CONDITIONAL LETTER OF MAP REVISION
FOR
LONGFORD GROUP/DUCK CREEK CHANNEL

758.002

June 2004

04-09-817R
05-09-0913P

Prepared for:
Longford Group
3127 E. Warm Springs Road, Ste. 100
Las Vegas, NV 89120
(702) 454-5300
(702) 454-1376

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

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AFFILIATE OFFICE IN
SACRAMENTO, CA

758.002

June 22, 2004

Ms. Pernille Buch-Pedersen
Michael Baker Jr., Inc.
FEMA Map Coordination Contractor
3601 Eisenhower Avenue, Suite 600
Alexandria, Virginia 22304

Subject: CLOMR for Longford Group/Duck Creek Channel

Dear Ms. Buch-Pedersen:

G. C. Wallace, Inc. (GCW) has been contracted by Longford Group to submit a Conditional Letter of Map Revision (CLOMR) for a portion of the Duck Creek Channel located immediately downstream of Eastern Avenue within the unincorporated area of Clark County, Nevada. This CLOMR is based on the improvements designed for the Duck Creek Channel between Eastern Avenue and Warm Springs Road. The affected community panel is Number 32003C 2590E, revised August 13, 2003. See Figures 1 and 2 for the project vicinity and location.

The Duck Creek Channel hydrology and hydraulic characteristics were recently analyzed as part of the Duck Creek FIS Restudy, LOMR 03-09-0980X, incorporated August 13, 2003. As established in the Duck Creek FIS Restudy, the 100-year peak flow conveyed by this section of the Duck Creek Channel is 8,562 cfs. As currently constructed, a breakout of storm flows from the Duck Creek Channel occurs just upstream of Warm Springs Road during major storm events. According to the Duck Creek FIS Restudy, approximately 3,000 cfs during a 100-year storm event overtops the right overbank of the channel at this location. The flow from this breakout re-enters the channel via Pine Street, Pecos Road, and Quail Run Road, between downstream HEC-2 Cross Sections 12000 and 11100. This portion of the channel was modeled with HEC-2 files DCL1SUBC.dat (Subcritical Conditions) and DCL1SPRC.dat (Supercritical Conditions) in the Duck Creek FIS Restudy. Electronic copies of these calculations are included for reference.

The proposed improvements include the construction of concrete-lined rectangular and trapezoidal channel the length of the unimproved channel between Eastern Avenue and Warm Springs Road. In addition, a bridge will be added at Topaz Street. With the proposed improvements to the Duck Creek Channel, the 8,562 cfs peak flow will be confined to the channel in this area, eliminating the breakout upstream of Warm Springs Road. The HEC-2 models generated for this section of Duck Creek Channel were taken and updated to reflect the proposed conditions within the channel. The proposed HEC-2

models use the established water surface elevations at Cross Section 15500 and Cross Section 10600, the upstream and downstream limits of the new model. The peak flow, 8,562 cfs, was used for the entire length of the channel between these two cross sections. According to the proposed models, the peak storm flow is contained along the entire length of the channel between Cross Sections 15500 and 10600, the limits of the new model. The Water Surface Elevations at the downstream end of the project are unchanged from the Duck Creek FIS Restudy calculations. The calculated Water Surface Elevation at the upstream end of the study limits is slightly lower than the Water Surface Elevation calculated by the Duck Creek FIS Restudy as shown in the HEC-2 Model Summary Table included in Section 3.

The proposed changes to the F.I.R.M. Panel 32003C 2590E are included on Figure 4. These changes eliminate the Flood Zone A created by the breakout in the channel between Eastern Avenue and Warm Springs Road.

FEMA Forms MT2-1, MT2-2, and MT2-3 are included in Section 1, as well as a copy of the payment for $4,000 made payable to the National Flood Insurance Program. The original check has been forwarded to the FEMA Fee-Charge System Administrator, as instructed.

If you have any questions or require additional information, please contact us at 804-2000.

Very truly yours,

G. C. WALLACE, INC.

Calvin L. Black, P.E.
Executive Vice President
Flood Control Division

CLB:KJ:jj

Enc.

cc: Joe P. Gwerder, P.E., Longford Group
Dave Betley, P.E., Clark County Department of Public Works
Kevin Eubanks, P.E., Clark County Regional Flood Control District

Supporting Documentation for CLOMR

Section 1 – FEMA Forms

- MT-2 Form 1: Overview & Concurrence Form
- MT-2 Form 2: Riverine Hydrology & Hydraulics Form
- MT-2 Form 3: Riverine Structures Form
- Copy of Payment Information Form sent directly to FEMA

Section 2 – Maps

- Figure 1: Vicinity Map
- Figure 2: Location Map
- Figure 3: Effective FIRM
- Figure 4: Proposed FIRM Revisions
- Figure 5: HEC-2 Cross Section Map

Section 3 – Hydraulic Analyses

- Summary of HEC-2 Results
- HEC-2 Model for Subcritical Conditions
- HEC-2 Model for Supercritical Conditions

Section 4 – Reference Material

- Duck Creek FIS Restudy

Section 5 – Electronic Files

- Figure 3: Effective FIRM
- Figure 4: Proposed FIRM Revisions
- Figure 5: HEC-2 Cross Section Map
- Summary of HEC-2 Results (HEC2Summ.xls)
- HEC-2 Model for Subcritical Conditions (DCL1SUBX.dat)
- HEC-2 Model for Supercritical Conditions (DCL1SPRX.dat)
- HEC-2 Model for Subcritical Conditions from FIS Restudy (DCL1SUBC.out)
- HEC-2 Model for Supercritical Conditions from FIS Restudy (DCL1SPRC.out)

Section 6 – Drawings for Proposed Facilities

- Duck Creek Channel Improvements
- Pictures of Existing Facilities

SECTION 1
FEMA Forms

MT-2 Form 1: Overview & Concurrence Form
MT-2 Form 2: Riverine Hydrology & Hydraulics Form
MT-2 Form 3: Riverine Structures Form
Copy of Payment Information Form sent directly to FEMA

FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 3067-0148
Expires September 30, 2005

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this 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, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

A. REQUESTED RESPONSE FROM FEMA

This request is for a (check one):

☒ 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, regulatory floodway or flood elevations. (See Parts 60 & 65 of the NFIP Regulations.)

B. OVERVIEW

1. 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	City of Katy	TX	480301	0005D	02/08/83
480287	Harris County	TX	48201C	0220G	09/28/90
320003	Clark County, Unincorporated Areas	NV	32003C	2590E	08/13/03

2. Flooding Source: Duck Creek Channel

3. Project Name/Identifier: Longford Group/Duck Creek Channel Improvements

4. FEMA zone designations affected: A, AE (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

a. The basis for this revision request is (check all that apply)

☒ Physical Change ☐ Improved Methodology/Data

☐ Regulatory Floodway Revision ☐ Other (Attach Description)

Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following types of flooding and structures (check all that apply)

Types of Flooding:	☒ Riverine	☐ Coastal	☐ Shallow Flooding (e.g., Zones AO and AH)
	☐ Alluvial fan	☐ Lakes	☐ Other (Attach Description)
Structures:	☒ Channelization	☐ Levee/Floodwall	☒ Bridge/Culvert
	☐ Dam	☐ Fill	☐ Other, Attach Description

C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☒ Yes Fee amount: $4,000

☐ No, Attach Explanation

Please see the FEMA Web site at http://www.fema.gov/fhm/frm_fees.shtm **for Fee Amounts and Exemptions.**

D. SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Joe P. Gwerder, P.E.	Company: Longford Group	
Mailing Address: 3127 E. Warm Springs Road Suite 100 Las Vegas, Nevada 89120	Daytime Telephone No.: (702) 454-5300	Fax No.: (702) 454-1376
	E-Mail Address:	
Signature of Requester (required): Joe P. Gwerder		Date: 7-2-04

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title: Denis Cederburg, P.E. -- Manager, Design Engineering, CC Development Services		Telephone No.: (702) 455-6064
Community Name: Clark County	Community Official's Signature (required):	Date: 7-1-04

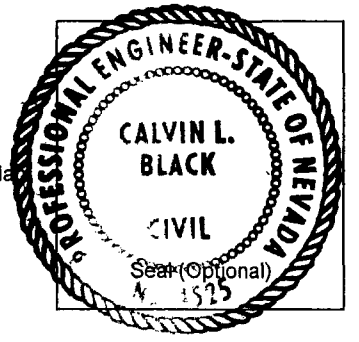
CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: Calvin Black	License No.: 4525	Expiration Date: 12/31/04
Company Name: G. C. Wallace, Inc.	Telephone No.: (702) 804-2000	Fax No.: (702) 804-2298
Signature: Calvin L. Black		Date: 7/1/04

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)	Required if ...
☒ Riverine Hydrology and Hydraulics Form (Form 2)	New or revised discharges or water-surface elevations
☒ Riverine Structures Form (Form 3)	Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of da
☐ Coastal Analysis Form (Form 4)	New or revised coastal elevations
☐ Coastal Structures Form (Form 5)	Addition/revision of coastal structure
☐ Alluvial Fan Flooding Form (Form 6)	Flood control measures on alluvial fans



FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 3067-0148
Expires September 30, 2005

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 3 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this 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, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

Flooding Source: Duck Creek Channel
Note: Fill out one form for each flooding source studied

A. HYDROLOGY

1. Reason for New Hydrologic Analysis (check all that apply)

☒ Not revised (skip to section 2) ☐ No existing analysis ☐ Improved data
☐ Alternative methodology ☐ Proposed Conditions (CLOMR) ☐ Changed physical condition of watershed

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	FIS (cfs)	Revised (cfs)
N/A			

3. Methodology for New Hydrologic Analysis (check all that apply)

☐ Statistical Analysis of Gage Records ☐ Precipitation/Runoff Model [TR-20, HEC-1, HEC-HMS etc.]
☐ Regional Regression Equations ☐ Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters) and documentation to support the new analysis. The document, "Numerical Models Accepted by FEMA for NFIP Usage" lists the models accepted by FEMA. This document can be found at: http://www.fema.gov/fhm/en_modl.shtm.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review.

5. Impacts of Sediment Transport on Hydrology

Was sediment transport considered? ☐ Yes ☐ No If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation for why sediment transport was not considered.

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.) Effective	Proposed/Revised
Downstream Limit	Duck Creek Channel	10600	1949.3	1949.3
Upstream Limit	Duck Creek Channel at Eastern Avenue	15500	2037.8	2037.1

2. Hydraulic Method Used

Hydraulic Analysis HEC-2 [HEC-2 , HEC-RAS, Other (Attach description)]

B. HYDRAULICS (CONTINUED)

3. Pre-Submittal Review of Hydraulic Models

FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. These review programs verify that the hydraulic estimates and assumptions in the model data are in accordance with NFIP requirements, and that the data are comparable with the assumptions and limitations of HEC-2/HEC-RAS. CHECK-2 and CHECK-RAS identify areas of potential error or concern. These tools do not replace engineering judgment. CHECK-2 and CHECK-RAS can be downloaded from http://www.fema.gov/fhm/frm_soft.shtm. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS. If you disagree with a message, please attach an explanation of why the message is not valid in this case. Review of your submittal and resolution of valid modeling discrepancies will result in reduced review time.

HEC-2/HEC-RAS models reviewed with CHECK-2/CHECK-RAS? ☒ Yes ☐ No

4. Models Submitted

Duplicate Effective Model*	Natural File Name:	Floodway File Name:
Corrected Effective Model*	Natural File Name:	Floodway File Name:
Existing or Pre-Project Conditions Model	Natural File Name: DCL1SPRC.dat	Floodway File Name: N/A
Revised or Post-Project Conditions Model	Natural File Name: DCL1SPRX.dat	Floodway File Name: N/A
Other - (attach description)	Natural File Name:	Floodway File Name:

*Not required for revisions to approximate 1%-annual-chance floodplains (Zone A) – for details, refer to the corresponding section of the instructions.

The document "Numerical Models Accepted by FEMA for NFIP Usage" lists the models accepted by FEMA. This document can be found at: http://www.fema.gov/fhm/en_modl.shtm.

C. MAPPING REQUIREMENTS

A **certified topographic map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach **a copy of the effective FIRM and/or FBFM,** annotated to show the boundaries of the revised 1%- and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%- and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area of revision.

D. COMMON REGULATORY REQUIREMENTS

1. For CLOMR requests, do Base Flood Elevations (BFEs) increase? ☒ Yes ☐ No

For CLOMR requests, if either of the following is true, please submit evidence of compliance with Section 65.12 of the NFIP regulations:
- The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot.
- The proposed project encroaches upon a SFHA with BFEs established and would result in increases above 1.00 foot.

2. Does the request involve the placement or proposed placement of fill? ☐ Yes ☒ No

If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(a)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.

3. For LOMR requests, is the regulatory floodway being revised? ☐ Yes ☐ No

If Yes, attach evidence of regulatory floodway revision notification. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-annual-chance floodplains [studied Zone A designation] unless a regulatory floodway is being added. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)

4. For LOMR requests, does this request require property owner notification and acceptance of BFE increases? ☐ Yes ☐ No

If Yes, please attach proof of property owner notification and acceptance (if available). Elements of and examples of property owner notification can be found in the MT-2 Form 2 Instructions.

FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE STRUCTURES FORM

O.M.B. No. 3067-0148
Expires September 30, 2005

PAPERWORK REDUCTION ACT

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Flooding Source: Duck Creek Channel
Note: Fill out one form for each flooding source studied

A. GENERAL

Complete the appropriate section(s) for each Structure listed below:

Channelization.....complete Section B
Bridge/Culvert.....complete Section C
Dam .....complete Section D
Levee/Floodwall .....complete Section E
Sediment Transport.....complete Section F (if required)

Description Of Structure

1. **Name of Structure: Duck Creek Channel**

   Type (check one): ☒ Channelization ☐ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: Duck Creek Channel

   Downstream Limit/Cross Section: Warm Springs Road Bridge / Cross Section 14700

   Upstream Limit/Cross Section: Between Eastern Avenue and Topaz Street / Cross Section 15300

2. **Name of Structure: Topaz Street Bridge**

   Type (check one): ☐ Channelization ☒ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: Duck Creek Channel between Eastern Avenue and Warm Springs Road

   Downstream Limit/Cross Section: 14850

   Upstream Limit/Cross Section: 14950

3. **Name of Structure:**

   Type (check one) ☐ Channelization ☐ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure:

   Downstream Limit/Cross Section:

   Upstream Limit/Cross Section:

NOTE: For more structures, attach additional pages as needed.

B. CHANNELIZATION

Flooding Source: Duck Creek Channel

Name of Structure: Duck Creek Channel

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☒ Other (Describe): Duck Creek Channel Improvements
- ☐ Drop structures
- ☐ Transitions in cross sectional geometry
- ☐ Energy dissipator

2. Drawing Checklist

Attach the plans of the channelization certified by a registered professional engineer, as described in the instructions.

3. Hydraulic Considerations

The channel was designed to carry 8562 (cfs) and/or the 100-year flood.

The design elevation in the channel is based on (check one):

☒ Subcritical flow ☐ Critical flow ☒ Supercritical flow ☐ Energy grade line

If there is the potential for a hydraulic jump at the following locations, check all that apply and attach an explanation of how the hydraulic jump is controlled without affecting the stability of the channel.

☐ Inlet to channel ☐ Outlet of channel ☐ At Drop Structures ☐ At Transitions
☐ Other locations (specify):

4. Sediment Transport Considerations

Was sediment transport considered? ☐ Yes ☒ No If Yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

C. BRIDGE/CULVERT

Flooding Source: Duck Creek Channel

Name of Structure: Topaz Street Bridge

1. This revision reflects (check one):

- ☒ New bridge/culvert not modeled in the FIS
- ☐ Modified bridge/culvert previously modeled in the FIS
- ☐ New analysis of bridge/culvert previously modeled in the FIS

2. Hydraulic model used to analyze the structure (e.g., HEC-2 with special bridge routine, WSPRO, HY8): HEC-2 w/special bridge routine
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structures. Attach justification.

3. Attach plans of the structures certified by a registered professional engineer. The plan detail and information should include the following (check the information that has been provided):

- ☒ Dimensions (height, width, span, radius, length)
- ☐ Shape (culverts only)
- ☒ Material
- ☐ Beveling or Rounding
- ☐ Wing Wall Angle
- ☐ Skew Angle
- ☒ Distances Between Cross Sections
- ☐ Erosion Protection
- ☒ Low Chord Elevations – Upstream and Downstream
- ☒ Top of Road Elevations – Upstream and Downstream
- ☐ Structure Invert Elevations – Upstream and Downstream
- ☒ Stream Invert Elevations – Upstream and Downstream
- ☒ Cross-Section Locations

4. Sediment Transport Considerations

Was sediment transport considered? ☐ Yes ☒ No If yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

D. DAM

Flooding Source:

Name of Structure: N/A

1. This request is for (check one): ☐ Existing dam ☐ New dam ☐ Modification of existing dam

2. The dam was designed by (check one): ☐ Federal agency ☐ State agency ☐ Local government agency

   ☐ Private organization Name of the agency or organization:

3. Does the project involve revised hydrology? ☐ Yes ☐ No

   If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2).

4. Does the submittal include debris/sediment yield analysis? ☐ Yes ☐ No

   If yes, then fill out Section F (Sediment Transport).
   If No, then attach your explanation for why debris/sediment analysis was not considered.

5. Does the Base Flood Elevation behind the dam or downstream of the dam change?

   ☐ Yes ☐ No If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2) and complete the table below.

Stillwater Elevation Behind the Dam

FREQUENCY (% annual chance)	FIS	REVISED
10-year (10%)		
50-year (2%)		
100-year (1%)		
500-year (0.2%)		
Normal Pool Elevation		

6. Please attach a copy of the formal Operation and Maintenance Plan

E. LEVEE/FLOODWALL

1. System Elements

a. This Levee/Floodwall analysis is based on (check one):

☐ upgrading of an existing levee/floodwall system
☐ a newly constructed levee/floodwall system
☐ reanalysis of an existing levee/floodwall system

b. Levee elements and locations are (check one):

☐ earthen embankment, dike, berm, etc.	Station	to
☐ structural floodwall	Station	to
☐ Other (describe):	Station	to

c. Structural Type (check one):

☐ monolithic cast-in place reinforced concrete
☐ reinforced concrete masonry block
☒ sheet piling
☐ Other (describe):

d. Has this levee/floodwall system been certified by a Federal agency to provide protection from the base flood?

☐ Yes ☐ No

If Yes, by which agency?

e. Attach certified drawings containing the following information (indicate drawing sheet numbers):

1. Plan of the levee embankment and floodwall structures. Sheet Numbers:
2. A profile of the levee/floodwall system showing the Base Flood Elevation (BFE), levee and/or wall crest and foundation, and closure locations for the total levee system. Sheet Numbers:
3. A profile of the BFE, closure opening outlet and inlet invert elevations, type and size of opening, and kind of closure. Sheet Numbers:
4. A layout detail for the embankment protection measures. Sheet Numbers:
5. Location, layout, and size and shape of the levee embankment features, foundation treatment, floodwall structure, closure structures, and pump stations. Sheet Numbers:

2. Freeboard

a. The minimum freeboard provided above the BFE is:

Riverine

3.0 feet or more at the downstream end and throughout	☐ Yes	☒ No
3.5 feet or more at the upstream end	☐ Yes	☐ No
4.0 feet within 100 feet upstream of all structures and/or constrictions	☐ Yes	☐ No

Coastal

1.0 foot above the height of the one percent wave associated with the 1%-annual-chance stillwater surge elevation or maximum wave runup (whichever is greater).	☐ Yes	☐ No
2.0 feet above the 1%-annual-chance stillwater surge elevation	☐ Yes	☐ No

E. LEVEE/FLOODWALL (CONTINUED)

2. Freeboard (continued)

Please note, occasionally exceptions are made to the minimum freeboard requirement. If an exception is requested, attach documentation addressing Paragraph 65.10(b)(1)(ii) of the NFIP Regulations.

If No is answered to any of the above, please attach an explanation.

b. Is there an indication from historical records that ice-jamming can affect the BFE? ☐ Yes ☐ No

If Yes, provide ice-jam analysis profile and evidence that the minimum freeboard discussed above still exists.

3. Closures

a. Openings through the levee system (check one): ☐ exists ☐ does not exist

If opening exists, list all closures:

Channel Station	Left or Right Bank	Opening Type	Highest Elevation for Opening Invert	Type of Closure Device

(Extend table on an added sheet as needed and reference)

Note: Geotechnical and geologic data

In addition to the required detailed analysis reports, data obtained during field and laboratory investigations and used in the design analysis for the following system features should be submitted in a tabulated summary form. (Reference U.S. Army Corps of Engineers [USACE] EM-1110-2-1906 Form 2086.)

4. Embankment Protection

a. The maximum levee slope landside is:

b. The maximum levee slope floodside is:

c. The range of velocities along the levee during the base flood is: (min.) to (max.)

d. Embankment material is protected by (describe what kind):

e. Riprap Design Parameters (check one): ☐ Velocity ☐ Tractive stress
Attach references

Reach	Sideslope	Flow Depth	Velocity	Curve or Straight	Stone Riprap			Depth of Toedown
					D_{100}	D_{50}	Thickness	
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								

(Extend table on an added sheet as needed and reference each entry)

E. LEVEE/FLOODWALL (CONTINUED)

4. Embankment Protection (continued)

f. Is a bedding/filter analysis and design attached? ☐ Yes ☐ No

g. Describe the analysis used for other kinds of protection used (include copies of the design analysis):

Attach engineering analysis to support construction plans.

5. Embankment And Foundation Stability

a. Identify locations and describe the basis for selection of critical location for analysis:

☐ Overall height: Sta. ; height ft.

☐ Limiting foundation soil strength:

Sta. , depth to

strength ϕ = degrees, c = psf

slope: SS = (h) to (v)

(Repeat as needed on an added sheet for additional locations)

b. Specify the embankment stability analysis methodology used (e.g., circular arc, sliding block, infinite slope, etc.):

c. Summary of stability analysis results:

Case	Loading Conditions	Critical Safety Factor	Criteria (Min.)
I	End of construction		1.3
II	Sudden drawdown		1.0
III	Critical flood stage		1.4
IV	Steady seepage at flood stage		1.4
VI	Earthquake (Case I)		1.0

(Reference: USACE EM-1110-2-1913 Table 6-1)

d. Was a seepage analysis for the embankment performed? ☐ Yes ☐ No

If Yes, describe methodology used:

e. Was a seepage analysis for the foundation performed? ☐ Yes ☐ No

f. Were uplift pressures at the embankment landside toe checked? ☐ Yes ☐ No

g. Were seepage exit gradients checked for piping potential? ☐ Yes ☐ No

h. The duration of the base flood hydrograph against the embankment is hours.

Attach engineering analysis to support construction plans.

E. LEVEE/FLOODWALL (CONTINUED)

6. Floodwall And Foundation Stability

a. Describe analysis submittal based on Code (check one):

☐ UBC (1988) or ☐ Other (specify):

b. Stability analysis submitted provides for:

☐ Overturning ☐ Sliding If not, explain:

c. Loading included in the analyses were:

☐ Lateral earth @ P_A = psf; P_p = psf

☐ Surcharge-Slope @ , ☐ surface psf

☐ Wind @ P_w = psf

☐ Seepage (Uplift); ☐ Earthquake @ P_{eq} = %g

☐ 1%-annual-chance significant wave height: ft.

☐ 1%-annual-chance significant wave period: sec.

d. Summary of Stability Analysis Results: Factors of Safety.

Itemize for each range in site layout dimension and loading condition limitation for each respective reach.

Loading Condition	Criteria (Min)		Sta	To	Sta	To
	Overturn	Sliding	Overturn	Sliding	Overturn	Sliding
Dead & Wind	1.5	1.5				
Dead & Soil	1.5	1.5				
Dead, Soil, Flood, & Impact	1.5	1.5				
Dead, Soil, & Seismic	1.3	1.3				

(Ref: FEMA 114 Sept 1986; USACE EM 1110-2-2502)

(Note: Extend table on an added sheet as needed and reference)

e. Foundation bearing strength for each soil type:

Bearing Pressure	Sustained Load (psf)	Short Term Load (psf)
Computed design maximum		
Maximum allowable		

f. Foundation scour protection ☐ is, ☐ is not provided. If provided, attach explanation and supporting documentation:

Attach engineering analysis to support construction plans.

E. LEVEE/FLOODWALL (CONTINUED)

7. Settlement

a. Has anticipated potential settlement been determined and incorporated into the specified construction elevations to maintain the established freeboard margin? ☐ Yes ☐ No

b. The computed range of settlement is ft. to ft.

c. Settlement of the levee crest is determined to be primarily from :

☐ Foundation consolidation
☐ Embankment compression
☐ Other (Describe):

d. Differential settlement of floodwalls ☐ has ☐ has not been accommodated in the structural design and construction.

Attach engineering analysis to support construction plans.

8. Interior Drainage

a. Specify size of each interior watershed:

Draining to pressure conduit: acres
Draining to ponding area: acres

b. Relationships Established

Ponding elevation vs. storage	☐ Yes	☐ No
Ponding elevation vs. gravity flow	☐ Yes	☐ No
Differential head vs. gravity flow	☐ Yes	☐ No

c. The river flow duration curve is enclosed: ☐ Yes ☐ No

d. Specify the discharge capacity of the head pressure conduit: cfs

e. Which flooding conditions were analyzed?

• Gravity flow (Interior Watershed)	☐ Yes	☐ No
• Common storm (River Watershed)	☐ Yes	☐ No
• Historical ponding probability	☐ Yes	☐ No
• Coastal wave overtopping	☐ Yes	☐ No

If No for any of the above, attach explanation.

f. Interior drainage has been analyzed based on joint probability of interior and exterior flooding and the capacities of pumping and outlet facilities to provide the established level of flood protection. ☐ Yes ☐ No

If No, attach explanation.

g. The rate of seepage through the levee system for the base flood is cfs

h. The length of levee system used to drive this seepage rate in item g: ft.

E. LEVEE/FLOODWALL (CONTINUED)

8. Interior Drainage (continued)

i. Will pumping plants be used for interior drainage? ☐ Yes ☐ No

If Yes, include the number of pumping plants:
For each pumping plant, list:

	Plant #1	Plant #2
The number of pumps		
The ponding storage capacity		
The maximum pumping rate		
The maximum pumping head		
The pumping starting elevation		
The pumping stopping elevation		
Is the discharge facility protected?		
Is there a flood warning plan?		
How much time is available between warning and flooding?		

Will the operation be automatic? ☐ Yes ☐ No

If the pumps are electric, are there backup power sources? ☐ Yes ☐ No

(Reference: USACE EM-1110-2-3101, 3102, 3103, 3104, and 3105)

Include a copy of supporting documentation of data and analysis. Provide a map showing the flooded area and maximum ponding elevations for all interior watersheds that result in flooding.

9. Other Design Criteria

a. The following items have been addressed as stated:

Liquefaction ☐ is ☐ is not a problem
Hydrocompaction ☐ is ☐ is not a problem
Heave differential movement due to soils of high shrink/swell ☐ is ☐ is not a problem

b. For each of these problems, state the basic facts and corrective action taken:

Attach supporting documentation

c. If the levee/floodwall is new or enlarged, will the structure adversely impact flood levels and/or flow velocities floodside of the structure?
☐ Yes ☐ No

Attach supporting documentation

d. Sediment Transport Considerations:

Was sediment transport considered? ☐ Yes ☐ No If Yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

E. LEVEE/FLOODWALL (CONTINUED)

10. Operational Plan And Criteria

a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? ☐ Yes ☐ No

b. Does the operation plan incorporate all the provisions for closure devices as required in Paragraph 65.10(c)(1) of the NFIP regulations?
☐ Yes ☐ No

c. Does the operation plan incorporate all the provisions for interior drainage as required in Paragraph 65.10(c)(2) of the NFIP regulations?
☐ Yes ☐ No

If the answer is No to any of the above, please attach supporting documentation.

11. Maintenance Plan

a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? ☐ Yes ☒ No
If No, please attach supporting documentation.

12. Operations and Maintenance Plan

Please attach a copy of the formal Operations and Maintenance Plan for the levee/floodwall.

F. SEDIMENT TRANSPORT

Flooding Source:

Name of Structure:

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the Base Flood Elevation (BFE); and/or based on the stream morphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including scour and deposition) to affect the BFEs, then provide the following information along with the supporting documentation:

Sediment load associated with the base flood discharge: Volume acre-feet

Debris load associated with the base flood discharge: Volume acre-feet

Sediment transport rate (percent concentration by volume)

Method used to estimate sediment transport:

Most sediment transport formulas are intended for a range of hydraulic conditions and sediment sizes; attach a detailed explanation for using the selected method.

Method used to estimate scour and/or deposition:

Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport:
Please note that bulked flows are used to evaluate the performance of a structure during the base flood; however, FEMA does not map BFEs based on bulked flows.

If a sediment analysis has not been performed, an explanation as to why sediment transport (including scour and deposition) will not affect the BFEs or structures must be provided

FEDERAL EMERGENCY MANAGEMENT AGENCY

PAYMENT INFORMATION FORM

Community Name: Unincorporated Areas, Clark County, NV

Project Identifier: Longford Homes/Duck Creek Channel

THIS FORM MUST BE MAILED, ALONG WITH THE APPROPRIATE FEE, TO ONE OF TWO POST OFFICE BOXES (SEE BELOW) OR FAXED TO THE FAX NUMBER BELOW.

Type of Request:

MT-1 application fee
MT-2 application fee } (Insert **3173** as the P.O. Box number in the address below)

External Data Requests (EDRs) (Insert **398** as the P.O. Box number in the address below)

Federal Emergency Management Agency
Revisions Fee-Collection System Administrator
P.O. Box 3173
Merrifield, Virginia 22116
Fax: (703) 849-0282

Request No.: (if known) Amount: $4,000

☐ INITIAL FEE* ☒ FINAL FEE ☐ FEE BALANCE** ☐ MASTER CARD ☐ VISA ☒ CHECK ☐ MONEY ORDER

*Note: Check only for EDR and/or Alluvial Fan requests (as appropriate).

**Note: Check only if submitting a corrected fee for an ongoing request.

COMPLETE THIS SECTION ONLY IF PAYING BY CREDIT CARD

EXP. DATE

1 2 3 4 — 5 6 7 8 — 9 10 11 12 — 13 14 15 16 Month — Year

CARD NUMBER

Date _____ Signature

NAME *(AS IT APPEARS ON CARD)*:
(please print or type)

ADDRESS:
(for your credit card receipt-please print or type)

DAYTIME PHONE:

National5 National Flood Insurance Program
Las Vegas, NV

Longford Plaza III, LLC
Check Number 531-00000043
Check Date Jun 25, 2004

Date	Invoice	Reference	Invoice Amt	Retention	Discount	Payment
0053 Longford Plaza III, LLC						
06/25/04	062504	LPIII fee for FEMA	4,000.00	0.00	0.00	4,000.00
Total Remittance			4,000.00	0.00	.00	4,000.00

FOR SECURITY PURPOSES, THE FACE OF THIS DOCUMENT CONTAINS A COLORED BACKGROUND AND MICROPRINTING IN THE BORDER

Longford Plaza III, LLC
3077 E. Warm Springs
Las Vegas, NV 89120

1st National Bank of Nevada
4950 W. Flamingo Road
Las Vegas, NV 89103

94-72
1224

Void After 90 Days

Date
Jun 25, 2004

Check Number
531-00000043

Pay **Four Thousand Dollars 00 Cents**

Amount
$4,000.00

To The Order Of *National Flood Insurance Program*
Las Vegas, NV

Per Jennifer L. Dudek

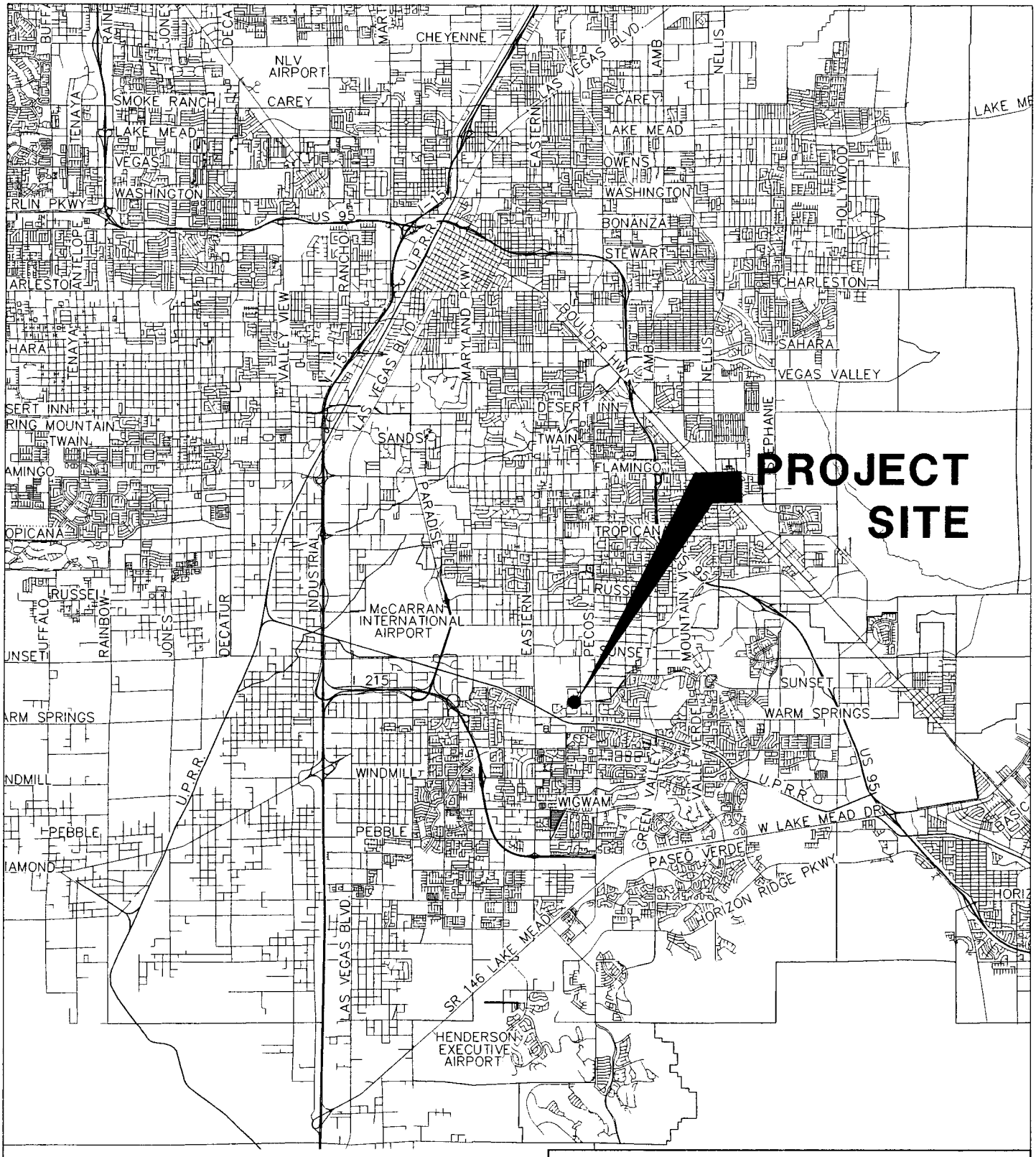
PAYABLE IN US DOLLARS

⑈00000043⑈ ⑆122401723⑆ 031507006⑈

THE REVERSE SIDE OF THIS DOCUMENT INCLUDES AN ARTIFICIAL WATERMARK - HOLD AT ANGLE TO VIEW

SECTION 2
Maps

Figure 1: Vicinity Map
Figure 2: Location Map
Figure 3: Effective FIRM
Figure 4: Proposed FIRM Revisions
Figure 5: HEC-2 Cross Section Map
Figure 6: Annotated FIRM (Copies of Affected Effective FIRM Panels)



LONGFORD HOMES CLOMR

FIGURE 1

VICINITY MAP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD. / LAS VEGAS, NEVADA 89146

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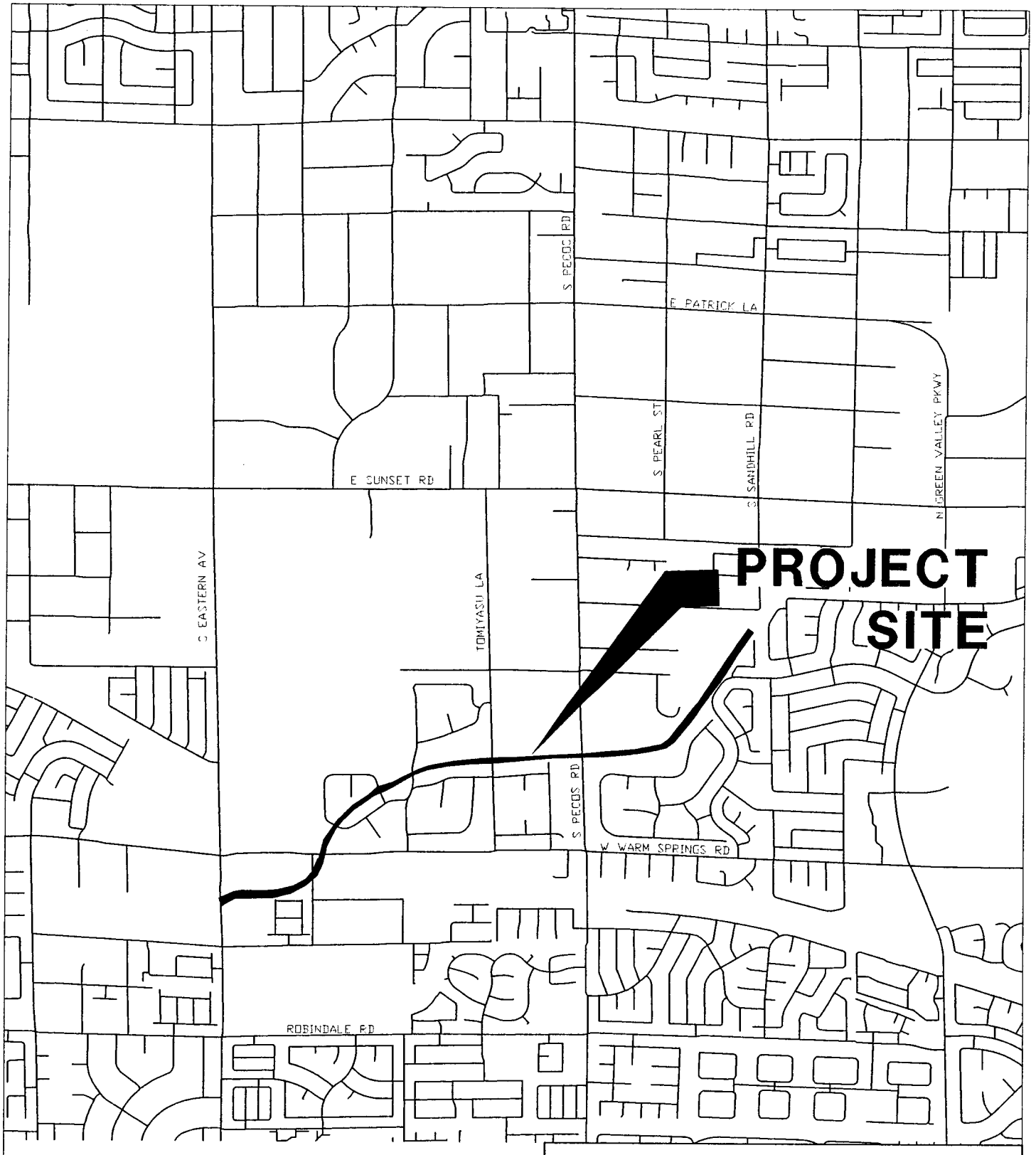

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NORTH

GRAPHIC SCALE

2000 0 1000 2000

(IN FEET)

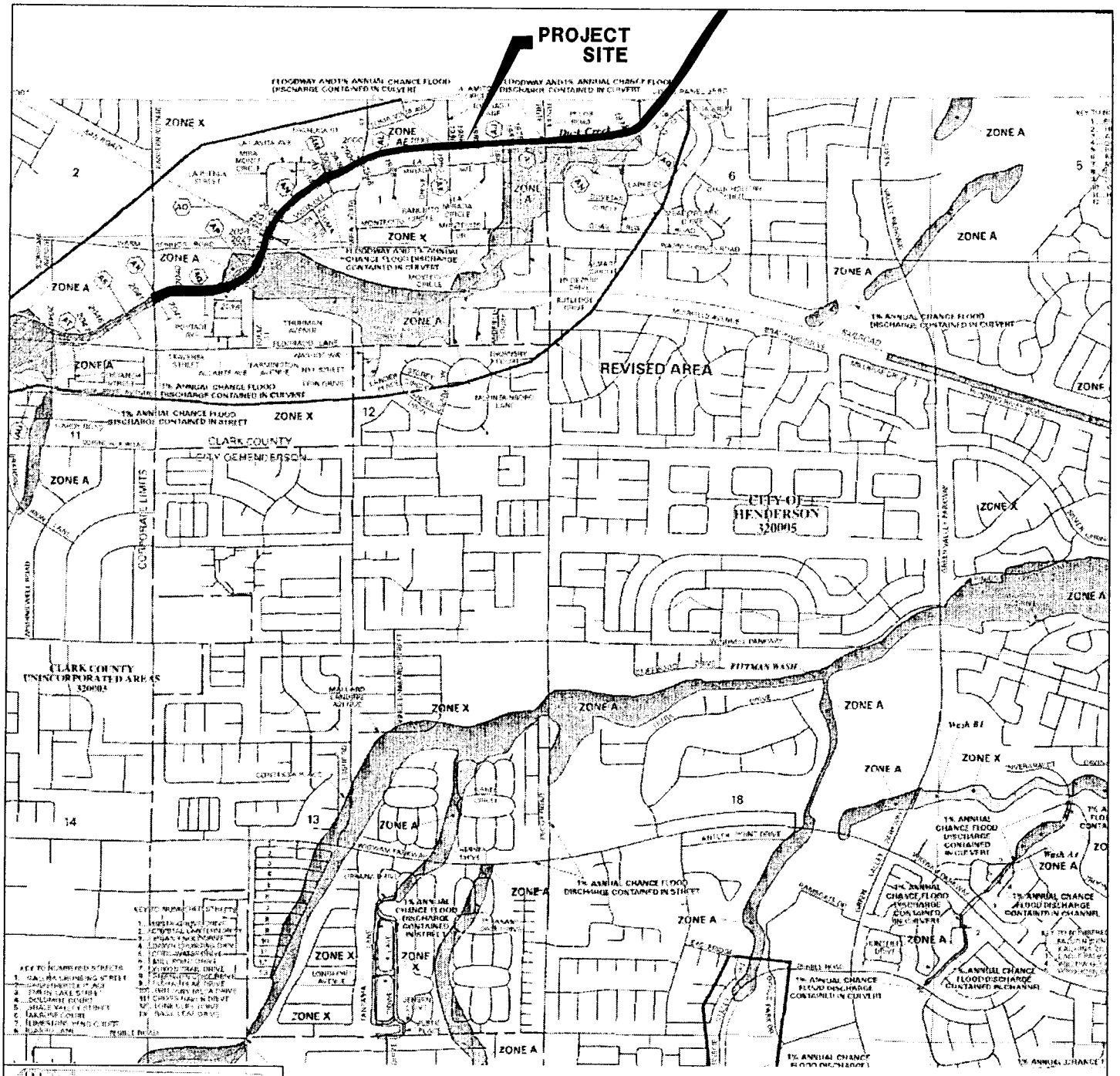
1 inch = 2000 ft.

LONGFORD HOMES CLOMR

FIGURE 2

LOCATION MAP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD / LAS VEGAS, NEVADA 89146



LONGFORD HOMES CLOMR

FIGURE 3

EFFECTIVE F.I.R.M. MAP

G.C. WALLACE, INC.
Engineers/Planners/Surveyors 1555 SOUTH RAINBOW BLVD. / LAS VEGAS, NEVADA 89146

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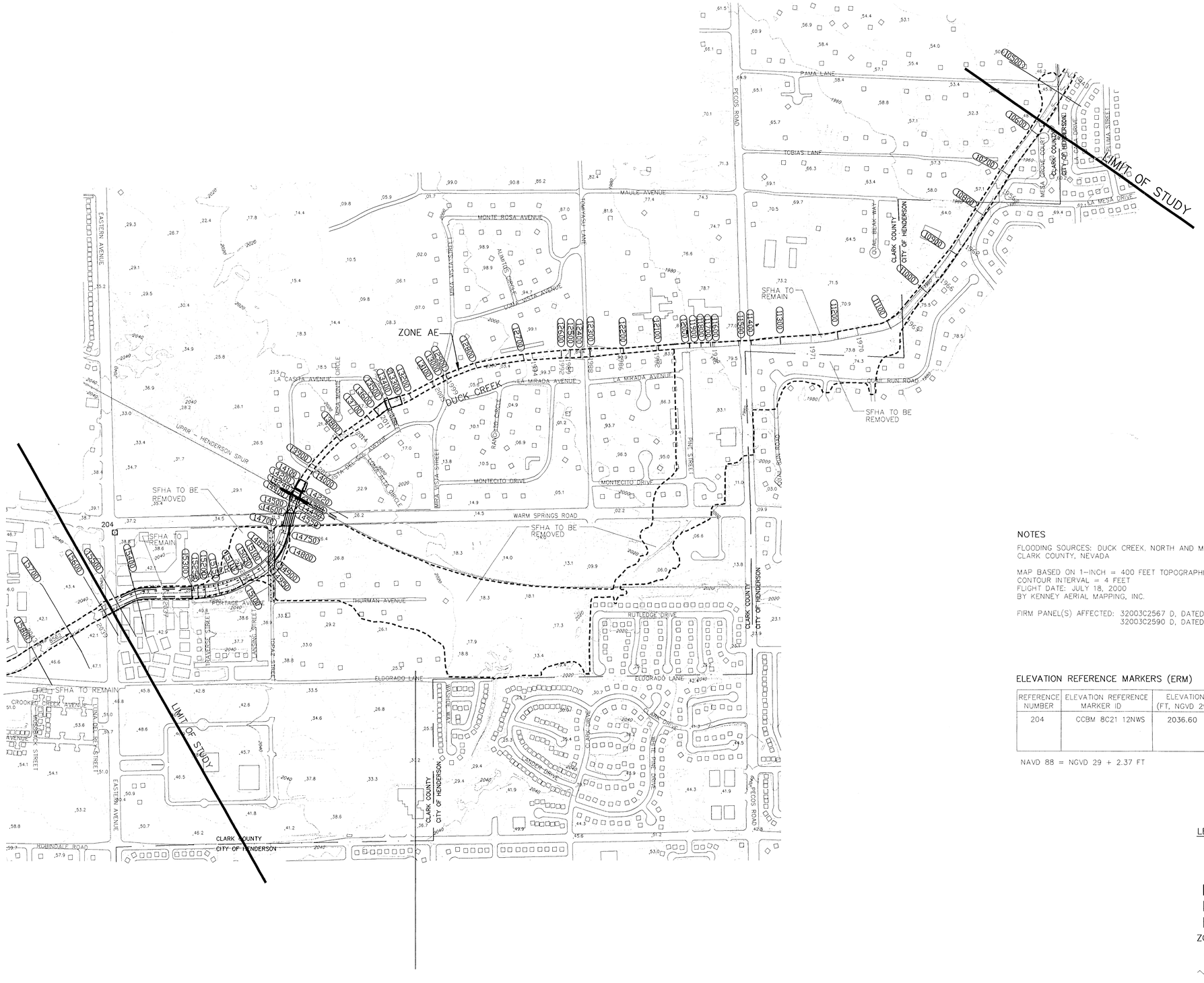

NOTES

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

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: 06-22-04
PLOT TIME: 11:03:33
rhunter

REV	DATE	DESCRIPTION	DATE APPR	DATE CON	APP	DATE

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
(702) 804-2100 • FAX (702) 804-2299
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LONGFORD HOMES CLOMR
DUCK CREEK FROM EASTERN TO 10600
CROSS SECTION EXHIBIT

SHEET
FIG 5
5 OF 5 SHTS

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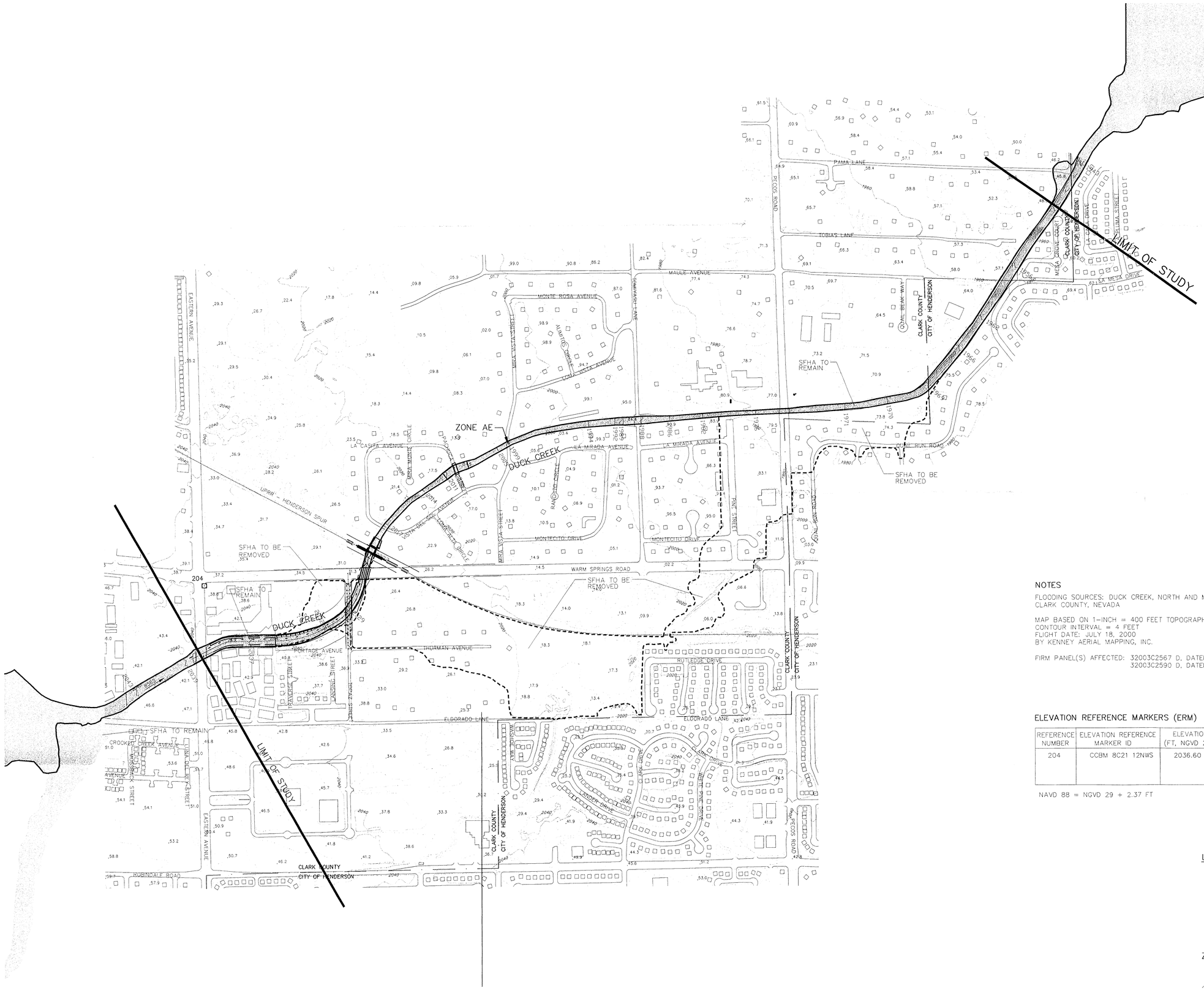

NOTES

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

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: 06-22-04
PLOT TIME: 10:58:38

DATE | DESCRIPTION | REV | DATE | AGEN. APP | DATE | CW. 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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LONGFORD HOMES CLOMR
DUCK CREEK FROM EASTERN TO 10600
WORK MAP

SHEET
FIG 4
4 OF 5 SHTS

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SECTION 3
Hydraulic Analyses

Summary of HEC-2 Results
HEC-2 Model for Subcritical Conditions
HEC-2 Model for Supercritical Conditions

HEC-2 SUMMARY TABLE

GENERAL				FLOODWAY		REVISED	
HEC-2 XS	STREAM NAME	HEC-2 MODEL	FLOW REGIME	OLD Q (CFS)	OLD WSE (FT)	Q (CFS)	WSE (FT)
10600	DUCK CREEK	DCL1SPRX	SUPER	8562	1949.3	8562	1949.3
10700	DUCK CREEK	DCL1SPRX	SUPER	8562	1954.7	8562	1954.7
10800	DUCK CREEK	DCL1SPRX	SUPER	8562	1958.6	8562	1958.6
10900	DUCK CREEK	DCL1SPRX	SUPER	8562	1963.2	8562	1963.2
11000	DUCK CREEK	DCL1SPRX	SUPER	8562	1968.2	8562	1967.9
11100	DUCK CREEK	DCL1SPRX	SUPER	8562	1971.3	8562	1969.5
11200	DUCK CREEK	DCL1SPRX	SUPER	7820	1970.9	8562	1970.7
11300	DUCK CREEK	DCL1SPRX	SUPER	7700	1972.1	8562	1971.6
11400	DUCK CREEK	DCL1SPRX	SUPER	7700	1971.4	8562	1970.8
11500	DUCK CREEK	DCL1SPRX	SUPER	7700	1971.6	8562	1971.0
11600	DUCK CREEK	DCL1SPRX	SUPER	6562	1976.0	8562	1976.1
11700	DUCK CREEK	DCL1SPRX	SUPER	6562	1975.6	8562	1976.5
11800	DUCK CREEK	DCL1SPRX	SUPER	6562	1977.3	8562	1978.0
11900	DUCK CREEK	DCL1SPRX	SUPER	6562	1979.3	8562	1979.5
12000	DUCK CREEK	DCL1SPRX	SUPER	6562	1979.4	8562	1979.6
12100	DUCK CREEK	DCL1SPRX	SUPER	5562	1980.2	8562	1981.9
12200	DUCK CREEK	DCL1SPRX	SUPER	5562	1984.7	8562	1985.8
12300	DUCK CREEK	DCL1SPRX	SUPER	5562	1987.9	8562	1988.0
12400	DUCK CREEK	DCL1SPRX	SUPER	5562	1987.1	8562	1988.2
12500	DUCK CREEK	DCL1SPRX	SUPER	5562	1987.5	8562	1988.6
12600	DUCK CREEK	DCL1SPRX	SUPER	5562	1990.5	8562	1992.0
12700	DUCK CREEK	DCL1SPRX	SUPER	5562	1993.0	8562	1994.4
12800	DUCK CREEK	DCL1SPRX	SUPER	5562	1995.8	8562	1997.2
12900	DUCK CREEK	DCL1SPRX	SUPER	5562	1997.4	8562	1998.9
13000	DUCK CREEK	DCL1SPRX	SUPER	5562	1997.8	8562	1999.4
13100	DUCK CREEK	DCL1SPRX	SUPER	5562	2003.8	8562	2005.6
13200	DUCK CREEK	DCL1SPRX	SUPER	5562	2006.5	8562	2008.4
13300	DUCK CREEK	DCL1SPRX	SUPER	5562	2006.5	8562	2007.6
13400	DUCK CREEK	DCL1SPRX	SUPER	5562	2006.7	8562	2007.9
13500	DUCK CREEK	DCL1SPRX	SUPER	5562	2006.9	8562	2008.1
13600	DUCK CREEK	DCL1SPRX	SUPER	5562	2010.5	8562	2011.6
13700	DUCK CREEK	DCL1SPRX	SUPER	5562	2011.9	8562	2013.6

GENERAL				FLOODWAY		REVISED	
HEC-2 XS	STREAM NAME	HEC-2 MODEL	FLOW REGIME	OLD Q (CFS)	OLD WSE (FT)	Q (CFS)	WSE (FT)
13800	DUCK CREEK	DCL1SPRX	SUPER	5562	2013.5	8562	2015.4
13900	DUCK CREEK	DCL1SPRX	SUPER	5562	2014.7	8562	2017.0
14000	DUCK CREEK	DCL1SPRX	SUPER	5562	2015.5	8562	2017.9
14100	DUCK CREEK	DCL1SPRX	SUPER	5562	2017.7	8562	2020.5
14200	DUCK CREEK	DCL1SPRX	SUPER	5562	2018.3	8562	2020.5
14220	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2021.0
14240	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2021.5
14300	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2022.0
14400	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2021.8
14450	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2022.2
14500	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2023.5
14550	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2024.8
14600	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2025.6
14700	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2025.6
14750	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2026.4
14800	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2027.1
14850	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2028.8
14900	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2029.2
14950	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2029.4
15000	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2029.8
15050	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2030.7
15100	DUCK CREEK	DCL1SPRX	SUPER	----	----	8562	2032.3
15110	DUCK CREEK	DCL1SUBX	SUB	----	----	8562	2032.4
15150	DUCK CREEK	DCL1SUBX	SUB	----	----	8562	2035.2
15200	DUCK CREEK	DCL1SUBX	SUB	----	----	8562	2035.0
15250	DUCK CREEK	DCL1SUBX	SUB	----	----	8562	2034.4
15300	DUCK CREEK	DCL1SUBX	SUB	----	----	8562	2034.8
15400	DUCK CREEK	DCL1SUBX	SUB	8562	2038.3	8562	2036.4
15500	DUCK CREEK	DCL1SUBX	SUB	8562	2037.8	8562	2037.1

HEC-2 Model for Subcritical Conditions

DCL1SUBX.dat

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    16JUN04    TIME   14:17:54  *
 *****************************************
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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             *
*************************************
```

```
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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1
   16JUN04      14:17:54                                                                    PAGE    1
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                                                                  THIS RUN EXECUTED 16JUN04    14:17:54
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************
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```
 T1      758.002  PHASE 209
 T2      CLOMR FOR LONGFORD HOMES
 T3      DCL1SUBX
 T4      HEC-2 MODEL FROM DUCK CREEK/BLUE DIAMOND FIS RESTUDY: DCL1SUBC.DAT
 T4      FLOODPLAIN/FLOODWAY MODEL; BREAKOUT AT WARM SPRINGS RD CONTAINED
 T4      SUBCRITICAL
 T4      STREAM NAME: DUCK CREEK
 T4      UPSTREAM LIMIT: CROSS SECTION 15400, DOWNSTREAM OF EASTERN AVE
 T4      DOWNSTREAM LIMIT: CROSS SECTION 10600

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 0                                                          8562    1949.3

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                 -1                                      -1        -6                  0


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     200         150         101         100
1
   16JUN04      14:17:54                                                                    PAGE    2


 NC     0.08       0.11      0.015        0.1         0.3
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          DOWNSTREAM LIMIT OF MODEL
          ORIGINAL MODEL:  DCL1SUBC.DAT
          ESTABLISHED WATER SURFACE ELEVATION = 1949.3 FT (SUPERCRITICAL CONDITI
X1    10600         8    2209.95    2299.38     356.88     402.83     378.87
GR     1950   2209.95      1948    2229.01       1944    2237.56       1942    2242.81    1942    2270.77
GR     1944   2274.76      1948    2281.52       1952    2299.38

NC     0.08      0.11     0.015        0.1        0.3
```



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X1    10700         7    1984.66     2093.9     430.71     421.11     418.08
GR     1956   1984.66      1952    2025.37       1948    2033.98       1948    2067.44    1952    2074.65
GR     1956   2083.13      1960     2093.9

NC     0.11      0.11     0.015        0.1        0.3

X1    10800         6    2155.44    2258.77     410.33     392.26     386.03
GR     1960   2155.44      1956    2186.29       1952    2195.29       1952    2229.27    1956    2236.88
GR     1960   2258.77

NC     0.08      0.11     0.015        0.1        0.3
X1    10900         7    1859.99    1943.58     386.71     376.94      388.5
GR     1964   1859.99      1960    1889.41       1956    1897.52       1956    1933.17    1960    1938.52
GR     1964   1943.58      1968    1950.63

NC     0.08      0.11     0.015        0.1        0.3
X1    11000         8    1814.89    1912.16     347.02     420.02      392.7
GR     1972   1799.08      1968    1814.89       1964    1845.64       1960     1853.3    1960    1887.79
GR     1964   1894.39      1968    1900.91       1972    1912.16

NC     0.08      0.11     0.015        0.1        0.3
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X1    11100         8    1886.46    1971.49     325.47      495.3      411.3
GR     1972   1886.46      1968     1899.6       1964     1906.8       1960   1912.18      1960   1941.39
GR     1964   1946.06      1968    1955.18       1972    1971.49

NC    0.015     0.015     0.015         0.1        0.3
X1    11200         6    1924.66     1989.1     319.86      510.47     430.53
GR     1972   1924.66      1968     1933.3       1962     1940.2       1962   1974.26      1968   1981.39
GR     1972    1989.1

NC    0.015     0.015     0.015         0.1        0.3
X1    11300         6    1846.27     1907.7     469.26      455.15        474
GR     1972   1846.27      1968    1854.64       1964    1863.11       1964   1892.84      1968   1900.18
GR     1972    1907.7

NC    0.015     0.015     0.015         0.1        0.3
  DOWNSTREAM FACE OF PECOS ROAD BRIDGE
        DOWNSTREAM FACE OF PECOS ROAD BRIDGE
X1    11400         4      1000        1042     243.24      244.99     243.55
GR   1975.5      1000   1964.02        1000    1964.02        1042     1975.5      1042

NC    0.015     0.015     0.015         0.1        0.3
SB                1.5         3          42         42                   252          0   1964.52   1964.02
  UPSTREAM FACE OF PECOS ROAD BRIDGE
        UPSTREAM FACE OF PECOS ROAD BRIDGE
X1    11500         4   2258.08     2300.08        100         100        100
X2                            1     1990.52    1972.82
GR   1975.3   2258.08   1964.52     2258.08    1964.52     2300.08     1975.3   2300.08

NC    0.015     0.015     0.015         0.1        0.3
  DOWNSTREAM FACE OF CROSSING
        DOWNSTREAM FACE OF CROSSING
X1    11600         4      1000      1034.4     215.89       214.6        215
GR   1979.8      1000   1967.32        1000    1967.32      1034.4     1979.8    1034.4

NC    0.015     0.015     0.015         0.1        0.3
SB      0.9       1.5         3        34.4       34.4         1.5        297          0   1968.25   1967.32
  UPSTREAM FACE OF CROSSING
        UPSTREAM FACE OF CROSSING
X1    11700         4    966.89     1001.29         16          16         16
X2                            1     1996.89    1999.84                              1.33
GR   1979.8    966.89   1968.25      966.89    1968.25     1001.29     1979.8   1001.29

NC    0.015     0.015     0.015         0.1        0.3
X1    11800         4      1000      1034.4         86          86         86
GR   1981.1      1000   1969.57        1000    1969.57      1034.4     1981.1    1034.4

NC    0.015     0.015     0.015         0.1        0.3
  DOWNSTREAM FACE OF CROSSING
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        DOWNSTREAM FACE OF CROSSING
X1    11900         4    996.53     1030.83         92          92         92
GR     1990    996.53   1970.88      996.53    1970.88     1030.83       1990   1030.83

NC    0.015     0.015     0.015         0.1        0.3
SB                1.5         3        34.3       34.3                   260          0   1970.97   1970.88
  UPSTREAM FACE OF CROSSING
        UPSTREAM FACE OF CROSSING
X1    12000         4    970.15     1004.49          5           5          5
X2                            1     1998.54    1990.99
GR     1990    970.15   1970.97      970.15    1970.97     1004.49     1990.99   1004.49

NC    0.015     0.015     0.015         0.1        0.3
X1    12100         4   1205.25     1246.05        252         252        252
GR   1984.6   1205.25    1974.6     1205.25    1974.6     1246.05      1984.6   1246.05

NC    0.015     0.015     0.015         0.1        0.3
X1    12200         4   1207.74     1252.82     289.39      297.62     287.98
GR   1988.8   1207.74   1978.83     1207.74    1978.83     1252.82      1988.8   1252.82

NC    0.015     0.015     0.015         0.1        0.3
  DOWNSTREAM FACE OF TOMIYASU BRIDGE
        DOWNSTREAM FACE OF TOMIYASU BRIDGE
X1    12300         4   1394.43     1468.12      277.2      272.41     277.73
GR   1989.4   1394.43   1982.84     1406.28    1982.84     1456.28      1989.4   1468.12

NC    0.015     0.015     0.015         0.1        0.3
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SB     1.25        1.5          3         73          50           1         351         1.8     1983.11     1982.84
  UPSTREAM FACE OF TOMIYASU LANE BRIDGE
        UPSTREAM FACE OF TOMIYASU LANE BRIDGE
X1    12400          4    2222.53    2295.25       78.79       77.02       75.37
X2                              1    2009.42        2012                         2
GR   1989.4    2222.53    1983.11    2233.89     1983.11     2283.89      1989.4     2295.25

NC    0.015       0.015       0.015        0.1         0.3
  TRANSITION DOWNSTREAM TRAP
  PLANS STA 38+89.86
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        TRANSITION DOWNSTREAM TRAP
        PLANS STA 38+89.86
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    12500          4    2495.63     2571.5       85.83       90.77        88.6
GR   1991.1    2495.63     1983.7    2508.99     1983.7     2559.02      1991.1      2571.5

NC    0.015       0.015       0.015        0.1         0.3
  TRANSITION UPSTREAM RECT
  PLANS STA 38+14.44
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        TRANSITION UPSTREAM RECT
1
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        PLANS STA 38+14.44
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    12600          4        1000        1050          75          75          75
GR   1993.6       1000    1985.63        1000     1985.63        1050      1993.6        1050

NC    0.015       0.015       0.015        0.1         0.3
  PLANS STA 35+00.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        PLANS STA 35+00.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    12700          4    2430.44    2480.44      317.32      309.52      313.04
GR   1995.1    2430.44    1988.15    2430.44     1988.15     2480.44      1995.1     2480.44

NC    0.015       0.015       0.015        0.1         0.3
  PLANS STA 31+00.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        PLANS STA 31+00.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    12800          4    2505.21    2555.21         405         405         405
GR   1998.3    2505.21    1991.35    2505.21     1991.35     2555.21      1998.3     2555.21

NC    0.015       0.015       0.015        0.1         0.3
  DOWNSTREAM FACE OF MIRA VISTA BRIDGE
  PLANS STA 28+43.76
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        DOWNSTREAM FACE OF MIRA VISTA BRIDGE
        PLANS STA 28+43.76
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    12900          4    2630.84    2680.84      260.12      257.73      258.77
GR   2004.2    2630.84    1993.47    2630.84     1993.47     2680.84      2004.2     2680.84

NC    0.015       0.015       0.015        0.1         0.3
SB                  1.5          3          50          50                  350           0     1993.9     1993.47
  UPSTREAM FACE OF MIRA VISTA STREET BRIDGE
  PLANS STA 28+10.59
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        UPSTREAM FACE OF MIRA VISTA STREET BRIDGE
        PLANS STA 28+10.59
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13000          4    2587.74    2637.74          33          33          33
X2                              1     2020.9      2004.2
GR   2004.2    2587.74     1993.9    2587.74     1993.9     2637.74      2004.2     2637.74

NC    0.015       0.015       0.015        0.1         0.3
  PLANS STA 27+00.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        PLANS STA 27+00.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13100          6     994.85    1044.85          98          98          98
GR     2006     994.85       2005     994.85     1998.99      994.85     1998.99     1044.85        2005     1044.85
GR     2006    1044.85
1
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NC    0.015       0.015       0.015        0.1         0.3
  TRANSITION - DOWNSTREAM RECT
  PLANS STA 24+90.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        TRANSITION - DOWNSTREAM RECT
        PLANS STA 24+90.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13200          4         995        1045      209.18       210.5      211.13
GR   2008.5         995    2001.4         995     2001.4        1045      2008.5        1045
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NC     0.08       0.08       0.015        0.1          0.3
  TRANSITION - UPSTREAM TRAP
  PLANS STA 24+12.75
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        TRANSITION - UPSTREAM TRAP
        PLANS STA 24+12.75
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13300          4       997.5     1072.5           80          80          80
GR   2009.3       997.5    2002.29       1010      2002.29        1060      2009.3      1072.5

NC     0.08       0.08       0.015        0.1          0.3
  DOWNSTREAM FACE OF PACHUCA BRIDGE
  PLANS STA 23+16.50
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        DOWNSTREAM FACE OF PACHUCA BRIDGE
        PLANS STA 23+16.50
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13400          4    2794.52    2869.52       100.24         100         100
GR   2009.7     2794.52    2002.77    2807.02      2002.77     2857.02      2009.7     2869.52

NC     0.08       0.08       0.015        0.1          0.3
SB                 1.5           3         75           50                     438         1.8     2003.07     2002.77
  UPSTREAM FACE OF PACHUCA STREET BRIDGE
  PLANS STA 22+83.50
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        UPSTREAM FACE OF PACHUCA STREET BRIDGE
        PLANS STA 22+83.50
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13500          4     1409.5     1484.5        37.16       36.94          36
X2                             1    2030.07      2012.33
GR     2010      1409.5    2003.07       1422      2003.07        1472        2010      1484.5

NC    0.015      0.015      0.015        0.1          0.3
  TRANSITION DOWNSTREAM TRAP
  PLANS STA 21+81.14
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        TRANSITION DOWNSTREAM TRAP
        PLANS STA 21+81.14
1
   16JUN04      14:17:54                                                                                                PAGE    8


        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13600          4     1395.5     1470.5       151.8       88.79       88.14
GR   2013.1      1395.5    2006.11       1408      2006.11        1458      2013.1      1470.5

NC    0.015      0.015      0.015        0.1          0.3
  TRANSITION UPSTREAM RECT
  PLANS STA 21+06.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        TRANSITION UPSTREAM RECT
        PLANS STA 21+06.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13700          6       1000       1050           75          75          75
GR     2014       1000     2013.5       1000      2006.56        1000     2006.56        1050      2013.5        1050
GR     2014       1050

NC    0.015      0.015      0.015        0.1          0.3
  PLANS STA 18+00.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        PLANS STA 18+00.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13800          4       1000       1050          306         306         306
GR   2015.4       1000     2008.4       1000       2008.4        1050      2015.4        1050

NC    0.015      0.015      0.015        0.1          0.3
  GRADEBREAK AT DOWNSTREAM FACE OF VISTA DEL SOL AVENUE
  PLANS STA 15+00.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        GRADEBREAK AT DOWNSTREAM FACE OF VISTA DEL SOL AVENUE
        PLANS STA 15+00.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13900          4       1000       1050          300         300         300
GR   2019.4       1000    2010.21       1000      2010.21        1050      2019.4        1050

NC    0.015      0.015      0.015        0.1          0.3
SB                 1.5           3         50           50                     425           0     2010.89     2010.21
  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
        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
X1    14000          4       1000       1050           57          57          57
X2                             1    2039.39      2021.13
GR   2019.4       1000    2010.89       1000      2010.89        1050      2019.4        1050

NC    0.015      0.015      0.015        0.1          0.3
  TRANSITION DOWNSTREAM RECT
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PLANS STA 13+42.00

1

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

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        TRANSITION DOWNSTREAM RECT
        PLANS STA 13+42.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

X1    14100          8    1545.26    1624.79         101         101         101
GR     2024    1545.26       2020     1556.5     2019.82     1559.32     2012.82     1559.32     2012.82     1609.32
GR   2019.8    1609.32       2020    1612.61        2024     1624.79

NC    0.015       0.015       0.015         0.1         0.3
  TRANSITION UPSTREAM 60' RECT TO 50' RECT
  PLANS STA 12+67.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
        TRANSITION UPSTREAM 60' RECT TO 50' RECT
        PLANS STA 12+67.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    14200          4       1000       1060          75          75
GR   2022.7       1000    2014.24       1000     2014.24        1060      2022.7        1060

NC    0.015       0.015       0.015         0.1         0.3
X1    14220          4       1000       1060          20          20
GR   2024.1       1000    2014.62       1000     2014.62        1060     2022.13        1060

NC    0.015       0.015       0.015         0.1         0.3
X1    14240          4       1000       1060          20          20
GR   2024.5       1000        2015       1000        2015        1060     2022.53        1060

NC    0.015       0.015       0.015         0.1         0.3
        DOWNSTREAM FACE OF UPRR BRIDGE - HENDERSON SPUR
X1    14300          4     1701.5     1761.5          20          20          20
GR   2028.8     1701.5     2015.3     1701.5      2015.3      1761.5      2028.8      1761.5

NC    0.015       0.015       0.015         0.1         0.3
SB     1.25         1.5           3          17          60           4         452           0      2015.8      2015.3
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1


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        UPSTREAM FACE OF UPRR BRIDGE - HENDERSON SPUR
X1    14400          4        1782       1842          20          20          20
X2                               1       2030      2031.2                      2
GR   2025.1       1782     2015.8       1782      2015.8        1842      2028.8        1842

NC    0.015       0.015       0.015         0.1         0.3
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X1    14450          4       1000       1060          20          20          20
GR   2025.1       1000    2016.13       1000     2016.13        1060     2023.63        1060

NC    0.015       0.015       0.015         0.1         0.3
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X1    14500         4       1000       1060         50          50          50
GR   2024.6       1000     2017.1       1000     2017.1        1060      2024.6       1060

NC    0.015      0.015      0.015        0.1        0.3
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```
X1    14550         4       1000    1060.06         40          40          40
GR   2025.4       1000    2017.93       1000    2017.93        1060      2025.4    1060.06
1
   16JUN04      14:17:54                                                                PAGE   11


NC    0.015      0.015      0.015        0.1        0.3
  DOWNSTREAM FACE OF WARM SPRINGS ROAD BRIDGE
```

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        DOWNSTREAM FACE OF WARM SPRINGS ROAD BRIDGE
X1    14600         4    1390.42    1450.42         20          20          20
GR   2030.2    1390.42    2018.37    1390.42    2018.37     1450.42      2030.2    1450.42

SB     1.25        1.5          3         103         60        2.13         588           0    2018.71    2018.37
  BEGIN CHANGES FOR LONGFORD HOMES CLOMR
  UPSTREAM FACE OF WARM SPRINGS ROAD BRIDGE
  PLANS STA 9+39.84
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
NC    0.015      0.015      0.015        0.1        0.3
         BEGIN CHANGES FOR LONGFORD HOMES CLOMR
         UPSTREAM FACE OF WARM SPRINGS ROAD BRIDGE
         PLANS STA 9+39.84
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    14700         5       1000       1060     111.98      111.98      111.98
X2                              1    2038.69    2040.21                              2
GR   2027.9       1000    2019.47       1000    2018.87        1030     2019.47        1060    2029.88        1060
  PT
  PLANS STA 8+83.50
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
         PT
         PLANS STA 8+83.50
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    14750         5       1000       1060      56.34       56.34       56.34
GR   2028.5       1000    2020.1       1000     2019.5        1030      2020.1        1060    2030.51        1060
  BEGIN RECTANGULAR CHANNEL BOTTOM TRANSITION
  PLANS STA 7+84.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
1
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         BEGIN RECTANGULAR CHANNEL BOTTOM TRANSITION
         PLANS STA 7+84.00
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    14800         5       1000       1065      99.5        99.5        99.5
GR   2029.6       1000    2021.2       1000     2020.6        1035      2021.2        1065    2031.61        1065
  PVI
  PLANS STA 6+81.44
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
         PVI
         PLANS STA 6+81.44
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
```

```
X1    14850          5       1000       1065      102.56      102.56      102.56
GR   2030.8       1000    2022.34       1000    2021.74        1035    2022.34        1065    2032.75        1065
  BRIDGE AT TOPAZ STREET
  PLANS STA 6+44.08
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015       0.015       0.015         0.1          0.3
         BRIDGE AT TOPAZ STREET
         PLANS STA 6+44.08
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    14900          5       1000       1065       37.36       37.36       37.36
GR     2031       1000    2022.61       1000    2022.01        1035    2022.61        1065    2033.02        1065

SB     0.90        1.5          3         90          65         1.5         455           0    2022.40     2022.01
  BRIDGE AT TOPAZ STREET -- RIGHT WALL HEIGHT ADJUSTED
  PLANS STA 5+91.39
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
NC    0.015       0.015       0.015         0.1          0.3
         BRIDGE AT TOPAZ STREET -- RIGHT WALL HEIGHT ADJUSTED
         PLANS STA 5+91.39
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    14950          7       1000       1065       52.69       52.69       52.69
X2                           1       2040       2042                                   2
GR     2031       1000    2030.42       1000       2023        1000      2022.4        1035       2023        1065
GR   2030.4       1065       2031       1065
  PVI
  PLANS STA 5+28.97
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015       0.015       0.015         0.1          0.3
         PVI
         PLANS STA 5+28.97
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    15000          0           0           0       84.63       84.63       84.63           0        0.51
  PC
  PLANS STA 4+44.34
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
1
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NC    0.015       0.015       0.015         0.1          0.3
         PC
         PLANS STA 4+44.34
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    15050          0           0           0       62.42       62.42       62.42           0        0.38
  PVI
  PLANS STA 3+28.97
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015       0.015       0.015         0.1          0.3
         PVI
         PLANS STA 3+28.97
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    15100          0           0           0      115.37      115.37      115.37           0        0.69
  PT
  PLANS STA 3+25.54
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015       0.015       0.015         0.1          0.3
         PT
         PLANS STA 3+25.54
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    15110          7       1000       1065        3.43        3.43        3.43           0        0.02
GR     2033       1000    2032.02       1000      2024.6        1000        2024        1035      2024.6        1065
GR   2032.0       1065       2033       1065
  BEGIN TRANSITION FROM TRAPEZOIDAL TO RECTANGULAR CHANNEL
  PLANS STA 1+25.54
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015       0.015       0.015         0.1          0.3
         BEGIN TRANSITION FROM TRAPEZOIDAL TO RECTANGULAR CHANNEL
         PLANS STA 1+25.54
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    15150          7       1000       1095         200         200         200
GR     2036       1000    2033.34       1000    2025.84        1015    2025.24        1050    2025.84        1080
GR   2033.3       1095       2036       1095

  PLANS STA 0+12.31
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015       0.015       0.015         0.1          0.3

         PLANS STA 0+12.31
         PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    15200          7       1000       1095      113.23      113.23      113.23
GR     2037       1000    2034.04       1000    2026.54        1015    2025.94        1050    2026.54        1080
GR   2034.0       1095       2037       1095
  PC
  PLANS STA -0+49.25
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
```

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 NC    0.015      0.015      0.015        0.1         0.3
          PC
          PLANS STA -0+49.25
          PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
 X1    15250          7       1000    1092.26       61.56       61.56       61.56
 GR     2037       1000    2034.43       1000     2026.93        1015     2026.33     1047.26     2026.93     1077.26
 GR   2034.4    1092.26       2037    1092.26
   BEGIN CHANNEL IMPROVEMENTS/BEGIN TRAP CHANNEL BOTTOM TRANSITION
   PLANS STA -1+00
   PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
   LIMIT OF REVISIONS FOR LONGFORD HOMES CLOMR

 NC    0.015      0.015      0.015        0.1         0.3
          BEGIN CHANNEL IMPROVEMENTS/BEGIN TRAP CHANNEL BOTTOM TRANSITION
          PLANS STA -1+00
          PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
          END OF REVISIONS FOR LONGFORD HOMES CLOMR
 X1    15300          7       1000        1090       50.75       50.75       50.75
 GR     2037       1000    2034.74        1000     2027.24        1015     2026.64        1045     2027.24        1075
 GR   2034.7       1090       2037        1090

 NC     0.08       0.11      0.015         0.1         0.3
 X1    15400          8    1203.85     1302.87      439.74       434.2       471.4
 GR     2040       1000       2040     1203.85        2036     1212.42      2027.5     1221.41      2027.5     1289.16
 GR     2036    1295.88       2040     1302.87        2044     1611.48

 NC     0.08       0.11      0.015         0.1         0.3
   DOWNSTREAM FACE OF EASTERN AVENUE BRIDGE
          DOWNSTREAM FACE OF EASTERN AVENUE BRIDGE
          START OF MODEL
          ORIGINAL MODEL: DCL1SUPC.DAT
          ESTABLISHED WATER SURFACE ELEVATION = 2037.8 FT (SUBCRITICAL CONDITIONS
 X1    15500          6    1642.82     1699.82      214.02       136.16      166.19
 GR     2040    1400.58     2039.5     1642.82     2028.25     1642.82     2028.25     1699.82      2039.5     1699.82
 GR     2044    1982.77
```



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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

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

 CCHV=     .100 CEHV=     .300
 *SECNO 10600.000
 3280 CROSS SECTION  10600.00 EXTENDED      2.43 FEET

 3720 CRITICAL DEPTH ASSUMED
          DOWNSTREAM LIMIT OF MODEL
          ORIGINAL MODEL:  DCL1SUBC.DAT
          ESTABLISHED WATER SURFACE ELEVATION = 1949.3 FT (SUPERCRITICAL CONDITI
  10600.000      10.43   1952.43   1952.43   1949.30   1955.75      3.32       .00       .00   1950.00
     8562.0         .0    8562.0        .0        .0     585.6        .0        .0        .0   1952.00
        .00        .00     14.62       .00      .000      .015      .000      .000   1942.00   2209.95
    .001945       357.      379.      403.         0        10         0       .00     89.43   2299.38


 CCHV=     .100 CEHV=     .300
 *SECNO 10700.000
 3280 CROSS SECTION  10700.00 EXTENDED      1.49 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
  10700.000       9.49   1957.49   1957.49       .00   1960.54      3.05       .82       .03   1956.00
     8562.0         .0    8562.0        .0        .0     610.8        .0       5.7        .9   1960.00
        .01        .00     14.02       .00      .000      .015      .000      .000   1948.00   1984.66
    .001969       431.      418.      421.         0        11         0       .00    102.48   2087.14


 CCHV=     .100 CEHV=     .300
 *SECNO 10800.000
 3280 CROSS SECTION  10800.00 EXTENDED      1.34 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
  10800.000       9.34   1961.34   1961.34       .00   1964.35      3.01       .76       .00   1960.00
     8562.0         .0    8562.0        .0        .0     615.4        .0      11.2       1.8   1960.00
        .02        .00     13.91       .00      .000      .015      .000      .000   1952.00   2155.44
    .001949       410.      386.      390.         0         8         0       .00    103.33   2258.77
```

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

CCHV= .100 CEHV= .300
*SECNO 10900.000
3280 CROSS SECTION 10900.00 EXTENDED 1.63 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

10900.000	9.63	1965.63	1965.63	.00	1969.12	3.49	.75	.14	1964.00
8562.0	.0	8560.9	1.1	.0	571.2	2.3	16.5	2.7	1964.00
.02	.00	14.99	.47	.000	.015	.110	.000	1956.00	1859.99
.001923	387.	389.	377.	0	8	0	.00	86.46	1946.45

CCHV= .100 CEHV= .300
*SECNO 11000.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

11000.000	9.76	1969.76	1969.76	.00	1973.01	3.25	.74	.02	1968.00
8562.0	4.4	8557.6	.0	6.1	591.7	.0	21.8	3.5	1972.00
.03	.72	14.46	.00	.080	.015	.000	.000	1960.00	1807.94
.001854	347.	393.	420.	0	5	0	.00	97.92	1905.86

CCHV= .100 CEHV= .300
*SECNO 11100.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

11100.000	11.56	1971.56	1971.56	.00	1975.05	3.49	.77	.07	1972.00
8562.0	.0	8562.0	.0	.0	571.4	.0	27.3	4.3	1972.00
.04	.00	14.98	.00	.000	.015	.000	.000	1960.00	1887.90
.001873	325.	411.	495.	0	8	0	.00	81.81	1969.71

CCHV= .100 CEHV= .300
*SECNO 11200.000
3280 CROSS SECTION 11200.00 EXTENDED .81 FEET

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

11200.000	10.81	1972.81	1972.81	.00	1976.96	4.15	.82	.20	1972.00
8562.0	.0	8562.0	.0	.0	523.9	.0	32.7	5.1	1972.00
.05	.00	16.34	.00	.000	.015	.000	.000	1962.00	1924.66
.001943	320.	431.	510.	0	11	0	.00	64.44	1989.10

CCHV= .100 CEHV= .300
*SECNO 11300.000
3280 CROSS SECTION 11300.00 EXTENDED 2.51 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

11300.000	10.51	1974.51	1974.51	.00	1978.74	4.24	.92	.03	1972.00
8562.0	.0	8562.0	.0	.0	518.4	.0	38.4	5.8	1972.00
.05	.00	16.52	.00	.000	.015	.000	.000	1964.00	1846.27
.001935	469.	474.	455.	0	8	0	.00	61.43	1907.70

CCHV= .100 CEHV= .300
*SECNO 11400.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

```
        DOWNSTREAM FACE OF PECOS ROAD BRIDGE
 11400.000     10.85   1974.87   1974.87       .00   1980.35      5.48       .54       .37   1975.50
    8562.0        .0    8562.0        .0        .0     455.6        .0      41.1       6.0   1975.50
       .06       .00     18.79       .00      .000      .015      .000      .000   1964.02   1000.00
   .002611      243.      244.      245.         0         8         0       .00     42.00   1042.00


CCHV=     .100 CEHV=     .300
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


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      1.50      3.00     42.00     42.00       .00    252.00       .00   1964.52   1964.02

*SECNO 11500.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=       .000  EGLWC=   1980.852  ELLC=   1990.520  PCWSE=   1974.868  ELTRD=   1972.820
3280 CROSS SECTION  11500.00 EXTENDED       .07 FEET


3370 NORMAL BRIDGE, NRD=   0 MIN ELTRD=  1972.82 MAX ELLC=  1990.52

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
        UPSTREAM FACE OF PECOS ROAD BRIDGE
 11500.000     10.85   1975.37   1975.37       .00   1980.85      5.48       .26       .00   1975.30
    8562.0        .0    8562.0        .0        .0     455.6        .0      42.1       6.1   1975.30
       .06       .00     18.79       .00      .000      .015      .000      .000   1964.52   2258.08
   .002610      100.      100.      100.         0        15         0       .00     42.00   2300.08


CCHV=     .100 CEHV=     .300
*SECNO 11600.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
        DOWNSTREAM FACE OF CROSSING
 11600.000     12.42   1979.74   1979.74       .00   1985.98      6.23       .59       .22   1979.80
    8562.0        .0    8562.0        .0        .0     427.4        .0      44.3       6.3   1979.80
       .06       .00     20.03       .00      .000      .015      .000      .000   1967.32   1000.00
   .002933      216.      215.      215.         0         8         0       .00     34.40   1034.40


CCHV=     .100 CEHV=     .300
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


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    1977.87 , NOT    1979.74 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .90      1.50      3.00     34.40     34.40      1.50    297.00       .00   1968.25   1967.32

*SECNO 11700.000
3280 CROSS SECTION  11700.00 EXTENDED      4.20 FEET


3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.=    1980.59 BRIDGE VELOCITY=      20.32     CALCULATED CHANNEL AREA=       406.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
       .00   1987.88       .00         0.      8562.      297.      942.     1996.89   1999.84         0.


        UPSTREAM FACE OF CROSSING
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```
 11700.000     15.75   1984.00       .00       .00   1987.88      3.88      1.90       .00   1979.80
    8562.0        .0    8562.0        .0        .0    541.9        .0      44.5       6.3   1979.80
       .06       .00     15.80       .00      .000     .015      .000      .000   1968.25    966.89
   .001533       16.       16.       16.         0        0         0       .00     34.40   1001.29


CCHV=     .100 CEHV=     .300
*SECNO 11800.000
3280 CROSS SECTION  11800.00 EXTENDED      2.21 FEET


3301 HV CHANGED MORE THAN HVINS

 11800.000     13.74   1983.31   1981.96       .00   1988.40      5.10       .16       .37   1981.10
    8562.0        .0    8562.0        .0        .0    472.6        .0      45.5       6.4   1981.10
       .06       .00     18.12       .00      .000     .015      .000      .000   1969.57   1000.00
   .002224       86.       86.       86.         3       15         0       .00     34.40   1034.40


CCHV=     .100 CEHV=     .300
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


*SECNO 11900.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
       DOWNSTREAM FACE OF CROSSING
 11900.000     12.42   1983.30   1983.30       .00   1989.57      6.28       .23       .35   1990.00
    8562.0        .0    8562.0        .0        .0    425.8        .0      46.4       6.5   1990.00
       .06       .00     20.11       .00      .000     .015      .000      .000   1970.88    996.53
   .002961       92.       92.       92.         0       11         0       .00     34.30   1030.83


CCHV=     .100 CEHV=     .300

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00       1.50      3.00     34.30     34.30       .00    260.00       .00   1970.97   1970.88

*SECNO 12000.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=       .000  EGLWC=   1989.648  ELLC=   1998.540  PCWSE=   1983.295  ELTRD=   1990.990

3370 NORMAL BRIDGE, NRD=   0 MIN ELTRD=  1990.99 MAX ELLC=  1998.54

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
       UPSTREAM FACE OF CROSSING
 12000.000     12.42   1983.39   1983.39       .00   1989.65      6.26       .01       .00   1990.00
    8562.0        .0    8562.0        .0        .0    426.5        .0      46.5       6.5   1990.99
       .06       .00     20.08       .00      .000     .015      .000      .000   1970.97    970.15
   .002950        5.        5.        5.         0        9         0       .00     34.34   1004.49


CCHV=     .100 CEHV=     .300
*SECNO 12100.000
3280 CROSS SECTION  12100.00 EXTENDED      1.06 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
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


3720 CRITICAL DEPTH ASSUMED
 12100.000     11.06   1985.66   1985.66       .00   1991.25      5.59       .70       .07   1984.60
    8562.0        .0    8562.0        .0        .0    451.2        .0      49.0       6.7   1984.60
       .07       .00     18.97       .00      .000     .015      .000      .000   1974.60   1205.25
   .002652      252.      252.      252.         0       11         0       .00     40.80   1246.05
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CCHV=     .100 CEHV=     .300
*SECNO 12200.000
3280 CROSS SECTION  12200.00 EXTENDED       .38 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 12200.000     10.35   1989.18   1989.18       .00   1994.41      5.23       .74       .04   1988.80
    8562.0        .0    8562.0        .0        .0     466.5        .0      52.0       7.0   1988.80
       .07       .00     18.35       .00      .000      .015      .000      .000   1978.83   1207.74
   .002518      289.      288.      298.         0        11         0       .00     45.08   1252.82


CCHV=     .100 CEHV=     .300
*SECNO 12300.000
3280 CROSS SECTION  12300.00 EXTENDED      2.34 FEET


3301 HV CHANGED MORE THAN HVINS

        DOWNSTREAM FACE OF TOMIYASU BRIDGE
 12300.000      8.90   1991.74   1991.34       .00   1995.15      3.41       .56       .18   1989.40
    8562.0        .0    8562.0        .0        .0     578.1        .0      55.4       7.4   1989.40
       .08       .00     14.81       .00      .000      .015      .000      .000   1982.84   1394.43
   .001647      277.      278.      272.         4        15         0       .00     73.69   1468.12


CCHV=     .100 CEHV=     .300

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    1990.80 , NOT    1991.74 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     1.25       1.50       3.00      73.00      50.00       1.00     351.00       1.80    1983.11    1982.84

*SECNO 12400.000
3280 CROSS SECTION  12400.00 EXTENDED      3.49 FEET

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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


3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.=    1991.75 BRIDGE VELOCITY=      15.07     CALCULATED CHANNEL AREA=       557.

 EGPRS       EGLWC       H3        QWEIR       QLOW       BAREA    TRAPEZOID       ELLC      ELTRD      WEIRLN
                                                                       AREA
       .00   1995.67       .00         0.      8562.       351.      2535.      2009.42   2012.00         0.


        UPSTREAM FACE OF TOMIYASU LANE BRIDGE
 12400.000      9.78   1992.89       .00        .00   1995.67      2.78       .52       .00   1989.40
    8562.0        .0    8562.0        .0        .0     639.6        .0      56.4       7.5   1989.40
       .08       .00     13.39       .00      .000      .015      .000      .000   1983.11   2222.53
   .001199       79.       75.       77.         0         0         0       .00     72.72   2295.25


CCHV=     .100 CEHV=     .300
*SECNO 12500.000
3280 CROSS SECTION  12500.00 EXTENDED      1.47 FEET


3301 HV CHANGED MORE THAN HVINS

        TRANSITION DOWNSTREAM TRAP
        PLANS STA 38+89.86
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
 12500.000      8.87   1992.57   1992.28       .00   1995.98      3.41       .12       .19   1991.10
    8562.0        .0    8562.0        .0        .0     577.6        .0      57.7       7.6   1991.10
       .08       .00     14.82       .00      .000      .015      .000      .000   1983.70   2495.63
   .001678       86.       89.       91.         3        11         0       .00     75.87   2571.50


CCHV=     .100 CEHV=     .300
*SECNO 12600.000
3280 CROSS SECTION  12600.00 EXTENDED      1.69 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
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

3720 CRITICAL DEPTH ASSUMED
TRANSITION UPSTREAM RECT
PLANS STA 38+14.44
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

12600.000	9.66	1995.29	1995.29	.00	2000.17	4.88	.15	.44	1993.60
8562.0	.0	8562.0	.0	.0	483.1	.0	58.6	7.8	1993.60
.08	.00	17.72	.00	.000	.015	.000	.000	1985.63	1000.00
.002403	75.	75.	75.	0	8	0	.00	50.00	1050.00

CCHV= .100 CEHV= .300
*SECNO 12700.000
3280 CROSS SECTION 12700.00 EXTENDED 2.72 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
PLANS STA 35+00.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

12700.000	9.67	1997.82	1997.82	.00	2002.69	4.87	.75	.00	1995.10
8562.0	.0	8562.0	.0	.0	483.3	.0	62.1	8.1	1995.10
.09	.00	17.72	.00	.000	.015	.000	.000	1988.15	2430.44
.002401	317.	313.	310.	0	5	0	.00	50.00	2480.44

CCHV= .100 CEHV= .300
*SECNO 12800.000
3280 CROSS SECTION 12800.00 EXTENDED 2.72 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
PLANS STA 31+00.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

12800.000	9.67	2001.02	2001.02	.00	2005.89	4.87	.97	.00	1998.30
8562.0	.0	8562.0	.0	.0	483.3	.0	66.5	8.6	1998.30
.09	.00	17.72	.00	.000	.015	.000	.000	1991.35	2505.21
.002402	405.	405.	405.	0	5	0	.00	50.00	2555.21

CCHV= .100 CEHV= .300
*SECNO 12900.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
DOWNSTREAM FACE OF MIRA VISTA BRIDGE

1

PLANS STA 28+43.76
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

12900.000	9.67	2003.14	2003.14	.00	2008.01	4.87	.62	.00	2004.20
8562.0	.0	8562.0	.0	.0	483.3	.0	69.4	8.9	2004.20
.10	.00	17.72	.00	.000	.015	.000	.000	1993.47	2630.84
.002402	260.	259.	258.	0	5	0	.00	50.00	2680.84

CCHV= .100 CEHV= .300

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	3.00	50.00	50.00	.00	350.00	.00	1993.90	1993.47

*SECNO 13000.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 2008.439 ELLC= 2020.900 PCWSE= 2003.135 ELTRD= 2004.200

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 2004.20 MAX ELLC= 2020.90

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
UPSTREAM FACE OF MIRA VISTA STREET BRIDGE
PLANS STA 28+10.59
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

13000.000	9.66	2003.56	2003.56	.00	2008.44	4.88	.08	.00	2004.20
8562.0	.0	8562.0	.0	.0	482.9	.0	69.8	8.9	2004.20
.10	.00	17.73	.00	.000	.015	.000	.000	1993.90	2587.74
.002407	33.	33.	33.	0	19	0	.00	50.00	2637.74

CCHV= .100 CEHV= .300
*SECNO 13100.000

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3280 CROSS SECTION  13100.00 EXTENDED      2.66 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
        PLANS STA 27+00.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
 13100.000      9.67   2008.66   2008.66       .00   2013.53      4.87       .24       .00   2006.00
    8562.0        .0    8562.0        .0        .0     483.4        .0      70.9       9.0   2006.00
       .10       .00     17.71       .00      .000      .015      .000      .000   1998.99    994.85
   .002400       98.       98.       98.         0         5         0       .00     50.00   1044.85


CCHV=     .100 CEHV=     .300
*SECNO 13200.000
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


3280 CROSS SECTION  13200.00 EXTENDED      2.57 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
        TRANSITION - DOWNSTREAM RECT
        PLANS STA 24+90.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
 13200.000      9.67   2011.07   2011.07       .00   2015.94      4.87       .51       .00   2008.50
    8562.0        .0    8562.0        .0        .0     483.3        .0      73.2       9.3   2008.50
       .10       .00     17.72       .00      .000      .015      .000      .000   2001.40    995.00
   .002401      209.      211.      211.         0         5         0       .00     50.00   1045.00


CCHV=     .100 CEHV=     .300
*SECNO 13300.000
3280 CROSS SECTION  13300.00 EXTENDED      5.46 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.24

        TRANSITION - UPSTREAM TRAP
        PLANS STA 24+12.75
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
 13300.000     12.47   2014.76   2010.83       .00   2016.34      1.59       .07       .33   2009.30
    8562.0        .0    8562.0        .0        .0     847.4        .0      74.4       9.4   2009.30
       .11       .00     10.10       .00      .000      .015      .000      .000   2002.29    997.50
   .000478       80.       80.       80.         5        11         0       .00     75.00   1072.50


CCHV=     .100 CEHV=     .300
*SECNO 13400.000
3280 CROSS SECTION  13400.00 EXTENDED      5.00 FEET

        DOWNSTREAM FACE OF PACHUCA BRIDGE
        PLANS STA 23+16.50
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
 13400.000     11.93   2014.70   2011.30       .00   2016.44      1.74       .05       .05   2009.70
    8562.0        .0    8562.0        .0        .0     808.1        .0      76.3       9.6   2009.70
       .11       .00     10.60       .00      .000      .015      .000      .000   2002.77   2794.52
   .000600      100.      100.      100.         2        14         0       .00     75.00   2869.52


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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


CCHV=     .100 CEHV=     .300

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00       1.50      3.00     75.00     50.00       .00    438.00      1.80   2003.07   2002.77

*SECNO 13500.000

6070,LOW FLOW BY NORMAL BRIDGE

EGBRS=       .000  EGLWC=   2016.742  ELLC=   2030.070  PCWSE=   2014.699  ELTRD=   2012.330
3280 CROSS SECTION  13500.00 EXTENDED      4.64 FEET
```

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 2012.33 MAX ELLC= 2030.07

UPSTREAM FACE OF PACHUCA STREET BRIDGE
PLANS STA 22+83.50
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

13500.000	11.56	2014.63	2011.59	.00	2016.50	1.87	.02	.04	2010.00
8562.0	.0	8562.0	.0	.0	780.9	.0	77.0	9.6	2010.00
.11	.00	10.96	.00	.000	.015	.000	.000	2003.07	1409.50
.000619	37.	36.	37.	2	23	0	.00	75.00	1484.50

CCHV= .100 CEHV= .300
*SECNO 13600.000
3280 CROSS SECTION 13600.00 EXTENDED 1.56 FEET

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
TRANSITION DOWNSTREAM TRAP
PLANS STA 21+81.14
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

13600.000	8.55	2014.66	2014.66	.00	2018.37	3.72	.09	.55	2013.10
8562.0	.0	8562.0	.0	.0	553.5	.0	78.3	9.8	2013.10
.11	.00	15.47	.00	.000	.015	.000	.000	2006.11	1395.50
.001903	152.	88.	89.	0	15	0	.00	75.00	1470.50

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

CCHV= .100 CEHV= .300
*SECNO 13700.000
3280 CROSS SECTION 13700.00 EXTENDED 2.24 FEET

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
TRANSITION UPSTREAM RECT
PLANS STA 21+06.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

13700.000	9.68	2016.24	2016.24	.00	2021.10	4.86	.16	.34	2014.00
8562.0	.0	8562.0	.0	.0	483.9	.0	79.2	9.9	2014.00
.11	.00	17.70	.00	.000	.015	.000	.000	2006.56	1000.00
.002393	75.	75.	75.	0	8	0	.00	50.00	1050.00

CCHV= .100 CEHV= .300
*SECNO 13800.000
3280 CROSS SECTION 13800.00 EXTENDED 2.66 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
PLANS STA 18+00.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

13800.000	9.66	2018.06	2018.06	.00	2022.94	4.88	.73	.00	2015.40
8562.0	.0	8562.0	.0	.0	483.1	.0	82.6	10.2	2015.40
.12	.00	17.72	.00	.000	.015	.000	.000	2008.40	1000.00
.002403	306.	306.	306.	0	5	0	.00	50.00	1050.00

CCHV= .100 CEHV= .300
*SECNO 13900.000
3280 CROSS SECTION 13900.00 EXTENDED .48 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
GRADEBREAK AT DOWNSTREAM FACE OF VISTA DEL SOL AVENUE
PLANS STA 15+00.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

13900.000	9.67	2019.88	2019.88	.00	2024.75	4.87	.72	.00	2019.40
8562.0	.0	8562.0	.0	.0	483.3	.0	86.0	10.6	2019.40
.12	.00	17.72	.00	.000	.015	.000	.000	2010.21	1000.00
.002401	300.	300.	300.	0	5	0	.00	50.00	1050.00

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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


CCHV=      .100 CEHV=      .300

SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00       1.50       3.00      50.00      50.00        .00     425.00        .00    2010.89    2010.21

*SECNO 14000.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=        .000  EGLWC=   2025.429  ELLC=   2039.390  PCWSE=   2019.876  ELTRD=   2021.130
3280 CROSS SECTION  14000.00 EXTENDED       1.15 FEET


3370 NORMAL BRIDGE, NRD=   0 MIN ELTRD=  2021.13 MAX ELLC=  2039.39

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
        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
 14000.000       9.66   2020.55   2020.55        .00   2025.43       4.88        .14        .00   2019.40
    8562.0         .0     8562.0         .0         .0     483.0         .0       86.6       10.6   2019.40
       .12         .00      17.73        .00       .000       .015       .000       .000   2010.89   1000.00
   .002405        57.        57.        57.          0         19          0        .00      50.00   1050.00


CCHV=      .100 CEHV=      .300
*SECNO 14100.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
        TRANSITION DOWNSTREAM RECT
        PLANS STA 13+42.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM


 14100.000      10.10   2022.92   2022.92        .00   2026.71       3.79        .23        .11   2024.00
    8562.0         .0     8562.0         .0         .0     548.3         .0       87.8       10.8   2024.00
       .12         .00      15.62        .00       .000       .015       .000       .000   2012.82   1548.30
   .002172       101.       101.       101.          0          8          0        .00      73.20   1621.50


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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


CCHV=      .100 CEHV=      .300
*SECNO 14200.000
3280 CROSS SECTION  14200.00 EXTENDED        .11 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
        TRANSITION UPSTREAM 60' RECT TO 50' RECT
        PLANS STA 12+67.00
        PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
 14200.000       8.57   2022.81   2022.81        .00   2027.12       4.30        .17        .15   2022.70
    8562.0         .0     8562.0         .0         .0     514.4         .0       88.7       10.9   2022.70
       .12         .00      16.64        .00       .000       .015       .000       .000   2014.24   1000.00
   .002248        75.        75.        75.          0         11          0        .00      60.00   1060.00


CCHV=      .100 CEHV=      .300
*SECNO 14220.000
3280 CROSS SECTION  14220.00 EXTENDED       1.05 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 14220.000       8.56   2023.18   2023.18        .00   2027.50       4.32        .05        .01   2024.10
    8562.0         .0     8562.0         .0         .0     513.4         .0       88.9       10.9   2022.13
       .13         .00      16.68        .00       .000       .015       .000       .000   2014.62   1000.00
   .002262        20.        20.        20.          0          5          0        .00      60.00   1060.00
```

CCHV= .100 CEHV= .300
*SECNO 14240.000
3280 CROSS SECTION 14240.00 EXTENDED 1.03 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

14240.000	8.56	2023.56	2023.56	.00	2027.88	4.32	.05	.00	2024.50
8562.0	.0	8562.0	.0	.0	513.6	.0	89.2	10.9	2022.53
.13	.00	16.67	.00	.000	.015	.000	.000	2015.00	1000.00
.002260	20.	20.	20.	0	5	0	.00	60.00	1060.00

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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

CCHV= .100 CEHV= .300
*SECNO 14300.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
DOWNSTREAM FACE OF UPRR BRIDGE - HENDERSON SPUR

14300.000	8.56	2023.86	2023.86	.00	2028.18	4.32	.05	.00	2028.80
8562.0	.0	8562.0	.0	.0	513.6	.0	89.4	11.0	2028.80
.13	.00	16.67	.00	.000	.015	.000	.000	2015.30	1701.50
.002260	20.	20.	20.	0	5	0	.00	60.00	1761.50

CCHV= .100 CEHV= .300

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 2022.31 , NOT 2023.86 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	3.00	17.00	60.00	4.00	452.00	.00	2015.80	2015.30

*SECNO 14400.000
3280 CROSS SECTION 14400.00 EXTENDED 2.21 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.56

CLASS B LOW FLOW

3420 BRIDGE W.S.= 2024.54 BRIDGE VELOCITY= 17.02 CALCULATED CHANNEL AREA= 489.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2029.69	.00	0.	8562.	452.	795.	2030.00	2031.20	0.

UPSTREAM FACE OF UPRR BRIDGE - HENDERSON SPUR

14400.000	11.51	2027.31	.00	.00	2029.69	2.39	1.52	.00	2025.10
8562.0	.0	8562.0	.0	.0	690.4	.0	89.7	11.0	2028.80
.13	.00	12.40	.00	.000	.015	.000	.000	2015.80	1782.00
.000930	20.	20.	20.	0	0	0	.00	60.00	1842.00

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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

CCHV= .100 CEHV= .300
*SECNO 14450.000
3280 CROSS SECTION 14450.00 EXTENDED 3.56 FEET

14450.000	11.06	2027.19	2024.69	.00	2029.77	2.59	.02	.06	2025.10
8562.0	.0	8562.0	.0	.0	663.5	.0	90.0	11.0	2023.63
.13	.00	12.90	.00	.000	.015	.000	.000	2016.13	1000.00
.000986	20.	20.	20.	2	15	0	.00	60.00	1060.00

CCHV= .100 CEHV= .300
*SECNO 14500.000
3280 CROSS SECTION 14500.00 EXTENDED 3.02 FEET

3301 HV CHANGED MORE THAN HVINS

14500.000	9.52	2026.62	2025.65	.00	2030.11	3.49	.06	.27	2024.60
8562.0	.0	8562.0	.0	.0	571.1	.0	90.7	11.1	2024.60
.13	.00	14.99	.00	.000	.015	.000	.000	2017.10	1000.00
.001640	50.	50.	50.	3	15	0	.00	60.00	1060.00

CCHV= .100 CEHV= .300
*SECNO 14550.000
3280 CROSS SECTION 14550.00 EXTENDED 1.08 FEET

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

14550.000	8.55	2026.48	2026.48	.00	2030.80	4.32	.08	.25	2025.40
8562.0	.0	8562.0	.0	.0	513.3	.0	91.2	11.2	2025.40
.13	.00	16.68	.00	.000	.015	.000	.000	2017.93	1000.00
.002263	40.	40.	40.	0	11	0	.00	60.06	1060.06

CCHV= .100 CEHV= .300
*SECNO 14600.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
DOWNSTREAM FACE OF WARM SPRINGS ROAD BRIDGE

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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
14600.000	8.56	2026.93	2026.93	.00	2031.25	4.31	.05	.00	2030.20
8562.0	.0	8562.0	.0	.0	513.7	.0	91.4	11.2	2030.20
.13	.00	16.67	.00	.000	.015	.000	.000	2018.37	1390.42
.002258	20.	20.	20.	0	5	0	.00	60.00	1450.42

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 2025.77 , NOT 2026.93 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	3.00	103.00	60.00	2.13	588.00	.00	2018.71	2018.37

CCHV= .100 CEHV= .300
*SECNO 14700.000
3280 CROSS SECTION 14700.00 EXTENDED 1.43 FEET

3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.= 2027.33 BRIDGE VELOCITY= 16.82 CALCULATED CHANNEL AREA= 499.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2032.39	.00	0.	8562.	588.	1156.	2038.69	2040.21	0.

BEGIN CHANGES FOR LONGFORD HOMES CLOMR
UPSTREAM FACE OF WARM SPRINGS ROAD BRIDGE
PLANS STA 9+39.84
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

14700.000	10.46	2029.33	.00	.00	2032.39	3.06	1.15	.00	2027.90
8562.0	.0	8562.0	.0	.0	609.7	.0	92.9	11.3	2029.88
.13	.00	14.04	.00	.000	.015	.000	.000	2018.87	1000.00
.001334	112.	112.	112.	0	0	0	.00	60.00	1060.00

CCHV= .100 CEHV= .300
*SECNO 14750.000
3280 CROSS SECTION 14750.00 EXTENDED .38 FEET

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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

3301 HV CHANGED MORE THAN HVINS

PT
PLANS STA 8+83.50
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

14750.000	9.38	2028.88	2028.38	.00	2032.71	3.84	.09	.23	2028.50
8562.0	.0	8562.0	.0	.0	544.8	.0	93.6	11.4	2030.51
.13	.00	15.72	.00	.000	.015	.000	.000	2019.50	1000.00
.001871	56.	56.	56.	3	11	0	.00	60.00	1060.00

CCHV= .100 CEHV= .300
*SECNO 14800.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
BEGIN RECTANGULAR CHANNEL BOTTOM TRANSITION
PLANS STA 7+84.00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

14800.000	8.41	2029.01	2029.01	.00	2033.11	4.10	.20	.08	2029.60
8562.0	.0	8562.0	.0	.0	526.9	.0	94.9	11.6	2031.61
.13	.00	16.25	.00	.000	.015	.000	.000	2020.60	1000.00
.002202	100.	100.	100.	0	11	0	.00	65.00	1065.00

CCHV= .100 CEHV= .300
*SECNO 14850.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
PVI
PLANS STA 6+81.44
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

14850.000	8.42	2030.16	2030.16	.00	2034.25	4.09	.23	.00	2030.80
8562.0	.0	8562.0	.0	.0	527.5	.0	96.1	11.7	2032.75
.14	.00	16.23	.00	.000	.015	.000	.000	2021.74	1000.00
.002194	103.	103.	103.	0	5	0	.00	65.00	1065.00

CCHV= .100 CEHV= .300
*SECNO 14900.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
BRIDGE AT TOPAZ STREET

PLANS STA 6+44.08
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

14900.000	8.41	2030.42	2030.42	.00	2034.52	4.09	.08	.00	2031.00
8562.0	.0	8562.0	.0	.0	527.2	.0	96.5	11.8	2033.02
.14	.00	16.24	.00	.000	.015	.000	.000	2022.01	1000.00
.002197	37.	37.	37.	0	5	0	.00	65.00	1065.00

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 2029.21 , NOT 2030.42 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.50	3.00	90.00	65.00	1.50	455.00	.00	2022.40	2022.01

CCHV= .100 CEHV= .300
*SECNO 14950.000
3280 CROSS SECTION 14950.00 EXTENDED 1.09 FEET

3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.= 2030.47 BRIDGE VELOCITY= 16.32 CALCULATED CHANNEL AREA= 512.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2035.15	.00	0.	8562.	455.	1118.	2040.00	2042.00	0.

BRIDGE AT TOPAZ STREET -- RIGHT WALL HEIGHT ADJUSTED
PLANS STA 5+91.39
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

14950.000	9.69	2032.09	.00	.00	2035.15	3.06	.63	.00	2031.00
8562.0	.0	8562.0	.0	.0	610.3	.0	97.2	11.8	2031.00
.14	.00	14.03	.00	.000	.015	.000	.000	2022.40	1000.00
.001407	53.	53.	53.	0	0	0	.00	65.00	1065.00

CCHV= .100 CEHV= .300
*SECNO 15000.000
3280 CROSS SECTION 15000.00 EXTENDED .31 FEET

3301 HV CHANGED MORE THAN HVINS

PVI
PLANS STA 5+28.97
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

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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
15000.000	8.91	2031.82	2031.32	.00	2035.45	3.63	.14	.17	2031.51
8562.0	.0	8562.0	.0	.0	559.7	.0	98.4	12.0	2031.51
.14	.00	15.30	.00	.000	.015	.000	.000	2022.91	1000.00
.001831	85.	85.	85.	3	11	0	.00	65.00	1065.00

CCHV= .100 CEHV= .300
*SECNO 15050.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
PC
PLANS STA 4+44.34
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

15050.000	8.44	2031.73	2031.73	.00	2035.80	4.07	.12	.13	2031.89
8562.0	.0	8562.0	.0	.0	529.2	.0	99.2	12.1	2031.89
.14	.00	16.18	.00	.000	.015	.000	.000	2023.29	1000.00
.002173	62.	62.	62.	0	8	0	.00	65.00	1065.00

CCHV= .100 CEHV= .300
*SECNO 15100.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
PVI
PLANS STA 3+28.97
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

15100.000	8.41	2032.39	2032.39	.00	2036.49	4.10	.25	.01	2032.58
8562.0	.0	8562.0	.0	.0	527.0	.0	100.6	12.2	2032.58
.14	.00	16.25	.00	.000	.015	.000	.000	2023.98	1000.00
.002200	115.	115.	115.	0	5	0	.00	65.00	1065.00

CCHV= .100 CEHV= .300
*SECNO 15110.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
PT
PLANS STA 3+25.54
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

15110.000	8.41	2032.43	2032.43	.00	2036.53	4.09	.01	.00	2033.02
8562.0	.0	8562.0	.0	.0	527.4	.0	100.6	12.2	2033.02
.14	.00	16.24	.00	.000	.015	.000	.000	2024.02	1000.00
.002196	3.	3.	3.	0	5	0	.00	65.00	1065.00

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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

CCHV= .100 CEHV= .300
*SECNO 15150.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.70

BEGIN TRANSITION FROM TRAPEZOIDAL TO RECTANGULAR CHANNEL
PLANS STA 1+25.54
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

15150.000	9.97	2035.21	2033.09	.00	2037.00	1.79	.24	.23	2036.00
8562.0	.0	8562.0	.0	.0	797.9	.0	103.6	12.6	2036.00
.15	.00	10.73	.00	.000	.015	.000	.000	2025.24	1000.00
.000759	200.	200.	200.	5	11	0	.00	95.00	1095.00

CCHV= .100 CEHV= .300
*SECNO 15200.000

PLANS STA 0+12.31

PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

15200.000	9.04	2034.98	2033.80	.00	2037.24	2.26	.10	.14	2037.00
8562.0	.0	8562.0	.0	.0	710.1	.0	105.6	12.9	2037.00
.15	.00	12.06	.00	.000	.015	.000	.000	2025.94	1000.00
.001092	113.	113.	113.	2	15	0	.00	95.00	1095.00

CCHV= .100 CEHV= .300
*SECNO 15250.000

3301 HV CHANGED MORE THAN HVINS

PC
PLANS STA -0+49.25
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

15250.000	8.09	2034.42	2034.36	.00	2037.60	3.19	.09	.28	2037.00
8562.0	.0	8562.0	.0	.0	597.7	.0	106.5	13.0	2037.00
.15	.00	14.32	.00	.000	.015	.000	.000	2026.33	1000.01
.001820	62.	62.	62.	3	11	0	.00	92.25	1092.26

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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

CCHV= .100 CEHV= .300
*SECNO 15300.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
BEGIN CHANNEL IMPROVEMENTS/BEGIN TRAP CHANNEL BOTTOM TRANSITION
PLANS STA -1+00
PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
END OF REVISIONS FOR LONGFORD HOMES CLOMR

15300.000	8.19	2034.83	2034.83	.00	2038.11	3.28	.09	.03	2037.00
8562.0	.0	8562.0	.0	.0	588.7	.0	107.2	13.1	2037.00
.15	.00	14.54	.00	.000	.015	.000	.000	2026.64	1000.00
.001860	51.	51.	51.	0	5	0	.00	90.00	1090.00

CCHV= .100 CEHV= .300
*SECNO 15400.000

3301 HV CHANGED MORE THAN HVINS

15400.000	8.86	2036.36	2035.11	.00	2038.88	2.51	.69	.08	2040.00
8562.0	.0	8562.0	.0	.0	673.3	.0	114.0	14.0	2040.00
.16	.00	12.72	.00	.000	.015	.000	.000	2027.50	1211.64
.001169	440.	471.	434.	4	11	0	.00	84.88	1296.52

CCHV= .100 CEHV= .300
*SECNO 15500.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
DOWNSTREAM FACE OF EASTERN AVENUE BRIDGE
START OF MODEL
ORIGINAL MODEL: DCL1SUPC.DAT
ESTABLISHED WATER SURFACE ELEVATION = 2037.8 FT (SUBCRITICAL CONDITIONS

15500.000	8.86	2037.11	2037.11	.00	2041.57	4.47	.26	.59	2039.50
8562.0	.0	8562.0	.0	.0	504.9	.0	116.3	14.3	2039.50
.16	.00	16.96	.00	.000	.015	.000	.000	2028.25	1642.82
.002293	214.	166.	136.	0	5	0	.00	57.00	1699.82

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THIS RUN EXECUTED 16JUN04 14:17:54

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DCL1SUBX

SUMMARY PRINTOUT TABLE 100

	SECNO	EGLWC	ELLC	EGPRS	ELTRD	QPR	QWEIR	CLASS	H3	DEPTH	CWSEL	VCH	EG
*	11500.000	1980.85	1990.52	.00	1972.82	8562.00	.00	59.00	.00	10.85	1975.37	18.79	1980.85
*	11700.000	1987.88	1996.89	.00	1999.84	8562.00	.00	2.00	.00	15.75	1984.00	15.80	1987.88
•	12000.000	1989.65	1998.54	.00	1990.99	8562.00	.00	59.00	.00	12.42	1983.39	20.08	1989.65
*	12400.000	1995.67	2009.42	.00	2012.00	8562.00	.00	2.00	.00	9.78	1992.89	13.39	1995.67
*	13000.000	2008.44	2020.90	.00	2004.20	8562.00	.00	59.00	.00	9.66	2003.56	17.73	2008.44
	13500.000	2016.74	2030.07	.00	2012.33	8562.00	.00	59.00	.00	11.56	2014.63	10.96	2016.50
*	14000.000	2025.43	2039.39	.00	2021.13	8562.00	.00	59.00	.00	9.66	2020.55	17.73	2025.43
*	14400.000	2029.69	2030.00	.00	2031.20	8562.00	.00	2.00	.00	11.51	2027.31	12.40	2029.69
•	14700.000	2032.39	2038.69	.00	2040.21	8562.00	.00	2.00	.00	10.46	2029.33	14.04	2032.39
*	14950.000	2035.15	2040.00	.00	2042.00	8562.00	.00	2.00	.00	9.69	2032.09	14.03	2035.15

DCL1SUBX

SUMMARY PRINTOUT TABLE 101

	SECNO	EGOC	ELLC	EGIC	ELTRD	QCULV	QWEIR	CLASS	H4	DEPTH	CWSEL	VCH	EG

DCL1SUBX

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	10600.000	.00	.00	.00	1942.00	8562.00	1952.43	1952.43	1955.75	19.45	14.62	585.58	1941.44
*	10700.000	418.08	.00	.00	1948.00	8562.00	1957.49	1957.49	1960.54	19.69	14.02	610.77	1929.65
*	10800.000	386.03	.00	.00	1952.00	8562.00	1961.34	1961.34	1964.35	19.49	13.91	615.38	1939.36
*	10900.000	388.50	.00	.00	1956.00	8562.00	1965.63	1965.63	1969.12	19.23	14.99	573.56	1952.59
*	11000.000	392.70	.00	.00	1960.00	8562.00	1969.76	1969.76	1973.01	18.54	14.46	597.79	1988.70
*	11100.000	411.30	.00	.00	1960.00	8562.00	1971.56	1971.56	1975.05	18.73	14.98	571.39	1978.49
*	11200.000	430.53	.00	.00	1962.00	8562.00	1972.81	1972.81	1976.96	19.43	16.34	523.90	1942.62
*	11300.000	474.00	.00	.00	1964.00	8562.00	1974.51	1974.51	1978.74	19.35	16.52	518.41	1946.57
•	11400.000	243.55	.00	.00	1964.02	8562.00	1974.87	1974.87	1980.35	26.11	18.79	455.61	1675.71
*	11500.000	100.00	1972.82	1990.52	1964.52	8562.00	1975.37	1975.37	1980.85	26.10	18.79	455.62	1675.77
•	11600.000	215.00	.00	.00	1967.32	8562.00	1979.74	1979.74	1985.98	29.33	20.03	427.41	1580.89
*	11700.000	16.00	1999.84	1996.89	1968.25	8562.00	1984.00	.00	1987.88	15.33	15.80	541.89	2187.08
	11800.000	86.00	.00	.00	1969.57	8562.00	1983.31	1981.96	1988.40	22.24	18.12	472.55	1815.65
*	11900.000	92.00	.00	.00	1970.88	8562.00	1983.30	1983.30	1989.57	29.61	20.11	425.84	1573.35
*	12000.000	5.00	1990.99	1998.54	1970.97	8562.00	1983.39	1983.39	1989.65	29.50	20.08	426.49	1576.50
*	12100.000	252.00	.00	.00	1974.60	8562.00	1985.66	1985.66	1991.25	26.52	18.97	451.23	1662.49
*	12200.000	287.98	.00	.00	1978.83	8562.00	1989.18	1989.18	1994.41	25.18	18.35	466.54	1706.26
	12300.000	277.73	.00	.00	1982.84	8562.00	1991.74	1991.34	1995.15	16.47	14.81	578.08	2109.80
*	12400.000	75.37	2012.00	2009.42	1983.11	8562.00	1992.89	.00	1995.67	11.99	13.39	639.57	2473.11
	12500.000	88.60	.00	.00	1983.70	8562.00	1992.57	1992.28	1995.98	16.78	14.82	577.61	2089.96
*	12600.000	75.00	.00	.00	1985.63	8562.00	1995.29	1995.29	2000.17	24.03	17.72	483.15	1746.46
*	12700.000	313.04	.00	.00	1988.15	8562.00	1997.82	1997.82	2002.69	24.01	17.72	483.32	1747.38
*	12800.000	405.00	.00	.00	1991.35	8562.00	2001.02	2001.02	2005.89	24.02	17.72	483.27	1747.18

*	12900.000	258.77	.00	.00	1993.47	8562.00	2003.14	2003.14	2008.01	24.02	17.72	483.27	1747.12

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
•	13000.000	33.00	2004.20	2020.90	1993.90	8562.00	2003.56	2003.56	2008.44	24.07	17.73	482.90	1745.12
*	13100.000	98.00	.00	.00	1998.99	8562.00	2008.66	2008.66	2013.53	24.00	17.71	483.39	1747.74
*	13200.000	211.13	.00	.00	2001.40	8562.00	2011.07	2011.07	2015.94	24.01	17.72	483.31	1747.34
*	13300.000	80.00	.00	.00	2002.29	8562.00	2014.76	2010.83	2016.34	4.78	10.10	847.38	3915.82
	13400.000	100.00	.00	.00	2002.77	8562.00	2014.70	2011.30	2016.44	6.00	10.60	808.07	3495.24
	13500.000	36.00	2012.33	2030.07	2003.07	8562.00	2014.63	2011.59	2016.50	6.19	10.96	780.94	3442.12
*	13600.000	88.14	.00	.00	2006.11	8562.00	2014.66	2014.66	2018.37	19.03	15.47	553.50	1962.54
•	13700.000	75.00	.00	.00	2006.56	8562.00	2016.24	2016.24	2021.10	23.93	17.70	483.86	1750.29
*	13800.000	306.00	.00	.00	2008.40	8562.00	2018.06	2018.06	2022.94	24.03	17.72	483.15	1746.46
*	13900.000	300.00	.00	.00	2010.21	8562.00	2019.88	2019.88	2024.75	24.01	17.72	483.32	1747.38
*	14000.000	57.00	2021.13	2039.39	2010.89	8562.00	2020.55	2020.55	2025.43	24.05	17.73	483.03	1745.81
*	14100.000	101.00	.00	.00	2012.82	8562.00	2022.92	2022.92	2026.71	21.72	15.62	548.29	1837.05
*	14200.000	75.00	.00	.00	2014.24	8562.00	2022.81	2022.81	2027.12	22.48	16.64	514.45	1805.67
*	14220.000	20.00	.00	.00	2014.62	8562.00	2023.18	2023.18	2027.50	22.62	16.68	513.41	1800.16
*	14240.000	20.00	.00	.00	2015.00	8562.00	2023.56	2023.56	2027.88	22.60	16.67	513.59	1801.10
*	14300.000	20.00	.00	.00	2015.30	8562.00	2023.86	2023.86	2028.18	22.60	16.67	513.59	1801.10
•	14400.000	20.00	2031.20	2030.00	2015.80	8562.00	2027.31	.00	2029.69	9.30	12.40	690.39	2807.70
	14450.000	20.00	.00	.00	2016.13	8562.00	2027.19	2024.69	2029.77	9.86	12.90	663.46	2726.02
	14500.000	50.00	.00	.00	2017.10	8562.00	2026.62	2025.65	2030.11	16.40	14.99	571.05	2114.49
*	14550.000	40.00	.00	.00	2017.93	8562.00	2026.48	2026.48	2030.80	22.63	16.68	513.32	1799.82
*	14600.000	20.00	.00	.00	2018.37	8562.00	2026.93	2026.93	2031.25	22.58	16.67	513.71	1801.72
*	14700.000	111.98	2040.21	2038.69	2018.87	8562.00	2029.33	.00	2032.39	13.34	14.04	609.67	2344.34
	14750.000	56.34	.00	.00	2019.50	8562.00	2028.88	2028.38	2032.71	18.71	15.72	544.80	1979.47
*	14800.000	99.50	.00	.00	2020.60	8562.00	2029.01	2029.01	2033.11	22.02	16.25	526.90	1824.71
*	14850.000	102.56	.00	.00	2021.74	8562.00	2030.16	2030.16	2034.25	21.94	16.23	527.49	1827.82
*	14900.000	37.36	.00	.00	2022.01	8562.00	2030.42	2030.42	2034.52	21.97	16.24	527.24	1826.52

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	14950.000	52.69	2042.00	2040.00	2022.40	8562.00	2032.09	.00	2035.15	14.07	14.03	610.28	2282.74
	15000.000	84.63	.00	.00	2022.91	8562.00	2031.82	2031.32	2035.45	18.31	15.30	559.68	2001.18
*	15050.000	62.42	.00	.00	2023.29	8562.00	2031.73	2031.73	2035.80	21.73	16.18	529.16	1836.72
*	15100.000	115.37	.00	.00	2023.98	8562.00	2032.39	2032.39	2036.49	22.00	16.25	527.02	1825.34
*	15110.000	3.43	.00	.00	2024.02	8562.00	2032.43	2032.43	2036.53	21.96	16.24	527.36	1827.15
*	15150.000	200.00	.00	.00	2025.24	8562.00	2035.21	2033.09	2037.00	7.59	10.73	797.92	3108.66
	15200.000	113.23	.00	.00	2025.94	8562.00	2034.99	2033.80	2037.24	10.92	12.06	710.11	2590.93
	15250.000	61.56	.00	.00	2026.33	8562.00	2034.42	2034.36	2037.60	18.20	14.32	597.73	2006.90
*	15300.000	50.75	.00	.00	2026.64	8562.00	2034.83	2034.83	2038.11	18.60	14.54	588.68	1985.03
	15400.000	471.40	.00	.00	2027.50	8562.00	2036.36	2035.11	2038.88	11.69	12.72	673.28	2504.35
*	15500.000	166.19	.00	.00	2028.25	8562.00	2037.11	2037.11	2041.57	22.93	16.96	504.88	1787.85

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DCL1SUBX

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	10600.000	8562.00	1952.43	.00	.00	3.13	89.43	.00
*	10700.000	8562.00	1957.49	.00	5.07	.00	102.48	418.08
*	10800.000	8562.00	1961.34	.00	3.85	.00	103.33	386.03
•	10900.000	8562.00	1965.63	.00	4.29	.00	86.46	388.50
*	11000.000	8562.00	1969.76	.00	4.13	.00	97.92	392.70
*	11100.000	8562.00	1971.56	.00	1.80	.00	81.81	411.30
*	11200.000	8562.00	1972.81	.00	1.25	.00	64.44	430.53
*	11300.000	8562.00	1974.51	.00	1.69	.00	61.43	474.00
*	11400.000	8562.00	1974.87	.00	.36	.00	42.00	243.55
*	11500.000	8562.00	1975.37	.00	.50	.00	42.00	100.00
*	11600.000	8562.00	1979.74	.00	4.38	.00	34.40	215.00
•	11700.000	8562.00	1984.00	.00	4.26	.00	34.40	16.00
	11800.000	8562.00	1983.31	.00	-.70	.00	34.40	86.00
*	11900.000	8562.00	1983.30	.00	-.01	.00	34.30	92.00
*	12000.000	8562.00	1983.39	.00	.09	.00	34.34	5.00
*	12100.000	8562.00	1985.66	.00	2.27	.00	40.80	252.00
•	12200.000	8562.00	1989.18	.00	3.52	.00	45.08	287.98
	12300.000	8562.00	1991.74	.00	2.57	.00	73.69	277.73
*	12400.000	8562.00	1992.89	.00	1.14	.00	72.72	75.37
	12500.000	8562.00	1992.57	.00	-.32	.00	75.87	88.60
•	12600.000	8562.00	1995.29	.00	2.72	.00	50.00	75.00
*	12700.000	8562.00	1997.82	.00	2.52	.00	50.00	313.04
•	12800.000	8562.00	2001.02	.00	3.20	.00	50.00	405.00
*	12900.000	8562.00	2003.14	.00	2.12	.00	50.00	258.77

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	13000.000	8562.00	2003.56	.00	.42	.00	50.00	33.00
*	13100.000	8562.00	2008.66	.00	5.10	.00	50.00	98.00
*	13200.000	8562.00	2011.07	.00	2.41	.00	50.00	211.13
*	13300.000	8562.00	2014.76	.00	3.69	.00	75.00	80.00
	13400.000	8562.00	2014.70	.00	-.06	.00	75.00	100.00
	13500.000	8562.00	2014.63	.00	-.06	.00	75.00	36.00
*	13600.000	8562.00	2014.66	.00	.02	.00	75.00	88.14
*	13700.000	8562.00	2016.24	.00	1.58	.00	50.00	75.00
*	13800.000	8562.00	2018.06	.00	1.83	.00	50.00	306.00
*	13900.000	8562.00	2019.88	.00	1.81	.00	50.00	300.00
*	14000.000	8562.00	2020.55	.00	.67	.00	50.00	57.00
*	14100.000	8562.00	2022.92	.00	2.37	.00	73.20	101.00
*	14200.000	8562.00	2022.81	.00	-.10	.00	60.00	75.00
*	14220.000	8562.00	2023.18	.00	.36	.00	60.00	20.00
*	14240.000	8562.00	2023.56	.00	.38	.00	60.00	20.00

*	14300.000	8562.00	2023.86	.00	.30	.00	60.00	20.00
*	14400.000	8562.00	2027.31	.00	3.45	.00	60.00	20.00
	14450.000	8562.00	2027.19	.00	-.12	.00	60.00	20.00
	14500.000	8562.00	2026.62	.00	-.57	.00	60.00	50.00
*	14550.000	8562.00	2026.48	.00	-.14	.00	60.06	40.00
*	14600.000	8562.00	2026.93	.00	.45	.00	60.00	20.00
*	14700.000	8562.00	2029.33	.00	2.40	.00	60.00	111.98
	14750.000	8562.00	2028.88	.00	-.45	.00	60.00	56.34
•	14800.000	8562.00	2029.01	.00	.13	.00	65.00	99.50
*	14850.000	8562.00	2030.16	.00	1.15	.00	65.00	102.56
*	14900.000	8562.00	2030.42	.00	.27	.00	65.00	37.36

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	14950.000	8562.00	2032.09	.00	1.67	.00	65.00	52.69
	15000.000	8562.00	2031.82	.00	-.27	.00	65.00	84.63
*	15050.000	8562.00	2031.73	.00	-.09	.00	65.00	62.42
*	15100.000	8562.00	2032.39	.00	.66	.00	65.00	115.37
*	15110.000	8562.00	2032.43	.00	.05	.00	65.00	3.43
*	15150.000	8562.00	2035.21	.00	2.78	.00	95.00	200.00
	15200.000	8562.00	2034.98	.00	-.23	.00	95.00	113.23
	15250.000	8562.00	2034.42	.00	-.56	.00	92.25	61.56
*	15300.000	8562.00	2034.83	.00	.41	.00	90.00	50.75
	15400.000	8562.00	2036.36	.00	1.54	.00	84.88	471.40
•	15500.000	8562.00	2037.11	.00	.74	.00	57.00	166.19

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 10600.000 PROFILE= 1 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 10700.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10700.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

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CAUTION SECNO= 11600.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 11700.000 PROFILE= 1 HYDRAULIC JUMP D.S.

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    16JUN04      14:17:54                                                                    PAGE   48


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HEC-2 Model for Supercritical Conditions

DCL1SPRX.dat

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 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    16JUN04    TIME   14:15:51 *
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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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    16JUN04       14:15:51                                                                    PAGE    1


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 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
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 T1      758.002  PHASE 209
 T2      CLOMR FOR LONGFORD HOMES
 T3      DCL1SUPX
 T4      HEC-2 MODEL FROM DUCK CREEK/BLUE DIAMOND FIS RESTUDY: DCL1SUPC.DAT
 T4      FLOODPLAIN/FLOODWAY MODEL; BREAKOUT AT WARM SPRINGS RD CONTAINED
 T4      SUPERCRITICAL
 T4      STREAM NAME: DUCK CREEK
 T4      UPSTREAM LIMIT: CROSS SECTION 15400, DOWNSTREAM OF EASTERN AVE
 T4      DOWNSTREAM LIMIT: CROSS SECTION 10900

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 0                   1                                     8562    2037.8

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                 -1                                      -1        -6                  0


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     100       101       150       200
1
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 NC     0.08       0.11      0.015       0.1         0.3
   DOWNSTREAM FACE OF EASTERN AVENUE BRIDGE
 X1    15500          6    1642.82    1699.82      214.02      136.16      166.19
 GR     2040    1400.58     2039.5    1642.82     2028.25     1642.82     2028.25     1699.82      2039.5     1699.82
 GR     2044    1982.77

 NC     0.08       0.11      0.015       0.1         0.3
```

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X1    15400         8    1203.85    1302.87      439.74       434.2       471.4
GR     2040      1000       2040    1203.85       2036     1212.42      2027.5    1221.41      2027.5    1289.16
GR     2036   1295.88       2040    1302.87       2044     1611.48
  BEGIN CHANNEL IMPROVEMENTS/BEGIN TRAP CHANNEL BOTTOM TRANSITION
  PLANS STA -1+00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
  LIMIT OF REVISIONS FOR LONGFORD HOMES CLOMR

NC    0.015      0.015      0.015        0.1        0.3
X1    15300          7       1000       1090      50.75       50.75       50.75
GR     2037       1000    2034.74       1000    2027.24        1015    2026.64        1045    2027.24        1075
GR   2034.7       1090       2037       1090
  PC
  PLANS STA -0+49.25
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
X1    15250          7       1000    1092.26      61.56       61.56       61.56
GR     2037       1000    2034.43       1000    2026.93        1015    2026.33     1047.26    2026.93     1077.26
GR   2034.4    1092.26       2037    1092.26

  PLANS STA 0+12.31
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
X1    15200          7       1000       1095     113.23      113.23      113.23
GR     2037       1000    2034.04       1000    2026.54        1015    2025.94        1050    2026.54        1080
GR   2034.0       1095       2037       1095
  BEGIN TRANSITION FROM TRAPEZOIDAL TO RECTANGULAR CHANNEL
  PLANS STA 1+25.54
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
X1    15150          7       1000       1095        200         200         200
GR     2036       1000    2033.34       1000    2025.84        1015    2025.24        1050    2025.84        1080
GR   2033.3       1095       2036       1095
  PT
  PLANS STA 3+25.54
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
X1    15110          7       1000       1065       3.43        3.43        3.43          0       0.02
GR     2033       1000    2032.02       1000     2024.6        1000        2024        1035     2024.6        1065
GR   2032.0       1065       2033       1065
  PVI
  PLANS STA 3+28.97
1
   16JUN04      14:15:51                                                                                    PAGE    3


  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
X1    15100          0          0          0     115.37      115.37      115.37          0      -0.02
  PC
  PLANS STA 4+44.34
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
X1    15050          0          0          0      62.42       62.42       62.42          0      -0.69
  PVI
  PLANS STA 5+28.97
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
X1    15000          0          0          0      84.63       84.63       84.63          0      -0.51
  BRIDGE AT TOPAZ STREET -- RIGHT WALL HEIGHT ADJUSTED
  PLANS STA 5+91.39
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
X1    14950          7       1000       1065      52.69       52.69       52.69
GR     2031       1000    2030.42       1000       2023        1000      2022.4        1035       2023        1065
GR   2030.4       1065       2031       1065

SB     0.90        1.5          3         90         65         1.5         455          0    2022.40    2022.01
  BRIDGE AT TOPAZ STREET
  PLANS STA 6+44.08
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
NC    0.015      0.015      0.015        0.1        0.3
X1    14900          5       1000       1065      37.36       37.36       37.36
X2                             1       2040       2042                                 2
GR     2031       1000    2022.61       1000    2022.01        1035    2022.61        1065    2033.02        1065
  PVI
  PLANS STA 6+81.44
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
X1    14850          5       1000       1065     102.56      102.56      102.56
GR   2030.8       1000    2022.34       1000    2021.74        1035    2022.34        1065    2032.75        1065
  BEGIN RECTANGULAR CHANNEL BOTTOM TRANSITION
  PLANS STA 7+84.00
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   PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
X1    14800          5       1000       1065       99.5       99.5       99.5
GR   2029.6       1000     2021.2       1000     2020.6       1035     2021.2       1065     2031.61       1065
   PT
   PLANS STA 8+83.50
   PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
1
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NC    0.015      0.015      0.015        0.1        0.3
X1    14750          5       1000       1060      56.34      56.34      56.34
GR   2028.5       1000     2020.1       1000     2019.5       1030     2020.1       1060     2030.51       1060
   BEGIN CHANGES FOR LONGFORD HOMES CLOMR
   UPSTREAM FACE OF WARM SPRINGS ROAD BRIDGE
   PLANS STA 9+39.84
   PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM

NC    0.015      0.015      0.015        0.1        0.3
X1    14700          5       1000       1060     111.98     111.98     111.98
GR   2027.9       1000    2019.47       1000     2018.87       1030    2019.47       1060     2029.88       1060

SB     1.25        1.5          3        103         60       2.13        588          0     2018.87     2018.37
NC    0.015      0.015      0.015        0.1        0.3
   DOWNSTREAM FACE OF WARM SPRINGS ROAD BRIDGE









X1    14600          4    1390.42    1450.42         20         20         20
X2                               1    2038.69    2040.21                               2
GR   2030.2    1390.42    2018.37    1390.42    2018.37    1450.42     2030.2    1450.42

NC    0.015      0.015      0.015        0.1        0.3









X1    14550          4       1000    1060.06         40         40         40
GR   2025.4       1000    2017.93       1000    2017.93       1060     2025.4    1060.06

NC    0.015      0.015      0.015        0.1        0.3


1
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X1    14500          4       1000       1060         50         50         50
GR   2024.6       1000     2017.1       1000     2017.1       1060     2024.6       1060

NC    0.015      0.015      0.015        0.1        0.3









X1    14450          4       1000       1060         20         20         20
GR   2025.1       1000    2016.13       1000    2016.13       1060    2023.63       1060
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NC    0.015      0.015      0.015        0.1         0.3
  UPSTREAM FACE OF UPRR BRIDGE - HENDERSON SPUR
X1    14400          4       1782       1842          20          20          20
GR   2025.1       1782     2015.8       1782     2015.8        1842      2028.8        1842

SB     1.25        1.5          3         17          60           4         452           0     2015.8     2015.3
  DOWNSTREAM FACE OF UPRR BRIDGE - HENDERSON SPUR
NC    0.015      0.015      0.015        0.1         0.3
X1    14300          4     1701.5     1761.5          20          20          20
X2                               1       2030      2031.2                                2
GR   2028.8     1701.5     2015.3     1701.5     2015.3      1761.5      2028.8      1761.5

NC    0.015      0.015      0.015        0.1         0.3
X1    14240          4       1000       1060          20          20          20
GR   2024.5       1000       2015       1000        2015        1060     2022.53        1060

NC    0.015      0.015      0.015        0.1         0.3
X1    14220          4       1000       1060          20          20          20
GR   2024.1       1000    2014.62       1000     2014.62        1060     2022.13        1060

NC    0.015      0.015      0.015        0.1         0.3
  TRANSITION UPSTREAM 60' RECT TO 50' RECT
  PLANS STA 12+67.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    14200          4       1000       1060          75          75          75
GR   2022.7       1000    2014.24       1000     2014.24        1060      2022.7        1060
1
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NC    0.015      0.015      0.015        0.1         0.3
  TRANSITION DOWNSTREAM RECT


  PLANS STA 13+42.00


  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM




X1    14100          8    1545.26    1624.79         101         101         101
GR     2024    1545.26       2020     1556.5     2019.82     1559.32     2012.82     1559.32     2012.82     1609.32
GR   2019.8    1609.32       2020    1612.61        2024     1624.79

NC    0.015      0.015      0.015        0.1         0.3
  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
X1    14000          4       1000       1050          57          57          57
GR   2019.4       1000    2010.89       1000     2010.89        1050      2019.4        1050

NC    0.015      0.015      0.015        0.1         0.3
SB                 1.5          3         50          50                    425           0     2010.89     2010.21
  GRADEBREAK AT DOWNSTREAM FACE OF VISTA DEL SOL AVENUE
  PLANS STA 15+00.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13900          4       1000       1050         300         300         300
X2                               1    2039.39     2021.13
GR   2019.4       1000    2010.21       1000     2010.21        1050      2019.4        1050

NC    0.015      0.015      0.015        0.1         0.3
  PLANS STA 18+00.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13800          4       1000       1050         306         306         306
GR   2015.4       1000     2008.4       1000      2008.4        1050      2015.4        1050

NC    0.015      0.015      0.015        0.1         0.3
  TRANSITION UPSTREAM RECT
  PLANS STA 21+06.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
1
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X1    13700          6       1000       1050          75          75          75
GR     2014       1000     2013.5       1000     2006.56        1000     2006.56        1050      2013.5        1050
GR     2014       1050

NC    0.015      0.015      0.015        0.1         0.3
  TRANSITION DOWNSTREAM TRAP
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  PLANS STA 21+81.14
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13600          4     1395.5     1470.5       151.8       88.79       88.14
GR   2013.1     1395.5    2006.11       1408     2006.11        1458      2013.1      1470.5

NC    0.015       0.015       0.015        0.1         0.3
  UPSTREAM FACE OF PACHUCA STREET BRIDGE
  PLANS STA 22+83.50
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13500          4     1409.5     1484.5       37.16       36.94          36
GR     2010     1409.5    2003.07       1422     2003.07        1472        2010      1484.5

NC    0.015       0.015       0.015        0.1         0.3
SB                  1.5           3         75          50                   438         1.8     2003.07     2002.77
  DOWNSTREAM FACE OF PACHUCA BRIDGE
  PLANS STA 23+16.50
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13400          4     2794.52    2869.52       100.24         100         100
X2                             1     2030.07     2012.33
GR   2009.7     2794.52    2002.77    2807.02     2002.77     2857.02      2009.7     2869.52

NC    0.015       0.015       0.015        0.1         0.3
  TRANSITION - UPSTREAM TRAP
  PLANS STA 24+12.75
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13300          4      997.5     1072.5          80          80          80
GR   2009.3      997.5    2002.29       1010     2002.29        1060      2009.3      1072.5

NC    0.015       0.015       0.015        0.1         0.3
  TRANSITION - DOWNSTREAM RECT
  PLANS STA 24+90.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13200          4       995       1045      209.19       210.5      211.13
GR   2008.5        995     2001.4        995     2001.4        1045      2008.5        1045

NC    0.015       0.015       0.015        0.1         0.3
  PLANS STA 27+00.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    13100          6     994.85    1044.85          98          98          98
GR     2006      994.85       2005     994.85     1998.99      994.85     1998.99     1044.85        2005     1044.85
GR     2006     1044.85

NC    0.015       0.015       0.015        0.1         0.3
  UPSTREAM FACE OF MIRA VISTA STREET BRIDGE
  PLANS STA 28+10.59
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
1
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X1    13000          4    2587.74    2637.74          33          33          33
GR   2004.2     2587.74     1993.9    2587.74      1993.9     2637.74      2004.2     2637.74

NC    0.015       0.015       0.015        0.1         0.3
SB                  1.5           3          50          50                   350           0      1993.9     1993.47
  DOWNSTREAM FACE OF MIRA VISTA BRIDGE
  PLANS STA 28+43.76
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    12900          4    2630.84    2680.84      260.12      257.73      258.77
X2                             1     2020.9      2004.2
GR   2004.2     2630.84    1993.47    2630.84     1993.47     2680.84      2004.2     2680.84

NC    0.015       0.015       0.015        0.1         0.3
  PLANS STA 31+00.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    12800          4    2505.21    2555.21         405         405         405
GR   1998.3     2505.21    1991.35    2505.21     1991.35     2555.21      1998.3     2555.21

NC    0.015       0.015       0.015        0.1         0.3
  PLANS STA 35+00.00
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    12700          4    2430.44    2480.44      317.32      309.52      313.04
GR   1995.1     2430.44    1988.15    2430.44     1988.15     2480.44      1995.1     2480.44

NC    0.015       0.015       0.015        0.1         0.3
  TRANSITION UPSTREAM RECT
  PLANS STA 38+14.44
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    12600          4        1000       1050          75          75          75
GR   1993.6        1000    1985.63       1000     1985.63        1050      1993.6        1050

NC    0.015       0.015       0.015        0.1         0.3
  TRANSITION DOWNSTREAM TRAP
  PLANS STA 38+89.86
  PLANS ELEVATIONS ADJUSTED -2.37 FT TO NGVD 29 DATUM
X1    12500          4    2495.63     2571.5       85.83       90.77        88.6
GR   1991.1     2495.63     1983.7    2508.99      1983.7     2559.02      1991.1      2571.5

NC    0.015       0.015       0.015        0.1         0.3
  UPSTREAM FACE OF TOMIYASU LANE BRIDGE
X1    12400          4    2222.53    2295.25       78.79       77.02       75.37
GR   1989.4     2222.53    1983.11    2233.89     1983.11     2283.89      1989.4     2295.25
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NC    0.015      0.015      0.015        0.1        0.3
SB     1.25        1.5          3         73         50          1        351        1.8     1983.11     1982.84
  DOWNSTREAM FACE OF TOMIYASU BRIDGE
X1    12300          4    1394.43    1468.12      277.2     272.41     277.73
X2                              1    2009.42       2012                     2
GR   1989.4    1394.43    1982.84    1406.28    1982.84    1456.28     1989.4    1468.12
1
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NC    0.015      0.015      0.015        0.1        0.3
X1    12200          4    1207.74    1252.82     289.39     297.62     287.98
GR   1988.8    1207.74    1978.83    1207.74    1978.83    1252.82     1988.8    1252.82

NC    0.015      0.015      0.015        0.1        0.3
X1    12100          4    1205.25    1246.05        252        252        252
GR   1984.6    1205.25     1974.6    1205.25     1974.6    1246.05     1984.6    1246.05

NC    0.015      0.015      0.015        0.1        0.3
  UPSTREAM FACE OF CROSSING
X1    12000          4     970.15    1004.49          5          5          5
GR     1990     970.15    1970.97     970.15    1970.97    1004.49       1990    1004.49

NC    0.015      0.015      0.015        0.1        0.3
SB                 1.5          3        34.3       34.3                  260          0     1970.97     1970.88
  DOWNSTREAM FACE OF CROSSING
X1    11900          4     996.53    1030.83         92         92         92
X2                              1    1998.54    1990.99
GR     1990     996.53    1970.88     996.53    1970.88    1030.83    1990.99    1030.83

NC    0.015      0.015      0.015        0.1        0.3
X1    11800          4       1000    1034.4         86         86         86
GR   1981.1       1000    1969.57       1000    1969.57    1034.4     1981.1     1034.4

NC    0.015      0.015      0.015        0.1        0.3
  UPSTREAM FACE OF CROSSING
X1    11700          4     966.89    1001.29         16         16         16
GR   1979.8     966.89    1968.25     966.89    1968.25    1001.29     1979.8    1001.29

NC    0.015      0.015      0.015        0.1        0.3
SB      0.9        1.5          3        34.4       34.4        1.5        297          0     1968.25     1967.32
  DOWNSTREAM FACE OF CROSSING
X1    11600          4       1000    1034.4     215.89      214.6        215
X2                              1    1996.89    1999.84                    1.33
GR   1979.8       1000    1967.32       1000    1967.32    1034.4     1979.8    1034.4

NC    0.015      0.015      0.015        0.1        0.3
  UPSTREAM FACE OF PECOS ROAD BRIDGE
X1    11500          4    2258.08    2300.08        100        100        100
GR   1975.3    2258.08    1964.52    2258.08    1964.52    2300.08     1975.3    2300.08

NC    0.015      0.015      0.015        0.1        0.3
SB                 1.5          3          42         42                  252          0     1964.52     1964.02
  DOWNSTREAM FACE OF PECOS ROAD BRIDGE
X1    11400          4       1000       1042     243.24     244.99     243.55
X2                              1    1990.52    1972.82
GR   1975.5       1000    1964.02       1000    1964.02       1042     1975.5       1042
1
   16JUN04      14:15:51                                                                PAGE   10


NC    0.015      0.015      0.015        0.1        0.3
X1    11300          6    1846.27     1907.7     469.26     455.15        474
GR     1972    1846.27       1968    1854.64       1964    1863.11       1964    1892.84       1968    1900.18
GR     1972     1907.7

NC    0.015      0.015      0.015        0.1        0.3
X1    11200          6    1924.66     1989.1     319.86     510.47     430.53
GR     1972    1924.66       1968    1933.3        1962     1940.2       1962    1974.26       1968    1981.39
GR     1972     1989.1

NC    0.015      0.015      0.015        0.1        0.3
X1    11100          8    1886.46    1971.49     325.47      495.3      411.3
GR     1972    1886.46       1968     1899.6       1964     1906.8       1960    1912.18       1960    1941.39
GR     1964    1946.06       1968    1955.18       1972    1971.49

NC     0.08       0.11      0.015        0.1        0.3
X1    11000          8    1814.89    1912.16     347.02     400.02      392.7
GR     1972    1799.08       1968    1814.89       1964    1845.64       1960     1853.3       1960    1887.79
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 GR     1964     1894.39       1968     1900.91       1972     1912.16

 NC     0.08        0.11      0.015         0.1        0.3
 X1    10900           7    1859.99     1943.58     386.71     376.94      388.5
 GR     1964     1859.99       1960     1889.41       1956     1897.52       1956     1933.17       1960     1938.52
 GR     1964     1943.58       1968     1950.63

 NC    0.015       0.015      0.015         0.1        0.3
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 X1    10800           6    2155.44     2258.77     410.33     392.26      386.03
 GR     1960     2155.44       1956     2186.29       1952     2195.29       1952     2229.27       1956     2236.88
 GR     1960     2258.77
1
    16JUN04       14:15:51                                                                                    PAGE   11


 NC    0.015       0.015      0.015         0.1        0.3
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 X1    10700           7    1984.66      2093.9     430.71     421.11      418.08
 GR     1956     1984.66       1952     2025.37       1948     2033.98       1948     2067.44       1952     2074.65
 GR     1956     2083.13       1960      2093.9

 NC    0.015       0.015      0.015         0.1        0.3
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1
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          DOWNSTREAM LIMIT OF MODEL
          ORIGINAL MODEL:  DCL1SUBC.DAT
          ESTABLISHED WATER SURFACE ELEVATION = 1949.3 FT (SUPERCRITICAL CONDITI
 X1    10600           8    2209.95     2299.38     356.88     402.83      378.87
 GR     1950     2209.95       1948     2229.01       1944     2237.56       1942     2242.81       1942     2270.77
 GR     1944     2274.76       1948     2281.52       1952     2299.38
```

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

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV= .100 CEHV= .300
*SECNO 15500.000
3720 CRITICAL DEPTH ASSUMED

15500.000	8.85	2037.10	2037.10	2037.80	2041.57	4.47	.00	.00	2039.50
8562.0	.0	8562.0	.0	.0	504.5	.0	.0	.0	2039.50
.00	.00	16.97	.00	.000	.015	.000	.000	2028.25	1642.82
.002299	0.	0.	0.	0	10	0	.00	57.00	1699.82

CCHV= .100 CEHV= .300
*SECNO 15400.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.71

15400.000	5.23	2032.73	2035.12	.00	2040.62	7.89	.61	.34	2040.00
8562.0	.0	8562.0	.0	.0	379.8	.0	1.7	.3	2040.00
.00	.00	22.54	.00	.000	.015	.000	.000	2027.50	1215.88
.006710	214.	166.	136.	12	11	0	.00	77.42	1293.30

CCHV= .100 CEHV= .300
*SECNO 15300.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

15300.000	8.16	2034.80	2034.80	.00	2038.11	3.31	1.52	1.58	2037.00
8562.0	.0	8562.0	.0	.0	586.2	.0	6.9	1.2	2037.00
.01	.00	14.61	.00	.000	.015	.000	.000	2026.64	1000.00
.001885	440.	471.	434.	20	14	0	.00	90.00	1090.00

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

CCHV= .100 CEHV= .300
*SECNO 15250.000

3301 HV CHANGED MORE THAN HVINS

15250.000	7.05	2033.38	2034.32	.00	2037.87	4.50	.12	.12	2037.00
8562.0	.0	8562.0	.0	.0	503.1	.0	7.5	1.3	2037.00
.01	.00	17.02	.00	.000	.015	.000	.000	2026.33	1002.11
.003025	51.	51.	51.	6	5	0	.00	88.09	1090.20

CCHV= .100 CEHV= .300
*SECNO 15200.000

3301 HV CHANGED MORE THAN HVINS

15200.000	6.43	2032.37	2033.81	.00	2037.59	5.22	.21	.07	2037.00
8562.0	.0	8562.0	.0	.0	467.1	.0	8.2	1.4	2037.00
.01	.00	18.33	.00	.000	.015	.000	.000	2025.94	1003.33
.003876	62.	62.	62.	18	8	0	.00	88.40	1091.73

CCHV= .100 CEHV= .300
*SECNO 15150.000

15150.000	6.24	2031.48	2033.09	.00	2037.09	5.61	.46	.04	2036.00
8562.0	.0	8562.0	.0	.0	450.6	.0	9.4	1.6	2036.00
.01	.00	19.00	.00	.000	.015	.000	.000	2025.24	1003.70
.004316	113.	113.	113.	15	11	0	.00	87.65	1091.36

CCHV= .100 CEHV= .300
*SECNO 15110.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

15110.000	8.41	2032.43	2032.43	.00	2036.53	4.09	.60	2.43	2033.02
8562.0	.0	8562.0	.0	.0	527.3	.0	11.7	2.0	2033.02
.02	.00	16.24	.00	.000	.015	.000	.000	2024.02	1000.00
.002197	200.	200.	200.	20	11	0	.00	65.00	1065.00

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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

CCHV= .100 CEHV= .300
*SECNO 15100.000

15100.000	8.33	2032.33	2032.41	.00	2036.51	4.18	.01	.01	2033.00
8562.0	.0	8562.0	.0	.0	521.9	.0	11.7	2.0	2033.00
.02	.00	16.41	.00	.000	.015	.000	.000	2024.00	1000.00
.002267	3.	3.	3.	0	5	0	.00	65.00	1065.00

CCHV= .100 CEHV= .300
*SECNO 15050.000

3301 HV CHANGED MORE THAN HVINS

15050.000	7.39	2030.70	2031.74	.00	2036.08	5.38	.31	.12	2032.31
8562.0	.0	8562.0	.0	.0	460.0	.0	13.0	2.1	2032.31
.02	.00	18.61	.00	.000	.015	.000	.000	2023.31	1000.00
.003344	115.	115.	115.	6	5	0	.00	65.00	1065.00

CCHV= .100 CEHV= .300
*SECNO 15000.000

3301 HV CHANGED MORE THAN HVINS

15000.000	7.01	2029.81	2031.23	.00	2035.79	5.98	.23	.06	2031.80
8562.0	.0	8562.0	.0	.0	436.4	.0	13.7	2.2	2031.80
.02	.00	19.62	.00	.000	.015	.000	.000	2022.80	1000.00
.003937	62.	62.	62.	18	8	0	.00	65.00	1065.00

CCHV= .100 CEHV= .300
*SECNO 14950.000

14950.000	6.95	2029.35	2030.81	.00	2035.44	6.09	.34	.01	2031.00
8562.0	.0	8562.0	.0	.0	432.4	.0	14.5	2.4	2031.00
.02	.00	19.80	.00	.000	.015	.000	.000	2022.40	1000.00
.004053	85.	85.	85.	18	11	0	.00	65.00	1065.00

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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

SPECIAL BRIDGE

5290 UPSTREAM ELEV IS 2032.06 ,NOT 2029.35 NEW BACKWATER REQUIRED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.50	3.00	90.00	65.00	1.50	455.00	.00	2022.40	2022.01

CCHV= .100 CEHV= .300
*SECNO 14900.000
CLASS B LOW FLOW

3420 BRIDGE W.S.= 2030.47 BRIDGE VELOCITY= 16.32 CALCULATED CHANNEL AREA= 512.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2034.87	.00	0.	8562.	455.	1118.	2040.00	2042.00	0.

14900.000	7.20	2029.21	.00	.00	2034.87	5.66	.57	.00	2031.00
8562.0	.0	8562.0	.0	.0	448.6	.0	15.0	2.4	2033.02
.02	.00	19.09	.00	.000	.015	.000	.000	2022.01	1000.00
.003616	53.	53.	53.	0	0	0	.00	65.00	1065.00

CCHV= .100 CEHV= .300
*SECNO 14850.000

14850.000	7.05	2028.79	2030.18	.00	2034.70	5.92	.14	.03	2030.80
8562.0	.0	8562.0	.0	.0	438.7	.0	15.4	2.5	2032.75
.02	.00	19.52	.00	.000	.015	.000	.000	2021.74	1000.00
.003875	37.	37.	37.	19	8	0	.00	65.00	1065.00

CCHV= .100 CEHV= .300
*SECNO 14800.000

3301 HV CHANGED MORE THAN HVINS

14800.000	6.48	2027.08	2029.01	.00	2034.13	7.06	.45	.11	2029.60
8562.0	.0	8562.0	.0	.0	401.6	.0	16.4	2.7	2031.61
.02	.00	21.32	.00	.000	.015	.000	.000	2020.60	1000.00
.005099	103.	103.	103.	14	11	0	.00	65.00	1065.00

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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

CCHV= .100 CEHV= .300
*SECNO 14750.000

14750.000	6.93	2026.43	2028.36	.00	2033.62	7.20	.50	.01	2028.50
8562.0	.0	8562.0	.0	.0	397.7	.0	17.3	2.8	2030.51
.03	.00	21.53	.00	.000	.015	.000	.000	2019.50	1000.00
.004896	100.	100.	100.	7	11	0	.00	60.00	1060.00

CCHV= .100 CEHV= .300
*SECNO 14700.000

3301 HV CHANGED MORE THAN HVINS

14700.000	6.70	2025.57	2027.72	.00	2033.28	7.71	.29	.05	2027.90
8562.0	.0	8562.0	.0	.0	384.3	.0	17.8	2.9	2029.88
.03	.00	22.28	.00	.000	.015	.000	.000	2018.87	1000.00
.005443	56.	56.	56.	7	11	0	.00	60.00	1060.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	3.00	103.00	60.00	2.13	588.00	.00	2018.87	2018.37

CCHV= .100 CEHV= .300
*SECNO 14600.000

3301 HV CHANGED MORE THAN HVINS

CLASS C LOW FLOW

3420 BRIDGE W.S.= 2026.70 BRIDGE VELOCITY= 18.32 CALCULATED CHANNEL AREA= 453.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2031.65	.00	0.	8562.	588.	1147.	2038.69	2040.21	0.

14600.000	7.23	2025.60	.00	.00	2031.65	6.04	1.64	.00	2030.20
8562.0	.0	8562.0	.0	.0	434.0	.0	18.9	3.0	2030.20
.03	.00	19.73	.00	.000	.015	.000	.000	2018.37	1390.42
.003780	112.	112.	112.	0	0	0	.00	60.00	1450.42

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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

CCHV= .100 CEHV= .300

*SECNO 14550.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

14550.000	6.86	2024.79	2026.51	.00	2031.50	6.70	.08	.07	2025.40
8562.0	.0	8562.0	.0	.0	412.0	.0	19.1	3.1	2025.40
.03	.00	20.78	.00	.000	.015	.000	.000	2017.93	1000.00
.004436	20.	20.	20.	20	8	0	.00	60.06	1060.06

CCHV= .100 CEHV= .300
*SECNO 14500.000

3301 HV CHANGED MORE THAN HVINS

14500.000	6.41	2023.51	2025.65	.00	2031.20	7.69	.20	.10	2024.60
8562.0	.0	8562.0	.0	.0	384.7	.0	19.4	3.1	2024.60
.03	.00	22.26	.00	.000	.015	.000	.000	2017.10	1000.00
.005486	40.	40.	40.	18	11	0	.00	60.00	1060.00

CCHV= .100 CEHV= .300
*SECNO 14450.000

3301 HV CHANGED MORE THAN HVINS

14450.000	6.05	2022.18	2024.69	.00	2030.81	8.63	.30	.09	2025.10
8562.0	.0	8562.0	.0	.0	363.2	.0	19.9	3.2	2023.63
.03	.00	23.58	.00	.000	.015	.000	.000	2016.13	1000.00
.006559	50.	50.	50.	17	11	0	.00	60.00	1060.00

CCHV= .100 CEHV= .300
*SECNO 14400.000

14400.000	5.97	2021.77	2024.37	.00	2030.65	8.88	.13	.02	2025.10
8562.0	.0	8562.0	.0	.0	358.0	.0	20.0	3.2	2028.80
.03	.00	23.91	.00	.000	.015	.000	.000	2015.80	1782.00
.006856	20.	20.	20.	7	11	0	.00	60.00	1842.00

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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

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	3.00	17.00	60.00	4.00	452.00	.00	2015.80	2015.30

CCHV= .100 CEHV= .300
*SECNO 14300.000

3301 HV CHANGED MORE THAN HVINS

CLASS C LOW FLOW

3420 BRIDGE W.S.= 2023.27 BRIDGE VELOCITY= 19.80 CALCULATED CHANNEL AREA= 418.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2029.07	.00	0.	8562.	452.	795.	2030.00	2031.20	0.

14300.000	6.68	2021.98	.00	.00	2029.07	7.09	1.58	.00	2028.80
8562.0	.0	8562.0	.0	.0	400.8	.0	20.2	3.2	2028.80
.03	.00	21.36	.00	.000	.015	.000	.000	2015.30	1701.50
.004832	20.	20.	20.	0	0	0	.00	60.00	1761.50

CCHV= .100 CEHV= .300
*SECNO 14240.000

14240.000	6.54	2021.54	2023.55	.00	2028.94	7.40	.10	.03	2024.50
8562.0	.0	8562.0	.0	.0	392.2	.0	20.4	3.3	2022.53
.03	.00	21.83	.00	.000	.015	.000	.000	2015.00	1000.00
.005167	20.	20.	20.	8	11	0	.00	60.00	1060.00

CCHV= .100 CEHV= .300
*SECNO 14220.000

14220.000	6.35	2020.97	2023.17	.00	2028.79	7.82	.11	.04	2024.10
8562.0	.0	8562.0	.0	.0	381.7	.0	20.6	3.3	2022.13
.03	.00	22.43	.00	.000	.015	.000	.000	2014.62	1000.00
.005602	20.	20.	20.	8	11	0	.00	60.00	1060.00

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CCHV=     .100 CEHV=     .300
*SECNO 14200.000
 14200.000      6.22   2020.46   2022.80       .00   2028.63      8.18       .12       .04   2022.70
    8562.0        .0    8562.0        .0        .0     373.1        .0      20.7       3.3   2022.70
       .03       .00     22.95       .00      .000      .015      .000      .000   2014.24   1000.00
   .006030       20.       20.       20.         8        11         0       .00     60.00   1060.00


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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


CCHV=     .100 CEHV=     .300
*SECNO 14100.000

3301 HV CHANGED MORE THAN HVINS

 14100.000      7.72   2020.54   2022.92       .00   2027.99      7.45       .42       .22   2024.00
    8562.0        .0    8562.0        .0        .0     390.8        .0      21.4       3.4   2024.00
       .03       .00     21.91       .00      .000      .015      .000      .000   2012.82   1554.98
   .005264       75.       75.       75.         4        14         0       .00     59.28   1614.26


CCHV=     .100 CEHV=     .300
*SECNO 14000.000

3301 HV CHANGED MORE THAN HVINS

 14000.000      6.97   2017.86   2020.55       .00   2027.22      9.36       .58       .19   2019.40
    8562.0        .0    8562.0        .0        .0     348.8        .0      22.2       3.5   2019.40
       .03       .00     24.55       .00      .000      .015      .000      .000   2010.89   1000.00
   .006396      101.      101.      101.        13        11         0       .00     50.00   1050.00


CCHV=     .100 CEHV=     .300

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      1.50      3.00     50.00     50.00       .00    425.00       .00   2010.89   2010.21

*SECNO 13900.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=       .000  EGLWC=   2025.638  ELLC=   2039.390  PCWSE=   2017.862  ELTRD=   2021.130

3370 NORMAL BRIDGE, NRD=   0 MIN ELTRD=  2021.13 MAX ELLC=  2039.39

 13900.000      6.82   2017.03   2019.88       .00   2026.80      9.77       .38       .04   2019.40
    8562.0        .0    8562.0        .0        .0     341.3        .0      22.7       3.6   2019.40
       .03       .00     25.09       .00      .000      .015      .000      .000   2010.21   1000.00
   .006832       57.       57.       57.         8        19         0       .00     50.00   1050.00


CCHV=     .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 13800.000
3280 CROSS SECTION  13800.00 EXTENDED       .00 FEET

 13800.000      7.00   2015.40   2018.08       .00   2024.68      9.28      1.97       .15   2015.40
    8562.0        .0    8562.0        .0        .0     350.2        .0      25.1       4.0   2015.40
       .04       .00     24.45       .00      .000      .015      .000      .000   2008.40   1000.00
   .006314      300.      300.      300.         7        11         0       .00     50.00   1050.00


CCHV=     .100 CEHV=     .300
*SECNO 13700.000
 13700.000      7.07   2013.63   2016.23       .00   2022.73      9.10      1.90       .06   2014.00
    8562.0        .0    8562.0        .0        .0     353.8        .0      27.6       4.3   2014.00
       .04       .00     24.20       .00      .000      .015      .000      .000   2006.56   1000.00
   .006125      306.      306.      306.         8        11         0       .00     50.00   1050.00


CCHV=     .100 CEHV=     .300
*SECNO 13600.000
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3301 HV CHANGED MORE THAN HVINS

13600.000	5.52	2011.63	2014.64	.00	2022.04	10.41	.55	.13	2013.10
8562.0	.0	8562.0	.0	.0	330.7	.0	28.1	4.4	2013.10
.04	.00	25.89	.00	.000	.015	.000	.000	2006.11	1398.12
.009049	75.	75.	75.	14	11	0	.00	69.75	1467.88

CCHV= .100 CEHV= .300
*SECNO 13500.000

3301 HV CHANGED MORE THAN HVINS

13500.000	5.05	2008.12	2011.59	.00	2020.88	12.76	.92	.24	2010.00
8562.0	.0	8562.0	.0	.0	298.7	.0	28.8	4.6	2010.00
.04	.00	28.67	.00	.000	.015	.000	.000	2003.07	1412.89
.012294	152.	88.	89.	13	14	0	.00	68.23	1481.11

CCHV= .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

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	3.00	75.00	50.00	.00	438.00	1.80	2003.07	2002.77

*SECNO 13400.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 2019.296 ELLC= 2030.070 PCWSE= 2008.120 ELTRD= 2012.330

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 2012.33 MAX ELLC= 2030.07

13400.000	5.10	2007.87	2011.28	.00	2020.37	12.50	.44	.08	2009.70
8562.0	.0	8562.0	.0	.0	301.8	.0	29.0	4.6	2009.70
.04	.00	28.37	.00	.000	.015	.000	.000	2002.77	2797.82
.011920	37.	36.	37.	5	23	0	.00	68.39	2866.22

CCHV= .100 CEHV= .300
*SECNO 13300.000

3301 HV CHANGED MORE THAN HVINS

13300.000	5.34	2007.63	2010.82	.00	2018.90	11.26	1.10	.37	2009.30
8562.0	.0	8562.0	.0	.0	317.9	.0	29.7	4.8	2009.30
.04	.00	26.93	.00	.000	.015	.000	.000	2002.29	1000.48
.010173	100.	100.	100.	7	14	0	.00	69.05	1069.52

CCHV= .100 CEHV= .300
*SECNO 13200.000

3301 HV CHANGED MORE THAN HVINS

13200.000	7.01	2008.41	2011.07	.00	2017.66	9.26	.63	.60	2008.50
8562.0	.0	8562.0	.0	.0	350.6	.0	30.4	4.9	2008.50
.04	.00	24.42	.00	.000	.015	.000	.000	2001.40	995.00
.006292	80.	80.	80.	2	14	0	.00	50.00	1045.00

CCHV= .100 CEHV= .300
*SECNO 13100.000
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

3301 HV CHANGED MORE THAN HVINS

13100.000	6.58	2005.57	2008.66	.00	2016.08	10.51	1.46	.12	2006.00
8562.0	.0	8562.0	.0	.0	329.2	.0	30.0	5.1	2006.00
.05	.00	26.01	.00	.000	.015	.000	.000	1998.99	994.85
.007630	209.	211.	211.	10	11	0	.00	50.00	1044.85

CCHV= .100 CEHV= .300
*SECNO 13000.000

3301 HV CHANGED MORE THAN HVINS

13000.000	5.47	1999.37	2003.59	.00	2014.63	15.26	.98	.48	2004.20
8562.0	.0	8562.0	.0	.0	273.1	.0	32.7	5.2	2004.20
.05	.00	31.35	.00	.000	.015	.000	.000	1993.90	2587.74
.013547	98.	98.	98.	14	11	0	.00	50.00	2637.74

CCHV= .100 CEHV= .300

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	3.00	50.00	50.00	.00	350.00	.00	1993.90	1993.47

*SECNO 12900.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 2012.457 ELLC= 2020.900 PCWSE= 1999.368 ELTRD= 2004.200

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 2004.20 MAX ELLC= 2020.90

12900.000	5.47	1998.94	2003.13	.00	2014.17	15.24	.45	.01	2004.20
8562.0	.0	8562.0	.0	.0	273.3	.0	32.9	5.3	2004.20
.05	.00	31.32	.00	.000	.015	.000	.000	1993.47	2630.84
.013512	33.	33.	33.	6	19	0	.00	50.00	2680.84

CCHV= .100 CEHV= .300
*SECNO 12800.000
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

12800.000	5.87	1997.22	2001.01	.00	2010.45	13.23	3.13	.60	1998.30
8562.0	.0	8562.0	.0	.0	293.3	.0	34.6	5.6	1998.30
.05	.00	29.19	.00	.000	.015	.000	.000	1991.35	2505.21
.010868	260.	259.	258.	8	14	0	.00	50.00	2555.21

CCHV= .100 CEHV= .300
*SECNO 12700.000

3301 HV CHANGED MORE THAN HVINS

12700.000	6.28	1994.43	1997.81	.00	2005.99	11.56	3.96	.50	1995.10
8562.0	.0	8562.0	.0	.0	313.8	.0	37.4	6.0	1995.10
.05	.00	27.29	.00	.000	.015	.000	.000	1988.15	2430.44
.008833	405.	405.	405.	7	14	0	.00	50.00	2480.44

CCHV= .100 CEHV= .300
*SECNO 12600.000

12600.000	6.39	1992.02	1995.29	.00	2003.18	11.15	2.69	.12	1993.60
8562.0	.0	8562.0	.0	.0	319.5	.0	39.7	6.4	1993.60
.06	.00	26.80	.00	.000	.015	.000	.000	1985.63	1000.00
.008360	317.	313.	310.	7	14	0	.00	50.00	1050.00

CCHV= .100 CEHV= .300
*SECNO 12500.000

3301 HV CHANGED MORE THAN HVINS

12500.000	4.94	1988.64	1992.27	.00	2002.16	13.52	.78	.24	1991.10
8562.0	.0	8562.0	.0	.0	290.2	.0	40.2	6.5	1991.10
.06	.00	29.51	.00	.000	.015	.000	.000	1983.70	2500.06
.013305	75.	75.	75.	14	11	0	.00	67.30	2567.36

CCHV= .100 CEHV= .300
*SECNO 12400.000
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

  12400.000       5.09    1988.20    1991.61        .00    2000.75      12.56       1.12        .29    1989.40
     8562.0         .0     8562.0         .0         .0      301.1         .0       40.8        6.6    1989.40
        .06         .00      28.44        .00       .000       .015       .000       .000    1983.11    2224.70
    .012002        86.        89.        91.          8         14          0        .00      68.38    2293.08


 CCHV=      .100 CEHV=      .300

 SPECIAL BRIDGE

 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      1.25       1.50       3.00      73.00      50.00       1.00     351.00       1.80    1983.11    1982.84

 *SECNO 12300.000
 CLASS C LOW FLOW

 3420 BRIDGE W.S.=     1988.25 BRIDGE VELOCITY=       27.76     CALCULATED CHANNEL AREA=        299.

  EGPRS       EGLWC        H3         QWEIR      QLOW       BAREA     TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                        AREA
        .00    2000.07        .00          0.      8562.       351.      2535.      2009.42    2012.00          0.


  12300.000       5.18    1988.02        .00        .00    2000.07      12.06        .68        .00    1989.40
     8562.0         .0     8562.0         .0         .0      307.3         .0       41.3        6.7    1989.40
        .06         .00      27.87        .00       .000       .015       .000       .000    1982.84    1396.93
    .011296        79.        75.        77.          0          0          0        .00      68.70    1465.62


 CCHV=      .100 CEHV=      .300
 *SECNO 12200.000

 3301 HV CHANGED MORE THAN HVINS

  12200.000       7.00    1985.83    1989.21        .00    1997.26      11.43       2.63        .19    1988.80
     8562.0         .0     8562.0         .0         .0      315.6         .0       43.3        7.1    1988.80
        .06         .00      27.13        .00       .000       .015       .000       .000    1978.83    1207.74
    .008031       277.       278.       272.          8         14          0        .00      45.08    1252.82


 CCHV=      .100 CEHV=      .300
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


 *SECNO 12100.000

 3301 HV CHANGED MORE THAN HVINS

  12100.000       7.32    1981.92    1985.66        .00    1994.70      12.77       2.43        .13    1984.60
     8562.0         .0     8562.0         .0         .0      298.5         .0       45.3        7.4    1984.60
        .07         .00      28.68        .00       .000       .015       .000       .000    1974.60    1205.25
    .008879       289.       288.       298.          9         14          0        .00      40.80    1246.05


 CCHV=      .100 CEHV=      .300
 *SECNO 12000.000
  12000.000       8.65    1979.62    1983.38        .00    1992.53      12.91       2.15        .01    1990.00
     8562.0         .0     8562.0         .0         .0      296.9         .0       47.1        7.6    1990.00
        .07         .00      28.84        .00       .000       .015       .000       .000    1970.97     970.15
    .008223       252.       252.       252.         10         14          0        .00      34.34    1004.49


 CCHV=      .100 CEHV=      .300

 SPECIAL BRIDGE

 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.50       3.00      34.30      34.30        .00     260.00        .00    1970.97    1970.88

 *SECNO 11900.000

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=        .000  EGLWC=   1992.293  ELLC=   1998.540  PCWSE=   1979.617  ELTRD=   1990.990

 3370 NORMAL BRIDGE, NRD=    0 MIN ELTRD=  1990.99 MAX ELLC=  1998.54
```

11900.000	8.64	1979.52	1983.30	.00	1992.48	12.96	.04	.00	1990.00
8562.0	.0	8562.0	.0	.0	296.4	.0	47.1	7.6	1990.99
.07	.00	28.89	.00	.000	.015	.000	.000	1970.88	996.53
.008264	5.	5.	5.	4	9	0	.00	34.30	1030.83

CCHV= .100 CEHV= .300
*SECNO 11800.000

3301 HV CHANGED MORE THAN HVINS

11800.000	8.39	1977.96	1981.99	.00	1991.62	13.66	.79	.07	1981.10
8562.0	.0	8562.0	.0	.0	288.7	.0	47.7	7.7	1981.10
.07	.00	29.66	.00	.000	.015	.000	.000	1969.57	1000.00
.008927	92.	92.	92.	7	11	0	.00	34.40	1034.40

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

CCHV= .100 CEHV= .300
*SECNO 11700.000

3301 HV CHANGED MORE THAN HVINS

11709.000	8.20	1976.45	1980.68	.00	1990.76	14.31	.79	.06	1979.80
8562.0	.0	8562.0	.0	.0	282.0	.0	48.3	7.8	1979.80
.07	.00	30.36	.00	.000	.015	.000	.000	1968.25	966.89
.009550	86.	86.	86.	7	11	0	.00	34.40	1001.29

CCHV= .100 CEHV= .300

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.50	3.00	34.40	34.40	1.50	297.00	.00	1968.25	1967.32

*SECNO 11600.000

3301 HV CHANGED MORE THAN HVINS

CLASS C LOW FLOW

3420 BRIDGE W.S.= 1977.17 BRIDGE VELOCITY= 27.74 CALCULATED CHANNEL AREA= 293.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1988.63	.00	0.	8562.	297.	942.	1996.89	1999.84	0.

11600.000	8.75	1976.07	.00	.00	1988.63	12.56	2.13	.00	1979.80
8562.0	.0	8562.0	.0	.0	301.0	.0	48.4	7.8	1979.80
.07	.00	28.45	.00	.000	.015	.000	.000	1967.32	1000.00
.007911	16.	16.	16.	0	0	0	.00	34.40	1034.40

CCHV= .100 CEHV= .300
*SECNO 11500.000

3301 HV CHANGED MORE THAN HVINS

11500.000	6.50	1971.02	1975.37	.00	1986.30	15.28	2.06	.27	1975.30
8562.0	.0	8562.0	.0	.0	272.9	.0	49.8	8.0	1975.30
.07	.00	31.37	.00	.000	.015	.000	.000	1964.52	2258.08
.011848	216.	215.	215.	12	11	0	.00	42.00	2300.08

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

CCHV= .100 CEHV= .300

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	3.00	42.00	42.00	.00	252.00	.00	1964.52	1964.02

*SECNO 11400.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 1984.198 ELLC= 1990.520 PCWSE= 1971.017 ELTRD= 1972.820

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 1972.82 MAX ELLC= 1990.52

11400.000	6.80	1970.82	1974.87	.00	1984.80	13.98	1.11	.39	1975.50
8562.0	.0	8562.0	.0	.0	285.3	.0	50.4	8.1	1975.50
.07	.00	30.01	.00	.000	.015	.000	.000	1964.02	1000.00
.010360	100.	100.	100.	3	15	0	.00	42.00	1042.00

CCHV= .100 CEHV= .300
*SECNO 11300.000

3301 HV CHANGED MORE THAN HVINS

11300.000	7.56	1971.56	1974.47	.00	1981.55	9.99	2.06	1.20	1972.00
8562.0	.0	8562.0	.0	.0	337.5	.0	52.2	8.3	1972.00
.08	.00	25.37	.00	.000	.015	.000	.000	1964.00	1847.20
.007032	243.	244.	245.	6	14	0	.00	59.66	1906.86

CCHV= .100 CEHV= .300
*SECNO 11200.000

3301 HV CHANGED MORE THAN HVINS

11200.000	8.67	1970.67	1972.84	.00	1978.17	7.49	2.63	.75	1972.00
8562.0	.0	8562.0	.0	.0	389.7	.0	56.1	9.0	1972.00
.08	.00	21.97	.00	.000	.015	.000	.000	1962.00	1927.52
.004487	469.	474.	455.	7	11	0	.00	59.02	1986.55

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

CCHV= .100 CEHV= .300
*SECNO 11100.000

3301 HV CHANGED MORE THAN HVINS

11100.000	9.46	1969.46	1971.55	.00	1976.04	6.58	1.85	.27	1972.00
8562.0	.0	8562.0	.0	.0	415.9	.0	60.1	9.6	1972.00
.09	.00	20.59	.00	.000	.015	.000	.000	1960.00	1894.79
.004122	320.	431.	510.	8	11	0	.00	66.36	1961.15

CCHV= .100 CEHV= .300
*SECNO 11000.000

11000.000	7.93	1967.93	1969.72	.00	1974.06	6.13	1.85	.14	1968.00
8562.0	.0	8562.0	.0	.0	430.9	.0	64.1	10.3	1972.00
.09	.00	19.87	.00	.000	.015	.000	.000	1960.00	1815.35
.004905	325.	411.	495.	7	8	0	.00	85.47	1900.81

CCHV= .100 CEHV= .300
*SECNO 10900.000

3301 HV CHANGED MORE THAN HVINS

10900.000	7.17	1963.17	1965.63	.00	1971.53	8.36	2.31	.22	1964.00
8562.0	.0	8562.0	.0	.0	368.9	.0	67.7	11.0	1964.00
.10	.00	23.21	.00	.000	.015	.000	.000	1956.00	1866.06
.007158	347.	393.	420.	5	11	0	.00	76.48	1942.54

CCHV= .100 CEHV= .300
*SECNO 10800.000

3301 HV CHANGED MORE THAN HVINS

10800.000	6.60	1958.60	1961.31	.00	1968.15	9.55	3.26	.12	1960.00
8562.0	.0	8562.0	.0	.0	345.2	.0	70.9	11.8	1960.00
.10	.00	24.80	.00	.000	.015	.000	.000	1952.00	2166.24
.009991	387.	389.	377.	6	11	0	.00	84.87	2251.11

CCHV= .100 CEHV= .300
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
*SECNO 10700.000									
10700.000	6.71	1954.71	1957.54	.00	1964.32	9.61	3.82	.01	1956.00
8562.0	.0	8562.0	.0	.0	344.1	.0	74.0	12.5	1960.00
.11	.00	24.88	.00	.000	.015	.000	.000	1948.00	1997.80
.009815	410.	386.	392.	7	11	0	.00	82.60	2080.39

CCHV= .100 CEHV= .300
*SECNO 10600.000

3301 HV CHANGED MORE THAN HVINS

DOWNSTREAM LIMIT OF MODEL
ORIGINAL MODEL: DCL1SUBC.DAT
ESTABLISHED WATER SURFACE ELEVATION = 1949.3 FT (SUPERCRITICAL CONDITI

10600.000	7.31	1949.31	1952.40	.00	1960.10	10.79	4.10	.12	1950.00
8562.0	.0	8562.0	.0	.0	324.8	.0	77.2	13.2	1952.00
.11	.00	26.36	.00	.000	.015	.000	.000	1942.00	2216.61
.009812	431.	418.	421.	6	14	0	.00	70.72	2287.33

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THIS RUN EXECUTED 16JUN04 14:15:51

****
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

DCL1SUPX

SUMMARY PRINTOUT TABLE 100

	SECNO	EGLWC	ELLC	EGPRS	ELTRD	QPR	QWEIR	CLASS	H3	DEPTH	CWSEL	VCH	EG
*	14900.000	2034.87	2040.00	.00	2042.00	8562.00	.00	2.00	.00	7.20	2029.21	19.09	2034.87
	14600.000	2031.65	2038.69	.00	2040.21	8562.00	.00	3.00	.00	7.23	2025.60	19.73	2031.65
	14300.000	2029.07	2030.00	.00	2031.20	8562.00	.00	3.00	.00	6.68	2021.98	21.36	2029.07
	13900.000	2025.64	2039.39	.00	2021.13	8562.00	.00	59.00	.00	6.82	2017.03	25.09	2026.80
	13400.000	2019.30	2030.07	.00	2012.33	8562.00	.00	59.00	.00	5.10	2007.87	28.37	2020.37
	12900.000	2012.46	2020.90	.00	2004.20	8562.00	.00	59.00	.00	5.47	1998.94	31.32	2014.17
	12300.000	2000.07	2009.42	.00	2012.00	8562.00	.00	3.00	.00	5.18	1988.02	27.87	2000.07
	11900.000	1992.29	1998.54	.00	1990.99	8562.00	.00	59.00	.00	8.64	1979.52	28.89	1992.48
	11600.000	1988.63	1996.89	.00	1999.84	8562.00	.00	3.00	.00	8.75	1976.07	28.45	1988.63
	11400.000	1984.20	1990.52	.00	1972.82	8562.00	.00	59.00	.00	6.80	1970.82	30.01	1984.80

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DCL1SUPX

SUMMARY PRINTOUT TABLE 101

SECNO	EGOC	ELLC	EGIC	ELTRD	QCULV	QWEIR	CLASS	H4	DEPTH	CWSEL	VCH	EG

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DCL1SUPX

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	15500.000	.00	.00	.00	2028.25	8562.00	2037.10	2037.10	2041.57	22.99	16.97	504.46	1785.62
•	15400.000	166.19	.00	.00	2027.50	8562.00	2032.73	2035.12	2040.62	67.10	22.54	379.80	1045.20
*	15300.000	471.40	.00	.00	2026.64	8562.00	2034.80	2034.80	2038.11	18.85	14.61	586.18	1971.81
	15250.000	50.75	.00	.00	2026.33	8562.00	2033.38	2034.32	2037.87	30.25	17.02	503.10	1556.85
	15200.000	61.56	.00	.00	2025.94	8562.00	2032.37	2033.81	2037.59	38.76	18.33	467.06	1375.20
	15150.000	113.23	.00	.00	2025.24	8562.00	2031.48	2033.09	2037.09	43.16	19.00	450.59	1303.30
*	15110.000	200.00	.00	.00	2024.02	8562.00	2032.43	2032.43	2036.53	21.97	16.24	527.26	1826.60
	15100.000	3.43	.00	.00	2024.00	8562.00	2032.33	2032.41	2036.51	22.67	16.41	521.88	1798.15
	15050.000	115.37	.00	.00	2023.31	8562.00	2030.70	2031.74	2036.08	33.44	18.61	460.03	1480.63
	15000.000	62.42	.00	.00	2022.80	8562.00	2029.81	2031.23	2035.79	39.37	19.62	436.42	1364.57
	14950.000	84.63	.00	.00	2022.40	8562.00	2029.35	2030.81	2035.44	40.53	19.80	432.36	1344.90
*	14900.000	52.69	2042.00	2040.00	2022.01	8562.00	2029.21	999999.00	2034.87	36.16	19.09	448.56	1423.87
	14850.000	37.36	.00	.00	2021.74	8562.00	2028.79	2030.18	2034.70	38.75	19.52	438.66	1375.44
	14800.000	102.56	.00	.00	2020.60	8562.00	2027.08	2029.01	2034.13	50.99	21.32	401.60	1199.02
	14750.000	99.50	.00	.00	2019.50	8562.00	2026.43	2028.36	2033.62	48.96	21.53	397.72	1223.70
	14700.000	56.34	.00	.00	2018.87	8562.00	2025.57	2027.72	2033.28	54.43	22.28	384.31	1160.50
	14600.000	111.98	2040.21	2038.69	2018.37	8562.00	2025.60	999999.00	2031.65	37.80	19.73	434.01	1392.55
*	14550.000	20.00	.00	.00	2017.93	8562.00	2024.79	2026.51	2031.50	44.36	20.78	412.04	1285.59
	14500.000	40.00	.00	.00	2017.10	8562.00	2023.51	2025.65	2031.20	54.86	22.26	384.68	1155.93
	14450.000	50.00	.00	.00	2016.13	8562.00	2022.18	2024.69	2030.81	65.59	23.58	363.17	1057.20
	14400.000	20.00	.00	.00	2015.80	8562.00	2021.77	2024.37	2030.65	68.56	23.91	358.04	1034.04
	14300.000	20.00	2031.20	2030.00	2015.30	8562.00	2021.98	999999.00	2029.07	48.32	21.36	400.78	1231.67
	14240.000	20.00	.00	.00	2015.00	8562.00	2021.54	2023.55	2028.94	51.67	21.83	392.20	1191.15
	14220.000	20.00	.00	.00	2014.62	8562.00	2020.97	2023.17	2028.79	56.22	22.43	381.65	1141.87

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	14200.000	20.00	.00	.00	2014.24	8562.00	2020.46	2022.80	2028.63	60.30	22.95	373.14	1102.62
	14100.000	75.00	.00	.00	2012.82	8562.00	2020.54	2022.92	2027.99	52.64	21.91	390.81	1180.05
	14000.000	101.00	.00	.00	2010.89	8562.00	2017.86	2020.55	2027.22	63.96	24.55	348.78	1070.63
	13900.000	57.00	2021.13	2039.39	2010.21	8562.00	2017.03	2019.88	2026.80	68.32	25.09	341.30	1035.88
	13800.000	300.00	.00	.00	2008.40	8562.00	2015.40	2018.08	2024.68	63.14	24.45	350.24	1077.47
	13700.000	306.00	.00	.00	2006.56	8562.00	2013.63	2016.23	2022.73	61.25	24.20	353.77	1094.01
	13600.000	75.00	.00	.00	2006.11	8562.00	2011.63	2014.64	2022.04	90.49	25.89	330.71	900.07
	13500.000	88.14	.00	.00	2003.07	8562.00	2008.12	2011.59	2020.88	122.94	28.67	298.66	772.20
	13400.000	36.00	2012.33	2030.07	2002.77	8562.00	2007.87	2011.28	2020.37	119.20	28.37	301.76	784.23
	13300.000	100.00	.00	.00	2002.29	8562.00	2007.63	2010.82	2018.90	101.73	26.93	317.90	848.90
	13200.000	80.00	.00	.00	2001.40	8562.00	2008.41	2011.07	2017.66	62.92	24.42	350.65	1079.36
	13100.000	211.13	.00	.00	1998.99	8562.00	2005.57	2008.66	2016.08	76.30	26.01	329.16	980.16
	13000.000	98.00	.00	.00	1993.90	8562.00	1999.37	2003.59	2014.63	135.47	31.35	273.11	735.63
	12900.000	33.00	2004.20	2020.90	1993.47	8562.00	1998.94	2003.13	2014.17	135.12	31.32	273.34	736.57
	12800.000	258.77	.00	.00	1991.35	8562.00	1997.22	2001.01	2010.45	108.68	29.19	293.32	821.30
	12700.000	405.00	.00	.00	1988.15	8562.00	1994.43	1997.81	2005.99	88.33	27.29	313.79	911.03
	12600.000	313.04	.00	.00	1985.63	8562.00	1992.02	1995.39	2003.18	83.60	26.80	319.47	936.40

12500.000	75.00	.00	.00	1983.70	8562.00	1988.64	1992.27	2002.16	133.05	29.51	290.17	742.28
12400.000	88.60	.00	.00	1983.11	8562.00	1988.20	1991.61	2000.75	120.02	28.44	301.11	781.55
12300.000	75.37	2012.00	2009.42	1982.84	8562.00	1988.02	999999.00	2000.07	112.96	27.87	307.26	805.58
12200.000	277.73	.00	.00	1978.83	8562.00	1985.83	1989.21	1997.26	80.31	27.13	315.59	955.42
12100.000	287.98	.00	.00	1974.60	8562.00	1981.92	1985.66	1994.70	88.79	28.68	298.51	908.62
12000.000	252.00	.00	.00	1970.97	8562.00	1979.62	1983.38	1992.53	82.23	28.84	296.92	944.19
11900.000	5.00	1990.99	1998.54	1970.88	8562.00	1979.52	1983.30	1992.48	82.64	28.89	296.36	941.86
11800.000	92.00	.00	.00	1969.57	8562.00	1977.96	1981.99	1991.62	89.27	29.66	288.68	906.18
11700.000	86.00	.00	.00	1968.25	8562.00	1976.45	1980.68	1990.76	95.50	30.36	282.04	876.16

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
11600.000	16.00	1999.84	1996.89	1967.32	8562.00	1976.07	999999.00	1988.63	79.11	28.45	301.00	962.62
11500.000	215.00	.00	.00	1964.52	8562.00	1971.02	1975.37	1986.30	118.48	31.37	272.90	786.59
11400.000	100.00	1972.82	1990.52	1964.02	8562.00	1970.82	1974.87	1984.80	103.60	30.01	285.34	841.19
11300.000	243.55	.00	.00	1964.00	8562.00	1971.56	1974.47	1981.55	70.32	25.37	337.54	1021.00
11200.000	474.00	.00	.00	1962.00	8562.00	1970.67	1972.84	1978.17	44.87	21.97	389.73	1278.26
11100.000	430.53	.00	.00	1960.00	8562.00	1969.46	1971.55	1976.04	41.22	20.59	415.91	1333.56
11000.000	411.30	.00	.00	1960.00	8562.00	1967.93	1969.72	1974.06	49.05	19.87	430.93	1222.52
10900.000	392.70	.00	.00	1956.00	8562.00	1963.17	1965.63	1971.53	71.58	23.21	368.90	1012.03
10800.000	388.50	.00	.00	1952.00	8562.00	1958.60	1961.31	1968.15	99.91	24.80	345.24	856.57
10700.000	386.03	.00	.00	1948.00	8562.00	1954.71	1957.54	1964.32	98.15	24.88	344.11	864.25
10600.000	418.08	.00	.00	1942.00	8562.00	1949.31	1952.40	1960.10	98.12	26.36	324.77	864.34

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DCL1SUPX

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
•	15500.000	8562.00	2037.10	.00	.00	-.70	57.00	.00
*	15400.000	8562.00	2032.73	.00	-4.37	.00	77.42	166.19
•	15300.000	8562.00	2034.80	.00	2.07	.00	90.00	471.40
	15250.000	8562.00	2033.38	.00	-1.42	.00	88.09	50.75
	15200.000	8562.00	2032.37	.00	-1.00	.00	88.40	61.56
	15150.000	8562.00	2031.48	.00	-.89	.00	87.65	113.23
*	15110.000	8562.00	2032.43	.00	.95	.00	65.00	200.00
	15100.000	8562.00	2032.33	.00	-.10	.00	65.00	3.43
	15050.000	8562.00	2030.70	.00	-1.63	.00	65.00	115.37
	15000.000	8562.00	2029.81	.00	-.88	.00	65.00	62.42
	14950.000	8562.00	2029.35	.00	-.46	.00	65.00	84.63
*	14900.000	8562.00	2029.21	.00	-.14	.00	65.00	52.69
	14850.000	8562.00	2028.79	.00	-.42	.00	65.00	37.36
	14800.000	8562.00	2027.08	.00	-1.71	.00	65.00	102.56
	14750.000	8562.00	2026.43	.00	-.65	.00	60.00	99.50
	14700.000	8562.00	2025.57	.00	-.85	.00	60.00	56.34
	14600.000	8562.00	2025.60	.00	.03	.00	60.00	111.48
*	14550.000	8562.00	2024.79	.00	-.81	.00	60.00	20.00

14500.000	8562.00	2023.51	.00	-1.28	.00	60.00	40.00
14450.000	8562.00	2022.18	.00	-1.33	.00	60.00	50.00
14400.000	8562.00	2021.77	.00	-.41	.00	60.00	20.00
14300.000	8562.00	2021.98	.00	.21	.00	60.00	20.00
14240.000	8562.00	2021.54	.00	-.44	.00	60.00	20.00
14220.000	8562.00	2020.97	.00	-.56	.00	60.00	20.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
14200.000	8562.00	2020.46	.00	-.51	.00	60.00	20.00
14100.000	8562.00	2020.54	.00	.08	.00	59.28	75.00
14000.000	8562.00	2017.86	.00	-2.68	.00	50.00	101.00
13900.000	8562.00	2017.03	.00	-.83	.00	50.00	57.00
13800.000	8562.00	2015.40	.00	-1.62	.00	50.00	300.00
13700.000	8562.00	2013.63	.00	-1.77	.00	50.00	306.00
13600.000	8562.00	2011.63	.00	-2.00	.00	69.75	75.00
13500.000	8562.00	2008.12	.00	-3.51	.00	68.23	88.14
13400.000	8562.00	2007.87	.00	-.25	.00	68.39	36.00
13300.000	8562.00	2007.63	.00	-.23	.00	69.05	100.00
13200.000	8562.00	2008.41	.00	.77	.00	50.00	80.00
13100.000	8562.00	2005.57	.00	-2.83	.00	50.00	211.13
13000.000	8562.00	1999.37	.00	-6.21	.00	50.00	98.00
12900.000	8562.00	1998.94	.00	-.43	.00	50.00	33.00
12800.000	8562.00	1997.22	.00	-1.72	.00	50.00	258.77
12700.000	8562.00	1994.43	.00	-2.79	.00	50.00	405.00
12600.000	8562.00	1992.02	.00	-2.40	.00	50.00	313.04
12500.000	8562.00	1988.64	.00	-3.38	.00	67.30	75.00
12400.000	8562.00	1988.20	.00	-.44	.00	68.38	88.60
12300.000	8562.00	1988.02	.00	-.18	.00	68.70	75.37
12200.000	8562.00	1985.83	.00	-2.19	.00	45.08	277.73
12100.000	8562.00	1981.92	.00	-3.91	.00	40.80	287.98
12000.000	8562.00	1979.62	.00	-2.30	.00	34.34	252.00
11900.000	8562.00	1979.52	.00	-.09	.00	34.30	5.00
11800.000	8562.00	1977.96	.00	-1.56	.00	34.40	92.00
11700.000	8562.00	1976.45	.00	-1.51	.00	34.40	86.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11600.000	8562.00	1976.07	.00	-.38	.00	34.40	16.00
11500.000	8562.00	1971.02	.00	-5.05	.00	42.00	215.00
11400.000	8562.00	1970.82	.00	-.19	.00	42.00	100.00
11300.000	8562.00	1971.56	.00	.73	.00	59.66	243.55
11200.000	8562.00	1970.67	.00	-.89	.00	59.02	474.00
11100.000	8562.00	1969.46	.00	-1.21	.00	66.36	430.53
11000.000	8562.00	1967.93	.00	-1.53	.00	85.47	411.30
10900.000	8562.00	1963.17	.00	-4.76	.00	76.48	392.70

10800.000	8562.00	1958.60	.00	-4.57	.00	84.87	388.50
10700.000	8562.00	1954.71	.00	-3.89	.00	82.60	386.03
10600.000	8562.00	1949.31	.00	-5.40	.00	70.72	418.08

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 15500.000 PROFILE= 1 CRITICAL DEPTH ASSUMED

WARNING SECNO= 15400.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 15300.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 15300.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 15300.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 15110.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 15110.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 15110.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 14900.000 PROFILE= 1 BRIDGE DROWNS U.S. PROFILE
NEW BACKWATER REQUIRED

CAUTION SECNO= 14550.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

SECTION 4
Reference Materials

Duck Creek FIS Restudy

Federal Emergency Management Agency

Washington, D.C. 20472

AUG 13 2003

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 03-09-0980X

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: **AUG 13 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. We therefore issued a LOMR on April 21, 2003 (Case No. 03-09-0861X), with the proper revised FIRM panels. Subsequent to the April 21 LOMR, Mr. Michael Ludwig, P.E., Senior Designer, G. C. Wallace, Inc., informed us of discrepancies between the revised FIRM and the flood profiles. In addition, Mr. Ludwig provided survey data to show the exact low chord and roadway elevations to be used for the flood profiles. This LOMR revises and supersedes the April 21 LOMR.

All data required to complete our review of this request were submitted with letters from Mr. Eubanks and Mr. Ludwig.

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 300 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 AE were added from I-15 to Blue Diamond Road and Valley View Boulevard respectively. 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

Public notification of the proposed modified BFEs in the April 21 LOMR was given in the *Las Vegas Review-Journal* on May 1 and May 8, 2003, and a notice of the changes will be published in the *Federal Register*. The 90-day appeal period for any interested party to request that FEMA reconsider the determination made by the April 21 LOMR ended on August 6, 2003. FEMA received no valid requests for changes to the modified BFEs. Because the BFEs were not modified from those in the April 21 LOMR, public notification of the proposed modified BFEs will not be made for this LOMR.

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
Emergency Preparedness
and Response Directorate

For: Doug Bellomo, P.E., Acting Chief
Hazard Study Branch
Emergency Preparedness
and Response Directorate

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. Curt Chandler, P.E.
Land Development Manager
Department of Public Works
City of Henderson

Mr. Robert Thompson, P.E.
Department of Public Works
Clark County

Mr. Jerry E. Pruitt, P.E.
Vice President
G. C. Wallace, Inc.

Federal Emergency Management Agency

Washington, D.C. 20472

AUG 13 2003

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 03-09-0980X

The Honorable James Gibson
Mayor, City of Henderson
240 South Water Street
Henderson, NV 89015

Community: City of Henderson, NV
Community No.: 320005
Panels Affected: 32003C2580 E and 2590 E
Effective Date of This Revision: **AUG 13 2003**

102-I-A-C

Dear Mayor Gibson:

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 (the effective FIRM and FIS report for your community), 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 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 and Middle Branches from their respective confluences with Duck Creek to the Union Pacific Railroad. 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 and to Duck Creek 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. We therefore issued a LOMR on April 21, 2003 (Case No. 03-09-0861X), with the proper revised FIRM panels. Subsequent to the April 21 LOMR, Mr. Michael Ludwig, P.E., Senior Designer, G. C. Wallace, Inc., informed us of discrepancies between the revised FIRM and the flood profiles. In addition, Mr. Ludwig provided survey data to show the exact low chord and roadway elevations to be used for the flood profiles. This LOMR revises and supersedes the April 21 LOMR.

All data required to complete our review of this request were submitted with letters from Mr. Eubanks and Mr. Ludwig.

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 Duck Creek. As a result of the modifications, 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, along Duck Creek from Patrick Lane to Pecos Road was redesignated Zone AE, with BFEs determined; a regulatory floodway was added; and the width of the SFHA decreased. The modifications are shown on the enclosed annotated copies of FIRM Panels 32003C2580 E and 32003C2590 E, Profile Panels 106P and 107P, and affected portions of the Summary of Discharges Table and Floodway Data Table. In addition, 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 unincorporated areas of Clark County, 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 Sunset Road	None	1,928
Approximately 1,400 feet downstream of Pecos Road	None	1,972

*Referenced to the North American Vertical Datum, rounded to the nearest whole foot

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Mr. Jack Eldridge
Chief, National Flood Insurance Program Branch
Federal Emergency Management Agency, Region IX
1111 Broadway Street, Suite 1200
Oakland, CA 94607-4052
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Sincerely,

Max H. Yuan, P.E., Project Engineer
Hazard Study Branch
Emergency Preparedness
and Response Directorate

For: Doug Bellomo, P.E., Acting Chief
Hazard Study Branch
Emergency Preparedness
and Response Directorate

Enclosures

cc: The Honorable Mary J. Kincaid-Chauncey
Chair, Clark County Board
of Commissioners

Mr. Kevin Eubanks, P.E.
Assistant General Manager
Clark County Regional Flood
Control District

Mr. Curt Chandler, P.E.
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Department of Public Works
City of Henderson

Mr. Robert Thompson, P.E.
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Clark County

Mr. Jerry E. Pruitt, P.E.
Vice President
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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 A-W[2]								
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	100	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]No F odway Computed

REVISED TO REFLECT LOMR DATED

TABLE 5

FEDERAL EMERGENCY MANAGE ENT AGENCY

CLARK COUNTY NV
AND INCORPORATED AREAS

FLOODWAY DATA

DUCK CREEK

FLOODING SOURCE		FLOODWAY			WATER		BASE FLOOD SURFACE ELEVATION		
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WI FLO	OUT DWAY	WITH FLOODWAY	INCREASE
							(FEET NAVD)		
Duck Creek (Continued)									
AW	45751	150	1110	7.7	2,066.8	2,	6.8	2,066.8	0.0
AX	46476	129	625	13.7	2,071.5	2,	1.5	2,071.5	0.0
AY	47165	120	463	18.5	2,072.7	2,	2.7	2,072.7	0.0
AZ	47978	114	636	13.5	2,080.9	2,	0.9	2,080.9	0.0
BA	48773	89	387	21.9	2,081.3	2,	1.3	2,081.7	0.4
BB	49564	90	307	27.6	2,088.2	2,	8.2	2,088.2	0.0
BC	50202	97	251	33.7	2,097.1	2,	7.1	2,097.1	0.0
BD	50769	45	236	31.7	2,108.7	2,	8.7	2,108.7	0.0
BE	51547	46	258	29.0	2,120.9	2,	0.9	2,121.0	0.1
BF	52338	70	247	30.3	2,128.2	2,	8.2	2,128.6	0.4
BG	53161	75	253	29.6	2,145.4	2,	5.4	2,145.4	0.0
BH	53934	83	375	19.9	2,155.6	2,	5.6	2,155.6	0.0
BI	54735	83	519	14.4	2,160.7	2,	0.7	2,160.7	0.0
BJ	55536	91	519	14.4	2,161.6	2,	1.6	2,161.6	0.0
BK	56328	97	359	20.9	2,159.4	2,	9.4	2,160.0	0.6
BL	57099	94	287	26.1	2,165.1	2,	5.1	2,165.1	0.0
BM	57902	75	354	21.1	2,175.5	2,	5.5	2,175.5	0.0
BN	58582	69	435	17.2	2,180.3	2,	0.3	2,180.3	0.0
BO	59067	76	358	20.9	2,180.3	2,	0.3	2,180.3	0.0
BP	59675	120	468	16.0	2,184.6	2,	4.6	2,184.6	0.0
BQ	63045	226	520	8.0	2,220.7	2,	0.7	2,220.7	0.0
BR	63833	222	490	8.5	2,223.9	2,	3.9	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

REVISED TO REFLECT LOMR DATED

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)								
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	70200	268	472	3.8	2,270.0	2,270.0	2,270.7	0.7
BW	70856	180	275	6.6	2,274.0	2,274.0	2,274.7	0.7
BX	71675	62	183	7.2	2,281.0	2,281.0	2,281.1	0.1

[1]Feet Above Confluence With Las Vegas Wash

TABLE 5

FEDERAL EMERGENCY MANAGE ENT AGENCY

CLARK COUNTY, NV
AND INCORPORATED AREAS

REVISED TO REFLECT LOMR DATED

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)			
Blue Diamond Wash-North Branch								
A	100	30	54	23.8	2,081.0	2,081.0	2,081.0	0.0
B	895	10	60	21.5	2,089.8	2,089.8	2,089.8	0.0
C	1395	10	80	16.1	2,097.2	2,097.2	2,097.2	0.0
D	2175	10	71	18.3	2,101.6	2,101.6	2,101.6	0.0
E	2968	10	78	16.5	2,109.0	2,109.0	2,109.0	0.0
F	3638	10	70	18.4	2,113.8	2,113.8	2,113.8	0.0
G	4583	23	56	23.1	2,120.7	2,120.7	2,120.7	0.0
H	5076	116	386	3.3	2,137.2	2,137.2	2,137.2	0.0
I	5951	32	129	10.0	2,152.7	2,152.7	2,153.6	0.9
J	6651	90	167	7.7	2,162.7	2,162.7	2,162.9	0.2
K	7571	42	129	10.0	2,172.1	2,172.1	2,172.1	0.0
L	8331	160	202	6.4	2,183.5	2,183.5	2,183.5	0.0
M	9101	92	179	7.2	2,192.0	2,192.0	2,192.1	0.1
N	9911	50	162	8.0	2,199.0	2,199.0	2,199.9	0.9
O	10691	98	236	5.5	2,211.9	2,211.9	2,212.7	0.8
P	11487	49	75	17.2	2,217.1	2,217.1	2,217.1	0.0
Q	12100	45	55	23.5	2,220.9	2,220.9	2,220.9	0.0
R	12680	80	217	6.0	2,235.0	2,235.0	2,235.8	0.8
S	13490	68	210	6.1	2,244.7	2,244.7	2,245.6	0.9
T	14270	41	130	9.9	2,253.2	2,253.2	2,253.8	0.6
U	15060	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

REVISED TO REFLECT LOMR DATED

FLOODWAY DATA

BLUE DIAMOND WASH-NORTH BRANCH

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	120	40	65	22.6	2,103.9	2,103.9	2,103.9	0.0
B	818	40	63	23.3	2,114.5	2,114.5	2,114.5	0.0
C	1208	40	68	21.6	2,121.6	2,121.6	2,121.6	0.0
D	1878	40	56	26.3	2,130.4	2,130.4	2,130.5	0.0
E	2458	40	78	18.9	2,147.7	2,147.7	2,147.7	0.0
F	3943	95	93	15.8	2,171.4	2,171.4	2,171.4	0.0
G	4543	81	174	8.4	2,187.8	2,187.8	2,188.3	0.5
H	4843	55	139	10.5	2,191.9	2,191.9	2,191.9	0.0
I	5603	175	210	6.9	2,200.2	2,200.2	2,200.2	0.0
J	6263	140	252	5.8	2,209.2	2,209.2	2,209.2	0.0
K	6663	190	253	5.8	2,213.0	2,213.0	2,213.0	0.0
L	7583	170	205	7.1	2,221.0	2,221.0	2,221.0	0.0
M	8353	155	289	5.1	2,228.8	2,228.8	2,228.8	0.0
N	8813	170	415	3.5	2,234.4	2,234.4	2,235.1	0.7
O	9500	98	393	3.7	2,242.1	2,242.1	2,242.1	0.0
P	10193	60	208	7.0	2,247.4	2,247.4	2,248.2	0.8
Q	10843	180	416	3.5	2,252.7	2,252.7	2,253.4	0.7
R	11798	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

REVISED TO REFLECT LOMR DATED

FLOODWAY DATA

BLUE DIAMOND WASH-MIDDLE BRANCH

FLOODING SOURCE			FLOODWAY		BASE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NAVD)			
DUCK CREEK TRIBUTARY								
A	1000[1]	409	1035	4.9	2,255.3	2,255.3	2,255.8	0.5
B	1890[1]	449	851	6.0	2,263.4	2,263.4	2,264.4	1.0
C	2670[1]	510	1067	4.8	2,273.2	2,273.2	2,273.6	0.4
D	3251[1]	950	927	5.5	2,288.2	2,288.2	2,288.2	0.0
E	4280[1]	823	1332	7.1	2,292.6	2,292.6	2,293.4	0.8
DUCK CREEK - SOUTH CHANNEL								
A	230[2]	102	287	8.1	2,210.4	2,210.4	2,210.4	0.0
B	1030[2]	99	255	9.1	2,216.4	2,216.4	2,217.0	0.6
C	1840[2]	127	282	8.2	2,222.2	2,222.2	2,222.7	0.5
D	2330[2]	375	566	4.1	2,227.5	2,227.5	2,228.3	0.8

[1]Feet Above Confluence With Duck Creek

[2]Feet Above Lower Duck Creek Detention Basin

TABLE 5

FEDERAL EMERGENCY MANAGE ENT AGENCY

CLARK COUNTY NV
AND INCORPORATEI AREAS

REVISED TO REFLECT DATED

FLOODWAY DATA

DUCK CREEK TRIBUTARY-
DUCK CREEK–SOUTH CHANNEL.

Table 3. Summary of Discharges

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (Cubic Feet per Second) 10-Year	50-Year	100-Year	500-Year
Alluvial Fan In Eastern Henderson	5.54	370	2,200	3,600	--[1]
Alluvial Fan In Western Henderson	76.0	1,490	13,300	23,370	--[1]
Abbott Wash At Interstate 15	7.1	1,050	1,940	2,340	3,690
Blue Diamond Fan At Apex	69.5	2,010	8,800	14,820	42,550
Bridge Canyon Wash At Apex	7.3	650	2,680	4,430	12,240
Colorado River At Laughlin	169,300	--[1]	--[1]	40,000[2]	--[1]
Dripping Springs Wash At Apex	4.5	460	1,910	3,150	8,710
Duck Creek					
At Interstate 15	--[3]	--[1]	--[1]	1,326	--[1]
Upstream of Lower Duck Creek Detention Basin	119.8	--[1]	--[1]	6,470	--[1]
At Mountain Vista Avenue	158.5	--[1]	--[1]	8,562	--[1]
At Boulder Highway	164.8	--[1]	--[1]	8,562	--[1]
Duck Creek Tributary					
At Interstate 15	--[3]	--[1]	--[1]	5,100	--[1]

[1]Discharge not available
[2]Established by the Colorado River Floodway Protection Act, Public Law 99-450
[3]Flow affected by upstream overflows, diversions, or obstructions; drainage area does not apply

Revised data

REVISED TO REFLECT LOMR DATED

Table 3. Summary of Discharges (Cont'd)

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (Cubic Feet per Second) 10-Year	50-Year	100-Year	500-Year
Georgia Avenue Wash					
At Buchanan Boulevard	1.98	263	781	1,285	4,300
At Mendota Drive	0.95	177	459	727	2,000
At Cross Section E	0.45	68	189	310	1,000
Hemenway Wash					
At Cross Section C	2.86	290	635	815	1,380
At Cross Section E	1.06	80	195	260	420
Hiko Springs Wash					
At Apex	17.9	1,220	5,070	8,370	23,130
Las Vegas Creek					
At Las Vegas Boulevard	13	640	1,280	1,570	2,420
At Confluence with Las Vegas Wash	14	660	1,300	1,600	2,450
Las Vegas Wash					
At Carey Avenue[1]	836	3,050	8,750	11,800	21,400
At Charleston Boulevard	858	3,180	9,000	12,100	21,800
At Losee Road	568	3,960	7,300	8,820	17,000
Below Union Pacific Railroad	--[2]	2,100	2,330	2,440	2,700
Below Interstate 15	--[2]	2,100	2,330	2,370	3,150
Below Confluence with Middle Overflow Area	--[2]	2,720	3,040	3,120	4,500
Below East Cheyenne Avenue	--[2]	2,300	2,560	2,610	3,500
Below Confluence with Unnamed Tributary	--[2]	3,940	7,580	9,220	17,200
Below Las Vegas Boulevard	--[2]	3,940	6,400	6,660	9,300
Below Cutoff Channel	--[2]	3,940	6,530	6,860	10,700
Below Carey Avenue	--[2]	3,940	6,530	6,860	9,700
Below Lake Mead Boulevard	--[2]	3,940	5,500	5,710	7,250
Middle Branch Blue Diamond Wash					
At Union Pacific Railroad	--[2]	--[3]	--[3]	1,961	--[3]
At Interstate 15	97.5	--[3]	--[3]	1,462	--[3]

[1]Located outside Corporate Limits
[2]Flow affected by upstream overflows, diversions, or obstructions; drainage area does not apply
[3]Discharge not available

Revised data

REVISED TO REFLECT LOMR DATED

Table 3. Summary of Discharges (Cont'd)

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (Cubic Feet per Second) 10-Year	50-Year	100-Year	500-Year
Muddy River					
At Cooper Avenue	4,035	5,250	14,750	21,300	45,900
Downstream of Wells Siding	3,950	5,270	14,800	21,400	45,500
Upstream of Confluence with Meadow Valley Wash	1,360	3,620	10,900	16,000	34,400
North Branch Blue Diamond Wash					
At Union Pacific Railroad	--[2]	--[1]	--[1]	244	--[1]
At Interstate 15	7.8	--[1]	--[1]	1,290	--[1]
Overton Wash					
At Upstream Limit of Detailed Study	21.7	2,170	4,510	5,680	8,200
Pulsifer Wash					
At Interstate 15	4.9	930	1,730	2,070	3,230
Southwest Unnamed Wash					
At Apex	3.9	260	1,070	1,770	4,890
Tropicana Wash – Central Branch					
At Flamingo Wash	20.1	--[1]	--[1]	5,300	--[1]
Upstream of Airport Wash	12.1	--[1]	--[1]	3,320	--[1]
Downstream of Koval Road	11.0	--[1]	--[1]	3,320	--[1]
Interstate 15 to 600 feet downstream of Union Pacific Railroad	8.9	--[1]	--[1]	800	--[1]
Just downstream of Union Pacific Railroad	8.1	--[1]	--[1]	710	--[1]

Revised data

[1]Discharge Not Available
[2]Flow affected by upstream overflows, diversions, or obstructions; drainage area does not apply

REVISED TO REFLECT LOMR DATED

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

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.

F:\550- J\dwg\fig\FIG-2b.dwg 02-27-02 2:46 RGarcia

NORTH

1" = 5000'

TROPICANA AVENUE
RUSSELL ROAD
SUNSET DRIVE
SUNSET RSVE
BOULDER HIGHWAY
FARM SPRINGS ROAD
EASTERN AVENUE
GREEN VALLEY PARKWAY
LAKE MEAD DRIVE
HORIZON RIDGE PARKWAY
PACIFIC AVENUE
HARMAND PARKWAY
UNION PACIFIC RAILROAD
NORTH BRANCH BLUE DIAMOND WASH
MIDDLE BRANCH BLUE DIAMOND WASH
VINDHILL LANE
LAS VEGAS BLVD
BLUE DIAMOND
DUCK CREEK
NORTHERN TRIBUTARY
MIDDLE TRIBUTARY
SOUTHERN TRIBUTARY
LOWER DUCK CREEK DETENTION BASIN

LEGEND

- LIMITS OF HEC-2 MODEL
- STREET CENTER LINE
- CHANNEL CENTER LINE

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

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:

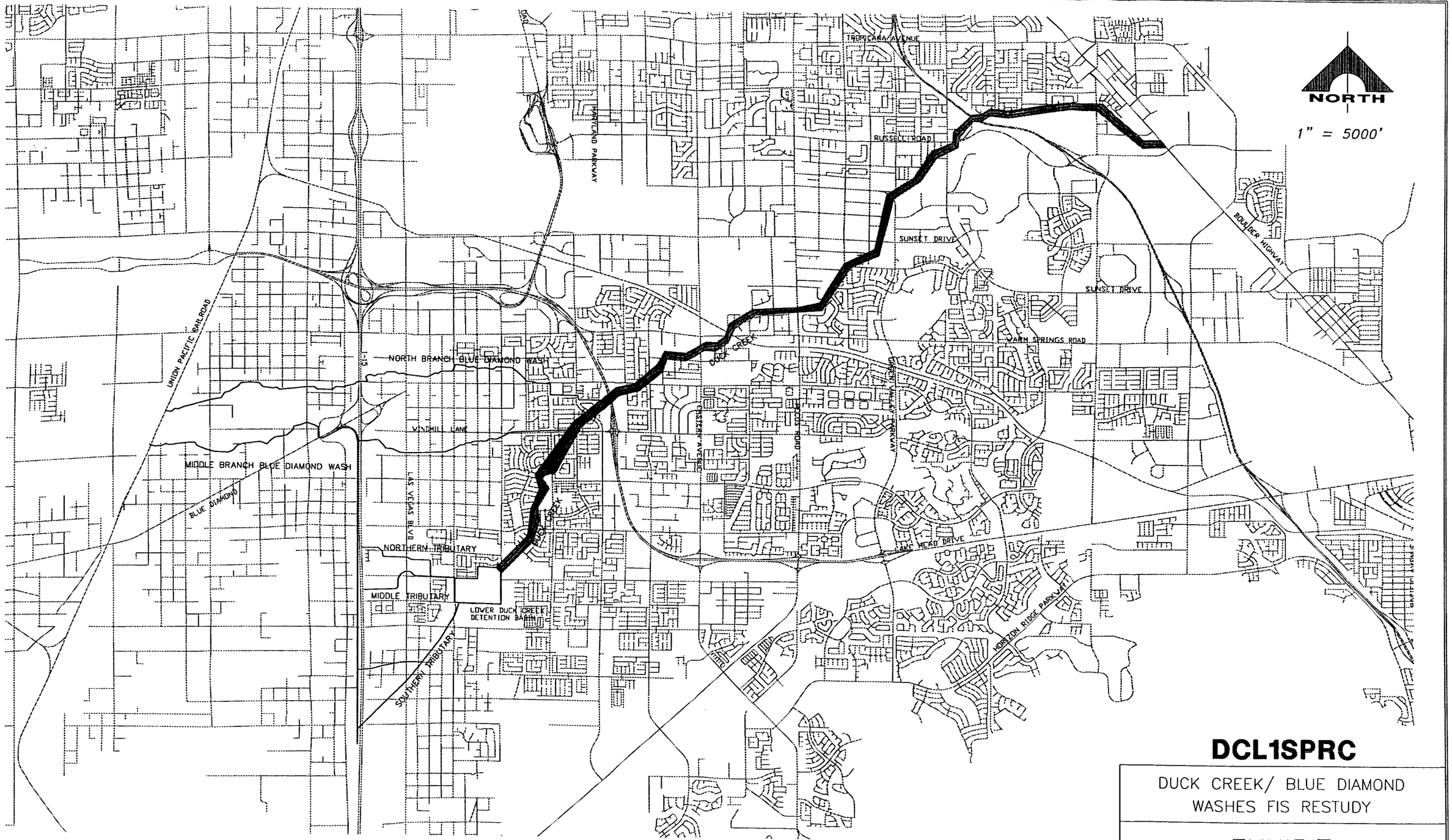
A. Duck Creek Channel Phase 1
B. Duck Creek Improvements from Tomiyasu Lane to Warm Springs Road
C. Aviara Apartments Offsite Channel Improvements
D. Duck Creek Crossing at Robindale Road
E. Crystal Springs Duck Creek Channel

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.

F:\550-J\dwg\fig\FIG-2b.dwg 02-27-02 2:46 RGarcia



DCL1SPRC

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

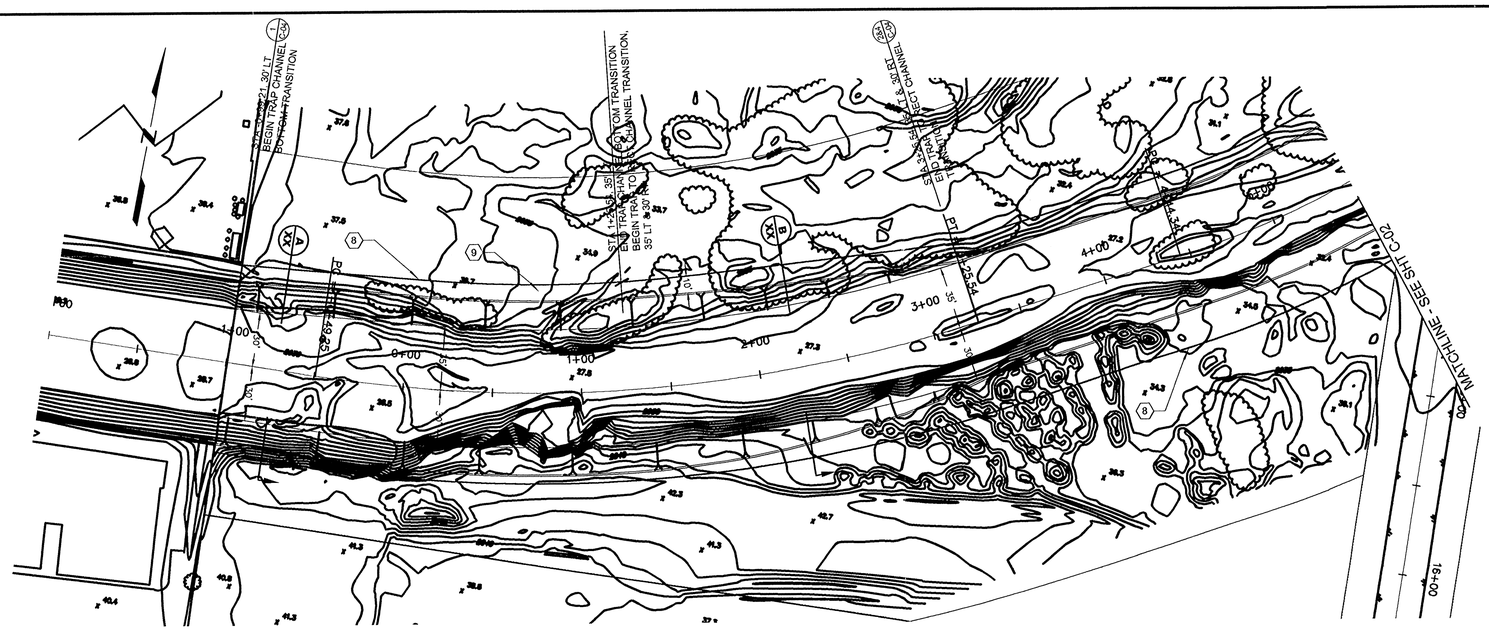
SECTION 5
Electronic Files

Figure 3: Effective FIRM
Figure 4: Proposed FIRM Revisions
Figure 5: HEC-2 Cross Section Map
HEC-2 Model for Subcritical Conditions (DCL1SUBX.dat)
HEC-2 Model for Supercritical Conditions (DCL1SPRX.dat)
HEC-2 Model for Subcritical Conditions (FIS Restudy) (DCL1SUBC.out)
HEC-2 Model for Supercritical Conditions (FIS Restudy) (DCL1SPRC.out)

SECTION 6
Drawings for Proposed Facilities

Duck Creek Channel Improvements

Pictures showing completed facilities



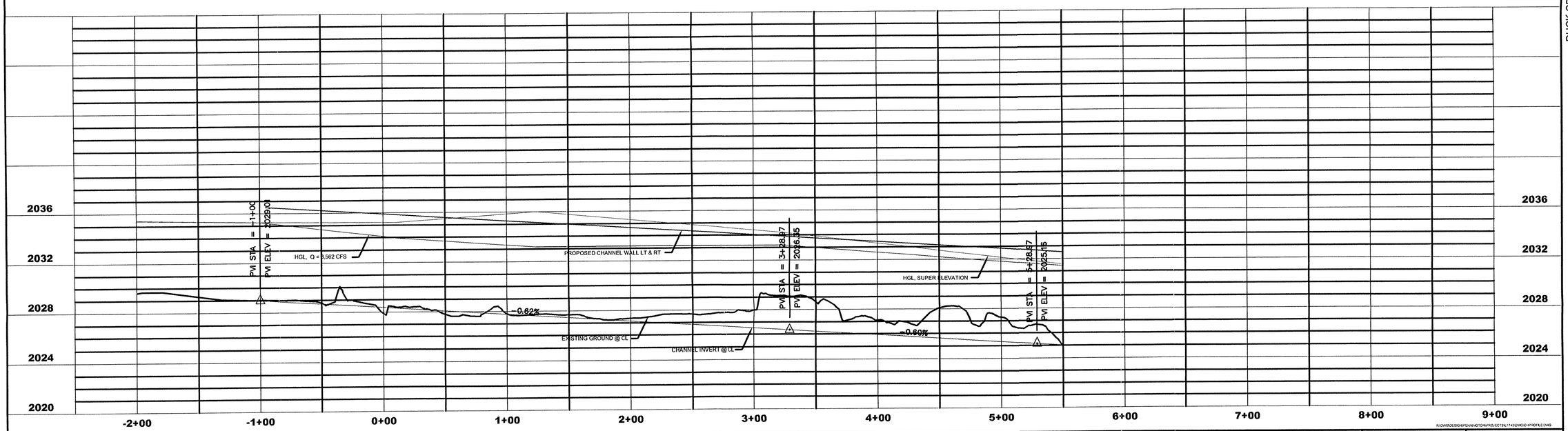
DUCK CREEK CHANNEL

CONSTRUCTION NOTES

CONSTRUCTION ITEMS

8 CONSTRUCT CHAIN LINK FENCE
9 CONSTRUCT 10' WIDE ACCESS ROAD

70%
PRELIMINARY
NOT FOR CONSTRUCTION



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REV No	DATE	DESCRIPTION	APPROVED

CLARK COUNTY NEVADA

DUCK CREEK CHANNEL IMPROVEMENTS

PLAN & PROFILE
STA -2+00 - STA 5+50
CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED BY:	KJY
DRAWN BY:	KJY
CHECKED BY:	MS
DATE:	Jun 22, 2004 – 2:51pm

SCALE	
HORIZ:	1" = 40'
VERT:	1" = 4'
FIELD BOOK	NONE

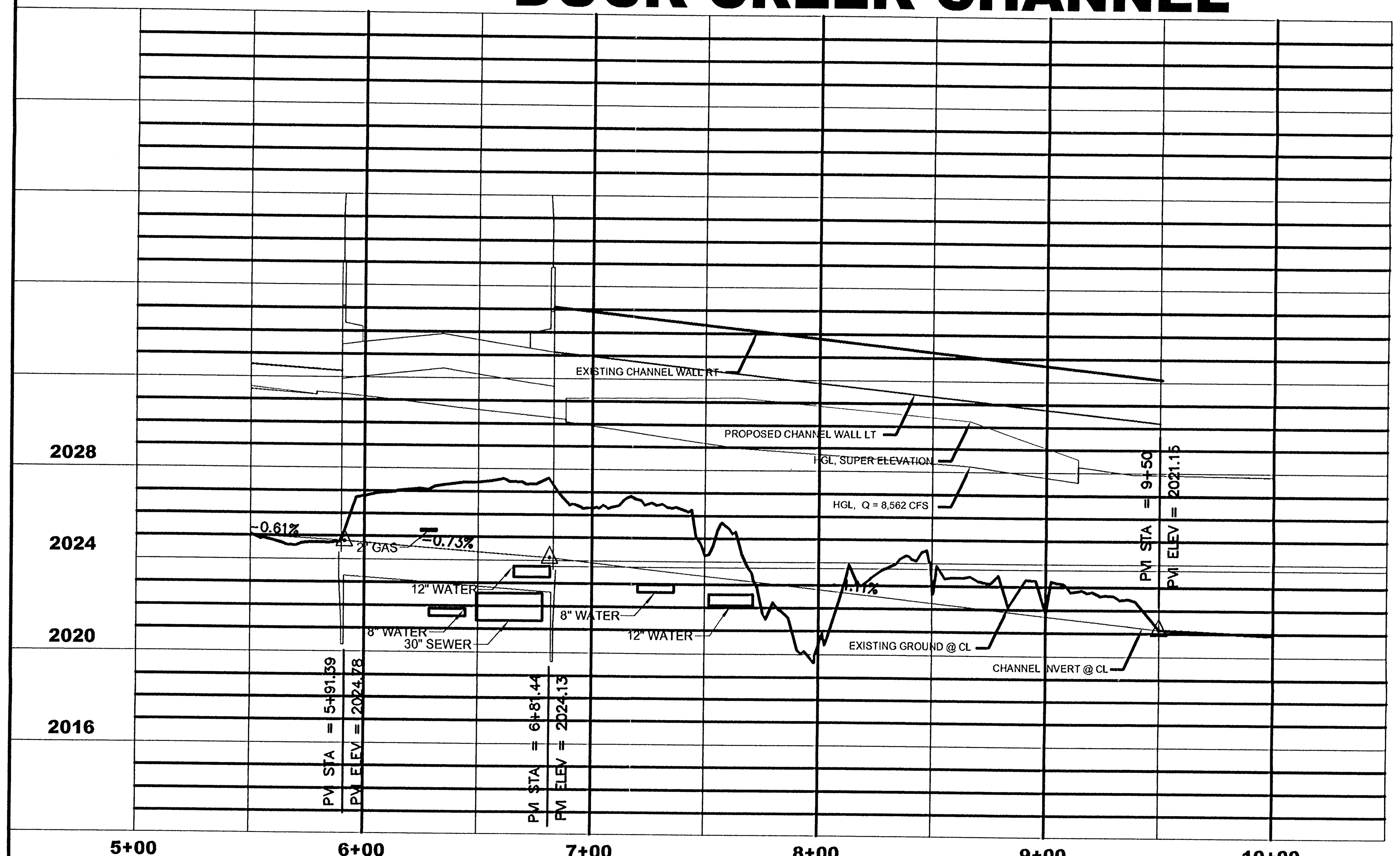
SHEET No **C-01**

F 990812

L-1743

DUCK CREEK CHANNEL IMPROVEMENTS - FROM 700' WEST OF TOPAZ STREET TO WARM SPRINGS ROADS

DUCK CREEK CHANNEL



CONSTRUCTION NOTES

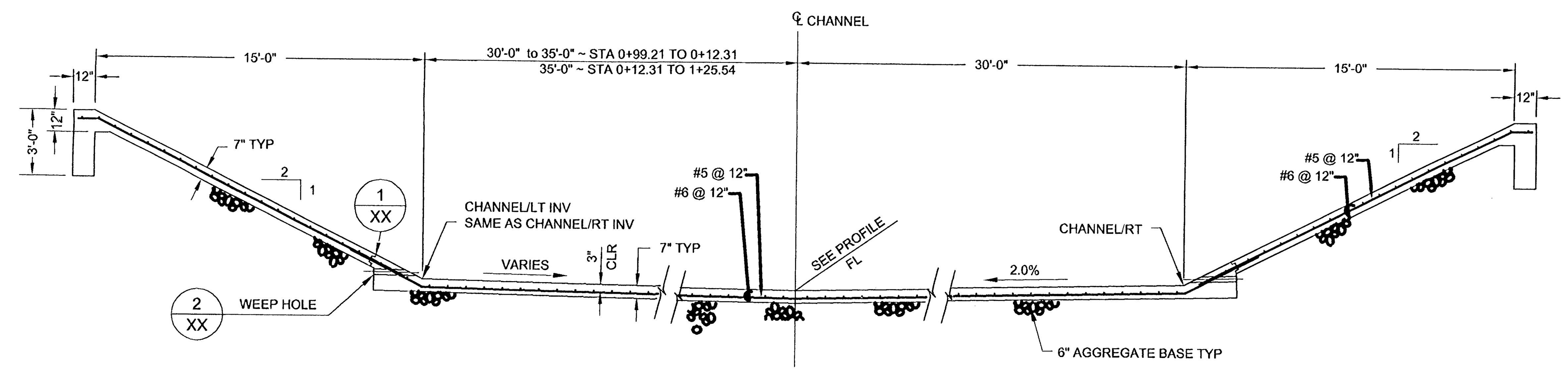
CONSTRUCTION ITEMS

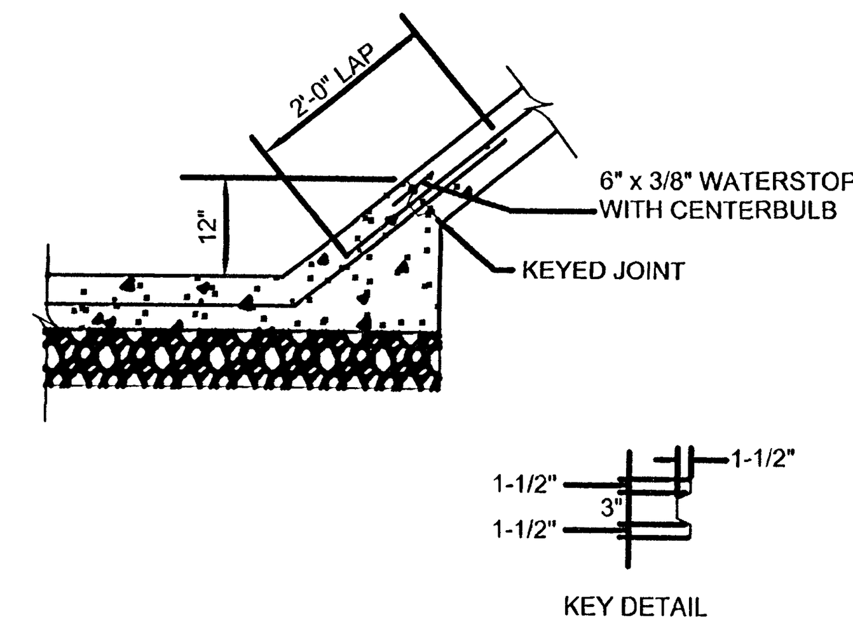
- (8) CONSTRUCT CHAIN LINK FENCE
- (9) CONSTRUCT 10' WIDE ACCESS ROAD

REMOVAL ITEMS

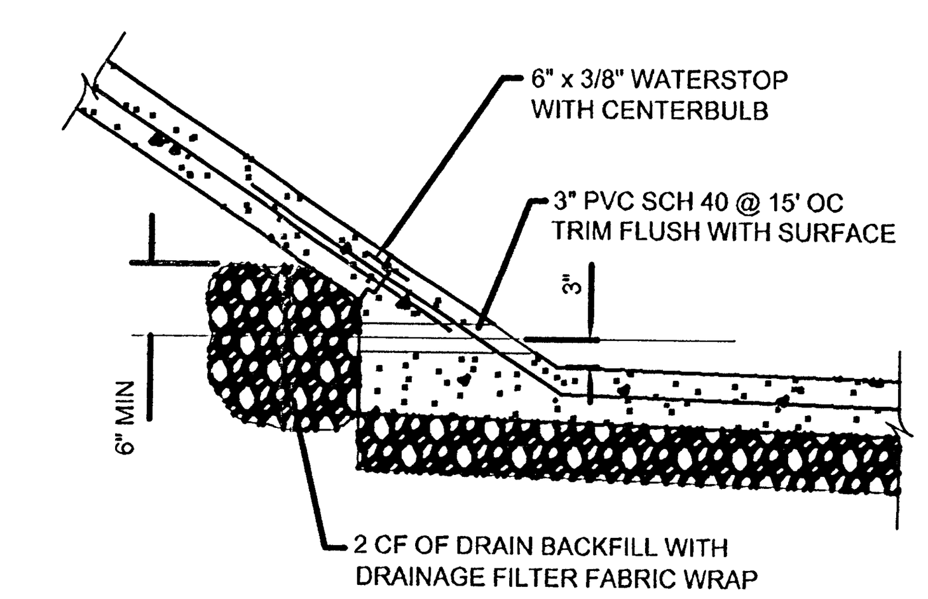
- [C] REMOVE GABION BASKET
- [D] REMOVE EXIST FENCE

70% PRELIMINARY
NOT FOR CONSTRUCTION

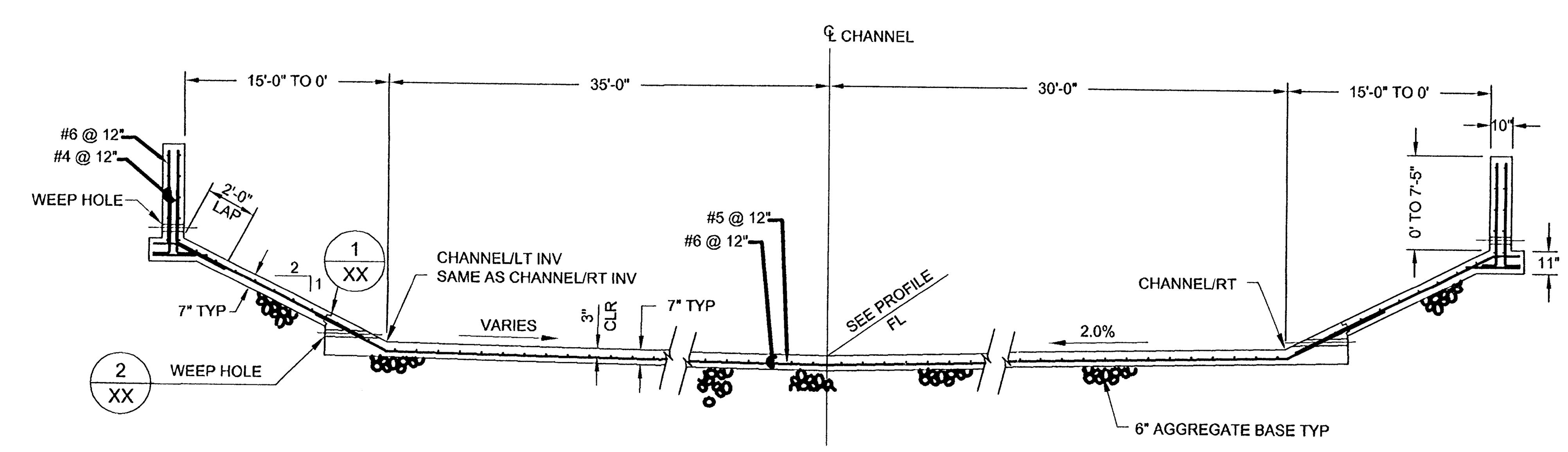




KEY DETAIL (1/XX)



WEEP HOLE DETAIL (2/XX)



DUCK CREEK CHANNEL IMPROVEMENTS - FROM 700' WEST OF TOPAZ STREET TO WARM SPRINGS ROADS

REV No	DATE	DESCRIPTION	APPROVED

CLARK COUNTY NEVADA

DUCK CREEK CHANNEL AND

PLAN & PROFILE
STA 5+50 - STA 10+00

CLARK COUNTY, NEVADA, DEPARTMENT OF PUBLIC WORKS

PRELIMINARY NOT FOR CONSTRUCTION

DESIGNED BY:	KJY
DRAWN BY:	KJY
CHECKED BY:	MS
DATE:	Jun 22, 2004 - 2:54pm

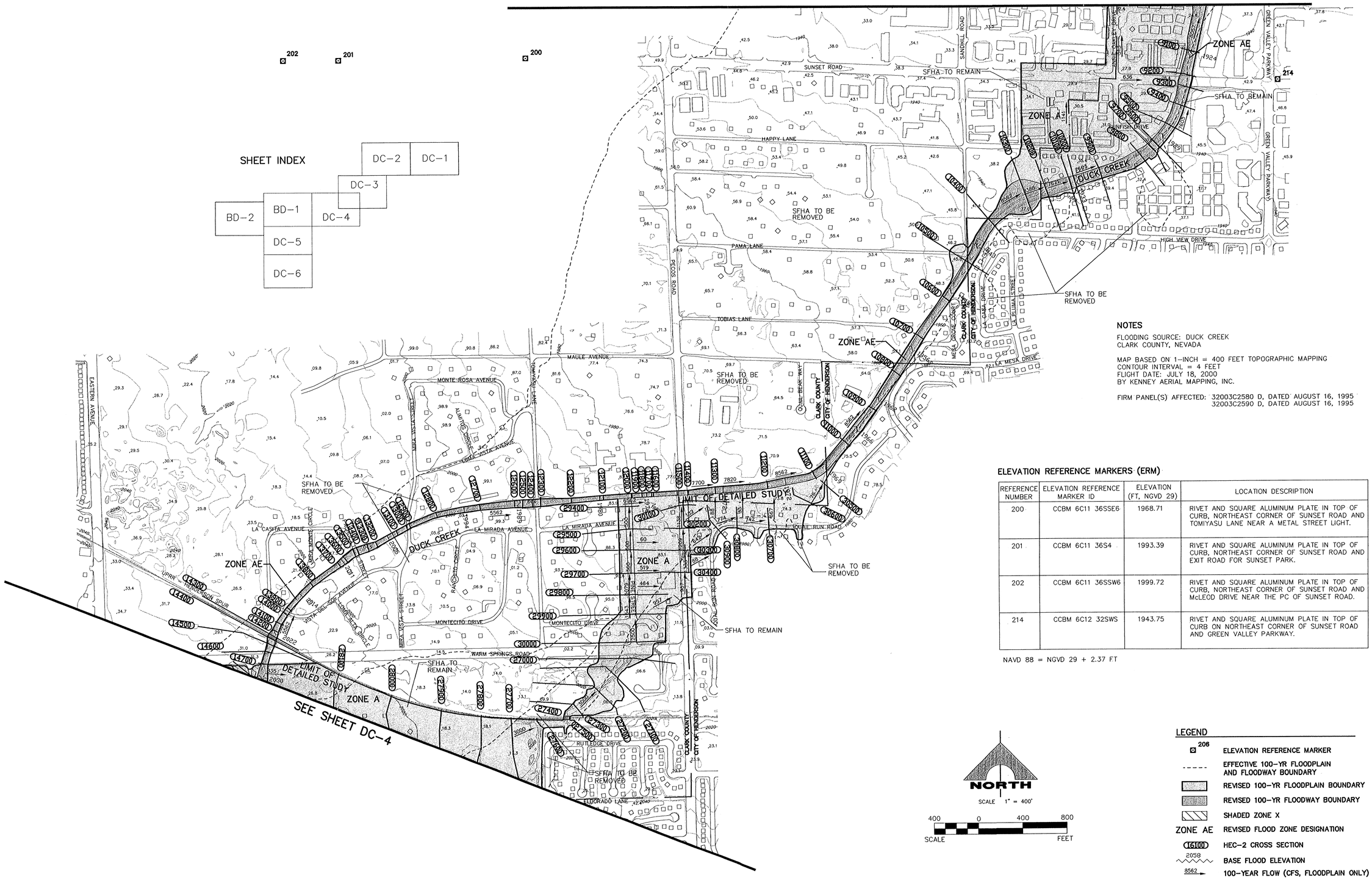
SCALE	
HORIZ:	1" = 40'
VERT:	1" = 4'
FIELD BOOK	NONE

SHEET No **C-02**

F 990812

L-1743

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

- 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: 06-22-04
PLOT TIME: 15:07:55
rhunter

G.C. WALLACE, INC.
Engineers/Planners/Surveyors
1555 SOUTH RAINBOW BLVD./LAS VEGAS, NEVADA 89146
TELEPHONE: (702) 804-2000 • FAX: (702) 804-2299

D:\MAPS\AUTOCAD14\VSMAPS\DC-3.DWG

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

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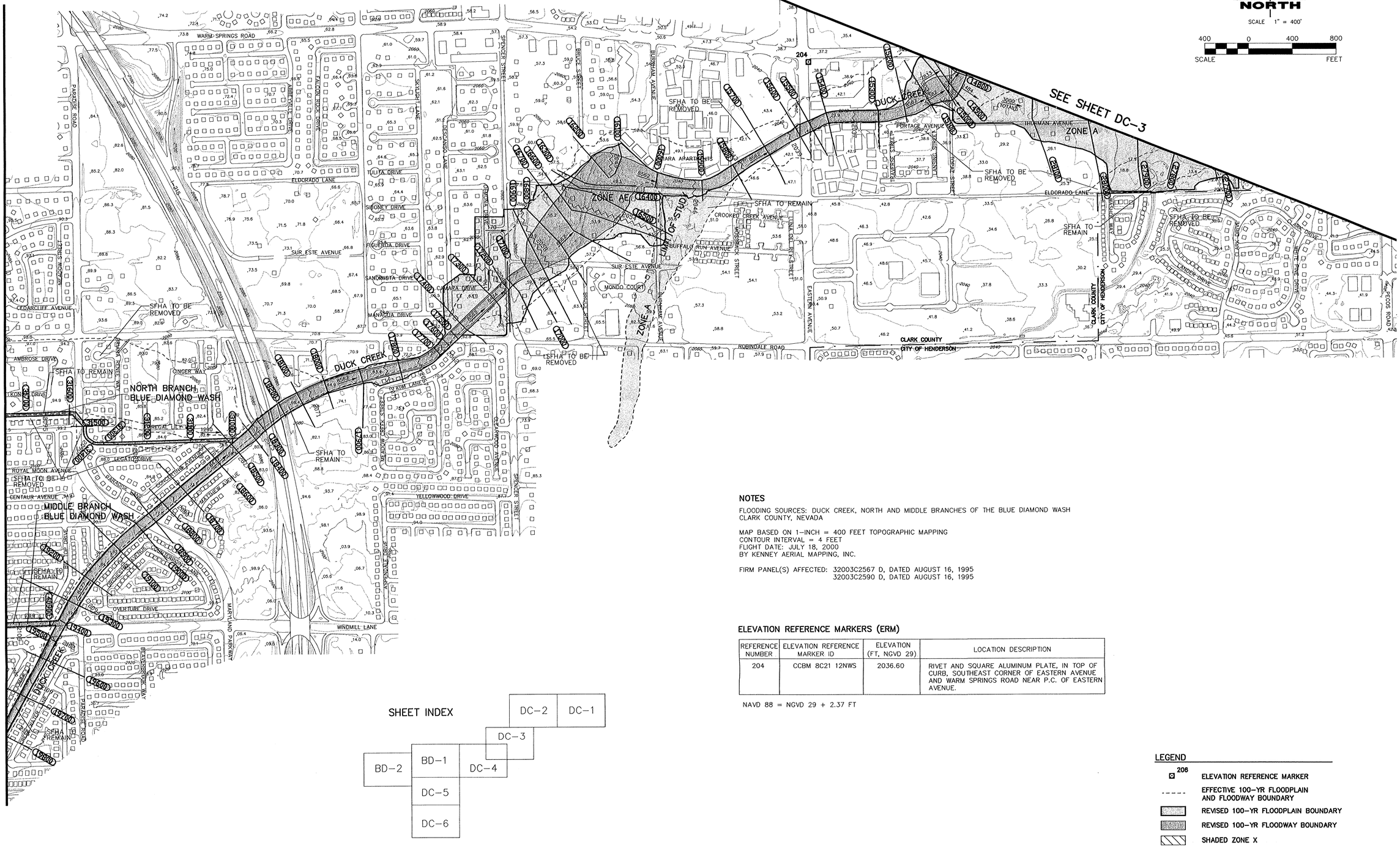

NOTES

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

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: 06-22-04
PLOT TIME: 15:11:55
rhunter

REV	DATE	DESCRIPTION	DATE	AGEN. APP	DATE	GOV. APP	DATE

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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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Bridge at U.P.R.R.
Cross-Section 14240

Downstream face bridge
at Warm Springs Road
Cross-Section 14600