040
2035
2030
2025
2020
2015
2010
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13950 Bridge #7
.015
Legend
Ground
Bank Sta
Elevation (ft)
2040
2035
2030
2025
2020
2015
2010
1000
1010
1020
1030
1040
1050
Station (ft)

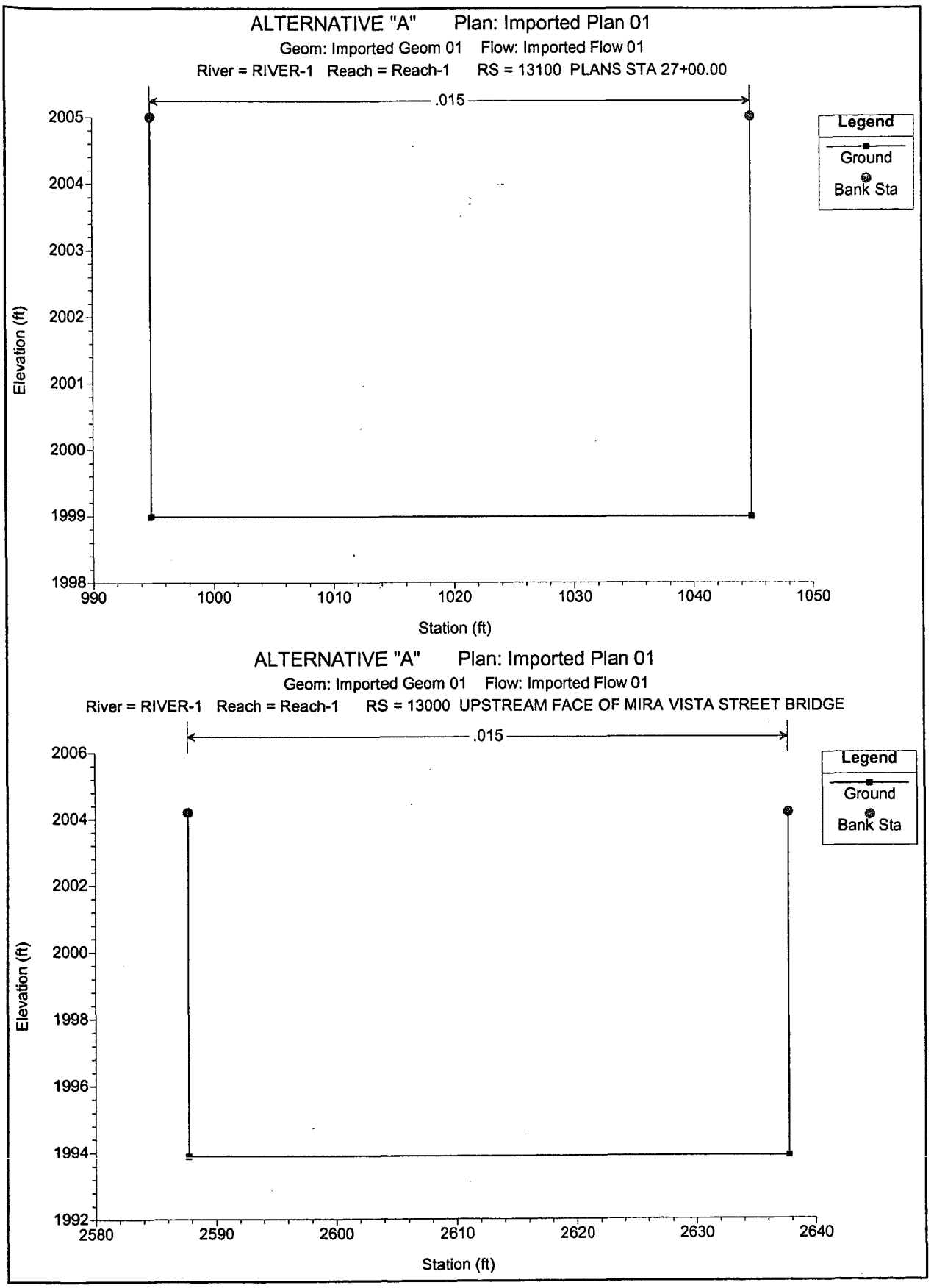

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13900 GRADEBREAK AT DOWNSTREAM FACE OF VISTA DEL SOL AVENUE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2020
2018
2016
2014
2012
2010
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13800 PLANS STA 18+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
2016
2015
2014
2013
2012
2011
2010
2009
2008
1000
1010
1020
1030
1040
1050
Station (ft)

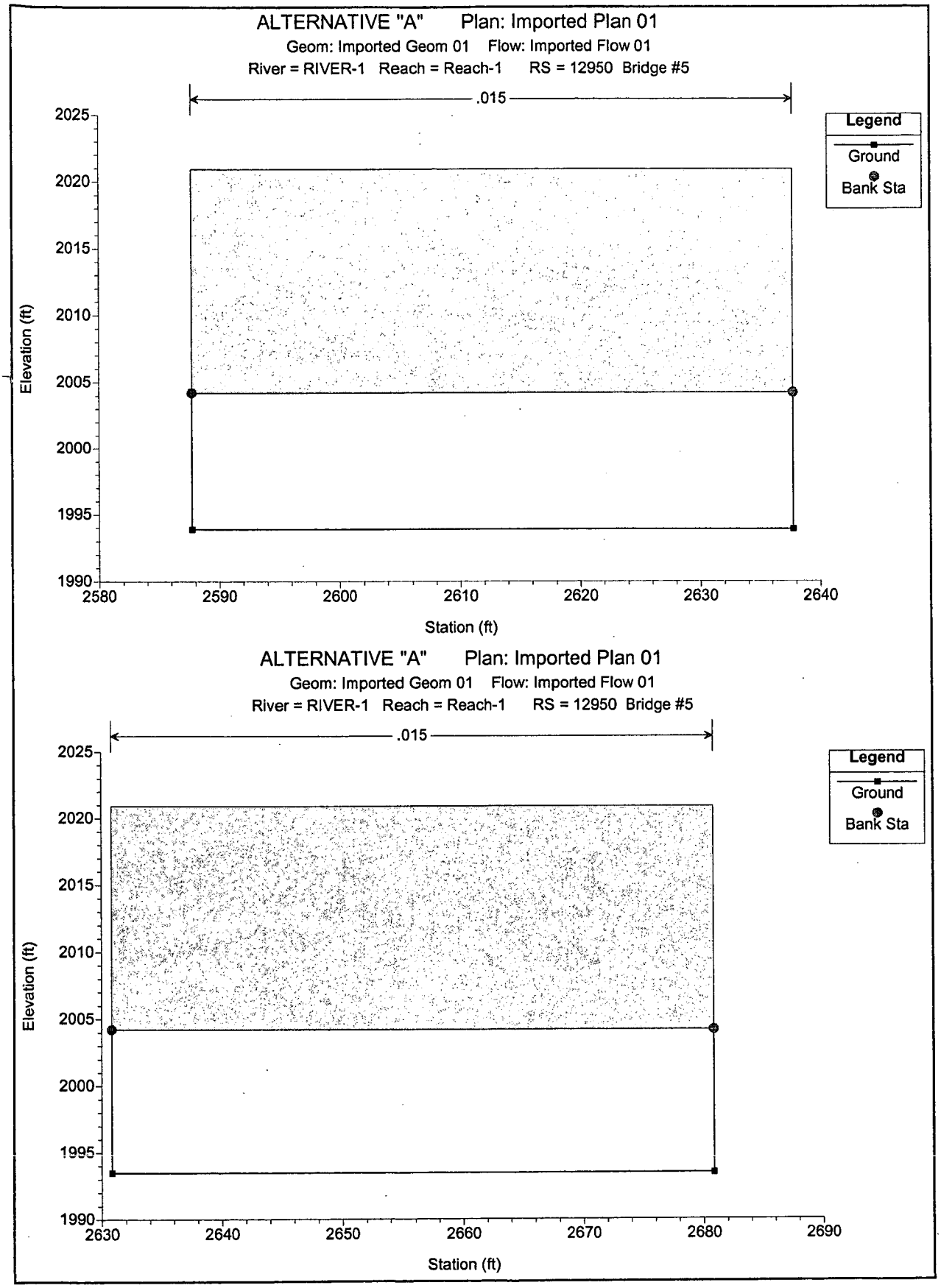

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13700 TRANSITION UPSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2014
2013
2012
2011
2010
2009
2008
2007
2006
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13600 TRANSITION DOWNSTREAM TRAP
.015
Legend
Ground
Bank Sta
Elevation (ft)
2014
2013
2012
2011
2010
2009
2008
2007
2006
1380
1400
1420
1440
1460
1480
Station (ft)

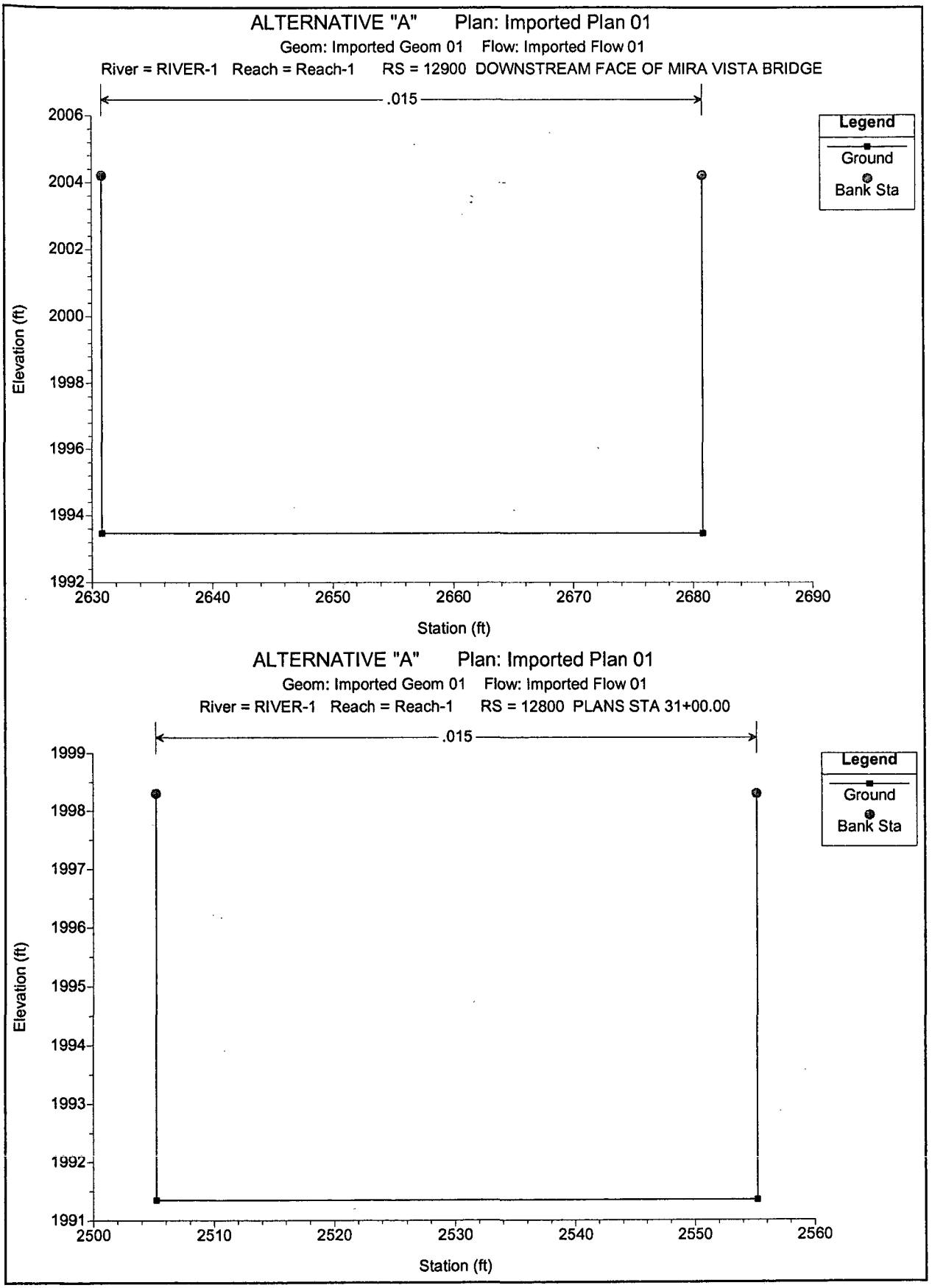

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13500 UPSTREAM FACE OF PACHUCA STREET BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
1400
1420
1440
1460
1480
1500
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13450 Bridge #6
.015
Legend
Ground
Bank Sta
Elevation (ft)
2035
2030
2025
2020
2015
2010
2005
2000
1400
1420
1440
1460
1480
1500
Station (ft)

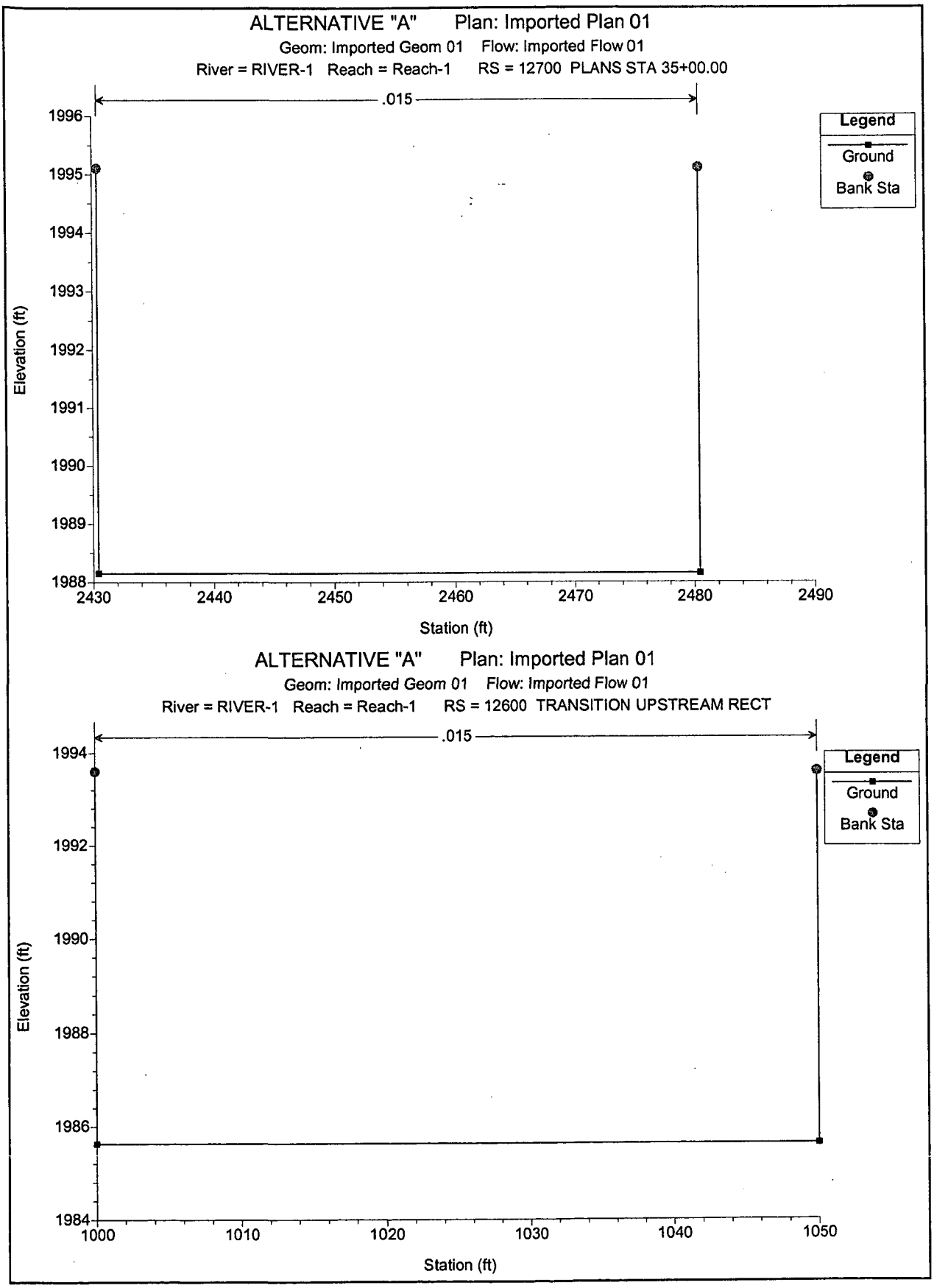

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13450 Bridge #6
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
2002
2780
2800
2820
2840
2860
2880
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13400 DOWNSTREAM FACE OF PACHUCA BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
2002
2780
2800
2820
2840
2860
2880
Station (ft)

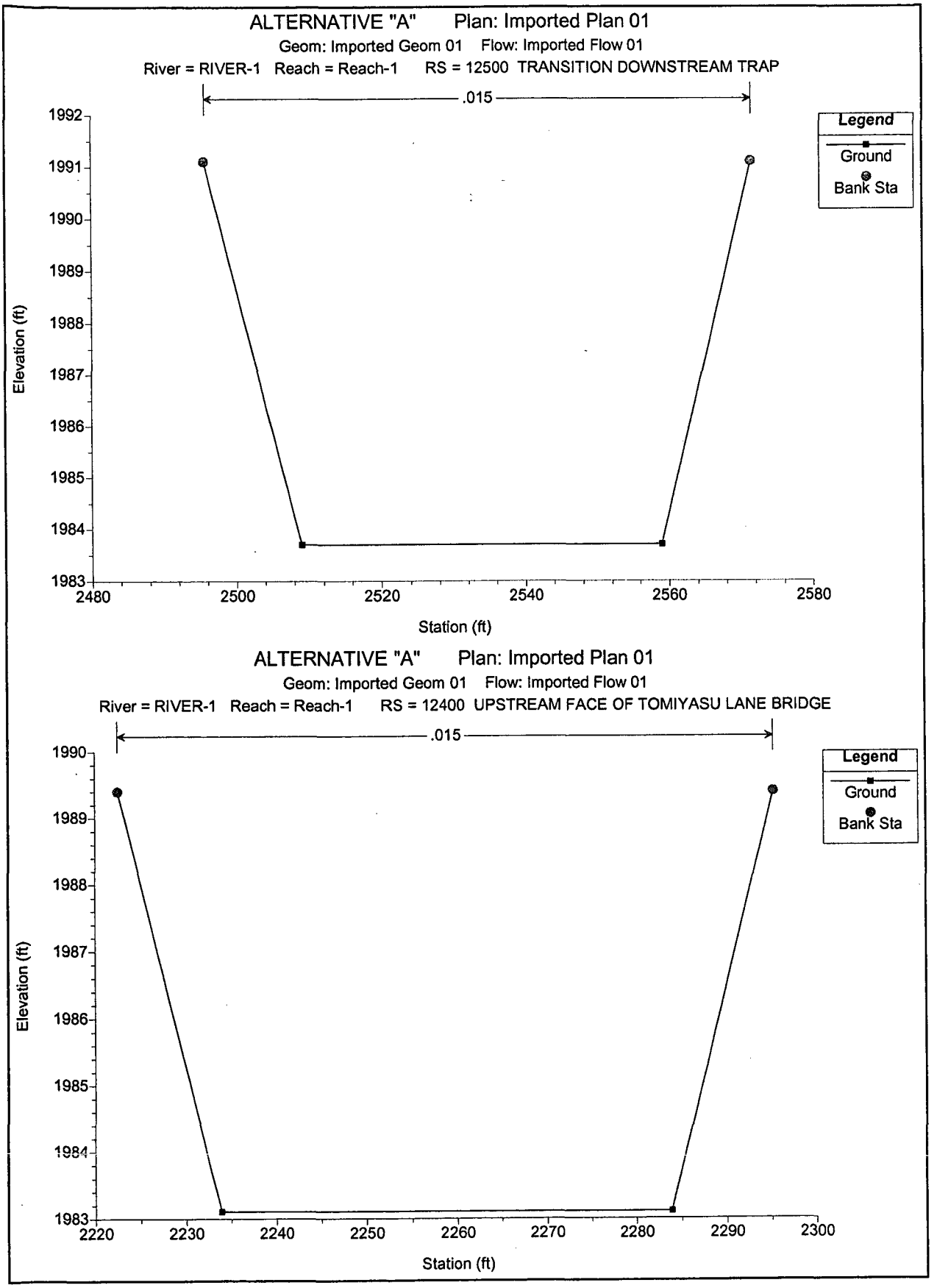

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13300 TRANSITION - UPSTREAM TRAP
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
2002
980
1000
1020
1040
1060
1080
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13200 TRANSITION - DOWNSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2009
2008
2007
2006
2005
2004
2003
2002
2001
990
1000
1010
1020
1030
1040
1050
Station (ft)

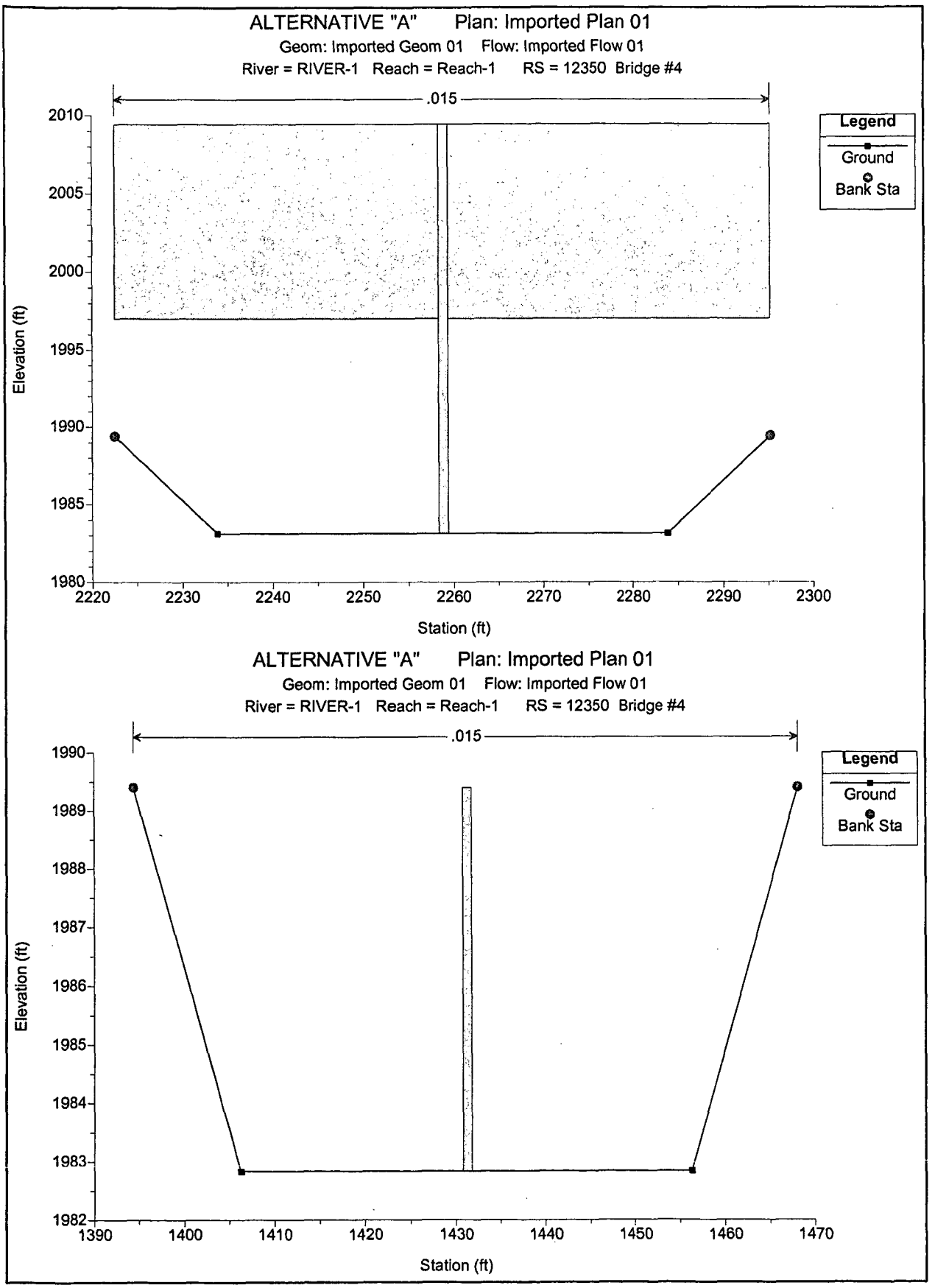

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13100 PLANS STA 27+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
2005
2004
2003
2002
2001
2000
1999
1998
990
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13000 UPSTREAM FACE OF MIRA VISTA STREET BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2006
2004
2002
2000
1998
1996
1994
1992
2580
2590
2600
2610
2620
2630
2640
Station (ft)

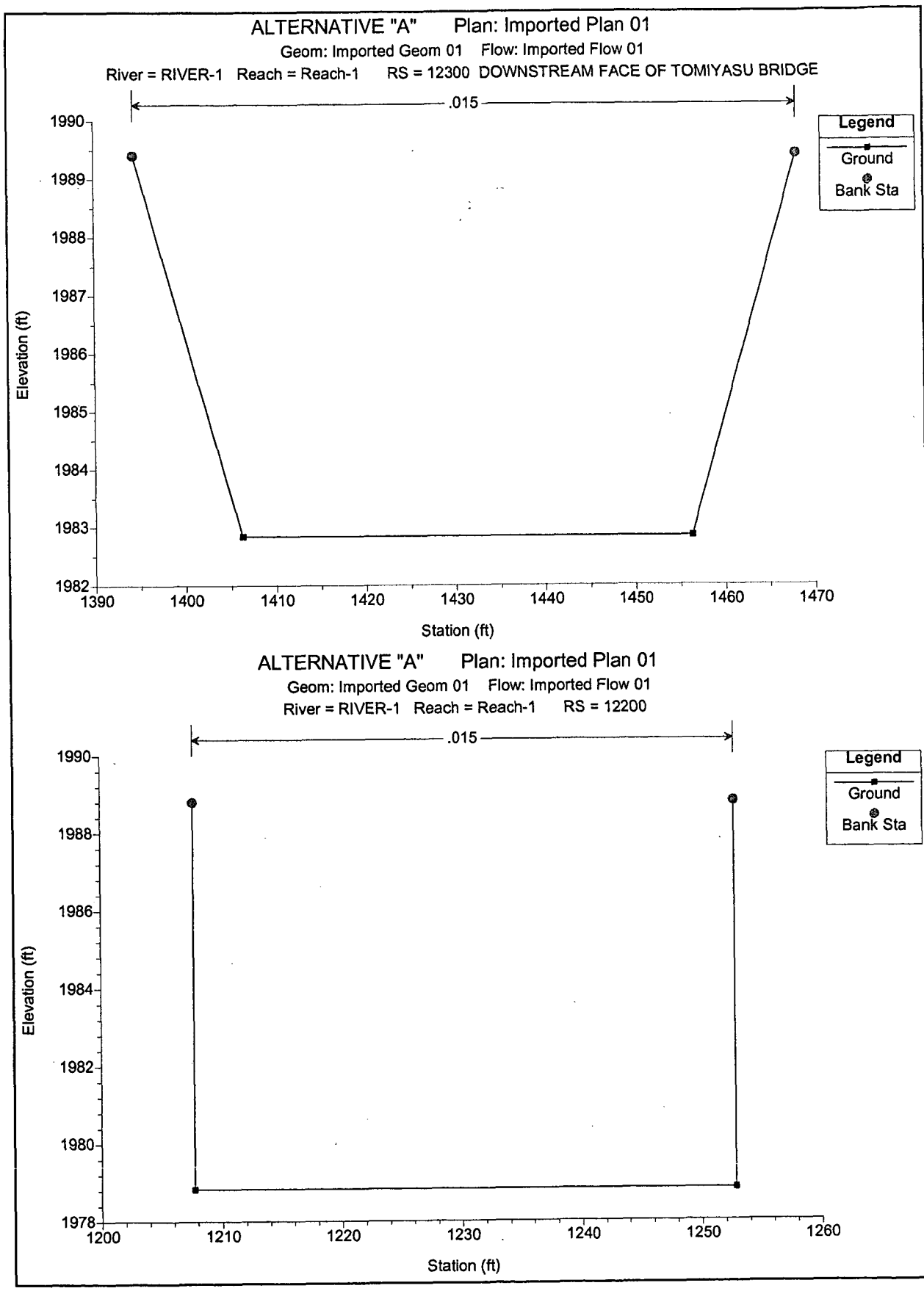

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12950 Bridge #5
.015
Legend
Ground
Bank Sta
Elevation (ft)
2025
2020
2015
2010
2005
2000
1995
1990
2580
2590
2600
2610
2620
2630
2640
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12950 Bridge #5
.015
Legend
Ground
Bank Sta
Elevation (ft)
2025
2020
2015
2010
2005
2000
1995
1990
2630
2640
2650
2660
2670
2680
2690
Station (ft)

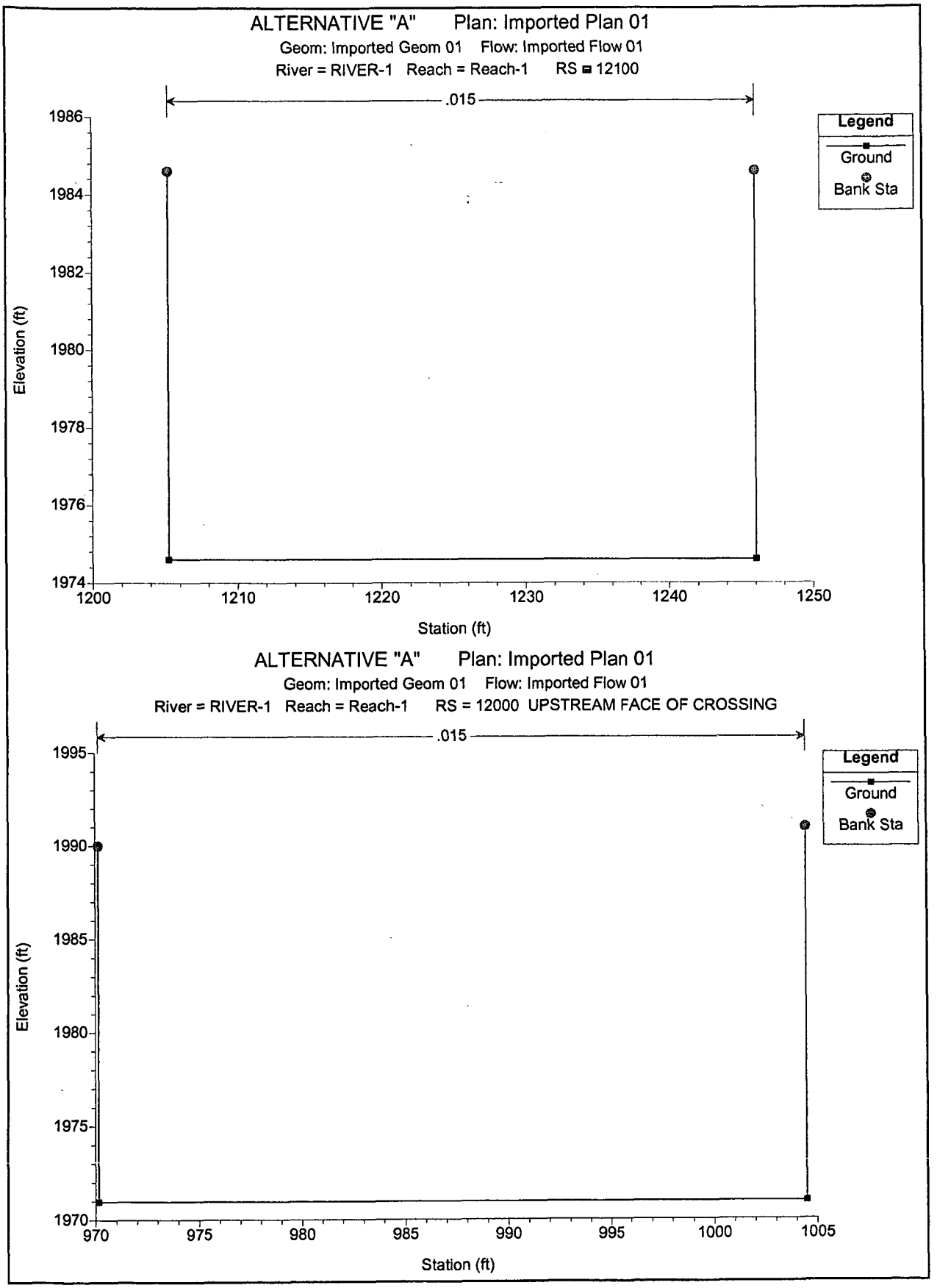

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12900 DOWNSTREAM FACE OF MIRA VISTA BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2006
2004
2002
2000
1998
1996
1994
1992
2630
2640
2650
2660
2670
2680
2690
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12800 PLANS STA 31+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
1999
1998
1997
1996
1995
1994
1993
1992
1991
2500
2510
2520
2530
2540
2550
2560
Station (ft)

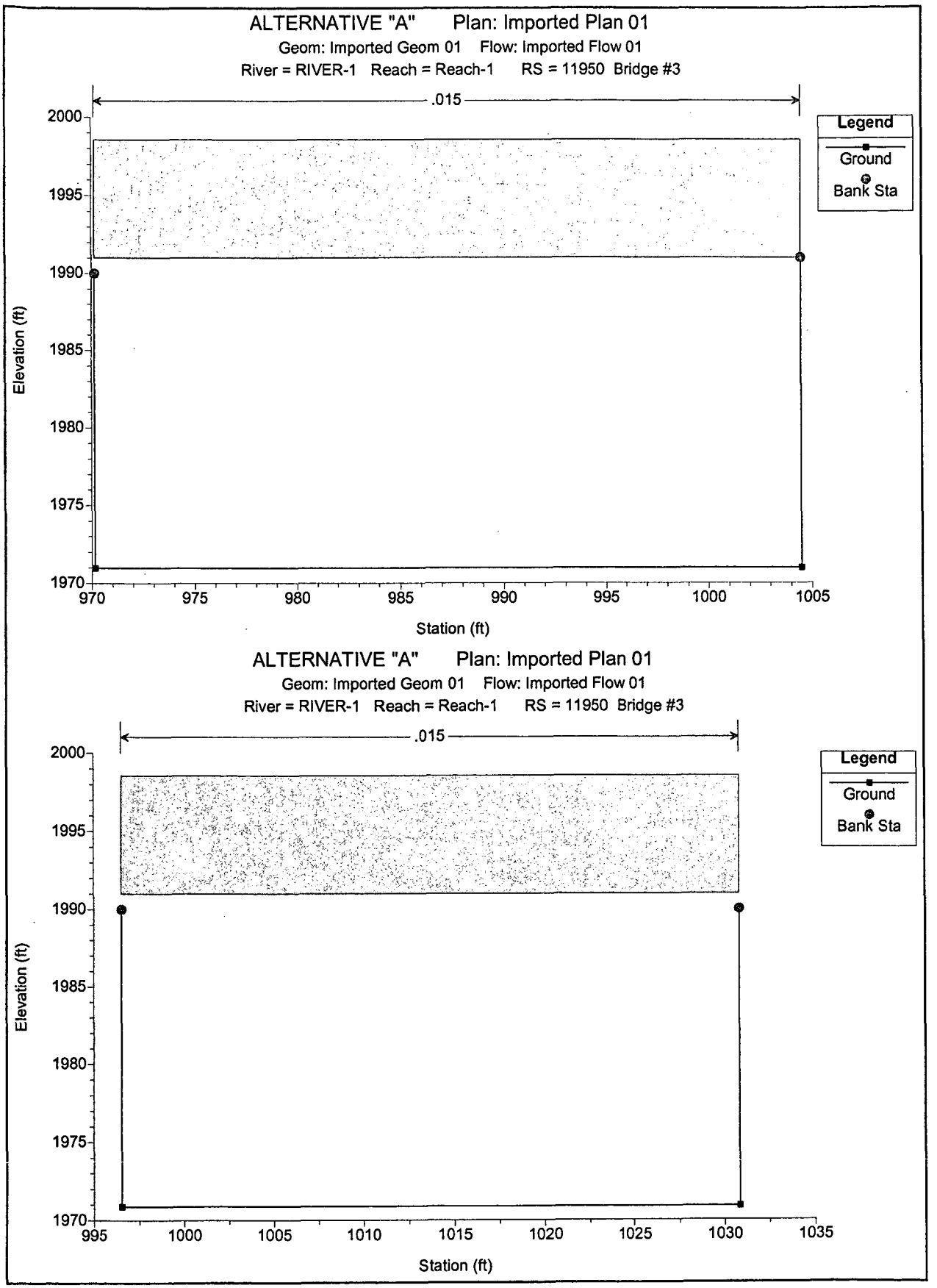

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12700 PLANS STA 35+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
1996
1995
1994
1993
1992
1991
1990
1989
1988
2430
2440
2450
2460
2470
2480
2490
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12600 TRANSITION UPSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
1994
1992
1990
1988
1986
1984
1000
1010
1020
1030
1040
1050
Station (ft)

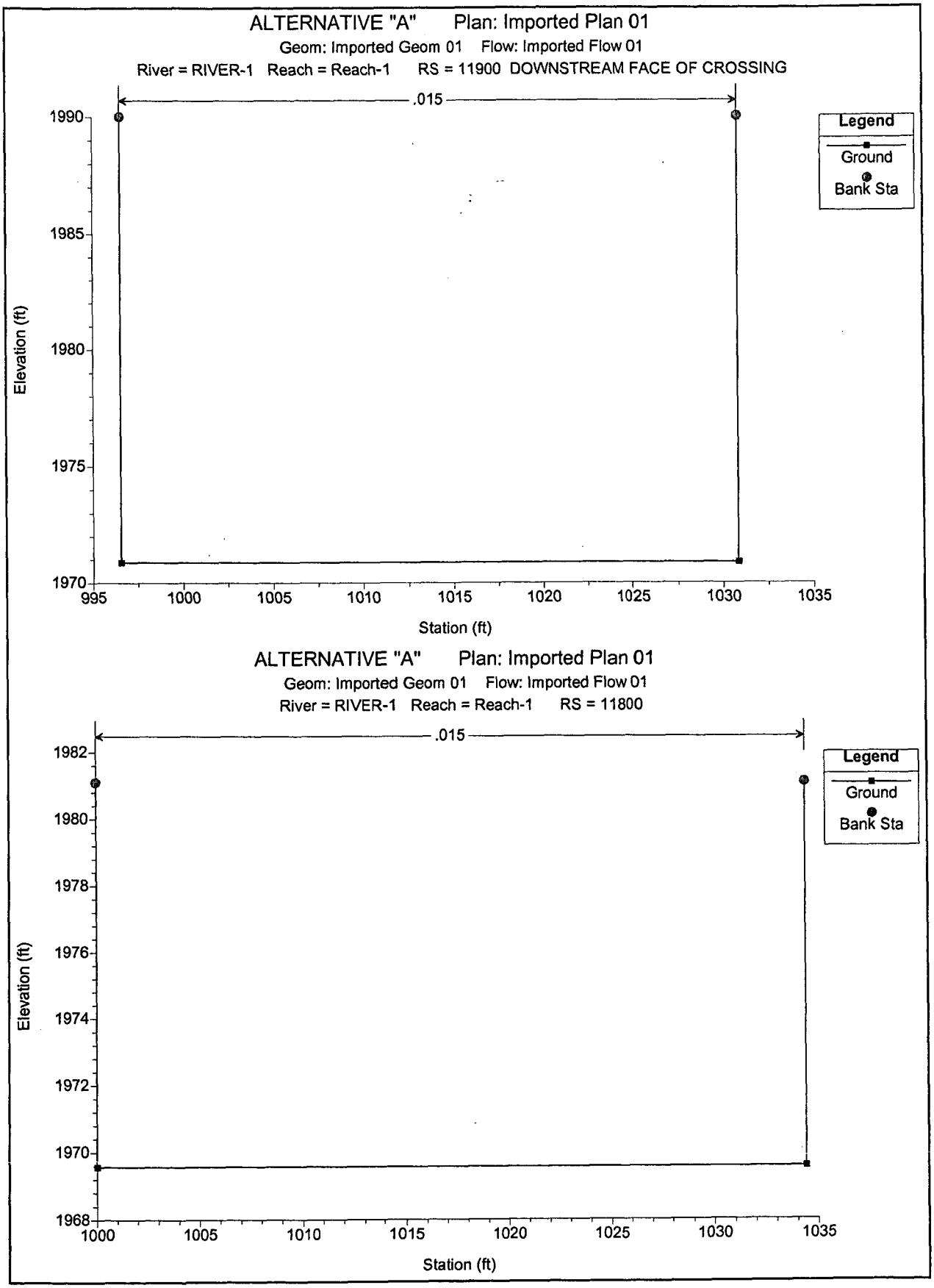

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12500 TRANSITION DOWNSTREAM TRAP
.015
Legend
Ground
Bank Sta
Elevation (ft)
1992
1991
1990
1989
1988
1987
1986
1985
1984
1983
2480
2500
2520
2540
2560
2580
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12400 UPSTREAM FACE OF TOMIYASU LANE BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1989
1988
1987
1986
1985
1984
1983
2220
2230
2240
2250
2260
2270
2280
2290
2300
Station (ft)

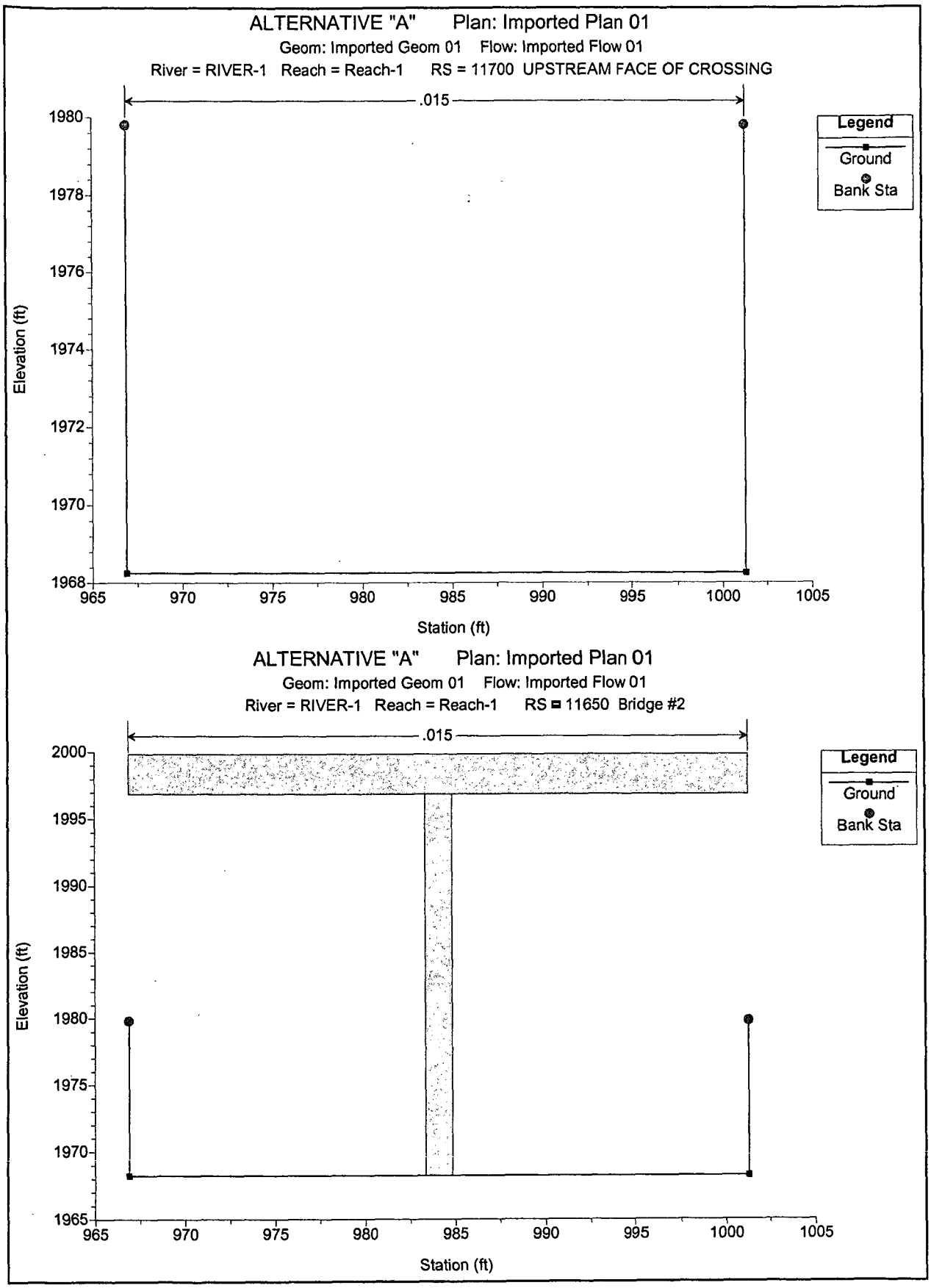

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12350 Bridge #4
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2005
2000
1995
1990
1985
1980
2220
2230
2240
2250
2260
2270
2280
2290
2300
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12350 Bridge #4
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1989
1988
1987
1986
1985
1984
1983
1982
1390
1400
1410
1420
1430
1440
1450
1460
1470
Station (ft)

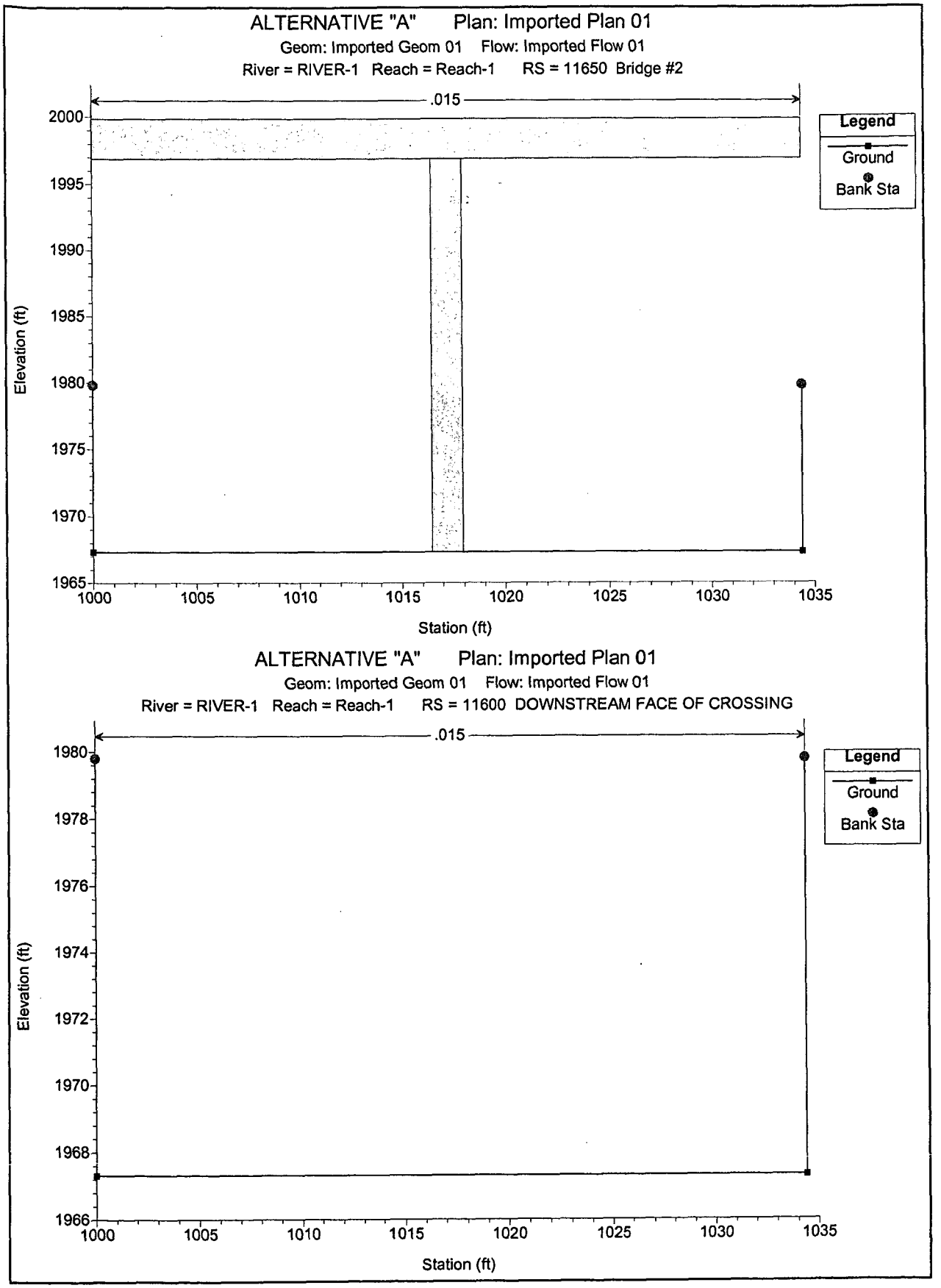

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12300 DOWNSTREAM FACE OF TOMIYASU BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1989
1988
1987
1986
1985
1984
1983
1982
1390
1400
1410
1420
1430
1440
1450
1460
1470
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12200
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1988
1986
1984
1982
1980
1978
1200
1210
1220
1230
1240
1250
1260
Station (ft)

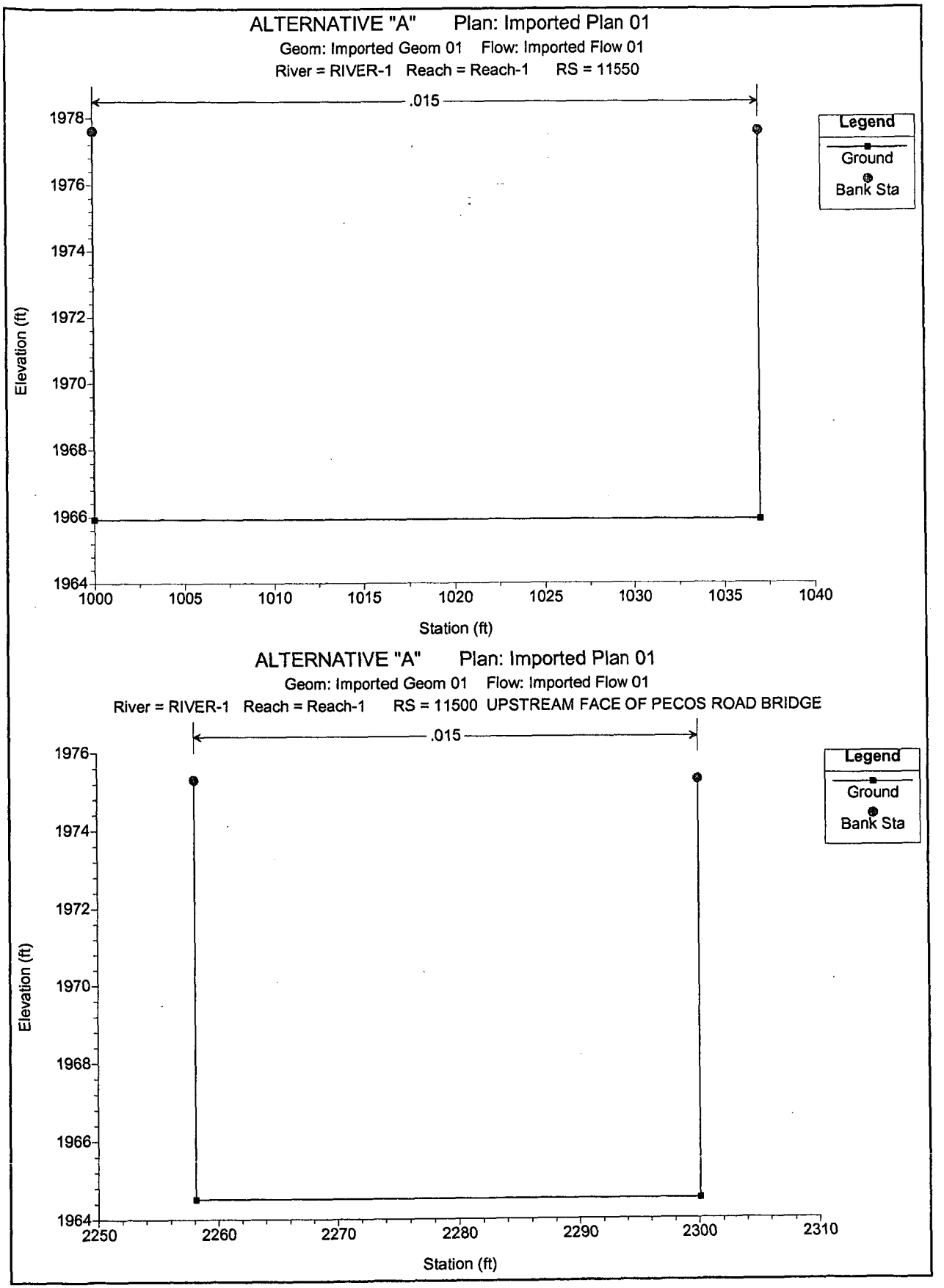

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12100
.015
Legend
Ground
Bank Sta
Elevation (ft)
1986
1984
1982
1980
1978
1976
1974
1200
1210
1220
1230
1240
1250
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12000 UPSTREAM FACE OF CROSSING
.015
Legend
Ground
Bank Sta
Elevation (ft)
1995
1990
1985
1980
1975
1970
970
975
980
985
990
995
1000
1005
Station (ft)

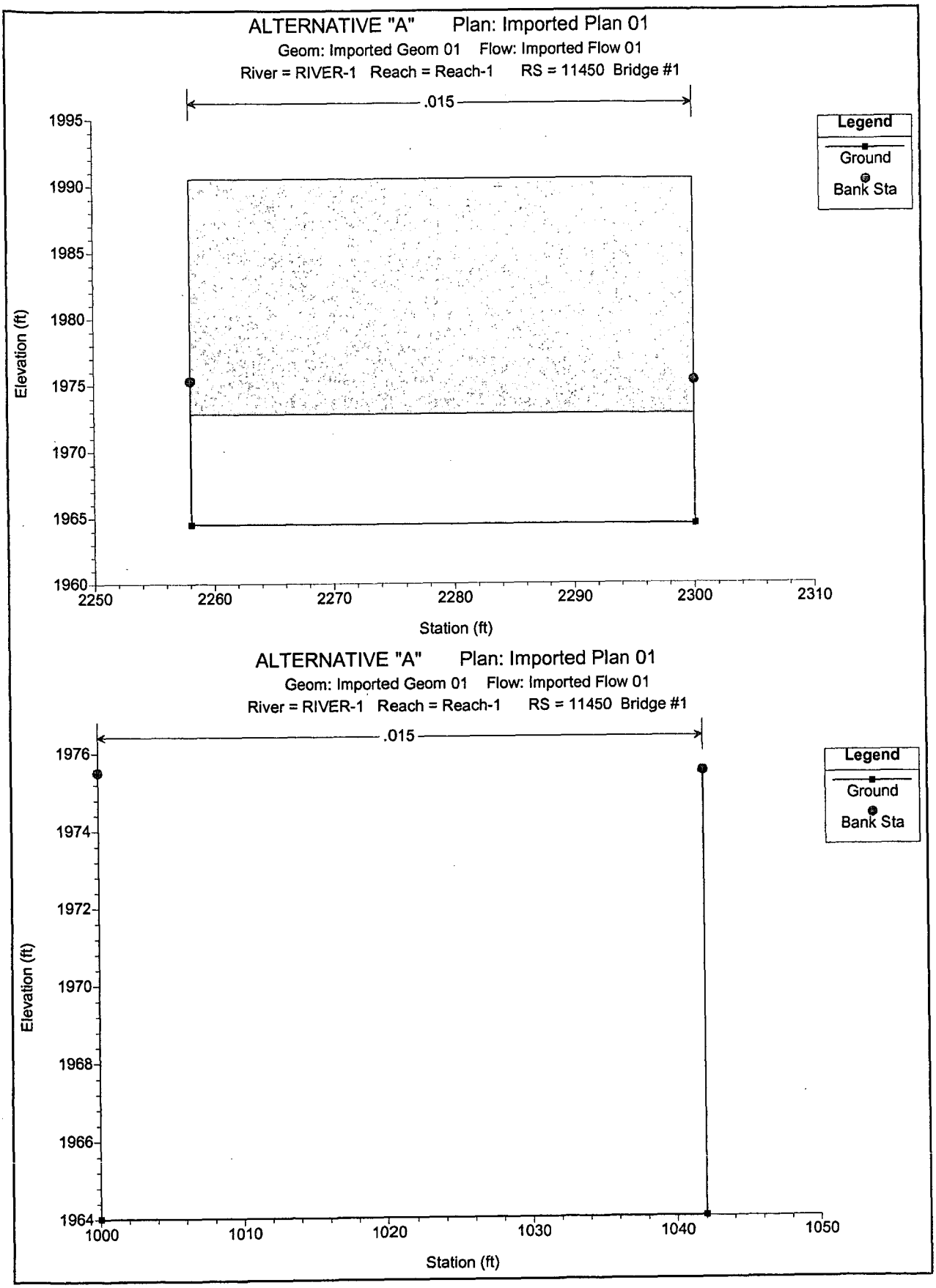

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11950 Bridge #3
.015
Legend
Ground
Bank Sta
Elevation (ft)
2000
1995
1990
1985
1980
1975
1970
970
975
980
985
990
995
1000
1005
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11950 Bridge #3
.015
Legend
Ground
Bank Sta
Elevation (ft)
2000
1995
1990
1985
1980
1975
1970
995
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)

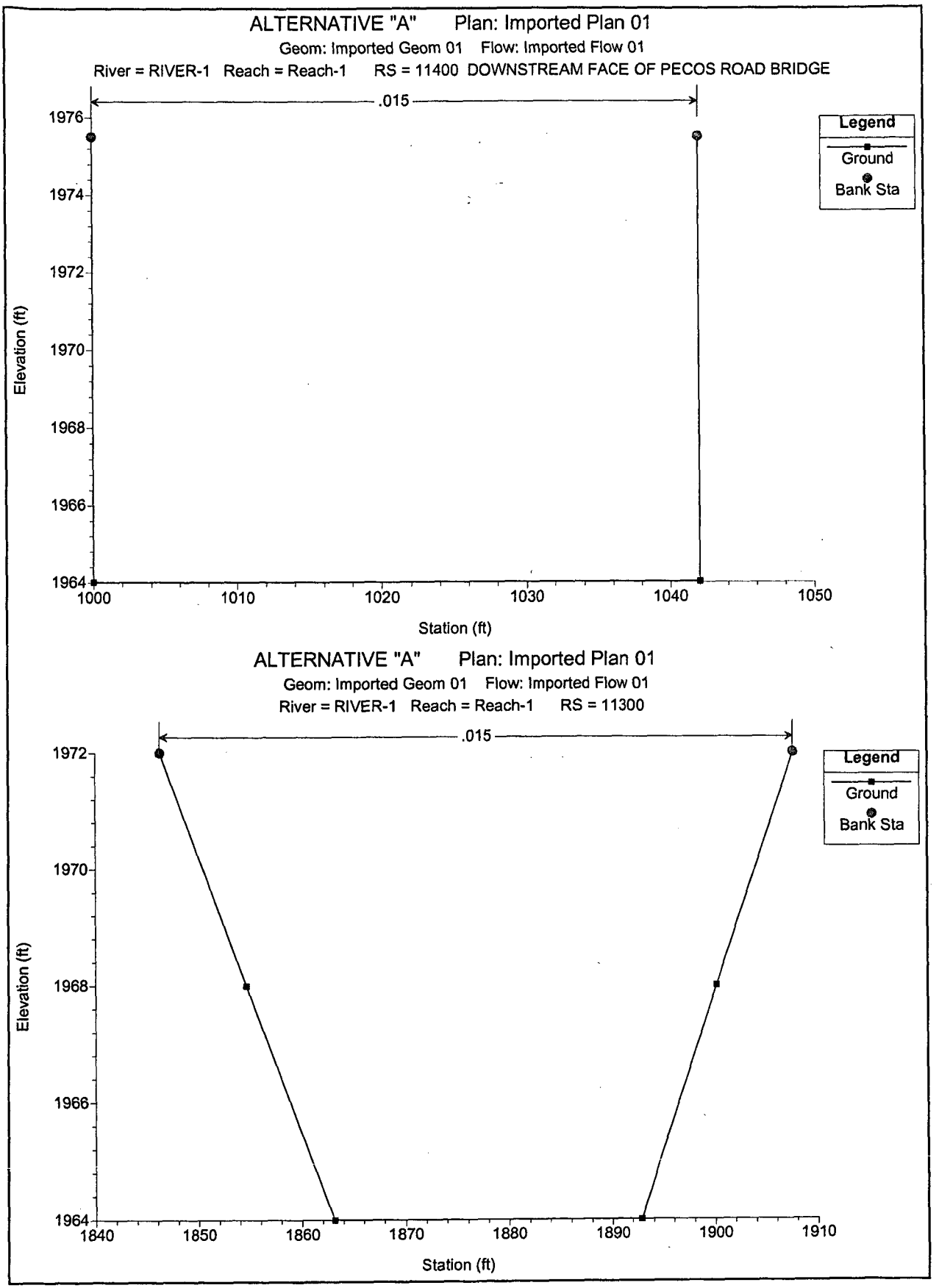

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11900 DOWNSTREAM FACE OF CROSSING
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1985
1980
1975
1970
995
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11800
.015
Legend
Ground
Bank Sta
Elevation (ft)
1982
1980
1978
1976
1974
1972
1970
1968
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)

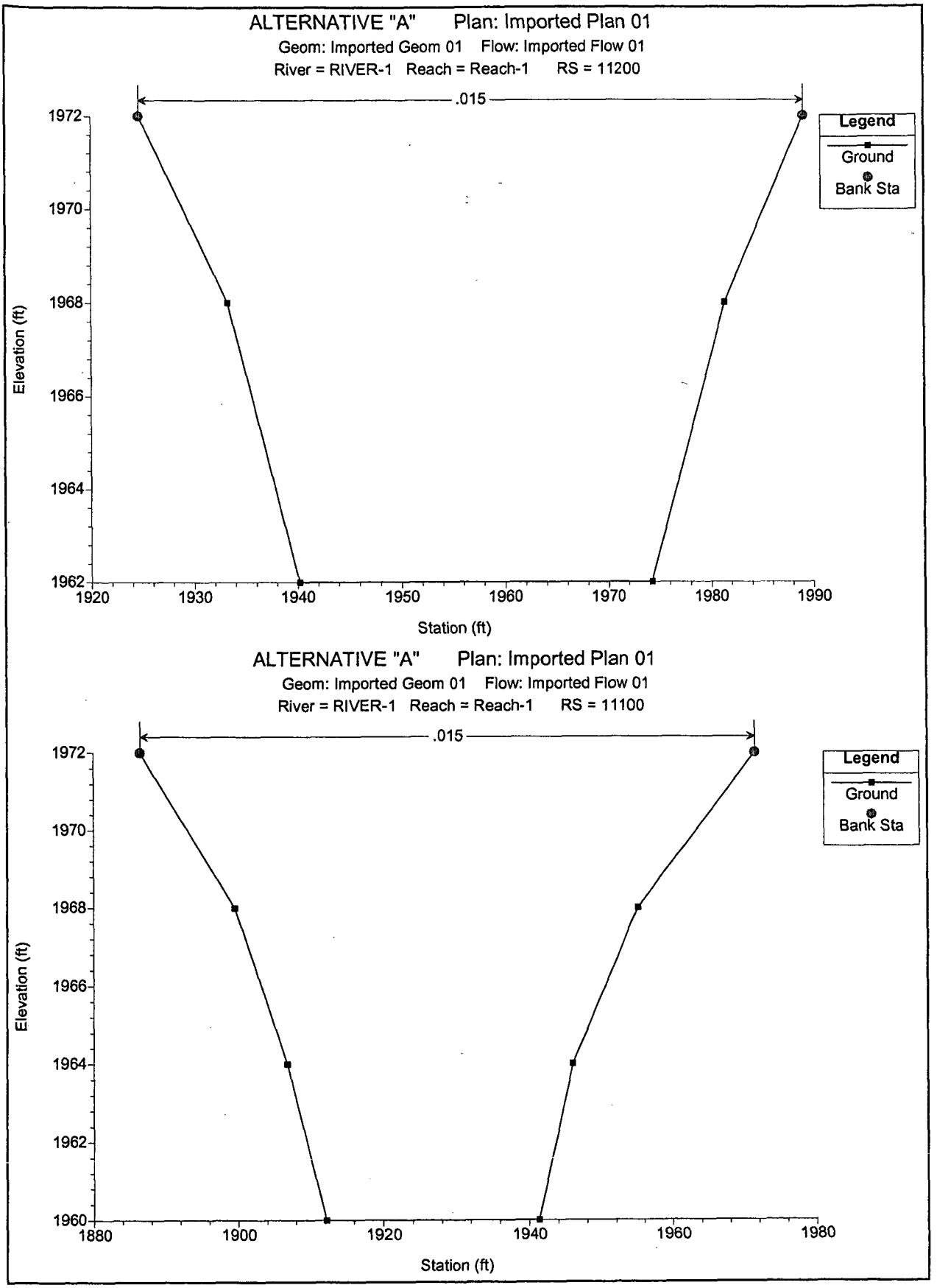

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11700 UPSTREAM FACE OF CROSSING
.015
Legend
Ground
Bank Sta
Elevation (ft)
1980
1978
1976
1974
1972
1970
1968
965
970
975
980
985
990
995
1000
1005
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11650 Bridge #2
.015
Legend
Ground
Bank Sta
Elevation (ft)
2000
1995
1990
1985
1980
1975
1970
1965
965
970
975
980
985
990
995
1000
1005
Station (ft)

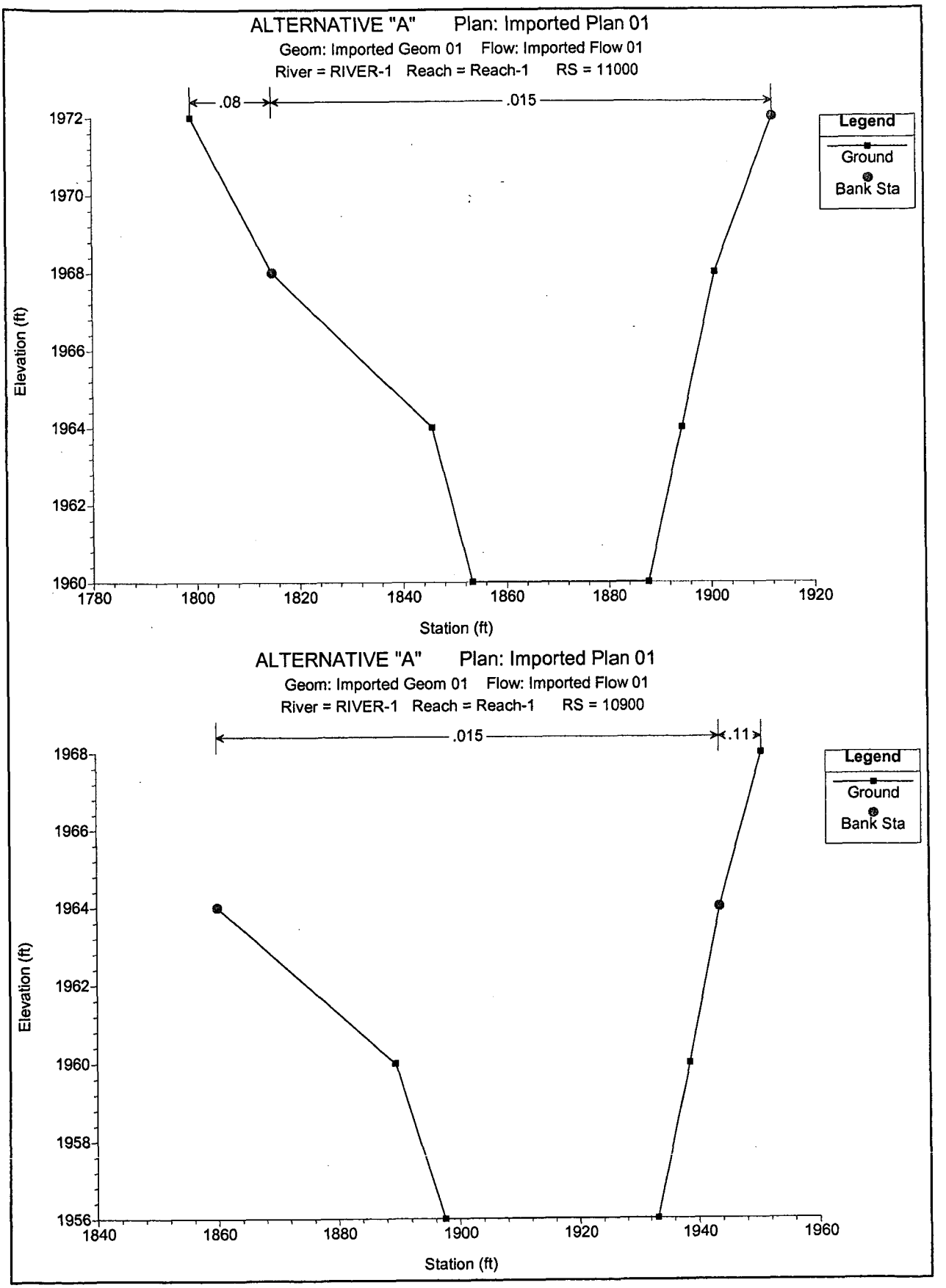

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11650 Bridge #2
.015
Legend
Ground
Bank Sta
Elevation (ft)
2000
1995
1990
1985
1980
1975
1970
1965
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11600 DOWNSTREAM FACE OF CROSSING
.015
Legend
Ground
Bank Sta
Elevation (ft)
1980
1978
1976
1974
1972
1970
1968
1966
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)

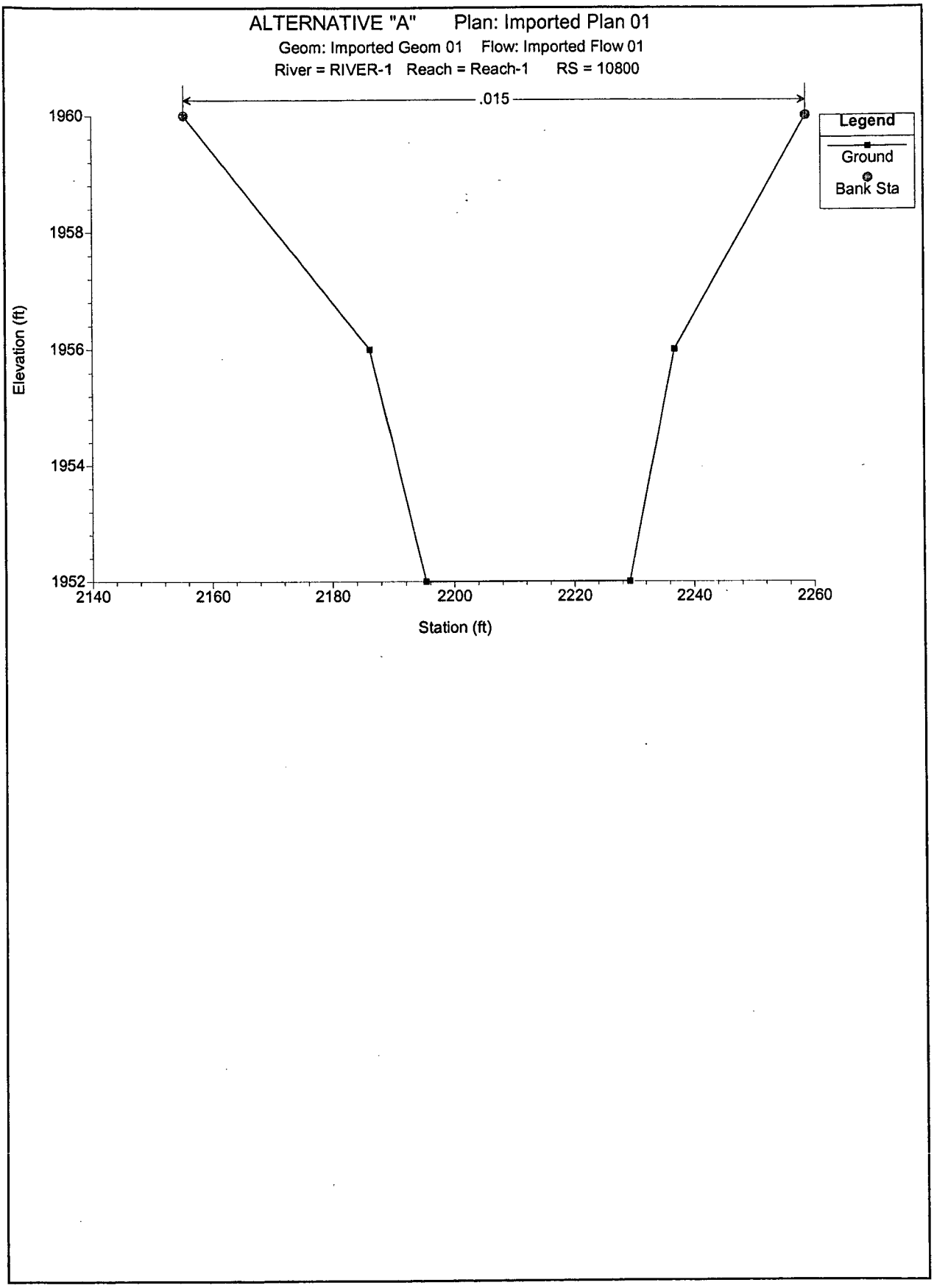

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11550
.015
Legend
Ground
Bank Sta
Elevation (ft)
1978
1976
1974
1972
1970
1968
1966
1964
1000
1005
1010
1015
1020
1025
1030
1035
1040
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11500 UPSTREAM FACE OF PECOS ROAD BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
1976
1974
1972
1970
1968
1966
1964
2250
2260
2270
2280
2290
2300
2310
Station (ft)


ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11450 Bridge #1
.015
Legend
Ground
Bank Sta
Elevation (ft)
1995
1990
1985
1980
1975
1970
1965
1960
2250
2260
2270
2280
2290
2300
2310
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11450 Bridge #1
.015
Legend
Ground
Bank Sta
Elevation (ft)
1976
1974
1972
1970
1968
1966
1964
1000
1010
1020
1030
1040
1050
Station (ft)

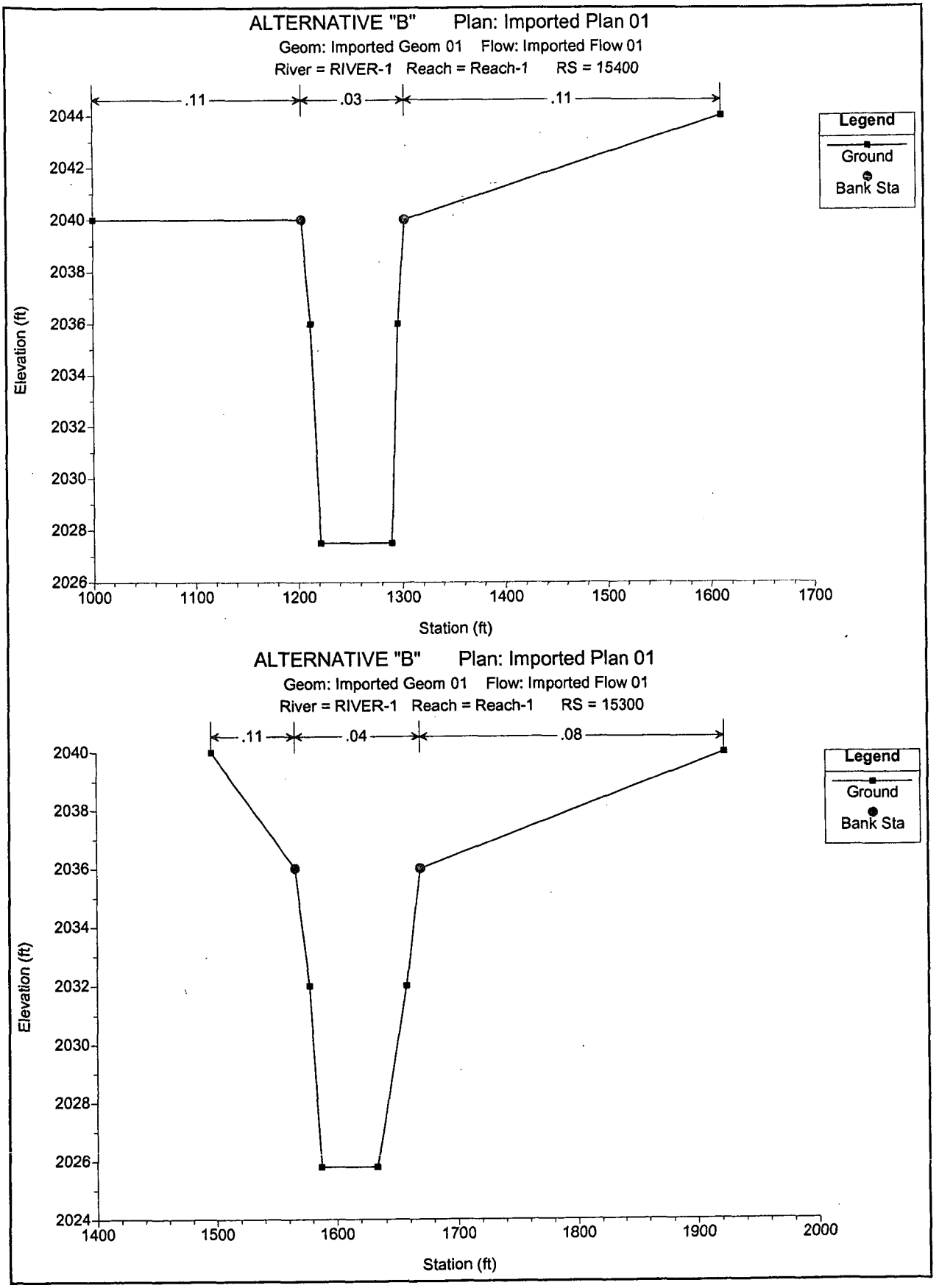

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11400 DOWNSTREAM FACE OF PECOS ROAD BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
1976
1974
1972
1970
1968
1966
1964
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11300
.015
Legend
Ground
Bank Sta
Elevation (ft)
1972
1970
1968
1966
1964
1840
1850
1860
1870
1880
1890
1900
1910
Station (ft)

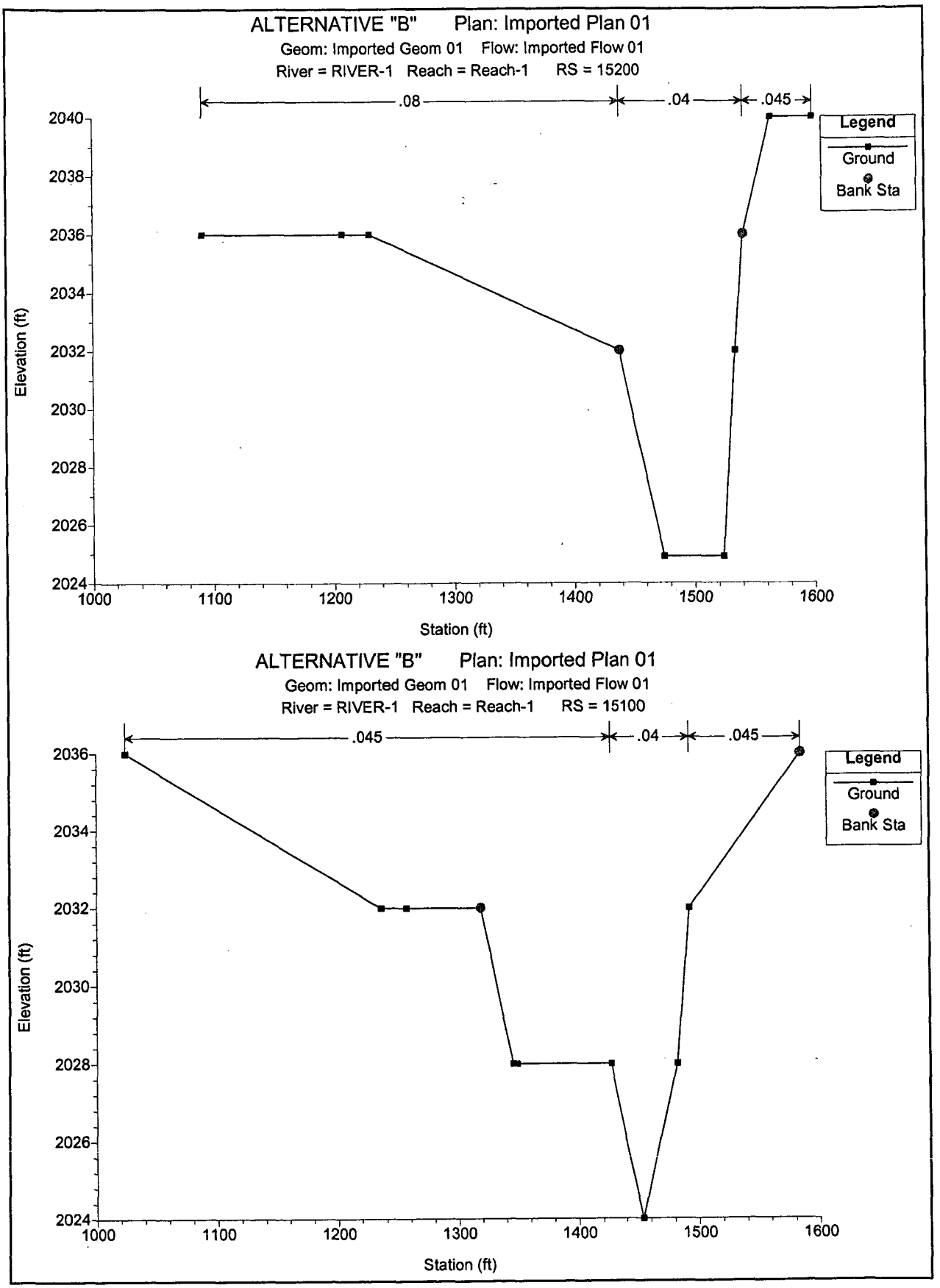

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11200
.015
Legend
Ground
Bank Sta
Elevation (ft)
1972
1970
1968
1966
1964
1962
1920
1930
1940
1950
1960
1970
1980
1990
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11100
.015
Legend
Ground
Bank Sta
Elevation (ft)
1972
1970
1968
1966
1964
1962
1960
1880
1900
1920
1940
1960
1980
Station (ft)

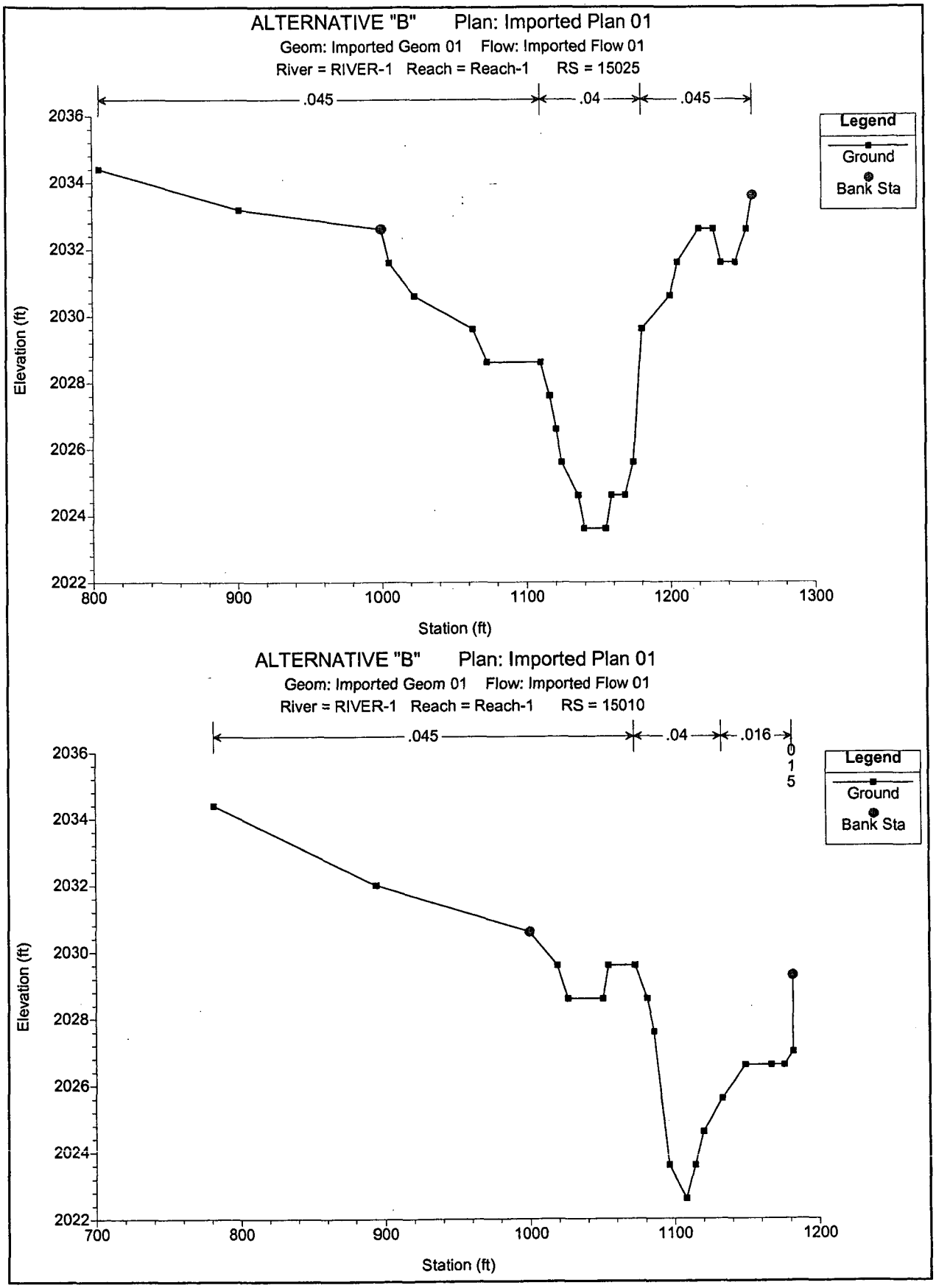

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11000
.08
.015
Legend
Ground
Bank Sta
Elevation (ft)
1972
1970
1968
1966
1964
1962
1960
1780
1800
1820
1840
1860
1880
1900
1920
Station (ft)
ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 10900
.015
.11
Legend
Ground
Bank Sta
Elevation (ft)
1968
1966
1964
1962
1960
1958
1956
1840
1860
1880
1900
1920
1940
1960
Station (ft)

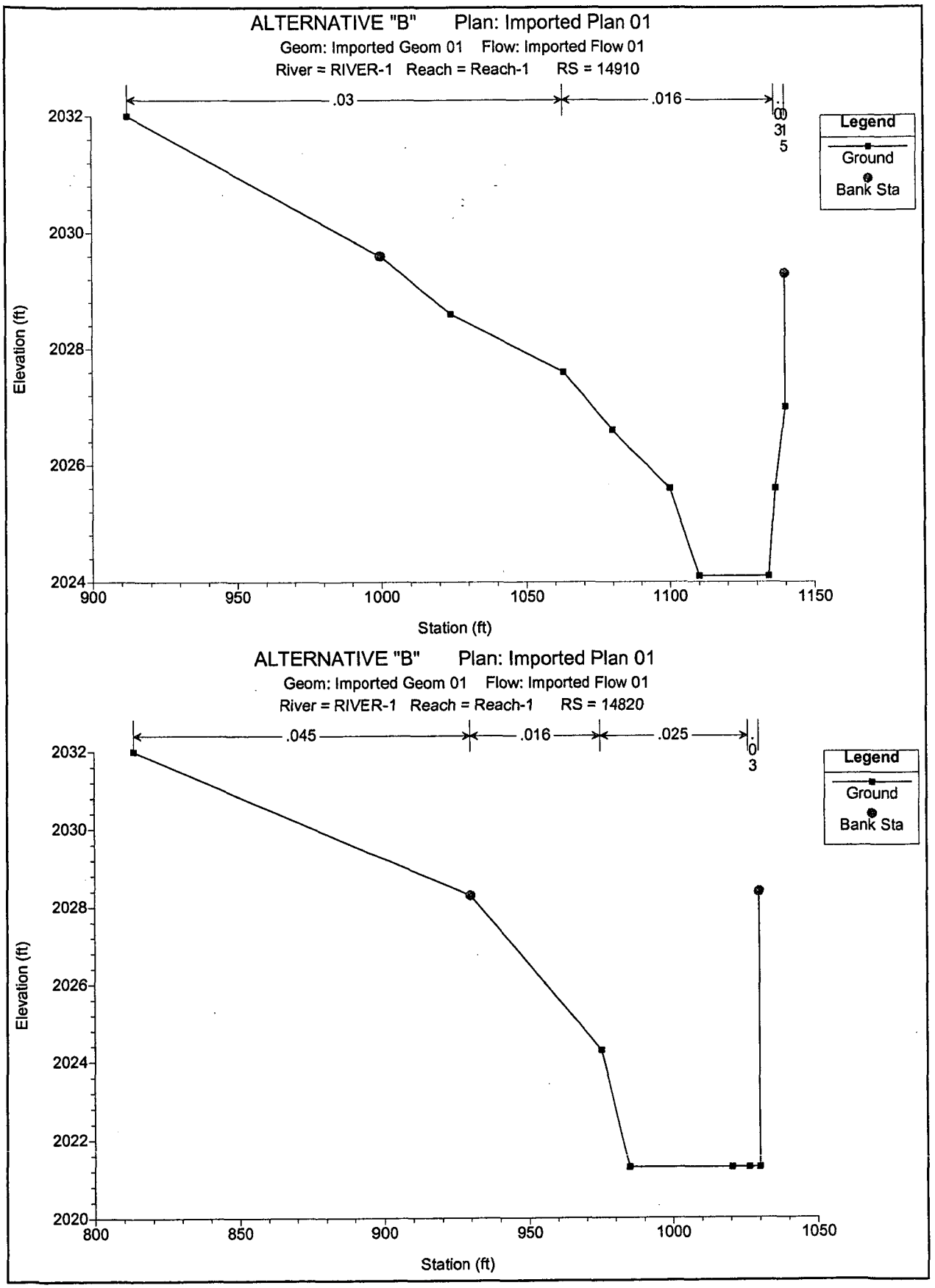

ALTERNATIVE "A" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 10800
.015
Legend
Ground
Bank Sta
Elevation (ft)
1960
1958
1956
1954
1952
2140
2160
2180
2200
2220
2240
2260
Station (ft)

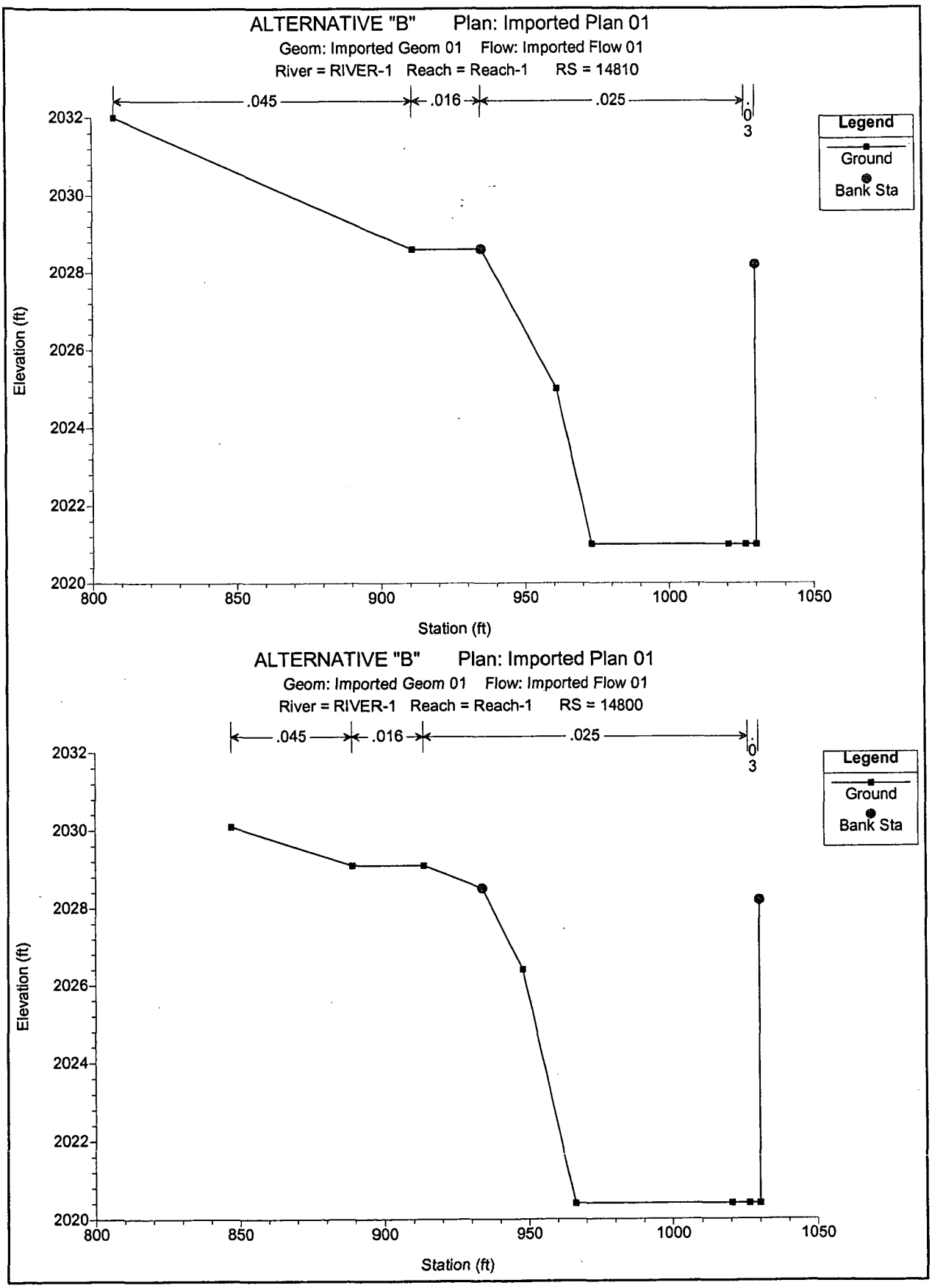
# HEC-2 CROSS SECTIONS
# ALT-B.OUT

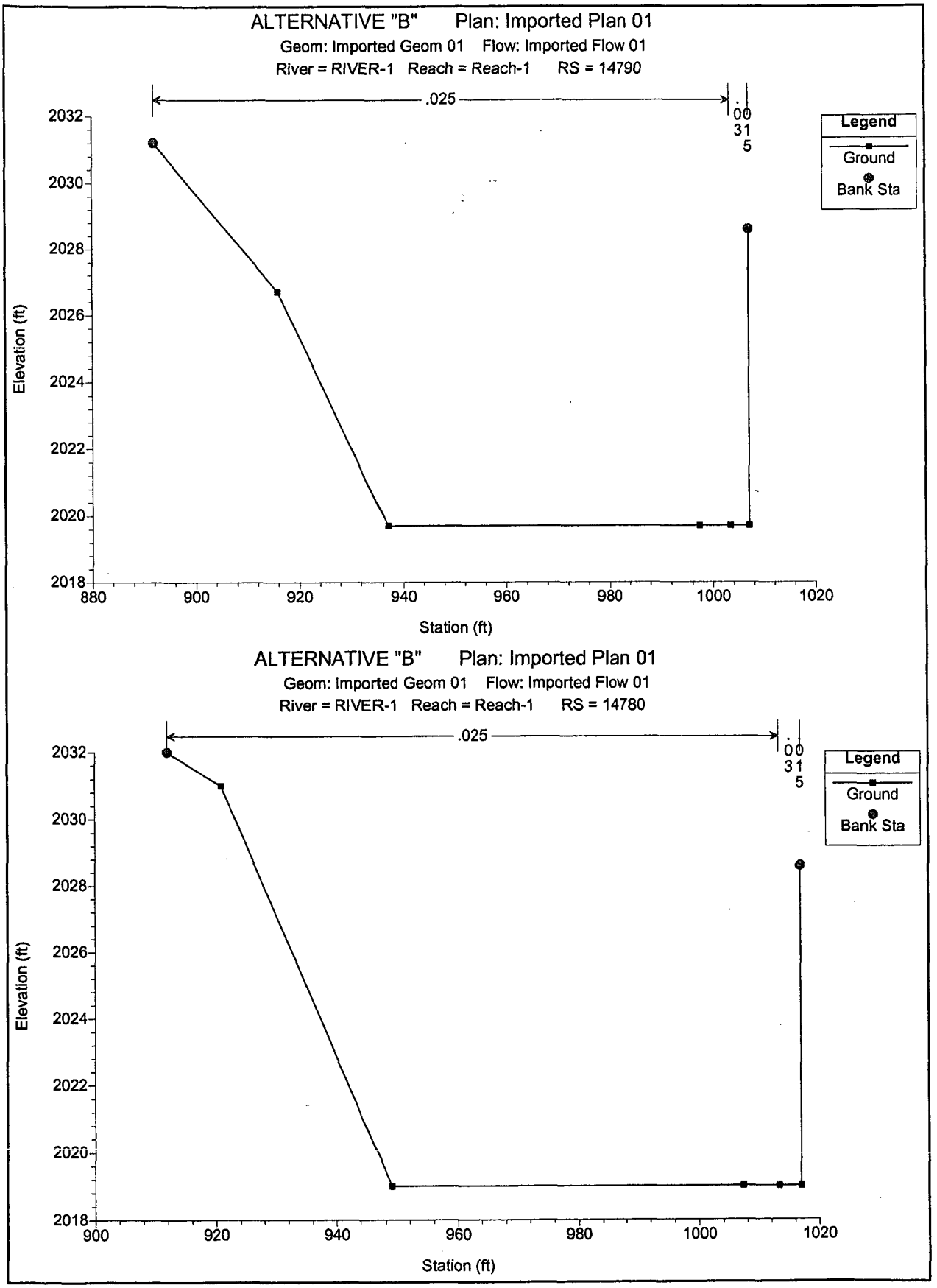

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15400
.11
.03
.11
Legend
Ground
Bank Sta
Elevation (ft)
2044
2042
2040
2038
2036
2034
2032
2030
2028
2026
1000
1100
1200
1300
1400
1500
1600
1700
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15300
.11
.04
.08
Legend
Ground
Bank Sta
Elevation (ft)
2040
2038
2036
2034
2032
2030
2028
2026
2024
1400
1500
1600
1700
1800
1900
2000
Station (ft)

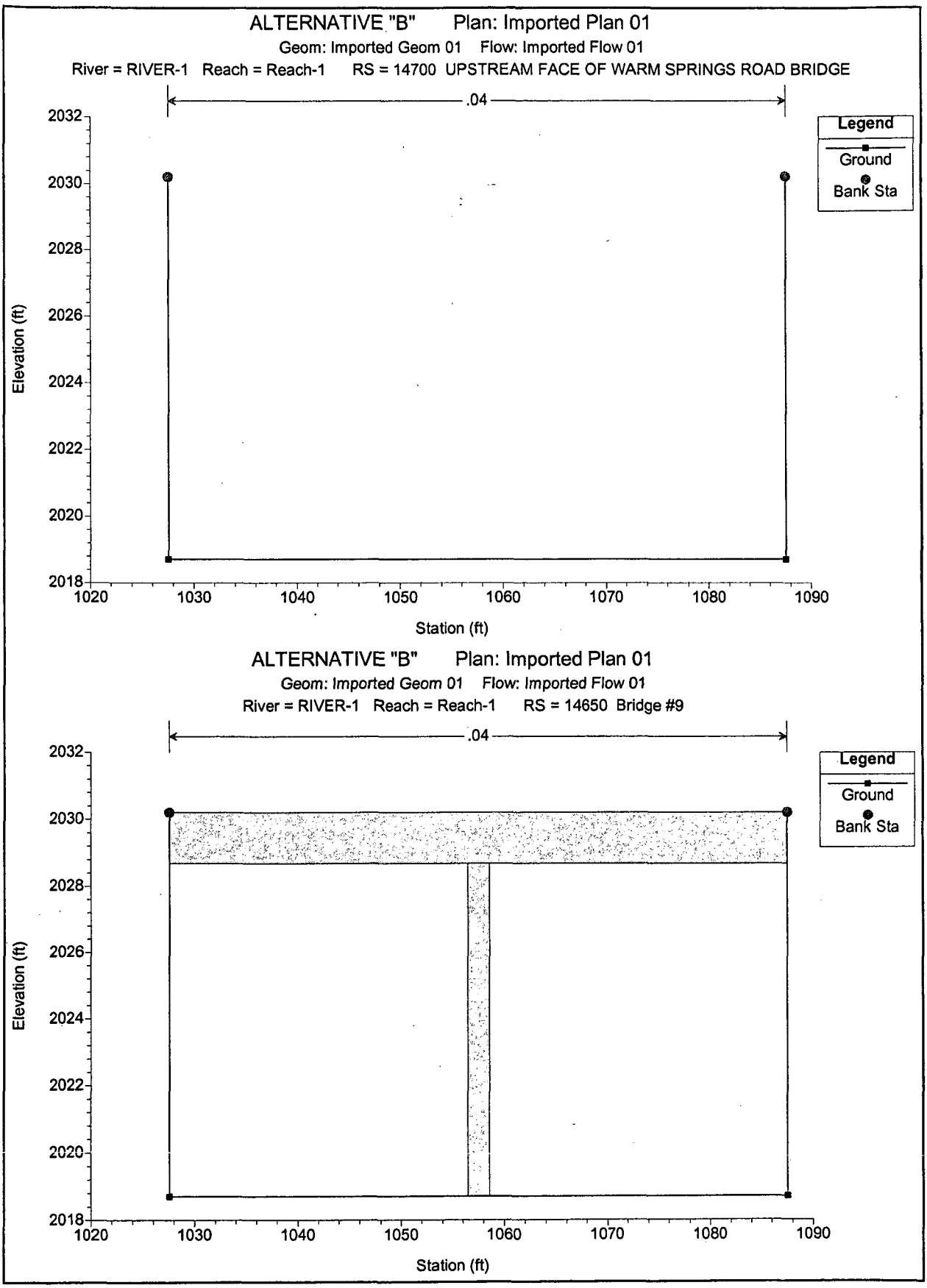

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15200
.08
.04
.045
Legend
Ground
Bank Sta
Elevation (ft)
2040
2038
2036
2034
2032
2030
2028
2026
2024
1000
1100
1200
1300
1400
1500
1600
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15100
.045
.04
.045
Legend
Ground
Bank Sta
Elevation (ft)
2036
2034
2032
2030
2028
2026
2024
1000
1100
1200
1300
1400
1500
1600
Station (ft)

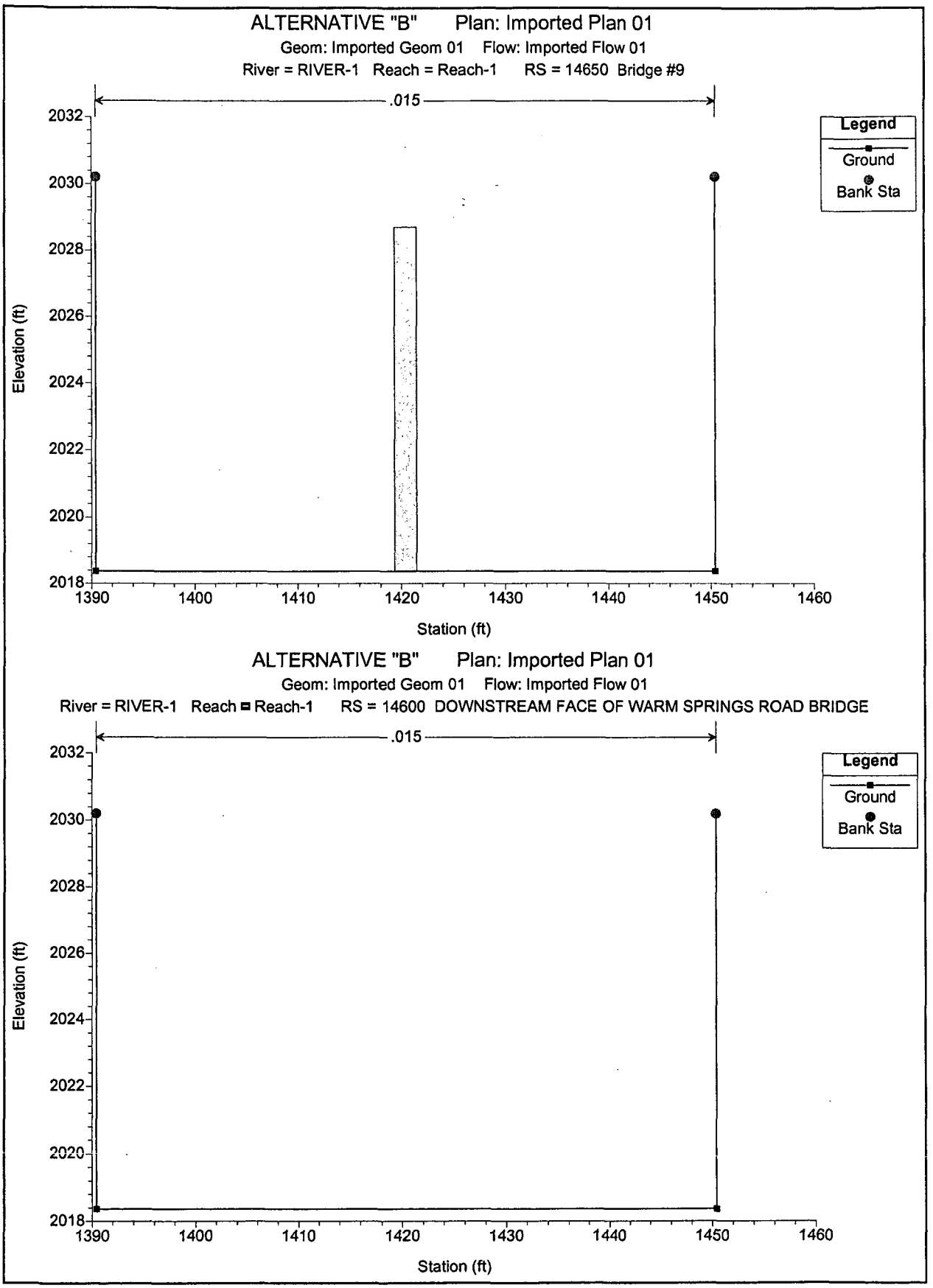

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15025
.045
.04
.045
Legend
Ground
Bank Sta
Elevation (ft)
2036
2034
2032
2030
2028
2026
2024
2022
800
900
1000
1100
1200
1300
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15010
.045
.04
.016
0
1
5
Legend
Ground
Bank Sta
Elevation (ft)
2036
2034
2032
2030
2028
2026
2024
2022
700
800
900
1000
1100
1200
Station (ft)

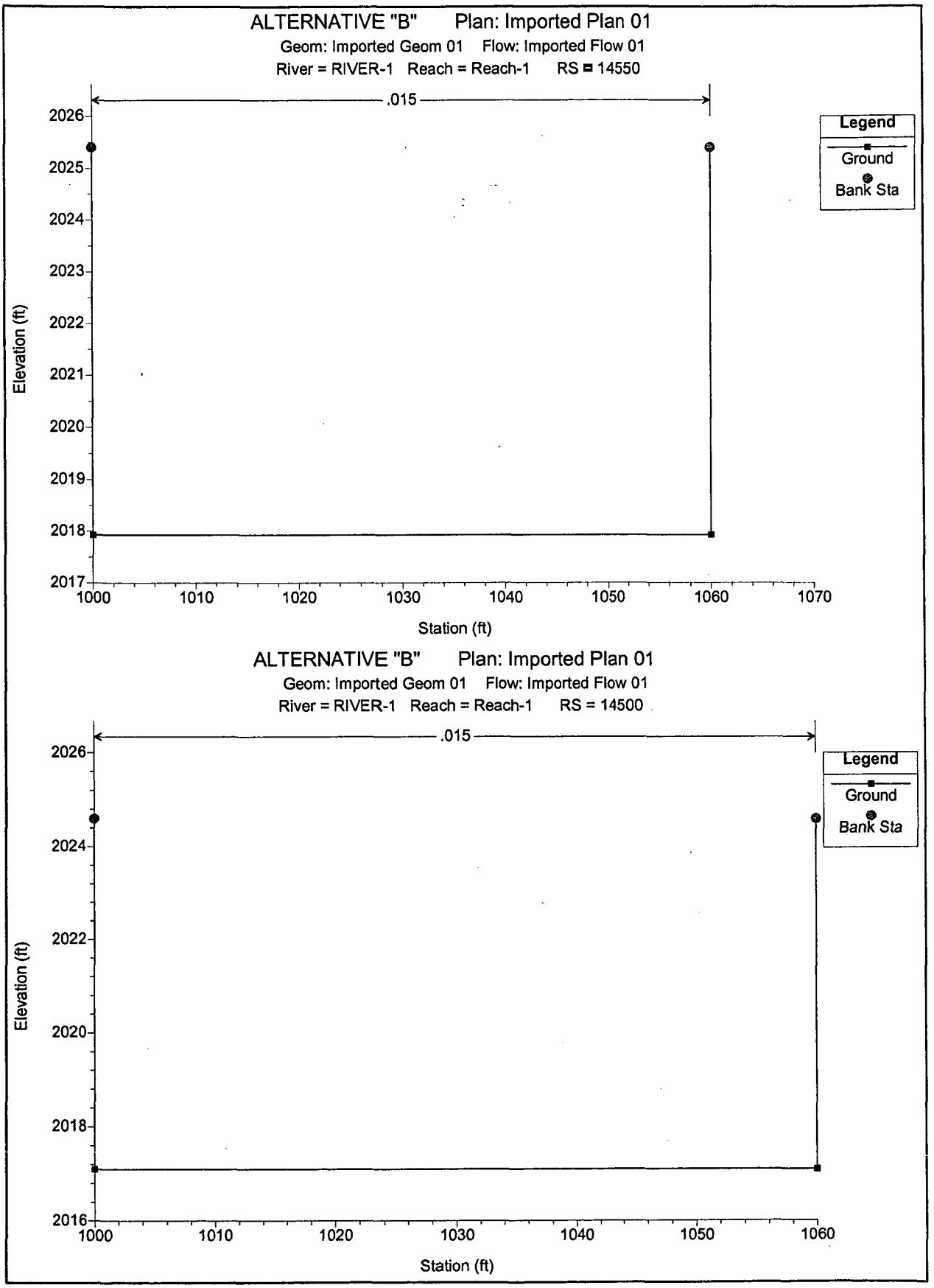

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14910
.03
.016
.00
31
5
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
900
950
1000
1050
1100
1150
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14820
.045
.016
.025
.0
3
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
800
850
900
950
1000
1050
Station (ft)

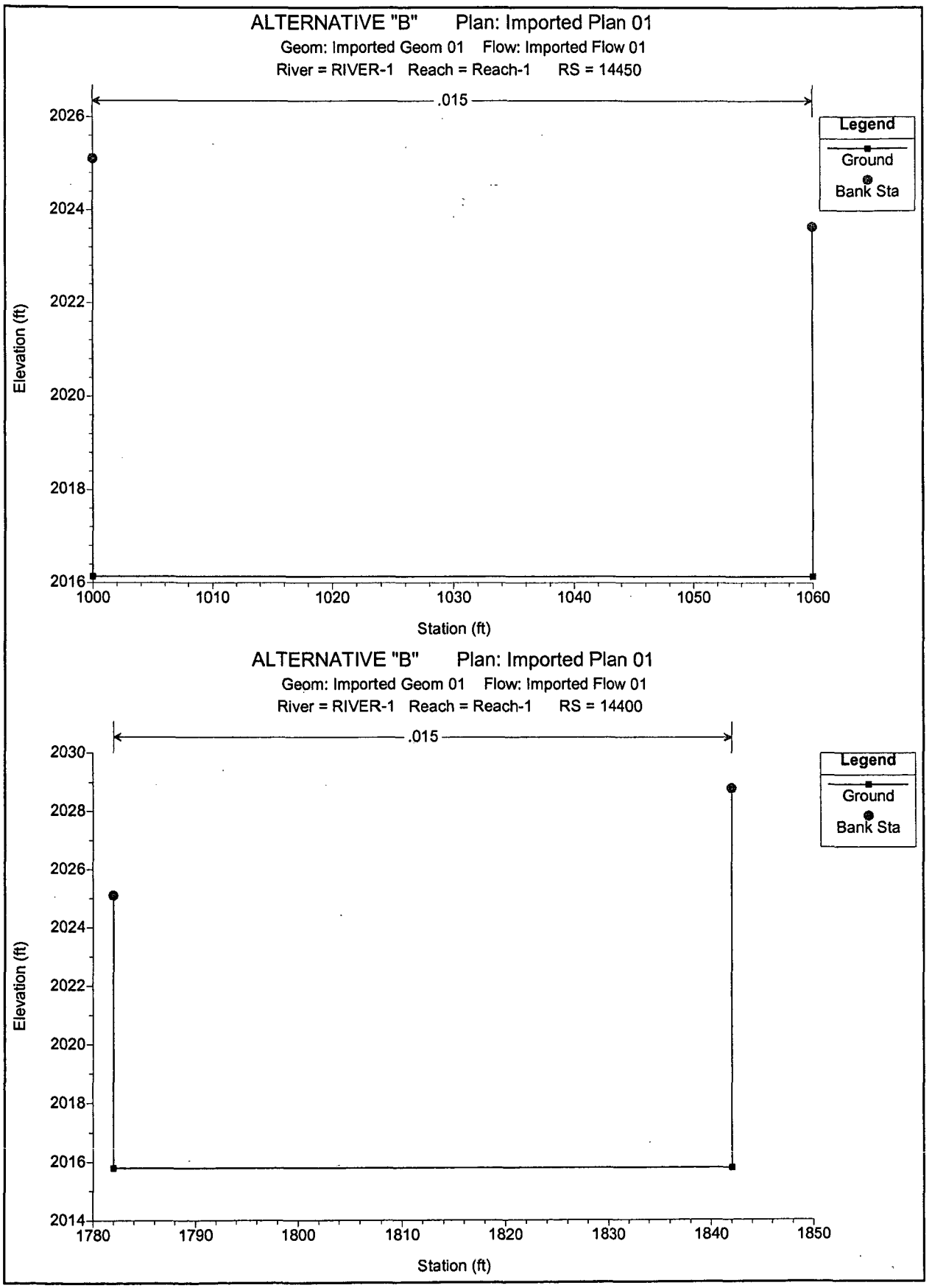

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14810
.045
.016
.025
.03
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
800
850
900
950
1000
1050
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14800
.045
.016
.025
.03
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
800
850
900
950
1000
1050
Station (ft)

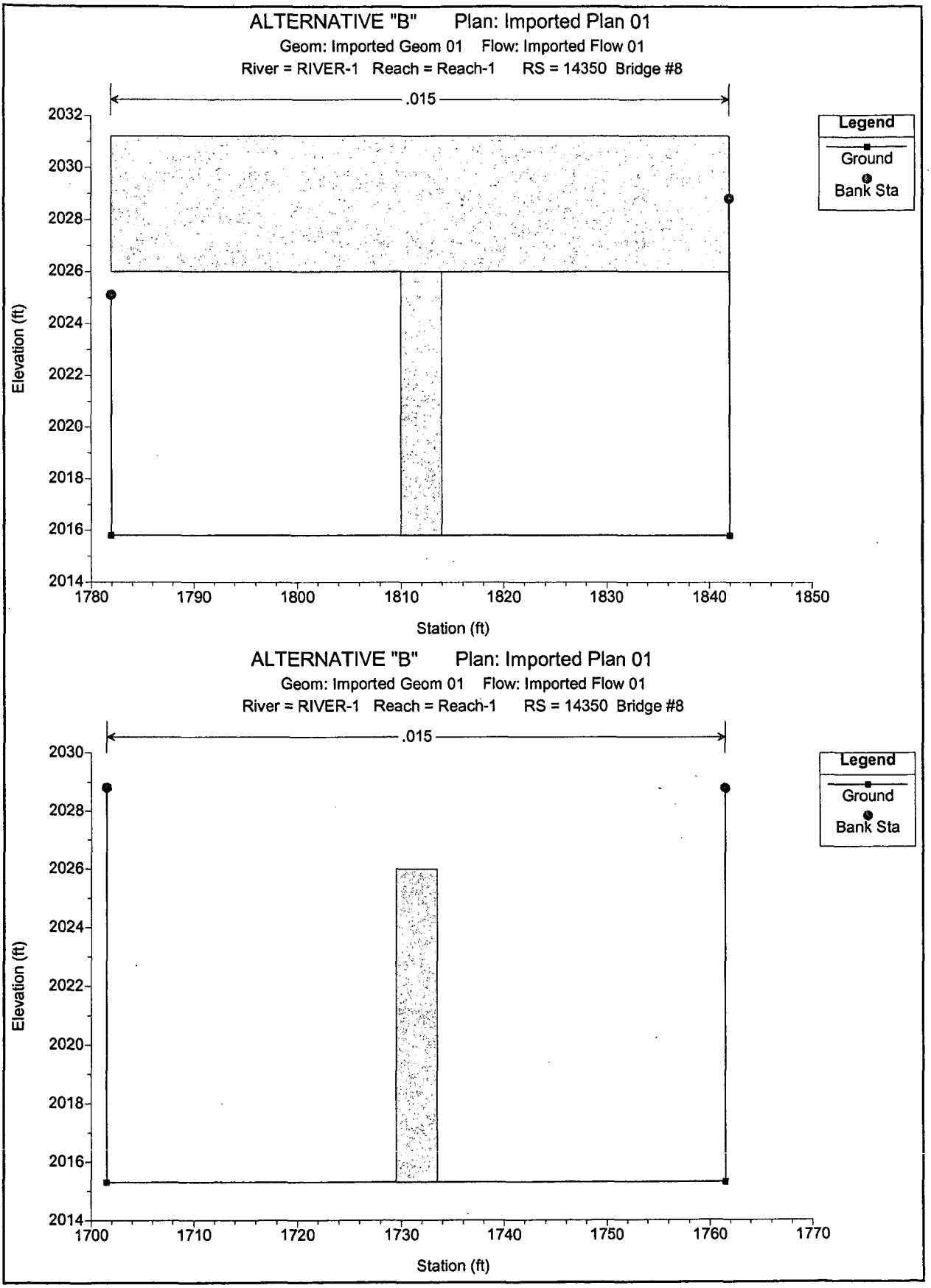

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14790
.025
.00
31
5
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
880
900
920
940
960
980
1000
1020
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14780
.025
.00
31
5
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
900
920
940
960
980
1000
1020
Station (ft)

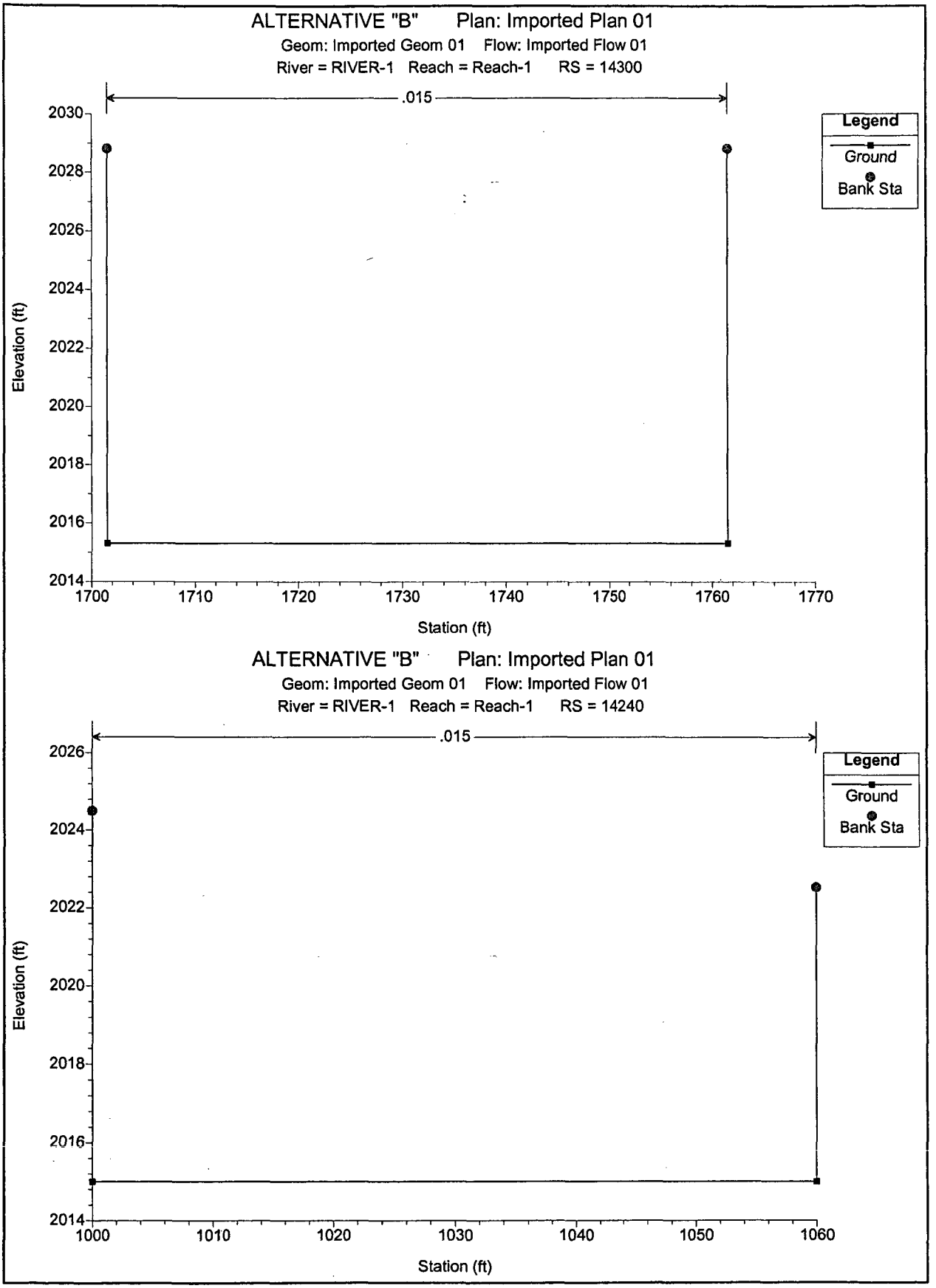

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14700 UPSTREAM FACE OF WARM SPRINGS ROAD BRIDGE
.04
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
1020
1030
1040
1050
1060
1070
1080
1090
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14650 Bridge #9
.04
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
1020
1030
1040
1050
1060
1070
1080
1090
Station (ft)

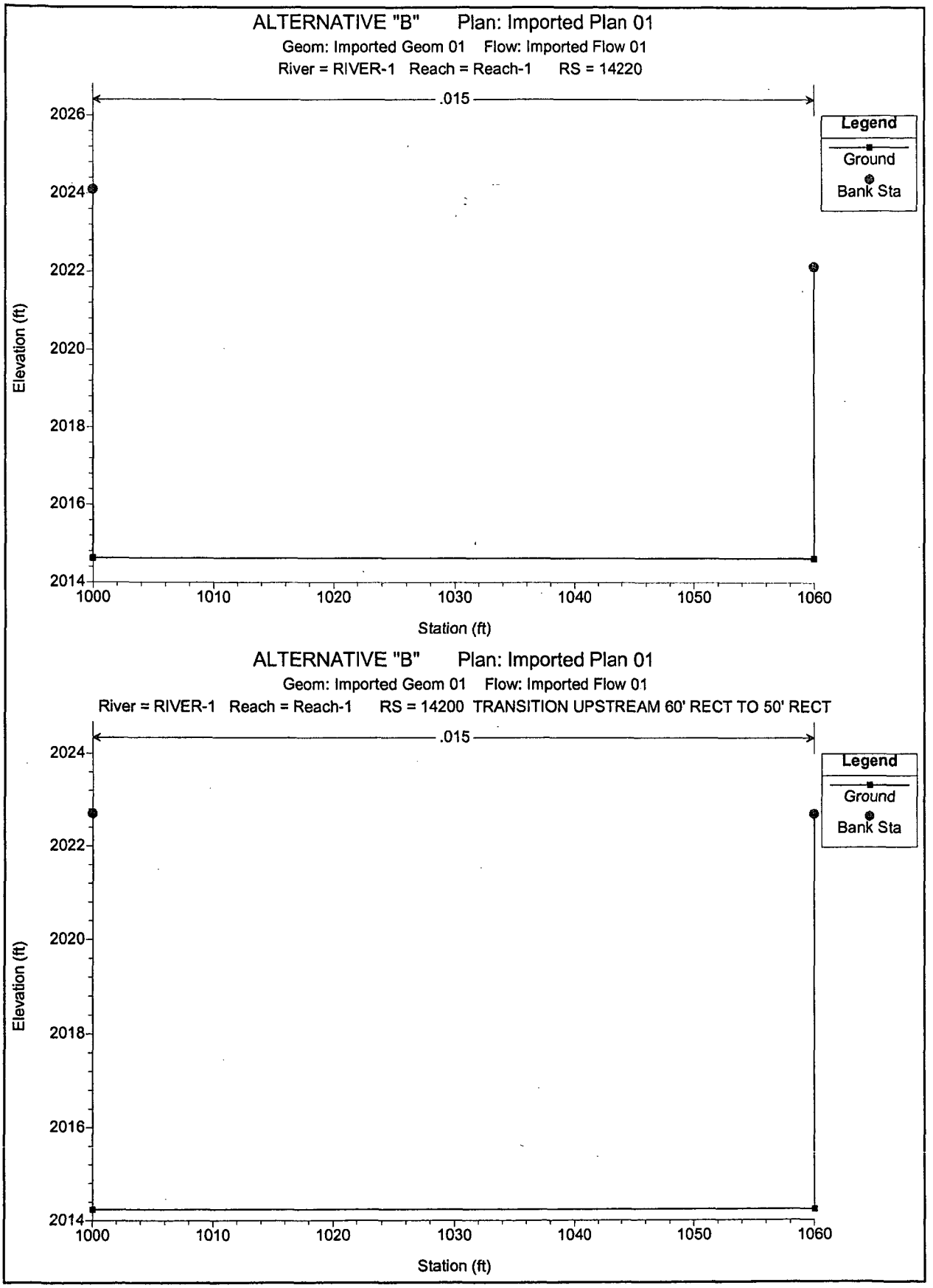

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14650 Bridge #9
.015
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
1390
1400
1410
1420
1430
1440
1450
1460
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14600 DOWNSTREAM FACE OF WARM SPRINGS ROAD BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
1390
1400
1410
1420
1430
1440
1450
1460
Station (ft)

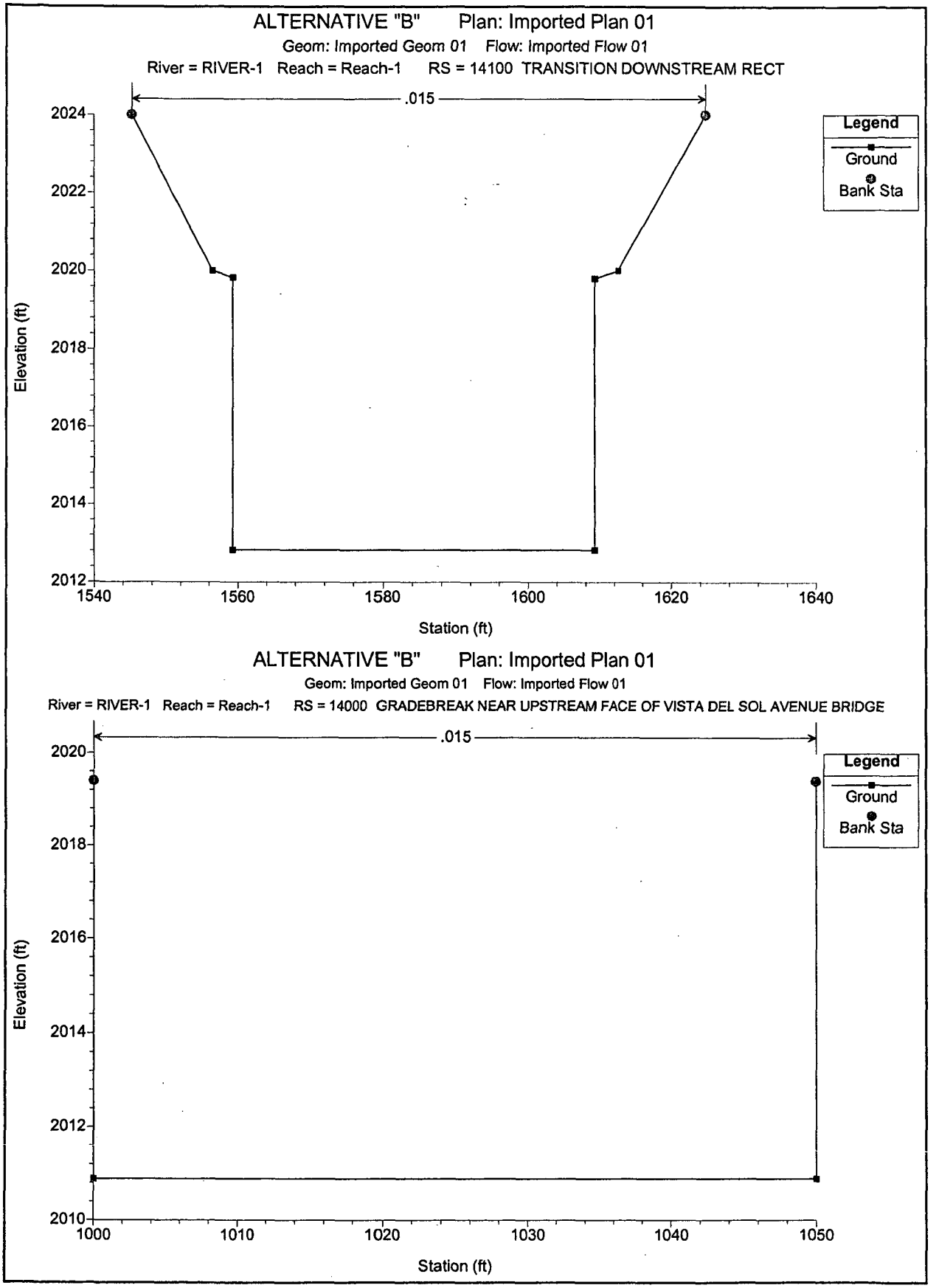

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14550
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2025
2024
2023
2022
2021
2020
2019
2018
2017
1000
1010
1020
1030
1040
1050
1060
1070
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14500
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
1000
1010
1020
1030
1040
1050
1060
Station (ft)

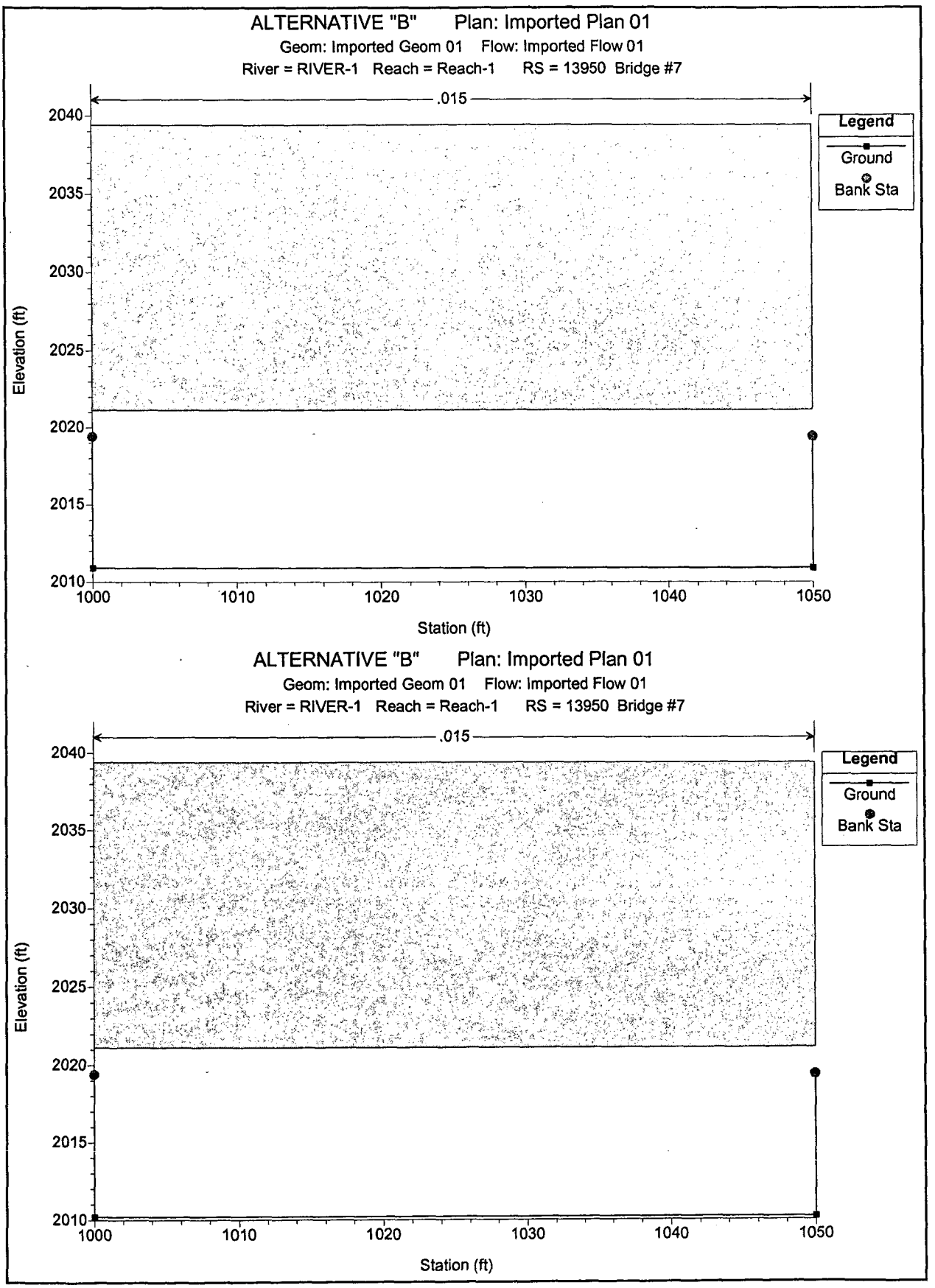

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14450
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
1000
1010
1020
1030
1040
1050
1060
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14400
.015
Legend
Ground
Bank Sta
Elevation (ft)
2030
2028
2026
2024
2022
2020
2018
2016
2014
1780
1790
1800
1810
1820
1830
1840
1850
Station (ft)

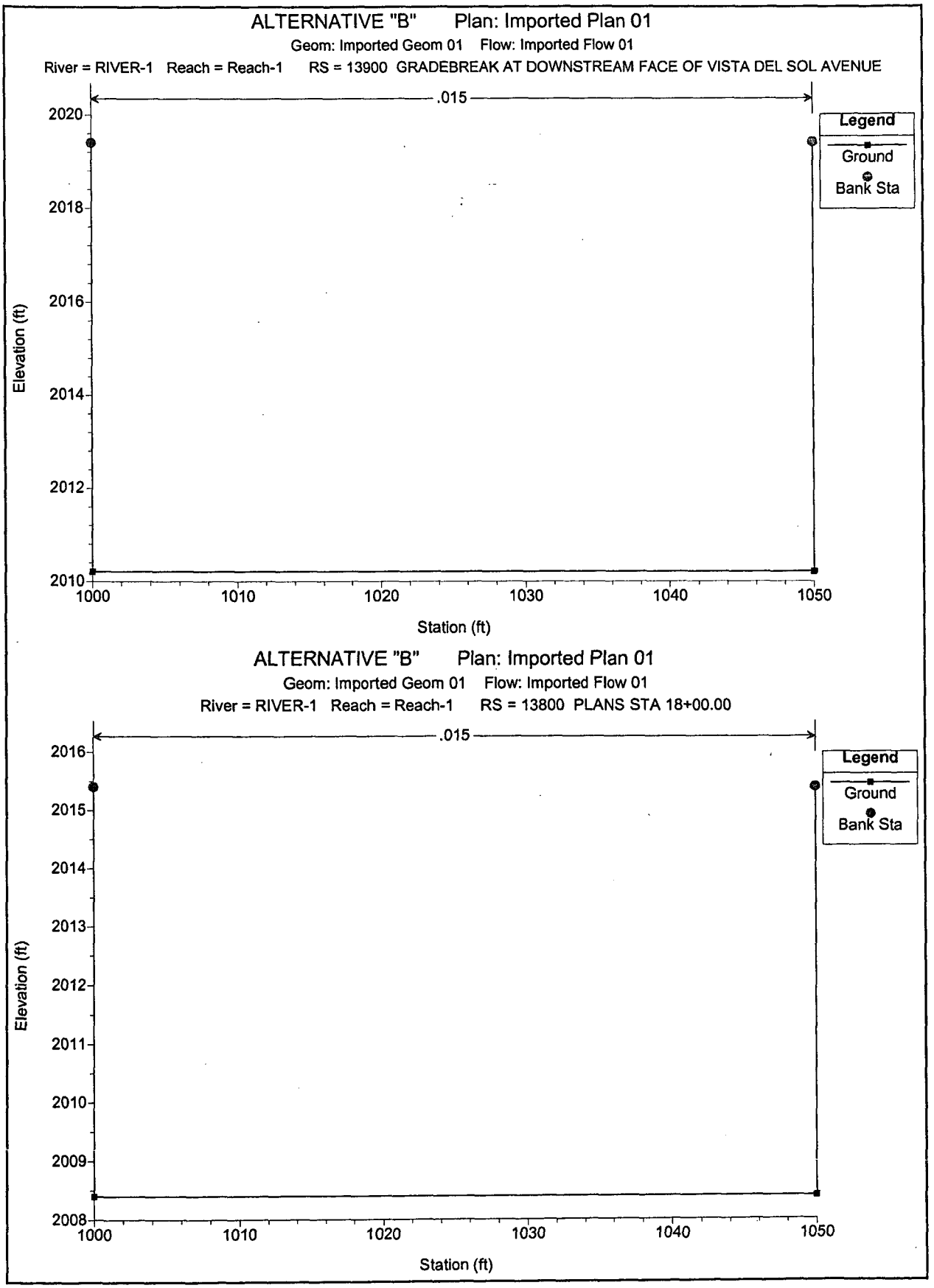

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14350 Bridge #8
.015
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
2016
2014
1780
1790
1800
1810
1820
1830
1840
1850
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14350 Bridge #8
.015
Legend
Ground
Bank Sta
Elevation (ft)
2030
2028
2026
2024
2022
2020
2018
2016
2014
1700
1710
1720
1730
1740
1750
1760
1770
Station (ft)

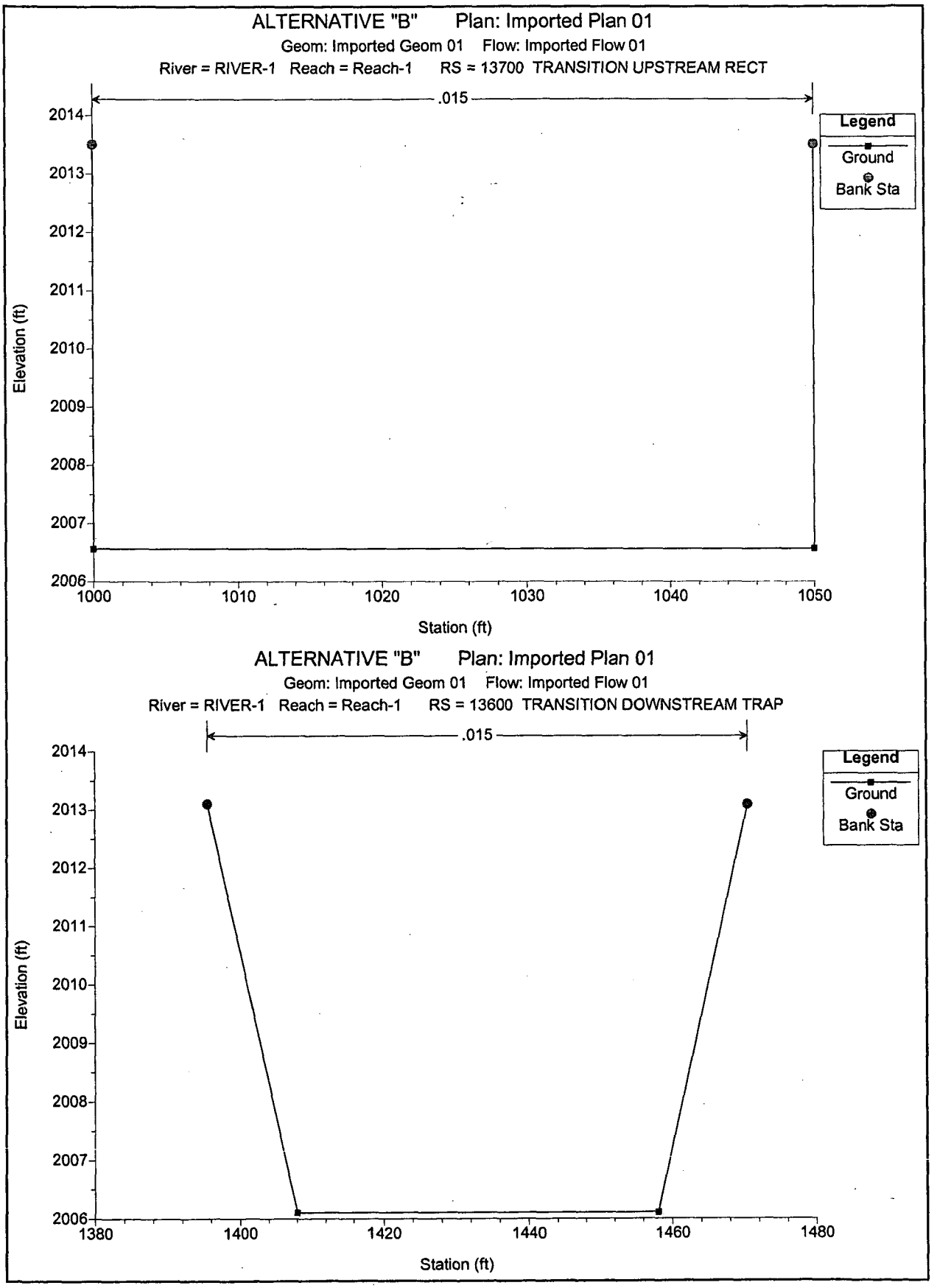

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14300
.015
Legend
Ground
Bank Sta
Elevation (ft)
2030
2028
2026
2024
2022
2020
2018
2016
2014
1700
1710
1720
1730
1740
1750
1760
1770
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14240
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
2014
1000
1010
1020
1030
1040
1050
1060
Station (ft)

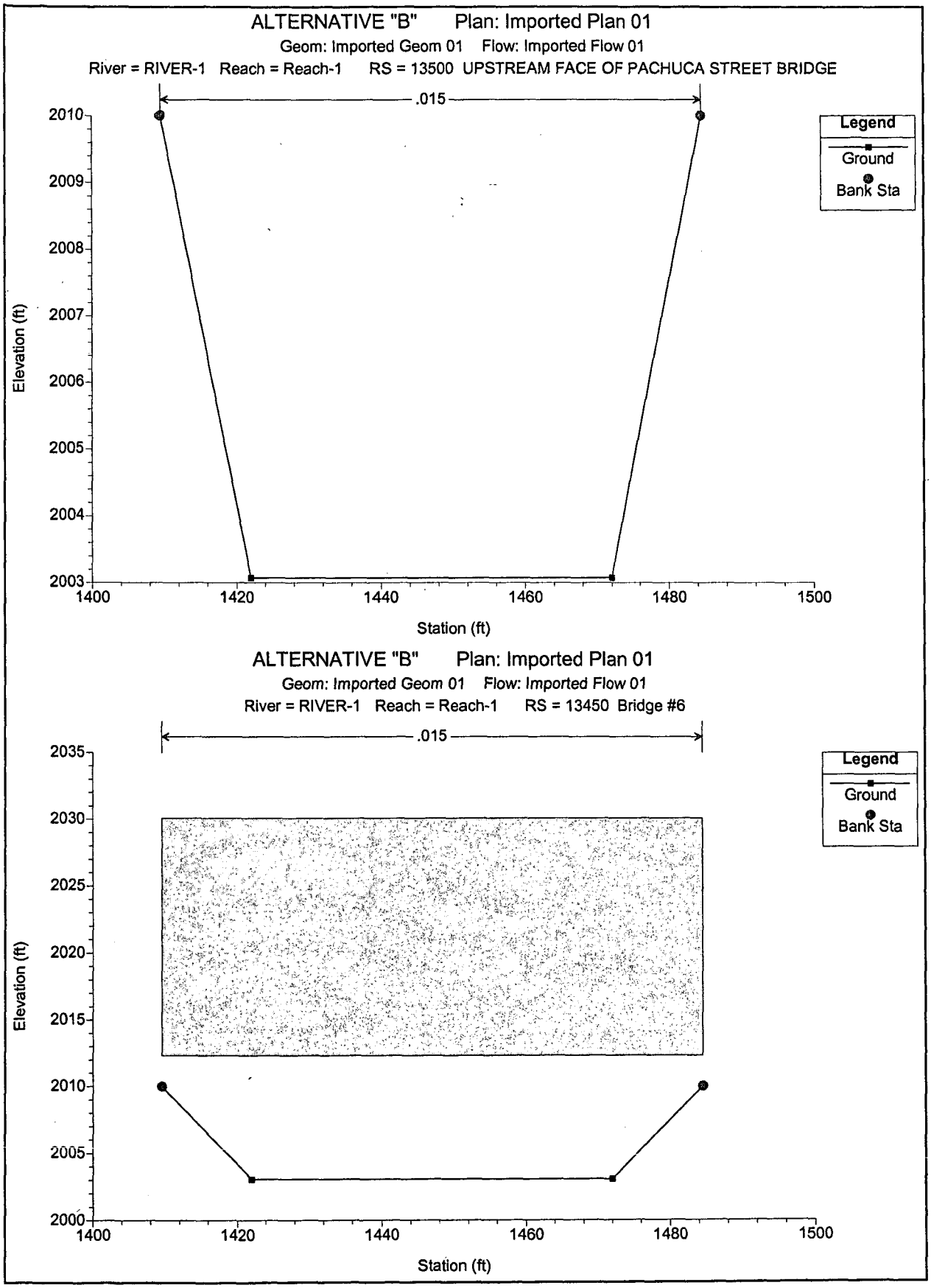

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14220
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
2014
1000
1010
1020
1030
1040
1050
1060
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14200 TRANSITION UPSTREAM 60' RECT TO 50' RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2024
2022
2020
2018
2016
2014
1000
1010
1020
1030
1040
1050
1060
Station (ft)

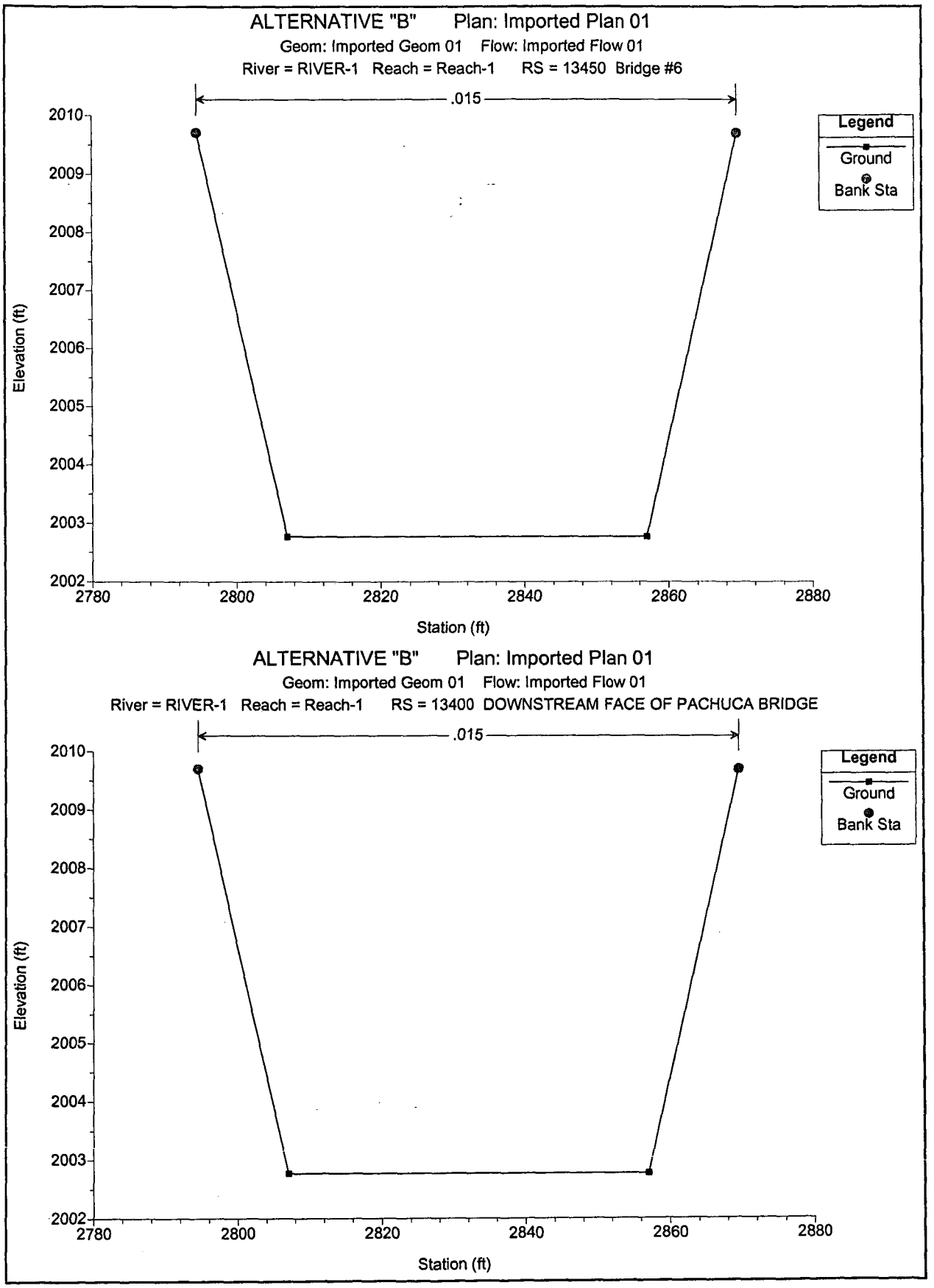

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14100 TRANSITION DOWNSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2024
2022
2020
2018
2016
2014
2012
1540
1560
1580
1600
1620
1640
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14000 GRADEBREAK NEAR UPSTREAM FACE OF VISTA DEL SOL AVENUE BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2020
2018
2016
2014
2012
2010
1000
1010
1020
1030
1040
1050
Station (ft)

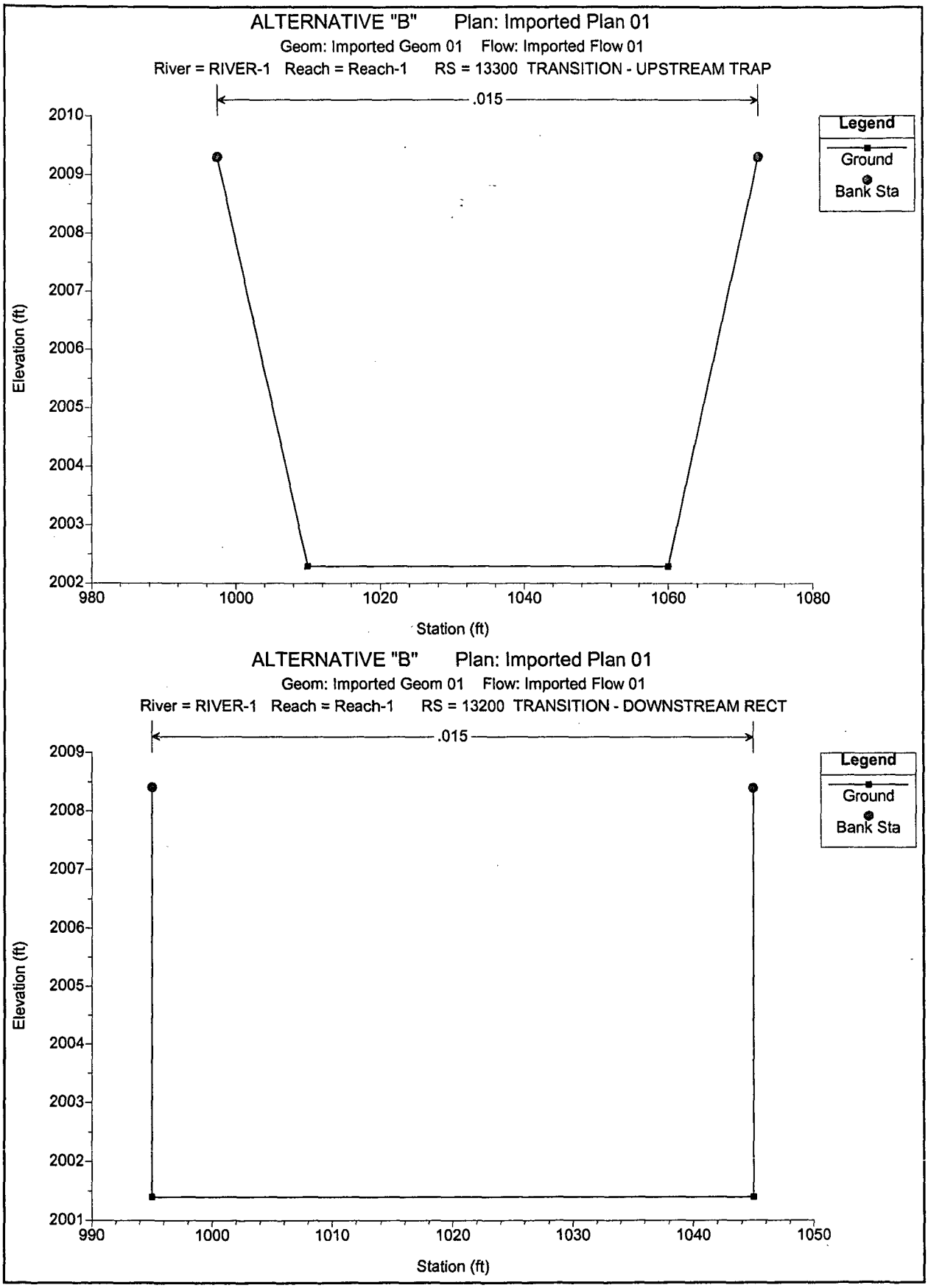

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13950 Bridge #7
.015
Legend
Ground
Bank Sta
Elevation (ft)
2040
2035
2030
2025
2020
2015
2010
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13950 Bridge #7
.015
Legend
Ground
Bank Sta
Elevation (ft)
2040
2035
2030
2025
2020
2015
2010
1000
1010
1020
1030
1040
1050
Station (ft)

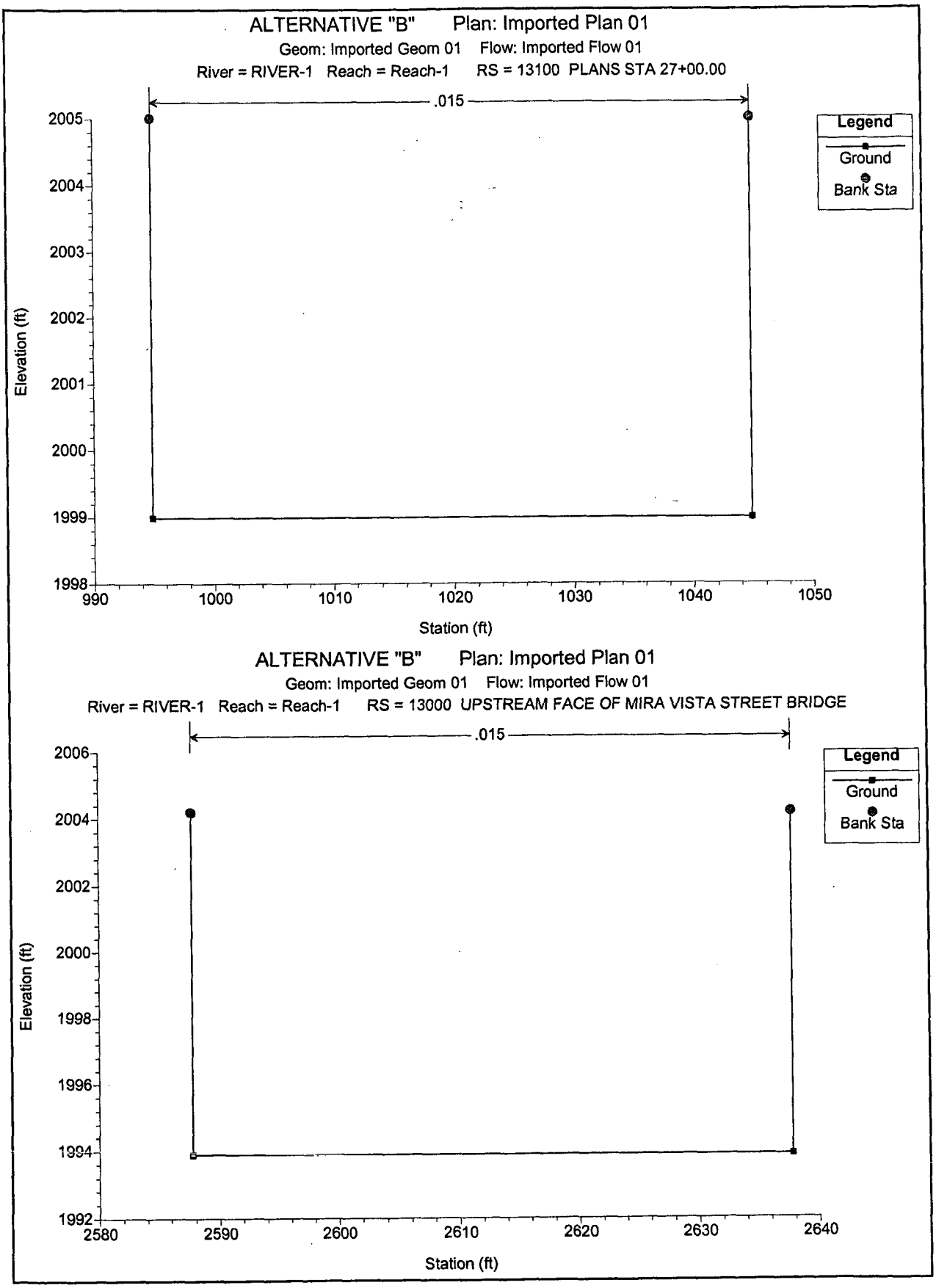

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13900 GRADEBREAK AT DOWNSTREAM FACE OF VISTA DEL SOL AVENUE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2020
2018
2016
2014
2012
2010
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13800 PLANS STA 18+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
2016
2015
2014
2013
2012
2011
2010
2009
2008
1000
1010
1020
1030
1040
1050
Station (ft)

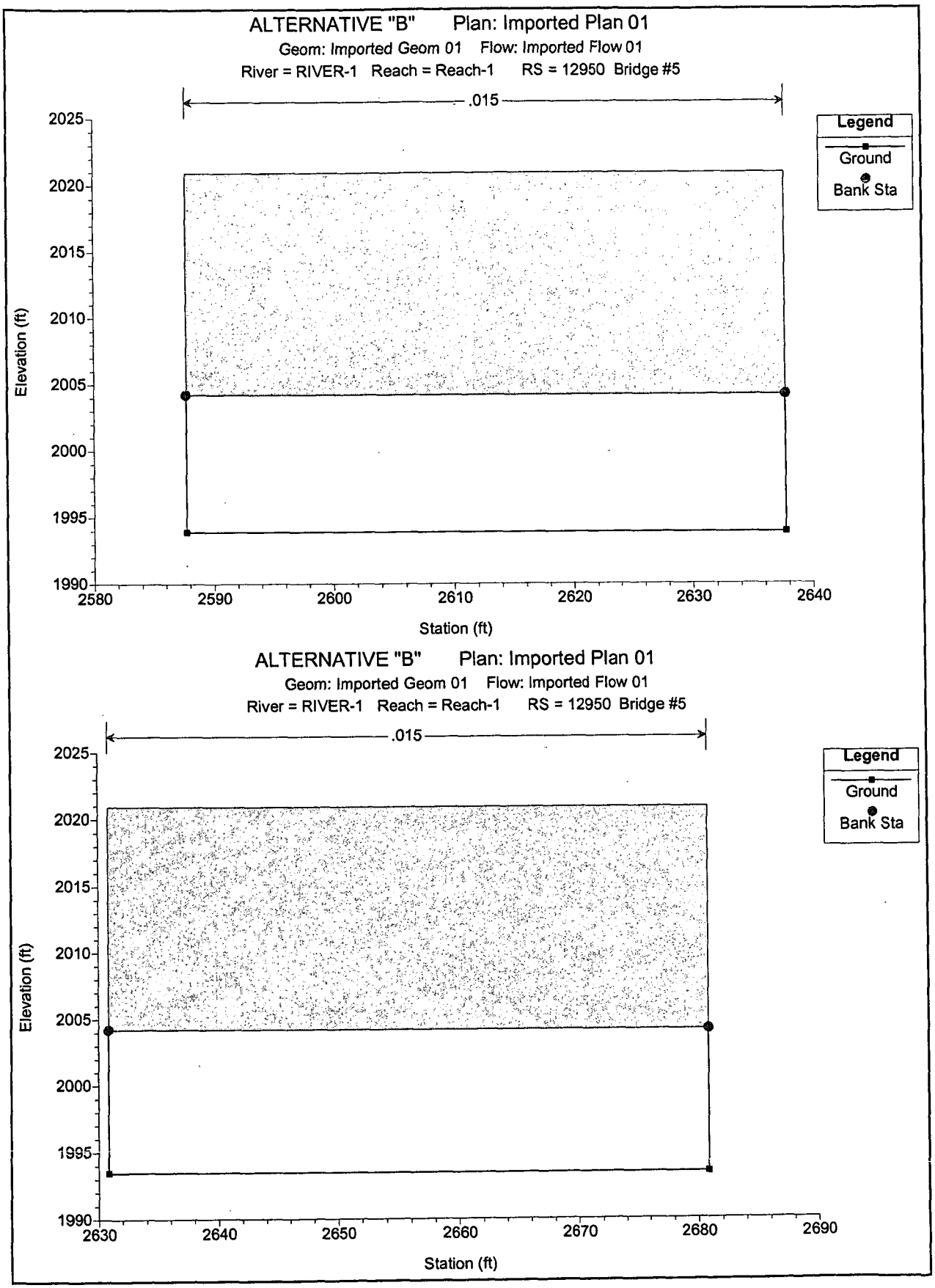

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13700 TRANSITION UPSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2014
2013
2012
2011
2010
2009
2008
2007
2006
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13600 TRANSITION DOWNSTREAM TRAP
.015
Legend
Ground
Bank Sta
Elevation (ft)
2014
2013
2012
2011
2010
2009
2008
2007
2006
1380
1400
1420
1440
1460
1480
Station (ft)

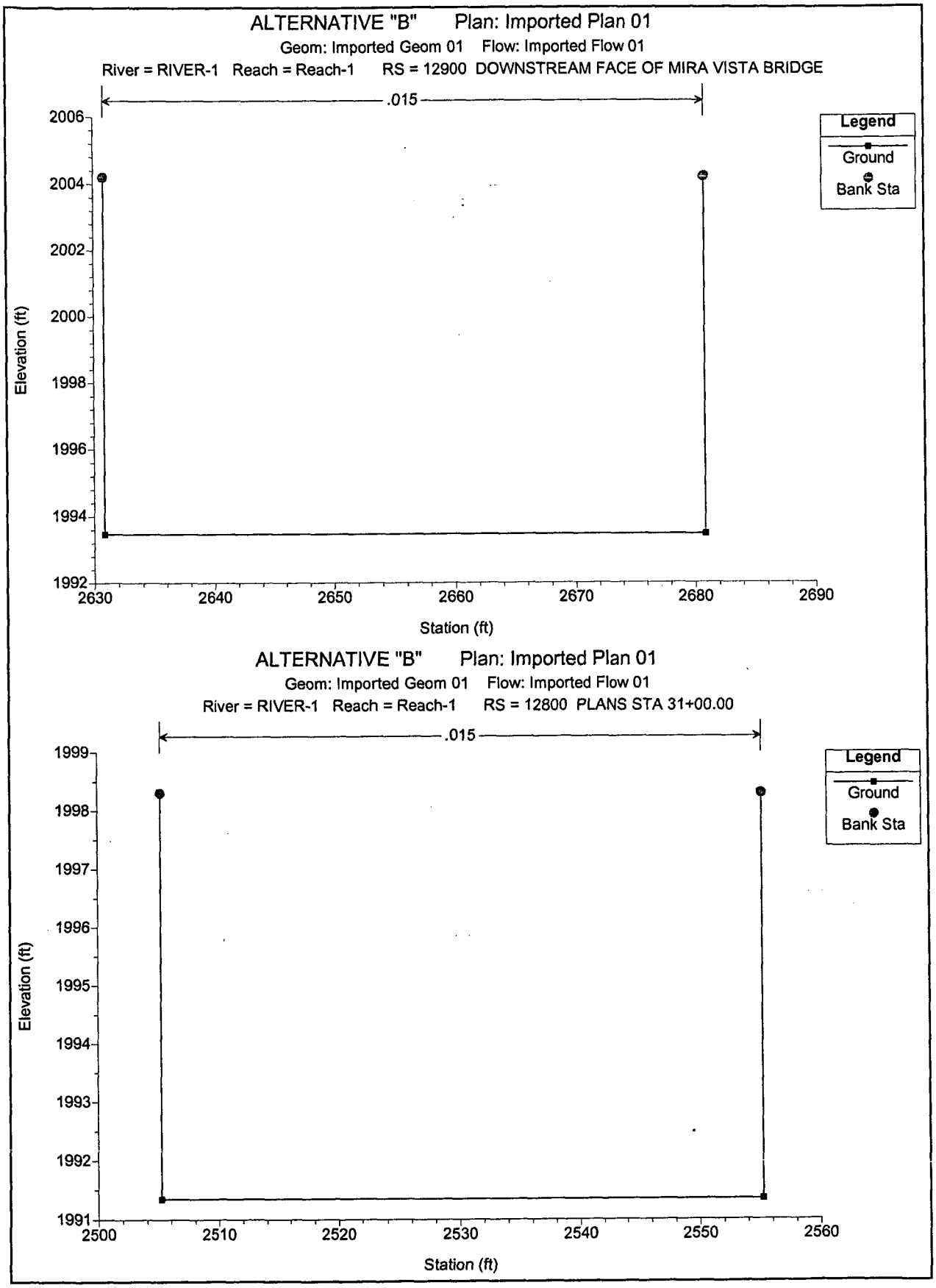

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13500 UPSTREAM FACE OF PACHUCA STREET BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
1400
1420
1440
1460
1480
1500
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13450 Bridge #6
.015
Legend
Ground
Bank Sta
Elevation (ft)
2035
2030
2025
2020
2015
2010
2005
2000
1400
1420
1440
1460
1480
1500
Station (ft)

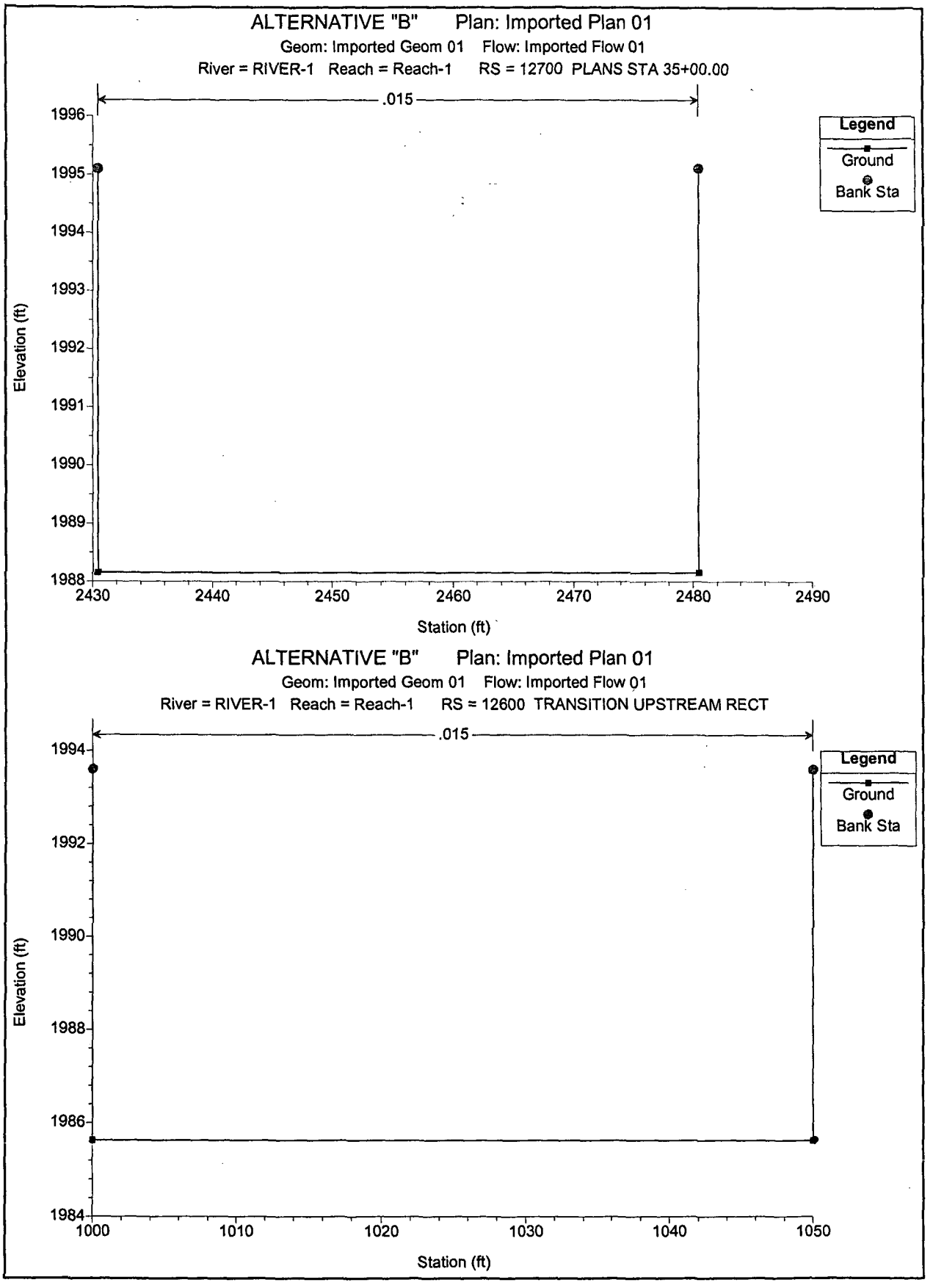

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13450 Bridge #6
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
2002
2780
2800
2820
2840
2860
2880
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13400 DOWNSTREAM FACE OF PACHUCA BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
2002
2780
2800
2820
2840
2860
2880
Station (ft)

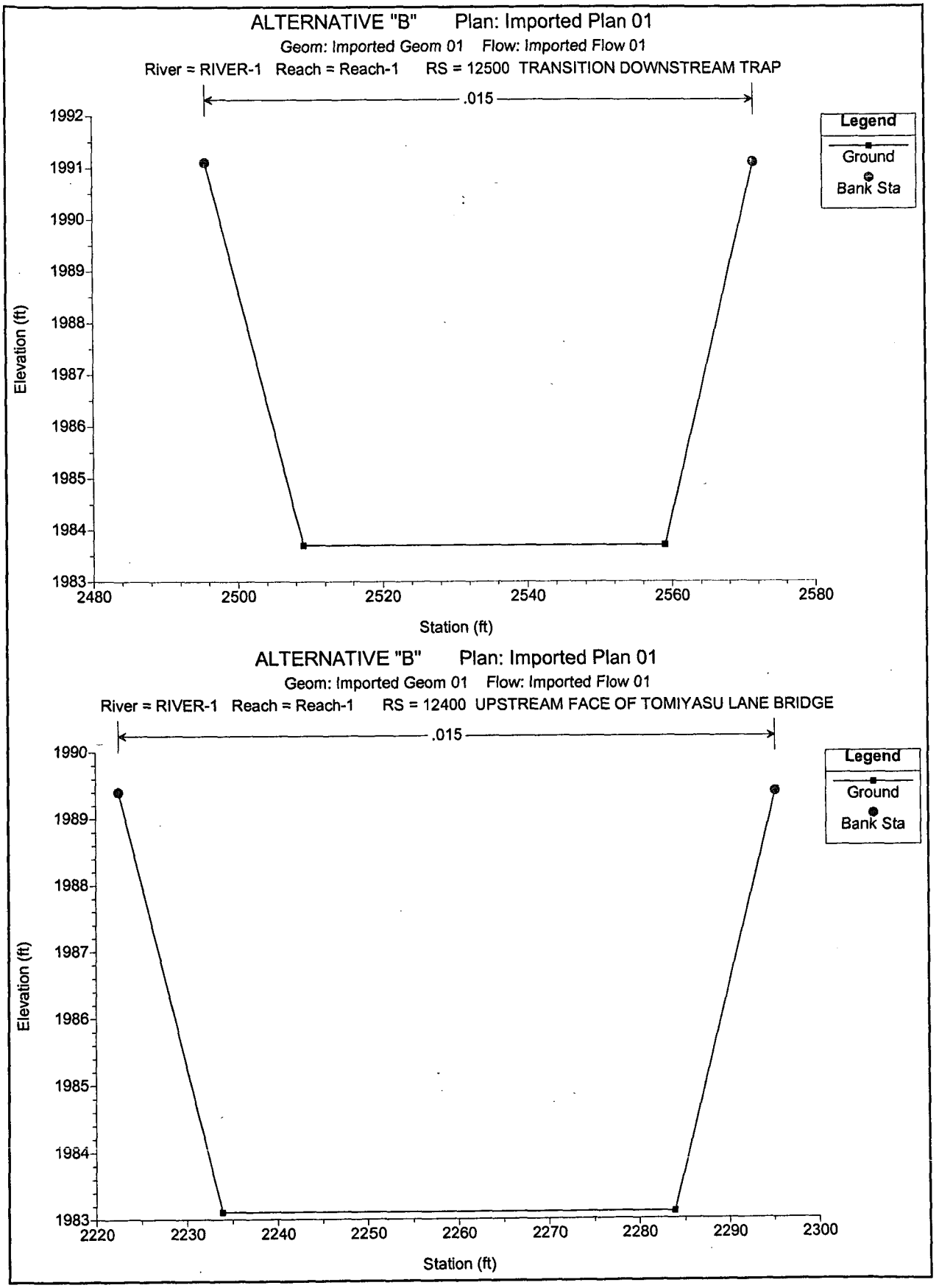

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13300 TRANSITION - UPSTREAM TRAP
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
2002
980
1000
1020
1040
1060
1080
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13200 TRANSITION - DOWNSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2009
2008
2007
2006
2005
2004
2003
2002
2001
990
1000
1010
1020
1030
1040
1050
Station (ft)

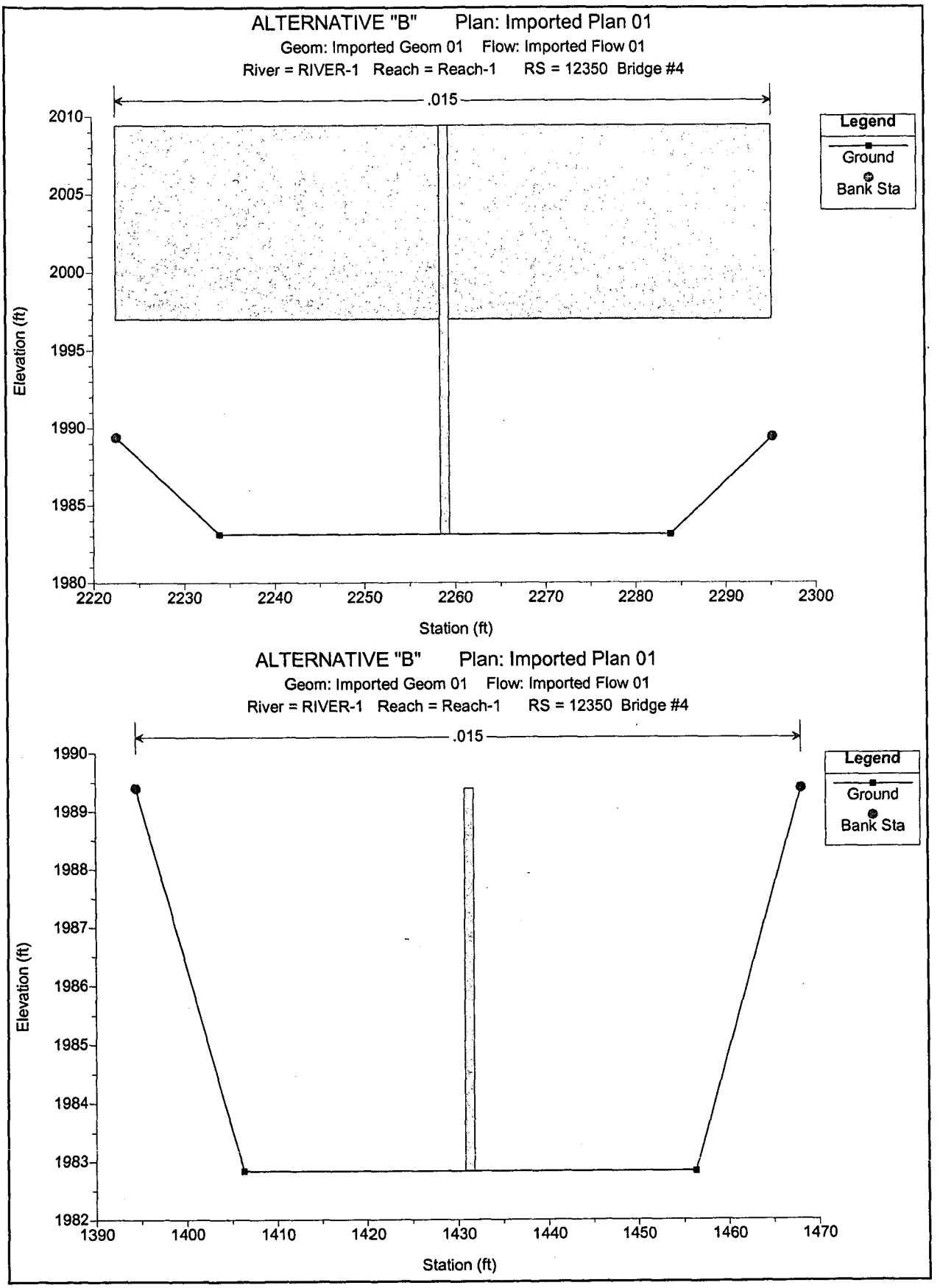

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13100 PLANS STA 27+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
2005
2004
2003
2002
2001
2000
1999
1998
990
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13000 UPSTREAM FACE OF MIRA VISTA STREET BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2006
2004
2002
2000
1998
1996
1994
1992
2580
2590
2600
2610
2620
2630
2640
Station (ft)

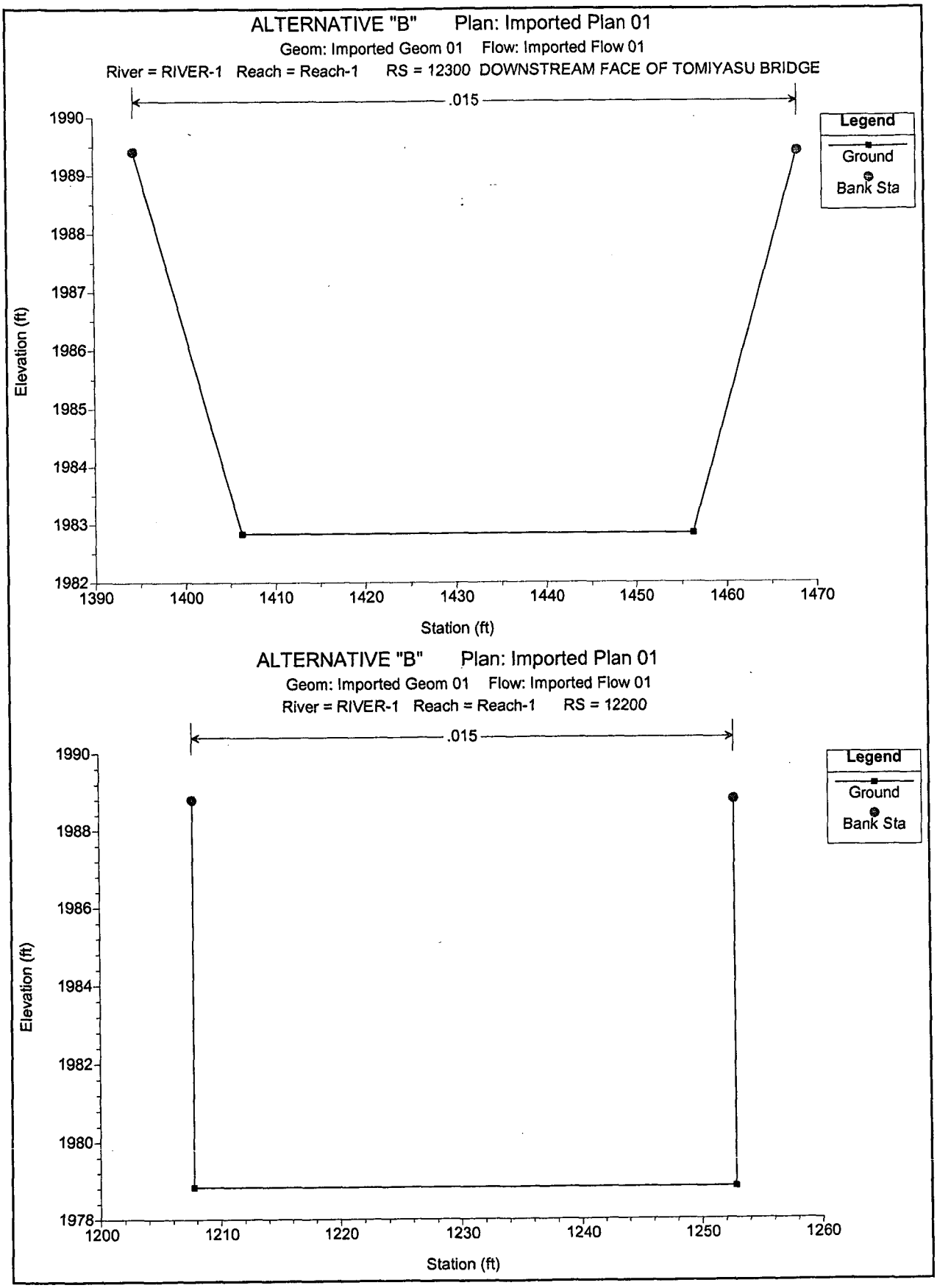

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12950 Bridge #5
.015
Legend
Ground
Bank Sta
Elevation (ft)
2025
2020
2015
2010
2005
2000
1995
1990
2580
2590
2600
2610
2620
2630
2640
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12950 Bridge #5
.015
Legend
Ground
Bank Sta
Elevation (ft)
2025
2020
2015
2010
2005
2000
1995
1990
2630
2640
2650
2660
2670
2680
2690
Station (ft)

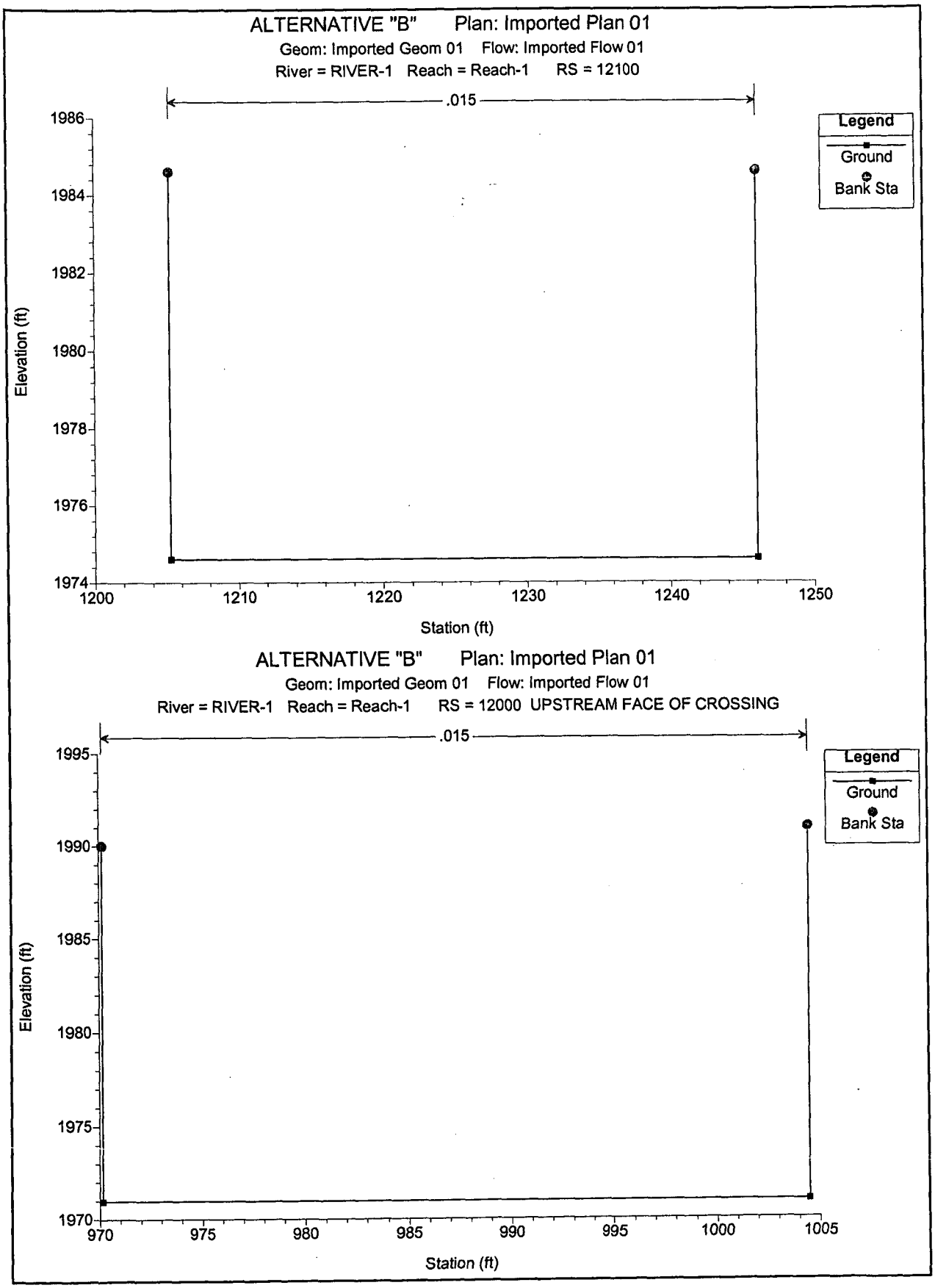

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12900 DOWNSTREAM FACE OF MIRA VISTA BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2006
2004
2002
2000
1998
1996
1994
1992
2630
2640
2650
2660
2670
2680
2690
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12800 PLANS STA 31+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
1999
1998
1997
1996
1995
1994
1993
1992
1991
2500
2510
2520
2530
2540
2550
2560
Station (ft)

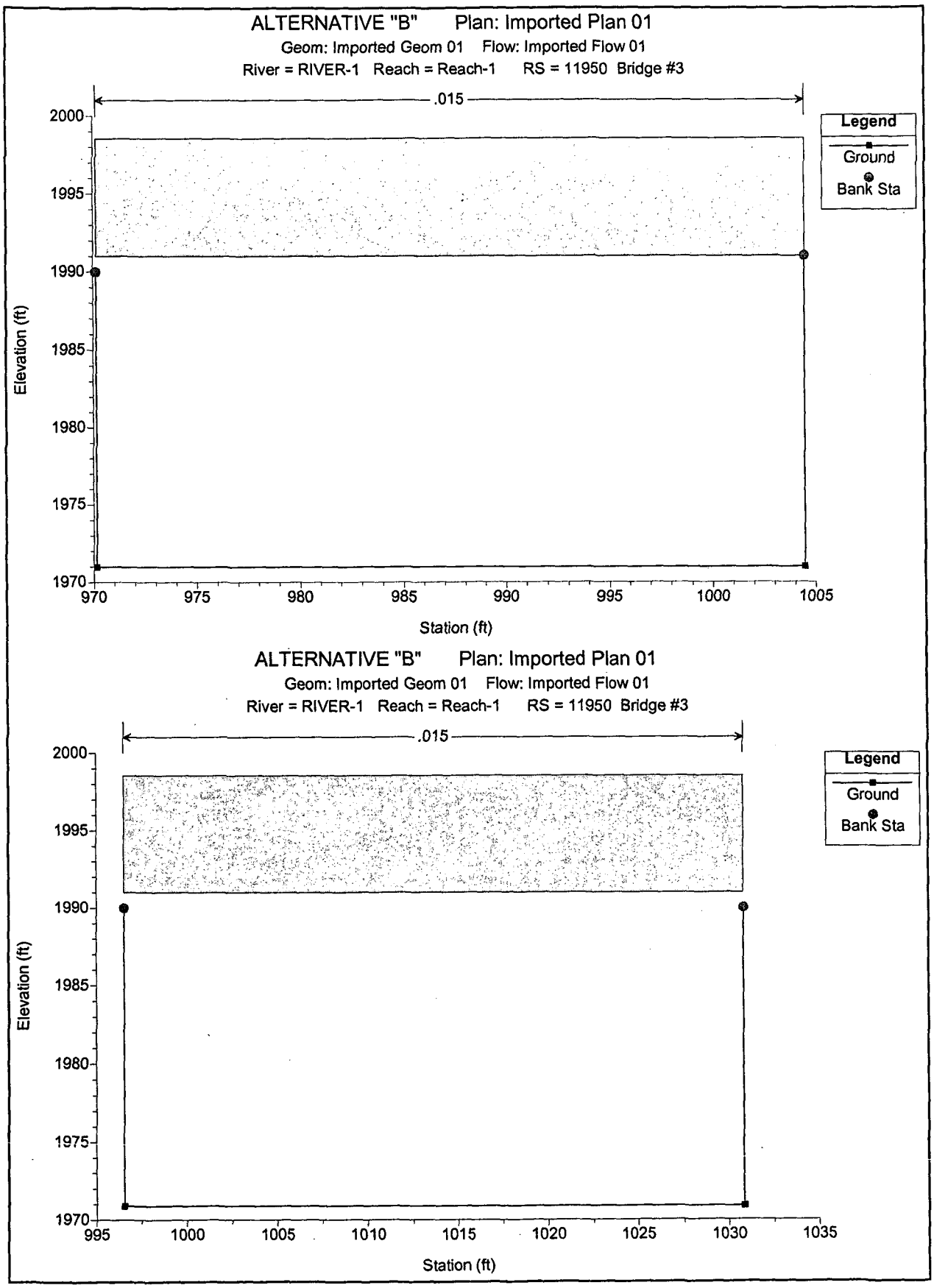

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12700 PLANS STA 35+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
1996
1995
1994
1993
1992
1991
1990
1989
1988
2430
2440
2450
2460
2470
2480
2490
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12600 TRANSITION UPSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
1994
1992
1990
1988
1986
1984
1000
1010
1020
1030
1040
1050
Station (ft)

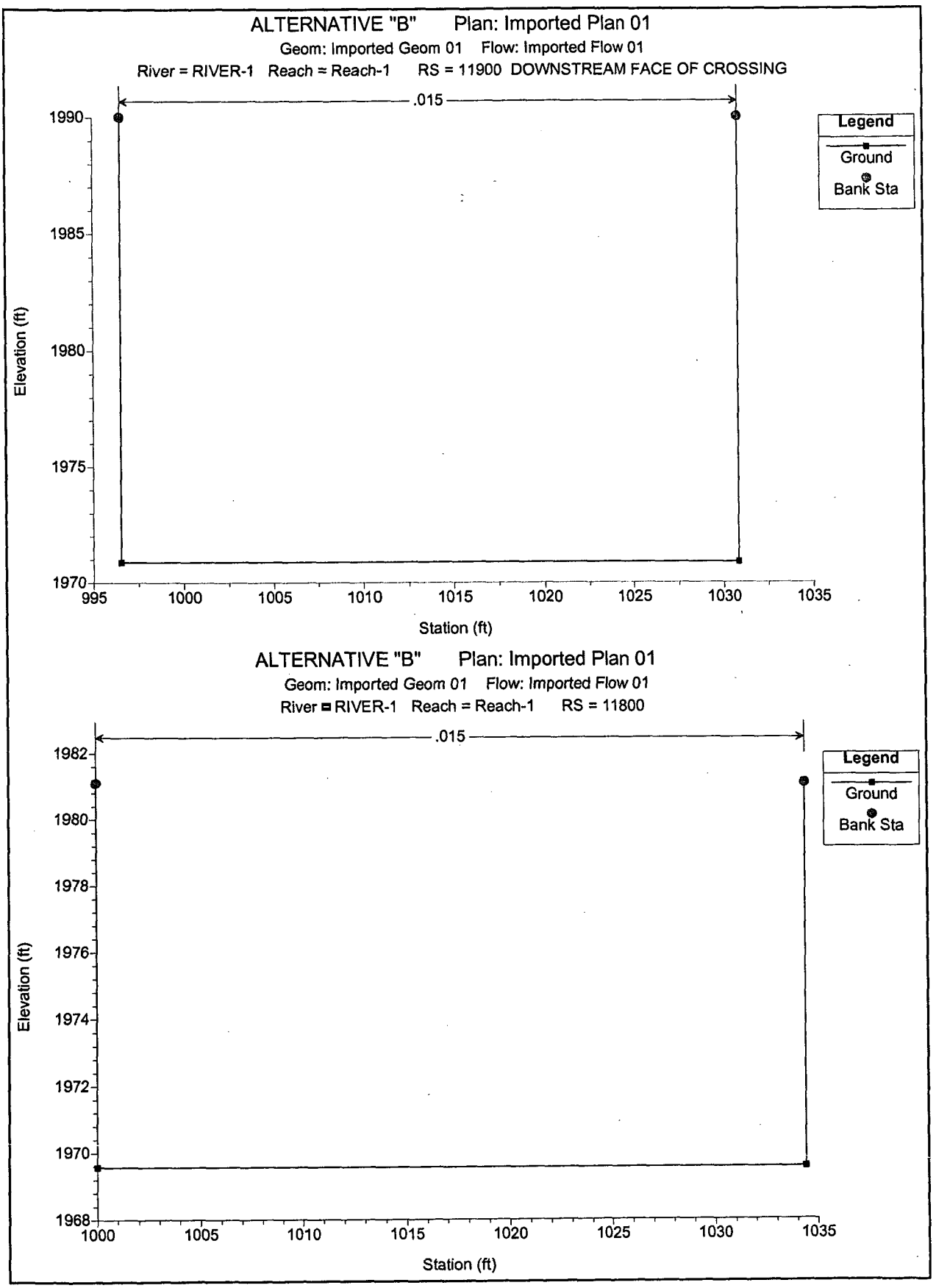

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12500 TRANSITION DOWNSTREAM TRAP
.015
Legend
Ground
Bank Sta
Elevation (ft)
1992
1991
1990
1989
1988
1987
1986
1985
1984
1983
2480
2500
2520
2540
2560
2580
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12400 UPSTREAM FACE OF TOMIYASU LANE BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1989
1988
1987
1986
1985
1984
1983
2220
2230
2240
2250
2260
2270
2280
2290
2300
Station (ft)

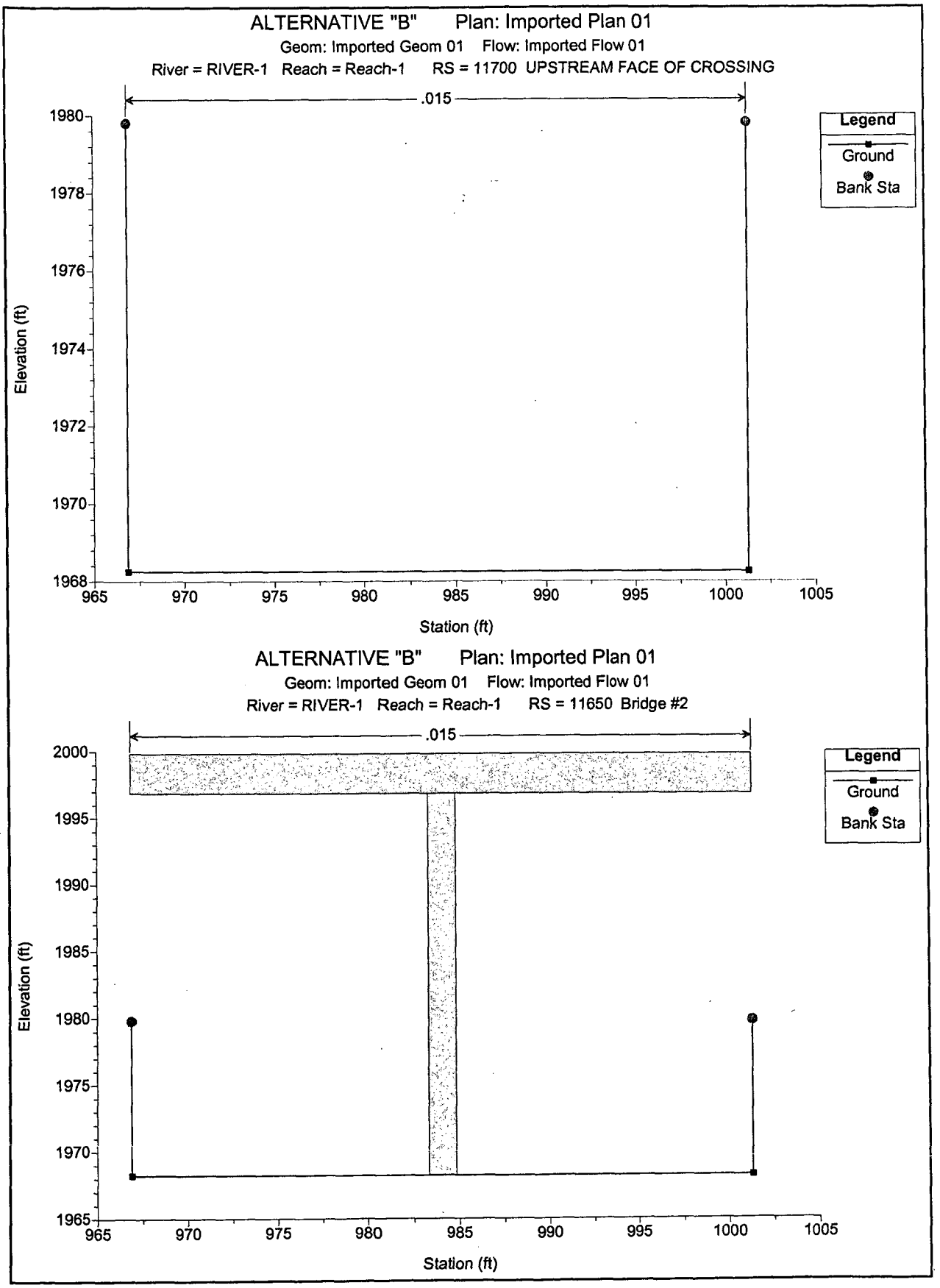

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12350 Bridge #4
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2005
2000
1995
1990
1985
1980
2220
2230
2240
2250
2260
2270
2280
2290
2300
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12350 Bridge #4
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1989
1988
1987
1986
1985
1984
1983
1982
1390
1400
1410
1420
1430
1440
1450
1460
1470
Station (ft)

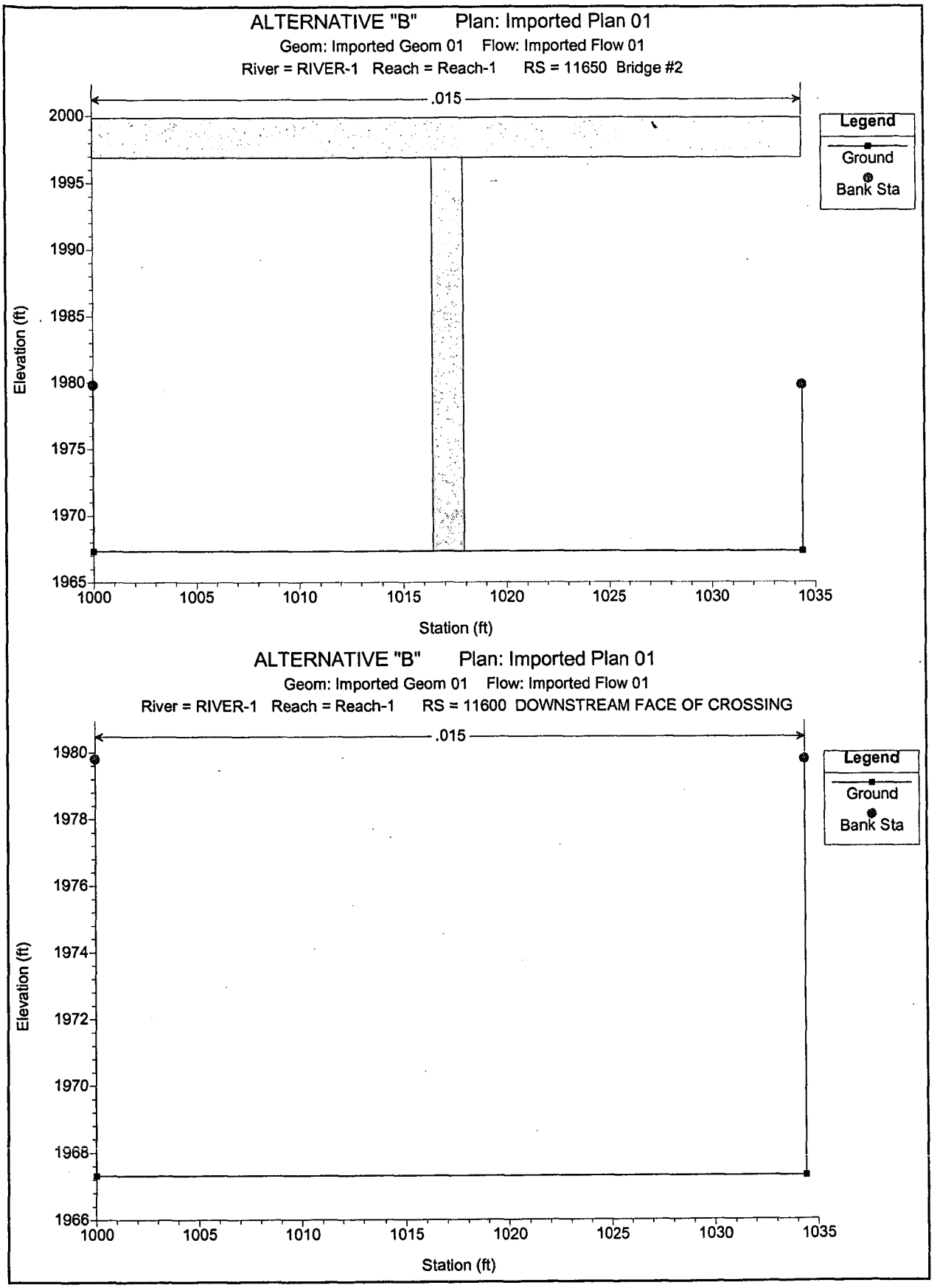

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12300 DOWNSTREAM FACE OF TOMIYASU BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1989
1988
1987
1986
1985
1984
1983
1982
1390
1400
1410
1420
1430
1440
1450
1460
1470
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12200
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1988
1986
1984
1982
1980
1978
1200
1210
1220
1230
1240
1250
1260
Station (ft)

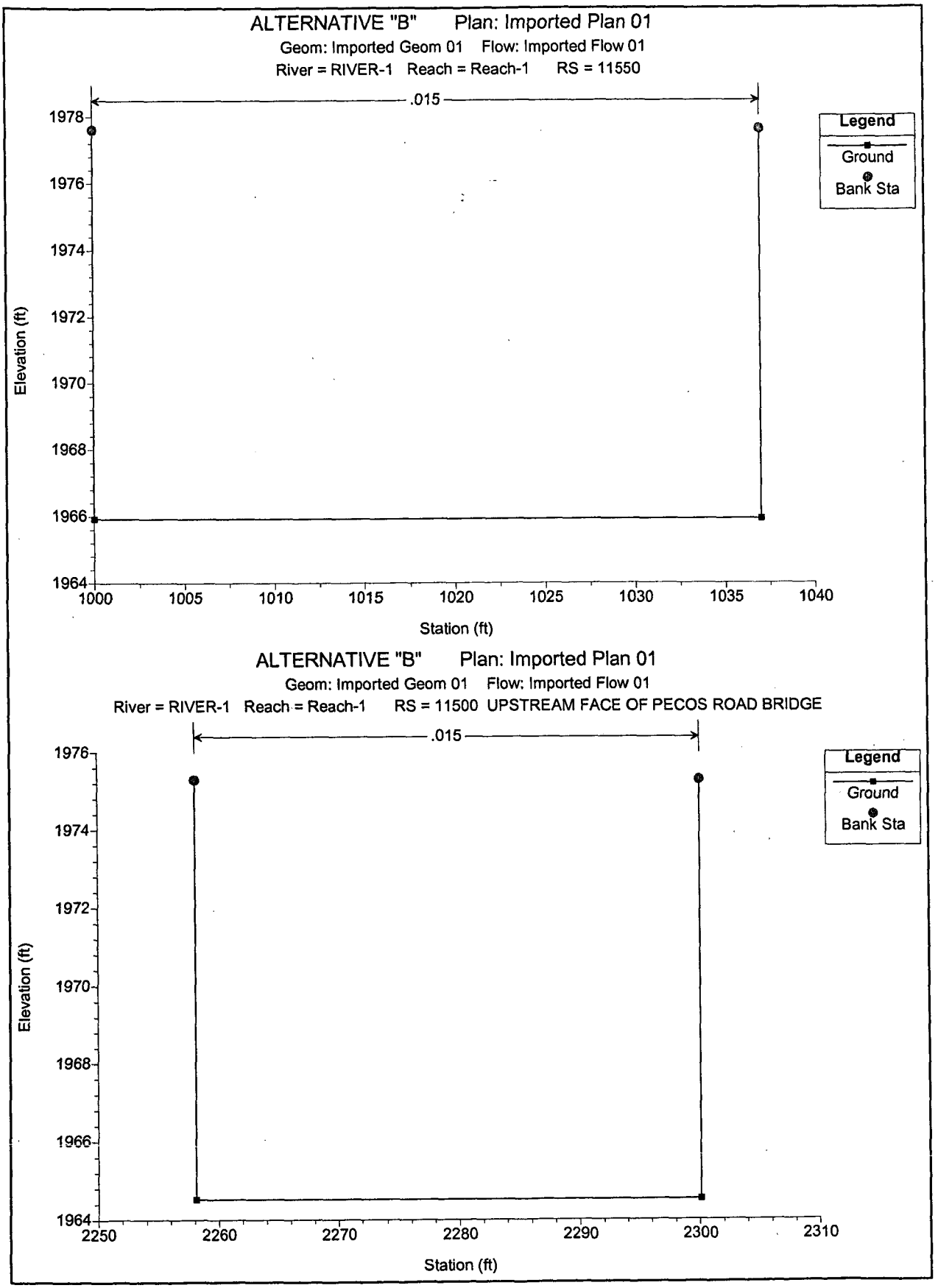

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12100
.015
Legend
Ground
Bank Sta
Elevation (ft)
1986
1984
1982
1980
1978
1976
1974
1200
1210
1220
1230
1240
1250
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12000 UPSTREAM FACE OF CROSSING
.015
Legend
Ground
Bank Sta
Elevation (ft)
1995
1990
1985
1980
1975
1970
970
975
980
985
990
995
1000
1005
Station (ft)

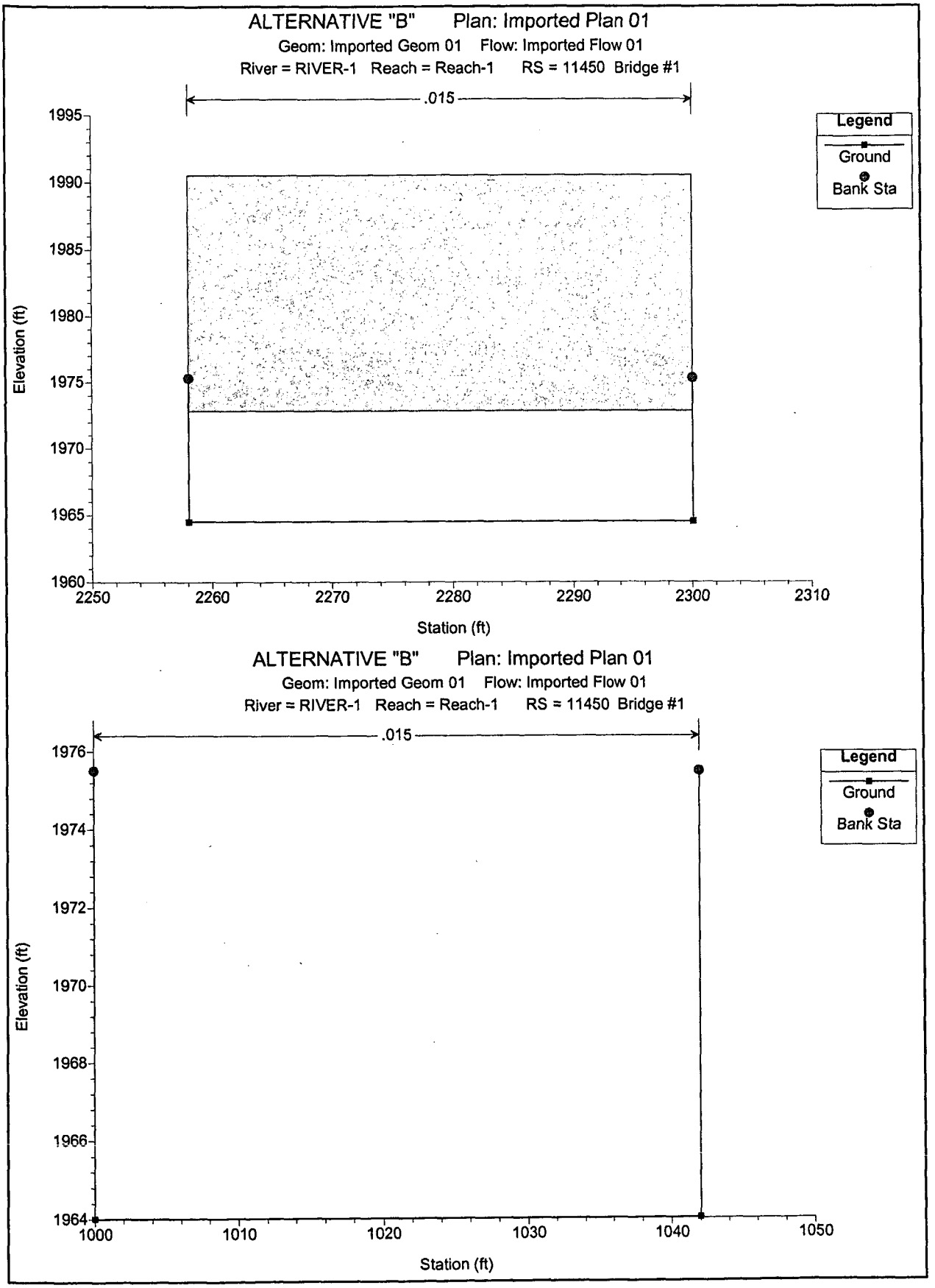

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11950 Bridge #3
.015
Legend
Ground
Bank Sta
Elevation (ft)
2000
1995
1990
1985
1980
1975
1970
970
975
980
985
990
995
1000
1005
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11950 Bridge #3
.015
Legend
Ground
Bank Sta
Elevation (ft)
2000
1995
1990
1985
1980
1975
1970
995
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)

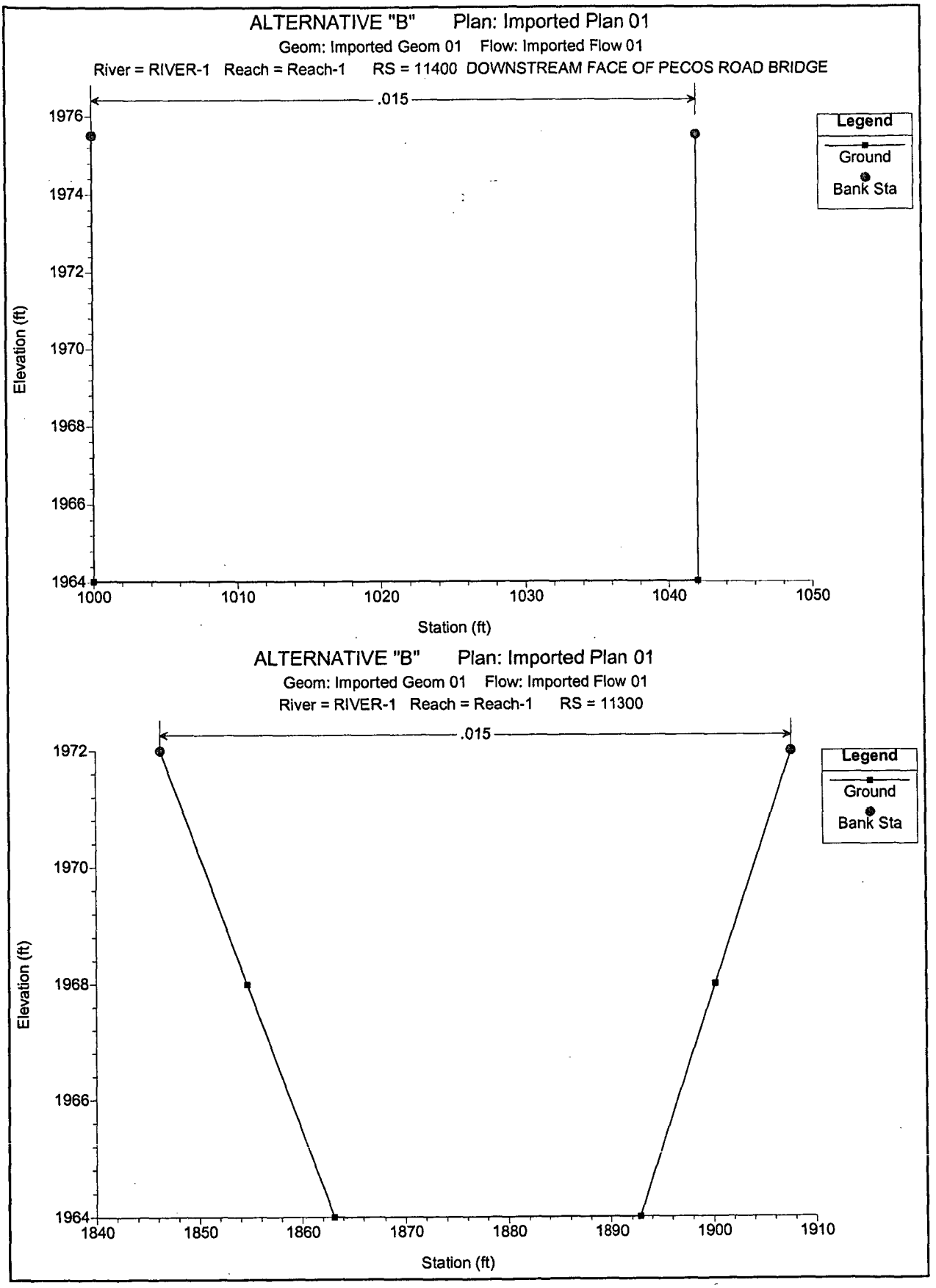

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11900 DOWNSTREAM FACE OF CROSSING
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1985
1980
1975
1970
995
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11800
.015
Legend
Ground
Bank Sta
Elevation (ft)
1982
1980
1978
1976
1974
1972
1970
1968
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)

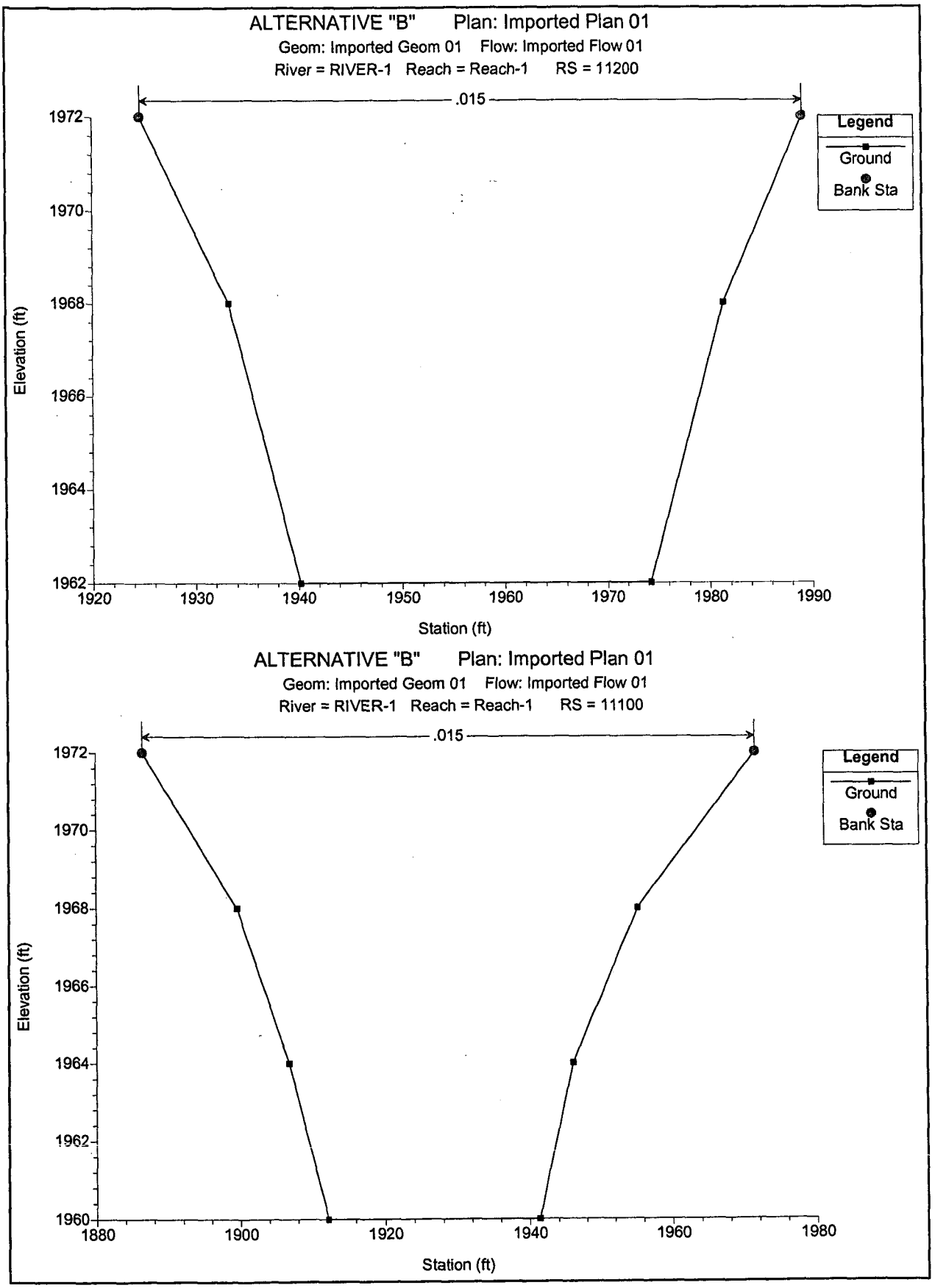

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11700 UPSTREAM FACE OF CROSSING
.015
Legend
Ground
Bank Sta
Elevation (ft)
1980
1978
1976
1974
1972
1970
1968
965
970
975
980
985
990
995
1000
1005
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11650 Bridge #2
.015
Legend
Ground
Bank Sta
Elevation (ft)
2000
1995
1990
1985
1980
1975
1970
1965
965
970
975
980
985
990
995
1000
1005
Station (ft)

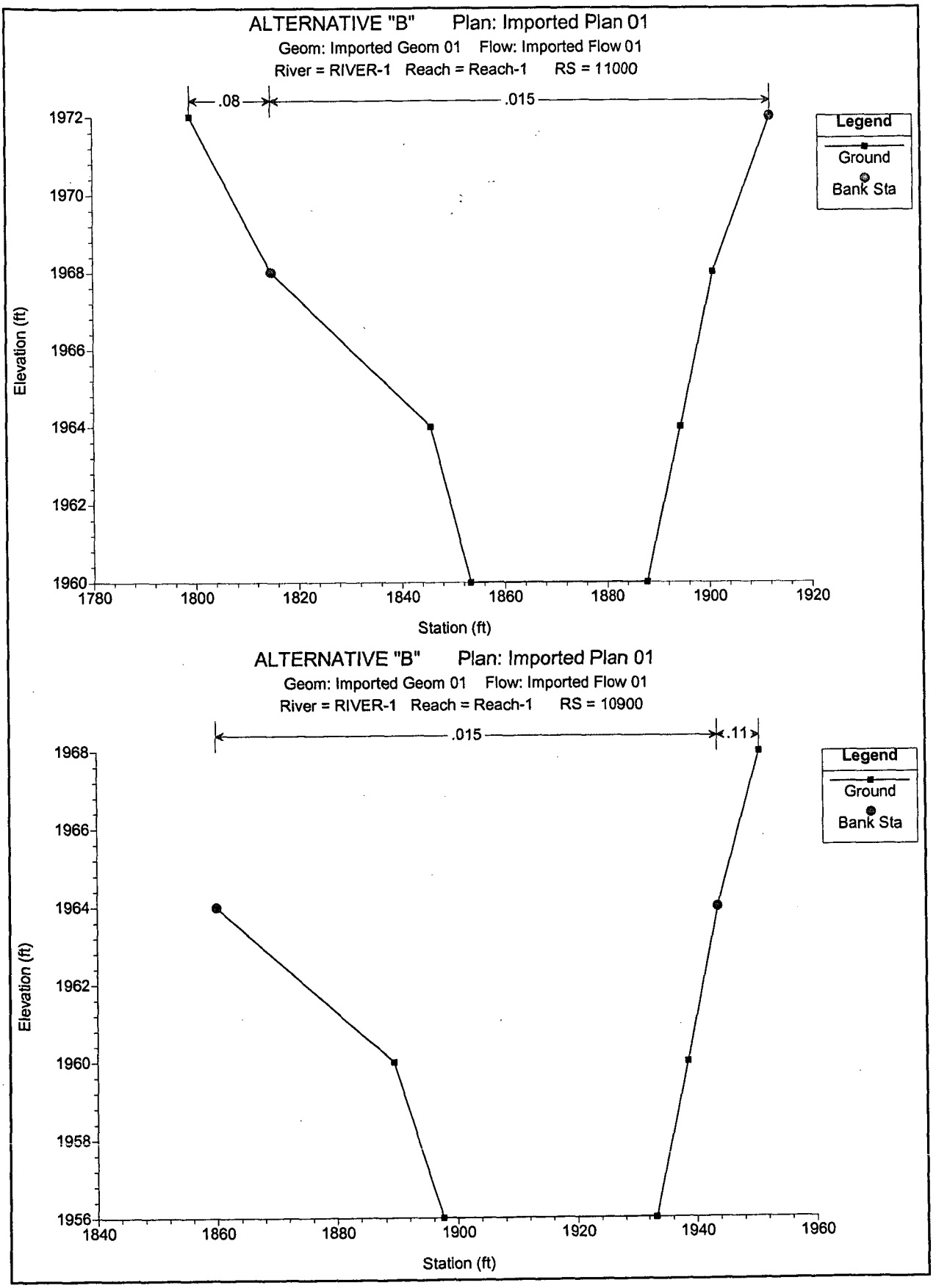

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11650 Bridge #2
.015
Legend
Ground
Bank Sta
Elevation (ft)
2000
1995
1990
1985
1980
1975
1970
1965
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11600 DOWNSTREAM FACE OF CROSSING
.015
Legend
Ground
Bank Sta
Elevation (ft)
1980
1978
1976
1974
1972
1970
1968
1966
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)

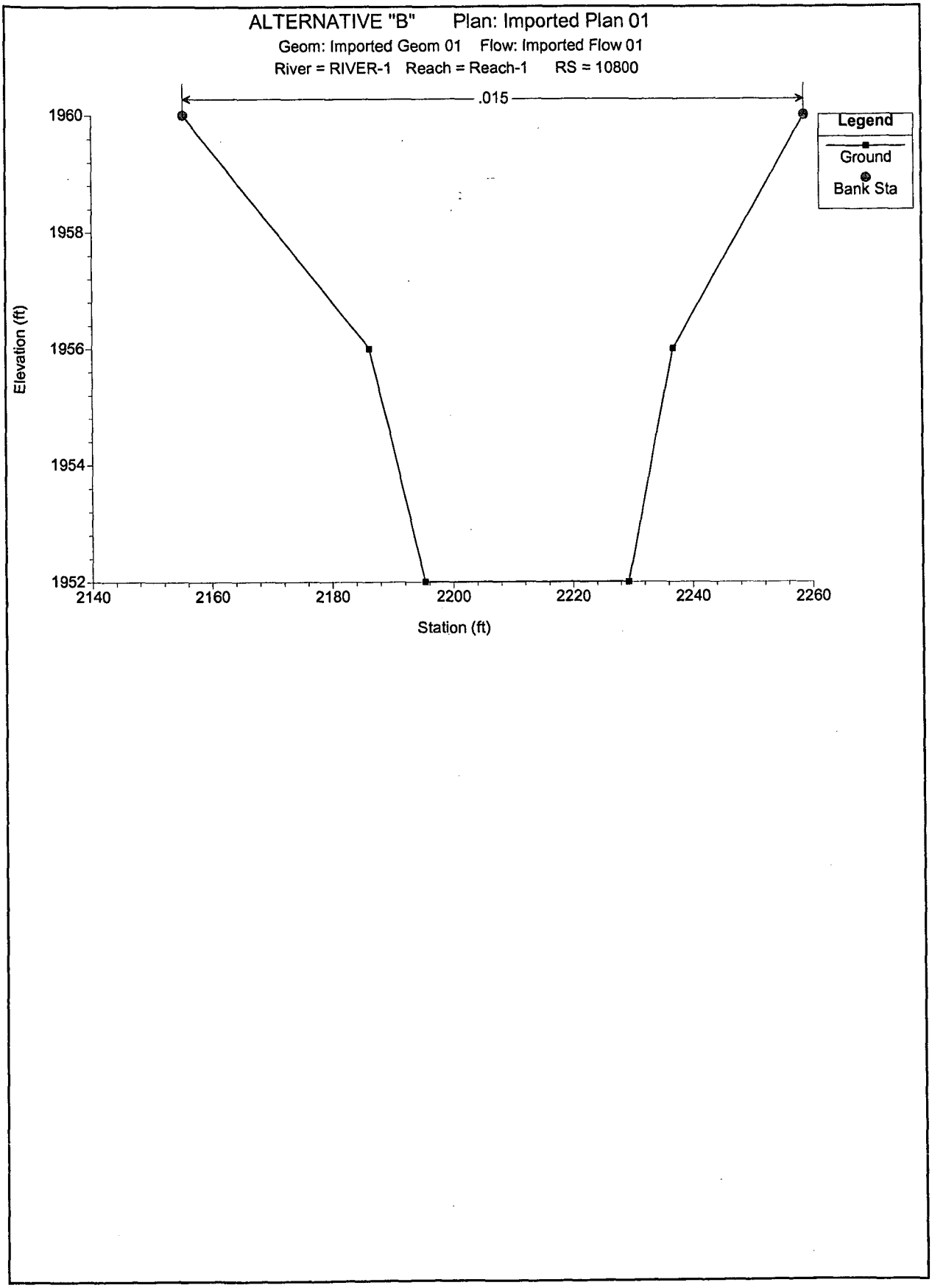

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11550
.015
Legend
Ground
Bank Sta
Elevation (ft)
1978
1976
1974
1972
1970
1968
1966
1964
1000
1005
1010
1015
1020
1025
1030
1035
1040
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11500 UPSTREAM FACE OF PECOS ROAD BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
1976
1974
1972
1970
1968
1966
1964
2250
2260
2270
2280
2290
2300
2310
Station (ft)


ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11450 Bridge #1
.015
Legend
Ground
Bank Sta
Elevation (ft)
1995
1990
1985
1980
1975
1970
1965
1960
2250
2260
2270
2280
2290
2300
2310
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11450 Bridge #1
.015
Legend
Ground
Bank Sta
Elevation (ft)
1976
1974
1972
1970
1968
1966
1964
1000
1010
1020
1030
1040
1050
Station (ft)

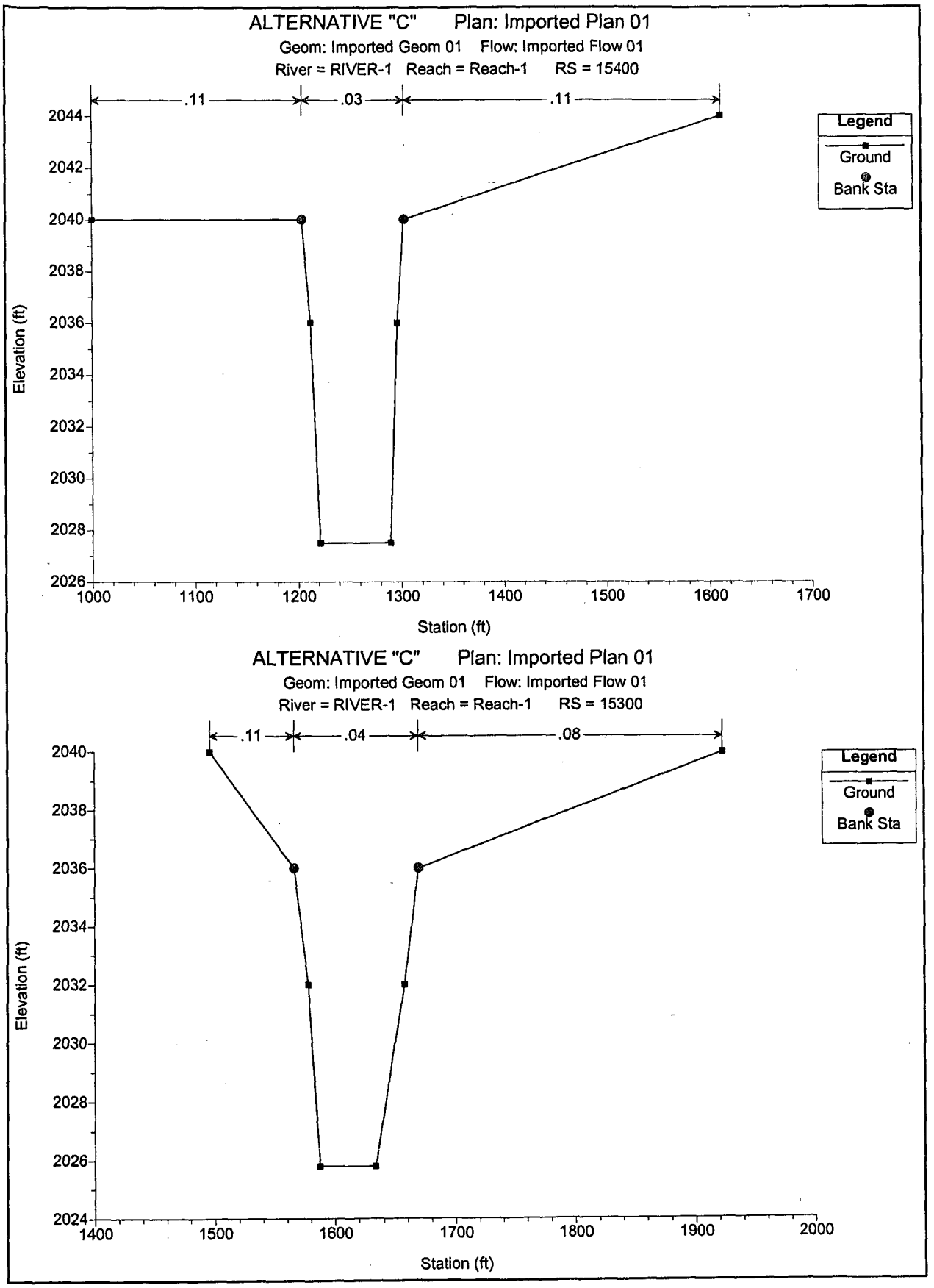

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11400 DOWNSTREAM FACE OF PECOS ROAD BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
1976
1974
1972
1970
1968
1966
1964
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11300
.015
Legend
Ground
Bank Sta
Elevation (ft)
1972
1970
1968
1966
1964
1840
1850
1860
1870
1880
1890
1900
1910
Station (ft)

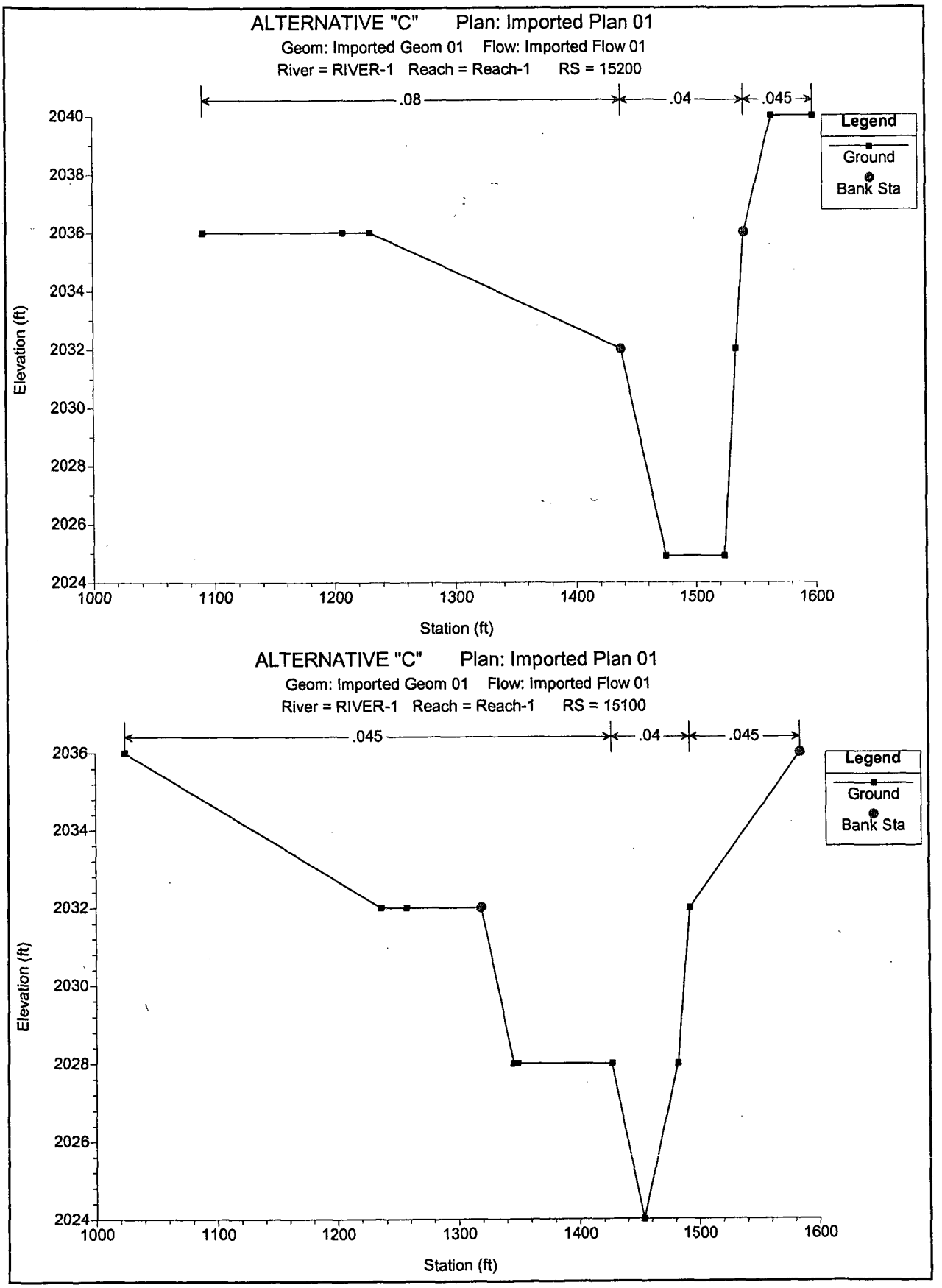

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11200
.015
Legend
Ground
Bank Sta
Elevation (ft)
1972
1970
1968
1966
1964
1962
1920
1930
1940
1950
1960
1970
1980
1990
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11100
.015
Legend
Ground
Bank Sta
Elevation (ft)
1972
1970
1968
1966
1964
1962
1960
1880
1900
1920
1940
1960
1980
Station (ft)

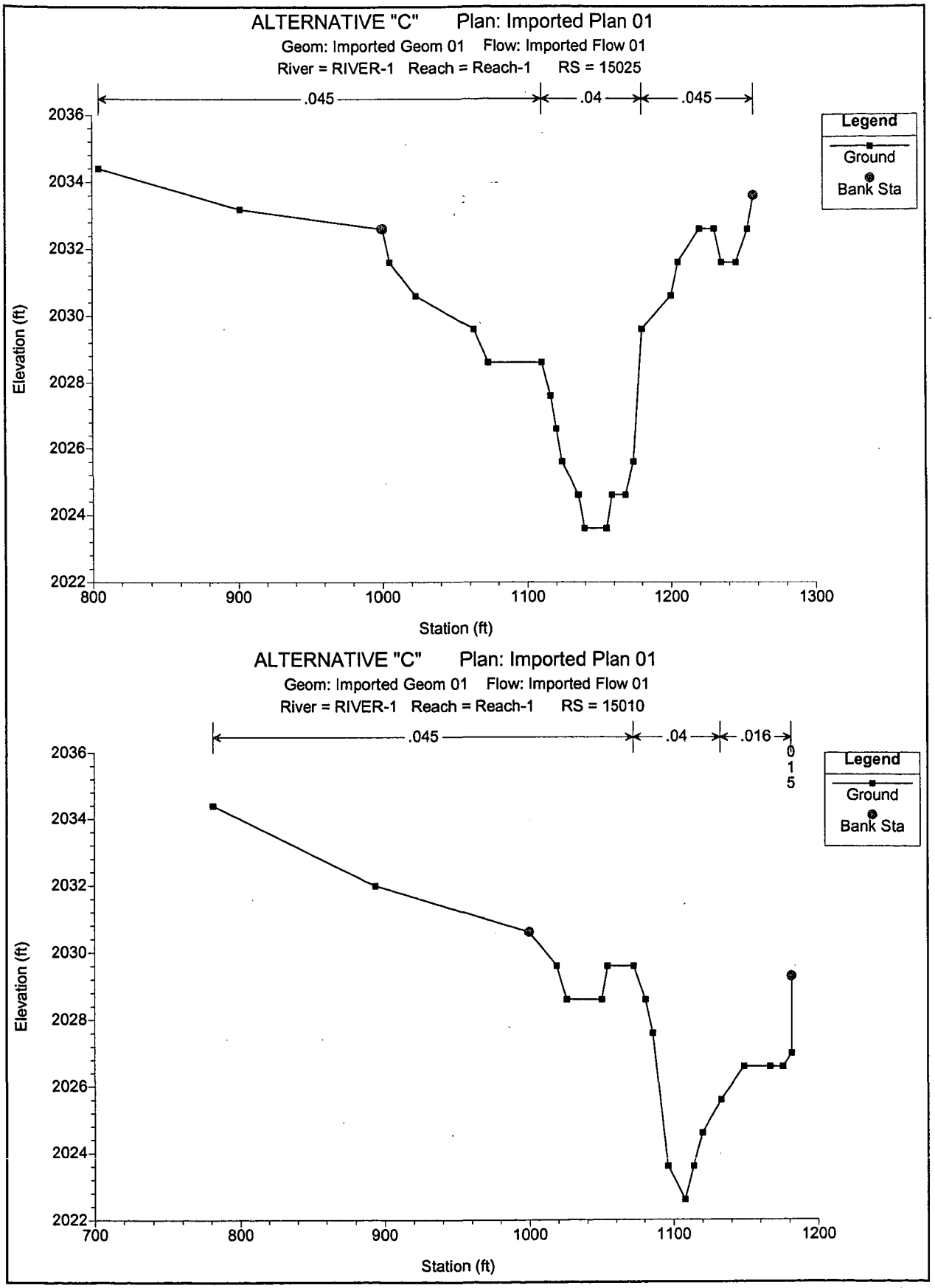

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11000
.08
.015
Legend
Ground
Bank Sta
Elevation (ft)
1972
1970
1968
1966
1964
1962
1960
1780
1800
1820
1840
1860
1880
1900
1920
Station (ft)
ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 10900
.015
.11
Legend
Ground
Bank Sta
Elevation (ft)
1968
1966
1964
1962
1960
1958
1956
1840
1860
1880
1900
1920
1940
1960
Station (ft)

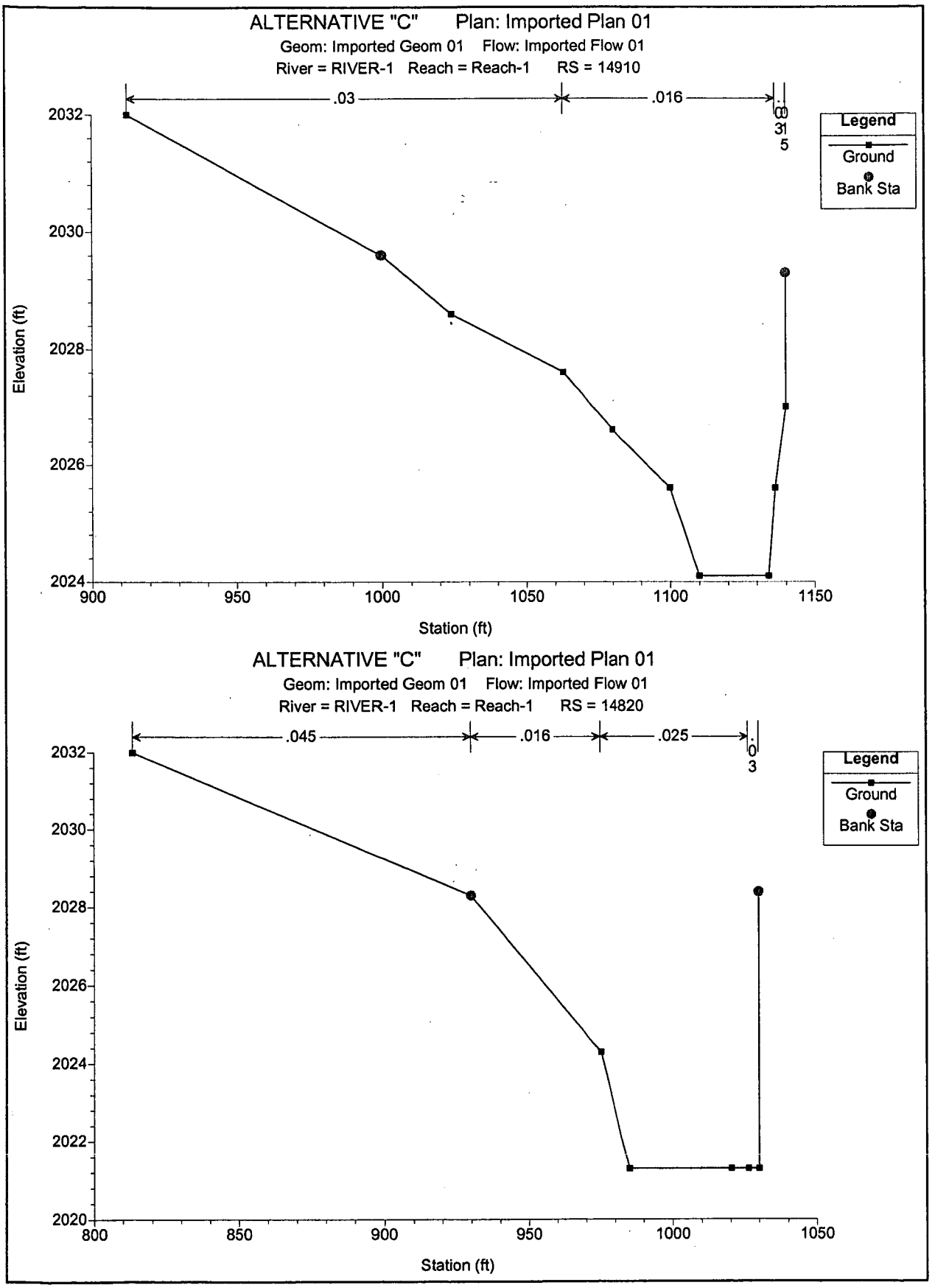

ALTERNATIVE "B" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 10800
.015
Legend
Ground
Bank Sta
Elevation (ft)
1960
1958
1956
1954
1952
2140
2160
2180
2200
2220
2240
2260
Station (ft)

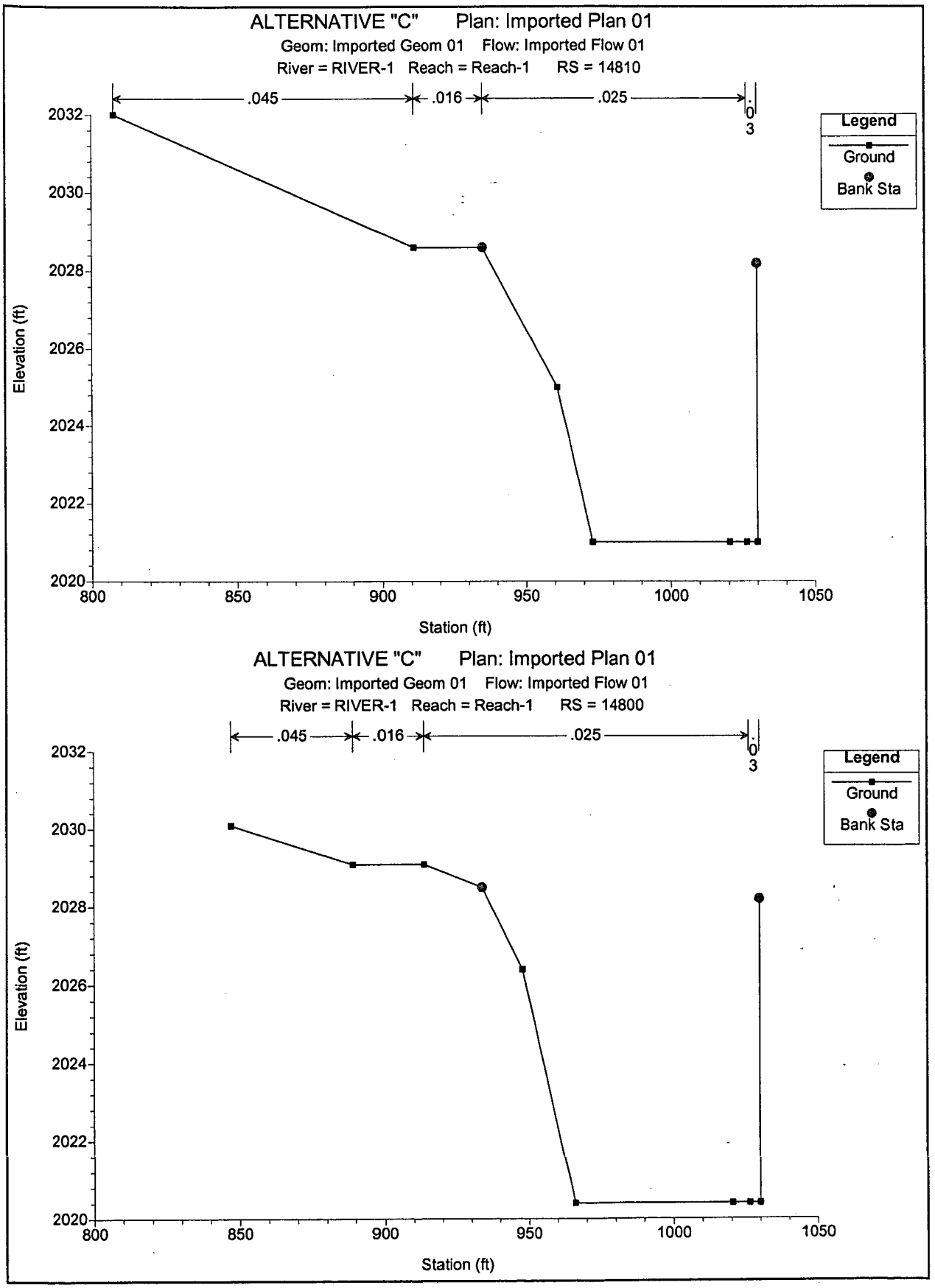
# HEC-2 CROSS SECTIONS
# ALT-C.OUT

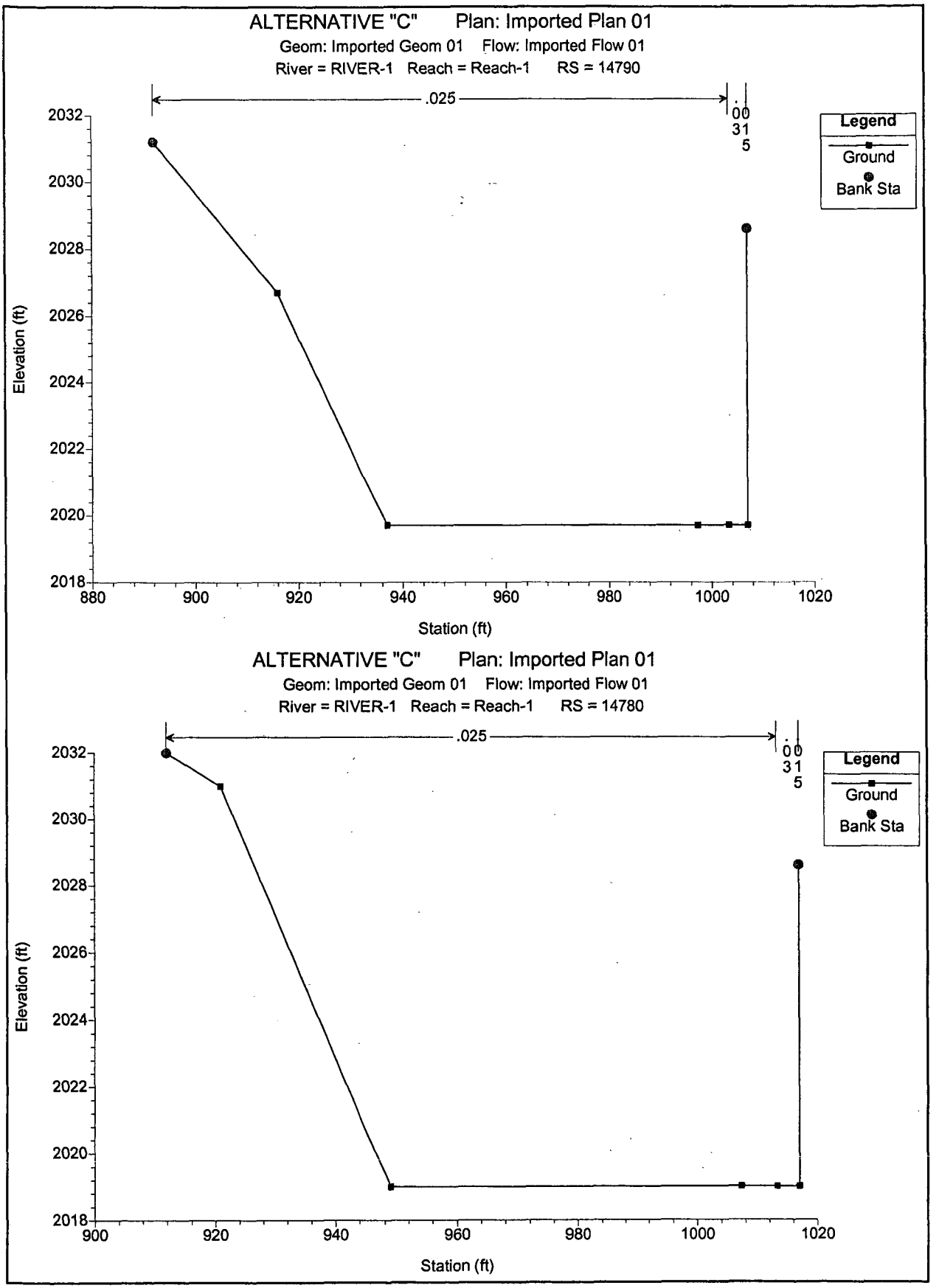

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15400
.11
.03
.11
Legend
Ground
Bank Sta
Elevation (ft)
2044
2042
2040
2038
2036
2034
2032
2030
2028
2026
1000
1100
1200
1300
1400
1500
1600
1700
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15300
.11
.04
.08
Legend
Ground
Bank Sta
Elevation (ft)
2040
2038
2036
2034
2032
2030
2028
2026
2024
1400
1500
1600
1700
1800
1900
2000
Station (ft)

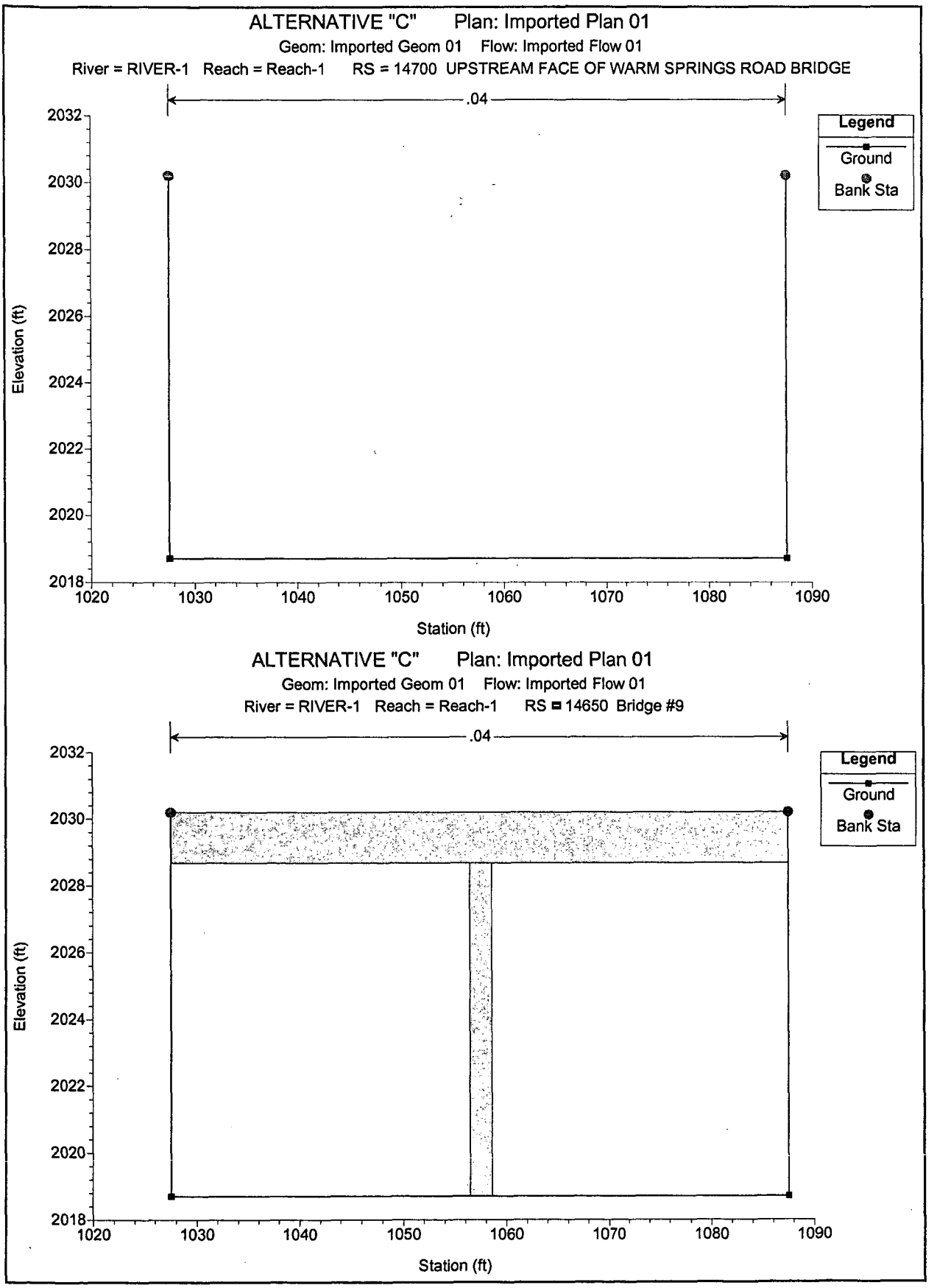

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15200
.08
.04
.045
Legend
Ground
Bank Sta
Elevation (ft)
2040
2038
2036
2034
2032
2030
2028
2026
2024
1000
1100
1200
1300
1400
1500
1600
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15100
.045
.04
.045
Legend
Ground
Bank Sta
Elevation (ft)
2036
2034
2032
2030
2028
2026
2024
1000
1100
1200
1300
1400
1500
1600
Station (ft)

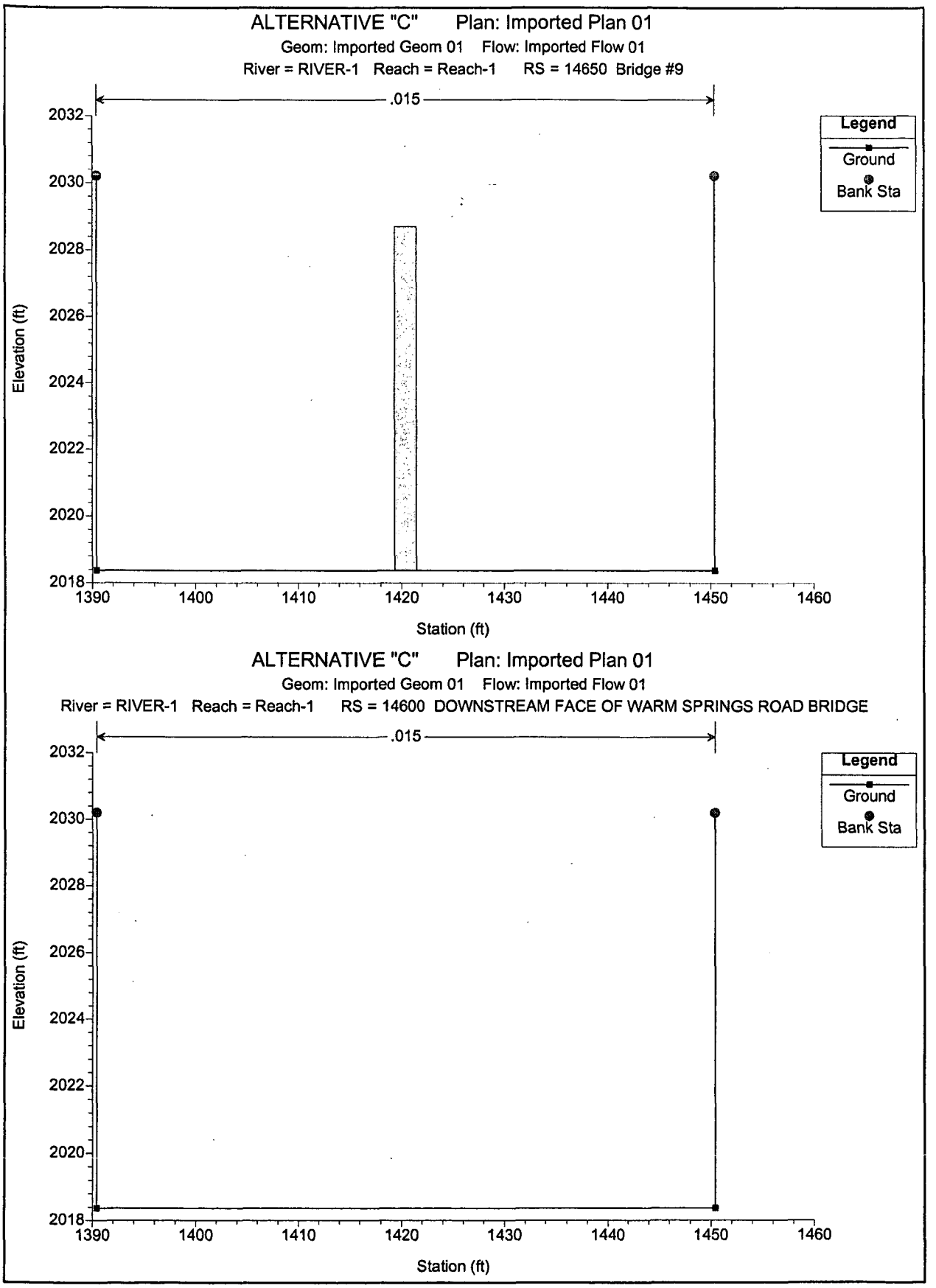

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15025
.045
.04
.045
Legend
Ground
Bank Sta
Elevation (ft)
2036
2034
2032
2030
2028
2026
2024
2022
800
900
1000
1100
1200
1300
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 15010
.045
.04
.016
Legend
Ground
Bank Sta
Elevation (ft)
2036
2034
2032
2030
2028
2026
2024
2022
700
800
900
1000
1100
1200
Station (ft)

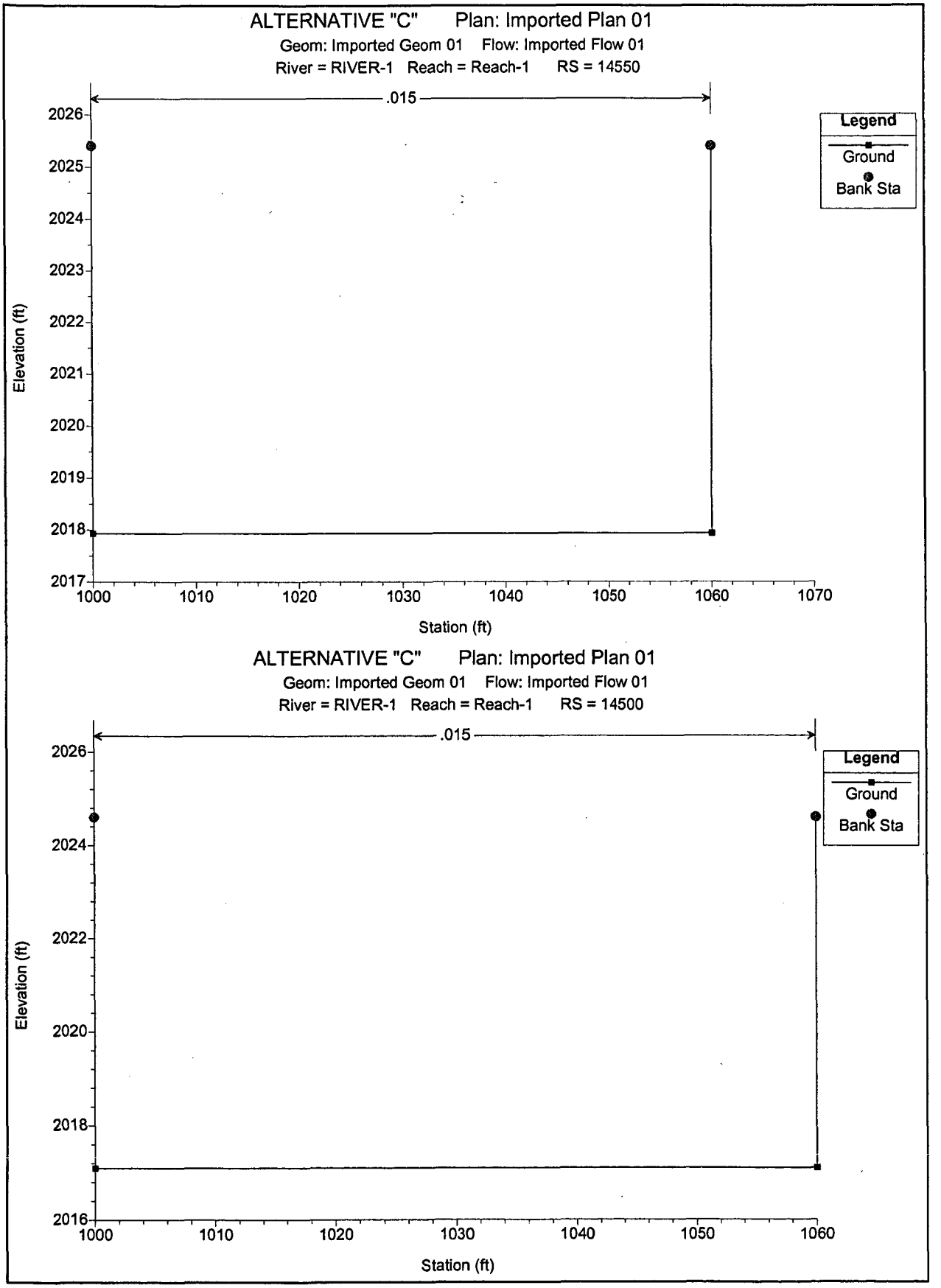

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14910
.03
.016
Legend
Ground
Bank Sta
Elevation (ft)
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14820
.045
.016
.025
Legend
Ground
Bank Sta
Elevation (ft)
Station (ft)

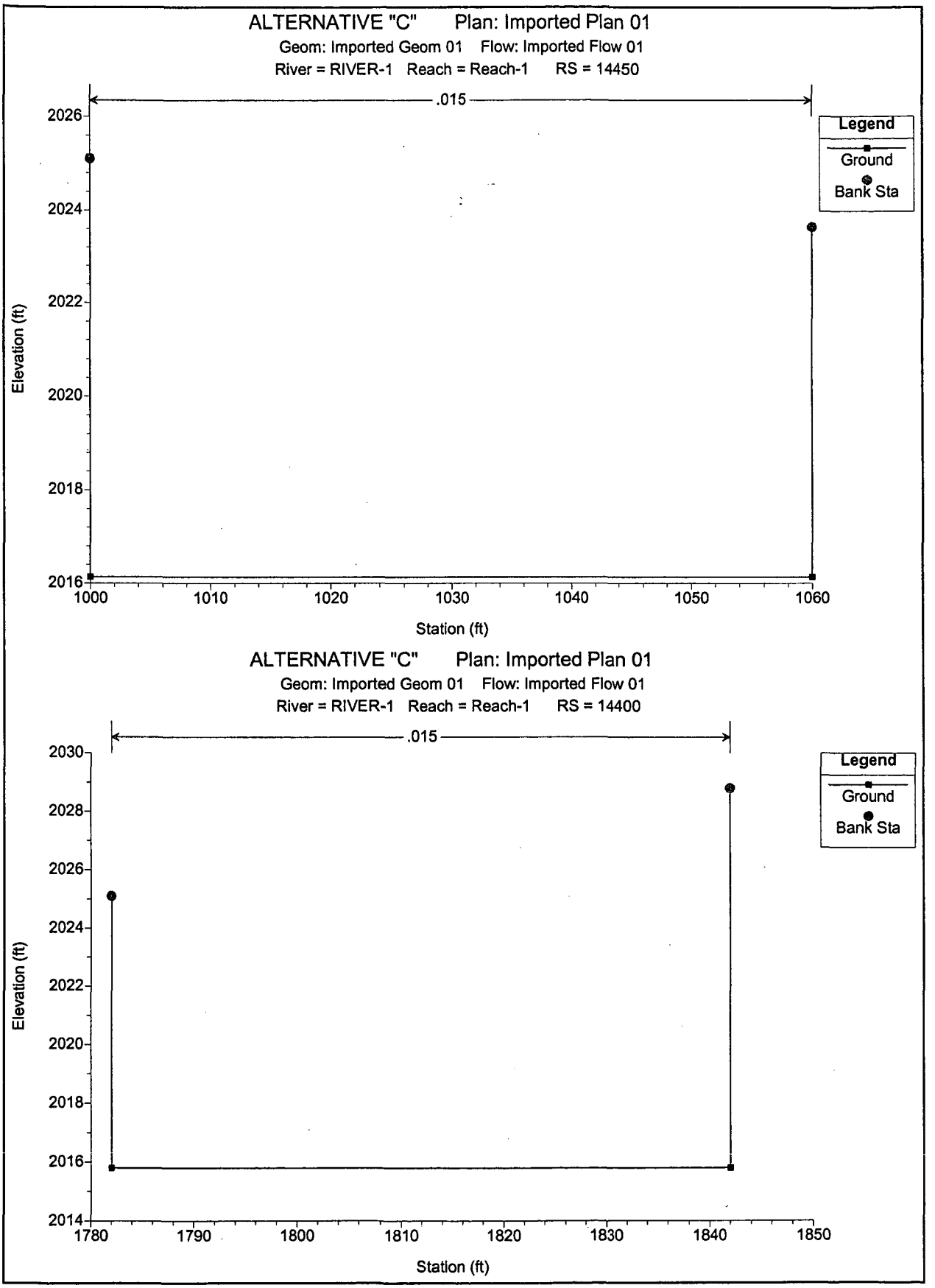

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14810
.045
.016
.025
.03
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
800
850
900
950
1000
1050
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14800
.045
.016
.025
.03
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
800
850
900
950
1000
1050
Station (ft)

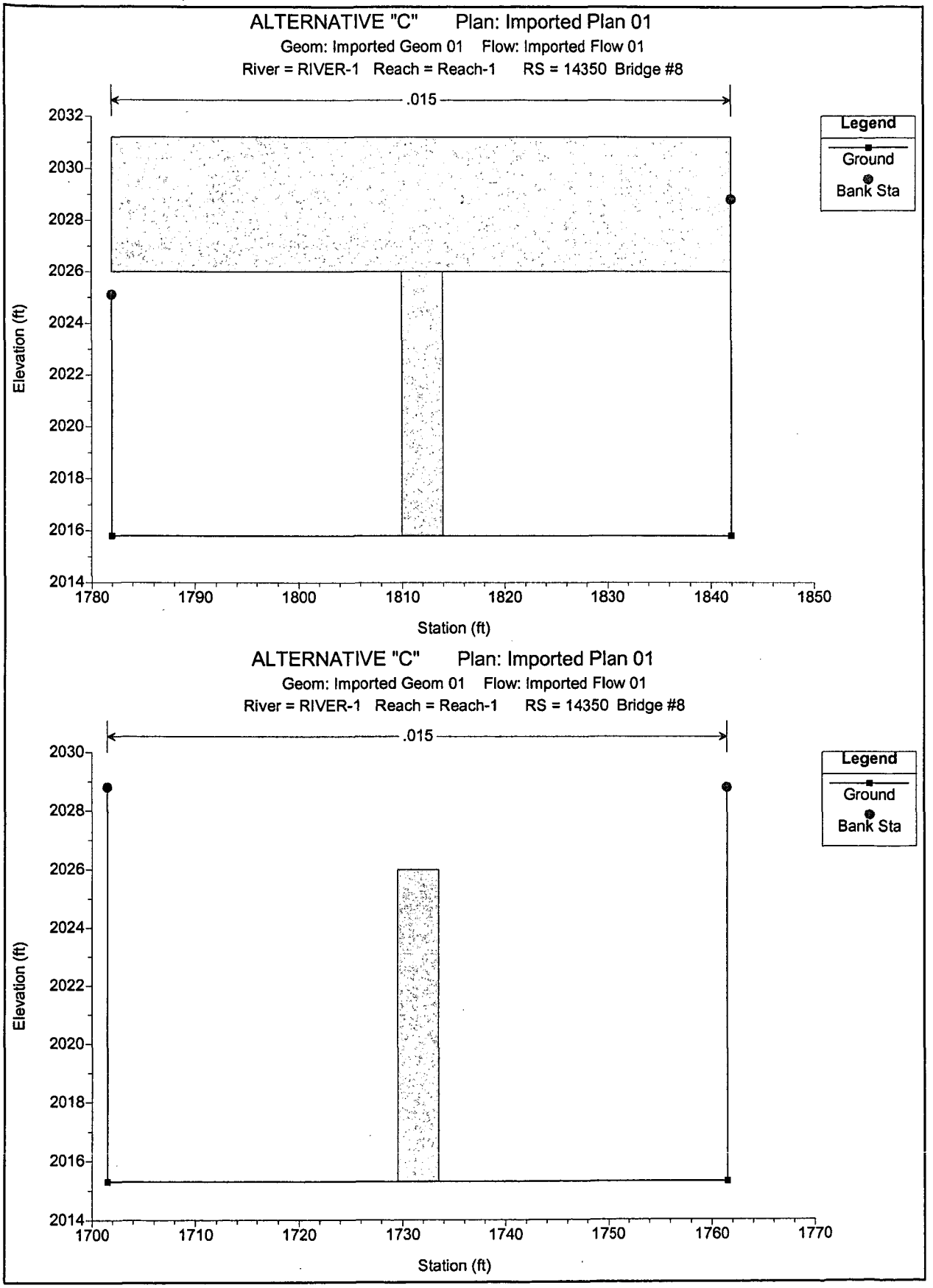

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14790
.025
.00315
Legend
Ground
Bank Sta
Elevation (ft)
Station (ft)
2032
2030
2028
2026
2024
2022
2020
2018
880
900
920
940
960
980
1000
1020
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14780
.025
.00315
Legend
Ground
Bank Sta
Elevation (ft)
Station (ft)
2032
2030
2028
2026
2024
2022
2020
2018
900
920
940
960
980
1000
1020

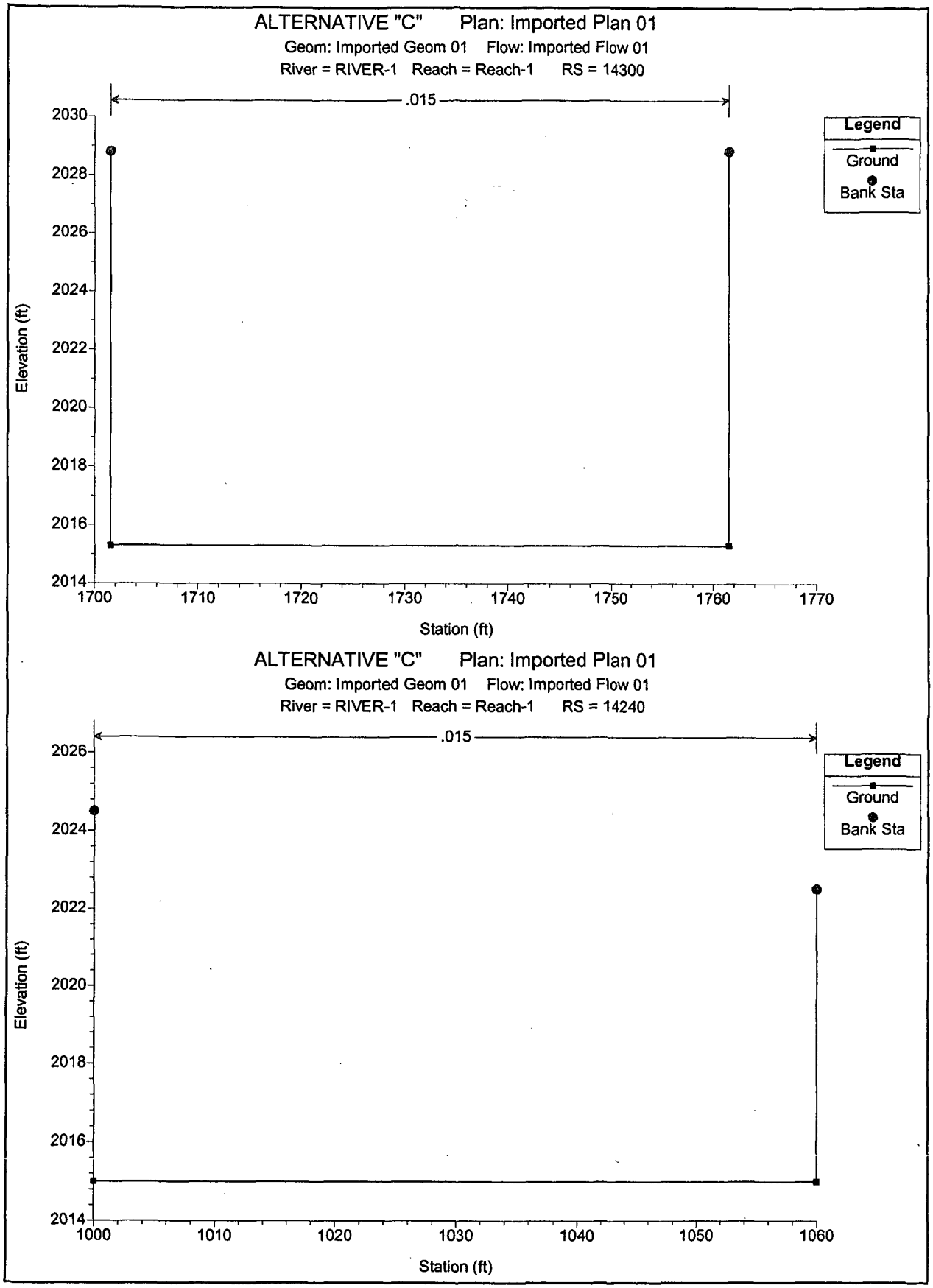

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14700 UPSTREAM FACE OF WARM SPRINGS ROAD BRIDGE
.04
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
1020
1030
1040
1050
1060
1070
1080
1090
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14650 Bridge #9
.04
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
1020
1030
1040
1050
1060
1070
1080
1090
Station (ft)

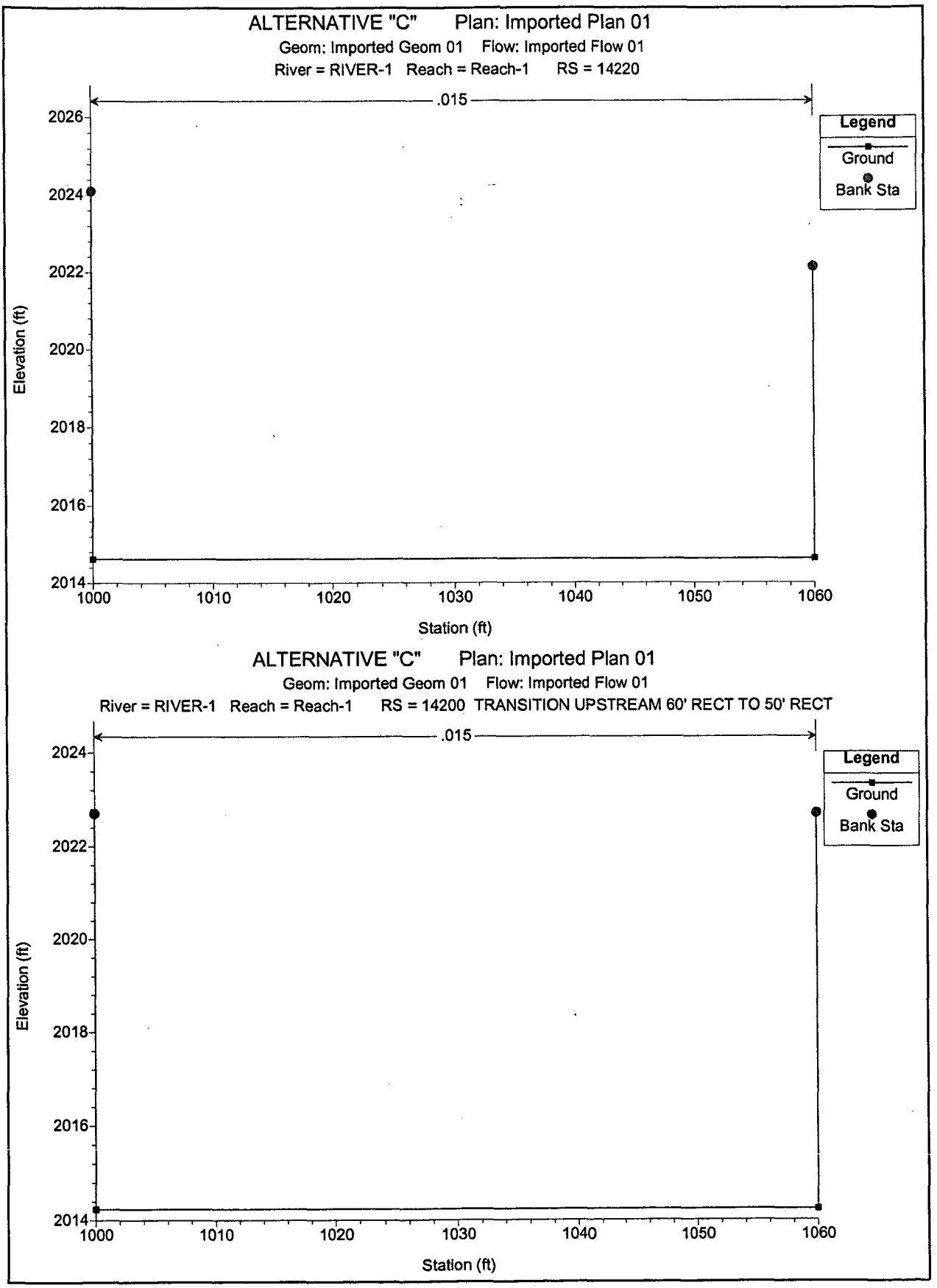

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14650 Bridge #9
.015
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
1390
1400
1410
1420
1430
1440
1450
1460
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14600 DOWNSTREAM FACE OF WARM SPRINGS ROAD BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
1390
1400
1410
1420
1430
1440
1450
1460
Station (ft)

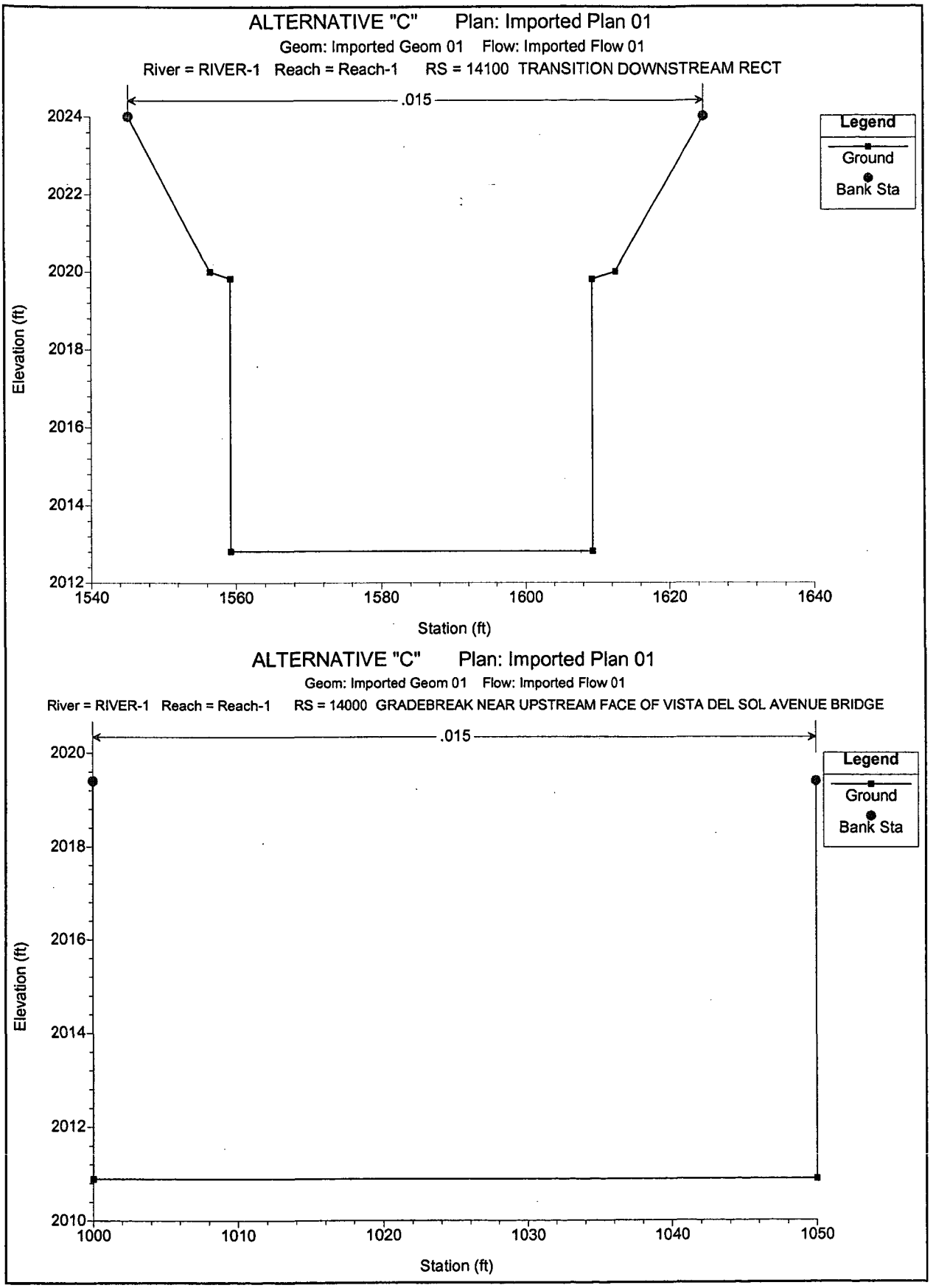

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14550
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2025
2024
2023
2022
2021
2020
2019
2018
2017
1000
1010
1020
1030
1040
1050
1060
1070
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14500
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
1000
1010
1020
1030
1040
1050
1060
Station (ft)

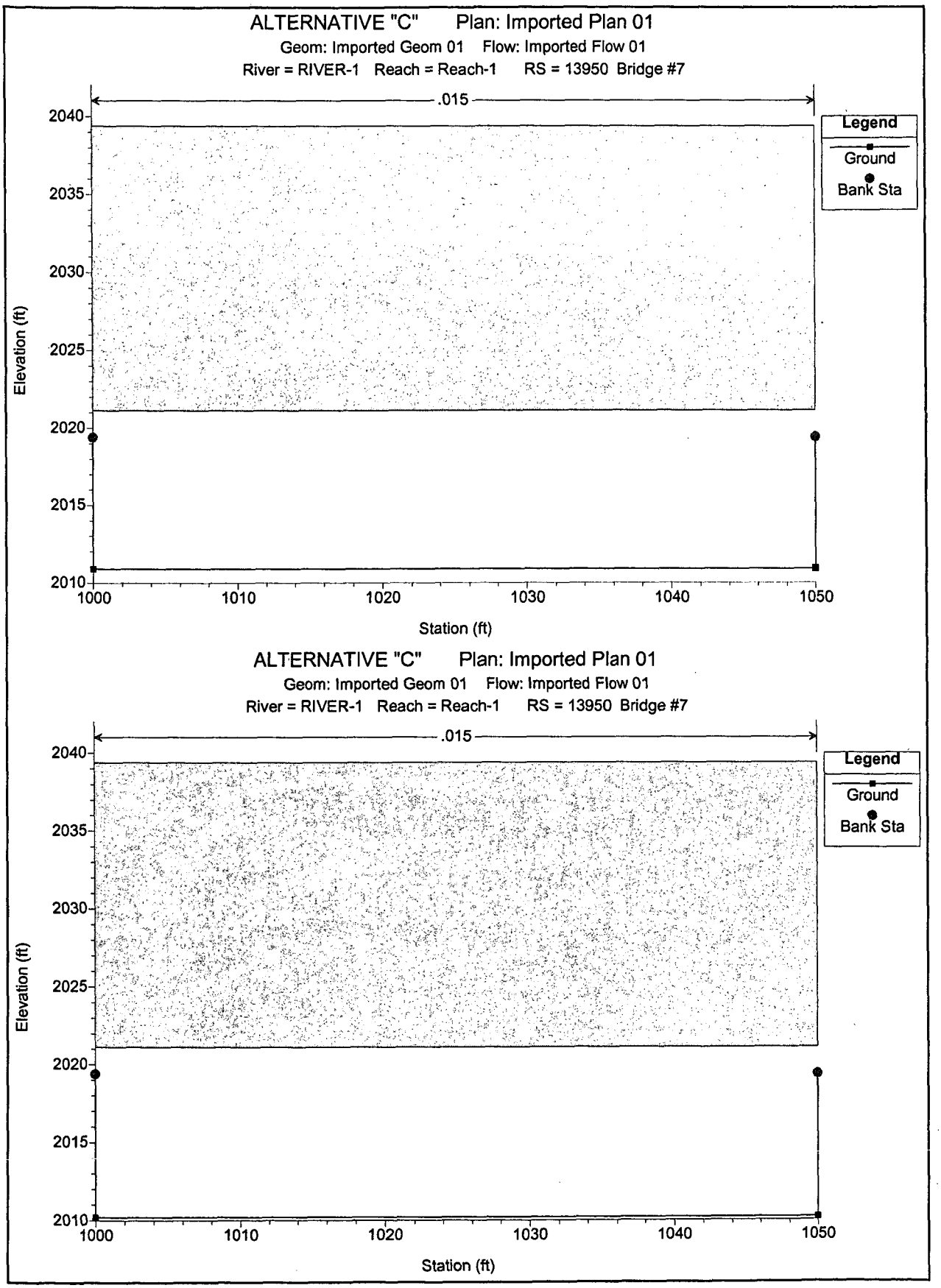

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14450
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
1000
1010
1020
1030
1040
1050
1060
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14400
.015
Legend
Ground
Bank Sta
Elevation (ft)
2030
2028
2026
2024
2022
2020
2018
2016
2014
1780
1790
1800
1810
1820
1830
1840
1850
Station (ft)

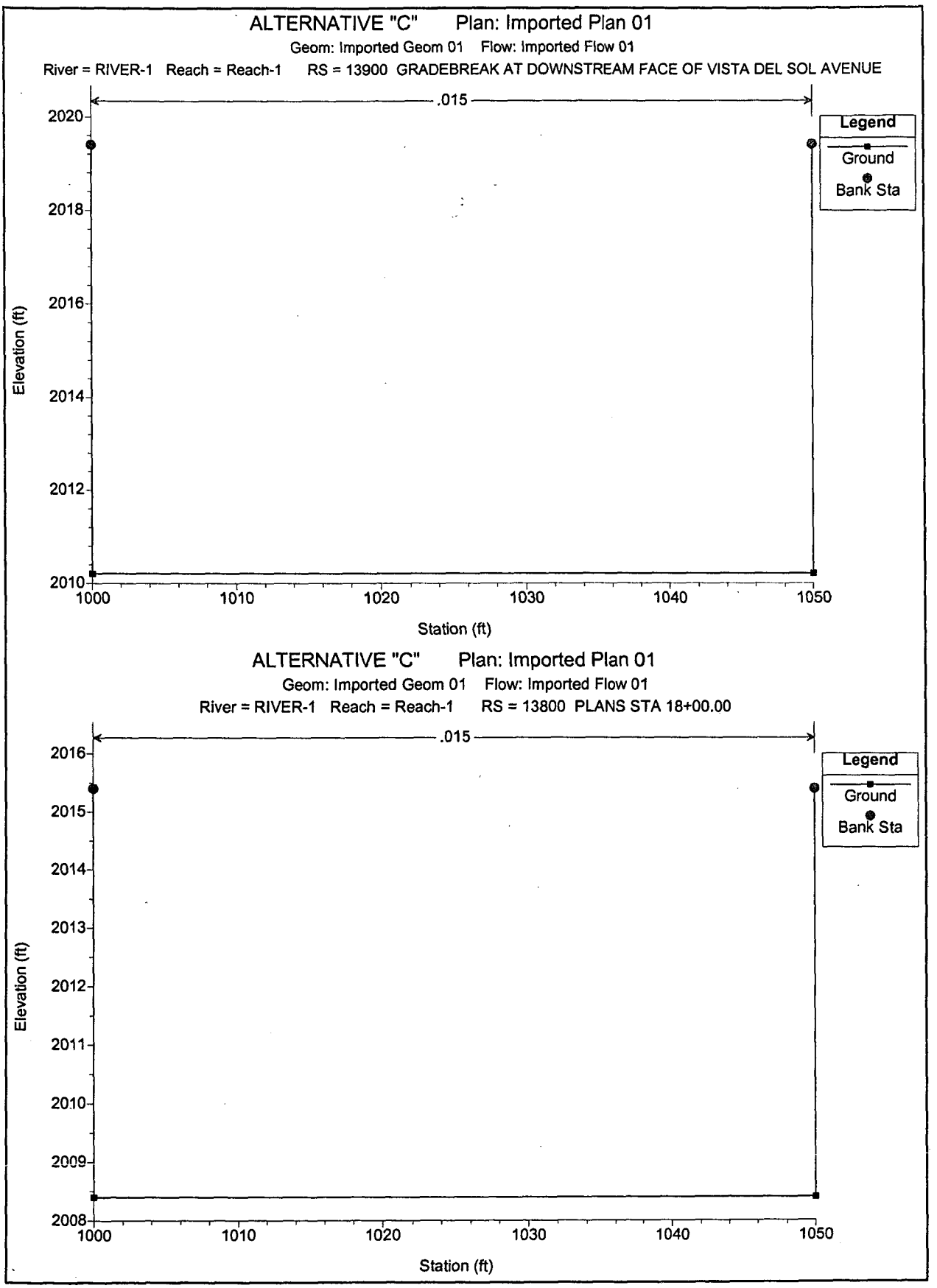

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14350 Bridge #8
.015
Legend
Ground
Bank Sta
Elevation (ft)
2032
2030
2028
2026
2024
2022
2020
2018
2016
2014
1780
1790
1800
1810
1820
1830
1840
1850
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14350 Bridge #8
.015
Legend
Ground
Bank Sta
Elevation (ft)
2030
2028
2026
2024
2022
2020
2018
2016
2014
1700
1710
1720
1730
1740
1750
1760
1770
Station (ft)

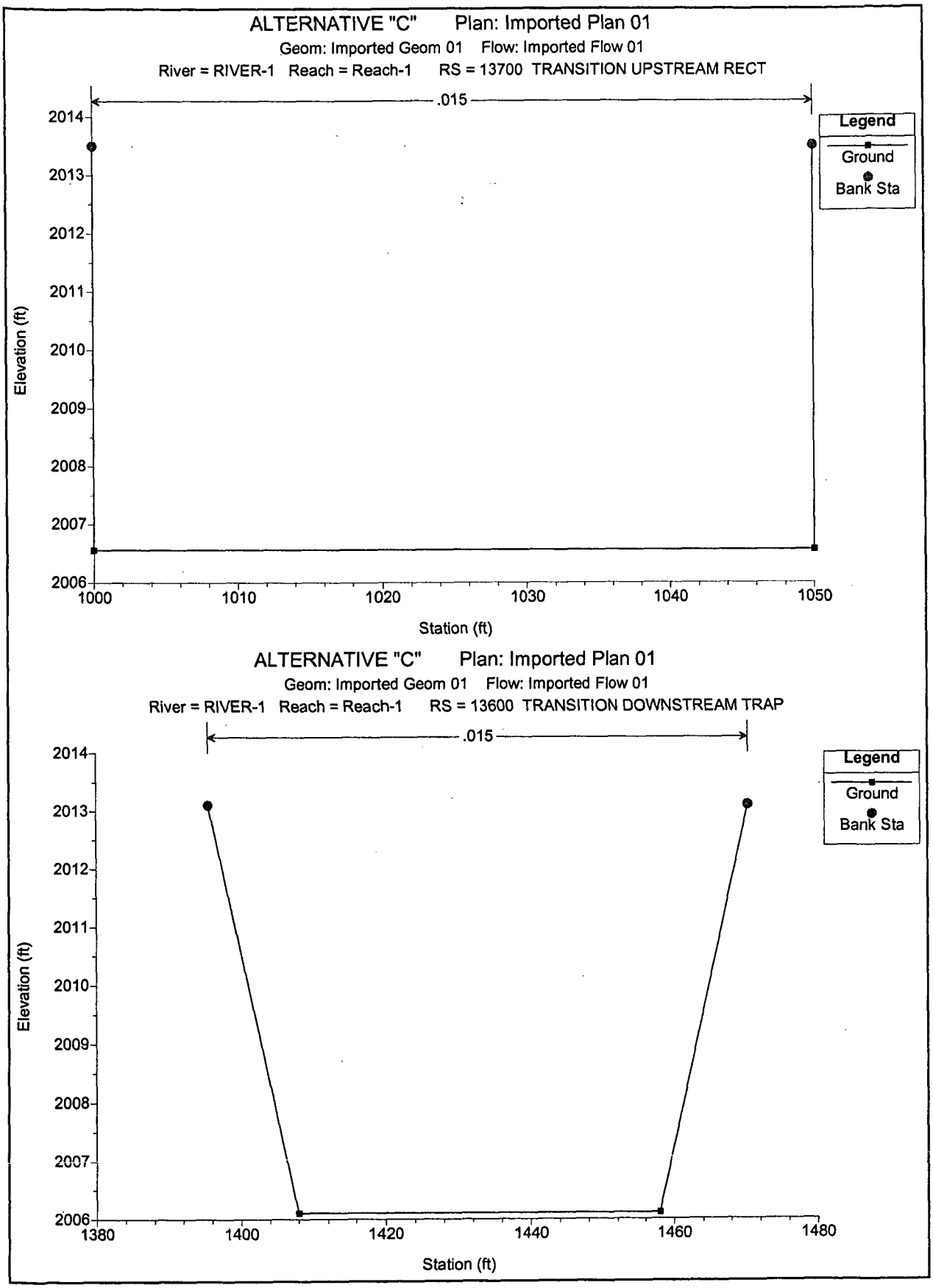

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14300
.015
Legend
Ground
Bank Sta
Elevation (ft)
2030
2028
2026
2024
2022
2020
2018
2016
2014
1700
1710
1720
1730
1740
1750
1760
1770
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14240
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
2014
1000
1010
1020
1030
1040
1050
1060
Station (ft)

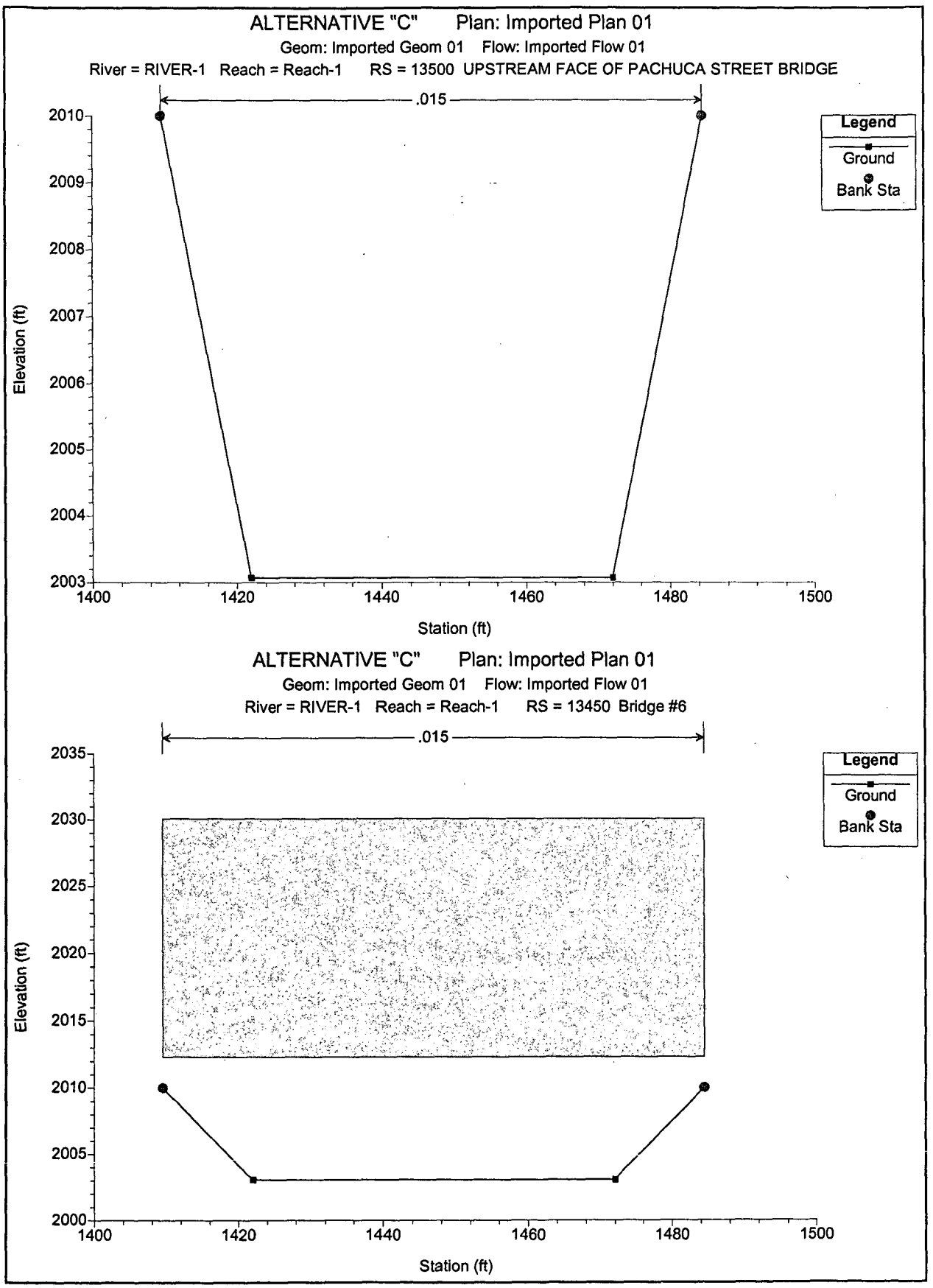

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14220
.015
Legend
Ground
Bank Sta
Elevation (ft)
2026
2024
2022
2020
2018
2016
2014
1000
1010
1020
1030
1040
1050
1060
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14200 TRANSITION UPSTREAM 60' RECT TO 50' RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2024
2022
2020
2018
2016
2014
1000
1010
1020
1030
1040
1050
1060
Station (ft)

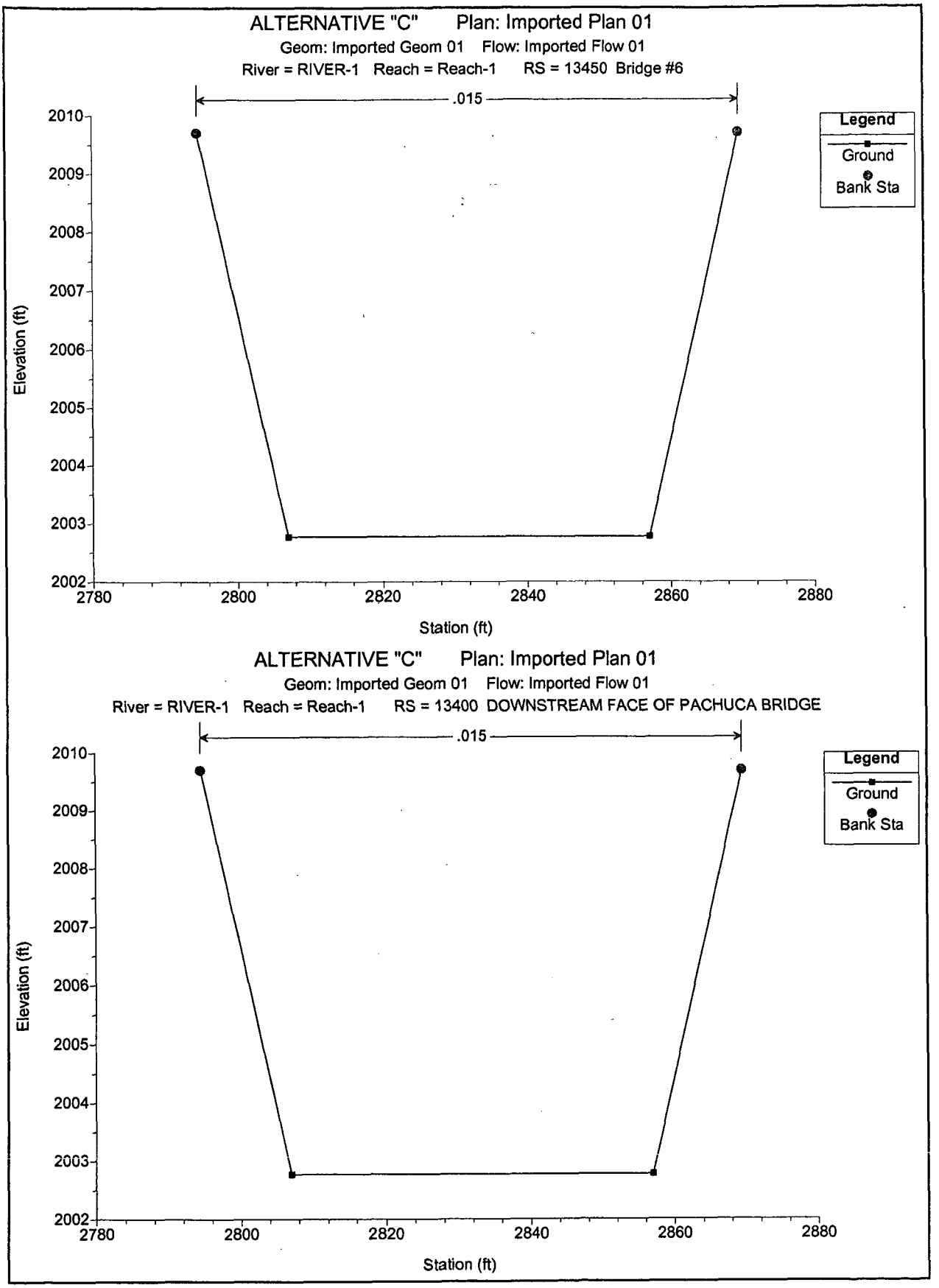

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14100 TRANSITION DOWNSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2024
2022
2020
2018
2016
2014
2012
1540
1560
1580
1600
1620
1640
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 14000 GRADEBREAK NEAR UPSTREAM FACE OF VISTA DEL SOL AVENUE BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2020
2018
2016
2014
2012
2010
1000
1010
1020
1030
1040
1050
Station (ft)

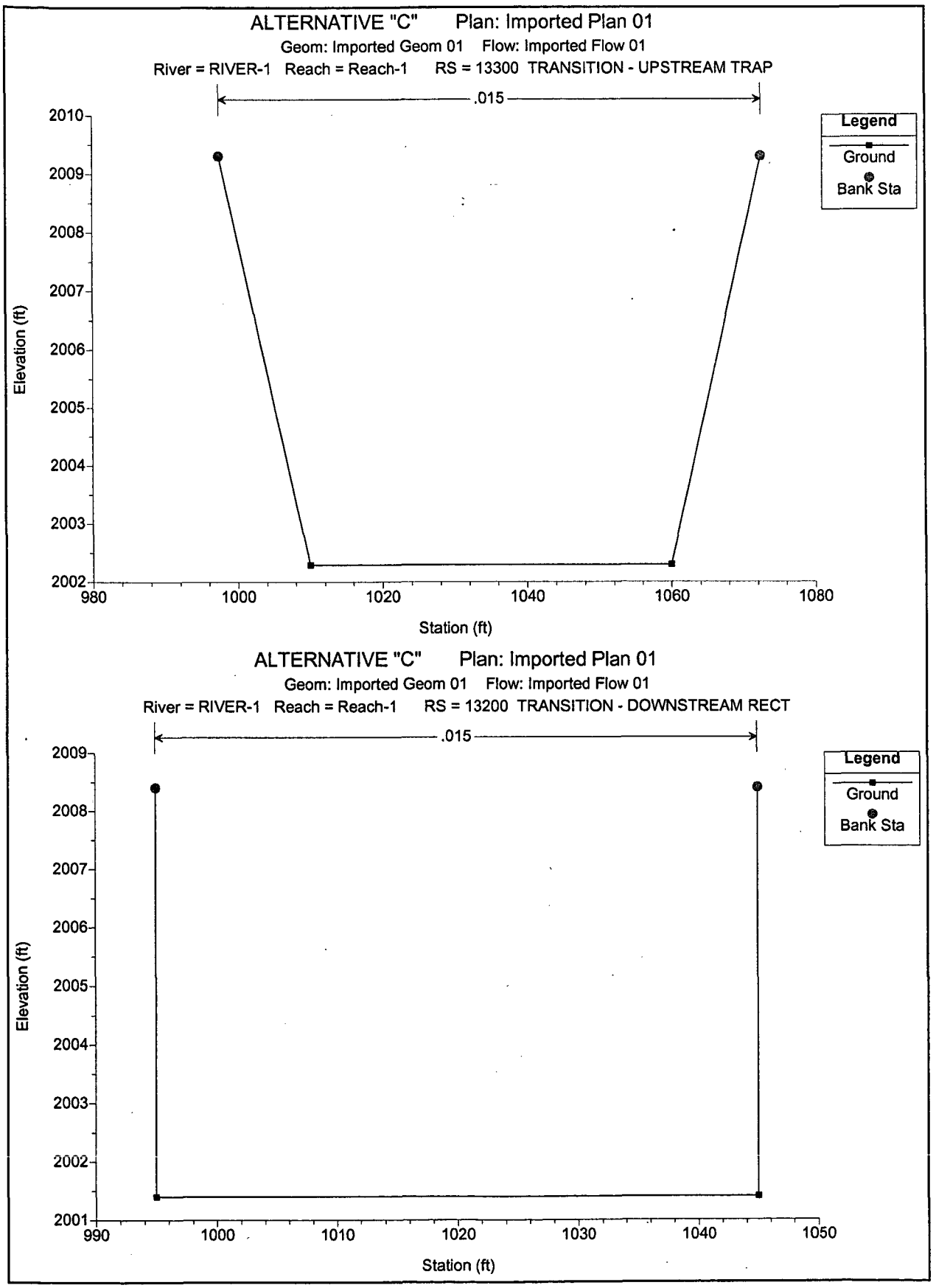

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13950 Bridge #7
.015
Legend
Ground
Bank Sta
Elevation (ft)
2040
2035
2030
2025
2020
2015
2010
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13950 Bridge #7
.015
Legend
Ground
Bank Sta
Elevation (ft)
2040
2035
2030
2025
2020
2015
2010
1000
1010
1020
1030
1040
1050
Station (ft)

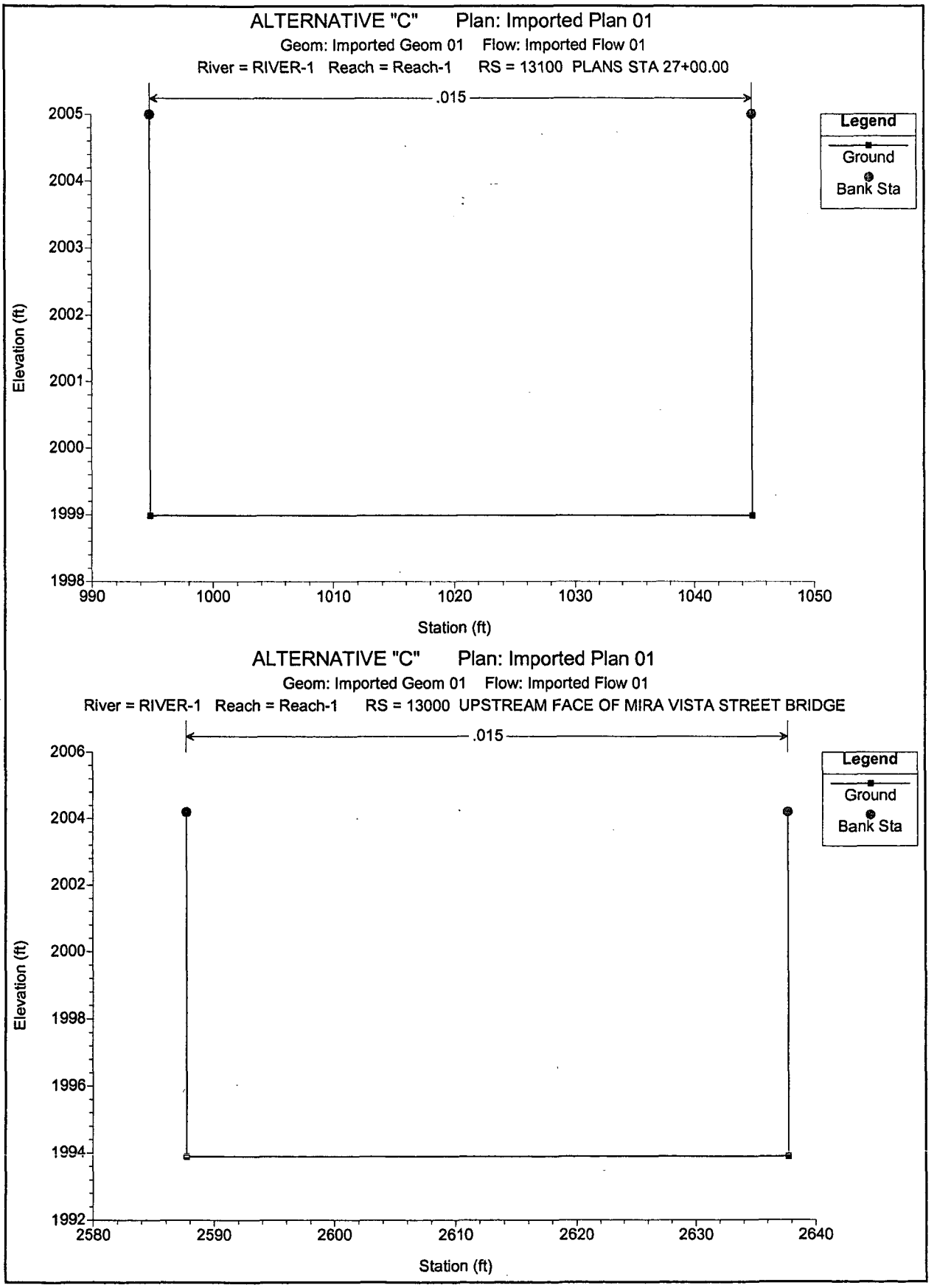

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13900 GRADEBREAK AT DOWNSTREAM FACE OF VISTA DEL SOL AVENUE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2020
2018
2016
2014
2012
2010
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13800 PLANS STA 18+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
2016
2015
2014
2013
2012
2011
2010
2009
2008
1000
1010
1020
1030
1040
1050
Station (ft)

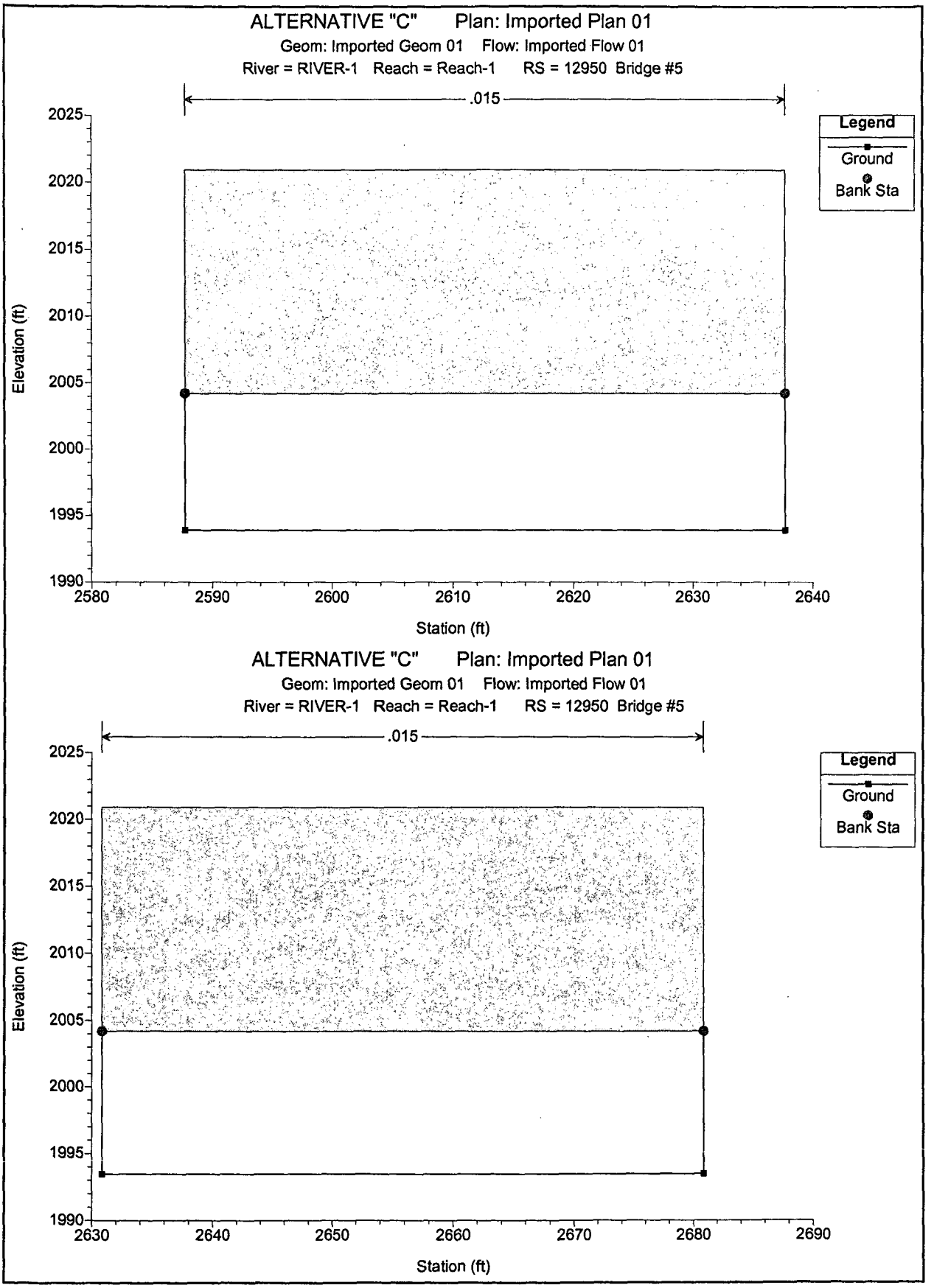

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13700 TRANSITION UPSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2014
2013
2012
2011
2010
2009
2008
2007
2006
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13600 TRANSITION DOWNSTREAM TRAP
.015
Legend
Ground
Bank Sta
Elevation (ft)
2014
2013
2012
2011
2010
2009
2008
2007
2006
1380
1400
1420
1440
1460
1480
Station (ft)

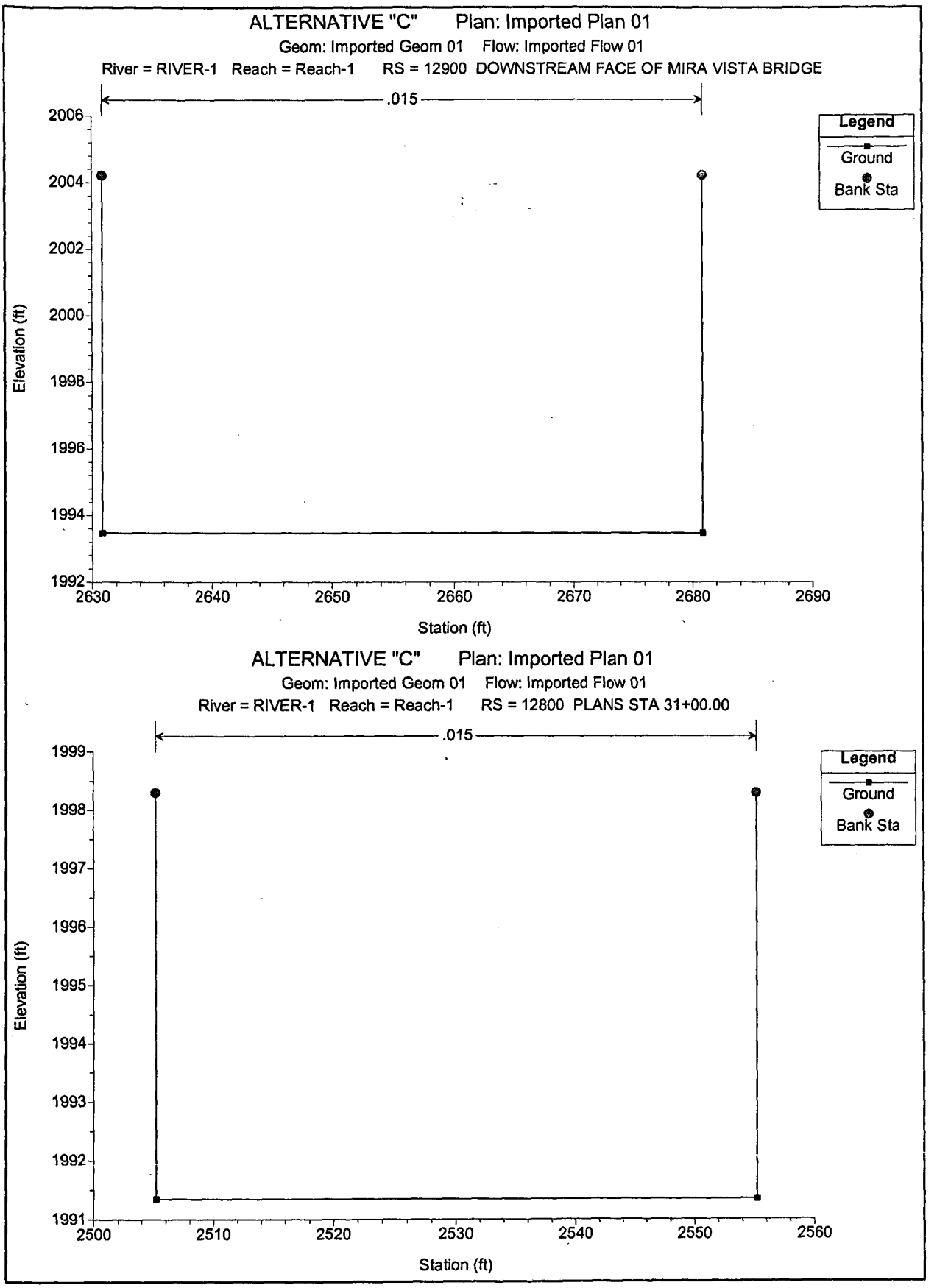

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13500 UPSTREAM FACE OF PACHUCA STREET BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
1400
1420
1440
1460
1480
1500
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13450 Bridge #6
.015
Legend
Ground
Bank Sta
Elevation (ft)
2035
2030
2025
2020
2015
2010
2005
2000
1400
1420
1440
1460
1480
1500
Station (ft)

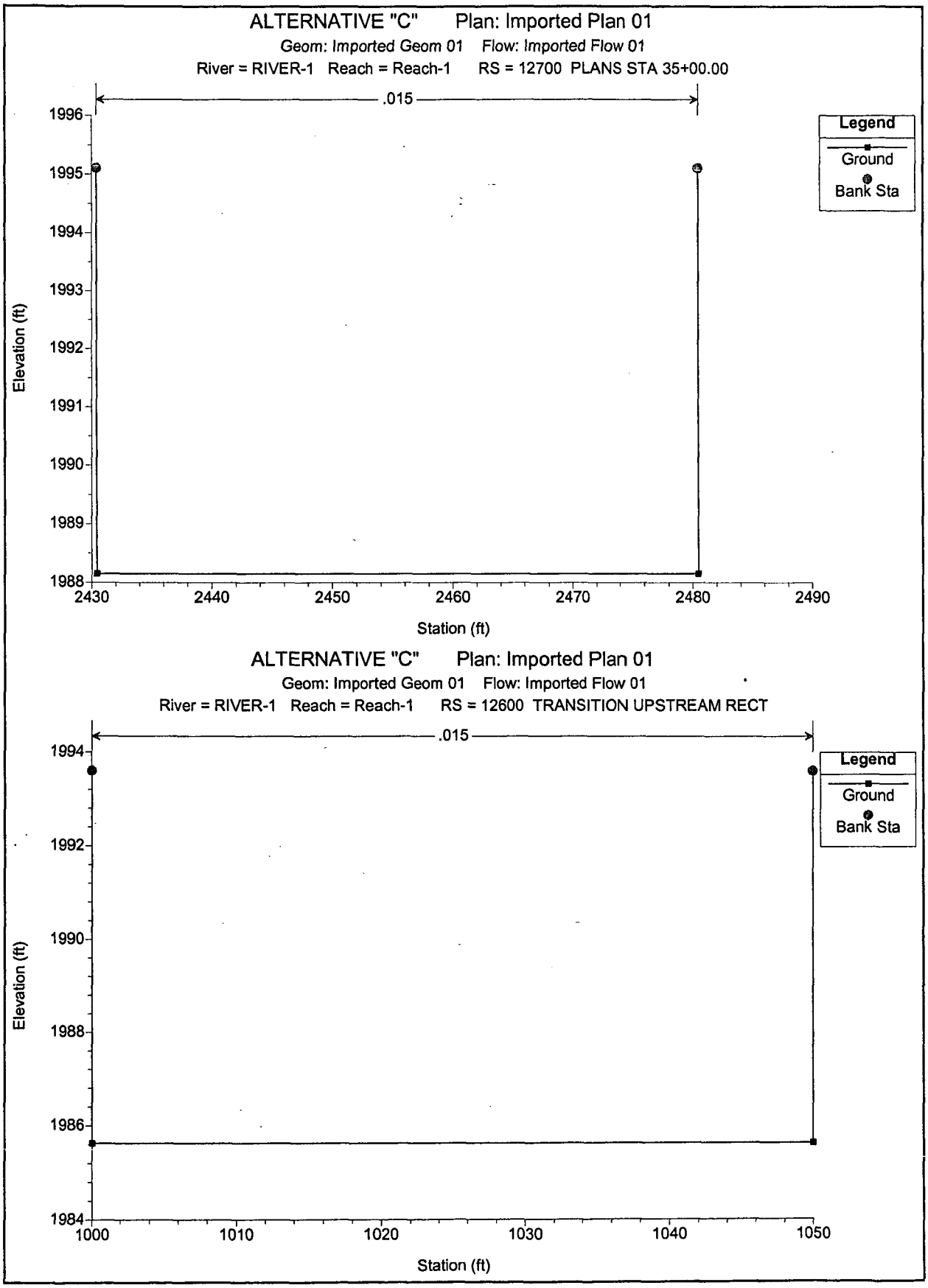

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13450 Bridge #6
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
2002
2780
2800
2820
2840
2860
2880
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13400 DOWNSTREAM FACE OF PACHUCA BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
2002
2780
2800
2820
2840
2860
2880
Station (ft)

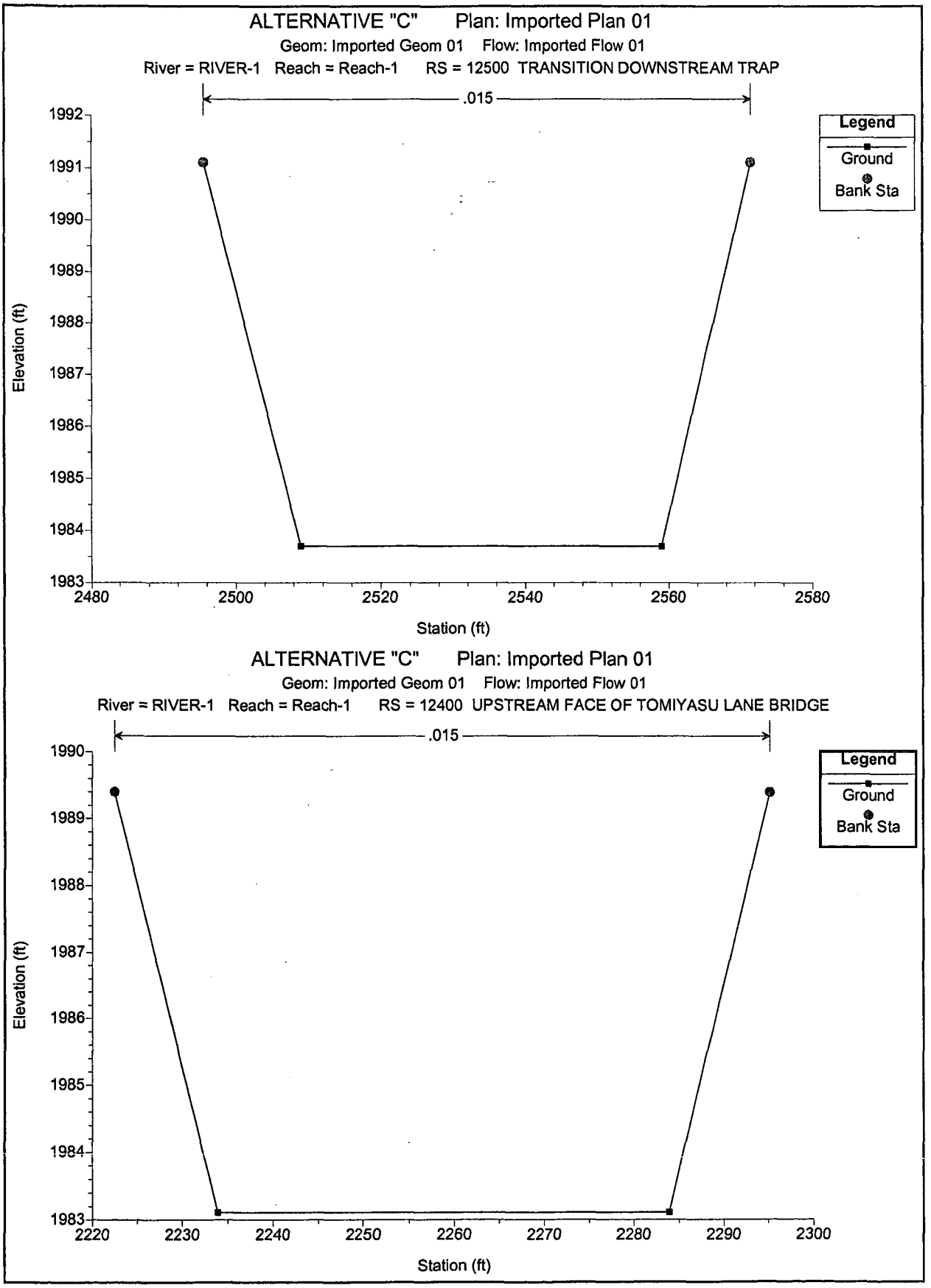

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13300 TRANSITION - UPSTREAM TRAP
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2009
2008
2007
2006
2005
2004
2003
2002
980
1000
1020
1040
1060
1080
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13200 TRANSITION - DOWNSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
2009
2008
2007
2006
2005
2004
2003
2002
2001
990
1000
1010
1020
1030
1040
1050
Station (ft)

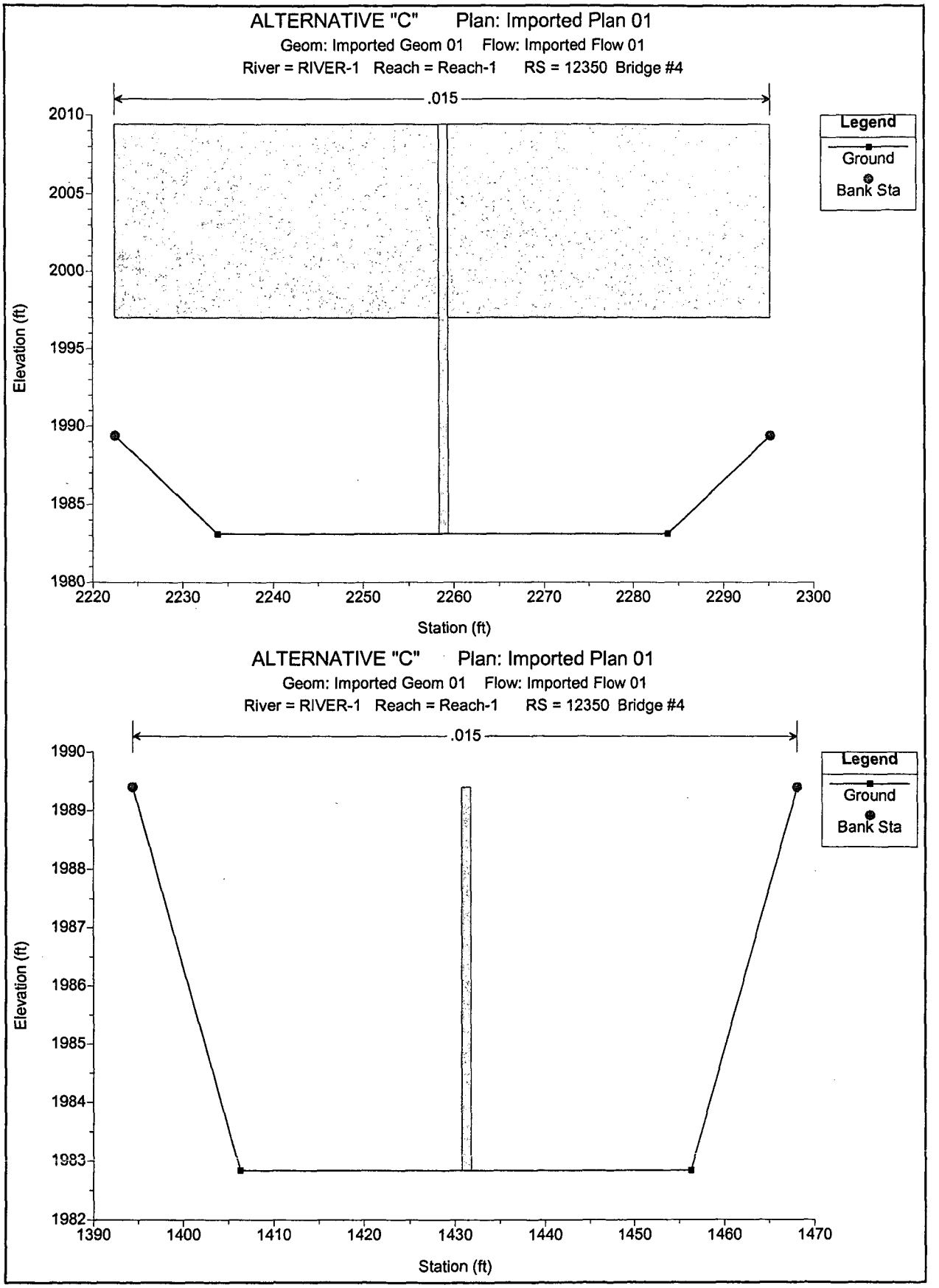

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13100 PLANS STA 27+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
2005
2004
2003
2002
2001
2000
1999
1998
990
1000
1010
1020
1030
1040
1050
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 13000 UPSTREAM FACE OF MIRA VISTA STREET BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2006
2004
2002
2000
1998
1996
1994
1992
2580
2590
2600
2610
2620
2630
2640
Station (ft)

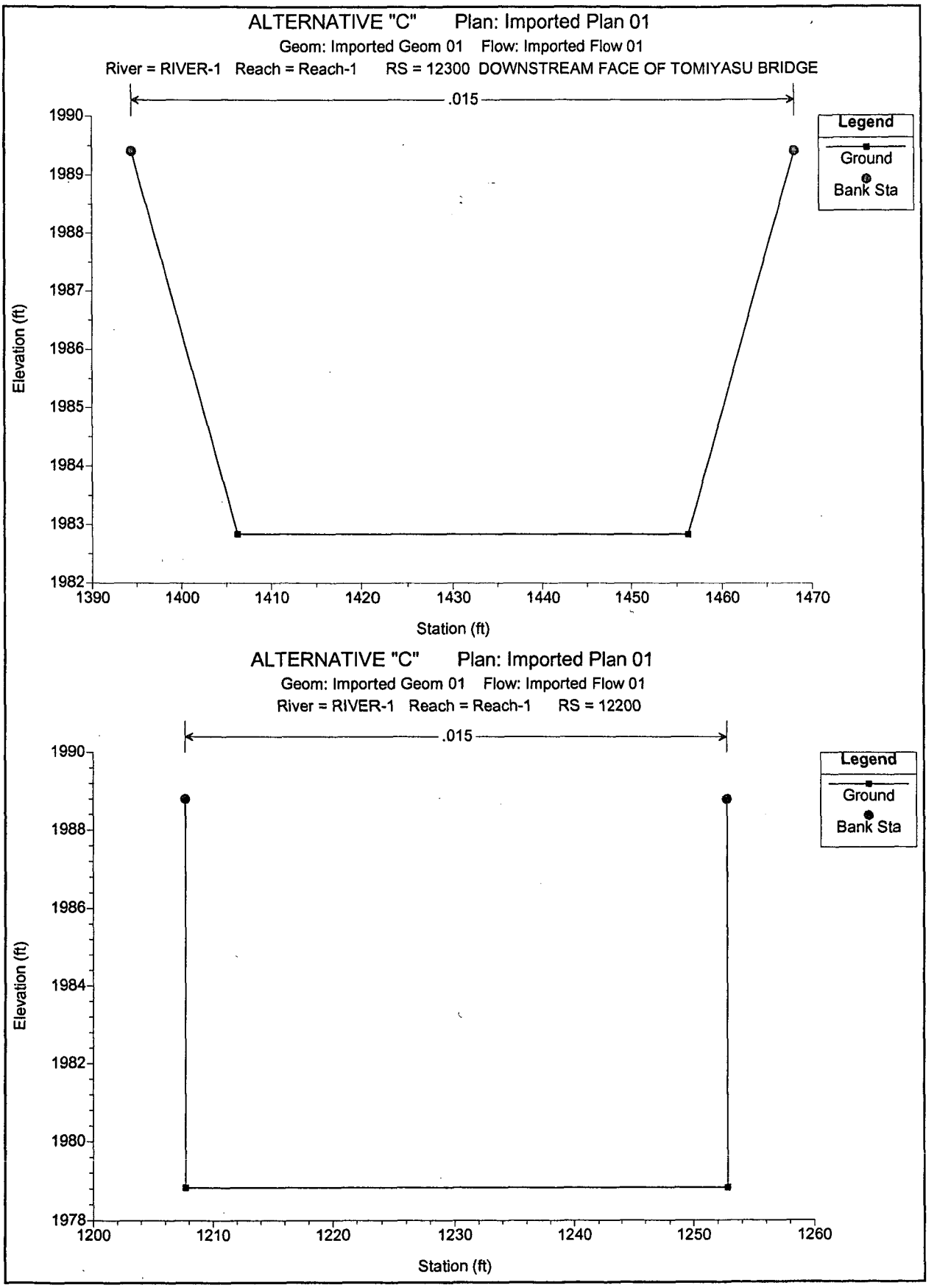

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12950 Bridge #5
.015
Legend
Ground
Bank Sta
Elevation (ft)
2025
2020
2015
2010
2005
2000
1995
1990
2580
2590
2600
2610
2620
2630
2640
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12950 Bridge #5
.015
Legend
Ground
Bank Sta
Elevation (ft)
2025
2020
2015
2010
2005
2000
1995
1990
2630
2640
2650
2660
2670
2680
2690
Station (ft)

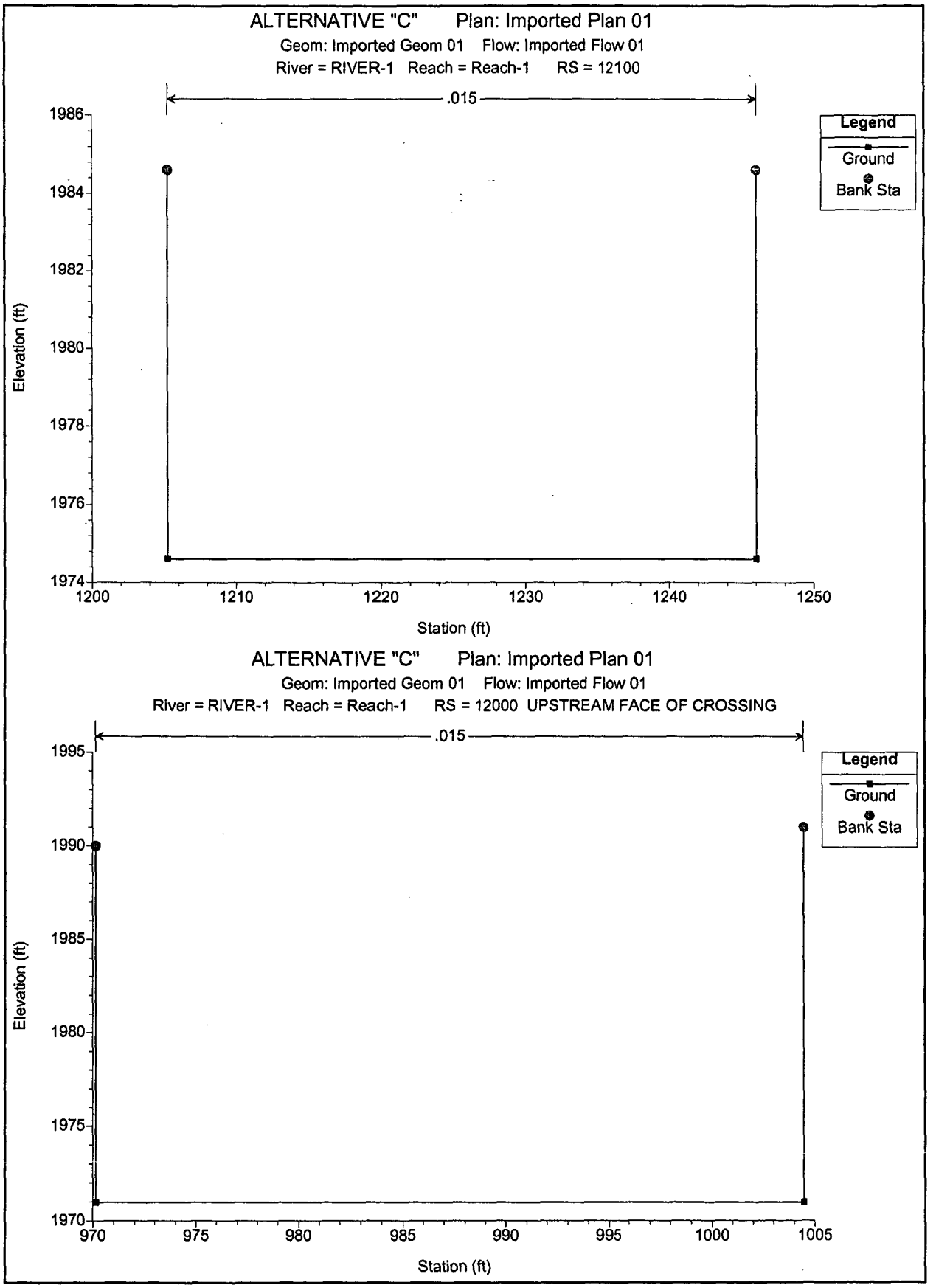

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12900 DOWNSTREAM FACE OF MIRA VISTA BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
2006
2004
2002
2000
1998
1996
1994
1992
2630
2640
2650
2660
2670
2680
2690
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12800 PLANS STA 31+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
1999
1998
1997
1996
1995
1994
1993
1992
1991
2500
2510
2520
2530
2540
2550
2560
Station (ft)

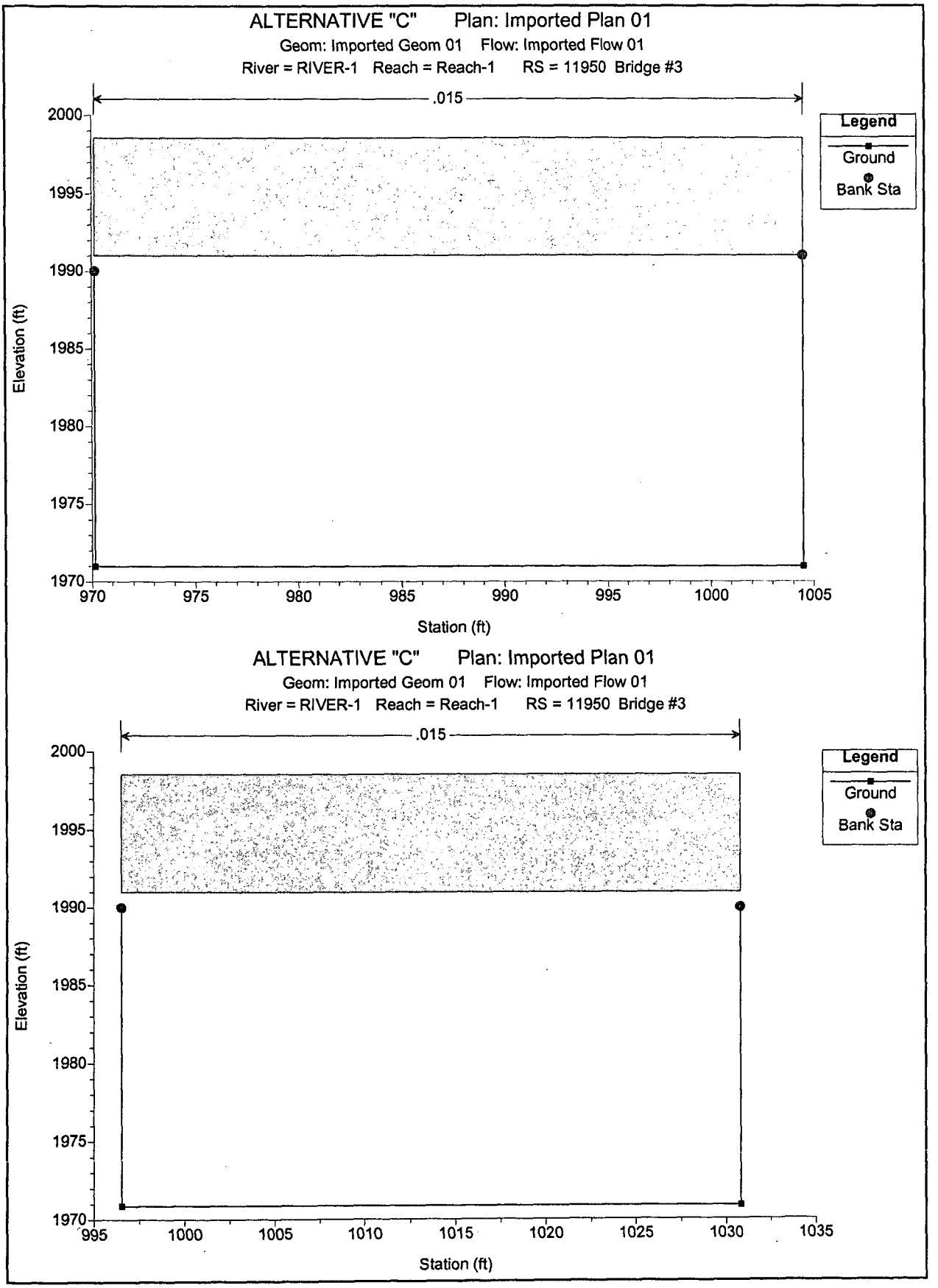

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12700 PLANS STA 35+00.00
.015
Legend
Ground
Bank Sta
Elevation (ft)
1996
1995
1994
1993
1992
1991
1990
1989
1988
2430
2440
2450
2460
2470
2480
2490
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12600 TRANSITION UPSTREAM RECT
.015
Legend
Ground
Bank Sta
Elevation (ft)
1994
1992
1990
1988
1986
1984
1000
1010
1020
1030
1040
1050
Station (ft)

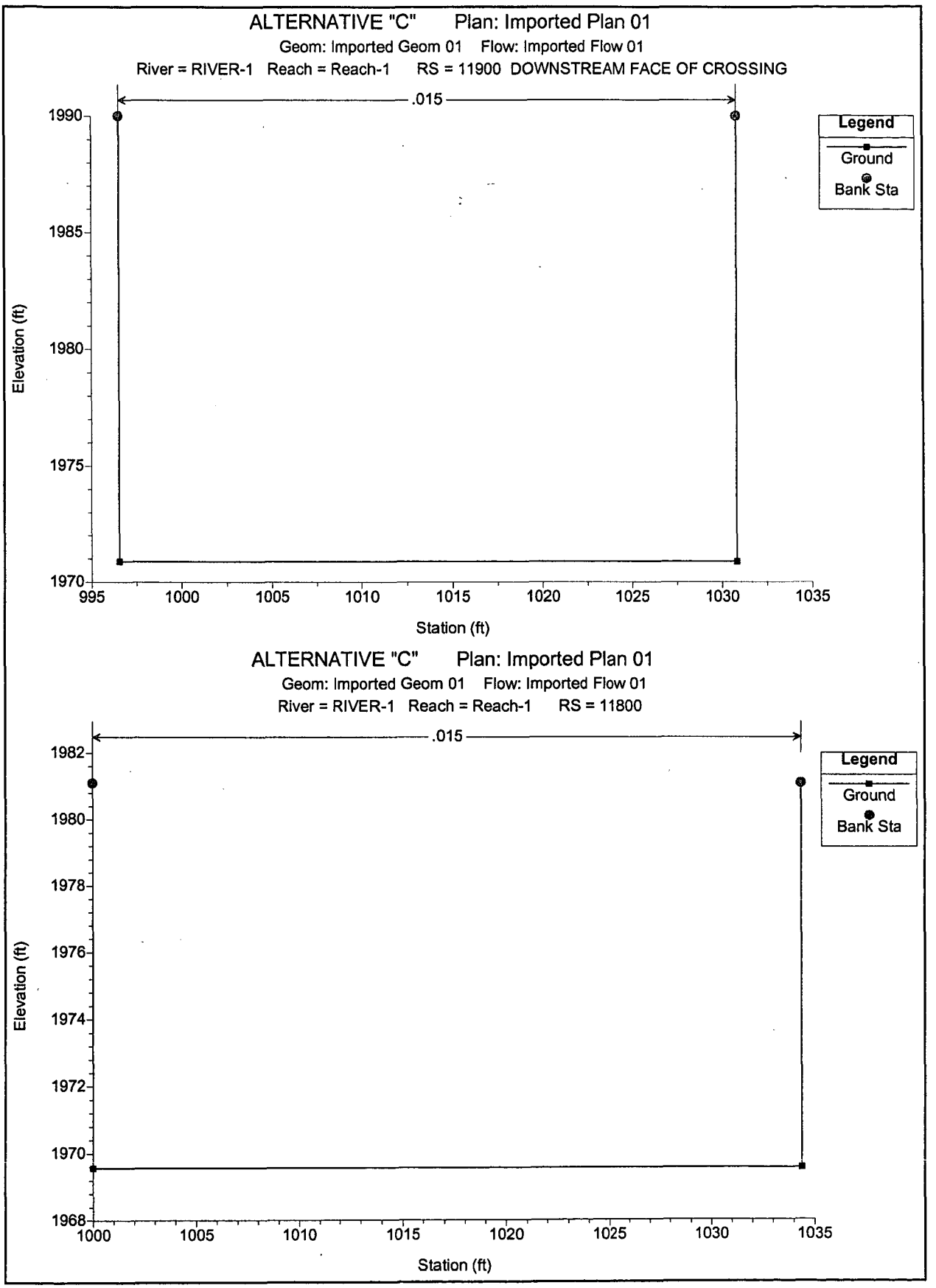

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12500 TRANSITION DOWNSTREAM TRAP
.015
Legend
Ground
Bank Sta
Elevation (ft)
1992
1991
1990
1989
1988
1987
1986
1985
1984
1983
2480
2500
2520
2540
2560
2580
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12400 UPSTREAM FACE OF TOMIYASU LANE BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1989
1988
1987
1986
1985
1984
1983
2220
2230
2240
2250
2260
2270
2280
2290
2300
Station (ft)

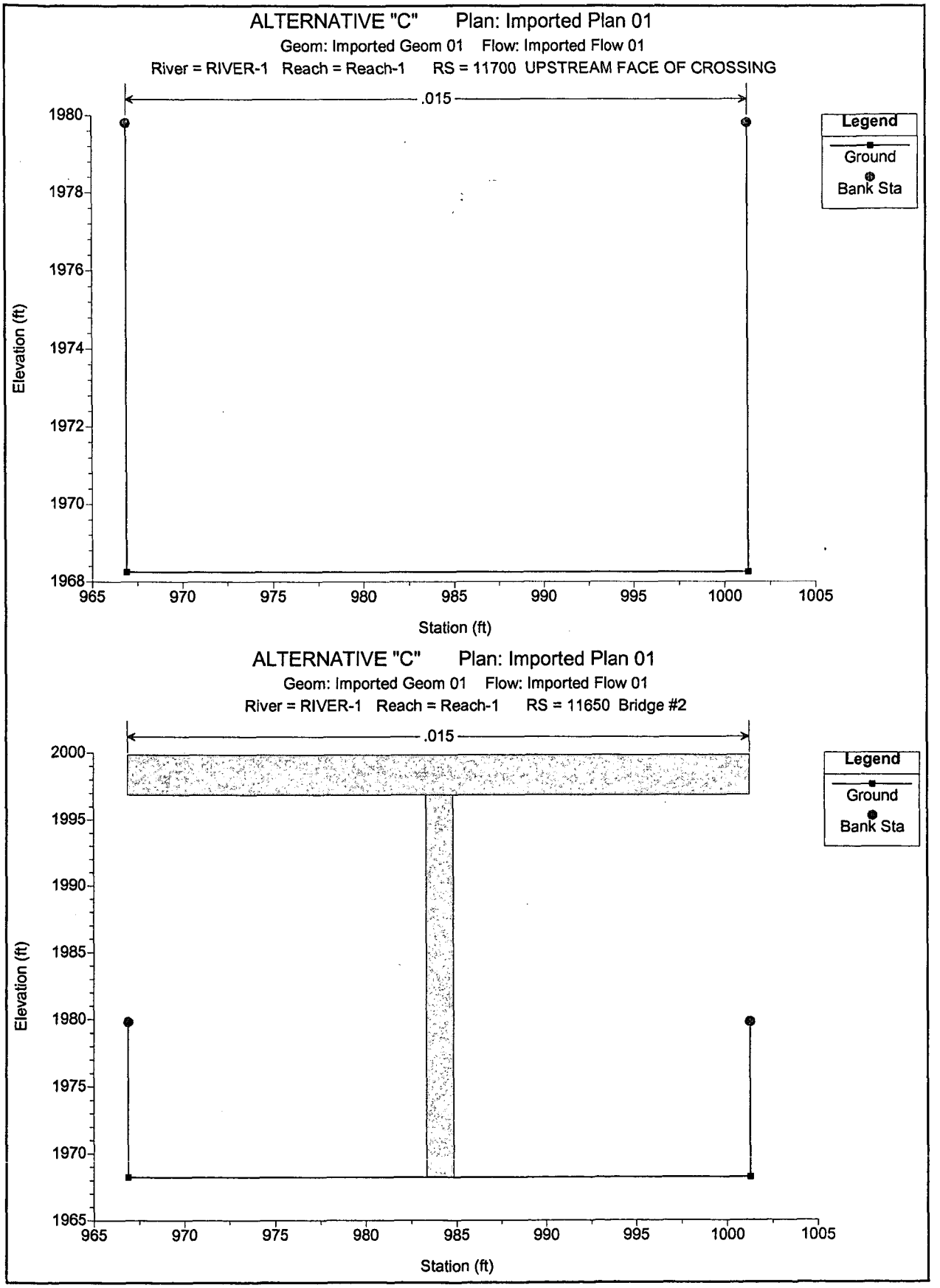

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12350 Bridge #4
.015
Legend
Ground
Bank Sta
Elevation (ft)
2010
2005
2000
1995
1990
1985
1980
2220
2230
2240
2250
2260
2270
2280
2290
2300
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12350 Bridge #4
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1989
1988
1987
1986
1985
1984
1983
1982
1390
1400
1410
1420
1430
1440
1450
1460
1470
Station (ft)

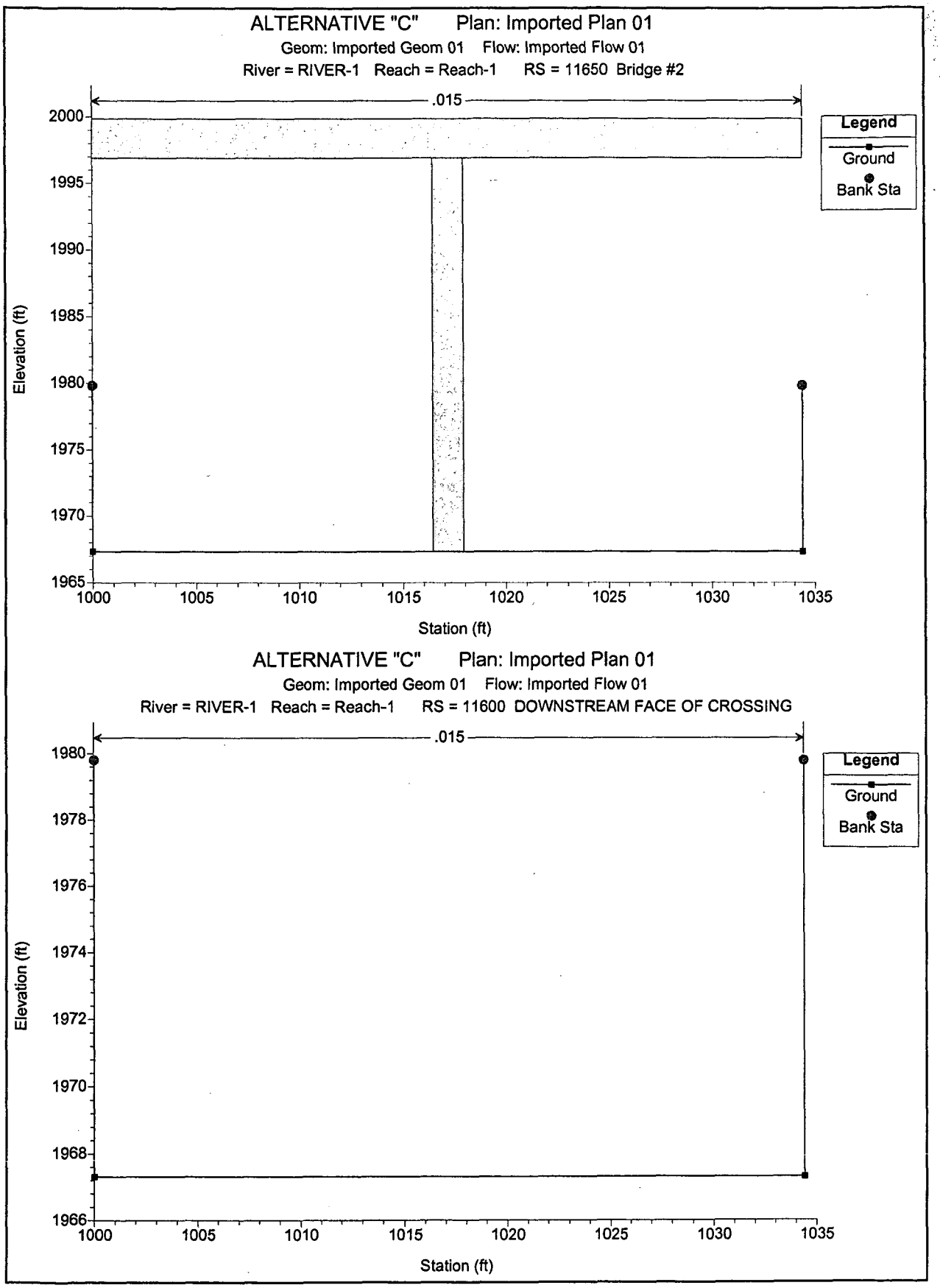

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12300 DOWNSTREAM FACE OF TOMIYASU BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
Station (ft)
1990
1989
1988
1987
1986
1985
1984
1983
1982
1390
1400
1410
1420
1430
1440
1450
1460
1470
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12200
.015
Legend
Ground
Bank Sta
Elevation (ft)
Station (ft)
1990
1988
1986
1984
1982
1980
1978
1200
1210
1220
1230
1240
1250
1260

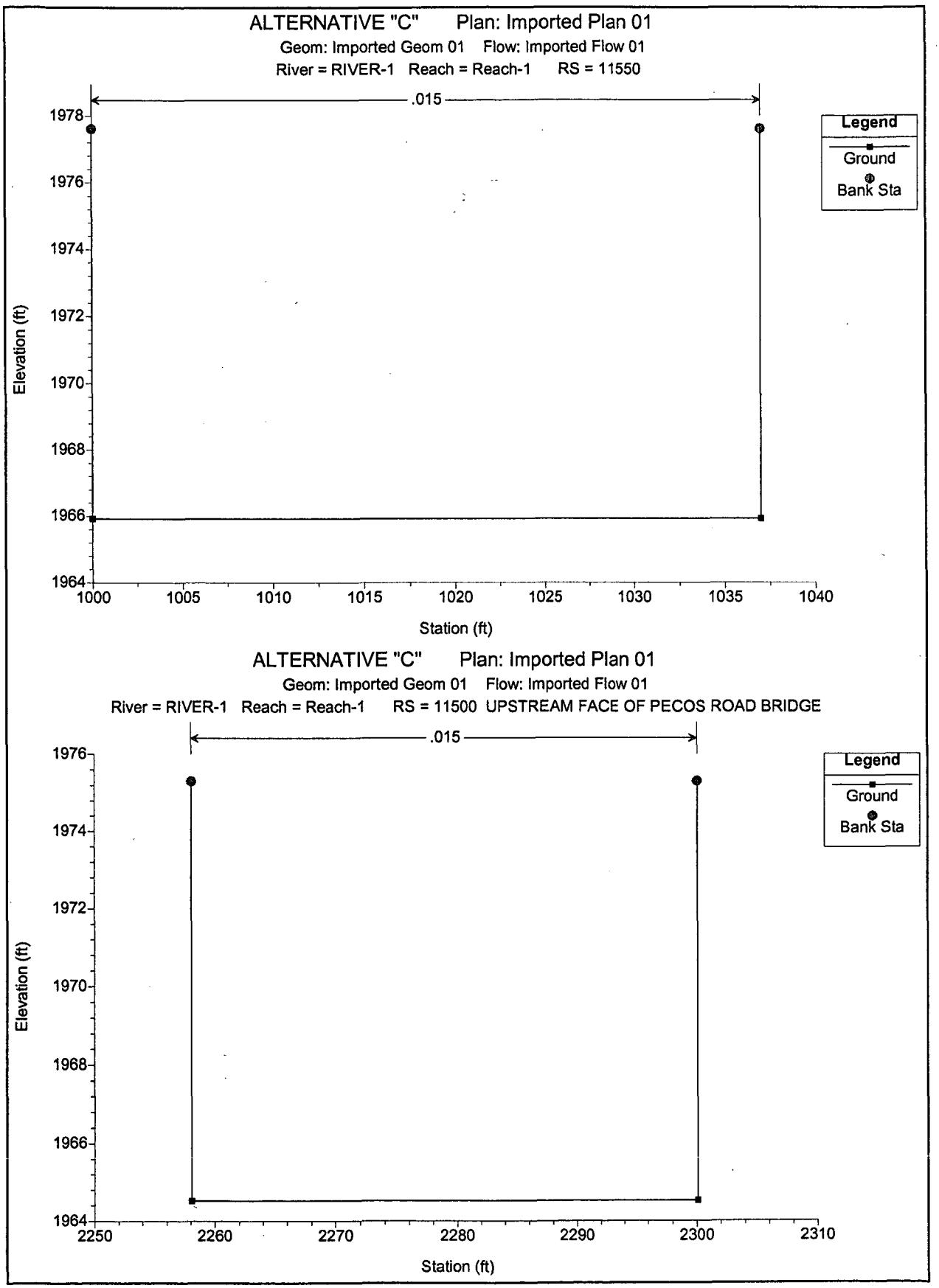

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12100
.015
Legend
Ground
Bank Sta
Elevation (ft)
1986
1984
1982
1980
1978
1976
1974
1200
1210
1220
1230
1240
1250
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 12000 UPSTREAM FACE OF CROSSING
.015
Legend
Ground
Bank Sta
Elevation (ft)
1995
1990
1985
1980
1975
1970
970
975
980
985
990
995
1000
1005
Station (ft)

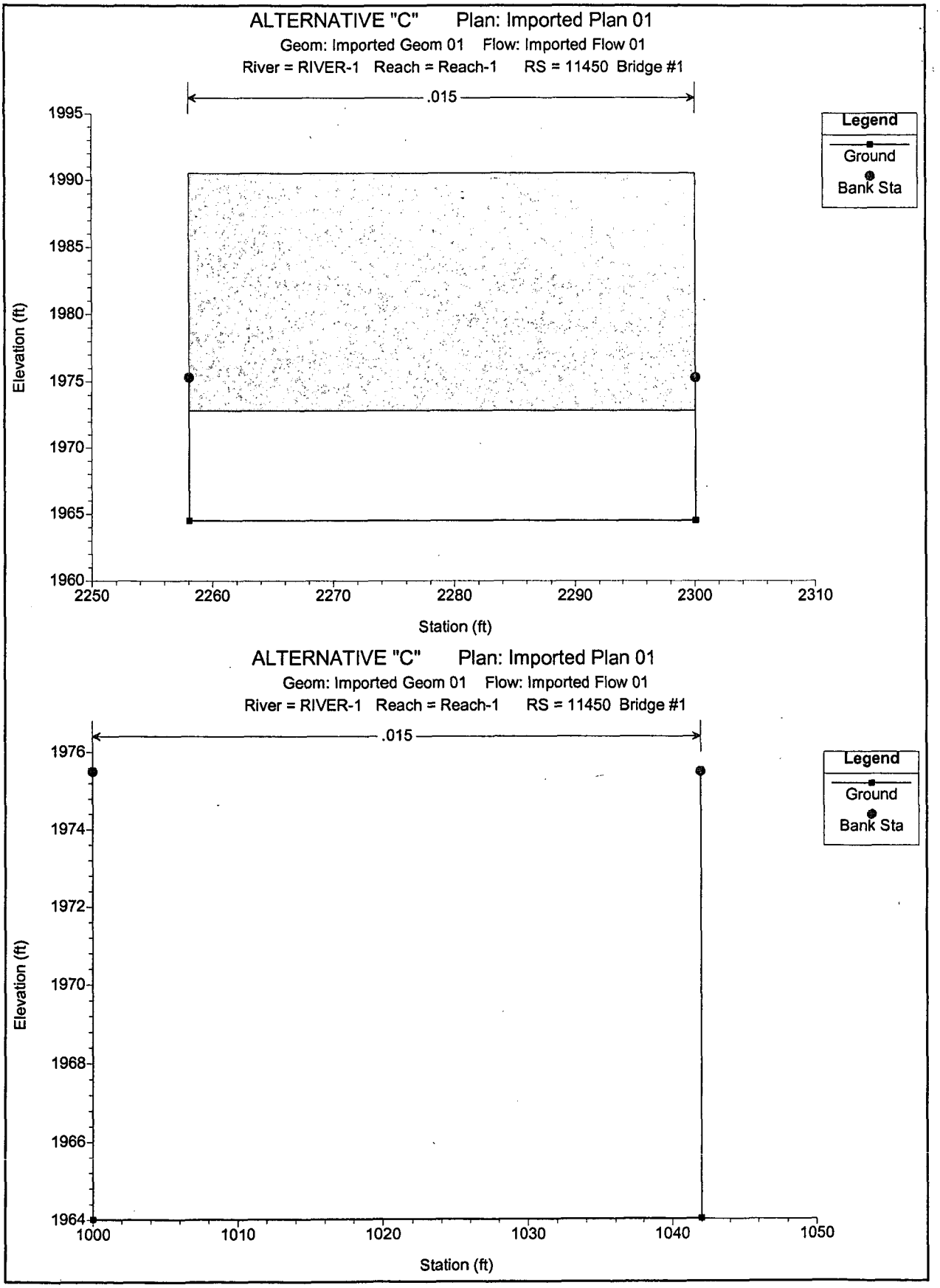

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11950 Bridge #3
.015
Legend
Ground
Bank Sta
Elevation (ft)
2000
1995
1990
1985
1980
1975
1970
970
975
980
985
990
995
1000
1005
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11950 Bridge #3
.015
Legend
Ground
Bank Sta
Elevation (ft)
2000
1995
1990
1985
1980
1975
1970
995
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)

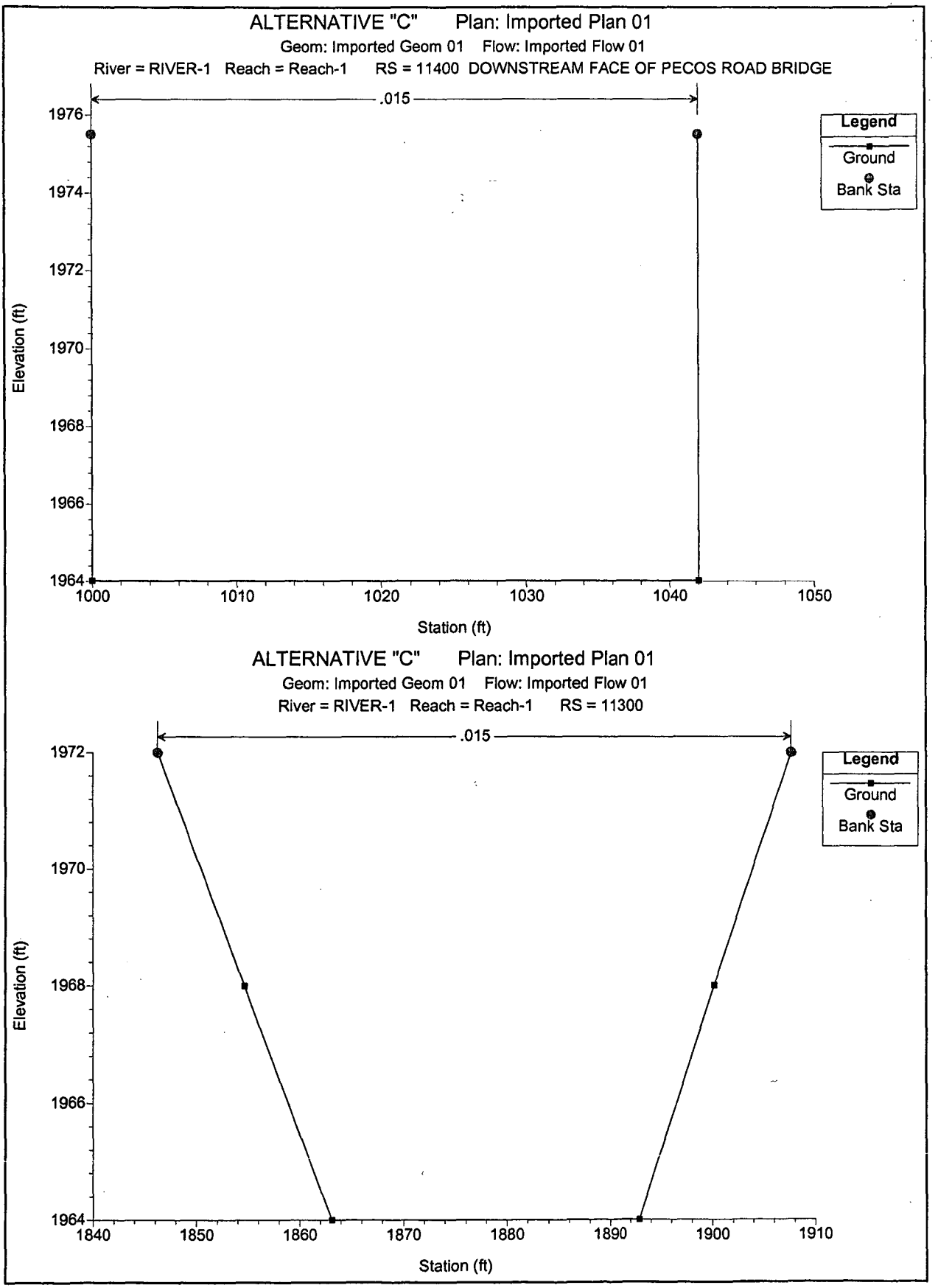

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11900 DOWNSTREAM FACE OF CROSSING
.015
Legend
Ground
Bank Sta
Elevation (ft)
1990
1985
1980
1975
1970
995
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11800
.015
Legend
Ground
Bank Sta
Elevation (ft)
1982
1980
1978
1976
1974
1972
1970
1968
1000
1005
1010
1015
1020
1025
1030
1035
Station (ft)

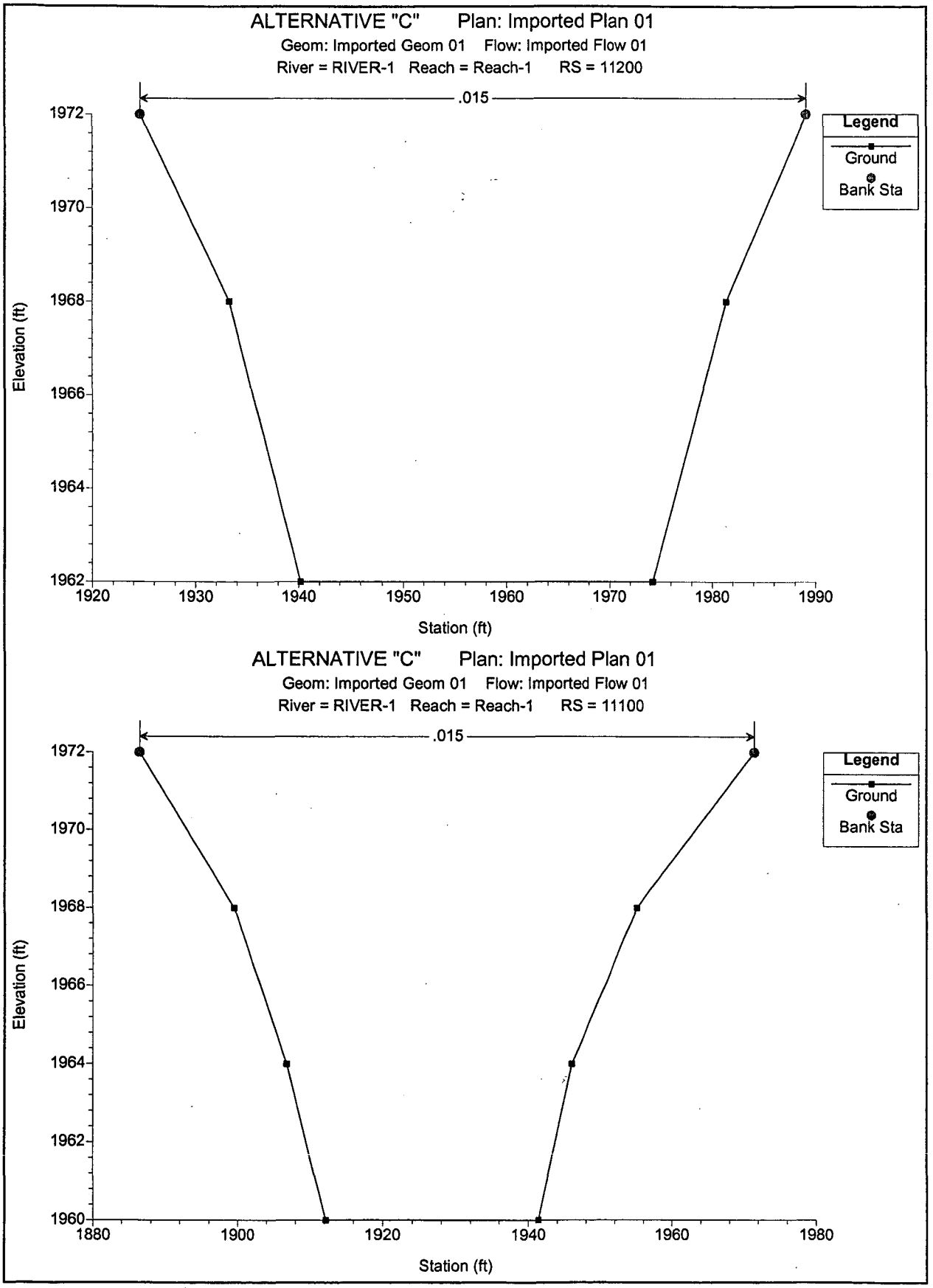

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11700 UPSTREAM FACE OF CROSSING
.015
Legend
Ground
Bank Sta
Elevation (ft)
1980
1978
1976
1974
1972
1970
1968
965
970
975
980
985
990
995
1000
1005
Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11650 Bridge #2
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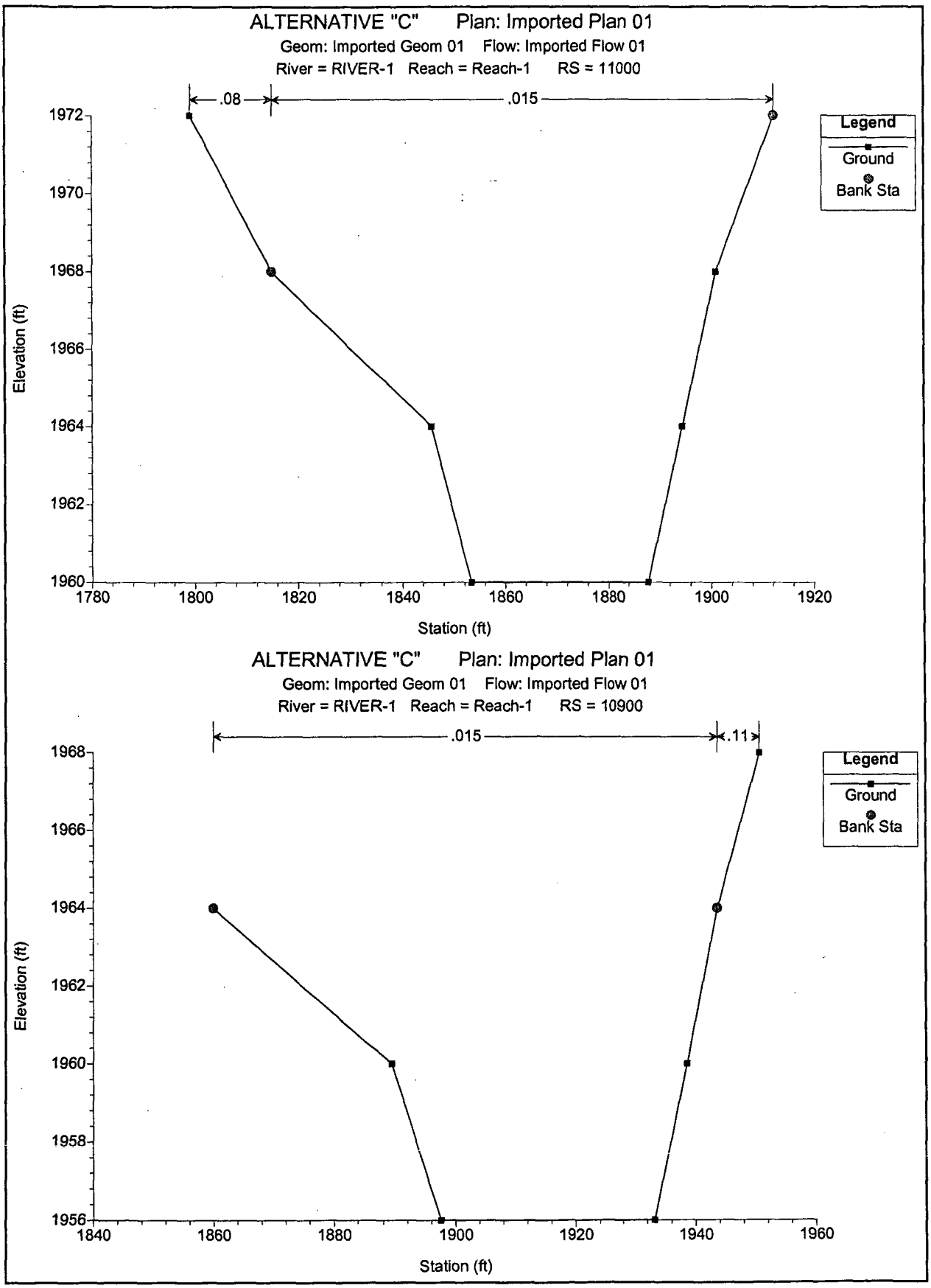

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11650 Bridge #2
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ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11600 DOWNSTREAM FACE OF CROSSING
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Bank Sta
Elevation (ft)
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Station (ft)

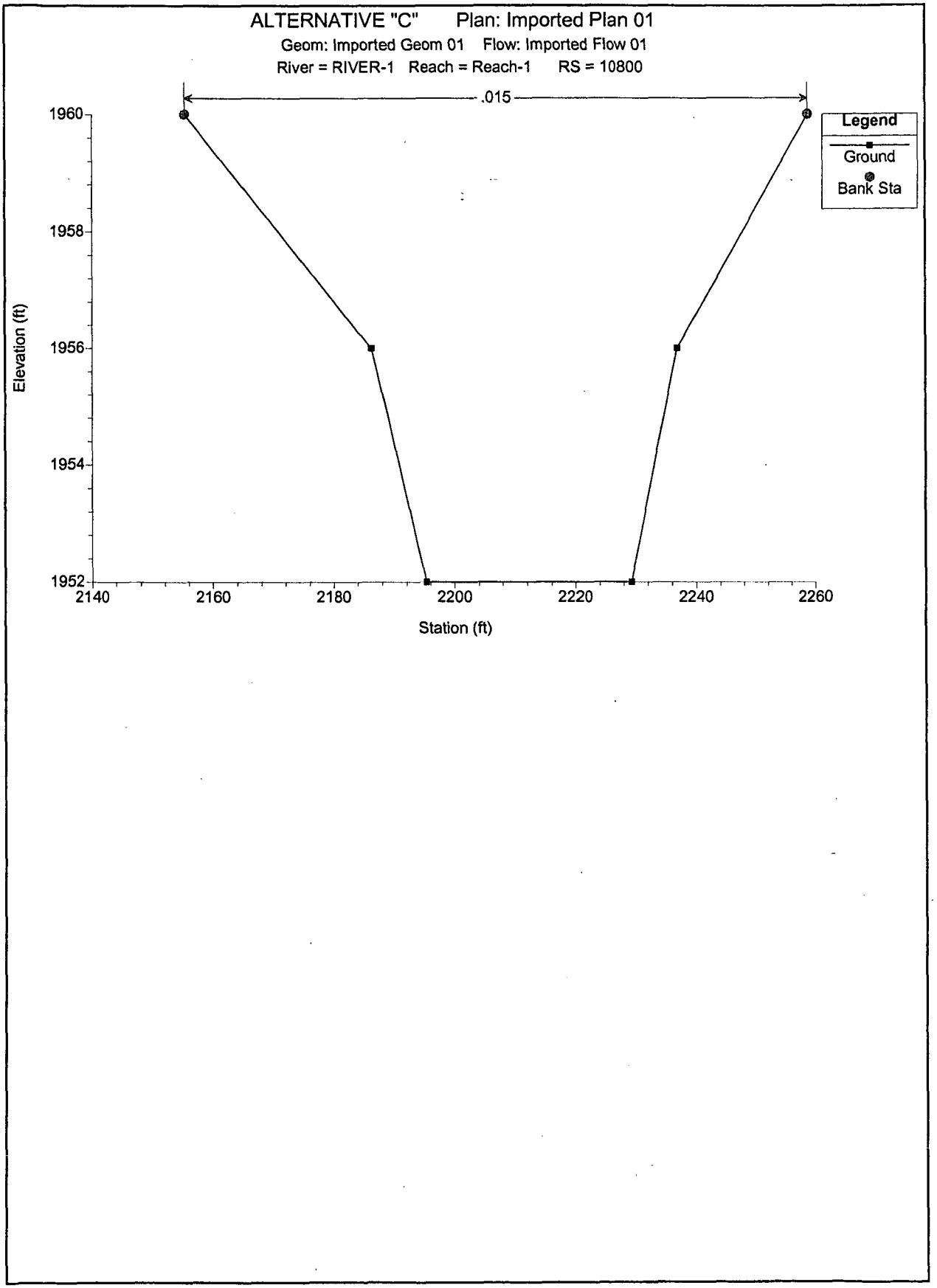

ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11550
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Station (ft)
ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11500 UPSTREAM FACE OF PECOS ROAD BRIDGE
.015
Legend
Ground
Bank Sta
Elevation (ft)
1976
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Station (ft)


ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11450 Bridge #1
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ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
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ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11400 DOWNSTREAM FACE OF PECOS ROAD BRIDGE
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ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11300
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Station (ft)

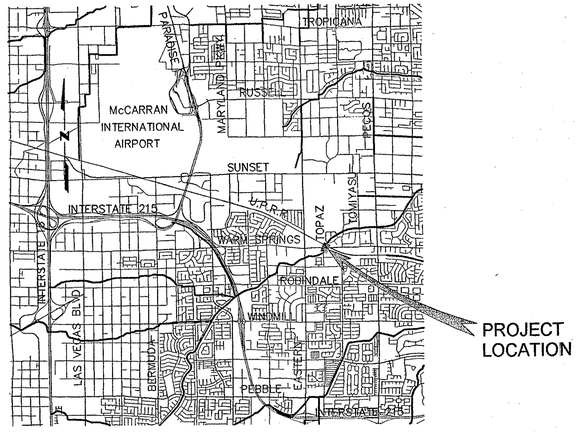

ALTERNATIVE "C" Plan: Imported Plan 01
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River = RIVER-1 Reach = Reach-1 RS = 11200
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River = RIVER-1 Reach = Reach-1 RS = 11100
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Elevation (ft)
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Station (ft)


ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 11000
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Elevation (ft)
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Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 10900
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Station (ft)


ALTERNATIVE "C" Plan: Imported Plan 01
Geom: Imported Geom 01 Flow: Imported Flow 01
River = RIVER-1 Reach = Reach-1 RS = 10800
.015
Legend
Ground
Bank Sta
Elevation (ft)
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1952
2140
2160
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Station (ft)

RECD
2002 MAY 16 PM 1:14

# DEPARTMENT OF PUBLIC WORKS




## Vicinity Map

NOT TO SCALE

CLARK COUNTY NEVADA

"Progress as Promised"

## Index of Sheets


| | |
|---|---|
| 1. | COVER SHEET |
| 2. | QUANTITIES, BENCHMARK, GENERAL NOTES, BASIS OF BEARINGS, LEGEND, TYPICAL SECTIONS AND ABBREVIATIONS |
| PP-1 TO PP-2. | DUCK CREEK CHANNEL PLAN & PROFILE - CIVIL DRAWINGS |
| C-1. | CHANNEL SECTIONS |
| F-1. | CHANNEL FENCING PLAN |
| DT-1 TO DT- 2. | CONSTRUCTION DETAILS |


## County Commissioners

Dario Herrera, Chairman
Myrna Williams, Vice Chair
Yvonne Atkinson Gates
Erin Kenny
Mary J Kincaid-Chauncey
Chip Maxfield
Bruce L Woodbury

# 2002
# IMPROVEMENT PLANS FOR
# DUCK CREEK
# WARM SPRINGS ROAD AND TOPAZ STREET

**FUNDED BY**
**CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT**

## County Manager

Thom Reilly

## Director of Public Works

Approved:

M.J. Manning

## Clark County Regional Flood Control District

Approved:

Gale Wm Fraser II, General Manager & Chief Engineer

| AGENCY | PLANS REVIEWED BY | DATE |
|---|---|---|
| SPRINT | | |
| LAS VEGAS VALLEY WATER DISTRICT | | |
| SOUTHWEST GAS COMPANY | | |
| NEVADA POWER COMPANY | | |
| CLARK COUNTY SANITATION DISTRICT | | |
| COX CABLE TV | | |

| DEPARTMENT OF PUBLIC WORKS | BY | DATE |
|---|---|---|
| DEPUTY DIRECTOR | | 4.30.02 |
| COMMUNITY DEVELOPMENT DIVISION | | 4/30/02 |
| CONSTRUCTION MANAGEMENT DIVISION | | 4/30/02 |
| DESIGN ENGINEERING DIVISION | | 4-30-02 |
| MAINTENANCE MANAGEMENT DIVISION | | 4-30-02 |
| TRAFFIC MANAGEMENT DIVISION | | 4/30/02 |
| COUNTY SURVEYOR'S OFFICE | | 4/30/2002 |

| REVISIONS NUMBER | DESCRIPTION | DATE |
|---|---|---|
| | | |

REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA WILLIAM E. PENNINGTON No 7001 CIVIL 5-3-02

DESIGN ENGINEERING DIVISION

COVER SHEET

L-1629

BID No.: 51135-02

DUCK CREEK - WARM SPRINGS ROAD AND TOPAZ STREET

MAY 2002

CCPW In House

CLA14H00 Duck Cr - Topaz To UPRR

# SUMMARY OF APPROXIMATE QUANTITIES

| ITEM No | DESCRIPTION | UNIT | QUANTITY |
|---|---|---|---|
| 105.01 | ALLOWANCE FOR ON-SITE MATERIAL TESTING FOR QUALITY CONTROL | LUMP SUM | 1 |
| 107.01 | TRAFFIC CONTROL | LUMP SUM | 1 |
| 109.01A | HISTORICAL OWNER CAUSED DELAY ALLOWANCE | DAY | 5 |
| 109.01B | ADDITIONAL AMOUNT OVER $500.00/DAY AS DETERMINED BY BIDDER | DAY | 5 |
| 109.02 | CONSTRUCTION CONFLICTS AND ADDITIONAL WORK | LUMP SUM | 1 |
| 201.01 | CLEARING AND GRUBBING | LUMP SUM | 1 |
| 202.01 | REMOVE CHAIN LINK FENCE | LIN FOOT | 99 |
| 202.02 | REMOVE SIDEWALK, CURB & GUTTER | SQ FOOT | 224 |
| 202.03 | REMOVE SECTION OF CUT-OFF WALL | LUMP SUM | 1 |
| 203.01 | EXCAVATION | CUBIC YARD | 3385 |
| 302.01 | TYPE II AGGREGATE BASE | CUBIC YARD | 256 |
| 502.01 | CONCRETE RECTANGULAR CHANNEL | LIN FOOT | 194 |
| 502.02 | CONCRETE CHANNEL WALL<br>STA 6+53.07 48.68' RT TO STA 9+56.19 30.00' RT | LIN FOOT | 326 |
| 502.03 | CONCRETE RETAINING WALL<br>TOPAZ ST STA 13+41.90 29.16' LT TO TOPAZ ST STA 13+92.00 28.55' LT | LIN FOOT | 50 |
| 502.04 | CONCRETE RETAINING WALL AT EQUESTRIAN BRIDGE | LIN FOOT | 97 |
| 502.05 | CONCRETE PIER EXTENSIONS | CUBIC YARD | 8 |
| 502.06 | CHANNEL WALL DRAIN | SQ YARD | 340 |
| 502.07 | CONCRETE PIER ENCASEMENT | CUBIC YARD | 12 |
| 609.01 | MODIFIED NDOT TYPE 2A DROP INLET | EACH | 1 |
| 610.01 | WIRE MESH GABIONS | CUBIC YARD | 250 |
| 611.01 | CONCRETE SLOPE PAVING | SQ FOOT | 92 |
| 613.01 | CONCRETE COMMERCIAL DRIVEWAY | SQ FOOT | 224 |
| 616.01 | 6' CHAIN LINK FENCE | LIN FOOT | 685 |
| 616.02 | 15' DOUBLE SWING METAL DRIVE GATE | EACH | 2 |
| 616.03 | CHANNEL STEPS | EACH | 3 |
| 616.04 | POST AND CABLE RAILING | LIN FOOT | 700 |
| 616.05 | 6' SWING GATE | EA | 2 |
| 616.06 | 6' STEEL FENCE | LIN FOOT | 47 |
| 619.01 | OBJECT MARKERS OM-3R & OM-3L COMBINATION | EA | 3 |
| 637.01 | DUST CONTROL | LUMP SUM | 1 |

# ADDITIVE/DEDUCTIVE ITEMS

| ITEM No | DESCRIPTION | UNIT | QUANTITY |
|---|---|---|---|
| 208.01 | OVER-EXCAVATION & COMPACTED IMPORTED AGGREGATE BEDDING | CUBIC YARD | |
| 208.02 | CHANGES IN EARTHWORK QUANTITIES BEFORE INITIAL EXCAVATION | CUBIC YARD | |
| 208.03 | CHANGES IN EARTHWORK QUANTITIES AFTER INITIAL EXCAVATION | CUBIC YARD | |
| | | | |
| | | | |

# ABBREVIATIONS

| | | | |
|---|---|---|---|
| ABUT | ABUTMENT | PI | POINT OF INTERSECTION |
| AC | ASPHALT CONCRETE | PL | PROPERTY LINE |
| ADD'L | ADDITIONAL | PT | POINT OF TANGENCY |
| AGG | AGGREGATE | PVI | VERTICAL POINT OF INTERSECTION |
| APPROX | APPROXIMATE | R | RADIUS/RADIAL |
| BVCS | BEGIN VERTICAL CURVE STATION | RCB | REINFORCED CONCRETE BOX |
| CC | CLARK COUNTY | RECT | RECTANGLE |
| CH | CHANNEL | REQ'D | REQUIRED |
| CL | CENTERLINE | REINF | REINFORCEMENT |
| CLF | CHAIN LINK FENCE | RP | RADIUS POINT |
| CLR | CLEARANCE | RT | RIGHT |
| CTR | CENTER | R/W | RIGHT OF WAY |
| CONC | CONCRETE | S | SOUTH/SEWER |
| CONST | CONSTRUCTION OR CONSTRUCT | SHT | SHEET |
| DIA | DIAMETER | SIM | SIMILAR |
| DWG | DRAWING | SQ | SQUARE |
| E | EAST | ST | STREET |
| EA | EACH | STA | STATION |
| ELEV/EL | ELEVATION | STD | STANDARD |
| EG | EXISTING GROUND | T | TANGENT |
| EOP | EDGE OF PAVEMENT | TOF | TOP OF FOOTING |
| EXIST/EX | EXISTING | TRANS | TRANSITION |
| EXP | EXPANSION | TRAP | TRAPEZOIDAL |
| FG | FINISHED GRADE | (TYP) | TYPICAL |
| FL | FLOW LINE | USD | UNIFORM STANDARD DRAWING |
| GB | GRADE BREAK | VERT | VERTICAL |
| GALV | GALVANIZED | W | WEST/WATER |
| HORIZ | HORIZONTAL | W/ | WITH |
| HT | HEIGHT | WV | WATER VALVE |
| INV | INVERT | | |
| JNT | JOINT | | |
| L | LENGTH | | |
| LF | LINEAR FEET | | |
| LIN | LINEAR | | |
| LT | LEFT | | |
| MAT'L | MATERIAL | | |
| MAX | MAXIMUM | | |
| MIN | MINIMUM | | |
| N | NORTH | | |
| NDOT | NEVADA DEPARTMENT OF TRANSPORTATION | | |
| No | NUMBER | | |
| NTS | NOT TO SCALE | | |
| OC | ON CENTER | | |
| PVMT | PAVEMENT | | |
| PC | POINT OF CURVATURE | | |

**Call before you Dig.**

**1-800-227-2600**

UNDERGROUND SERVICE (USA)
CLARK COUNTY ROAD MAINTENANCE MANAGEMENT
702-455-7540
AND
CLARK COUNTY TRAFFIC MANAGEMENT
702-455-7511

# GENERAL NOTES

1 ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" AND "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", AND APPENDICES, CURRENT EDITION.

2 ALL UTILITIES SHOWN ARE BELIEVED TO BE ACCURATELY LOCATED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES LIKELY TO BE AFFECTED. THE CONTRACTOR SHALL DETERMINE THE LOCATION AND DEPTH OF SUSPECTED UTILITY INTERFERENCES, AND SHALL FURNISH INFORMATION ON THE SAME TO THE ENGINEER, NOT LESS THAN TEN (10) DAYS PRIOR TO THE ANTICIPATED IMPACT OF THESE SUSPECTED INTERFERENCES ON HIS WORK. IF CONFLICTS EXIST, THE CONTRACTOR WILL IMMEDIATELY CONTACT THE ENGINEER AND PROVIDE THE ENGINEER WITH ALL THE NECESSARY DATA SUCH AS ELEVATIONS, HORIZONTAL LOCATIONS, ETC., AND PROVIDE THE ENGINEER WITH SKETCHES INDICATING THE PROPOSED IMPROVEMENT AND THE UTILITY CONFLICT. THE ENGINEER WILL EXAMINE AND REVIEW ALL THE DATA AND SKETCHES PROVIDED, AND WILL PROVIDE THE CONTRACTOR WITH AN ALTERNATIVE DESIGN WITHIN FIVE (5) DAYS AFTER RECEIPT OF DATA AND SKETCHES.

3 CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO BEGINNING CONSTRUCTION

4 SIGNATURES SHOWN ON THE COVER OF THESE PLANS, BY THE LOCAL UTILITY COMPANIES DOES NOT ASSUME OR GUARANTEE THEIR LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

5 THE CONTRACTOR SHALL COORDINATE WITH THE NEVADA POWER COMPANY, SPRINT TELEPHONE COMPANY, LOCAL CABLE COMPANY AND THE SOUTHWEST GAS COMPANY FOR THE RELOCATION OF UNDERGROUND OR OVERHEAD UTILITIES THAT INTERFERE WITH THE REQUIRED IMPROVEMENTS AS SHOWN ON THE PLANS.

6 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERTICAL ADJUSTMENT OF ALL LAS VEGAS VALLEY WATER DISTRICT FACILITIES AND CLARK COUNTY SANITATION DISTRICT MANHOLES AS INDICATED ON THE PLANS OR IN THE SPECIAL PROVISIONS UNLESS OTHERWISE INDICATED.

7 THE CONTRACTOR SHALL NOT REMOVE TREES, SHRUBS, LAWNS, WALLS, FENCES, SIGNS, STRUCTURE, LIGHTS OR ANY OTHER IMPROVEMENTS OUTSIDE THE RIGHT-OF-WAY EXCEPT WHERE REQUIRED TO DO SO BY THE CONTRACT DRAWINGS OR AS DIRECTED BY THE ENGINEER.

8 EXACT LOCATIONS OF ALL SAWCUT LINES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. THOSE SAWCUTS THAT ARE LONGITUDINAL TO THE ROADWAY MAY BE WHEEL CUT WITH EQUIPMENT AS APPROVED BY THE ENGINEER. ALL OTHER SAWCUTS SHALL BE MADE BY A ROTARY SAW.

9 IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL, OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING REQUIRED TO REMAIN, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE COUNTY TRAFFIC MANAGER.

10 CONTRACTOR MUST CONTACT CLARK COUNTY TRAFFIC MANAGEMENT DIVISION, OPERATIONS UNIT AT (702) 455-7511 FOR LOCATIONS OF STREET LIGHTING, TRAFFIC SIGNALS, LAS VEGAS AREA COMPUTER TRAFFIC SYSTEM (LVACTS) INTERCONNECT CABLE AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO WORKING IN THE AREA. CLARK COUNTY IS NOT A MEMBER OF CALL BEFORE YOU DIG (UNDERGROUND SERVICE ALERT) AND A CALL TO THAT ORGANIZATION DOES NOT RELIEVE YOU OF LIABILITY FOR CLARK COUNTY FACILITIES.

11 LVACTS INTERCONNECT CABLE POLICY IS IN EFFECT. INTERCONNECT CABLE MUST BE MAINTAINED AT ALL TIMES. CONTRACTOR SHALL PROVIDE TEMPORARY OVERHEAD INTERCONNECT CABLE WHILE PERMANENT CABLE IS BEING RELOCATED. TEMPORARY AERIAL INSTALLATION MUST BE ACCEPTABLE TO THE COUNTY TRAFFIC MANAGER AND TO LVACTS. ANY DAMAGE TO THIS CABLE IS DEEMED AN EMERGENCY BY LVACTS, CITY OF LAS VEGAS, CLARK COUNTY AND NDOT AND MUST BE REPAIRED IMMEDIATELY TO LVACTS' ACCEPTANCE. $25,000 PER DAY DAMAGES WILL BE ASSESSED AFTER TWENTY-FOUR (24) HOURS HAS ELAPSED FROM THE TIME OF BREAK OR DAMAGE.

# LEGEND

- REMOVAL ITEM, CONSTRUCTION ITEM, TRAFFIC ITEM
- CENTERLINE W/STATION (8+00)
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- EXISTING/PROPOSED CURB & GUTTER
- EXISTING/PROPOSED UNDERGROUND UTILITY (SEWER)
- EXISTING/PROPOSED/ADJUST MANHOLE
- EXISTING/PROPOSED/ADJUST WATER OR GAS VALVE
- EXISTING/PROPOSED EDGE OF PAVEMENT
- EXISTING/PROPOSED DRIVEWAY
- EXISTING BLOCKWALL/ CHAIN LINK FENCE
- EXISTING/PROPOSED ELEVATION (69.32)/69.32
- CURVE DATA NOTATION (3)
- EXISTING TELEPHONE AND/OR POWER POLE
- EXISTING POWER POLE W/ PAL LIGHT
- BENCHMARK
- GATE
- CHAIN LINK FENCE
- STEEL FENCE
- CURVE DELTA (Δ)

# BASIS OF BEARING

N88°52'15"E, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 12, TOWNSHIP 22 SOUTH RANGE 61 EAST, M.D.M., CLARK COUNTY, NEVADA. THIS BEARING IS BASED UPON THE NORTH AMERICAN DATUM OF 1983 (NAD 83), NEVADA STATE PLANE EAST ZONE, #2701, COORDINATE SYSTEM. SAID BEARING WAS EFFECTED BY UTILIZATION OF THE LAS VEGAS VALLEY GEODETIC CONTROL NETWORK, SPECIFICALLY STATIONS #935, #688 AND #945, AS SHOWN ON RECORD OF SURVEY FILE 68 PAGE 53. THE STATE PLANE COORDINATES FOR THE MONUMENTS FOUND AT THE SECTION CORNER OF S-1/S-2/S-11/S-12, T22S, R61E M.D.M. AND THE QUARTER CORNER COMMON TO S-1/S-12, T22S, R61E M.D.M. ARE AVAILABLE AND CAN BE OBTAINED FROM THE CLARK COUNTY SURVEYORS OFFICE.

# BENCHMARKS

RIVET AND SQUARE ALUMINUM PLATE, IN TOP OF CURB, SOUTHEAST CORNER OF EASTERN AVENUE AND WARM SPRINGS ROAD NEAR PC OF EASTERN AVENUE. STATION 8C21/12NWS ELEV=2039.02 FEET (621.493 METERS) NAVD 88

# LAS VEGAS VALLEY WATER DISTRICT STANDARD NOTES

PROJECT # 25306

NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN RELEASED FOR CONSTRUCTION BY LVVWD. FOLLOWING WATER PLAN APPROVAL, 48 HOURS NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258-7171) PRIOR TO START OF CONSTRUCTION. NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO A LVVWD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.

ALL WORK SHALL CONFORM TO LVVWD'S STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS AND TO THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (UDACS), LATEST EDITION.

ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2, SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR THE PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.

A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.

ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.

ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.

ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.

THE FOLLOWING REQUIREMENTS MUST BE MET IN THE EVENT A WATER LINE AND SANITARY OR STORM SEWER LINE CROSS:

A MINIMUM EIGHTEEN (18) INCH VERTICAL SEPARATION (OUTSIDE TO OUTSIDE) MUST BE MAINTAINED WHEN THE WATER LINE IS INSTALLED OVER THE SANITARY OR STORM SEWER LINE. IF THE VERTICAL SEPARATION CAN NOT BE MAINTAINED OR THE WATER LINE MUST BE PLACED UNDER THE SANITARY OR STORM SEWER LINE, THE SANITARY OR STORM SEWER LINE MUST BE CONSTRUCTED WITH ONE OF THE FOLLOWING OR, AS SHOWN ON THE PLANS:

a. POTABLE WATER SUPPLY QUALITY MATERIAL
b. ENCASEMENT, WITH FOUR (4) INCH CONCRETE (MINIMUM)
c. SLEEVING WITH POTABLE WATER SUPPLY QUALITY PIPE

EACH PROVISION MUST EXTEND ALONG THE SANITARY OR STORM SEWER, ON EITHER SIDE OF THE MAIN, A MINIMUM 10 FOOT DISTANCE PERPENDICULAR TO THE WATER MAIN EXTERIOR.

WARNING TAPE SHALL BE REQUIRED OVER ALL MAINS, ALL SIX (6) INCH DIAMETER AND LARGER SERVICE LATERALS, AND ANY SERVICE LATERAL NOT INSTALLED PERPENDICULAR TO THE MAIN IN ACCORDANCE WITH STANDARD PLATE No. 27.

ALL WATER FACILITIES SHALL BE FILLED, DISINFECTED, PRESSURE TESTED, FLUSHED, FILLED AND AN ACCEPTABLE WATER SAMPLE OBTAINED, PRIOR TO CONNECTION TO THE LVVWD'S DISTRIBUTION SYSTEM.

THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 258-3152 FORTY-EIGHT (48) HOURS PRIOR TO PICKUP.

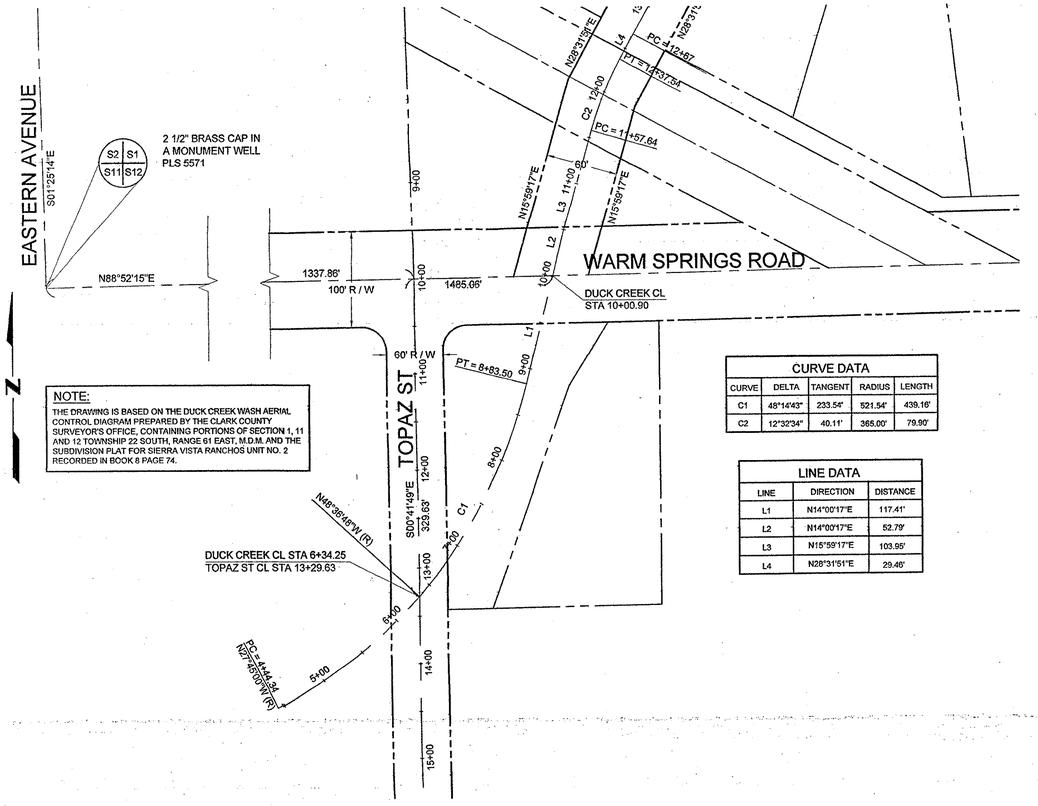
CONSTRUCTION MAY INTERRUPT SERVICE, WITH LVVWD APPROVAL AND PROPER NOTIFICATION, BETWEEN THE HOURS OF 10 PM AND 6 AM, SUNDAY THROUGH THURSDAY CIRCUMSTANCES MAY REQUIRE TEMPORARY SERVICE FEEDS TO BE INSTALLED, WITHOUT LVVWD REIMBURSEMENT. ANY TEMPORARY SERVICE FEED MUST HAVE PRIOR LVVWD APPROVAL.

ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE LISTED ON THE LVVWD'S PRE-APPROVED MATERIAL AND MANUFACTURERS LISTING FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS.

ESN019

APPROVAL:

Las Vegas Valley Water District — Date




NOTE:
THE DRAWING IS BASED ON THE DUCK CREEK WASH AERIAL CONTROL DIAGRAM PREPARED BY THE CLARK COUNTY SURVEYOR'S OFFICE, CONTAINING PORTIONS OF SECTION 1, 11 AND 12 TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.M. AND THE SUBDIVISION PLAT FOR SIERRA VISTA RANCHOS UNIT NO. 2 RECORDED IN BOOK 8 PAGE 74.

CURVE DATA

| CURVE | DELTA | TANGENT | RADIUS | LENGTH |
|---|---|---|---|---|
| C1 | 48°14'43" | 233.54' | 521.54' | 439.16' |
| C2 | 12°32'34" | 40.11' | 365.00' | 79.90' |

LINE DATA

| LINE | DIRECTION | DISTANCE |
|---|---|---|
| L1 | N14°00'17"E | 117.41' |
| L2 | N14°00'17"E | 52.79' |
| L3 | N15°59'17"E | 103.95' |
| L4 | N28°31'51"E | 29.46' |

L:\620\RAILROAD\620_GT01.DWG\L2

| REV No | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| | | | |

CLARK COUNTY NEVADA

# DUCK CREEK

QUANTITIES, BENCHMARK, GENERAL NOTES,
BASIS OF BEARING, LEGEND AND ABBREVIATIONS
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER — WILLIAM D. REMINGTON — CIVIL — No 7001 — STATE OF NEVADA
5-10-02

| | |
|---|---|
| DESIGNED BY: | EIP |
| DRAWN BY: | EIP |
| CHECKED BY: | WFP |
| DATE: | May 10, 2002 - 5:26pm |

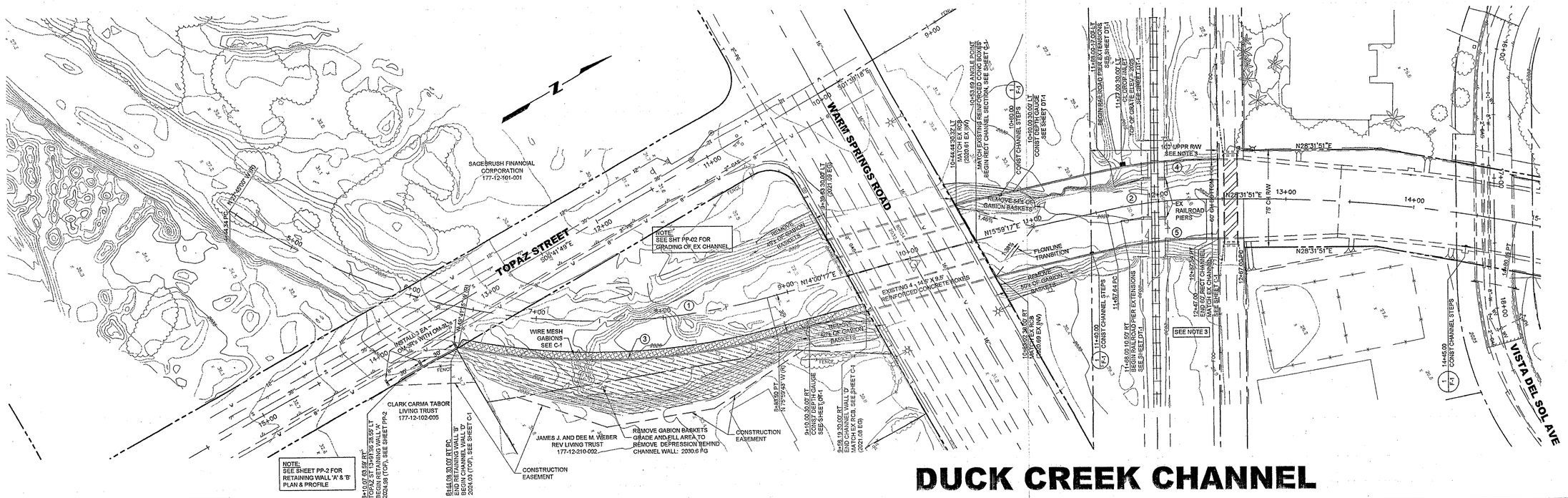
| | |
|---|---|
| SCALE | |
| HORIZ: | N/A |
| VERT: | N/A |
| FIELD BOOK | NONE |
| | |
| | |

SHEET No **2**

F990812

L-1629

DUCK CREEK - WARM SPRINGS ROAD AND TOPAZ STREET

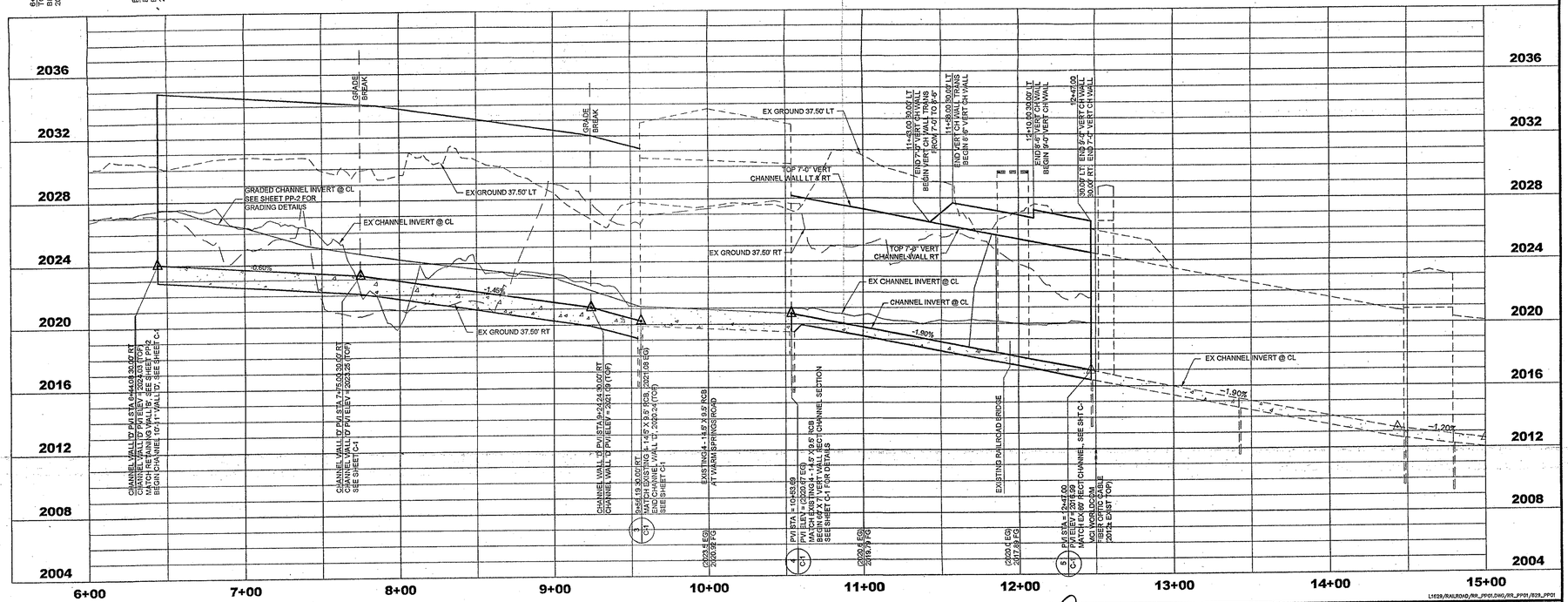



# DUCK CREEK CHANNEL

## NOTES

1. CHANNEL FENCING: SEE SHEET F-1 FOR PLAN & DETAILS
2. REMOVE ALL GABION BASKETS (APPROX 18" THICK MATRESSES) FROM THE SIDE SLOPES OF THE EXISTING GRADED CHANNEL
3. REFER TO SECTION 107.08 RELATIONS WITH RAILROAD REGARDING WORK WITHIN THE RAILROAD RIGHT-OF-WAY

| CHANNEL CENTERLINE CURVE DATA | | | | |
|---|---|---|---|---|
| CURVE | DELTA | TANGENT | RADIUS | LENGTH |
| ① | 48°14'43" | 233.54' | 521.54' | 439.16 |
| ② | 12°32'34" | 40.11' | 365.00' | 79.90' |
| **CHANNEL WALL CURVE DATA** | | | | |
| CURVE | DELTA | TANGENT | RADIUS | LENGTH |
| ③ | 26°18'09" | 128.87' | 551.54 | 253.19' |
| ④ | 12°32'34" | 43.41' | 395.00' | 86.47' |
| ⑤ | 12°32'34" | 36.82' | 335.00' | 73.34' |




| REV No | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| | | | |

CLARK COUNTY NEVADA

# DUCK CREEK
## PLAN & PROFILE
## STA 6+44.08 - STA 12+47.00
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER — WILLIAM F. PENNINGTON — No 7001 — CIVIL — STATE OF NEVADA

5-10-02

| | |
|---|---|
| DESIGNED BY: | EIP |
| DRAWN BY: | EIP |
| CHECKED BY: | WFP |
| DATE: | May 10, 2002 - 5:32pm |

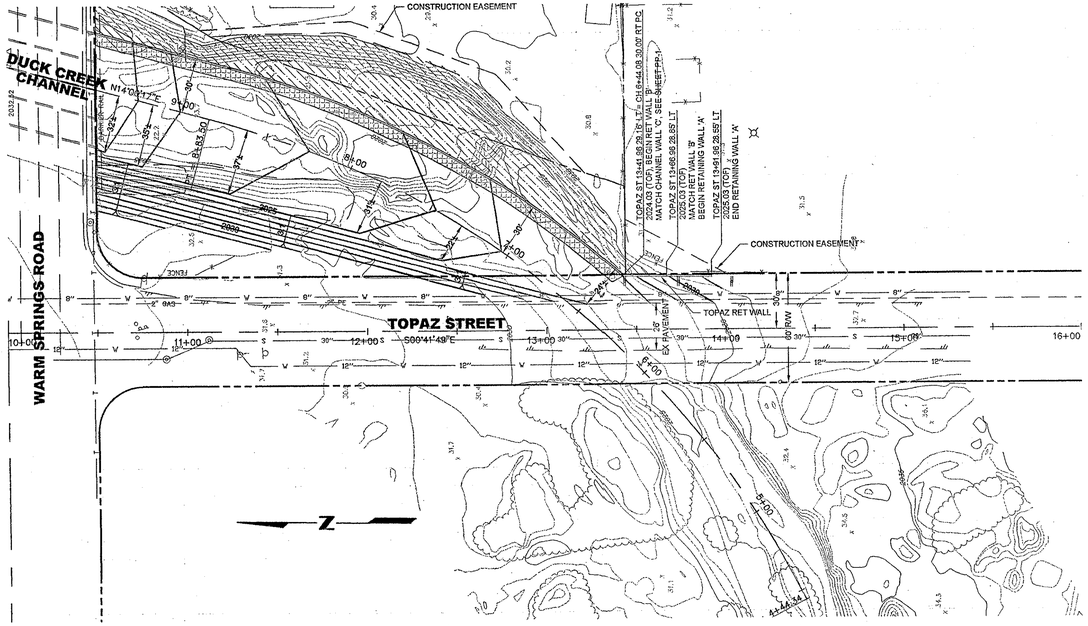
| | |
|---|---|
| SCALE | |
| HORIZ: | 1" = 40' |
| VERT: | 1" = 4' |
| FIELD BOOK | NONE |

SHEET No **PP-1**

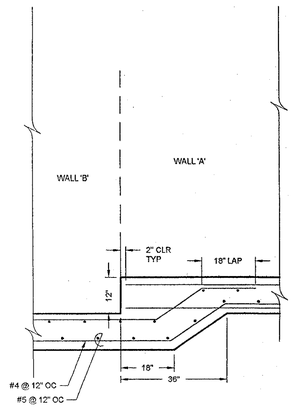
F990812

L-1629

L1629/RAILROAD/RR_PP01.DWG/RR_PP01/B23_PP01

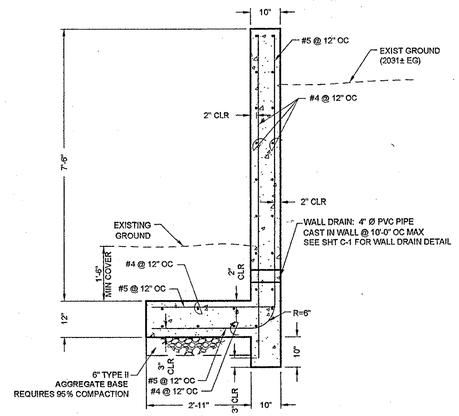



## RETAINING WALL STEP DETAIL

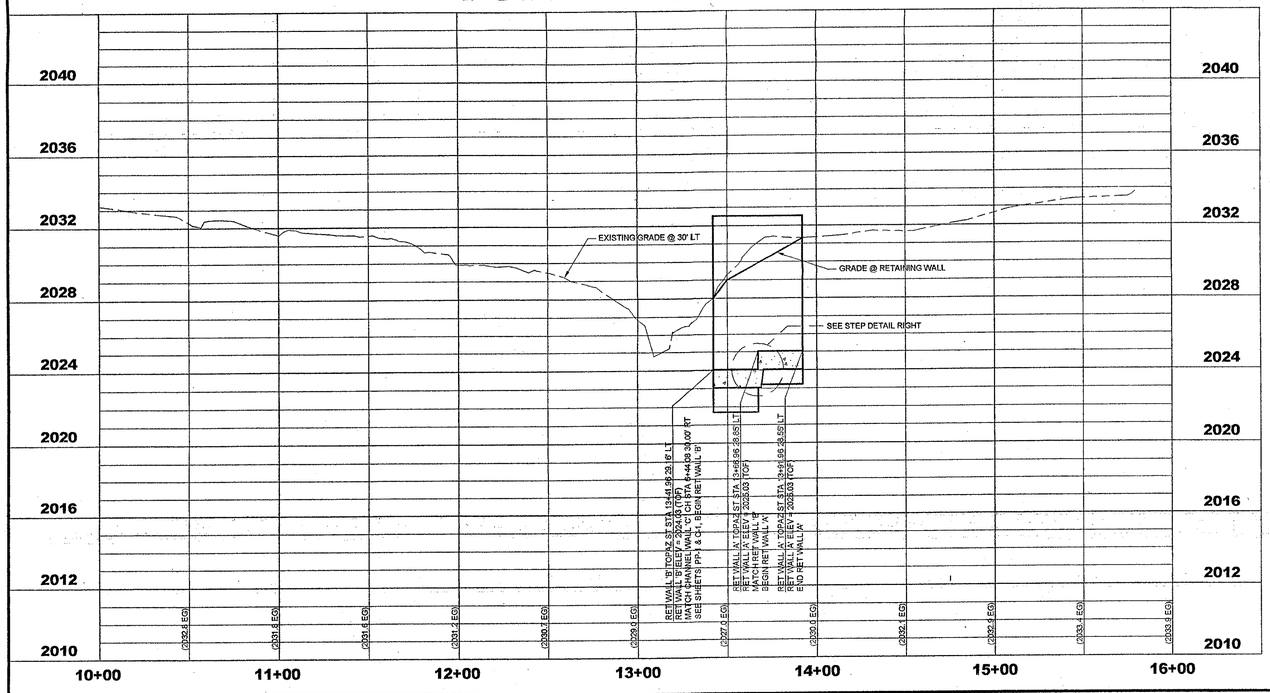



## RETAINING WALL 'A' - TYPICAL SECTION

NOT TO SCALE

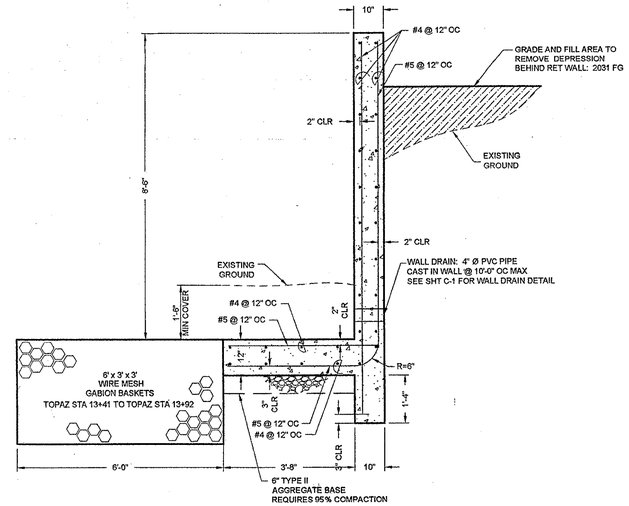



# TOPAZ STREET




## RETAINING WALL 'B' - TYPICAL SECTION

NOT TO SCALE




| REV No | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| | | | |

# DUCK CREEK

## TOPAZ STREET PLAN & PROFILE

## STA 10+00.00 - STA 16+00.00

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER — STATE OF NEVADA — WILLIAM E. PENNINGTON — CIVIL — No 7001

5-10-02

L1629/RAILROAD/09_PP01.DWG/629_PP02

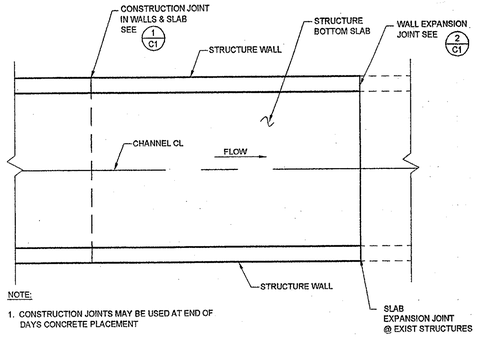
| | |
|---|---|
| DESIGNED BY: | EIP |
| DRAWN BY: | EIP |
| CHECKED BY: | WFP |
| DATE: | May 10, 2002 - 4:41pm |

| | |
|---|---|
| SCALE | |
| HORIZ: | 1" = 40' |
| VERT: | 1" = 4' |
| FIELD BOOK | NONE |

SHEET No **PP-2**

F990812

L-1629

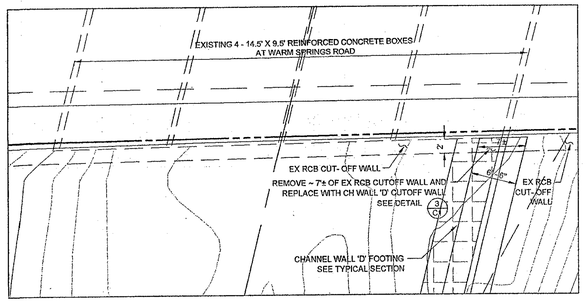



NOTE:

1. CONSTRUCTION JOINTS MAY BE USED AT END OF DAYS CONCRETE PLACEMENT

## TYPICAL PLAN VIEW FOR JOINTS IN CHANNEL

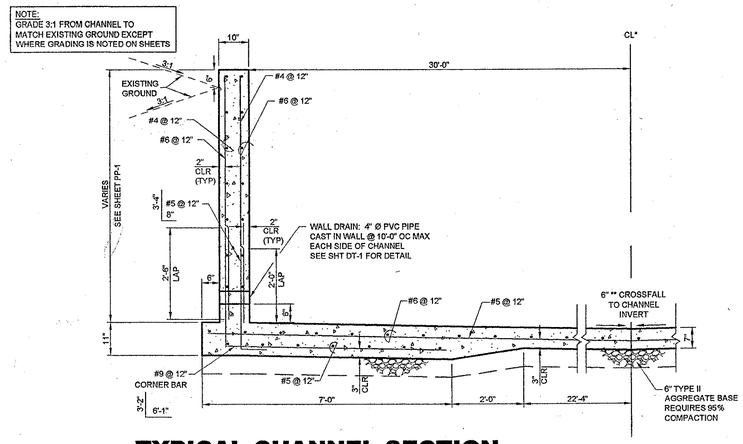
NOT TO SCALE




## PLAN VIEW OF EXPANSION JOINT AT WARM SPRINGS RD EX RCB AND CH WALL 'D'

NOT TO SCALE

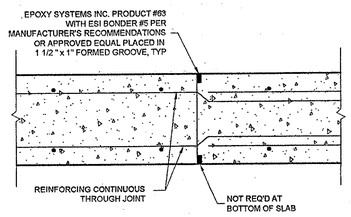
NOTE:
GRADE 3:1 FROM CHANNEL TO MATCH EXISTING GROUND EXCEPT WHERE GRADING IS NOTED ON SHEETS




## TYPICAL CHANNEL SECTION

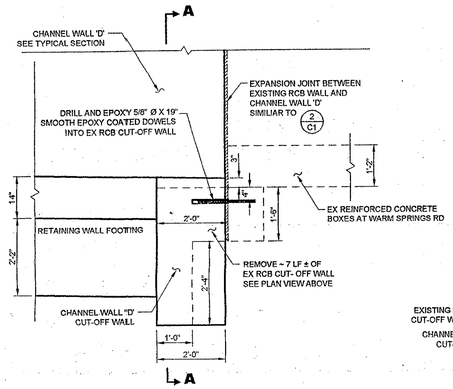
* CHANNEL IS SYMMETRICAL AROUND CENTERLINE (CL)
** CROSSFALL MAY VARY AT EXISTING CHANNEL STRUCTURES, TRANSITION CROSSFALL TO MATCH EXISTING

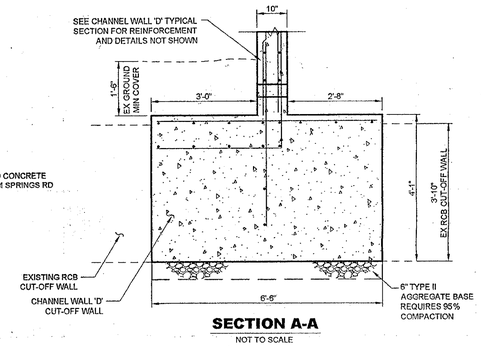
NOT TO SCALE




## WALL AND SLAB CONSTRUCTION JOINT DETAIL 1/C1

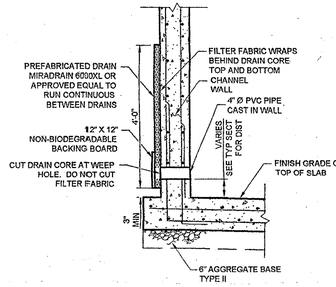
NOT TO SCALE



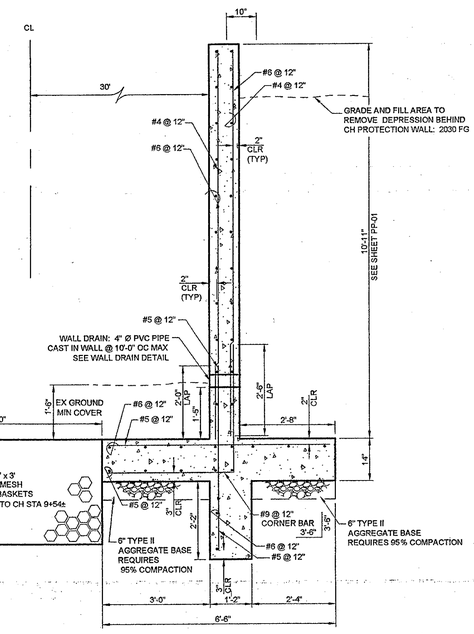

## SECTION A-A

NOT TO SCALE



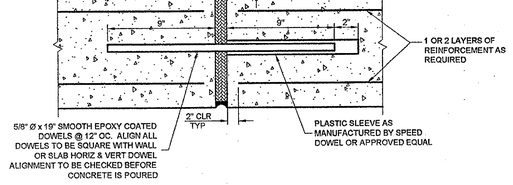

## WALL DRAIN DETAIL

NOT TO SCALE




## CHANNEL WALL 'D' TYPICAL SECTION

NOT TO SCALE

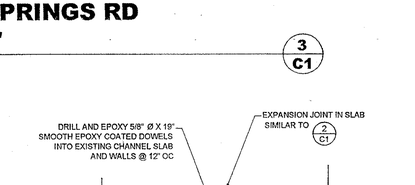



## EXPANSION JOINT DETAIL AT WALL 2/C-1

NOT TO SCALE

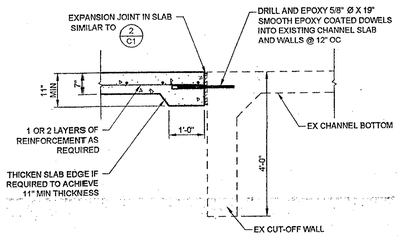
## GENERAL STRUCTURAL NOTES

1. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE V AGGREGATE SHALL CONFORM TO ASTM C-33
2. ALL STRUCTURAL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS
3. ALL REINFORCEMENT STEEL SHALL BE ASTM DESIGNATION A615 GRADE 60
4. COVERAGE FOR REINFORCING BARS, EXCEPT WHERE OTHERWISE SHOWN, SHALL BE: 3" FOR CONCRETE PLACED AGAINST EARTH; 2" FOR OTHERS.
5. USE 3/4" CHAMFER ON ALL EXPOSED CORNERS
6. ALL REINFORCING BAR LAP SPLICES SHALL CONFORM TO ACI 318-89




## EXPANSION JOINT DETAIL AT WARM SPRINGS RD EX RCB 4/C1

NOT TO SCALE




## EXPANSION JOINT DETAIL AT EXISTING CHANNEL 5/C1

NOT TO SCALE

## EXPANSION JOINT DETAIL AT WARM SPRINGS RD EXISTING RCB AND CHANNEL WALL 'D' 3/C1

NOT TO SCALE

| REV No | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| | | | |

CLARK COUNTY NEVADA

# DUCK CREEK

CHANNEL CONSTRUCTION DETAILS

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA — WILLIAM R. PENNINGTON — CIVIL — No 7001

5-10-02

| | |
|---|---|
| DESIGNED BY: | WFP/EIP |
| DRAWN BY: | EIP |
| CHECKED BY: | WFP |
| DATE: | May 10, 2002 - 5:12pm |

| | |
|---|---|
| SCALE | |
| HORIZ: | N/A |
| VERT: | N/A |
| FIELD BOOK | NONE |

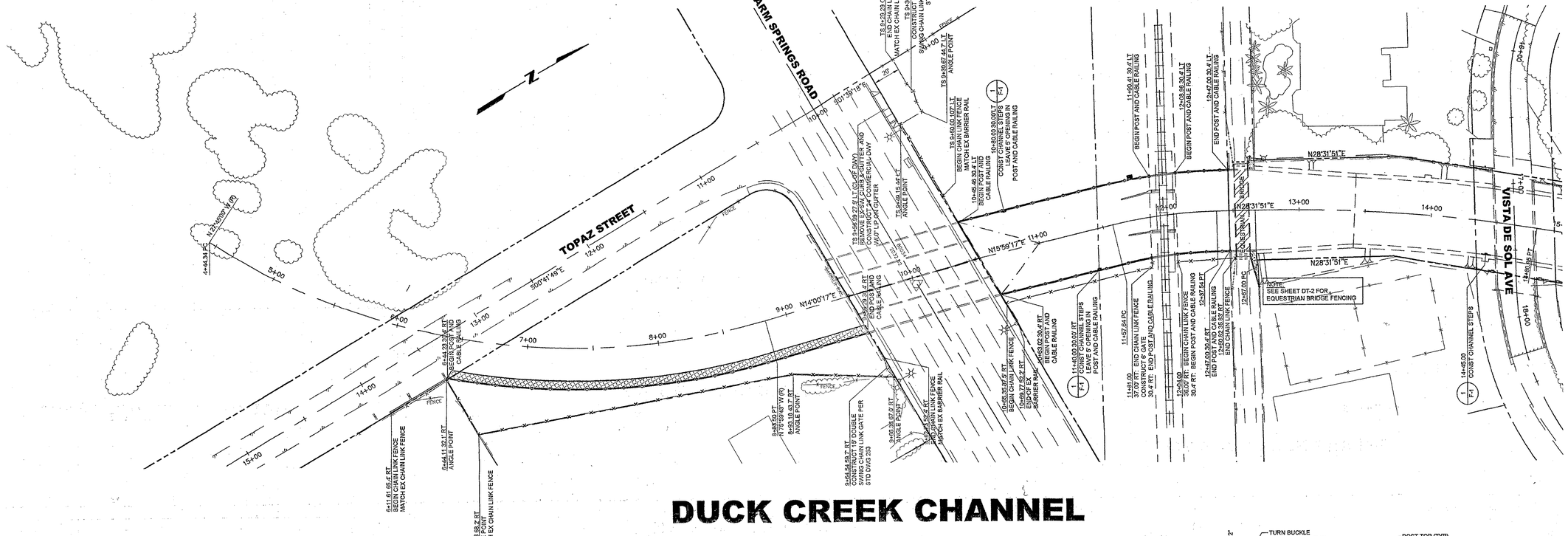
SHEET No **C-1**

F990812

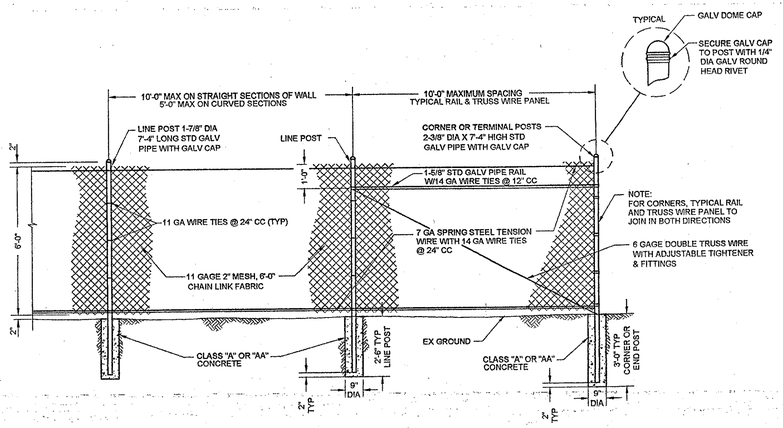
L-1629

L1629\RAILROAD\CONST_DETAILS.DWG\C-1

DUCK CREEK - WARM SPRINGS ROAD AND TOPAZ STREET

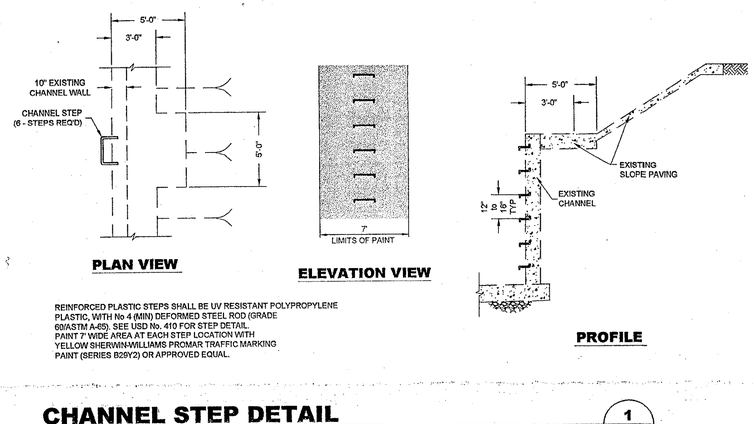



# DUCK CREEK CHANNEL




## CHANNEL CHAIN LINK FENCE DETAIL

NOT TO SCALE




**PLAN VIEW**

**ELEVATION VIEW**

**PROFILE**

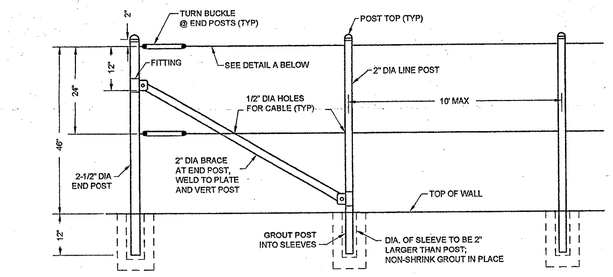
REINFORCED PLASTIC STEPS SHALL BE UV RESISTANT POLYPROPYLENE PLASTIC, WITH No 4 (MIN) DEFORMED STEEL ROD (GRADE 60/ASTM A-615). SEE USD No. 410 FOR STEP DETAIL. PAINT 7' WIDE AREA AT EACH STEP LOCATION WITH YELLOW SHERWIN-WILLIAMS PROMAR TRAFFIC MARKING PAINT (SERIES 828Y2) OR APPROVED EQUAL.

## CHANNEL STEP DETAIL

TYPICAL INSTALLATION:
STA 14+45 RT

NOT TO SCALE

1 / F-1

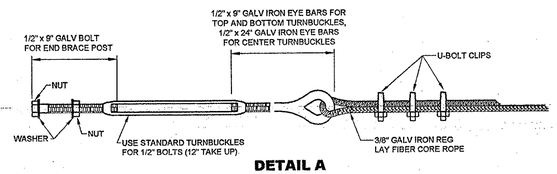



NOTES:

1. ALL POSTS SHALL BE SET PLUMB.
2. RAILING POSTS AND FITTINGS SHALL BE HOT DIPPED GALVANIZED MALLEABLE, CAST IRON, OR PRESSED STEEL.

## ELEVATION VIEW

NOT TO SCALE




## DETAIL A

NOT TO SCALE

## POST AND CABLE RAILING

NOT TO SCALE

L1629\RAILROADFENCEPLAN.DWG#-1

| REV No | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| | | | |

CLARK COUNTY NEVADA

# DUCK CREEK

## FENCE PLAN AND DETAILS

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER — STATE OF NEVADA — WILLIAM F. PENNINGTON — CIVIL — No 7001

5-10-02

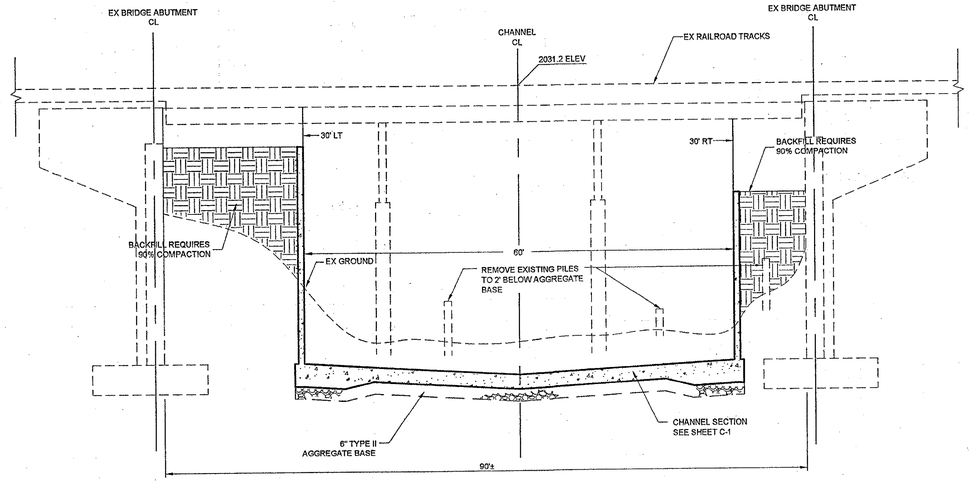
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|---|---|
| DESIGNED BY: | EIP |
| DRAWN BY: | EIP |
| CHECKED BY: | WFP |
| DATE: | May 10, 2002 - 4:32pm |

| | |
|---|---|
| SCALE | |
| HORIZ: | 1" = 40' |
| VERT: | N/A |
| FIELD BOOK | |

SHEET No **F-1**

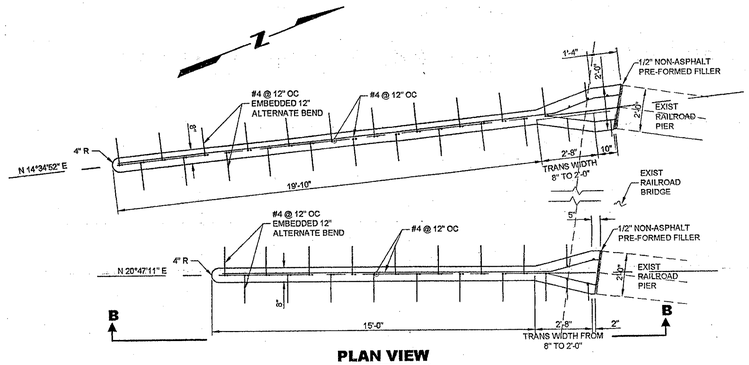
F990812

L-1629

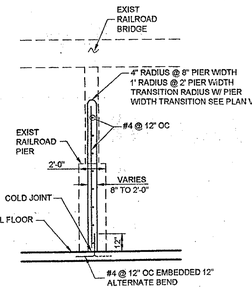



## RAILROAD BRIDGE ELEVATION VIEW

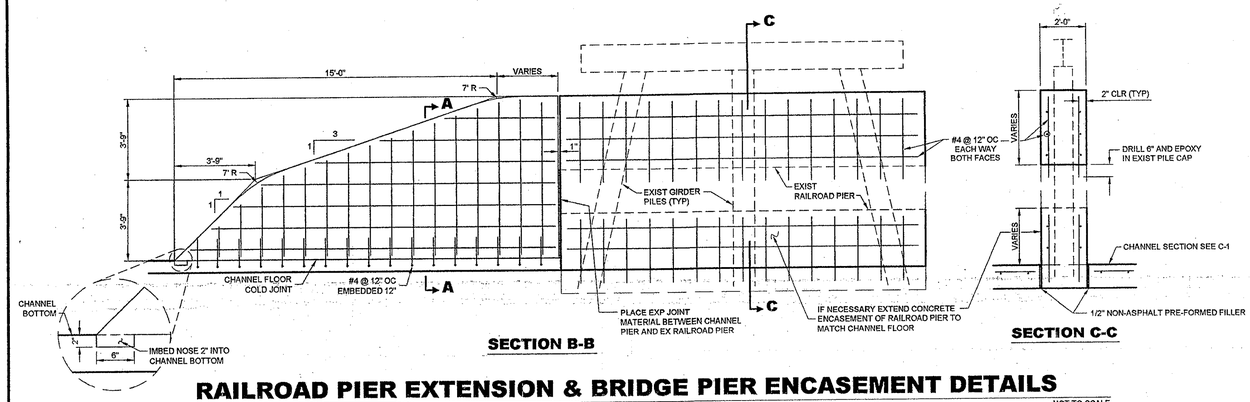
NOT TO SCALE




PLAN VIEW




SECTION A-A




SECTION B-B

SECTION C-C

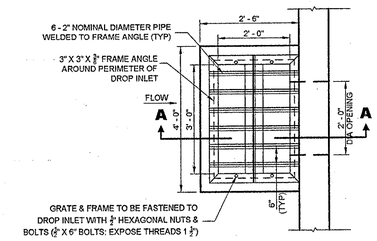
## RAILROAD PIER EXTENSION & BRIDGE PIER ENCASEMENT DETAILS

SEE SHEET PP-01 FOR STATIONING OF RAILROAD PIERS

NOT TO SCALE

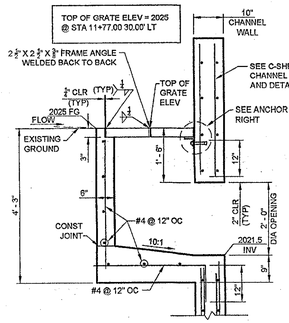
### DROP INLET - GENERAL NOTES

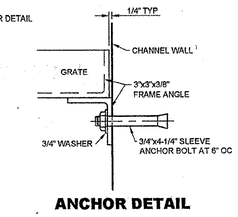
1. ALL CONCRETE SHALL BE CLASS A OR AA.
2. REINFORCING STEEL SHALL BE NO.4 BARS WITH MAXIMUM SPACING AT 12" CENTERS. WIRED TIGHTLY AT ALL INTERSECTIONS AND EMBEDDED 2" CLEAR OF ALL CONCRETE SURFACES.
3. EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1".
4. FOR 2" PIPE SEE ASTM A53.




## MODIFIED NDOT TYPE 2A DROP INLET - PLAN VIEW

STA 11+77.00 30.00' LT — NOT TO SCALE

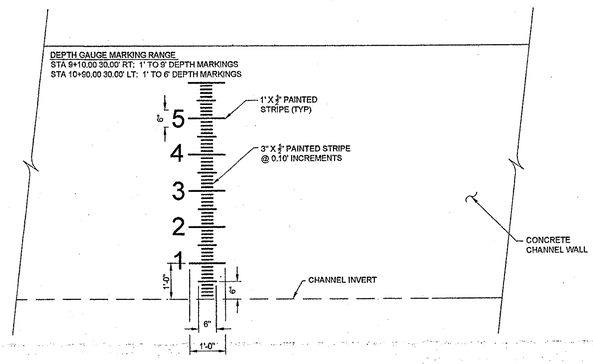



ANCHOR DETAIL

## MODIFIED NDOT TYPE 2A DROP INLET - SECTION A-A

NOT TO SCALE




## DEPTH GAUGE DETAIL

STA 9+10.00 30.00' RT AND STA 10+80.00 30.00' LT — NOT TO SCALE

DUCK CREEK - WARM SPRINGS ROAD AND TOPAZ STREET

| REV No | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|

CLARK COUNTY NEVADA

# DUCK CREEK

CONSTRUCTION DETAILS

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER — WILLIAM FLOYD PERRINGTON — No 7001 — STATE OF NEVADA — CIVIL

5-10-02

| | |
|---|---|
| DESIGNED BY: | EIP |
| DRAWN BY: | EIP |
| CHECKED BY: | WFP |
| DATE: | May 10, 2002 - 4:35pm |

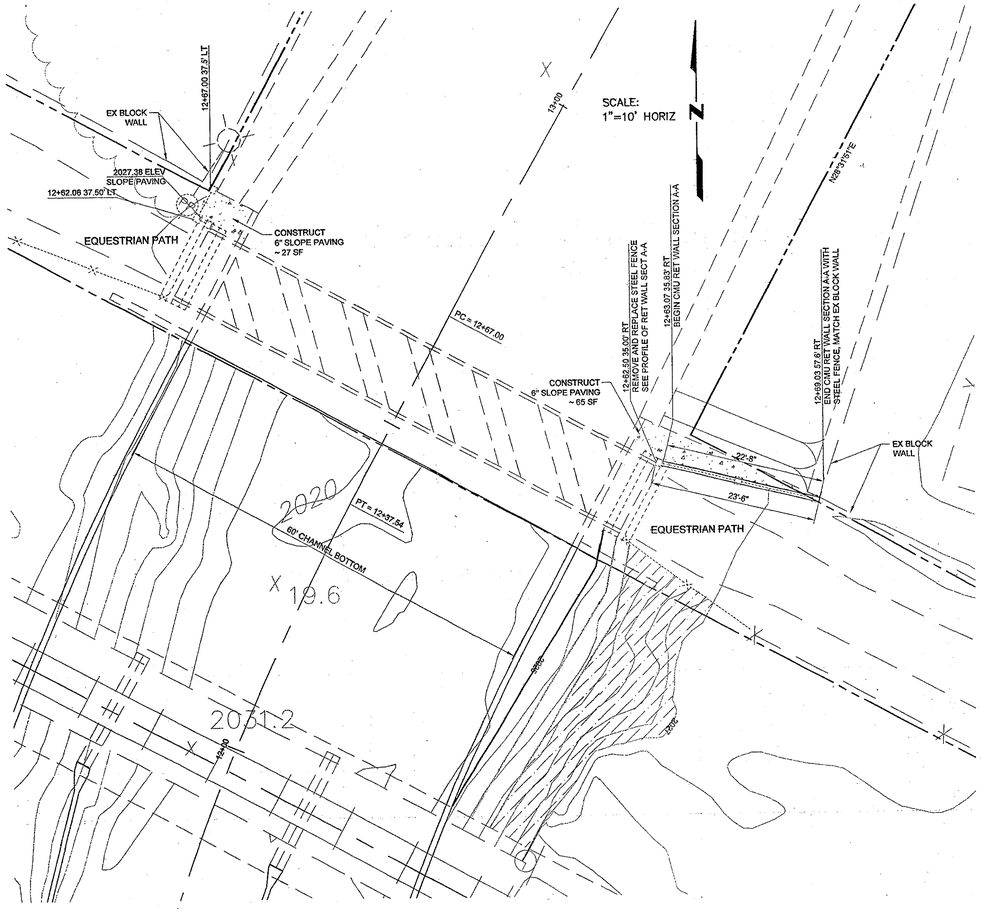
| SCALE | |
|---|---|
| HORIZ: | N/A |
| VERT: | N/A |
| FIELD BOOK | NONE |

SHEET No **DT-1**

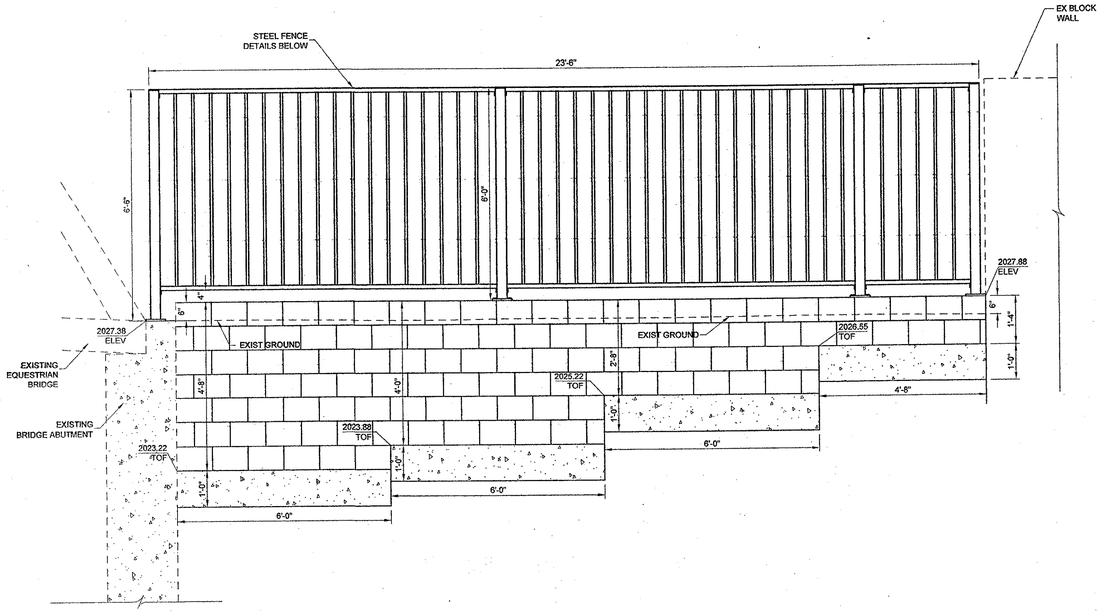
F990812

L-1629

L1629\RAILROAD\CONST_DETAILS.DWG\DT-1



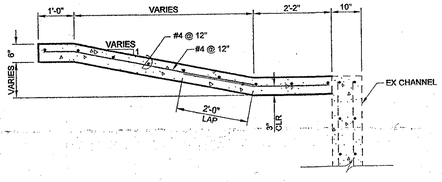

# DUCK CREEK CHANNEL




## PROFILE - RETAINING WALL SECTION A-A

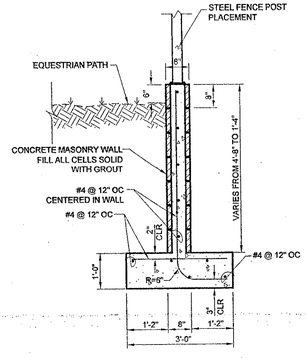
12+63.07 35.83' RT TO 12+69.03 57.6' RT
12+50.82 35.83' RT TO 12+47.91 58.3' RT
12+50.48 35.83' LT TO 12+47.59 58.3' LT

NOT TO SCALE



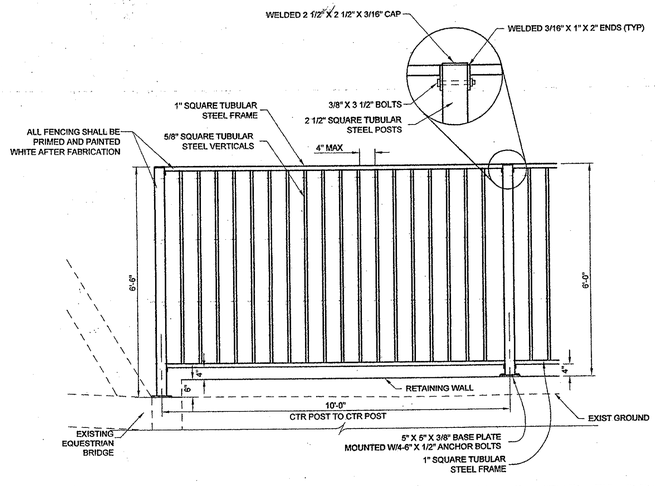

## TYPICAL SLOPE PAVING SECTION

NOT TO SCALE




## RETAINING WALL SECTION A-A

NOT TO SCALE




## STEEL FENCE DETAIL

NOT TO SCALE

DUCK CREEK - WARM SPRINGS ROAD AND TOPAZ STREET

L1629/RAILROAD/1629_DT02.DWG/DT-2

| REV No | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| | | | |

# DUCK CREEK

## CONSTRUCTION DETAILS

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER — STATE OF NEVADA — WILLIAM B. PENNINGTON — No 7001 — CIVIL

5-10-02

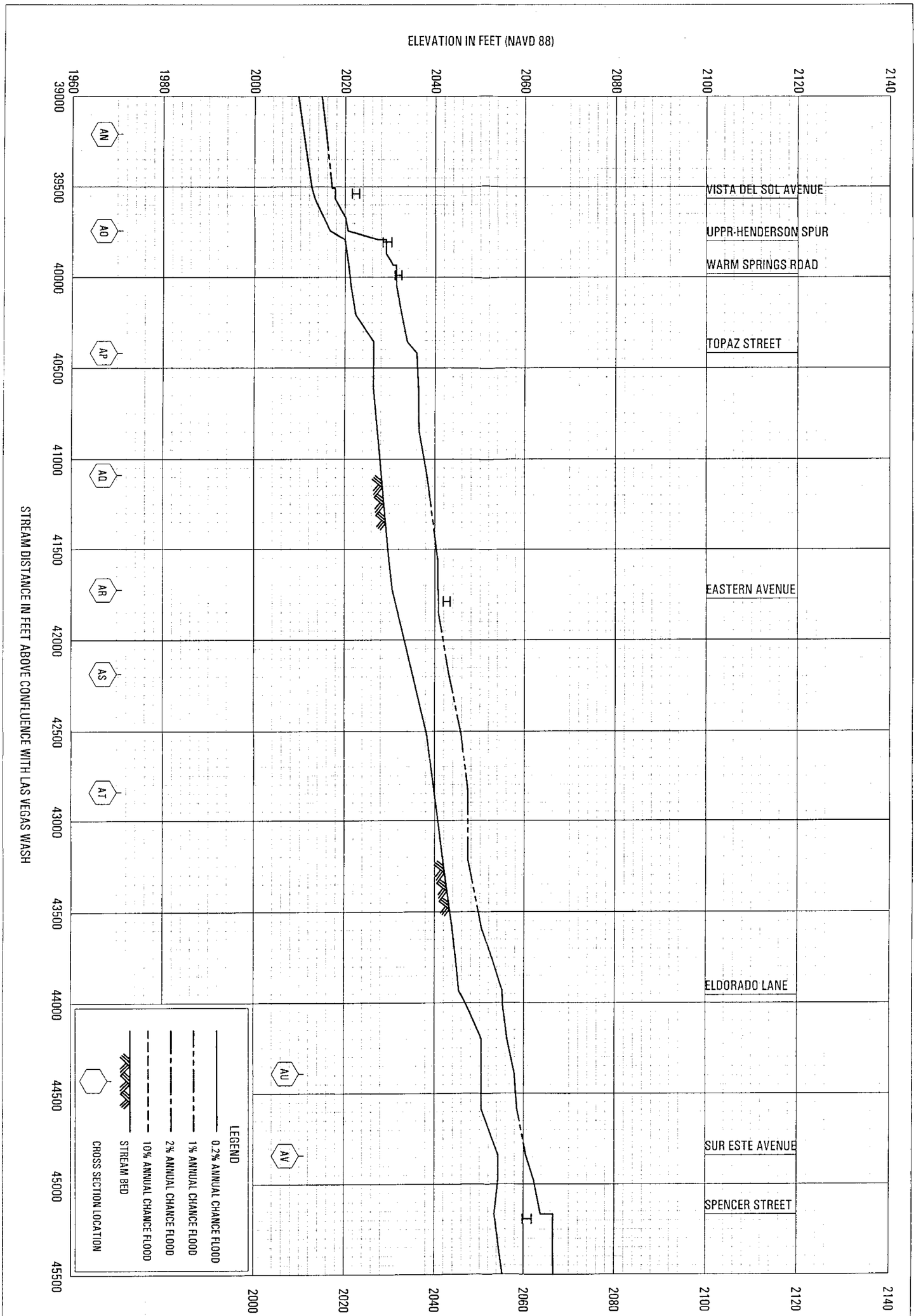
| | |
|---|---|
| DESIGNED BY: | EIP |
| DRAWN BY: | EIP |
| CHECKED BY: | WFP |
| DATE: | May 10, 2002 - 5:36pm |

| | |
|---|---|
| SCALE | |
| HORIZ: | N/A |
| VERT: | N/A |
| FIELD BOOK | NONE |

SHEET No **DT-2**

F990812

L-1629




108P

FEDERAL EMERGENCY MANAGEMENT AGENCY

CLARK COUNTY, NV

AND INCORPORATED AREAS

FLOOD PROFILES

DUCK CREEK

REVISED TO REFLECT LOMR
APR 21 2003
PRINTED

# NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevation** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevation (BFEs)** shown on this map apply only landward of 0.0' North American Vertical Datum (NAVD). Users of this FIRM should be aware that coastal flood elevations may also be provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map is Universal Tranverse Mercator (UTM) zone 11. The **horizontal datum** is NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
*Silver Spring Metro Center*
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit their website at www.ngs.noaa.gov.

**Base map** information shown on this FIRM was provided in digital format by Clark County Regional Flood Control District. This information was converted using Orthophotography, dated 1999 or newer, and GBF/DIME data. Segments were digitized off of the orthophotography based on center of pavement.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

An accompanying Flood Insurance Study report, Letters of Map Revision or Letters of Map Amendment revising portions of this panel, and digital versions of this PANEL may be available. Contact the **FEMA Map Service Center** at the following phone numbers and Internet address for infomation on all related products available from FEMA;

Phone: 800-358-9616
FAX: 800-358-9620
www.fema.gov/msc

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at www.fema.gov.

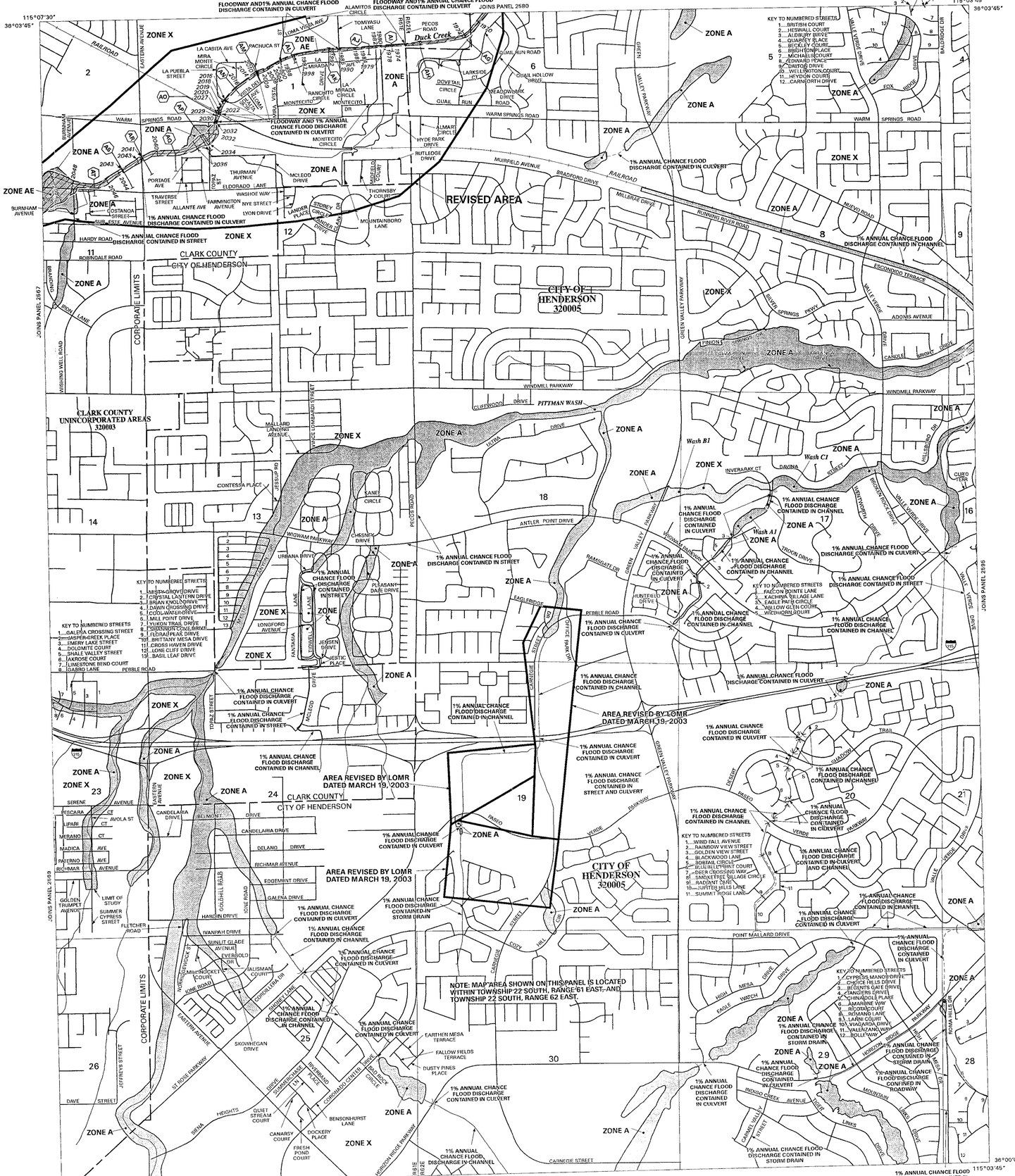
This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report may reflect stream channel distances that differ from what is shown on this map.

This Digital Flood Insurance Rate Map (DFIRM) was produced through a unique partnership between Clark County and the Federal Emergency Management Agency (FEMA). Clark County has developed a long-term approach of floodplain management to decrease the costs associated with flooding. This is demonstrated by the Clark County commitment to share and maintain floodplain layers within their Geographic Information System Management Office (GISMO).

This DFIRM reflects several innovative features. These include: + Southern Nevada GIS -- Cooperation among local governmental agencies throughout Clark County. The foundation of cooperation is the GIS Interlocal Agreements formed between fourteen regional participants. In part, the agreements specify that the Clark County GIS Management Office (GISMO) will be responsible for maintaining a GIS data warehouse and associated Southern Nevada GIS Metadata.

+ The GISMO's responsibilities go beyond maintaining the GIS data warehouse. GISMO also maintains the Street Centerline Database used by 911 dispatch services, This centerline database serves as the base map for this DFIRM.

DIGITAL DATA AVAILABILITY: http://www.co.clark.nv.us/ceit/gismo/gismo.htm




# LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

**ZONE A** No base flood elevations determined.

**ZONE AE** Base flood elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

**ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

**ZONE AR** Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

**ZONE A99** Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.

**ZONE V** Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.

**ZONE VE** Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

**ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

**ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.

**ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

| | |
|---|---|
| | Floodplain boundary |
| | Floodway boundary |
| | Zone D boundary |
| | CBRS and OPA boundary |
| | Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities. |
| 513 | Base Flood Elevation line and value; elevation in feet* |
| (EL 987) | Base Flood Elevation value where uniform within zone; elevation in feet* |
| A A | Cross Section Line |
| 23 23 | Transect Line |
| 97°07'30", 32°22'30" | Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) |
| 4276000M | 1000-meter Universal Transverse Mercator grid values, zone 11 |
| 600000 FT | 5000-foot grid ticks |
| DX5510 × | Bench mark (see explanation in Notes to Users section of this FIRM panel). |
| M1.5 | River Mile |

*Referenced to the North American Vertical Datum of 1988

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
AUGUST 16, 1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

September 27, 2002: to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to delete special flood hazard areas, to change zone designations, to add roads and road names, to incorporate previously issued letters of map revision, to incorporate previously issued letters of map amendment, and to change floodway.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2590E

# FIRM
## FLOOD INSURANCE RATE MAP

CLARK COUNTY,
NEVADA
AND INCORPORATED AREAS

## PANEL 2590 OF 4090

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| CLARK COUNTY, UNINCORPORATED AREAS | 320003 | 2590 | E |
| HENDERSON, CITY OF | 320005 | 2590 | E |

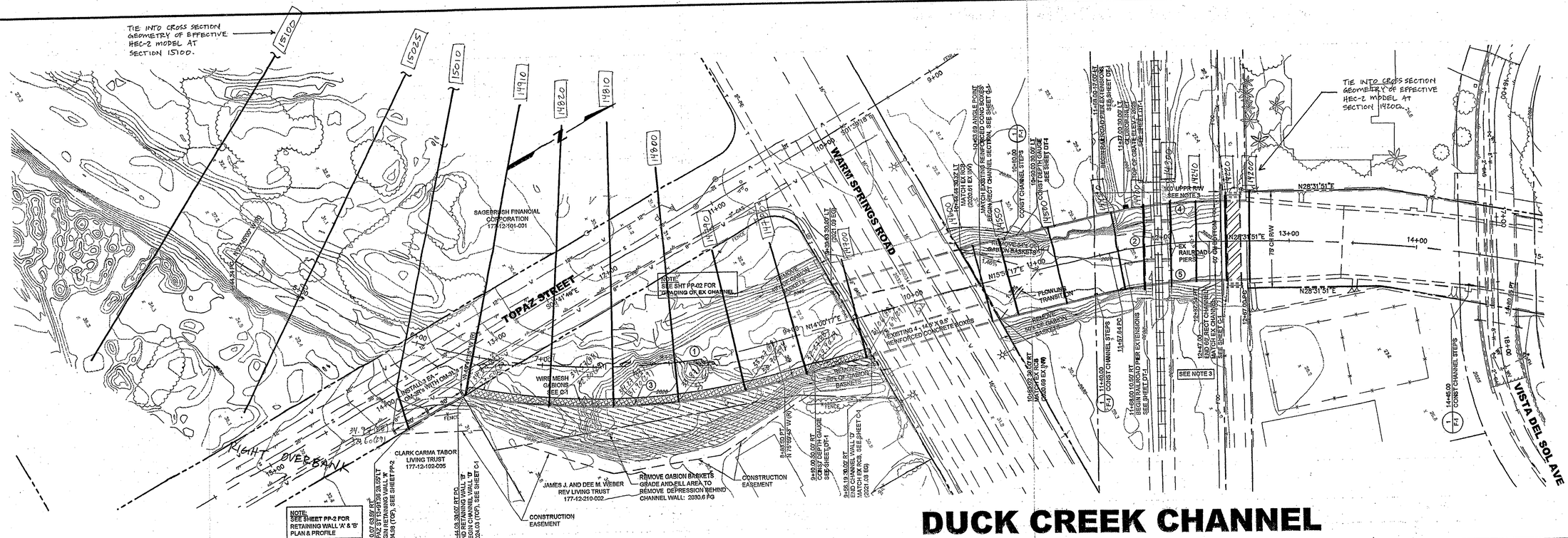
REVISED TO REFLECT LOMR DATED APR 21 2003

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
32003C2590E

MAP REVISED:
SEPTEMBER 27, 2002

Federal Emergency Management Agency




# DUCK CREEK CHANNEL

## NOTES

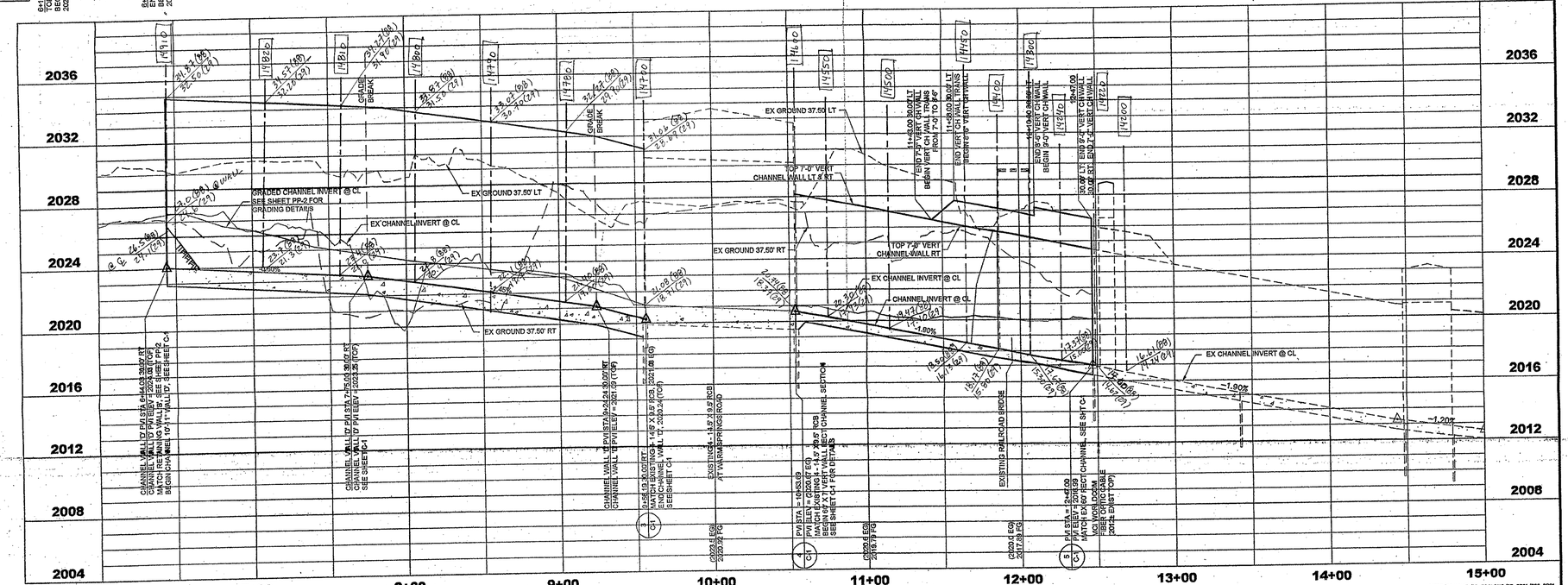
1. CHANNEL FENCING: SEE SHEET F-1 FOR PLAN & DETAILS
2. REMOVE ALL GABION BASKETS (APPROX 18" THICK MATRESSES) FROM THE SIDE SLOPES OF THE EXISTING GRADED CHANNEL
3. REFER TO SECTION 107.08 RELATIONS WITH RAILROAD REGARDING WORK WITHIN THE RAILROAD RIGHT-OF-WAY

| CHANNEL CENTERLINE CURVE DATA | | | | |
|---|---|---|---|---|
| CURVE | DELTA | TANGENT | RADIUS | LENGTH |
| ① | 49°14'43" | 233.54' | 521.54' | 439.16 |
| ② | 12°32'34" | 40.11' | 365.00' | 79.90' |
| CHANNEL WALL CURVE DATA | | | | |
| CURVE | DELTA | TANGENT | RADIUS | LENGTH |
| ③ | 26°18'09" | 128.87' | 551.54 | 253.19' |
| ④ | 12°32'34" | 43.41' | 395.00' | 86.47' |
| ⑤ | 12°32'34" | 36.82' | 335.00' | 73.34' |

NOTE:
RECORD DRAWING ON NAVD88 DATUM.
HEC-2 MODEL CROSS SECTION GEOMETRY CONVERTED TO NGVD29 DATUM.

NAVD88 = NGVD29 + 2.37 FT

**FIGURE 4**
**HEC-2 EXHIBIT**
**ALT-A.OUT**




| REV No | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| | | | |

# DUCK CREEK
## PLAN & PROFILE
## STA 6+44.08 - STA 12+47.00
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER — WILLIAM F. PENNINGTON — No 7001 — CIVIL — STATE OF NEVADA

5-10-02

| | |
|---|---|
| DESIGNED BY: | EIP |
| DRAWN BY: | EIP |
| CHECKED BY: | WFP |
| DATE: | May 10, 2002 - 5:32pm |

| | |
|---|---|
| SCALE | |
| HORIZ: | 1" = 40' |
| VERT: | 1" = 4' |
| FIELD BOOK | NONE |

SHEET No **PP-1**

F990812

L-1629

L1629/RAILROAD/RR_PP01.DWG/RR_PP01/R29_PP01

DUCK CREEK - WARM SPRINGS ROAD AND TOPAZ STREET

TIE INTO CROSS SECTION GEOMETRY OF EFFECTIVE HEC-2 MODEL AT SECTION 15100.

TIE INTO CROSS SECTION GEOMETRY OF EFFECTIVE HEC-2 MODEL AT SECTION 14200.

# DUCK CREEK CHANNEL

## NOTES

1. CHANNEL FENCING: SEE SHEET F-1 FOR PLAN & DETAILS
2. REMOVE ALL GABION BASKETS (APPROX 18" THICK MATRESSES) FROM THE SIDE SLOPES OF THE EXISTING GRADED CHANNEL
3. REFER TO SECTION 107.06 RELATIONS WITH RAILROAD REGARDING WORK WITHIN THE RAILROAD RIGHT-OF-WAY

| CHANNEL CENTERLINE CURVE DATA | | | | |
|---|---|---|---|---|
| CURVE | DELTA | TANGENT | RADIUS | LENGTH |
| ① | 48°14'43" | 233.54' | 521.54' | 439.16 |
| ② | 12°32'34" | 40.11' | 365.00' | 79.90' |
| **CHANNEL WALL CURVE DATA** | | | | |
| CURVE | DELTA | TANGENT | RADIUS | LENGTH |
| ③ | 26°18'09" | 128.87' | 551.54 | 253.19' |
| ④ | 12°32'34" | 43.41' | 395.00' | 86.47' |
| ⑤ | 12°32'34" | 36.82' | 335.00' | 73.34' |

NOTE:
RECORD DRAWING ON NAVD88 DATUM.
HEC-2 MODEL CROSS SECTION GEOMETRY CONVERTED TO NGVD29 DATUM.

NAVD88 = NGVD29 + 2.37 FT

**FIGURE 5**
**HEC-2 EXHIBIT**
**ALT-B.OUT**

| REV No | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| | | | |

# DUCK CREEK
## PLAN & PROFILE
## STA 6+44.08 - STA 12+47.00
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER — WILLIAM F. PENNINGTON — CIVIL — No 7001 — STATE OF NEVADA
5-10-02

| | |
|---|---|
| DESIGNED BY: | EIP |
| DRAWN BY: | EIP |
| CHECKED BY: | WFP |
| DATE: | May 10. 2002 - 5:32pm |

| | |
|---|---|
| SCALE | |
| HORIZ: | 1" = 40' |
| VERT: | 1" = 4' |
| FIELD BOOK | NONE |

SHEET No **PP-1**

F990812

L-1629

L1629/RAILROAD/RR_PP01.DWG/RR_PP01/229_PP01

DUCK CREEK - WARM SPRINGS ROAD AND TOPAZ STREET

TIE INTO CROSS SECTION GEOMETRY OF EFFECTIVE HEC-2 MODEL AT SECTION 15100.

TIE INTO CROSS SECTION GEOMETRY OF EFFECTIVE HEC-2 MODEL AT SECTION 14200.

# DUCK CREEK CHANNEL

## NOTES

1. CHANNEL FENCING: SEE SHEET F-1 FOR PLAN & DETAILS
2. REMOVE ALL GABION BASKETS (APPROX 18" THICK MATRESSES) FROM THE SIDE SLOPES OF THE EXISTING GRADED CHANNEL
3. REFER TO SECTION 107.08 RELATIONS WITH RAILROAD REGARDING WORK WITHIN THE RAILROAD RIGHT-OF-WAY

| CHANNEL CENTERLINE CURVE DATA | | | | |
|---|---|---|---|---|
| CURVE | DELTA | TANGENT | RADIUS | LENGTH |
| ① | 48°14'43" | 233.54' | 521.54' | 439.16 |
| ② | 12°32'34" | 40.11' | 365.00' | 79.90' |
| CHANNEL WALL CURVE DATA | | | | |
| CURVE | DELTA | TANGENT | RADIUS | LENGTH |
| ③ | 26°18'09" | 128.87' | 551.54 | 253.19' |
| ④ | 12°32'34" | 43.41' | 395.00' | 86.47' |
| ⑤ | 12°32'34" | 36.62' | 335.00' | 73.34' |

NOTE:
RECORD DRAWING ON NAVD88 DATUM.
HEC-2 MODEL CROSS SECTION GEOMETRY CONVERTED TO NGVD29 DATUM.

NAVD88 = NGVD29 + 2.37 FT

**FIGURE 6**
**HEC-2 EXHIBIT**
**ALT-C.OUT**

| REV No | DATE | DESCRIPTION | APPROVED |
|---|---|---|---|
| | | | |

CLARK COUNTY NEVADA

# DUCK CREEK
## PLAN & PROFILE
## STA 6+44.08 - STA 12+47.00
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

REGISTERED PROFESSIONAL ENGINEER — WILLIAM F. PENNINGTON — CIVIL — No 7001 — STATE OF NEVADA

5-10-02

| | |
|---|---|
| DESIGNED BY: | EIP |
| DRAWN BY: | EIP |
| CHECKED BY: | WFP |
| DATE: | May 10, 2002 - 5:32pm |

| | |
|---|---|
| SCALE | |
| HORIZ: | 1" = 40' |
| VERT: | 1" = 4' |
| FIELD BOOK | NONE |

SHEET No **PP-1**

F990812

L-1629

L1629/RAILROAD/RR_PP01.DWG/RR_PP01/629_PP01