REQUEST FOR CONDITIONAL LETTER OF MAP REVISION
GIBSON CHANNEL TO PIONEER OUTFALL PHASE II
CLARK COUNTY, NEVADA

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Channel Plan & Profile
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1.0 INTRODUCTION

The purpose of this Condition Letter of Map Revision (CLOMR) is to analyze and address a needed revision to the Pittman Watershed flood zone in the City of Henderson, Nevada, Clark County Zone A. This analysis provides documentation that demonstrates that the post-improvement conditions no longer warrant some of the flood zone delineations shown on the existing FIRM Panel 2585 dated September 27, 2002. Due to the expanding development in this area for both residential and commercial sectors, necessary flood control facilities have been installed to accommodate the expanding growth.

In the existing condition, flows are collected in a series of lined and unlined channels starting from Warm Springs along the west side of the Gibson Road alignment heading northward to Cornucopia, then turning eastward along the north side of the Cornucopia Alignment. The Pioneer outfall flows north from the Pioneer Detention Basin in Eastgate to Cornucopia. This existing system combines with the outfall from the Pioneer Detention Basin just east of Eastgate. The combined flow is channeled northeast toward Boulder Highway and outlets before Boulder Highway. The flood waters then cross Boulder Highway and flow into the existing channel on the north side of Athens Avenue.

A number of improvements are slated for construction to concrete line existing facilities and connect the system together. The flood control facilities that will tie-in to each other and be used to evaluate this Condition Letter of Map Revision (CLOMR) are: Gibson Channel (Warm Springs to Cornucopia Avenue) Final Drainage Report, September 2004, submitted by Broadbent & Associates Inc.; Desert Canyon Open Space CLOMR, November 2005, submitted by Stantec Consulting; and Pioneer Detention Basin Outfall Crossing at Boulder Highway Design Report, November 2005, submitted by VTN Nevada. With these new flood control facilities in place, existing flood zone and floodplain areas are no longer current.

Refer to Figure 1.0 Area/Vicinity Map, Appendix B for an overall view of the project area. This CLOMR request will analyze a portion of the Gibson Channel flood zone, and the Pioneer Outfall flood zone and will demonstrate that future conditions no longer require certain flood zone delineations that are shown on the current effective FEMA FIRM Panel 2585 dated September 27, 2002.

2.0 HYDROLOGY

The *HEC-1 Flood Hydrograph Computer Model* was developed by the U.S. Army Corps of Engineers Hydrologic Engineering Center in the late 1970's, and then adopted by the *CCRFCD Hydrologic Criteria and Drainage Design Manual* in 1999 for rainfall and runoff predictions. The model is used to simulate the surface runoff response of a watershed to a design rainfall event. Each subbasin in the watershed is described by a set of parameters that specify the subbasin drainage and storm characteristics. These basin parameters include precipitation, basin area, curve number, and lag time.

To use the HEC-1 computer model, the drainage system in a watershed is converted into a node-link type of system. A node is placed at the subbasin outlet or at the design point along the water course. Links between nodes represent conveyance elements in the drainage system. Hydrographs are computed for each subbasin and are placed at the subbasin outlet node. These hydrographs are then routed and/or combined according to the drainage basin network configuration through links. The DARF (Depth Area Reduction Factor) is known at each design point and is used to determine the peak flow at the design point depending on the contributing area.

2.1 Pre-Project & Post-Project Conditions – HEC-1

Design flows for Gibson Channel Pre & Post-Project Conditions were modeled using the Gibson Channel Hydrology Design Report, September 2004, submitted by Broadbent & Associates, Inc., and Pioneer Detention Basin Outfall Crossing at Boulder Highway Design Report, November 2005, submitted by VTN Nevada to the City of Henderson. The HEC-1 Hydrology was analyzed and updated to meet existing conditions and was used for the Pre & Post-Project Condition HEC-RAS flows. Hydrology was done for the existing conditions, which is already channelized and does not follow the traditional flood paths marked by the existing flood zone. In addition to existing channelization in the area, developments and street networks convey flows in patterns that are not relative to the existing FEMA flood zone.

3.0 HYDRAULICS

3.1 Pre-Project Conditions – HEC-RAS

Gibson Channel CLOMR Pre-Project Conditions analysis was modeled using HEC-RAS, which determined flood zone conditions before completion of Gibson Channel Conveyance System, the Desert Canyon Openspace System, or the pioneer Outfall, Phase II facilities. Design flows that were used for modeling the channel were taken from Pre/Post-Project HEC-1 run that was modeled using Gibson Channel Hydrology Design Report (by Broadbent & Associates, Inc.), and Pioneer Detention Basin Outfall, Phase II Design Report (by VTN Nevada). Cross sections that were used were based on 2-foot contours that were cut at 200-foot stations for analysis purposes. See Appendix D for Gibson Channel Pre-Project HEC-RAS input & output conditions.

3.2 Post-Project Conditions – WSPG

Hydraulic modeling for Gibson Channel was calculated using WSPG, in conformance with local standards in CCRFCD *Hydrologic Criteria and Drainage Design Manual.* The WSPG model input and output that was used, was taken from Gibson Channel (Warm Springs to Cornucopia Avenue) Final Drainage Report, February 2004, submitted by VTN Nevada which can be found in Appendix D, where 847 cfs was used in designing the rectangular facilities on Gibson Road. The flow cut-off in the Post-Project conditions that is used for this CLOMR is only 709 cfs. Storm Drain Plan and Profile for Gibson Channel (Warm Springs to Cornucopia Avenue) can also be found in Appendix D.

3.3 Post-Project Conditions – HEC-RAS

Gibson Channel Post-Project Conditions analysis was modeled using HEC-RAS, which determined that supercritical flow is maintained within the specified project length. Design flows that were used for modeling the channel were taken from Pre/Post-Project HEC-1 run that was modeled using Gibson Channel Hydrology Design Report (Broadbent & Associates, Inc.), and Pioneer Detention Basin Outfall Phase II Design Report (VTN Nevada), but was modified to meet Post-Project Conditions.

Post-project cross sections were based on Gibson Channel (Warm Springs to Cornucopia Avenue) Final Drainage Report, February 2004, submitted by VTN Nevada; Desert Canyon Open Space CLOMR, November 2005, submitted by Stantec Consulting; and Pioneer Detention Basin Outfall Crossing at Boulder Highway Report Design Report, November 2005, submitted by VTN Nevada. The following drainage reports were combined to evaluate & remove the existing flood zone. See Appendix D for Post-Project HEC-RAS input & output conditions.

4.0 RESULTS

Post-Project Conditions of Gibson Channel to Pioneer Outfall Phase II

NEW HEC-RAS River Sta.	Cross Section Sta	Description Of Facility	Channel	Hydraulic Depth (ft)
18653.05	2+957	Gibson Channel per VTN Plans 10+00	North Channel	2.58
18603.05	3+007	Gibson Channel per VTN Plans 10+50	North Channel	2.32
18354.06	3+256	Gibson Channel per VTN Plans 12+98.99	North Channel	2.06
18314.47	3+296	Gibson Channel per VTN Plans 13+38.58	North Channel	2.16
17036.02	4+574	Gibson Channel per VTN Plans 26+17.03	North Channel	2.27
16991.39	4+624	Gibson Channel per VTN Plans 26+67.03	North Channel	2.37
16271.91	5+338	Gibson Channel per VTN Plans 33+81.14	North Channel	2.43
16221.83	5+388	Gibson Channel per VTN Plans 34+31.22	North Channel	2.24
15874.83	5+735	Gibson Channel per VTN Plans 37+78.22	North Channel	2.59
15824.82	5+785	Gibson Channel per VTN Plans 38+28.23	North Channel	3.25
15635.60	5+974	Gibson Channel per VTN Plans 40+17.45	North Channel	2.63
15080.09	6+530	Gibson Channel per VTN Plans 45+72.94	North Channel	2.56
15015.09	6+595	Gibson Channel per VTN Plans 46+37.97	North Channel	1.93
14592.55	7+017	Gibson Channel per VTN Plans 50+60	North Channel	1.66
14542.55	7+068	Gibson Channel per VTN Plans 51+10.50	North Channel	1.65
14252.5	7+358	Gibson Channel per VTN Plans 54+00.55	North Channel	3.86
14092.97	7+517	Gibson Channel per VTN Plans 55+60.08 - End Gibson CH	North Channel	3.43
13987.91	7+622	Desert Canyon per STANTEC Plans RS 3987.91	North Channel	2.89
13887.91	7+722	Desert Canyon per STANTEC Plans RS 3887.91	North Channel	2.99
13787.91	7+822	Desert Canyon per STANTEC Plans RS 3787.91	North Channel	3.08
13687.91	7+922	Desert Canyon per STANTEC Plans RS 3687.91	North Channel	3.14
13602.91	8+007	Desert Canyon per STANTEC Plans RS 3602.91, begin transition	North Channel	3.22
13582.54	8+027	Desert Canyon per STANTEC Plans -	North Channel	1.81

NEW HEC-RAS River Sta.	Cross Section Sta	Description Of Facility	Channel	Hydraulic Depth (ft)
13562.17	8+048	Desert Canyon per STANTEC Plans RS 3562.17, end transition	North Channel	1.29
13562.16	8+048	Desert Canyon per STANTEC Plans RS 3562.16, RCB inlet	North Channel	1.45
13557.18	8+053	Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic analysis only)	North Channel	
13552.2	8+058	Desert Canyon per STANTEC Plans RS 3552.2, begin existing south cell box	North Channel	1.48
13478.79	8+131	Desert Canyon per STANTEC Plans RS 3478.79, end existing south cell box	North Channel	1.72
13476.6	8+133	Desert Canyon per STANTEC Plans RS 3474.46, RCB PT	North Channel	1.73
13425.61	8+184	Desert Canyon per STANTEC Plans RS 3425.61, RCB PC	North Channel	1.9
13410.61	8+199	Desert Canyon per STANTEC Plans RS 3410.61, RCB PT	North Channel	1.94
13353.48	8+256	Desert Canyon per STANTEC Plans RS 3353.48, RCB PC	North Channel	2.14
13343.61	8+266	Desert Canyon per STANTEC Plans RS 3343.61, Dual 12'x6' RCB outlet	North Channel	2.17
13343.6	8+266	Desert Canyon per STANTEC Plans RS 3343.6, upstream limit of openspace channel	North Channel	1.89
13333.3	8+277	Desert Canyon per STANTEC Plans -	North Channel	4.5
13323	8+287	Desert Canyon per STANTEC Plans RS 3323, begin 50' channel	North Channel	4.19
13307.38	8+303	Desert Canyon per STANTEC Plans -	North Channel	3.95
13291.77	8+318	Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance road channel tie in	North Channel	4.28
13267.98	8+342	Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance road channel tie in	North Channel	3.75
13244.2	8+366	Desert Canyon per STANTEC Plans RS 3244.2	North Channel	3.27
13234.75	8+375	Desert Canyon per STANTEC Plans RS 3234.75, end transition	North Channel	3.1
13234.74	8+375	Desert Canyon per STANTEC Plans RS 3234.74, end transition	North Channel	3.1
13229.38	8+381	Desert Canyon per STANTEC Plans RS 3229.38, Upstream of south ramp entrance	North Channel	3.26
13229.37	8+381	Desert Canyon per STANTEC Plans RS 3229.37, South ramp entrance	North Channel	3.26
13221.37	8+389	Desert Canyon per STANTEC Plans RS 3221.37, begin south ramp transition	North Channel	3.26
13167.84	8+442	Desert Canyon per STANTEC Plans -	North Channel	3.36
13114.31	8+496	Desert Canyon per STANTEC Plans RS 3114.31, begin south wall of south ramp	North Channel	3.13
13114.3	8+496	Desert Canyon per STANTEC Plans RS 3114.3, begin south wall of south ramp	North Channel	3.13

NEW HEC-RAS River Sta.	Cross Section Sta	Description Of Facility	Channel	Hydraulic Depth (ft)
13060.1	8+550	Desert Canyon per STANTEC Plans RS 3060.10	North Channel	2.9
13044.11	8+566	Desert Canyon per STANTEC Plans RS 3044.11, upstream north ramp entrance	North Channel	3.17
13044.1	8+566	Desert Canyon per STANTEC Plans RS 3033.34, North ramp grade break	North Channel	3.3
13018.22	8+592	Desert Canyon per STANTEC Plans RS 3018.22, south ramp tie in	North Channel	3.43
13018.21	8+592	Desert Canyon per STANTEC Plans RS 3018.21, south ramp tie in	North Channel	3.43
13010.22	8+600	Desert Canyon per STANTEC Plans RS 3010.22, south ramp tie in	North Channel	3.4
13010.21	8+600	Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in	North Channel	3.4
12954.02	8+656	Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in	North Channel	3.17
12943.65	8+666	Desert Canyon per STANTEC Plans RS 2943.65, begin north wall north ramp	North Channel	3.18
12906.81	8+703	Desert Canyon per STANTEC Plans -	North Channel	2.71
12869.97	8+740	Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall	North Channel	3.03
12869.96	8+740	Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall	North Channel	3.03
12829.26	8+781	Desert Canyon per STANTEC Plans -	North Channel	3.16
12788.55	8+821	Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in	North Channel	3.3
12788.54	8+821	Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in	North Channel	3.3
12780.55	8+829	Desert Canyon per STANTEC Plans RS 2780.55, north ramp tie in	North Channel	3.27
12780.54	8+829	Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in	North Channel	3.27
12724.23	8+886	Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in	North Channel	3.06
12667.92	8+942	Desert Canyon per STANTEC Plans RS 2667.92, end north ramp wall	North Channel	2.98
12667.91	8+942	Desert Canyon per STANTEC Plans RS 2667.91, end north ramp wall	North Channel	2.98
12598.93	9+011	Desert Canyon per STANTEC Plans -	North Channel	2.96
12529.94	9+080	Desert Canyon per STANTEC Plans RS 2529.94, Begin Transition	North Channel	2.55
12499.95	9+110	Desert Canyon per STANTEC Plans RS 2499.93, end transition, begin 30' turn around pad	North Channel	1.48
12499.94	9+110	Desert Canyon per STANTEC Plans RS 2499.94, end transition, begin 30' turn around pad	North Channel	1.48
12469.94	9+140	Desert Canyon per STANTEC Plans RS 2469.94, top of nuisance drain headwall, end turn around pad	North Channel	1.52

NEW HEC-RAS River Sta.	Cross Section Sta	Description Of Facility	Channel	Hydraulic Depth (ft)
12469.93	9+140	Desert Canyon per STANTEC Plans RS 2469.93, begin nuisance channel, begin nuisance	North Channel	1.52
12435.49	9+174	Desert Canyon per STANTEC Plans RS 2469.93, begin nuisance channel, begin nuisance	North Channel	1.56
12401.05	9+209	Desert Canyon per STANTEC Plans RS 2401.05, nuisance channel GB, end nuisance channel transition	North Channel	1.51
12400	9+210	Desert Canyon per STANTEC Plans RS 2400	North Channel	1.51
12350	9+260	Desert Canyon per STANTEC Plans RS 2350	North Channel	1.46
12320	9+290	Desert Canyon per STANTEC Plans RS 2320	North Channel	1.46
12312.18	9+298	Desert Canyon per STANTEC Plans RS 2312.18, upstream Eastgate Bridge face	North Channel	1.45
12312.17	9+298	Desert Canyon per STANTEC Plans RS 2312.17, begin abutments	North Channel	1.45
12278.95	9+331	Desert Canyon per STANTEC Plans RS 2278.95	North Channel	1.66
12253.91	9+356	Desert Canyon per STANTEC Plans RS 2253.91, south abutment bend	North Channel	1.7
12217.72	9+392	Desert Canyon per STANTEC Plans RS 2217.72, downstream Eastgate Bridge	North Channel	1.99
12203.57	9+406	Desert Canyon per STANTEC Plans RS 2203.57, begin half trapezoidal channel	North Channel	2.04
12162.19	9+448	Desert Canyon per STANTEC Plans RS 2162.19, end transition & bend	North Channel	2.22
12150	9+460	Desert Canyon per STANTEC Plans RS 2150, end 3:1 left side slope	North Channel	2.15
12125	9+485	Desert Canyon per STANTEC Plans RS 2125, begin 2:1 left side slope	North Channel	2.24
12097.31	9+513	Desert Canyon per STANTEC Plans RS 2097.31, upstream face Easter Lily	North Channel	2.09
12097.3	9+513	Desert Canyon per STANTEC Plans RS 2097.30, begin abutment	North Channel	2.38
12033.7	9+576	Desert Canyon per STANTEC Plans RS 2033.7, end abutment	North Channel	2.12
12033.69	9+576	Desert Canyon per STANTEC Plans RS 2033.69, end Easter Lily bridge	North Channel	2.01
12000	9+610	Desert Canyon per STANTEC Plans RS 2000	North Channel	2.1
11924.18	9+686	Desert Canyon per STANTEC Plans RS 1924.18, Pioneer Outfall 12'x8' RCB Outlet (South Channel)	North Channel	2.38
11911.68	9+698	Desert Canyon per STANTEC Plans -	North Channel	2.35
11899.18	9+711	Desert Canyon per STANTEC Plans -	North Channel	2.33
11886.68	9+723	Desert Canyon per STANTEC Plans -	North Channel	2.32
11874.18	9+736	Desert Canyon per STANTEC Plans RS 1874.18, end south channel nuisance channel transition	North Channel	2.31

NEW HEC-RAS River Sta.	Cross Section Sta	Description Of Facility	Channel	Hydraulic Depth (ft)
11851.12	9+759	Desert Canyon per STANTEC Plans -	North Channel	2.3
11828.06	9+782	Desert Canyon per STANTEC Plans	North Channel	3.22
11826.06	9+784	Desert Canyon per STANTEC Plans -	North Channel	2.67
11805	9+805	Desert Canyon per STANTEC Plans RS 1805, reach end	North Channel	2.39
11800	9+810	Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin	Combined Channel	1.85
11799.99	9+810	Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin	Combined Channel	1.85
11790	9+820	Desert Canyon per STANTEC Plans RS 1790	Combined Channel	1.81
11769.13	9+841	Desert Canyon per STANTEC Plans RS 1769.13	Combined Channel	4.26
11751.44	9+859	Desert Canyon per STANTEC Plans RS 1751.44	Combined Channel	4.4
11739.7	9+870	Desert Canyon per STANTEC Plans RS 1739.7, begin nuisance channel merge	Combined Channel	4.47
11732.13	9+878	Desert Canyon per STANTEC Plans RS 1732.13	Combined Channel	4.51
11720	9+890	Desert Canyon per STANTEC Plans RS 1720, end transition	Combined Channel	4.58
11712.87	9+897	Desert Canyon per STANTEC Plans RS 1712.87, end nuisance channel merge	Combined Channel	4.6
11689.21	9+921	Desert Canyon per STANTEC Plans RS 1689.21	Combined Channel	4.67
11675	9+935	Desert Canyon per STANTEC Plans RS 1675	Combined Channel	4.71
11634.34	9+976	Desert Canyon per STANTEC Plans 1634.34, begin left channel wall transition	Combined Channel	4.54
11624.05	9+986	Desert Canyon per STANTEC Plans RS 1624.05, end left side slope	Combined Channel	4.63
11618.85	9+991	Desert Canyon per STANTEC Plans RS 1618.85, end left channel wall transition	Combined Channel	4.54
11596.34	10+014	Desert Canyon per STANTEC Plans RS 1596.34, begin left side slope transition	Combined Channel	4.58
11527.17	10+083	Desert Canyon per STANTEC Plans RS 1527.17, end left slope transition, end left retaining wall	Combined Channel	4.07
11500	10+110	Desert Canyon per STANTEC Plans RS 1500	Combined Channel	4.08
11450	10+160	Desert Canyon per STANTEC Plans RS 1450	Combined Channel	4.1
11400	10+210	Desert Canyon per STANTEC Plans RS 1400	Combined Channel	4.11
11377.99	10+232	Desert Canyon per STANTEC Plans RS 1377.99, begin compound curve	Combined Channel	4.12
11350	10+260	Desert Canyon per STANTEC Plans RS 1350	Combined Channel	4.13

NEW HEC-RAS River Sta.	Cross Section Sta	Description Of Facility	Channel	Hydraulic Depth (ft)
11300	10+310	Desert Canyon per STANTEC Plans RS 1300	Combined Channel	4.16
11278.76	10+331	Desert Canyon per STANTEC Plans RS 1278.76, compound curve midpoint	Combined Channel	4.17
11250	10+360	Desert Canyon per STANTEC Plans RS 1250	Combined Channel	4.19
11200	10+410	Desert Canyon per STANTEC Plans RS 1200	Combined Channel	4.22
11175.26	10+435	Desert Canyon per STANTEC Plans RS 1175.26	Combined Channel	4.24
11154.55	10+455	Desert Canyon per STANTEC Plans RS 1154.55, end compound curve	Combined Channel	4.25
11125	10+485	Desert Canyon per STANTEC Plans RS 1125, begin right channel wall	Combined Channel	4.3
11116.35	10+494	Desert Canyon per STANTEC Plans RS 1116.35, begin channel transition	Combined Channel	4.31
11100	10+510	Desert Canyon per STANTEC Plans RS 1100,	Combined Channel	4.31
11050	10+560	Desert Canyon per STANTEC Plans RS 1050	Combined Channel	4.38
11033.37	10+577	Desert Canyon per STANTEC Plans RS 1033.37, begin left channel wall	Combined Channel	4.35
11007.4	10+603	Desert Canyon per STANTEC Plans RS 1007.4, begin nuisance channel transition	Combined Channel	4.32
10973.86	10+636	Desert Canyon per STANTEC Plans RS 973.86, begin rectangular channel	Combined Channel	4.54
10950.26	10+660	Desert Canyon per STANTEC Plans RS 950.26, end nuisance channel	Combined Channel	3.76
10909.89	10+700	Desert Canyon per STANTEC Plans RS 909.89, begin channel bottom cross fall transition	Combined Channel	3.36
10834.9	10+775	Desert Canyon per STANTEC Plans RS 834.9, end channel transition, begin VTN Pioneer Phase II 64+15.01	Combined Channel	2.63
10834.89	10+775	Pioneer Phase II Channel per VTN Plans 64+15.01	Combined Channel	2.8
10599.9	11+010	Pioneer Phase II Channel per VTN Plans 66+50.00	Combined Channel	3.49
10599.89	11+010	Pioneer Phase II Channel per VTN Plans 66+50.01	Combined Channel	3.26
10529.91	11+080	Pioneer Phase II Channel per VTN Plans 67+20.00	Combined Channel	4.28
10429.91	11+180	Pioneer Phase II Channel per VTN Plans 68+20.01	Combined Channel	3.96
10429.9	11+180	Pioneer Phase II Channel per VTN Plans 68+20.01	Combined Channel	4.27
10289.92	11+320	Pioneer Phase II Channel per VTN Plans 69+60.00	Combined Channel	3.55
10289.91	11+320	Pioneer Phase II Channel per VTN Plans 69+60.01	Combined Channel	3.42
10209.93	11+400	Pioneer Phase II Channel per VTN Plans 70+40.00	Combined Channel	3.18

NEW HEC-RAS River Sta.	Cross Section Sta	Description Of Facility	Channel	Hydraulic Depth (ft)
10124.93	11+485	Pioneer Phase II Channel per VTN Plans 71+25.00	Combined Channel	3.6
10124.92	11+485	Pioneer Phase II Channel per VTN Plans 71+25.01	Combined Channel	3.8
9999.93	11+610	Pioneer Phase II Channel per VTN Plans 72+50.00	Combined Channel	2.83
9999.92	11+610	Pioneer Phase II Channel per VTN Plans 72+50.01	Combined Channel	2.64
9905.49	11+704	Pioneer Phase II Channel per VTN Plans 73+44.45	Combined Channel	2.89
9845.49	11+764	Pioneer Phase II Channel per VTN Plans 74+04.45	Combined Channel	2.73
9245.49	12+364	Pioneer Phase II Channel per VTN Plans 80+04.45 - End 600' DS	Combined Channel	3.31
12150	-	Pioneer Phase I Channel per VTN Plans RS 2150, south channel approach (Pioneer Outfall 12'x8' RCB)	South Channel	3.14
12100	-	Pioneer Phase I Channel per VTN Plans RS 2100	South Channel	3.14
12050	-	Pioneer Phase I Channel per VTN Plans RS 2050	South Channel	3.14
12000	-	Pioneer Phase I Channel per VTN Plans RS 2000	South Channel	3.14
11950	-	Desert Canyon per STANTEC Plans RS 1950	South Channel	3.14
11924.19	-	Desert Canyon per STANTEC Plans RS 1924.19, Pioneer Outfall 12'x8' RCB outlet	South Channel	3.14
11911.68	-	Desert Canyon per STANTEC Plans	South Channel	1.82
11899.18	-	Desert Canyon per STANTEC Plans RS 1899.18	South Channel	1.45
11886.68	-	Desert Canyon per STANTEC Plans	South Channel	1.32
11874.18	-	Desert Canyon per STANTEC Plans RS 1874.18, end nuisance channel transition	South Channel	1.34
11851.12	-	Desert Canyon per STANTEC Plans	South Channel	1.39
11828.06	-	Desert Canyon per STANTEC Plans	South Channel	1.43
11805	-	Desert Canyon per STANTEC Plans	South Channel	1.47

*Note: For all stations, Hydraulic Depth stays within channel specifications. (See Appendix D for Post-Development HEC-RAS Cross-sections.)

5.0 CONCLUSION

The data and calculations show that the existing FEMA FIRM Panel 2585 dated, September 27, 2002, needs to be revised to meet current effective flood zone delineations. See Figure 3.1, Appendix A, to view the annotated FEMA flood zone map. Figure 3.3, shows the proposed revision to the existing flood zone delineations.

6.0 REFERENCES

1. Clark County Regional Flood Control District, *Hydrologic Criteria and Drainage Design Manual*, August 1999.

2. Clark County Regional Flood Control District, *Flood Control Master Plan Update of the Las Vegas Valley*, 2002 – by PBS&J, G.C. Wallace, and Louis Berger Group.

3. Flood Hydrograph Package (HEC-1) User Manual, September 1990.

4. Water Surface and Pressure Gradient Hydraulic Analysis System (WSPG) User Manual, April 1979.

5. Gibson Channel Hydrology Design Report, September 2004, submitted by Broadbent & Associates, Inc.

6. Gibson Channel (Warm Springs to Cornucopia Avenue), Final Drainage Report, February 2004, submitted by VTN Nevada.

7. Desert Canyon Open Space CLOMR, November 2005, submitted by Stantec Consulting.

8. Pioneer Detention Basin Outfall Structure Phase I Report Design Report, July 1999, submitted by VTN Nevada.

9. Pioneer Detention Basin Outfall Phase II Crossing at Boulder Highway Report Design Report, November 2005, submitted by VTN Nevada.

APPENDIX A

FEMA FORMS

FEMA 'OVERVIEW & CONCURRENCE FORM'
– MT-2 FORM 1

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 480287	City of Katy Harris County	TX TX	480301 48201C	0005D 0220G	02/08/83 09/28/90
320005	CITY OF HENDERSON CLARK COUNTY, UNINCORPORATED AREAS	NV	32003C	2595E	09/27/02
320003	CITY OF HENDERSON CLARK COUNTY, UNINCORPORATED AREAS	NV	32003C	2585E	01/16/04

2. Flooding Source: PITTMAN WASH

3. Project Name/Identifier: GIBSON CHANNEL / PIONEER OUTFALL

4. FEMA zone designations affected: A AND X (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: Jeremy Leavitt, P.E.	Company: VTN Nevada	
Mailing Address: 2727 S. Rainbow Blvd. Las Vegas, Nevada 89146	Daytime Telephone No.: 702 253-2359	Fax No.: 702 247-4262
	E-Mail Address: jeremyl@vtnnv.com	
Signature of Requester (required):		Date: 02/28/06

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: JOSEPH DAMIANI, P.E. PROJECT MANAGER		Telephone No.: 702 267-3050
Community Name: City of Henderson	Community Official's Signature (required): Joseph V. Damiani	Date: 02/28/06

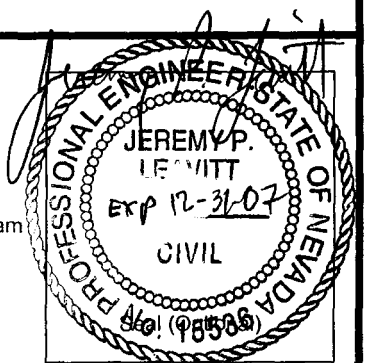
CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

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: Jeremy Leavitt, P.E.	License No.: NV 15536	Expiration Date: 12-31-07
Company Name: VTN Nevada	Telephone No.: 702 253-2359	Fax No.: 702 247-4262
Signature:		Date: 02/28/06

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 dam
☐ 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



FEMA 'RIVERINE HYDROLOGY & HYDRAULICS FORM'

– MT-2 FORM 2

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: PITTMAN WASH
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)
Pioneer Detention Basin	5.56	N/A	4,575

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	Start of Gibson Channel -Post	18653.05 (2+957)		1729.65
	Start of Gibson Channel -Pre	92 (3+000)	1730.83	
Upstream Limit	End of Gibson Channel-Post Only	9845.49 (11+764)		1622.32
	End of Gibson Channel-Pre Only	9.78 (12+598)	1620.16	

2. Hydraulic Method Used

Hydraulic Analysis HEC-RAS & WSPG [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: N/A	Floodway File Name:
Corrected Effective Model*	Natural File Name: N/A	Floodway File Name:
Existing or Pre-Project Conditions Model	Natural File Name: gib_pre.prj	Floodway File Name:
Revised or Post-Project Conditions Model	Natural File Name: postproject.prj	Floodway File Name:
Other - (attach description) WSPG	Natural File Name: gibson.out	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.

FEMA 'RIVERINE STRUCTURES FORM'

– MT-2 FORM 3

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: PITTMAN WASH
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: Existing (2) 9'x6' RCB #1**

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

   Location of Structure: Upstream of Gibson Channel (Warm Springs to Cornucopia Ave)

   Downstream Limit/Cross Section: 18653.05 (2+957)

   Upstream Limit/Cross Section:

2. **Name of Structure: 18.70'x4.5' Rect. Channel**

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

   Location of Structure: Gibson Channel Sta. 2+957 to 3+296

   Downstream Limit/Cross Section: 18314.47 (3+296)

   Upstream Limit/Cross Section: 18653.05 (2+957)

3. **Name of Structure: Existing (2) 9'x6' RCB #2**

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

   Location of Structure: Gibson Channel Sta. 2+957 to 4+574

   Downstream Limit/Cross Section: 17036.02 (4+574)

   Upstream Limit/Cross Section: 18653.05 (2+957)

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

FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE STRUCTURES FORM

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Flooding Source: PITTMAN WASH
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

4. **Name of Structure: 18.70'x4.5' RCB #1**

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

Location of Structure: Gibson Channel Sta. 4+571 to 5+388

Downstream Limit/Cross Section: 16221.83 (5+388)

Upstream Limit/Cross Section: 17036.02 (4+574)

5. **Name of Structure: Existing (2) 10.0'x6.0' RCB**

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

Location of Structure: Gibson Channel 5+388 to 5+735

Downstream Limit/Cross Section: 15874.83 (5+735)

Upstream Limit/Cross Section: 16221.83 (5+388)

6. **Name of Structure: 21.80'x4.5' Rect. Channel**

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

Location of Structure: Gibson Channel Sta. 5+735 to 6+595

Downstream Limit/Cross Section: 15015.09 (6+595)

Upstream Limit/Cross Section: 15874.83 (5+735)

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

FEDERAL EMERGENCY MANAGEMENT AGENCY

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Flooding Source: PITTMAN WASH
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

7. **Name of Structure: Existing (3) 9'x5' RCB**

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

Location of Structure: Gibson Channel Sta. 6+595 to 7+017

Downstream Limit/Cross Section: 14592.55 (7+017)

Upstream Limit/Cross Section: 15015.09 (6+595)

8. **Name of Structure: Rect. TS Structure to 11.5'x8.0' Rect. Channel**

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

Location of Structure: Gibson Channel 7+017 to 7+517

Downstream Limit/Cross Section: 14092.97 (7+517)

Upstream Limit/Cross Section: 14592.55 (7+017)

9. **Name of Structure: Gibson Channel 55+60.08 to Stantec prj 35+62.16**

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

Location of Structure: Gibson Channel 7+517 to Stantec prj 8+048

Downstream Limit/Cross Section: 13562.16 (8+048)

Upstream Limit/Cross Section: 14092.97 (7+517)

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

FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE STRUCTURES FORM

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Flooding Source: PITTMAN WASH
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

10. **Name of Structure: (2) 12'x6' RCB Stantec**

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

Location of Structure: Stantec Desert Canyon 8+048 to 8+266

Downstream Limit/Cross Section: 13343.6 (8+266)

Upstream Limit/Cross Section: 13562.16 (8+048)

11. **Name of Structure: Stantec Armorflex Channel TS**

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

Location of Structure: Stantec Desert Canyon 8+266 to 8+375

Downstream Limit/Cross Section: 13234.75 (8+375)

Upstream Limit/Cross Section: 13343.6 (8+266)

12. **Name of Structure: Armorflex Channel (Stantec)**

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

Location of Structure: Stantec Desert Canyon 8+375 to 10+775 (VTN Pioneer Phase 1)

Downstream Limit/Cross Section: 10834.9 (10+775)

Upstream Limit/Cross Section: 13234.75 (8+375)

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

FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE STRUCTURES FORM

O.M.B. No. 3067-0148
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Flooding Source: PITTMAN WASH
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

13. **Name of Structure: Pioneer Phase 1 RCB Section**

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

Location of Structure: Pioneer Phase 1 Sta. 10+775 to 11+400

Downstream Limit/Cross Section: 10209.93 (11+400)

Upstream Limit/Cross Section: 10834.9 (10+775)

14. **Name of Structure: Pioneer Phase 1 Rect. Channel Section**

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

Location of Structure: Pioneer Phase 1 Sta. 11+400 to 11+764

Downstream Limit/Cross Section: 9845.49 (11+764)

Upstream Limit/Cross Section: 10209.93 (11+400)

15. **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 #2

Flooding Source: Pittman Watershed

Name of Structure: 18.70'x4.5' Rect. Channel

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☒ Other (Describe): Rect. Channel
- ☐ 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 847 (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. N/A

C. BRIDGE/CULVERT #1

Flooding Source: Pittman Watershed

Name of Structure: Existing (2) 9'x6' RCB #1

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-RAS
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. N/A

B. CHANNELIZATION

Flooding Source:

Name of Structure:

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☐ Other (Describe):
- ☐ 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 (cfs) and/or the -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 #3

Flooding Source: Pittman Watershed

Name of Structure: Existing (2) 9'x6' RCB #2

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-RAS
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. N/A

B. CHANNELIZATION

Flooding Source:

Name of Structure:

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☒ Debris basin/detention basin
- ☐ Other (Describe):
- ☐ 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 (cfs) and/or the -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 #4

Flooding Source: Pittman Wash

Name of Structure: 18.70'x4.5' RCB #1

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-RAS
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. N/A

B. CHANNELIZATION

Flooding Source:

Name of Structure:

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☐ Other (Describe):
- ☐ 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 (cfs) and/or the -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 #5

Flooding Source: Pittman Wash

Name of Structure: Existing (2) 10.0'x6.0' RCB

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-RAS
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. N/A

B. CHANNELIZATION #6

Flooding Source: Pittman Wash

Name of Structure: 21.80'x4.5' Rect. Channel

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☒ Other (Describe): Rect. Channel
- ☐ 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 (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. N/A

C. BRIDGE/CULVERT

Flooding Source:

Name of Structure:

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):
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.

B. CHANNELIZATION

Flooding Source:

Name of Structure:

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☐ Other (Describe):
- ☐ 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 (cfs) and/or the -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 #7

Flooding Source: Pittman Wash

Name of Structure: Existing (3) 9'x5' RCB

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-RAS
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. N/A

B. CHANNELIZATION #8

Flooding Source: Pittman Wash

Name of Structure: Rect. TS Structure to 11.5'x8' Rect. Channel

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☒ Other (Describe): Rect TS Channel
- ☐ 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 847 (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. N/A

C. BRIDGE/CULVERT

Flooding Source:

Name of Structure:

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):
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.

B. CHANNELIZATION #9

Flooding Source: Pittman Wash

Name of Structure: Gibson Channel 55+60.08 to Stantec prj 35+62.16

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☒ Other (Describe): Rect. Channel
- ☐ 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 1532 (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. N/A

C. BRIDGE/CULVERT

Flooding Source:

Name of Structure:

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):
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.

B. CHANNELIZATION #11

Flooding Source: Pittman Wash

Name of Structure: Stantec Armorflex Channel TS

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☒ Other (Describe):
- ☐ 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 1532 (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. N/A

C. BRIDGE/CULVERT #10

Flooding Source: Pittman Wash

Name of Structure: (2) 12'x6" RCB Stantec

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-RAS
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. N/A

B. CHANNELIZATION #12

Flooding Source: Pittman Wash

Name of Structure: Armorflex Channel (Stantec)

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☒ Other (Describe): Trapizoidial Armorflex Channel
- ☐ 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 3104 (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. N/A

C. BRIDGE/CULVERT

Flooding Source:

Name of Structure:

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):
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.

B. CHANNELIZATION #14

Flooding Source: Pittman Wash

Name of Structure: Pioneer Phase 1 Rect. Channel Section

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☒ Other (Describe): Rect. Channel
- ☐ 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 1813-3631 (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. N/A

C. BRIDGE/CULVERT #13

Flooding Source: Pittman Wash

Name of Structure: Pioneer Phase 1 RCB Section

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-RAS
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. N/A

APPENDIX B

FIGURES

GIBSON CHANNEL
AREA / VICINITY MAP
-FIGURE 1.0

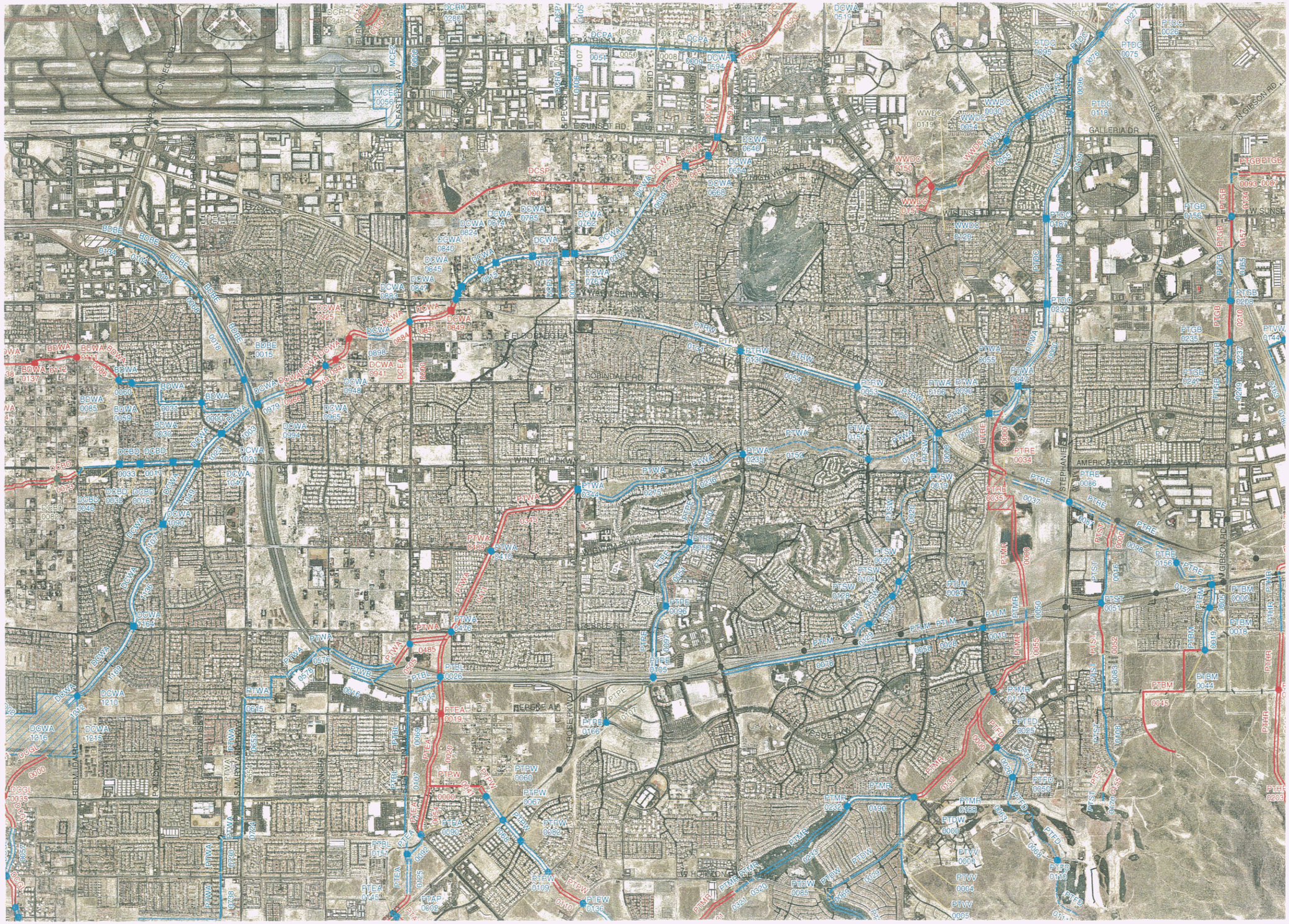


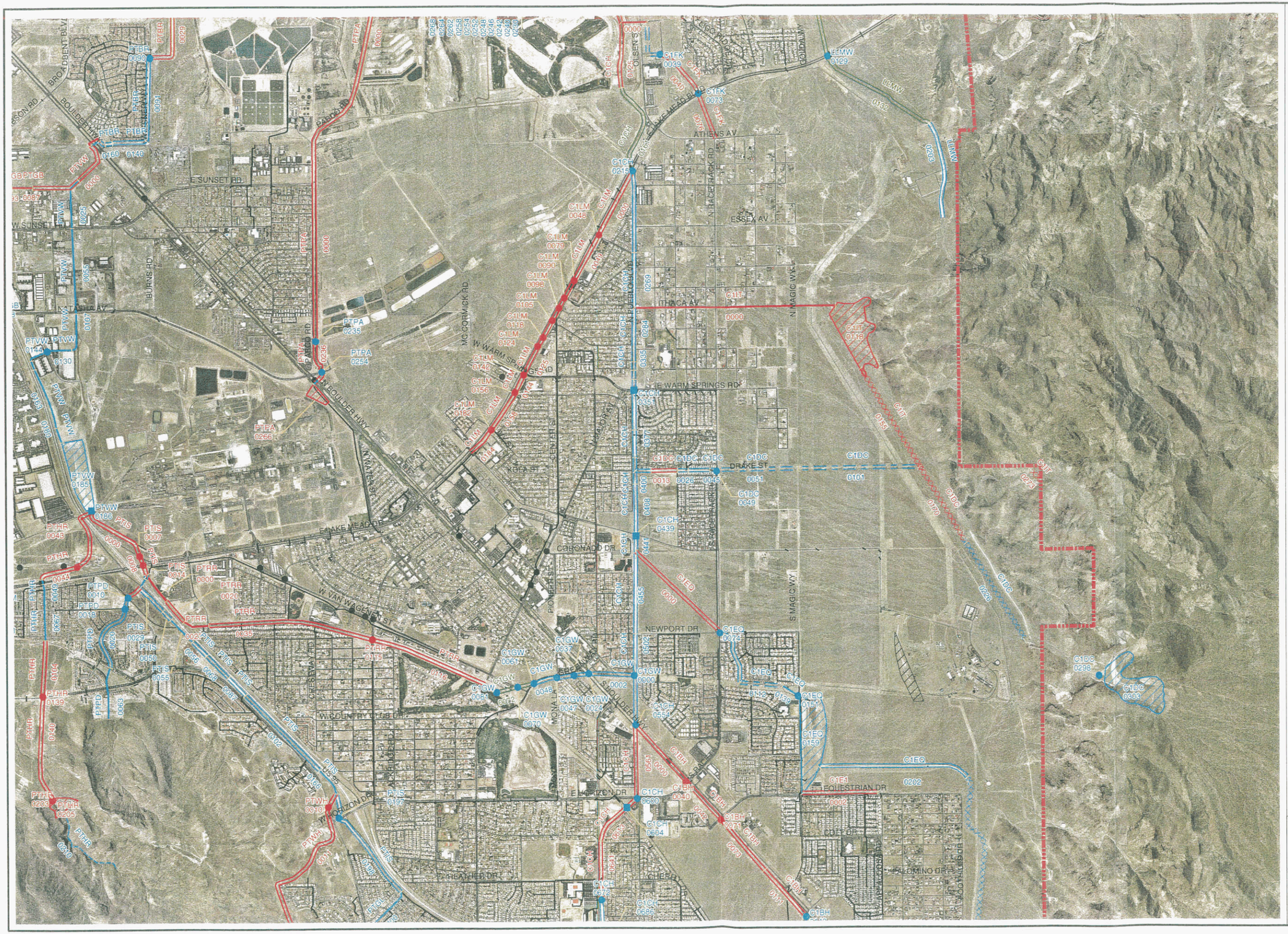
GIBSON CHANNEL TO PIONEER OUTFALL VICINITY MAP

FIG 1

CCRFCD FLOOD CONTROL FACILITIES MAP

- FIGURE (F-21 & F-22)


CLARK COUNTY
REGIONAL FLOOD CONTROL DISTRICT
2002
LAS VEGAS VALLEY
FLOOD CONTROL
MASTER PLAN UPDATE
LEGEND
Ultimate Development Boundary
Existing Facilities
Category A Proposed Facilities
Category B Proposed Facilities
Local Existing Facilities
Local Proposed Facilities
Detention Basin
Culvert
Bridge
Pipeline
Lined Channel
Unlined Channel
Dike
Natural Wash
ID-Mile Separator
N
W
E
S
0
1,000
2,000
3,000
4,000
5,000
Feet
SCALE: 1 inch = 3000 feet
FLOOD CONTROL FACILITIES
FIGURE F-21
PBS&J
G.C. WALLACE, INC.
LB


BROADBENT BLVD
BOULDER HWY
E SUNSET RD
W SUNSET RD
BURNS RD
TASHA AV
FABIAN RD
MCCORMICK RD
N BOULDER HWY
W WARM SPRINGS RD
E WARM SPRINGS RD
LAKE MEAD BLVD
ATHENS AV
ESSEX AV
ITHACA AV
N MAGIC WY
S MAGIC WY
DRAKE ST
CORONADO DR
NEWPORT DR
W COUNTRY CLUB DR
E HORIZON DR
EQUESTRIAN DR
COLOMINO DR
KOLA ST
PIONEER ST
GENTRY ST
CHEROKEE TRL
HEATHER DR
W VAN WAGENEN ST
MONA LISA DR
SHOULDER WAY
SPRING MEADOW DR
CHEROKEE TRL
PTPA 0235
PTPA 0254
PTPA 0266
PTVW 0185
PTVW 0186
PTIS 0914
PTRR 0000
PTRR 0020
PTRR 0115
PTHR 0139
PTHR 0140
PTHR 0203
PTHR 0205
PTWH 0010
PTPD 0040
PTPD 0018
C1LM 0048
C1LM 0079
C1LM 0090
C1LM 0098
C1LM 0105
C1LM 011B
C1LM 0124
C1LM 0142
C1LM 0156
C1LM 0182
C1LM 0184
C1CH 0213
C1CH 0335
C1CH 0439
C1CH 0441
C1CH 0664
C1CH 0672
C1CH 0695
C1DC 0051
C1DC 0101
C1DC 0298
C1DC 0203
C1EO 0074
C1EO 0151
C1EO 0159
C1EO 0202
C1E1 0002
C1BH 0040
C1BH 0071
C1BH 0073
C1GW 0037
C1GW 0048
C1GW 0061
C1GW 0077
C1GW 0000
C1GW 0002
C1GW 0047
C1GW 0024
C1FK 0039
C1FK 0073
C1FK 0000
C1FK 0040
C1LF 0000
C1LF 0116
C1LF 0155
LEMW 0129
LEMW 0132
LEMW 0203
C1HH 0000
C1HH 0125
C1HH 0126
C1HH 0127
C1HH 0128
C1HH 0129
C1HH 0130
C1HH 0131
C1HH 0132
C1HH 0133
C1HH 0134
C1HH 0135
C1HH 0136
C1HH 0137
C1HH 0138
C1HH 0139
C1HH 0140
C1HH 0141
C1HH 0142
C1HH 0143
C1HH 0144
C1HH

ID / River Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
C1BH		C-1 CHANNEL - BOULDER HWY						
0000	P1	Conc Chnl 30'W 6'D 2:1 SS	2140	3224	CP22	C1SDN3	3.19	1.00
0040	P1	3: 15' X 6' RCBC @ Horizon Dr	100	3194	CP21	C1SDN3	3.11	1.00
0042	P1	Conc Chnl 30'W 6'D 2:1 SS	1525	3194	CP21	C1SDN3	3.11	1.00
0071	E	10' X 4' RCBC @ Equestrian Dr	100	2842	CP20	C1SDN3	2.77	1.00
0071	P1	3: 14' X 6' RCBC @ Equestrian Dr	100	2842	CP20	C1SDN3	2.77	1.00
0073	P1	Conc Chnl 30'W 6'D 2:1 SS	2000	2842	CP20	C1SDN3	2.77	0.80
0111	P1	Conc Chnl 20'W 6'D 2:1 SS	1960	1937	CP17	C1SDN3	1.53	0.80
0148	E	5: 8' X 4' RCBC @ Robert Way	120	1832	CP16	C1SDN3	1.42	1.00
0150	E	Earth Chnl 80'-90'W 5'D 2:1 SS with Drop Structures	1745	1832	CP16	C1SDN3	1.42	1.30
0150	P0	Conc Chnl 40'W 4'D 2:1 SS	1745	1832	CP16	C1SDN3	1.42	1.30
C1CH		C-1 CHANNEL						
0040	P2	Conc Chnl 40'W 10'D 0:1 SS	4200	7324	CP61*	C1SDN4	11.92	1.00
0125	P2	Conc Chnl 40'W 10'D 0:1 SS	2100	7324	CP61*	C1SDN4	11.92	1.00
0159	E	Energy Dissipator		7324	CP61*	C1SDN4	11.92	
0161	E	Earth Chnl 30'-60'W 7'-20'D with Gabion 2:1 SS	2750	7324	CP61*	C1SDN4	11.92	2.00
0161	P0	Conc Chnl 40'W 8'D 0:1 SS	2750	7325	CP61*	C1SDN4	11.92	2.00
0213	E	Energy Dissipator		7324	CP61*	C1SDN4	11.92	
0215	E	2: 12' X 9' RCBC @ Lake Mead Dr	270	7324	CP61*	C1SDN4	11.92	3.20
0220	E	Conc Chnl 15'W 9'D 1:1 SS: West Floodwall	2560	7324	CP61*	C1SDN4	11.92	2.30
0269	E	Conc Chnl 15'W 7'D 2:1 SS: West Floodwall	1740	7324	CP61*	C1SDN4	11.92	2.30
0284	E	Conc Chnl 15'W 9'D 1:1 SS: West Floodwall	1760	7324	CP61*	C1SDN4	11.92	1.70
0335	E	Conc Chnl 50'W 12'D 0:1 SS	280	7324	CP61*	C1SDN4	11.92	1.20
0340	E	Conc Chnl 40-50'W 12'D 0:1 SS	300	7324	CP61*	C1SDN4	11.92	1.20
0346	E	Conc Chnl 40'W 6'D 2:1 SS: West Floodwall	290	7324	CP61	C1SDN4	11.92	1.20
0351	E	4: 12' X 7' RCBC @ Warm Springs Rd	100	7175	CP59	C1SDN4	11.25	1.00
0353	E	Conc Chnl 14.5'W 8'D 2:1 SS: West Floodwall	1245	6961	CPC1D	C1SDN4	10.44	0.84
0377	E	Conc Chnl 15'W 10'D 2:1 SS: West Floodwall	815	6961	CPC1D	C1SDN4	10.44	0.84
0392	E	Conc Chnl 50'W 14'D 0:1 SS	325	6961	CPC1D	C1SDN4	10.44	0.70
0398	E	Junction Structure	70	6961	CPC1D	C1SDN4	10.44	
0400	E	Conc Chnl 39.5'W 9'-14'D 0:1 SS	450	5919	CP51	C1SDN4	8.52	2.70
0408	E	Conc Chnl 25'W 9'D 2:1 SS	1650	5919	CP51	C1SDN4	8.52	2.00
0439	E	Single Span Bridge @ Burkholder Blvd	100	5919	CP51	C1SDN4	8.52	2.00
0441	E	Conc Chnl 25'W 9'D 2:1 SS	500	5666	CP27	C1SDN3	6.48	2.00
0455	E	Conc Chnl 25'W 7.5'D 2:1 SS	2695	5666	CP27	C1SDN3	6.48	2.60
0502	E	Conc Chnl 25'W 7'D 2:1 SS	1100	5666	CP27	C1SDN3	6.48	2.50
0523	E	Conc Chnl 39'W 8'D 0:1 SS with Junction Structure	310	5630	CP26	C1SDN3	6.33	2.00
0528	E	Conc Chnl 25'W 7'D 2:1 SS	1340	4876	CP23	C1SDN3	5.33	2.00
0554	E	3: 20' X 7' RCBC @ Boulder Hwy	350	4828	CPC1BH	C1SDN3	5.26	2.40
0561	P3	Conc Chnl 20'W 6'D 0:1 SS	1801	1765	CP14	C1SDN3	2.08	2.00
0600	E	3: 10' X 7' RCBC @ Horizon Dr	436	1765	CP14	C1SDN3	2.08	1.20
0603	P3	Conc Chnl 30'W 6'D 0:1 SS	520	1765	CP14	C1SDN3	2.08	5.34
0604	E	Bridge 36'W 8.5'D @ UPRR	50	1765	CP14	C1SDN3	2.08	1.00
0613	P3	Conc Chnl 12.5'W 6'D 2:1 SS	1470	1765	CP14	C1SDN3	2.08	2.40
0641	P3	Conc Chnl 12.5'W 5'D 2:1 SS	1645	1641	CP13	C1SDN3	1.84	2.70
0672	E	4: 10' X 5' RCBC @ Vermillion Dr	115	1641	CP13	C1SDN3	1.84	0.50
0674	E	Conc Chnl 25'W 6'D 2:1 SS	630	1641	CP13	C1SDN3	1.84	0.70
0686	E	NDOT Sediment Basin		1239	CP12	C1SDN3	1.43	
C1DC		C-1 CHANNEL - DRAKE CHANNEL						
0000	E	Conc Chnl 25'W 5'-14'D 0:1 SS	700	1778	CP55	C1SDN3	1.92	2.70
0013	E	Earth Chnl 10'W 5'D with Conc 2:1 SS	650	1778	CP55	C1SDN3	1.92	2.70
0013	P1	Conc Chnl 16'W 5'D 2:1 SS	650	1778	CP55	C1SDN3	1.92	2.70
0026	E	Conc Chnl 20.5'W 5'D 0:1 SS South Wall, 2:1 SS North Wall	300	1778	CP55	C1SDN3	1.92	2.70
0031	E	Conc Chnl 26'W 5'D 0:1 SS South Wall, 2:1 SS North Wall	750	1778	CP55	C1SDN3	1.92	2.70
0045	E	Junction Structure	200	1778	CP55	C1SDN3	1.92	
0049	E	2: 12' X 6' RCBC @ Racetrack Rd	92	1628	CP54	C1SDN3	1.69	0.50
0051	E	Earth Chnl 20'-50'W 20'-10'D 2:1 SS with 9'-12' Gabion Drop Structures	2640	1628	CP54	C1SDN3	1.69	0.50
0101	E	Earth Chnl 20'-50'W 20'-10'D 2:1 SS with 9'-12' Gabion Drop Structures	3660	1486	CP53	C1SDN3	1.44	0.50
0170	P1	Soil Cement Levee 7.5'	2950	1132	CP52	C1SDN3B	6.39	2.90
0226	E	Soil Cement Levee 5'	3800	1132	CP52	C1SDN3B	6.39	2.90
0298	E	48" RCPC Outlet	226	90	DB5	C1SDN3B	5.41	0.50
0302	E	20,789 cfs PMF Spillway		20789	C1-54	C1SDN3B	5.41	
0303	E	880 ac-ft East C-1 Detention Basin		3397	C1-54	C1SDN3B	5.41	

ID / River Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
C1E1		C-1 CHANNEL - EQUESTRIAN TRIBUTARY 1						
0000	P1	Energy Dissipator		688	CP30	C1SDN3B	1.21	
0002	P1	Conc Chnl 10'W 4.5'D 2:1 SS	2200	688	CP30	C1SDN3B	1.21	1.40
C1EQ		C-1 CHANNEL - EQUESTRIAN D.B. OUTFALL						
0000	P1	Conc Chnl 10'W 5.5'D 2:1 SS	3920	1097	CP48	C1SDN3	1.38	1.40
0074	E	9: 45" X 29" HERCP	220	679	CP46	C1SDN3B	7.82	0.50
0078	E	Grass Chnl 40'W 4.5'D 5:1 SS	1760	679	CP46	C1SDN3B	7.82	1.50
0112	E	Earth Chnl 45'-80'W 4'D 2:1 SS with Drop Structures	1445	679	CP46	C1SDN3B	7.82	1.40
0139	E	5' X 4' RCB	586	224	DB4	C1SDN3B	7.06	1.90
0151	E	Energy Dissipator		224	DB4	C1SDN3B	7.06	
0152	E	48" RCPC Outlet	325	224	DB4	C1SDN3B	7.06	0.40
0158	E	39,100 cfs PMF Spillway		39100	CP44	C1SDN3B	7.06	
0159	E	409 ac-ft Equestrian Detention Basin		5196	CP44	C1SDN3B	7.06	
0202	E	Conc Chnl 20'W 8.0'D 2:1 SS	5000	3115	CP38	C1SDN3B	4.35	2.40
0297	E	Rip Rap Levee 10'	9000	3115	CP38	C1SDN3B	3.49	2.00
C1FK		C-1 CHANNEL - FOUR KIDS						
0000	P2	10' X 5' RCB	770	935	CP72B	C1SDN3	1.00	2.50
0014	E	Earth Chnl 21'W 4'-5'D with Rock 0:1 SS	1280	935	CP72B	C1SDN3	1.00	1.80
0039	E	12' X 4' RCBC @ Eagle Rock Rd	70	935	CP72B	C1SDN3	1.00	2.70
0040	P1	Conc Chnl 10'W 4.5'D 2:1 SS	1750	935	CP72B	C1SDN3	1.00	2.70
0073	E	4: 6' X 3' RCBC @ Lake Mead Dr	160	721	CP72A	C1SDN3	0.78	2.00
0076	P1	Conc Chnl 10'W 5'D 0:1 SS	1400	721	CP72A	C1SDN3	0.78	3.00
C1GW		C-1 CHANNEL - GREENWAY						
0000	E	16' X 6' RCBC @ Pueblo Blvd	114	920	CP25	C1SDN3	1.01	1.00
0002	E	Conc Chnl 6'W 9.5'D 1:1 SS	1170	920	CP25	C1SDN3	1.01	0.40
0024	E	2: 12' X 4' RCBC @ Boulder Hwy	200	920	CP25	C1SDN3	1.01	0.40
0028	E	Conc Chnl 15'W 4'D 1:1 SS	490	920	CP25	C1SDN3	1.01	0.40
0037	E	2: 12' X 4' RCBC	40	920	CP25	C1SDN3	1.01	0.90
0038	E	Conc Chnl 15.3'W 4.8'D 1:1 SS	450	920	CP25	C1SDN3	1.01	0.70
0047	E	2: 12' X 4' RCBC @ Mona Ln	70	568	CP24	C1SDN3	0.63	0.80
0048	E	Conc Chnl 17'W 4'D 1:1 SS	685	568	CP24	C1SDN3	0.63	1.80
0061	E	2: 12' X 4' RCBC @ Greenway Rd	190	568	CP24	C1SDN3	0.63	1.00
0064	E	Earth Chnl 16'-20'W 6'-9'D 0:1 SS	300	568	CP24	C1SDN3	0.63	1.20
0064	P0	Conc Chnl 15'W 4'D 0:1 SS	300	568	CP24	C1SDN3	0.63	1.20
0070	E	2: 12' X 4' RCBC @ Van Wagenen Ave	85	568	CP24	C1SDN3	0.63	0.80
0072	E	Earth Chnl 28'W 3'-8'D 2:1 SS	470	568	CP24	C1SDN3	0.63	0.80
0072	P0	Conc Chnl 15'W 4.5'D 0:1 SS	470	568	CP24	C1SDN3	0.63	0.80
0081	E	3: 9.5' X 6.5' CMAP @ UPRR	50	568	CP24	C1SDN3	0.63	0.80
C1IT		C-1 CHANNEL - ITHACA						
0000	P1	72" RCP Outlet	6200	424	DB6	C1SDN3B	3.42	2.20
0117	P1	16,830 cfs PMF Spillway		16830	CP64	C1SDN3B	3.42	
0118	P1	310 ac-ft N.E. Detention Basin		1683	CP64	C1SDN3B	3.42	
0155	P1	Soil Cement Levee 11'	4000	1514	C1-65	C1SDN3B	2.54	3.00
0273	P1	Soil Cement Levee 11'	400	1514	C1-65	C1SDN3B	2.54	3.00
C1LM		C-1 CHANNEL - LAKE MEAD						
0000	P1	Conc Chnl 10'W 6'D 2:1 SS	2525	1385	CP71	C1SDN3	1.96	0.90
0048	P1	2: 11' X 6' RCBC @ Mohawk Dr	60	1385	CP71	C1SDN3	1.96	0.90
0049	P1	Conc Chnl 10'W 6'D 2:1 SS	1560	1385	CP71	C1SDN3	1.96	0.90
0079	P1	2: 11' X 6' RCBC @ Pawnee Ln	60	1385	CP71	C1SDN3	1.96	0.90
0083	P1	Conc Chnl 10'W 6'D 2:1 SS	570	1385	CP70	C1SDN3	1.77	0.90
0090	P1	2: 11' X 6' RCBC @ Navajo Dr	60	1305	CP70	C1SDN3	1.77	0.90
0092	P1	Conc Chnl 10'W 6'D 2:1 SS	325	1305	CP70	C1SDN3	1.77	0.90
0098	P1	2: 11' X 6' RCBC @ Shoshone Dr	60	1305	CP70	C1SDN3	1.77	0.90
0099	P1	Conc Chnl 10'W 6'D 2:1 SS	345	1305	CP70	C1SDN3	1.77	0.90
0105	P1	2: 11' X 6' RCBC @ Center St	100	1305	CP70	C1SDN3	1.77	0.90
0107	P1	Conc Chnl 10'W 6'D 2:1 SS	555	1305	CP70	C1SDN3	1.77	0.90
0118	P1	2: 11' X 6' RCBC @ Entrance	50	1305	CP70	C1SDN3	1.77	0.90
0119	P1	Conc Chnl 10'W 6'D 2:1 SS	295	1305	CP70	C1SDN3	1.77	0.90
0124	P1	2: 11' X 6' RCBC @ Entrance	50	1305	CP70	C1SDN3	1.77	0.90
0125	P1	Conc Chnl 10'W 6'D 2:1 SS	870	1305	CP70	C1SDN3	1.77	0.90
0142	P1	15' X 6' RCBC @ Warm Springs Rd	125	1054	CP69	C1SDN3	1.44	0.90
0144	P1	Conc Chnl 10'W 4.5'D 2:1 SS	655	682	CP67	C1SDN3	0.81	0.90
0156	P1	11' X 6' RCBC @ Ash St	60	682	CP67	C1SDN3	0.81	0.90
0158	P1	Conc Chnl 10'W 4.5'D 2:1 SS	1305	682	CP67	C1SDN3	0.81	0.90
0182	P1	11' X 6' RCBC @ Ivy St	60	682	CP67	C1SDN3	0.81	0.90
0184	P1	Conc Chnl 10'W 4.5'D 2:1 SS	900	682	CP67	C1SDN3	0.81	0.90

ID / River Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
LLMW		LAKE LAS VEGAS - MAGIC WAY						
0003	P0	Conc Chnl 10'W 6'D 2:1 SS	6670	1932	CP80	C1SDN3	3.52	3.50
0129	E	6: 8' X 3' RCBC	160	1842	CP79	C1SDN3	3.04	1.00
0132	P0	Conc Chnl 15'W 5'D 2:1 SS	3720	1564	CP77	C1SDN3	2.30	3.10
0203	E	Conc Chnl 35'W 5'-6'D 0.5:1 SS	3000	1515	C1-85	C1SDN3	2.06	3.10
PTBR		PITTMAN WASH - BURNS						
0029	E	Rip Rap Chnl 35'W 9'D 2:1 SS	2850	5448	CPBR160	PIT3SC	5.85	0.68
0029	P1	Rip Rap Chnl 60'W 9'D 3:1 SS	2850	5448	CPBR160	PIT3SC	5.85	0.68
0090	E	2: 24' X 8.5' RCAC @ Weisner Way	190	5448	CPBR160	PIT3SC	5.85	0.90
0091	E	Conc Chnl 25'W 9'D 2:1 SS	2570	5448	CPBR160	PIT3SC	5.85	1.10
0140	E	Conc Chnl 25'W 9'D 2:1 SS	1110	5254	CPBR150	PIT3SC	5.54	0.50
0160	E	Conc Chnl 10'W 8'D 2:1 SS	210	2881	CPBR090	PIT3SC	3.19	1.00
0163	E	Conc Chnl 20'W 8'D 0:1 SS	250	2881	CPBR090	PIT3SC	3.19	1.00
0164	P1	Add 4: 16' X 4' RCBC @ Boulder Hwy	330	2881	CPBR090	PIT3SC	3.19	1.50
0165	E	2: 6' X 4' RCBC @ Boulder Hwy	330	2881	CPBR090	PIT3SC	3.19	1.50
PTGB		PITTMAN WASH - GIBSON						
0058	P1	Conc Chnl 15'W 5.5'D 2:1 SS	1560	1532	CPBR080	PIT3SC	1.76	1.50
0087	P3	2: 10' X 6' RCB	660	1532	CPBR080	PIT3SC	1.76	0.50
0093	E	Earth/Conc Chnl 8'W 5'D 2:1 SS	550	1532	CPBR080	PIT3SC	1.76	1.50
0093	P1	Conc Chnl 36'W 5'D 0:1 SS	550	1532	CPBR080	PIT3SC	1.76	1.50
PTGL		PITTMAN GAS LINE						
0000	E	72" RCP	1675	678	CPPD030	PIT3SC	0.69	3.40
PTHR		PITTMAN HORIZON RIDGE						
0000	P1	Conc Chnl 15'W 5'D 2:1 SS	2300	1652	CPPD170	PIT3SC	1.49	3.00
0043	P1	2: 12' X 6' RCBC @ UPRR	100	1371	CPPD165	PIT3SC	1.25	2.00
0044	P1	Conc Chnl 15'W 5.5'D 2:1 SS	1250	1371	CPPD165	PIT3SC	1.25	1.20
0049	E	12' X 5' RCBC @ Lake Mead Dr	150	1345	CPPD160	PIT3SC	1.20	1.20
0067	E	8' X 5' RCB	1800	1345	CPPD160	PIT3SC	1.20	2.60
0104	P1	Conc Chnl 15'W 4.5'D 2:1 SS	1825	1345	CPPD160	PIT3SC	1.20	4.90
0139	E	36" RCP @ Horizon Ridge Pkwy	100	1065	CPPD135	PIT3SC	0.89	7.00
0139	P1	12' X 6' RCBC @ Horizon Ridge Pkwy	100	1065	CPPD135	PIT3SC	0.89	7.00
0140	P1	Conc Chnl 15'W 4'D 2:1 SS	3425	1065	CPPD135	PIT3SC	0.89	4.00
0203	P1	84" RCP Outlet	200	882	CPPD125	PIT3SC	0.72	4.00
0204	P1	882 cfs Spillway		882	CPPD125	PIT3SC	0.72	
0205	P1	2.5 ac-ft Pittman Horizon Ridge Debris Basin		882	CPPD125	PIT3SC	0.72	
0210	E	Natural Wash	2950	882	CPPD125	PIT3SC	0.72	7.00
PTIS		PITTMAN WASH - INTERSTATE						
0000	P1	Conc Chnl 30'W 6'D 2:1 SS	2100	4530	CPPD150	PIT3SC	5.90	3.00
0007	P1	4: 14' X 6' RCBC @ I-515	200	4530	CPPD150	PIT3SC	5.90	1.40
0014	P1	4: 14' X 6' RCBC @ I-515	150	4530	CPPD150	PIT3SC	5.90	1.40
0015	P1	Conc Chnl 30'W 6.5'D 2:1 SS	150	4530	CPPD150	PIT3SC	5.90	1.40
0023	E	Conc Chnl 40'W 7'D 2:1 SS	250	4261	CPPD150	PIT3SC	5.24	1.40
0028	E	4: 8' X 8' RCBC @ I-515	110	3497	CPPD140	PIT3SC	3.68	3.00
0029	E	Conc Chnl 30'W 5'D 2:1 SS	350	3497	CPPD140	PIT3	3.68	2.80
0050	E	Conc Chnl 30'W 5'D 2:1 SS	1100	2520	CPPD070	PIT3	2.57	3.00
0055	E	2: 7' X 7' RCBC @ UPRR	380	2520	CPPD070	PIT3SC	2.57	3.00
0056	E	Conc Chnl 30'W 5'D 2:1 SS	1000	2520	CPPD070	PIT3SC	2.57	3.00
0068	E	Rip Rap Chnl 35'W 6'D 2:1 SS	650	2520	CPPD070	PIT3SC	2.57	3.80
0087	E	Conc Chnl 35'W 6'D 2:1 SS	1000	2520	CPPD070	PIT3SC	2.57	1.10
0102	E	Rip Rap Chnl 35'W 6'D 2:1 SS	800	2380	CPPD060	PIT3SC	2.36	2.50
0166	E	2: 6' X 6' RCB	3390	2380	CPPD060	PIT3SC	2.36	1.10
0184	E	Conc Chnl 9'W 4'D 3:1 SS	950	1365	CPPD045	PIT3SC	1.17	3.50
0197	E	3: 60" RCP @ Horizon Ridge Pkwy	750	1962	CPPD050	PIT3SC	1.86	5.00
0198	E	Conc Chnl 10'W 4'D 2:1 SS	150	681	CPPD030	PIT3SC	0.69	3.00
			3150	681	CPPD030	PIT3SC	0.69	1.30

ID / River Mile	Status	Facility Description	Length (ft.)	Flow (cfs)	HEC-1 Node	HEC-1 Model	Tributary Area (sq.mi.)	Channel Slope (%) **
PTPA		PITTMAN PABCO						
0000	P1	Conc Chnl 30'W 6.5'D 2:1 SS	12430	2251	CPLW120	PIT3SC	4.69	0.30
0235	E	10' X 5' RCBC @ Pabco	140	302	PABCODB	PIT3SC	1.28	2.30
0236	P1	Conc Chnl 12'W 3'D 2:1 SS	950	302	PABCODB	PIT3SC	1.28	1.70
0254	E	1: 10' X 6' RCBC @ Warm Springs	90	302	PABCODB	PIT3SC	1.28	1.70
0255	P1	Conc Chnl 12'W 3'D 2:1 SS	280	302	PABCODB	PIT3SC	1.28	1.70
0260	E	2: 6' X 4' RCBC @ Boulder Hwy	61	302	PABCODB	PIT3SC	1.28	1.70
0262	P1	Conc Chnl 12'W 3'D 2:1 SS	45	302	PABCODB	PIT3SC	1.28	1.70
0264	E	2: 6' X 4' RCBC Outlet	230	302	PABCODB	PIT3SC	1.28	
0265	P1	10,300 cfs PMF Spillway		10300	CPPA030	PIT3SC	1.28	
0266	P1	53 ac-ft Pabco Detention Basin		1026	CPPA030	PIT3SC	1.28	
PTPD		PITTMAN PIONEER DETENTION						
0000	P1	Conc Chnl 12'W 4'D 2:1 SS	500	668	CPPD145	PIT3SC	0.54	3.00
0010	E	2: 60" RCP @ UPRR	50	668	CPPD145	PIT3SC	0.54	1.50
0012	E	Rip Rap Chnl 18'W 4.3'D 2:1 SS	300	668	CPPD145	PIT3SC	0.54	3.30
0018	E	9' X 4' RCBC @ Las Palmas	100	668	CPPD145	PIT3SC	0.54	0.90
0020	E	Rip Rap Chnl 18'W 4.3'D 2:1 SS	2275	668	CPPD145	PIT3SC	1.00	3.60
0063	E	72" RCP	1650	556	PPD130	PIT3SC	0.40	2.80
PTRR		PITTMAN RAILROAD						
0000	P2	14' X 8' RCB	1070	1092	CPPD110	PIT3SC	1.57	1.40
0020	P2	Conc Chnl 14'W 6'D 0:1 SS	890	1092	CPPD110	PIT3SC	1.57	3.00
0027	P2	14' X 8' RCB	850	1092	CPPD110	PIT3SC	1.57	1.20
0035	P2	Conc Chnl 10'W 6'D 2:1 SS	5350	1092	CPPD110	PIT3SC	1.57	1.20
0115	P2	12' X 6' RCB	100	563	CPPD090	PIT3SC	0.81	1.30
0116	P2	Conc Chnl 10'W 5'D 2:1 SS	3850	563	CPPD090	PIT3SC	0.81	0.80
PTVW		PITTMAN WASH - VAN WAGENEN						
0000	P1	Conc Chnl 25'W 6'D 2:1 SS	1460	2848	CPBR090	PIT3	3.19	1.50
0025	E	12' X 8' RCB	1650	1160	CPBR030	PIT3SC	1.07	1.00
0055	E	12' X 6' RCB	2770	840	CPBR020	PIT3SC	0.07	1.00
0107	E	96" RCP	1260	840	CPBR020	PIT3	0.71	0.85
0130	E	90" RCP	750	840	CPBR020	PIT3	0.71	1.07
0144	E	8' X 5' RCBC @ Commercial Way	70	840	CPBR020	PIT3	0.71	1.32
0145	E	84" RCP	620	553	CPBR010	PIT3	0.46	1.32
0157	E	90" RCP	300	553	CPBR010	PIT3	0.46	1.29
0163	E	72" RCP	2030	444	PTVW0185	PIT3SC	7.66	0.95
0180	E	60" RCP	510	444	PTVW0185	PIT3SC	7.66	0.28
0183	E	60" RCP Outlet	150	444	PTVW0185	PIT3	7.66	
0184	E	35,500 cfs PMF Spillway		35500	CPPD190	PIT3	7.66	
0185	E	390 ac-ft Pioneer Detention Basin		5857	CPPD190	PIT3	7.66	
0186	E	6 Span Bridge 120'W 7'D @ UPRR	20	5857	CPPD190	PIT3	7.66	1.30
PTWH		PITTMAN WEST HORIZON						
0000	P1	Conc Chnl 12'W 5'D 2:1 SS	500	1365	CPPD045	PIT3	1.17	4.00
0010	P1	12' X 6' RCBC @ Horizon Dr	50	1365	CPPD045	PIT3	1.17	4.00
0011	P1	Conc Chnl 12'W 5'D 2:1 SS	6300	1365	CPPD045	PIT3	1.17	4.10

*The HEC-1 node shown identifies the controlling concentration point for the associated facility and is located upstream of this facility due to decreasing peak flow with increasing tributary area caused by storm distribution transitions, depth area reduction factors, or attenuation of flow from routing.
**As-built or design slopes were used when available. All other slopes are based on existing topography. The user should verify the facility slope listed prior to performing any facility specific analysis.

REGIONAL FLOOD CONTROL DISTRICT

2002 LAS VEGAS VALLEY FLOOD CONTROL MASTER PLAN UPDATE FACILITY INVENTORY FIGURE F-22

LEGEND

Street Name Designator AA BB
Parent Stream Name
Stream Name
ID / River Mile 00 00
Distance above confluence
With parent stream
Miles in tenths

Existing Facility ..... E
Proposed or Modified Facility ..... P
Contingency Level
Category B P0
Master Plan P1
Preliminary Design P2
Design P3

Bottom Width ..... W
Depth ..... D
Side Slope, H:V ..... SS

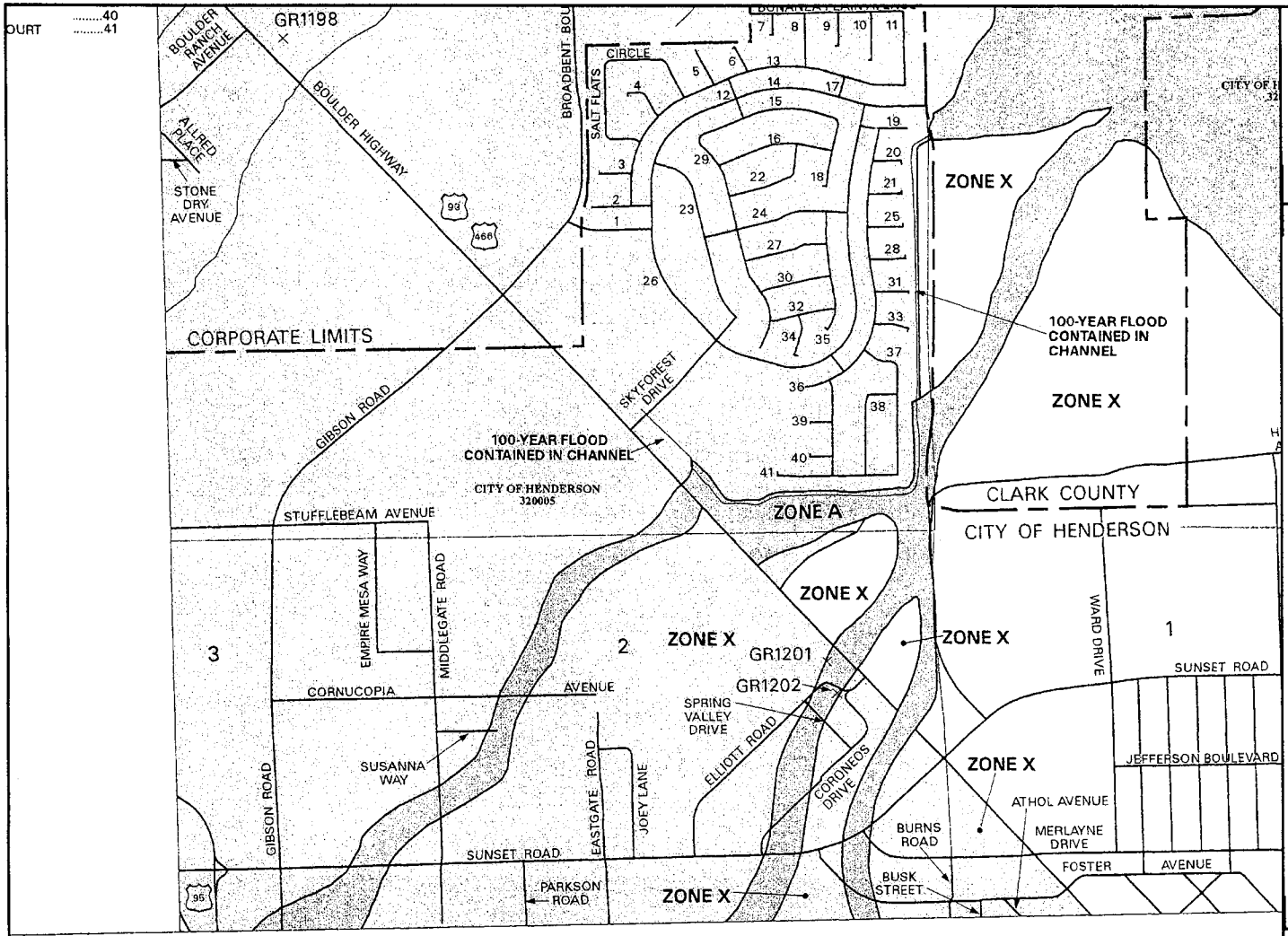
Construction Features

Cast in Place Concrete Pipe	CIPCP	Reinforced Concrete Box	RCB
Corrugated Metal Arch Pipe Culvert	CMAP	Reinforced Concrete Box Culvert	RCBC
Corrugated Metal Pipe Culvert	CMP	Reinforced Concrete Pipe	RCP
High Density Polyethylene	HDPE	Reinforced Concrete Pipe Culvert	RCPC
Helical Elliptical Reinforced Concrete Pipe	HERCP	Storm Sewer Pipe	SSP
Reinforced Concrete Arch Pipe	RCAC		

PBS&J
G. C. WALLACE, INC.

FEMA EXISTING FLOOD ZONE MAP

- FIGURE 3.0



JOINS PANEL 2595

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

PANEL 2585 E

FIRM

FLOOD INSURANCE RATE MAP

CLARK COUNTY, NEVADA AND INCORPORATED AREAS

PANEL 2585 OF 4090

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HENDERSON, CITY OF	320005	2585	E
CLARK COUNTY, UNINCORPORATED AREAS	320003	2585	E

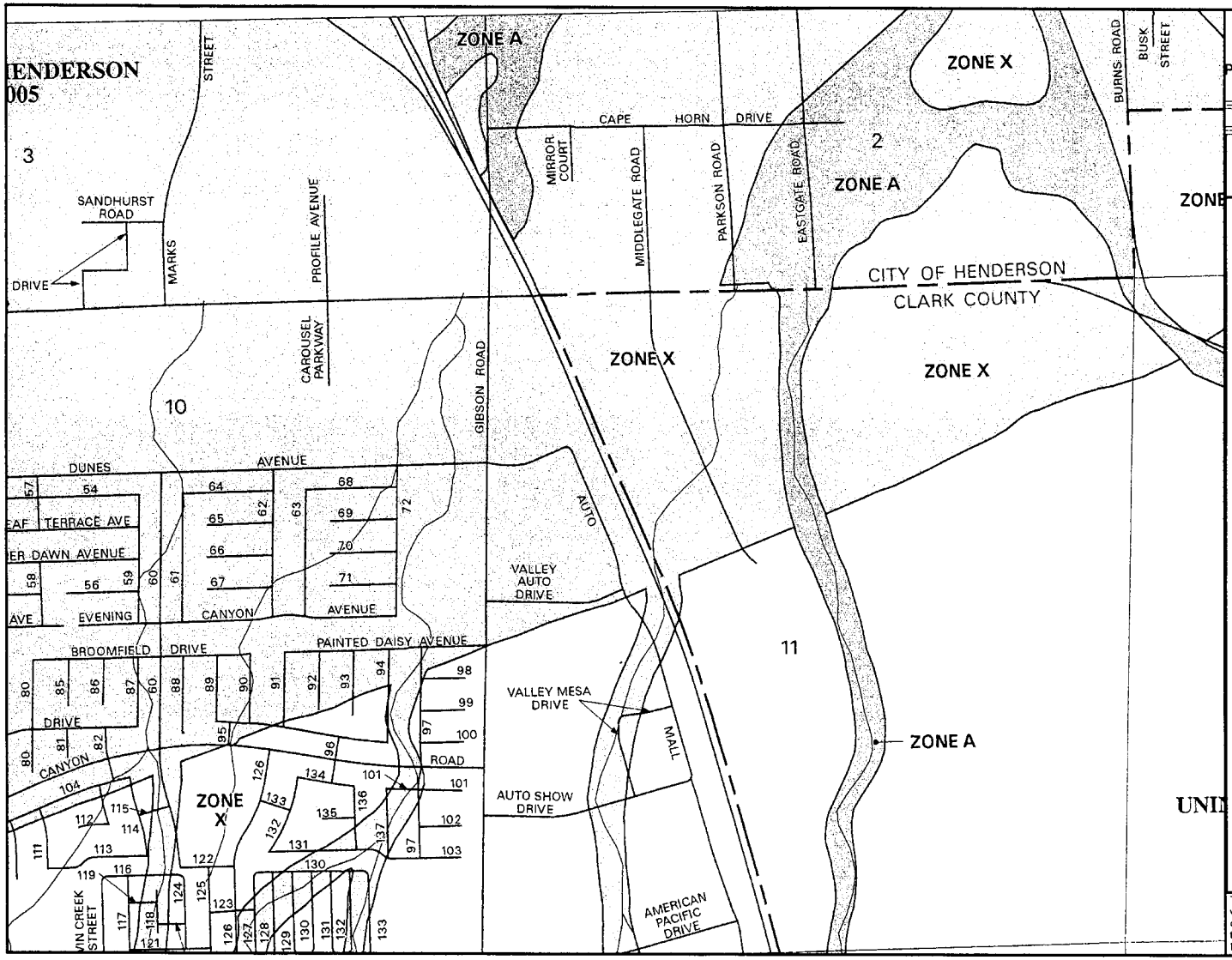
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 32003C2585 E

MAP REVISED: SEPTEMBER 27, 2002

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



P SCALE 1" = 1000'

1000 2000 FEET

METERS

PANEL 2595 E

FIRM

FLOOD INSURANCE RATE MAP

CLARK COUNTY,
NEVADA AND
INCORPORATED AREAS

PANEL 2595 OF 4090

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HENDERSON, CITY OF	320005	2595	E
CLARK COUNTY, UNINCORPORATED AREAS	320003	2595	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
32003C2595 E

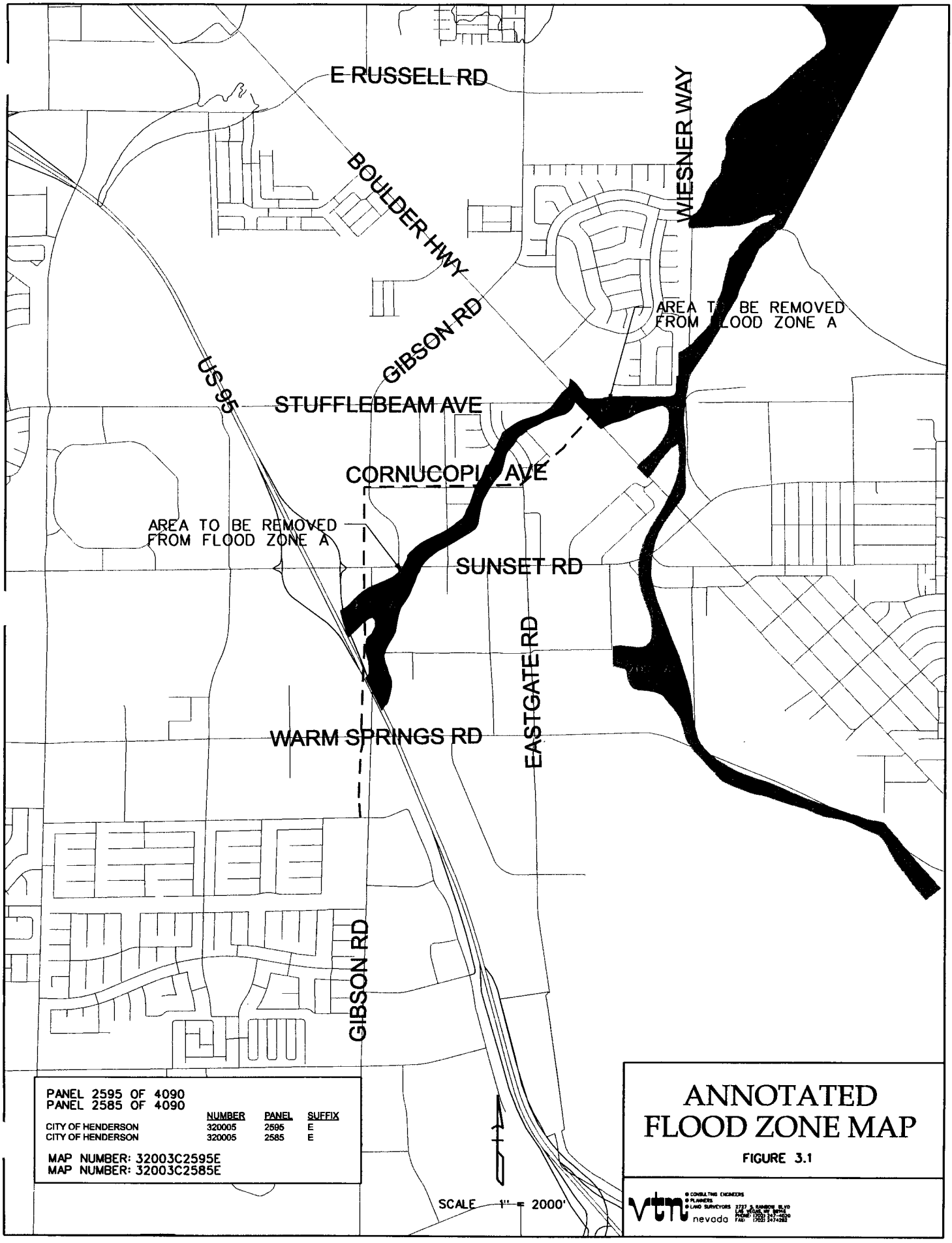
MAP REVISED:
SEPTEMBER 27, 2002

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

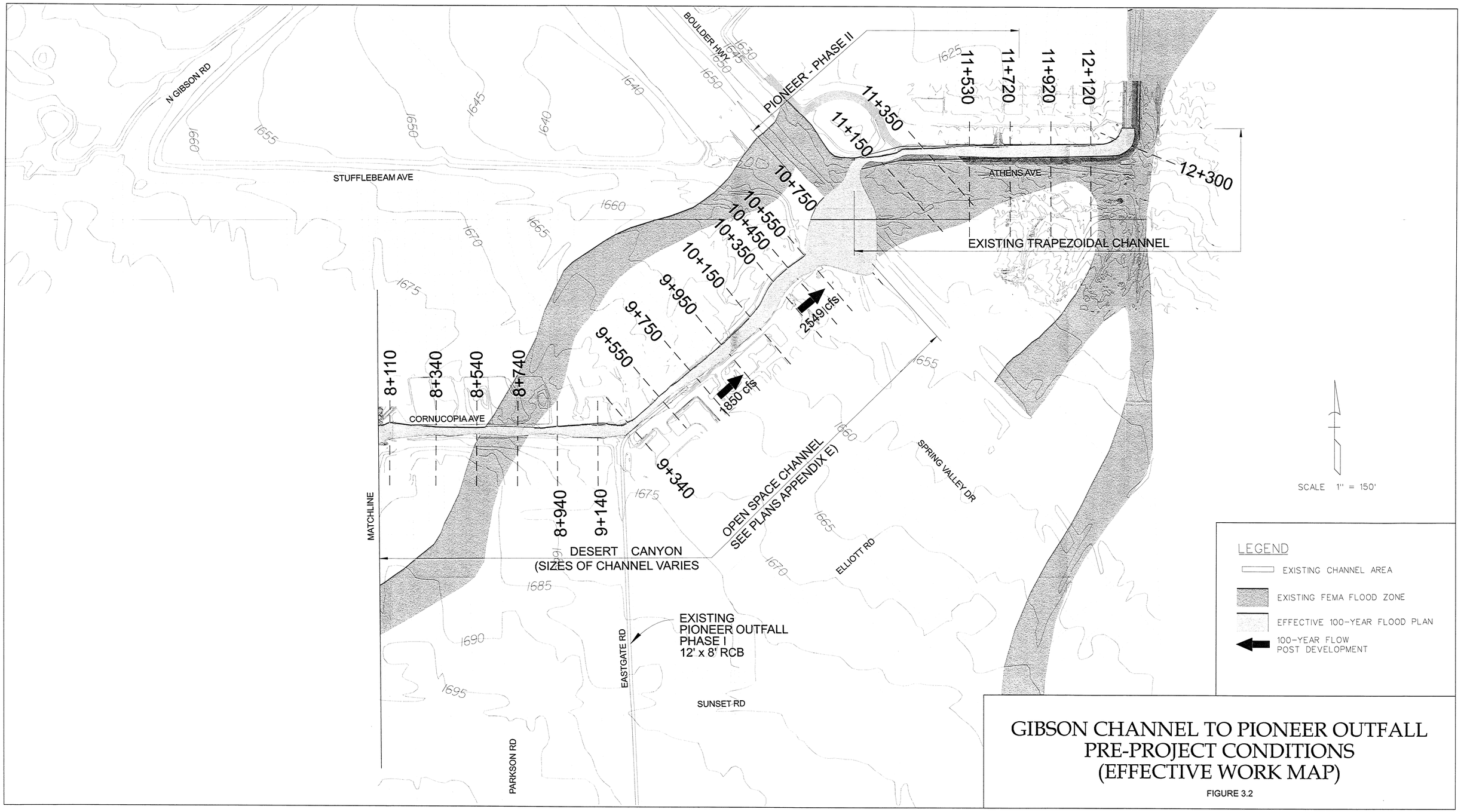
FEMA ANNOTATED FLOOD ZONE MAP

- FIGURE 3.1


E RUSSELL RD
BOULDER HWY
WIESNER WAY
GIBSON RD
US 95
STUFFLEBEAM AVE
CORNUCOPIA AVE
AREA TO BE REMOVED FROM FLOOD ZONE A
AREA TO BE REMOVED FROM FLOOD ZONE A
SUNSET RD
EASTGATE RD
WARM SPRINGS RD
GIBSON RD
PANEL 2595 OF 4090
PANEL 2585 OF 4090
NUMBER PANEL SUFFIX
CITY OF HENDERSON 320005 2595 E
CITY OF HENDERSON 320005 2585 E
MAP NUMBER: 32003C2595E
MAP NUMBER: 32003C2585E
SCALE 1" = 2000'
ANNOTATED FLOOD ZONE MAP
FIGURE 3.1
nevada

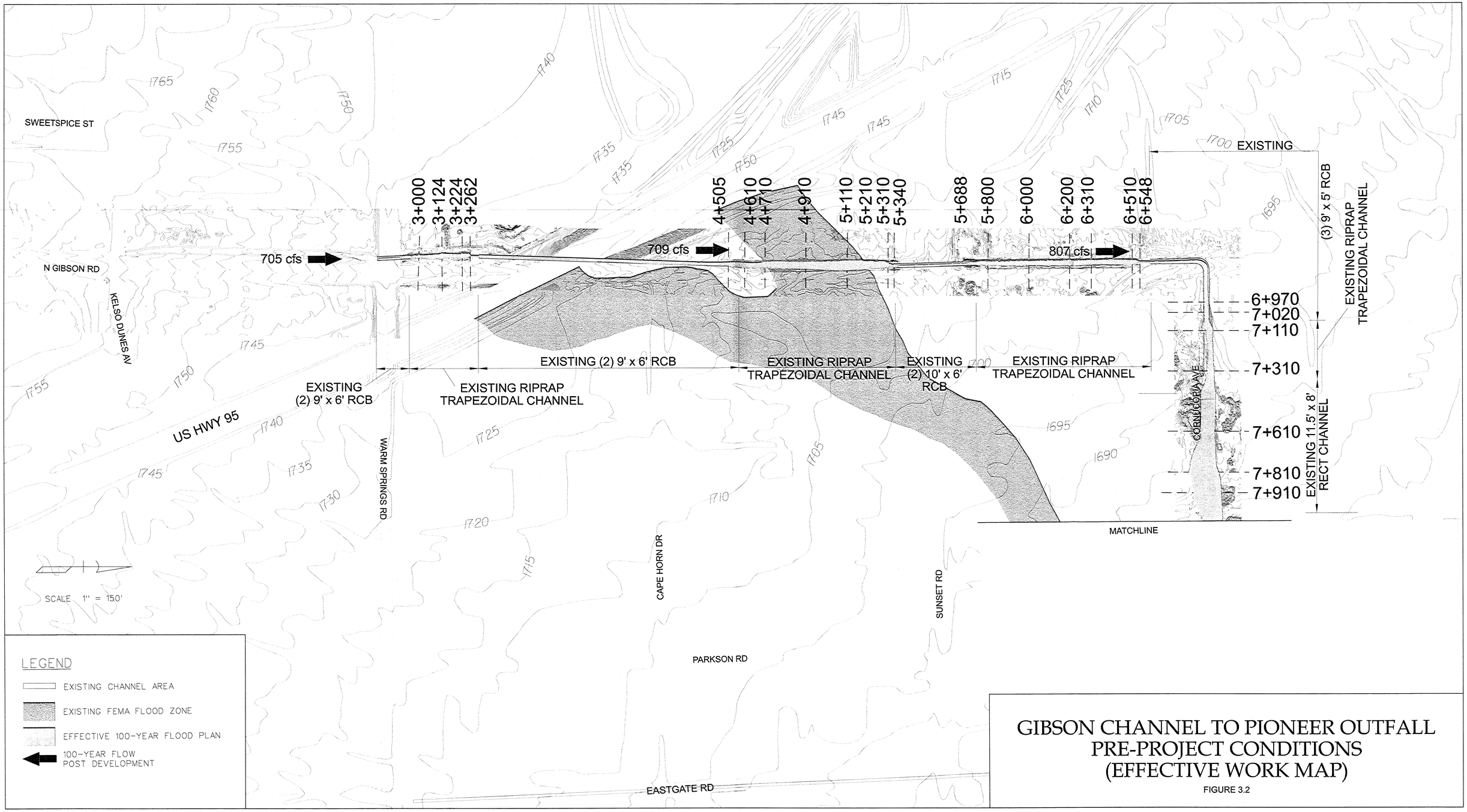
GIBSON CLOMR
PRE-PROJECT CONDITIONS
(CORRECTIVE/EFFECTIVE WORK MAP)

- FIGURE 3.2



GIBSON CHANNEL TO PIONEER OUTFALL
PRE-PROJECT CONDITIONS
(EFFECTIVE WORK MAP)

FIGURE 3.2

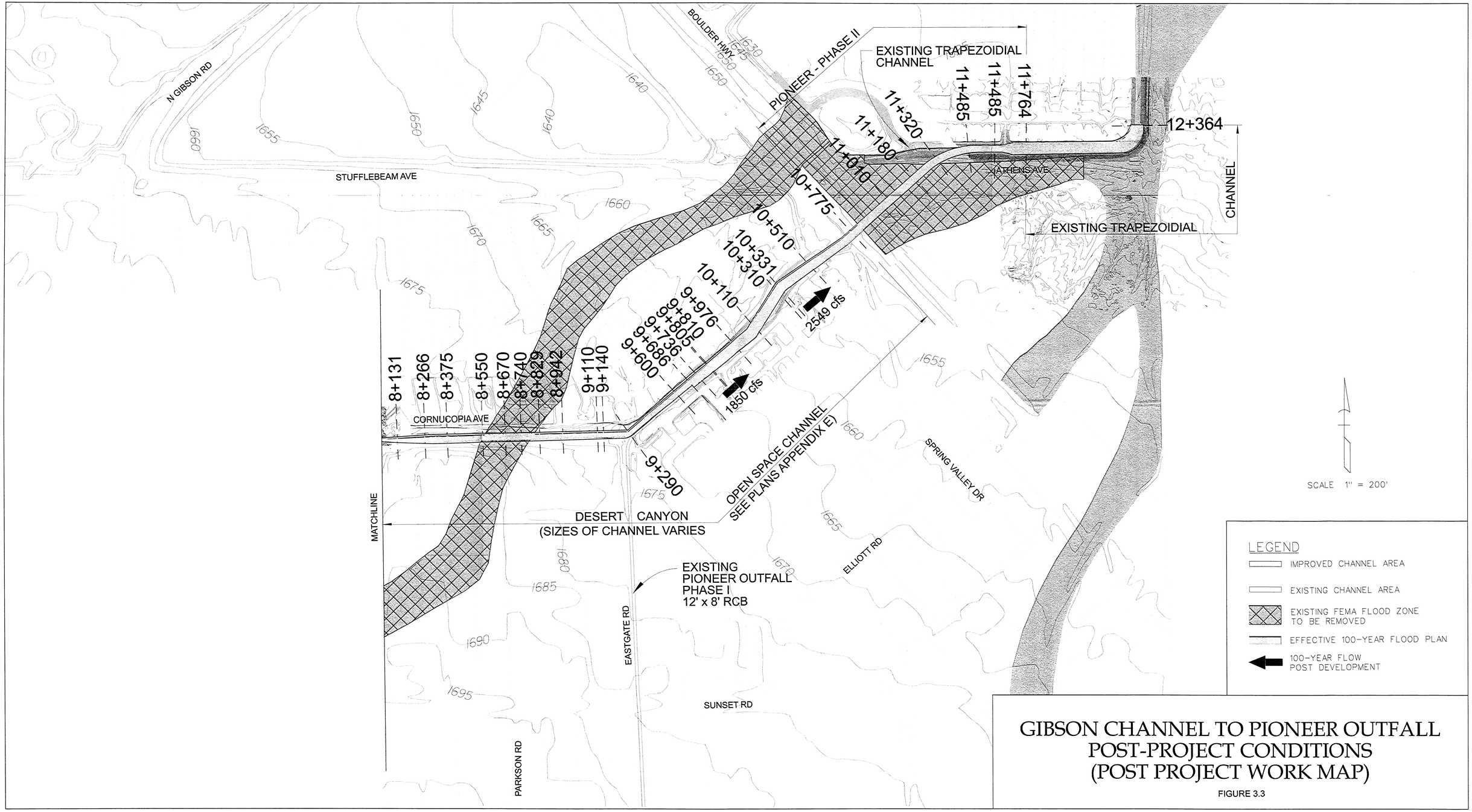


GIBSON CHANNEL TO PIONEER OUTFALL
PRE-PROJECT CONDITIONS
(EFFECTIVE WORK MAP)

FIGURE 3.2

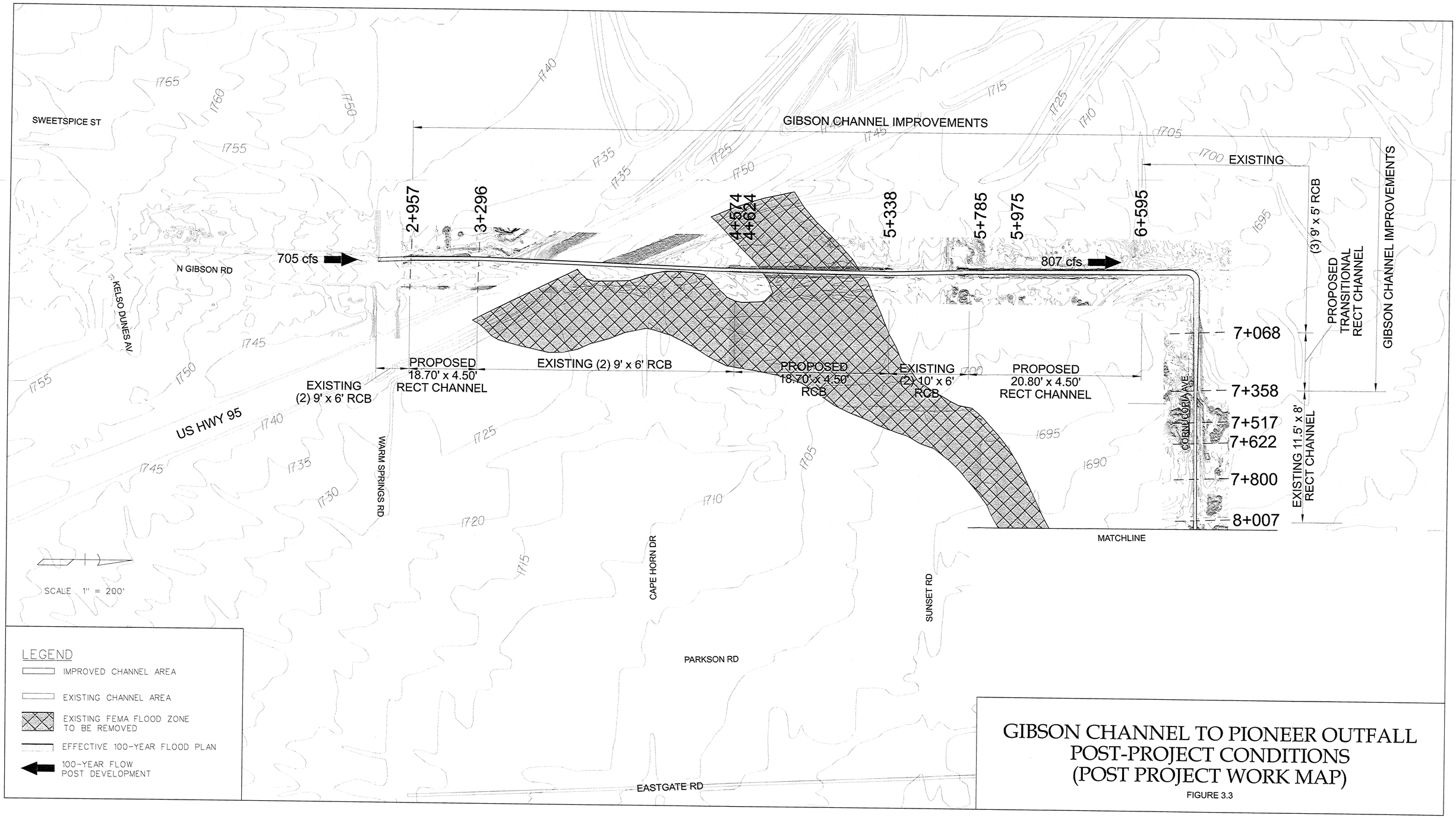
GIBSON CLOMR
POST-PROJECT CONDITIONS
(POST PROJECT WORK MAP)

- FIGURE 3.3



GIBSON CHANNEL TO PIONEER OUTFALL
POST-PROJECT CONDITIONS
(POST PROJECT WORK MAP)

FIGURE 3.3



GIBSON CHANNEL TO PIONEER OUTFALL
POST-PROJECT CONDITIONS
(POST PROJECT WORK MAP)

FIGURE 3.3

APPENDIX C

HYDROLOGY

GIBSON CLOMR
PRE & POST PROJECT CONDITIONS
SUBBASIN MAP
- FIGURE 1.1

NORTH

LEGEND

- FLOW DIRECTION
- EXISTING FACILITY
- PROJECT FACILITY
- PROPOSED FACILITY (BY OTHERS)

REV	DATE	BY	REVISION

vtn nevada

CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

TITLE: SUBBASIN MAP
FIGURE 1.1

PROJECT: GIBSON CLOMR
PRE & POST IMPROVEMENTS

SEAL

WO. NO.	6511
BY	DRF
DATE	1/28/06
SCALE HORIZ. VERT.	
DRAWING	1
SHEET	1 OF 1 SHEETS

PLT (PS)
E:\6511\Exhibits\Gibson CLOMR Subbasin Map.dwg

GIBSON CLOMR
HEC -1: HYDROLOGIC PARAMETERS
PRE & POST PROJECT
(CN, AREAS, LAG TIME)

Gibson Channel CLOMR : HEC-1 Parameters
Subbasin ID, Area, CN, Lag Time
File Name; gibson1.out

Subbasin ID	Area (sq mi.)	CN	Lag time
PBR010	0.460	93.5	0.331
PBR020	0.251	94.0	0.310
PBR030	0.357	94.1	0.435
PBR040	0.413	86.5	0.413
PBR050	0.447	90.5	0.462
PBR060	0.581	88.1	0.438
PBR070	0.234	93.0	0.305
PBR080	0.150	91.3	0.297
PBR090	0.359	94.0	0.422
PBR150	0.405	94.2	0.418
PBR100	0.275	95.1	0.144
PBR110	0.533	96.0	0.364
PBR120	0.240	95.1	0.254
PBR140	0.387	94.6	0.326
PBR130	0.473	93.8	0.524

Note: HEC-1 :Subbasin ID, Area, CN, Lag Time taken from:
VTN Nevada; Pioneer Detention Basin Outfall: Crossing Boulder Highway Final Design Report July 2005
Broadbent & Associates, Inc.;Design Report for Gibson Channel : September 27, 2004

GIBSON CLOMR
PRE & POST PROJECT CONDITIONS: HEC-1 OUTPUT
(GIBSON1.OUT)

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUL  1997                 *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   16NOV05  TIME  16:22:30   *
*                                       *
*****************************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

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

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


```
          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
                    *DIAGRAM
*** FREE ***
             1      ID     GIBSON CHANNEL CLOMR/LOMR HYDROLOGY - POST DEVELOPMENT
             2      ID     SDN3 MODEL WITH SUBBASIN FROM DOWNSTREAM OF DETENTION BASIN ONLY
             3      ID     INPUT FILE = GIBSON1.DAT
             4      ID     TAKEN FROM VTN PIONEER DETENTION BASIN OUTFALL-PIOREV2.DAT WO#6582
             5      ID     ALSO USED BROADBENT & ASSOCIATES GIBSON CHANNEL HYDROLOGY
             6      ID     INPUT FILE DATE = 11/15/05
             7      ID     CONSIDERS EXISTING GIBSON CHANNEL IN PLACE & PIONEER OUTFALL PHASE I IN PLA
             8      ID
             9      ID
            10      ID     JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
            11      ID
            12      ID                    AREA (SQUARE MILES)    DARF
            13      ID                        0.0 - 0.2          0.992
            14      ID                        0.2 - 0.4          0.984
            15      ID                        0.4 - 0.6          0.978
            16      ID                        0.8 - 1.0          0.970
            17      ID                        1.0 - 1.5          0.950
            18      ID                        1.5 - 2.0          0.930
            19      ID                        2.0 - 3.0          0.920
            20      ID                        3.5 - 4.0          0.910
            21      ID                             5.56          0.903
            22      ID
            23      IT       5       0       0     300
            24      IO       5       0       0
            25      IN       5       0       0
            26      JR    PREC   0.992   0.984    .978    .970    .950    .930    .920    .910    .903
                    *
            27      KK  PBR010
            28      BA   0.460
            29      PB    2.78
            30      PC    0.00    0.02   0.057    0.07   0.087   0.108   0.124    0.13    0.13    0.13
            31      PC    0.13    0.13    0.13   0.133    0.14   0.142   0.148   0.158   0.172   0.181
            32      PC    0.19   0.197   0.199     0.2   0.201   0.204   0.214   0.229   0.241   0.249
            33      PC   0.251   0.256    0.27   0.278   0.281   0.283   0.295   0.322   0.352   0.409
            34      PC   0.499    0.59    0.71   0.744   0.781   0.812   0.819   0.835   0.851   0.856
            35      PC    0.86   0.868   0.876   0.888    0.91   0.926   0.937    0.95    0.97   0.976
            36      PC   0.982   0.985   0.987   0.989    0.99   0.993   0.993   0.994   0.995   0.998
            37      PC   0.998   0.999       1
            38      LS       0    93.5
            39      UD   0.331
                    *
            40      KK RPBR010
            41      KM   ROUTE CPBR010 TO CPBR020
            42      KM   FACILITY = PITTMAN-VAN WAGENEN
            43      KM   FACILITY # = PTVW 0157, 0145, 0130, 0107
            44      KM   LINING= RCP
            45      RD    3100   0.012   0.013       0    CIRC       8
                    *
```



```
          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
            46      KK  PBR020
            47      BA   0.251
            48      PB    2.77
            49      LS       0    94.0
            50      UD   0.310
                    *
            51      KK CPBR020
            52      KM   COMBINE PBR010 AND PBR020
            53      HC       2
                    *
            54      KKRCPBR020
            55      KM   ROUTE CPBR020 TO CPBR030
            56      KM   FACILITY = PITTMAN-VAN WAGENEN
            57      KM   FACILITY # = PTVW 0055, 0025
            58      KM   LINING= RCB
            59      RD    3982    0.01   0.015       0    TRAP      12       0
                    *
            60      KK  PBR030
            61      BA   0.357
            62      PB    2.77
            63      LS       0    94.1
            64      UD   0.435
                    *
            65      KK CPBR030
            66      KM   COMBINE PBR030 TO CPBR020
            67      HC       2
                    *
            68      KK  PBR040
            69      KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
```

```
KM   ALSO REFERED TO AS 040 IN BROADBENT STUDY
BA   0.413
PB    2.77
LS      0    86.5
UD   0.413
*

KK RPBR040
KM   ROUTE PBR040 TO CPBR050
KM   ALSO REFERED TO AS R040 IN BROADBENT STUDY
KM   GIBSON ROAD - SOUTH COMMERCIAL
RD    4500  0.0178   0.025       0    TRAP       0      20       2
*

KK  PBR050
KM   SOUTHEAST PORTION OF GIBSON WATERSHED RESIDENTIAL
KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
KM   ALSO REFERED TO AS 050 IN BROADBENT STUDY
BA   0.447
PB    2.77
```



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

LS      0    90.5
UD   0.462
*

KK CPBR050
KM   COMBINE PBR040 TO PBR050
KM   ALSO REFERED TO AS C050 IN BROADBENT STUDY
KM   BEGINNING OF GIBSON
HC       2
*

KKRCPBR050
KM   ROUTE CPBR050 TO CPBR055
KM   ALSO REFERED TO AS R050 IN BROADBENT STUDY
KM   FACILITY = PITTMAN WASH GIBSON
KM   FACILITY # = PTGB 0165, 0185
KM   LINING= RCB US-95
RD    1700   0.013   0.015       0    TRAP      19       0
*

KK  PBR060
KM   AREAS PBR055+PBR060 IN PIONEER STUDY = 060 IN BROADBENT STUDY
KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
KM   ALSO REFERED TO AS 060 IN BROADBENT STUDY
BA   0.581
PB    2.77
LS      0    88.1
UD   0.438
*

KK  PBR070
KM   SUNSET STATION
KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
KM   ALSO REFERED TO AS 060 IN BROADBENT STUDY
BA   0.234
PB    2.77
LS      0    93.0
UD   0.305
*

KK CPBR060
KM   COMBINE PBR060 TO PBR070
KM   ALSO REFERED TO AS C060 IN BROADBENT STUDY
HC       2
*

KK   DET01
KM   WAL-MART DETENTION
KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
KO      22
RS       1    FLOW      -1
SA       0    .467   1.775   3.581    6.00      10
SE      14      20      25      30      35      40
SQ       0      30    38.5    45.7    52.0      52
SE      14      20      25      30      35      40
*
```



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

KK CPBR070
KM   COMBINE PBR050 & 24" PIPE
KM   ALSO REFERED TO AS C070 IN BROADBENT STUDY
KM   GIBSON @ US-95
HC       2
*

KKRCPBR070
KM   LINING = CONCRETE AT SUNSET
KM   ALSO REFERED TO AS R070 IN BROADBENT STUDY
RD    2350   0.008   0.015       0    TRAP      19       0
*

KK  PBR080
KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
KM   ALSO REFERED TO AS 080 IN BROADBENT STUDY
KM   BETWEEN 95 & GIBSON NORTH SUNSET
BA   0.150
PB    2.77
LS      0    91.3
UD   0.297
*

KK CPBR080
KM   COMBINE PBR080 AND CHANNEL
KM   ALSO REFERED TO AS C080 IN BROADBENT STUDY
KM   GIBSON @ CORNUCOPIA
HC       2
*

KKRCPBR080
KM   ROUTE CPBR080 TO CHANNEL
KM   ALSO REFERED TO AS R080 IN BROADBENT STUDY
KM   FACILITY = PITTMAN WASH GIBSON
KM   FACILITY # = PTGB 0093,  0058
KM   LINING= CONCRETE CORNUCOPIA
RD     600   0.015   0.015       0    TRAP      15       0
*

KK CPBR035
KM   COMBINE CPBR080 AND CPBR030
KM   ALSO REFERED TO AS C080 IN BROADBENT STUDY
KM   COMBINATION OF GIBSON & PIONEER
HC       2
```

```
                *

          163   KKRCPBR035
          164   KM   ROUTE CPBR035 TO CPBR090
          165   KM   FACILITY = PITTMAN-VAN WAGENEN
          166   KM   FACILITY # = PTVW 0000
          167   KM   LINING= CONCRETE
          168   RD    2000   0.016   0.015       0    TRAP      25       2
                *
1                                          HEC-1 INPUT                                                PAGE  5

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

          169   KK  PBR090
          170   BA   0.359
          171   PB    2.77
          172   LS       0    94.0
          173   UD   0.422
                *

          174   KK CPBR090
          175   KM   COMBINE PBR090 AND CPBR035
          176   HC       2
                *

          177   KK  PBR150
          178   BA   0.405
          179   PB    2.77
          180   LS       0    94.2
          181   UD   0.418
                *

          182   KK CPBR150
          183   KM   COMBINE PBR150 AND RCPBR090
          184   KM   TOTAL FLOW @ PIONEER OUTFALL & BOULDER HWY
          185   HC       2
                *

          186   KKRCPBR150
          187   KM   ROUTE CPBR150 IN CHANNEL
          188   KM   FACILITY = PITTMAN WASH-BURNS
          189   KM   FACILITY # = PTBR 0140, 0160, 0163
          190   KM   LINING= CONCRETE
          191   RD    1200    0.01   0.015       0    TRAP      25       0
                *

          192   KK  PBR100
          193   BA   0.275
          194   PB    2.83
          195   LS       0    95.1
          196   UD   0.144
                *

          197   KK RPBR100
          198   KM   ROUTE PBR100 TO CPBR110
          199   KM   PRIVATE STREET - BMI COMPLEX
          200   RD    3335   0.022   0.016       0    TRAP       0      50
                *

          201   KK  PBR110
          202   BA   0.533
          203   PB    2.81
          204   LS       0    96.0
          205   UD   0.364
                *
1                                          HEC-1 INPUT                                                PAGE  6

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

          206   KK CPBR110
          207   KM   COMBINE PBR100 AND PBR110
          208   HC       2
                *

          209   KKRCPBR110
          210   KM   ROUTE CPBR110 TO CPBR120
          211   KM   WARM SPRINGS ROAD
          212   RD    3504   0.011   0.016       0    TRAP       0      50
                *

          213   KK  PBR120
          214   BA   0.240
          215   PB    2.79
          216   LS       0    95.1
          217   UD   0.254
                *

          218   KK CPBR120
          219   KM   COMBINE CPBR110 AND PBR120
          220   HC       2
                *

          221   KKRCPBR120
          222   KM   ROUTE CPBR120 TO CPBR130
          223   KM   BURNS/MERLAYNE/BOULDER HIGHWAY
          224   RD    4567   0.009   0.016       0    TRAP       0      50
                *

          225   KK  PBR140
          226   BA   0.387
          227   PB    2.78
          228   LS       0    94.6
          229   UD   0.326
                *

          230   KK RPBR140
          231   KM   ROUTE PBR140 TO CPBR130
          232   KM   UNNAMED STREET/SUNSET
          233   RD    4211   0.012   0.016       0    TRAP       0      50
                *

          234   KK  PBR130
          235   BA   0.473
          236   PB    2.78
          237   LS       0    93.8
          238   UD   0.524
                *
1                                          HEC-1 INPUT                                                PAGE  7

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

          239   KK CPBR130
          240   KM   COMBINE PBR140, PBR130, CPBR120
          241   HC       3
                *
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```
242           KKRCPBR130
243           KM   ROUTE CPBR130 TO CPBR150
244           KM   ALONG SUNSET/BURNS
245           KM   FACILITY = RCP
246           RD    2176    0.01   0.013       0    CIRC       4
              *

247           KK  COMALL
248           KM   COMBINE RCPBR150 AND RCPBR130
249           KM   TOTAL FLOW @ DOWNSTREAM END
250           KM   (WHERE CHANNEL IN ATHERNS TURNS FROM EAST TO NORTH)
251           HC       2
              *

252           KKRCPBR150
253           KM   ROUTE CPBR150 TO CPBR160
254           KM   FACILITY = PITTMAN WASH BURNS
255           KM   FACILITY # = PTBR 0091
256           KM   LINING= CONCRETE
257           RD    2800    0.01   0.015       0    TRAP      25       2
              *
258           ZZ
```

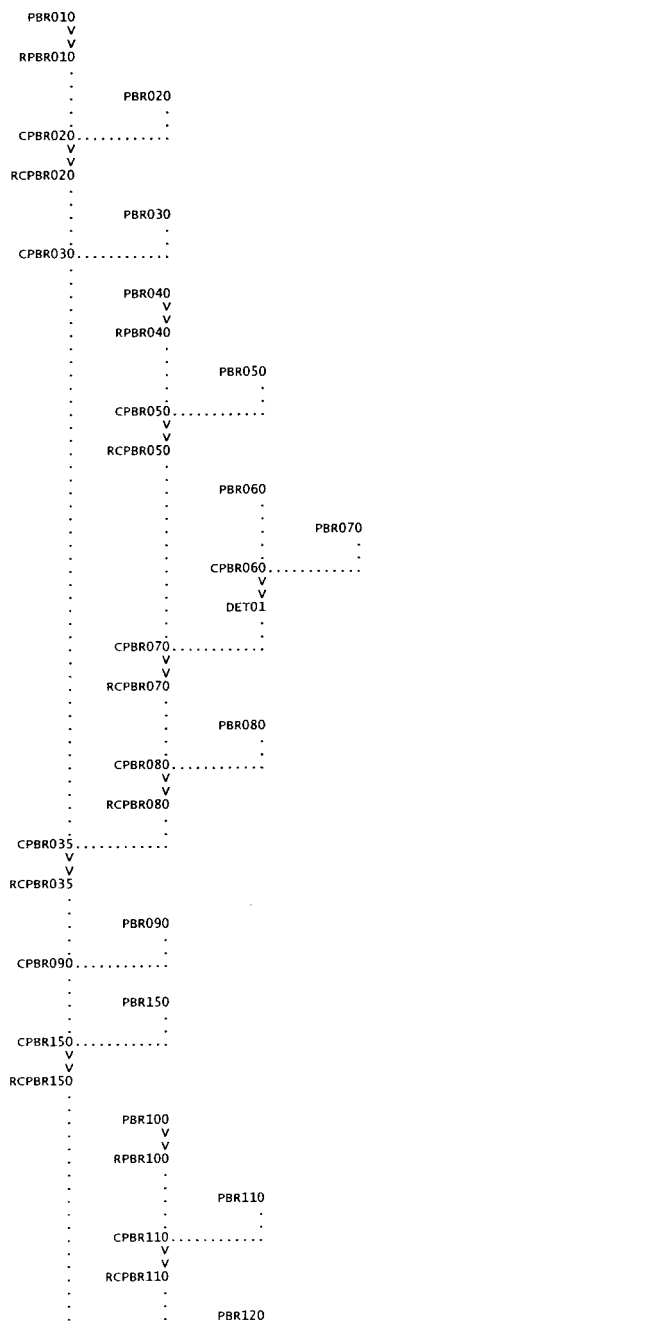
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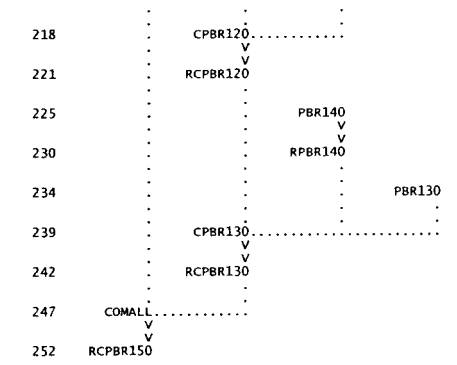
SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW





(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUL   1997               *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   16NOV05  TIME  16:22:30   *
*                                       *
*****************************************
```

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

GIBSON CHANNEL CLOMR/LOMR HYDROLOGY - POST DEVELOPMENT
SDN3 MODEL WITH SUBBASIN FROM DOWNSTREAM OF DETENTION BASIN ONLY
INPUT FILE = GIBSON1.DAT
TAKEN FROM VTN PIONEER DETENTION BASIN OUTFALL-PIOREV2.DAT WO#6582
ALSO USED BROADBENT & ASSOCIATES GIBSON CHANNEL HYDROLOGY
INPUT FILE DATE = 11/15/05
CONSIDERS EXISTING GIBSON CHANNEL IN PLACE & PIONEER OUTFALL PHASE I IN PLA

JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

AREA (SQUARE MILES)	DARF
0.0 - 0.2	0.992
0.2 - 0.4	0.984
0.4 - 0.6	0.978
0.8 - 1.0	0.970
1.0 - 1.5	0.950
1.5 - 2.0	0.930
2.0 - 3.0	0.920
3.5 - 4.0	0.910
5.56	0.903

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

     IT          HYDROGRAPH TIME DATA
                      NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1   0  STARTING DATE
                      ITIME        0000  STARTING TIME
                        NQ          300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      2   0  ENDING DATE
                     NDTIME        0055  ENDING TIME
                     ICENT           19  CENTURY MARK

                   COMPUTATION INTERVAL      .08 HOURS
                        TOTAL TIME BASE    24.92 HOURS

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

     JP          MULTI-PLAN OPTION
                      NPLAN           1  NUMBER OF PLANS

     JR          MULTI-RATIO OPTION
                     RATIOS OF PRECIPITATION
                    .99       .98       .98       .97       .95       .93       .92       .91       .90

  123 KO         OUTPUT CONTROL VARIABLES
                      IPRNT          22  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
1
```

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 .99	RATIO 2 .98	RATIO 3 .98	RATIO 4 .97	RATIO 5 .95	RATIO 6 .93	RATIO 7 .92	RATIO 8 .91	RATIO 9 .90
HYDROGRAPH AT													
+	PBR010	.46	1	FLOW	555.	549.	545.	540.	526.	513.	506.	500.	495.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RPBR010	.46	1	FLOW	545.	541.	535.	529.	518.	503.	497.	491.	486.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PBR020	.25	1	FLOW	314.	311.	308.	305.	298.	291.	287.	283.	281.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPBR020	.71	1	FLOW	859.	851.	844.	834.	816.	793.	783.	775.	767.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75

ROUTED TO	RCPBR020	.71	1	FLOW	841.	832.	831.	818.	801.	779.	768.	763.	752.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT	PBR030	.36	1	FLOW	378.	375.	372.	369.	360.	351.	346.	342.	338.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT	CPBR030	1.07	1	FLOW	1219.	1207.	1203.	1187.	1160.	1130.	1114.	1105.	1090.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT	PBR040	.41	1	FLOW	336.	332.	328.	324.	314.	304.	299.	294.	290.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO	RPBR040	.41	1	FLOW	338.	334.	330.	326.	316.	306.	301.	296.	292.
+				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT	PBR050	.45	1	FLOW	403.	399.	396.	391.	381.	370.	364.	359.	355.
+				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
2 COMBINED AT	CPBR050	.86	1	FLOW	729.	720.	714.	705.	684.	663.	652.	642.	634.
+				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO	RCPBR050	.86	1	FLOW	724.	716.	710.	702.	680.	661.	650.	639.	632.
+				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT	PBR060	.58	1	FLOW	487.	481.	477.	471.	457.	443.	436.	429.	424.
+				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT	PBR070	.23	1	FLOW	285.	282.	280.	277.	270.	263.	260.	256.	254.
+				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT	CPBR060	.81	1	FLOW	748.	740.	734.	726.	705.	685.	674.	664.	657.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO	DET01	.81	1	FLOW	52.	52.	52.	52.	52.	52.	52.	52.	52.
+				TIME	4.33	4.42	4.42	4.42	4.50	4.67	4.67	4.75	4.83
			**	PEAK STAGES IN FEET **									
			1	STAGE	36.94	36.85	36.77	36.67	36.43	36.19	36.07	35.95	35.87
				TIME	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.67	5.67
2 COMBINED AT	CPBR070	1.67	1	FLOW	773.	764.	758.	750.	729.	709.	698.	687.	680.
+				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
ROUTED TO	RCPBR070	1.67	1	FLOW	771.	762.	756.	747.	726.	706.	695.	684.	677.
+				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT	PBR080	.15	1	FLOW	173.	172.	170.	169.	164.	160.	157.	155.	154.
+				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT	CPBR080	1.82	1	FLOW	883.	874.	866.	856.	831.	807.	795.	782.	774.
+				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	4.00
ROUTED TO	RCPBR080	1.82	1	FLOW	880.	871.	863.	853.	829.	806.	794.	781.	774.
+				TIME	3.92	3.92	3.92	3.92	4.00	4.00	4.00	4.00	4.00
2 COMBINED AT	CPBR035	2.89	1	FLOW	2044.	2021.	2010.	1983.	1933.	1879.	1850.	1829.	1807.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO	RCPBR035	2.89	1	FLOW	2030.	2010.	1995.	1974.	1922.	1870.	1841.	1821.	1799.
+				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT	PBR090	.36	1	FLOW	387.	383.	380.	377.	367.	358.	354.	349.	346.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT	CPBR090	3.25	1	FLOW	2406.	2382.	2365.	2340.	2279.	2218.	2186.	2161.	2136.
+				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT	PBR150	.41	1	FLOW	442.	437.	434.	430.	420.	409.	404.	399.	395.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT	CPBR150	3.66	1	FLOW	2844.	2814.	2796.	2764.	2690.	2618.	2581.	2549.	2519.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.92
ROUTED TO	RCPBR150	3.66	1	FLOW	2835.	2805.	2786.	2756.	2685.	2614.	2577.	2547.	2517.
+				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT	PBR100	.28	1	FLOW	484.	480.	477.	472.	461.	451.	445.	440.	436.
+				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO	RPBR100	.28	1	FLOW	466.	462.	459.	455.	445.	432.	427.	421.	418.
+				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT	PBR110	.53	1	FLOW	664.	658.	654.	648.	633.	619.	611.	604.	599.
+				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT	CPBR110	.81	1	FLOW	1079.	1069.	1062.	1052.	1028.	1002.	990.	978.	969.
+				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO	RCPBR110	.81	1	FLOW	1061.	1052.	1045.	1036.	1013.	989.	981.	969.	961.
+				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT	PBR120	.24	1	FLOW	343.	340.	338.	334.	327.	319.	315.	311.	308.
+				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT	CPBR120	1.05	1	FLOW	1374.	1362.	1352.	1340.	1309.	1275.	1268.	1252.	1241.
+				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75

ROUTED TO													
+	RCPBR120	1.05	1	FLOW	1369.	1357.	1348.	1336.	1307.	1275.	1268.	1253.	1242.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PBR140	.39	1	FLOW	486.	481.	478.	473.	462.	451.	445.	439.	435.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RPBR140	.39	1	FLOW	483.	478.	475.	470.	459.	448.	442.	436.	432.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	PBR130	.47	1	FLOW	448.	444.	441.	437.	426.	415.	410.	404.	400.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
3 COMBINED AT													
•	CPBR130	1.91	1	FLOW	2296.	2276.	2261.	2240.	2188.	2135.	2117.	2091.	2073.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCPBR130	1.91	1	FLOW	2282.	2265.	2247.	2224.	2173.	2120.	2100.	2076.	2057.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
2 COMBINED AT													
+	COMALL	5.56	1	FLOW	5117.	5071.	5032.	4981.	4858.	4735.	4677.	4623.	4575.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCPBR150	5.56	1	FLOW	5078.	5035.	4996.	4946.	4821.	4693.	4639.	4582.	4533.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO= .00									
RPBR010	MANE	2.20	547.83	226.69	2.07	5.00	545.35	225.00	2.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5077E+02 EXCESS= .0000E+00 OUTFLOW= .5077E+02 BASIN STORAGE= .3142E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RPBR010	MANE	2.21	544.78	227.13	2.05	5.00	540.62	225.00	2.05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5025E+02 EXCESS= .0000E+00 OUTFLOW= .5024E+02 BASIN STORAGE= .3702E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RPBR010	MANE	2.21	540.72	227.46	2.03	5.00	535.47	225.00	2.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4986E+02 EXCESS= .0000E+00 OUTFLOW= .4985E+02 BASIN STORAGE= .3420E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RPBR010	MANE	2.21	534.58	227.91	2.01	5.00	529.05	225.00	2.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4934E+02 EXCESS= .0000E+00 OUTFLOW= .4933E+02 BASIN STORAGE= .3000E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RPBR010	MANE	2.22	520.52	226.83	1.96	5.00	517.78	225.00	1.96

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4804E+02 EXCESS= .0000E+00 OUTFLOW= .4803E+02 BASIN STORAGE= .3820E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RPBR010	MANE	2.24	507.90	228.00	1.90	5.00	502.53	225.00	1.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4674E+02 EXCESS= .0000E+00 OUTFLOW= .4673E+02 BASIN STORAGE= .3708E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RPBR010	MANE	2.24	500.27	228.60	1.88	5.00	496.50	225.00	1.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4609E+02 EXCESS= .0000E+00 OUTFLOW= .4609E+02 BASIN STORAGE= .3143E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RPBR010	MANE	2.25	494.43	226.97	1.85	5.00	491.46	225.00	1.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4544E+02 EXCESS= .0000E+00 OUTFLOW= .4544E+02 BASIN STORAGE= .3578E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RPBR010	MANE	2.25	490.92	227.40	1.83	5.00	486.37	225.00	1.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4499E+02 EXCESS= .0000E+00 OUTFLOW= .4498E+02 BASIN STORAGE= .3158E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCPBR020	MANE	2.40	851.41	228.07	2.08	5.00	840.94	230.00	2.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7896E+02 EXCESS= .0000E+00 OUTFLOW= .7898E+02 BASIN STORAGE= .4276E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCPBR020	MANE	2.41	842.58	228.90	2.06	5.00	832.24	230.00	2.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7811E+02 EXCESS= .0000E+00 OUTFLOW= .7813E+02 BASIN STORAGE= .4524E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCPBR020	MANE	2.42	836.22	227.28	2.05	5.00	830.77	230.00	2.05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7758E+02 EXCESS= .0000E+00 OUTFLOW= .7760E+02 BASIN STORAGE= .5085E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RCPBR020	MANE	2.43	827.43	228.29	2.02	5.00	817.98	230.00	2.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7672E+02 EXCESS= .0000E+00 OUTFLOW= .7674E+02 BASIN STORAGE= .4049E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR020	MANE	2.45	808.73	227.92	1.97	5.00	800.68	230.00	1.97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7474E+02 EXCESS= .0000E+00 OUTFLOW= .7475E+02 BASIN STORAGE= .4242E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR020	MANE	2.48	786.44	228.03	1.92	5.00	779.47	230.00	1.92

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7272E+02 EXCESS= .0000E+00 OUTFLOW= .7273E+02 BASIN STORAGE= .4100E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR020	MANE	2.49	775.04	229.16	1.89	5.00	767.67	230.00	1.89

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7172E+02 EXCESS= .0000E+00 OUTFLOW= .7173E+02 BASIN STORAGE= .4149E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR020	MANE	2.50	768.07	227.69	1.87	5.00	763.25	230.00	1.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7072E+02 EXCESS= .0000E+00 OUTFLOW= .7073E+02 BASIN STORAGE= .4280E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR020	MANE	2.51	759.78	228.60	1.85	5.00	751.71	230.00	1.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7001E+02 EXCESS= .0000E+00 OUTFLOW= .7003E+02 BASIN STORAGE= .4503E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RPBR040	MANE	5.00	337.70	240.00	1.49	5.00	337.70	240.00	1.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3270E+02 EXCESS= .0000E+00 OUTFLOW= .3271E+02 BASIN STORAGE= .2502E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RPBR040	MANE	5.00	333.58	240.00	1.47	5.00	333.58	240.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3229E+02 EXCESS= .0000E+00 OUTFLOW= .3230E+02 BASIN STORAGE= .2486E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RPBR040	MANE	5.00	330.49	240.00	1.45	5.00	330.49	240.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3198E+02 EXCESS= .0000E+00 OUTFLOW= .3199E+02 BASIN STORAGE= .2474E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RPBR040	MANE	5.00	326.38	240.00	1.43	5.00	326.38	240.00	1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3156E+02 EXCESS= .0000E+00 OUTFLOW= .3158E+02 BASIN STORAGE= .2457E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RPBR040	MANE	5.00	316.11	240.00	1.39	5.00	316.11	240.00	1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3054E+02 EXCESS= .0000E+00 OUTFLOW= .3055E+02 BASIN STORAGE= .2416E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RPBR040	MANE	5.00	305.87	240.00	1.34	5.00	305.87	240.00	1.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2952E+02 EXCESS= .0000E+00 OUTFLOW= .2953E+02 BASIN STORAGE= .2375E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RPBR040	MANE	5.00	300.75	240.00	1.32	5.00	300.75	240.00	1.32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2901E+02 EXCESS= .0000E+00 OUTFLOW= .2902E+02 BASIN STORAGE= .2354E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RPBR040	MANE	5.00	295.64	240.00	1.29	5.00	295.64	240.00	1.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2850E+02 EXCESS= .0000E+00 OUTFLOW= .2852E+02 BASIN STORAGE= .2333E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RPBR040	MANE	5.00	292.07	240.00	1.28	5.00	292.07	240.00	1.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2815E+02 EXCESS= .0000E+00 OUTFLOW= .2816E+02 BASIN STORAGE= .2318E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCPBR050	MANE	1.22	728.76	237.08	1.65	5.00	723.88	240.00	1.65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7551E+02 EXCESS= .0000E+00 OUTFLOW= .7551E+02 BASIN STORAGE= .2105E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR050	MANE	1.22	720.23	236.98	1.63	5.00	715.53	240.00	1.63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7461E+02 EXCESS= .0000E+00 OUTFLOW= .7461E+02 BASIN STORAGE= .2102E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR050	MANE	1.23	713.71	236.61	1.61	5.00	709.65	240.00	1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7394E+02 EXCESS= .0000E+00 OUTFLOW= .7394E+02 BASIN STORAGE= .1938E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR050	MANE	1.23	705.16	236.52	1.59	5.00	701.60	240.00	1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7305E+02 EXCESS= .0000E+00 OUTFLOW= .7305E+02 BASIN STORAGE= .1930E-02 PERCENT ERROR= .0

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          FOR PLAN = 1  RATIO=  .00
          RCPBR050  MANE          1.25    684.14    236.94      1.54      5.00    680.46    240.00         1.54

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7082E+02 EXCESS= .0000E+00 OUTFLOW= .7082E+02 BASIN STORAGE= .1901E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR050  MANE          1.26    663.32    237.43      1.50      5.00    660.96    240.00         1.50

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6861E+02 EXCESS= .0000E+00 OUTFLOW= .6861E+02 BASIN STORAGE= .2115E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR050  MANE          1.27    652.51    237.70      1.47      5.00    650.15    240.00         1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6750E+02 EXCESS= .0000E+00 OUTFLOW= .6751E+02 BASIN STORAGE= .1927E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR050  MANE          1.28    641.64    236.70      1.45      5.00    639.34    240.00         1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6639E+02 EXCESS= .0000E+00 OUTFLOW= .6639E+02 BASIN STORAGE= .2049E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR050  MANE          1.29    634.53    237.81      1.43      5.00    632.39    240.00         1.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6563E+02 EXCESS= .0000E+00 OUTFLOW= .6563E+02 BASIN STORAGE= .2072E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR070  MANE          1.90    771.27    239.29      1.68      5.00    770.54    240.00         1.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1504E+03 EXCESS= .0000E+00 OUTFLOW= .1504E+03 BASIN STORAGE= .3163E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR070  MANE          1.91    762.92    238.44      1.66      5.00    761.59    240.00         1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1486E+03 EXCESS= .0000E+00 OUTFLOW= .1486E+03 BASIN STORAGE= .3133E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR070  MANE          1.91    756.70    239.19      1.65      5.00    755.84    240.00         1.65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1473E+03 EXCESS= .0000E+00 OUTFLOW= .1473E+03 BASIN STORAGE= .2982E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR070  MANE          1.92    748.15    238.30      1.63      5.00    747.42    240.00         1.63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1455E+03 EXCESS= .0000E+00 OUTFLOW= .1455E+03 BASIN STORAGE= .2987E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR070  MANE          1.94    727.00    239.13      1.58      5.00    726.06    240.00         1.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1412E+03 EXCESS= .0000E+00 OUTFLOW= .1412E+03 BASIN STORAGE= .3027E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR070  MANE          1.97    706.29    239.82      1.53      5.00    706.25    240.00         1.53

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1368E+03 EXCESS= .0000E+00 OUTFLOW= .1368E+03 BASIN STORAGE= .3113E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR070  MANE          1.98    695.94    239.33      1.51      5.00    695.39    240.00         1.51

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1346E+03 EXCESS= .0000E+00 OUTFLOW= .1346E+03 BASIN STORAGE= .3037E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR070  MANE          1.99    684.96    238.86      1.48      5.00    683.82    240.00         1.48

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1325E+03 EXCESS= .0000E+00 OUTFLOW= .1325E+03 BASIN STORAGE= .3018E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR070  MANE          2.00    677.42    239.85      1.47      5.00    677.38    240.00         1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1310E+03 EXCESS= .0000E+00 OUTFLOW= .1310E+03 BASIN STORAGE= .3140E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR080  MANE           .35    883.19    235.50      1.70      5.00    880.27    235.00         1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1653E+03 EXCESS= .0000E+00 OUTFLOW= .1653E+03 BASIN STORAGE= .5820E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR080  MANE           .35    873.65    235.48      1.68      5.00    870.65    235.00         1.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1633E+03 EXCESS= .0000E+00 OUTFLOW= .1633E+03 BASIN STORAGE= .5763E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR080  MANE           .35    865.70    235.66      1.66      5.00    862.79    235.00         1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1619E+03 EXCESS= .0000E+00 OUTFLOW= .1619E+03 BASIN STORAGE= .5807E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR080  MANE           .35    856.43    235.62      1.64      5.00    853.38    235.00         1.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1600E+03 EXCESS= .0000E+00 OUTFLOW= .1600E+03 BASIN STORAGE= .5756E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR080  MANE           .35    831.07    235.64      1.59      5.00    828.68    240.00         1.59
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CONTINUITY SUMMARY (AC-FT) - INFLOW= .1552E+03 EXCESS= .0000E+00 OUTFLOW= .1552E+03 BASIN STORAGE= .5805E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR080	MANE	.36	806.97	235.56	1.55	5.00	806.07	240.00	1.55

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1505E+03 EXCESS= .0000E+00 OUTFLOW= .1505E+03 BASIN STORAGE= .5739E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR080	MANE	.36	794.68	235.57	1.52	5.00	793.88	240.00	1.52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1481E+03 EXCESS= .0000E+00 OUTFLOW= .1481E+03 BASIN STORAGE= .5749E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR080	MANE	.36	782.43	235.58	1.50	5.00	781.05	240.00	1.50

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1457E+03 EXCESS= .0000E+00 OUTFLOW= .1457E+03 BASIN STORAGE= .5812E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR080	MANE	.37	773.66	239.91	1.48	5.00	773.54	240.00	1.48

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1440E+03 EXCESS= .0000E+00 OUTFLOW= .1440E+03 BASIN STORAGE= .5846E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR035	MANE	1.28	2042.43	231.49	1.84	5.00	2030.32	235.00	1.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2846E+03 EXCESS= .0000E+00 OUTFLOW= .2846E+03 BASIN STORAGE= .1498E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR035	MANE	1.28	2020.63	232.40	1.82	5.00	2009.79	235.00	1.82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2813E+03 EXCESS= .0000E+00 OUTFLOW= .2813E+03 BASIN STORAGE= .1464E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR035	MANE	1.29	2008.25	231.55	1.81	5.00	1995.48	235.00	1.81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2792E+03 EXCESS= .0000E+00 OUTFLOW= .2792E+03 BASIN STORAGE= .1453E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR035	MANE	1.29	1983.99	232.62	1.79	5.00	1974.16	235.00	1.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2759E+03 EXCESS= .0000E+00 OUTFLOW= .2759E+03 BASIN STORAGE= .1487E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR035	MANE	1.30	1932.56	232.08	1.74	5.00	1921.58	235.00	1.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2681E+03 EXCESS= .0000E+00 OUTFLOW= .2681E+03 BASIN STORAGE= .1497E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR035	MANE	1.32	1878.50	231.71	1.69	5.00	1869.56	235.00	1.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2604E+03 EXCESS= .0000E+00 OUTFLOW= .2604E+03 BASIN STORAGE= .1491E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR035	MANE	1.32	1850.02	232.94	1.66	5.00	1841.43	235.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2565E+03 EXCESS= .0000E+00 OUTFLOW= .2565E+03 BASIN STORAGE= .1509E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR035	MANE	1.33	1829.87	232.56	1.64	5.00	1821.49	235.00	1.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2525E+03 EXCESS= .0000E+00 OUTFLOW= .2526E+03 BASIN STORAGE= .1457E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR035	MANE	1.33	1807.16	232.19	1.62	5.00	1799.12	235.00	1.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2499E+03 EXCESS= .0000E+00 OUTFLOW= .2499E+03 BASIN STORAGE= .1431E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR150	MANE	.60	2844.03	230.81	1.90	5.00	2834.76	235.00	1.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3710E+03 EXCESS= .0000E+00 OUTFLOW= .3710E+03 BASIN STORAGE= .1610E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR150	MANE	.60	2814.43	231.21	1.88	5.00	2805.50	235.00	1.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3668E+03 EXCESS= .0000E+00 OUTFLOW= .3668E+03 BASIN STORAGE= .1633E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR150	MANE	.61	2796.57	231.18	1.87	5.00	2785.72	235.00	1.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3640E+03 EXCESS= .0000E+00 OUTFLOW= .3640E+03 BASIN STORAGE= .1597E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR150	MANE	.61	2764.15	231.05	1.85	5.00	2756.33	235.00	1.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3599E+03 EXCESS= .0000E+00 OUTFLOW= .3599E+03 BASIN STORAGE= .1643E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR150	MANE	.61	2691.17	231.09	1.79	5.00	2684.84	235.00	1.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3499E+03 EXCESS= .0000E+00 OUTFLOW= .3499E+03 BASIN STORAGE= .1639E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBR150 MANE .62 2618.99 231.14 1.74 5.00 2614.16 235.00 1.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3400E+03 EXCESS= .0000E+00 OUTFLOW= .3400E+03 BASIN STORAGE= .1603E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBR150 MANE .62 2581.92 231.22 1.72 5.00 2577.22 235.00 1.72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3350E+03 EXCESS= .0000E+00 OUTFLOW= .3350E+03 BASIN STORAGE= .1640E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBR150 MANE .63 2550.49 231.09 1.69 5.00 2547.02 235.00 1.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3300E+03 EXCESS= .0000E+00 OUTFLOW= .3300E+03 BASIN STORAGE= .1592E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBR150 MANE .63 2519.02 230.95 1.67 5.00 2517.49 235.00 1.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3266E+03 EXCESS= .0000E+00 OUTFLOW= .3266E+03 BASIN STORAGE= .1633E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RPBR100 MANE 3.50 470.09 217.00 2.27 5.00 466.33 220.00 2.27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3333E+02 EXCESS= .0000E+00 OUTFLOW= .3335E+02 BASIN STORAGE= .1302E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RPBR100 MANE 3.50 465.74 217.00 2.25 5.00 462.22 220.00 2.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3301E+02 EXCESS= .0000E+00 OUTFLOW= .3303E+02 BASIN STORAGE= .1295E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RPBR100 MANE 3.50 462.47 217.00 2.24 5.00 459.14 220.00 2.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3276E+02 EXCESS= .0000E+00 OUTFLOW= .3278E+02 BASIN STORAGE= .1290E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RPBR100 MANE 3.50 458.11 217.00 2.21 5.00 455.02 220.00 2.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3244E+02 EXCESS= .0000E+00 OUTFLOW= .3246E+02 BASIN STORAGE= .1284E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RPBR100 MANE 3.50 447.20 217.00 2.16 5.00 444.72 220.00 2.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3163E+02 EXCESS= .0000E+00 OUTFLOW= .3165E+02 BASIN STORAGE= .2055E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RPBR100 MANE 3.75 441.18 217.50 2.10 5.00 431.66 220.00 2.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3079E+02 EXCESS= .0000E+00 OUTFLOW= .3081E+02 BASIN STORAGE= .1412E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RPBR100 MANE 3.75 435.69 217.50 2.07 5.00 426.52 220.00 2.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3039E+02 EXCESS= .0000E+00 OUTFLOW= .3041E+02 BASIN STORAGE= .1402E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RPBR100 MANE 3.75 430.20 217.50 2.05 5.00 421.38 220.00 2.05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2998E+02 EXCESS= .0000E+00 OUTFLOW= .3000E+02 BASIN STORAGE= .1393E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RPBR100 MANE 3.75 426.36 217.50 2.03 5.00 417.77 220.00 2.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2970E+02 EXCESS= .0000E+00 OUTFLOW= .2972E+02 BASIN STORAGE= .1386E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00
RCPBR110 MANE 4.25 1069.83 229.50 2.32 5.00 1060.84 230.00 2.32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9996E+02 EXCESS= .0000E+00 OUTFLOW= .9998E+02 BASIN STORAGE= .2441E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBR110 MANE 4.25 1060.64 229.50 2.30 5.00 1051.75 230.00 2.30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9901E+02 EXCESS= .0000E+00 OUTFLOW= .9903E+02 BASIN STORAGE= .2427E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBR110 MANE 4.25 1053.73 229.50 2.28 5.00 1044.93 230.00 2.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9829E+02 EXCESS= .0000E+00 OUTFLOW= .9832E+02 BASIN STORAGE= .2417E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBR110 MANE 4.25 1044.52 229.50 2.26 5.00 1035.82 230.00 2.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9734E+02 EXCESS= .0000E+00 OUTFLOW= .9737E+02 BASIN STORAGE= .2404E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBR110 MANE 4.25 1021.46 229.50 2.20 5.00 1013.04 230.00 2.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9497E+02 EXCESS= .0000E+00 OUTFLOW= .9500E+02 BASIN STORAGE= .2370E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00
RCPBR110 MANE 4.25 997.30 229.50 2.15 5.00 989.33 230.00 2.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9258E+02 EXCESS= .0000E+00 OUTFLOW= .9261E+02 BASIN STORAGE= .2230E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR110	MANE	4.50	988.87	229.50	2.12	5.00	980.67	230.00	2.13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9149E+02 EXCESS= .0000E+00 OUTFLOW= .9151E+02 BASIN STORAGE= .2163E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR110	MANE	4.50	977.28	229.50	2.10	5.00	969.21	230.00	2.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9030E+02 EXCESS= .0000E+00 OUTFLOW= .9033E+02 BASIN STORAGE= .2147E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR110	MANE	4.50	969.16	229.50	2.08	5.00	961.19	230.00	2.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8947E+02 EXCESS= .0000E+00 OUTFLOW= .8950E+02 BASIN STORAGE= .2136E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR120	MANE	5.00	1369.12	235.00	2.30	5.00	1369.12	235.00	2.30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1286E+03 EXCESS= .0000E+00 OUTFLOW= .1287E+03 BASIN STORAGE= .3670E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR120	MANE	5.00	1357.25	235.00	2.28	5.00	1357.25	235.00	2.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1274E+03 EXCESS= .0000E+00 OUTFLOW= .1274E+03 BASIN STORAGE= .3652E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR120	MANE	5.00	1348.34	235.00	2.26	5.00	1348.34	235.00	2.26

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1265E+03 EXCESS= .0000E+00 OUTFLOW= .1265E+03 BASIN STORAGE= .3639E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR120	MANE	5.00	1336.45	235.00	2.24	5.00	1336.45	235.00	2.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1252E+03 EXCESS= .0000E+00 OUTFLOW= .1253E+03 BASIN STORAGE= .3621E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR120	MANE	5.00	1306.66	235.00	2.19	5.00	1306.66	235.00	2.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1222E+03 EXCESS= .0000E+00 OUTFLOW= .1222E+03 BASIN STORAGE= .3575E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR120	MANE	5.00	1274.65	235.00	2.13	5.00	1274.65	235.00	2.13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1191E+03 EXCESS= .0000E+00 OUTFLOW= .1191E+03 BASIN STORAGE= .3319E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCPBR120	MANE	5.00	1267.76	235.00	2.11	5.00	1267.76	235.00	2.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1178E+03 EXCESS= .0000E+00 OUTFLOW= .1178E+03 BASIN STORAGE= .3741E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCPBR120	MANE	5.00	1252.73	235.00	2.08	5.00	1252.73	235.00	2.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1162E+03 EXCESS= .0000E+00 OUTFLOW= .1163E+03 BASIN STORAGE= .3716E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RCPBR120	MANE	5.00	1242.19	235.00	2.06	5.00	1242.19	235.00	2.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1152E+03 EXCESS= .0000E+00 OUTFLOW= .1152E+03 BASIN STORAGE= .3699E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RPBR140	MANE	5.00	482.89	230.00	2.18	5.00	482.89	230.00	2.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4487E+02 EXCESS= .0000E+00 OUTFLOW= .4491E+02 BASIN STORAGE= .3058E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RPBR140	MANE	5.00	478.30	230.00	2.15	5.00	478.30	230.00	2.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4443E+02 EXCESS= .0000E+00 OUTFLOW= .4446E+02 BASIN STORAGE= .3041E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RPBR140	MANE	5.00	474.86	230.00	2.14	5.00	474.86	230.00	2.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4410E+02 EXCESS= .0000E+00 OUTFLOW= .4413E+02 BASIN STORAGE= .3028E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RPBR140	MANE	5.00	470.27	230.00	2.12	5.00	470.27	230.00	2.12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4365E+02 EXCESS= .0000E+00 OUTFLOW= .4368E+02 BASIN STORAGE= .3012E-02 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00

RPBR140	MANE	5.00	459.16	230.00	2.06	5.00	459.16	230.00	2.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4254E+02 EXCESS= .0000E+00 OUTFLOW= .4256E+02 BASIN STORAGE= .2100E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RPBR140	MANE	5.00	447.67	230.00	2.01	5.00	447.67	230.00	2.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4144E+02 EXCESS= .0000E+00 OUTFLOW= .4145E+02 BASIN STORAGE= .2071E-02 PERCENT ERROR= .0

```
          FOR PLAN = 1  RATIO=  .00
           RPBR140  MANE          5.00    441.92    230.00      1.98      5.00    441.92    230.00        1.98

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4088E+02 EXCESS= .0000E+00 OUTFLOW= .4090E+02 BASIN STORAGE= .2057E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
           RPBR140  MANE          5.00    436.17    230.00      1.95      5.00    436.17    230.00        1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4033E+02 EXCESS= .0000E+00 OUTFLOW= .4035E+02 BASIN STORAGE= .2042E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
           RPBR140  MANE          5.00    432.15    230.00      1.94      5.00    432.15    230.00        1.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3994E+02 EXCESS= .0000E+00 OUTFLOW= .3996E+02 BASIN STORAGE= .2032E-02 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
          RCPBR130  MANE          1.37   2282.49    234.57      2.23      5.00   2282.14    235.00        2.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2265E+03 EXCESS= .0000E+00 OUTFLOW= .2264E+03 BASIN STORAGE= .2687E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR130  MANE          1.37   2265.34    234.99      2.20      5.00   2265.27    235.00        2.20

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2243E+03 EXCESS= .0000E+00 OUTFLOW= .2242E+03 BASIN STORAGE= .2827E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR130  MANE          1.38   2248.52    235.31      2.19      5.00   2246.61    235.00        2.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2226E+03 EXCESS= .0000E+00 OUTFLOW= .2225E+03 BASIN STORAGE= .2575E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR130  MANE          1.38   2226.02    235.74      2.17      5.00   2224.47    235.00        2.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2204E+03 EXCESS= .0000E+00 OUTFLOW= .2203E+03 BASIN STORAGE= .2707E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR130  MANE          1.38   2175.52    235.45      2.11      5.00   2172.99    235.00        2.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2149E+03 EXCESS= .0000E+00 OUTFLOW= .2148E+03 BASIN STORAGE= .2801E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR130  MANE          1.39   2122.33    235.23      2.06      5.00   2120.43    235.00        2.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2093E+03 EXCESS= .0000E+00 OUTFLOW= .2093E+03 BASIN STORAGE= .2664E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR130  MANE          1.39   2102.84    235.62      2.03      5.00   2099.64    235.00        2.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2068E+03 EXCESS= .0000E+00 OUTFLOW= .2067E+03 BASIN STORAGE= .2666E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR130  MANE          1.40   2075.86    236.20      2.00      5.00   2075.67    235.00        2.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2040E+03 EXCESS= .0000E+00 OUTFLOW= .2040E+03 BASIN STORAGE= .2687E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR130  MANE          1.40   2059.19    235.21      1.99      5.00   2057.11    235.00        1.99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2021E+03 EXCESS= .0000E+00 OUTFLOW= .2020E+03 BASIN STORAGE= .2843E-03 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR150  MANE          1.52   5101.39    236.10      2.01      5.00   5077.63    235.00        2.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5976E+03 EXCESS= .0000E+00 OUTFLOW= .5976E+03 BASIN STORAGE= .2327E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR150  MANE          1.53   5040.48    235.31      1.99      5.00   5035.22    235.00        1.99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5912E+03 EXCESS= .0000E+00 OUTFLOW= .5912E+03 BASIN STORAGE= .2496E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR150  MANE          1.53   5013.72    235.92      1.98      5.00   4995.63    235.00        1.98

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5867E+03 EXCESS= .0000E+00 OUTFLOW= .5868E+03 BASIN STORAGE= .2327E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR150  MANE          1.54   4955.96    236.76      1.96      5.00   4945.88    235.00        1.96

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5804E+03 EXCESS= .0000E+00 OUTFLOW= .5804E+03 BASIN STORAGE= .2453E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR150  MANE          1.55   4834.26    235.70      1.90      5.00   4821.34    235.00        1.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5649E+03 EXCESS= .0000E+00 OUTFLOW= .5649E+03 BASIN STORAGE= .2496E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
          RCPBR150  MANE          1.56   4720.21    236.23      1.85      5.00   4692.65    235.00        1.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5495E+03 EXCESS= .0000E+00 OUTFLOW= .5495E+03 BASIN STORAGE= .2383E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
```

RCPBR150	MANE	1.57	4651.22	235.66	1.83	5.00	4639.07	235.00	1.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5419E+03 EXCESS= .0000E+00 OUTFLOW= .5419E+03 BASIN STORAGE= .2551E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR150	MANE	1.58	4609.07	236.61	1.80	5.00	4581.88	235.00	1.80

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5342E+03 EXCESS= .0000E+00 OUTFLOW= .5342E+03 BASIN STORAGE= .2540E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

RCPBR150	MANE	1.58	4551.44	235.88	1.78	5.00	4532.97	235.00	1.78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5288E+03 EXCESS= .0000E+00 OUTFLOW= .5288E+03 BASIN STORAGE= .2329E-02 PERCENT ERROR= .0

*** NORMAL END OF HEC-1 ***

FOR REFERENCE ONLY

GIBSON CHANNEL
BROADBENT & ASSOCIATES, INC: HEC-1 OUTPUT
(SEPTEMBER 27, 2004)

– Broad Bent Gibson Ctt Hec-1

HEC1 S/N: 1343001909 HMVersion: 6.33 Data File: C:\WINNT\TEMP\~vbh122B.TMP

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*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
U.S. ARMY CORPS OF ENGINEERS      *
*                MAY   1991             *
HYDROLOGIC ENGINEERING CENTER     *
*             VERSION 4.0.1E            *
609 SECOND STREET           *
*                                       *
DAVIS, CALIFORNIA 95616       *
*  RUN DATE  09/01/2004  TIME  14:15:48 *
(916) 756-1104              *
*                                       *
*
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
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:::::::::::::::::::::::::::::::::::::::::::::
:::                                       :::
:::  Full Microcomputer Implementation    :::
:::                 by                    :::
:::        Haestad Methods, Inc.          :::
:::                                       :::
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37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.

THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION

NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,

DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION

KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT

```
ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
LINE
    1          ID  September 2004
    2          IT       5 10DEC03     1000      300
    3          IO       5        0
    4          JR    PREC        1     0.98     0.97     0.94
    5          IN       5        0        0

    6          KK  040    = PBR 040   Proposed Detention Basin Name
    7          KM  SUNSET STATION AREA
    8          KO                                          22
    9          BA   0.413
   10          PB    2.77
   11          PC       0      .02     .057      .07     .087     .108     .124      .13      .13
.13
   12          PC     .13      .13      .13     .133      .14     .142     .148     .158     .172
.181
   13          PC     .19     .197     .199       .2     .201     .204     .214     .229     .241
.249
   14          PC    .251     .256      .27     .278     .281     .283     .295     .322     .352
.409
   15          PC    .499      .59      .71     .744     .781     .812     .819     .835     .851
.856
   16          PC     .86     .868     .876     .888      .91     .926     .937      .95      .97
.976
   17          PC    .982     .985     .987     .989      .99     .993     .993     .994     .995
.998
   18          PC    .998     .999        1
   19          LS       0     86.5
   20          UD   0.413

   21          KK  R040   = PBR 050
   22          KM  SOUTH COMMERCIAL
   23          KO                                          22
   24          RK    4500   0.0178    0.025              TRAP       20        2

   25          KK  050
   26          KM  SOUTHEAST RESIDENTIAL
   27          KO                                          22
   28          BA    .447
   29          PB    2.77
   30          LS       0     90.4
   31          UD   0.462

   32          KK  C050
   33          KM  COMBINE PBR040 TO PBR050
   34          KO                                          22
   35          HC       2

   36          KK  R050
   37          KM  LINING= RCB US-95
   38          KO                                          22
   39          RK    1700      .01     .015              TRAP       19        0

   40          KK  060    = PBR060 + PBR055
   41          KM  SOUTHWEST RESIDENTIAL
   42          KO                                          22
   43          BA   0.581
   44          PB    2.77
   45          LS       0     88.8
   46          UD   0.438
```

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

 47          KK  070      = PBR 070
 48          KM  SUNSET STATION
 49          KO                                          22
 50          BA    .234
 51          PB    2.77
 52          LS       0       93
 53          UD   0.305

 54          KK  C060
 55          KM  COMBINE PBR060 AND PBR070
 56          KO                                          22
 57          HC       2

 58          KK  DET01
 59          KM  Wal-Mart detention
 60          KO                                          22
 61          RS              FLOW
 62          SA       0     .467    1.775    3.581    6.00       10
 63          SE      14       20       25       30      35       40
 64          SQ       0       30     38.5     45.7    52.0       52
 65          SE      14       20       25       30      35       40

 66          KK  C070
 67          KM  COMBINE CPBR050 AND 24" PIPE
 68          KO                                          22
 69          HC       2

 70          KK  R070
 71          KM  LINING= CONCRETE AT SUNSET
 72          KO                                          22
 73          RK    2350   0.008    .015             TRAP       19        0

 74          KK  080      = PBR 080
 75          KM  BETWEEN 95 AND GIBSON NORTH SUNSET
 76          KO                                          22
 77          BA   0.150
 78          PB    2.77
 79          LS       0    91.3
 80          UD   0.297

 81          KK  C080
 82          KM  COMBINE PBR080 AND CHANNEL
 83          KO                                          22
 84          HC       2

 85          KK  R080
 86          KM  LINING= CONCRETE CORNUCOPIA
 87          KO                                          22
 88          RK     600    .015   0.015             TRAP       15        0
 89          ZZ
```

```
****************************************
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
U.S. ARMY CORPS OF ENGINEERS     *
*               MAY   1991             *
HYDROLOGIC ENGINEERING CENTER    *
*            VERSION 4.0.1E            *
609 SECOND STREET          *
*                                      *
DAVIS, CALIFORNIA 95616       *
*  RUN DATE  09/01/2004  TIME  14:15:48 *
(916) 756-1104             *
*                                      *
****************************************
****************************************
```

September 2004

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

    IT          HYDROGRAPH TIME DATA
                       NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE     10DEC 3  STARTING DATE
                      ITIME        1000  STARTING TIME
                         NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE     11DEC 3  ENDING DATE
                      NDTIME        1055  ENDING TIME
                      ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL     0.08 HOURS
                       TOTAL TIME BASE    24.92 HOURS

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

    JP          MULTI-PLAN OPTION
                      NPLAN           1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                    RATIOS OF PRECIPITATION
                  1.00      0.98      0.97      0.94


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

            **************
            *            *
  6 KK      *    040     *
            *            *
```

```
          **************

  8 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         300  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


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


          **************
          *            *
 21 KK    *    R040    *
          *            *
          **************

 23 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         300  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


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


          **************
          *            *
 25 KK    *    050     *
          *            *
          **************

 27 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         300  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


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


          **************
          *            *
 32 KK    *    C050    *
          *            *
          **************
```

```
 34 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         300  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


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

           **************
           *            •
 36 KK     *    R050    *
           *            *
           **************

 38 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         300  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


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

           **************
           *            •
 40 KK     *    060     *
           •            *
           **************

 42 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         300  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


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

           **************
           *            *
 47 KK     *    070     •
           *            *
           **************

 49 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
```

```
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         300  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       0.083  TIME INTERVAL IN HOURS


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

          **************
          *            *
 54 KK    *    C060    *
          *            *
          **************

 56 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         300  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       0.083  TIME INTERVAL IN HOURS


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

          **************
          *            *
 58 KK    *    DET01   *
          *            *
          **************

 60 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         300  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       0.083  TIME INTERVAL IN HOURS


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

          **************
          *            *
 66 KK    *    C070    *
          *            *
          **************

 68 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
```

IPNCH	0	PUNCH COMPUTED HYDROGRAPH
IOUT	22	SAVE HYDROGRAPH ON THIS UNIT
ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	300	LAST ORDINATE PUNCHED OR SAVED
TIMINT	0.083	TIME INTERVAL IN HOURS

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

```
**************
*            *
*    R070    *
*            *
**************
```

72 KO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE
IPNCH	0	PUNCH COMPUTED HYDROGRAPH
IOUT	22	SAVE HYDROGRAPH ON THIS UNIT
ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	300	LAST ORDINATE PUNCHED OR SAVED
TIMINT	0.083	TIME INTERVAL IN HOURS

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

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*** FDKRUT WARNING TIME STEP CALCULATION FAILED TO CONVERGE. STABILITY PROBLEMS MAY RESULT

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

```
          **************
          *            *
 74 KK    *    080     *
          *            *
          **************
```

 76 KO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE
IPNCH	0	PUNCH COMPUTED HYDROGRAPH
IOUT	22	SAVE HYDROGRAPH ON THIS UNIT
ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	300	LAST ORDINATE PUNCHED OR SAVED
TIMINT	0.083	TIME INTERVAL IN HOURS

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

```
          **************
          *            *
 81 KK    *    C080    *
          *            *
          **************
```

 83 KO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE
IPNCH	0	PUNCH COMPUTED HYDROGRAPH
IOUT	22	SAVE HYDROGRAPH ON THIS UNIT
ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	300	LAST ORDINATE PUNCHED OR SAVED
TIMINT	0.083	TIME INTERVAL IN HOURS

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

```
          **************
          *            *
 85 KK    *    R080    *
          *            *
          **************
```

 87 KO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE
IPNCH	0	PUNCH COMPUTED HYDROGRAPH
IOUT	22	SAVE HYDROGRAPH ON THIS UNIT

ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	300	LAST ORDINATE PUNCHED OR SAVED
TIMINT	0.083	TIME INTERVAL IN HOURS

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS

FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 1.00	RATIO 2 0.98	RATIO 3 0.97	RATIO 4 0.94
HYDROGRAPH AT	040	0.41	1	FLOW	340.	330.	324.	309.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO	R040	0.41	1	FLOW	338.	328.	323.	308.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT	050	0.45	1	FLOW	406.	395.	390.	374.
				TIME	3.92	3.92	3.92	3.92
2 COMBINED AT	C050	0.86	1	FLOW	744.	723.	712.	681.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO	R050	0.86	1	FLOW	742.	721.	710.	679.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT	060	0.58	1	FLOW	507.	493.	486.	464.
				TIME	3.83	3.83	3.83	3.92
HYDROGRAPH AT	070	0.23	1	FLOW	287.	281.	277.	267.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT	C060	0.81	1	FLOW	772.	751.	741.	710.
				TIME	3.83	3.83	3.83	3.83
ROUTED TO	DET01	0.81	1	FLOW	52.	52.	52.	52.
				TIME	4.25	4.33	4.33	4.50
			** PEAK STAGES IN FEET **					
			1	STAGE	37.23	36.98	36.85	36.49
				TIME	5.75	5.75	5.75	5.75
2 COMBINED AT	C070	1.67	1	FLOW	790.	769.	758.	726.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO	R070	1.67	1	FLOW	785.	763.	753.	721.
				TIME	3.92	3.92	3.92	3.92
HYDROGRAPH AT	080	0.15	1	FLOW	175.	171.	169.	162.
				TIME	3.75	3.75	3.75	3.75
2 COMBINED AT	C080	1.82	1	FLOW	921.	896.	884.	847.
				TIME	3.92	3.92	3.92	3.92
ROUTED TO	R080	1.82	1	FLOW	920.	896.	883.	846.
				TIME	3.92	3.92	3.92	3.92

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO= 1.00									
R040	MANE	1.92	338.19	235.04	1.50	5.00	338.16	235.00	1.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3311E+02 EXCESS=0.0000E+00 OUTFLOW=0.3315E+02 BASIN STORAGE=0.8641E-04 PERCENT ERROR= -0.1

FOR PLAN = 1 RATIO= 0.98									
R040	MANE	1.84	328.53	234.55	1.46	5.00	328.02	235.00	1.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3208E+02 EXCESS=0.0000E+00 OUTFLOW=0.3211E+02 BASIN STORAGE=0.8365E-04 PERCENT ERROR= -0.1

FOR PLAN = 1 RATIO= 0.97									
R040	MANE	1.95	323.35	233.66	1.43	5.00	322.61	235.00	1.44

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3156E+02 EXCESS=0.0000E+00 OUTFLOW=0.3159E+02 BASIN STORAGE=0.8097E-04 PERCENT ERROR= -0.1

FOR PLAN = 1 RATIO= 0.94									
R040	MANE	1.96	308.14	234.53	1.36	5.00	307.69	235.00	1.36

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3003E+02 EXCESS=0.0000E+00 OUTFLOW=0.3006E+02 BASIN STORAGE=0.7378E-04 PERCENT ERROR= -0.1

FOR PLAN = 1 RATIO= 1.00									
R050	MANE	0.43	742.98	235.75	1.66	5.00	741.67	235.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7624E+02 EXCESS=0.0000E+00 OUTFLOW=0.7625E+02 BASIN STORAGE=0.1335E-03 PERCENT ERROR= 0.0

FOR PLAN = 1 RATIO= 0.98									
R050	MANE	0.35	722.51	235.52	1.61	5.00	720.72	235.00	1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7398E+02 EXCESS=0.0000E+00 OUTFLOW=0.7399E+02 BASIN STORAGE=0.1300E-03 PERCENT ERROR= 0.0

FOR PLAN = 1 RATIO= 0.97									
R050	MANE	0.37	711.48	235.49	1.59	5.00	709.93	235.00	1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7289E+02 EXCESS=0.0000E+00 OUTFLOW=0.7290E+02 BASIN STORAGE=0.1378E-03 PERCENT ERROR= 0.0

FOR PLAN = 1 RATIO= 0.94

R050	MANE	0.42	680.33	235.72	1.52	5.00	678.66	235.00	1.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6954E+02 EXCESS=0.0000E+00 OUTFLOW=0.6955E+02 BASIN STORAGE=0.1222E-03 PERCENT ERROR= 0.0

FOR PLAN = 1 RATIO= 1.00

R070	MANE	0.63	788.50	236.27	1.72	5.00	784.65	235.00	1.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1537E+03 EXCESS=0.0000E+00 OUTFLOW=0.1537E+03 BASIN STORAGE=0.3923E-02 PERCENT ERROR= 0.0

FOR PLAN = 1 RATIO= 0.98

R070	MANE	0.55	767.52	236.24	1.67	5.00	763.40	235.00	1.67

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1492E+03 EXCESS=0.0000E+00 OUTFLOW=0.1492E+03 BASIN STORAGE=0.2504E-02 PERCENT ERROR= 0.0

FOR PLAN = 1 RATIO= 0.97

R070	MANE	0.54	756.63	235.90	1.65	5.00	752.50	235.00	1.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1471E+03 EXCESS=0.0000E+00 OUTFLOW=0.1471E+03 BASIN STORAGE=0.2170E-02 PERCENT ERROR= 0.0

FOR PLAN = 1 RATIO= 0.94

R070	MANE	0.67	724.58	236.17	1.57	5.00	720.60	235.00	1.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1405E+03 EXCESS=0.0000E+00 OUTFLOW=0.1405E+03 BASIN STORAGE=0.1734E-02 PERCENT ERROR= 0.0

FOR PLAN = 1 RATIO= 1.00

R080	MANE	0.16	920.34	235.05	1.73	5.00	920.24	235.00	1.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1688E+03 EXCESS=0.0000E+00 OUTFLOW=0.1688E+03 BASIN STORAGE=0.1197E-02 PERCENT ERROR= 0.0

FOR PLAN = 1 RATIO= 0.98

R080	MANE	0.21	895.61	234.99	1.68	5.00	895.61	235.00	1.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1639E+03 EXCESS=0.0000E+00 OUTFLOW=0.1639E+03 BASIN STORAGE=0.8611E-03 PERCENT ERROR= 0.0

FOR PLAN = 1 RATIO= 0.97

R080	MANE	0.23	882.97	234.97	1.66	5.00	882.96	235.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1616E+03 EXCESS=0.0000E+00 OUTFLOW=0.1616E+03 BASIN STORAGE=0.7383E-03 PERCENT ERROR= 0.0

FOR PLAN = 1 RATIO= 0.94

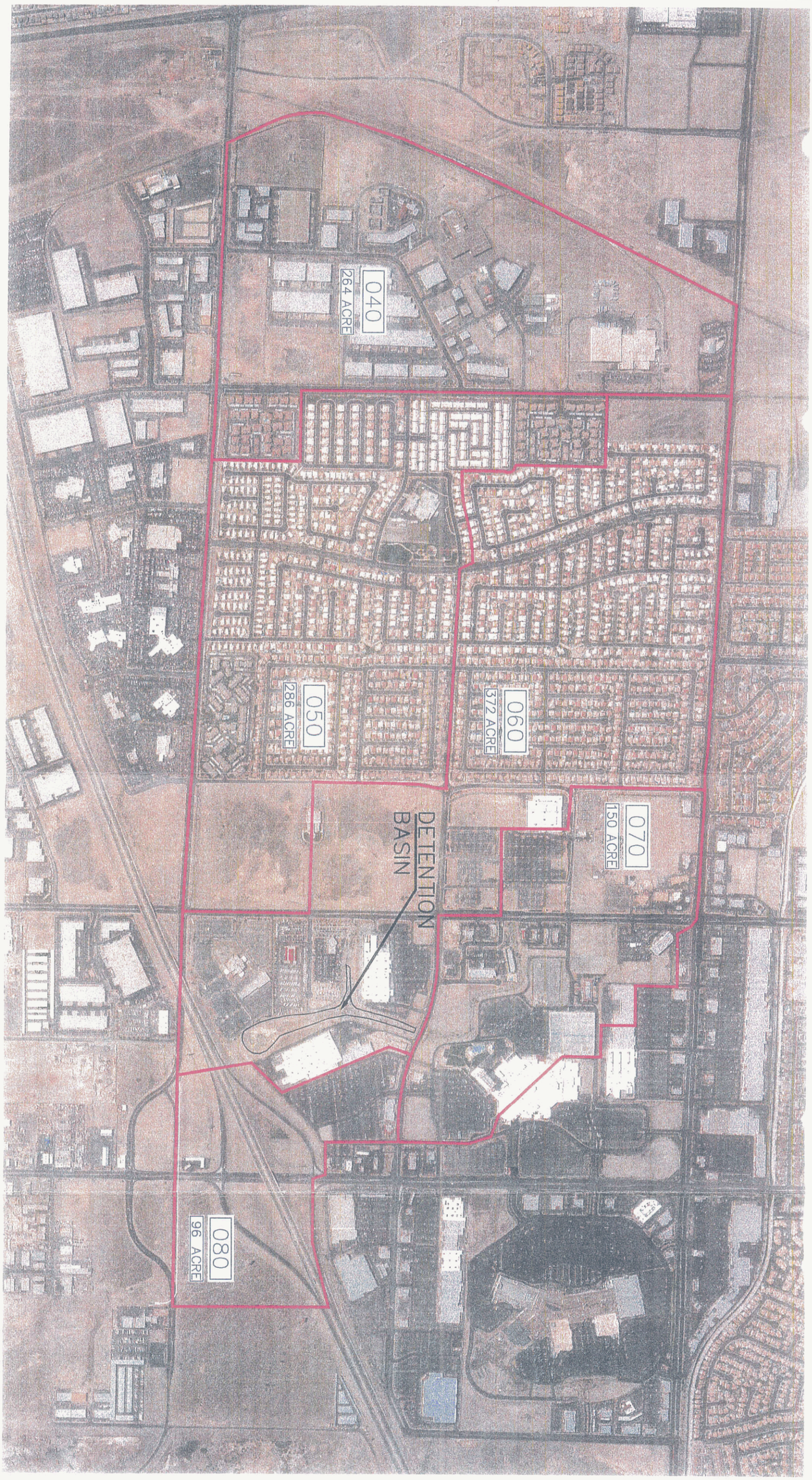
R080	MANE	0.14	846.25	235.12	1.59	5.00	846.00	235.00

1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1543E+03 EXCESS=0.0000E+00 OUTFLOW=0.1543E+03 BASIN STORAGE=0.4777E-03 PERCENT ERROR= 0.0

*** NORMAL END OF HEC-1 ***

F:\jobs \Civil\03-01-248\GIBSON\dwg\Exhibits\BASIN AERIAL.dwg, 9/28/2004 10:21:57



GRAPHIC SCALE

1000 0 500 1000 2000 4000

(IN FEET)

1 inch = 1000 ft.

N

BAI

DESIGNED GMS DRAWN GMS CHECKED	SCALE: 1" = 1000'		BROADBENT & ASSOCIATES, INC. ENGINEERING, WATER RESOURCES & ENVIRONMENTAL LAS VEGAS • RENO • PHOENIX	8 WEST PACIFIC AVENUE LAS VEGAS, NEVADA 89015 PH: (702) 563-0600 • FAX: (702) 563-0610	GIBSON CHANNEL CITY OF HENDERSON	DWG. 1 SHEET 1 OF 1

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WATERSHED SUBAREA MAP

APPENDIX D

HYDRAULICS

WSPG MODEL FOR GIBSON CHANNEL

(WSPG RUN FROM VTN GIBSON CHANNEL FINAL DRAINAGE REPORT FEBRUARY 2004)

GIBSON.OUT

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T1 WO# 6511 Gibson Conveyance System- City of Henderson
T2 Q = 847 cfs - Main channel
T3 WSPG file: GIBSON.wsw, by: RMT UPDATED 6/28/05
SO   2439.92 1679.100 10       .015
R    2470.03 1679.410 10       .015
R    2599.45 1681.740 10       .015
TS   2889.50 1687.710  7       .015
BX   2889.50 1687.710  8       .015
R    3362.04 1693.760  8       .015
BE   3362.04 1693.760  7       .015
TS   3427.06 1694.190  6       .015
R    3771.77 1696.500  6       .015
R    4171.77 1699.220  6       .015
TS   4221.78 1699.560  3       .015
BX   4221.78 1699.560  4       .015
R    4568.78 1701.460  4       .015
TS   4618.86 1701.860 11       .015
R    5332.97 1707.510 11       .015
R    5382.97 1707.910 12       .015
BX   5382.97 1707.910  2       .015
R    6661.42 1722.200  2       .015
BE   6661.42 1722.200  1       .015
TS   6701.01 1722.770  5       .015
R    6950.00 1726.350  5       .015
TS   7000.00 1727.070  1       .015
R    7200.00 1729.650  1       .015
SH   7200.00 1729.650  1                                1732.260
CD   1  2                 6.000   18.700
CD   2  3   1    0.700    6.000   18.700
CD   3  2                 6.000   21.800
CD   4  3   1    1.800    6.000   21.800
CD   5  2                 4.500   18.700
CD   6  2                 4.500   21.800
CD   7  2                 5.000   27.000
CD   8  3   2    2.000    5.000   27.000
CD   9  2                 7.000   27.000
CD  10  2                 8.000   11.500
CD  11  3                 4.500   18.700
CD  12  3                 6.000   18.700
CD  13  3                 6.000   21.800
Q          847.000   .0
```

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	2	0	.000	6.000	18.700			.00										
CD	2	3	1	.700	6.000	18.700	.000	.000	.00										
CD	3	2	0	.000	6.000	21.800			.00										
CD	4	3	1	1.800	6.000	21.800	.000	.000	.00										
CD	5	2	0	.000	4.500	18.700			.00										
CD	6	2	0	.000	4.500	21.800			.00										
CD	7	2	0	.000	5.000	27.000			.00										
CD	8	3	2	2.000	5.000	27.000	.000	.000	.00										
CD	9	2	0	.000	7.000	27.000			.00										
CD	10	2	0	.000	8.000	11.500			.00										
CD	11	3	0	.000	4.500	18.700	.000	.000	.00										
CD	12	3	0	.000	6.000	18.700	.000	.000	.00										
CD	13	3	0	.000	6.000	21.800	.000	.000	.00										

W S P G W

PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

WO# 6511 Gibson Conveyance System- City of Henderson

HEADING LINE NO 2 IS -

Q = 847 cfs - Main channel

HEADING LINE NO 3 IS -

WSPG file: GIBSON.wsw, by: RMT UPDATED 6/28/05

W S P G W

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	2439.920	1679.100	10	.000

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2470.030	1679.410	10	.015	.000	.000	.000	0

ELEMENT NO 3 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2599.450	1681.740	10	.015	.000	.000	.000	0

ELEMENT NO 4 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE
	2889.500	1687.710	7	.015	.000	.000

ELEMENT NO 5 IS A BRIDGE EXIT *

U/S DATA	STATION	INVERT	SECT
	2889.500	1687.710	8

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	3362.040	1693.760	8	.015	.000	.000	.000	0

ELEMENT NO 7 IS A BRIDGE ENTRANCE *

U/S DATA	STATION	INVERT	SECT	FP
	3362.040	1693.760	7	.015

ELEMENT NO 8 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE
	3427.060	1694.190	6	.015	.000	.000

ELEMENT NO 9 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	3771.770	1696.500	6	.015	.000	.000	.000	0

ELEMENT NO 10 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	4171.770	1699.220	6	.015	.000	.000	.000	0

ELEMENT NO 11 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE
	4221.780	1699.560	3	.015	.000	.000

ELEMENT NO 12 IS A BRIDGE EXIT *

U/S DATA	STATION	INVERT	SECT
	4221.780	1699.560	4

ELEMENT NO 13 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	4568.780	1701.460	4	.015	.000	.000	.000	0

ELEMENT NO 14 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE
	4618.860	1701.860	1	.015	.000	.000

W S P G W

PAGE NO 3

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 15 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	5332.970	1707.510	1	.015	.000	.000	.000	0

ELEMENT NO 16 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	5382.970	1707.910	1	.015	.000	.000	.000	0

ELEMENT NO 17 IS A BRIDGE EXIT *

```
                    U/S DATA   STATION     INVERT  SECT
                               5382.970 1707.910    2
  ELEMENT NO  18 IS A REACH              *         *     *
                    U/S DATA   STATION     INVERT  SECT              N                          RADIUS    ANGLE
ANG PT  MAN H
                               6661.420 1722.200    2              .015                          .000     .000
.000     0
  ELEMENT NO  19 IS A BRIDGE ENTRANCE                          *
                    U/S DATA   STATION     INVERT  SECT             FP
                               6661.420 1722.200    1              .015
  ELEMENT NO  20 IS A TRANSITION         *         *     *
                    U/S DATA   STATION     INVERT  SECT              N                          RADIUS    ANGLE
                               6701.010 1722.770    5              .015                          .000     .000
  ELEMENT NO  21 IS A REACH              *         *     *
                    U/S DATA   STATION     INVERT  SECT              N                          RADIUS    ANGLE
ANG PT  MAN H
                               6950.000 1726.350    5              .015                          .000     .000
.000     0
  ELEMENT NO  22 IS A TRANSITION         *         *     *
                    U/S DATA   STATION     INVERT  SECT              N                          RADIUS    ANGLE
                               7000.000 1727.070    1              .015                          .000     .000
  ELEMENT NO  23 IS A REACH              *         *     *
                    U/S DATA   STATION     INVERT  SECT              N                          RADIUS    ANGLE
ANG PT  MAN H
                               7200.000 1729.650    1              .015                          .000     .000
.000     0
  ELEMENT NO  24 IS A SYSTEM HEADWORKS                         *                    *
                    U/S DATA   STATION     INVERT  SECT                                  W S ELEV
                               7200.000 1729.650    1                                  1732.260
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D FILE: gibson.WSW W S P G W - CIVILDESIGN Version 12.99 PAGE 1

Program Package License Serial Number: 1222

WATER SURFACE PROFILE LISTING Date: 6-28-2005 Time:11:24:35

WO# 6511 Gibson Conveyance System- City of Henderson

Q = 847 cfs - Main channel

WSPG file: GIBSON.wsw, by: RMT UPDATED 6/28/05

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2439.920	1679.100	3.815	1682.915	847.00	19.31	5.79	1688.70	.00	5.52	11.50	8.000	11.500	.00	0 .0
30.110	.0103					.0127	.38	3.81	1.74	4.10	.015	.00	.00	RECTANG
2470.030	1679.410	3.779	1683.189	847.00	19.49	5.90	1689.09	.00	5.52	11.50	8.000	11.500	.00	0 .0
8.807	.0180					.0128	.11	3.78	1.77	3.36	.015	.00	.00	RECTANG
2478.837	1679.569	3.801	1683.370	847.00	19.38	5.83	1689.20	.00	5.52	11.50	8.000	11.500	.00	0 .0
56.401	.0180					.0119	.67	3.80	1.75	3.36	.015	.00	.00	RECTANG
2535.239	1680.584	3.987	1684.571	847.00	18.47	5.30	1689.87	.00	5.52	11.50	8.000	11.500	.00	0 .0
37.857	.0180					.0104	.39	3.99	1.63	3.36	.015	.00	.00	RECTANG
2573.095	1681.266	4.181	1685.447	847.00	17.62	4.82	1690.26	.00	5.52	11.50	8.000	11.500	.00	0 .0
26.355	.0180					.0091	.24	4.18	1.52	3.36	.015	.00	.00	RECTANG
2599.450	1681.740	4.385	1686.125	847.00	16.80	4.38	1690.51	.00	5.52	11.50	8.000	11.500	.00	0 .0
TRANS STR	.0206					.0103	2.99	4.39	1.41		.015	.00	.00	RECTANG
2889.500	1687.710	1.992	1689.702	847.00	15.75	3.85	1693.55	.00	3.13	27.00	5.000	27.000	.00	0 .0
BRIDGE EXIT														
2889.500	1687.710	2.495	1690.205	847.00	14.76	3.38	1693.59	.00	3.48	27.00	5.000	27.000	.00	2 2.0
116.743	.0128					.0128	1.49	2.49	1.78	2.49	.015	.00	.00	BOX
3006.243	1689.205	2.495	1691.699	847.00	14.76	3.38	1695.08	.00	3.48	27.00	5.000	27.000	.00	2 2.0
236.355	.0128					.0125	2.95	2.49	1.78	2.49	.015	.00	.00	BOX

D FILE: gibson.WSW W S P G W - CIVILDESIGN Version 12.99 PAGE 2

Program Package License Serial Number: 1222

WATER SURFACE PROFILE LISTING Date: 6-28-2005 Time:11:24:35

WO# 6511 Gibson Conveyance System- City of Henderson

Q = 847 cfs - Main channel

WSPG file: GIBSON.wsw, by: RMT UPDATED 6/28/05

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3242.598	1692.231	2.544	1694.775	847.00	14.48	3.25	1698.03	.00	3.48	27.00	5.000	27.000	.00	2 2.0
119.442	.0128					.0114	1.36	2.54	1.73	2.49	.015	.00	.00	BOX
3362.040	1693.760	2.668	1696.428	847.00	13.80	2.96	1699.39	.00	3.48	27.00	5.000	27.000	.00	2 2.0
BRIDGE ENTRANCE														
3362.040	1693.760	2.085	1695.845	847.00	15.05	3.52	1699.36	.00	3.13	27.00	5.000	27.000	.00	0 .0
TRANS STR	.0066					.0086	.56	2.08	1.84		.015	.00	.00	RECTANG
3427.060	1694.190	2.806	1696.996	847.00	13.85	2.98	1699.97	.00	3.61	21.80	4.500	21.800	.00	0 .0
38.904	.0067					.0067	.26	2.81	1.46	2.81	.015	.00	.00	RECTANG
3465.964	1694.451	2.806	1697.256	847.00	13.85	2.98	1700.23	.00	3.61	21.80	4.500	21.800	.00	0 .0
305.806	.0067					.0068	2.06	2.81	1.46	2.81	.015	.00	.00	RECTANG
3771.770	1696.500	2.792	1699.292	847.00	13.91	3.01	1702.30	.00	3.61	21.80	4.500	21.800	.00	0 .0
93.624	.0068					.0068	.64	2.79	1.47	2.79	.015	.00	.00	RECTANG
3865.394	1697.137	2.792	1699.929	847.00	13.91	3.01	1702.94	.00	3.61	21.80	4.500	21.800	.00	0 .0
306.376	.0068					.0067	2.04	2.79	1.47	2.79	.015	.00	.00	RECTANG
4171.770	1699.220	2.831	1702.051	847.00	13.72	2.92	1704.98	.00	3.61	21.80	4.500	21.800	.00	0 .0
TRANS STR	.0068					.0065	.32	2.83	1.44		.015	.00	.00	RECTANG
4221.780	1699.560	2.843	1702.403	847.00	13.67	2.90	1705.30	.00	3.61	21.80	6.000	21.800	.00	0 .0
BRIDGE EXIT														

D FILE: gibson.WSW W S P G W - CIVILDESIGN Version 12.99 PAGE 3

Program Package License Serial Number: 1222

WATER SURFACE PROFILE LISTING Date: 6-28-2005 Time:11:24:35

WO# 6511 Gibson Conveyance System- City of Henderson

Q = 847 cfs - Main channel

WSPG file: GIBSON.wsw, by: RMT UPDATED 6/28/05

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
4221.779	1699.560	3.521	1703.081	847.00	12.03	2.25	1705.33	.00	3.82	21.80	6.000	21.800	.00	1 1.8
65.771	.0055					.0057	.38	3.52	1.18	3.55	.015	.00	.00	BOX
4287.550	1699.920	3.468	1703.388	847.00	12.21	2.32	1705.70	.00	3.82	21.80	6.000	21.800	.00	1 1.8
89.451	.0055					.0063	.56	3.47	1.21	3.55	.015	.00	.00	BOX
4377.001	1700.410	3.307	1703.717	847.00	12.81	2.55	1706.26	.00	3.82	21.80	6.000	21.800	.00	1 1.8
60.056	.0055					.0072	.43	3.31	1.30	3.55	.015	.00	.00	BOX
4437.057	1700.739	3.153	1703.891	847.00	13.43	2.80	1706.69	.00	3.82	21.80	6.000	21.800	.00	1 1.8
49.298	.0055					.0082	.40	3.15	1.39	3.55	.015	.00	.00	BOX
4486.355	1701.009	3.006	1704.015	847.00	14.09	3.08	1707.10	.00	3.82	21.80	6.000	21.800	.00	1 1.8
43.266	.0055					.0094	.41	3.01	1.50	3.55	.015	.00	.00	BOX

4529.621	1701.246	2.866	1704.112	847.00	14.78	3.39	1707.50	.00	3.82	21.80	6.000	21.800	.00	1	1.8
39.159	.0055					.0107	.42	2.87	1.61	3.55	.015	.00	.00	BOX	
4568.780	1701.460	2.733	1704.193	847.00	15.50	3.73	1707.92	.00	3.82	21.80	6.000	21.800	.00	1	1.8
TRANS STR	.0080					.0097	.48	2.73	1.72		.015	.00	.00	BOX	
4618.860	1701.860	2.983	1704.843	847.00	15.18	3.58	1708.42	.00	3.99	18.70	6.000	18.700	.00	0	.0
357.542	.0079					.0079	2.83	2.98	1.55	2.98	.015	.00	.00	RECTANG	
4976.402	1704.689	2.983	1707.672	847.00	15.18	3.58	1711.25	.00	3.99	18.70	6.000	18.700	.00	0	.0
356.568	.0079					.0084	2.99	2.98	1.55	2.98	.015	.00	.00	RECTANG	

Program Package License Serial Number: 1222

WATER SURFACE PROFILE LISTING Date: 6-28-2005 Time:11:24:35

WO# 6511 Gibson Conveyance System- City of Henderson

Q = 847 cfs - Main channel

WSPG file: GIBSON.wsw, by: RMT UPDATED 6/28/05

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5332.970	1707.510	2.876	1710.386	847.00	15.75	3.85	1714.24	.00	3.99	18.70	6.000	18.700	.00	0 .0
50.000	.0080					.0090	.45	2.88	1.64	2.97	.015	.00	.00	RECTANG
5382.970	1707.910	2.847	1710.757	847.00	15.91	3.93	1714.69	.00	3.99	18.70	6.000	18.700	.00	0 .0
BRIDGE EXIT														
5382.970	1707.910	3.026	1710.936	847.00	15.55	3.76	1714.69	.00	4.10	18.70	6.000	18.700	.00	1 .7
620.828	.0112					.0112	6.94	3.03	1.61	3.03	.015	.00	.00	BOX
6003.798	1714.849	3.026	1717.875	847.00	15.55	3.76	1721.63	.00	4.10	18.70	6.000	18.700	.00	1 .7
288.741	.0112					.0114	3.28	3.03	1.61	3.03	.015	.00	.00	BOX
6292.539	1718.077	2.990	1721.067	847.00	15.74	3.84	1724.91	.00	4.10	18.70	6.000	18.700	.00	1 .7
204.098	.0112					.0124	2.53	2.99	1.63	3.03	.015	.00	.00	BOX
6496.637	1720.358	2.851	1723.209	847.00	16.50	4.23	1727.44	.00	4.10	18.70	6.000	18.700	.00	1 .7
97.387	.0112					.0142	1.38	2.85	1.76	3.03	.015	.00	.00	BOX
6594.024	1721.447	2.719	1724.165	847.00	17.31	4.65	1728.82	.00	4.10	18.70	6.000	18.700	.00	1 .7
67.396	.0112					.0162	1.09	2.72	1.89	3.03	.015	.00	.00	BOX
6661.420	1722.200	2.592	1724.792	847.00	18.15	5.12	1729.91	.00	4.10	18.70	6.000	18.700	.00	1 .7
BRIDGE ENTRANCE														
6661.420	1722.200	2.463	1724.663	847.00	18.39	5.25	1729.91	.00	3.99	18.70	6.000	18.700	.00	0 .0
TRANS STR	.0144					.0141	.56	2.46	2.06		.015	.00	.00	RECTANG

Program Package License Serial Number: 1222

WATER SURFACE PROFILE LISTING Date: 6-28-2005 Time:11:24:35

WO# 6511 Gibson Conveyance System- City of Henderson

Q = 847 cfs - Main channel

WSPG file: GIBSON.wsw, by: RMT UPDATED 6/28/05

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
6701.010	1722.770	2.466	1725.236	847.00	18.36	5.24	1730.47	.00	3.99	18.70	4.500	18.700	.00	0 .0
248.990	.0144					.0135	3.37	2.47	2.06	2.45	.015	.00	.00	RECTANG
6950.000	1726.350	2.535	1728.885	847.00	17.86	4.96	1733.84	.00	3.99	18.70	4.500	18.700	.00	0 .0
TRANS STR	.0144					.0128	.64	2.54	1.98		.015	.00	.00	RECTANG
7000.000	1727.070	2.560	1729.630	847.00	17.69	4.86	1734.49	.00	3.99	18.70	6.000	18.700	.00	0 .0
200.000	.0129					.0122	2.44	2.56	1.95	2.54	.015	.00	.00	RECTANG
7200.000	1729.650	2.610	1732.260	847.00	17.35	4.68	1736.94	.00	3.99	18.70	6.000	18.700	.00	0 .0

Gibson Channel

VTN 28 JUNE 2005 "Hydraulics summary 6-27-05-Gibson CH.xls"

Values in English Units:

HYDRAULICS SUMMARY - MAINLINE

gibson.wsw - Main channel peak flow

(n=0.015)

Calculated RMT
Date 6/28/2005
Checked I JPL
Date: 6/28/2005

CHANNEL STATION	WSPG STATION	REMARKS	DESIGN FLOW Q	DEPTH OF FLOW y	DEPTH W/AIR[1] y*	INVERT ELEV	VELOCITY V	H.G.L.	E.G.L.	CHANNEL TYPE	BASE WIDTH	SIDE SLOPE	FLOW AREA	W.S. WIDTH	FROUDE NUMBER	CURVE RADIUS R	SUPER ELEV	ROLL WAVE[2]	CCRFCD MIN FB[3]	MIN WALL HT	DESIGN WALL HT	ACTUAL FB	FB CKECK
8+00.00	72+00.00		847	2.610	2.657	1729.65	17.35	1732.26	1736.93	RCB	18	0	46.98	18.00	1.89				1.60	4.21	6.00	3.39	OK
	200.00					1.29																	
10+00.00	70+00.00	START Channel	847	2.560	2.615	1727.07	17.69	1729.63	1734.49	RECT	18.7	0	47.87	18.70	1.95				1.60	4.16	6.00	3.44	OK
10+00.00	70+00.00	Begin Wall Tranition 6' to 4.5'	847	2.560	2.615	1727.07	17.69	1729.63	1734.49	RECT	18.7	0	47.87	18.70	1.95				1.60	4.16	6.00	3.44	OK
	50.00					1.44																	
10+50.00	69+50.00	End Wall Tranition 6' to 4.5'	847	2.532	2.591	1726.35	17.86	1728.88	1733.84	RECT	18.7	0	47.35	18.70	1.98				1.61	4.14	4.50	1.97	OK
10+50.00	69+50.00	Begin 18.7'x4.5' Channel	847	2.532	2.591	1726.35	17.86	1728.88	1733.84	RECT	18.7	0	47.35	18.70	1.98				1.61	4.14	4.50	1.97	OK
	248.99					1.44																	
12+98.99	67+01.01	End 18.7'x4.5' Channel	847	2.466	2.536	1722.77	18.36	1725.23	1730.47	RECT	18.7	0	46.11	18.70	2.06				1.62	4.09	4.50	2.03	OK
12+98.99	67+01.01	Begin Wall Tranition 4.5' to 6'	847	2.466	2.536	1722.77	18.36	1725.23	1730.47	RECT	18.7	0	46.11	18.70	2.06				1.62	4.09	4.50	2.03	OK
	39.59					1.43																	
13+38.58	66+61.42	End Wall Tranition 4.5' to 6'	847	2.463	2.534	1722.20	18.39	1724.66	1729.91	RECT	18.7	0	46.06	18.70	2.07				1.62	4.08	6.00	3.54	OK
13+38.58	66+61.42	Connect to Existing RCB (2) 9'x6'	847	2.592	2.654	1722.20	18.15	1724.79	1729.91	RCB	18.7	0	48.47	18.70	1.99				1.62	4.22	6.00	3.41	OK
	1278.45					1.12																	
26+17.03	53+82.97	End Existing RCB (2) 9'x6'	847	3.026	3.026	1707.91	15.55	1710.94	1714.69	RCB	18.7	0	56.59	18.70	1.58				1.56	4.59	6.00	2.97	OK
26+17.03	53+82.97	Begin Transition 6' to 4.5'	847	2.847	2.857	1707.91	15.91	1710.76	1714.69	RCB	18.7	0	53.24	18.70	1.66				1.56	4.41	6.00	3.15	OK
	50.00					0.93																	
26+67.03	53+32.97	End Transition 6'to 4.5'	847	2.876	2.882	1707.44	15.75	1710.32	1714.17	RCB	18.7	0	53.78	18.70	1.64				1.56	4.44	4.50	1.62	OK
26+67.03	53+32.97	Begin 18.7'x4.5' FUTURE RCB	847	2.876	2.882	1707.44	15.75	1710.32	1714.17	RCB	18.7	0	53.78	18.70	1.64				1.56	4.44	4.50	1.62	OK
	714.11					0.78																	
33+81.14	46+18.86	End 18.7'x4.5' FUTURE RCB	847	2.983	2.983	1701.87	15.18	1704.86	1708.44	RCB	18.7	0	55.78	18.70	1.55				1.55	4.53	4.50	1.52	OK, RCB +0.03
33+81.14	46+18.86	Begin Wall Transition 4.5' to 6'	847	2.983	2.983	1701.87	15.18	1704.86	1708.44	RCB	18.7	0	55.78	18.70	1.55				1.55	4.53	6.00	3.02	OK
	50.08					0.83																	
34+31.22	45+68.78	End Wall Transition 4.5' to 6'	847	2.733	2.753	1701.46	16.15	1704.19	1708.24	RCB	21.8	0	59.58	21.80	1.72				1.56	4.30	6.00	3.27	OK
34+31.22	45+68.78	Connect to Existing RCB (2) 10' x6'	847	2.733	2.753	1701.46	16.15	1704.19	1708.24	RCB	21.8	0	59.58	21.80	1.72				1.56	4.30	6.00	3.27	OK
	347.00					0.55																	
37+78.22	42+21.78	End Existing RCB (2) 10'x6'	847	3.521	3.521	1699.56	12.03	1703.08	1705.33	RCB	21.8	0	76.76	21.80	1.13				1.46	4.98	6.00	2.48	OK
37+78.22	42+21.78	Begin Wall Transition 6' to 4.5'	847	2.843	2.843	1699.56	13.67	1702.40	1705.30	RECT	21.8	0	61.98	21.80	1.43				1.48	4.33	6.00	3.16	OK
	50.01					0.68																	
38+28.23	41+71.77	End Wall Transition 6' to 4.5'	847	2.831	2.831	1699.22	13.72	1702.05	1704.97	RECT	21.8	0	61.72	21.80	1.44				1.49	4.32	4.50	1.67	OK
38+28.23	41+71.77	Begin 21.8'x 4.5' Channel	847	2.831	2.831	1699.22	13.72	1702.05	1704.97	RECT	21.8	0	61.72	21.80	1.44				1.49	4.32	4.50	1.67	OK
	400.00					0.68																	
42+28.23	37+71.77		847	2.792	2.792	1696.50	13.91	1699.29	1702.30	RECT	21.8	0	60.87	21.80	1.47				1.49	4.28	4.50	1.71	OK
42+28.23	37+71.77		847	2.792	2.792	1696.50	13.91	1699.29	1702.30	RECT	21.8	0	60.87	21.80	1.47				1.49	4.28	4.50	1.71	OK
	344.71					0.67																	
45+72.94	34+27.06	End 21.8'x 4.5' Channel	847	2.806	2.806	1694.20	13.85	1697.01	1699.99	RECT	21.8	0	61.17	21.80	1.46				1.49	4.29	4.50	1.69	OK
45+72.94	34+27.06	Begin Transition short	847	2.806	2.806	1694.20	13.85	1697.01	1699.99	RECT	21.8	0	61.17	21.80	1.46				1.49	4.29	4.50	1.69	OK
	65.02					0.68																	
46+37.96	33+62.04	End Transition short	847	2.085	2.115	1693.76	15.05	1695.85	1699.36	RECT	27	0	56.30	27.00	1.84				1.48	3.57	5.00	2.92	OK
46+37.96	33+62.04	Connect to Existing RCB (3) 9'x5'	847	2.668	2.668	1693.76	13.80	1696.43	1699.39	RCB	27	0	72.04	27.00	1.49				1.48	4.15	5.00	2.33	OK
	472.54					1.28																	
51+10.50	28+89.50	End to Existing RCB (3) 9'x5'	847	2.495	2.501	1687.70	14.76	1690.20	1693.58	RCB	27	0	67.37	27.00	1.65				1.50	4.00	5.00	2.51	OK
51+10.50	28+89.50	Begin Transition long	847	1.992	2.037	1687.70	15.75	1689.69	1693.54	RECT	27	0	53.78	27.00	1.97				1.50	3.49	5.00	3.01	OK
	290.05					2.05																	
54+00.55	25+99.45	End Transition long	847	4.385	4.385	1681.74	16.80	1686.13	1690.51	RECT	11.5	0	50.43	11.50	1.41				1.69	6.07	8.00	3.62	OK
54+00.55	25+99.45		847	4.385	4.385	1681.74	16.80	1686.13	1690.51	RECT	11.5	0	50.43	11.50	1.41				1.69	6.07	8.00	3.62	OK
	129.42					1.90																	
55+29.97	24+70.03		847	3.779	3.817	1679.28	19.49	1683.06	1688.96	RECT	11.5	0	43.46	11.50	1.77				1.76	5.54	8.00	4.22	OK
55+29.97	24+70.03	Begin 11.5' x 8' Channel	847	3.779	3.817	1679.28	19.49	1683.06	1688.96	RECT	11.5	0	43.46	11.50	1.77				1.76	5.54	8.00	4.22	OK
	30.11					0.60																	
55+60.08	24+39.92	End 11.5' x 8' Channel	847	3.815	3.847	1679.10	19.31	1682.92	1688.71	RECT	11.5	0	43.87	11.50	1.74				1.75	5.57	8.00	4.19	OK
55+60.08	24+39.92	END CONSTRUCTION	847	3.815	3.847	1679.10	19.31	1682.92	1688.71	RECT	11.5	0	43.87	11.50	1.74				1.75	5.57	8.00	4.19	OK

Note:

(1) Depth with air entrainment, $y^*/y = 0.906(e)^{0.0415}$ (Fr >= 1.60; y* = y, Fr < 1.60). See *WASURO User's Manual (Draft), US Army Corps of Engineers Los Angeles District, July 1985.*

(2) To be calculated in the future.

(3) For supercritical flow, $F_B = 1+0.025V(Y^{1/3})$; for subcritical flow, $FB = 0.5+V^2/2g$. See *Hydraologic Criteria and Drainage Design Manual, CCRFCD, 1999.*

STORM DRAIN PLAN & PROFILE
FOR GIBSON CHANNEL
(WSPG RUN FROM GIBSON CHANNEL FINAL DRAINAGE REPORT FEBRUARY 2004)

SEGMENT 1
SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS

KEY MAP

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

LEGEND

RIGHT-OF-WAY

PROPOSED MAINTENANCE ROAD

REMOVAL NOTES:

1. EXISTING CONCRETE TRANSITION & WINGWALL TO BE REMOVED
2. EXISTING GROUTED/RIP RAP SECTION TO BE REMOVED
3. EXISTING CONCRETE CHANNEL/APRON TO BE REMOVED
4. EXISTING CONCRETE CURB & GUTTER TO BE REMOVED

CONSTRUCTION NOTES:

1. LANDSCAPE AREA RESTORE TO EXISTING OR BETTER CONDITIONS
2. EXISTING ELECTRICAL BOX PROTECT IN PLACE
3. EXISTING POWER POLE PROTECT IN PLACE
4. NOT USED
5. CONSTRUCT CHANNEL LADDER SEE DETAIL SHEET F5

NOTES:

CONTRACTOR SHALL VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

FOR CHANNEL CONSTRUCTION AND EXPANSION JOINTS, WALL DRAIN AND STRUCTURAL DETAILS REFER TO DRAWINGS S1-S10.

FOR FENCING GATE, POST & CABLE RAILING AND SIGN PLAN REFER TO DRAWINGS F1 - F3.

CONTRACTOR SHALL VERIFY EXISTING INVERTS AND EXISTING FINISHED GRADE OF MATCH POINTS PRIOR TO CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

ACCESS ROAD CURVE TABLE				
CURVE	LENGTH	RADIUS	TANGENT	DELTA
C3	22.85	15.52	14.06	84°22'02"

ACCESS ROAD LINE TABLE		
LINE	LENGTH	BEARING
L1	26.29	N83°44'22"E
L2	12.29	N85°04'17"W
L3	51.13	N00°31'55"W

1-702-593-8111

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REVIEWED BY

DATE:

DEPARTMENT OF PUBLIC WORKES
CITY OF HENDERSON

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LAS VEGAS, NEVADA 89146-5148 PHONE (702) 873-7550 FAX (702) 362-2597

REVISION	BY	DATE	REV

TITLE: CHANNEL PLAN & PROFILE "CH" 10+00.00 TO "CH" 18+50.00

PROJECT: GIBSON CHANNEL WARM SPRINGS ROAD TO CORNUCOPIA AVENUE

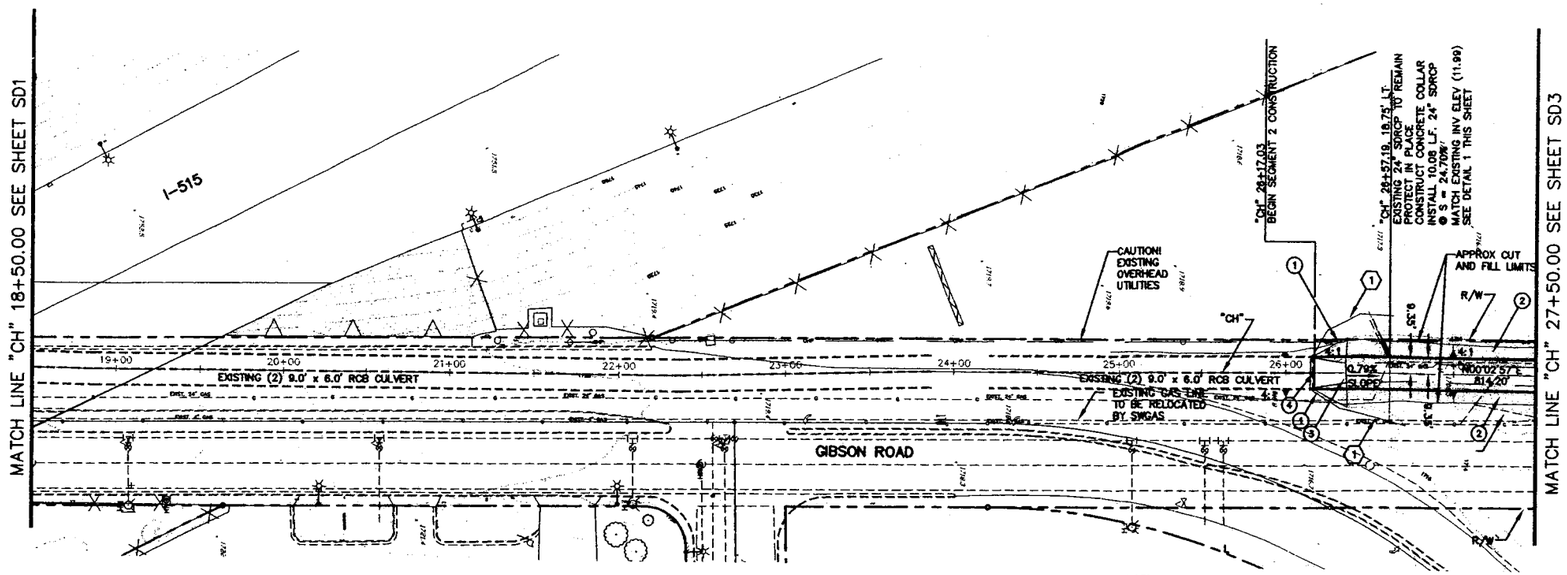
SEAL

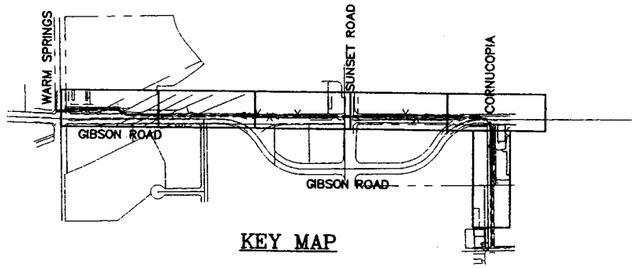
REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA JEREMY P. LEAVITT EXP. 12/31/06 CIVIL No. 15536

WO. NO.	6511
DESIGNED BY	JPL
DRAWN BY	EAH
DATE	8-16-05
SCALE HORIZ.	AS SHOWN
SCALE VERT.	AS SHOWN
DRAWING	SD1
SHEET	16 OF 17 SHEETS

FINAL

L:\6511\DWG\ISEStm





KEY MAP

SEGMENT 2
SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS

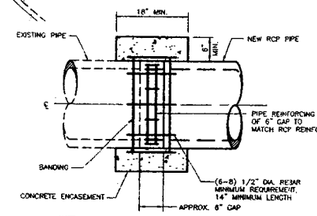
NOTES:

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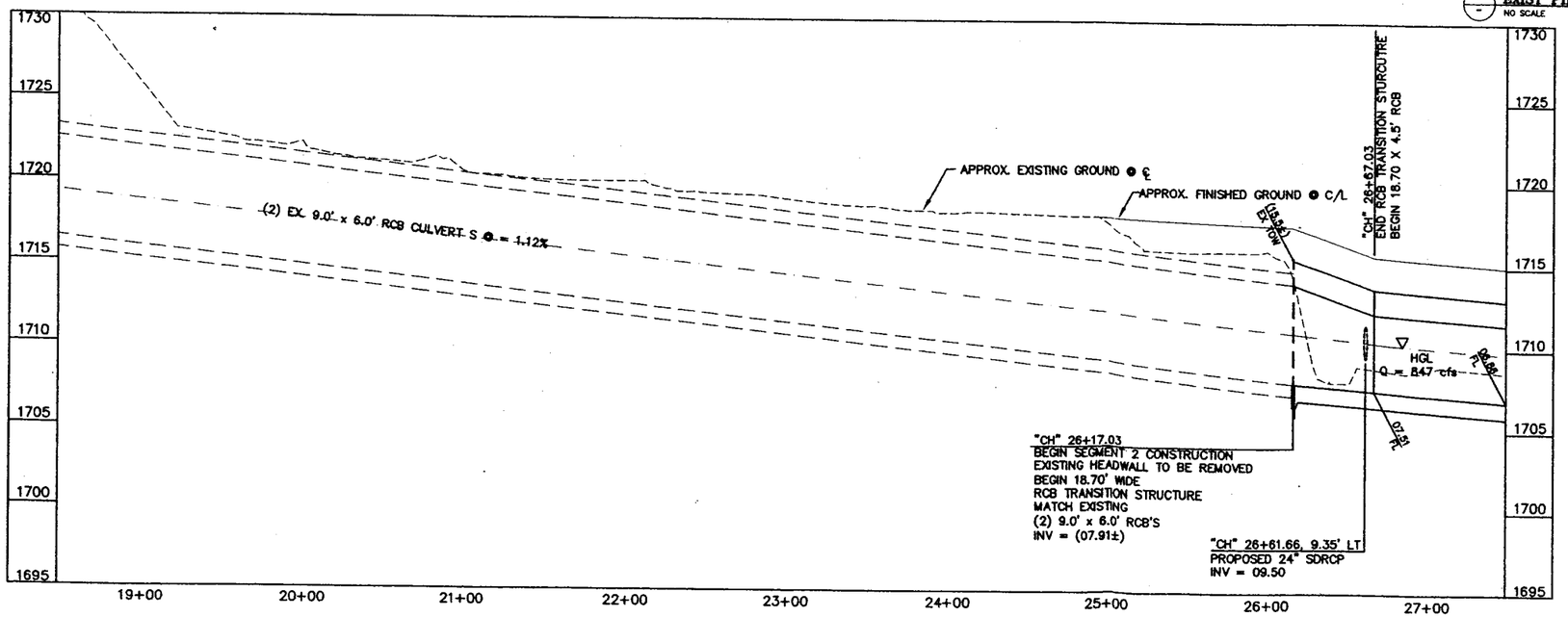
FOR CHANNEL CONSTRUCTION AND EXPANSION JOINTS, WALL DRAIN AND STRUCTURAL DETAILS REFER TO DRAWINGS S1-S10.

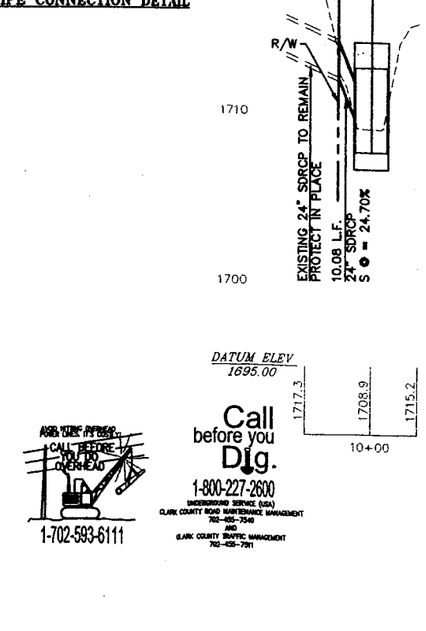
FOR FENCING GATE, POST & CABLE RAILING AND SIGN PLAN REFER TO DRAWINGS F1 - F3.

CONTRACTOR SHALL VERIFY EXISTING INVERTS AND EXISTING FINISHED GRADE OF MATCH POINTS PRIOR TO CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.



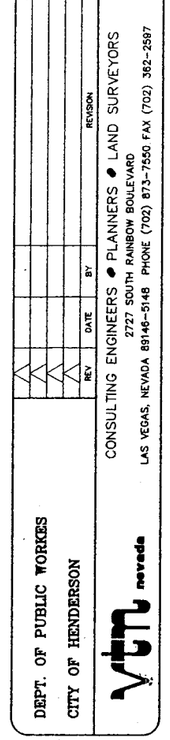
TYPICAL NEW RCP TO EXIST PIPE CONNECTION DETAIL
NO SCALE





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REV	DATE	BY	REVISION

DEPT. OF PUBLIC WORKES
CITY OF HENDERSON

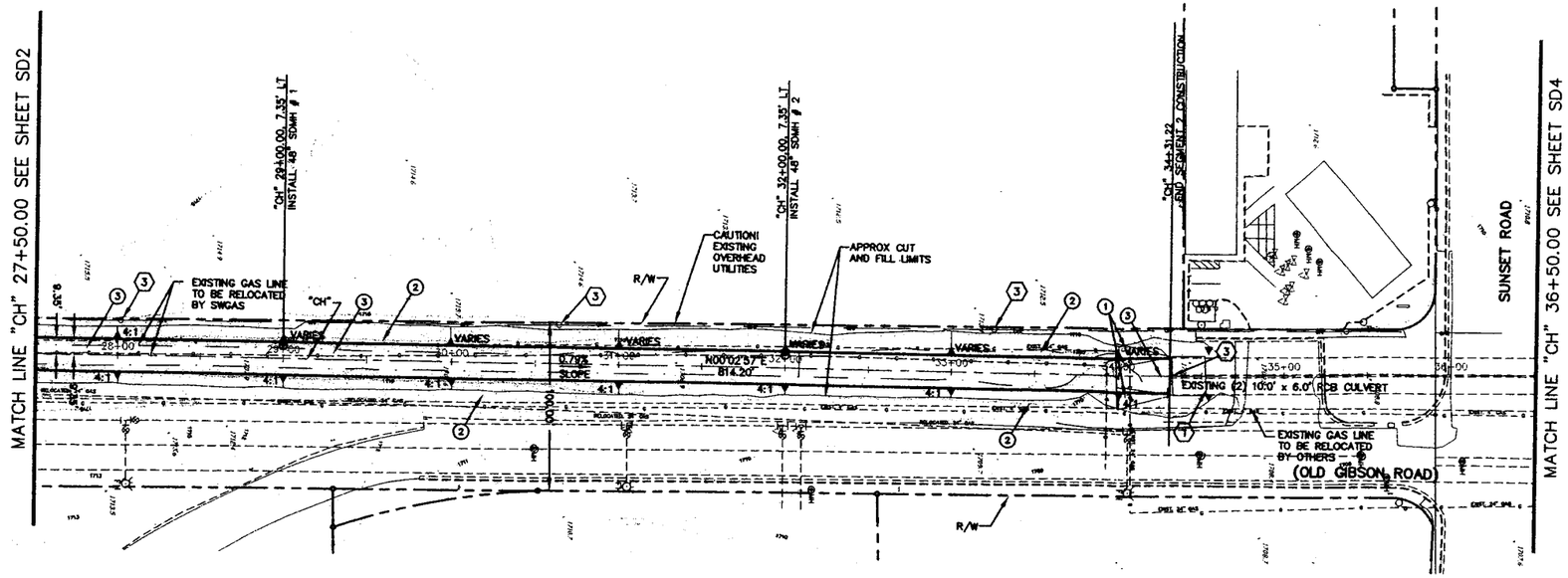
TITLE: CCHANNEL PLAN AND PROFILE "CH" 18+50.00 TO "CH" 27+50.00
PROJECT: GIBSON CHANNEL
WARM SPRINGS ROAD TO CORNUCOPIA AVENUE

SEAL
PROFESSIONAL ENGINEER - STATE OF NEVADA
JEREMY P. LEAVITT
EXP. 12/31/06
CIVIL
No. 15536

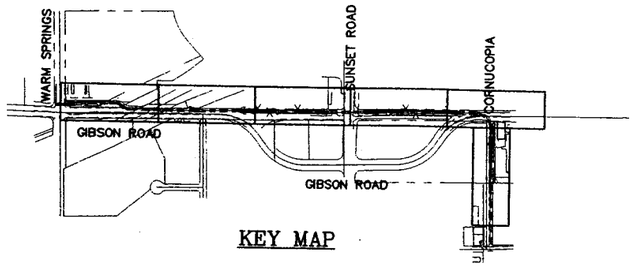
WO. NO.	6511
DESIGNED BY	JPL
DRAWN BY	BAH
DATE	8-16-06
SCALE HORIZ.	AS SHOWN
SCALE VERT.	AS SHOWN
DRAWING	SD2
SHEET	17 OF 27 SHEETS

FINAL

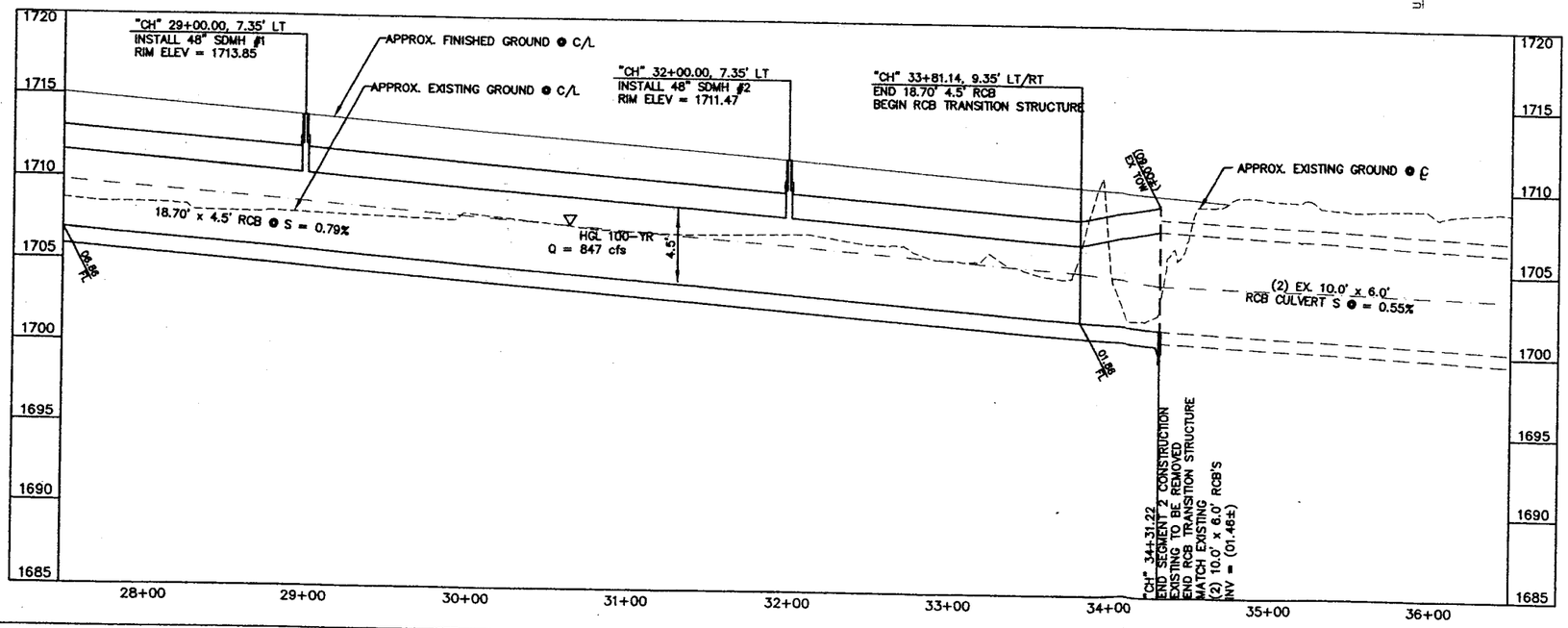
I:\6511\DWG\DESIGN\

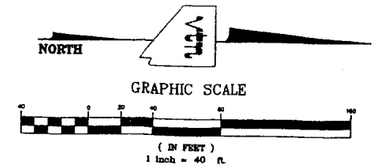


SEGMENT 2
SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS



KEY MAP





LEGEND

RIGHT-OF-WAY

PROPOSED MAINTENANCE ROAD

REMOVAL NOTES:

1. EXISTING CONCRETE TRANSITION & WINGWALL TO BE REMOVED
2. EXISTING GROUTED/RIP RAP SECTION TO BE REMOVED
3. EXISTING CONCRETE CHANNEL/APRON TO BE REMOVED

CONSTRUCTION NOTES:

1. EXISTING CONCRETE BARRIER RAIL TO BE REMOVED
2. EXISTING HEADWALL TO REMAIN PROTECT IN PLACE
3. EXISTING POWER POLE PROTECT IN PLACE

NOTES:

CONTRACTOR SHALL VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

FOR CHANNEL CONSTRUCTION AND EXPANSION JOINTS, WALL DRAIN AND STRUCTURAL DETAILS REFER TO DRAWINGS S1–S10.

FOR FENCING GATE, POST & CABLE RAILING AND SIGN PLAN REFER TO DRAWINGS F1 – F3.

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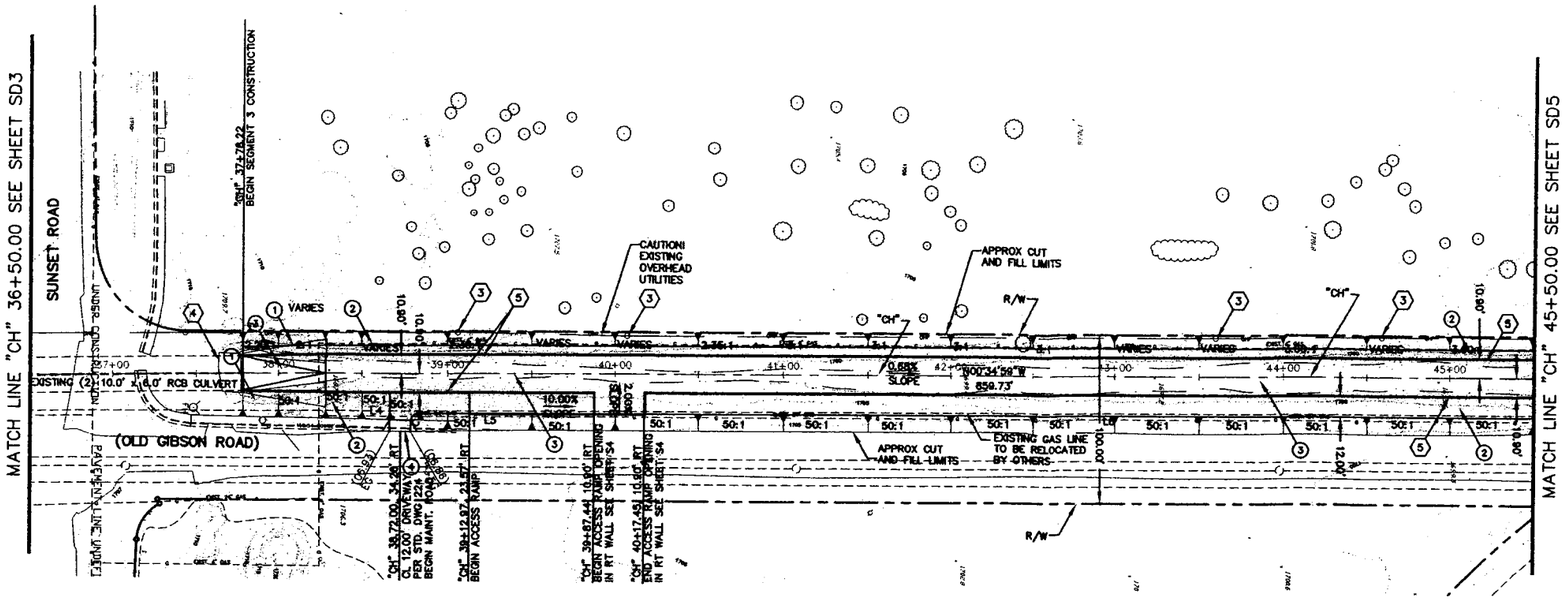
TITLE: CHANNEL PLAN AND PROFILE
"CH" 27+50.00 TO "CH" 36+50.00
PROJECT: GIBSON CHANNEL
WARM SPRINGS ROAD TO CORNUCOPIA AVENUE

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PROFESSIONAL ENGINEER-STATE OF NEVADA
JEREMY P. LEAVITT
EXP. 12/31/06
CIVIL
15536

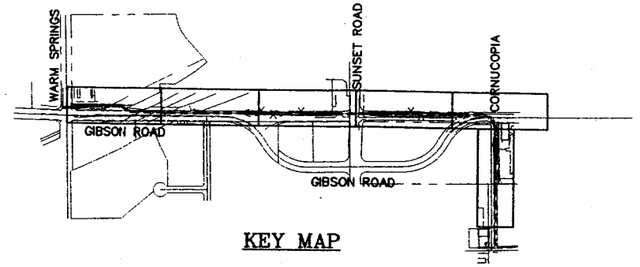
W.O. NO.	6511
DESIGNED BY	JPL
DRAWN BY	BAH
DATE	8-16-05
SCALE	HORIZ. AS SHOWN VERT. AS SHOWN
DRAWING	SD3
SHEET	18 OF 27 SHEETS

FINAL

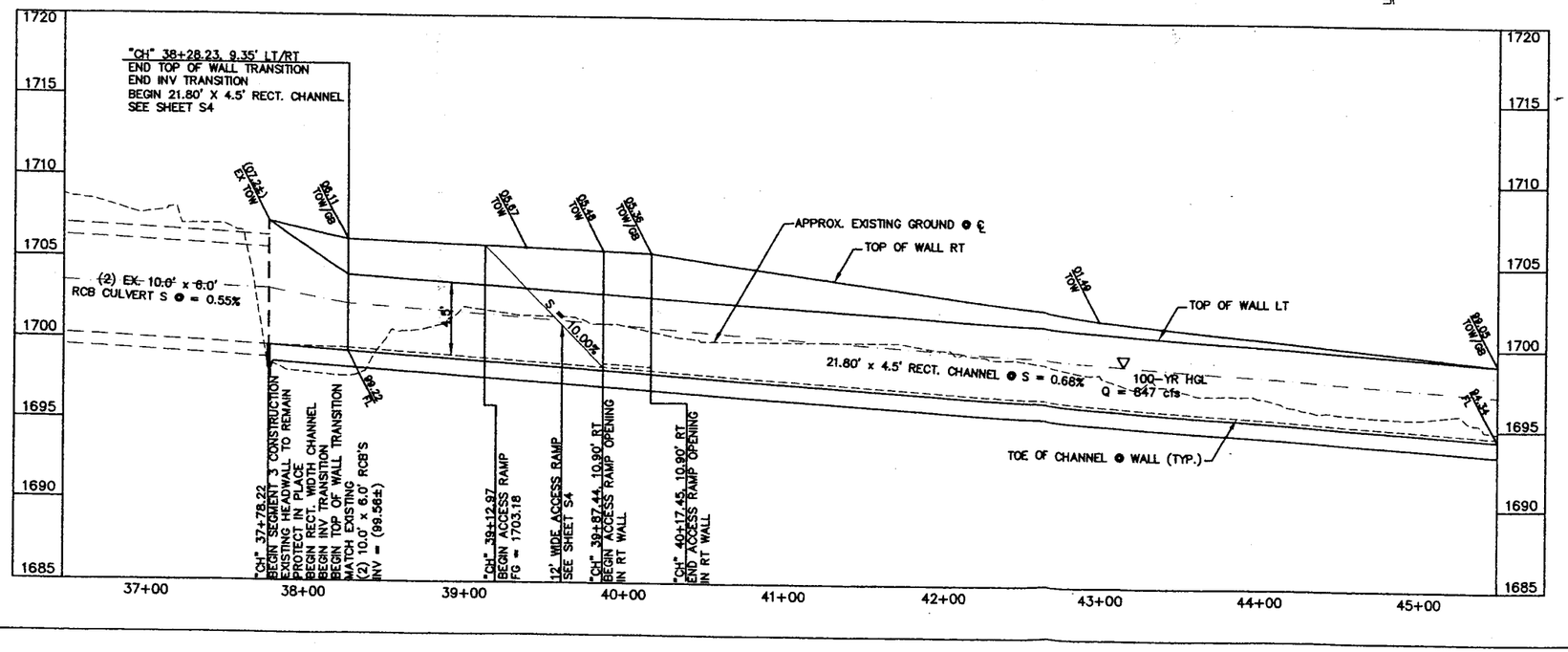
DWG
L:\6511\DWG\



SEGMENT 3
SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS



KEY MAP



NORTH

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

LEGEND
- RIGHT-OF-WAY
- PROPOSED MAINTENANCE ROAD

REMOVAL NOTES:
1. EXISTING CONCRETE TRANSITION & WINGWALL TO BE REMOVED
2. EXISTING GROUTED/RIP RAP SECTION TO BE REMOVED
3. EXISTING CONCRETE CHANNEL/APRON TO BE REMOVED
4. EXISTING CONCRETE CURB AND GUTTER TO BE REMOVED REMOVED

CONSTRUCTION NOTES:
1. NOT USED
2. NOT USED
3. EXISTING POWER POLE PROTECT IN PLACE
4. EXISTING CONCRETE BARRIER RAIL TO REMAIN PROTECT IN PLACE
5. CONSTRUCT CHANNEL LADDER SEE DETAIL SHEET F6

NOTES:

CONTRACTOR SHALL VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

FOR CHANNEL CONSTRUCTION AND EXPANSION JOINTS, WALL DRAIN AND STRUCTURAL DETAILS REFER TO DRAWINGS S1–S10.

FOR FENCING GATE, POST & CABLE RAILING AND SIGN PLAN REFER TO DRAWINGS F1 – F3.

CONTRACTOR SHALL VERIFY EXISTING INVERTS AND EXISTING FINISHED GRADE OF MATCH POINTS PRIOR TO CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

ACCESS ROAD CURVE TABLE

CURVE	LENGTH	RADIUS	TANGENT	DELTA
C4	7.08	4.94	4.30	82°00'00"
C5	11.01	10.00	6.14	63°05'17"
C6	22.00	19.89	12.28	63°21'45"

ACCESS ROAD LINE TABLE

LINE	LENGTH	BEARING
L4	16.00	N89°27'19"W
L5	55.99	N00°34'59"W
L6	551.29	N00°34'59"W
L7	78.37	N02°22'03"E
L8	5.67	N65°27'20"E
L9	11.60	N02°17'10"E
L10	6.91	N65°27'20"E



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CLARK COUNTY TRAFFIC MANAGEMENT 702-455-7911

REVIEWED BY _____ DATE: _____

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CITY OF HENDERSON

REV.	DATE	BY	REVISION

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LAS VEGAS, NEVADA 89146-5148 PHONE (702) 873-7550 FAX (702) 362-2597

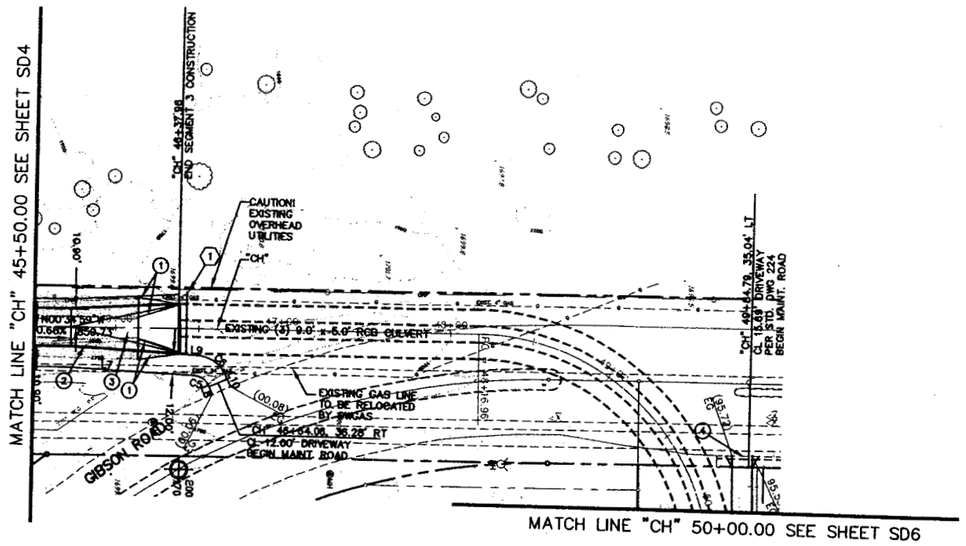
TITLE: CHANNEL PLAN AND PROFILE "CH" 36+50.00 TO "CH" 45+50.00
PROJECT: GIBSON CHANNEL WARM SPRINGS ROAD TO CORNUCOPIA

SEAL
PROFESSIONAL ENGINEER
JEREMY P. LEAVITT
EXP. 12/31/06
CIVIL
No. 15536
6-16-05

WO. NO.	6511
DESIGNED BY	JPL
DRAWN BY	BAH
DATE	8-16-05
SCALE	HORIZ. AS SHOWN VERT. AS SHOWN
DRAWING	SD4
SHEET	19 OF 27 SHEETS

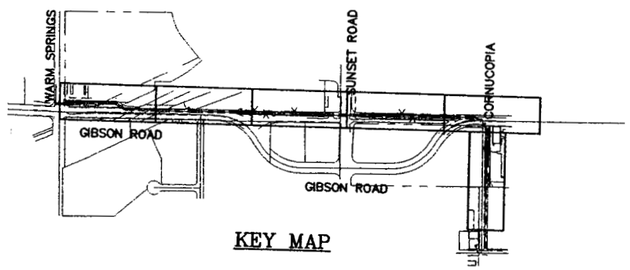
FINAL

L:\6511\DWG\DESIG...DWG

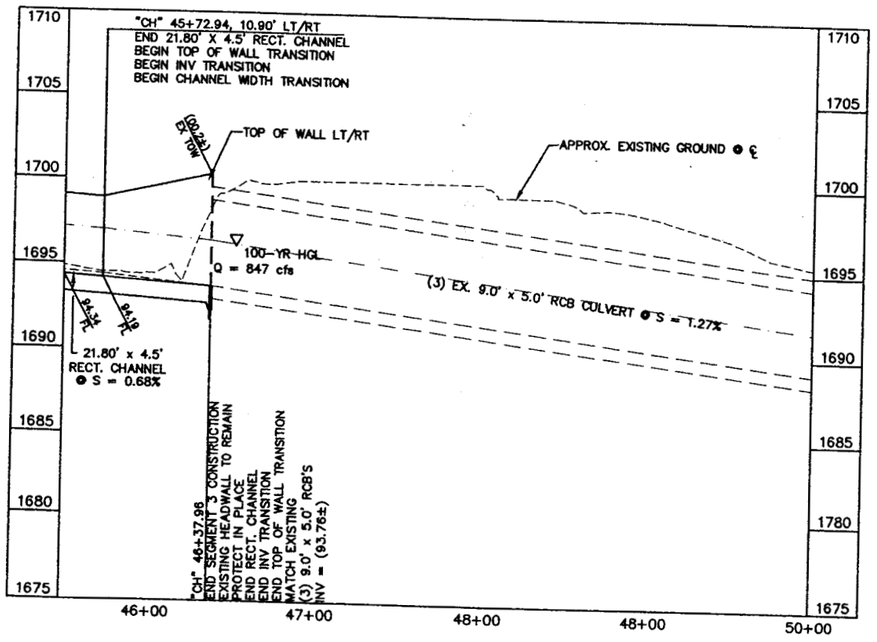


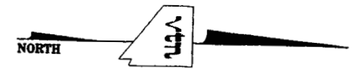
SEGMENT 3

SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS



KEY MAP





GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

LEGEND

RIGHT-OF-WAY

PROPOSED MAINTENANCE ROAD

REMOVAL NOTES:

1. EXISTING CONCRETE TRANSITION & WINGWALL TO BE REMOVED
2. EXISTING GROUTED/RIP RAP SECTION TO BE REMOVED
3. EXISTING CONCRETE CHANNEL/APRON TO BE REMOVED
4. EXISTING CONCRETE CURB AND GUTTER TO BE REMOVED

CONSTRUCTION NOTES:

1. INSTALL PPCBR FROM "CH" 46+42.85, 22.00' LT TO "CH" 46+42.50, 15.50' RT

NOTES:

CONTRACTOR SHALL VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

FOR CHANNEL CONSTRUCTION AND EXPANSION JOINTS, WALL DRAIN AND STRUCTURAL DETAILS REFER TO DRAWINGS S1-S10.

FOR FENCING GATE, POST & CABLE RAILING AND SIGN PLAN REFER TO DRAWINGS F1 - F3.

CONTRACTOR SHALL VERIFY EXISTING INVERTS AND EXISTING FINISHED GRADE OF MATCH POINTS PRIOR TO CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

ACCESS ROAD CURVE TABLE

CURVE	LENGTH	RADIUS	TANGENT	DELTA
C4	7.08	4.94	4.30	82°00'00"
C5	11.01	10.00	6.14	63°05'17"
C6	22.00	19.89	12.28	63°21'45"

ACCESS ROAD LINE TABLE

LINE	LENGTH	BEARING
L4	16.00	N69°27'19"W
L5	95.99	N00°34'59"W
L6	551.29	N00°34'59"W
L7	78.37	N62°22'03"E
L8	5.67	N65°27'20"E
L9	11.60	N62°17'10"E
L10	6.91	N65°27'20"E



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REVIEWED BY _____ DATE: _____

DEPT. OF PUBLIC WORKS
CITY OF HENDERSON

REV	DATE	BY	REVISION

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LAS VEGAS, NEVADA 89146-5148 PHONE (702) 873-7550 FAX (702) 362-2597

TITLE: CHANNEL PLAN AND PROFILE "CH" 45+50.00 TO "CH" 50+00.00

PROJECT: GIBSON CHANNEL WARM SPRINGS ROAD TO CORNUCOPIA AVENUE

SEAL

JEREMY P. LEAVITT
EXP. 12/31/06
CIVIL
No. 15536
8-16-05

W.O. NO.	6511
DESIGNED BY	JPL
DRAWN BY	BAH
DATE	8-16-05
SCALE	HORIZ. AS SHOWN VERT. AS SHOWN
DRAWING	SD5
SHEET	20 OF 27 SHEETS

FINAL

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SEGMENT 4
SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS

KEY MAP

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

LEGEND
RIGHT-OF-WAY
PROPOSED MAINTENANCE ROAD

REMOVAL NOTES:
1. EXISTING CONCRETE TRANSITION & WINGWALL TO BE REMOVED
2. EXISTING GROUTED/RIP RAP SECTION TO BE REMOVED
3. EXISTING CONCRETE CHANNEL/APRON TO BE REMOVED

CONSTRUCTION NOTES:
1. NOT USED
2. NOT USED
3. NOT USED
4. EXISTING CONCRETE APRON PROTECT IN PLACE
5. CONSTRUCT CHANNEL LADDER SEE DETAIL SHEET F6

NOTES:

CONTRACTOR SHALL VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

FOR CHANNEL CONSTRUCTION AND EXPANSION JOINTS, WALL DRAIN AND STRUCTURAL DETAILS REFER TO DRAWINGS S1-S10.

FOR FENCING GATE, POST & CABLE RAILING AND SIGN PLAN REFER TO DRAWINGS F1 – F3.

CONTRACTOR SHALL VERIFY EXISTING INVERTS AND EXISTING FINISHED GRADE OF MATCH POINTS PRIOR TO CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

ACCESS ROAD LINE TABLE		
LINE	LENGTH	BEARING
L11	137.13	N89°00'37"E
L12	240.51	S88°24'24"E
L13	12.66	N00°01'47"W
L14	50.02	S88°24'24"E
L15	134.17	N89°58'13"E
L16	21.98	S52°22'10"E

REVIEWED BY _____ DATE: _____

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CLARK COUNTY TRAFFIC MANAGEMENT 702-455-7501
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DEPT. OF PUBLIC WORKS
CITY OF HENDERSON

TITLE: CHANNEL PLAN AND PROFILE "CH" 50+00.00 TO "CH" 55+60.08
PROJECT: GIBSON CHANNEL WARM SPRINGS ROAD TO CORNUCOPIA

SEAL
PROFESSIONAL ENGINEER STATE OF NEVADA JEREMY P. LEAVITT EXP. 12/31/06 CIVIL No. 15536

WO. NO.	6511
DESIGNED BY	JPL
DRAWN BY	BAH
DATE	8-16-05
SCALE HORIZ.	AS SHOWN
SCALE VERT.	AS SHOWN
DRAWING	SD6
SHEET	21 OF 27 SHEETS

FINAL

L:\6511\DWG\DESD_.DWG

GIBSON CLOMR
PRE- PROJECT CONDITIONS: HEC-RAS OUTPUT (CORRECTIVE/EFFECTIVE)

gibpre.prj

Gibson Channel : Pre-Project Conditions
Stationing Quick Reference for use w/ HEC-RAS Pre-Project Conditions

Note: HEC-RAS Sta. = Cross Section Sta
See Gibson CLOMR Pre Project-Conditions (Corrective/Effective Work Map) Figure 3.2 Appendix B

HEC-RAS River Sta.	Cross Section Sta
92	3+000
91	3+024
90	3+124
89	3+224
88	3+262
87	4+505
86	4+610
85	4+710
83	4+910
81	5+110
79	5+310
78	5+340
77	5+688
75	5+800
74	6+000
72	6+200
70	6+310
68	6+510
66	6+548
65	6+970
64	7+020
63	7+110
61	7+310
59	7+610
58	7+810
57	7+910
55	7+930
53	8+110
52	8+340
50	8+540
48	8+740
46	8+940
44	9+140
42	9+340
40	9+550
38	9+750
36	9+950
34	10+150
32	10+350
31	10+450
30	10+550
28	10+750
26	10+950
24	11+150
22	11+350
21	11+530
19	11+720
17	11+920
15	12+120
13	12+300
11	12+475
10	12+575
9.78	12+598

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X     X
X     X  X        X            X   X    X    X    X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X       X
X     X  X        X    X       X   X    X    X       X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

****

PROJECT DATA
Project Title: Gibson Pre-Project Conditions -E
Project File : GIB_PRE.prj
Run Date and Time: 4/12/2006 5:03:26 PM

Project in English units

Project Description:
Gibson CLOMR Pre-Project Conditions

****

PLAN DATA

Plan Title: Pre-Project
Plan File : c:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.p02

Geometry Title: Gibson Pre-Project
Geometry File : c:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.g01

Flow Title   : Gibson Pre-Flow
Flow File   : c:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.f01

Plan Summary Information:
Number of: Cross Sections = 53   Multiple Openings = 0
            Culverts   = 0   Inline Structures = 0
            Bridges   = 0   Lateral Structures = 0

Computational Information
    Water surface calculation tolerance = 0.01
    Critical depth calculation tolerance = 0.01
    Maximum number of iterations   = 20
    Maximum difference tolerance   = 0.3
    Flow tolerance factor   = 0.001

Computation Options
    Critical depth computed only where necessary
    Conveyance Calculation Method: At breaks in n values only
    Friction Slope Method: Average Conveyance
    Computational Flow Regime: Mixed Flow

****

FLOW DATA

Flow Title: Gibson Pre-Flow
Flow File : c:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.f01

Flow Data (cfs)

River	Reach	RS	PF 1
gibson	exist	92	705
gibson	exist	86	709
gibson	exist	68	807
gibson	exist	40	1850
gibson	exist	32	2549

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
gibson	exist	PF 1	Normal S = 0.0135	Critical

****

GEOMETRY DATA

Geometry Title: Gibson Pre-Project
Geometry File : c:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.g01

CROSS SECTION

RIVER: gibson
REACH: exist   RS: 92

INPUT
Description: 3+000
Station Elevation Data   num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-260	1735	-197.5	1733.9	-172.8	1733	-72.4	1733	-58.4	1732
-46.6	1727	-37.9	1727	-25.9	1732	-14.6	1733	-3.5	1733.4
18.8	1733.4	51.5	1733.8	64.7	1733.7	78.4	1733	96.1	1733
104.2	1733.9								

Manning's n Values   num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-260	.03	-72.4	.03	-3.5	.03

Bank Sta: Left Right   Lengths: Left Channel Right   Coeff Contr. Expan.
          -72.4 -3.5   24   24   24   .1   .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1732.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.65	Wt. n-Val.		0.030	
W.S. Elev (ft)	1730.83	Reach Len. (ft)	24.00	24.00	24.00
Crit W.S. (ft)	1731.09	Flow Area (sq ft)		68.33	
E.G. Slope (ft/ft)	0.013518	Area (sq ft)		68.33	
Q Total (cfs)	705.00	Flow (cfs)		705.00	
Top Width (ft)	26.95	Top Width (ft)		26.95	
Vel Total (ft/s)	10.32	Avg. Vel. (ft/s)		10.32	
Max Chl Dpth (ft)	3.83	Hydr. Depth (ft)		2.54	
Conv. Total (cfs)	6063.7	Conv. (cfs)		6063.7	

* Length Wtd. (ft)	*	24.00	* Wetted Per. (ft)	*		*	28.49	*		*	
* Min Ch El (ft)	*	1727.00	* Shear (lb/sq ft)	*		*	2.02	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	20.88	*		*	
* Frctn Loss (ft)	*		* Cum Volume (acre-ft)	*	2.00	*	34.11	*	0.24	*	
* C & E Loss (ft)	*		* Cum SA (acres)	*	1.98	*	11.09	*	0.36	*	

CROSS SECTION

RIVER: gibson
REACH: exist RS: 91

INPUT
Description: 3+024
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-35.7	1732	-34.74	1732.57	-24.97	1731.97	-10.07	1727	1.15	1727
10.96	1732.02	30.16	1733.01						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-35.7	.03	-24.97	.03	10.96	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-24.97	10.96	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	1732.14	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	1.74	* Wt. n-Val.	*		*	0.030	*		*	
* W.S. Elev (ft)	*	1730.39	* Reach Len. (ft)	*	100.00	*	100.00	*	100.00	*	
* Crit W.S. (ft)	*	1730.77	* Flow Area (sq ft)	*		*	66.51	*		*	
* E.G. Slope (ft/ft)	*	0.015406	* Area (sq ft)	*		*	66.51	*		*	
* Q Total (cfs)	*	705.00	* Flow (cfs)	*		*	705.00	*		*	
* Top Width (ft)	*	28.01	* Top Width (ft)	*		*	28.01	*		*	
* Vel Total (ft/s)	*	10.60	* Avg. Vel. (ft/s)	*		*	10.60	*		*	
* Max Chl Dpth (ft)	*	3.39	* Hydr. Depth (ft)	*		*	2.37	*		*	
* Conv. Total (cfs)	*	5680.0	* Conv. (cfs)	*		*	5680.0	*		*	
* Length Wtd. (ft)	*	100.00	* Wetted Per. (ft)	*		*	29.38	*		*	
* Min Ch El (ft)	*	1727.00	* Shear (lb/sq ft)	*		*	2.18	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	23.08	*		*	
* Frctn Loss (ft)	*	0.35	* Cum Volume (acre-ft)	*	2.00	*	34.08	*	0.24	*	
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	1.98	*	11.07	*	0.36	*	

CROSS SECTION

RIVER: gibson
REACH: exist RS: 90

INPUT
Description: 3+124
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-32.68	1731.43	-29.42	1731.15	-16.52	1730	-3.97	1725.94	4.38	1725.92
9.28	1727	22.85	1732	25.19	1732.3	31.11	1732.43	45	1732.01

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-32.68	.03	-16.52	.03	22.85	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-16.52	22.85	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	1730.93	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	1.25	* Wt. n-Val.	*		*	0.030	*		*	
* W.S. Elev (ft)	*	1729.69	* Reach Len. (ft)	*	100.00	*	100.00	*	100.00	*	
* Crit W.S. (ft)	*	1729.69	* Flow Area (sq ft)	*		*	78.73	*		*	
* E.G. Slope (ft/ft)	*	0.010386	* Area (sq ft)	*		*	78.73	*		*	
* Q Total (cfs)	*	705.00	* Flow (cfs)	*		*	705.00	*		*	
* Top Width (ft)	*	32.13	* Top Width (ft)	*		*	32.13	*		*	
* Vel Total (ft/s)	*	8.95	* Avg. Vel. (ft/s)	*		*	8.95	*		*	
* Max Chl Dpth (ft)	*	3.77	* Hydr. Depth (ft)	*		*	2.45	*		*	
* Conv. Total (cfs)	*	6917.8	* Conv. (cfs)	*		*	6917.8	*		*	
* Length Wtd. (ft)	*	100.00	* Wetted Per. (ft)	*		*	33.32	*		*	
* Min Ch El (ft)	*	1725.92	* Shear (lb/sq ft)	*		*	1.53	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	13.72	*		*	
* Frctn Loss (ft)	*	1.04	* Cum Volume (acre-ft)	*	2.00	*	33.91	*	0.24	*	
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	1.98	*	11.00	*	0.36	*	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 89

INPUT
Description: 3+224
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-42.47	1728.45	-39.87	1730	-21.43	1730	-5.78	1724	-2.41	1723.91
3.41	1724.15	12.19	1726	23.93	1731.53	26.11	1731.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-42.47	.03	-21.43	.03	23.93	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-21.43	23.93	38	38	38	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	1729.32	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	2.30	* Wt. n-Val.	*		*	0.030	*		*	
* W.S. Elev (ft)	*	1727.03	* Reach Len. (ft)	*	38.00	*	38.00	*	38.00	*	
* Crit W.S. (ft)	*	1727.70	* Flow Area (sq ft)	*		*	57.96	*		*	
* E.G. Slope (ft/ft)	*	0.023980	* Area (sq ft)	*		*	57.96	*		*	
* Q Total (cfs)	*	705.00	* Flow (cfs)	*		*	705.00	*		*	
* Top Width (ft)	*	28.04	* Top Width (ft)	*		*	28.04	*		*	
* Vel Total (ft/s)	*	12.16	* Avg. Vel. (ft/s)	*		*	12.16	*		*	

Max Chl Dpth (ft)	3.12	Hydr. Depth (ft)			2.07		
Conv. Total (cfs)	4552.7	Conv. (cfs)			4552.7		
Length Wtd. (ft)	38.00	Wetted Per. (ft)			29.03		
Min Ch El (ft)	1723.91	Shear (lb/sq ft)			2.99		
Alpha	1.00	Stream Power (lb/ft s)			36.36		
Frctn Loss (ft)	1.51	Cum Volume (acre-ft)	2.00		33.75	0.24	
C & E Loss (ft)	0.11	Cum SA (acres)	1.98		10.93	0.36	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 88

INPUT
Description: 3+262 existing (2) 9'x6' RCB (Gib sta. 13+38.58)
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10.5	1728.2	-9.5	1728.2	-9.5	1722.2	-.5	1722.2	-.5	1728.2
.5	1728.2	.5	1722.2	9.5	1722.2	9.5	1728.2	10.5	1728.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-10.5	.013	-9.5	.013	9.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-9.5	9.5	1258.42	1258.42	1258.42	.1	.3

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-10.5 1729.2	1728.2	10.5 1729.2	1728.2

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1728.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.92	Wt. n-Val.		0.013	
W.S. Elev (ft)	1724.67	Reach Len. (ft)	1258.42	1258.42	1258.42
Crit W.S. (ft)	1725.84	Flow Area (sq ft)		44.37	
E.G. Slope (ft/ft)	0.010392	Area (sq ft)		44.37	
Q Total (cfs)	705.00	Flow (cfs)		705.00	
Top Width (ft)	18.00	Top Width (ft)		18.00	
Vel Total (ft/s)	15.89	Avg. Vel. (ft/s)		15.89	
Max Chl Dpth (ft)	2.46	Hydr. Depth (ft)		2.46	
Conv. Total (cfs)	6915.8	Conv. (cfs)		6915.8	
Length Wtd. (ft)	1258.42	Wetted Per. (ft)		27.86	
Min Ch El (ft)	1722.20	Shear (lb/sq ft)		1.03	
Alpha	1.00	Stream Power (lb/ft s)		16.42	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	2.00	33.71	0.24
C & E Loss (ft)	0.16	Cum SA (acres)	1.98	10.91	0.36

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 87

INPUT
Description: 4+505 existing (2) 9'x6' RCB (Gib sta. 26+17)
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10.5	1713.91	-9.5	1713.91	-9.5	1707.91	-.5	1707.91	-.5	1713.91
.5	1713.91	.5	1707.91	9.5	1707.91	9.5	1713.91	10.5	1713.91

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-10.5	.013	-9.5	.013	9.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-9.5	9.5	83	83	83	.1	.3

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-10.5 1714.91	1713.91	10.5 1714.91	1713.91

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1714.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.		0.013	
W.S. Elev (ft)	1713.72	Reach Len. (ft)	83.00	83.00	83.00
Crit W.S. (ft)	1711.55	Flow Area (sq ft)		104.53	
E.G. Slope (ft/ft)	0.001007	Area (sq ft)		104.53	
Q Total (cfs)	705.00	Flow (cfs)		705.00	
Top Width (ft)	18.00	Top Width (ft)		18.00	
Vel Total (ft/s)	6.74	Avg. Vel. (ft/s)		6.74	
Max Chl Dpth (ft)	5.81	Hydr. Depth (ft)		5.81	
Conv. Total (cfs)	22216.7	Conv. (cfs)		22216.7	
Length Wtd. (ft)	83.00	Wetted Per. (ft)		41.23	
Min Ch El (ft)	1707.91	Shear (lb/sq ft)		0.16	
Alpha	1.00	Stream Power (lb/ft s)		1.07	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	2.00	31.56	0.24
C & E Loss (ft)	0.04	Cum SA (acres)	1.98	10.39	0.36

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 86

INPUT
Description: 4+610
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

-48.55	1717	-24.33	1716.21	-7.18	1709	-3.71	1708.71	6.11	1709
17.91	1714	30.35	1714.32						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-48.55	.03	-24.33	.03	17.91	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-24.33	17.91	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1714.25	Element	Left OB		Channel		Right OB				
Vel Head (ft)	0.59	Wt. n-Val.			0.030						
W.S. Elev (ft)	1713.66	Reach Len. (ft)	100.00		100.00		100.00				
Crit W.S. (ft)		Flow Area (sq ft)			115.33						
E.G. Slope (ft/ft)	0.003417	Area (sq ft)			115.33						
Q Total (cfs)	709.00	Flow (cfs)			709.00						
Top Width (ft)	35.37	Top Width (ft)			35.37						
Vel Total (ft/s)	6.15	Avg. Vel. (ft/s)			6.15						
Max Chl Dpth (ft)	4.95	Hydr. Depth (ft)			3.26						
Conv. Total (cfs)	12128.4	Conv. (cfs)			12128.4						
Length Wtd. (ft)	100.00	Wetted Per. (ft)			37.28						
Min Ch El (ft)	1708.71	Shear (lb/sq ft)			0.66						
Alpha	1.00	Stream Power (lb/ft s)			4.06						
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)	2.00		31.35		0.24				
C & E Loss (ft)	0.01	Cum SA (acres)	1.98		10.34		0.36				

CROSS SECTION

RIVER: gibson
REACH: exist RS: 85

INPUT
Description: 4+710
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-45	1715.56	-31.91	1715.63	-22.2	1715	-7.34	1709	5.26	1708.19
16.33	1713	25.47	1715	34.57	1714				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-45	.03	-22.2	.03	25.47	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-22.2	25.47	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1713.87	Element	Left OB		Channel		Right OB				
Vel Head (ft)	0.65	Wt. n-Val.			0.030						
W.S. Elev (ft)	1713.22	Reach Len. (ft)	200.00		200.00		200.00				
Crit W.S. (ft)		Flow Area (sq ft)			109.47						
E.G. Slope (ft/ft)	0.004024	Area (sq ft)			109.47						
Q Total (cfs)	709.00	Flow (cfs)			709.00						
Top Width (ft)	35.12	Top Width (ft)			35.12						
Vel Total (ft/s)	6.48	Avg. Vel. (ft/s)			6.48						
Max Chl Dpth (ft)	5.03	Hydr. Depth (ft)			3.12						
Conv. Total (cfs)	11176.6	Conv. (cfs)			11176.6						
Length Wtd. (ft)	200.00	Wetted Per. (ft)			36.99						
Min Ch El (ft)	1708.19	Shear (lb/sq ft)			0.74						
Alpha	1.00	Stream Power (lb/ft s)			4.82						
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)	2.00		31.09		0.24				
C & E Loss (ft)	0.02	Cum SA (acres)	1.98		10.26		0.36				

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 83

INPUT
Description: 4+910
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-32.77	1716	-28.67	1716	-6.19	1707.97	6.08	1707.97	15	1711.12
20.16	1712	23.68	1713	26.13	1713.26	30	1713.27		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-32.77	.03	-28.67	.03	26.13	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-28.67	26.13	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1712.85	Element	Left OB		Channel		Right OB				
Vel Head (ft)	0.83	Wt. n-Val.			0.030						
W.S. Elev (ft)	1712.02	Reach Len. (ft)	200.00		200.00		200.00				
Crit W.S. (ft)		Flow Area (sq ft)			97.15						
E.G. Slope (ft/ft)	0.006448	Area (sq ft)			97.15						
Q Total (cfs)	709.00	Flow (cfs)			709.00						
Top Width (ft)	37.77	Top Width (ft)			37.77						
Vel Total (ft/s)	7.30	Avg. Vel. (ft/s)			7.30						
Max Chl Dpth (ft)	4.05	Hydr. Depth (ft)			2.57						
Conv. Total (cfs)	8829.8	Conv. (cfs)			8829.8						
Length Wtd. (ft)	200.00	Wetted Per. (ft)			39.09						
Min Ch El (ft)	1707.97	Shear (lb/sq ft)			1.00						
Alpha	1.00	Stream Power (lb/ft s)			7.30						
Frctn Loss (ft)	1.52	Cum Volume (acre-ft)	2.00		30.62		0.24				
C & E Loss (ft)	0.03	Cum SA (acres)	1.98		10.09		0.36				

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 81

INPUT
Description: 5+110
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

```
  -53.57    1714  -27.63    1714  -10.84    1707    7.47    1707   20.54    1712
   27.95    1712

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*****************************************************
  -53.57     .03  -27.63     .03   20.54     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -27.63   20.54              200     200     200            .1      .3
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1711.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.10	Wt. n-Val.		0.030	
W.S. Elev (ft)	1710.20	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1710.09	Flow Area (sq ft)		84.36	
E.G. Slope (ft/ft)	*0.009113	Area (sq ft)		84.36	
Q Total (cfs)	709.00	Flow (cfs)		709.00	
Top Width (ft)	34.37	Top Width (ft)		34.37	
Vel Total (ft/s)	8.40	Avg. Vel. (ft/s)		8.40	
Max Chl Dpth (ft)	3.20	Hydr. Depth (ft)		2.45	
Conv. Total (cfs)	7427.0	Conv. (cfs)		7427.0	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		35.60	
Min Ch El (ft)	1707.00	Shear (lb/sq ft)		1.35	
Alpha	1.00	Stream Power (lb/ft s)		11.33	
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)	2.00	30.20	0.24
C & E Loss (ft)	0.01	Cum SA (acres)	1.98	9.93	0.36

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 79

INPUT
Description: 5+310
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-23.73	1711.99	-15.67	1708	-12.57	1703	-8.82	1703	-7.33	1706.53
-4.59	1707.02	1.03	1704.94	15.8	1707	23.54	1707.57	30	1709

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-23.73	.03	-15.67	.03	30	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-15.67 30 31.32 31.32 31.32 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1709.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.07	Wt. n-Val.	0.030	0.030	
W.S. Elev (ft)	1708.08	Reach Len. (ft)	31.32	31.32	31.32
Crit W.S. (ft)	1708.08	Flow Area (sq ft)	0.01	85.44	
E.G. Slope (ft/ft)	*0.012758	Area (sq ft)	0.01	85.44	
Q Total (cfs)	709.00	Flow (cfs)	0.00	709.00	
Top Width (ft)	41.70	Top Width (ft)	0.17	41.53	
Vel Total (ft/s)	8.30	Avg. Vel. (ft/s)	0.63	8.30	
Max Chl Dpth (ft)	5.08	Hydr. Depth (ft)	0.04	2.06	
Conv. Total (cfs)	6277.0	Conv. (cfs)	0.0	6277.0	
Length Wtd. (ft)	31.32	Wetted Per. (ft)	0.19	47.29	
Min Ch El (ft)	1703.00	Shear (lb/sq ft)	0.03	1.44	
Alpha	1.00	Stream Power (lb/ft s)	0.02	11.94	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	2.00	29.81	0.24
C & E Loss (ft)	0.14	Cum SA (acres)	1.98	9.75	0.36

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 78

INPUT
Description: 5+342 - existing (2) 10'x6' RCB (Gib-Sta 34+31.22)
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-11.5	1707.46	-10.5	1707.46	-10.5	1701.46	-.5	1701.46	-.5	1707.46
.5	1707.46	.5	1701.46	10.5	1701.46	10.5	1707.46	11.5	1707.46

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-11.5	.013	-10.5	.013	10.5	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-10.5 10.5 347 347 347 .1 .3

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-11.5	1708.46 1707.46	11.5	1708.46 1707.46

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1707.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.		0.013	
W.S. Elev (ft)	1707.10	Reach Len. (ft)	347.00	347.00	347.00
Crit W.S. (ft)	1704.86	Flow Area (sq ft)		112.86	
E.G. Slope (ft/ft)	*0.000823	Area (sq ft)		112.86	
Q Total (cfs)	709.00	Flow (cfs)		709.00	
Top Width (ft)	20.00	Top Width (ft)		20.00	
Vel Total (ft/s)	6.28	Avg. Vel. (ft/s)		6.28	
Max Chl Dpth (ft)	5.64	Hydr. Depth (ft)		5.64	
Conv. Total (cfs)	24708.8	Conv. (cfs)		24708.8	
Length Wtd. (ft)	347.00	Wetted Per. (ft)		42.57	
Min Ch El (ft)	1701.46	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.86	
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	2.00	29.74	0.24
C & E Loss (ft)	0.03	Cum SA (acres)	1.98	9.73	0.36

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 77

INPUT
Description: 5+688 - existing (2) 10'x6' RCB (Gib-Sta 37+78.22)
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-11.5	1705.56	-10.5	1705.56	-10.5	1699.56	-.5	1699.56	-.5	1705.56
.5	1705.56	.5	1699.56	10.5	1699.56	10.5	1705.56	11.5	1705.56

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-11.5	.013	-10.5	.013	10.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-10.5	10.5	122	122	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-11.5 1706.56	1705.56	11.5 1706.56	1705.56

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1707.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	1706.81	Reach Len. (ft)	122.00	122.00	122.00
Crit W.S. (ft)	1702.96	Flow Area (sq ft)	0.25	125.17	0.25
E.G. Slope (ft/ft)	*0.001509	Area (sq ft)	0.25	125.17	0.25
Q Total (cfs)	709.00	Flow (cfs)	0.37	708.26	0.37
Top Width (ft)	23.00	Top Width (ft)	1.00	21.00	1.00
Vel Total (ft/s)	5.64	Avg. Vel. (ft/s)	1.51	5.66	1.51
Max Chl Dpth (ft)	7.25	Hydr. Depth (ft)	0.25	5.96	0.25
Conv. Total (cfs)	18251.6	Conv. (cfs)	9.5	18232.5	9.5
Length Wtd. (ft)	122.00	Wetted Per. (ft)	1.25	87.00	1.25
Min Ch El (ft)	1699.56	Shear (lb/sq ft)	0.02	0.14	0.02
Alpha	1.00	Stream Power (lb/ft s)	0.03	0.77	0.03
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	2.00	28.79	0.24
C & E Loss (ft)	0.10	Cum SA (acres)	1.97	9.57	0.36

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 75

INPUT
Description: 5+800
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-102.1	1706	-87.9	1705	-58.5	1705	-52.7	1706.4	-32.1	1709
-16.8	1709	-3.1	1701	4.2	1701	8.7	1702	10.8	1704
26.2	1709.4	28	1709.4	35	1707	60.8	1706		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-102.1	.03	-16.8	.03	26.2	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-16.8	26.2	100	100	.1	.3

Left Levee Station= -16.8 Elevation= 1709

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1706.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.45	Wt. n-Val.		0.030	
W.S. Elev (ft)	1705.37	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	1705.37	Flow Area (sq ft)		73.40	
E.G. Slope (ft/ft)	*0.010339	Area (sq ft)		73.40	
Q Total (cfs)	709.00	Flow (cfs)		709.00	
Top Width (ft)	25.30	Top Width (ft)		25.30	
Vel Total (ft/s)	9.66	Avg. Vel. (ft/s)		9.66	
Max Chl Dpth (ft)	4.37	Hydr. Depth (ft)		2.90	
Conv. Total (cfs)	6972.9	Conv. (cfs)		6972.9	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		27.63	
Min Ch El (ft)	1701.00	Shear (lb/sq ft)		1.71	
Alpha	1.00	Stream Power (lb/ft s)		16.56	
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	2.00	28.51	0.24
C & E Loss (ft)	0.07	Cum SA (acres)	1.97	9.50	0.36

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 74

INPUT
Description: 6+000
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-109.2	1707	-76.5	1705	-38.9	1705.6	-16.3	1706	-6.6	1701
1.4	1700	7.3	1700	10.9	1701	16.4	1703.1	19.4	1706.2
23.5	1707	25.5	1707	34	1704.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-109.2	.03	-16.3	.03	19.4	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

-16.3	19.4	200	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1705.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.16	Wt. n-Val.		0.030	
W.S. Elev (ft)	1703.16	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1703.74	Flow Area (sq ft)		60.08	
E.G. Slope (ft/ft)	*0.020883	Area (sq ft)		60.08	
Q Total (cfs)	709.00	Flow (cfs)		709.00	
Top Width (ft)	27.24	Top Width (ft)		27.24	
Vel Total (ft/s)	11.80	Avg. Vel. (ft/s)		11.80	
Max Chl Dpth (ft)	3.16	Hydr. Depth (ft)		2.21	
Conv. Total (cfs)	4906.2	Conv. (cfs)		4906.2	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		28.38	
Min Ch El (ft)	1700.00	Shear (lb/sq ft)		2.76	
Alpha	1.00	Stream Power (lb/ft s)		32.57	
Frctn Loss (ft)	1.42	Cum Volume (acre-ft)	2.00	28.36	0.24
C & E Loss (ft)	0.07	Cum SA (acres)	1.97	9.44	0.36

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 72

INPUT
Description: 6+200
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-43.6	1702	-28.9	1706	-17	1705.9	-6.8	1699	14.1	1699
20.8	1704	27.3	1705	33.8	1702	54.6	1701.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-43.6	.03	-17	.03	27.3	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-17	27.3	200	200	.1	.3

Left Levee Station= -17 Elevation= 1705.9
Right Levee Station= 27.3 Elevation= 1705

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1703.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.03	Wt. n-Val.		0.030	
W.S. Elev (ft)	1702.40	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1702.07	Flow Area (sq ft)		87.19	
E.G. Slope (ft/ft)	*0.007270	Area (sq ft)		87.19	
Q Total (cfs)	709.00	Flow (cfs)		709.00	
Top Width (ft)	30.47	Top Width (ft)		30.47	
Vel Total (ft/s)	8.13	Avg. Vel. (ft/s)		8.13	
Max Chl Dpth (ft)	3.39	Hydr. Depth (ft)		2.86	
Conv. Total (cfs)	8315.1	Conv. (cfs)		8315.1	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		32.63	
Min Ch El (ft)	1699.00	Shear (lb/sq ft)		1.21	
Alpha	1.00	Stream Power (lb/ft s)		9.86	
Frctn Loss (ft)	1.72	Cum Volume (acre-ft)	2.00	28.02	0.24
C & E Loss (ft)	0.04	Cum SA (acres)	1.97	9.31	0.36

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 70

INPUT
Description: 6+310
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-32.38	1704.01	-20.62	1703.28	-17.97	1703.25	-17.08	1703	-9.14	1698
.25	1696.81	7.84	1696.62	11.1	1697	12.1	1697.57	15.38	1702
22.95	1704								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-32.38	.03	-17.08	.03	15.38	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-17.08	15.38	110	110	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1701.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.39	Wt. n-Val.		0.030	
W.S. Elev (ft)	1700.27	Reach Len. (ft)	110.00	110.00	110.00
Crit W.S. (ft)	1700.27	Flow Area (sq ft)		74.81	
E.G. Slope (ft/ft)	*0.010396	Area (sq ft)		74.81	
Q Total (cfs)	709.00	Flow (cfs)		709.00	
Top Width (ft)	26.83	Top Width (ft)		26.83	
Vel Total (ft/s)	9.48	Avg. Vel. (ft/s)		9.48	
Max Chl Dpth (ft)	3.65	Hydr. Depth (ft)		2.79	
Conv. Total (cfs)	6953.8	Conv. (cfs)		6953.8	
Length Wtd. (ft)	110.00	Wetted Per. (ft)		29.09	
Min Ch El (ft)	1696.62	Shear (lb/sq ft)		1.67	
Alpha	1.00	Stream Power (lb/ft s)		15.82	
Frctn Loss (ft)	1.13	Cum Volume (acre-ft)	2.00	27.65	0.24
C & E Loss (ft)	0.00	Cum SA (acres)	1.97	9.18	0.36

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 68

INPUT
Description: 6+510
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-29.53	1700.77	-17.02	1700	-6.51	1695	6.14	1694.16	6.34	1694.19
18.4	1700	21.51	1700.64						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-29.53	.03	-17.02	.03	18.4	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-17.02 18.4 38 38 38 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1700.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.10	Wt. n-Val.		0.030	
W.S. Elev (ft)	1698.03	Reach Len. (ft)	38.00	38.00	38.00
Crit W.S. (ft)	1698.53	Flow Area (sq ft)		69.37	
E.G. Slope (ft/ft)	0.017068	Area (sq ft)		69.37	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	27.19	Top Width (ft)		27.19	
Vel Total (ft/s)	11.63	Avg. Vel. (ft/s)		11.63	
Max Chl Dpth (ft)	3.87	Hydr. Depth (ft)		2.55	
Conv. Total (cfs)	6177.2	Conv. (cfs)		6177.2	
Length Wtd. (ft)	38.00	Wetted Per. (ft)		28.78	
Min Ch El (ft)	1694.16	Shear (lb/sq ft)		2.57	
Alpha	1.00	Stream Power (lb/ft s)		29.88	
Frctn Loss (ft)	1.47	Cum Volume (acre-ft)	2.00	27.47	0.24
C & E Loss (ft)	0.07	Cum SA (acres)	1.97	9.11	0.36

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 66

INPUT
Description: 6+548 - existing 9'x5' RCB (Gib sta. 46+37.96)
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-15.5	1698.76	-14.5	1698.76	-14.5	1693.76	-5.5	1693.76	-5.5	1698.76
-4.5	1698.76	-4.5	1693.76	4.5	1693.76	4.5	1698.76	5.5	1698.76
5.5	1693.76	14.5	1693.76	14.5	1698.76	15.5	1698.76		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-15.5	.013	-14.5	.013	14.5	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-14.5 14.5 374.89 398.39 421.9 .1 .3
Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-15.5 1699.76	1698.76	15.5 1699.76	1698.76

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1699.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.72	Wt. n-Val.		0.013	
W.S. Elev (ft)	1695.69	Reach Len. (ft)	374.89	398.39	421.90
Crit W.S. (ft)	1696.78	Flow Area (sq ft)		52.12	
E.G. Slope (ft/ft)	0.012289	Area (sq ft)		52.12	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	27.00	Top Width (ft)		27.00	
Vel Total (ft/s)	15.48	Avg. Vel. (ft/s)		15.48	
Max Chl Dpth (ft)	1.93	Hydr. Depth (ft)		1.93	
Conv. Total (cfs)	7279.6	Conv. (cfs)		7279.6	
Length Wtd. (ft)	398.39	Wetted Per. (ft)		38.58	
Min Ch El (ft)	1693.76	Shear (lb/sq ft)		1.04	
Alpha	1.00	Stream Power (lb/ft s)		16.05	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	2.00	27.41	0.24
C & E Loss (ft)	0.16	Cum SA (acres)	1.97	9.09	0.36

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 65

INPUT
Description: 6+970 - existing 9'x5' RCB (Gib sta. 50+60)
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-15.5	1693.41	-14.5	1693.41	-14.5	1688.41	-5.5	1688.41	-5.5	1693.41
-4.5	1693.41	-4.5	1688.41	4.5	1688.41	4.5	1693.41	5.5	1693.41
5.5	1688.41	14.5	1688.41	14.5	1693.41	15.5	1693.41		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-15.5	.013	-14.5	.013	14.5	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-14.5 14.5 50.5 50.5 50.5 .1 .3
Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-15.5 1694.41	1693.41	15.5 1694.41	1693.41

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1694.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.98	Wt. n-Val.		0.013	
W.S. Elev (ft)	1690.28	Reach Len. (ft)	50.50	50.50	50.50
Crit W.S. (ft)	1691.43	Flow Area (sq ft)		50.44	
E.G. Slope (ft/ft)	*0.013532	Area (sq ft)		50.44	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	27.00	Top Width (ft)		27.00	
Vel Total (ft/s)	16.00	Avg. Vel. (ft/s)		16.00	
Max Chl Dpth (ft)	1.87	Hydr. Depth (ft)		1.87	
Conv. Total (cfs)	6937.4	Conv. (cfs)		6937.4	
Length Wtd. (ft)	50.50	Wetted Per. (ft)		38.21	
Min Ch El (ft)	1688.41	Shear (lb/sq ft)		1.12	
Alpha	1.00	Stream Power (lb/ft s)		17.84	
Frctn Loss (ft)	5.13	Cum Volume (acre-ft)	2.00	26.94	0.24
C & E Loss (ft)	0.03	Cum SA (acres)	1.97	8.84	0.36

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 64

INPUT
Description: 7+020 - existing Headwall (Gib sta. 51+10.50)
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-15.5	1693.41	-14.5	1693.41	-14.5	1688.41	14.5	1688.41	14.5	1693.41
15.5	1693.41								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-15.5	.013	-14.5	.013	14.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-14.5	14.5	89	89	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1693.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.013	
W.S. Elev (ft)	1692.71	Reach Len. (ft)	89.00	89.00	89.00
Crit W.S. (ft)	1691.29	Flow Area (sq ft)		124.62	
E.G. Slope (ft/ft)	*0.000649	Area (sq ft)		124.62	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	29.00	Top Width (ft)		29.00	
Vel Total (ft/s)	6.48	Avg. Vel. (ft/s)		6.48	
Max Chl Dpth (ft)	4.30	Hydr. Depth (ft)		4.30	
Conv. Total (cfs)	31666.3	Conv. (cfs)		31666.3	
Length Wtd. (ft)	89.00	Wetted Per. (ft)		37.59	
Min Ch El (ft)	1688.41	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.87	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	2.00	26.84	0.24
C & E Loss (ft)	0.02	Cum SA (acres)	1.97	8.81	0.36

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 63

INPUT
Description: 7+110
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-75	1695	-37.3	1694	-29.82	1693.03	-16.56	1687	-14.08	1687
-4.84	1688	8.11	1693.99	17.57	1694	24.29	1696		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-75	.03	-37.3	.03	8.11	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-37.3	8.11	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1693.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.		0.030	
W.S. Elev (ft)	1692.42	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)		112.31	
E.G. Slope (ft/ft)	*0.004514	Area (sq ft)		112.31	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	33.19	Top Width (ft)		33.19	
Vel Total (ft/s)	7.19	Avg. Vel. (ft/s)		7.19	
Max Chl Dpth (ft)	5.42	Hydr. Depth (ft)		3.38	
Conv. Total (cfs)	12011.4	Conv. (cfs)		12011.4	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		35.39	
Min Ch El (ft)	1687.00	Shear (lb/sq ft)		0.89	
Alpha	1.00	Stream Power (lb/ft s)		6.43	
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	2.00	26.60	0.24
C & E Loss (ft)	0.01	Cum SA (acres)	1.97	8.74	0.36

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 61

INPUT
Description: 7+310
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-52.95	1691.72	-34.75	1690.18	-22.82	1687	-11.32	1687	-2.73	1691
-.75	1691	1.68	1690	11.55	1690	17.27	1692.69		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
  -52.95     .03  -52.95     .03   17.27     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        -52.95   17.27              200     200     200           .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
**********************************************************************************************
* E.G. Elev (ft)         * 1691.86  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.95  * Wt. n-Val.            *         *    0.030  *          *
* W.S. Elev (ft)         * 1690.91  * Reach Len. (ft)       *  200.00  *  200.00  *  200.00  *
* Crit W.S. (ft)         * 1690.91  * Flow Area (sq ft)     *         *  103.26  *          *
* E.G. Slope (ft/ft)     *0.011071  * Area (sq ft)          *         *  103.26  *          *
* Q Total (cfs)          *  807.00  * Flow (cfs)            *         *  807.00  *          *
* Top Width (ft)         *   54.53  * Top Width (ft)        *         *   54.53  *          *
* Vel Total (ft/s)       *    7.81  * Avg. Vel. (ft/s)      *         *    7.81  *          *
* Max Chl Dpth (ft)      *    3.91  * Hydr. Depth (ft)      *         *    1.89  *          *
* Conv. Total (cfs)      *  7669.9  * Conv. (cfs)           *         *  7669.9  *          *
* Length Wtd. (ft)       *  200.00  * Wetted Per. (ft)      *         *   56.23  *          *
* Min Ch El (ft)         * 1687.00  * Shear (lb/sq ft)      *         *    1.27  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    9.92  *          *
* Frctn Loss (ft)        *    2.12  * Cum Volume (acre-ft)  *    2.00 *   26.11  *    0.24  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *    1.97 *    8.54  *    0.36  *
**********************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION


RIVER: gibson
REACH: exist              RS: 59

INPUT
Description: 7+610
Station Elevation Data    num=      13
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
**********************************************************************************************
  -71.23 1689.92   -42.88     1690   -32.57 1683.96   -26.05 1683.53   -24.95     1684
  -22.54     1684  -17.56 1682.76    -7.22  1683.3    10.99     1684    15.88  1682.8
   20.85 1683.07    31.48 1693.45    43.25 1699.49

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
  -71.23     .03  -42.88     .03   31.48     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        -42.88   31.48              100     100     100           .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
**********************************************************************************************
* E.G. Elev (ft)         * 1687.26  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.69  * Wt. n-Val.            *         *    0.030  *          *
* W.S. Elev (ft)         * 1684.57  * Reach Len. (ft)       *  100.00  *  100.00  *  100.00  *
* Crit W.S. (ft)         * 1685.33  * Flow Area (sq ft)     *         *   61.28  *          *
* E.G. Slope (ft/ft)     *0.064482  * Area (sq ft)          *         *   61.28  *          *
* Q Total (cfs)          *  807.00  * Flow (cfs)            *         *  807.00  *          *
* Top Width (ft)         *   55.98  * Top Width (ft)        *         *   55.98  *          *
* Vel Total (ft/s)       *   13.17  * Avg. Vel. (ft/s)      *         *   13.17  *          *
* Max Chl Dpth (ft)      *    1.81  * Hydr. Depth (ft)      *         *    1.09  *          *
* Conv. Total (cfs)      *  3178.0  * Conv. (cfs)           *         *  3178.0  *          *
* Length Wtd. (ft)       *  100.00  * Wetted Per. (ft)      *         *   57.20  *          *
* Min Ch El (ft)         * 1682.76  * Shear (lb/sq ft)      *         *    4.31  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *   56.80  *          *
* Frctn Loss (ft)        *    4.43  * Cum Volume (acre-ft)  *    2.00 *   25.73  *    0.24  *
* C & E Loss (ft)        *    0.17  * Cum SA (acres)        *    1.97 *    8.29  *    0.36  *
**********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Program found supercritical flow starting at this cross section.

CROSS SECTION


RIVER: gibson
REACH: exist              RS: 58

INPUT
Description: 7+810
Station Elevation Data    num=      18
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
**********************************************************************************************
  -88.57 1693.55   -72.12   1687.8   -65.76 1687.89   -59.88 1688.43   -55.31 1687.66
  -52.55 1687.66   -47.69     1689   -45.98 1688.92    -37.9     1684    -25.8     1684
  -23.59     1683  -11.66 1682.21    -3.36 1682.28    10.07     1683    16.71     1682
   25.82     1682   34.84     1695    37.53 1695.33

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
  -88.57     .03  -45.98     .03   34.84     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        -45.98   34.84              100     100     100           .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
**********************************************************************************************
* E.G. Elev (ft)         * 1685.35  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.60  * Wt. n-Val.            *         *    0.030  *          *
* W.S. Elev (ft)         * 1684.75  * Reach Len. (ft)       *  100.00  *  100.00  *  100.00  *
* Crit W.S. (ft)         * 1684.44  * Flow Area (sq ft)     *         *  129.35  *          *
* E.G. Slope (ft/ft)     *0.006842  * Area (sq ft)          *         *  129.35  *          *
* Q Total (cfs)          *  807.00  * Flow (cfs)            *         *  807.00  *          *
* Top Width (ft)         *   66.85  * Top Width (ft)        *         *   66.85  *          *
* Vel Total (ft/s)       *    6.24  * Avg. Vel. (ft/s)      *         *    6.24  *          *
* Max Chl Dpth (ft)      *    2.75  * Hydr. Depth (ft)      *         *    1.93  *          *
* Conv. Total (cfs)      *  9756.2  * Conv. (cfs)           *         *  9756.2  *          *
* Length Wtd. (ft)       *  100.00  * Wetted Per. (ft)      *         *   68.83  *          *
* Min Ch El (ft)         * 1682.00  * Shear (lb/sq ft)      *         *    0.80  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    5.01  *          *
* Frctn Loss (ft)        *    0.88  * Cum Volume (acre-ft)  *    2.00 *   25.51  *    0.24  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *    1.97 *    8.15  *    0.36  *
**********************************************************************************************

Note:    Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION
```

RIVER: gibson
REACH: exist RS: 57

INPUT
Description: 7+910
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-52.51	1688.33	-40.45	1683.09	-25.72	1682	-18.34	1682	-16.62	1681.46
-15	1682	0	1681.99	9.41	1681.02	10.62	1682	18.81	1682
31.41	1683	36.62	1683.8	50.75	1684	53.2	1684.74	56.9	1684.5
60	1684	75	1684	106.5	1685				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-52.51	.03	-52.51	.03	53.2	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-52.51	53.2	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1684.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.		0.030	
W.S. Elev (ft)	1683.69	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1683.69	Flow Area (sq ft)		115.61	
E.G. Slope (ft/ft)	0.011873	Area (sq ft)		115.61	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	77.77	Top Width (ft)		77.77	
Vel Total (ft/s)	6.98	Avg. Vel. (ft/s)		6.98	
Max Chl Dpth (ft)	2.67	Hydr. Depth (ft)		1.49	
Conv. Total (cfs)	7406.1	Conv. (cfs)		7406.1	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		78.59	
Min Ch El (ft)	1681.02	Shear (lb/sq ft)		1.09	
Alpha	1.00	Stream Power (lb/ft s)		7.61	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	2.00	25.23	0.24
C & E Loss (ft)	0.16	Cum SA (acres)	1.97	7.98	0.36

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 55

INPUT
Description: 7+930
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-34.9	1682.01	-27.15	1681	-17.94	1680.99	-11.34	1676	-2.34	1675.67
1.1	1678.13	5.84	1681	7.4	1681	9.37	1680.33	30	1682

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-34.9	.03	-34.9	.03	30	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-34.9	30	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1683.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.030	
W.S. Elev (ft)	1683.18	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1681.28	Flow Area (sq ft)		218.86	
E.G. Slope (ft/ft)	0.001230	Area (sq ft)		218.86	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	64.90	Top Width (ft)		64.90	
Vel Total (ft/s)	3.69	Avg. Vel. (ft/s)		3.69	
Max Chl Dpth (ft)	7.51	Hydr. Depth (ft)		3.37	
Conv. Total (cfs)	23011.1	Conv. (cfs)		23011.1	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		70.77	
Min Ch El (ft)	1675.67	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		0.88	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	2.00	24.46	0.24
C & E Loss (ft)	0.11	Cum SA (acres)	1.97	7.65	0.36

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 53

INPUT
Description: 8+110
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-27.63	1684.76	-15.26	1679	-13.34	1677.23	-4.5	1676.43	-.51	1679.26
9.84	1680	16.74	1684	18.74	1684				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-27.63	.03	-27.63	.03	16.74	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-27.63	16.74	230	230	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1682.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.33	Wt. n-Val.		0.030	
W.S. Elev (ft)	1681.40	Reach Len. (ft)	230.00	230.00	230.00

* Crit W.S. (ft)	* 1681.40	* Flow Area (sq ft)	*		*	87.07	*		*		*
* E.G. Slope (ft/ft)	*0.010481	* Area (sq ft)	*		*	87.07	*		*		*
* Q Total (cfs)	* 807.00	* Flow (cfs)	*		*	807.00	*		*		*
* Top Width (ft)	* 32.67	* Top Width (ft)	*		*	32.67	*		*		*
* Vel Total (ft/s)	* 9.27	* Avg. Vel. (ft/s)	*		*	9.27	*		*		*
* Max Chl Dpth (ft)	* 4.97	* Hydr. Depth (ft)	*		*	2.67	*		*		*
* Conv. Total (cfs)	* 7882.8	* Conv. (cfs)	*		*	7882.8	*		*		*
* Length Wtd. (ft)	* 230.00	* Wetted Per. (ft)	*		*	35.23	*		*		*
* Min Ch El (ft)	* 1676.43	* Shear (lb/sq ft)	*		*	1.62	*		*		*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*		*	14.99	*		*		*
* Frctn Loss (ft)	* 0.79	* Cum Volume (acre-ft)	*	2.00	*	23.76	*	0.24	*		
* C & E Loss (ft)	* 0.31	* Cum SA (acres)	*	1.97	*	7.43	*	0.36	*		

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 52

INPUT
Description: 8+340
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1680	-63.4	1680	-59.6	1676.2	-51.2	1674	-49.6	1672
-26.5	1672	-10.9	1674	-8	1676	10.9	1680	44.8	1682
61.8	1684	104.4	1686	150	1686				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-63.4	.03	10.9	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-63.4	10.9	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1676.83	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.30	* Wt. n-Val.	*	* 0.030	*	*
* W.S. Elev (ft)	* 1676.52	* Reach Len. (ft)	* 200.00	* 200.00	* 200.00	*
* Crit W.S. (ft)	* 1674.77	* Flow Area (sq ft)	*	* 182.14	*	*
* E.G. Slope (ft/ft)	*0.001683	* Area (sq ft)	*	* 182.14	*	*
* Q Total (cfs)	* 807.00	* Flow (cfs)	*	* 807.00	*	*
* Top Width (ft)	* 54.39	* Top Width (ft)	*	* 54.39	*	*
* Vel Total (ft/s)	* 4.43	* Avg. Vel. (ft/s)	*	* 4.43	*	*
* Max Chl Dpth (ft)	* 4.52	* Hydr. Depth (ft)	*	* 3.35	*	*
* Conv. Total (cfs)	* 19668.7	* Conv. (cfs)	*	* 19668.7	*	*
* Length Wtd. (ft)	* 200.00	* Wetted Per. (ft)	*	* 56.58	*	*
* Min Ch El (ft)	* 1672.00	* Shear (lb/sq ft)	*	* 0.34	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 1.50	*	*
* Frctn Loss (ft)	* 0.69	* Cum Volume (acre-ft)	* 2.00	* 23.05	* 0.24	*
* C & E Loss (ft)	* 0.08	* Cum SA (acres)	* 1.97	* 7.20	* 0.36	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 50

INPUT
Description: 8+540
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1677	-128	1676.5	-118.2	1676	-87.2	1676	-80.4	1678
-64.6	1678	-62.5	1676.2	-50.8	1674	-44	1672	-24.3	1672
-13.5	1674	-10.6	1676	4	1678	36.4	1680	48.4	1680
86.9	1685	104.6	1686	134.9	1686				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-64.6	.03	4	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-64.6	4	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1676.06	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.11	* Wt. n-Val.	*	* 0.030	*	*
* W.S. Elev (ft)	* 1674.95	* Reach Len. (ft)	* 200.00	* 200.00	* 200.00	*
* Crit W.S. (ft)	* 1674.95	* Flow Area (sq ft)	*	* 95.51	*	*
* E.G. Slope (ft/ft)	*0.010540	* Area (sq ft)	*	* 95.51	*	*
* Q Total (cfs)	* 807.00	* Flow (cfs)	*	* 807.00	*	*
* Top Width (ft)	* 43.73	* Top Width (ft)	*	* 43.73	*	*
* Vel Total (ft/s)	* 8.45	* Avg. Vel. (ft/s)	*	* 8.45	*	*
* Max Chl Dpth (ft)	* 2.95	* Hydr. Depth (ft)	*	* 2.18	*	*
* Conv. Total (cfs)	* 7860.6	* Conv. (cfs)	*	* 7860.6	*	*
* Length Wtd. (ft)	* 200.00	* Wetted Per. (ft)	*	* 44.59	*	*
* Min Ch El (ft)	* 1672.00	* Shear (lb/sq ft)	*	* 1.41	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 11.91	*	*
* Frctn Loss (ft)	* 0.80	* Cum Volume (acre-ft)	* 2.00	* 22.41	* 0.24	*
* C & E Loss (ft)	* 0.22	* Cum SA (acres)	* 1.97	* 6.98	* 0.36	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 48

INPUT
Description: 8+740
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1675	-114.8	1674.5	-94.8	1676	-65.7	1676	-53.5	1674
-49.5	1670	-23.1	1670	2.7	1676	9.4	1678	130.6	1682.7
150	1683								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-65.7	.03	9.4	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-65.7	9.4	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1674.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.		0.030	
W.S. Elev (ft)	1674.38	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1672.78	Flow Area (sq ft)		167.03	
E.G. Slope (ft/ft)	0.002100	Area (sq ft)		167.03	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	51.59	Top Width (ft)		51.59	
Vel Total (ft/s)	4.83	Avg. Vel. (ft/s)		4.83	
Max Chl Dpth (ft)	4.38	Hydr. Depth (ft)		3.24	
Conv. Total (cfs)	17610.4	Conv. (cfs)		17610.4	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		53.78	
Min Ch El (ft)	1670.00	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		1.97	
Frctn Loss (ft)	0.80	Cum Volume (acre-ft)	2.00	21.81	0.24
C & E Loss (ft)	0.07	Cum SA (acres)	1.97	6.76	0.36

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 46

INPUT
Description: 8+940
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1675.6	-73.4	1675.8	-65.1	1674	-52.2	1672	-44.9	1670
-20.6	1670	-13.8	1672	5.6	1676	85.4	1678.7	132.3	1679.7
150	1679.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-73.4	.03	5.6	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-73.4	5.6	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1673.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.04	Wt. n-Val.		0.030	
W.S. Elev (ft)	1672.83	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1672.83	Flow Area (sq ft)		98.56	
E.G. Slope (ft/ft)	0.010620	Area (sq ft)		98.56	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	47.80	Top Width (ft)		47.80	
Vel Total (ft/s)	8.19	Avg. Vel. (ft/s)		8.19	
Max Chl Dpth (ft)	2.83	Hydr. Depth (ft)		2.06	
Conv. Total (cfs)	7830.8	Conv. (cfs)		7830.8	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		48.51	
Min Ch El (ft)	1670.00	Shear (lb/sq ft)		1.35	
Alpha	1.00	Stream Power (lb/ft s)		11.03	
Frctn Loss (ft)	2.15	Cum Volume (acre-ft)	2.00	21.20	0.24
C & E Loss (ft)	0.02	Cum SA (acres)	1.97	6.53	0.36

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 44

INPUT
Description: 9+140
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1672	-66.6	1672	-64.1	1668	-49	1666.1	-40.5	1664
-24.3	1664	-15.9	1666	1.9	1668	5.3	1674	43.4	1676
66	1676.4	150	1677.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-66.6	.03	5.3	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-66.6	5.3	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1669.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.46	Wt. n-Val.		0.030	
W.S. Elev (ft)	1666.15	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1667.24	Flow Area (sq ft)		54.09	
E.G. Slope (ft/ft)	0.051567	Area (sq ft)		54.09	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	34.90	Top Width (ft)		34.90	

Vel Total (ft/s)		14.92	Avg. Vel. (ft/s)			14.92					
Max Chl Dpth (ft)		2.15	Hydr. Depth (ft)			1.55					
Conv. Total (cfs)		3553.7	Conv. (cfs)			3553.7					
Length Wtd. (ft)		200.00	Wetted Per. (ft)			35.40					
Min Ch El (ft)		1664.00	Shear (lb/sq ft)			4.92					
Alpha		1.00	Stream Power (lb/ft s)			73.39					
Frctn Loss (ft)		4.02	Cum Volume (acre-ft)		2.00			20.85		0.24	
C & E Loss (ft)		0.24	Cum SA (acres)		1.97			6.34		0.36	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 42

INPUT
Description: 9+340
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-147	1670	-123.9	1671.5	-77	1670	-64.7	1668	-55.5	1666
-46.6	1658	-7.1	1658	-1.9	1666	5.5	1667.7	21.4	1666.6
32.9	1666	58.6	1666	66.6	1668	69.4	1668	78.2	1672
95.5	1672	106.1	1671.4	150	1670.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-147	.03	-64.7	.03	5.5	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-64.7 5.5 200 200 200 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		1662.93	Element		Left OB		Channel		Right OB		
Vel Head (ft)		0.24	Wt. n-Val.				0.030				
W.S. Elev (ft)		1662.69	Reach Len. (ft)		200.00		200.00		200.00		
Crit W.S. (ft)		1660.30	Flow Area (sq ft)				204.78				
E.G. Slope (ft/ft)		0.001021	Area (sq ft)				204.78				
Q Total (cfs)		807.00	Flow (cfs)				807.00				
Top Width (ft)		47.77	Top Width (ft)				47.77				
Vel Total (ft/s)		3.94	Avg. Vel. (ft/s)				3.94				
Max Chl Dpth (ft)		4.69	Hydr. Depth (ft)				4.29				
Conv. Total (cfs)		25256.4	Conv. (cfs)				25256.4				
Length Wtd. (ft)		200.00	Wetted Per. (ft)				52.12				
Min Ch El (ft)		1658.00	Shear (lb/sq ft)				0.25				
Alpha		1.00	Stream Power (lb/ft s)				0.99				
Frctn Loss (ft)		0.74	Cum Volume (acre-ft)		2.00		20.25		0.24		
C & E Loss (ft)		0.22	Cum SA (acres)		1.97		6.15		0.36		

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 40

INPUT
Description: 9+550
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1666	-135.9	1666	-77.8	1665.2	-53.4	1665.7	-51.1	1665.4
-43.5	1666	-36.7	1654	-13	1654	-8.9	1662	72.3	1666
81.4	1670	97.8	1670	108.6	1669.5	150	1668.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-43.5	.03	72.3	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-43.5 72.3 200 200 200 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		1661.97	Element		Left OB		Channel		Right OB		
Vel Head (ft)		2.48	Wt. n-Val.				0.030				
W.S. Elev (ft)		1659.50	Reach Len. (ft)		200.00		200.00		200.00		
Crit W.S. (ft)		1659.50	Flow Area (sq ft)				146.51				
E.G. Slope (ft/ft)		0.010072	Area (sq ft)				146.51				
Q Total (cfs)		1850.00	Flow (cfs)				1850.00				
Top Width (ft)		29.63	Top Width (ft)				29.63				
Vel Total (ft/s)		12.63	Avg. Vel. (ft/s)				12.63				
Max Chl Dpth (ft)		5.49	Hydr. Depth (ft)				4.94				
Conv. Total (cfs)		18433.7	Conv. (cfs)				18433.7				
Length Wtd. (ft)		200.00	Wetted Per. (ft)				36.19				
Min Ch El (ft)		1654.00	Shear (lb/sq ft)				2.55				
Alpha		1.00	Stream Power (lb/ft s)				32.14				
Frctn Loss (ft)		1.43	Cum Volume (acre-ft)		2.00		19.45		0.24		
C & E Loss (ft)		0.43	Cum SA (acres)		1.97		5.97		0.36		

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 38

INPUT
Description: 9+750
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1664	-51.7	1664	-43.3	1660	-39.3	1652	-18.5	1650.6

-8.4	1650.7	-5.6	1650.3	-2.6	1652	16.9	1654	43.9	1664
52.6	1664.4	150	1664.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-51.7	.03	43.9	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-51.7	43.9	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1658.05	Element	Left OB	Channel / Right OB
Vel Head (ft)	4.38	Wt. n-Val.		0.030
W.S. Elev (ft)	1653.66	Reach Len. (ft)	200.00	200.00 / 200.00
Crit W.S. (ft)	1654.97	Flow Area (sq ft)		110.10
E.G. Slope (ft/ft)	*0.046032	Area (sq ft)		110.10
Q Total (cfs)	1850.00	Flow (cfs)		1850.00
Top Width (ft)	53.74	Top Width (ft)		53.74
Vel Total (ft/s)	16.80	Avg. Vel. (ft/s)		16.80
Max Chl Dpth (ft)	3.36	Hydr. Depth (ft)		2.05
Conv. Total (cfs)	8622.6	Conv. (cfs)		8622.6
Length Wtd. (ft)	200.00	Wetted Per. (ft)		55.37
Min Ch El (ft)	1650.30	Shear (lb/sq ft)		5.71
Alpha	1.00	Stream Power (lb/ft s)		96.02
Frctn Loss (ft)	3.74	Cum Volume (acre-ft)	2.00	18.86 / 0.24
C & E Loss (ft)	0.19	Cum SA (acres)	1.97	5.78 / 0.36

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 36

INPUT
Description: 9+950
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1662.2	-135.6	1662	-59.2	1662	-41.2	1660	-38.6	1656
-35	1650	6.8	1650	12.5	1652	18.5	1652	29.7	1658
36.2	1660	60	1662	65.3	1664	80.4	1664	104	1662
150	1662								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-59.2	.03	60	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-59.2	60	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1655.79	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.74	Wt. n-Val.		0.030
W.S. Elev (ft)	1655.05	Reach Len. (ft)	200.00	200.00 / 200.00
Crit W.S. (ft)	1653.65	Flow Area (sq ft)		268.88
E.G. Slope (ft/ft)	*0.002977	Area (sq ft)		268.88
Q Total (cfs)	1850.00	Flow (cfs)		1850.00
Top Width (ft)	62.23	Top Width (ft)		62.23
Vel Total (ft/s)	6.88	Avg. Vel. (ft/s)		6.88
Max Chl Dpth (ft)	5.05	Hydr. Depth (ft)		4.32
Conv. Total (cfs)	33905.0	Conv. (cfs)		33905.0
Length Wtd. (ft)	200.00	Wetted Per. (ft)		66.19
Min Ch El (ft)	1650.00	Shear (lb/sq ft)		0.76
Alpha	1.00	Stream Power (lb/ft s)		5.19
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)	2.00	17.99 / 0.24
C & E Loss (ft)	0.11	Cum SA (acres)	1.97	5.51 / 0.36

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 34

INPUT
Description: 10+150
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-289.5	1662.4	-88.9	1660	-44.8	1656	-28.7	1650	7.3	1648
13.8	1648	17.5	1650	31.9	1652	44.2	1658	70.5	1660
76.2	1662	101.1	1662	106.7	1660	271.4	1660		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-289.5	.03	-88.9	.03	70.5	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-88.9	70.5	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1655.31	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.030
W.S. Elev (ft)	1654.94	Reach Len. (ft)	200.00	200.00 / 200.00
Crit W.S. (ft)		Flow Area (sq ft)		378.91
E.G. Slope (ft/ft)	*0.001265	Area (sq ft)		378.91
Q Total (cfs)	1850.00	Flow (cfs)		1850.00
Top Width (ft)	79.86	Top Width (ft)		79.86
Vel Total (ft/s)	4.88	Avg. Vel. (ft/s)		4.88
Max Chl Dpth (ft)	6.94	Hydr. Depth (ft)		4.74
Conv. Total (cfs)	52011.9	Conv. (cfs)		52011.9
Length Wtd. (ft)	200.00	Wetted Per. (ft)		82.13
Min Ch El (ft)	1648.00	Shear (lb/sq ft)		0.36
Alpha	1.00	Stream Power (lb/ft s)		1.78
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	2.00	16.50 / 0.24
C & E Loss (ft)	0.01	Cum SA (acres)	1.97	5.19 / 0.36

CROSS SECTION

RIVER: gibson
REACH: exist RS: 32

INPUT
Description: 10+350
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-265.6	1658	-244.9	1658	-212.7	1656	-194.3	1656	-173.1	1658
-56.7	1658	-49.4	1656	-28.6	1654	-11.4	1648	38.5	1648
39.8	1650	47.1	1650	58	1656	107	1661.3	122.1	1662
133	1661.8	136.9	1660	213.6	1660	222.7	1658.9	233.2	1658.7
261.8	1656	280.7	1656	286.5	1655.7	287.6	1658.8	292.4	1657.7
296.8	1658.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-265.6	.03	-56.3	.03	107	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-56.3 107 100 100 100 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1655.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.		0.030	
W.S. Elev (ft)	1654.48	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		442.48	
E.G. Slope (ft/ft)	0.001669	Area (sq ft)		442.48	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	88.83	Top Width (ft)		88.83	
Vel Total (ft/s)	5.76	Avg. Vel. (ft/s)		5.76	
Max Chl Dpth (ft)	6.48	Hydr. Depth (ft)		4.98	
Conv. Total (cfs)	62397.4	Conv. (cfs)		62397.4	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		92.11	
Min Ch El (ft)	1648.00	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		2.88	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	2.00	14.62	0.24
C & E Loss (ft)	0.01	Cum SA (acres)	1.97	4.80	0.36

CROSS SECTION

RIVER: gibson
REACH: exist RS: 31

INPUT
Description: 10+450
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-274.8	1654	-202.9	1656	-65.1	1656	-36.6	1654	-20.2	1648
25.2	1648	27.2	1650	37.1	1650	46.4	1656	108.2	1656
128.6	1655.7	138.9	1656	147.1	1656	181.3	1654.4	208.2	1654.7
233.4	1656	267.5	1656	278.7	1655	279.7	1658.2	289	1657.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-274.8	.03	-65.1	.03	46.4	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-65.1 46.4 100 100 100 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1654.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.030	0.030	
W.S. Elev (ft)	1654.15	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)	0.39	395.56	
E.G. Slope (ft/ft)	0.002190	Area (sq ft)	0.39	395.56	
Q Total (cfs)	2549.00	Flow (cfs)	0.16	2548.84	
Top Width (ft)	87.54	Top Width (ft)	5.31	82.23	
Vel Total (ft/s)	6.44	Avg. Vel. (ft/s)	0.40	6.44	
Max Chl Dpth (ft)	6.15	Hydr. Depth (ft)	0.07	4.81	
Conv. Total (cfs)	54465.9	Conv. (cfs)	3.3	54462.6	
Length Wtd. (ft)	100.00	Wetted Per. (ft)	5.46	85.35	
Min Ch El (ft)	1648.00	Shear (lb/sq ft)	0.01	0.63	
Alpha	1.00	Stream Power (lb/ft s)	0.00	4.08	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	2.00	13.65	0.24
C & E Loss (ft)	0.11	Cum SA (acres)	1.97	4.60	0.36

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 30

INPUT
Description: 10+550
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1653.5	-281.3	1653.7	-268.6	1654	-263	1654	-241.4	1654.3
-199	1654.3	-193	1654.4	-160.2	1654.3	-121.2	1656	-83.2	1654
-30.3	1654	-15.3	1648	23.1	1648	26.3	1650	34	1650
45.5	1654	201.3	1654	208.5	1653.8	237.2	1654	250.2	1654
272.6	1653.6	281.3	1654.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-30.3	.03	45.5	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-30.3 45.5 200 200 200 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1654.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.77	Wt. n-Val.		0.030	
W.S. Elev (ft)	1652.52	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1652.52	Flow Area (sq ft)		239.04	
E.G. Slope (ft/ft)	0.008966	Area (sq ft)		239.04	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	67.86	Top Width (ft)		67.86	
Vel Total (ft/s)	10.66	Avg. Vel. (ft/s)		10.66	
Max Chl Dpth (ft)	4.52	Hydr. Depth (ft)		3.52	

Conv. Total (cfs)	26919.9	Conv. (cfs)			26919.9				
Length Wtd. (ft)	200.00	Wetted Per. (ft)			69.73				
Min Ch El (ft)	1648.00	Shear (lb/sq ft)			1.92				
Alpha	1.00	Stream Power (lb/ft s)			20.46				
Frctn Loss (ft)	1.04	Cum Volume (acre-ft)		2.00	12.92		0.24		
C & E Loss (ft)	0.46	Cum SA (acres)		1.96	4.43		0.36		

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 28

INPUT
Description: 10+750
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1651.4	-245.1	1651.3	-148	1650.6	2.3	1650.7	17.2	1650.6
31.4	1650.7	62.4	1652	76.9	1652	84.1	1650	95.7	1648
103.2	1649.3	113	1650	184.1	1650	203.2	1651.8	268.7	1650.9
281	1651.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	76.9	.03	203.2	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
76.9	203.2	200	200	200	.1	.3
Left Levee	Station= 76.9	Elevation= 1652			
Right Levee	Station= 203.2	Elevation= 1651.8			

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1652.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (ft)	1652.01	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1652.01	Flow Area (sq ft)	435.71	254.32	53.00
E.G. Slope (ft/ft)	0.003372	Area (sq ft)	435.71	254.32	53.00
Q Total (cfs)	2549.00	Flow (cfs)	1269.15	1162.36	117.50
Top Width (ft)	631.00	Top Width (ft)	426.90	126.30	77.80
Vel Total (ft/s)	3.43	Avg. Vel. (ft/s)	2.91	4.57	2.22
Max Chl Dpth (ft)	4.01	Hydr. Depth (ft)	1.02	2.01	0.68
Conv. Total (cfs)	43895.1	Conv. (cfs)	21855.4	20016.4	2023.4
Length Wtd. (ft)	200.00	Wetted Per. (ft)	427.54	126.97	78.33
Min Ch El (ft)	1648.00	Shear (lb/sq ft)	0.21	0.42	0.14
Alpha	1.19	Stream Power (lb/ft s)	0.62	1.93	0.32
Frctn Loss (ft)	1.18	Cum Volume (acre-ft)	1.00	11.79	0.12
C & E Loss (ft)	0.02	Cum SA (acres)	0.98	3.99	0.18

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 26

INPUT
Description: 10+950
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1648.8	-284.2	1648.5	-259.5	1650	-134.2	1650	-91.2	1649.6
-66.7	1649.6	-1.8	1648.6	33.6	1648.7	52.4	1648.3	136.4	1649
171.1	1648.9	289.4	1649.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-134.2	.03	289.4	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-134.2	289.4	200	200	200	.1	.3
Left Levee	Station= -134.2	Elevation= 1650			

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1650.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.		0.030	
W.S. Elev (ft)	1649.98	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1650.05	Flow Area (sq ft)		363.77	
E.G. Slope (ft/ft)	0.024335	Area (sq ft)		363.77	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	421.09	Top Width (ft)		421.09	
Vel Total (ft/s)	7.01	Avg. Vel. (ft/s)		7.01	
Max Chl Dpth (ft)	1.68	Hydr. Depth (ft)		0.86	
Conv. Total (cfs)	16340.2	Conv. (cfs)		16340.2	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		421.19	
Min Ch El (ft)	1648.30	Shear (lb/sq ft)		1.31	
Alpha	1.00	Stream Power (lb/ft s)		9.19	
Frctn Loss (ft)	1.43	Cum Volume (acre-ft)		10.37	
C & E Loss (ft)	0.05	Cum SA (acres)		2.73	

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 24

INPUT
Description: 11+150
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1652	-317.7	1652	-232.6	1650	-206.5	1646	-200.5	1645.3
-187	1644	-171.7	1638	-154.2	1638	-127.1	1648	-73.7	1648
-52.7	1647.2	-31.6	1647.3	54.3	1648	88.9	1648.2	99.1	1648
230.2	1648								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-232.6	.03	-127.1	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-232.6 -127.1 200 200 200 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1646.74	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.20	Wt. n-Val.		0.030
W.S. Elev (ft)	1643.54	Reach Len. (ft)	200.00	200.00 / 200.00
Crit W.S. (ft)	1644.43	Flow Area (sq ft)		177.65
E.G. Slope (ft/ft)	0.014933	Area (sq ft)		177.65
Q Total (cfs)	2549.00	Flow (cfs)		2549.00
Top Width (ft)	46.64	Top Width (ft)		46.64
Vel Total (ft/s)	14.35	Avg. Vel. (ft/s)		14.35
Max Chl Dpth (ft)	5.54	Hydr. Depth (ft)		3.81
Conv. Total (cfs)	20858.9	Conv. (cfs)		20858.9
Length Wtd. (ft)	200.00	Wetted Per. (ft)		48.68
Min Ch El (ft)	1638.00	Shear (lb/sq ft)		3.40
Alpha	1.00	Stream Power (lb/ft s)		48.82
Frctn Loss (ft)	3.76	Cum Volume (acre-ft)		9.13
C & E Loss (ft)	0.24	Cum SA (acres)		1.66

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need ft for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 22

INPUT
Description: 11+350
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1631.2	-299.6	1631.6	-287.4	1632.6	-269.1	1633.3	-226.6	1632.9
-150.1	1633.1	-112.2	1632	-88.2	1632	-59.6	1622	-25	1622
18.1	1640	43.1	1644	79.3	1644.6	118.6	1644.9	167.7	1645.3
224.2	1646	253.5	1646	261.6	1646.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-88.2	.03	18.1	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-88.2 18.1 100 100 100 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1638.49	Element	Left OB	Channel / Right OB
Vel Head (ft)	14.40	Wt. n-Val.		0.030
W.S. Elev (ft)	1624.09	Reach Len. (ft)	100.00	100.00 / 100.00
Crit W.S. (ft)	1626.85	Flow Area (sq ft)		83.69
E.G. Slope (ft/ft)	0.171923	Area (sq ft)		83.69
Q Total (cfs)	2549.00	Flow (cfs)		2549.00
Top Width (ft)	45.57	Top Width (ft)		45.57
Vel Total (ft/s)	30.46	Avg. Vel. (ft/s)		30.46
Max Chl Dpth (ft)	2.09	Hydr. Depth (ft)		1.84
Conv. Total (cfs)	6147.6	Conv. (cfs)		6147.6
Length Wtd. (ft)	100.00	Wetted Per. (ft)		46.34
Min Ch El (ft)	1622.00	Shear (lb/sq ft)		19.38
Alpha	1.00	Stream Power (lb/ft s)		590.35
Frctn Loss (ft)	7.13	Cum Volume (acre-ft)		8.53
C & E Loss (ft)	1.12	Cum SA (acres)		1.44

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 21

INPUT
Description: 11+530
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-339	1627.3	-297.1	1627.6	-277.2	1627.5	-267	1628	-256.2	1628
-128.2	1630	-121.7	1631	-112	1631.8	-104.4	1631.7	-81.6	1632
-49.1	1632	-33	1632	-30.8	1628	-11.4	1621	-10.1	1614
14.4	1614.5	15.5	1621.3	54.8	1640.3	79.7	1641.9	95.9	1643.7
199	1646	228.5	1646						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-339	.03	-33	.03	54.8	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-33 54.8 200 200 200 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1628.00	Element	Left OB	Channel / Right OB
Vel Head (ft)	9.71	Wt. n-Val.		0.030
W.S. Elev (ft)	1618.29	Reach Len. (ft)	200.00	200.00 / 200.00
Crit W.S. (ft)	1621.10	Flow Area (sq ft)		101.93
E.G. Slope (ft/ft)	0.056012	Area (sq ft)		101.93
Q Total (cfs)	2549.00	Flow (cfs)		2549.00

Top Width (ft)	25.91	Top Width (ft)		25.91	
Vel Total (ft/s)	25.01	Avg. Vel. (ft/s)		25.01	
Max Chl Dpth (ft)	4.29	Hydr. Depth (ft)		3.93	
Conv. Total (cfs)	10770.3	Conv. (cfs)		10770.3	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		32.71	
Min Ch El (ft)	1614.00	Shear (lb/sq ft)		10.90	
Alpha	1.00	Stream Power (lb/ft s)		272.47	
Frctn Loss (ft)	9.08	Cum Volume (acre-ft)		8.32	
C & E Loss (ft)	1.41	Cum SA (acres)		1.36	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 19

INPUT
Description: 11+720
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1624.9	-336.8	1624.7	-253.2	1626.9	-236.9	1627.2	-205	1628.1
-189.2	1628.5	-181.9	1628	-147.1	1628	-129.4	1629	-102	1630.9
-92	1631	-40.9	1631	-33.1	1629	-10.9	1620	-8.5	1614.1
14.6	1614.5	14.9	1620	65.2	1642	97.7	1643	127.3	1643.1
148.9	1644	168	1644.2	208.6	1644.4	242.2	1646	259.5	1646
291.8	1647	311.5	1647	323.4	1646	331.4	1645.8	334.9	1646
350	1646								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-40.9	.03	65.2	.03

Bank Sta: Left -40.9 Right 65.2 Lengths: Left Channel 200 Right 200 Coeff Contr. .1 Expan. .3
Left Levee Station= -40.9 Elevation= 1631

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1625.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.21	Wt. n-Val.		0.030	
W.S. Elev (ft)	1624.18	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1621.70	Flow Area (sq ft)		288.78	
E.G. Slope (ft/ft)	0.003609	Area (sq ft)		288.78	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	45.65	Top Width (ft)		45.65	
Vel Total (ft/s)	8.83	Avg. Vel. (ft/s)		8.83	
Max Chl Dpth (ft)	10.08	Hydr. Depth (ft)		6.33	
Conv. Total (cfs)	42432.0	Conv. (cfs)		42432.0	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		56.52	
Min Ch El (ft)	1614.10	Shear (lb/sq ft)		1.15	
Alpha	1.00	Stream Power (lb/ft s)		10.16	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)		7.42	
C & E Loss (ft)	0.09	Cum SA (acres)		1.20	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 17

INPUT
Description: 11+920
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1624.1	-319.8	1624	-300	1624.5	-291.7	1624.2	-282.4	1624.6
-266.6	1625.2	-249.2	1625.1	-230.3	1626	-213.2	1626	-186.6	1627
-180	1627	-129.1	1628	-121.9	1629	-108	1630	-32.2	1630
-10.2	1614	14.4	1614.5	14.9	1619	66.9	1641	101.1	1642
195.4	1642	215.1	1643	249.9	1643	284.9	1644	309.2	1644
323.5	1643	335.4	1643	350	1643.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-32.2	.03	66.9	.03

Bank Sta: Left -32.2 Right 66.9 Lengths: Left Channel 200 Right 200 Coeff Contr. .1 Expan. .3
Left Levee Station= -32.2 Elevation= 1630

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1624.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.		0.030	
W.S. Elev (ft)	1623.81	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1620.81	Flow Area (sq ft)		332.02	
E.G. Slope (ft/ft)	0.002354	Area (sq ft)		332.02	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	49.94	Top Width (ft)		49.94	
Vel Total (ft/s)	7.68	Avg. Vel. (ft/s)		7.68	
Max Chl Dpth (ft)	9.81	Hydr. Depth (ft)		6.65	
Conv. Total (cfs)	52542.0	Conv. (cfs)		52542.0	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		58.14	
Min Ch El (ft)	1614.00	Shear (lb/sq ft)		0.84	
Alpha	1.00	Stream Power (lb/ft s)		6.44	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)		6.00	
C & E Loss (ft)	0.05	Cum SA (acres)		0.98	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 15

INPUT

Description: 12+120
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-349.7	1623.5	-338.2	1623.9	-332.4	1623.7	-282.1	1625	-274.3	1625
-188.8	1627	-136.4	1627	-106.7	1629	-32.9	1629	-31.8	1626
-11.4	1618	-10.6	1614	14.2	1614.5	15	1618	55.4	1638
68.2	1640	76.2	1640	101.1	1641	114.8	1642	118	1642
127.3	1641	199.4	1641	252.4	1641.7	265	1641.6	273.9	1642
350	1642								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-349.7	.03	-32.9	.03	55.4	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-32.9 55.4 200 200 200 .1 .3
Left Levee Station= -32.9 Elevation= 1629

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1624.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.43	Wt. n-Val.		0.030	
W.S. Elev (ft)	1622.60	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1621.17	Flow Area (sq ft)		265.78	
E.G. Slope (ft/ft)	0.004638	Area (sq ft)		265.78	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	47.42	Top Width (ft)		47.42	
Vel Total (ft/s)	9.59	Avg. Vel. (ft/s)		9.59	
Max Chl Dpth (ft)	8.60	Hydr. Depth (ft)		5.60	
Conv. Total (cfs)	37426.9	Conv. (cfs)		37426.9	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		55.44	
Min Ch El (ft)	1614.00	Shear (lb/sq ft)		1.39	
Alpha	1.00	Stream Power (lb/ft s)		13.31	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)		4.62	
C & E Loss (ft)	0.34	Cum SA (acres)		0.75	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 13

INPUT
Description: 12+300
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1627	-302.1	1627.3	-292.4	1627	-258.1	1627	-221.2	1628.5
-210.3	1628.2	-187.6	1629	-167.3	1629	-159.1	1628.3	-144.4	1628.9
-129.2	1628.8	-95.8	1628.9	-58.3	1629	-42.1	1620	-38.2	1617
-37.7	1614	4.4	1615.6	26	1614.5	31.9	1624	63.6	1637.1
75.5	1638	82.5	1638	116.1	1637	124.5	1636.9	132.6	1637
140.5	1637	160.7	1637.5	176.9	1637.3	185.9	1638	207.1	1638
217.2	1638.2	278.2	1638.8	300.8	1638.7	332.9	1638.9	350	1638.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-58.3	.03	63.6	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-58.3 63.6 200 200 200 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1623.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.030	
W.S. Elev (ft)	1623.11	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)		577.69	
E.G. Slope (ft/ft)	0.000648	Area (sq ft)		577.69	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	79.05	Top Width (ft)		79.05	
Vel Total (ft/s)	4.41	Avg. Vel. (ft/s)		4.41	
Max Chl Dpth (ft)	9.11	Hydr. Depth (ft)		7.31	
Conv. Total (cfs)	100112.9	Conv. (cfs)		100112.9	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		88.27	
Min Ch El (ft)	1614.00	Shear (lb/sq ft)		0.26	
Alpha	1.00	Stream Power (lb/ft s)		1.17	
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)		2.69	
C & E Loss (ft)	0.11	Cum SA (acres)		0.46	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 11

INPUT
Description: 12+475
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1627.5	-332.5	1628	-296.3	1627.8	-277.2	1627	-271.2	1627
-263.2	1626.2	-249.2	1626.3	-240.9	1626.1	-196	1626	-178	1624
-136.2	1624	-92	1625.5	-76.1	1625.5	-57.1	1625.7	-41.4	1625.9
-9	1614.8	12	1614.5	33.2	1624.4	40.4	1629	47.6	1630
53.5	1635	58.6	1635	69.7	1634	88.6	1634	130.8	1633
138.3	1635	143.8	1635	150.2	1634	159.8	1633.6	165.9	1634
275.5	1634	297.8	1633.1	326.8	1634	350	1634		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-41.4	.03	40.4	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-41.4 40.4 100 100 100 .1 .3
Left Levee Station= -41.4 Elevation= 1625.9

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1623.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.38	Wt. n-Val.		0.030	

* W.S. Elev (ft)	* 1621.65	* Reach Len. (ft)	* 100.00	* 100.00	* 100.00	* 100.00	*
* Crit W.S. (ft)	* 1620.69	* Flow Area (sq ft)	*	*	* 269.97	*	*
* E.G. Slope (ft/ft)	*0.004785	* Area (sq ft)	*	*	* 269.97	*	*
* Q Total (cfs)	* 2549.00	* Flow (cfs)	*	*	* 2549.00	*	*
* Top Width (ft)	* 56.28	* Top Width (ft)	*	*	* 56.28	*	*
* Vel Total (ft/s)	* 9.44	* Avg. Vel. (ft/s)	*	*	* 9.44	*	*
* Max Chl Dpth (ft)	* 7.15	* Hydr. Depth (ft)	*	*	* 4.80	*	*
* Conv. Total (cfs)	* 36850.5	* Conv. (cfs)	*	*	* 36850.5	*	*
* Length Wtd. (ft)	* 100.00	* Wetted Per. (ft)	*	*	* 59.01	*	*
* Min Ch El (ft)	* 1614.50	* Shear (lb/sq ft)	*	*	* 1.37	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	*	* 12.90	*	*
* Frctn Loss (ft)	* 0.47	* Cum Volume (acre-ft)	*	*	* 0.74	*	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	*	* 0.15	*	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 10

INPUT
Description: 12+575
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1625.1	-305.8	1625.8	-286.3	1625	-272.9	1624.8	-242.3	1623.9
-205.5	1623.7	-186	1623	-178.4	1622.2	-164.3	1622.3	-127	1623.1
-114.4	1624	-68.1	1624	-56.8	1624.2	-45.6	1624	-32.2	1624
-11.4	1614	12.1	1614.5	32.7	1623.1	42	1629	49	1630
53.8	1633	133.3	1633	138.9	1634	144	1634	148.5	1633
186	1633	208.6	1633.6	227.8	1633	279.1	1632.9	295.5	1632
350	1632								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-305.8	.03	53.8	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-305.8	53.8	22	22	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1622.56	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.40	* Wt. n-Val.	*	* 0.030	* *
* W.S. Elev (ft)	* 1621.16	* Reach Len. (ft)	* 22.00	* 22.00	* 22.00 *
* Crit W.S. (ft)	* 1620.12	* Flow Area (sq ft)	*	* 268.67	* *
* E.G. Slope (ft/ft)	*0.004676	* Area (sq ft)	*	* 268.67	* *
* Q Total (cfs)	* 2549.00	* Flow (cfs)	*	* 2549.00	* *
* Top Width (ft)	* 54.33	* Top Width (ft)	*	* 54.33	* *
* Vel Total (ft/s)	* 9.49	* Avg. Vel. (ft/s)	*	* 9.49	* *
* Max Chl Dpth (ft)	* 7.16	* Hydr. Depth (ft)	*	* 4.94	* *
* Conv. Total (cfs)	* 37277.5	* Conv. (cfs)	*	* 37277.5	* *
* Length Wtd. (ft)	* 22.00	* Wetted Per. (ft)	*	* 57.30	* *
* Min Ch El (ft)	* 1614.00	* Shear (lb/sq ft)	*	* 1.37	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 12.98	* *
* Frctn Loss (ft)	* 0.14	* Cum Volume (acre-ft)	*	* 0.12	* *
* C & E Loss (ft)	* 0.08	* Cum SA (acres)	*	* 0.03	* *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 09.78

INPUT
Description: 12+598
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1625	-204.8	1623.2	-147.8	1622.4	-127	1623	-95.3	1624
-85.9	1623.6	-61.4	1624	-33.4	1624	-11.4	1614	12.2	1614.5
19.3	1618	33.5	1623.3	37.8	1627	42.5	1629	49.5	1630
54.3	1633	74.1	1633	220.8	1633	290.4	1632	350	1632

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-33.4	.03	54.3	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-33.4	54.3	0	0	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1622.34	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.18	* Wt. n-Val.	*	* 0.030	* *
* W.S. Elev (ft)	* 1620.16	* Reach Len. (ft)	*	*	* *
* Crit W.S. (ft)	* 1620.16	* Flow Area (sq ft)	*	* 215.24	* *
* E.G. Slope (ft/ft)	*0.008731	* Area (sq ft)	*	* 215.24	* *
* Q Total (cfs)	* 2549.00	* Flow (cfs)	*	* 2549.00	* *
* Top Width (ft)	* 50.04	* Top Width (ft)	*	* 50.04	* *
* Vel Total (ft/s)	* 11.84	* Avg. Vel. (ft/s)	*	* 11.84	* *
* Max Chl Dpth (ft)	* 6.16	* Hydr. Depth (ft)	*	* 4.30	* *
* Conv. Total (cfs)	* 27279.5	* Conv. (cfs)	*	* 27279.5	* *
* Length Wtd. (ft)	*	* Wetted Per. (ft)	*	* 52.59	* *
* Min Ch El (ft)	* 1614.00	* Shear (lb/sq ft)	*	* 2.23	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 26.42	* *
* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	*	*	* *
* C & E Loss (ft)	*	* Cum SA (acres)	*	*	* *

SUMMARY OF MANNING'S N VALUES

River:gibson

Reach	River Sta.	n1	n2	n3
*exist	* 92	* .03*	.03*	.03*
*exist	* 91	* .03*	.03*	.03*
*exist	* 90	* .03*	.03*	.03*
*exist	* 89	* .03*	.03*	.03*
*exist	* 88	* .013*	.013*	.013*
*exist	* 87	* .013*	.013*	.013*
*exist	* 86	* .03*	.03*	.03*
*exist	* 85	* .03*	.03*	.03*
*exist	* 83	* .03*	.03*	.03*
*exist	* 81	* .03*	.03*	.03*
*exist	* 79	* .03*	.03*	.03*

*exist	78	.013*	.013*	.013*
*exist	77	.013*	.013*	.013*
*exist	75	.03*	.03*	.03*
*exist	74	.03*	.03*	.03*
*exist	72	.03*	.03*	.03*
*exist	70	.03*	.03*	.03*
*exist	68	.03*	.03*	.03*
*exist	66	.013*	.013*	.013*
*exist	65	.013*	.013*	.013*
*exist	64	.013*	.013*	.013*
*exist	63	.03*	.03*	.03*
*exist	61	.03*	.03*	.03*
*exist	59	.03*	.03*	.03*
*exist	58	.03*	.03*	.03*
*exist	57	.03*	.03*	.03*
*exist	55	.03*	.03*	.03*
*exist	53	.03*	.03*	.03*
*exist	52	.03*	.03*	.03*
*exist	50	.03*	.03*	.03*
*exist	48	.03*	.03*	.03*
*exist	46	.03*	.03*	.03*
*exist	44	.03*	.03*	.03*
*exist	42	.03*	.03*	.03*
*exist	40	.03*	.03*	.03*
*exist	38	.03*	.03*	.03*
*exist	36	.03*	.03*	.03*
*exist	34	.03*	.03*	.03*
*exist	32	.03*	.03*	.03*
*exist	31	.03*	.03*	.03*
*exist	30	.03*	.03*	.03*
*exist	28	.03*	.03*	.03*
*exist	26	.03*	.03*	.03*
*exist	24	.03*	.03*	.03*
*exist	22	.03*	.03*	.03*
*exist	21	.03*	.03*	.03*
*exist	19	.03*	.03*	.03*
*exist	17	.03*	.03*	.03*
*exist	15	.03*	.03*	.03*
*exist	13	.03*	.03*	.03*
*exist	11	.03*	.03*	.03*
*exist	10	.03*	.03*	.03*
*exist	09.78	.03*	.03*	.03*

SUMMARY OF REACH LENGTHS

River: gibson

Reach	River Sta.	Left	Channel	Right
*exist	92	24*	24*	24*
*exist	91	100*	100*	100*
*exist	90	100*	100*	100*
*exist	89	38*	38*	38*
*exist	88	1258.42*	1258.42*	1258.42*
*exist	87	83*	83*	83*
*exist	86	100*	100*	100*
*exist	85	200*	200*	200*
*exist	83	200*	200*	200*
*exist	81	200*	200*	200*
*exist	79	31.32*	31.32*	31.32*
*exist	78	347*	347*	347*
*exist	77	122*	122*	122*
*exist	75	100*	100*	100*
*exist	74	200*	200*	200*
*exist	72	200*	200*	200*
*exist	70	110*	110*	110*
*exist	68	38*	38*	38*
*exist	66	374.89*	398.39*	421.9*
*exist	65	50.5*	50.5*	50.5*
*exist	64	89*	89*	89*
*exist	63	200*	200*	200*
*exist	61	200*	200*	200*
*exist	59	100*	100*	100*
*exist	58	100*	100*	100*
*exist	57	200*	200*	200*
*exist	55	200*	200*	200*
*exist	53	230*	230*	230*
*exist	52	200*	200*	200*
*exist	50	200*	200*	200*
*exist	48	200*	200*	200*
*exist	46	200*	200*	200*
*exist	44	200*	200*	200*
*exist	42	200*	200*	200*
*exist	40	200*	200*	200*
*exist	38	200*	200*	200*
*exist	36	200*	200*	200*
*exist	34	200*	200*	200*
*exist	32	100*	100*	100*
*exist	31	100*	100*	100*
*exist	30	200*	200*	200*
*exist	28	200*	200*	200*
*exist	26	200*	200*	200*
*exist	24	200*	200*	200*
*exist	22	100*	100*	100*
*exist	21	200*	200*	200*
*exist	19	200*	200*	200*
*exist	17	200*	200*	200*
*exist	15	200*	200*	200*
*exist	13	200*	200*	200*
*exist	11	100*	100*	100*
*exist	10	22*	22*	22*
*exist	09.78	0*	0*	0*

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: gibson

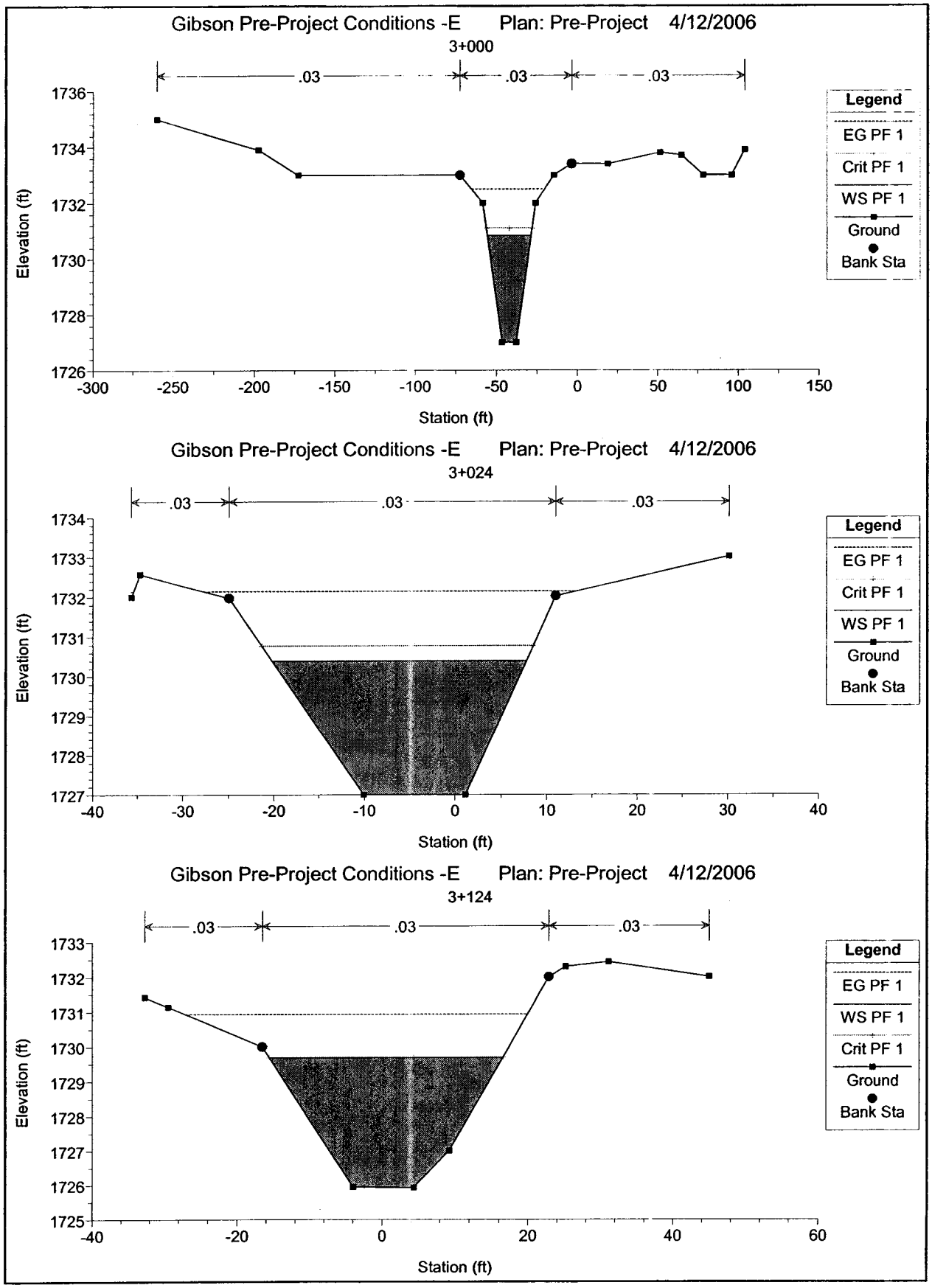
Reach	River Sta.	Contr.	Expan.
*exist	92	.1*	.3*
*exist	91	.1*	.3*
*exist	90	.1*	.3*
*exist	89	.1*	.3*
*exist	88	.1*	.3*
*exist	87	.1*	.3*
*exist	86	.1*	.3*
*exist	85	.1*	.3*
*exist	83	.1*	.3*
*exist	81	.1*	.3*
*exist	79	.1*	.3*
*exist	78	.1*	.3*
*exist	77	.1*	.3*
*exist	75	.1*	.3*

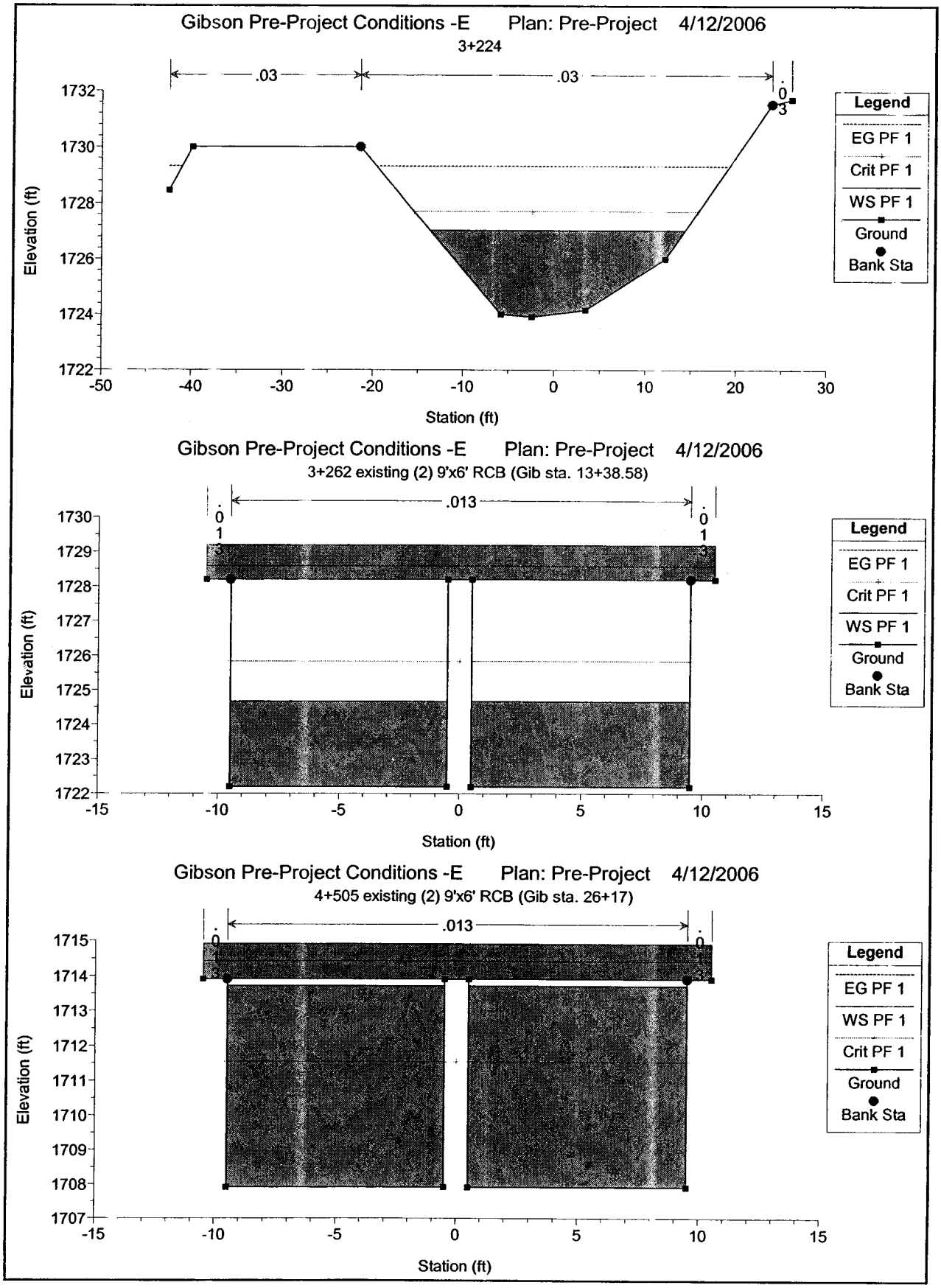
*exist	*	74	*	.1*	.3*
*exist	*	72	*	.1*	.3*
*exist	*	70	*	.1*	.3*
*exist	*	68	*	.1*	.3*
*exist	*	66	*	.1*	.3*
*exist	*	65	*	.1*	.3*
*exist	*	64	*	.1*	.3*
*exist	*	63	*	.1*	.3*
*exist	*	61	*	.1*	.3*
*exist	*	59	*	.1*	.3*
*exist	*	58	*	.1*	.3*
*exist	*	57	*	.1*	.3*
*exist	*	55	*	.1*	.3*
*exist	*	53	*	.1*	.3*
*exist	*	52	*	.1*	.3*
*exist	*	50	*	.1*	.3*
*exist	*	48	*	.1*	.3*
*exist	*	46	*	.1*	.3*
*exist	*	44	*	.1*	.3*
*exist	*	42	*	.1*	.3*
*exist	*	40	*	.1*	.3*
*exist	*	38	*	.1*	.3*
*exist	*	36	*	.1*	.3*
*exist	*	34	*	.1*	.3*
*exist	*	32	*	.1*	.3*
*exist	*	31	*	.1*	.3*
*exist	*	30	*	.1*	.3*
*exist	*	28	*	.1*	.3*
*exist	*	26	*	.1*	.3*
*exist	*	24	*	.1*	.3*
*exist	*	22	*	.1*	.3*
*exist	*	21	*	.1*	.3*
*exist	*	19	*	.1*	.3*
*exist	*	17	*	.1*	.3*
*exist	*	15	*	.1*	.3*
*exist	*	13	*	.1*	.3*
*exist	*	11	*	.1*	.3*
*exist	*	10	*	.1*	.3*
*exist	*	09.78	*	.1*	.3*

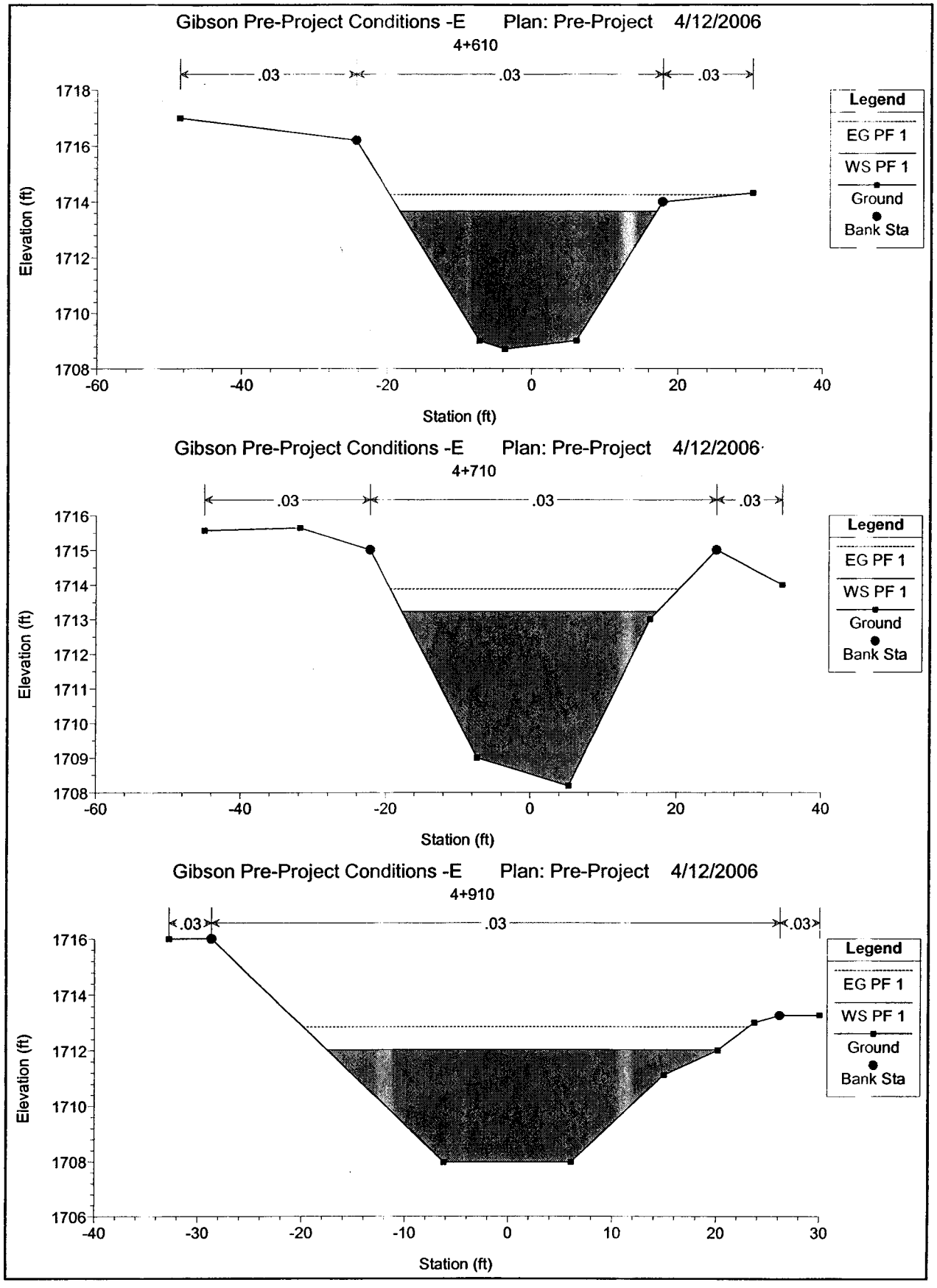
Profile Output Table - CHECKRAS

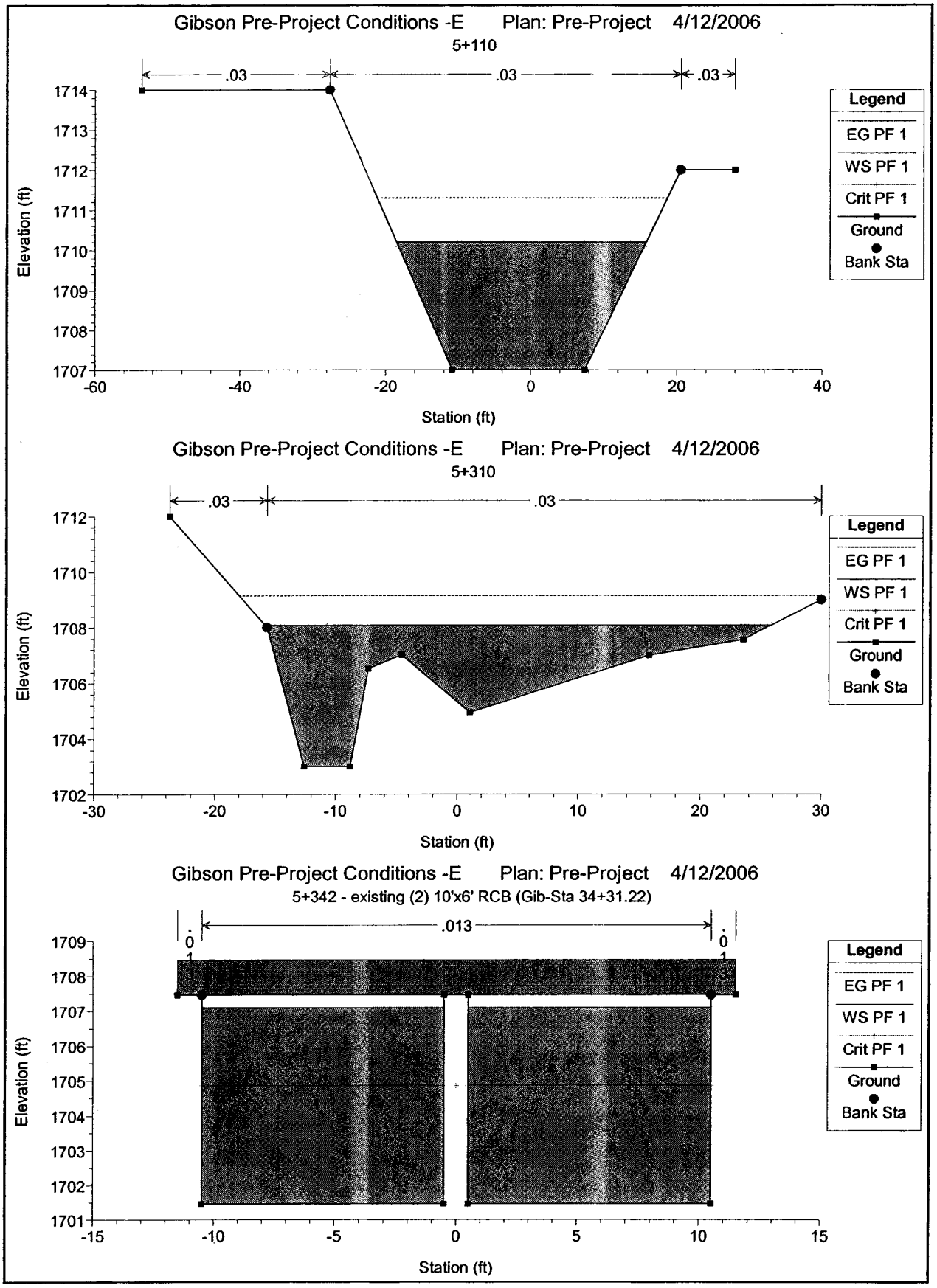
Reach	River Sta	Profile	Froude # Chl	Top Wdth Act	Conv. Total	Prof Delta WS	Left Sta Eff	Enc Sta L	Center Station	Enc Sta R	Rght Sta Eff
Min Ch El	Left Stagn	Right Stagn		(ft)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
	(ft)	(ft)									
exist	92	PF 1	1.14	26.95	6063.7		-55.65		-37.95		-28.70
1727.00											
exist	91	PF 1	1.21	28.01	5680.0		-20.24		-7.01		7.78
1727.00											
exist	90	PF 1	1.01	32.13	6917.8		-15.56		3.17		16.58
1725.92											
exist	89	PF 1	1.49	28.04	4552.7		-13.67		1.25		14.37
1723.91											
exist	88	PF 1	1.78	18.00	6915.8		-9.50		0.00		9.50
1722.20											
exist	87	PF 1	0.49	18.00	22216.7		-9.50		0.00		9.50
1707.91											
exist	86	PF 1	0.60	35.37	12128.4		-18.27		-3.21		17.11
1708.71											
exist	85	PF 1	0.65	35.12	11176.6		-17.79		1.63		17.39
1708.19											
exist	83	PF 1	0.80	37.77	8829.8		-17.53		-1.27		20.23
1707.97											
exist	81	PF 1	0.95	34.37	7427.0		-18.52		-3.54		15.84
1707.00											
exist	79	PF 1	1.02	41.70	6277.0		-15.84		7.17		25.86
1703.00											
exist	78	PF 1	0.47	20.00	24708.8		-10.50		0.00		10.50
1701.46											
exist	77	PF 1	0.37	23.00	18251.6		-11.50		0.00		11.50
1699.56											
exist	75	PF 1	1.00	25.30	6972.9		-10.59		4.70		14.72
1701.00											
exist	74	PF 1	1.40	27.24	4906.2		-10.79		1.55		16.46
1700.00											
exist	72	PF 1	0.85	30.47	8315.1		-11.82		5.15		18.65
1699.00											
exist	70	PF 1	1.00	26.83	6953.8		-12.74		-0.85		14.10
1696.62											
exist	68	PF 1	1.28	27.19	6177.2		-12.88		0.69		14.31
1694.16											
exist	66	PF 1	1.96	27.00	7279.6		-14.50		0.00		14.50
1693.76											
exist	65	PF 1	2.06	27.00	6937.4		-14.50		0.00		14.50
1688.41											
exist	64	PF 1	0.55	29.00	31666.3		-14.50		0.00		14.50
1688.41											
exist	63	PF 1	0.69	33.19	12011.4		-28.48		-14.60		4.71
1687.00											
exist	61	PF 1	1.00	54.53	7669.9		-43.42		-17.84		13.49
1687.00											
exist	59	PF 1	2.22	55.98	3178.0		-33.60		-5.70		22.38
1682.76											
exist	58	PF 1	0.79	66.85	9756.2		-39.12		-5.57		27.73
1682.00											
exist	57	PF 1	1.01	77.77	7406.1		-41.84		0.35		35.93
1681.02											
exist	55	PF 1	0.35	64.90	23011.1		-34.90		-2.45		30.00
1675.67											
exist	53	PF 1	1.00	32.67	7882.8		-20.41		-5.45		12.25
1676.43											
exist	52	PF 1	0.43	54.39	19668.7		-59.92		-26.25		-5.53
1672.00											
exist	50	PF 1	1.01	43.73	7860.6		-55.85		-30.30		-12.12
1672.00											
exist	48	PF 1	0.47	51.59	17610.4		-55.84		-28.15		-4.25
1670.00											
exist	46	PF 1	1.00	47.80	7830.8		-57.57		-33.90		-9.77
1670.00											
exist	44	PF 1	2.11	34.90	3553.7		-49.43		-30.65		-14.53
1664.00											
exist	42	PF 1	0.34	47.77	25256.4		-51.82		-29.60		-4.05
1658.00											
exist	40	PF 1	1.00	29.63	18433.7		-39.81		14.40		-10.18
1654.00											
exist	38	PF 1	2.07	53.74	8622.6		-40.13		-3.90		13.60
1650.30											
exist	36	PF 1	0.58	62.23	33905.0		-38.03		0.40		24.20
1650.00											
exist	34	PF 1	0.40	79.86	52011.9		-41.94		-9.20		37.92
1648.00											
exist	32	PF 1	0.45	88.83	62397.4		-33.59		25.35		55.24
1648.00											
exist	31	PF 1	0.52	87.54	54465.9		-274.80		-9.35		43.53

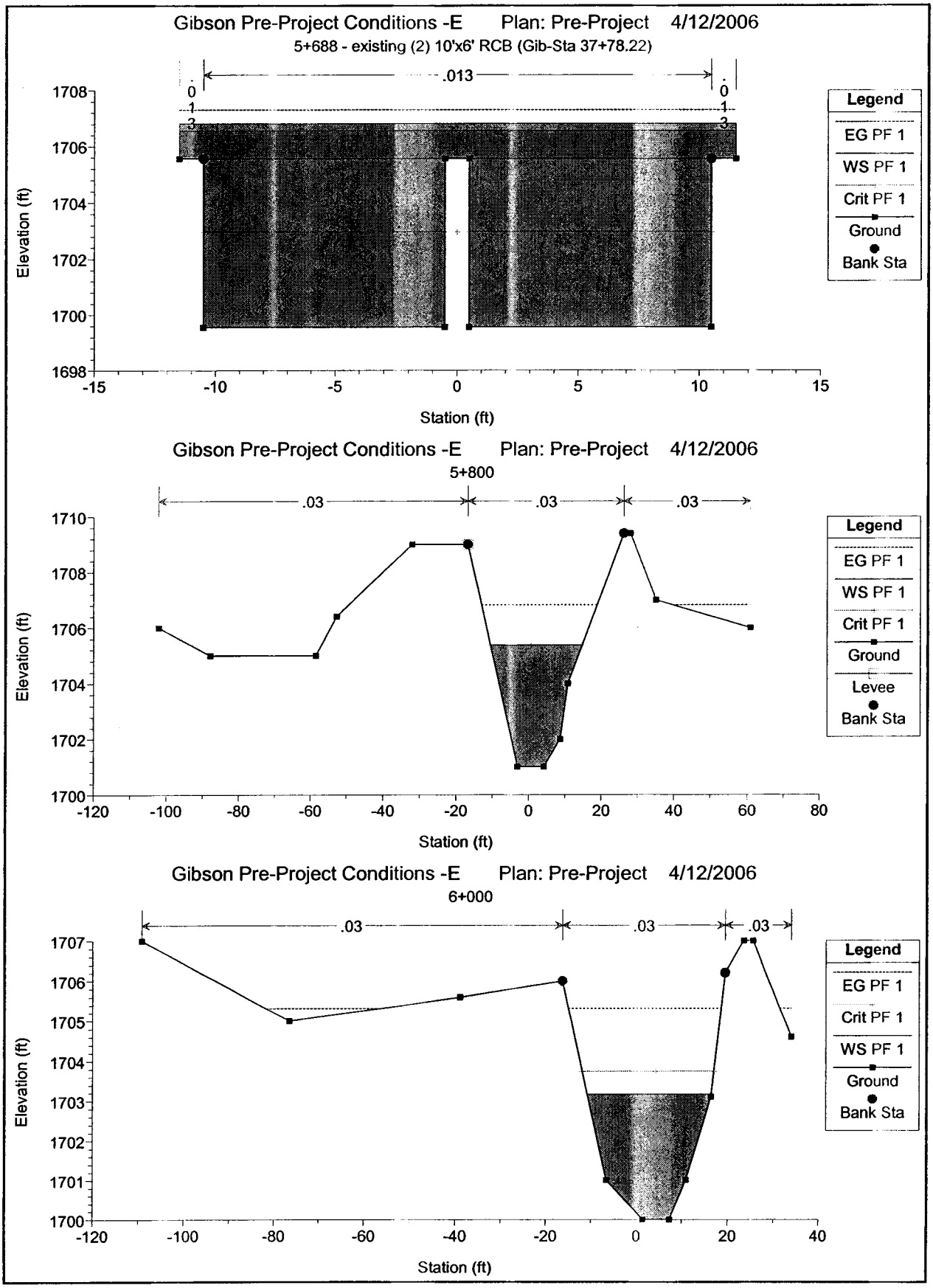
1648.00															
exist	30	PF 1	1.00	67.86	26919.9		-26.61		7.60		41.25
1648.00															
exist	28	PF 1	0.57	631.00	43895.1		-350.00		140.05		281.00
1648.00															
exist	26	PF 1	1.33	421.09	16340.2		-131.69		77.60		289.40
1648.30															
exist	24	PF 1	1.30	46.64	20858.9		-185.83		-179.85		-139.19
1638.00															
exist	22	PF 1	3.96	45.57	6147.6		-65.57		-35.05		-20.00
1622.00															
exist	21	PF 1	2.22	25.91	10770.3		-10.90		10.90		15.01
1614.00															
exist	19	PF 1	0.62	45.65	42432.0		-21.20		12.15		24.45
1614.10															
exist	17	PF 1	0.52	49.94	52542.0		-23.68		17.35		26.26
1614.00															
exist	15	PF 1	0.71	47.42	37426.9		-23.13		11.25		24.29
1614.00															
exist	13	PF 1	0.29	79.05	100112.9		-47.70		2.65		31.35
1614.00															
exist	11	PF 1	0.76	56.28	36850.5		-28.98		-0.50		27.30
1614.50															
exist	10	PF 1	0.75	54.33	37277.5		-26.29		-126.00		28.05
1614.00															
exist	09.78	PF 1	1.01	50.04	27279.5		-24.95		10.45		25.09
1614.00															

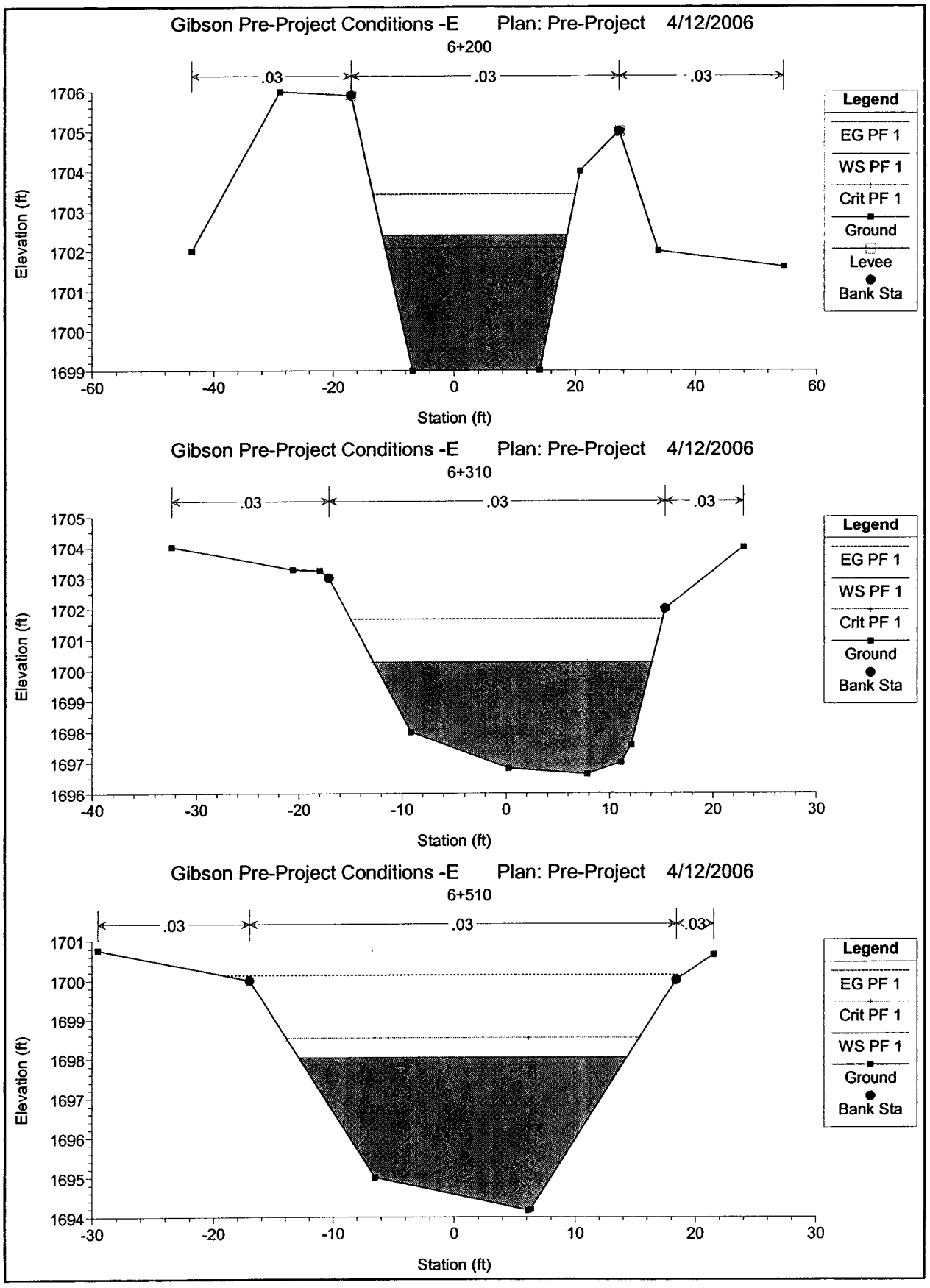

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
3+000
.03
.03
.03
Elevation (ft)
1736
1734
1732
1730
1728
1726
-300
-250
-200
-150
-100
-50
0
50
100
150
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
3+024
.03
.03
.03
Elevation (ft)
1734
1733
1732
1731
1730
1729
1728
1727
-40
-30
-20
-10
0
10
20
30
40
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
3+124
.03
.03
.03
Elevation (ft)
1733
1732
1731
1730
1729
1728
1727
1726
1725
-40
-20
0
20
40
60
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta

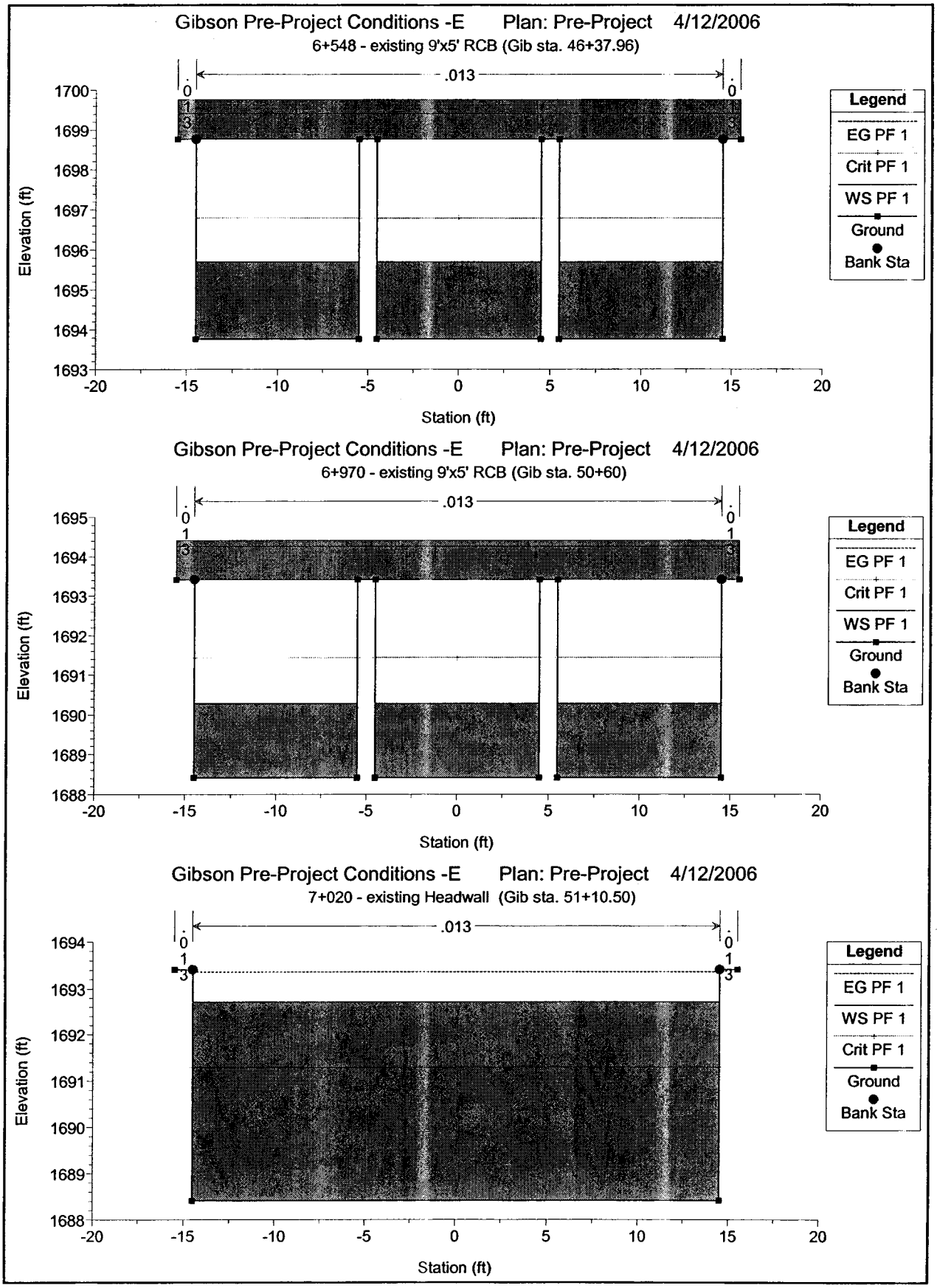

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
3+224
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
3+262 existing (2) 9'x6' RCB (Gib sta. 13+38.58)
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
4+505 existing (2) 9'x6' RCB (Gib sta. 26+17)
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

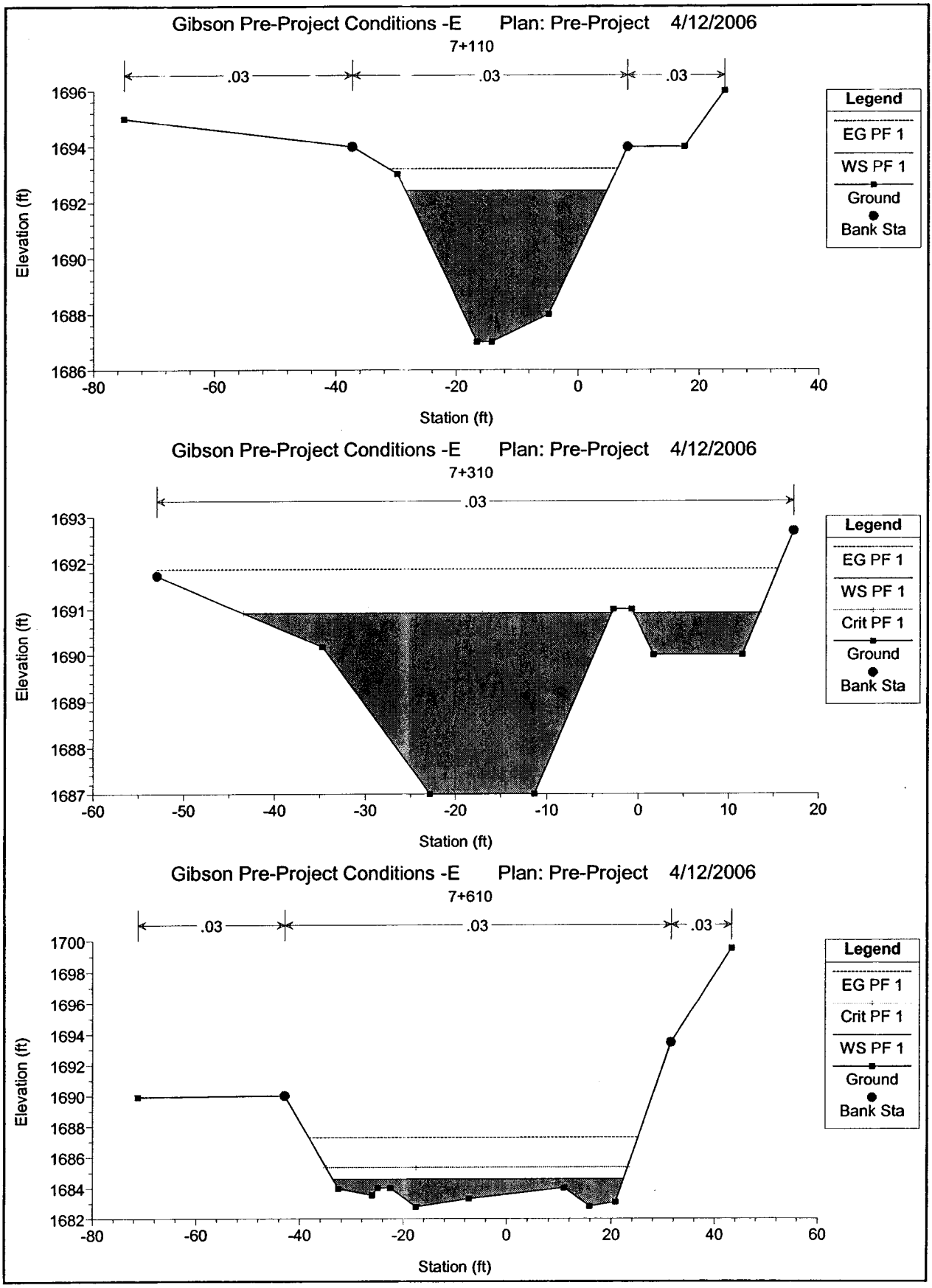

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
4+610
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
4+710
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
4+910
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

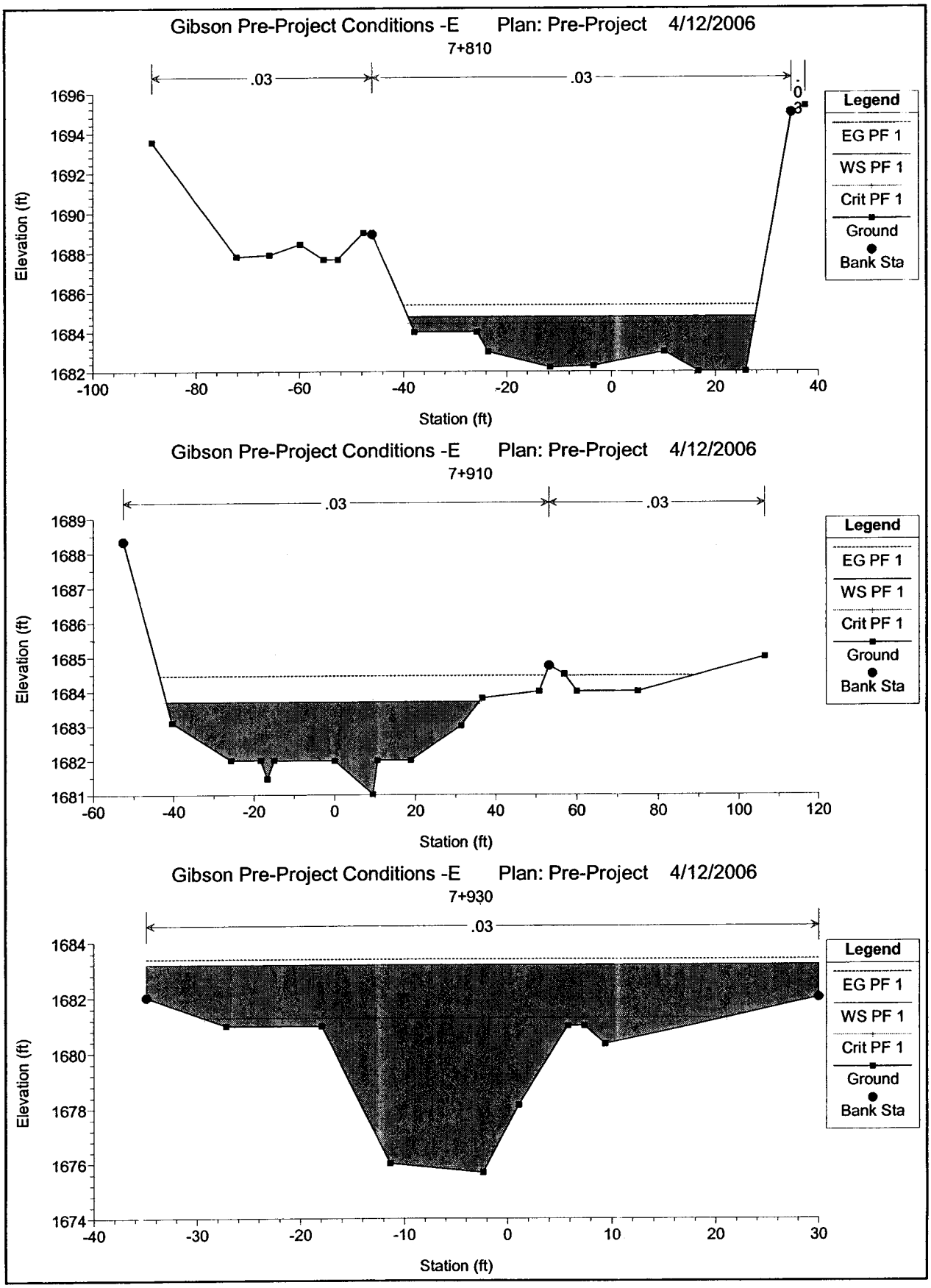

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
5+110
.03
.03
.03
Elevation (ft)
1714
1713
1712
1711
1710
1709
1708
1707
-60
-40
-20
0
20
40
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
5+310
.03
.03
Elevation (ft)
1712
1710
1708
1706
1704
1702
-30
-20
-10
0
10
20
30
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
5+342 - existing (2) 10'x6' RCB (Gib-Sta 34+31.22)
.013
0
0
Elevation (ft)
1709
1708
1707
1706
1705
1704
1703
1702
1701
-15
-10
-5
0
5
10
15
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta

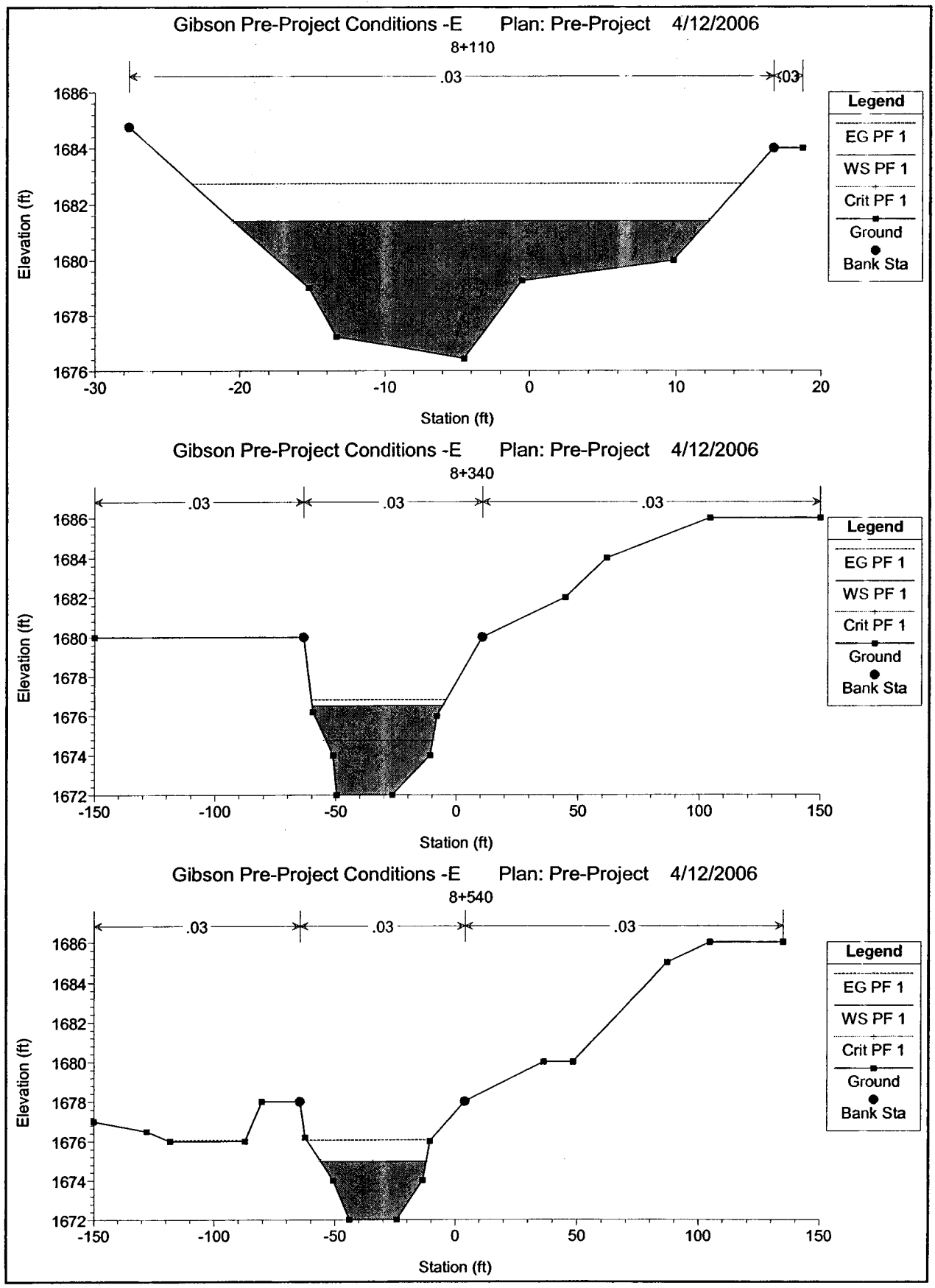

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
5+688 - existing (2) 10'x6' RCB (Gib-Sta 37+78.22)
.013
0
1
3
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
5+800
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
6+000
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

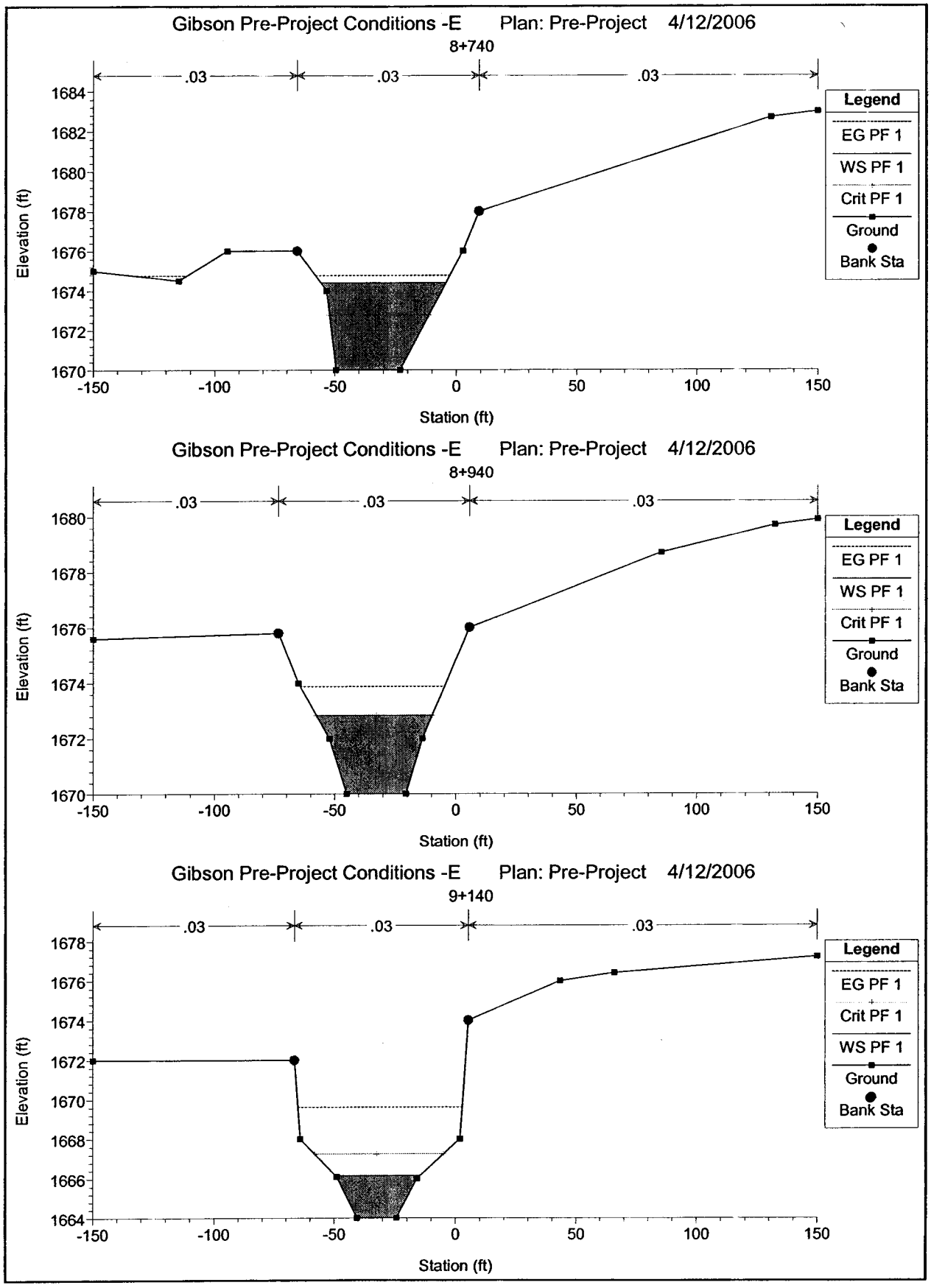

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
6+200
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
6+310
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
6+510
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

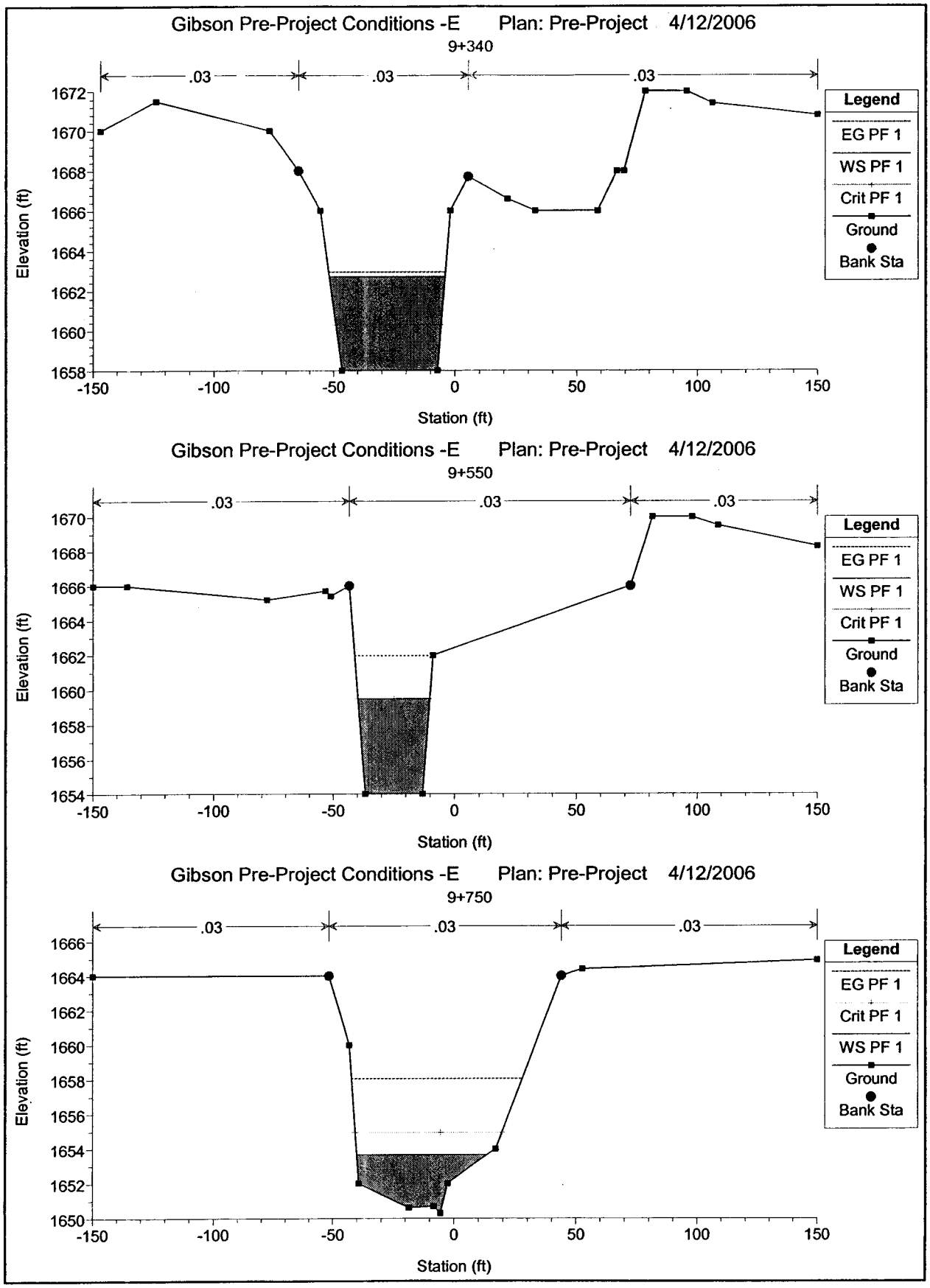

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
6+548 - existing 9'x5' RCB (Gib sta. 46+37.96)
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
6+970 - existing 9'x5' RCB (Gib sta. 50+60)
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
7+020 - existing Headwall (Gib sta. 51+10.50)
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

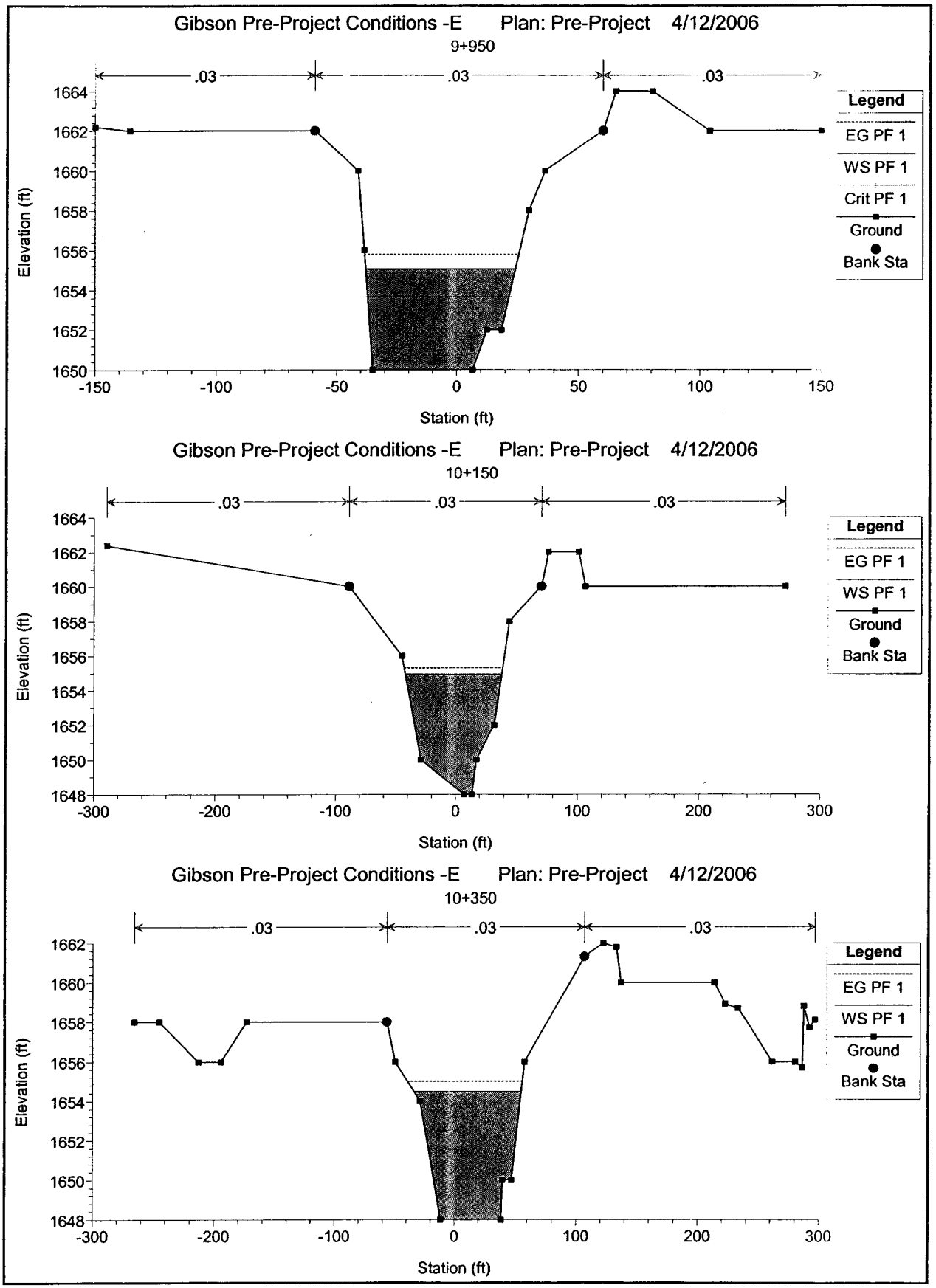

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
7+110
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
7+310
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
7+610
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

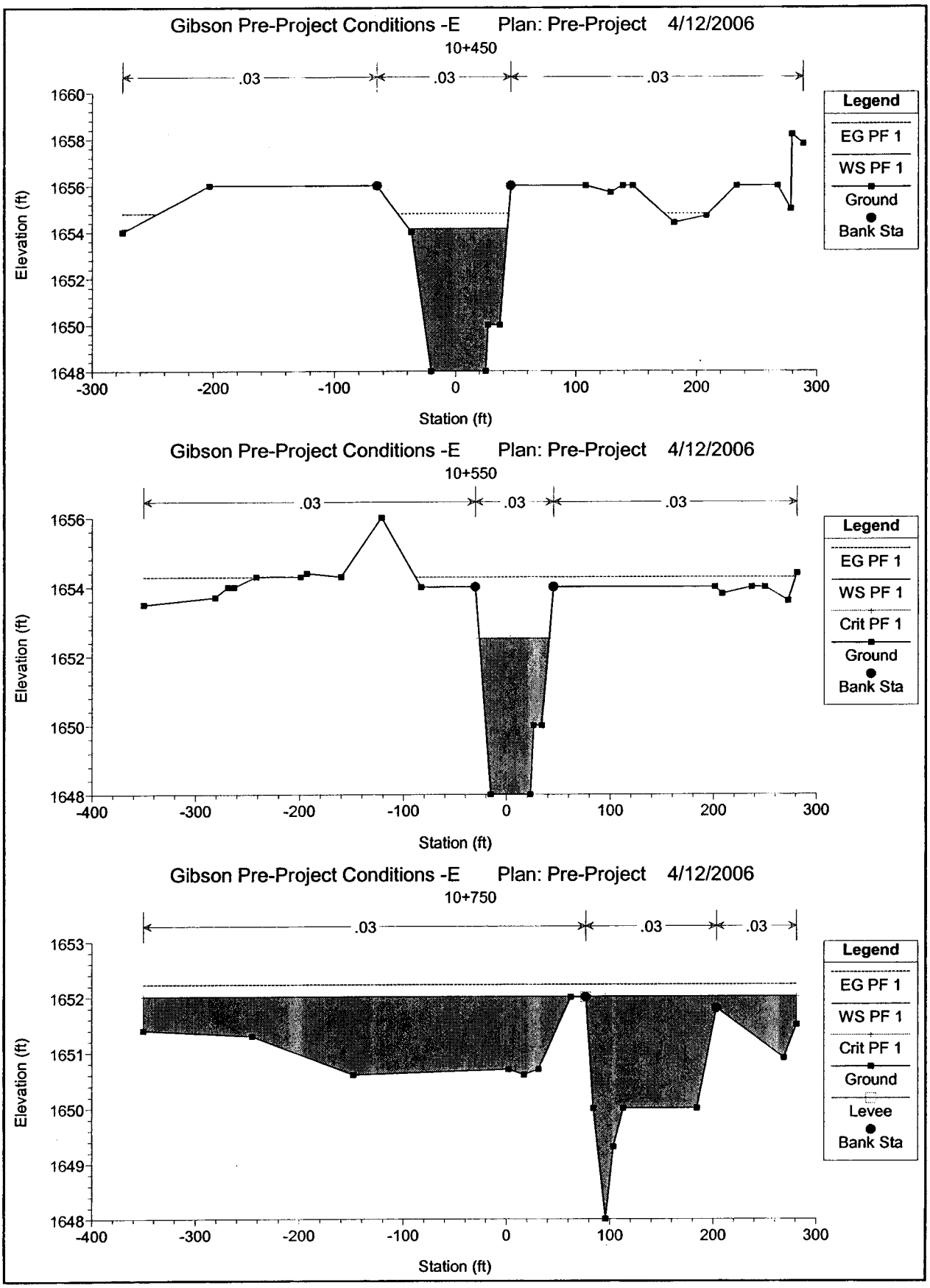

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
7+810
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
7+910
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
7+930
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

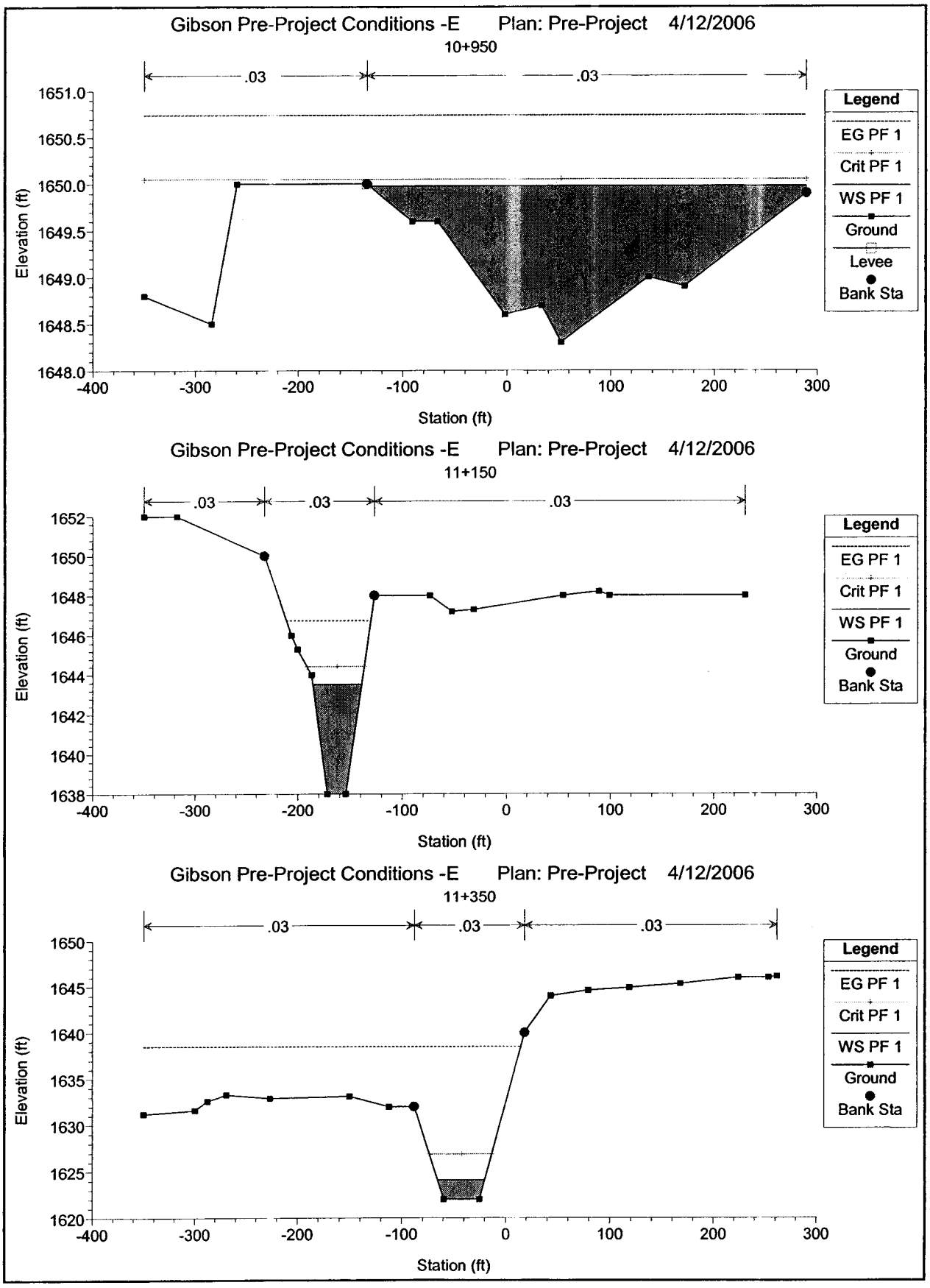

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
8+110
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
8+340
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
8+540
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

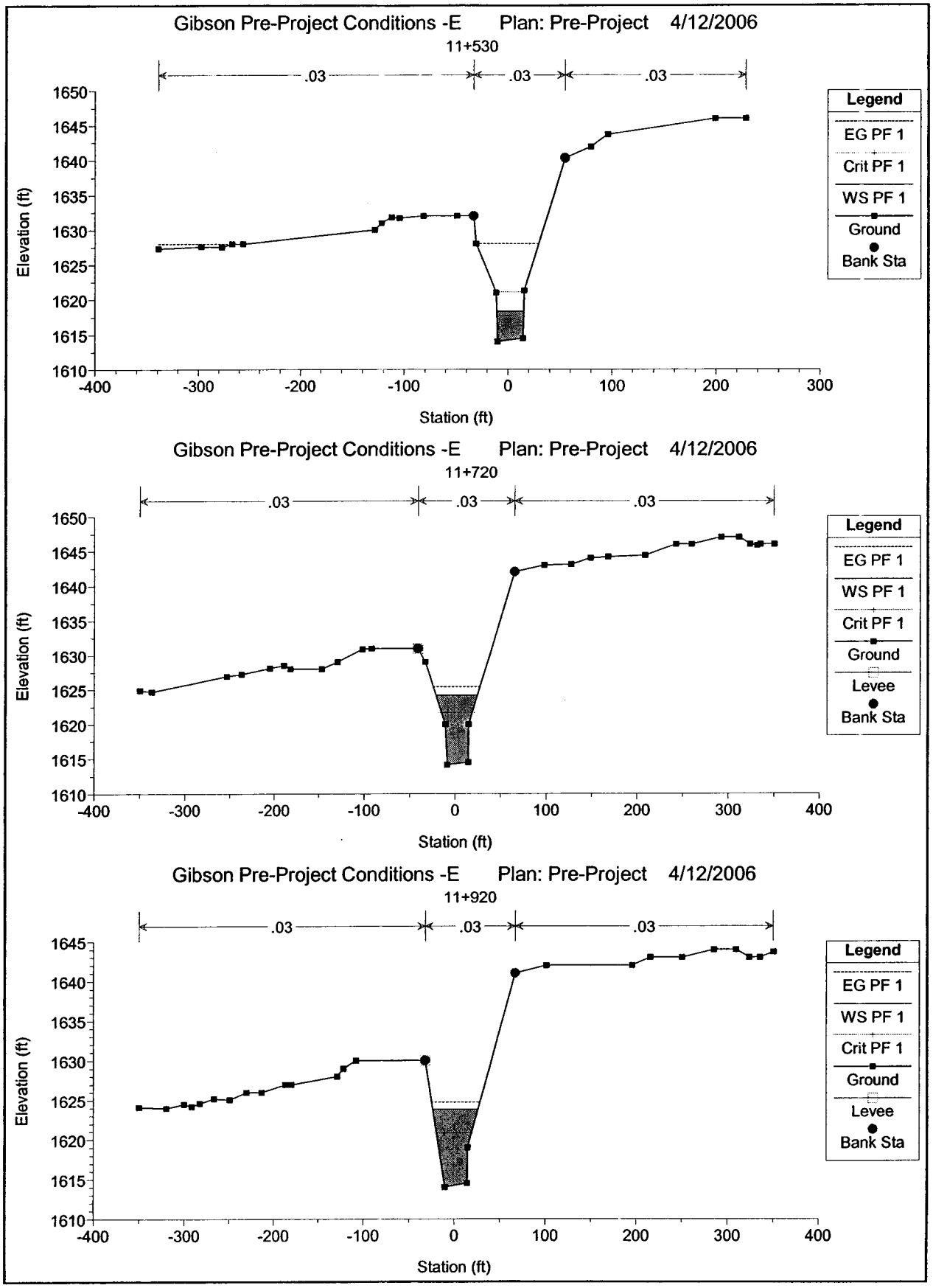

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
8+740
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
8+940
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
9+140
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

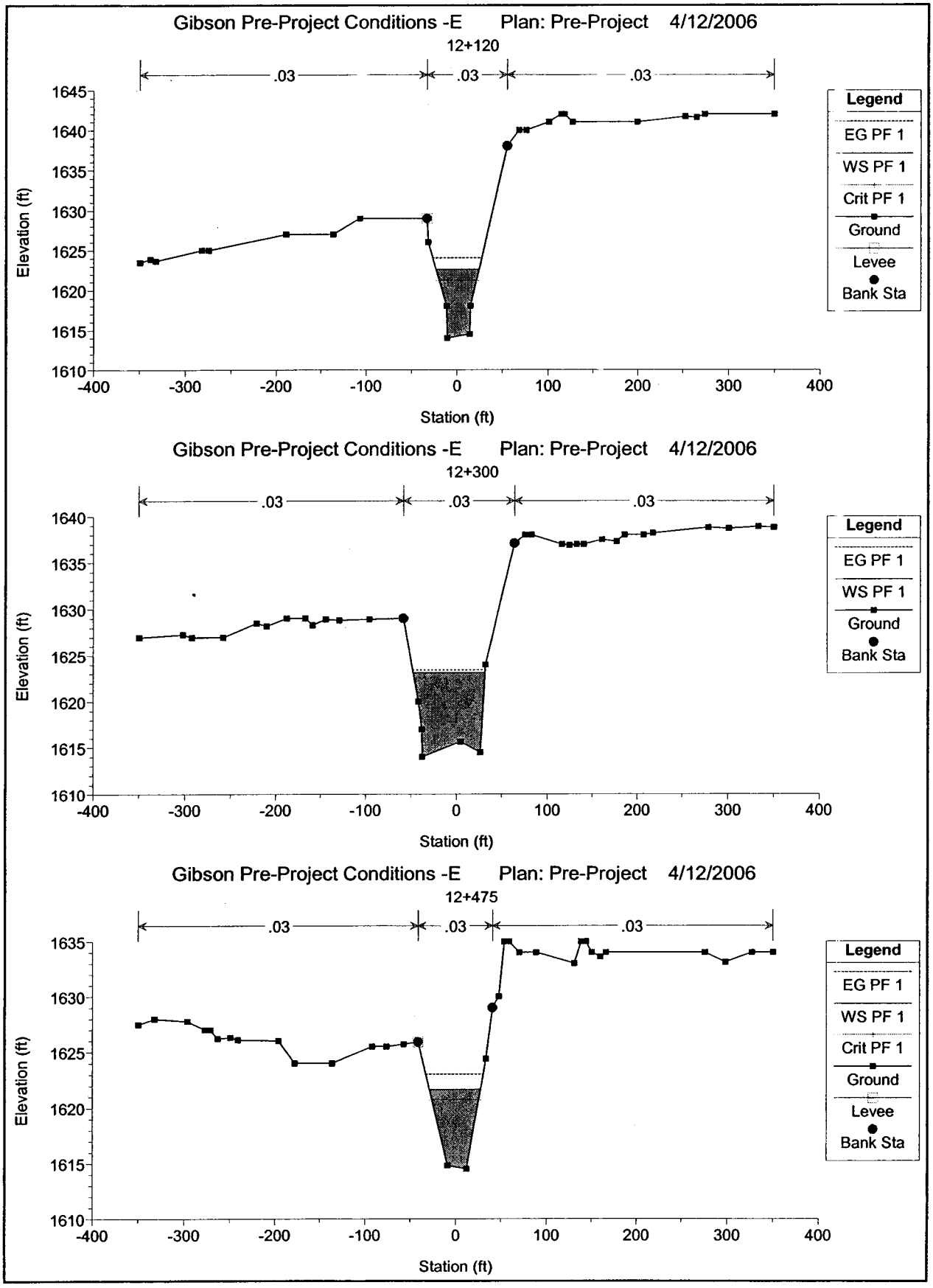

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
9+340
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
9+550
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
9+750
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

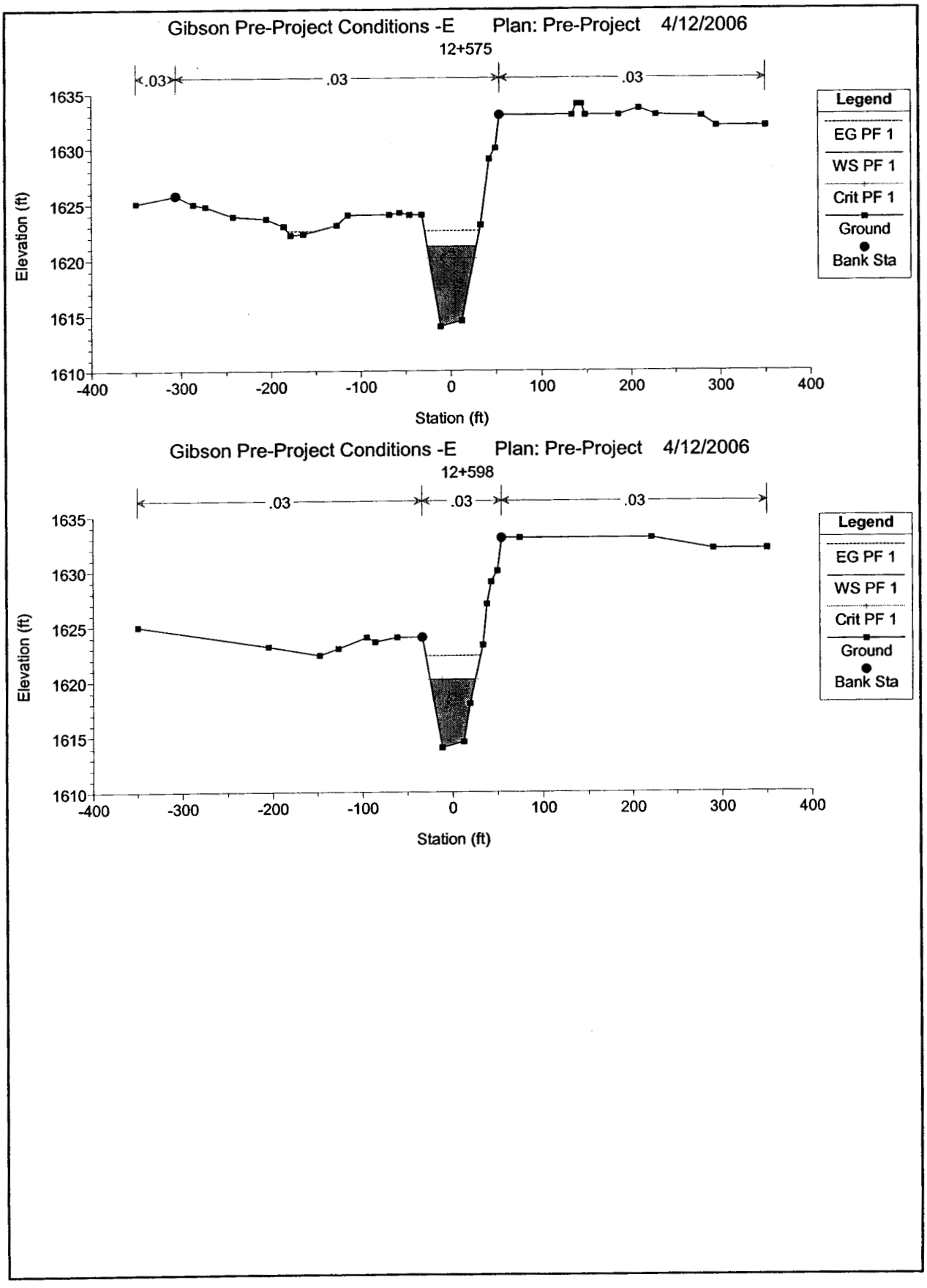

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
9+950
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
10+150
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
10+350
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

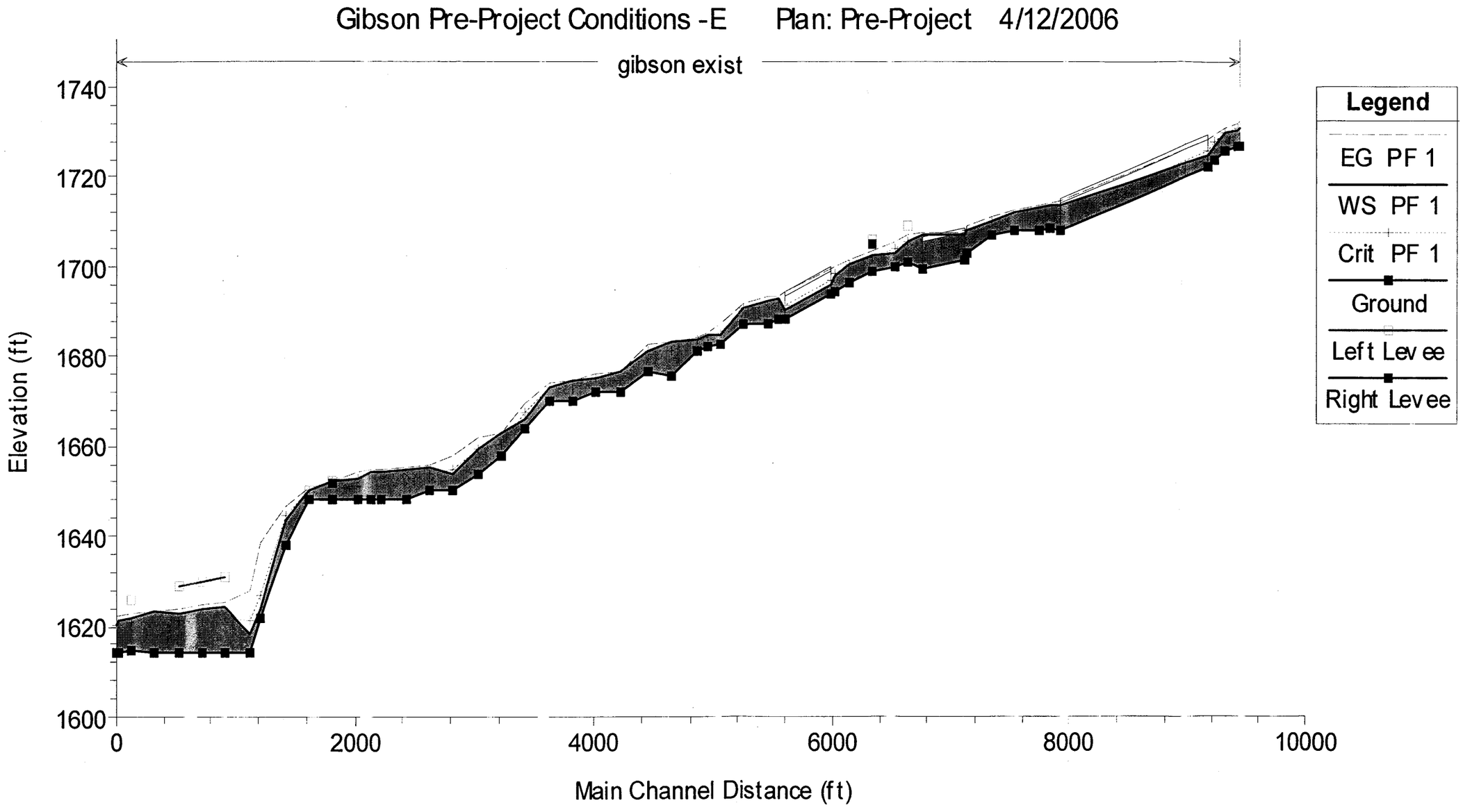

Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
10+450
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
10+550
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
10+750
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
10+950
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
11+150
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
11+350
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
11+530
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
11+720
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
11+920
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
12+120
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
12+300
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
12+475
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta


Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
12+575
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1635
1630
1625
1620
1615
1610
-400
-300
-200
-100
0
100
200
300
400
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
12+598
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1635
1630
1625
1620
1615
1610
-400
-300
-200
-100
0
100
200
300
400
Station (ft)


Gibson Pre-Project Conditions -E Plan: Pre-Project 4/12/2006
gibson exist
Elevation (ft)
1740
1720
1700
1680
1660
1640
1620
1600
0
2000
4000
6000
8000
10000
Main Channel Distance (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Left Levee
Right Levee

Gibson Channel : Pre-Project Conditions (Corrective/Effective)
HEC-RAS Plan: Pre River: gibson Reach: exist Profile: PF 1

Reach	HEC-RAS River Sta.	Cross Section Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Hydr Depth
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)
exist	92	3+000	PF 1	705	1727	1730.83	1731.09	1732.49	0.013518	10.32	68.33	26.95	1.14	2.54
exist	91	3+024	PF 1	705	1727	1730.39	1730.77	1732.14	0.015406	10.6	66.51	28.01	1.21	2.37
exist	90	3+124	PF 1	705	1725.92	1729.69	1729.69	1730.93	0.010386	8.95	78.73	32.13	1.01	2.45
exist	89	3+224	PF 1	705	1723.91	1727.03	1727.7	1729.32	0.02398	12.16	57.96	28.04	1.49	2.07
exist	88	3+262	PF 1	705	1722.2	1724.67	1725.84	1728.59	0.010392	15.89	44.37	18	1.78	2.46
exist	87	4+505	PF 1	705	1707.91	1713.72	1711.55	1714.42	0.001007	6.74	104.53	18	0.49	5.81
exist	86	4+610	PF 1	709	1708.71	1713.66		1714.25	0.003417	6.15	115.33	35.37	0.6	3.26
exist	85	4+710	PF 1	709	1708.19	1713.22		1713.87	0.004024	6.48	109.47	35.12	0.65	3.12
exist	83	4+910	PF 1	709	1707.97	1712.02		1712.85	0.006448	7.3	97.15	37.77	0.8	2.57
exist	81	5+110	PF 1	709	1707	1710.2	1710.09	1711.3	0.009113	8.4	84.36	34.37	0.95	2.45
exist	79	5+310	PF 1	709	1703	1708.08	1708.08	1709.15	0.012758	8.3	85.44	41.7	1.02	2.05
exist	78	5+340	PF 1	709	1701.46	1707.1	1704.86	1707.72	0.000823	6.28	112.86	20	0.47	5.64
exist	77	5+688	PF 1	709	1699.56	1706.81	1702.96	1707.3	0.001509	5.66	125.66	23	0.37	5.46
exist	75	5+800	PF 1	709	1701	1705.37	1705.37	1706.82	0.010339	9.66	73.4	25.3	1	2.9
exist	74	6+000	PF 1	709	1700	1703.16	1703.74	1705.32	0.020883	11.8	60.08	27.24	1.4	2.21
exist	72	6+200	PF 1	709	1699	1702.4	1702.07	1703.42	0.00727	8.13	87.19	30.47	0.85	2.86
exist	70	6+310	PF 1	709	1696.62	1700.27	1700.27	1701.66	0.010396	9.48	74.81	26.83	1	2.79
exist	68	6+510	PF 1	807	1694.16	1698.03	1698.53	1700.13	0.017068	11.63	69.37	27.19	1.28	2.55
exist	66	6+548	PF 1	807	1693.76	1695.69	1696.78	1699.41	0.012289	15.48	52.12	27	1.96	1.93
exist	65	6+970	PF 1	807	1688.41	1690.28	1691.43	1694.25	0.013532	16	50.44	27	2.06	1.87
exist	64	7+020	PF 1	807	1688.41	1692.71	1691.29	1693.36	0.000649	6.48	124.62	29	0.55	4.3
exist	63	7+110	PF 1	807	1687	1692.42		1693.22	0.004514	7.19	112.31	33.19	0.69	3.38
exist	61	7+310	PF 1	807	1687	1690.91	1690.91	1691.86	0.011071	7.81	103.26	54.53	1	1.89
exist	59	7+610	PF 1	807	1682.76	1684.57	1685.33	1687.26	0.064482	13.17	61.28	55.98	2.22	1.09
exist	58	7+810	PF 1	807	1682	1684.75	1684.44	1685.35	0.006842	6.24	129.35	66.85	0.79	1.93
exist	57	7+910	PF 1	807	1681.02	1683.69	1683.69	1684.45	0.011873	6.98	115.61	77.77	1.01	1.49
exist	55	7+930	PF 1	807	1675.67	1683.18	1681.28	1683.39	0.00123	3.69	218.86	64.9	0.35	3.37
exist	53	8+110	PF 1	807	1676.43	1681.4	1681.4	1682.73	0.010481	9.27	87.07	32.67	1	2.67
exist	52	8+340	PF 1	807	1672	1676.52	1674.77	1676.83	0.001683	4.43	182.14	54.39	0.43	3.35
exist	50	8+540	PF 1	807	1672	1674.95	1674.95	1676.06	0.01054	8.45	95.51	43.73	1.01	2.18
exist	48	8+740	PF 1	807	1670	1674.38	1672.78	1674.75	0.0021	4.83	167.03	51.59	0.47	3.24
exist	46	8+940	PF 1	807	1670	1672.83	1672.83	1673.87	0.01062	8.19	98.56	47.8	1	2.06
exist	44	9+140	PF 1	807	1664	1666.15	1667.24	1669.61	0.051567	14.92	54.09	34.9	2.11	1.55
exist	42	9+340	PF 1	807	1658	1662.69	1660.3	1662.93	0.001021	3.94	204.78	47.77	0.34	4.29
exist	40	9+550	PF 1	1850	1654	1659.5	1659.5	1661.97	0.010072	12.63	146.51	29.63	1	4.94
exist	38	9+750	PF 1	1850	1650.3	1653.66	1654.97	1658.05	0.046032	16.8	110.1	53.74	2.07	2.05
exist	36	9+950	PF 1	1850	1650	1655.05	1653.65	1655.79	0.002977	6.88	268.88	62.23	0.58	4.32
exist	34	10+150	PF 1	1850	1648	1654.94		1655.31	0.001265	4.88	378.91	79.86	0.4	4.74
exist	32	10+350	PF 1	2549	1648	1654.48		1655	0.001669	5.76	442.48	88.83	0.45	4.98
exist	31	10+450	PF 1	2549	1648	1654.15		1654.79	0.00219	6.44	395.96	87.54	0.52	4.52
exist	30	10+550	PF 1	2549	1648	1652.52	1652.52	1654.29	0.008966	10.66	239.04	67.86	1	3.52
exist	28	10+750	PF 1	2549	1648	1652.01	1652.01	1652.23	0.003372	4.57	743.03	631	0.57	1.18
exist	26	10+950	PF 1	2549	1648.3	1649.98	1650.05	1650.74	0.024335	7.01	363.77	421.09	1.33	0.86
exist	24	11+150	PF 1	2549	1638	1643.54	1644.43	1646.74	0.014933	14.35	177.65	46.64	1.3	3.81
exist	22	11+350	PF 1	2549	1622	1624.09	1626.85	1638.49	0.171923	30.46	83.69	45.57	3.96	1.84
exist	21	11+530	PF 1	2549	1614	1618.29	1621.1	1628	0.056012	25.01	101.93	25.91	2.22	3.93
exist	19	11+720	PF 1	2549	1614.1	1624.18	1621.7	1625.39	0.003609	8.83	288.78	45.65	0.62	6.33
exist	17	11+920	PF 1	2549	1614	1623.81	1620.81	1624.72	0.002354	7.68	332.02	49.94	0.52	6.65
exist	15	12+120	PF 1	2549	1614	1622.6	1621.17	1624.03	0.004638	9.59	265.78	47.42	0.71	5.6
exist	13	12+300	PF 1	2549	1614	1623.11		1623.42	0.000648	4.41	577.69	79.05	0.29	7.31
exist	11	12+475	PF 1	2549	1614.5	1621.65	1620.69	1623.03	0.004785	9.44	269.97	56.28	0.76	4.8
exist	10	12+575	PF 1	2549	1614	1621.16	1620.12	1622.56	0.004676	9.49	268.67	54.33	0.75	4.94
exist	9.78	12+598	PF 1	2549	1614	1620.16	1620.16	1622.34	0.008731	11.84	215.24	50.04	1.01	4.3

Note: HEC-RAS Sta. = Cross Section Sta
See Gibson CLOMR Pre Project-Conditions (Corrective/Effective Work Map) Figure 3.2 Appendix B

GIBSON CLOMR
PRE- PROJECT CONDITIONS: CHECK-RAS OUTPUT

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.prj
Plan File: C:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.p02
Geometry File: C:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.g01
low File: C:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.f01
eport File: C:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.nt
Selected profiles: PF 1
Date: 4/12/2006
Time: 5:06:57 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
gibson,exist						
92		0.03	0.03	0.03	0.1	0.3
91		0.03	0.03	0.03	0.1	0.3
90		0.03	0.03	0.03	0.1	0.3
89		0.03	0.03	0.03	0.1	0.3
88		0.013	0.013	0.013	0.1	0.3
87		0.013	0.013	0.013	0.1	0.3
86		0.03	0.03	0.03	0.1	0.3
85		0.03	0.03	0.03	0.1	0.3
83		0.03	0.03	0.03	0.1	0.3
81		0.03	0.03	0.03	0.1	0.3
79		0.03	0.03	0.03	0.1	0.3
78		0.013	0.013	0.013	0.1	0.3
77		0.013	0.013	0.013	0.1	0.3
75		0.03	0.03	0.03	0.1	0.3
74		0.03	0.03	0.03	0.1	0.3
72		0.03	0.03	0.03	0.1	0.3
70		0.03	0.03	0.03	0.1	0.3
68		0.03	0.03	0.03	0.1	0.3
66		0.013	0.013	0.013	0.1	0.3
65		0.013	0.013	0.013	0.1	0.3
64		0.013	0.013	0.013	0.1	0.3
63		0.03	0.03	0.03	0.1	0.3
61		-----	0.03	0.03	0.1	0.3
		-----	0.03	-----		
59		0.03	0.03	0.03	0.1	0.3
8		0.03	0.03	0.03	0.1	0.3
57		-----	0.03	0.03	0.1	0.3
		-----	0.03	-----		
55		-----	0.03	0.03	0.1	0.3
		-----	0.03	-----		
53		-----	0.03	0.03	0.1	0.3
		-----	0.03	-----		
52		0.03	0.03	0.03	0.1	0.3
50		0.03	0.03	0.03	0.1	0.3
48		0.03	0.03	0.03	0.1	0.3
46		0.03	0.03	0.03	0.1	0.3
44		0.03	0.03	0.03	0.1	0.3
42		0.03	0.03	0.03	0.1	0.3
40		0.03	0.03	0.03	0.1	0.3
38		0.03	0.03	0.03	0.1	0.3
36		0.03	0.03	0.03	0.1	0.3
34		0.03	0.03	0.03	0.1	0.3
32		0.03	0.03	0.03	0.1	0.3
31		0.03	0.03	0.03	0.1	0.3
30		0.03	0.03	0.03	0.1	0.3
28		0.03	0.03	0.03	0.1	0.3
26		0.03	0.03	0.03	0.1	0.3
24		0.03	0.03	0.03	0.1	0.3
22		0.03	0.03	0.03	0.1	0.3
21		0.03	0.03	0.03	0.1	0.3
19		0.03	0.03	0.03	0.1	0.3
17		0.03	0.03	0.03	0.1	0.3
15		0.03	0.03	0.03	0.1	0.3
13		0.03	0.03	0.03	0.1	0.3
11		0.03	0.03	0.03	0.1	0.3
10		0.03	0.03	0.03	0.1	0.3
9.78		0.03	0.03	0.03	0.1	0.3

-Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.013	0.03
Right Overbank n Value:	0.013	0.03
Channel n Value:	0.013	0.03
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

RS: 92
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 92
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 92
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 91
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 91
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 91
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 90
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 90
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 90
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 89
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 89
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 89
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 88
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 88
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 88
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 88
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

```
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      87
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       87
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      87
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      86
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      86
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      86
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      85
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      85
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      85
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      83
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      83
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      83
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      81
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      81
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      81
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      79
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS: 79
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 79
T RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 78
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 78
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 78
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 78
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 77
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 77
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

S: 77
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 77
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 75
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 75
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 75
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 74
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 74
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 74
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 72
NT RC 01 Left overbank n value is less than 0.035

The n value should be reevaluated.

RS: 72
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 72
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 70
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 70
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 70
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 68
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 68
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 68
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 66
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 66
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 66
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 66
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 65
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 65
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 65
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 65
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 64

```
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      64
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      64
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      64
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      63
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      63
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      63
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      61
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      59
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      59
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      59
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      58
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      58
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      58
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      57
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      55
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      53
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
```

RS: 52
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 52
T RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 52
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 50
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 50
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 50
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 48
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 48
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

S: 48
RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 46
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 46
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 46
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 44
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 44
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 44
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

: 42
RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 42
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 42
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 40
T RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 40
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 40
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 38
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 38
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 38
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 36
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

S: 36
RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 36
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 34
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 34
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 34
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 32
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 32
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

: 32
RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 31
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 31
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 31
T RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 30
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 30
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 30
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 28
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 28
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 28
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 26
RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 26
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 26
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 24
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 24
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 24
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 22
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

: 22
RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 22
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

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RS:       21
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       21
 T RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       21
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       19
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       19
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       19
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       17
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       17
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

 S:       17
   RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       15
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       15
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       15
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       13
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

  :       11
 ' RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:       11
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       10
 T RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       10
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       10
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.prj
Plan File: C:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.p02
Geometry File: C:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.g01
Flow File: C:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.f01
Report File: C:\Documents and Settings\ryant\Desktop\CD\Pre Project Conditions\GIB_PRE.xs
Selected profiles: PF 1
Date: 4/12/2006
Time: 5:07:10 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
gibson,exist						
92	24	24	24	26.95	705	
91	100	100	100	28.01	705	
90	100	100	100	32.13	705	C
89	38	38	38	28.04	705	
88	1258.42	1258.42	1258.42	18	705	D
87	83	83	83	18	705	D
86	100	100	100	35.37	709	
85	200	200	200	35.12	709	
83	200	200	200	37.77	709	
81	200	200	200	34.37	709	
79	31.32	31.32	31.32	41.7	709	C
78	347	347	347	20	709	D
77	122	122	122	23	709	E
75	100	100	100	25.3	709	C
74	200	200	200	27.24	709	
72	200	200	200	30.47	709	E
70	110	110	110	26.83	709	C
68	38	38	38	27.19	807	
66	374.89	398.39	421.9	27	807	D
65	50.5	50.5	50.5	27	807	D
64	89	89	89	29	807	
63	200	200	200	33.19	807	
61	200	200	200	54.53	807	D,C
59	100	100	100	55.98	807	
[illegible]	100	100	100	66.85	807	
57	200	200	200	77.77	807	C
55	200	200	200	64.9	807	E
53	230	230	230	32.67	807	C
52	200	200	200	54.39	807	
50	200	200	200	43.73	807	C
48	200	200	200	51.59	807	
46	200	200	200	47.8	807	C
44	200	200	200	34.9	807	
42	200	200	200	47.77	807	
40	200	200	200	29.63	1850	C
38	200	200	200	53.74	1850	
36	200	200	200	62.23	1850	
34	200	200	200	79.86	1850	
32	100	100	100	88.83	2549	
31	100	100	100	87.54	2549	D,E
30	200	200	200	67.86	2549	C
28	200	200	200	631	2549	E,C
26	200	200	200	421.09	2549	E
24	200	200	200	46.64	2549	
22	100	100	100	45.57	2549	
21	200	200	200	25.91	2549	
19	200	200	200	45.65	2549	
17	200	200	200	49.94	2549	
15	200	200	200	47.42	2549	
13	200	200	200	79.05	2549	
11	100	100	100	56.28	2549	
10	22	22	22	54.33	2549	
9.78	0	0	0	50.04	2549	C

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
[illegible]known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

RS: 75
S IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 72
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 72
XS IF 01 Right Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 28
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 28
XS IF 01 Right Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 26
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 19
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 17
IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 15
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 11
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

DISCHARGE CHECK

LOCATION CHECK

RS: 55
XS LC 01 Lenchl Up/TopwdthAct Dn = 6.12
MaxChlDpth Up/MaxChlDpth Dn = 1.51
TopwdthAct Up/TopwdthAct Dn = 1.99
This cross section is located too far upstream from the
critical depth cross section.

RS: 52
XS LC 01 Lenchl Up/TopwdthAct Dn = 4.57
MaxChlDpth Up/MaxChlDpth Dn = 1.53
TopwdthAct Up/TopwdthAct Dn = 1.24
This cross section is located too far upstream from the
critical depth cross section.

RS: 31
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.47
MaxChlDpth Up/MaxChlDpth Dn = 1.36
TopwdthAct Up/TopwdthAct Dn = 1.29
This cross section is located too far upstream from the
critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is gibson,exist
Critical is specified as the downstream boundary
for profile PF 1

; BC 02 The name of the stream is gibson,exist
Normal S = 0.0135 is specified as the upstream boundary
for profile PF 1

XS BC 03 Maximum number of iterations is 0
It should not be less than 20.

XS FR 02 The profile is computed as mixed flow regime.

LATERAL WEIRS CHECK

---END---

GIBSON CLOMR
POST- PROJECT CONDITIONS: HEC-RAS OUTPUT
postproject.prj

Gibson Channel : Pre-Project Conditions
Stationing Quick Reference for use w/ HEC-RAS Post-Project Conditions

Note: HEC-RAS Sta. = Cross Section Sta
See Gibson CLOMR Post-Project Conditions (Post Project Work Map) Figure 3.3 Appendix B

NEW HEC-RAS River Sta.	Cross Section Sta	DESCRIPTION OF FACILITY	Channel
18653.05	2+957	Gibson Channel per VTN Plans 10+00	North Channel
18603.05	3+007	Gibson Channel per VTN Plans 10+50	North Channel
18354.06	3+256	Gibson Channel per VTN Plans 12+98.99	North Channel
18314.47	3+296	Gibson Channel per VTN Plans 13+38.58	North Channel
17036.02	4+574	Gibson Channel per VTN Plans 26+17.03	North Channel
16991.39	4+624	Gibson Channel per VTN Plans 26+67.03	North Channel
16271.91	5+338	Gibson Channel per VTN Plans 33+81.14	North Channel
16221.83	5+388	Gibson Channel per VTN Plans 34+31.22	North Channel
15874.83	5+735	Gibson Channel per VTN Plans 37+78.22	North Channel
15824.82	5+785	Gibson Channel per VTN Plans 38+28.23	North Channel
15635.6	5+974	Gibson Channel per VTN Plans 40+17.45	North Channel
15080.09	6+530	Gibson Channel per VTN Plans 45+72.94	North Channel
15015.09	6+595	Gibson Channel per VTN Plans 46+37.97	North Channel
14592.55	7+017	Gibson Channel per VTN Plans 50+60	North Channel
14542.55	7+068	Gibson Channel per VTN Plans 51+10.50	North Channel
14252.5	7+358	Gibson Channel per VTN Plans 54+00.55	North Channel
14092.97	7+517	Gibson Channel per VTN Plans 55+60.08 - End Gibson CH	North Channel
13987.91	7+622	Desert Canyon per STANTEC Plans RS 3987.91	North Channel
13887.91	7+722	Desert Canyon per STANTEC Plans RS 3887.91	North Channel
13787.91	7+822	Desert Canyon per STANTEC Plans RS 3787.91	North Channel
13687.91	7+922	Desert Canyon per STANTEC Plans RS 3687.91	North Channel
13602.91	8+007	Desert Canyon per STANTEC Plans RS 3602.91, begin transition	North Channel
13582.54	8+027	Desert Canyon per STANTEC Plans -	North Channel
13562.17	8+048	Desert Canyon per STANTEC Plans RS 3562.17, end transition	North Channel
13562.16	8+048	Desert Canyon per STANTEC Plans RS 3562.16, RCB inlet	North Channel
13557.18	8+053	Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic analyisis only)	North Channel
13552.2	8+058	Desert Canyon per STANTEC Plans RS 3552.2, begin existing south cell box	North Channel
13478.79	8+131	Desert Canyon per STANTEC Plans RS 3478.79, end existing south cell box	North Channel
13476.6	8+133	Desert Canyon per STANTEC Plans RS 3474.46, RCB PT	North Channel
13425.61	8+184	Desert Canyon per STANTEC Plans RS 3425.61, RCB PC	North Channel
13410.61	8+199	Desert Canyon per STANTEC Plans RS 3410.61, RCB PT	North Channel
13353.48	8+256	Desert Canyon per STANTEC Plans RS 3353.48, RCB PC	North Channel
13343.61	8+266	Desert Canyon per STANTEC Plans RS 3343.61, Dual 12'x6' RCB outlet	North Channel
13343.6	8+266	Desert Canyon per STANTEC Plans RS 3343.6, upstream limit of openspace channel	North Channel
13333.3	8+277	Desert Canyon per STANTEC Plans -	North Channel
13323	8+287	Desert Canyon per STANTEC Plans RS 3323, begin 50' channel	North Channel
13307.38	8+303	Desert Canyon per STANTEC Plans -	North Channel
13291.77	8+318	Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance road channel tie in	North Channel
13267.98	8+342	Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance road channel tie in	North Channel
13244.2	8+366	Desert Canyon per STANTEC Plans RS 3244.2	North Channel
13234.75	8+375	Desert Canyon per STANTEC Plans RS 3234.75, end transition	North Channel
13234.74	8+375	Desert Canyon per STANTEC Plans RS 3234.74, end transition	North Channel
13229.38	8+381	Desert Canyon per STANTEC Plans RS 3229.38, Upstream of south ramp entrance	North Channel
13229.37	8+381	Desert Canyon per STANTEC Plans RS 3229.37, South ramp entrance	North Channel
13221.37	8+389	Desert Canyon per STANTEC Plans RS 3221.37, begin south ramp transition	North Channel
13167.84	8+442	Desert Canyon per STANTEC Plans -	North Channel
13114.31	8+496	Desert Canyon per STANTEC Plans RS 3114.31, begin south wall of south ramp	North Channel
13114.3	8+496	Desert Canyon per STANTEC Plans RS 3114.3, begin south wall of south ramp	North Channel
13060.1	8+550	Desert Canyon per STANTEC Plans RS 3060.10	North Channel
13044.11	8+566	Desert Canyon per STANTEC Plans RS 3044.11, upstream north ramp entrance	North Channel
13044.1	8+566	Desert Canyon per STANTEC Plans RS 3033.34, North ramp grade break	North Channel
13018.22	8+592	Desert Canyon per STANTEC Plans RS 3018.22, south ramp tie in	North Channel
13018.21	8+592	Desert Canyon per STANTEC Plans RS 3018.21, south ramp tie in	North Channel
13010.22	8+600	Desert Canyon per STANTEC Plans RS 3010.22, south ramp tie in	North Channel
13010.21	8+600	Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in	North Channel
12954.02	8+656	Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in	North Channel
12943.65	8+666	Desert Canyon per STANTEC Plans RS 2943.65, begin north wall north ramp	North Channel
12906.81	8+703	Desert Canyon per STANTEC Plans -	North Channel
12869.97	8+740	Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall	North Channel
12869.96	8+740	Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall	North Channel
12829.26	8+781	Desert Canyon per STANTEC Plans -	North Channel
12788.55	8+821	Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in	North Channel
12788.54	8+821	Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in	North Channel
12780.55	8+829	Desert Canyon per STANTEC Plans RS 2780.55, north ramp tie in	North Channel
12780.54	8+829	Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in	North Channel
12724.23	8+886	Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in	North Channel
12667.92	8+942	Desert Canyon per STANTEC Plans RS 2667.92, end north ramp wall	North Channel
12667.91	8+942	Desert Canyon per STANTEC Plans RS 2667.91, end north ramp wall	North Channel
12598.93	9+011	Desert Canyon per STANTEC Plans -	North Channel
12529.94	9+080	Desert Canyon per STANTEC Plans RS 2529.94, Begin Transition	North Channel
12499.95	9+110	Desert Canyon per STANTEC Plans RS 2499.93, end transition, begin 30' turn around pad	North Channel
12499.94	9+110	Desert Canyon per STANTEC Plans RS 2499.94, end transition, begin 30' turn around pad	North Channel
12469.94	9+140	Desert Canyon per STANTEC Plans RS 2469.94, top of nuissance drain headwall, end turn around pad	North Channel
12469.93	9+140	Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance channel, begin nuissance	North Channel
12435.49	9+174	Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance channel, begin nuissance	North Channel

12401.05	9+209	Desert Canyon per STANTEC Plans RS 2401.05, nuissance channel GB, end nuissance channel transition	North Channel
12400	9+210	Desert Canyon per STANTEC Plans RS 2400	North Channel
12350	9+260	Desert Canyon per STANTEC Plans RS 2350	North Channel
12320	9+290	Desert Canyon per STANTEC Plans RS 2320	North Channel
12312.18	9+298	Desert Canyon per STANTEC Plans RS 2312.18, upstream Eastgate Bridge face	North Channel
12312.17	9+298	Desert Canyon per STANTEC Plans RS 2312.17, begin abutments	North Channel
12278.95	9+331	Desert Canyon per STANTEC Plans RS 2278.95	North Channel
12253.91	9+356	Desert Canyon per STANTEC Plans RS 2253.91, south abutment bend	North Channel
12217.72	9+392	Desert Canyon per STANTEC Plans RS 2217.72, downstream Eastgate Bridge	North Channel
12203.57	9+406	Desert Canyon per STANTEC Plans RS 2203.57, begin half trapezoidal channel	North Channel
12162.19	9+448	Desert Canyon per STANTEC Plans RS 2162.19, end transition & bend	North Channel
12150	9+460	Desert Canyon per STANTEC Plans RS 2150, end 3:1 left side slope	North Channel
12125	9+485	Desert Canyon per STANTEC Plans RS 2125, begin 2:1 left side slope	North Channel
12097.31	9+513	Desert Canyon per STANTEC Plans RS 2097.31, upstream face Easter Lily	North Channel
12097.3	9+513	Desert Canyon per STANTEC Plans RS 2097.30, begin abutment	North Channel
12033.7	9+576	Desert Canyon per STANTEC Plans RS 2033.7, end abutment	North Channel
12033.69	9+576	Desert Canyon per STANTEC Plans RS 2033.69, end Easter Lily bridge	North Channel
12000	9+610	Desert Canyon per STANTEC Plans RS 2000	North Channel
11924.18	9+686	Desert Canyon per STANTEC Plans RS 1924.18, Pioneer Outfall 12'x8' RCB Outlet (South Channel)	North Channel
11911.68	9+698	Desert Canyon per STANTEC Plans -	North Channel
11899.18	9+711	Desert Canyon per STANTEC Plans -	North Channel
11886.68	9+723	Desert Canyon per STANTEC Plans -	North Channel
11874.18	9+736	Desert Canyon per STANTEC Plans RS 1874.18, end south channel nuissance channel transition	North Channel
11851.12	9+759	Desert Canyon per STANTEC Plans -	North Channel
11828.06	9+782	Desert Canyon per STANTEC Plans	North Channel
11826.06	9+784	Desert Canyon per STANTEC Plans -	North Channel
11805	9+805	Desert Canyon per STANTEC Plans RS 1805, reach end	North Channel
11800	9+810	Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin	Combined Channel
11799.99	9+810	Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin	Combined Channel
11790	9+820	Desert Canyon per STANTEC Plans RS 1790	Combined Channel
11769.13	9+841	Desert Canyon per STANTEC Plans RS 1769.13	Combined Channel
11751.44	9+859	Desert Canyon per STANTEC Plans RS 1751.44	Combined Channel
11739.7	9+870	Desert Canyon per STANTEC Plans RS 1739.7, begin nuissance channel merge	Combined Channel
11732.13	9+878	Desert Canyon per STANTEC Plans RS 1732.13	Combined Channel
11720	9+890	Desert Canyon per STANTEC Plans RS 1720, end transition	Combined Channel
11712.87	9+897	Desert Canyon per STANTEC Plans RS 1712.87, end nuissance channel merge	Combined Channel
11689.21	9+921	Desert Canyon per STANTEC Plans RS 1689.21	Combined Channel
11675	9+935	Desert Canyon per STANTEC Plans RS 1675	Combined Channel
11634.34	9+976	Desert Canyon per STANTEC Plans 1634.34, begin left channel wall transition	Combined Channel
11624.05	9+986	Desert Canyon per STANTEC Plans RS 1624.05, end left side slope	Combined Channel
11618.85	9+991	Desert Canyon per STANTEC Plans RS 1618.85, end left channel wall transition	Combined Channel
11596.34	10+014	Desert Canyon per STANTEC Plans RS 1596.34, begin left side slope transition	Combined Channel
11527.17	10+083	Desert Canyon per STANTEC Plans RS 1527.17, end left slope transition, end left retaining wall	Combined Channel
11500	10+110	Desert Canyon per STANTEC Plans RS 1500	Combined Channel
11450	10+160	Desert Canyon per STANTEC Plans RS 1450	Combined Channel
11400	10+210	Desert Canyon per STANTEC Plans RS 1400	Combined Channel
11377.99	10+232	Desert Canyon per STANTEC Plans RS 1377.99, begin compound curve	Combined Channel
11350	10+260	Desert Canyon per STANTEC Plans RS 1350	Combined Channel
11300	10+310	Desert Canyon per STANTEC Plans RS 1300	Combined Channel
11278.76	10+331	Desert Canyon per STANTEC Plans RS 1278.76, compound curve midpoint	Combined Channel
11250	10+360	Desert Canyon per STANTEC Plans RS 1250	Combined Channel
11200	10+410	Desert Canyon per STANTEC Plans RS 1200	Combined Channel
11175.26	10+435	Desert Canyon per STANTEC Plans RS 1175.26	Combined Channel
11154.55	10+455	Desert Canyon per STANTEC Plans RS 1154.55, end compound curve	Combined Channel
11125	10+485	Desert Canyon per STANTEC Plans RS 1125, begin right channel wall	Combined Channel
11116.35	10+494	Desert Canyon per STANTEC Plans RS 1116.35, begin channel transition	Combined Channel
11100	10+510	Desert Canyon per STANTEC Plans RS 1100,	Combined Channel
11050	10+560	Desert Canyon per STANTEC Plans RS 1050	Combined Channel
11033.37	10+577	Desert Canyon per STANTEC Plans RS 1033.37, begin left channel wall	Combined Channel
11007.4	10+603	Desert Canyon per STANTEC Plans RS 1007.4, begin nuissance channel transition	Combined Channel
10973.86	10+636	Desert Canyon per STANTEC Plans RS 973.86, begin rectangular channel	Combined Channel
10950.26	10+660	Desert Canyon per STANTEC Plans RS 950.26, end nuissance channel	Combined Channel
10909.89	10+700	Desert Canyon per STANTEC Plans RS 909.89, begin channel bottom cross fall transition	Combined Channel
10834.9	10+775	Desert Canyon per STANTEC Plans RS 834.9, end channel transition, begin VTN Pioneer Phase II 64+15.01	Combined Channel
10834.89	10+775	Pioneer Phase II Channel per VTN Plans 64+15.01	Combined Channel
10599.9	11+010	Pioneer Phase II Channel per VTN Plans 66+50.00	Combined Channel
10599.89	11+010	Pioneer Phase II Channel per VTN Plans 66+50.01	Combined Channel
10529.91	11+080	Pioneer Phase II Channel per VTN Plans 67+20.00	Combined Channel
10429.91	11+180	Pioneer Phase II Channel per VTN Plans 68+20.01	Combined Channel
10429.9	11+180	Pioneer Phase II Channel per VTN Plans 68+20.01	Combined Channel
10289.92	11+320	Pioneer Phase II Channel per VTN Plans 69+60.00	Combined Channel
10289.91	11+320	Pioneer Phase II Channel per VTN Plans 69+60.01	Combined Channel
10209.93	11+400	Pioneer Phase II Channel per VTN Plans 70+40.00	Combined Channel
10124.93	11+485	Pioneer Phase II Channel per VTN Plans 71+25.00	Combined Channel
10124.92	11+485	Pioneer Phase II Channel per VTN Plans 71+25.01	Combined Channel
9999.93	11+610	Pioneer Phase II Channel per VTN Plans 72+50.00	Combined Channel
9999.92	11+610	Pioneer Phase II Channel per VTN Plans 72+50.01	Combined Channel
9905.49	11+704	Pioneer Phase II Channel per VTN Plans 73+44.45	Combined Channel
9845.49	11+764	Pioneer Phase II Channel per VTN Plans 74+04.45	Combined Channel
9245.49	12+364	Pioneer Phase II Channel per VTN Plans 80+04.45 - End 600' DS	Combined Channel

12150	-	Pioneer Phase I Channel per VTN Plans RS 2150, south channel approach (Pioneer Outfall 12'x8' RCB)	South Channel
12100	-	Pioneer Phase I Channel per VTN Plans RS 2100	South Channel
12050	-	Pioneer Phase I Channel per VTN Plans RS 2050	South Channel
12000	-	Pioneer Phase I Channel per VTN Plans RS 2000	South Channel
11950	-	Desert Canyon per STANTEC Plans RS 1950	South Channel
11924.19	-	Desert Canyon per STANTEC Plans RS 1924.19, Pioneer Outfall 12'x8' RCB outlet	South Channel
11911.68	-	Desert Canyon per STANTEC Plans	South Channel
11899.18	-	Desert Canyon per STANTEC Plans RS 1899.18	South Channel
11886.68	-	Desert Canyon per STANTEC Plans	South Channel
11874.18	-	Desert Canyon per STANTEC Plans RS 1874.18, end nuissance channel transition	South Channel
11851.12	-	Desert Canyon per STANTEC Plans	South Channel
11828.06	-	Desert Canyon per STANTEC Plans	South Channel
11805	-	Desert Canyon per STANTEC Plans	South Channel

Note: South Channel section does not have post project stations, since south channel connection runs along combined channel

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X     X
X     X  X        X            X   X    X    X    X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

****

PROJECT DATA
Project Title: Post Project Conditions-New
Project File : PostProject.prj
Run Date and Time: 4/12/2006 2:24:12 PM

Project in English units

Project Description:
Gibson CLOMR - Post Project Condition; VTN Nevada w/Stantec Desert Canyon Open Space

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PLAN DATA

Plan Title: Plan 01
Plan File : c:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.p02

Geometry Title: Post Project VTN-Stantec Geo
Geometry File : c:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.g01

Flow Title : VTN New-Post Cond Flow2
Flow File : c:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.f01

Plan Summary Information:
Number of: Cross Sections = 167 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 1 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

****

FLOW DATA

Flow Title: VTN New-Post Cond Flow2
Flow File : c:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.f01

Flow Data (cfs)

River	Reach	RS	PF 1
Combined Channel	EAST	11800.	1850
Combined Channel	EAST	11634.34*	2549
North Channel	WEST	18653.05*	705
North Channel	WEST	16991.39*	709
North Channel	WEST	15824.82*	807
South Channel	South	12150.	699

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Combined Channel	EAST	PF 1		Critical
North Channel	WEST	PF 1	Normal S = 0.007	
South Channel	South	PF 1	Normal S = 0.01	

****

GEOMETRY DATA

Geometry Title: Post Project VTN-Stantec Geo
Geometry File : c:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.g01

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
Combined Channel	EAST	S-N JUNC	
North Channel	WEST		S-N JUNC
South Channel	South		S-N JUNC

JUNCTION INFORMATION

Name: S-N JUNC
Description: North and South Channel Confluence
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
North Channel	WEST	to Combined Channel	EAST	5	
South Channel	South	to Combined Channel	EAST	5	

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11800.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

****

44.49	58.52	44.5	55.15	52.25	51.28	64.75	51.28	68.05	50.18
71.35	51.28	97	51.28	100	50.28	103	51.28	117.78	58.26

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	64.75	.013	71.35	.03	97	.013
103	.03								

Bank Sta: Left	Right	Coeff Contr.	Expan.
44.49	117.78	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	57.71	Element	Left OB / Channel / Right OB
Vel Head (ft)	4.57	Wt. n-Val.	0.027
W.S. Elev (ft)	53.13	Reach Len. (ft)	0.00 / 0.01 / 0.00
Crit W.S. (ft)	54.46	Flow Area (sq ft)	107.78
E.G. Slope (ft/ft)	*0.043619	Area (sq ft)	107.78
Q Total (cfs)	1850.00	Flow (cfs)	1850.00
Top Width (ft)	58.39	Top Width (ft)	58.39
Vel Total (ft/s)	17.16	Avg. Vel. (ft/s)	17.16
Max Ch Dpth (ft)	2.95	Hydr. Depth (ft)	1.85
Conv. Total (cfs)	8858.0	Conv. (cfs)	8858.0
Length Wtd. (ft)	0.01	Wetted Per. (ft)	59.92
Min Ch El (ft)	50.18	Shear (lb/sq ft)	4.90
Alpha	1.00	Stream Power (lb/ft s)	84.07
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	11.06 / 0.04
C & E Loss (ft)	0.22	Cum SA (acres)	2.93 / 0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: During supercritical flow calculations a junction was encountered. During standard step calculations the program used the stream with the greatest momentum to balance the energy equation.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11799.99

INPUT
Description: Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	55.15	52.25	51.28	64.75	51.28	68.05	50.18
71.35	51.28	80.25	51.28	97	51.28	100	50.28	103	51.28
117.78	58.26								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	64.75	.013	71.35	.03	80.25	.013
103	.03								

Bank Sta: Left	Right	Coeff Contr.	Expan.
44.49	117.78	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	57.71	Element	Left OB / Channel / Right OB
Vel Head (ft)	4.57	Wt. n-Val.	0.022
W.S. Elev (ft)	53.13	Reach Len. (ft)	0.00 / 9.99 / 0.00
Crit W.S. (ft)	54.47	Flow Area (sq ft)	107.78
E.G. Slope (ft/ft)	*0.030390	Area (sq ft)	107.78
Q Total (cfs)	1850.00	Flow (cfs)	1850.00
Top Width (ft)	58.39	Top Width (ft)	58.39
Vel Total (ft/s)	17.16	Avg. Vel. (ft/s)	17.16
Max Ch Dpth (ft)	2.95	Hydr. Depth (ft)	1.85
Conv. Total (cfs)	10612.2	Conv. (cfs)	10612.2
Length Wtd. (ft)	9.99	Wetted Per. (ft)	59.92
Min Ch El (ft)	50.18	Shear (lb/sq ft)	3.41
Alpha	1.00	Stream Power (lb/ft s)	58.57
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	11.06 / 0.04
C & E Loss (ft)	0.00	Cum SA (acres)	2.93 / 0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11790.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1790
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	55.06	52.25	51.18	64.75	51.18	68.05	50.08
71.35	51.18	97	51.18	100	50.18	103	51.18	106.38	51.18
121.15	58.16								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	64.75	.013	71.35	.03	97	.013
103	.03								

Bank Sta: Left	Right	Coeff Contr.	Expan.
44.49	121.15	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	57.26	Element	Left OB / Channel / Right OB
Vel Head (ft)	4.26	Wt. n-Val.	0.027
W.S. Elev (ft)	52.99	Reach Len. (ft)	0.00 / 20.87 / 0.00
Crit W.S. (ft)	54.23	Flow Area (sq ft)	111.64
E.G. Slope (ft/ft)	*0.042099	Area (sq ft)	111.64
Q Total (cfs)	1850.00	Flow (cfs)	1850.00
Top Width (ft)	61.60	Top Width (ft)	61.60
Vel Total (ft/s)	16.57	Avg. Vel. (ft/s)	16.57
Max Ch Dpth (ft)	2.91	Hydr. Depth (ft)	1.81
Conv. Total (cfs)	9016.5	Conv. (cfs)	9016.5
Length Wtd. (ft)	20.87	Wetted Per. (ft)	63.11
Min Ch El (ft)	50.08	Shear (lb/sq ft)	4.65
Alpha	1.00	Stream Power (lb/ft s)	77.04
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	11.04 / 0.04
C & E Loss (ft)	0.09	Cum SA (acres)	2.92 / 0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11769.13

INPUT
Description: Desert Canyon per STANTEC Plans RS 1769.13
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.98	52.25	51.1	68.65	51.1	72.2	50
75.79	51.1	96.88	51.1	100	50.06	103.12	51.1	113.42	51.1
128.2	58.08								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	68.65	.013	75.79	.03	96.88	.013
103.12	.03								

Bank Sta: Left Right Coeff Contr. Expan.
44.49 128.2 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.47	Wt. n-Val.		0.027	
W.S. Elev (ft)	55.75	Reach Len. (ft)	0.00	17.69	0.00
Crit W.S. (ft)	53.94	Flow Area (sq ft)		335.38	
E.G. Slope (ft/ft)	*0.001582	Area (sq ft)		335.38	
Q Total (cfs)	1850.00	Flow (cfs)		1850.00	
Top Width (ft)	78.77	Top Width (ft)		78.77	
Vel Total (ft/s)	5.52	Avg. Vel. (ft/s)		5.52	
Max Chl Dpth (ft)	5.75	Hydr. Depth (ft)		4.26	
Conv. Total (cfs)	46518.8	Conv. (cfs)		46518.8	
Length Wtd. (ft)	17.69	Wetted Per. (ft)		82.16	
Min Ch El (ft)	50.00	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.22	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		10.93	0.04
C & E Loss (ft)	0.03	Cum SA (acres)		2.89	0.01

Note: Manning's n values were composited to a single value in the main channel.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11751.44

INPUT
Description: Desert Canyon per STANTEC Plans RS 1751.44
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.9	52.25	51.03	79.49	51.03	84.03	49.92
88.57	51.03	96.77	51.03	100	49.95	103.23	51.03	119.39	51.03
134.17	58.01								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	79.49	.013	88.57	.03	96.77	.013
103.23	.03								

Bank Sta: Left Right Coeff Contr. Expan.
44.49 134.17 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.027	
W.S. Elev (ft)	55.79	Reach Len. (ft)	0.00	11.74	0.00
Crit W.S. (ft)		Flow Area (sq ft)		373.89	
E.G. Slope (ft/ft)	*0.001198	Area (sq ft)		373.89	
Q Total (cfs)	1850.00	Flow (cfs)		1850.00	
Top Width (ft)	84.97	Top Width (ft)		84.97	
Vel Total (ft/s)	4.95	Avg. Vel. (ft/s)		4.95	
Max Chl Dpth (ft)	5.87	Hydr. Depth (ft)		4.40	
Conv. Total (cfs)	53442.5	Conv. (cfs)		53442.5	
Length Wtd. (ft)	11.74	Wetted Per. (ft)		88.45	
Min Ch El (ft)	49.92	Shear (lb/sq ft)		0.32	
Alpha	1.00	Stream Power (lb/ft s)		1.56	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		10.79	0.04
C & E Loss (ft)	0.01	Cum SA (acres)		2.85	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11739.7

INPUT
Description: Desert Canyon per STANTEC Plans RS 1739.7, begin nuissance channel
merge
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.85	52.25	50.98	89.11	50.98	92.94	49.87
96.7	50.98	100	49.88	103.3	50.98	123.35	50.98	134.96	56.47

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	89.11	.013	103.3	.03

Bank Sta: Left Right Coeff Contr. Expan.
44.49 134.96 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.028	
W.S. Elev (ft)	55.81	Reach Len. (ft)	0.00	7.57	0.00
Crit W.S. (ft)		Flow Area (sq ft)		398.08	
E.G. Slope (ft/ft)	*0.001060	Area (sq ft)		398.08	
Q Total (cfs)	1850.00	Flow (cfs)		1850.00	
Top Width (ft)	89.06	Top Width (ft)		89.06	
Vel Total (ft/s)	4.65	Avg. Vel. (ft/s)		4.65	
Max Chl Dpth (ft)	5.94	Hydr. Depth (ft)		4.47	
Conv. Total (cfs)	56819.5	Conv. (cfs)		56819.5	
Length Wtd. (ft)	7.57	Wetted Per. (ft)		92.69	
Min Ch El (ft)	49.87	Shear (lb/sq ft)		0.28	
Alpha	1.00	Stream Power (lb/ft s)		1.32	

* Frctn Loss (ft)	0.01	* Cum Volume (acre-ft)	10.68	0.04	
* C & E Loss (ft)	0.01	* Cum SA (acres)	2.83	0.01	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11732.13

INPUT
Description: Desert Canyon per STANTEC Plans RS 1732.13

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.83	52.25	50.95	92.73	50.95	96.49	49.76
98.31	50.55	100	49.76	103.55	50.95	125.91	50.95	137.52	56.44

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	92.73	.013	103.55	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
44.49	137.52	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
* E.G. Elev (ft)	56.13	* Element		0.028	
* Vel Head (ft)	0.31	* Wt. n-Val.		12.13	0.00
* W.S. Elev (ft)	55.82	* Reach Len. (ft)	0.00	413.28	
* Crit W.S. (ft)		* Flow Area (sq ft)		1850.00	
* E.G. Slope (ft/ft)	*0.001014	* Area (sq ft)		91.70	
* Q Total (cfs)	* 1850.00	* Flow (cfs)		4.48	
* Top Width (ft)	91.70	* Top Width (ft)		4.51	
* Vel Total (ft/s)	4.48	* Avg. Vel. (ft/s)		58085.4	
* Max Chl Dpth (ft)	6.06	* Hydr. Depth (ft)		95.41	
* Conv. Total (cfs)	* 58085.4	* Conv. (cfs)		0.27	
* Length Wtd. (ft)	12.13	* Wetted Per. (ft)		1.23	
* Min Ch El (ft)	49.76	* Shear (lb/sq ft)		10.61	0.04
* Alpha	1.00	* Stream Power (lb/ft s)		2.82	0.01
* Frctn Loss (ft)	0.01	* Cum Volume (acre-ft)			
* C & E Loss (ft)	0.01	* Cum SA (acres)			

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11720.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1720, end transition

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.77	52.25	50.9	95.5	50.9	99.53	49.58
99.76	49.87	100	49.58	103.96	50.9	130	50.9	141	56.4

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	95.5	.013	103.96	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
44.49	141	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
* E.G. Elev (ft)	56.11	* Element		0.029	
* Vel Head (ft)	0.28	* Wt. n-Val.		7.13	0.00
* W.S. Elev (ft)	55.83	* Reach Len. (ft)	0.00	436.33	
* Crit W.S. (ft)		* Flow Area (sq ft)		1850.00	
* E.G. Slope (ft/ft)	*0.000918	* Area (sq ft)		95.36	
* Q Total (cfs)	* 1850.00	* Flow (cfs)		4.24	
* Top Width (ft)	95.36	* Top Width (ft)		4.58	
* Vel Total (ft/s)	4.24	* Avg. Vel. (ft/s)		61058.0	
* Max Chl Dpth (ft)	6.25	* Hydr. Depth (ft)		99.19	
* Conv. Total (cfs)	* 61058.0	* Conv. (cfs)		0.25	
* Length Wtd. (ft)	7.13	* Wetted Per. (ft)		1.07	
* Min Ch El (ft)	49.58	* Shear (lb/sq ft)		10.49	0.04
* Alpha	1.00	* Stream Power (lb/ft s)		2.79	0.01
* Frctn Loss (ft)	0.01	* Cum Volume (acre-ft)			
* C & E Loss (ft)	0.00	* Cum SA (acres)			

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11712.87

INPUT
Description: Desert Canyon per STANTEC Plans RS 1712.87, end nuissance channel
merge

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.75	52.25	50.87	95.8	50.87	100	49.47
104.2	50.87	130	50.87	141	56.37				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	95.8	.013	104.2	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
44.49	141	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
* E.G. Elev (ft)	56.10	* Element		0.029	
* Vel Head (ft)	0.28	* Wt. n-Val.		23.66	0.00
* W.S. Elev (ft)	55.82	* Reach Len. (ft)	0.00	438.81	
* Crit W.S. (ft)		* Flow Area (sq ft)		1850.00	
* E.G. Slope (ft/ft)	*0.000901	* Area (sq ft)		95.41	
* Q Total (cfs)	* 1850.00	* Flow (cfs)		4.22	
* Top Width (ft)	95.41	* Top Width (ft)		4.60	
* Vel Total (ft/s)	4.22	* Avg. Vel. (ft/s)		61619.3	
* Max Chl Dpth (ft)	6.35	* Hydr. Depth (ft)		99.02	
* Conv. Total (cfs)	* 61619.3	* Conv. (cfs)		0.25	
* Length Wtd. (ft)	23.66	* Wetted Per. (ft)			
* Min Ch El (ft)	49.47	* Shear (lb/sq ft)			

Alpha	1.00	Stream Power (lb/ft s)		1.05			
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		10.42		0.04	
C & E Loss (ft)	0.00	Cum SA (acres)		2.77		0.01	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11689.21

INPUT
Description: Desert Canyon per STANTEC Plans RS 1689.21

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.65	52.25	50.78	95.8	50.78	100	49.38
104.2	50.78	130	50.78	141	56.28				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
44.49 141 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.029	
W.S. Elev (ft)	55.81	Reach Len. (ft)	0.00	14.21	0.00
Crit W.S. (ft)		Flow Area (sq ft)		446.05	
E.G. Slope (ft/ft)	*0.000856	Area (sq ft)		446.05	
Q Total (cfs)	1850.00	Flow (cfs)		1850.00	
Top Width (ft)	95.56	Top Width (ft)		95.56	
Vel Total (ft/s)	4.15	Avg. Vel. (ft/s)		4.15	
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		4.67	
Conv. Total (cfs)	63237.2	Conv. (cfs)		63237.2	
Length Wtd. (ft)	14.21	Wetted Per. (ft)		99.27	
Min Ch El (ft)	49.38	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.00	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		10.18	0.04
C & E Loss (ft)	0.00	Cum SA (acres)		2.72	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11675.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1675

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.59	52.25	50.72	95.8	50.72	100	49.32
104.2	50.72	130	50.72	146.23	58.84				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
44.49 146.23 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.029	
W.S. Elev (ft)	55.80	Reach Len. (ft)	0.00	40.66	0.00
Crit W.S. (ft)		Flow Area (sq ft)		451.02	
E.G. Slope (ft/ft)	*0.000826	Area (sq ft)		451.02	
Q Total (cfs)	1850.00	Flow (cfs)		1850.00	
Top Width (ft)	95.66	Top Width (ft)		95.66	
Vel Total (ft/s)	4.10	Avg. Vel. (ft/s)		4.10	
Max Chl Dpth (ft)	6.48	Hydr. Depth (ft)		4.71	
Conv. Total (cfs)	64357.2	Conv. (cfs)		64357.2	
Length Wtd. (ft)	40.66	Wetted Per. (ft)		99.43	
Min Ch El (ft)	49.32	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		0.96	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		10.04	0.04
C & E Loss (ft)	0.03	Cum SA (acres)		2.69	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11634.34

INPUT
Description: Desert Canyon per STANTEC Plans 1634.34, begin left channel wall transition

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	62.57	44.5	54.43	52.25	50.56	95.8	50.56	100	49.16
104.2	50.56	130	50.56	149	60.06				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
44.49 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.		0.029	
W.S. Elev (ft)	55.44	Reach Len. (ft)	0.00	10.29	0.00
Crit W.S. (ft)		Flow Area (sq ft)		432.17	
E.G. Slope (ft/ft)	*0.001796	Area (sq ft)		432.17	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	95.27	Top Width (ft)		95.27	
Vel Total (ft/s)	5.90	Avg. Vel. (ft/s)		5.90	
Max Chl Dpth (ft)	6.28	Hydr. Depth (ft)		4.54	
Conv. Total (cfs)	60150.6	Conv. (cfs)		60150.6	
Length Wtd. (ft)	10.29	Wetted Per. (ft)		98.80	

Min Ch El (ft)	49.16	Shear (lb/sq ft)		0.49			
Alpha	1.00	Stream Power (lb/ft s)		2.89			
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		9.62		0.04	
C & E Loss (ft)	0.01	Cum SA (acres)		2.60		0.01	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11624.05

INPUT
Description: Desert Canyon per STANTEC Plans RS 1624.05, end left side slope
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
52.24	62.42	52.25	50.51	95.8	50.51	100	49.11	104.2	50.51
130	50.51	149	60.01						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
52.24	.013	52.25	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
52.24 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.		0.028	
W.S. Elev (ft)	55.34	Reach Len. (ft)	0.00	5.31	0.00
Crit W.S. (ft)		Flow Area (sq ft)		404.72	
E.G. Slope (ft/ft)	0.001989	Area (sq ft)		404.72	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	87.41	Top Width (ft)		87.41	
Vel Total (ft/s)	6.30	Avg. Vel. (ft/s)		6.30	
Max Chl Dpth (ft)	6.23	Hydr. Depth (ft)		4.63	
Conv. Total (cfs)	57159.6	Conv. (cfs)		57159.6	
Length Wtd. (ft)	5.31	Wetted Per. (ft)		93.83	
Min Ch El (ft)	49.11	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		3.37	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		9.53	0.04
C & E Loss (ft)	0.01	Cum SA (acres)		2.58	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11618.85

INPUT
Description: Desert Canyon per STANTEC Plans RS 1618.85, end left channel wall transition
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.16	62.37	56.17	50.49	95.8	50.49	100	49.09	104.2	50.49
130	50.49	149	59.99						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
56.16	.013	56.17	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.16 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.		0.028	
W.S. Elev (ft)	55.23	Reach Len. (ft)	0.00	22.51	0.00
Crit W.S. (ft)		Flow Area (sq ft)		378.34	
E.G. Slope (ft/ft)	0.002327	Area (sq ft)		378.34	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	83.31	Top Width (ft)		83.31	
Vel Total (ft/s)	6.74	Avg. Vel. (ft/s)		6.74	
Max Chl Dpth (ft)	6.14	Hydr. Depth (ft)		4.54	
Conv. Total (cfs)	52837.6	Conv. (cfs)		52837.6	
Length Wtd. (ft)	22.51	Wetted Per. (ft)		89.62	
Min Ch El (ft)	49.09	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		4.13	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		9.48	0.04
C & E Loss (ft)	0.00	Cum SA (acres)		2.57	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11596.34

INPUT
Description: Desert Canyon per STANTEC Plans RS 1596.34, begin left side slope transition
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.16	62.6	56.17	50.4	95.8	50.4	100	49	104.2	50.4
130	50.4	149	59.9						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
56.16	.013	56.17	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.16 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.		0.028	
W.S. Elev (ft)	55.19	Reach Len. (ft)	0.00	69.17	0.00
Crit W.S. (ft)		Flow Area (sq ft)		382.42	
E.G. Slope (ft/ft)	0.002250	Area (sq ft)		382.42	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	83.41	Top Width (ft)		83.41	
Vel Total (ft/s)	6.67	Avg. Vel. (ft/s)		6.67	
Max Chl Dpth (ft)	6.19	Hydr. Depth (ft)		4.58	

Conv. Total (cfs)	53735.5	Conv. (cfs)		53735.5	
Length Wtd. (ft)	69.17	Wetted Per. (ft)		89.78	
Min Ch El (ft)	49.00	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		3.99	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		9.28	0.04
C & E Loss (ft)	0.03	Cum SA (acres)		2.53	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11527.17

INPUT
Description: Desert Canyon per STANTEC Plans RS 1527.17, end left slope transition, end left retaining wall

Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.88	70	50.13	95.8	50.13	100	48.73	104.2	50.13
130	50.13	149	59.63						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left 56.5 Right 149 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.00	Wt. n-Val.		0.028	
W.S. Elev (ft)	54.65	Reach Len. (ft)	0.00	27.17	0.00
Crit W.S. (ft)		Flow Area (sq ft)		318.15	
E.G. Slope (ft/ft)	*0.003766	Area (sq ft)		318.15	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	78.09	Top Width (ft)		78.09	
Vel Total (ft/s)	8.01	Avg. Vel. (ft/s)		8.01	
Max Chl Dpth (ft)	5.92	Hydr. Depth (ft)		4.07	
Conv. Total (cfs)	41534.2	Conv. (cfs)		41534.2	
Length Wtd. (ft)	27.17	Wetted Per. (ft)		80.68	
Min Ch El (ft)	48.73	Shear (lb/sq ft)		0.93	
Alpha	1.00	Stream Power (lb/ft s)		7.43	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		8.72	0.04
C & E Loss (ft)	0.00	Cum SA (acres)		2.40	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11500.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1500

Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.77	70	50.02	95.8	50.02	100	48.62	104.2	50.02
130	50.02	149	59.52						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left 56.5 Right 149 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.028	
W.S. Elev (ft)	54.55	Reach Len. (ft)	0.00	50.00	0.00
Crit W.S. (ft)		Flow Area (sq ft)		318.80	
E.G. Slope (ft/ft)	*0.003743	Area (sq ft)		318.80	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	78.12	Top Width (ft)		78.12	
Vel Total (ft/s)	8.00	Avg. Vel. (ft/s)		8.00	
Max Chl Dpth (ft)	5.93	Hydr. Depth (ft)		4.08	
Conv. Total (cfs)	41661.3	Conv. (cfs)		41661.3	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		80.72	
Min Ch El (ft)	48.62	Shear (lb/sq ft)		0.92	
Alpha	1.00	Stream Power (lb/ft s)		7.38	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		8.53	0.04
C & E Loss (ft)	0.00	Cum SA (acres)		2.35	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11450.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1450

Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.57	70	49.82	95.8	49.82	100	48.42	104.2	49.82
130	49.82	149	59.32						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left 56.5 Right 149 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.98	Wt. n-Val.		0.028	
W.S. Elev (ft)	54.37	Reach Len. (ft)	0.00	50.00	0.00
Crit W.S. (ft)		Flow Area (sq ft)		320.22	
E.G. Slope (ft/ft)	*0.003694	Area (sq ft)		320.22	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	78.20	Top Width (ft)		78.20	
Vel Total (ft/s)	7.96	Avg. Vel. (ft/s)		7.96	

Max Chl Dpth (ft)	5.95	Hydr. Depth (ft)		4.10			
Conv. Total (cfs)	41941.1	Conv. (cfs)		41941.1			
Length Wtd. (ft)	50.00	Wetted Per. (ft)		80.80			
Min Ch El (ft)	48.42	Shear (lb/sq ft)		0.91			
Alpha	1.00	Stream Power (lb/ft s)		7.27			
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)		8.16		0.04	
C & E Loss (ft)	0.00	Cum SA (acres)		7.26		0.01	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11400.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1400
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.37	70	49.62	95.8	49.62	100	48.22	104.2	49.62
130	49.62	149	59.12						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.16	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.97	Wt. n-Val.		0.028		
W.S. Elev (ft)	54.19	Reach Len. (ft)	0.00	22.02	0.00	
Crit W.S. (ft)		Flow Area (sq ft)		321.91		
E.G. Slope (ft/ft)	*0.003636	Area (sq ft)		321.91		
Q Total (cfs)	2549.00	Flow (cfs)		2549.00		
Top Width (ft)	78.28	Top Width (ft)		78.28		
Vel Total (ft/s)	7.92	Avg. Vel. (ft/s)		7.92		
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		4.11		
Conv. Total (cfs)	42274.3	Conv. (cfs)		42274.3		
Length Wtd. (ft)	22.02	Wetted Per. (ft)		80.90		
Min Ch El (ft)	48.22	Shear (lb/sq ft)		0.90		
Alpha	1.00	Stream Power (lb/ft s)		7.15		
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		7.79	0.04	
C & E Loss (ft)	0.00	Cum SA (acres)		2.17	0.01	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11377.99

INPUT
Description: Desert Canyon per STANTEC Plans RS 1377.99, begin compound curve
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.28	70	49.53	95.8	49.53	100	48.13	104.2	49.53
130	49.53	149	59.03						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.08	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.97	Wt. n-Val.		0.028		
W.S. Elev (ft)	54.11	Reach Len. (ft)	0.00	27.98	0.00	
Crit W.S. (ft)		Flow Area (sq ft)		322.93		
E.G. Slope (ft/ft)	*0.003602	Area (sq ft)		322.93		
Q Total (cfs)	2549.00	Flow (cfs)		2549.00		
Top Width (ft)	78.34	Top Width (ft)		78.34		
Vel Total (ft/s)	7.89	Avg. Vel. (ft/s)		7.89		
Max Chl Dpth (ft)	5.98	Hydr. Depth (ft)		4.12		
Conv. Total (cfs)	42474.4	Conv. (cfs)		42474.4		
Length Wtd. (ft)	27.98	Wetted Per. (ft)		80.95		
Min Ch El (ft)	48.13	Shear (lb/sq ft)		0.90		
Alpha	1.00	Stream Power (lb/ft s)		7.08		
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		7.63	0.04	
C & E Loss (ft)	0.00	Cum SA (acres)		2.13	0.01	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11350.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1350
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.17	70	49.42	95.8	49.42	100	48.02	104.2	49.42
130	49.42	149	58.92						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	54.98	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.96	Wt. n-Val.		0.028		
W.S. Elev (ft)	54.01	Reach Len. (ft)	0.00	50.00	0.00	
Crit W.S. (ft)		Flow Area (sq ft)		323.71		
E.G. Slope (ft/ft)	*0.003575	Area (sq ft)		323.71		
Q Total (cfs)	2549.00	Flow (cfs)		2549.00		
Top Width (ft)	78.37	Top Width (ft)		78.37		
Vel Total (ft/s)	7.87	Avg. Vel. (ft/s)		7.87		

Max Chl Dpth (ft)	5.99	Hydr. Depth (ft)		4.13			
Conv. Total (cfs)	42628.7	Conv. (cfs)		42628.7			
Length Wtd. (ft)	50.00	Wetted Per. (ft)		81.00			
Min Ch El (ft)	48.02	Shear (lb/sq ft)		0.89			
Alpha	1.00	Stream Power (lb/ft s)		7.02			
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)		7.42		0.04	
C & E Loss (ft)	0.00	Cum SA (acres)		2.08		0.01	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11300.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1300
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.97	70	49.22	95.8	49.22	100	47.82	104.2	49.22
130	49.22	149	58.72						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	54.80	Element			
Vel Head (ft)	0.95	Wt. n-Val.		0.028	
W.S. Elev (ft)	53.85	Reach Len. (ft)	0.00	21.24	0.00
Crit W.S. (ft)		Flow Area (sq ft)		326.42	
E.G. Slope (ft/ft)	*0.003487	Area (sq ft)		326.42	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	78.51	Top Width (ft)		78.51	
Vel Total (ft/s)	7.81	Avg. Vel. (ft/s)		7.81	
Max Chl Dpth (ft)	6.03	Hydr. Depth (ft)		4.16	
Conv. Total (cfs)	43166.6	Conv. (cfs)		43166.6	
Length Wtd. (ft)	21.24	Wetted Per. (ft)		81.15	
Min Ch El (ft)	47.82	Shear (lb/sq ft)		0.88	
Alpha	1.00	Stream Power (lb/ft s)		6.84	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		7.05	0.04
C & E Loss (ft)	0.00	Cum SA (acres)		1.99	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11278.76

INPUT
Description: Desert Canyon per STANTEC Plans RS 1278.76, compound curve midpoint
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.88	70	49.13	95.8	49.13	100	47.73	104.2	49.13
130	49.13	149	58.63						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	54.72	Element			
Vel Head (ft)	0.94	Wt. n-Val.		0.028	
W.S. Elev (ft)	53.78	Reach Len. (ft)	0.00	28.76	0.00
Crit W.S. (ft)		Flow Area (sq ft)		328.03	
E.G. Slope (ft/ft)	*0.003436	Area (sq ft)		328.03	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	78.60	Top Width (ft)		78.60	
Vel Total (ft/s)	7.77	Avg. Vel. (ft/s)		7.77	
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)		4.17	
Conv. Total (cfs)	43486.1	Conv. (cfs)		43486.1	
Length Wtd. (ft)	28.76	Wetted Per. (ft)		81.24	
Min Ch El (ft)	47.73	Shear (lb/sq ft)		0.87	
Alpha	1.00	Stream Power (lb/ft s)		6.73	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		6.89	0.04
C & E Loss (ft)	0.00	Cum SA (acres)		1.95	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11250.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1250
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.77	70	49.02	95.8	49.02	100	47.62	104.2	49.02
130	49.02	149	58.52						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	54.61	Element			
Vel Head (ft)	0.93	Wt. n-Val.		0.028	
W.S. Elev (ft)	53.68	Reach Len. (ft)	0.00	50.00	0.00
Crit W.S. (ft)		Flow Area (sq ft)		329.18	
E.G. Slope (ft/ft)	*0.003400	Area (sq ft)		329.18	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	78.65	Top Width (ft)		78.65	
Vel Total (ft/s)	7.74	Avg. Vel. (ft/s)		7.74	

* Max Chl Dpth (ft)	* 6.06	* Hydr. Depth (ft)	*	* 4.19	*
* Conv. Total (cfs)	* 43714.3	* Conv. (cfs)	*	* 43714.3	*
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 81.31	*
* Min Ch El (ft)	* 47.62	* Shear (lb/sq ft)	*	* 0.86	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 6.65	*
* Frctn Loss (ft)	* 0.17	* Cum Volume (acre-ft)	*	* 6.67	* 0.04 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	* 1.90	* 0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11200.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1200
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.57	70	48.82	95.8	48.82	100	47.42	104.2	48.82
130	48.82	149	58.32						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 54.44	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.91	* Wt. n-Val.	*	* 0.028	* *
* W.S. Elev (ft)	* 53.53	* Reach Len. (ft)	* 0.00	* 24.74	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 332.91	* *
* E.G. Slope (ft/ft)	*0.003287	* Area (sq ft)	*	* 332.91	* *
* Q Total (cfs)	* 2549.00	* Flow (cfs)	*	* 2549.00	* *
* Top Width (ft)	* 78.84	* Top Width (ft)	*	* 78.84	* *
* Vel Total (ft/s)	* 7.66	* Avg. Vel. (ft/s)	*	* 7.66	* *
* Max Chl Dpth (ft)	* 6.11	* Hydr. Depth (ft)	*	* 4.22	* *
* Conv. Total (cfs)	* 44459.0	* Conv. (cfs)	*	* 44459.0	* *
* Length Wtd. (ft)	* 24.74	* Wetted Per. (ft)	*	* 81.52	* *
* Min Ch El (ft)	* 47.42	* Shear (lb/sq ft)	*	* 0.84	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 6.42	* *
* Frctn Loss (ft)	* 0.08	* Cum Volume (acre-ft)	*	* 6.29	* 0.04 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 1.81	* 0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11175.26

INPUT
Description: Desert Canyon per STANTEC Plans RS 1175.26
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.47	70	48.72	95.8	48.72	100	47.32	104.2	48.72
130	48.72	149	58.22						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 54.35	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.90	* Wt. n-Val.	*	* 0.028	* *
* W.S. Elev (ft)	* 53.45	* Reach Len. (ft)	* 0.00	* 20.70	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 334.79	* *
* E.G. Slope (ft/ft)	*0.003232	* Area (sq ft)	*	* 334.79	* *
* Q Total (cfs)	* 2549.00	* Flow (cfs)	*	* 2549.00	* *
* Top Width (ft)	* 78.94	* Top Width (ft)	*	* 78.94	* *
* Vel Total (ft/s)	* 7.61	* Avg. Vel. (ft/s)	*	* 7.61	* *
* Max Chl Dpth (ft)	* 6.13	* Hydr. Depth (ft)	*	* 4.24	* *
* Conv. Total (cfs)	* 44835.8	* Conv. (cfs)	*	* 44835.8	* *
* Length Wtd. (ft)	* 20.70	* Wetted Per. (ft)	*	* 81.63	* *
* Min Ch El (ft)	* 47.32	* Shear (lb/sq ft)	*	* 0.83	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 6.30	* *
* Frctn Loss (ft)	* 0.07	* Cum Volume (acre-ft)	*	* 6.10	* 0.04 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 1.76	* 0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11154.55

INPUT
Description: Desert Canyon per STANTEC Plans RS 1154.55, end compound curve
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.39	70	48.64	95.8	48.64	100	47.24	104.2	48.64
130	48.64	148.1	57.69						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 148.1 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 54.28	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.89	* Wt. n-Val.	*	* 0.028	* *
* W.S. Elev (ft)	* 53.39	* Reach Len. (ft)	* 0.00	* 29.55	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 336.09	* *
* E.G. Slope (ft/ft)	*0.003195	* Area (sq ft)	*	* 336.09	* *
* Q Total (cfs)	* 2549.00	* Flow (cfs)	*	* 2549.00	* *
* Top Width (ft)	* 79.00	* Top Width (ft)	*	* 79.00	* *
* Vel Total (ft/s)	* 7.58	* Avg. Vel. (ft/s)	*	* 7.58	* *

Max Chl Dpth (ft)	6.15	Hydr. Depth (ft)		4.25	
Conv. Total (cfs)	45097.7	Conv. (cfs)		45097.7	
Length Wtd. (ft)	29.55	Wetted Per. (ft)		81.70	
Min Ch El (ft)	47.24	Shear (lb/sq ft)		0.82	
Alpha	1.00	Stream Power (lb/ft s)		6.22	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		5.94	0.04
C & E Loss (ft)	0.01	Cum SA (acres)		1.73	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11125.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1125, begin right channel wall
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.27	70	48.52	95.8	48.52	100	47.12	104.2	48.52
130	48.52	144.7	55.77						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
56.5 144.7 8.65 8.65 8.65 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	54.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.87	Wt. n-Val.		0.025	
W.S. Elev (ft)	53.33	Reach Len. (ft)	8.65	8.65	8.65
Crit W.S. (ft)		Flow Area (sq ft)		340.98	
E.G. Slope (ft/ft)	0.002325	Area (sq ft)		340.98	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	79.37	Top Width (ft)		79.37	
Vel Total (ft/s)	7.48	Avg. Vel. (ft/s)		7.48	
Max Chl Dpth (ft)	6.21	Hydr. Depth (ft)		4.30	
Conv. Total (cfs)	52860.8	Conv. (cfs)		52860.8	
Length Wtd. (ft)	8.65	Wetted Per. (ft)		82.08	
Min Ch El (ft)	47.12	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		4.51	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		5.71	0.04
C & E Loss (ft)	0.00	Cum SA (acres)		1.67	0.01

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11116.35

INPUT
Description: Desert Canyon per STANTEC Plans RS 1116.35, begin channel transition
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.23	70	48.48	95.8	48.48	100	47.08	104.2	48.48
130	48.48	143.41	55.19	143.42	55.74				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03	143.41	.013

Bank Sta: Left Right Coeff Contr. Expan.
56.5 143.42 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	54.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.86	Wt. n-Val.		0.028	
W.S. Elev (ft)	53.31	Reach Len. (ft)	0.00	16.35	0.00
Crit W.S. (ft)		Flow Area (sq ft)		342.15	
E.G. Slope (ft/ft)	0.003028	Area (sq ft)		342.15	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	79.30	Top Width (ft)		79.30	
Vel Total (ft/s)	7.45	Avg. Vel. (ft/s)		7.45	
Max Chl Dpth (ft)	6.23	Hydr. Depth (ft)		4.31	
Conv. Total (cfs)	46323.0	Conv. (cfs)		46323.0	
Length Wtd. (ft)	16.35	Wetted Per. (ft)		82.04	
Min Ch El (ft)	47.08	Shear (lb/sq ft)		0.79	
Alpha	1.00	Stream Power (lb/ft s)		5.87	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		5.64	0.04
C & E Loss (ft)	0.00	Cum SA (acres)		1.66	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11100.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1100,
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
57.49	55.15	71.02	48.38	95.8	48.38	100	46.98	104.2	48.38
129.5	48.38	141.4	54.33	141.41	55.67				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
57.49	.03	95.8	.013	104.2	.03	141.4	.013

Bank Sta: Left Right Coeff Contr. Expan.
57.49 141.41 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	54.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.90	Wt. n-Val.		0.028	
W.S. Elev (ft)	53.22	Reach Len. (ft)	0.00	50.00	0.00
Crit W.S. (ft)		Flow Area (sq ft)		335.42	
E.G. Slope (ft/ft)	0.003151	Area (sq ft)		335.42	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	77.82	Top Width (ft)		77.82	
Vel Total (ft/s)	7.60	Avg. Vel. (ft/s)		7.60	
Max Chl Dpth (ft)	6.24	Hydr. Depth (ft)		4.31	

Conv. Total (cfs)	45409.7	Conv. (cfs)		45409.7					
Length Wtd. (ft)	50.00	Wetted Per. (ft)		80.55					
Min Ch El (ft)	46.98	Shear (lb/sq ft)		0.82					
Alpha	1.00	Stream Power (lb/ft s)		6.22					
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		5.52		0.04			
C & E Loss (ft)	0.02	Cum SA (acres)		1.63		0.01			

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11050.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1050
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
60.6	54.84	74.13	48.07	95.8	48.07	100	46.67	104.2	48.07
127.97	48.07	135.26	51.72	135.27	55.47				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
60.6	.03	95.8	.013	104.2	.03	135.26	.013

Bank Sta: Left Right Coeff Contr. Expan.
60.6 135.27 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	53.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.05	Wt. n-Val.		0.028	
W.S. Elev (ft)	52.88	Reach Len. (ft)	0.00	16.63	0.00
Crit W.S. (ft)		Flow Area (sq ft)		309.65	
E.G. Slope (ft/ft)	0.003602	Area (sq ft)		309.65	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	70.74	Top Width (ft)		70.74	
Vel Total (ft/s)	8.23	Avg. Vel. (ft/s)		8.23	
Max Ch Dpth (ft)	6.21	Hydr. Depth (ft)		4.38	
Conv. Total (cfs)	42471.9	Conv. (cfs)		42471.9	
Length Wtd. (ft)	16.63	Wetted Per. (ft)		74.35	
Min Ch El (ft)	46.67	Shear (lb/sq ft)		0.94	
Alpha	1.00	Stream Power (lb/ft s)		7.71	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		5.15	0.04
C & E Loss (ft)	0.01	Cum SA (acres)		1.54	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11033.37

INPUT
Description: Desert Canyon per STANTEC Plans RS 1033.37, begin left channel wall
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
61.64	54.73	75.16	47.97	95.8	47.97	100	46.57	104.2	47.97
127.46	47.97	133.22	50.86	133.23	55.4				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
61.64	.03	95.8	.013	104.2	.03	133.22	.013

Bank Sta: Left Right Coeff Contr. Expan.
61.64 133.23 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	53.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.17	Wt. n-Val.		0.028	
W.S. Elev (ft)	52.68	Reach Len. (ft)	0.00	25.97	0.00
Crit W.S. (ft)		Flow Area (sq ft)		293.46	
E.G. Slope (ft/ft)	0.004031	Area (sq ft)		293.46	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	67.49	Top Width (ft)		67.49	
Vel Total (ft/s)	8.69	Avg. Vel. (ft/s)		8.69	
Max Ch Dpth (ft)	6.11	Hydr. Depth (ft)		4.35	
Conv. Total (cfs)	40146.6	Conv. (cfs)		40146.6	
Length Wtd. (ft)	25.97	Wetted Per. (ft)		71.56	
Min Ch El (ft)	46.57	Shear (lb/sq ft)		1.03	
Alpha	1.00	Stream Power (lb/ft s)		8.96	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		5.03	0.04
C & E Loss (ft)	0.03	Cum SA (acres)		1.52	0.01

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11007.4

INPUT
Description: Desert Canyon per STANTEC Plans RS 1007.4, begin nuissance channel transition
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
69.42	54.96	69.43	51.49	76.78	47.81	95.8	47.81	100	46.41
104.2	47.81	126.66	47.81	130.03	49.5	130.04	55.3		

Manning's n Values num= 1

Sta	n Val
69.42	.013

Bank Sta: Left Right Coeff Contr. Expan.
69.42 130.04 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	53.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.47	Wt. n-Val.		0.013	
W.S. Elev (ft)	52.30	Reach Len. (ft)	0.00	33.54	0.00
Crit W.S. (ft)	51.78	Flow Area (sq ft)		261.72	
E.G. Slope (ft/ft)	0.001155	Area (sq ft)		261.72	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	

Top Width (ft)		60.61	Top Width (ft)			60.61					
Vel Total (ft/s)		9.74	Avg. Vel. (ft/s)			9.74					
Max Chl Dpth (ft)		5.89	Hydr. Depth (ft)			4.32					
Conv. Total (cfs)		74994.3	Conv. (cfs)			74994.3					
Length Wtd. (ft)		33.54	Wetted Per. (ft)			65.93					
Min Ch El (ft)		46.41	Shear (lb/sq ft)			0.29					
Alpha		1.00	Stream Power (lb/ft s)			2.79					
Frctn Loss (ft)		0.05	Cum Volume (acre-ft)			4.87		0.04			
C & E Loss (ft)		0.08	Cum SA (acres)			1.48		0.01			

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10973.86

INPUT
Description: Desert Canyon per STANTEC Plans RS 973.86, begin rectangular channel

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
78.095	55.24	78.105	46.97	85.618	46.94	97.507	46.78	99.244	46.2
100.951	46.77	116.066	46.87	124.551	46.84	124.591	53.82		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
78.095		78.095	.013	124.591	

Bank Sta: Left Right Coeff Contr. Expan.
78.095 124.591 .1 .3
Skew Angle = 7.05

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	53.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.27	Wt. n-Val.		0.013	
W.S. Elev (ft)	51.37	Reach Len. (ft)	0.00	23.60	0.00
Crit W.S. (ft)	51.37	Flow Area (sq ft)		210.81	
E.G. Slope (ft/ft)	*0.001891	Area (sq ft)		210.81	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	46.48	Top Width (ft)		46.48	
Vel Total (ft/s)	12.09	Avg. Vel. (ft/s)		12.09	
Max Chl Dpth (ft)	5.17	Hydr. Depth (ft)		4.54	
Conv. Total (cfs)	58612.6	Conv. (cfs)		58612.6	
Length Wtd. (ft)	23.60	Wetted Per. (ft)		55.57	
Min Ch El (ft)	46.20	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		5.42	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		4.68	0.04
C & E Loss (ft)	0.01	Cum SA (acres)		1.44	0.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10950.26

INPUT
Description: Desert Canyon per STANTEC Plans RS 950.26, end nuissance channel
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.146	53.18	80.156	46.26	100.762	46.06	125.136	46.3	125.146	53.82

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
80.146		80.146	.013	125.146	

Bank Sta: Left Right Coeff Contr. Expan.
80.146 125.146 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	53.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.53	Wt. n-Val.		0.013	
W.S. Elev (ft)	49.93	Reach Len. (ft)	0.00	40.37	0.00
Crit W.S. (ft)	50.79	Flow Area (sq ft)		169.01	
E.G. Slope (ft/ft)	*0.003642	Area (sq ft)		169.01	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	44.99	Top Width (ft)		44.99	
Vel Total (ft/s)	15.08	Avg. Vel. (ft/s)		15.08	
Max Chl Dpth (ft)	3.87	Hydr. Depth (ft)		3.76	
Conv. Total (cfs)	42240.2	Conv. (cfs)		42240.2	
Length Wtd. (ft)	40.37	Wetted Per. (ft)		52.27	
Min Ch El (ft)	46.06	Shear (lb/sq ft)		0.74	
Alpha	1.00	Stream Power (lb/ft s)		11.09	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		4.58	0.04
C & E Loss (ft)	0.13	Cum SA (acres)		1.41	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10909.89

INPUT
Description: Desert Canyon per STANTEC Plans RS 909.89, begin channel bottom cross fall transition
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
81.466	50	81.476	44.56	100.762	44.37	122.678	44.59	122.688	52.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
81.466		81.466	.013	122.688	

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
81.466 122.688 74.99 74.99 74.99 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	53.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.26	Wt. n-Val.		0.013	
W.S. Elev (ft)	47.83	Reach Len. (ft)	74.99	74.99	74.99
Crit W.S. (ft)	49.39	Flow Area (sq ft)		138.47	
E.G. Slope (ft/ft)	*0.006267	Area (sq ft)		138.47	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	41.21	Top Width (ft)		41.21	
Vel Total (ft/s)	18.41	Avg. Vel. (ft/s)		18.41	
Max Chl Dpth (ft)	3.46	Hydr. Depth (ft)		3.36	
Conv. Total (cfs)	32199.9	Conv. (cfs)		32199.9	
Length Wtd. (ft)	74.99	Wetted Per. (ft)		47.72	
Min Ch El (ft)	44.37	Shear (lb/sq ft)		1.14	
Alpha	1.00	Stream Power (lb/ft s)		20.90	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		4.44	0.04
C & E Loss (ft)	0.17	Cum SA (acres)		1.37	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10834.9

INPUT
Description: Desert Canyon per STANTEC Plans RS 834.9, end channel transition, begin VTN Pioneer Phase II 64+15.01

Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	47.24	0	47.24	0	41.24	42	41.24	42	47.24
43	47.24								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	42	.01	.01	.1	.3

Skew Angle = 7

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	52.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.27	Wt. n-Val.		0.013	
W.S. Elev (ft)	43.87	Reach Len. (ft)	0.01	0.01	0.01
Crit W.S. (ft)	46.08	Flow Area (sq ft)		110.48	
E.G. Slope (ft/ft)	*0.013131	Area (sq ft)		110.48	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	42.00	Top Width (ft)		42.00	
Vel Total (ft/s)	23.07	Avg. Vel. (ft/s)		23.07	
Max Chl Dpth (ft)	2.63	Hydr. Depth (ft)		2.63	
Conv. Total (cfs)	22244.0	Conv. (cfs)		22244.0	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		47.26	
Min Ch El (ft)	41.24	Shear (lb/sq ft)		1.92	
Alpha	1.00	Stream Power (lb/ft s)		44.22	
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)		4.22	0.04
C & E Loss (ft)	0.30	Cum SA (acres)		1.30	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10834.89

INPUT
Description: Pioneer Phase II Channel per VTN Plans 64+15.01

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	47.24	0	47.24	0	41.24	16	41.24	16	47.24
17	47.24	17	41.24	33	41.24	33	47.24	34	47.24
34	41.24	42	41.24	42	47.24	43	47.24		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	42	234.99	234.99	.1	.3

Cross Section Lid num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
-1	48.24	47.24	43	48.24	47.24

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	52.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.02	Wt. n-Val.		0.013	
W.S. Elev (ft)	44.04	Reach Len. (ft)	234.99	234.99	234.99
Crit W.S. (ft)	46.26	Flow Area (sq ft)		112.18	
E.G. Slope (ft/ft)	*0.015957	Area (sq ft)		112.18	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	40.00	Top Width (ft)		40.00	
Vel Total (ft/s)	22.72	Avg. Vel. (ft/s)		22.72	
Max Chl Dpth (ft)	2.80	Hydr. Depth (ft)		2.80	
Conv. Total (cfs)	20178.6	Conv. (cfs)		20178.6	
Length Wtd. (ft)	234.99	Wetted Per. (ft)		56.83	
Min Ch El (ft)	41.24	Shear (lb/sq ft)		1.97	
Alpha	1.00	Stream Power (lb/ft s)		44.68	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		4.22	0.04
C & E Loss (ft)	0.07	Cum SA (acres)		1.30	0.01

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10599.9

INPUT
Description: Pioneer Phase II Channel per VTN Plans 66+50.00

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

-1	45.88	0	45.88	0	39.88	16	39.88	16	45.88
17	45.88	17	39.88	33	39.88	33	45.88	34	45.88
34	39.88	42	39.88	42	45.88	43	45.88		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	42	.01	.01	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 46.88	45.88	43 46.88	45.88

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	48.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.19	Wt. n-Val.		0.013	
W.S. Elev (ft)	43.37	Reach Len. (ft)	0.01	0.01	0.01
Crit W.S. (ft)	44.90	Flow Area (sq ft)		139.42	
E.G. Slope (ft/ft)	0.008482	Area (sq ft)		139.42	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	40.00	Top Width (ft)		40.00	
Vel Total (ft/s)	18.28	Avg. Vel. (ft/s)		18.28	
Max Chl Dpth (ft)	3.49	Hydr. Depth (ft)		3.49	
Conv. Total (cfs)	27677.0	Conv. (cfs)		27677.0	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		60.91	
Min Ch El (ft)	39.88	Shear (lb/sq ft)		1.21	
Alpha	1.00	Stream Power (lb/ft s)		22.16	
Frctn Loss (ft)	2.67	Cum Volume (acre-ft)		3.55	0.04
C & E Loss (ft)	0.85	Cum SA (acres)		1.08	0.01

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10599.89

INPUT
Description: Pioneer Phase II Channel per VTN Plans 66+50.01
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	45.88	0	45.88	0	39.88	42	39.88	42	45.88
43	45.88								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	42	69.99	69.99	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 46.88	45.88	43 46.88	45.88

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	48.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.39	Wt. n-Val.		0.013	
W.S. Elev (ft)	43.14	Reach Len. (ft)	69.99	69.99	69.99
Crit W.S. (ft)	44.74	Flow Area (sq ft)		136.82	
E.G. Slope (ft/ft)	0.006668	Area (sq ft)		136.82	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	42.00	Top Width (ft)		42.00	
Vel Total (ft/s)	18.63	Avg. Vel. (ft/s)		18.63	
Max Chl Dpth (ft)	3.26	Hydr. Depth (ft)		3.26	
Conv. Total (cfs)	31215.7	Conv. (cfs)		31215.7	
Length Wtd. (ft)	69.99	Wetted Per. (ft)		48.52	
Min Ch El (ft)	39.88	Shear (lb/sq ft)		1.17	
Alpha	1.00	Stream Power (lb/ft s)		21.87	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.55	0.04
C & E Loss (ft)	0.02	Cum SA (acres)		1.08	0.01

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10529.91

INPUT
Description: Pioneer Phase II Channel per VTN Plans 67+20.00
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	45.47	0	45.47	0	39.47	37	39.47	37	45.47
38	45.47								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	37	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	37	100	100	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 46.47	45.47	38 46.47	45.47

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	47.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.03	Wt. n-Val.		0.013	
W.S. Elev (ft)	43.75	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	44.75	Flow Area (sq ft)		158.25	
E.G. Slope (ft/ft)	0.003775	Area (sq ft)		158.25	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	37.00	Top Width (ft)		37.00	
Vel Total (ft/s)	16.11	Avg. Vel. (ft/s)		16.11	
Max Chl Dpth (ft)	4.28	Hydr. Depth (ft)		4.28	
Conv. Total (cfs)	41489.0	Conv. (cfs)		41489.0	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		45.55	
Min Ch El (ft)	39.47	Shear (lb/sq ft)		0.82	

Alpha	1.00	Stream Power (lb/ft s)		13.19			
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)		3.31		0.04	
C & E Loss (ft)	0.41	Cum SA (acres)		1.02		0.01	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10429.91

INPUT
Description: Pioneer Phase II Channel per VTN Plans 68+20.01
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	44.63	0	44.63	0	38.63	37	38.63	37	44.63
38	44.63								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	37	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	37	.01	.01	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 45.63	44.63	38 45.63	44.63

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	47.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.70	Wt. n-Val.		0.013	
W.S. Elev (ft)	42.59	Reach Len. (ft)	0.01	0.01	0.01
Crit W.S. (ft)	43.91	Flow Area (sq ft)		146.59	
E.G. Slope (ft/ft)	*0.004782	Area (sq ft)		146.59	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	37.00	Top Width (ft)		37.00	
Vel Total (ft/s)	17.39	Avg. Vel. (ft/s)		17.39	
Max Chl Dpth (ft)	3.96	Hydr. Depth (ft)		3.96	
Conv. Total (cfs)	36862.1	Conv. (cfs)		36862.1	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		44.92	
Min Ch El (ft)	38.63	Shear (lb/sq ft)		0.97	
Alpha	1.00	Stream Power (lb/ft s)		16.94	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)		2.96	0.04
C & E Loss (ft)	0.07	Cum SA (acres)		0.94	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10429.90

INPUT
Description: Pioneer Phase II Channel per VTN Plans 68+20.01
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	44.63	0	44.63	0	38.63	15	38.63	15	44.63
16	44.63	16	38.63	37	38.63	37	44.63	38	44.63

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	37	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	37	139.99 139.99	139.99	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 45.63	44.63	38 45.63	44.63

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	47.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.27	Wt. n-Val.		0.013	
W.S. Elev (ft)	42.90	Reach Len. (ft)	139.99	139.99	139.99
Crit W.S. (ft)	44.01	Flow Area (sq ft)		153.78	
E.G. Slope (ft/ft)	*0.005093	Area (sq ft)		153.78	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	36.00	Top Width (ft)		36.00	
Vel Total (ft/s)	16.58	Avg. Vel. (ft/s)		16.58	
Max Chl Dpth (ft)	4.27	Hydr. Depth (ft)		4.27	
Conv. Total (cfs)	35717.0	Conv. (cfs)		35717.0	
Length Wtd. (ft)	139.99	Wetted Per. (ft)		53.09	
Min Ch El (ft)	38.63	Shear (lb/sq ft)		0.92	
Alpha	1.00	Stream Power (lb/ft s)		15.27	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.96	0.04
C & E Loss (ft)	0.13	Cum SA (acres)		0.94	0.01

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10289.92

INPUT
Description: Pioneer Phase II Channel per VTN Plans 69+60.00
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	42.32	0	42.32	0	36.32	15	36.32	15	42.32
16	42.32	16	36.32	37	36.32	37	42.32	38	42.32

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	37	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	37	.01	.01	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord

-1	43.32	42.32	38	43.32	42.32

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	46.06	Element	Left OB	Channel / Right OB
Vel Head (ft)	6.19	Wt. n-Val.		0.013
W.S. Elev (ft)	39.87	Reach Len. (ft)	0.01	0.01 / 0.01
Crit W.S. (ft)	41.70	Flow Area (sq ft)		127.68
E.G. Slope (ft/ft)	*0.008785	Area (sq ft)		127.68
Q Total (cfs)	2549.00	Flow (cfs)		2549.00
Top Width (ft)	36.00	Top Width (ft)		36.00
Vel Total (ft/s)	19.96	Avg. Vel. (ft/s)		19.96
Max Chl Dpth (ft)	3.55	Hydr. Depth (ft)		3.55
Conv. Total (cfs)	27196.1	Conv. (cfs)		27196.1
Length Wtd. (ft)	0.01	Wetted Per. (ft)		50.19
Min Ch El (ft)	36.32	Shear (lb/sq ft)		1.40
Alpha	1.00	Stream Power (lb/ft s)		27.86
Frctn Loss (ft)	0.92	Cum Volume (acre-ft)		2.51 / 0.04
C & E Loss (ft)	0.19	Cum SA (acres)		0.82 / 0.01

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10289.91

INPUT
Description: Pioneer Phase II Channel per VTN Plans 69+60.01
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	42.32	0	42.32	0	36.32	37	36.32	37	42.32
38	42.32								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	37	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	37	79.99	79.99	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 43.32	42.32	38 43.32	42.32

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	46.04	Element	Left OB	Channel / Right OB
Vel Head (ft)	6.31	Wt. n-Val.		0.013
W.S. Elev (ft)	39.74	Reach Len. (ft)	79.99	79.99 / 79.99
Crit W.S. (ft)	41.60	Flow Area (sq ft)		126.50
E.G. Slope (ft/ft)	*0.007566	Area (sq ft)		126.50
Q Total (cfs)	2549.00	Flow (cfs)		2549.00
Top Width (ft)	37.00	Top Width (ft)		37.00
Vel Total (ft/s)	20.15	Avg. Vel. (ft/s)		20.15
Max Chl Dpth (ft)	3.42	Hydr. Depth (ft)		3.42
Conv. Total (cfs)	29305.2	Conv. (cfs)		29305.2
Length Wtd. (ft)	79.99	Wetted Per. (ft)		43.84
Min Ch El (ft)	36.32	Shear (lb/sq ft)		1.36
Alpha	1.00	Stream Power (lb/ft s)		27.46
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.51 / 0.04
C & E Loss (ft)	0.01	Cum SA (acres)		0.82 / 0.01

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10209.93

INPUT
Description: Pioneer Phase II Channel per VTN Plans 70+40.00
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	28.17	0	28.17	0	19.67	22	19.67	22	28.17
23	28.17								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	22	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	22	85	85	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	43.52	Element	Left OB	Channel / Right OB
Vel Head (ft)	20.68	Wt. n-Val.		0.013
W.S. Elev (ft)	22.85	Reach Len. (ft)	85.00	85.00 / 85.00
Crit W.S. (ft)	27.12	Flow Area (sq ft)		69.85
E.G. Slope (ft/ft)	*0.030630	Area (sq ft)		69.85
Q Total (cfs)	2549.00	Flow (cfs)		2549.00
Top Width (ft)	22.00	Top Width (ft)		22.00
Vel Total (ft/s)	36.49	Avg. Vel. (ft/s)		36.49
Max Chl Dpth (ft)	3.18	Hydr. Depth (ft)		3.18
Conv. Total (cfs)	14564.5	Conv. (cfs)		14564.5
Length Wtd. (ft)	85.00	Wetted Per. (ft)		28.35
Min Ch El (ft)	19.67	Shear (lb/sq ft)		4.71
Alpha	1.00	Stream Power (lb/ft s)		171.93
Frctn Loss (ft)	1.08	Cum Volume (acre-ft)		2.33 / 0.04
C & E Loss (ft)	1.44	Cum SA (acres)		0.77 / 0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10124.93

INPUT

Description: Pioneer Phase II Channel per VTN Plans 71+25.00
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	26.31	0	26.31	0	20.31	22	20.31	22	26.31
23	26.31								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	22	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 22 .01 .01 .01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	40.01	Element	Left OB	Channel / Right OB
Vel Head (ft)	16.11	Wt. n-Val.		0.013
W.S. Elev (ft)	23.91	Reach Len. (ft)	0.01	0.01 / 0.01
Crit W.S. (ft)	27.80	Flow Area (sq ft)		79.15
E.G. Slope (ft/ft)	*0.021003	Area (sq ft)		79.15
Q Total (cfs)	2549.00	Flow (cfs)		2549.00
Top Width (ft)	22.00	Top Width (ft)		22.00
Vel Total (ft/s)	32.21	Avg. Vel. (ft/s)		32.21
Max Chl Dpth (ft)	3.60	Hydr. Depth (ft)		3.60
Conv. Total (cfs)	17588.5	Conv. (cfs)		17588.5
Length Wtd. (ft)	0.01	Wetted Per. (ft)		29.20
Min Ch El (ft)	20.31	Shear (lb/sq ft)		3.55
Alpha	1.00	Stream Power (lb/ft s)		114.48
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)		2.18 / 0.04
C & E Loss (ft)	1.37	Cum SA (acres)		0.72 / 0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10124.92

INPUT
Description: Pioneer Phase II Channel per VTN Plans 71+25.01
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	26.31	0	26.31	0	20.31	12	20.31	12	26.31
13	26.31	13	20.31	22	20.31	22	26.31	23	26.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	22	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 22 124.99 124.99 124.99 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	39.93	Element	Left OB	Channel / Right OB
Vel Head (ft)	15.81	Wt. n-Val.		0.013
W.S. Elev (ft)	24.11	Reach Len. (ft)	124.99	124.99 / 124.99
Crit W.S. (ft)	28.08	Flow Area (sq ft)		79.88
E.G. Slope (ft/ft)	*0.027147	Area (sq ft)		79.88
Q Total (cfs)	2549.00	Flow (cfs)		2549.00
Top Width (ft)	21.00	Top Width (ft)		21.00
Vel Total (ft/s)	31.91	Avg. Vel. (ft/s)		31.91
Max Chl Dpth (ft)	3.80	Hydr. Depth (ft)		3.80
Conv. Total (cfs)	15470.7	Conv. (cfs)		15470.7
Length Wtd. (ft)	124.99	Wetted Per. (ft)		36.21
Min Ch El (ft)	20.31	Shear (lb/sq ft)		3.74
Alpha	1.00	Stream Power (lb/ft s)		119.29
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.18 / 0.04
C & E Loss (ft)	0.09	Cum SA (acres)		0.72 / 0.01

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 9999.93

INPUT
Description: Pioneer Phase II Channel per VTN Plans 72+50.00
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	28.17	0	28.17	0	19.67	12	19.67	12	28.17
13	28.17	13	19.67	22	19.67	22	28.17	23	28.17
23	19.67	33	19.67	33	28.17	34	28.17		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	22	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 22 .01 .01 .01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	35.62	Element	Left OB	Channel / Right OB
Vel Head (ft)	13.12	Wt. n-Val.		0.013 / 0.013
W.S. Elev (ft)	22.50	Reach Len. (ft)	0.01	0.01 / 0.01
Crit W.S. (ft)	25.61	Flow Area (sq ft)		59.40 / 28.29
E.G. Slope (ft/ft)	*0.028941	Area (sq ft)		59.40 / 28.29
Q Total (cfs)	2549.00	Flow (cfs)		1733.17 / 815.83
Top Width (ft)	31.00	Top Width (ft)		21.00 / 10.00
Vel Total (ft/s)	29.07	Avg. Vel. (ft/s)		29.18 / 28.84
Max Chl Dpth (ft)	2.83	Hydr. Depth (ft)		2.83 / 2.83
Conv. Total (cfs)	14983.6	Conv. (cfs)		10188.0 / 4795.6
Length Wtd. (ft)	0.01	Wetted Per. (ft)		32.31 / 15.66
Min Ch El (ft)	19.67	Shear (lb/sq ft)		3.32 / 3.26
Alpha	1.00	Stream Power (lb/ft s)		96.91 / 94.14
Frctn Loss (ft)	3.50	Cum Volume (acre-ft)		1.98 / 0.00
C & E Loss (ft)	0.81	Cum SA (acres)		0.66 / 0.00

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 9999.92

INPUT
Description: Pioneer Phase II Channel per VTN Plans 72+50.01
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	28.17	0	28.17	0	19.67	33	19.67	33	28.17
34	28.17								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	33	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	33	94.44	94.44	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	35.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	13.29	Wt. n-Val.		0.013	
W.S. Elev (ft)	22.31	Reach Len. (ft)	94.44	94.44	94.44
Crit W.S. (ft)	25.35	Flow Area (sq ft)		87.12	
E.G. Slope (ft/ft)	0.021890	Area (sq ft)		87.12	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	33.00	Top Width (ft)		33.00	
Vel Total (ft/s)	29.26	Avg. Vel. (ft/s)		29.26	
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)		2.64	
Conv. Total (cfs)	17228.5	Conv. (cfs)		17228.5	
Length Wtd. (ft)	94.44	Wetted Per. (ft)		38.28	
Min Ch El (ft)	19.67	Shear (lb/sq ft)		3.11	
Alpha	1.00	Stream Power (lb/ft s)		91.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.98	
C & E Loss (ft)	0.02	Cum SA (acres)		0.66	

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 9905.49

INPUT
Description: Pioneer Phase II Channel per VTN Plans 73+44.45
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	27.69	0	27.69	0	19.19	33	19.19	33	27.69
34	27.69								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	33	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	33	60	60	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	33.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	11.07	Wt. n-Val.		0.013	
W.S. Elev (ft)	22.08	Reach Len. (ft)	60.00	60.00	60.00
Crit W.S. (ft)	24.87	Flow Area (sq ft)		95.47	
E.G. Slope (ft/ft)	0.016418	Area (sq ft)		95.47	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	33.00	Top Width (ft)		33.00	
Vel Total (ft/s)	26.70	Avg. Vel. (ft/s)		26.70	
Max Chl Dpth (ft)	2.89	Hydr. Depth (ft)		2.89	
Conv. Total (cfs)	19893.1	Conv. (cfs)		19893.1	
Length Wtd. (ft)	60.00	Wetted Per. (ft)		38.79	
Min Ch El (ft)	19.19	Shear (lb/sq ft)		2.52	
Alpha	1.00	Stream Power (lb/ft s)		67.36	
Frctn Loss (ft)	1.78	Cum Volume (acre-ft)		1.78	
C & E Loss (ft)	0.67	Cum SA (acres)		0.59	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 9845.49

INPUT
Description: Pioneer Phase II Channel per VTN Plans 74+04.45
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-18	28.13	0	19.13	12.5	18.88	25	19.13	43	28.13

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-18	.013	-18	.013	43	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-18	43	600	600	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	31.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	9.49	Wt. n-Val.		0.013	
W.S. Elev (ft)	22.32	Reach Len. (ft)	600.00	600.00	600.00
Crit W.S. (ft)	24.86	Flow Area (sq ft)		103.09	
E.G. Slope (ft/ft)	0.012914	Area (sq ft)		103.09	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	37.75	Top Width (ft)		37.75	
Vel Total (ft/s)	24.73	Avg. Vel. (ft/s)		24.73	
Max Chl Dpth (ft)	3.44	Hydr. Depth (ft)		2.73	
Conv. Total (cfs)	22430.3	Conv. (cfs)		22430.3	
Length Wtd. (ft)	600.00	Wetted Per. (ft)		39.26	
Min Ch El (ft)	18.88	Shear (lb/sq ft)		2.12	
Alpha	1.00	Stream Power (lb/ft s)		52.35	
Frctn Loss (ft)	0.87	Cum Volume (acre-ft)		1.65	
C & E Loss (ft)	0.47	Cum SA (acres)		0.54	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 9245.49

INPUT
Description: Pioneer Phase II Channel per VTN Plans 80+04.45 - End 600' DS
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-18	25.13	0	16.13	12.5	15.88	25	16.13	43	25.13

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-18	.013	-18	.013	43	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-18	43	0	0	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	25.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.46	Wt. n-Val.		0.013	
W.S. Elev (ft)	20.15	Reach Len. (ft)			
Crit W.S. (ft)	21.88	Flow Area (sq ft)		135.94	
E.G. Slope (ft/ft)	0.005797	Area (sq ft)		135.94	
Q Total (cfs)	2549.00	Flow (cfs)		2549.00	
Top Width (ft)	41.08	Top Width (ft)		41.08	
Vel Total (ft/s)	18.75	Avg. Vel. (ft/s)		18.75	
Max Chl Dpth (ft)	4.27	Hydr. Depth (ft)		3.31	
Conv. Total (cfs)	33479.6	Conv. (cfs)		33479.6	
Length Wtd. (ft)		Wetted Per. (ft)		42.98	
Min Ch El (ft)	15.88	Shear (lb/sq ft)		1.14	
Alpha	1.00	Stream Power (lb/ft s)		21.46	
Frctn Loss (ft)	4.99	Cum Volume (acre-ft)			
C & E Loss (ft)	1.21	Cum SA (acres)			

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 18653.05

INPUT
Description: Gibson Channel per VTN Plans 10+00
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	134.6	0	134.6	0	127.07	18	127.07	18	134.6
19	134.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	18	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	18	50	50	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	133.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.59	Wt. n-Val.		0.013	
W.S. Elev (ft)	129.65	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	130.68	Flow Area (sq ft)		46.38	
E.G. Slope (ft/ft)	0.007003	Area (sq ft)		46.38	
Q Total (cfs)	705.00	Flow (cfs)		705.00	
Top Width (ft)	18.00	Top Width (ft)		18.00	
Vel Total (ft/s)	15.20	Avg. Vel. (ft/s)		15.20	
Max Chl Dpth (ft)	2.58	Hydr. Depth (ft)		2.58	
Conv. Total (cfs)	8424.6	Conv. (cfs)		8424.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		23.15	
Min Ch El (ft)	127.07	Shear (lb/sq ft)		0.88	
Alpha	1.00	Stream Power (lb/ft s)		13.31	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.10	8.90	0.10
C & E Loss (ft)		Cum SA (acres)	0.06	3.61	0.06

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 18603.05

INPUT
Description: Gibson Channel per VTN Plans 10+50
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	130.85	0	130.85	0	126.35	18.7	126.35	18.7	133.88
19.7	133.88								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	18.7	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	18.7	248.99	248.99	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	132.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.11	Wt. n-Val.		0.013	
W.S. Elev (ft)	128.67	Reach Len. (ft)	248.99	248.99	248.99
Crit W.S. (ft)	129.87	Flow Area (sq ft)		43.32	
E.G. Slope (ft/ft)	0.008885	Area (sq ft)		43.32	
Q Total (cfs)	705.00	Flow (cfs)		705.00	
Top Width (ft)	18.70	Top Width (ft)		18.70	
Vel Total (ft/s)	16.27	Avg. Vel. (ft/s)		16.27	
Max Chl Dpth (ft)	2.32	Hydr. Depth (ft)		2.32	
Conv. Total (cfs)	7479.5	Conv. (cfs)		7479.5	
Length Wtd. (ft)	248.99	Wetted Per. (ft)		23.33	
Min Ch El (ft)	126.35	Shear (lb/sq ft)		1.03	
Alpha	1.00	Stream Power (lb/ft s)		16.76	

* Frctn Loss (ft)	* 0.39	* Cum Volume (acre-ft)	* 0.10	* 8.84	* 0.10	*
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 0.06	* 3.59	* 0.06	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 18354.06

INPUT
Description: Gibson Channel per VTN Plans 12+98.99
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	127.27	0	127.27	0	122.77	18.7	122.77	18.7	130.38
19.7	130.38								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	18.7	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 18.7 39.59 39.59 39.59 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 130.04	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 5.21	* Wt. n-Val.	*	* 0.013	*	*
* W.S. Elev (ft)	* 124.83	* Reach Len. (ft)	* 39.59	* 39.59	* 39.59	*
* Crit W.S. (ft)	* 126.29	* Flow Area (sq ft)	*	* 38.49	*	*
* E.G. Slope (ft/ft)	*0.012783	* Area (sq ft)	*	* 38.49	*	*
* Q Total (cfs)	* 705.00	* Flow (cfs)	*	* 705.00	*	*
* Top Width (ft)	* 18.70	* Top Width (ft)	*	* 18.70	*	*
* Vel Total (ft/s)	* 18.31	* Avg. Vel. (ft/s)	*	* 18.31	*	*
* Max Chl Dpth (ft)	* 2.06	* Hydr. Depth (ft)	*	* 2.06	*	*
* Conv. Total (cfs)	* 6235.5	* Conv. (cfs)	*	* 6235.5	*	*
* Length Wtd. (ft)	* 39.59	* Wetted Per. (ft)	*	* 22.82	*	*
* Min Ch El (ft)	* 122.77	* Shear (lb/sq ft)	*	* 1.35	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 24.66	*	*
* Frctn Loss (ft)	* 2.63	* Cum Volume (acre-ft)	* 0.10	* 8.61	* 0.10	*
* C & E Loss (ft)	* 0.11	* Cum SA (acres)	* 0.06	* 3.48	* 0.06	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 18314.47

INPUT
Description: Gibson Channel per VTN Plans 13+38.58
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	128.2	0	128.2	0	122.2	9	122.2	9	128.2
10	128.2	10	122.2	19	122.2	19	128.2	20	128.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	19	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 19 1278.45 1278.45 1278.45 .1 .3

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1	129.2	128.2	20	129.2	128.2

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 129.45	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 5.08	* Wt. n-Val.	*	* 0.013	*	*
* W.S. Elev (ft)	* 124.36	* Reach Len. (ft)	* 1278.45	* 1278.45	* 1278.45	*
* Crit W.S. (ft)	* 125.82	* Flow Area (sq ft)	*	* 38.96	*	*
* E.G. Slope (ft/ft)	*0.015109	* Area (sq ft)	*	* 38.96	*	*
* Q Total (cfs)	* 705.00	* Flow (cfs)	*	* 705.00	*	*
* Top Width (ft)	* 18.00	* Top Width (ft)	*	* 18.00	*	*
* Vel Total (ft/s)	* 18.09	* Avg. Vel. (ft/s)	*	* 18.09	*	*
* Max Chl Dpth (ft)	* 2.16	* Hydr. Depth (ft)	*	* 2.16	*	*
* Conv. Total (cfs)	* 5735.6	* Conv. (cfs)	*	* 5735.6	*	*
* Length Wtd. (ft)	* 1278.45	* Wetted Per. (ft)	*	* 26.66	*	*
* Min Ch El (ft)	* 122.20	* Shear (lb/sq ft)	*	* 1.38	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 24.94	*	*
* Frctn Loss (ft)	* 0.55	* Cum Volume (acre-ft)	* 0.10	* 8.57	* 0.10	*
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 0.06	* 3.47	* 0.06	*

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 17036.02

INPUT
Description: Gibson Channel per VTN Plans 26+17.03
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	113.91	0	113.91	0	107.91	19	107.91	19	113.91
20	113.91								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	19	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 19 50 50 50 .1 .3

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1	115.5	113.91	20	115.5	113.91

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	114.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.17	Wt. n-Val.		0.013	
W.S. Elev (ft)	110.18	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	111.41	Flow Area (sq ft)		43.04	
E.G. Slope (ft/ft)	*0.009181	Area (sq ft)		43.04	
Q Total (cfs)	705.00	Flow (cfs)		705.00	
Top Width (ft)	19.00	Top Width (ft)		19.00	
Vel Total (ft/s)	16.38	Avg. Vel. (ft/s)		16.38	
Max Chl Dpth (ft)	2.27	Hydr. Depth (ft)		2.27	
Conv. Total (cfs)	7357.8	Conv. (cfs)		7357.8	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		23.53	
Min Ch El (ft)	107.91	Shear (lb/sq ft)		1.05	
Alpha	1.00	Stream Power (lb/ft s)		17.17	
Frctn Loss (ft)	14.83	Cum Volume (acre-ft)	0.10	7.37	0.10
C & E Loss (ft)	0.28	Cum SA (acres)	0.06	2.92	0.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 16991.39

INPUT
Description: Gibson Channel per VTN Plans 26+67.03

Station Elevation Data num= 6									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	112.01	0	112.01	0	107.51	18.7	107.51	18.7	112.01
19.7	112.01								

Manning's n Values num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	18.7	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	18.7	714.11	714.11	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1	113.6 112.01	19.7	113.6 112.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	113.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.96	Wt. n-Val.		0.013	
W.S. Elev (ft)	109.88	Reach Len. (ft)	714.11	714.11	714.11
Crit W.S. (ft)	111.05	Flow Area (sq ft)		44.40	
E.G. Slope (ft/ft)	*0.008335	Area (sq ft)		44.40	
Q Total (cfs)	709.00	Flow (cfs)		709.00	
Top Width (ft)	18.70	Top Width (ft)		18.70	
Vel Total (ft/s)	15.97	Avg. Vel. (ft/s)		15.97	
Max Chl Dpth (ft)	2.37	Hydr. Depth (ft)		2.37	
Conv. Total (cfs)	7766.1	Conv. (cfs)		7766.1	
Length Wtd. (ft)	714.11	Wetted Per. (ft)		23.45	
Min Ch El (ft)	107.51	Shear (lb/sq ft)		0.99	
Alpha	1.00	Stream Power (lb/ft s)		15.73	
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)	0.10	7.32	0.10
C & E Loss (ft)	0.06	Cum SA (acres)	0.06	2.90	0.06

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 16271.91

INPUT
Description: Gibson Channel per VTN Plans 33+81.14

Station Elevation Data num= 6									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	106.36	0	106.36	0	101.86	18.7	101.86	18.7	106.36
19.7	106.36								

Manning's n Values num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	18.7	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	18.7	50.08	50.08	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1	107.95 106.36	19.7	107.95 106.36

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	108.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.77	Wt. n-Val.		0.013	
W.S. Elev (ft)	104.29	Reach Len. (ft)	50.08	50.08	50.08
Crit W.S. (ft)	105.40	Flow Area (sq ft)		45.53	
E.G. Slope (ft/ft)	*0.007717	Area (sq ft)		45.53	
Q Total (cfs)	709.00	Flow (cfs)		709.00	
Top Width (ft)	18.70	Top Width (ft)		18.70	
Vel Total (ft/s)	15.57	Avg. Vel. (ft/s)		15.57	
Max Chl Dpth (ft)	2.43	Hydr. Depth (ft)		2.43	
Conv. Total (cfs)	8070.6	Conv. (cfs)		8070.6	
Length Wtd. (ft)	50.08	Wetted Per. (ft)		23.57	
Min Ch El (ft)	101.86	Shear (lb/sq ft)		0.93	
Alpha	1.00	Stream Power (lb/ft s)		14.49	
Frctn Loss (ft)	5.73	Cum Volume (acre-ft)	0.10	6.58	0.10
C & E Loss (ft)	0.06	Cum SA (acres)	0.06	2.60	0.06

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 16221.83

INPUT
Description: Gibson Channel per VTN Plans 34+31.22

Station Elevation Data num= 10									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

-1	107.46	0	107.46	0	101.46	10	101.46	10	107.46
11	107.46	11	101.46	21	101.46	21	107.46	22	107.46

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	21	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	21	347	347	.1	.3

Cross Section Lid num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
-1	108.46	107.46	22	108.46	107.46

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	107.59	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.90	Wt. n-Val.		0.013
W.S. Elev (ft)	103.70	Reach Len. (ft)	347.00	347.00 / 347.00
Crit W.S. (ft)	104.86	Flow Area (sq ft)		44.76
E.G. Slope (ft/ft)	*0.010743	Area (sq ft)		44.76
Q Total (cfs)	709.00	Flow (cfs)		709.00
Top Width (ft)	20.00	Top Width (ft)		20.00
Vel Total (ft/s)	15.84	Avg. Vel. (ft/s)		15.84
Max Chl Dpth (ft)	2.24	Hydr. Depth (ft)		2.24
Conv. Total (cfs)	6840.4	Conv. (cfs)		6840.4
Length Wtd. (ft)	347.00	Wetted Per. (ft)		28.95
Min Ch El (ft)	101.46	Shear (lb/sq ft)		1.04
Alpha	1.00	Stream Power (lb/ft s)		16.42
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	0.10	6.53 / 0.10
C & E Loss (ft)	0.01	Cum SA (acres)	0.06	2.57 / 0.06

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 15874.83

INPUT
Description: Gibson Channel per VTN Plans 37+78.22
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	107.2	0	107.2	0	99.56	21	99.56	21	107.2
22	107.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	21	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	21	50	50	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	104.79	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.64	Wt. n-Val.		0.013
W.S. Elev (ft)	102.15	Reach Len. (ft)	50.00	50.00 / 50.00
Crit W.S. (ft)	102.83	Flow Area (sq ft)		54.35
E.G. Slope (ft/ft)	*0.004916	Area (sq ft)		54.35
Q Total (cfs)	709.00	Flow (cfs)		709.00
Top Width (ft)	21.00	Top Width (ft)		21.00
Vel Total (ft/s)	13.04	Avg. Vel. (ft/s)		13.04
Max Chl Dpth (ft)	2.59	Hydr. Depth (ft)		2.59
Conv. Total (cfs)	10112.0	Conv. (cfs)		10112.0
Length Wtd. (ft)	50.00	Wetted Per. (ft)		26.18
Min Ch El (ft)	99.56	Shear (lb/sq ft)		0.64
Alpha	1.00	Stream Power (lb/ft s)		8.31
Frctn Loss (ft)	2.43	Cum Volume (acre-ft)	0.10	6.14 / 0.10
C & E Loss (ft)	0.38	Cum SA (acres)	0.06	2.41 / 0.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 15824.82

INPUT
Description: Gibson Channel per VTN Plans 38+28.23
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	103.7	0	103.7	0	99.22	21.8	99.22	21.8	106.11
22.8	106.11								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	21.8	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	21.8	189.22	189.22	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	104.49	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.02	Wt. n-Val.		0.013
W.S. Elev (ft)	102.47	Reach Len. (ft)	189.22	189.22 / 189.22
Crit W.S. (ft)	102.70	Flow Area (sq ft)		70.79
E.G. Slope (ft/ft)	*0.002929	Area (sq ft)		70.79
Q Total (cfs)	807.00	Flow (cfs)		807.00
Top Width (ft)	21.80	Top Width (ft)		21.80
Vel Total (ft/s)	11.40	Avg. Vel. (ft/s)		11.40
Max Chl Dpth (ft)	3.25	Hydr. Depth (ft)		3.25
Conv. Total (cfs)	14912.0	Conv. (cfs)		14912.0
Length Wtd. (ft)	189.22	Wetted Per. (ft)		28.29
Min Ch El (ft)	99.22	Shear (lb/sq ft)		0.46
Alpha	1.00	Stream Power (lb/ft s)		5.21
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	0.10	6.07 / 0.10
C & E Loss (ft)	0.27	Cum SA (acres)	0.06	2.39 / 0.06

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 15635.6

INPUT
Description: Gibson Channel per VTN Plans 40+17.45
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	102.43	0	102.43	0	97.93	21.8	97.93	21.8	105.36
22.8	105.36								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	21.8	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 21.8 620.51 620.51 620.51 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	103.64	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.08	Wt. n-Val.		0.013
W.S. Elev (ft)	100.56	Reach Len. (ft)	620.51	620.51 / 620.51
Crit W.S. (ft)	101.41	Flow Area (sq ft)		57.34
E.G. Slope (ft/ft)	0.005570	Area (sq ft)		57.34
Q Total (cfs)	807.00	Flow (cfs)		807.00
Top Width (ft)	21.80	Top Width (ft)		21.80
Vel Total (ft/s)	14.07	Avg. Vel. (ft/s)		14.07
Max Chl Dpth (ft)	2.63	Hydr. Depth (ft)		2.63
Conv. Total (cfs)	10812.9	Conv. (cfs)		10812.9
Length Wtd. (ft)	620.51	Wetted Per. (ft)		27.06
Min Ch El (ft)	97.93	Shear (lb/sq ft)		0.74
Alpha	1.00	Stream Power (lb/ft s)		10.37
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	0.10	5.79 / 0.10
C & E Loss (ft)	0.11	Cum SA (acres)	0.06	2.29 / 0.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 15080.09

INPUT
Description: Gibson Channel per VTN Plans 45+72.94
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	98.69	0	98.69	0	94.19	21.8	94.19	21.8	98.69
22.8	98.69								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	21.8	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 21.8 65 65 65 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	100.00	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.26	Wt. n-Val.		0.013
W.S. Elev (ft)	96.75	Reach Len. (ft)	65.00	65.00 / 65.00
Crit W.S. (ft)	97.67	Flow Area (sq ft)		55.74
E.G. Slope (ft/ft)	0.006078	Area (sq ft)		55.74
Q Total (cfs)	807.00	Flow (cfs)		807.00
Top Width (ft)	21.80	Top Width (ft)		21.80
Vel Total (ft/s)	14.48	Avg. Vel. (ft/s)		14.48
Max Chl Dpth (ft)	2.56	Hydr. Depth (ft)		2.56
Conv. Total (cfs)	10351.1	Conv. (cfs)		10351.1
Length Wtd. (ft)	65.00	Wetted Per. (ft)		26.91
Min Ch El (ft)	94.19	Shear (lb/sq ft)		0.79
Alpha	1.00	Stream Power (lb/ft s)		11.38
Frctn Loss (ft)	3.61	Cum Volume (acre-ft)	0.10	4.98 / 0.10
C & E Loss (ft)	0.02	Cum SA (acres)	0.06	1.98 / 0.06

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 15015.09

INPUT
Description: Gibson Channel per VTN Plans 46+37.97
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	98.76	0	98.76	0	93.76	9	93.76	9	98.76
10	98.76	10	93.76	19	93.76	19	98.76	20	98.76
20	93.76	29	93.76	29	98.76	30	98.76		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	29	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 29 374.89 398.39 421.9 .1 .3

Cross Section Lid num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
-1	99.76	98.76	30	99.76	98.76

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	99.41	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.72	Wt. n-Val.		0.013
W.S. Elev (ft)	95.69	Reach Len. (ft)	374.89	398.39 / 421.90
Crit W.S. (ft)	96.79	Flow Area (sq ft)		52.17
E.G. Slope (ft/ft)	0.012252	Area (sq ft)		52.17
Q Total (cfs)	807.00	Flow (cfs)		807.00

* Top Width (ft)	*	27.00	* Top Width (ft)	*		*	27.00	*		*
* Vel Total (ft/s)	*	15.47	* Avg. Vel. (ft/s)	*		*	15.47	*		*
* Max Chl Dpth (ft)	*	1.93	* Hydr. Depth (ft)	*		*	1.93	*		*
* Conv. Total (cfs)	*	7290.7	* Conv. (cfs)	*		*	7290.7	*		*
* Length Wtd. (ft)	*	398.39	* Wetted Per. (ft)	*		*	38.59	*		*
* Min Ch El (ft)	*	93.76	* Shear (lb/sq ft)	*		*	1.03	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	15.99	*		*
* Frctn Loss (ft)	*	0.54	* Cum Volume (acre-ft)	*	0.10	*	4.90	*	0.10	*
* C & E Loss (ft)	*	0.05	* Cum SA (acres)	*	0.06	*	1.94	*	0.06	*

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 14592.55

INPUT
Description: Gibson Channel per VTN Plans 50+60
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	95	0	95	0	88.41	29	88.41	29	95
30	95								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	29	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	29	50.5	50.5	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	94.42	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	4.34	* Wt. n-Val.	*		*	0.013	*		*
* W.S. Elev (ft)	*	90.07	* Reach Len. (ft)	*	50.50	*	50.50	*	50.50	*
* Crit W.S. (ft)	*	91.29	* Flow Area (sq ft)	*		*	48.26	*		*
* E.G. Slope (ft/ft)	*	0.012544	* Area (sq ft)	*		*	48.26	*		*
* Q Total (cfs)	*	807.00	* Flow (cfs)	*		*	807.00	*		*
* Top Width (ft)	*	29.00	* Top Width (ft)	*		*	29.00	*		*
* Vel Total (ft/s)	*	16.72	* Avg. Vel. (ft/s)	*		*	16.72	*		*
* Max Chl Dpth (ft)	*	1.66	* Hydr. Depth (ft)	*		*	1.66	*		*
* Conv. Total (cfs)	*	7205.4	* Conv. (cfs)	*		*	7205.4	*		*
* Length Wtd. (ft)	*	50.50	* Wetted Per. (ft)	*		*	32.33	*		*
* Min Ch El (ft)	*	88.41	* Shear (lb/sq ft)	*		*	1.17	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	19.55	*		*
* Frctn Loss (ft)	*	4.94	* Cum Volume (acre-ft)	*	0.10	*	4.44	*	0.10	*
* C & E Loss (ft)	*	0.06	* Cum SA (acres)	*	0.06	*	1.69	*	0.06	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 14542.55

INPUT
Description: Gibson Channel per VTN Plans 51+10.50
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	92.71	0	92.71	0	87.71	29	87.71	29	92.71
30	92.71								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	29	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	29	290.05	290.05	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	93.77	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	4.41	* Wt. n-Val.	*		*	0.013	*		*
* W.S. Elev (ft)	*	89.36	* Reach Len. (ft)	*	290.05	*	290.05	*	290.05	*
* Crit W.S. (ft)	*	90.59	* Flow Area (sq ft)	*		*	47.91	*		*
* E.G. Slope (ft/ft)	*	0.012844	* Area (sq ft)	*		*	47.91	*		*
* Q Total (cfs)	*	807.00	* Flow (cfs)	*		*	807.00	*		*
* Top Width (ft)	*	29.00	* Top Width (ft)	*		*	29.00	*		*
* Vel Total (ft/s)	*	16.85	* Avg. Vel. (ft/s)	*		*	16.85	*		*
* Max Chl Dpth (ft)	*	1.65	* Hydr. Depth (ft)	*		*	1.65	*		*
* Conv. Total (cfs)	*	7120.8	* Conv. (cfs)	*		*	7120.8	*		*
* Length Wtd. (ft)	*	290.05	* Wetted Per. (ft)	*		*	32.30	*		*
* Min Ch El (ft)	*	87.71	* Shear (lb/sq ft)	*		*	1.19	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	20.03	*		*
* Frctn Loss (ft)	*	0.64	* Cum Volume (acre-ft)	*	0.10	*	4.39	*	0.10	*
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	0.06	*	1.65	*	0.06	*

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 14252.5

INPUT
Description: Gibson Channel per VTN Plans 54+00.55
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	89.74	0	89.74	0	81.74	11.5	81.74	11.5	89.74
12.5	89.74								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	11.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	11.5	159.53	159.53	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	90.73	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	5.13	* Wt. n-Val.	*		*	0.013	*		*
* W.S. Elev (ft)	*	85.60	* Reach Len. (ft)	*	159.53	*	159.53	*	159.53	*

Crit W.S. (ft)	87.07	Flow Area (sq ft)			44.38		
E.G. Slope (ft/ft)	*0.008292	Area (sq ft)			44.38		
Q Total (cfs)	807.00	Flow (cfs)			807.00		
Top Width (ft)	11.50	Top Width (ft)			11.50		
Vel Total (ft/s)	18.18	Avg. Vel. (ft/s)			18.18		
Max Chl Dpth (ft)	3.86	Hydr. Depth (ft)			3.86		
Conv. Total (cfs)	8862.1	Conv. (cfs)			8862.1		
Length Wtd. (ft)	159.53	Wetted Per. (ft)			19.22		
Min Ch El (ft)	81.74	Shear (lb/sq ft)			1.20		
Alpha	1.00	Stream Power (lb/ft s)			21.74		
Frctn Loss (ft)	2.96	Cum Volume (acre-ft)		0.10	4.08	0.10	
C & E Loss (ft)	0.07	Cum SA (acres)		0.06	1.52	0.06	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 14092.97

INPUT
Description: Gibson Channel per VTN Plans 55+60.08 - End Gibson CH

Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	87.1	0	87.1	0	79.1	11.5	79.1	11.5	87.1
12.5	87.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	11.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	11.5	105.06	105.06	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	89.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.52	Wt. n-Val.		0.013	
W.S. Elev (ft)	82.53	Reach Len. (ft)	105.06	105.06	105.06
Crit W.S. (ft)	84.43	Flow Area (sq ft)		39.39	
E.G. Slope (ft/ft)	*0.011601	Area (sq ft)		39.39	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	11.50	Top Width (ft)		11.50	
Vel Total (ft/s)	20.49	Avg. Vel. (ft/s)		20.49	
Max Chl Dpth (ft)	3.43	Hydr. Depth (ft)		3.43	
Conv. Total (cfs)	7492.6	Conv. (cfs)		7492.6	
Length Wtd. (ft)	105.06	Wetted Per. (ft)		18.35	
Min Ch El (ft)	79.10	Shear (lb/sq ft)		1.55	
Alpha	1.00	Stream Power (lb/ft s)		31.85	
Frctn Loss (ft)	1.55	Cum Volume (acre-ft)	0.10	3.93	0.10
C & E Loss (ft)	0.14	Cum SA (acres)	0.06	1.48	0.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13987.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 3987.91

Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
94.24	83	94.25	75.56	100	75.56	105.75	75.56	105.76	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
94.24	.013	94.25	.013	105.75	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.25	105.75	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	87.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	9.14	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	78.45	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	80.89	Flow Area (sq ft)	0.01	33.26	0.01
E.G. Slope (ft/ft)	*0.010938	Area (sq ft)	0.01	33.26	0.01
Q Total (cfs)	807.00	Flow (cfs)	0.00	807.00	0.00
Top Width (ft)	11.51	Top Width (ft)		11.50	
Vel Total (ft/s)	24.26	Avg. Vel. (ft/s)	0.19	24.27	0.19
Max Chl Dpth (ft)	2.89	Hydr. Depth (ft)	1.45	2.89	1.44
Conv. Total (cfs)	7716.1	Conv. (cfs)	0.0	7716.0	0.0
Length Wtd. (ft)	100.00	Wetted Per. (ft)	2.89	11.50	2.89
Min Ch El (ft)	75.56	Shear (lb/sq ft)	0.00	1.97	0.00
Alpha	1.00	Stream Power (lb/ft s)	0.00	47.92	0.00
Frctn Loss (ft)	1.18	Cum Volume (acre-ft)	0.10	3.84	0.10
C & E Loss (ft)	0.26	Cum SA (acres)	0.06	1.45	0.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13887.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 3887.91

Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
94.24	83	94.25	74.86	100	74.86	105.75	74.86	105.76	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
94.24	.013	94.25	.013	105.75	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

94.25	105.75		100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	86.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.52	Wt. n-Val.	0.000	0.013	0.000
W.S. Elev (ft)	77.86	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	80.19	Flow Area (sq ft)	0.01	34.45	0.01
E.G. Slope (ft/ft)	*0.009723	Area (sq ft)	0.01	34.45	0.01
Q Total (cfs)	807.00	Flow (cfs)	0.00	807.00	0.00
Top Width (ft)	11.51	Top Width (ft)		11.50	
Vel Total (ft/s)	23.42	Avg. Vel. (ft/s)	0.17	23.42	0.17
Max Chl Dpth (ft)	3.00	Hydr. Depth (ft)	1.50	3.00	1.50
Conv. Total (cfs)	8184.2	Conv. (cfs)	0.0	8184.2	0.0
Length Wtd. (ft)	100.00	Wetted Per. (ft)	3.00	11.50	3.00
Min Ch El (ft)	74.86	Shear (lb/sq ft)		1.82	
Alpha	1.00	Stream Power (lb/ft s)		42.60	
Frctn Loss (ft)	1.03	Cum Volume (acre-ft)	0.10	3.76	0.10
C & E Loss (ft)	0.19	Cum SA (acres)	0.06	1.42	0.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13787.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 3787.91
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
94.24	83	94.25	74.16	100	74.16	105.75	74.16	105.76	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
94.24	.013	94.25	.013	105.75	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.25	105.75	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	85.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.07	Wt. n-Val.	0.000	0.013	0.000
W.S. Elev (ft)	77.24	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	79.49	Flow Area (sq ft)	0.01	35.39	0.01
E.G. Slope (ft/ft)	*0.008892	Area (sq ft)	0.01	35.39	0.01
Q Total (cfs)	807.00	Flow (cfs)	0.00	807.00	0.00
Top Width (ft)	11.51	Top Width (ft)		11.50	
Vel Total (ft/s)	22.80	Avg. Vel. (ft/s)	0.16	22.80	0.16
Max Chl Dpth (ft)	3.08	Hydr. Depth (ft)	1.54	3.08	1.54
Conv. Total (cfs)	8558.0	Conv. (cfs)	0.0	8558.0	0.0
Length Wtd. (ft)	100.00	Wetted Per. (ft)	3.07	11.50	3.07
Min Ch El (ft)	74.16	Shear (lb/sq ft)		1.71	
Alpha	1.00	Stream Power (lb/ft s)		38.96	
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)	0.10	3.68	0.10
C & E Loss (ft)	0.13	Cum SA (acres)	0.06	1.40	0.06

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13687.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 3687.91
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
94.24	83	94.25	73.46	100	73.46	105.75	73.46	105.76	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
94.24	.013	94.25	.013	105.75	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.25	105.75	85	85	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	84.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	7.77	Wt. n-Val.	0.000	0.013	0.000
W.S. Elev (ft)	76.60	Reach Len. (ft)	85.00	85.00	85.00
Crit W.S. (ft)	78.79	Flow Area (sq ft)	0.01	36.09	0.01
E.G. Slope (ft/ft)	*0.008333	Area (sq ft)	0.01	36.09	0.01
Q Total (cfs)	807.00	Flow (cfs)	0.00	807.00	0.00
Top Width (ft)	11.51	Top Width (ft)		11.50	
Vel Total (ft/s)	22.36	Avg. Vel. (ft/s)	0.15	22.36	0.15
Max Chl Dpth (ft)	3.14	Hydr. Depth (ft)	1.57	3.14	1.57
Conv. Total (cfs)	8840.4	Conv. (cfs)	0.0	8840.4	0.0
Length Wtd. (ft)	85.00	Wetted Per. (ft)	3.14	11.50	3.14
Min Ch El (ft)	73.46	Shear (lb/sq ft)		1.63	
Alpha	1.00	Stream Power (lb/ft s)		36.51	
Frctn Loss (ft)	0.86	Cum Volume (acre-ft)	0.10	3.60	0.10
C & E Loss (ft)	0.09	Cum SA (acres)	0.06	1.37	0.06

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13602.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 3602.91, begin transition
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
94.24	80.88	94.25	72.88	100	72.88	105.75	72.88	105.76	80.88

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
94.24	.013	94.25	.013	105.76	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.25	105.76	21.42	20.37	19.99	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	83.45	Element	Left OB	Channel	Right OB	
Vel Head (ft)	7.35	Wt. n-Val.	0.013	0.013		
W.S. Elev (ft)	76.11	Reach Len. (ft)	21.42	20.37	19.99	
Crit W.S. (ft)	78.21	Flow Area (sq ft)	0.01	37.10		
E.G. Slope (ft/ft)	*0.010562	Area (sq ft)	0.01	37.10		
Q Total (cfs)	807.00	Flow (cfs)	0.00	807.00		
Top Width (ft)	11.51	Top Width (ft)		11.50		
Vel Total (ft/s)	21.75	Avg. Vel. (ft/s)	0.19	21.75		
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)	1.61	3.23		
Conv. Total (cfs)	7852.2	Conv. (cfs)	0.0	7852.2		
Length Wtd. (ft)	20.37	Wetted Per. (ft)	3.23	14.73		
Min Ch El (ft)	72.88	Shear (lb/sq ft)	0.00	1.66		
Alpha	1.00	Stream Power (lb/ft s)	0.00	36.13		
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	0.10	3.53	0.10	
C & E Loss (ft)	0.13	Cum SA (acres)	0.06	1.35	0.06	

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13582.54

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
90.49	79.74	90.5	72.74	99.98	72.74	100.04	72.74	109.58	72.74
109.6	79.74								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
90.49	.013	90.49	.013	109.6	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
90.49	109.6	21.42	20.37	19.99	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	83.02	Element	Left OB	Channel	Right OB	
Vel Head (ft)	8.47	Wt. n-Val.		0.013		
W.S. Elev (ft)	74.55	Reach Len. (ft)	21.42	20.37	19.99	
Crit W.S. (ft)	76.54	Flow Area (sq ft)		34.55		
E.G. Slope (ft/ft)	*0.023852	Area (sq ft)		34.55		
Q Total (cfs)	807.00	Flow (cfs)		807.00		
Top Width (ft)	19.09	Top Width (ft)		19.09		
Vel Total (ft/s)	23.36	Avg. Vel. (ft/s)		23.36		
Max Chl Dpth (ft)	1.81	Hydr. Depth (ft)		1.81		
Conv. Total (cfs)	5225.3	Conv. (cfs)		5225.3		
Length Wtd. (ft)	20.37	Wetted Per. (ft)		22.70		
Min Ch El (ft)	72.74	Shear (lb/sq ft)		2.27		
Alpha	1.00	Stream Power (lb/ft s)		52.94		
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	0.10	3.51	0.10	
C & E Loss (ft)	0.11	Cum SA (acres)	0.06	1.34	0.06	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13562.17

INPUT
Description: Desert Canyon per STANTEC Plans RS 3562.17, end transition
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	78.59	86.75	72.59	100	72.59	113.42	72.59	113.43	78.59

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	86.74	.013	113.43	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
86.74	113.43	.01	.01	.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	82.44	Element	Left OB	Channel	Right OB	
Vel Head (ft)	8.56	Wt. n-Val.		0.013		
W.S. Elev (ft)	73.88	Reach Len. (ft)	0.01	0.01	0.01	
Crit W.S. (ft)	75.63	Flow Area (sq ft)		34.37		
E.G. Slope (ft/ft)	*0.034016	Area (sq ft)		34.37		
Q Total (cfs)	807.00	Flow (cfs)		807.00		
Top Width (ft)	26.67	Top Width (ft)		26.67		
Vel Total (ft/s)	23.48	Avg. Vel. (ft/s)		23.48		
Max Chl Dpth (ft)	1.29	Hydr. Depth (ft)		1.29		
Conv. Total (cfs)	4375.5	Conv. (cfs)		4375.5		
Length Wtd. (ft)	0.01	Wetted Per. (ft)		29.25		
Min Ch El (ft)	72.59	Shear (lb/sq ft)		2.50		
Alpha	1.00	Stream Power (lb/ft s)		58.59		
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	0.10	3.49	0.10	
C & E Loss (ft)	0.01	Cum SA (acres)	0.06	1.33	0.06	

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13562.16

INPUT
Description: Desert Canyon per STANTEC Plans RS 3562.16, RCB inlet
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	78.59	86.75	72.59	98.75	72.59	98.76	78.59	100	78.59
101.41	78.59	101.42	72.59	113.42	72.59	113.43	78.59		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	86.75	.013	113.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
86.75	113.42	9.96	9.96	9.96	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	82.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.33	Wt. n-Val.	0.000	0.013	0.000
W.S. Elev (ft)	74.04	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	75.85	Flow Area (sq ft)	0.00	34.85	0.00
E.G. Slope (ft/ft)	*0.029059	Area (sq ft)	0.00	34.85	0.00
Q Total (cfs)	807.00	Flow (cfs)	0.00	807.00	0.00
Top Width (ft)	24.01	Top Width (ft)		24.00	
Vel Total (ft/s)	23.15	Avg. Vel. (ft/s)	0.22	23.16	0.22
Max Chl Dpth (ft)	1.45	Hydr. Depth (ft)	0.73	1.45	0.73
Conv. Total (cfs)	4734.1	Conv. (cfs)	0.0	4734.1	0.0
Length Wtd. (ft)	0.10	Wetted Per. (ft)	1.45	26.90	1.45
Min Ch El (ft)	72.59	Shear (lb/sq ft)		2.35	
Alpha	1.00	Stream Power (lb/ft s)		54.42	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.10	3.49	0.10
C & E Loss (ft)	0.07	Cum SA (acres)	0.06	1.33	0.06

Warning: Divided flow computed for this cross-section.

BRIDGE

RIVER: North Channel
REACH: WEST RS: 13557.18

INPUT
Description: Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic analyisis only)
Distance from Upstream XS = .1
Deck/Roadway Width = 9.85
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
86.74	80.29	78.59	113.43	80.29	78.59

Upstream Bridge Cross Section Data
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	78.59	86.75	72.59	98.75	72.59	98.76	78.59	100	78.59
101.41	78.59	101.42	72.59	113.42	72.59	113.43	78.59		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	86.75	.013	113.42	.013

Bank Sta: Left Right Coeff Contr. Expan.
86.75 113.42 .1 .3

Downstream Deck/Roadway Coordinates
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
86.74	80.29	78.49	113.43	80.29	78.49

Downstream Bridge Cross Section Data
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	78.49	86.75	72.49	98.75	72.49	98.76	78.49	100	78.49
101.41	78.49	101.42	72.49	113.42	72.49	113.43	78.49		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	98.75	.013	101.42	.013

Bank Sta: Left Right Coeff Contr. Expan.
98.75 101.42 .1 .3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 1

Pier Data
Pier Station Upstream= 100.085 Downstream= 100.085
Upstream num= 2

Width	Elev	Width	Elev
3	72.59	3	78.59

Downstream num= 2

Width	Elev	Width	Elev
3	72.49	3	78.49

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

E.G. US. (ft)	82.37	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	74.04	E.G. Elev (ft)	82.36	81.98
Q Total (cfs)	807.00	W.S. Elev (ft)	74.06	73.99
Q Bridge (cfs)	807.00	Crit W.S. (ft)	75.89	75.79
Q Weir (cfs)		Max Chl Dpth (ft)	1.47	1.50
Weir Sta Lft (ft)		Vel Total (ft/s)	23.12	22.68
Weir Sta Rgt (ft)		Flow Area (sq ft)	34.91	35.59
Weir Submerg		Froude # Chl	3.35	0.00
Weir Max Depth (ft)		Specif Force (cu ft)	605.15	595.07
Min El Weir Flow (ft)	80.30	Hydr Depth (ft)	1.47	1.50
Min El Prs (ft)	78.59	W.P. Total (ft)	29.57	29.68
Delta EG (ft)	0.39	Conv. Total (cfs)	4780.0	4591.0
Delta WS (ft)	0.07	Top Width (ft)	23.67	23.68
BR Open Area (sq ft)	142.08	Frctn Loss (ft)	0.00	0.29
BR Open Vel (ft/s)	23.12	C & E Loss (ft)	0.01	0.09
Coef of Q		Shear Total (lb/sq ft)	2.10	2.31

Br Sel Method	*Energy only	* Power Total (lb/ft s)	*	48.57	*	52.45	*

Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Warning: There is no flow in the channel. Check that the channel stations are correctly coded. To force flow into the channel, a levee or ineffective flow may have to be added or the Manning's n of the overbank could be increased.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13552.2

INPUT
Description: Desert Canyon per STANTEC Plans RS 3552.2, begin existing south cell box

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	78.49	86.75	72.49	98.75	72.49	98.76	78.49	100	78.49
101.41	78.49	101.42	72.49	113.42	72.49	113.43	78.49		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	98.75	.013	101.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
98.75	101.42	73.41	73.41	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		81.98	Element		Left OB		Channel		Right OB		
Vel Head (ft)		8.01	Wt. n-Val.		0.013		0.013		0.013		
W.S. Elev (ft)		73.97	Reach Len. (ft)		73.41		73.41		73.41		
Crit W.S. (ft)		75.75	Flow Area (sq ft)		17.77		0.00		17.77		
E.G. Slope (ft/ft)		0.027303	Area (sq ft)		17.77		0.00		17.77		
Q Total (cfs)		807.00	Flow (cfs)		403.52		0.00		403.48		
Top Width (ft)		24.01	Top Width (ft)		12.00				12.00		
Vel Total (ft/s)		22.70	Avg. Vel. (ft/s)		22.71		0.22		22.70		
Max Chl Dpth (ft)		1.48	Hydr. Depth (ft)		1.48		0.74		1.48		
Conv. Total (cfs)		4883.9	Conv. (cfs)		2442.1		0.0		2441.8		
Length Wtd. (ft)		73.41	Wetted Per. (ft)		13.48		2.96		13.48		
Min Ch El (ft)		72.49	Shear (lb/sq ft)		2.25				2.25		
Alpha		1.00	Stream Power (lb/ft s)		51.02				51.01		
Frctn Loss (ft)		0.00	Cum Volume (acre-ft)		0.10		3.49		0.10		
C & E Loss (ft)		0.00	Cum SA (acres)		0.06		1.33		0.06		

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13478.79

INPUT
Description: Desert Canyon per STANTEC Plans RS 3478.79, end existing south cell box

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	78.15	86.75	72.15	98.75	72.15	98.76	78.15	100	78.15
101.41	78.15	101.42	72.15	113.42	72.15	113.43	78.15		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	98.75	.013	101.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
98.75	101.42	2.19	2.19	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		79.80	Element		Left OB		Channel		Right OB		
Vel Head (ft)		5.93	Wt. n-Val.		0.013		0.013		0.013		
W.S. Elev (ft)		73.87	Reach Len. (ft)		2.19		2.19		2.19		
Crit W.S. (ft)		75.41	Flow Area (sq ft)		20.65		0.00		20.65		
E.G. Slope (ft/ft)		0.016933	Area (sq ft)		20.65		0.00		20.65		
Q Total (cfs)		807.00	Flow (cfs)		403.50		0.00		403.50		
Top Width (ft)		24.01	Top Width (ft)		12.00				12.00		
Vel Total (ft/s)		19.53	Avg. Vel. (ft/s)		19.54		0.19		19.54		
Max Chl Dpth (ft)		1.72	Hydr. Depth (ft)		1.72		0.86		1.72		
Conv. Total (cfs)		6201.6	Conv. (cfs)		3100.8		0.0		3100.8		
Length Wtd. (ft)		2.19	Wetted Per. (ft)		13.72		3.44		13.72		
Min Ch El (ft)		72.15	Shear (lb/sq ft)		1.59				1.59		
Alpha		1.00	Stream Power (lb/ft s)		31.09				31.09		
Frctn Loss (ft)		1.56	Cum Volume (acre-ft)		0.07		3.49		0.07		
C & E Loss (ft)		0.62	Cum SA (acres)		0.04		1.33		0.04		

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13476.6

INPUT
Description: Desert Canyon per STANTEC Plans RS 3474.46, RCB PT

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	78.14	86.75	72.14	98.75	72.14	98.76	78.14	100	78.14
101.41	78.14	101.42	72.14	113.42	72.14	113.43	78.14		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	98.75	.013	101.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
98.75	101.42	45.02	51.05	52.79	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)		79.75	Element		Left OB		Channel		Right OB		
Vel Head (ft)		5.89	Wt. n-Val.		0.013		0.013		0.013		
W.S. Elev (ft)		73.87	Reach Len. (ft)		45.02		51.05		52.79		

* Crit W.S. (ft)	*	75.40	* Flow Area (sq ft)	*	20.72	*	0.00	*	20.72	*
* E.G. Slope (ft/ft)	*	0.016755	* Area (sq ft)	*	20.72	*	0.00	*	20.72	*
* Q Total (cfs)	*	807.00	* Flow (cfs)	*	403.50	*	0.00	*	403.50	*
* Top Width (ft)	*	24.01	* Top Width (ft)	*	12.00	*		*	12.00	*
* Vel Total (ft/s)	*	19.47	* Avg. Vel. (ft/s)	*	19.47	*	0.19	*	19.47	*
* Max Chl Dpth (ft)	*	1.73	* Hydr. Depth (ft)	*	1.73	*	0.86	*	1.73	*
* Conv. Total (cfs)	*	6234.5	* Conv. (cfs)	*	3117.3	*	0.0	*	3117.3	*
* Length Wtd. (ft)	*	48.91	* Wetted Per. (ft)	*	13.73	*	3.45	*	13.73	*
* Min Ch El (ft)	*	72.14	* Shear (lb/sq ft)	*	1.58	*		*	1.58	*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	30.75	*		*	30.75	*
* Frctn Loss (ft)	*	0.04	* Cum Volume (acre-ft)	*	0.07	*	3.49	*	0.07	*
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	0.03	*	1.33	*	0.03	*

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13425.61

INPUT
Description: Desert Canyon per STANTEC Plans RS 3425.61, RCB PC

Station Elevation Data num= 9									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	77.97	86.75	71.97	98.75	71.97	98.76	77.97	100	77.97
101.41	77.97	101.42	71.97	113.42	71.97	113.43	77.97		

Manning's n Values num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	98.75	.013	101.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
98.75	101.42	15	15	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	78.75	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	4.88	* Wt. n-Val.	*	0.013	*	0.013	*	0.013	*
* W.S. Elev (ft)	*	73.87	* Reach Len. (ft)	*	15.00	*	15.00	*	15.00	*
* Crit W.S. (ft)	*	75.23	* Flow Area (sq ft)	*	22.75	*	0.01	*	22.75	*
* E.G. Slope (ft/ft)	*	0.012473	* Area (sq ft)	*	22.75	*	0.01	*	22.75	*
* Q Total (cfs)	*	807.00	* Flow (cfs)	*	403.50	*	0.00	*	403.50	*
* Top Width (ft)	*	24.01	* Top Width (ft)	*	12.00	*		*	12.00	*
* Vel Total (ft/s)	*	17.73	* Avg. Vel. (ft/s)	*	17.73	*	0.17	*	17.73	*
* Max Chl Dpth (ft)	*	1.90	* Hydr. Depth (ft)	*	1.90	*	0.95	*	1.90	*
* Conv. Total (cfs)	*	7225.7	* Conv. (cfs)	*	3612.9	*	0.0	*	3612.9	*
* Length Wtd. (ft)	*	15.00	* Wetted Per. (ft)	*	13.89	*	3.79	*	13.89	*
* Min Ch El (ft)	*	71.97	* Shear (lb/sq ft)	*	1.28	*		*	1.28	*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	22.61	*		*	22.61	*
* Frctn Loss (ft)	*	0.70	* Cum Volume (acre-ft)	*	0.05	*	3.49	*	0.04	*
* C & E Loss (ft)	*	0.30	* Cum SA (acres)	*	0.02	*	1.33	*	0.02	*

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13410.61

INPUT
Description: Desert Canyon per STANTEC Plans RS 3410.61, RCB PT

Station Elevation Data num= 9									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	77.92	86.75	71.92	98.75	71.92	98.76	77.92	100	77.92
101.41	77.92	101.42	71.92	113.42	71.92	113.43	77.92		

Manning's n Values num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	98.75	.013	101.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
98.75	101.42	61.49	57.13	52.67	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	78.51	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	4.64	* Wt. n-Val.	*	0.013	*	0.013	*	0.013	*
* W.S. Elev (ft)	*	73.86	* Reach Len. (ft)	*	61.49	*	57.13	*	52.67	*
* Crit W.S. (ft)	*	75.18	* Flow Area (sq ft)	*	23.34	*	0.01	*	23.34	*
* E.G. Slope (ft/ft)	*	0.011511	* Area (sq ft)	*	23.34	*	0.01	*	23.34	*
* Q Total (cfs)	*	807.00	* Flow (cfs)	*	403.50	*	0.00	*	403.50	*
* Top Width (ft)	*	24.01	* Top Width (ft)	*	12.00	*		*	12.00	*
* Vel Total (ft/s)	*	17.29	* Avg. Vel. (ft/s)	*	17.29	*	0.17	*	17.29	*
* Max Chl Dpth (ft)	*	1.94	* Hydr. Depth (ft)	*	1.94	*	0.97	*	1.94	*
* Conv. Total (cfs)	*	7521.7	* Conv. (cfs)	*	3760.9	*	0.0	*	3760.8	*
* Length Wtd. (ft)	*	57.08	* Wetted Per. (ft)	*	13.94	*	3.89	*	13.95	*
* Min Ch El (ft)	*	71.92	* Shear (lb/sq ft)	*	1.20	*		*	1.20	*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	20.79	*		*	20.79	*
* Frctn Loss (ft)	*	0.18	* Cum Volume (acre-ft)	*	0.04	*	3.49	*	0.03	*
* C & E Loss (ft)	*	0.07	* Cum SA (acres)	*	0.02	*	1.33	*	0.02	*

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13353.48

INPUT
Description: Desert Canyon per STANTEC Plans RS 3353.48, RCB PC

Station Elevation Data num= 9									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	77.733	86.75	71.733	98.75	71.733	98.76	77.733	100	77.733
101.41	77.733	101.42	71.733	113.42	71.733	113.43	77.733		

Manning's n Values num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	98.75	.013	101.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
98.75	101.42	9.88	9.88	9.88	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	77.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.83	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	73.87	Reach Len. (ft)	9.88	9.88	9.88
Crit W.S. (ft)	75.00	Flow Area (sq ft)	25.71	0.01	25.71
E.G. Slope (ft/ft)	*0.008501	Area (sq ft)	25.71	0.01	25.71
Q Total (cfs)	807.00	Flow (cfs)	403.50	0.00	403.50
Top Width (ft)	24.01	Top Width (ft)	12.00		12.00
Vel Total (ft/s)	15.69	Avg. Vel. (ft/s)	15.70	0.16	15.70
Max Chl Dpth (ft)	2.14	Hydr. Depth (ft)	2.14	1.07	2.14
Conv. Total (cfs)	8752.4	Conv. (cfs)	4376.2	0.0	4376.2
Length Wtd. (ft)	9.88	Wetted Per. (ft)	14.14	4.28	14.14
Min Ch El (ft)	71.73	Shear (lb/sq ft)	0.96	0.00	0.96
Alpha	1.00	Stream Power (lb/ft s)	15.14	0.00	15.14
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	0.00	3.49	0.00
C & E Loss (ft)	0.24	Cum SA (acres)	0.00	1.33	0.00

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13343.61

INPUT
Description: Desert Canyon per STANTEC Plans RS 3343.61, Dual 12'x6' RCB outlet

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	77.7	86.75	71.7	98.75	71.7	98.76	77.7	100	77.7
101.41	77.7	101.42	71.7	113.42	71.7	113.43	77.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	86.75	.013	113.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
86.75	113.42	.01	.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	77.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.71	Wt. n-Val.	0.000	0.013	0.000
W.S. Elev (ft)	73.88	Reach Len. (ft)	0.01	0.01	0.01
Crit W.S. (ft)	74.96	Flow Area (sq ft)	0.00	52.22	0.00
E.G. Slope (ft/ft)	*0.008095	Area (sq ft)	0.00	52.22	0.00
Q Total (cfs)	807.00	Flow (cfs)	0.00	807.00	0.00
Top Width (ft)	24.01	Top Width (ft)		24.01	
Vel Total (ft/s)	15.45	Avg. Vel. (ft/s)	0.15	15.45	0.15
Max Chl Dpth (ft)	2.18	Hydr. Depth (ft)	1.09	2.18	1.09
Conv. Total (cfs)	8969.7	Conv. (cfs)	0.0	8969.7	0.0
Length Wtd. (ft)	0.01	Wetted Per. (ft)	2.17	28.35	2.17
Min Ch El (ft)	71.70	Shear (lb/sq ft)		0.93	
Alpha	1.00	Stream Power (lb/ft s)		14.39	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.00	3.49	0.00
C & E Loss (ft)	0.04	Cum SA (acres)		1.33	

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13343.6

INPUT
Description: Desert Canyon per STANTEC Plans RS 3343.6, upstream limit of openspace channel

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.56	80	82.57	73.1	86.75	71.7	100	71.7	113.42	71.7
124.63	76.54	137.07	76.79	137.08	81.96				

Manning's n Values num= 1

Sta	n Val
82.56	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
82.56	137.08	10.3	10.3	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
82.56	86.75		T
113.52	137.08		T

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	77.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.96	Wt. n-Val.		0.013	
W.S. Elev (ft)	73.59	Reach Len. (ft)	10.30	10.30	10.30
Crit W.S. (ft)	74.73	Flow Area (sq ft)		50.52	
E.G. Slope (ft/ft)	*0.008378	Area (sq ft)		59.42	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	35.22	Top Width (ft)		35.22	
Vel Total (ft/s)	15.97	Avg. Vel. (ft/s)		15.97	
Max Chl Dpth (ft)	1.89	Hydr. Depth (ft)		1.89	
Conv. Total (cfs)	8816.6	Conv. (cfs)		8816.6	
Length Wtd. (ft)	10.30	Wetted Per. (ft)		26.78	
Min Ch El (ft)	71.70	Shear (lb/sq ft)		0.99	
Alpha	1.00	Stream Power (lb/ft s)		15.76	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.49	
C & E Loss (ft)	0.03	Cum SA (acres)		1.33	

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13333.3

INPUT
Description: Desert Canyon per STANTEC Plans -

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
81.83	80	81.85	73.65	87.44	71.78	93.38	71.66	100	71.66
106.71	71.66	112.71	71.78	121.69	75.66	134.15	75.9	134.17	81.77

Manning's n Values num= 2

Sta	n Val	Sta	n Val
81.83	.013	134.17	.013

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        81.83  134.17              10.3    10.3    10.3            .1       .3
Ineffective Flow     num=       1
   Sta L    Sta R     Elev  Permanent
  116.14  134.17              F

CROSS SECTION OUTPUT  Profile #PF 1
************************************************************************************************
* E.G. Elev (ft)         *   76.87  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.42  * Wt. n-Val.            *          *    0.013 *          *
* W.S. Elev (ft)         *   76.44  * Reach Len. (ft)       *   10.30  *   10.30  *   10.30  *
* Crit W.S. (ft)         *   74.52  * Flow Area (sq ft)     *          *  154.45  *          *
* E.G. Slope (ft/ft)     *0.000319  * Area (sq ft)          *          *  173.72  *          *
* Q Total (cfs)          *  807.00  * Flow (cfs)           *          *  807.00  *          *
* Top Width (ft)         *   52.31  * Top Width (ft)       *          *   52.31  *          *
* Vel Total (ft/s)       *    5.22  * Avg. Vel. (ft/s)     *          *    5.22  *          *
* Max Chl Dpth (ft)      *    4.78  * Hydr. Depth (ft)     *          *    4.50  *          *
* Conv. Total (cfs)      * 45204.9  * Conv. (cfs)          *          * 45204.9  *          *
* Length Wtd. (ft)       *   10.30  * Wetted Per. (ft)     *          *   37.70  *          *
* Min Ch El (ft)         *   71.66  * Shear (lb/sq ft)     *          *    0.08  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    0.43  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)  *          *    3.46  *          *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *          *    1.32  *          *
************************************************************************************************

Note:    Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION


RIVER: North Channel
REACH: WEST              RS: 13323.

INPUT
Description: Desert Canyon per STANTEC Plans RS 3323, begin 50' channel
Station Elevation Data    num=       8
    Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   81.11      80   81.12    74.2   88.13   71.86     100   71.62  112.01   71.86
  118.76   74.78  131.24   75.02  131.25   81.59

Manning's n Values        num=       1
     Sta   n Val
****************
   81.11    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        81.11  131.25              15.61   15.61   15.61            .1       .3
Ineffective Flow     num=       1
   Sta L    Sta R     Elev  Permanent
  118.76  131.25              F

CROSS SECTION OUTPUT  Profile #PF 1
************************************************************************************************
* E.G. Elev (ft)         *   76.86  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.41  * Wt. n-Val.            *          *    0.013 *          *
* W.S. Elev (ft)         *   76.45  * Reach Len. (ft)       *   15.61  *   15.61  *   15.61  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *          *  157.64  *          *
* E.G. Slope (ft/ft)     *0.000332  * Area (sq ft)          *          *  177.00  *          *
* Q Total (cfs)          *  807.00  * Flow (cfs)           *          *  807.00  *          *
* Top Width (ft)         *   50.13  * Top Width (ft)       *          *   50.13  *          *
* Vel Total (ft/s)       *    5.12  * Avg. Vel. (ft/s)     *          *    5.12  *          *
* Max Chl Dpth (ft)      *    4.83  * Hydr. Depth (ft)     *          *    4.19  *          *
* Conv. Total (cfs)      * 44306.7  * Conv. (cfs)          *          * 44306.7  *          *
* Length Wtd. (ft)       *   15.61  * Wetted Per. (ft)     *          *   40.88  *          *
* Min Ch El (ft)         *   71.62  * Shear (lb/sq ft)     *          *    0.08  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    0.41  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)  *          *    3.42  *          *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)        *          *    1.30  *          *
************************************************************************************************

CROSS SECTION


RIVER: North Channel
REACH: WEST              RS: 13307.38

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data    num=       9
    Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   80.02      80   80.03   74.83   89.18   71.78     100   71.56  110.94   71.78
  114.32   73.24  126.79   73.48  130.15    74.6  130.16   81.37

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
*******************************
   80.02    .013  130.16    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        80.02  130.16              15.61   15.61   15.61            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
************************************************************************************************
* E.G. Elev (ft)         *   76.81  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.26  * Wt. n-Val.            *          *    0.013 *          *
* W.S. Elev (ft)         *   76.55  * Reach Len. (ft)       *   15.61  *   15.61  *   15.61  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *          *  197.81  *          *
* E.G. Slope (ft/ft)     *0.000230  * Area (sq ft)          *          *  197.81  *          *
* Q Total (cfs)          *  807.00  * Flow (cfs)           *          *  807.00  *          *
* Top Width (ft)         *   50.13  * Top Width (ft)       *          *   50.13  *          *
* Vel Total (ft/s)       *    4.08  * Avg. Vel. (ft/s)     *          *    4.08  *          *
* Max Chl Dpth (ft)      *    4.99  * Hydr. Depth (ft)     *          *    3.95  *          *
* Conv. Total (cfs)      * 53220.7  * Conv. (cfs)          *          * 53220.7  *          *
* Length Wtd. (ft)       *   15.61  * Wetted Per. (ft)     *          *   54.78  *          *
* Min Ch El (ft)         *   71.56  * Shear (lb/sq ft)     *          *    0.05  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    0.21  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)  *          *    3.35  *          *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *          *    1.29  *          *
************************************************************************************************

CROSS SECTION


RIVER: North Channel
REACH: WEST              RS: 13291.77

INPUT
Description: Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance
             road channel tie in
Station Elevation Data    num=       8
    Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   78.93      80   78.94   75.47   90.22   71.69     100   71.49  109.87   71.69
  122.35   71.94  129.06   74.18  129.07   81.15

Manning's n Values        num=       1
```

Sta	n Val
78.93	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
78.93	129.07	23.78	23.78	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.013	
W.S. Elev (ft)	76.58	Reach Len. (ft)	23.78	23.78	23.78
Crit W.S. (ft)		Flow Area (sq ft)		214.76	
E.G. Slope (ft/ft)	0.000174	Area (sq ft)		214.76	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	50.13	Top Width (ft)		50.13	
Vel Total (ft/s)	3.76	Avg. Vel. (ft/s)		3.76	
Max Chl Dpth (ft)	5.09	Hydr. Depth (ft)		4.28	
Conv. Total (cfs)	61162.4	Conv. (cfs)		61162.4	
Length Wtd. (ft)	23.78	Wetted Per. (ft)		54.60	
Min Ch El (ft)	71.49	Shear (lb/sq ft)		0.04	
Alpha	1.00	Stream Power (lb/ft s)		0.16	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.28	
C & E Loss (ft)	0.01	Cum SA (acres)		1.27	

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13267.98

INPUT
Description: Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance road channel tie in

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
77.26	80	77.27	76.43	91.82	71.56	100	71.4	106.88	71.53
115.57	71.71	127.39	75.6	127.4	80.82				

Manning's n Values num= 2

Sta	n Val	Sta	n Val
77.26	.013	127.4	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
77.26	127.4	23.78	23.78	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.013	
W.S. Elev (ft)	76.50	Reach Len. (ft)	23.78	23.78	23.78
Crit W.S. (ft)		Flow Area (sq ft)		188.01	
E.G. Slope (ft/ft)	0.000257	Area (sq ft)		188.01	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	50.12	Top Width (ft)		50.12	
Vel Total (ft/s)	4.29	Avg. Vel. (ft/s)		4.29	
Max Chl Dpth (ft)	5.10	Hydr. Depth (ft)		3.75	
Conv. Total (cfs)	50301.5	Conv. (cfs)		50301.5	
Length Wtd. (ft)	23.78	Wetted Per. (ft)		52.50	
Min Ch El (ft)	71.40	Shear (lb/sq ft)		0.06	
Alpha	1.00	Stream Power (lb/ft s)		0.25	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		3.17	
C & E Loss (ft)	0.02	Cum SA (acres)		1.24	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13244.2

INPUT
Description: Desert Canyon per STANTEC Plans RS 3244.2

Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75.59	80	75.6	77.4	93.41	71.43	100	71.3	108.8	71.48
125.72	77.03	125.73	80.5						

Manning's n Values num= 1

Sta	n Val
75.59	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
75.59	125.73	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
125.72	125.73		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.		0.013	
W.S. Elev (ft)	76.28	Reach Len. (ft)	0.00	9.45	0.00
Crit W.S. (ft)		Flow Area (sq ft)		145.52	
E.G. Slope (ft/ft)	0.000507	Area (sq ft)		145.52	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	44.48	Top Width (ft)		44.48	
Vel Total (ft/s)	5.55	Avg. Vel. (ft/s)		5.55	
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)		3.27	
Conv. Total (cfs)	35823.0	Conv. (cfs)		35823.0	
Length Wtd. (ft)	9.45	Wetted Per. (ft)		46.04	
Min Ch El (ft)	71.30	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.56	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		3.08	
C & E Loss (ft)	0.02	Cum SA (acres)		1.22	

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13234.75

INPUT
Description: Desert Canyon per STANTEC Plans RS 3234.75, end transition

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.7	94	71.37	98	71.29	100	71.26
102	71.29	106	71.37	125	77.7	125.01	80.35		

Manning's n Values num= 1

Sta	n Val
74.99	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
119.57	125.01		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.		0.013	
W.S. Elev (ft)	76.06	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)		Flow Area (sq ft)		122.99	
E.G. Slope (ft/ft)	*0.000765	Area (sq ft)		123.04	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	40.16	Top Width (ft)		40.16	
Vel Total (ft/s)	6.56	Avg. Vel. (ft/s)		6.56	
Max Chl Dpth (ft)	4.80	Hydr. Depth (ft)		3.10	
Conv. Total (cfs)	29172.7	Conv. (cfs)		29172.7	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		41.15	
Min Ch El (ft)	71.26	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.94	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.05	
C & E Loss (ft)	0.00	Cum SA (acres)		1.21	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13234.74

INPUT
Description: Desert Canyon per STANTEC Plans RS 3234.74, end transition
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.7	94	71.37	98	71.29	100	71.26
102	71.29	106	71.37	125	77.7	125.01	80.35		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
119.57	125.01		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.		0.029	
W.S. Elev (ft)	76.06	Reach Len. (ft)	0.00	5.36	0.00
Crit W.S. (ft)		Flow Area (sq ft)		122.99	
E.G. Slope (ft/ft)	*0.003702	Area (sq ft)		123.04	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	40.16	Top Width (ft)		40.16	
Vel Total (ft/s)	6.56	Avg. Vel. (ft/s)		6.56	
Max Chl Dpth (ft)	4.80	Hydr. Depth (ft)		3.10	
Conv. Total (cfs)	13263.1	Conv. (cfs)		13263.1	
Length Wtd. (ft)	5.36	Wetted Per. (ft)		41.15	
Min Ch El (ft)	71.26	Shear (lb/sq ft)		0.69	
Alpha	1.00	Stream Power (lb/ft s)		4.53	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		3.05	
C & E Loss (ft)	0.00	Cum SA (acres)		1.21	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13229.38

INPUT
Description: Desert Canyon per STANTEC Plans RS 3229.38, Upstream of south ramp entrance
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.68	94	71.35	98	71.27	100	71.24
102	71.27	106	71.35	125	77.68	125.01	80.27		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	125	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 .01 .01 .01 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
116.98	125.01		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.		0.028	
W.S. Elev (ft)	76.01	Reach Len. (ft)	0.01	0.01	0.01
Crit W.S. (ft)		Flow Area (sq ft)		120.39	
E.G. Slope (ft/ft)	*0.003590	Area (sq ft)		121.90	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	39.99	Top Width (ft)		39.99	
Vel Total (ft/s)	6.70	Avg. Vel. (ft/s)		6.70	
Max Chl Dpth (ft)	4.77	Hydr. Depth (ft)		3.26	
Conv. Total (cfs)	13467.8	Conv. (cfs)		13467.8	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		38.33	
Min Ch El (ft)	71.24	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		4.72	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.03	
C & E Loss (ft)	0.00	Cum SA (acres)		1.20	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13229.37

INPUT
Description: Desert Canyon per STANTEC Plans RS 3229.37, South ramp entrance
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.68	94	71.35	98	71.27	100	71.24
102	71.27	106	71.35	116.98	75.01	116.99	80.15	125	80.27

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	116.98	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
116.98	125		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.		0.028	
W.S. Elev (ft)	76.01	Reach Len. (ft)	0.00	8.00	0.00
Crit W.S. (ft)		Flow Area (sq ft)		120.37	
E.G. Slope (ft/ft)	*0.003593	Area (sq ft)		120.37	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	36.98	Top Width (ft)		36.98	
Vel Total (ft/s)	6.70	Avg. Vel. (ft/s)		6.70	
Max Chl Dpth (ft)	4.77	Hydr. Depth (ft)		3.26	
Conv. Total (cfs)	13463.9	Conv. (cfs)		13463.9	
Length Wtd. (ft)	8.00	Wetted Per. (ft)		38.33	
Min Ch El (ft)	71.24	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		4.72	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		3.03	
C & E Loss (ft)	0.00	Cum SA (acres)		1.20	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13221.37

INPUT
Description: Desert Canyon per STANTEC Plans RS 3221.37, begin south ramp transition
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.65	94	71.32	98	71.24	100	71.21
102	71.24	106	71.32	116.98	74.98	116.99	80.15	125	80.27

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	116.98	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125 53.53 53.53 53.53 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.		0.028	
W.S. Elev (ft)	75.98	Reach Len. (ft)	53.53	53.53	53.53
Crit W.S. (ft)		Flow Area (sq ft)		120.41	
E.G. Slope (ft/ft)	*0.003627	Area (sq ft)		120.41	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	36.98	Top Width (ft)		36.98	
Vel Total (ft/s)	6.70	Avg. Vel. (ft/s)		6.70	
Max Chl Dpth (ft)	4.77	Hydr. Depth (ft)		3.26	
Conv. Total (cfs)	13399.1	Conv. (cfs)		13399.1	
Length Wtd. (ft)	53.53	Wetted Per. (ft)		39.33	
Min Ch El (ft)	71.21	Shear (lb/sq ft)		0.69	
Alpha	1.00	Stream Power (lb/ft s)		4.65	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		3.01	
C & E Loss (ft)	0.01	Cum SA (acres)		1.19	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13167.84

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.43	94	71.1	98	71.01	100	70.99
102	71.01	106	71.1	114.09	73.79	114.1	77.6	122.1	77.72
125	78.74	125.01	80.13						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	114.09	.013
122.1	.03	125	.013						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 53.53 53.53 53.53 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.78	Wt. n-Val.		0.028	
W.S. Elev (ft)	75.69	Reach Len. (ft)	53.53	53.53	53.53
Crit W.S. (ft)		Flow Area (sq ft)		113.83	
E.G. Slope (ft/ft)	*0.003890	Area (sq ft)		113.83	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	33.88	Top Width (ft)		33.88	
Vel Total (ft/s)	7.09	Avg. Vel. (ft/s)		7.09	
Max Chl Dpth (ft)	4.70	Hydr. Depth (ft)		3.36	
Conv. Total (cfs)	12939.0	Conv. (cfs)		12939.0	
Length Wtd. (ft)	53.53	Wetted Per. (ft)		36.96	
Min Ch El (ft)	70.99	Shear (lb/sq ft)		0.75	
Alpha	1.00	Stream Power (lb/ft s)		5.30	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		2.87	
C & E Loss (ft)	0.04	Cum SA (acres)		1.15	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13114.31

INPUT
Description: Desert Canyon per STANTEC Plans RS 3114.31, begin south wall of south ramp

Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.2	94	70.87	98	70.79	100	70.76
102	70.79	106	70.87	111.19	72.6	111.2	75.06	119.2	75.18
125	77.2	125.01	80						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	111.19	.013
119.2	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.18	Wt. n-Val.		0.027	
W.S. Elev (ft)	74.99	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)		Flow Area (sq ft)		92.53	
E.G. Slope (ft/ft)	*0.006399	Area (sq ft)		92.53	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	29.57	Top Width (ft)		29.57	
Vel Total (ft/s)	8.72	Avg. Vel. (ft/s)		8.72	
Max Chl Dpth (ft)	4.23	Hydr. Depth (ft)		3.13	
Conv. Total (cfs)	10088.4	Conv. (cfs)		10088.4	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		32.90	
Min Ch El (ft)	70.76	Shear (lb/sq ft)		1.12	
Alpha	1.00	Stream Power (lb/ft s)		9.80	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.74	
C & E Loss (ft)	0.00	Cum SA (acres)		1.11	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13114.3

INPUT
Description: Desert Canyon per STANTEC Plans RS 3114.3, begin south wall of south ramp

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.2	94	70.87	98	70.79	100	70.76
102	70.79	106	70.87	111.19	72.6	111.2	75.06	119.2	75.18
119.21	75.4	119.88	75.4	125	77.2	125.01	80		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	111.19	.013
119.88	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.18	Wt. n-Val.		0.027	
W.S. Elev (ft)	74.99	Reach Len. (ft)	0.00	54.20	0.00
Crit W.S. (ft)	74.66	Flow Area (sq ft)		92.52	
E.G. Slope (ft/ft)	*0.006400	Area (sq ft)		92.52	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	29.57	Top Width (ft)		29.57	
Vel Total (ft/s)	8.72	Avg. Vel. (ft/s)		8.72	
Max Chl Dpth (ft)	4.23	Hydr. Depth (ft)		3.13	
Conv. Total (cfs)	10087.9	Conv. (cfs)		10087.9	
Length Wtd. (ft)	54.20	Wetted Per. (ft)		32.90	
Min Ch El (ft)	70.76	Shear (lb/sq ft)		1.12	
Alpha	1.00	Stream Power (lb/ft s)		9.80	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)		2.74	
C & E Loss (ft)	0.10	Cum SA (acres)		1.11	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13060.1

INPUT
Description: Desert Canyon per STANTEC Plans RS 3060.10

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	76.98	94	70.65	98	70.57	100	70.54
102	70.57	106	70.65	108.26	71.4	108.27	72.47	116.28	72.59
116.29	74.3	116.95	74.3	125	76.98	125.01	80		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	108.26	.013
116.95	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
74.99	75		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.84	Wt. n-Val.		0.024	
W.S. Elev (ft)	74.97	Reach Len. (ft)	0.00	15.99	0.00
Crit W.S. (ft)		Flow Area (sq ft)		110.03	
E.G. Slope (ft/ft)	*0.003972	Area (sq ft)		110.03	

* Q Total (cfs)	* 807.00	* Flow (cfs)	*	* 807.00	*
* Top Width (ft)	* 37.91	* Top Width (ft)	*	* 37.91	*
* Vel Total (ft/s)	* 7.33	* Avg. Vel. (ft/s)	*	* 7.33	*
* Max Chl Dpth (ft)	* 4.43	* Hydr. Depth (ft)	*	* 2.90	*
* Conv. Total (cfs)	* 12804.1	* Conv. (cfs)	*	* 12804.1	*
* Length Wtd. (ft)	* 15.99	* Wetted Per. (ft)	*	* 41.60	*
* Min Ch El (ft)	* 70.54	* Shear (lb/sq ft)	*	* 0.66	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 4.81	*
* Frctn Loss (ft)	* 0.06	* Cum Volume (acre-ft)	*	* 2.61	*
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	*	* 1.07	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13044.11

INPUT
Description: Desert Canyon per STANTEC Plans RS 3044.11, upstream north ramp entrance

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	76.92	94	70.59	98	70.51	100	70.48
102	70.51	106	70.59	107.4	71.06	107.41	71.71	115.41	71.83
115.42	73.95	116.08	73.95	125	76.92	125.01	80		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	107.4	.013
116.08	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
74.99	83		F

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 75.73	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.77	* Wt. n-Val.	*	* 0.024 *	*
* W.S. Elev (ft)	* 74.95	* Reach Len. (ft)	* 0.00 *	* 0.01 *	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 114.36 *	*
* E.G. Slope (ft/ft)	*0.003206	* Area (sq ft)	*	* 115.09 *	*
* Q Total (cfs)	* 807.00	* Flow (cfs)	*	* 807.00 *	*
* Top Width (ft)	* 38.19	* Top Width (ft)	*	* 38.19 *	*
* Vel Total (ft/s)	* 7.06	* Avg. Vel. (ft/s)	*	* 7.06 *	*
* Max Chl Dpth (ft)	* 4.47	* Hydr. Depth (ft)	*	* 3.17 *	*
* Conv. Total (cfs)	* 14253.1	* Conv. (cfs)	*	* 14253.1 *	*
* Length Wtd. (ft)	* 0.01	* Wetted Per. (ft)	*	* 39.68 *	*
* Min Ch El (ft)	* 70.48	* Shear (lb/sq ft)	*	* 0.58 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 4.07 *	*
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	*	* 2.57 *	*
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	*	* 1.06 *	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13044.1

INPUT
Description: Desert Canyon per STANTEC Plans RS 3033.34, North ramp grade break

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75	78.43	82.99	78.31	83	74.21	94	70.54	98	70.46
100	70.43	102	70.46	106	70.54	106.82	70.81	106.83	71.2
114.83	71.32	114.84	73.71	115.5	73.71	125	76.87	125.01	80

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
75	.013	83	.03	98	.013	102	.03	106.82	.013
115.5	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
75 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 75.70	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.70	* Wt. n-Val.	*	* 0.024 *	*
* W.S. Elev (ft)	* 75.00	* Reach Len. (ft)	* 0.00 *	* 15.12 *	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 120.09 *	*
* E.G. Slope (ft/ft)	*0.002792	* Area (sq ft)	*	* 120.09 *	*
* Q Total (cfs)	* 807.00	* Flow (cfs)	*	* 807.00 *	*
* Top Width (ft)	* 36.39	* Top Width (ft)	*	* 36.39 *	*
* Vel Total (ft/s)	* 6.72	* Avg. Vel. (ft/s)	*	* 6.72 *	*
* Max Chl Dpth (ft)	* 4.57	* Hydr. Depth (ft)	*	* 3.30 *	*
* Conv. Total (cfs)	* 15271.9	* Conv. (cfs)	*	* 15271.9 *	*
* Length Wtd. (ft)	* 15.12	* Wetted Per. (ft)	*	* 40.79 *	*
* Min Ch El (ft)	* 70.43	* Shear (lb/sq ft)	*	* 0.51 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 3.45 *	*
* Frctn Loss (ft)	* 0.04	* Cum Volume (acre-ft)	*	* 2.57 *	*
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	*	* 1.06 *	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13018.22

INPUT
Description: Desert Canyon per STANTEC Plans RS 3018.22, south ramp tie in

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75	77.89	82.99	77.76	83	74.15	94	70.48	98	70.4
100	70.37	102	70.4	106	70.48	114.01	70.6	114.02	73.37
114.68	73.37	125	76.81	125.01	80				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
75	.013	83	.03	98	.013	102	.03	106	.013
114.68	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
75 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.		0.024	
W.S. Elev (ft)	75.00	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)		Flow Area (sq ft)		125.46	
E.G. Slope (ft/ft)	0.002438	Area (sq ft)		125.46	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	36.59	Top Width (ft)		36.59	
Vel Total (ft/s)	6.43	Avg. Vel. (ft/s)		6.43	
Max Chl Dpth (ft)	4.63	Hydr. Depth (ft)		3.43	
Conv. Total (cfs)	16343.3	Conv. (cfs)		16343.3	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		41.06	
Min Ch El (ft)	70.37	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		2.99	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.53	
C & E Loss (ft)	0.00	Cum SA (acres)		1.04	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13018.21

INPUT
Description: Desert Canyon per STANTEC Plans RS 3018.21, south ramp tie in
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75	77.89	82.99	77.76	83	74.15	94	70.48	98	70.4
100	70.37	102	70.4	106	70.48	114.01	70.6	114.02	73.37
114.68	73.37	125	76.81	125.01	80				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
75	.013	83	.03	98	.013	114.68	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
75 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.		0.022	
W.S. Elev (ft)	75.00	Reach Len. (ft)	0.00	7.99	0.00
Crit W.S. (ft)		Flow Area (sq ft)		125.46	
E.G. Slope (ft/ft)	0.002127	Area (sq ft)		125.46	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	36.59	Top Width (ft)		36.59	
Vel Total (ft/s)	6.43	Avg. Vel. (ft/s)		6.43	
Max Chl Dpth (ft)	4.63	Hydr. Depth (ft)		3.43	
Conv. Total (cfs)	17496.3	Conv. (cfs)		17496.3	
Length Wtd. (ft)	7.99	Wetted Per. (ft)		41.06	
Min Ch El (ft)	70.37	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		2.61	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		2.53	
C & E Loss (ft)	0.00	Cum SA (acres)		1.04	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13010.22

INPUT
Description: Desert Canyon per STANTEC Plans RS 3010.22, south ramp tie in
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75	77.6	82.99	77.48	83	74.12	94	70.45	98	70.37
100	70.34	102	70.37	106	70.45	113.58	70.56	113.59	73.2
114.25	73.2	125	76.78	125.01	80				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
75	.013	83	.03	98	.013	114.25	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
75 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.023	
W.S. Elev (ft)	74.98	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)		Flow Area (sq ft)		124.41	
E.G. Slope (ft/ft)	0.002220	Area (sq ft)		124.41	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	36.58	Top Width (ft)		36.58	
Vel Total (ft/s)	6.49	Avg. Vel. (ft/s)		6.49	
Max Chl Dpth (ft)	4.64	Hydr. Depth (ft)		3.40	
Conv. Total (cfs)	17128.3	Conv. (cfs)		17128.3	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		40.95	
Min Ch El (ft)	70.34	Shear (lb/sq ft)		0.42	
Alpha	1.00	Stream Power (lb/ft s)		2.73	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.51	
C & E Loss (ft)	0.00	Cum SA (acres)		1.04	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13010.21

INPUT
Description: Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75	77.6	82.99	77.48	83	74.12	94	70.45	98	70.37
100	70.34	102	70.37	106	70.45	113.58	70.56	113.59	73.2
114.25	73.2	125	76.78	125.01	80				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val

75	.013	83	.03	98	.013	102	.03	113.58	.013
114.25	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
75 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.027	
W.S. Elev (ft)	74.97	Reach Len. (ft)	0.00	56.19	0.00
Crit W.S. (ft)		Flow Area (sq ft)		124.41	
E.G. Slope (ft/ft)	*0.003177	Area (sq ft)		124.41	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	36.58	Top Width (ft)		36.58	
Vel Total (ft/s)	6.49	Avg. Vel. (ft/s)		6.49	
Max Chl Dpth (ft)	4.63	Hydr. Depth (ft)		3.40	
Conv. Total (cfs)	14318.1	Conv. (cfs)		14318.1	
Length Wtd. (ft)	56.19	Wetted Per. (ft)		40.95	
Min Ch El (ft)	70.34	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		3.91	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		2.51	
C & E Loss (ft)	0.01	Cum SA (acres)		1.04	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12954.02

INPUT
Description: Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.58	82.99	75.47	83	73.89	94	70.22
98	70.14	100	70.11	102	70.14	106	70.22	110.54	70.31
110.55	71.95	111.21	71.95	125	76.55	125.01	80		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	83	.03	98	.013	102	.03	110.54	.013
111.21	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.		0.027	
W.S. Elev (ft)	74.66	Reach Len. (ft)	0.00	10.37	0.00
Crit W.S. (ft)		Flow Area (sq ft)		115.28	
E.G. Slope (ft/ft)	*0.004030	Area (sq ft)		115.28	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	36.33	Top Width (ft)		36.33	
Vel Total (ft/s)	7.00	Avg. Vel. (ft/s)		7.00	
Max Chl Dpth (ft)	4.55	Hydr. Depth (ft)		3.17	
Conv. Total (cfs)	12711.8	Conv. (cfs)		12711.8	
Length Wtd. (ft)	10.37	Wetted Per. (ft)		39.76	
Min Ch El (ft)	70.11	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		5.11	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		2.35	
C & E Loss (ft)	0.00	Cum SA (acres)		0.99	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12943.65

INPUT
Description: Desert Canyon per STANTEC Plans RS 2943.65, begin north wall north ramp
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	76.51	75.66	76.51	75.67	75.22	83.68	75.1
83.69	73.62	94	70.18	98	70.1	100	70.07	102	70.1
109.98	70.25	109.99	71.72	110.73	71.72	125	76.51	125.01	80

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	83.69	.03	98	.013	102	.03	109.98	.013
110.73	.03	125	.013						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 36.84 36.84 36.84 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.		0.027	
W.S. Elev (ft)	74.58	Reach Len. (ft)	36.84	36.84	36.84
Crit W.S. (ft)		Flow Area (sq ft)		112.97	
E.G. Slope (ft/ft)	*0.004178	Area (sq ft)		112.97	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	35.58	Top Width (ft)		35.58	
Vel Total (ft/s)	7.14	Avg. Vel. (ft/s)		7.14	
Max Chl Dpth (ft)	4.51	Hydr. Depth (ft)		3.18	
Conv. Total (cfs)	12485.1	Conv. (cfs)		12485.1	
Length Wtd. (ft)	36.84	Wetted Per. (ft)		39.02	
Min Ch El (ft)	70.07	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		5.39	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		2.32	
C & E Loss (ft)	0.00	Cum SA (acres)		0.98	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12906.81

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

74.99	80	75	76.35	77.45	75.54	78.11	75.54	78.12	73.9
86.13	73.78	86.14	72.65	94	70.03	98	69.94	100	69.92
102	69.94	107.99	70.06	108	70.9	108.67	70.9	125	76.35
125.01	80								

Manning's n values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	77.45	.013	86.14	.03	98	.013
102	.03	107.99	.013	108.67	.03	125	.013		

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
74.99	125.01	36.84	36.84	36.84	.1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.025	
W.S. Elev (ft)	74.40	Reach Len. (ft)	36.84	36.84	36.84
Crit W.S. (ft)		Flow Area (sq ft)		111.36	
E.G. Slope (ft/ft)	0.004344	Area (sq ft)		111.36	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	41.05	Top Width (ft)		41.05	
Vel Total (ft/s)	7.25	Avg. Vel. (ft/s)		7.25	
Max Chl Dpth (ft)	4.48	Hydr. Depth (ft)		2.71	
Conv. Total (cfs)	12243.7	Conv. (cfs)		12243.7	
Length Wtd. (ft)	36.84	Wetted Per. (ft)		44.50	
Min Ch El (ft)	69.92	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		4.92	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)		2.23	
C & E Loss (ft)	0.03	Cum SA (acres)		0.95	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12869.97

INPUT
Description: Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	76.2	79.9	74.57	80.56	74.57	80.57	72.58
88.58	72.46	88.59	71.67	94	69.87	98	69.79	100	69.76
102	69.79	106	69.87	106.01	70.09	106.67	70.09	125	76.2
125.01	80								

Manning's n Values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	79.9	.013	88.59	.03	98	.013
102	.03	106	.013	106.67	.03	125	.013		

Bank Sta: Left	Right	Coeff Contr.	Expan.
74.99	125.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.		0.025	
W.S. Elev (ft)	74.32	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)		Flow Area (sq ft)		117.57	
E.G. Slope (ft/ft)	0.003316	Area (sq ft)		117.57	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	38.81	Top Width (ft)		38.81	
Vel Total (ft/s)	6.86	Avg. Vel. (ft/s)		6.86	
Max Chl Dpth (ft)	4.56	Hydr. Depth (ft)		3.03	
Conv. Total (cfs)	14013.7	Conv. (cfs)		14013.7	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		42.52	
Min Ch El (ft)	69.76	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		3.93	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.13	
C & E Loss (ft)	0.00	Cum SA (acres)		0.92	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12869.96

INPUT
Description: Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	76.2	79.9	74.57	80.56	74.57	80.57	72.58
88.58	72.46	88.59	71.67	94	69.87	98	69.79	100	69.76
102	69.79	106	69.87	125	76.2	125.01	80		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	79.9	.013	88.59	.03	98	.013
102	.03	125	.013						

Bank Sta: Left	Right	Coeff Contr.	Expan.
74.99	125.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.		0.025	
W.S. Elev (ft)	74.32	Reach Len. (ft)	0.00	40.70	0.00
Crit W.S. (ft)		Flow Area (sq ft)		117.63	
E.G. Slope (ft/ft)	0.003374	Area (sq ft)		117.63	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	38.81	Top Width (ft)		38.81	
Vel Total (ft/s)	6.86	Avg. Vel. (ft/s)		6.86	
Max Chl Dpth (ft)	4.56	Hydr. Depth (ft)		3.03	
Conv. Total (cfs)	13893.1	Conv. (cfs)		13893.1	
Length Wtd. (ft)	40.70	Wetted Per. (ft)		42.34	
Min Ch El (ft)	69.76	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		4.01	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		2.13	
C & E Loss (ft)	0.02	Cum SA (acres)		0.92	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12829.26

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	76.04	82.6	73.5	83.26	73.5	83.28	71.12
91.29	71	91.29	70.6	94	69.71	98	69.62	100	69.6
102	69.62	106	69.71	125	76.04	125.01	80		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	82.6	.013	91.29	.03	98	.013
102	.03	125	.013						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
74.99	125.01	40.71	40.71	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.91	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.025 /
W.S. Elev (ft)	74.25	Reach Len. (ft)	40.71	40.71 / 40.71
Crit W.S. (ft)		Flow Area (sq ft)		124.23 /
E.G. Slope (ft/ft)	0.002853	Area (sq ft)		124.23 /
Q Total (cfs)	807.00	Flow (cfs)		807.00 /
Top Width (ft)	39.28	Top Width (ft)		39.28 /
Vel Total (ft/s)	6.50	Avg. Vel. (ft/s)		6.50 /
Max Chl Dpth (ft)	4.65	Hydr. Depth (ft)		3.16 /
Conv. Total (cfs)	15109.8	Conv. (cfs)		15109.8 /
Length Wtd. (ft)	40.71	Wetted Per. (ft)		43.04 /
Min Ch El (ft)	69.60	Shear (lb/sq ft)		0.51 /
Alpha	1.00	Stream Power (lb/ft s)		3.34 /
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		2.02 /
C & E Loss (ft)	0.02	Cum SA (acres)		0.88 /

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12788.55

INPUT
Description: Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.87	85.31	72.43	85.97	72.43	85.98	69.66
94	69.54	98	69.46	100	69.43	102	69.46	106	69.54
125	75.87	125.01	80						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	85.31	.013	94	.03	98	.013
102	.03	125	.013						

Bank Sta: Left	Right	Coeff Contr.	Expan.
74.99	125.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.78	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.025 /
W.S. Elev (ft)	74.20	Reach Len. (ft)	0.00	0.01 / 0.00
Crit W.S. (ft)		Flow Area (sq ft)		131.84 /
E.G. Slope (ft/ft)	0.002382	Area (sq ft)		131.84 /
Q Total (cfs)	807.00	Flow (cfs)		807.00 /
Top Width (ft)	39.96	Top Width (ft)		39.96 /
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.12 /
Max Chl Dpth (ft)	4.77	Hydr. Depth (ft)		3.30 /
Conv. Total (cfs)	16535.6	Conv. (cfs)		16535.6 /
Length Wtd. (ft)	0.01	Wetted Per. (ft)		43.76 /
Min Ch El (ft)	69.43	Shear (lb/sq ft)		0.45 /
Alpha	1.00	Stream Power (lb/ft s)		2.74 /
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.90 /
C & E Loss (ft)	0.00	Cum SA (acres)		0.84 /

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12788.54

INPUT
Description: Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.87	85.31	72.43	85.97	72.43	85.98	69.66
94	69.54	98	69.46	100	69.43	102	69.46	106	69.54
125	75.87	125.01	80						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	85.31	.013	102	.03	125	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
74.99	125.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.78	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.023 /
W.S. Elev (ft)	74.20	Reach Len. (ft)	0.00	7.99 / 0.00
Crit W.S. (ft)		Flow Area (sq ft)		131.84 /
E.G. Slope (ft/ft)	0.002108	Area (sq ft)		131.84 /
Q Total (cfs)	807.00	Flow (cfs)		807.00 /
Top Width (ft)	39.96	Top Width (ft)		39.96 /
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.12 /
Max Chl Dpth (ft)	4.77	Hydr. Depth (ft)		3.30 /
Conv. Total (cfs)	17574.9	Conv. (cfs)		17574.9 /
Length Wtd. (ft)	7.99	Wetted Per. (ft)		43.76 /
Min Ch El (ft)	69.43	Shear (lb/sq ft)		0.40 /
Alpha	1.00	Stream Power (lb/ft s)		2.43 /
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		1.90 /
C & E Loss (ft)	0.00	Cum SA (acres)		0.84 /

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12780.55

INPUT
Description: Desert Canyon per STANTEC Plans RS 2780.55, north ramp tie in
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.84	85.84	72.23	86.5	72.23	86.51	69.62
94	69.51	98	69.43	100	69.4	102	69.43	106	69.51
125	75.84	125.01	80						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	85.84	.013	102	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.023	
W.S. Elev (ft)	74.17	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)		Flow Area (sq ft)		130.49	
E.G. Slope (ft/ft)	*0.002216	Area (sq ft)		130.49	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	39.95	Top Width (ft)		39.95	
Vel Total (ft/s)	6.18	Avg. Vel. (ft/s)		6.18	
Max Chl Dpth (ft)	4.77	Hydr. Depth (ft)		3.27	
Conv. Total (cfs)	17143.5	Conv. (cfs)		17143.5	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		43.62	
Min Ch El (ft)	69.40	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		2.56	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.88	
C & E Loss (ft)	0.00	Cum SA (acres)		0.83	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12780.54

INPUT
Description: Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.84	85.84	72.23	86.5	72.23	86.51	69.62
94	69.51	98	69.43	100	69.4	102	69.43	106	69.51
125	75.84	125.01	80						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	85.84	.013	86.51	.03	98	.013
102	.03	125	.013						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 56.31 56.31 56.31 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.028	
W.S. Elev (ft)	74.17	Reach Len. (ft)	56.31	56.31	56.31
Crit W.S. (ft)		Flow Area (sq ft)		130.49	
E.G. Slope (ft/ft)	*0.003054	Area (sq ft)		130.49	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	39.95	Top Width (ft)		39.95	
Vel Total (ft/s)	6.18	Avg. Vel. (ft/s)		6.18	
Max Chl Dpth (ft)	4.77	Hydr. Depth (ft)		3.27	
Conv. Total (cfs)	14603.6	Conv. (cfs)		14603.6	
Length Wtd. (ft)	56.31	Wetted Per. (ft)		43.62	
Min Ch El (ft)	69.40	Shear (lb/sq ft)		0.57	
Alpha	1.00	Stream Power (lb/ft s)		3.53	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		1.88	
C & E Loss (ft)	0.01	Cum SA (acres)		0.83	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12724.23

INPUT
Description: Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.61	89.58	70.75	90.24	70.75	90.26	69.34
95.3	69.25	98	69.2	100	69.17	102	69.2	106	69.28
125	75.61	125.01	80						

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	89.58	.013	90.26	.03	98	.013
102	.03	125	.013	125.01	.013				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 56.31 56.31 56.31 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.		0.028	
W.S. Elev (ft)	73.87	Reach Len. (ft)	56.31	56.31	56.31
Crit W.S. (ft)		Flow Area (sq ft)		121.20	
E.G. Slope (ft/ft)	*0.003830	Area (sq ft)		121.20	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	39.55	Top Width (ft)		39.55	
Vel Total (ft/s)	6.66	Avg. Vel. (ft/s)		6.66	
Max Chl Dpth (ft)	4.70	Hydr. Depth (ft)		3.06	
Conv. Total (cfs)	13039.2	Conv. (cfs)		13039.2	
Length Wtd. (ft)	56.31	Wetted Per. (ft)		42.20	

* Min Ch El (ft)	69.17	* Shear (lb/sq ft)		0.69	
* Alpha	1.00	* Stream Power (lb/ft s)		4.57	
* Frctn Loss (ft)	0.23	* Cum Volume (acre-ft)		1.71	
* C & E Loss (ft)	0.01	* Cum SA (acres)		0.78	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12667.92

INPUT
Description: Desert Canyon per STANTEC Plans RS 2667.92, end north ramp wall
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.38	93.33	69.27	93.99	69.27	94	69.05
98	68.97	100	68.94	102	68.97	106	69.05	125	75.38
125.01	80								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	93.33	.013	94	.03	98	.013
102	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	74.32	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	0.74	* Wt. n-Val.		0.028	
* W.S. Elev (ft)	73.58	* Reach Len. (ft)	0.00	0.01	0.00
* Crit W.S. (ft)		* Flow Area (sq ft)		116.71	
* E.G. Slope (ft/ft)	*0.004269	* Area (sq ft)		116.71	
* Q Total (cfs)	807.00	* Flow (cfs)		807.00	
* Top Width (ft)	39.21	* Top Width (ft)		39.21	
* Vel Total (ft/s)	6.91	* Avg. Vel. (ft/s)		6.91	
* Max Chl Dpth (ft)	4.64	* Hydr. Depth (ft)		2.98	
* Conv. Total (cfs)	12351.1	* Conv. (cfs)		12351.1	
* Length Wtd. (ft)	0.01	* Wetted Per. (ft)		40.86	
* Min Ch El (ft)	68.94	* Shear (lb/sq ft)		0.76	
* Alpha	1.00	* Stream Power (lb/ft s)		5.26	
* Frctn Loss (ft)	0.00	* Cum Volume (acre-ft)		1.56	
* C & E Loss (ft)	0.00	* Cum SA (acres)		0.73	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12667.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 2667.91, end north ramp wall
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.38	94	69.05	98	68.97	100	68.94
102	68.97	106	69.05	125	75.38	125.01	80		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	74.32	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	0.74	* Wt. n-Val.		0.029	
* W.S. Elev (ft)	73.58	* Reach Len. (ft)	0.00	68.98	0.00
* Crit W.S. (ft)		* Flow Area (sq ft)		116.77	
* E.G. Slope (ft/ft)	*0.004331	* Area (sq ft)		116.77	
* Q Total (cfs)	807.00	* Flow (cfs)		807.00	
* Top Width (ft)	39.21	* Top Width (ft)		39.21	
* Vel Total (ft/s)	6.91	* Avg. Vel. (ft/s)		6.91	
* Max Chl Dpth (ft)	4.64	* Hydr. Depth (ft)		2.98	
* Conv. Total (cfs)	12262.8	* Conv. (cfs)		12262.8	
* Length Wtd. (ft)	68.98	* Wetted Per. (ft)		40.68	
* Min Ch El (ft)	68.94	* Shear (lb/sq ft)		0.78	
* Alpha	1.00	* Stream Power (lb/ft s)		5.36	
* Frctn Loss (ft)	0.30	* Cum Volume (acre-ft)		1.56	
* C & E Loss (ft)	0.00	* Cum SA (acres)		0.73	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12598.93

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.1	94	68.76	98	68.68	100	68.65
102	68.68	106	68.76	125	75.1	125.01	80		

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	125	.013
125.01	.013								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 68.99 68.99 68.99 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	74.02	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	0.76	* Wt. n-Val.		0.029	
* W.S. Elev (ft)	73.26	* Reach Len. (ft)	68.99	68.99	68.99
* Crit W.S. (ft)		* Flow Area (sq ft)		115.31	
* E.G. Slope (ft/ft)	*0.004475	* Area (sq ft)		115.31	
* Q Total (cfs)	807.00	* Flow (cfs)		807.00	
* Top Width (ft)	38.96	* Top Width (ft)		38.96	
* Vel Total (ft/s)	7.00	* Avg. Vel. (ft/s)		7.00	

* Max Chl Dpth (ft)	* 4.61	* Hydr. Depth (ft)	*	* 2.96	* *
* Conv. Total (cfs)	* 12064.0	* Conv. (cfs)	*	* 12064.0	* *
* Length Wtd. (ft)	* 68.99	* Wetted Per. (ft)	*	* 40.42	* *
* Min Ch El (ft)	* 68.65	* Shear (lb/sq ft)	*	* 0.80	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 5.58	* *
* Frctn Loss (ft)	* 0.43	* Cum Volume (acre-ft)	*	* 1.38	* *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	*	* 0.67	* *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12529.94

INPUT
Description: Desert Canyon per STANTEC Plans RS 2529.94, Begin Transition
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	74.81	94	68.48	98	68.4	100	68.37
102	68.4	106	68.48	125	74.81	125.01	80		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 73.54	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.30	* Wt. n-Val.	*	* 0.028	* *
* W.S. Elev (ft)	* 72.24	* Reach Len. (ft)	* 0.00	* 29.99	* 0.00 *
* Crit W.S. (ft)	* 72.24	* Flow Area (sq ft)	*	* 88.33	* *
* E.G. Slope (ft/ft)	*0.009136	* Area (sq ft)	*	* 88.33	* *
* Q Total (cfs)	* 807.00	* Flow (cfs)	*	* 807.00	* *
* Top Width (ft)	* 34.58	* Top Width (ft)	*	* 34.58	* *
* Vel Total (ft/s)	* 9.14	* Avg. Vel. (ft/s)	*	* 9.14	* *
* Max Chl Dpth (ft)	* 3.87	* Hydr. Depth (ft)	*	* 2.55	* *
* Conv. Total (cfs)	* 8442.9	* Conv. (cfs)	*	* 8442.9	* *
* Length Wtd. (ft)	* 29.99	* Wetted Per. (ft)	*	* 35.81	* *
* Min Ch El (ft)	* 68.37	* Shear (lb/sq ft)	*	* 1.41	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 12.85	* *
* Frctn Loss (ft)	* 0.28	* Cum Volume (acre-ft)	*	* 1.22	* *
* C & E Loss (ft)	* 0.07	* Cum SA (acres)	*	* 0.61	* *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12499.95

INPUT
Description: Desert Canyon per STANTEC Plans RS 2499.93, end transition, begin
30' turn around pad
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	71.63	84.2	68.56	98	68.28	100	68.25
102	68.28	115.8	68.56	125	71.63	125.01	80		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 72.88	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.80	* Wt. n-Val.	*	* 0.029	* *
* W.S. Elev (ft)	* 70.08	* Reach Len. (ft)	* 0.00	* 0.01	* 0.00 *
* Crit W.S. (ft)	* 70.95	* Flow Area (sq ft)	*	* 60.07	* *
* E.G. Slope (ft/ft)	*0.040452	* Area (sq ft)	*	* 60.07	* *
* Q Total (cfs)	* 807.00	* Flow (cfs)	*	* 807.00	* *
* Top Width (ft)	* 40.72	* Top Width (ft)	*	* 40.72	* *
* Vel Total (ft/s)	* 13.43	* Avg. Vel. (ft/s)	*	* 13.43	* *
* Max Chl Dpth (ft)	* 1.83	* Hydr. Depth (ft)	*	* 1.48	* *
* Conv. Total (cfs)	* 4012.4	* Conv. (cfs)	*	* 4012.4	* *
* Length Wtd. (ft)	* 0.01	* Wetted Per. (ft)	*	* 41.22	* *
* Min Ch El (ft)	* 68.25	* Shear (lb/sq ft)	*	* 3.68	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 49.44	* *
* Frctn Loss (ft)	* 0.50	* Cum Volume (acre-ft)	*	* 1.16	* *
* C & E Loss (ft)	* 0.15	* Cum SA (acres)	*	* 0.59	* *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance *divided by downstream conveyance*) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12499.94

INPUT
Description: Desert Canyon per STANTEC Plans RS 2499.94, end transition, begin
30' turn around pad
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	71.63	84.2	68.56	98	68.28	100	68.25
102	68.28	115.8	68.56	125	71.63	125.01	80		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	125	.013

Bank Sta: Left 74.99 | Right 125.01 | Coeff Contr. .1 | Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	72.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.80	Wt. n-Val.		0.030	
W.S. Elev (ft)	70.08	Reach Len. (ft)	0.00	30.00	0.00
Crit W.S. (ft)	70.95	Flow Area (sq ft)		60.08	
E.G. Slope (ft/ft)	*0.044517	Area (sq ft)		60.08	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	40.72	Top Width (ft)		40.72	
Vel Total (ft/s)	13.43	Avg. Vel. (ft/s)		13.43	
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)		1.48	
Conv. Total (cfs)	3824.8	Conv. (cfs)		3824.8	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		41.22	
Min Ch El (ft)	68.25	Shear (lb/sq ft)		4.05	
Alpha	1.00	Stream Power (lb/ft s)		54.41	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.16	
C & E Loss (ft)	0.00	Cum SA (acres)		0.59	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12469.94

INPUT
Description: Desert Canyon per STANTEC Plans RS 2469.94, top of nuissance drain headwall, end turn around pad
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	70.43	84.2	67.37	100	67.05	115.8	67.37
125	70.43	125.01	80						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	125	.013

Bank Sta: Left 74.99 | Right 125.01 | Coeff Contr. .1 | Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	71.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.61	Wt. n-Val.		0.030	
W.S. Elev (ft)	68.94	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)	69.75	Flow Area (sq ft)		62.26	
E.G. Slope (ft/ft)	*0.039976	Area (sq ft)		62.26	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	41.07	Top Width (ft)		41.07	
Vel Total (ft/s)	12.96	Avg. Vel. (ft/s)		12.96	
Max Chl Dpth (ft)	1.89	Hydr. Depth (ft)		1.52	
Conv. Total (cfs)	4036.2	Conv. (cfs)		4036.2	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		41.58	
Min Ch El (ft)	67.05	Shear (lb/sq ft)		3.74	
Alpha	1.00	Stream Power (lb/ft s)		48.43	
Frctn Loss (ft)	1.26	Cum Volume (acre-ft)		1.12	
C & E Loss (ft)	0.06	Cum SA (acres)		0.56	

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12469.93

INPUT
Description: Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance channel, begin nuissance
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	70.43	84.2	67.37	96.69	67.12	96.7	64.15
98.75	63.47	100	63.47	101.25	63.47	103.3	64.15	103.31	67.12
115.8	67.37	125	70.43	125.01	80				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.69	.013	103.3	.03	125	.013

Bank Sta: Left 74.99 | Right 125.01 | Lengths: Left Channel 34.44 | Right 34.44 | Coeff Contr. .1 | Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	71.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.30	Wt. n-Val.		0.027	
W.S. Elev (ft)	68.19	Reach Len. (ft)	34.44	34.44	34.44
Crit W.S. (ft)	69.17	Flow Area (sq ft)		55.35	
E.G. Slope (ft/ft)	*0.048706	Area (sq ft)		55.35	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	36.52	Top Width (ft)		36.52	
Vel Total (ft/s)	14.58	Avg. Vel. (ft/s)		14.58	
Max Chl Dpth (ft)	4.72	Hydr. Depth (ft)		1.52	
Conv. Total (cfs)	3656.7	Conv. (cfs)		3656.7	
Length Wtd. (ft)	34.44	Wetted Per. (ft)		42.93	
Min Ch El (ft)	63.47	Shear (lb/sq ft)		3.92	
Alpha	1.00	Stream Power (lb/ft s)		57.17	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.12	
C & E Loss (ft)	0.07	Cum SA (acres)		0.56	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12435.49

INPUT
Description: Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance

channel, begin nuissance

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	68.9	84.2	65.83	96.69	65.71	96.7	64.22
99.38	63.33	100	63.33	100.62	63.33	103.3	64.22	103.31	65.71
115.8	65.83	125	68.9	125.01	80				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.69	.021	96.7	.021	103.3	.03
125	.013	125.01	.013						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
74.99	125.01	34.44	34.44	34.44	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	69.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.69	Wt. n-Val.		0.028	
W.S. Elev (ft)	67.12	Reach Len. (ft)	34.44	34.44	34.44
Crit W.S. (ft)	67.96	Flow Area (sq ft)		61.36	
E.G. Slope (ft/ft)	*0.039227	Area (sq ft)		61.36	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	39.33	Top Width (ft)		39.33	
Vel Total (ft/s)	13.15	Avg. Vel. (ft/s)		13.15	
Max Chl Dpth (ft)	3.79	Hydr. Depth (ft)		1.56	
Conv. Total (cfs)	4074.6	Conv. (cfs)		4074.6	
Length Wtd. (ft)	34.44	Wetted Per. (ft)		43.00	
Min Ch El (ft)	63.33	Shear (lb/sq ft)		3.49	
Alpha	1.00	Stream Power (lb/ft s)		45.96	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)		1.08	
C & E Loss (ft)	0.18	Cum SA (acres)		0.53	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12401.05

INPUT
Description: Desert Canyon per STANTEC Plans RS 2401.05, nuissance channel GB, end nuissance channel transition

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	67.36	84.2	64.29	96.7	64.29	100	63.19
103.3	64.29	115.8	64.29	125	67.36	125.01	80		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.7	.013	103.3	.03	125	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
74.99	125.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	68.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.62	Wt. n-Val.		0.028	
W.S. Elev (ft)	65.90	Reach Len. (ft)	0.00	1.05	0.00
Crit W.S. (ft)	66.71	Flow Area (sq ft)		62.09	
E.G. Slope (ft/ft)	*0.034688	Area (sq ft)		62.09	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	41.22	Top Width (ft)		41.22	
Vel Total (ft/s)	13.00	Avg. Vel. (ft/s)		13.00	
Max Chl Dpth (ft)	2.71	Hydr. Depth (ft)		1.51	
Conv. Total (cfs)	4333.0	Conv. (cfs)		4333.0	
Length Wtd. (ft)	1.05	Wetted Per. (ft)		42.10	
Min Ch El (ft)	63.19	Shear (lb/sq ft)		3.19	
Alpha	1.00	Stream Power (lb/ft s)		41.51	
Frctn Loss (ft)	1.27	Cum Volume (acre-ft)		1.03	
C & E Loss (ft)	0.02	Cum SA (acres)		0.50	

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12400.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2400

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	75	75	67.32	84.2	64.25	96.7	64.25	100	63.15
103.3	64.25	115.8	64.25	125	67.32	125.01	75		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.7	.013	103.3	.03	125	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
74.99	125.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	68.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.62	Wt. n-Val.		0.028	
W.S. Elev (ft)	65.86	Reach Len. (ft)	0.00	50.00	0.00
Crit W.S. (ft)	66.67	Flow Area (sq ft)		62.15	
E.G. Slope (ft/ft)	*0.034598	Area (sq ft)		62.15	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	41.23	Top Width (ft)		41.23	
Vel Total (ft/s)	12.99	Avg. Vel. (ft/s)		12.99	
Max Chl Dpth (ft)	2.71	Hydr. Depth (ft)		1.51	
Conv. Total (cfs)	4338.6	Conv. (cfs)		4338.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		42.11	
Min Ch El (ft)	63.15	Shear (lb/sq ft)		3.19	
Alpha	1.00	Stream Power (lb/ft s)		41.39	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		1.03	
C & E Loss (ft)	0.00	Cum SA (acres)		0.50	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12350.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2350
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	70	75	65.32	84.2	62.25	96.7	62.25	100	61.15
103.3	62.25	115.8	62.25	125	65.32	125.01	70		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.7	.013	103.3	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	66.63	Element		0.028	
Vel Head (ft)	2.83	Wt. n-Val.		30.00	0.00
W.S. Elev (ft)	63.80	Reach Len. (ft)	0.00	59.82	
Crit W.S. (ft)	64.67	Flow Area (sq ft)		59.82	
E.G. Slope (ft/ft)	*0.038790	Area (sq ft)		807.00	
Q Total (cfs)	807.00	Flow (cfs)		40.89	
Top Width (ft)	40.89	Top Width (ft)		13.49	
Vel Total (ft/s)	13.49	Avg. Vel. (ft/s)		1.46	
Max Chl Dpth (ft)	2.65	Hydr. Depth (ft)		4097.4	
Conv. Total (cfs)	4097.4	Conv. (cfs)		41.75	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		3.47	
Min Ch El (ft)	61.15	Shear (lb/sq ft)		46.81	
Alpha	1.00	Stream Power (lb/ft s)		0.96	
Frctn Loss (ft)	1.83	Cum Volume (acre-ft)		0.45	
C & E Loss (ft)	0.02	Cum SA (acres)			

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12320.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2320
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	67.62	75	64.12	84.2	61.05	96.7	61.05	100	59.95
103.3	61.05	115.8	61.05	125	64.12	125.01	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.7	.013	103.3	.03	125	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 6.94 7.82 8.74 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	65.45	Element		0.028	
Vel Head (ft)	2.86	Wt. n-Val.		7.82	8.74
W.S. Elev (ft)	62.59	Reach Len. (ft)	6.94	59.50	
Crit W.S. (ft)	63.47	Flow Area (sq ft)		59.50	
E.G. Slope (ft/ft)	*0.039406	Area (sq ft)		807.00	
Q Total (cfs)	807.00	Flow (cfs)		40.85	
Top Width (ft)	40.85	Top Width (ft)		13.56	
Vel Total (ft/s)	13.56	Avg. Vel. (ft/s)		1.46	
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)		4065.3	
Conv. Total (cfs)	4065.3	Conv. (cfs)		41.70	
Length Wtd. (ft)	7.82	Wetted Per. (ft)		3.51	
Min Ch El (ft)	59.95	Shear (lb/sq ft)		47.61	
Alpha	1.00	Stream Power (lb/ft s)		0.91	
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)		0.42	
C & E Loss (ft)	0.00	Cum SA (acres)			

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12312.18

INPUT
Description: Desert Canyon per STANTEC Plans RS 2312.18, upstream Eastgate Bridge face
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.11	67.62	76.12	63.45	84.2	60.73	96.7	60.72	100	59.62
103.3	60.72	115.8	60.71	125	63.78	125.01	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.11	.013	76.12	.03	96.7	.013	103.3	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.11 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	65.14	Element		0.028	
Vel Head (ft)	2.88	Wt. n-Val.		0.01	0.00
W.S. Elev (ft)	62.26	Reach Len. (ft)	0.00	59.27	
Crit W.S. (ft)	63.14	Flow Area (sq ft)		59.27	
E.G. Slope (ft/ft)	*0.039827	Area (sq ft)		807.00	
Q Total (cfs)	807.00	Flow (cfs)		40.78	
Top Width (ft)	40.78	Top Width (ft)		13.62	
Vel Total (ft/s)	13.62	Avg. Vel. (ft/s)		1.45	
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)		4043.7	
Conv. Total (cfs)	4043.7	Conv. (cfs)		41.63	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		3.54	
Min Ch El (ft)	59.62	Shear (lb/sq ft)			

* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 48.20	*
* Frctn Loss (ft)	* 0.31	* Cum Volume (acre-ft)	*	* 0.90	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 0.41	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12312.17

INPUT
Description: Desert Canyon per STANTEC Plans RS 2312.17, begin abutments

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
77.04	67.62	77.05	63.11	84.2	60.73	96.7	60.72	100	59.62
103.3	60.72	115.8	60.71	124.02	63.45	124.03	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
77.04	.013	77.05	.03	96.7	.013	103.3	.03	124.02	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
77.04	124.03	31.46	33.22	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 65.14	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 2.88	* Wt. n-Val.	*	* 0.028 *	*
* W.S. Elev (ft)	* 62.26	* Reach Len. (ft)	* 31.46 *	33.22 *	35.00 *
* Crit W.S. (ft)	* 63.14	* Flow Area (sq ft)	*	* 59.26 *	*
* E.G. Slope (ft/ft)	*0.039922	* Area (sq ft)	*	* 59.26 *	*
* Q Total (cfs)	* 807.00	* Flow (cfs)	*	* 807.00 *	*
* Top Width (ft)	* 40.82	* Top Width (ft)	*	* 40.82 *	*
* Vel Total (ft/s)	* 13.62	* Avg. Vel. (ft/s)	*	* 13.62 *	*
* Max Chl Dpth (ft)	* 2.64	* Hydr. Depth (ft)	*	* 1.45 *	*
* Conv. Total (cfs)	* 4038.9	* Conv. (cfs)	*	* 4038.9 *	*
* Length Wtd. (ft)	* 33.22	* Wetted Per. (ft)	*	* 41.68 *	*
* Min Ch El (ft)	* 59.62	* Shear (lb/sq ft)	*	* 3.54 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 48.26 *	*
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	*	* 0.90 *	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 0.41 *	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12278.95

INPUT
Description: Desert Canyon per STANTEC Plans RS 2278.95

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.75	67.62	74.76	63.17	84.2	60.02	96.7	60.02	100	58.92
103.3	60.02	115.8	60.02	121.16	61.84	121.17	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.75	.013	74.76	.03	96.7	.013	103.3	.03	121.16	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
74.75	121.17	23.07	25.04	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 63.87	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 2.05	* Wt. n-Val.	*	* 0.028 *	*
* W.S. Elev (ft)	* 61.82	* Reach Len. (ft)	* 23.07 *	25.04 *	27.02 *
* Crit W.S. (ft)	* 62.43	* Flow Area (sq ft)	*	* 70.30 *	*
* E.G. Slope (ft/ft)	*0.023892	* Area (sq ft)	*	* 70.30 *	*
* Q Total (cfs)	* 807.00	* Flow (cfs)	*	* 807.00 *	*
* Top Width (ft)	* 42.32	* Top Width (ft)	*	* 42.32 *	*
* Vel Total (ft/s)	* 11.48	* Avg. Vel. (ft/s)	*	* 11.48 *	*
* Max Chl Dpth (ft)	* 2.90	* Hydr. Depth (ft)	*	* 1.66 *	*
* Conv. Total (cfs)	* 5220.9	* Conv. (cfs)	*	* 5220.9 *	*
* Length Wtd. (ft)	* 25.04	* Wetted Per. (ft)	*	* 43.27 *	*
* Min Ch El (ft)	* 58.92	* Shear (lb/sq ft)	*	* 2.42 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 27.82 *	*
* Frctn Loss (ft)	* 1.01	* Cum Volume (acre-ft)	*	* 0.85 *	*
* C & E Loss (ft)	* 0.25	* Cum SA (acres)	*	* 0.38 *	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12253.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 2253.91, south abutment bend

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75.83	67.62	75.84	62.28	84.2	59.49	96.7	59.49	100	58.39
103.3	59.49	115.8	59.49	122.91	61.86	122.92	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
75.83	.013	75.84	.03	96.7	.013	103.3	.03	122.91	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
75.83	122.92	33.33	36.19	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 63.26	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 1.91	* Wt. n-Val.	*	* 0.028 *	*
* W.S. Elev (ft)	* 61.35	* Reach Len. (ft)	* 33.33 *	36.19 *	39.05 *
* Crit W.S. (ft)	* 61.91	* Flow Area (sq ft)	*	* 72.72 *	*
* E.G. Slope (ft/ft)	*0.021670	* Area (sq ft)	*	* 72.72 *	*
* Q Total (cfs)	* 807.00	* Flow (cfs)	*	* 807.00 *	*
* Top Width (ft)	* 42.75	* Top Width (ft)	*	* 42.75 *	*
* Vel Total (ft/s)	* 11.10	* Avg. Vel. (ft/s)	*	* 11.10 *	*

Max Chl Dpth (ft)	2.96	Hydr. Depth (ft)		1.70	
Conv. Total (cfs)	5482.0	Conv. (cfs)		5482.0	
Length Wtd. (ft)	36.19	Wetted Per. (ft)		43.71	
Min Ch El (ft)	58.39	Shear (lb/sq ft)		2.25	
Alpha	1.00	Stream Power (lb/ft s)		24.98	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)		0.81	
C & E Loss (ft)	0.04	Cum SA (acres)		0.36	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12217.72

INPUT
Description: Desert Canyon per STANTEC Plans RS 2217.72, downstream Eastgate Bridge

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.62	67.62	82.63	59.24	84.2	58.72	96.7	58.72	100	57.62
103.3	58.72	115.8	58.72	119.61	59.99	119.62	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
82.62	.013	82.63	.03	96.7	.013	103.3	.03	119.61	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
82.62	119.62	13.04	14.15	15.27	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	62.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.88	Wt. n-Val.		0.027	
W.S. Elev (ft)	60.68	Reach Len. (ft)	13.04	14.15	15.27
Crit W.S. (ft)	61.14	Flow Area (sq ft)		73.42	
E.G. Slope (ft/ft)	*0.017140	Area (sq ft)		73.42	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	36.98	Top Width (ft)		36.98	
Vel Total (ft/s)	10.99	Avg. Vel. (ft/s)		10.99	
Max Chl Dpth (ft)	3.06	Hydr. Depth (ft)		1.99	
Conv. Total (cfs)	6164.1	Conv. (cfs)		6164.1	
Length Wtd. (ft)	14.15	Wetted Per. (ft)		39.76	
Min Ch El (ft)	57.62	Shear (lb/sq ft)		1.98	
Alpha	1.00	Stream Power (lb/ft s)		21.72	
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)		0.75	
C & E Loss (ft)	0.01	Cum SA (acres)		0.32	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12203.57

INPUT
Description: Desert Canyon per STANTEC Plans RS 2203.57, begin half trapezoidal channel

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
79.9	65	79.91	59.85	84.2	58.42	96.7	58.42	100	57.32
103.3	58.42	115.8	58.42	115.81	65				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
79.9	.013	79.91	.03	96.7	.013	103.3	.03	115.8	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
79.9	115.81	38.1	41.38	44.32	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	62.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.88	Wt. n-Val.		0.026	
W.S. Elev (ft)	60.45	Reach Len. (ft)	38.10	41.38	44.32
Crit W.S. (ft)	60.91	Flow Area (sq ft)		73.39	
E.G. Slope (ft/ft)	*0.016469	Area (sq ft)		73.39	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	35.89	Top Width (ft)		35.89	
Vel Total (ft/s)	11.00	Avg. Vel. (ft/s)		11.00	
Max Chl Dpth (ft)	3.13	Hydr. Depth (ft)		2.04	
Conv. Total (cfs)	6288.4	Conv. (cfs)		6288.4	
Length Wtd. (ft)	41.38	Wetted Per. (ft)		39.11	
Min Ch El (ft)	57.32	Shear (lb/sq ft)		1.93	
Alpha	1.00	Stream Power (lb/ft s)		21.22	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)		0.73	
C & E Loss (ft)	0.00	Cum SA (acres)		0.31	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12162.19

INPUT
Description: Desert Canyon per STANTEC Plans RS 2162.19, end transition & bend

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	65	76.45	60.13	84.2	57.55	96.7	57.55	100	56.45
103.3	57.55	111.2	57.55	111.21	65				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
76.44	111.21	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	61.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.76	Wt. n-Val.		0.026	
W.S. Elev (ft)	59.91	Reach Len. (ft)	0.00	12.19	0.00
Crit W.S. (ft)	60.27	Flow Area (sq ft)		75.81	
E.G. Slope (ft/ft)	*0.013742	Area (sq ft)		75.81	
Q Total (cfs)	807.00	Flow (cfs)		807.00	

Top Width (ft)	34.10	Top Width (ft)		34.10	
Vel Total (ft/s)	10.64	Avg. Vel. (ft/s)		10.64	
Max Chl Dpth (ft)	3.46	Hydr. Depth (ft)		2.22	
Conv. Total (cfs)	6884.2	Conv. (cfs)		6884.2	
Length Wtd. (ft)	12.19	Wetted Per. (ft)		37.20	
Min Ch El (ft)	56.45	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		18.61	
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)		0.66	
C & E Loss (ft)	0.04	Cum SA (acres)		0.28	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12150.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2150, end 3:1 left side slope
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	65	76.45	59.87	84.2	57.29	96.7	57.29	100	56.19
103.3	57.29	111.2	57.29	111.21	65				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	61.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.92	Wt. n-Val.		0.026	
W.S. Elev (ft)	59.56	Reach Len. (ft)	0.00	25.00	0.00
Crit W.S. (ft)	60.01	Flow Area (sq ft)		72.55	
E.G. Slope (ft/ft)	*0.015683	Area (sq ft)		72.55	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	33.81	Top Width (ft)		33.81	
Vel Total (ft/s)	11.12	Avg. Vel. (ft/s)		11.12	
Max Chl Dpth (ft)	3.37	Hydr. Depth (ft)		2.15	
Conv. Total (cfs)	6444.1	Conv. (cfs)		6444.1	
Length Wtd. (ft)	25.00	Wetted Per. (ft)		36.80	
Min Ch El (ft)	56.19	Shear (lb/sq ft)		1.93	
Alpha	1.00	Stream Power (lb/ft s)		21.47	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)		0.64	
C & E Loss (ft)	0.02	Cum SA (acres)		0.27	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12125.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2125, begin 2:1 left side slope
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	63.31	76.45	60.64	84.2	56.76	96.7	56.76	100	55.66
103.3	56.76	111.2	56.76	111.21	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
76.44 111.21 42.36 27.69 20.72 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	61.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.02	Wt. n-Val.		0.026	
W.S. Elev (ft)	59.05	Reach Len. (ft)	42.36	27.69	20.72
Crit W.S. (ft)	59.54	Flow Area (sq ft)		70.69	
E.G. Slope (ft/ft)	*0.015568	Area (sq ft)		70.69	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	31.58	Top Width (ft)		31.58	
Vel Total (ft/s)	11.42	Avg. Vel. (ft/s)		11.42	
Max Chl Dpth (ft)	3.39	Hydr. Depth (ft)		2.24	
Conv. Total (cfs)	6467.9	Conv. (cfs)		6467.9	
Length Wtd. (ft)	27.69	Wetted Per. (ft)		34.76	
Min Ch El (ft)	55.66	Shear (lb/sq ft)		1.98	
Alpha	1.00	Stream Power (lb/ft s)		22.56	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)		0.60	
C & E Loss (ft)	0.01	Cum SA (acres)		0.25	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12097.31

INPUT
Description: Desert Canyon per STANTEC Plans RS 2097.31, upstream face Easter Lily
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.442	63.31	76.45	59.75	84.2	55.97	96.7	56.14	100	55.08
103.3	56.22	111.2	56.32	111.208	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.442	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.442 111.208 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	60.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.30	Wt. n-Val.		0.026	
W.S. Elev (ft)	58.27	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)	58.91	Flow Area (sq ft)		66.24	
E.G. Slope (ft/ft)	*0.019361	Area (sq ft)		66.24	

Q Total (cfs)	807.00	Flow (cfs)		807.00
Top Width (ft)	31.71	Top Width (ft)		31.71
Vel Total (ft/s)	12.18	Avg. Vel. (ft/s)		12.18
Max Chl Dpth (ft)	3.19	Hydr. Depth (ft)		2.09
Conv. Total (cfs)	5799.8	Conv. (cfs)		5799.8
Length Wtd. (ft)	0.01	Wetted Per. (ft)		34.54
Min Ch El (ft)	55.08	Shear (lb/sq ft)		2.32
Alpha	1.00	Stream Power (lb/ft s)		28.24
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)		0.55
C & E Loss (ft)	0.03	Cum SA (acres)		0.23

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12097.3

INPUT
Description: Desert Canyon per STANTEC Plans RS 2097.30, begin abutment
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.442	63.31	76.45	59.75	84.2	55.97	96.7	56.14	100	55.08
103.3	56.22	109.95	56.31	109.96	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.442	.013	76.45	.03	96.7	.013	103.3	.03	109.95	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.442 109.96 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	60.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.84	Wt. n-Val.		0.026	
W.S. Elev (ft)	58.60	Reach Len. (ft)	0.00	63.00	0.00
Crit W.S. (ft)	58.98	Flow Area (sq ft)		74.15	
E.G. Slope (ft/ft)	*0.013054	Area (sq ft)		74.15	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	31.15	Top Width (ft)		31.15	
Vel Total (ft/s)	10.88	Avg. Vel. (ft/s)		10.88	
Max Chl Dpth (ft)	3.52	Hydr. Depth (ft)		2.38	
Conv. Total (cfs)	7063.3	Conv. (cfs)		7063.3	
Length Wtd. (ft)	63.00	Wetted Per. (ft)		34.41	
Min Ch El (ft)	55.08	Shear (lb/sq ft)		1.76	
Alpha	1.00	Stream Power (lb/ft s)		19.11	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		0.55	
C & E Loss (ft)	0.28	Cum SA (acres)		0.23	

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12033.7

INPUT
Description: Desert Canyon per STANTEC Plans RS 2033.7, end abutment
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	63.31	76.45	58.41	84.2	54.63	96.7	54.8	100	53.74
103.3	54.88	109.95	54.97	109.96	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	109.95	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 109.96 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	59.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.42	Wt. n-Val.		0.026	
W.S. Elev (ft)	56.95	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)	57.64	Flow Area (sq ft)		64.61	
E.G. Slope (ft/ft)	*0.019874	Area (sq ft)		64.61	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	30.52	Top Width (ft)		30.52	
Vel Total (ft/s)	12.49	Avg. Vel. (ft/s)		12.49	
Max Chl Dpth (ft)	3.21	Hydr. Depth (ft)		2.12	
Conv. Total (cfs)	5724.4	Conv. (cfs)		5724.4	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		33.40	
Min Ch El (ft)	53.74	Shear (lb/sq ft)		2.40	
Alpha	1.00	Stream Power (lb/ft s)		29.98	
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)		0.45	
C & E Loss (ft)	0.06	Cum SA (acres)		0.19	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12033.69

INPUT
Description: Desert Canyon per STANTEC Plans RS 2033.69, end Easter Lily bridge
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	63.31	76.45	58.41	84.2	54.63	96.7	54.8	100	53.74
103.3	54.88	111.2	54.98	111.21	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
76.44 111.21 19.64 34.29 41.27 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	59.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.53	Wt. n-Val.		0.026	
W.S. Elev (ft)	56.83	Reach Len. (ft)	19.64	34.29	41.27
Crit W.S. (ft)	57.57	Flow Area (sq ft)		63.21	
E.G. Slope (ft/ft)	*0.022364	Area (sq ft)		63.21	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	31.52	Top Width (ft)		31.52	
Vel Total (ft/s)	12.77	Avg. Vel. (ft/s)		12.77	
Max Chl Dpth (ft)	3.09	Hydr. Depth (ft)		2.01	
Conv. Total (cfs)	5396.3	Conv. (cfs)		5396.3	
Length Wtd. (ft)	34.29	Wetted Per. (ft)		34.23	
Min Ch El (ft)	53.74	Shear (lb/sq ft)		2.58	
Alpha	1.00	Stream Power (lb/ft s)		32.92	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		0.45	
C & E Loss (ft)	0.01	Cum SA (acres)		0.19	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12000.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2000
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	63.31	76.45	58	84.2	54.12	96.7	54.12	100	53.02
103.3	54.12	111.2	54.12	111.21	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	58.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.34	Wt. n-Val.		0.026	
W.S. Elev (ft)	56.25	Reach Len. (ft)	0.00	75.82	0.00
Crit W.S. (ft)	56.92	Flow Area (sq ft)		65.71	
E.G. Slope (ft/ft)	*0.019481	Area (sq ft)		65.71	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	31.26	Top Width (ft)		31.26	
Vel Total (ft/s)	12.28	Avg. Vel. (ft/s)		12.28	
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		2.10	
Conv. Total (cfs)	5781.8	Conv. (cfs)		5781.8	
Length Wtd. (ft)	75.82	Wetted Per. (ft)		34.25	
Min Ch El (ft)	53.02	Shear (lb/sq ft)		2.33	
Alpha	1.00	Stream Power (lb/ft s)		28.66	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)		0.40	
C & E Loss (ft)	0.06	Cum SA (acres)		0.16	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11924.18

INPUT
Description: Desert Canyon per STANTEC Plans RS 1924.18, Pioneer Outfall 12'x8'
RCB Outlet (South Channel)
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	57.51	76.45	56.92	84.2	53.04	96.7	53.04	100	51.94
103.3	53.04	111.2	53.04	111.21	59.69				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	57.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.76	Wt. n-Val.		0.026	
W.S. Elev (ft)	55.49	Reach Len. (ft)	0.00	12.50	0.00
Crit W.S. (ft)	55.84	Flow Area (sq ft)		75.88	
E.G. Slope (ft/ft)	*0.012531	Area (sq ft)		75.88	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	31.90	Top Width (ft)		31.90	
Vel Total (ft/s)	10.64	Avg. Vel. (ft/s)		10.64	
Max Chl Dpth (ft)	3.55	Hydr. Depth (ft)		2.38	
Conv. Total (cfs)	7209.0	Conv. (cfs)		7209.0	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		35.29	
Min Ch El (ft)	51.94	Shear (lb/sq ft)		1.68	
Alpha	1.00	Stream Power (lb/ft s)		17.89	
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)		0.28	
C & E Loss (ft)	0.18	Cum SA (acres)		0.11	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11911.68

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.01	76.45	56.74	84.2	52.86	96.7	52.86	100	51.76
103.3	52.86	111.2	52.86	111.21	59.5				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val

76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013
111.21	.013								

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	57.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.81	Wt. n-Val.		0.026	
W.S. Elev (ft)	55.28	Reach Len. (ft)	0.00	12.50	0.00
Crit W.S. (ft)	55.66	Flow Area (sq ft)		74.83	
E.G. Slope (ft/ft)	*0.013077	Area (sq ft)		74.83	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	31.84	Top Width (ft)		31.84	
Vel Total (ft/s)	10.78	Avg. Vel. (ft/s)		10.78	
Max Chl Dpth (ft)	3.52	Hydr. Depth (ft)		2.35	
Conv. Total (cfs)	7057.1	Conv. (cfs)		7057.1	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		35.18	
Min Ch El (ft)	51.76	Shear (lb/sq ft)		1.74	
Alpha	1.00	Stream Power (lb/ft s)		18.72	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		0.26	
C & E Loss (ft)	0.00	Cum SA (acres)		0.10	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11899.18

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	56.56	84.2	52.68	96.7	52.68	100	51.58
103.3	52.68	111.2	52.68	111.21	58.36				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.84	Wt. n-Val.		0.026	
W.S. Elev (ft)	55.08	Reach Len. (ft)	0.00	12.50	0.00
Crit W.S. (ft)	55.48	Flow Area (sq ft)		74.14	
E.G. Slope (ft/ft)	*0.013451	Area (sq ft)		74.14	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	31.80	Top Width (ft)		31.80	
Vel Total (ft/s)	10.88	Avg. Vel. (ft/s)		10.88	
Max Chl Dpth (ft)	3.50	Hydr. Depth (ft)		2.33	
Conv. Total (cfs)	6958.3	Conv. (cfs)		6958.3	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		35.12	
Min Ch El (ft)	51.58	Shear (lb/sq ft)		1.77	
Alpha	1.00	Stream Power (lb/ft s)		19.30	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		0.23	
C & E Loss (ft)	0.00	Cum SA (acres)		0.09	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11886.68

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	56.38	84.2	52.5	96.7	52.5	100	51.4
103.3	52.5	111.2	52.5	111.21	58.19				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013
111.21	.013								

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.87	Wt. n-Val.		0.026	
W.S. Elev (ft)	54.88	Reach Len. (ft)	0.00	12.50	0.00
Crit W.S. (ft)	55.30	Flow Area (sq ft)		73.63	
E.G. Slope (ft/ft)	*0.013738	Area (sq ft)		73.63	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	31.76	Top Width (ft)		31.76	
Vel Total (ft/s)	10.96	Avg. Vel. (ft/s)		10.96	
Max Chl Dpth (ft)	3.48	Hydr. Depth (ft)		2.32	
Conv. Total (cfs)	6885.1	Conv. (cfs)		6885.1	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		35.06	
Min Ch El (ft)	51.40	Shear (lb/sq ft)		1.80	
Alpha	1.00	Stream Power (lb/ft s)		19.74	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		0.21	
C & E Loss (ft)	0.00	Cum SA (acres)		0.08	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11874.18

INPUT
Description: Desert Canyon per STANTEC Plans RS 1874.18, end south channel
nuissance channel transition
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	56.2	84.2	52.32	96.7	52.32	100	51.22
103.3	52.32	111.2	52.32	111.21	58.02				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.89	Wt. n-Val.		0.026	
W.S. Elev (ft)	54.69	Reach Len. (ft)	0.00	23.06	0.00
Crit W.S. (ft)	55.12	Flow Area (sq ft)		73.24	
E.G. Slope (ft/ft)	*0.013966	Area (sq ft)		73.24	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	31.74	Top Width (ft)		31.74	
Vel Total (ft/s)	11.02	Avg. Vel. (ft/s)		11.02	
Max Chl Dpth (ft)	3.47	Hydr. Depth (ft)		2.31	
Conv. Total (cfs)	6828.8	Conv. (cfs)		6828.8	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		35.02	
Min Ch El (ft)	51.22	Shear (lb/sq ft)		1.82	
Alpha	1.00	Stream Power (lb/ft s)		20.09	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		0.19	
C & E Loss (ft)	0.00	Cum SA (acres)		0.07	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11851.12

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	55.87	84.2	51.99	96.7	51.99	100	50.89
103.3	51.99	111.2	51.99	111.21	57.79				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013
111.21	.013								

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.91	Wt. n-Val.		0.026	
W.S. Elev (ft)	54.35	Reach Len. (ft)	0.00	23.06	0.00
Crit W.S. (ft)	54.79	Flow Area (sq ft)		72.83	
E.G. Slope (ft/ft)	*0.014206	Area (sq ft)		72.83	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	31.71	Top Width (ft)		31.71	
Vel Total (ft/s)	11.08	Avg. Vel. (ft/s)		11.08	
Max Chl Dpth (ft)	3.46	Hydr. Depth (ft)		2.30	
Conv. Total (cfs)	6770.8	Conv. (cfs)		6770.8	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		34.98	
Min Ch El (ft)	50.89	Shear (lb/sq ft)		1.85	
Alpha	1.00	Stream Power (lb/ft s)		20.46	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)		0.15	
C & E Loss (ft)	0.00	Cum SA (acres)		0.05	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11828.06

INPUT
Description: Desert Canyon per STANTEC Plans
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	55.53	84.2	51.66	96.7	51.66	100	50.56
103.3	51.66	111.2	51.66	111.21	57.56				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013
111.21	.013								

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.		0.026	
W.S. Elev (ft)	55.12	Reach Len. (ft)	0.00	23.06	0.00
Crit W.S. (ft)	54.46	Flow Area (sq ft)		109.20	
E.G. Slope (ft/ft)	*0.004177	Area (sq ft)		109.20	
Q Total (cfs)	807.00	Flow (cfs)		807.00	
Top Width (ft)	33.94	Top Width (ft)		33.94	
Vel Total (ft/s)	7.39	Avg. Vel. (ft/s)		7.39	
Max Chl Dpth (ft)	4.56	Hydr. Depth (ft)		3.22	
Conv. Total (cfs)	12487.0	Conv. (cfs)		12487.0	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		38.58	
Min Ch El (ft)	50.56	Shear (lb/sq ft)		0.74	
Alpha	1.00	Stream Power (lb/ft s)		5.45	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		0.11	
C & E Loss (ft)	0.05	Cum SA (acres)		0.03	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11826.06

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	55.53	84.2	51.66	96.7	51.66	100	50.56
103.3	51.66	111.2	51.66	111.21	57.56				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013
111.21	.013								

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	55.79	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	1.33	* Wt. n-Val.		0.026	
* W.S. Elev (ft)	54.46	* Reach Len. (ft)	0.00	23.06	0.00
* Crit W.S. (ft)	54.46	* Flow Area (sq ft)		87.06	
* E.G. Slope (ft/ft)	*0.008255	* Area (sq ft)		87.06	
* Q Total (cfs)	807.00	* Flow (cfs)		807.00	
* Top Width (ft)	32.61	* Top Width (ft)		32.61	
* Vel Total (ft/s)	9.27	* Avg. Vel. (ft/s)		9.27	
* Max Chl Dpth (ft)	3.90	* Hydr. Depth (ft)		2.67	
* Conv. Total (cfs)	8882.1	* Conv. (cfs)		8882.1	
* Length Wtd. (ft)	23.06	* Wetted Per. (ft)		36.42	
* Min Ch El (ft)	50.56	* Shear (lb/sq ft)		1.23	
* Alpha	1.00	* Stream Power (lb/ft s)		11.42	
* Frctn Loss (ft)	0.19	* Cum Volume (acre-ft)		0.05	
* C & E Loss (ft)	0.00	* Cum SA (acres)		0.02	

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11805.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1805, reach end
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	55.2	84.2	51.33	96.7	51.33	100	50.23
103.3	51.33	111.2	51.33	111.21	57.33				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	55.53	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	1.73	* Wt. n-Val.		0.026	
* W.S. Elev (ft)	53.80	* Reach Len. (ft)	5.00	5.00	5.00
* Crit W.S. (ft)	54.13	* Flow Area (sq ft)		76.45	
* E.G. Slope (ft/ft)	*0.012256	* Area (sq ft)		76.45	
* Q Total (cfs)	807.00	* Flow (cfs)		807.00	
* Top Width (ft)	31.95	* Top Width (ft)		31.95	
* Vel Total (ft/s)	10.56	* Avg. Vel. (ft/s)		10.56	
* Max Chl Dpth (ft)	3.57	* Hydr. Depth (ft)		2.39	
* Conv. Total (cfs)	7289.5	* Conv. (cfs)		7289.5	
* Length Wtd. (ft)	5.00	* Wetted Per. (ft)		35.36	
* Min Ch El (ft)	50.23	* Shear (lb/sq ft)		1.65	
* Alpha	1.00	* Stream Power (lb/ft s)		17.46	
* Frctn Loss (ft)	0.23	* Cum Volume (acre-ft)		0.01	
* C & E Loss (ft)	0.04	* Cum SA (acres)			

Note: Manning's n values were composited to a single value in the main channel.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: South Channel
REACH: South RS: 12150.

INPUT
Description: Pioneer Phase I Channel per VTN Plans RS 2150, south channel approach (Pioneer Outfall 12'x8' RCB)
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.49	62.78	82.5	54.78	88.5	54.78	94.5	54.78	94.51	62.78
100	62.78	103	62.78	113	62.78				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
82.49	.013	82.49	.013	113	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
82.49 113 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	63.25	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	5.33	* Wt. n-Val.		0.013	
* W.S. Elev (ft)	57.92	* Reach Len. (ft)	50.00	50.00	50.00
* Crit W.S. (ft)	59.50	* Flow Area (sq ft)		37.73	
* E.G. Slope (ft/ft)	*0.009999	* Area (sq ft)		37.73	
* Q Total (cfs)	699.00	* Flow (cfs)		699.00	
* Top Width (ft)	12.01	* Top Width (ft)		12.01	
* Vel Total (ft/s)	18.53	* Avg. Vel. (ft/s)		18.53	
* Max Chl Dpth (ft)	3.14	* Hydr. Depth (ft)		3.14	
* Conv. Total (cfs)	6990.3	* Conv. (cfs)		6990.3	
* Length Wtd. (ft)	50.00	* Wetted Per. (ft)		18.29	
* Min Ch El (ft)	54.78	* Shear (lb/sq ft)		1.29	
* Alpha	1.00	* Stream Power (lb/ft s)		23.86	
* Frctn Loss (ft)		* Cum Volume (acre-ft)		0.29	
* C & E Loss (ft)		* Cum SA (acres)		0.12	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 12100

INPUT
Description: Pioneer Phase I Channel per VTN Plans RS 2100
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.49	62.28	82.5	54.28	88.5	54.28	94.5	54.28	94.51	62.28
100	62.28	103	62.28	113	62.28				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
82.49	.013	82.49	.013	113	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
82.49	113	50	50	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	62.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.33	Wt. n-Val.		0.013	
W.S. Elev (ft)	57.42	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	59.00	Flow Area (sq ft)		37.73	
E.G. Slope (ft/ft)	*0.009999	Area (sq ft)		37.73	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	12.01	Top Width (ft)		12.01	
Vel Total (ft/s)	18.53	Avg. Vel. (ft/s)		18.53	
Max Chl Dpth (ft)	3.14	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	6990.3	Conv. (cfs)		6990.3	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		18.29	
Min Ch El (ft)	54.28	Shear (lb/sq ft)		1.29	
Alpha	1.00	Stream Power (lb/ft s)		23.86	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)		0.25	
C & E Loss (ft)	0.00	Cum SA (acres)		0.11	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 12050.

INPUT
Description: Pioneer Phase I Channel per VTN Plans RS 2050
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.49	61.78	82.5	53.78	88.5	53.78	94.5	53.78	94.51	61.78
100	61.78	103	61.78	113	61.78				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
82.49	.013	82.49	.013	113	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
82.49	113	50	50	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	62.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.33	Wt. n-Val.		0.013	
W.S. Elev (ft)	56.92	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	58.51	Flow Area (sq ft)		37.73	
E.G. Slope (ft/ft)	*0.009999	Area (sq ft)		37.73	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	12.01	Top Width (ft)		12.01	
Vel Total (ft/s)	18.53	Avg. Vel. (ft/s)		18.53	
Max Chl Dpth (ft)	3.14	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	6990.4	Conv. (cfs)		6990.4	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		18.29	
Min Ch El (ft)	53.78	Shear (lb/sq ft)		1.29	
Alpha	1.00	Stream Power (lb/ft s)		23.86	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)		0.21	
C & E Loss (ft)	0.00	Cum SA (acres)		0.10	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 12000.

INPUT
Description: Pioneer Phase I Channel per VTN Plans RS 2000
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.49	61.28	82.5	53.28	88.5	53.28	94.5	53.28	94.51	61.28
100	61.28	103	61.28	113	61.28				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
82.49	.013	82.49	.013	113	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
82.49	113	50	50	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	61.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.33	Wt. n-Val.		0.013	
W.S. Elev (ft)	56.42	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	58.00	Flow Area (sq ft)		37.73	
E.G. Slope (ft/ft)	*0.009998	Area (sq ft)		37.73	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	12.01	Top Width (ft)		12.01	
Vel Total (ft/s)	18.52	Avg. Vel. (ft/s)		18.52	
Max Chl Dpth (ft)	3.14	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	6990.6	Conv. (cfs)		6990.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		18.29	
Min Ch El (ft)	53.28	Shear (lb/sq ft)		1.29	
Alpha	1.00	Stream Power (lb/ft s)		23.86	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)		0.16	
C & E Loss (ft)	0.00	Cum SA (acres)		0.08	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11950.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1950

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.49	60.78	82.5	52.78	88.5	52.78	94.5	52.78	94.51	60.78
100	60.78	103	60.78	113	60.78				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
82.49	.013	82.49	.013	113	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
82.49	113	25.81	25.81	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	61.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.33	Wt. n-Val.		0.013	
W.S. Elev (ft)	55.92	Reach Len. (ft)	25.81	25.81	25.81
Crit W.S. (ft)	57.50	Flow Area (sq ft)		37.73	
E.G. Slope (ft/ft)	*0.009997	Area (sq ft)		37.73	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	12.01	Top Width (ft)		12.01	
Vel Total (ft/s)	18.52	Avg. Vel. (ft/s)		18.52	
Max Chl Dpth (ft)	3.14	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	6990.9	Conv. (cfs)		6990.9	
Length Wtd. (ft)	25.81	Wetted Per. (ft)		18.29	
Min Ch El (ft)	52.78	Shear (lb/sq ft)		1.29	
Alpha	1.00	Stream Power (lb/ft s)		23.86	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)		0.12	
C & E Loss (ft)	0.00	Cum SA (acres)		0.07	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11924.19

INPUT
Description: Desert Canyon per STANTEC Plans RS 1924.19, Pioneer Outfall 12'x8' RCB outlet

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.49	60.52	82.5	52.52	88.5	52.52	94.5	52.52	94.51	60.52
100	60.52	103	60.52	113	60.52				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
82.49	.013	82.49	.013	113	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
82.49	113	.01	.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	60.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.32	Wt. n-Val.		0.013	
W.S. Elev (ft)	55.67	Reach Len. (ft)	0.01	0.01	0.01
Crit W.S. (ft)	57.24	Flow Area (sq ft)		37.76	
E.G. Slope (ft/ft)	*0.009977	Area (sq ft)		37.76	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	12.01	Top Width (ft)		12.01	
Vel Total (ft/s)	18.51	Avg. Vel. (ft/s)		18.51	
Max Chl Dpth (ft)	3.15	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	6998.2	Conv. (cfs)		6998.2	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		18.29	
Min Ch El (ft)	52.52	Shear (lb/sq ft)		1.29	
Alpha	1.00	Stream Power (lb/ft s)		23.81	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		0.10	
C & E Loss (ft)	0.00	Cum SA (acres)		0.06	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11911.68

INPUT
Description: Desert Canyon per STANTEC Plans

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	59.5	80.25	52.47	86.1	52.4	91.38	52.14	96.63	52.4
98.49	52.42	100.75	52.46	103	52.5	117	59.5		

Manning's n Values num= 2

Sta	n Val	Sta	n Val
80.24	.013	117	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
80.24	117	12.5	12.5	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
98.75	117		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	60.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.69	Wt. n-Val.		0.013	
W.S. Elev (ft)	54.16	Reach Len. (ft)	12.50	12.50	12.50
Crit W.S. (ft)	55.87	Flow Area (sq ft)		33.67	
E.G. Slope (ft/ft)	*0.016688	Area (sq ft)		43.63	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	26.07	Top Width (ft)		26.07	
Vel Total (ft/s)	20.76	Avg. Vel. (ft/s)		20.76	
Max Chl Dpth (ft)	2.02	Hydr. Depth (ft)		1.82	
Conv. Total (cfs)	5411.0	Conv. (cfs)		5411.0	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		20.20	
Min Ch El (ft)	52.14	Shear (lb/sq ft)		1.74	
Alpha	1.00	Stream Power (lb/ft s)		36.05	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		0.10	
C & E Loss (ft)	0.14	Cum SA (acres)		0.06	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11899.18

INPUT

Description: Desert Canyon per STANTEC Plans RS 1899.18
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	58.36	80.25	52.36	89.69	52.27	94.25	51.77	98.77	52.27
100	52.28	103	52.31	117	59.31				

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80.24 117 12.5 12.5 12.5 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
103	117		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	60.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.94	Wt. n-Val.		0.013	
W.S. Elev (ft)	53.65	Reach Len. (ft)	12.50	12.50	12.50
Crit W.S. (ft)	55.28	Flow Area (sq ft)		33.08	
E.G. Slope (ft/ft)	*0.022404	Area (sq ft)		34.86	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	25.42	Top Width (ft)		25.42	
Vel Total (ft/s)	21.13	Avg. Vel. (ft/s)		21.13	
Max Chl Dpth (ft)	1.88	Hydr. Depth (ft)		1.45	
Conv. Total (cfs)	4670.0	Conv. (cfs)		4670.0	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		24.09	
Min Ch El (ft)	51.77	Shear (lb/sq ft)		1.92	
Alpha	1.00	Stream Power (lb/ft s)		40.58	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)		0.08	
C & E Loss (ft)	0.02	Cum SA (acres)		0.06	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11886.68

INPUT
Description: Desert Canyon per STANTEC Plans
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	58.19	80.25	52.19	93.35	52.15	97.12	51.4	100.88	52.15
101.5	52.15	103	52.17	117	59.17				

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80.24 117 12.5 12.5 12.5 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
107	117		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	60.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.82	Wt. n-Val.		0.013	
W.S. Elev (ft)	53.43	Reach Len. (ft)	12.50	12.50	12.50
Crit W.S. (ft)	54.97	Flow Area (sq ft)		33.35	
E.G. Slope (ft/ft)	*0.025320	Area (sq ft)		33.35	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	25.28	Top Width (ft)		25.28	
Vel Total (ft/s)	20.96	Avg. Vel. (ft/s)		20.96	
Max Chl Dpth (ft)	2.03	Hydr. Depth (ft)		1.32	
Conv. Total (cfs)	4392.9	Conv. (cfs)		4392.9	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		26.97	
Min Ch El (ft)	51.40	Shear (lb/sq ft)		1.96	
Alpha	1.00	Stream Power (lb/ft s)		40.97	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)		0.08	
C & E Loss (ft)	0.03	Cum SA (acres)		0.05	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11874.18

INPUT
Description: Desert Canyon per STANTEC Plans RS 1874.18, end nuissance channel transition
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	58.02	80.25	52.02	97	52.02	100	51.02	103	52.02
117	59.02								

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80.24 117 23.06 23.06 23.06 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
111	117		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	59.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.56	Wt. n-Val.		0.013	
W.S. Elev (ft)	53.31	Reach Len. (ft)	23.06	23.06	23.06
Crit W.S. (ft)	54.86	Flow Area (sq ft)		34.02	
E.G. Slope (ft/ft)	*0.024042	Area (sq ft)		34.02	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	25.33	Top Width (ft)		25.33	
Vel Total (ft/s)	20.55	Avg. Vel. (ft/s)		20.55	
Max Chl Dpth (ft)	2.29	Hydr. Depth (ft)		1.34	
Conv. Total (cfs)	4508.1	Conv. (cfs)		4508.1	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		27.25	
Min Ch El (ft)	51.02	Shear (lb/sq ft)		1.87	
Alpha	1.00	Stream Power (lb/ft s)		38.50	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)		0.07	
C & E Loss (ft)	0.08	Cum SA (acres)		0.04	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11851.12

INPUT
Description: Desert Canyon per STANTEC Plans
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	57.79	80.25	51.79	97	51.79	100	50.79	103	51.79
117	58.79								

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80.24 117 23.06 23.06 23.06 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	59.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.06	Wt. n-Val.		0.013	
W.S. Elev (ft)	53.13	Reach Len. (ft)	23.06	23.06	23.06
Crit W.S. (ft)	54.62	Flow Area (sq ft)		35.37	
E.G. Slope (ft/ft)	*0.021293	Area (sq ft)		35.37	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	25.44	Top Width (ft)		25.44	
Vel Total (ft/s)	19.76	Avg. Vel. (ft/s)		19.76	
Max Chl Dpth (ft)	2.34	Hydr. Depth (ft)		1.39	
Conv. Total (cfs)	4790.2	Conv. (cfs)		4790.2	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		27.42	
Min Ch El (ft)	50.79	Shear (lb/sq ft)		1.71	
Alpha	1.00	Stream Power (lb/ft s)		33.89	
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)		0.05	
C & E Loss (ft)	0.15	Cum SA (acres)		0.03	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11828.06

INPUT
Description: Desert Canyon per STANTEC Plans
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	57.56	80.25	51.56	97	51.56	100	50.56	103	51.56
117	58.56								

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80.24 117 23.06 23.06 23.06 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	58.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.65	Wt. n-Val.		0.013	
W.S. Elev (ft)	52.95	Reach Len. (ft)	23.06	23.06	23.06
Crit W.S. (ft)	54.40	Flow Area (sq ft)		36.63	
E.G. Slope (ft/ft)	*0.019088	Area (sq ft)		36.63	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	25.54	Top Width (ft)		25.54	
Vel Total (ft/s)	19.08	Avg. Vel. (ft/s)		19.08	
Max Chl Dpth (ft)	2.39	Hydr. Depth (ft)		1.43	
Conv. Total (cfs)	5059.4	Conv. (cfs)		5059.4	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		27.58	
Min Ch El (ft)	50.56	Shear (lb/sq ft)		1.58	
Alpha	1.00	Stream Power (lb/ft s)		30.20	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)		0.03	
C & E Loss (ft)	0.12	Cum SA (acres)		0.01	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11805.

INPUT
Description: Desert Canyon per STANTEC Plans
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	57.33	80.25	51.33	97	51.33	100	50.33	103	51.33
117	58.33								

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Coeff Contr. Expan.
80.24 117 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	58.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.32	Wt. n-Val.		0.013	
W.S. Elev (ft)	52.77	Reach Len. (ft)	5.00	5.00	5.00
Crit W.S. (ft)	54.17	Flow Area (sq ft)		37.77	
E.G. Slope (ft/ft)	*0.017358	Area (sq ft)		37.77	
Q Total (cfs)	699.00	Flow (cfs)		699.00	
Top Width (ft)	25.63	Top Width (ft)		25.63	
Vel Total (ft/s)	18.51	Avg. Vel. (ft/s)		18.51	
Max Chl Dpth (ft)	2.44	Hydr. Depth (ft)		1.47	
Conv. Total (cfs)	5305.5	Conv. (cfs)		5305.5	
Length Wtd. (ft)	5.00	Wetted Per. (ft)		27.73	
Min Ch El (ft)	50.33	Shear (lb/sq ft)		1.48	
Alpha	1.00	Stream Power (lb/ft s)		27.32	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)		0.01	
C & E Loss (ft)	0.10	Cum SA (acres)			

SUMMARY OF MANNING'S N VALUES

River:Combined Channel

Reach	River Sta.	n1	n2	n3	n4	n5	n6
*EAST	11800.	.013*	.03*	.013*	.03*	.013*	.03*

*EAST	*	11799.99	*	.013*	.03*	.013*	.03*	.013*	.03*				
*EAST	*	11790.	*	.013*	.03*	.013*	.03*	.013*	.03*				
*EAST	*	11769.13	*	.013*	.03*	.013*	.03*	.013*	.03*				
*EAST	*	11751.44	*	.013*	.03*	.013*	.03*	.013*	.03*				
*EAST	*	11739.7	*	.013*	.03*	.013*	.03*	*	*				
*EAST	*	11732.13	*	.013*	.03*	.013*	.03*	*	*				
*EAST	*	11720.	*	.013*	.03*	.013*	.03*	*	*				
*EAST	*	11712.87	*	.013*	.03*	.013*	.03*	*	*				
*EAST	*	11689.21	*	.013*	.03*	.013*	.03*	*	*				
*EAST	*	11675.	*	.013*	.03*	.013*	.03*	*	*				
*EAST	*	11634.34	*	.013*	.03*	.013*	.03*	*	*				
*EAST	*	11624.05	*	.013*	.03*	.013*	.03*	*	*				
*EAST	*	11618.85	*	.013*	.03*	.013*	.03*	*	*				
*EAST	*	11596.34	*	.013*	.03*	.013*	.03*	*	*				
*EAST	*	11527.17	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11500.	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11450.	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11400.	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11377.99	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11350.	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11300.	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11278.76	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11250.	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11200.	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11175.26	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11154.55	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11125.	*	.03*	.013*	.03*	*	*	*				
*EAST	*	11116.35	*	.03*	.013*	.03*	.013*	*	*				
*EAST	*	11100.	*	.03*	.013*	.03*	.013*	*	*				
*EAST	*	11050.	*	.03*	.013*	.03*	.013*	*	*				
*EAST	*	11033.37	*	.03*	.013*	.03*	.013*	*	*				
*EAST	*	11007.4	*	.013*	*	*	*	*	*				
*EAST	*	10973.86	*	*	.013*	*	*	*	*				
*EAST	*	10950.26	*	*	.013*	*	*	*	*				
*EAST	*	10909.89	*	*	.013*	*	*	*	*				
*EAST	*	10834.9	*	.013*	.013*	.013*	*	*	*				
*EAST	*	10834.89	*	.013*	.013*	.013*	*	*	*				
*EAST	*	10599.9	*	.013*	.013*	.013*	*	*	*				
*EAST	*	10599.89	*	.013*	.013*	.013*	*	*	*				
*EAST	*	10529.91	*	.013*	.013*	.013*	*	*	*				
*EAST	*	10429.91	*	.013*	.013*	.013*	*	*	*				
*EAST	*	10429.90	*	.013*	.013*	.013*	*	*	*				
*EAST	*	10289.92	*	.013*	.013*	.013*	*	*	*				
*EAST	*	10289.91	*	.013*	.013*	.013*	*	*	*				
*EAST	*	10209.93	*	.013*	.013*	.013*	*	*	*				
*EAST	*	10124.93	*	.013*	.013*	.013*	*	*	*				
*EAST	*	10124.92	*	.013*	.013*	.013*	*	*	*				
*EAST	*	9999.93	*	.013*	.013*	.013*	*	*	*				
*EAST	*	9999.92	*	.013*	.013*	.013*	*	*	*				
*EAST	*	9905.49	*	.013*	.013*	.013*	*	*	*				
*EAST	*	9845.49	*	.013*	.013*	.013*	*	*	*				
*EAST	*	9245.49	*	.013*	.013*	.013*	*	*	*				

River:North Channel

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9
*WEST	18653.05	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	18603.05	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	18354.06	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	18314.47	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	17036.02	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	16991.39	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	16271.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	16221.83	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	15874.83	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	15824.82	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	15635.6	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	15080.09	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	15015.09	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	14592.55	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	14542.55	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	14252.5	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	14092.97	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13987.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13887.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13787.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13687.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13602.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13582.54	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13562.17	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13562.16	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13557.18	*Bridge	*	*	*	*	*	*	*	*
*WEST	13552.2	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13478.79	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13476.6	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13425.61	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13410.61	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13353.48	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13343.61	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13343.6	.013*	*	*	*	*	*	*	*	*
*WEST	13333.3	.013*	.013*	*	*	*	*	*	*	*
*WEST	13323.	.013*	*	*	*	*	*	*	*	*
*WEST	13307.38	.013*	.013*	*	*	*	*	*	*	*
*WEST	13291.77	.013*	*	*	*	*	*	*	*	*
*WEST	13267.98	.013*	.013*	*	*	*	*	*	*	*
*WEST	13244.2	.013*	*	*	*	*	*	*	*	*
*WEST	13234.75	.013*	*	*	*	*	*	*	*	*
*WEST	13234.74	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13229.38	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13229.37	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13221.37	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13167.84	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13114.31	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13114.3	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13060.1	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13044.11	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13044.1	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13018.22	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13018.21	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13010.22	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13010.21	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12954.02	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12943.65	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12906.81	.013*	.03*	.013*	.03*	.013*	.03*	.013*	.03*	.013*
*WEST	12869.97	.013*	.03*	.013*	.03*	.013*	.03*	.013*	.03*	.013*
*WEST	12869.96	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12829.26	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12788.55	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12788.54	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	12780.55	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	12780.54	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12724.23	.013*	.03*	.013*	.03*	.013*	.03*	.013*	.013*	*
*WEST	12667.92	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12667.91	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	12598.93	.013*	.03*	.013*	.03*	.013*	.013*	*	*	*
*WEST	12529.94	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	12499.95	.013*	.03*	.013*	.03*	.013*	*	*	*	*

*WEST	*	12499.94	*	.013*	.03*	.013*	*	*	*	*	*	*
*WEST	*	12469.94	*	.013*	.03*	.013*	*	*	*	*	*	*
*WEST	*	12469.93	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12435.49	*	.013*	.03*	.021*	.021*	.03*	.013*	.013*	*	*
*WEST	*	12401.05	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12400.	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12350.	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12320.	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12312.18	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12312.17	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12278.95	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12253.91	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12217.72	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12203.57	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12162.19	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12150.	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12125.	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12097.31	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12097.3	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12033.7	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12033.69	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	12000.	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	11924.18	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	11911.68	*	.013*	.03*	.013*	.03*	.013*	.013*	*	*	*
*WEST	*	11899.18	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	11886.68	*	.013*	.03*	.013*	.03*	.013*	.013*	*	*	*
*WEST	*	11874.18	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	*	11851.12	*	.013*	.03*	.013*	.03*	.013*	.013*	*	*	*
*WEST	*	11828.06	*	.013*	.03*	.013*	.03*	.013*	.013*	*	*	*
*WEST	*	11826.06	*	.013*	.03*	.013*	.03*	.013*	.013*	*	*	*
*WEST	*	11805.	*	.013*	.03*	.013*	.03*	.013*	*	*	*	*

River:South Channel

Reach	River Sta.	n1	n2	n3
*South	12150.	.013*	.013*	.013*
*South	12100.	.013*	.013*	.013*
*South	12050.	.013*	.013*	.013*
*South	12000.	.013*	.013*	.013*
*South	11950.	.013*	.013*	.013*
*South	11924.19	.013*	.013*	.013*
*South	11911.68	.013*	.013*	*
*South	11899.18	.013*	*	*
*South	11886.68	.013*	*	*
*South	11874.18	.013*	*	*
*South	11851.12	.013*	*	*
*South	11828.06	.013*	*	*
*South	11805.	.013*	*	*

SUMMARY OF REACH LENGTHS

River: Combined Channel

Reach	River Sta.	Left	Channel	Right
*EAST	11800.	*	.01*	*
*EAST	11799.99	*	9.99*	*
*EAST	11790.	*	20.87*	*
*EAST	11769.13	*	17.69*	*
*EAST	11751.44	*	11.74*	*
*EAST	11739.7	*	7.57*	*
*EAST	11732.13	*	12.13*	*
*EAST	11720.	*	7.13*	*
*EAST	11712.87	*	23.66*	*
*EAST	11689.21	*	14.21*	*
*EAST	11675.	*	40.66*	*
*EAST	11634.34	*	10.29*	*
*EAST	11624.05	*	5.31*	*
*EAST	11618.85	*	22.51*	*
*EAST	11596.34	*	69.17*	*
*EAST	11527.17	*	27.17*	*
*EAST	11500.	*	50*	*
*EAST	11450.	*	50*	*
*EAST	11400.	*	22.02*	*
*EAST	11377.99	*	27.98*	*
*EAST	11350.	*	50*	*
*EAST	11300.	*	21.24*	*
*EAST	11278.76	*	28.76*	*
*EAST	11250.	*	50*	*
*EAST	11200.	*	24.74*	*
*EAST	11175.26	*	20.7*	*
*EAST	11154.55	*	29.55*	*
*EAST	11125.	8.65*	8.65*	8.65*
*EAST	11116.35	*	16.35*	*
*EAST	11100.	*	50*	*
*EAST	11050.	*	16.63*	*
*EAST	11033.37	*	25.97*	*
*EAST	11007.4	*	33.54*	*
*EAST	10973.86	*	23.6*	*
*EAST	10950.26	*	40.37*	*
*EAST	10909.89	74.99*	74.99*	74.99*
*EAST	10834.9	.01*	.01*	.01*
*EAST	10834.89	234.99*	234.99*	234.99*
*EAST	10599.9	.01*	.01*	.01*
*EAST	10599.89	69.99*	69.99*	69.99*
*EAST	10529.91	100*	100*	100*
*EAST	10429.91	.01*	.01*	.01*
*EAST	10429.90	139.99*	139.99*	139.99*
*EAST	10289.92	.01*	.01*	.01*
*EAST	10289.91	79.99*	79.99*	79.99*
*EAST	10209.93	85*	85*	85*
*EAST	10124.93	.01*	.01*	.01*
*EAST	10124.92	124.99*	124.99*	124.99*
*EAST	9999.93	.01*	.01*	.01*
*EAST	9999.92	94.44*	94.44*	94.44*
*EAST	9905.49	60*	60*	60*
*EAST	9845.49	600*	600*	600*
*EAST	9245.49	0*	0*	0*

River: North Channel

Reach	River Sta.	Left	Channel	Right
*WEST	18653.05	50*	50*	50*
*WEST	18603.05	248.99*	248.99*	248.99*
*WEST	18354.06	39.59*	39.59*	39.59*
*WEST	18314.47	1278.45*	1278.45*	1278.45*
*WEST	17036.02	50*	50*	50*
*WEST	16991.39	714.11*	714.11*	714.11*
*WEST	16271.91	50.08*	50.08*	50.08*
*WEST	16221.83	347*	347*	347*
*WEST	15874.83	50*	50*	50*
*WEST	15824.82	189.22*	189.22*	189.22*

*WEST	15635.6	620.51*	620.51*	620.51*
*WEST	15080.09	65*	65*	65*
*WEST	15015.09	374.89*	398.39*	421.9*
*WEST	14592.55	50.5*	50.5*	50.5*
*WEST	14542.55	290.05*	290.05*	290.05*
*WEST	14252.5	159.53*	159.53*	159.53*
*WEST	14092.97	105.06*	105.06*	105.06*
*WEST	13987.91	100*	100*	100*
*WEST	13887.91	100*	100*	100*
*WEST	13787.91	100*	100*	100*
*WEST	13687.91	85*	85*	85*
*WEST	13602.91	21.42*	20.37*	19.99*
*WEST	13582.54	21.42*	20.37*	19.99*
*WEST	13562.17	.01*	.01*	.01*
*WEST	13562.16	9.96*	9.96*	9.96*
*WEST	13557.18	*Bridge	*	*	*
*WEST	13552.2	73.41*	73.41*	73.41*
*WEST	13478.79	2.19*	2.19*	2.19*
*WEST	13476.6	45.02*	51.05*	52.79*
*WEST	13425.61	15*	15*	15*
*WEST	13410.61	61.49*	57.13*	52.67*
*WEST	13353.48	9.88*	9.88*	9.88*
*WEST	13343.61	.01*	.01*	.01*
*WEST	13343.6	10.3*	10.3*	10.3*
*WEST	13333.3	10.3*	10.3*	10.3*
*WEST	13323.	15.61*	15.61*	15.61*
*WEST	13307.38	15.61*	15.61*	15.61*
*WEST	13291.77	23.78*	23.78*	23.78*
*WEST	13267.98	23.78*	23.78*	23.78*
*WEST	13244.2	*	9.45*	*
*WEST	13234.75	*	.01*	*
*WEST	13234.74	*	5.36*	*
*WEST	13229.38	.01*	.01*	.01*
*WEST	13229.37	*	8*	*
*WEST	13221.37	53.53*	53.53*	53.53*
*WEST	13167.84	53.53*	53.53*	53.53*
*WEST	13114.31	*	.01*	*
*WEST	13114.3	*	54.2*	*
*WEST	13060.1	*	15.99*	*
*WEST	13044.11	*	.01*	*
*WEST	13044.1	*	15.12*	*
*WEST	13018.22	*	.01*	*
*WEST	13018.21	*	7.99*	*
*WEST	13010.22	*	.01*	*
*WEST	13010.21	*	56.19*	*
*WEST	12954.02	*	10.37*	*
*WEST	12943.65	36.84*	36.84*	36.84*
*WEST	12906.81	36.84*	36.84*	36.84*
*WEST	12869.97	*	.01*	*
*WEST	12869.96	*	40.7*	*
*WEST	12829.26	40.71*	40.71*	40.71*
*WEST	12788.55	*	.01*	*
*WEST	12788.54	*	7.99*	*
*WEST	12780.55	*	.01*	*
*WEST	12780.54	56.31*	56.31*	56.31*
*WEST	12724.23	56.31*	56.31*	56.31*
*WEST	12667.92	*	.01*	*
*WEST	12667.91	*	68.98*	*
*WEST	12598.93	68.99*	68.99*	68.99*
*WEST	12529.94	*	29.99*	*
*WEST	12499.95	*	.01*	*
*WEST	12499.94	*	30*	*
*WEST	12469.94	*	.01*	*
*WEST	12469.93	34.44*	34.44*	34.44*
*WEST	12435.49	34.44*	34.44*	34.44*
*WEST	12401.05	*	1.05*	*
*WEST	12400.	*	50*	*
*WEST	12350.	*	30*	*
*WEST	12320.	6.94*	7.82*	8.74*
*WEST	12312.18	*	.01*	*
*WEST	12312.17	31.46*	33.22*	35*
*WEST	12278.95	23.07*	25.04*	27.02*
*WEST	12253.91	33.33*	36.19*	39.05*
*WEST	12217.72	13.04*	14.15*	15.27*
*WEST	12203.57	38.1*	41.38*	44.32*
*WEST	12162.19	*	12.19*	*
*WEST	12150.	*	25*	*
*WEST	12125.	42.36*	27.69*	20.72*
*WEST	12097.31	*	.01*	*
*WEST	12097.3	*	63*	*
*WEST	12033.7	*	.01*	*
*WEST	12033.69	19.64*	34.29*	41.27*
*WEST	12000.	*	75.82*	*
*WEST	11924.18	*	12.5*	*
*WEST	11911.68	*	12.5*	*
*WEST	11899.18	*	12.5*	*
*WEST	11886.68	*	12.5*	*
*WEST	11874.18	*	23.06*	*
*WEST	11851.12	*	23.06*	*
*WEST	11828.06	*	23.06*	*
*WEST	11826.06	*	23.06*	*
*WEST	11805.	*	*	*

River: South Channel

Reach	River Sta.	Left	Channel	Right
*South	12150.	50*	50*	50*
*South	12100.	50*	50*	50*
*South	12050.	50*	50*	50*
*South	12000.	50*	50*	50*
*South	11950.	25.81*	25.81*	25.81*
*South	11924.19	.01*	.01*	.01*
*South	11911.68	12.5*	12.5*	12.5*
*South	11899.18	12.5*	12.5*	12.5*
*South	11886.68	12.5*	12.5*	12.5*
*South	11874.18	23.06*	23.06*	23.06*
*South	11851.12	23.06*	23.06*	23.06*
*South	11828.06	23.06*	23.06*	23.06*
*South	11805.	*	*	*

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Combined Channel

Reach	River Sta.	Contr.	Expan.
*EAST	11800.	.1*	.3*
*EAST	11799.99*	.1*	.3*
*EAST	11790.	.1*	.3*
*EAST	11769.13*	.1*	.3*
*EAST	11751.44*	.1*	.3*
*EAST	11739.7	.1*	.3*
*EAST	11732.13*	.1*	.3*
*EAST	11720.	.1*	.3*

Reach	River Sta.	Contr.	Expan.
*EAST	11712.87*	.1*	.3*
*EAST	11689.21*	.1*	.3*
*EAST	11675. *	.1*	.3*
*EAST	11634.34*	.1*	.3*
*EAST	11624.05*	.1*	.3*
*EAST	11618.85*	.1*	.3*
*EAST	11596.34*	.1*	.3*
*EAST	11527.17*	.1*	.3*
*EAST	11500. *	.1*	.3*
*EAST	11450. *	.1*	.3*
*EAST	11400. *	.1*	.3*
*EAST	11377.99*	.1*	.3*
*EAST	11350. *	.1*	.3*
*EAST	11300. *	.1*	.3*
*EAST	11278.76*	.1*	.3*
*EAST	11250. *	.1*	.3*
*EAST	11200. *	.1*	.3*
*EAST	11175.26*	.1*	.3*
*EAST	11154.55*	.1*	.3*
*EAST	11125. *	.1*	.3*
*EAST	11116.35*	.1*	.3*
*EAST	11100. *	.1*	.3*
*EAST	11050. *	.1*	.3*
*EAST	11033.37*	.1*	.3*
*EAST	11007.4 *	.1*	.3*
*EAST	10973.86*	.1*	.3*
*EAST	10950.26*	.1*	.3*
*EAST	10909.89*	.1*	.3*
*EAST	10834.9 *	.1*	.3*
*EAST	10834.89*	.1*	.3*
*EAST	10599.9 *	.1*	.3*
*EAST	10599.89*	.1*	.3*
*EAST	10529.91*	.1*	.3*
*EAST	10429.91*	.1*	.3*
*EAST	10429.90*	.1*	.3*
*EAST	10289.92*	.1*	.3*
*EAST	10289.91*	.1*	.3*
*EAST	10209.93*	.1*	.3*
*EAST	10124.93*	.1*	.3*
*EAST	10124.92*	.1*	.3*
*EAST	9999.93 *	.1*	.3*
*EAST	9999.92 *	.1*	.3*
*EAST	9905.49 *	.1*	.3*
*EAST	9845.49 *	.1*	.3*
*EAST	9245.49 *	.1*	.3*

River: North Channel

Reach	River Sta.	Contr.	Expan.
*WEST	18653.05*	.1*	.3*
*WEST	18603.05*	.1*	.3*
*WEST	18354.06*	.1*	.3*
*WEST	18314.47*	.1*	.3*
*WEST	17036.02*	.1*	.3*
*WEST	16991.39*	.1*	.3*
*WEST	16271.91*	.1*	.3*
*WEST	16221.83*	.1*	.3*
*WEST	15874.83*	.1*	.3*
*WEST	15824.82*	.1*	.3*
*WEST	15635.6 *	.1*	.3*
*WEST	15080.09*	.1*	.3*
*WEST	15015.09*	.1*	.3*
*WEST	14592.55*	.1*	.3*
*WEST	14542.55*	.1*	.3*
*WEST	14252.5 *	.1*	.3*
*WEST	14092.97*	.1*	.3*
*WEST	13987.91*	.1*	.3*
*WEST	13887.91*	.1*	.3*
*WEST	13787.91*	.1*	.3*
*WEST	13687.91*	.1*	.3*
*WEST	13602.91*	.1*	.3*
*WEST	13582.54*	.1*	.3*
*WEST	13562.17*	.1*	.3*
*WEST	13562.16*	.1*	.3*
*WEST	13557.18*Bridge	*	*
*WEST	13552.2 *	.1*	.3*
*WEST	13478.79*	.1*	.3*
*WEST	13476.6 *	.1*	.3*
*WEST	13425.61*	.1*	.3*
*WEST	13410.61*	.1*	.3*
*WEST	13353.48*	.1*	.3*
*WEST	13343.61*	.1*	.3*
*WEST	13343.6 *	.1*	.3*
*WEST	13333.3 *	.1*	.3*
*WEST	13323. *	.1*	.3*
*WEST	13307.38*	.1*	.3*
*WEST	13291.77*	.1*	.3*
*WEST	13267.98*	.1*	.3*
*WEST	13244.2 *	.1*	.3*
*WEST	13234.75*	.1*	.3*
*WEST	13234.74*	.1*	.3*
*WEST	13229.38*	.1*	.3*
*WEST	13229.37*	.1*	.3*
*WEST	13221.37*	.1*	.3*
*WEST	13167.84*	.1*	.3*
*WEST	13114.31*	.1*	.3*
*WEST	13114.3 *	.1*	.3*
*WEST	13060.1 *	.1*	.3*
*WEST	13044.11*	.1*	.3*
*WEST	13044.1 *	.1*	.3*
*WEST	13018.22*	.1*	.3*
*WEST	13018.21*	.1*	.3*
*WEST	13010.22*	.1*	.3*
*WEST	13010.21*	.1*	.3*
*WEST	12954.02*	.1*	.3*
*WEST	12943.65*	.1*	.3*
*WEST	12906.81*	.1*	.3*
*WEST	12869.97*	.1*	.3*
*WEST	12869.96*	.1*	.3*
*WEST	12829.26*	.1*	.3*
*WEST	12788.55*	.1*	.3*
*WEST	12788.54*	.1*	.3*
*WEST	12780.55*	.1*	.3*
*WEST	12780.54*	.1*	.3*
*WEST	12724.23*	.1*	.3*
*WEST	12667.92*	.1*	.3*
*WEST	12667.91*	.1*	.3*
*WEST	12598.93*	.1*	.3*
*WEST	12529.94*	.1*	.3*
*WEST	12499.95*	.1*	.3*
*WEST	12499.94*	.1*	.3*
*WEST	12469.94*	.1*	.3*
*WEST	12469.93*	.1*	.3*
*WEST	12435.49*	.1*	.3*
*WEST	12401.05*	.1*	.3*
*WEST	12400. *	.1*	.3*
*WEST	12350. *	.1*	.3*

*WEST	*	12320. *	.1*	.3*
*WEST	*	12312.18*	.1*	.3*
*WEST	*	12312.17*	.1*	.3*
*WEST	*	12278.95*	.1*	.3*
*WEST	*	12253.91*	.1*	.3*
*WEST	*	12217.72*	.1*	.3*
*WEST	*	12203.57*	.1*	.3*
*WEST	*	12162.19*	.1*	.3*
*WEST	*	12150. *	.1*	.3*
*WEST	*	12125. *	.1*	.3*
*WEST	*	12097.31*	.1*	.3*
*WEST	*	12097.3 *	.1*	.3*
*WEST	*	12033.7 *	.1*	.3*
*WEST	*	12033.69*	.1*	.3*
*WEST	*	12000. *	.1*	.3*
*WEST	*	11924.18*	.1*	.3*
*WEST	*	11911.68*	.1*	.3*
*WEST	*	11899.18*	.1*	.3*
*WEST	*	11886.68*	.1*	.3*
*WEST	*	11874.18*	.1*	.3*
*WEST	*	11851.12*	.1*	.3*
*WEST	*	11828.06*	.1*	.3*
*WEST	*	11826.06*	.1*	.3*
*WEST	*	11805. *	.1*	.3*

River: South Channel

Reach	River Sta.	Contr.	Expan.
*South *	12150. *	.1*	.3*
*South *	12100. *	.1*	.3*
*South *	12050. *	.1*	.3*
*South *	12000. *	.1*	.3*
*South *	11950. *	.1*	.3*
*South *	11924.19*	.1*	.3*
*South *	11911.68*	.1*	.3*
*South *	11899.18*	.1*	.3*
*South *	11886.68*	.1*	.3*
*South *	11874.18*	.1*	.3*
*South *	11851.12*	.1*	.3*
*South *	11828.06*	.1*	.3*
*South *	11805. *	.1*	.3*

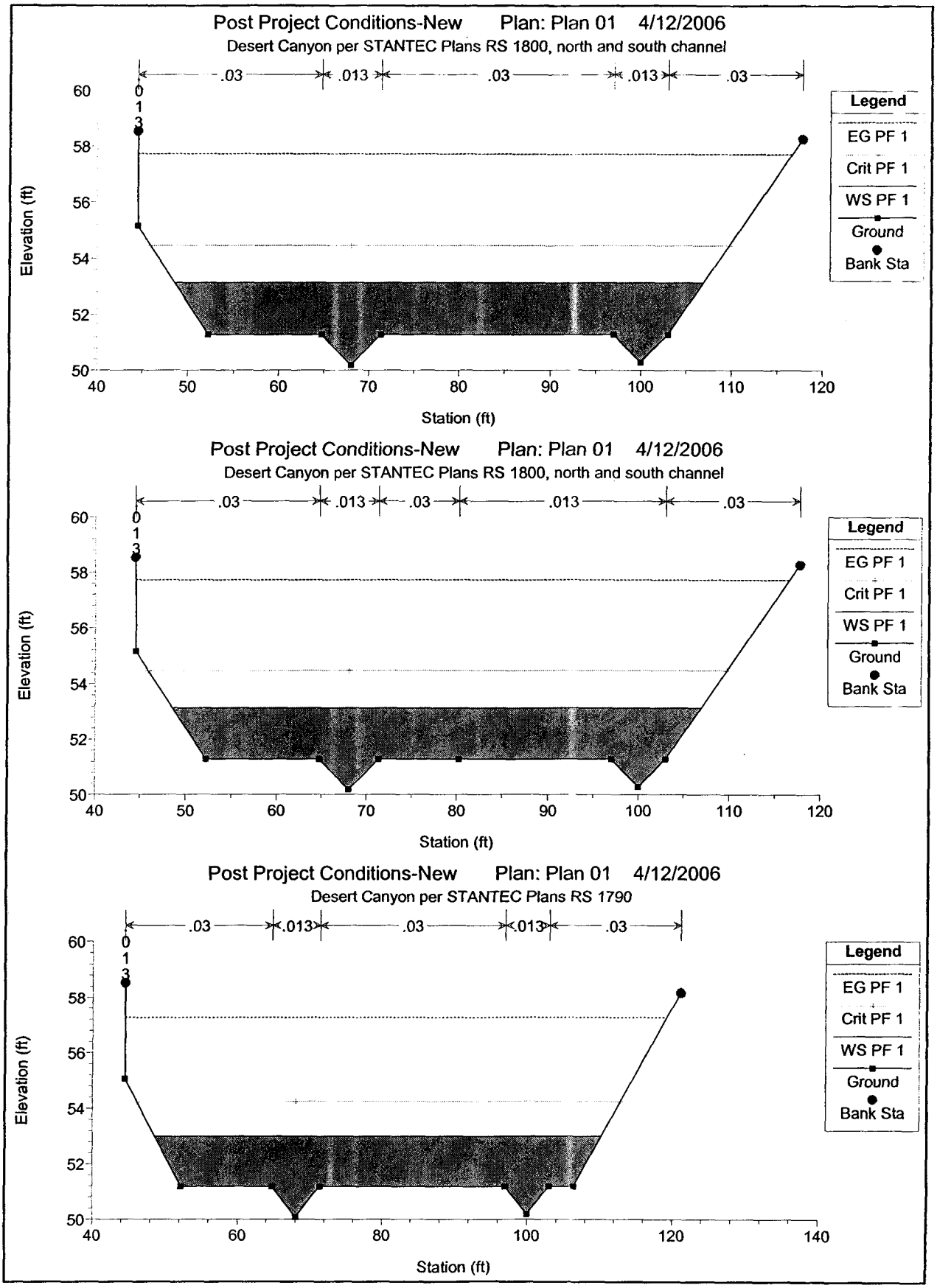
Profile Output Table - CHECKRAS

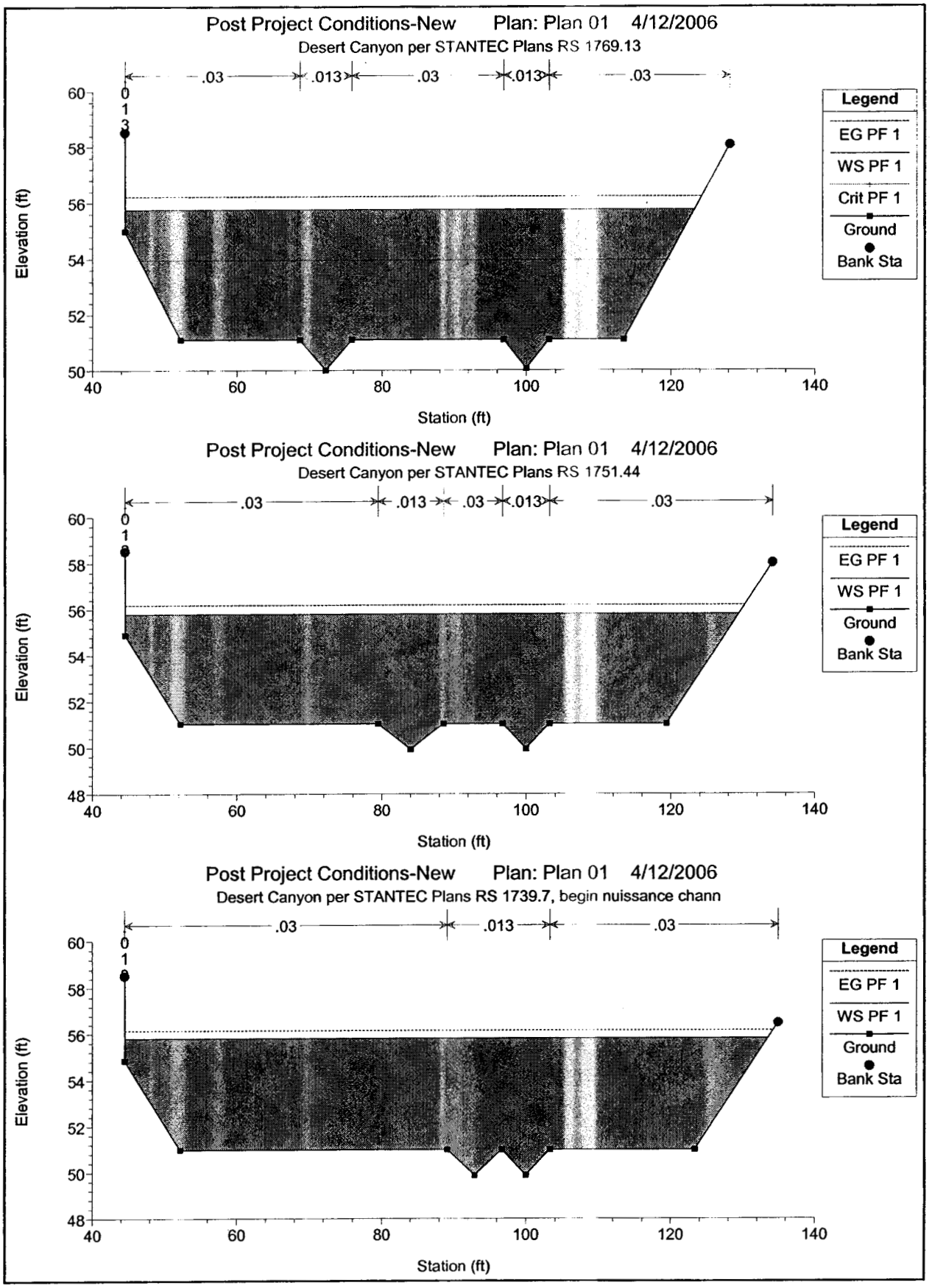
River	Reach	River Sta	Profile	Froude # Chl	Top Wdth Act	Conv. Total	Prof Delta WS	Left Sta Eff	Enc Sta L	Center Station	Enc Sta R	Rght Sta Eff	Min Ch El	Left Stagn	Right Stagn
					(ft)	(cfs)	(ft)	(ft)	(ft)	(ft)					
South Channel	South	12150.	PF 1	1.84	12.01	6990.3		82.50		97.75		94.50	54.78		
South Channel	South	12100.	PF 1	1.84	12.01	6990.3		82.50		97.75		94.50	54.28		
South Channel	South	12050.	PF 1	1.84	12.01	6990.4		82.50		97.75		94.50	53.78		
South Channel	South	12000.	PF 1	1.84	12.01	6990.6		82.50		97.75		94.50	53.28		
South Channel	South	11950.	PF 1	1.84	12.01	6990.9		82.50		97.75		94.50	52.78		
South Channel	South	11924.19	PF 1	1.84	12.01	6998.2		82.50		97.75		94.50	52.52		
South Channel	South	11911.68	PF 1	2.71	18.50	5411.0		80.25		98.62		106.32	52.14		
South Channel	South	11899.18	PF 1	3.09	22.75	4670.0		80.25		98.62		105.67	51.77		
South Channel	South	11886.68	PF 1	3.22	25.28	4392.9		80.25		98.62		105.53	51.40		
South Channel	South	11874.18	PF 1	3.12	25.33	4508.1		80.25		98.62		105.58	51.02		
South Channel	South	11851.12	PF 1	2.95	25.44	4790.2		80.25		98.62		105.69	50.79		
South Channel	South	11828.06	PF 1	2.81	25.54	5059.4		80.25		98.62		105.79	50.56		
South Channel	South	11805.	PF 1	2.69	25.63	5305.5		80.25		98.62		105.88	50.33		
North Channel	WEST	18653.05	PF 1	1.67	18.00	8424.6		0.00		9.00		18.00	127.07		
North Channel	WEST	18603.05	PF 1	1.88	18.70	7479.5		0.00		9.35		18.70	126.35		
North Channel	WEST	18354.06	PF 1	2.25	18.70	6235.5		0.00		9.35		18.70	122.77		
North Channel	WEST	18314.47	PF 1	2.17	18.00	5735.6		0.00		9.50		19.00	122.20		
North Channel	WEST	17036.02	PF 1	1.92	19.00	7357.8		0.00		9.50		19.00	107.91		
North Channel	WEST	16991.39	PF 1	1.83	18.70	7766.1		0.00		9.35		18.70	107.51		
North Channel	WEST	16271.91	PF 1	1.76	18.70	8070.6		0.00		9.35		18.70	101.86		
North Channel	WEST	16221.83	PF 1	1.87	20.00	6840.4		0.00		10.50		21.00	101.46		
North Channel	WEST	15874.83	PF 1	1.43	21.00	10112.0		0.00		10.50		21.00	99.56		
North Channel	WEST	15824.82	PF 1	1.11	21.80	14912.0		0.00		10.90		21.80	99.22		
North Channel	WEST	15635.6	PF 1	1.53	21.80	10812.9		0.00		10.90		21.80	97.93		
North Channel	WEST	15080.09	PF 1	1.60	21.80	10351.1		0.00		10.90		21.80	94.19		
North Channel	WEST	15015.09	PF 1	1.96	27.00	7290.7		0.00		14.50		29.00	93.76		
North Channel	WEST	14592.55	PF 1	2.28	29.00	7205.4		0.00		14.50		29.00	88.41		
North Channel	WEST	14542.55	PF 1	2.31	29.00	7120.8		0.00		14.50		29.00	87.71		
North Channel	WEST	14252.5	PF 1	1.63	11.50	8862.1		0.00		5.75		11.50	81.74		
North Channel	WEST	14092.97	PF 1	1.95	11.50	7492.6		0.00		5.75		11.50	79.10		
North Channel	WEST	13987.91	PF 1	2.51	11.51	7716.1		94.25		100.00		105.75	75.56		
North Channel	WEST	13887.91	PF 1	2.38	11.51	8184.2		94.25		100.00		105.75	74.86		
North Channel	WEST	13787.91	PF 1	2.29	11.51	8558.0		94.25		100.00		105.75	74.16		
North Channel	WEST	13687.91	PF 1	2.22	11.51	8840.4		94.25		100.00		105.75	73.46		
North Channel	WEST	13602.91	PF 1	2.13	11.51	7852.2		94.25		100.01		105.75	72.88		
North Channel	WEST	13582.54	PF 1	3.06	19.09	5225.3		90.50		100.05		109.59	72.74		
North Channel	WEST	13562.17	PF 1	3.64	26.67	4375.5		86.75		100.09		113.42	72.59		
North Channel	WEST	13562.16	PF 1	3.39	24.01	4734.1		86.75		100.09					

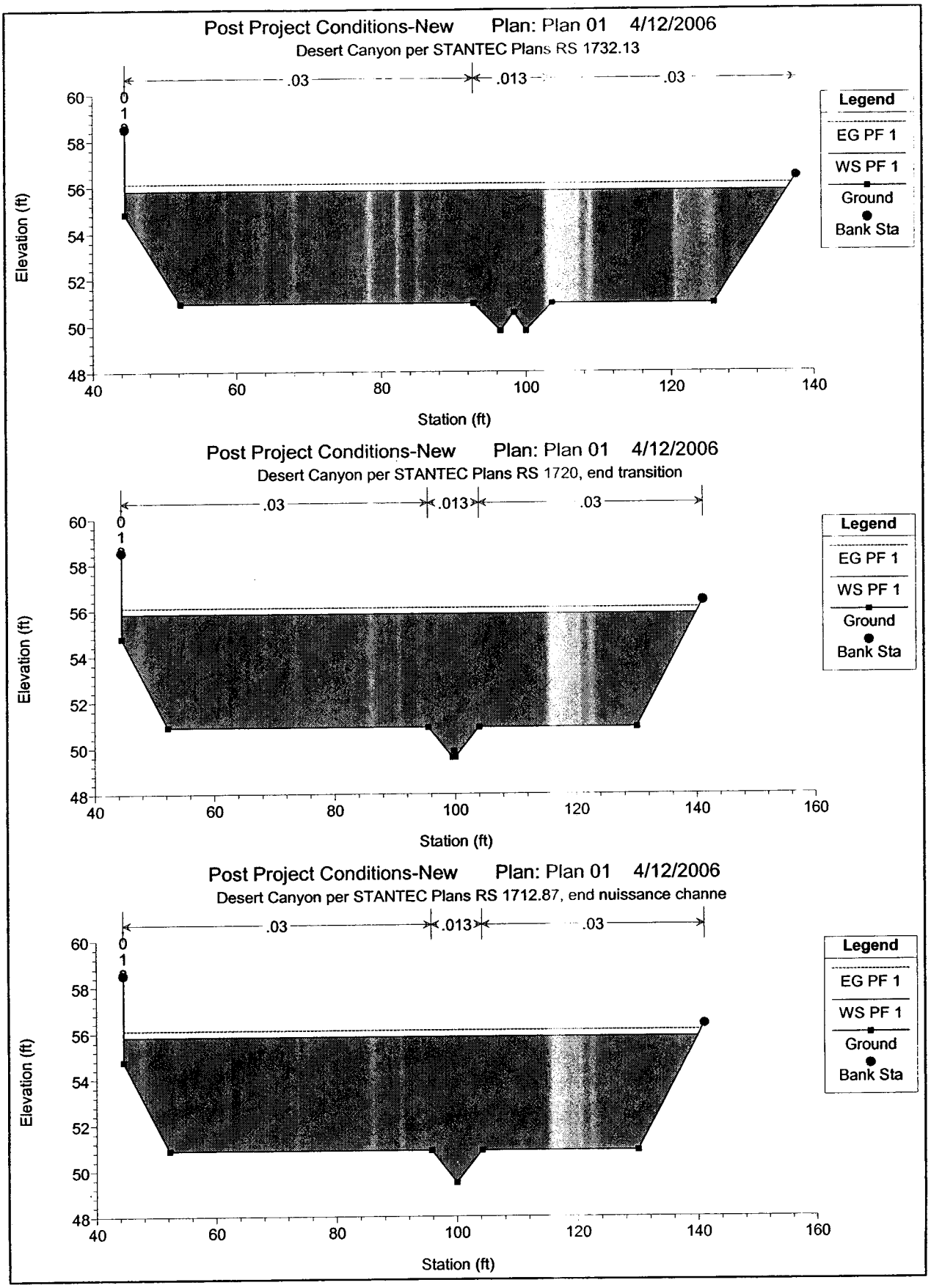
	113.42	72.59												
North Channel	WEST	13557.188R	U	PF 1	3.35	23.67	4780.0		86.75		100.09			
	113.42	72.59												
North Channel	WEST	13557.188R	D	PF 1	0.00	23.68	4591.0		86.75		100.09			
	113.42	80.29												
North Channel	WEST	13552.2		PF 1	0.04	24.01	4883.9		86.75		100.09			
	113.42	72.49												
North Channel	WEST	13478.79		PF 1	0.04	24.01	6201.6		86.75		100.09			
	113.42	72.15												
North Channel	WEST	13476.6		PF 1	0.04	24.01	6234.5		86.75		100.09			
	113.42	72.14												
North Channel	WEST	13425.61		PF 1	0.03	24.01	7225.7		86.75		100.09			
	113.42	71.97												
North Channel	WEST	13410.61		PF 1	0.03	24.01	7521.7		86.75		100.09			
	113.42	71.92												
North Channel	WEST	13353.48		PF 1	0.03	24.01	8752.4		86.75		100.09			
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North Channel	WEST	13343.61		PF 1	1.85	24.01	8969.7		86.75		100.09			
	113.42	71.70												
North Channel	WEST	13343.6		PF 1	2.05	26.77	8816.6		86.75		109.82			
	113.52	71.70												
North Channel	WEST	13333.3		PF 1	0.43	34.30	45204.9		81.84		108.00			
	134.15	71.66												
North Channel	WEST	13323.		PF 1	0.44	37.64	44306.7		81.12		106.18			
	131.24	71.62												
North Channel	WEST	13307.38		PF 1	0.36	50.13	53220.7		80.03		105.09			
	130.15	71.56												
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	129.06	71.49												
North Channel	WEST	13267.98		PF 1	0.39	50.12	50301.5		77.27		102.33			
	127.39	71.40												
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North Channel	WEST	13234.74		PF 1	0.66	39.65	13263.1		79.92		100.00			
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North Channel	WEST	13229.38		PF 1	0.65	36.98	13467.8		80.01		100.00			
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North Channel	WEST	13167.84		PF 1	0.68	33.88	12939.0		80.21		100.00			
	114.10	70.99												
North Channel	WEST	13114.31		PF 1	0.87	29.57	10088.4		81.63		100.00			
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North Channel	WEST	13060.1		PF 1	0.76	37.91	12804.1		81.04		100.00			
	118.95	70.54												
North Channel	WEST	13044.11		PF 1	0.70	36.09	14253.1		83.00		100.00			
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North Channel	WEST	13044.1		PF 1	0.65	36.39	15271.9		83.00		100.01			
	119.39	70.43												
North Channel	WEST	13018.22		PF 1	0.61	36.59	16343.3		83.00		100.01			
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North Channel	WEST	13018.21		PF 1	0.61	36.59	17496.3		83.00		100.01			
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North Channel	WEST	13010.22		PF 1	0.62	36.58	17128.3		83.00		100.01			
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North Channel	WEST	12954.02		PF 1	0.69	36.33	12711.8		83.00		100.00			
	119.32	70.11												
North Channel	WEST	12943.65		PF 1	0.71	35.58	12485.1		83.68		100.00			
	119.26	70.07												
North Channel	WEST	12906.81		PF 1	0.78	41.05	12243.7		78.12		100.00			
	119.17	69.92												
North Channel	WEST	12869.97		PF 1	0.70	38.81	14013.7		80.56		100.00			
	119.37	69.76												
North Channel	WEST	12869.96		PF 1	0.69	38.81	13893.1		80.56		100.00			
	119.37	69.76												
North Channel	WEST	12829.26		PF 1	0.64	39.28	15109.8		80.35		100.00			
	119.63	69.60												
North Channel	WEST	12788.55		PF 1	0.59	39.96	16535.6		80.02		100.00			
	119.98	69.43												
North Channel	WEST	12788.54		PF 1	0.59	39.96	17574.9		80.02		100.00			
	119.98	69.43												
North Channel	WEST	12780.55		PF 1	0.60	39.95	17143.5		80.03		100.00			
	119.97	69.40												
North Channel	WEST	12780.54		PF 1	0.60	39.95	14603.6		80.03		100.00			
	119.97	69.40												
North Channel	WEST	12724.23		PF 1	0.67	39.55	13039.2		80.22		100.00			
	119.78	69.17												
North Channel	WEST	12667.92		PF 1	0.71	39.21	12351.1		80.39		100.00			
	119.60	68.94												
North Channel	WEST	12667.91		PF 1	0.71	39.21	12262.8		80.39		100.00			
	119.61	68.94												
North Channel	WEST	12598.93		PF 1	0.72	38.96	12064.0		80.52		100.00			
	119.48	68.65												
North Channel	WEST	12529.94		PF 1	1.01	34.58	8442.9		82.71		100.00			
	117.29	68.37												
North Channel	WEST	12499.95		PF 1	1.95	40.72	4012.4		79.64		100.00			
	120.36	68.25												
North Channel	WEST	12499.94		PF 1	1.95	40.72	3824.8		79.64		100.00			
	120.36	68.25												
North Channel	WEST	12469.94		PF 1	1.86	41.07	4036.2		79.47		100.00			
	120.53	67.05												
North Channel	WEST	12469.93		PF 1	2.09	36.52	3656.7		81.74		100.00			
	118.26	63.47												
North Channel	WEST	12435.49		PF 1	1.86	39.33	4074.6		80.34		100.00			
	119.66	63.33												
North Channel	WEST	12401.05		PF 1	1.87	41.22	4333.0		79.39		100.00			
	120.61	63.19												
North Channel	WEST	12400.		PF 1	1.86	41.23	4338.6		79.38		100.00			
	120.62	63.15												
North Channel	WEST	12350.		PF 1	1.97	40.89	4097.4		79.55		100.00			
	120.45	61.15												
North Channel	WEST	12320.		PF 1	1.98	40.85	4065.3		79.58		100.00			
	120.42	59.95												
North Channel	WEST	12312.18		PF 1	1.99	40.78	4043.7		79.66		100.56			
	120.44	59.62												
North Channel	WEST	12312.17		PF 1	1.99	40.82	4038.9		79.62		100.54			
	120.44	59.62												
North Channel	WEST	12278.95		PF 1	1.57	42.32	5220.9		78.79		97.96			
	121.11	58.92												
North Channel	WEST	12253.91		PF 1	1.50	42.75	5482.0		78.63		99.38			
	121.38	58.39												
North Channel	WEST	12217.72		PF 1	1.37	36.98	6164.1		82.63		101.12			
	119.61	57.62												
North Channel	WEST	12203.57		PF 1	1.36	35.89	6288.4		79.91		97.86			
	115.80	57.32												
North Channel	WEST	12162.19		PF 1	1.26	34.10	6884.2		77.10		93.83			
	111.20	56.45												
North Channel	WEST	12150.		PF 1	1.34	33.81	6444.1		77.39		93.83			
	111.20	56.19												
North Channel	WEST	12125.		PF 1	1.34	31.58	6467.9		79.63		93.83			
	111.20	55.66												

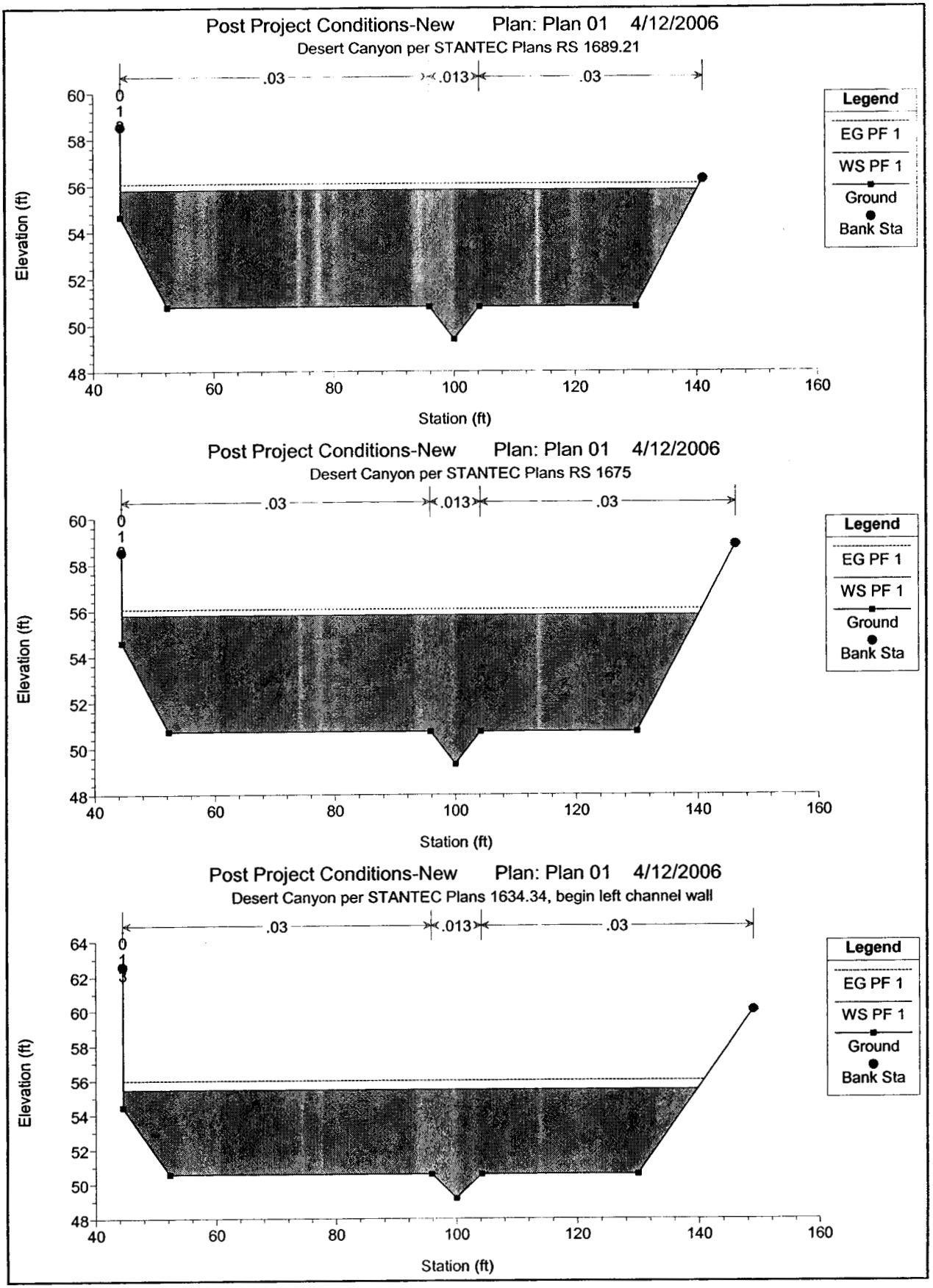
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North Channel	WEST	109.95	55.08	12097.3	PF 1	1.24	31.15	7063.3		78.80		93.20
North Channel	WEST	109.95	53.74	12033.7	PF 1	1.51	30.52	5724.4		79.43		93.20
North Channel	WEST	111.20	53.74	12033.69	PF 1	1.59	31.52	5396.3		79.69		93.83
North Channel	WEST	111.20	53.02	12000.	PF 1	1.49	31.26	5781.8		79.94		93.83
North Channel	WEST	111.20	51.94	11924.18	PF 1	1.22	31.90	7209.0		79.30		93.83
North Channel	WEST	111.20	51.76	11911.68	PF 1	1.24	31.84	7057.1		79.37		93.83
North Channel	WEST	111.20	51.58	11899.18	PF 1	1.26	31.80	6958.3		79.41		93.83
North Channel	WEST	111.20	51.40	11886.68	PF 1	1.27	31.76	6885.1		79.44		93.83
North Channel	WEST	111.20	51.22	11874.18	PF 1	1.28	31.74	6828.8		79.47		93.83
North Channel	WEST	111.20	50.89	11851.12	PF 1	1.29	31.71	6770.8		79.49		93.83
North Channel	WEST	111.21	50.56	11828.06	PF 1	0.73	33.94	12487.0		77.26		93.83
North Channel	WEST	111.20	50.56	11826.06	PF 1	1.00	32.61	8882.1		78.59		93.83
North Channel	WEST	111.20	50.23	11805.	PF 1	1.20	31.95	7289.5		79.25		93.83
Combined Channel	EAST	106.93	50.18	11800.	PF 1	2.23	58.39	8858.0		48.54		81.14
Combined Channel	EAST	106.93	50.18	11799.99	PF 1	2.23	58.39	10612.2		48.54		81.14
Combined Channel	EAST	110.22	50.08	11790.	PF 1	2.17	61.60	9016.5		48.62		82.82
Combined Channel	EAST	123.26	50.00	11769.13	PF 1	0.47	78.77	46518.8		44.50		86.35
Combined Channel	EAST	129.47	49.92	11751.44	PF 1	0.42	84.97	53442.5		44.50		89.33
Combined Channel	EAST	133.56	49.87	11739.7	PF 1	0.39	89.06	56819.5		44.50		89.73
Combined Channel	EAST	136.20	49.76	11732.13	PF 1	0.37	91.70	58085.4		44.50		91.01
Combined Channel	EAST	139.85	49.58	11720.	PF 1	0.35	95.36	61058.0		44.50		92.75
Combined Channel	EAST	139.90	49.47	11712.87	PF 1	0.35	95.41	61619.3		44.50		92.75
Combined Channel	EAST	140.06	49.38	11689.21	PF 1	0.34	95.56	63237.2		44.50		92.75
Combined Channel	EAST	140.15	49.32	11675.	PF 1	0.33	95.66	64357.2		44.50		95.36
Combined Channel	EAST	139.76	49.16	11634.34	PF 1	0.49	95.27	60150.6		44.50		96.75
Combined Channel	EAST	139.66	49.11	11624.05	PF 1	0.52	87.41	57159.6		52.25		100.62
Combined Channel	EAST	139.48	49.09	11618.85	PF 1	0.56	83.31	52837.6		56.17		102.58
Combined Channel	EAST	139.58	49.00	11596.34	PF 1	0.55	83.41	53735.5		56.17		102.58
Combined Channel	EAST	139.05	48.73	11527.17	PF 1	0.70	78.09	41534.2		60.95		102.75
Combined Channel	EAST	139.06	48.62	11500.	PF 1	0.70	78.12	41661.3		60.94		102.75
Combined Channel	EAST	139.10	48.42	11450.	PF 1	0.69	78.20	41941.1		60.90		102.75
Combined Channel	EAST	139.14	48.22	11400.	PF 1	0.69	78.28	42274.3		60.86		102.75
Combined Channel	EAST	139.17	48.13	11377.99	PF 1	0.69	78.34	42474.4		60.83		102.75
Combined Channel	EAST	139.19	48.02	11350.	PF 1	0.68	78.37	42628.7		60.81		102.75
Combined Channel	EAST	139.26	47.82	11300.	PF 1	0.67	78.51	43166.6		60.74		102.75
Combined Channel	EAST	139.30	47.73	11278.76	PF 1	0.67	78.60	43486.1		60.70		102.75
Combined Channel	EAST	139.33	47.62	11250.	PF 1	0.67	78.65	43714.3		60.67		102.75
Combined Channel	EAST	139.42	47.42	11200.	PF 1	0.66	78.84	44459.0		60.58		102.75
Combined Channel	EAST	139.47	47.32	11175.26	PF 1	0.65	78.94	44835.8		60.53		102.75
Combined Channel	EAST	139.50	47.24	11154.55	PF 1	0.65	79.00	45097.7		60.50		102.30
Combined Channel	EAST	139.75	47.12	11125.	PF 1	0.64	79.37	52860.8		60.38		100.60
Combined Channel	EAST	139.65	47.08	11116.35	PF 1	0.63	79.30	46323.0		60.34		99.96
Combined Channel	EAST	139.17	46.98	11100.	PF 1	0.65	77.82	45409.7		61.36		99.45
Combined Channel	EAST	135.26	46.67	11050.	PF 1	0.69	70.74	42471.9		64.52		97.94
Combined Channel	EAST	133.22	46.57	11033.37	PF 1	0.73	67.49	40146.6		65.73		97.44
Combined Channel	EAST	130.03	46.41	11007.4	PF 1	0.83	60.61	74994.3		69.43		99.73
Combined Channel	EAST	124.58	46.20	10973.86	PF 1	1.00	46.48	58612.6		78.10		101.34
Combined Channel	EAST	125.14	46.06	10950.26	PF 1	1.37	44.99	42240.2		80.15		102.65
Combined Channel	EAST	122.68	44.37	10909.89	PF 1	1.77	41.21	32199.9		81.47		102.08
Combined Channel	EAST	42.00	41.24	10834.9	PF 1	2.51	42.00	22244.0		0.00		21.00
Combined Channel	EAST	42.00	41.24	10834.89	PF 1	2.39	40.00	20178.6		0.00		21.00
Combined Channel	EAST	42.00	39.88	10599.9	PF 1	1.73	40.00	27677.0		0.00		21.00
Combined Channel	EAST	42.00	39.88	10599.89	PF 1	1.82	42.00	31215.7		0.00		21.00
Combined Channel	EAST	37.00	39.47	10529.91	PF 1	1.37	37.00	41489.0		0.00		18.50
Combined Channel	EAST	37.00	38.63	10429.91	PF 1	1.54	37.00	36862.1		0.00		18.50
Combined Channel	EAST	37.00	38.63	10429.90	PF 1	1.41	36.00	35717.0		0.00		18.50
Combined Channel	EAST	37.00	36.32	10289.92	PF 1	1.87	36.00	27196.1		0.00		18.50
Combined Channel	EAST	37.00	36.32	10289.91	PF 1	1.92	37.00	29305.2		0.00		18.50
Combined Channel	EAST	22.00	19.67	10209.93	PF 1	3.61	22.00	14564.5		0.00		11.00
Combined Channel	EAST	22.00	20.31	10124.93	PF 1	2.99	22.00	17588.5		0.00		11.00
Combined Channel	EAST	22.00	20.31	10124.92	PF 1	2.88	21.00	15470.7		0.00		11.00
Combined Channel	EAST	33.00	19.67	9999.93	PF 1	3.06	31.00	14983.6		0.00		11.00
Combined Channel	EAST	33.00	19.67	9999.92	PF 1	3.17	33.00	17228.5		0.00		16.50
Combined Channel	EAST			9905.49	PF 1	2.77	33.00	19893.1		0.00		16.50

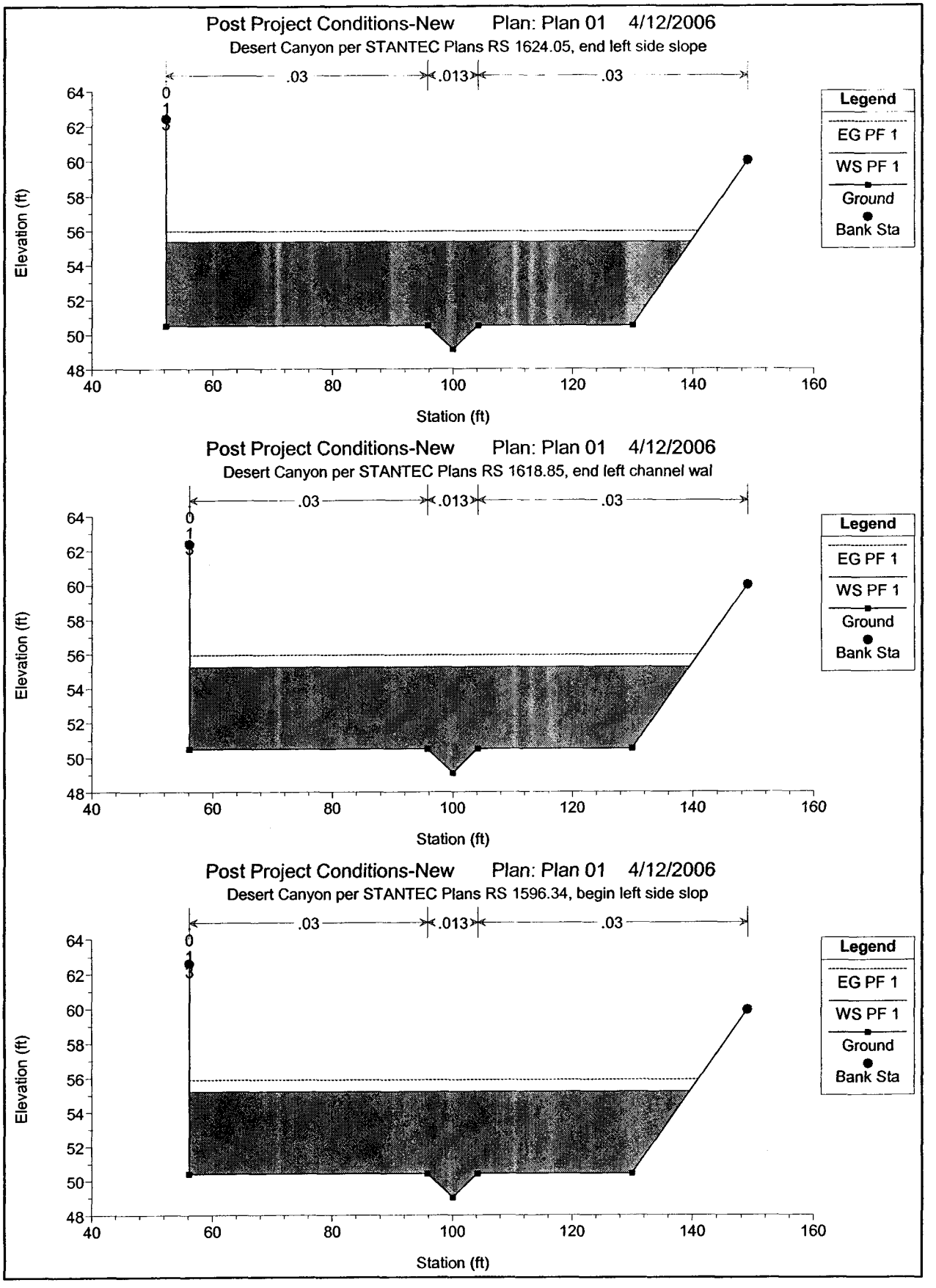
	33.00	19.19										
Combined Channel	EAST	9845.49	PF 1		2.64	37.75	22430.3		-6.37		12.50	
	31.37	18.88										
Combined Channel	EAST	9245.49	PF 1		1.82	41.08	33479.6		-8.04		12.50	
	33.04	15.88										

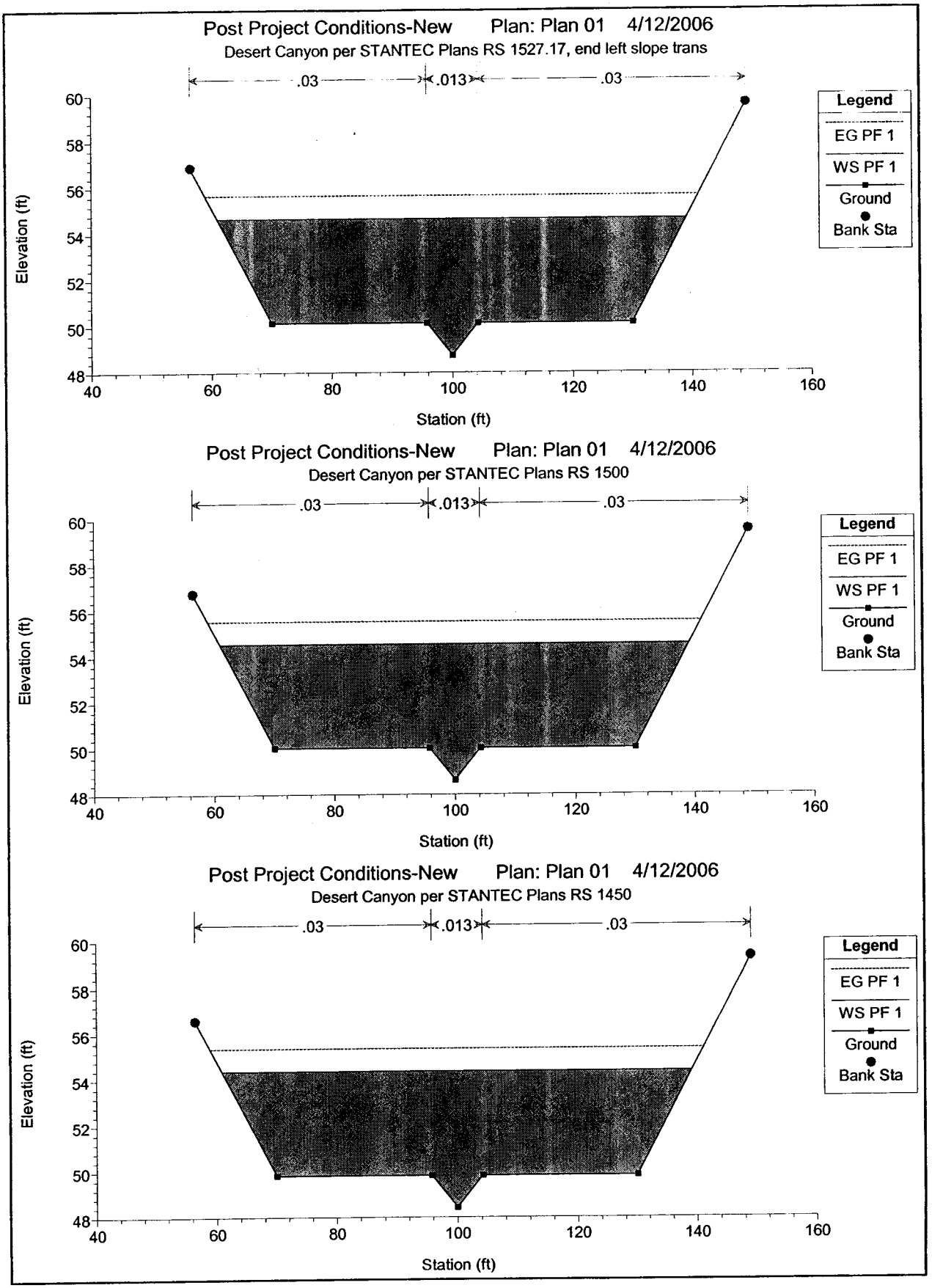

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1800, north and south channel
.03
.013
.03
.013
.03
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1800, north and south channel
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1790

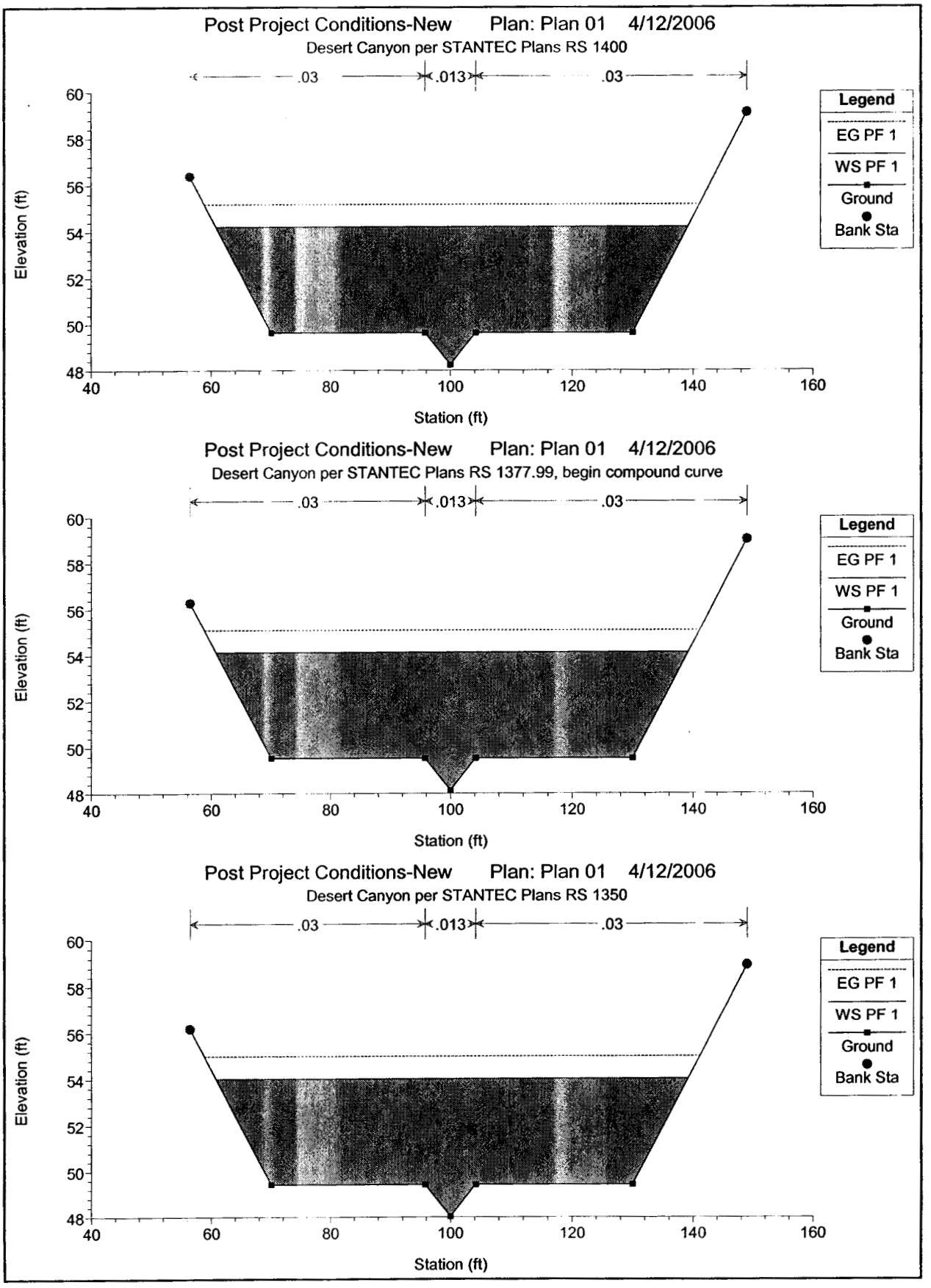

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1769.13
.03
.013
.03
.013
.03
0
1
3
Elevation (ft)
60
58
56
54
52
50
40
60
80
100
120
140
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1751.44
.03
.013
.03
.013
.03
0
1
Elevation (ft)
60
58
56
54
52
50
48
40
60
80
100
120
140
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1739.7, begin nuissance chann
.03
.013
.03
0
1
Elevation (ft)
60
58
56
54
52
50
48
40
60
80
100
120
140
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta

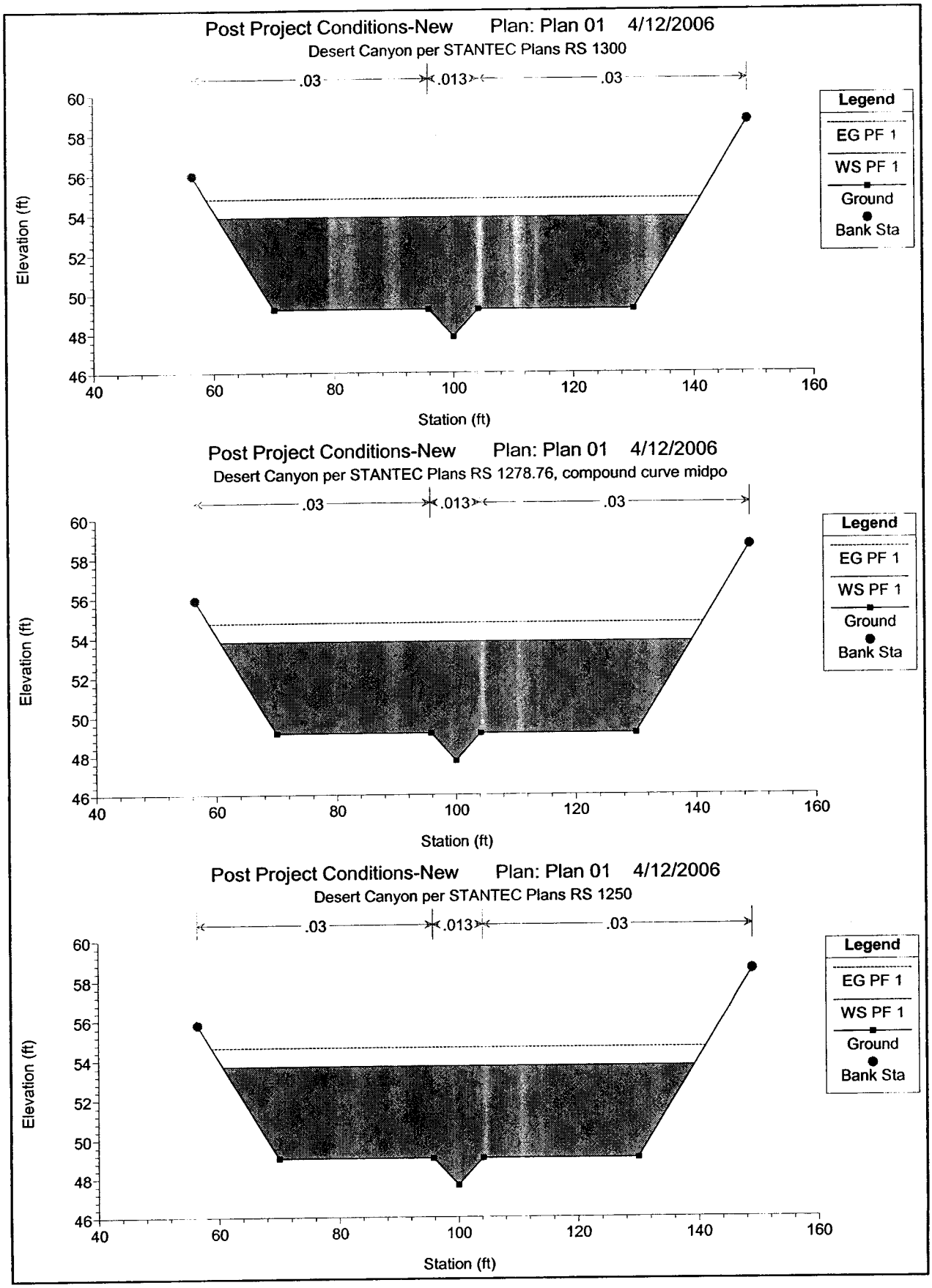

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1732.13
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1720, end transition
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1712.87, end nuissance channe
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

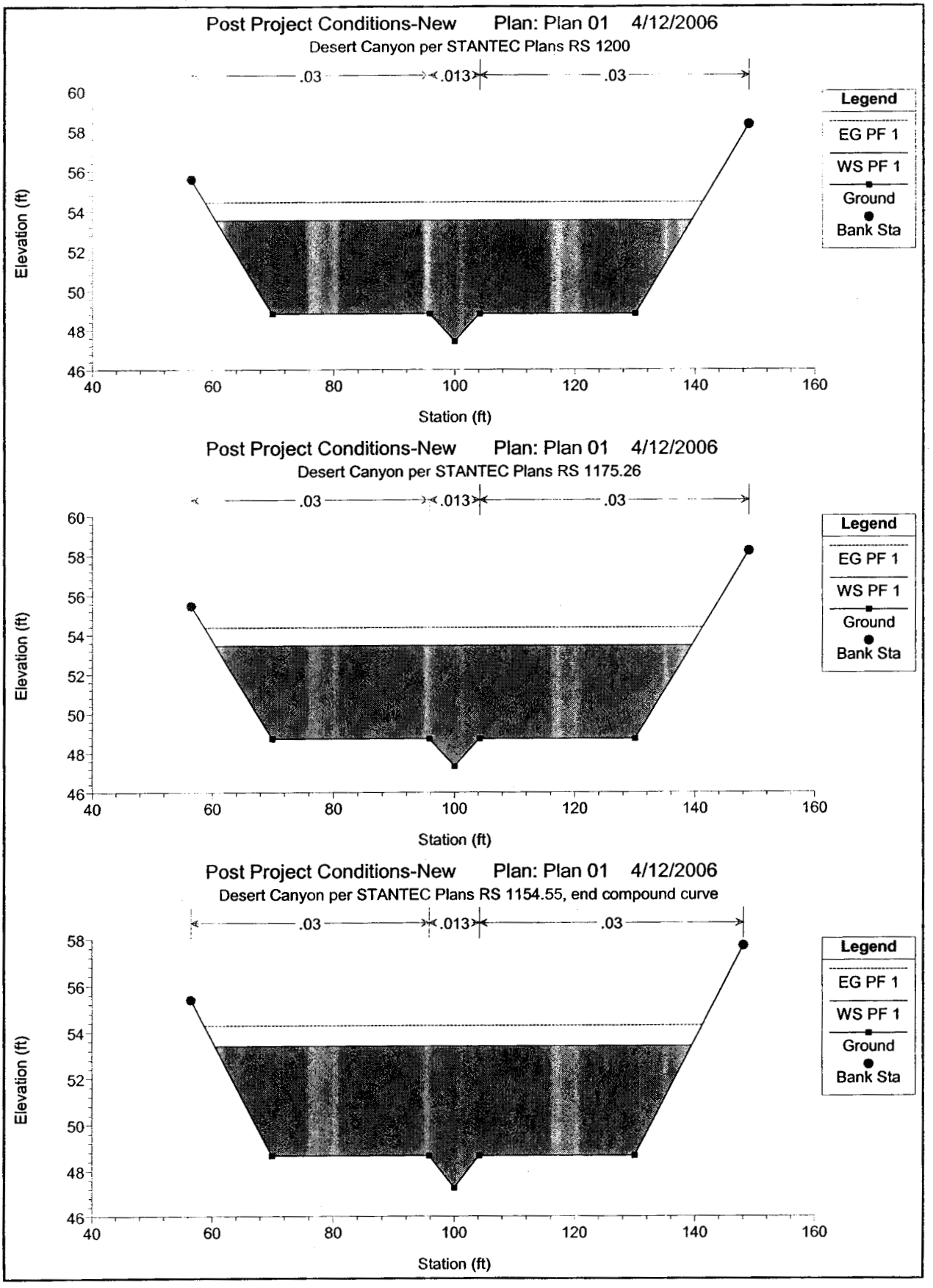

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1689.21
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1675
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans 1634.34, begin left channel wall
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

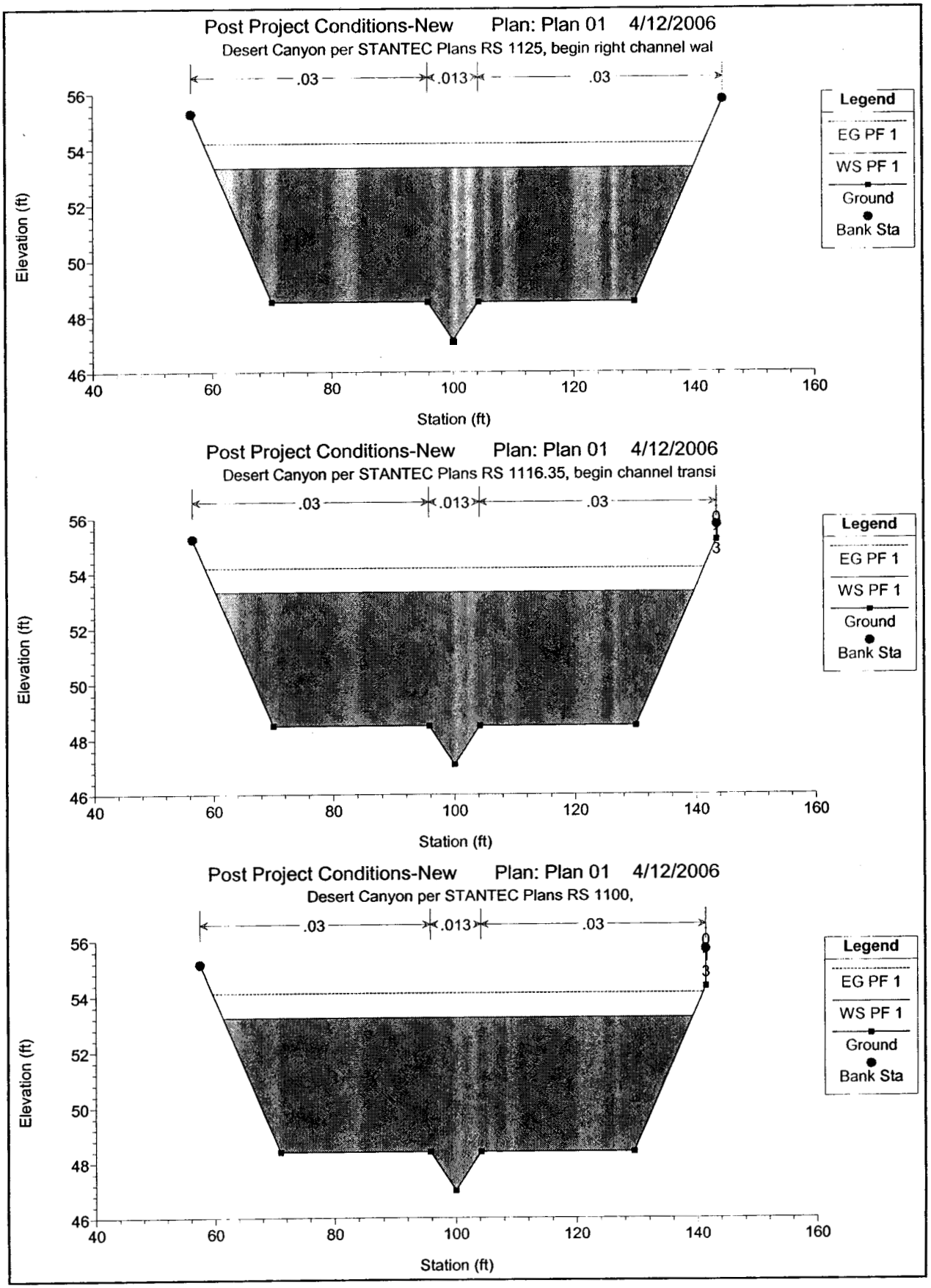

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1624.05, end left side slope
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1618.85, end left channel wal
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1596.34, begin left side slop

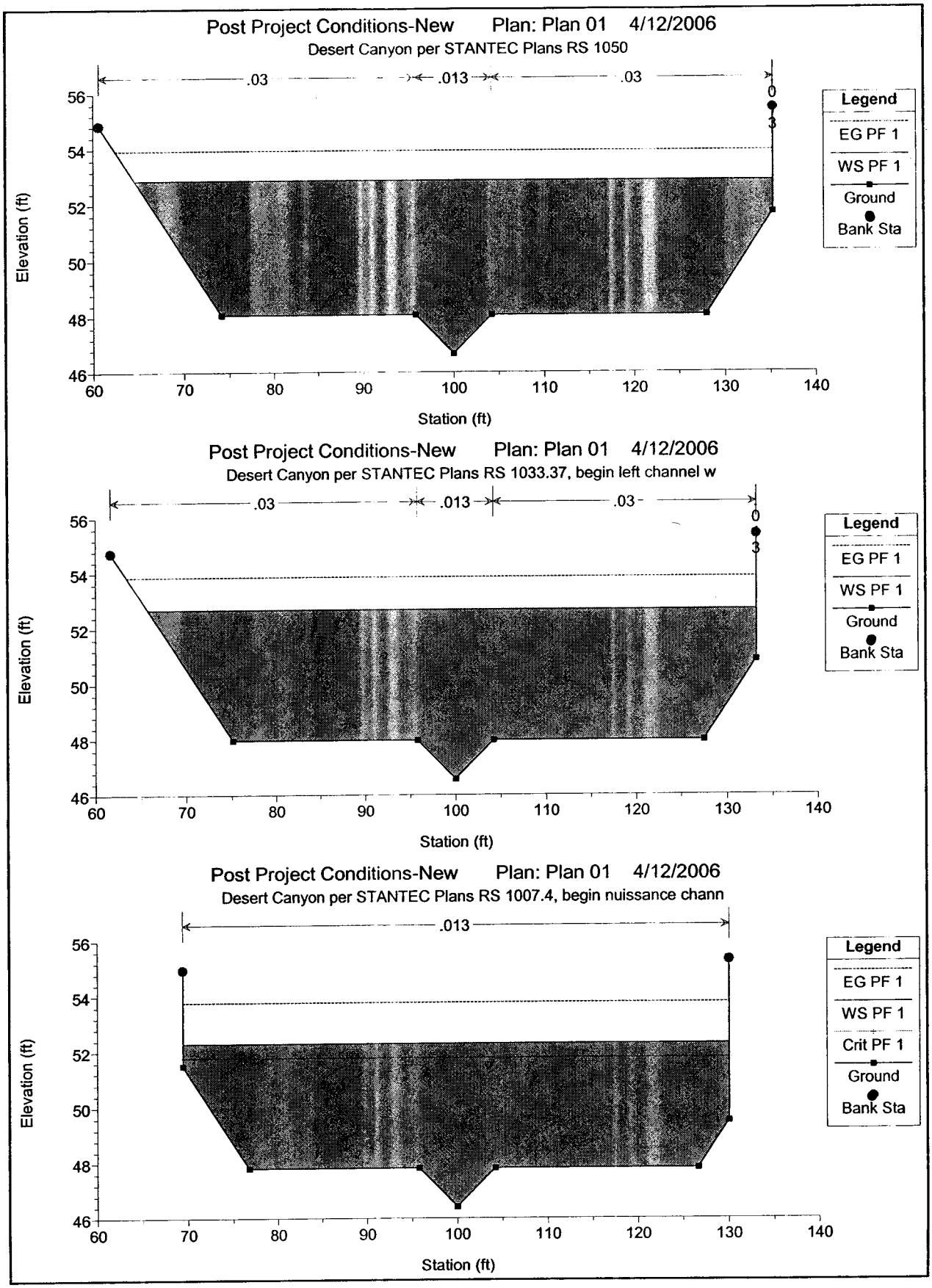

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1527.17, end left slope trans
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1500
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1450
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

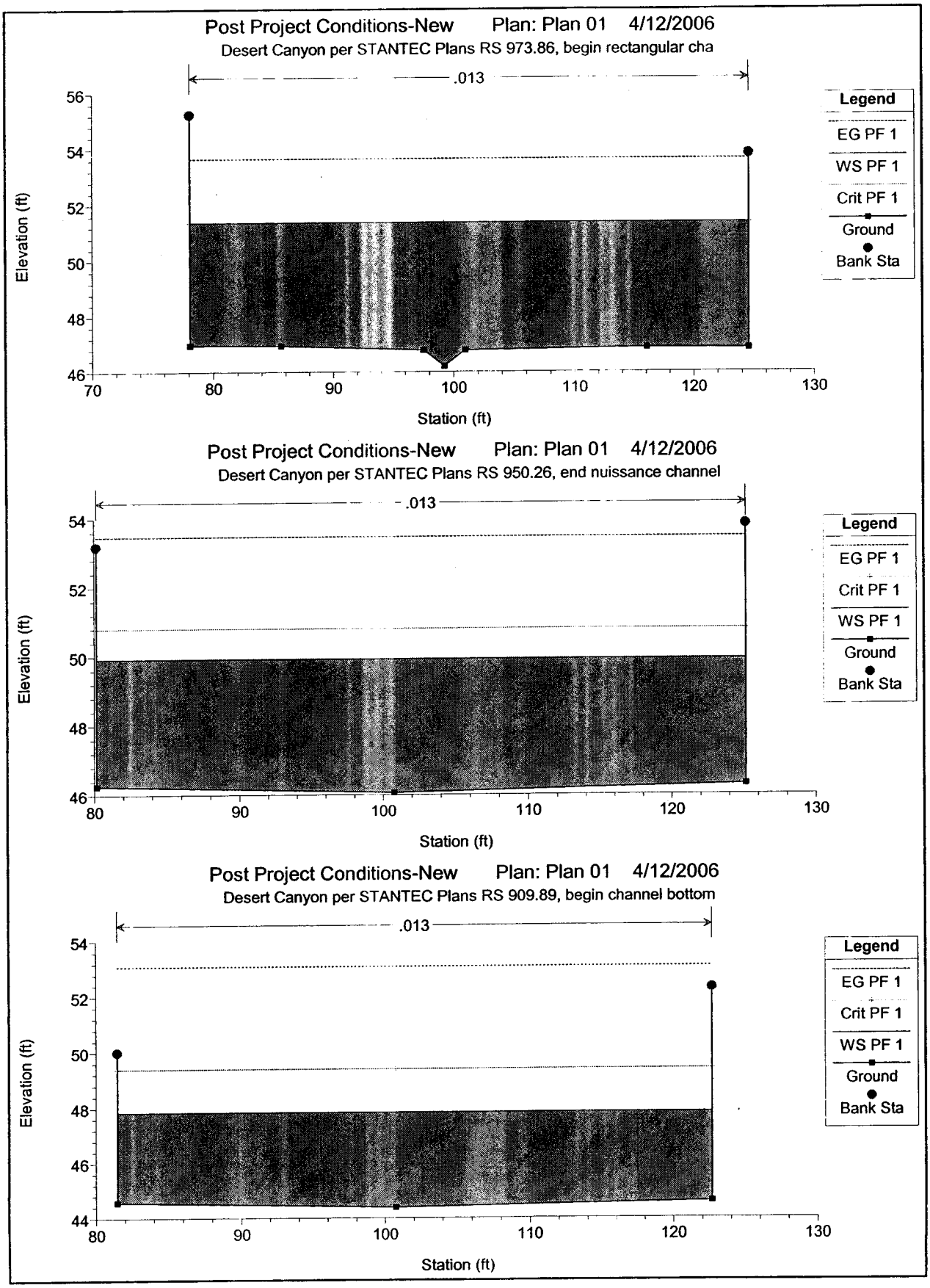

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1400
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1377.99, begin compound curve
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1350
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

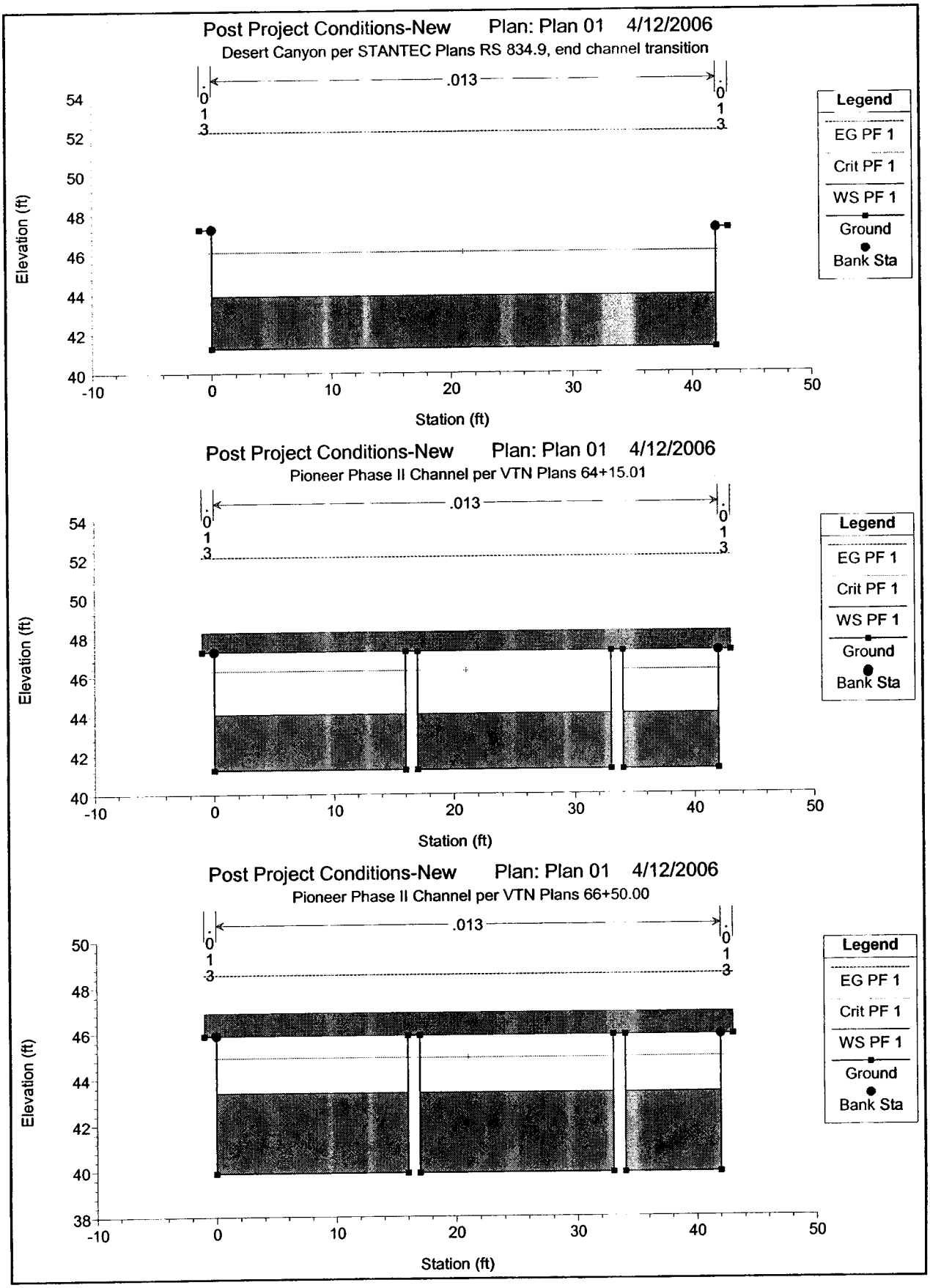

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1300
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1278.76, compound curve midpo
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1250
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

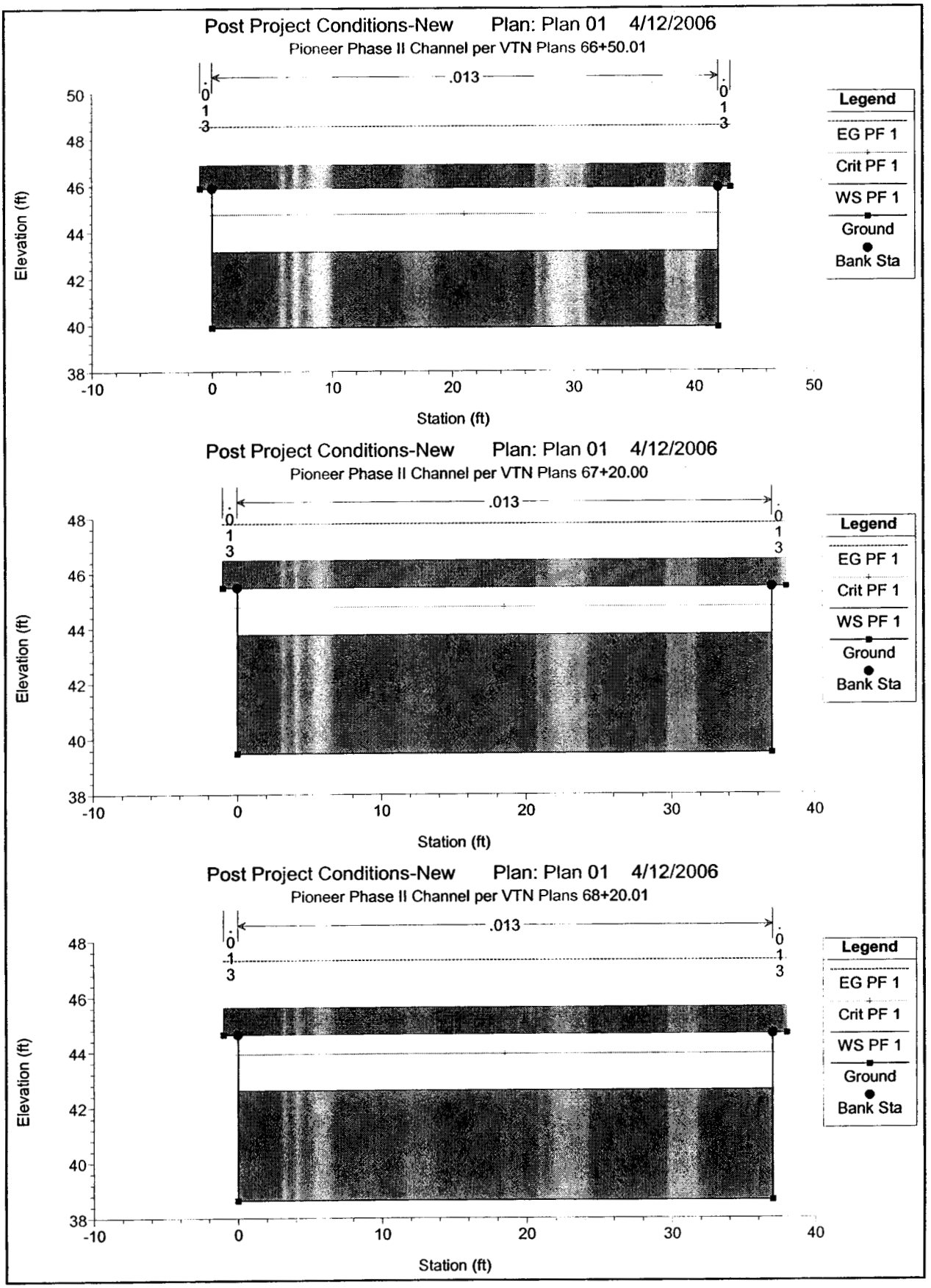

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1200
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1175.26
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1154.55, end compound curve
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

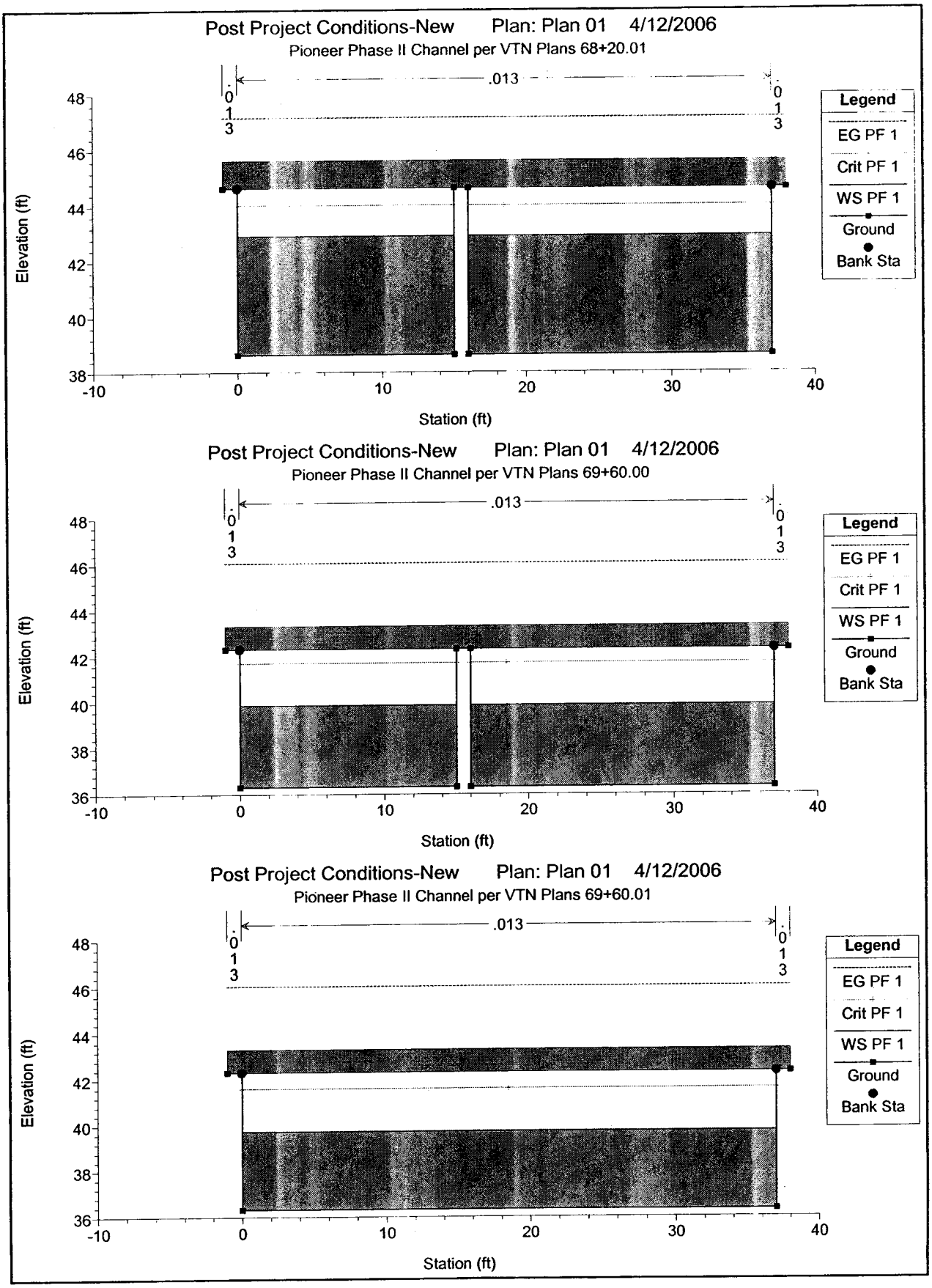

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1125, begin right channel wal
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1116.35, begin channel transi
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1100,
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

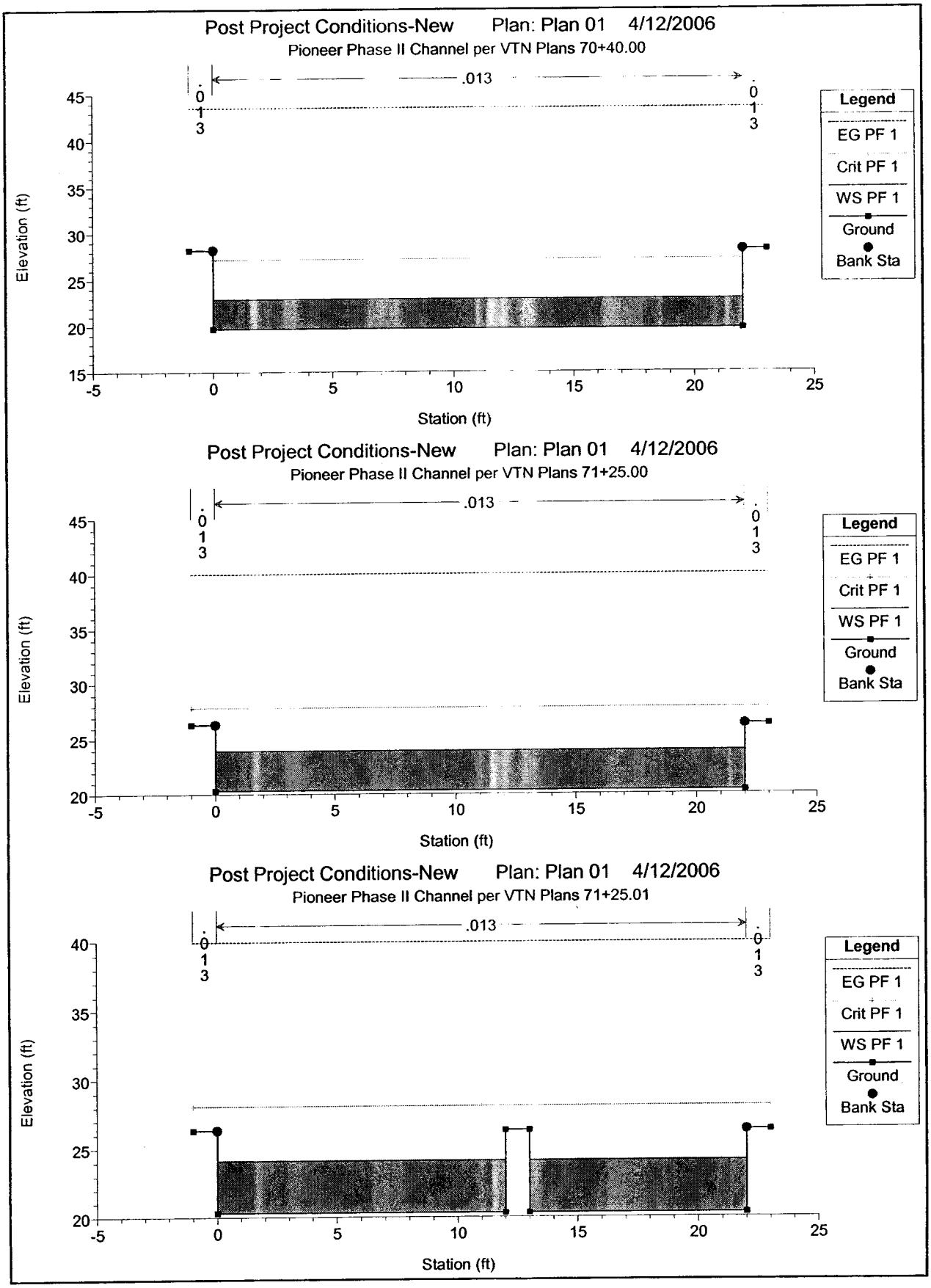

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1050
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1033.37, begin left channel w
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1007.4, begin nuissance chann
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

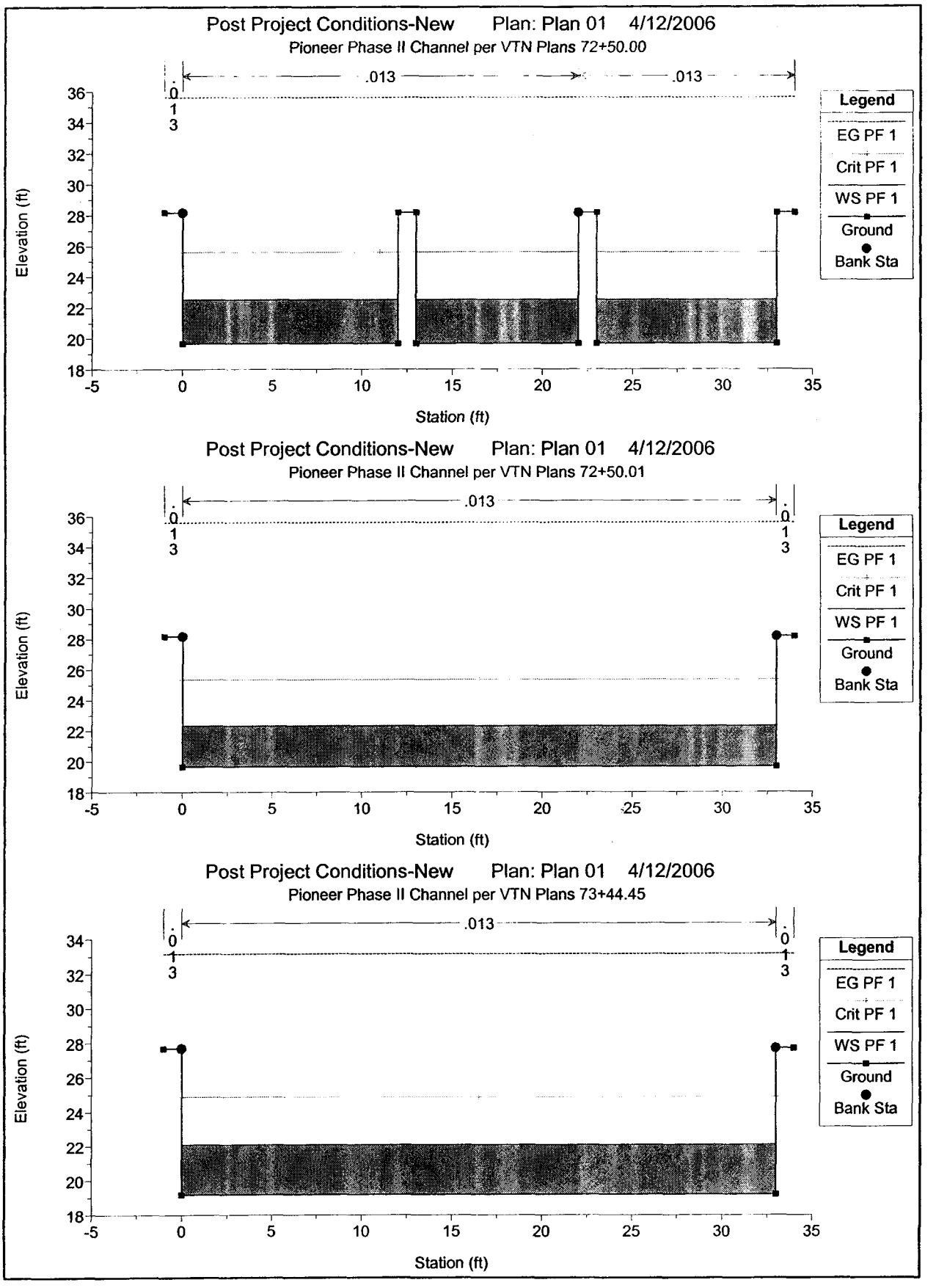

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 973.86, begin rectangular cha
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 950.26, end nuissance channel
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 909.89, begin channel bottom
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

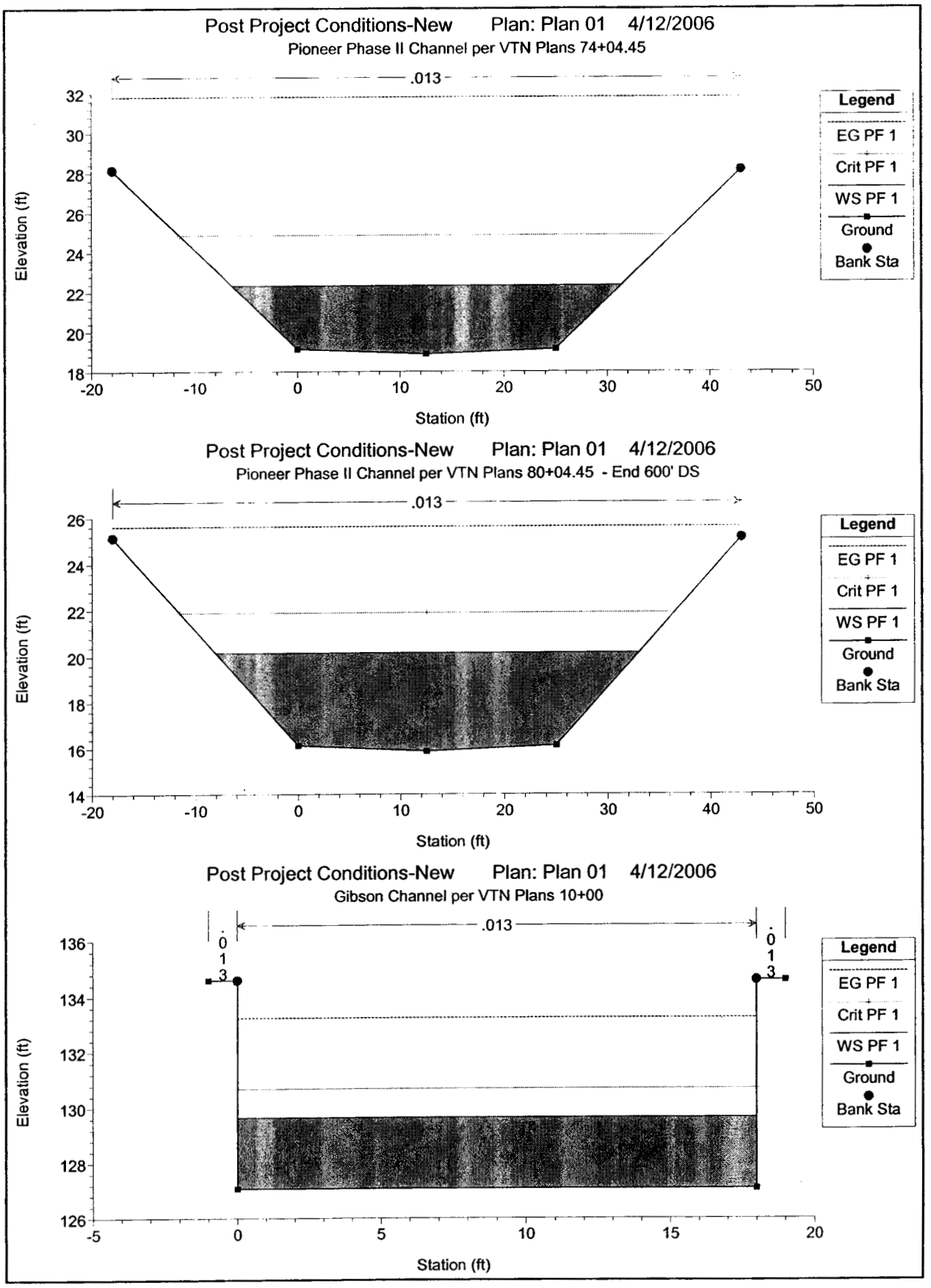

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 834.9, end channel transition
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
54
52
50
48
46
44
42
40
-10
0
10
20
30
40
50
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 64+15.01
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
54
52
50
48
46
44
42
40
-10
0
10
20
30
40
50
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 66+50.00
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
50
48
46
44
42
40
38
-10
0
10
20
30
40
50

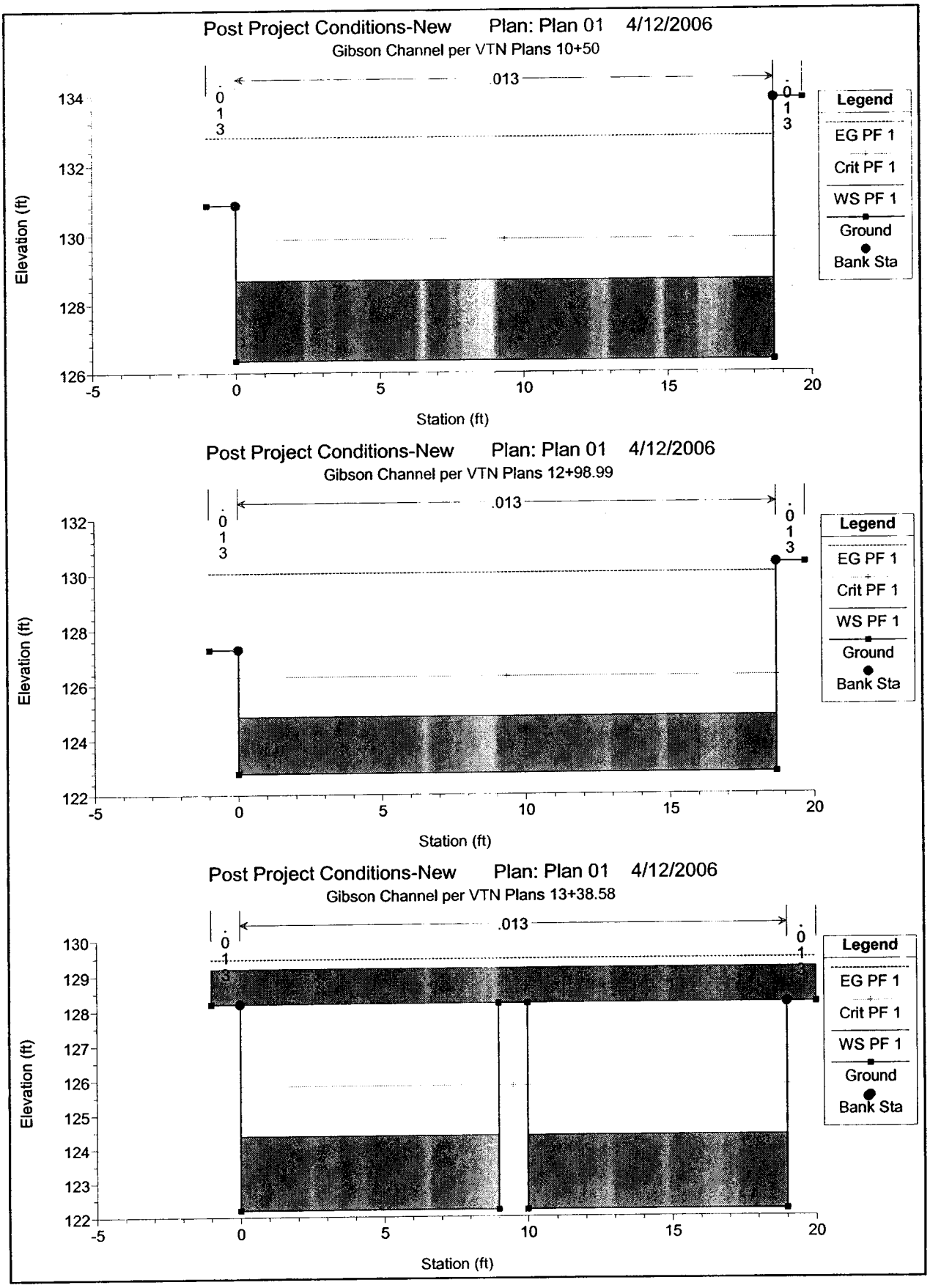

Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 66+50.01
.013
.03
.1
.3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 67+20.00
.013
.03
.1
.3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 68+20.01
.013
.03
.1
.3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

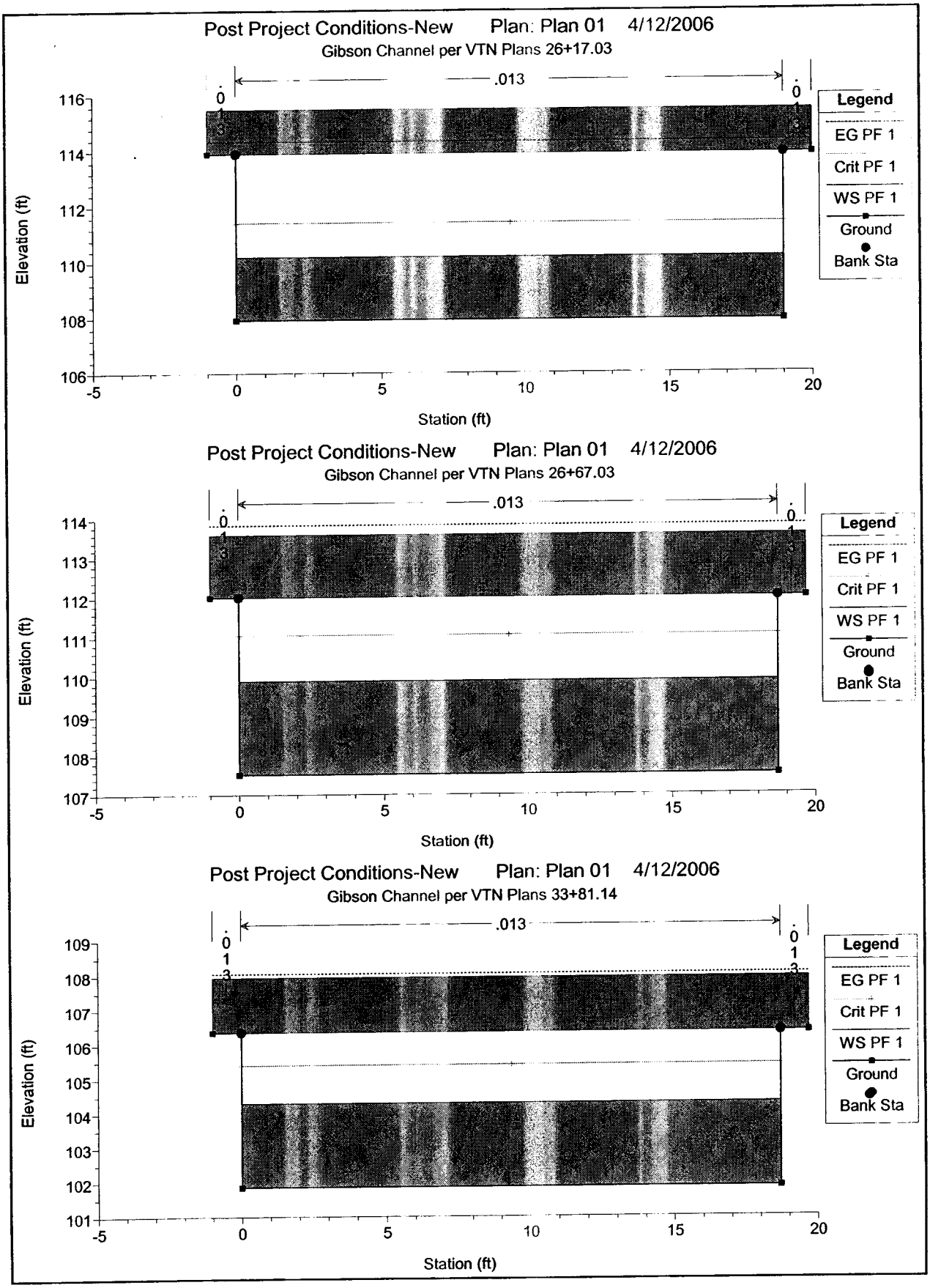

Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 68+20.01
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
48
46
44
42
40
38
-10
0
10
20
30
40
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 69+60.00
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
48
46
44
42
40
38
36
-10
0
10
20
30
40
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 69+60.01
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
48
46
44
42
40
38
36
-10
0
10
20
30
40

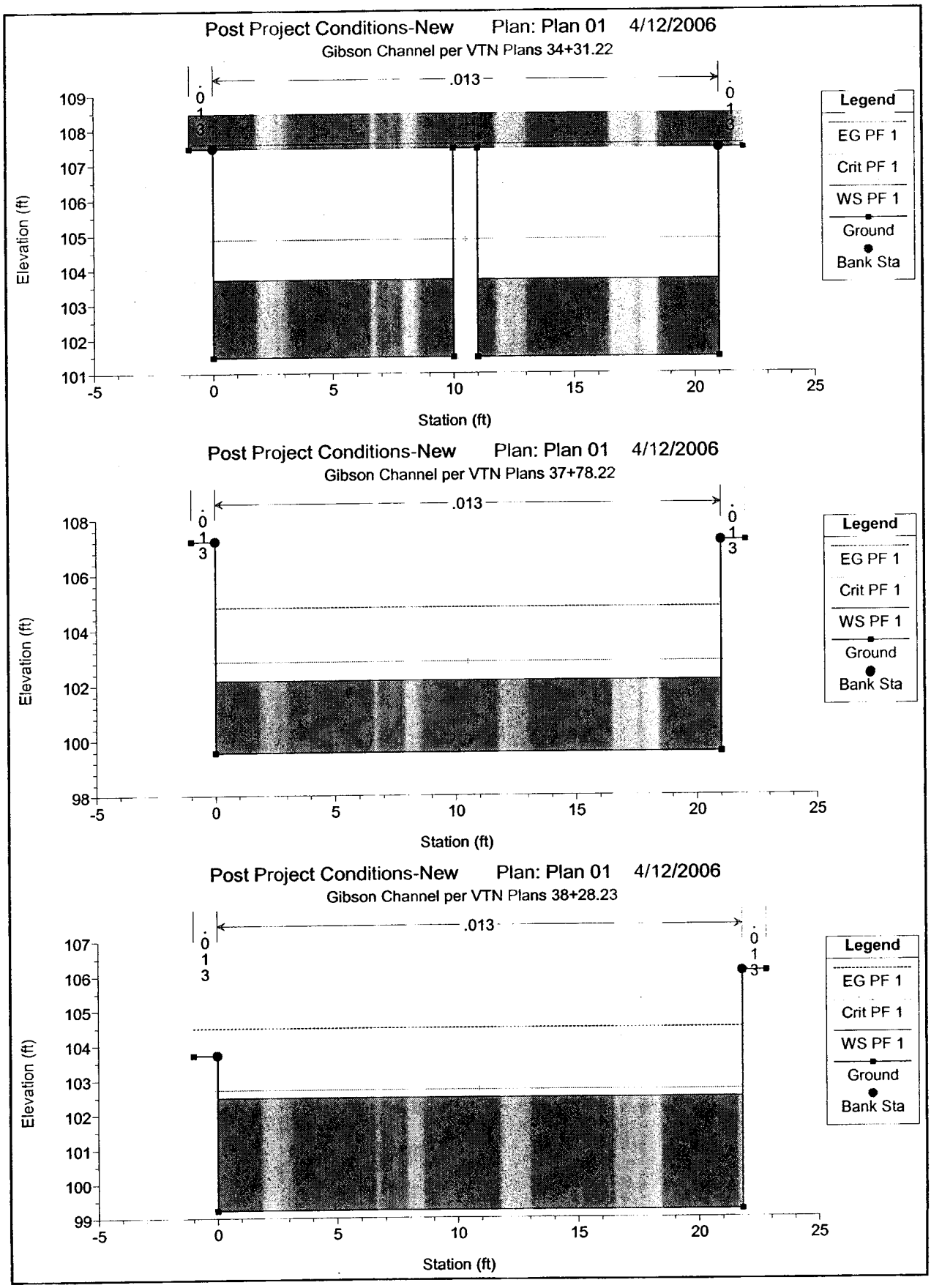

Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 70+40.00
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 71+25.00
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 71+25.01
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

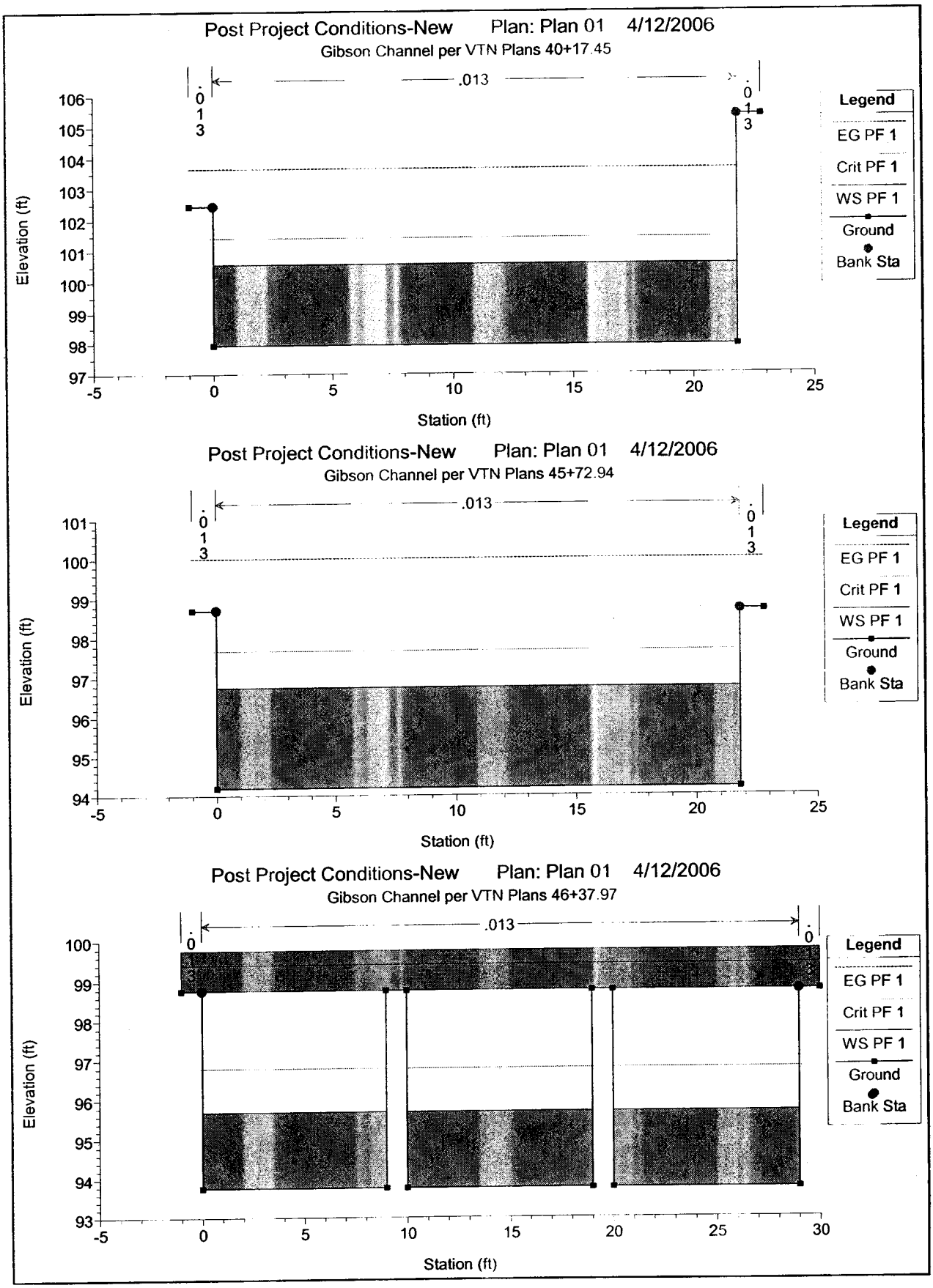

Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 72+50.00
.013
.013
.0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 72+50.01
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 73+44.45
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

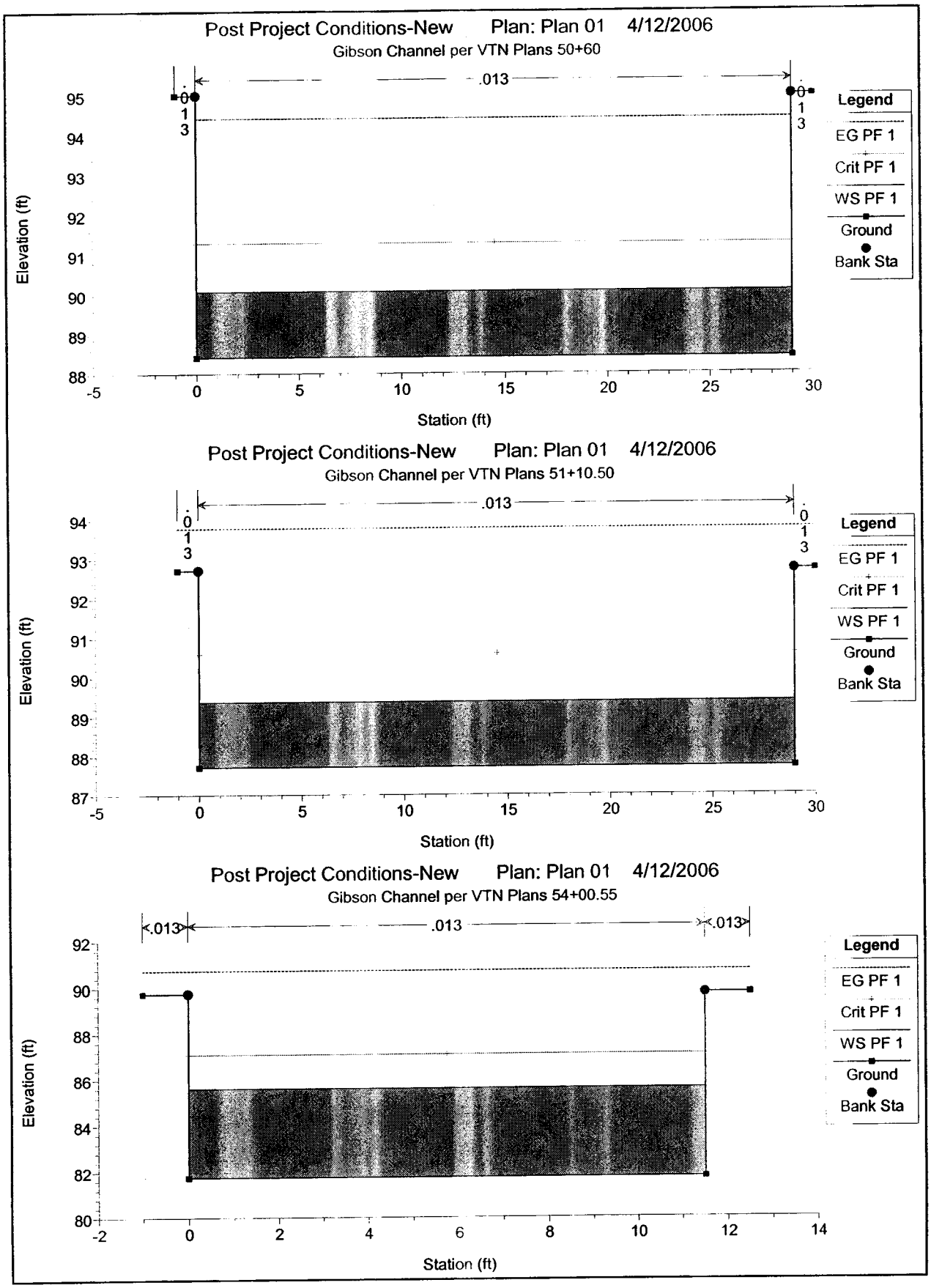

Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 74+04.45
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase II Channel per VTN Plans 80+04.45 - End 600' DS
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 10+00
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

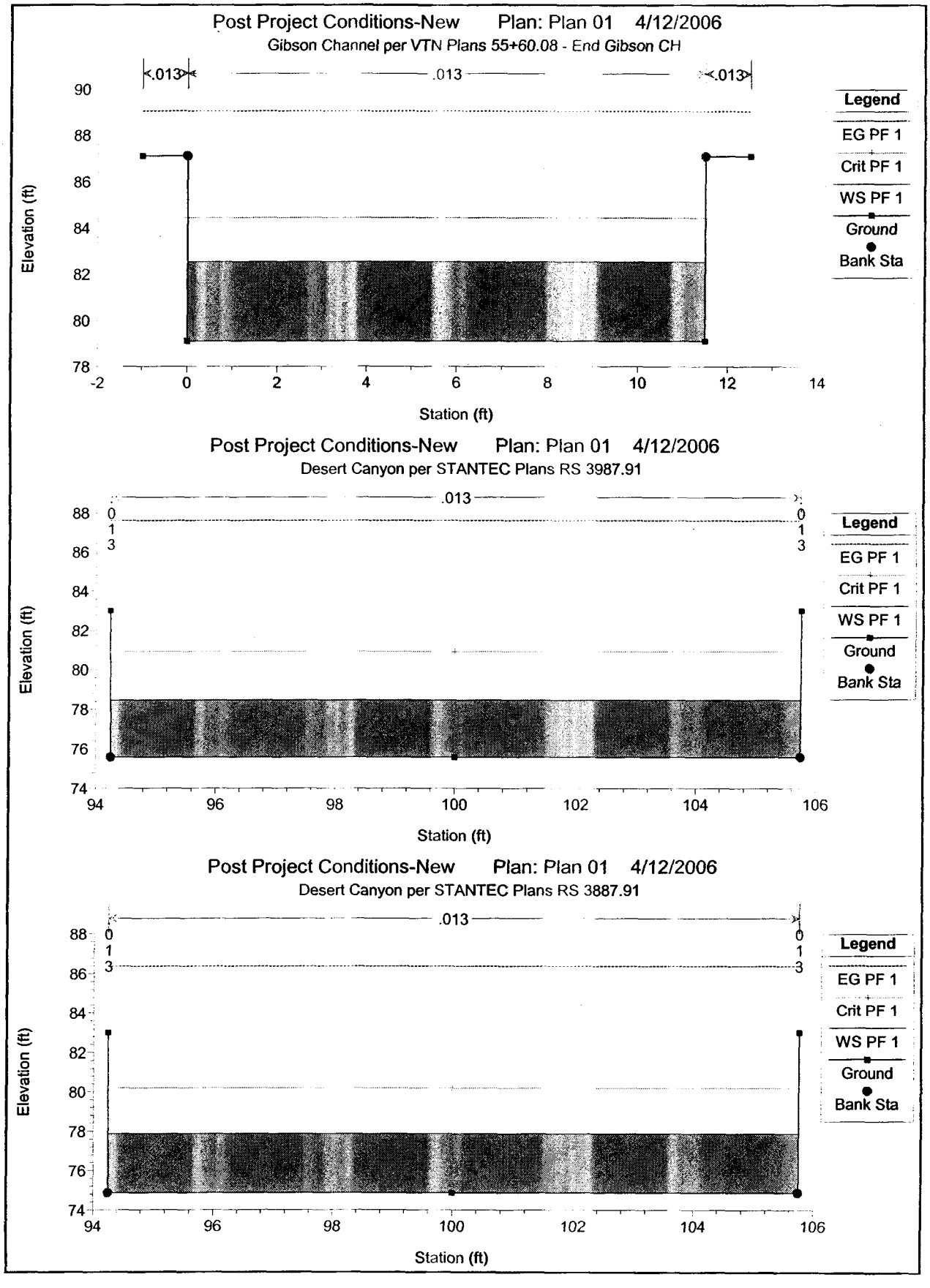

Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 10+50
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
134
132
130
128
126
-5
0
5
10
15
20
Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 12+98.99
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
132
130
128
126
124
122
-5
0
5
10
15
20
Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 13+38.58
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
130
129
128
127
126
125
124
123
122
-5
0
5
10
15
20

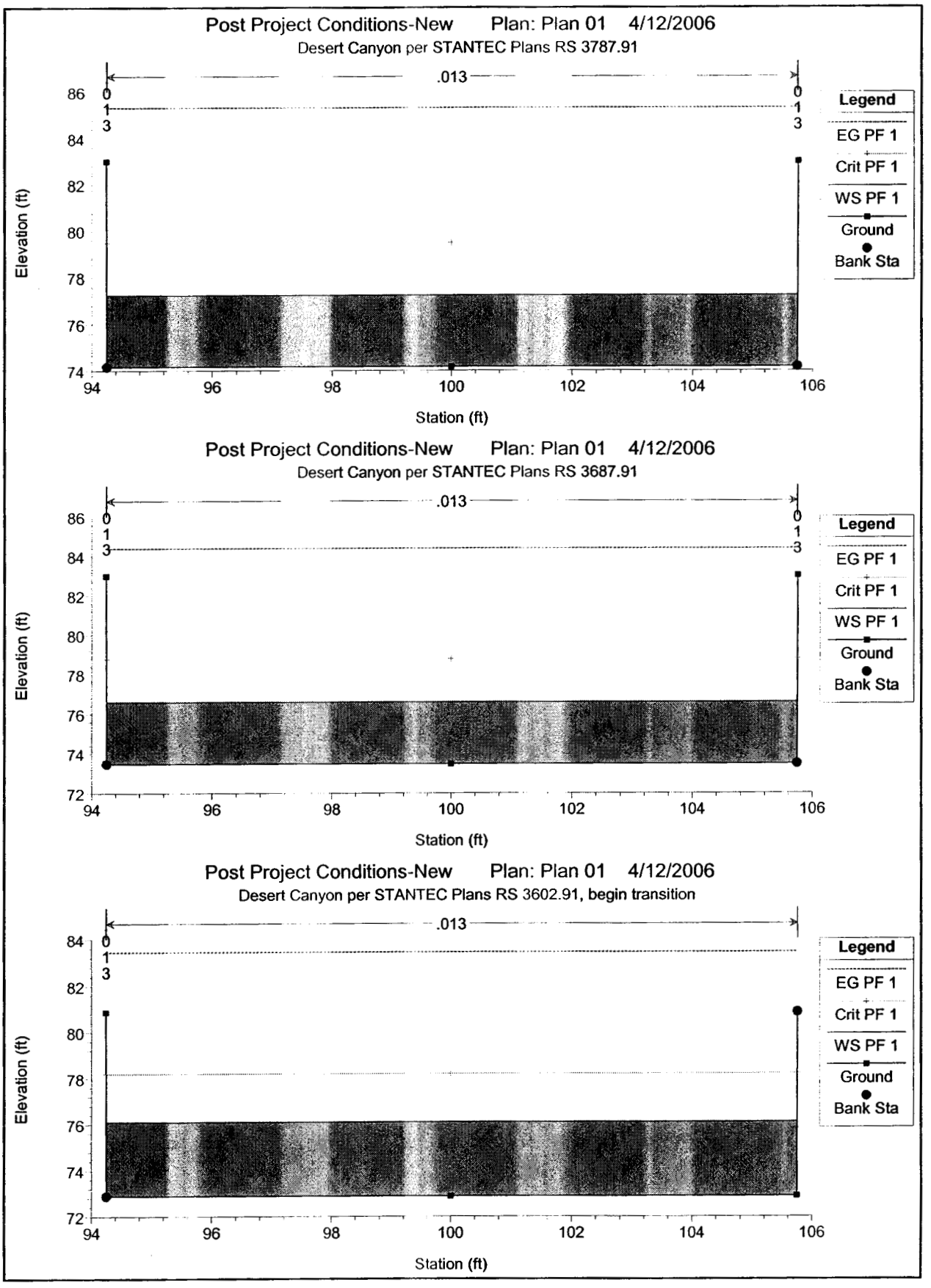

Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 26+17.03
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 26+67.03
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 33+81.14
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

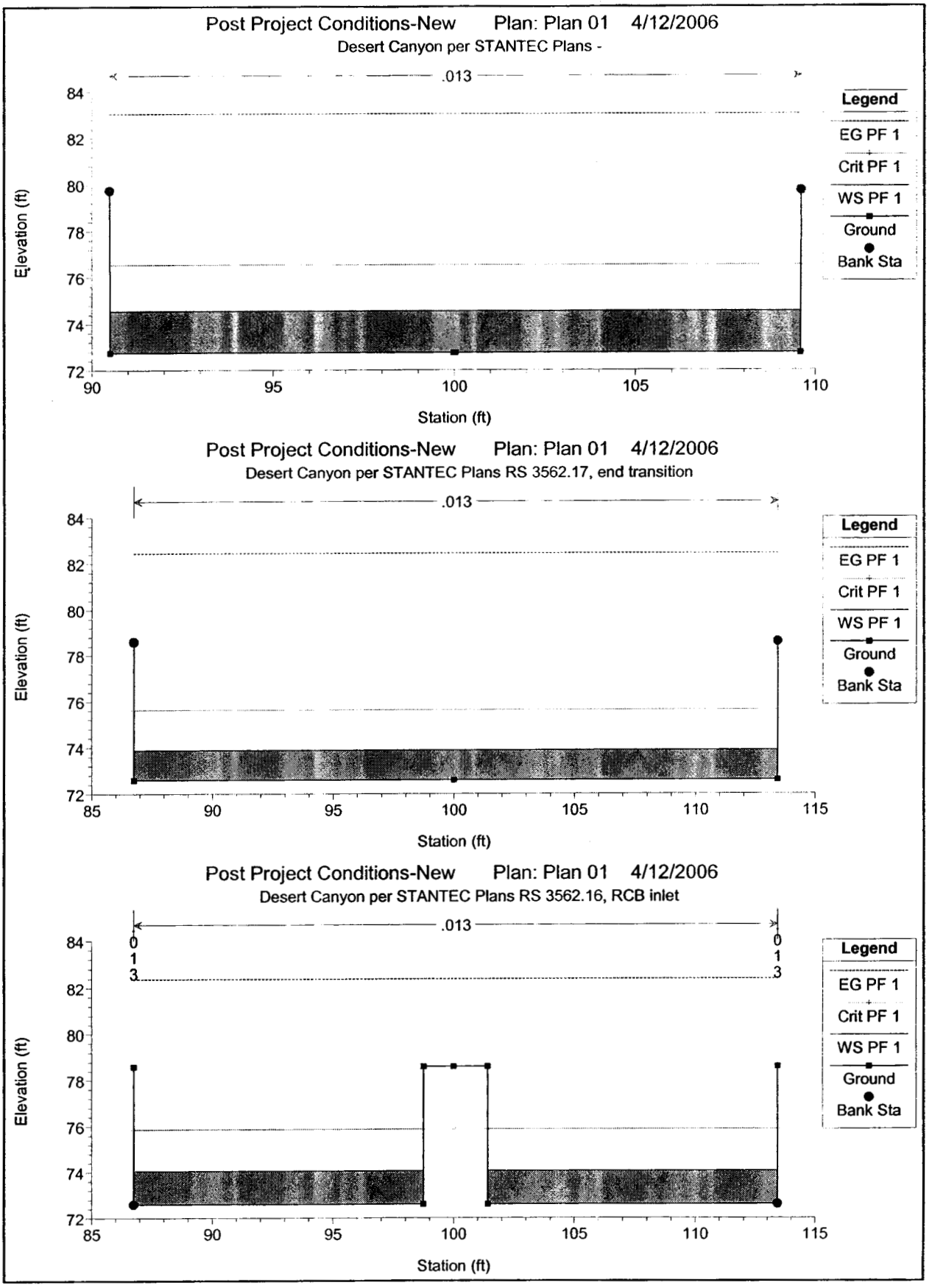

Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 34+31.22
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 37+78.22
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 38+28.23
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

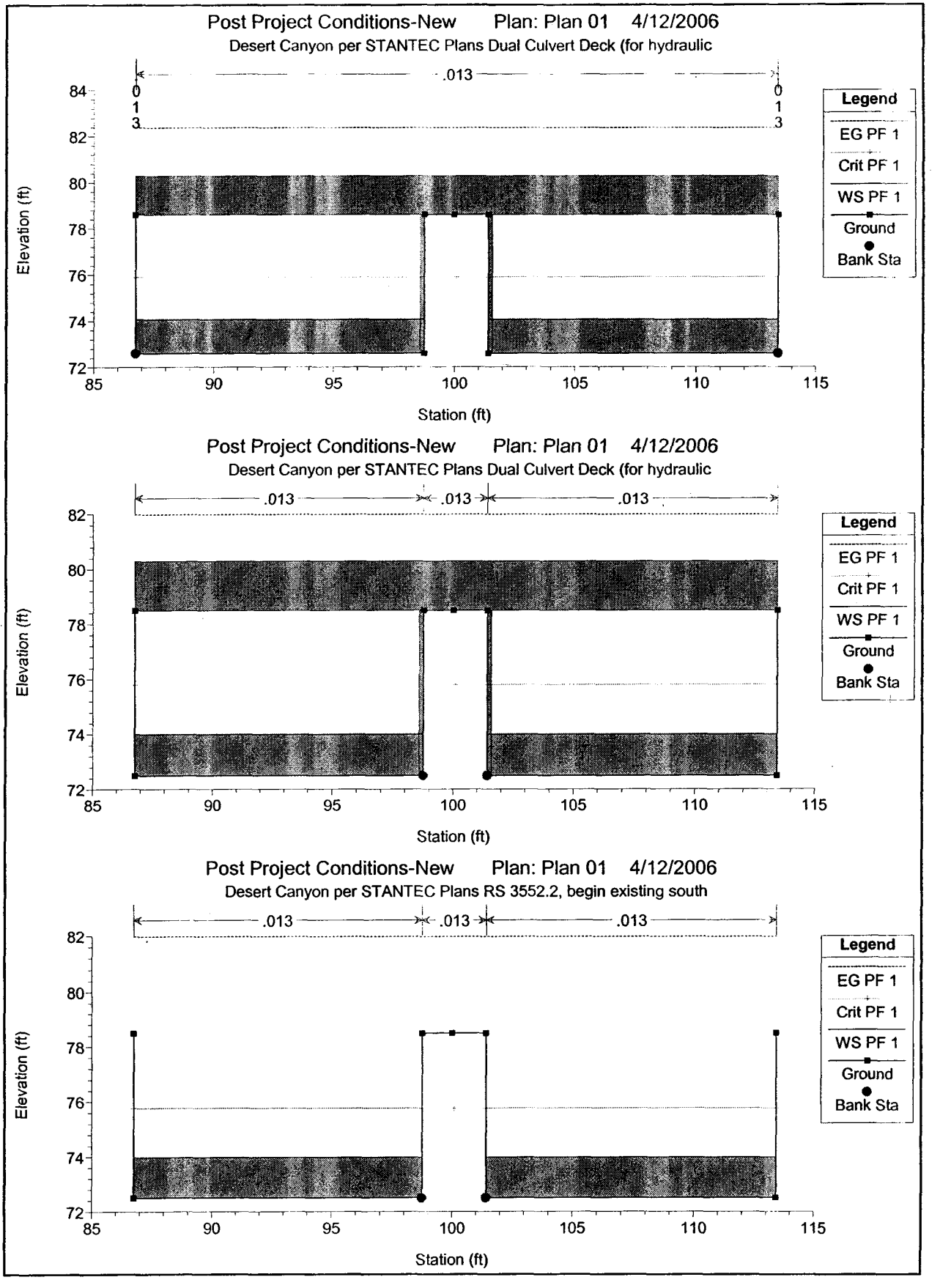

Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 40+17.45
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 45+72.94
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 46+37.97
.013
.0
.0
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

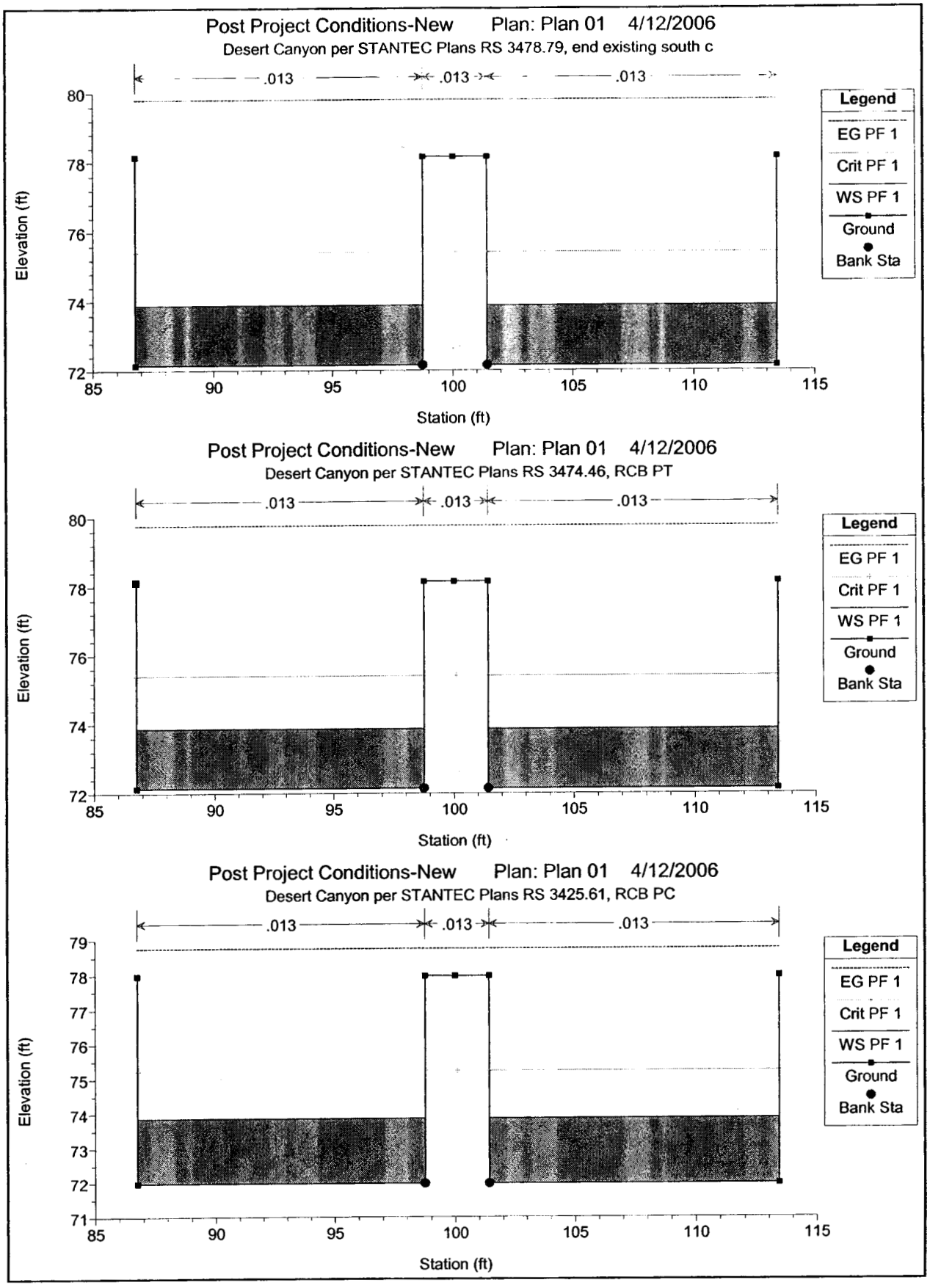

Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 50+60
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
95
94
93
92
91
90
89
88
-5
0
5
10
15
20
25
30
Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 51+10.50
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
94
93
92
91
90
89
88
87
-5
0
5
10
15
20
25
30
Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 54+00.55
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
92
90
88
86
84
82
80
-2
0
2
4
6
8
10
12
14

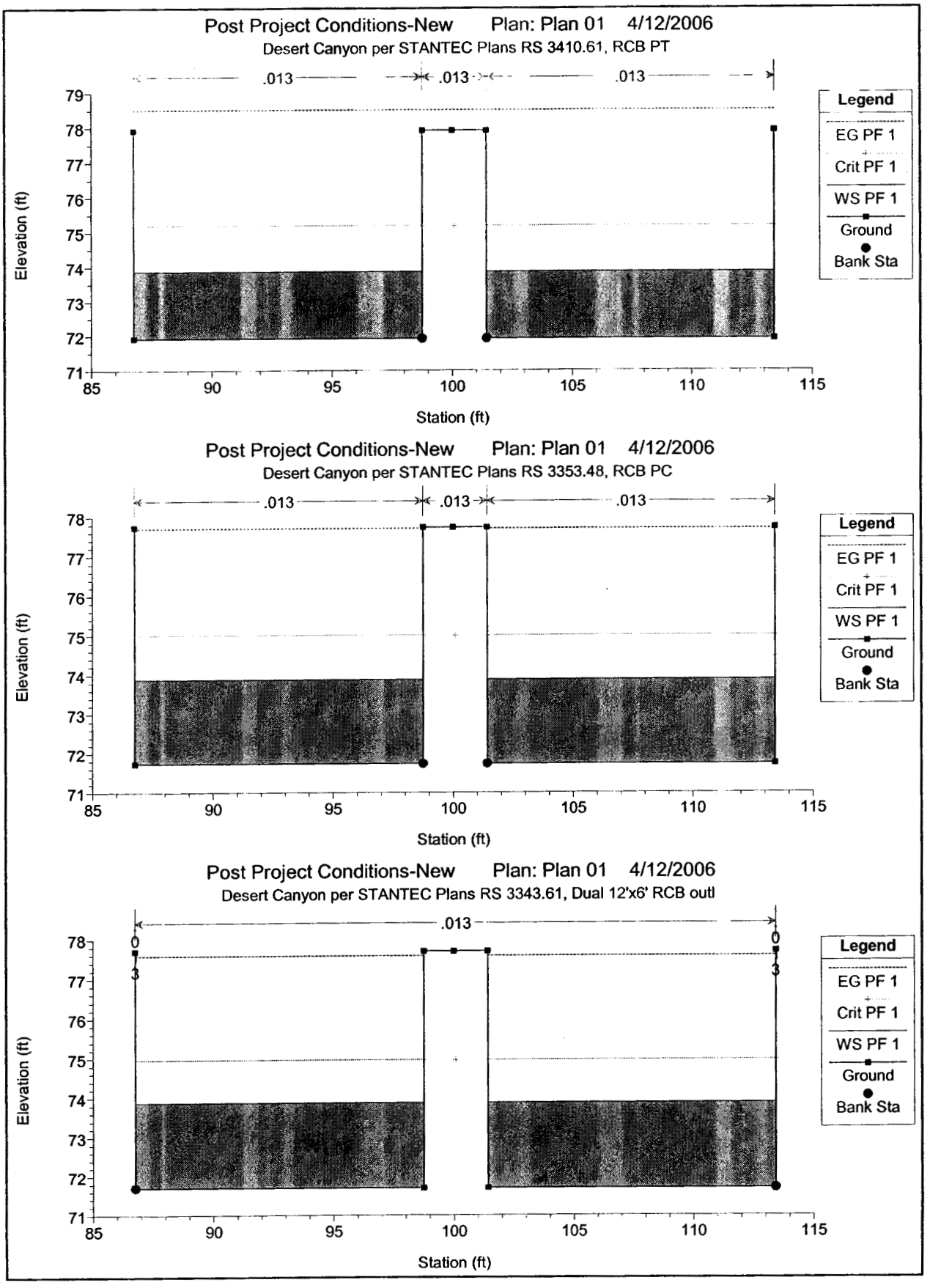

Post Project Conditions-New Plan: Plan 01 4/12/2006
Gibson Channel per VTN Plans 55+60.08 - End Gibson CH
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3987.91
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3887.91
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

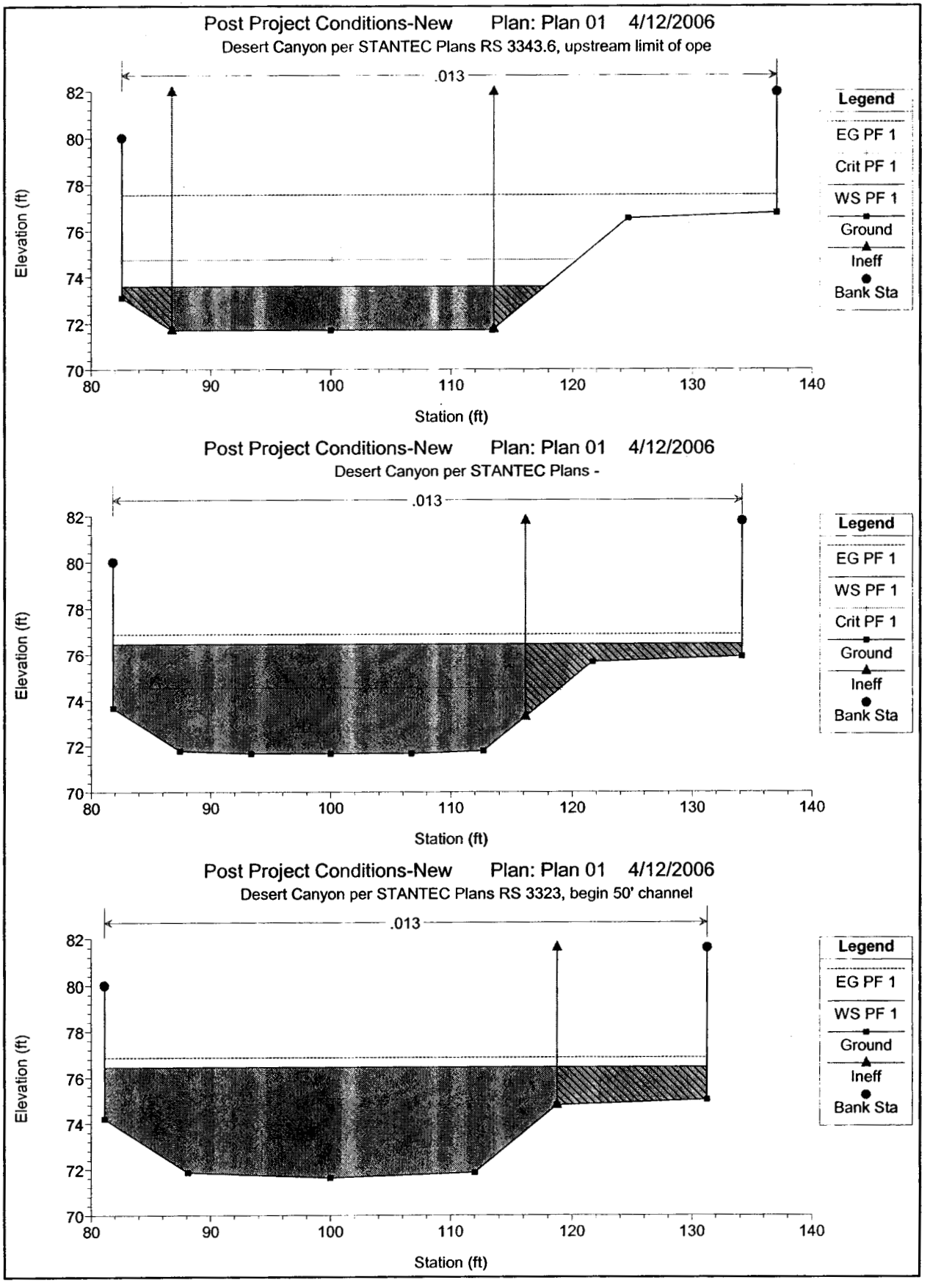

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3787.91
.013
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3687.91
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3602.91, begin transition

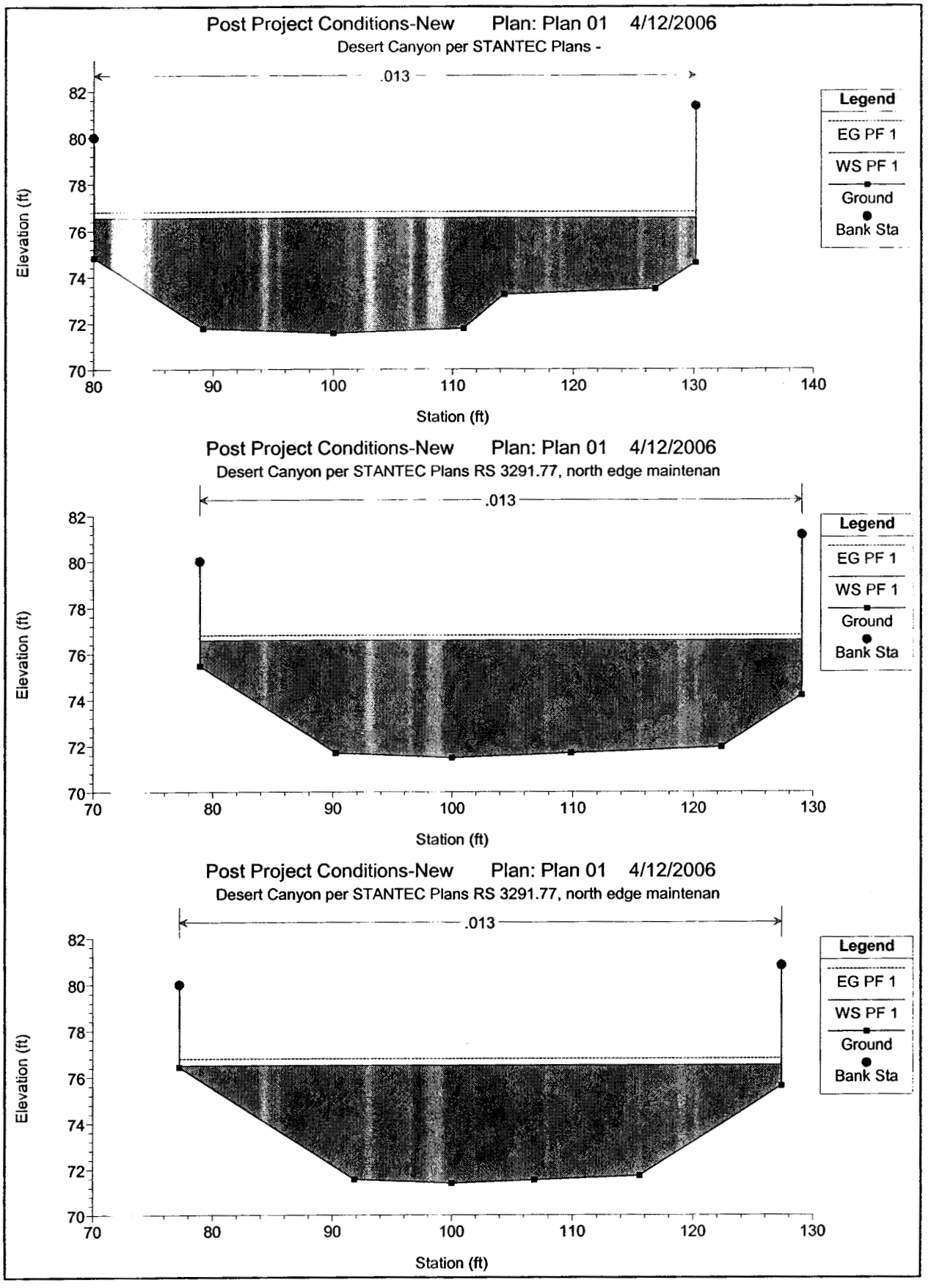

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3562.17, end transition
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3562.16, RCB inlet
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

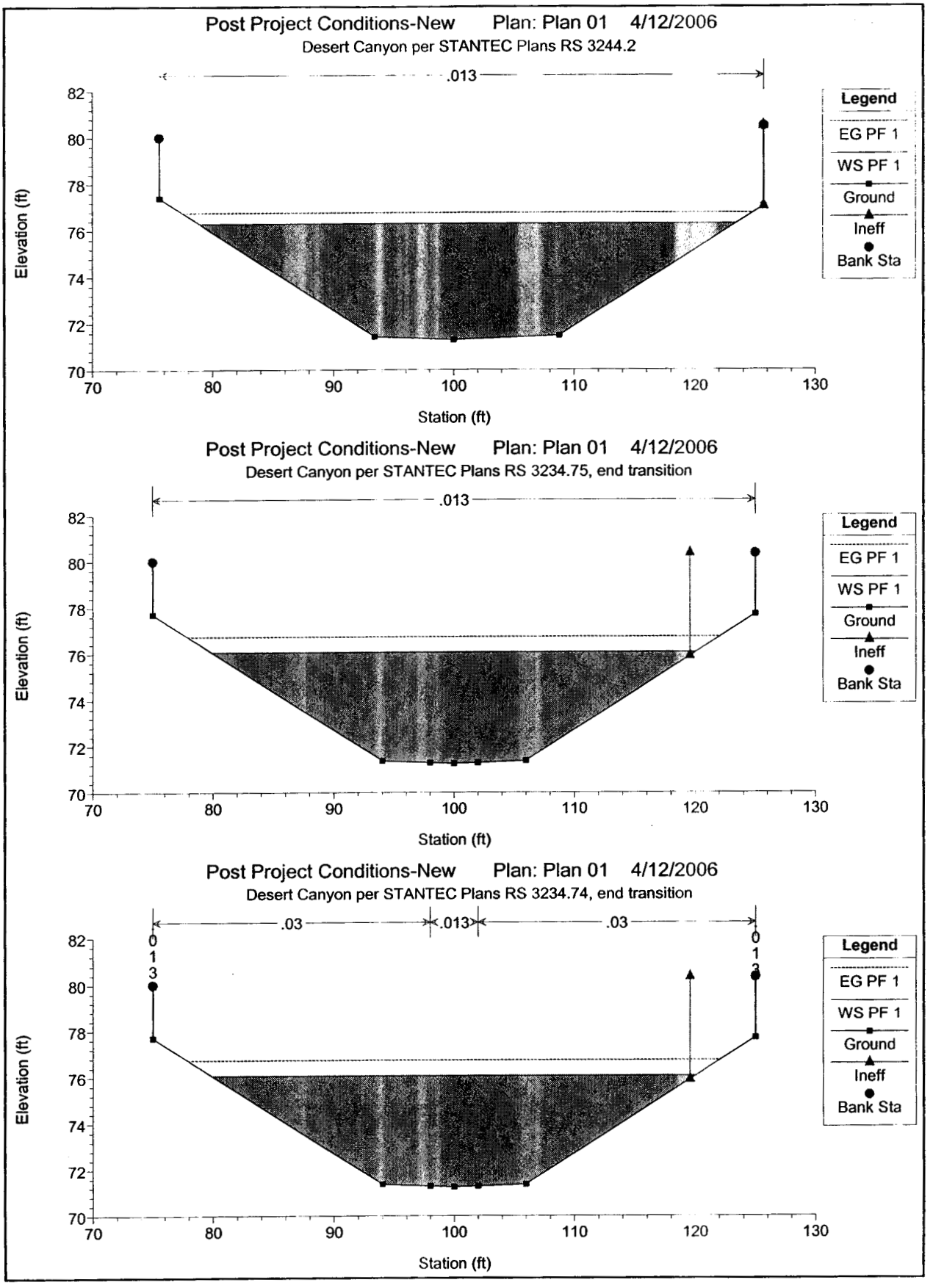

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic
.013
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3552.2, begin existing south
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

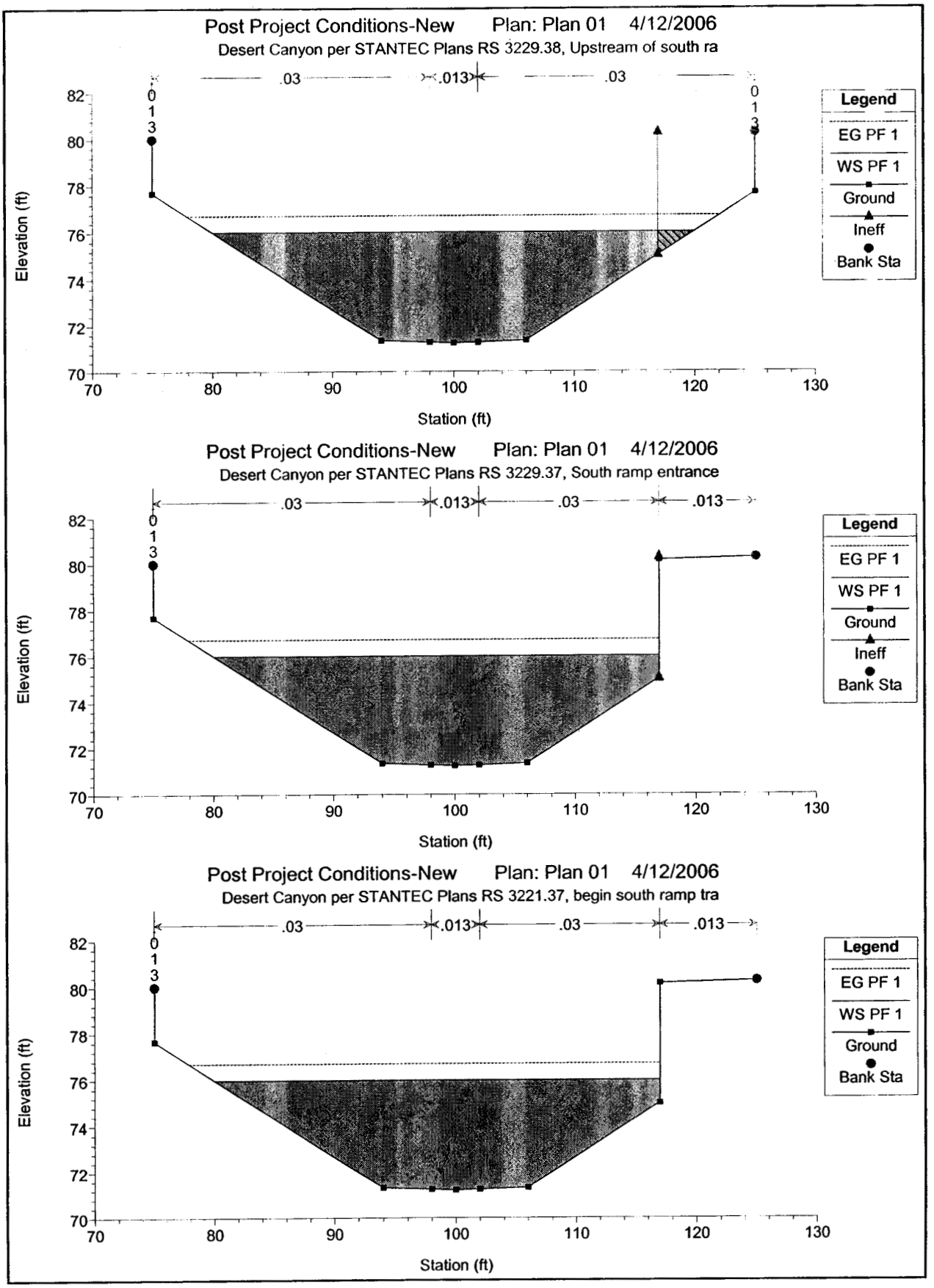

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3478.79, end existing south c
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3474.46, RCB PT
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3425.61, RCB PC
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

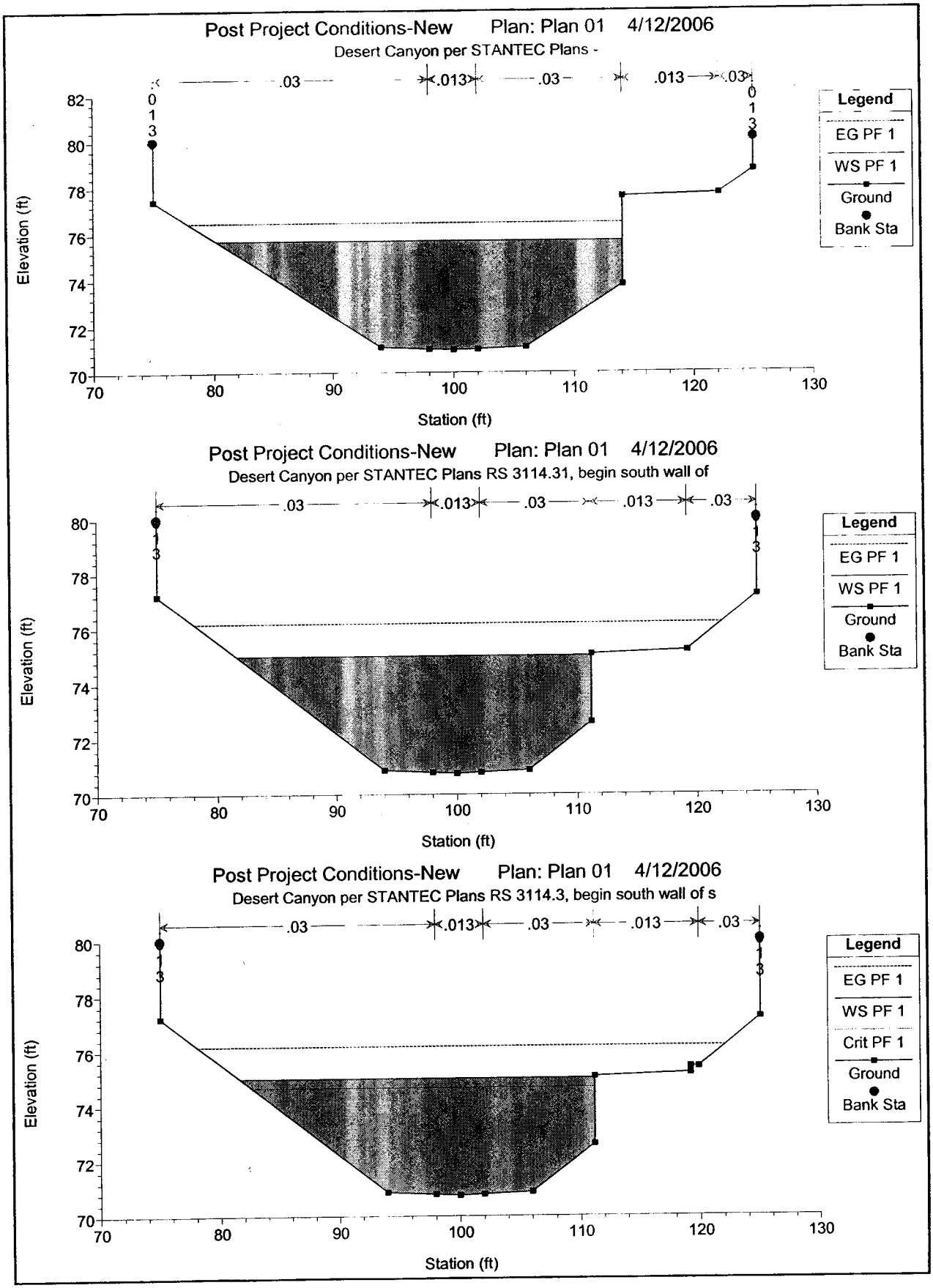

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3410.61, RCB PT
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3353.48, RCB PC
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3343.61, Dual 12'x6' RCB outl
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

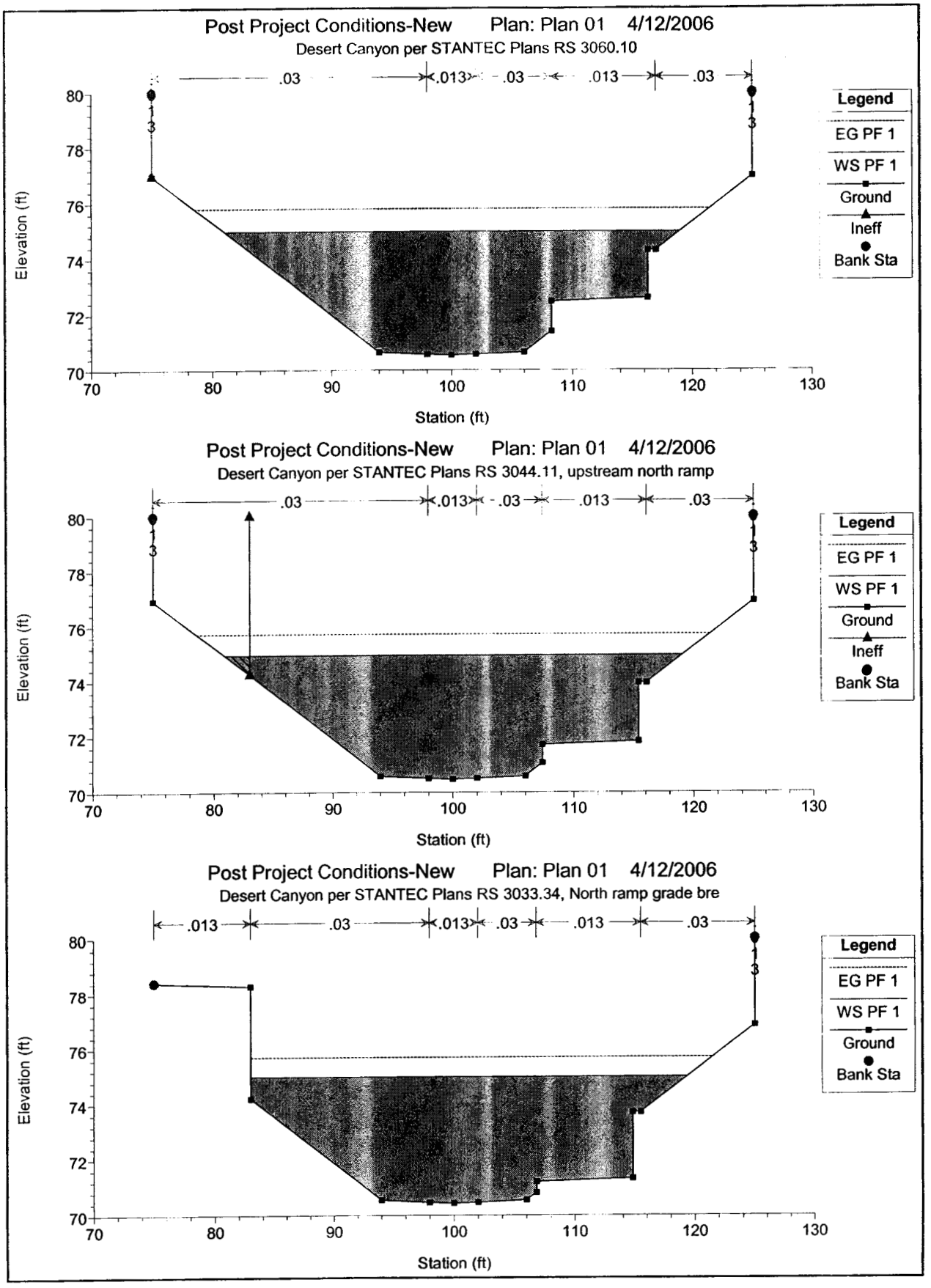

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3343.6, upstream limit of ope
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3323, begin 50' channel
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta

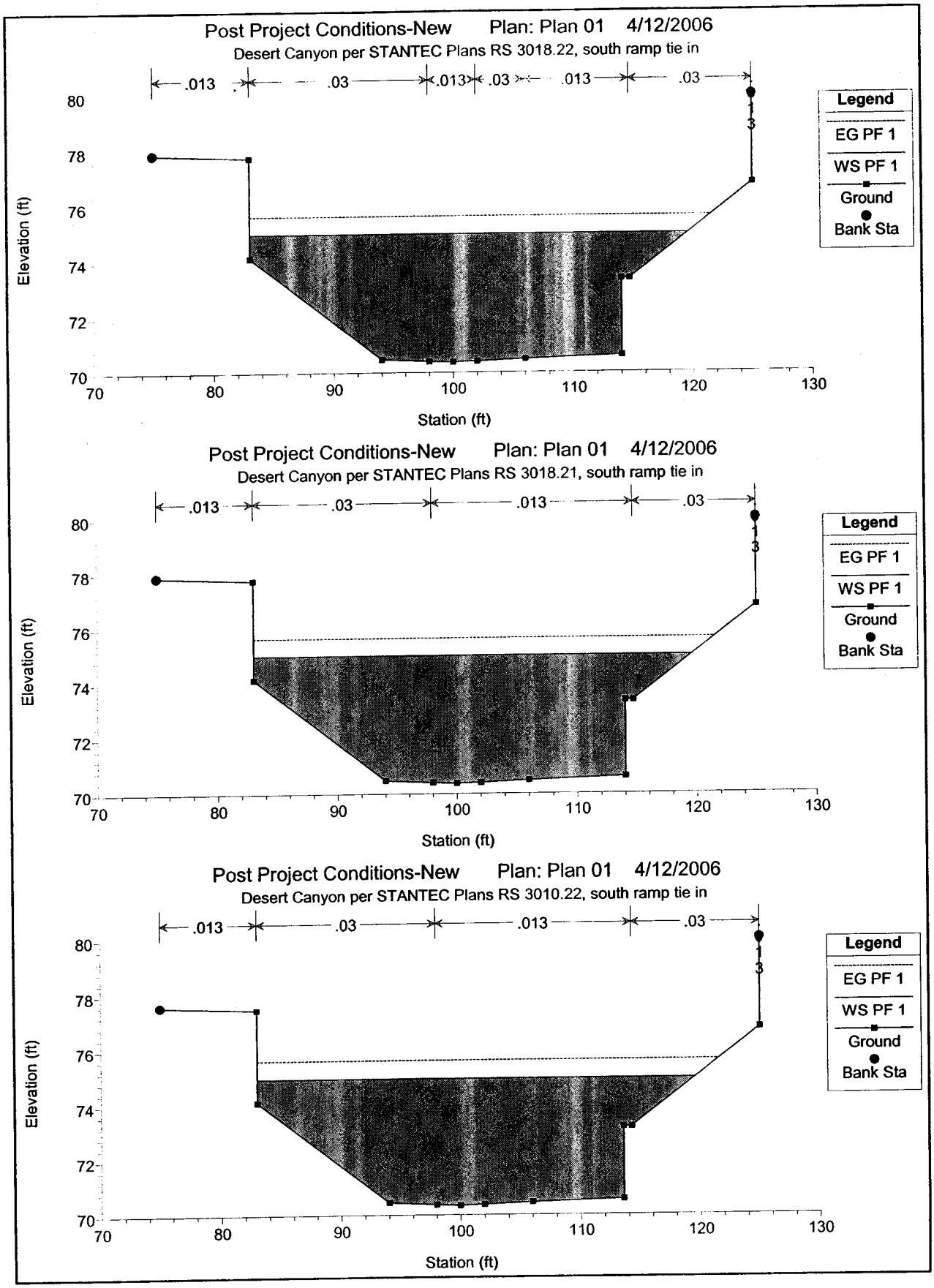

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenan
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenan
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

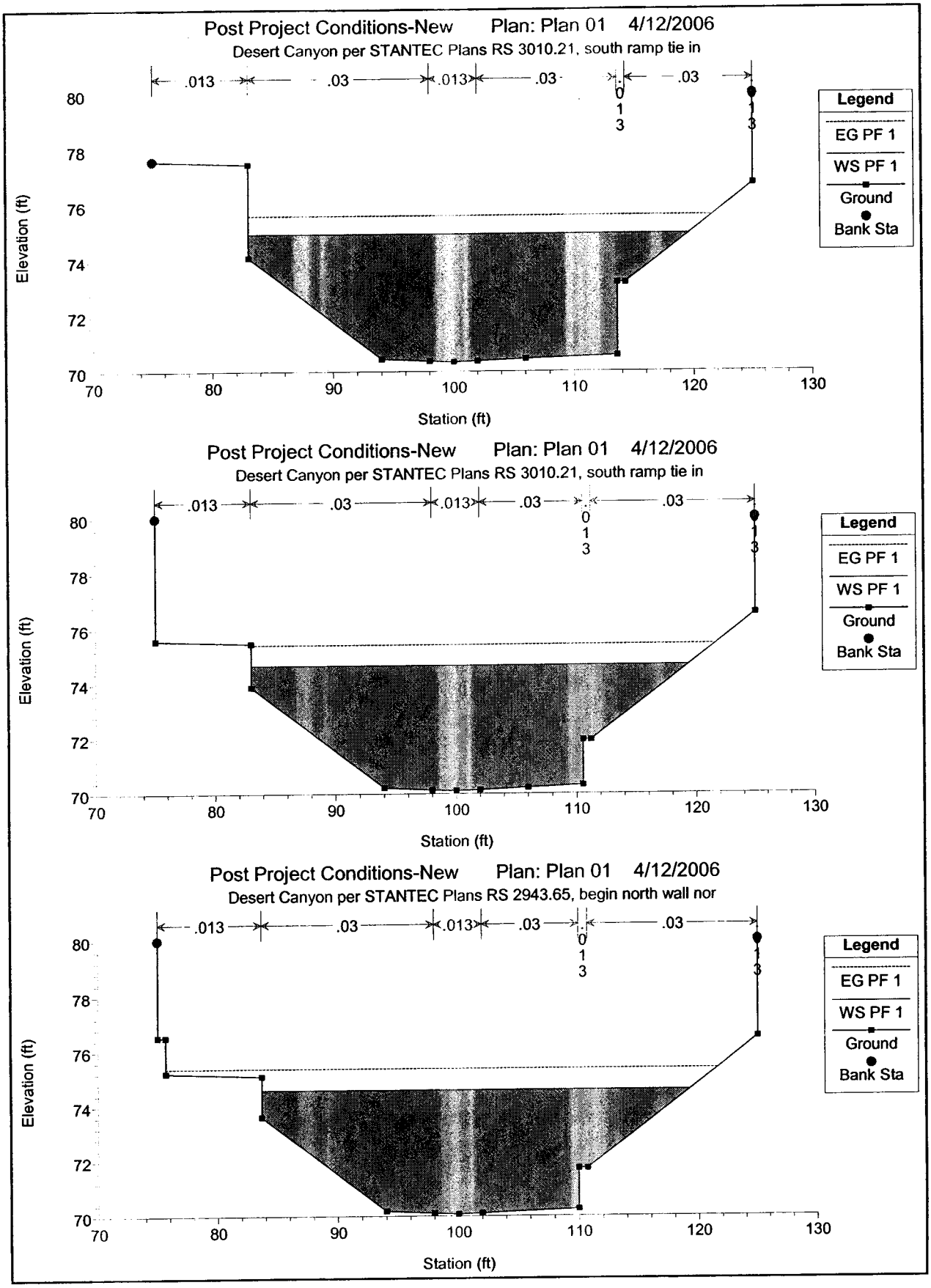

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3244.2
.013
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3234.75, end transition
.013
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3234.74, end transition
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

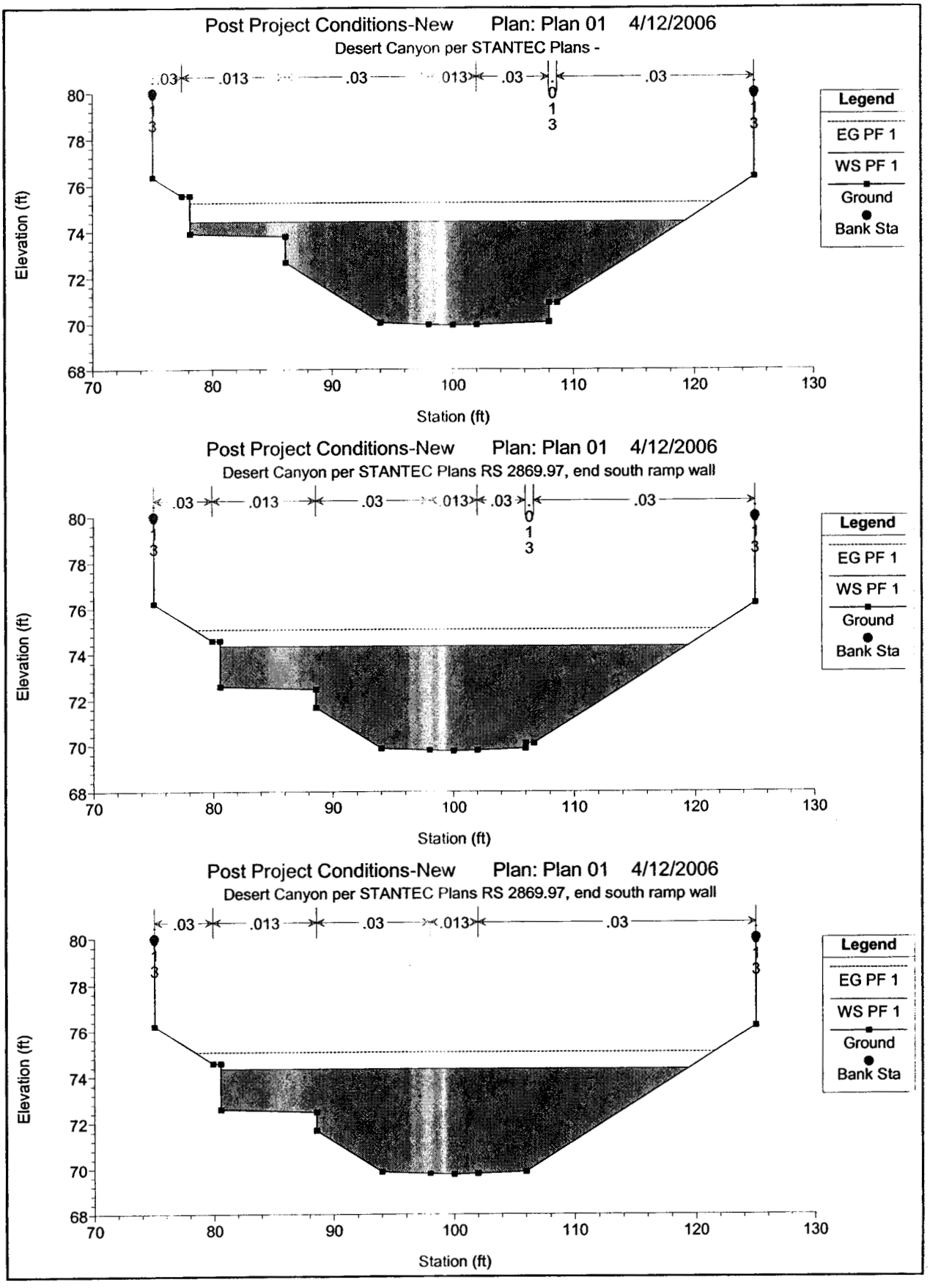

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3229.38, Upstream of south ra
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3229.37, South ramp entrance
.03
.013
.03
.013
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3221.37, begin south ramp tra
.03
.013
.03
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

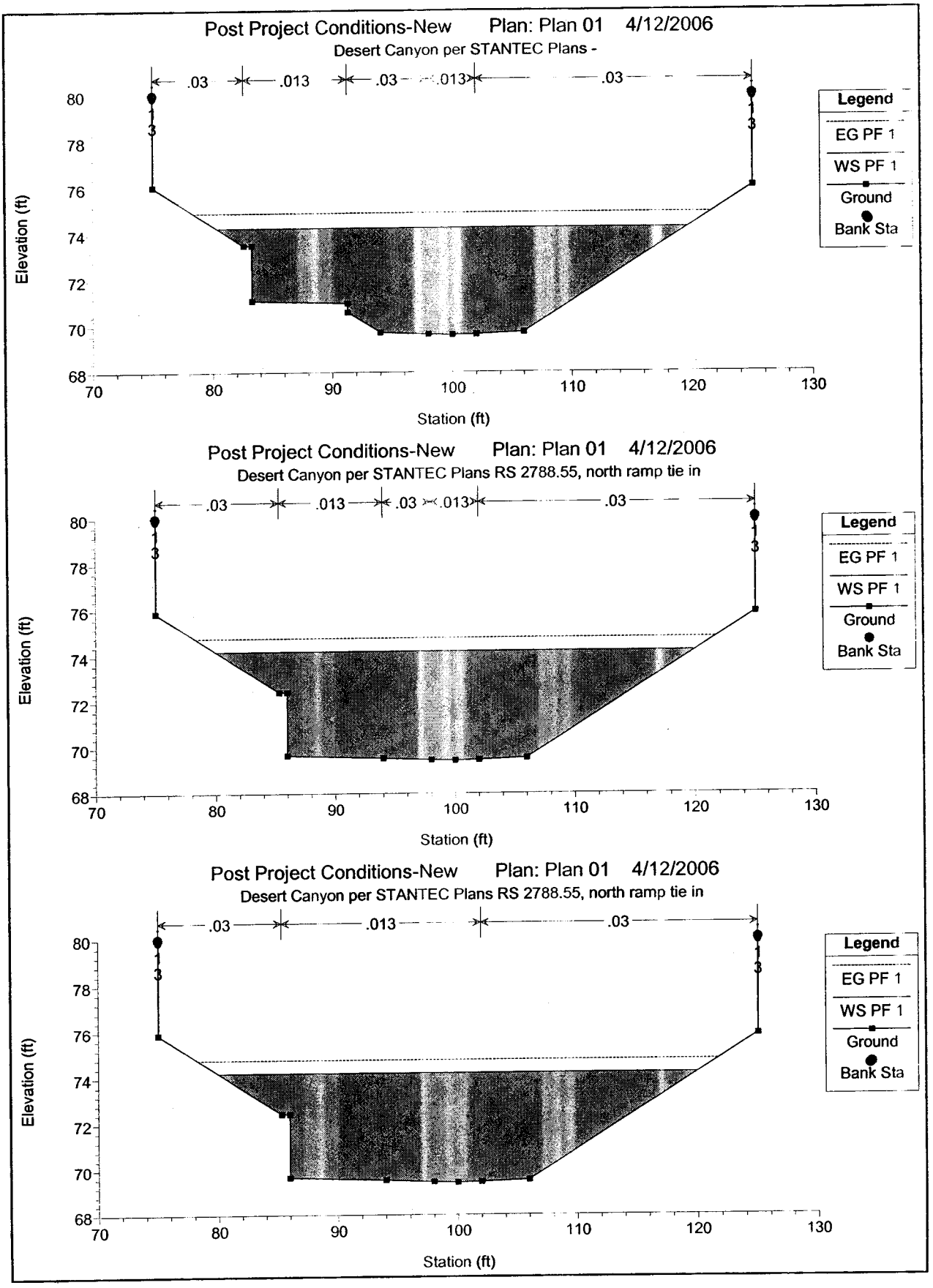

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
82
80
78
76
74
72
70
70
80
90
100
110
120
130
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3114.31, begin south wall of
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
80
78
76
74
72
70
70
80
90
100
110
120
130
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3114.3, begin south wall of s
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
80
78
76
74
72
70
70
80
90
100
110
120
130
Station (ft)

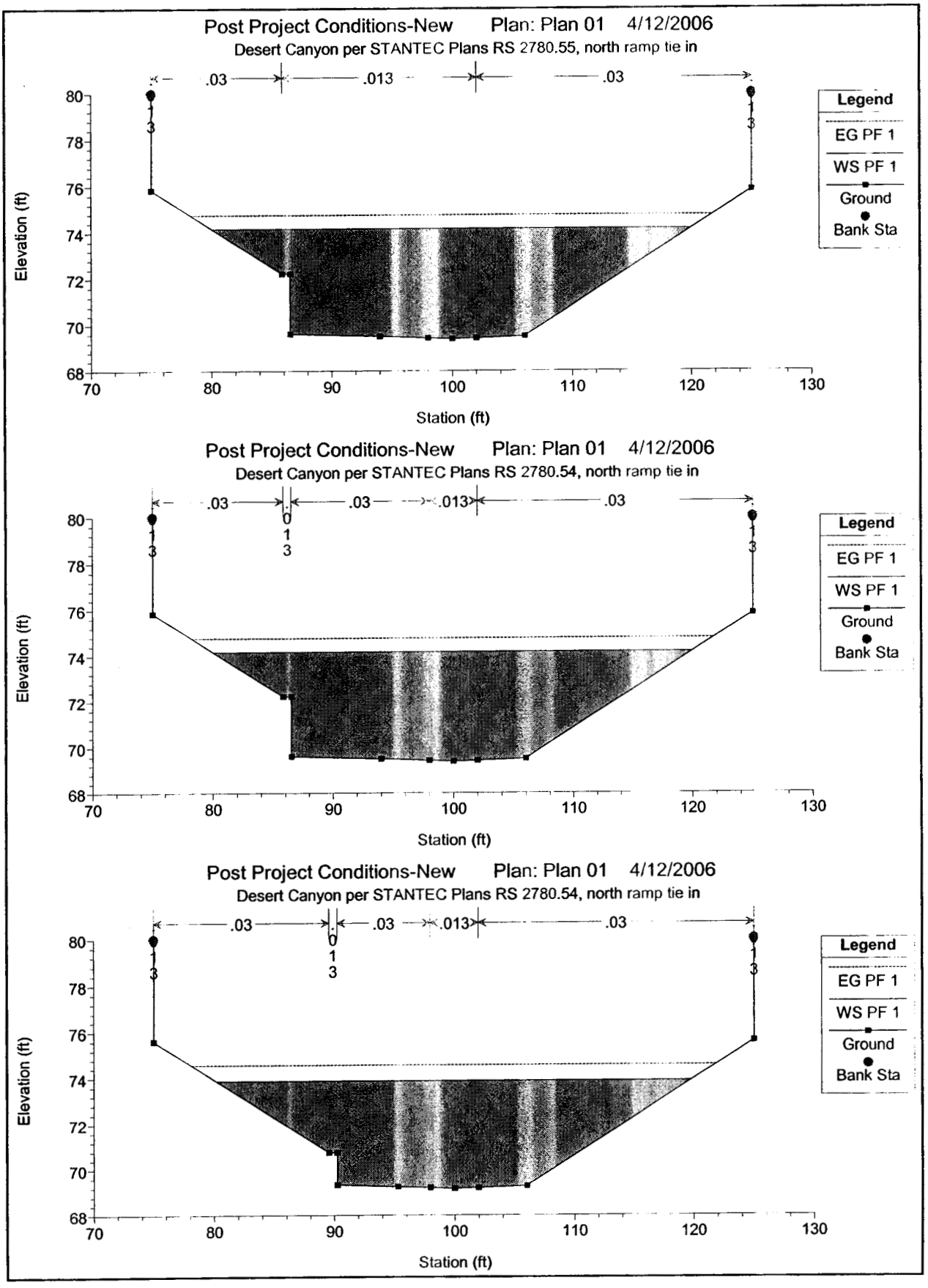

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3060.10
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3044.11, upstream north ramp
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3033.34, North ramp grade bre
.013
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

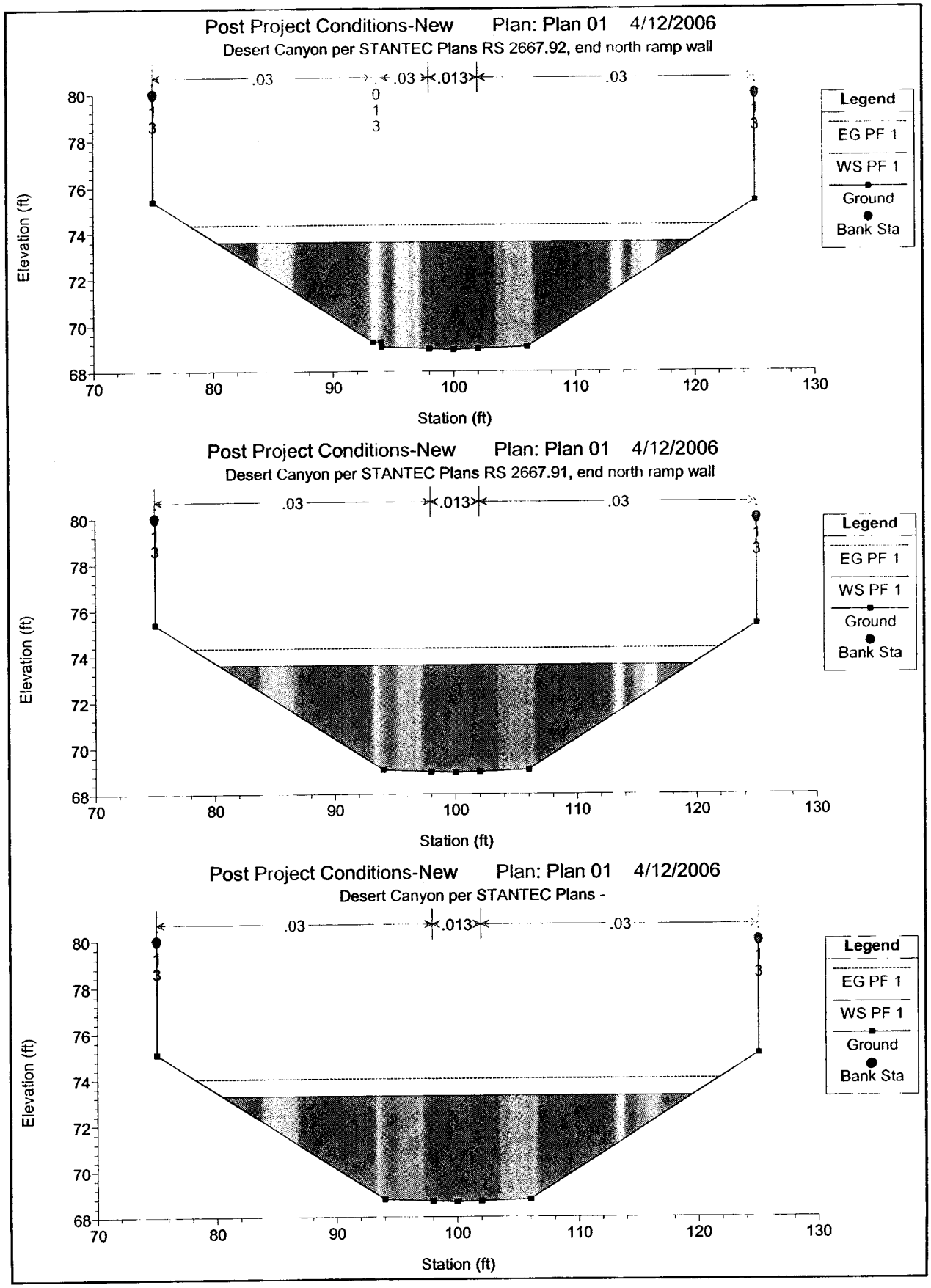

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3018.22, south ramp tie in
.013
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3018.21, south ramp tie in
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3010.22, south ramp tie in
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

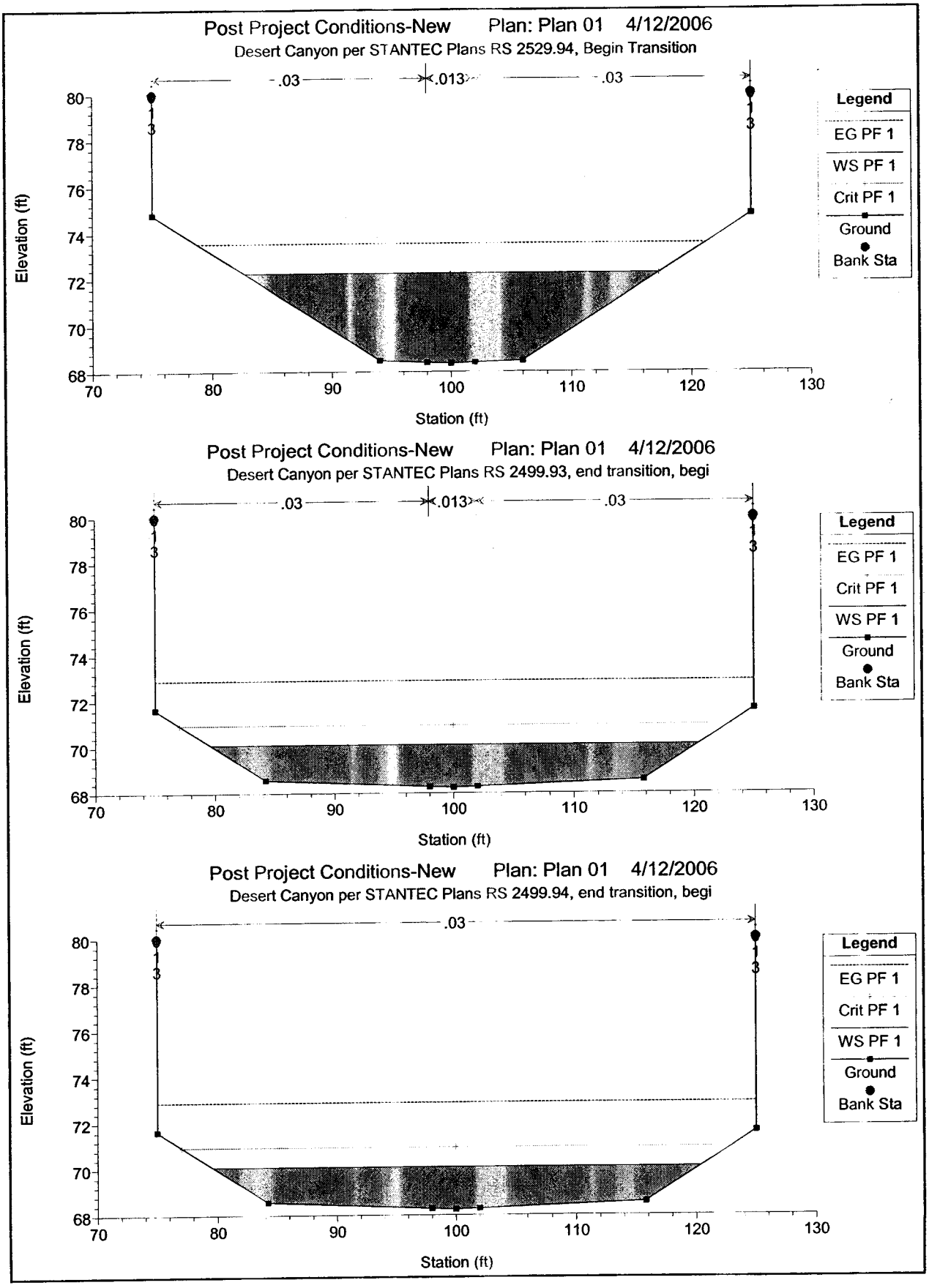

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in
.013
.03
.013
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2943.65, begin north wall nor

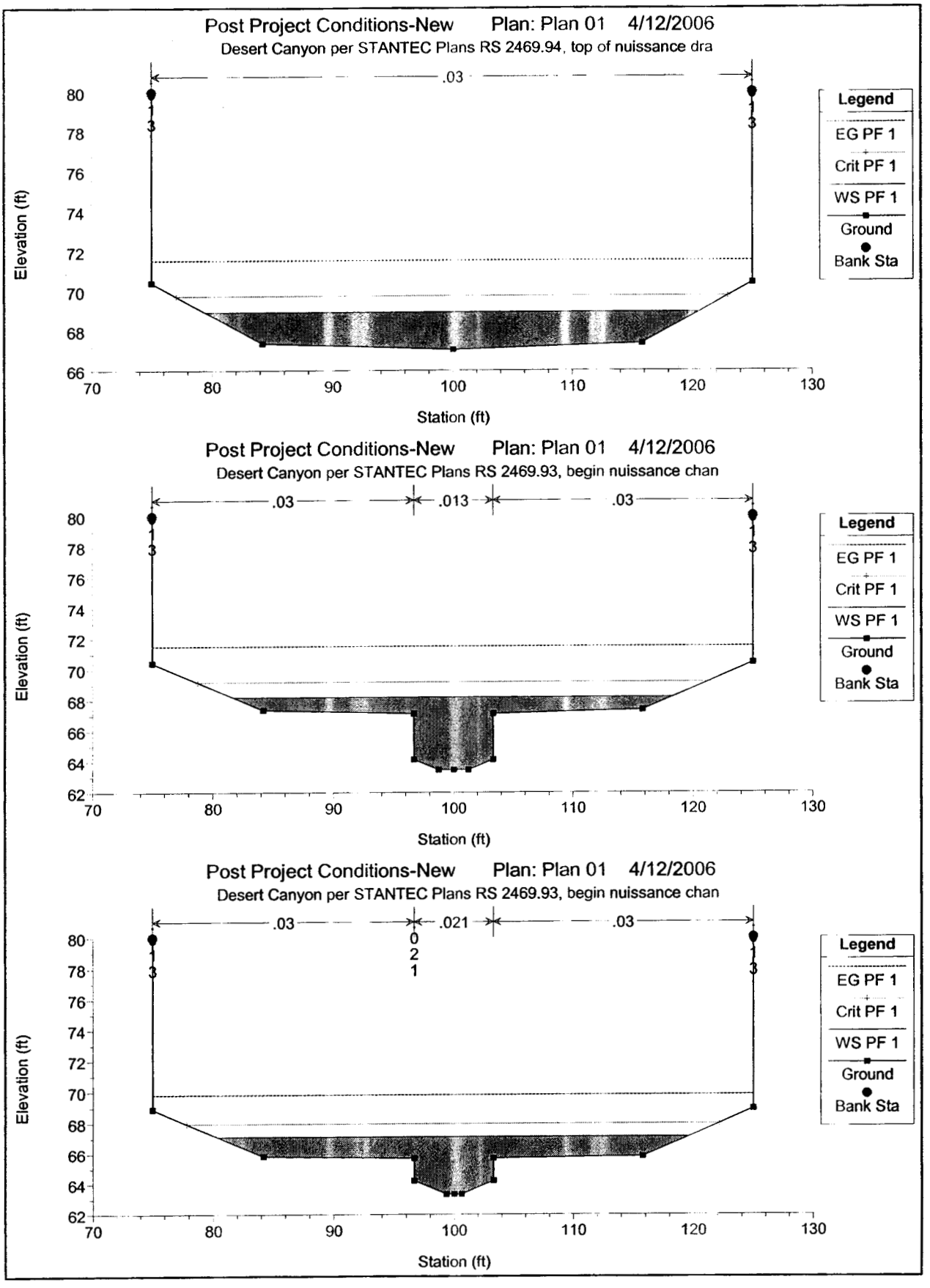

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
.013
.03
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall

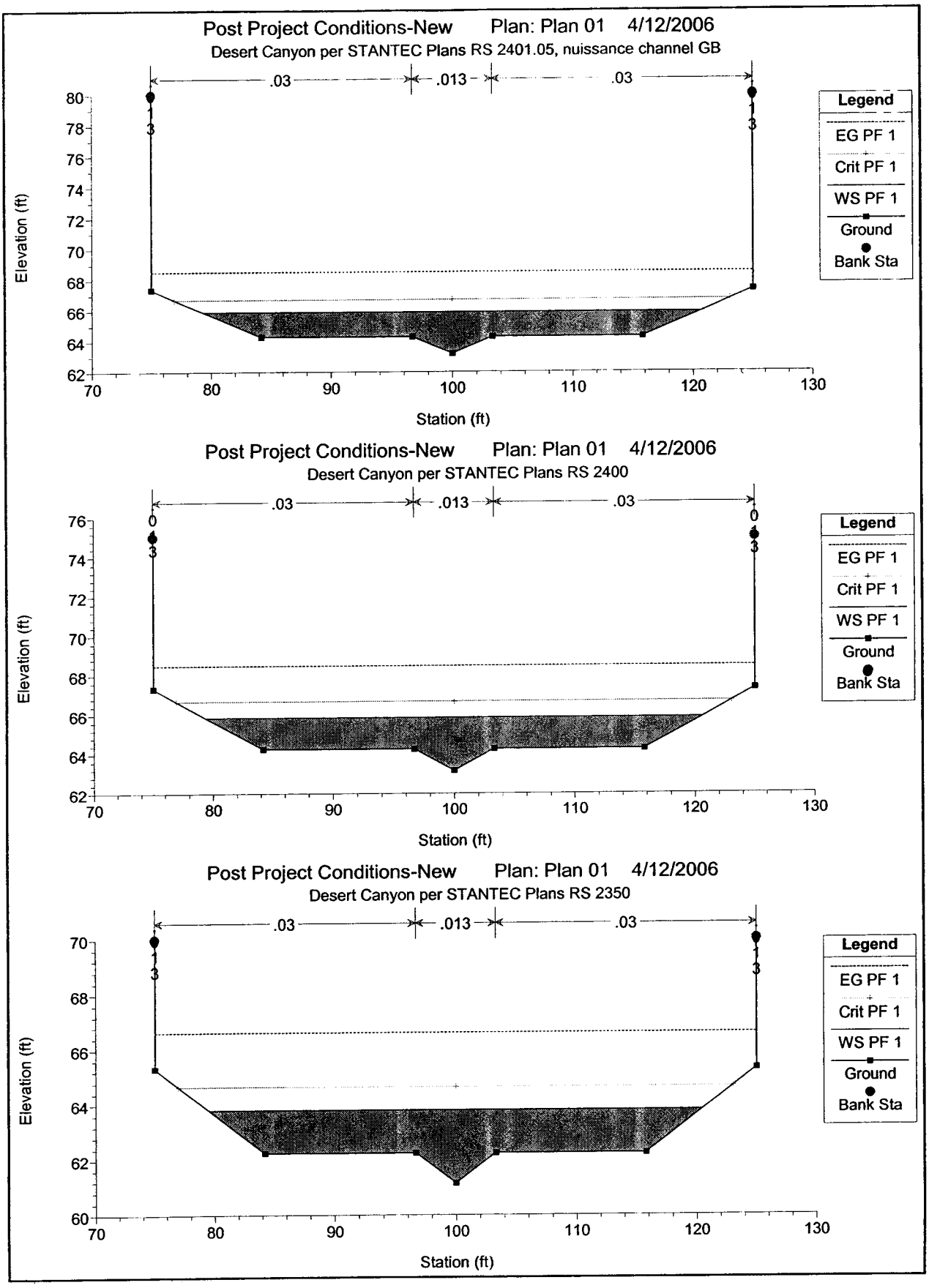

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

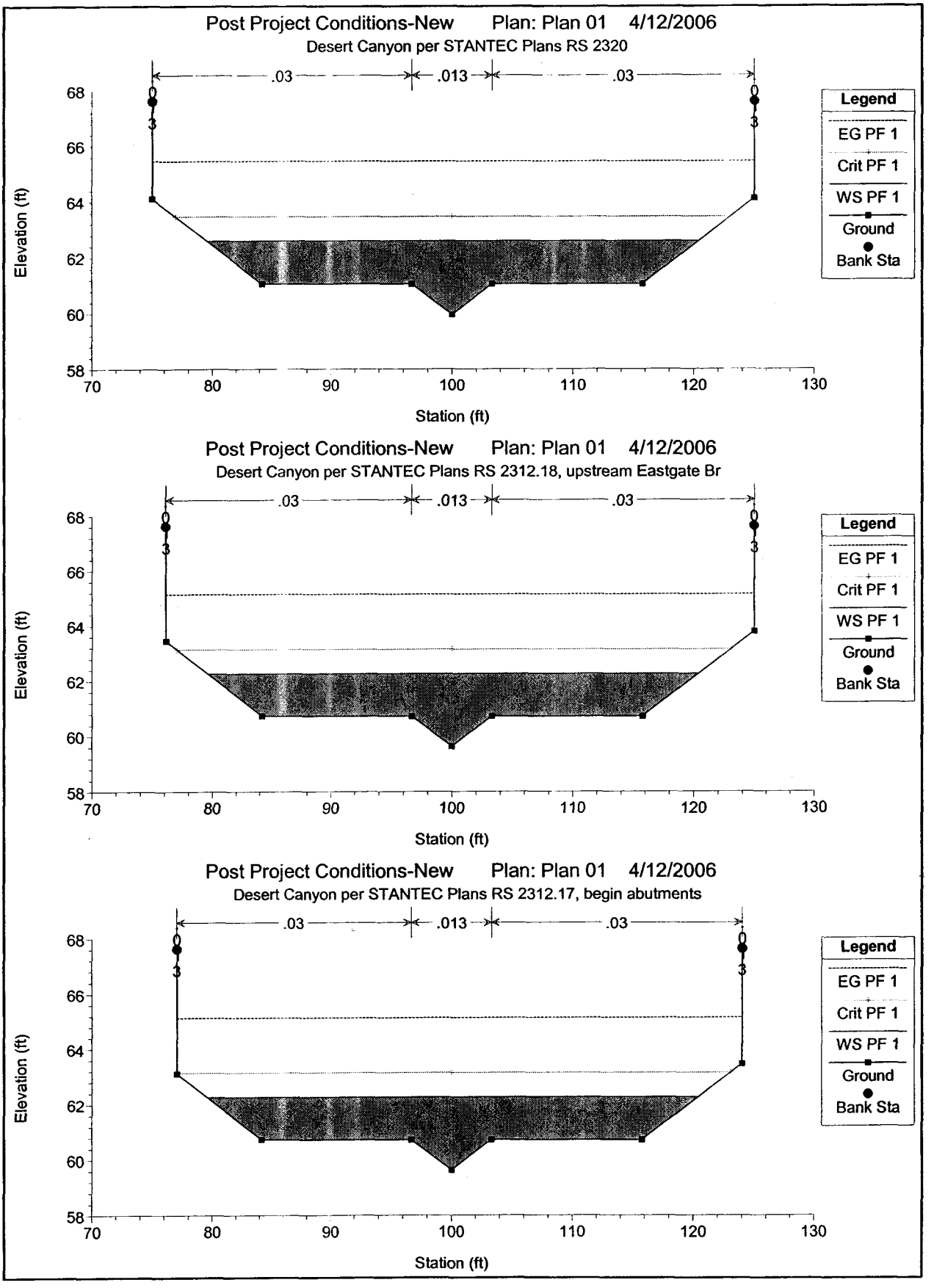

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2780.55, north ramp tie in
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in
.03
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in
.03
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

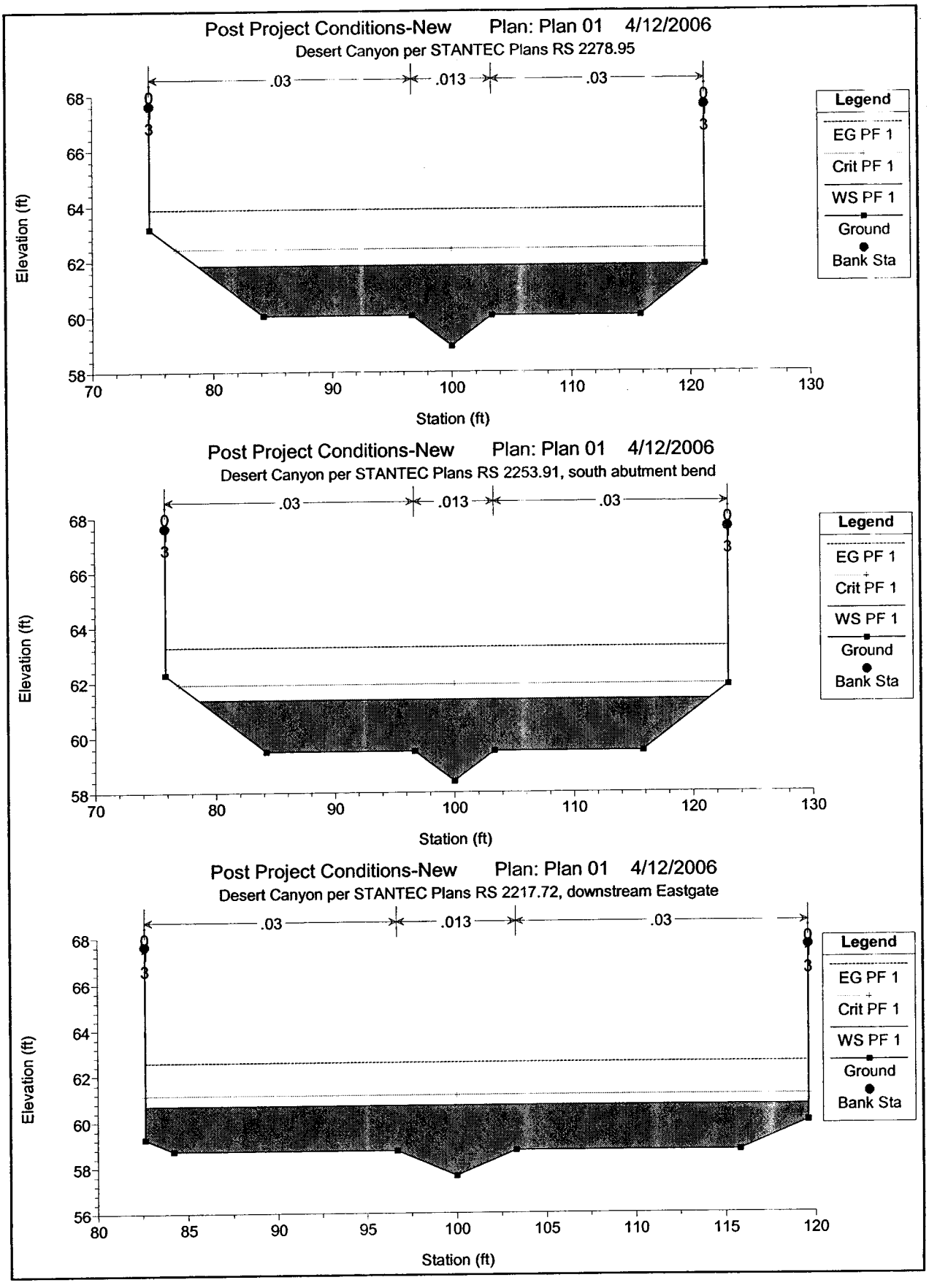

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2667.92, end north ramp wall
.03
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2667.91, end north ramp wall
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

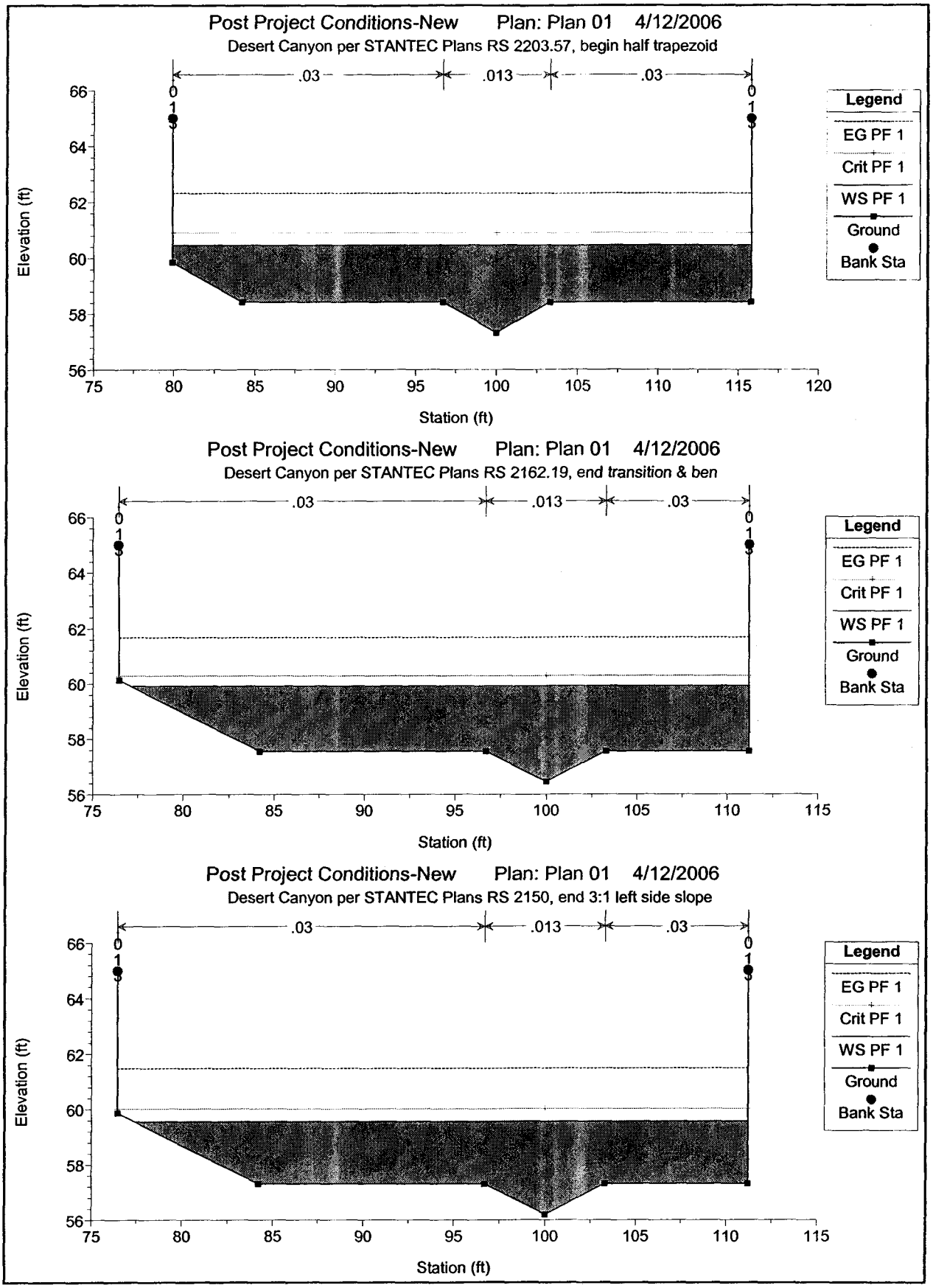

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2529.94, Begin Transition
.03
.013
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2499.93, end transition, begi
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2499.94, end transition, begi
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

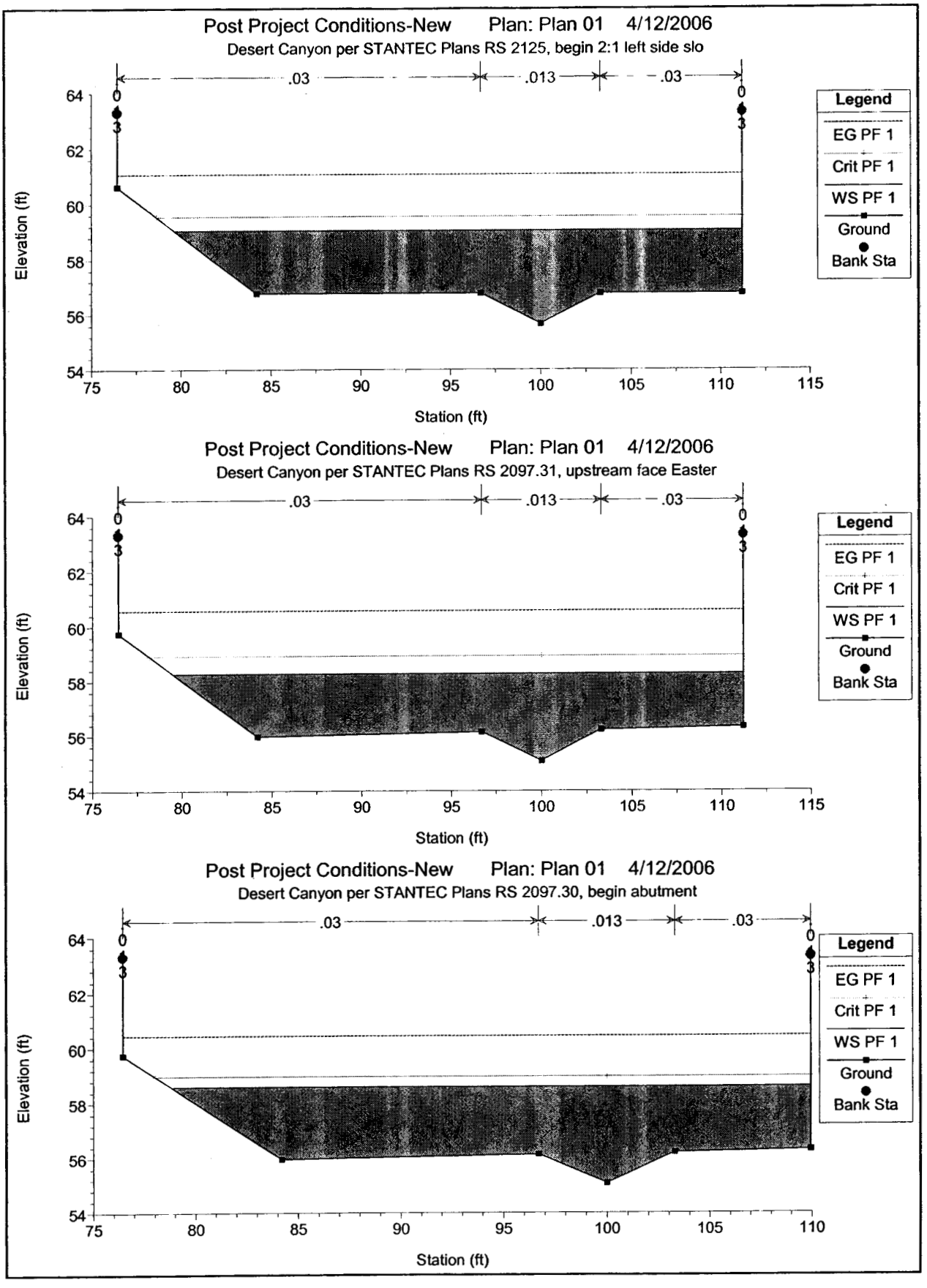

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2469.94, top of nuissance dra
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance chan
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance chan
.03
.021
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

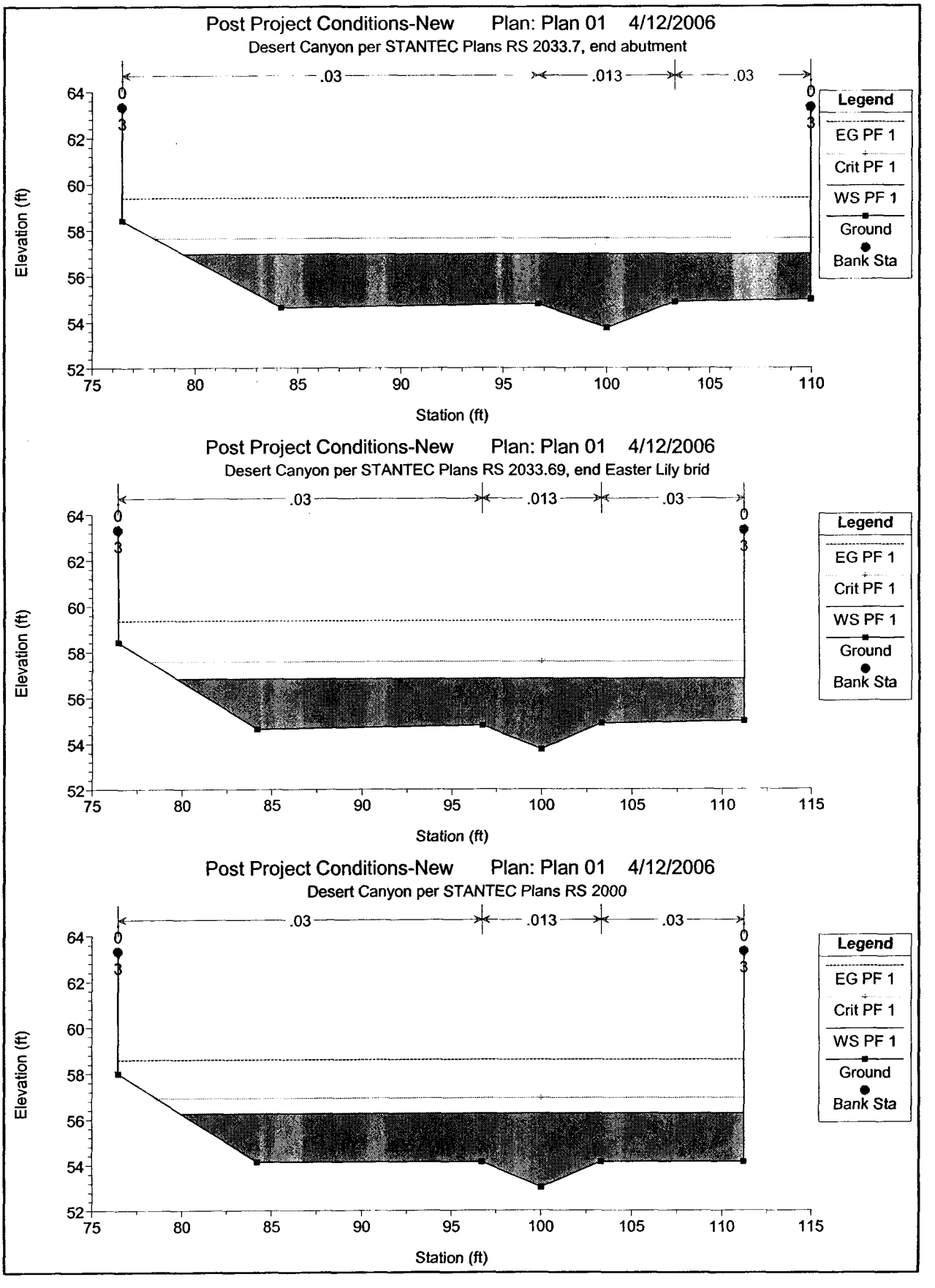

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2401.05, nuissance channel GB
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2400
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2350
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

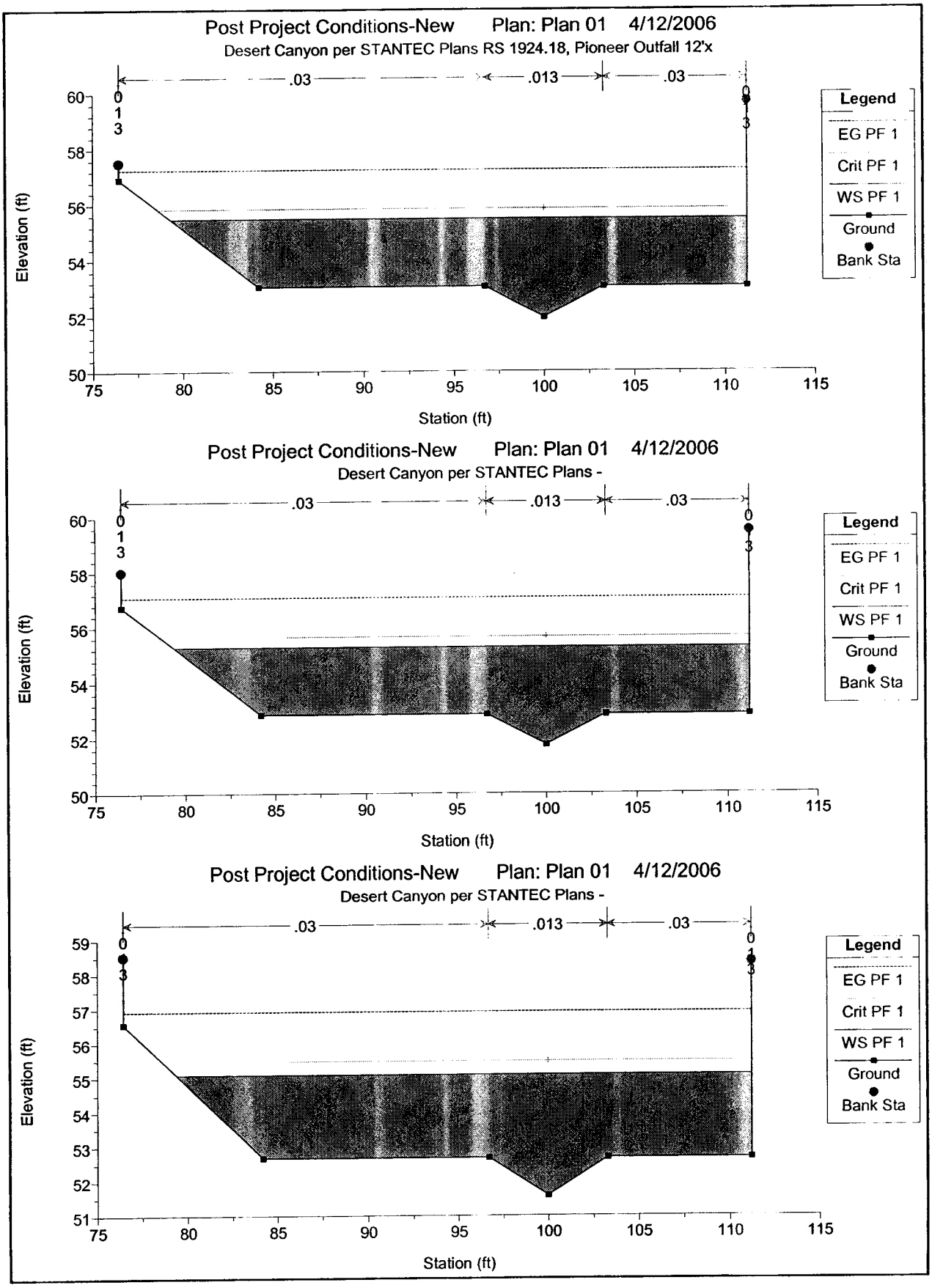

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2320
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2312.18, upstream Eastgate Br
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2312.17, begin abutments
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

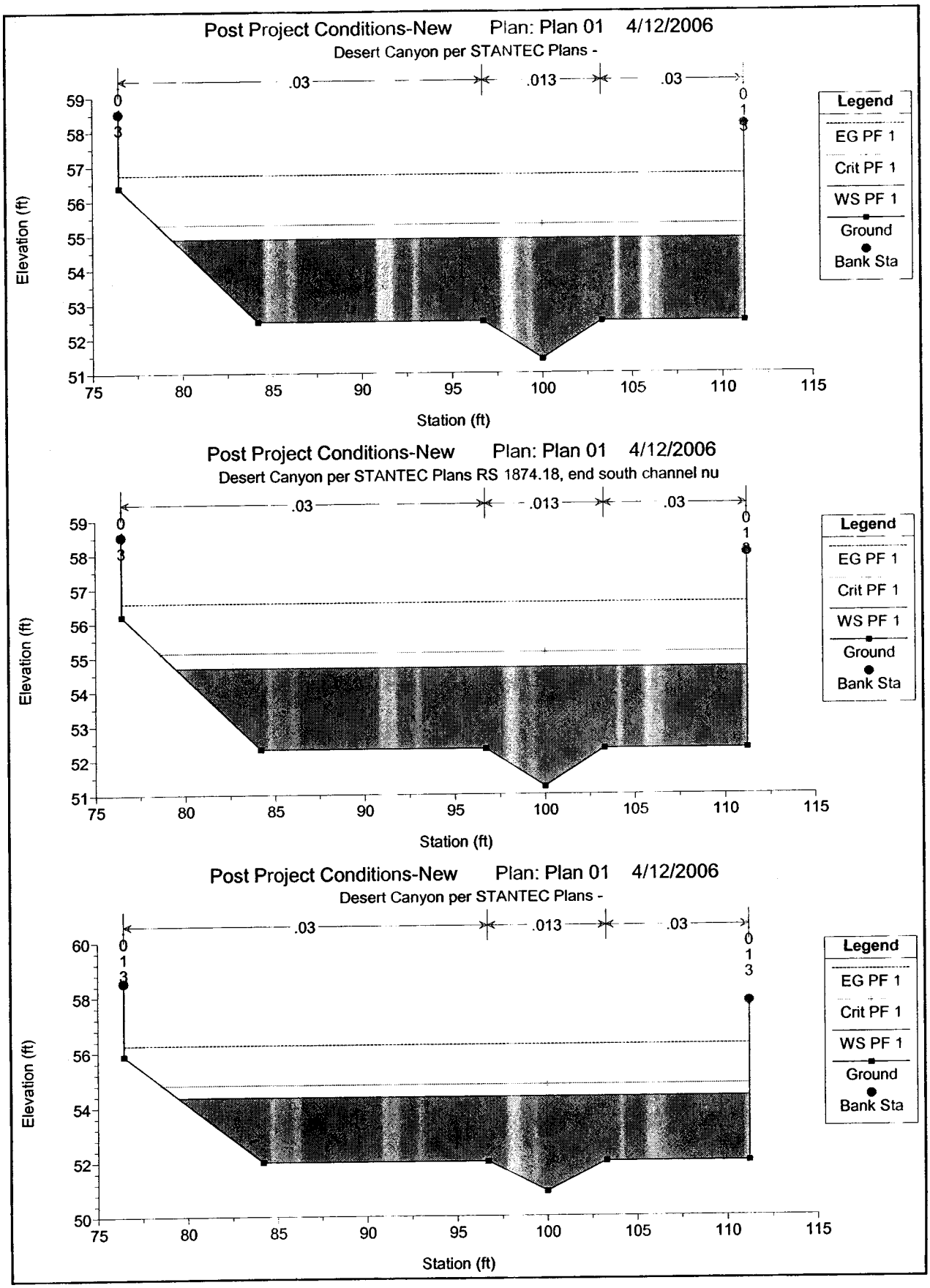

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2278.95
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2253.91, south abutment bend
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2217.72, downstream Eastgate
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

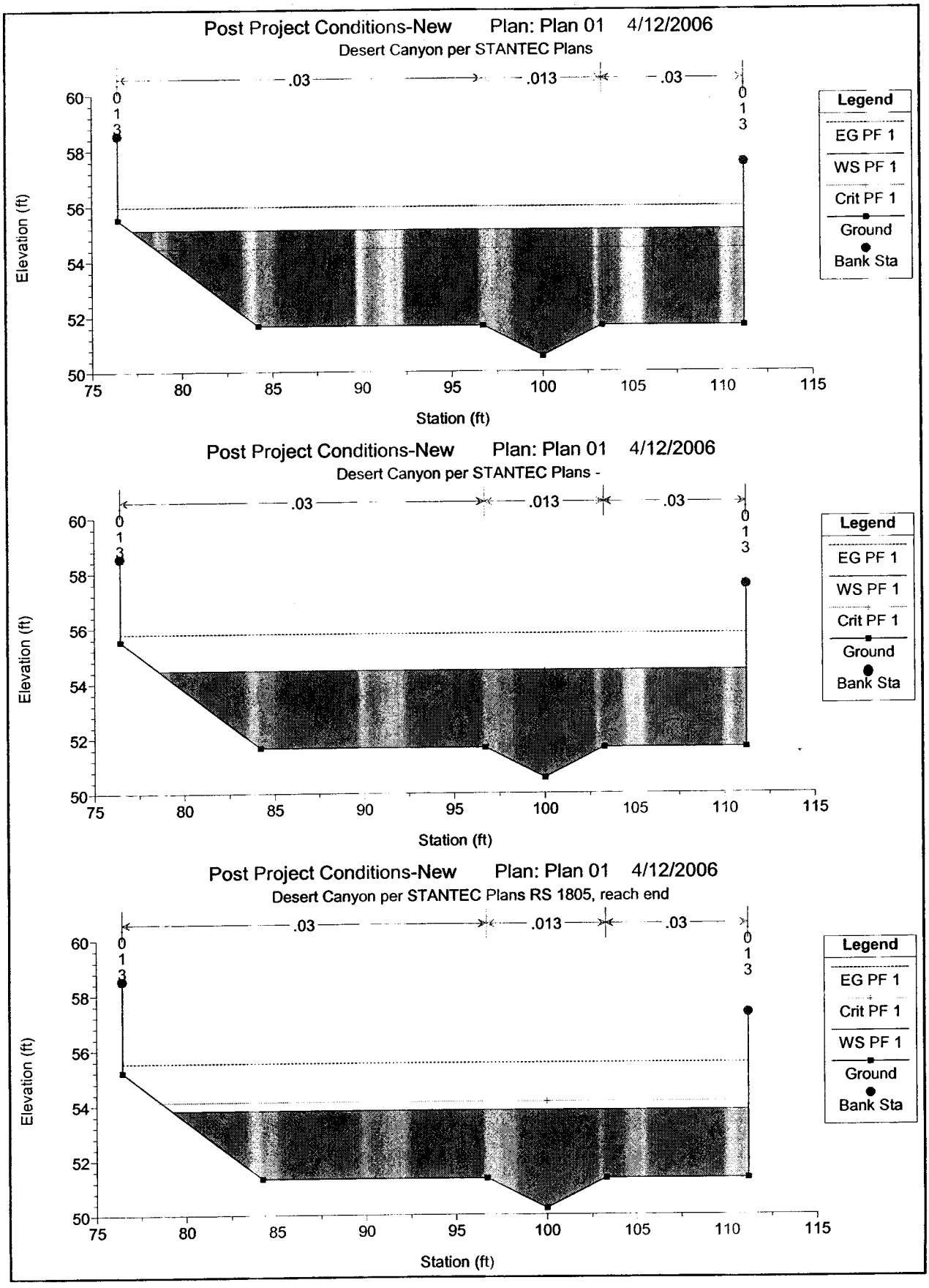

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2203.57, begin half trapezoid
.03
.013
.03
Elevation (ft)
66
64
62
60
58
56
75
80
85
90
95
100
105
110
115
120
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2162.19, end transition & ben
.03
.013
.03
Elevation (ft)
66
64
62
60
58
56
75
80
85
90
95
100
105
110
115
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2150, end 3:1 left side slope
.03
.013
.03
Elevation (ft)
66
64
62
60
58
56
75
80
85
90
95
100
105
110
115
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

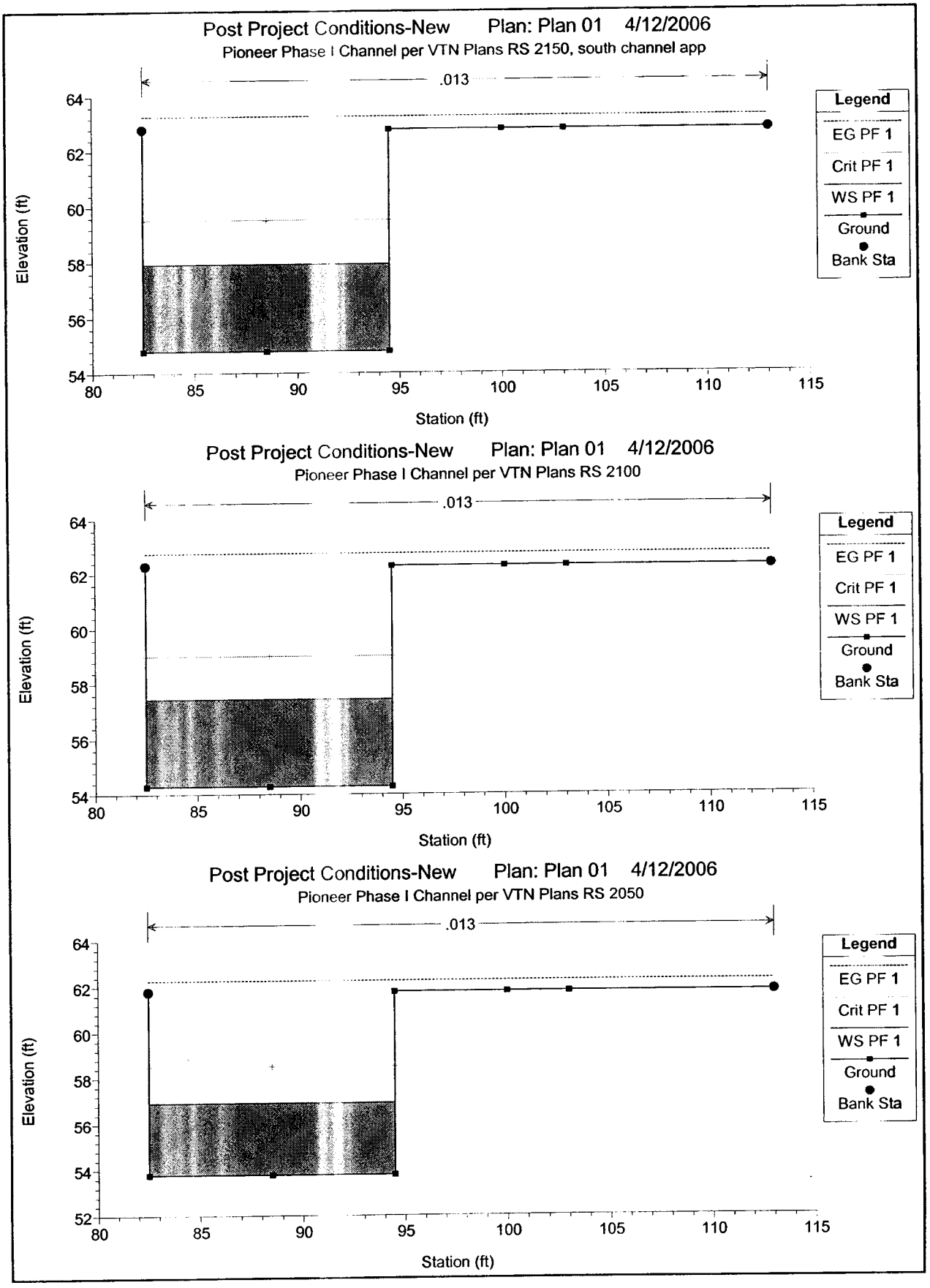

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2125, begin 2:1 left side slo
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2097.31, upstream face Easter
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2097.30, begin abutment
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

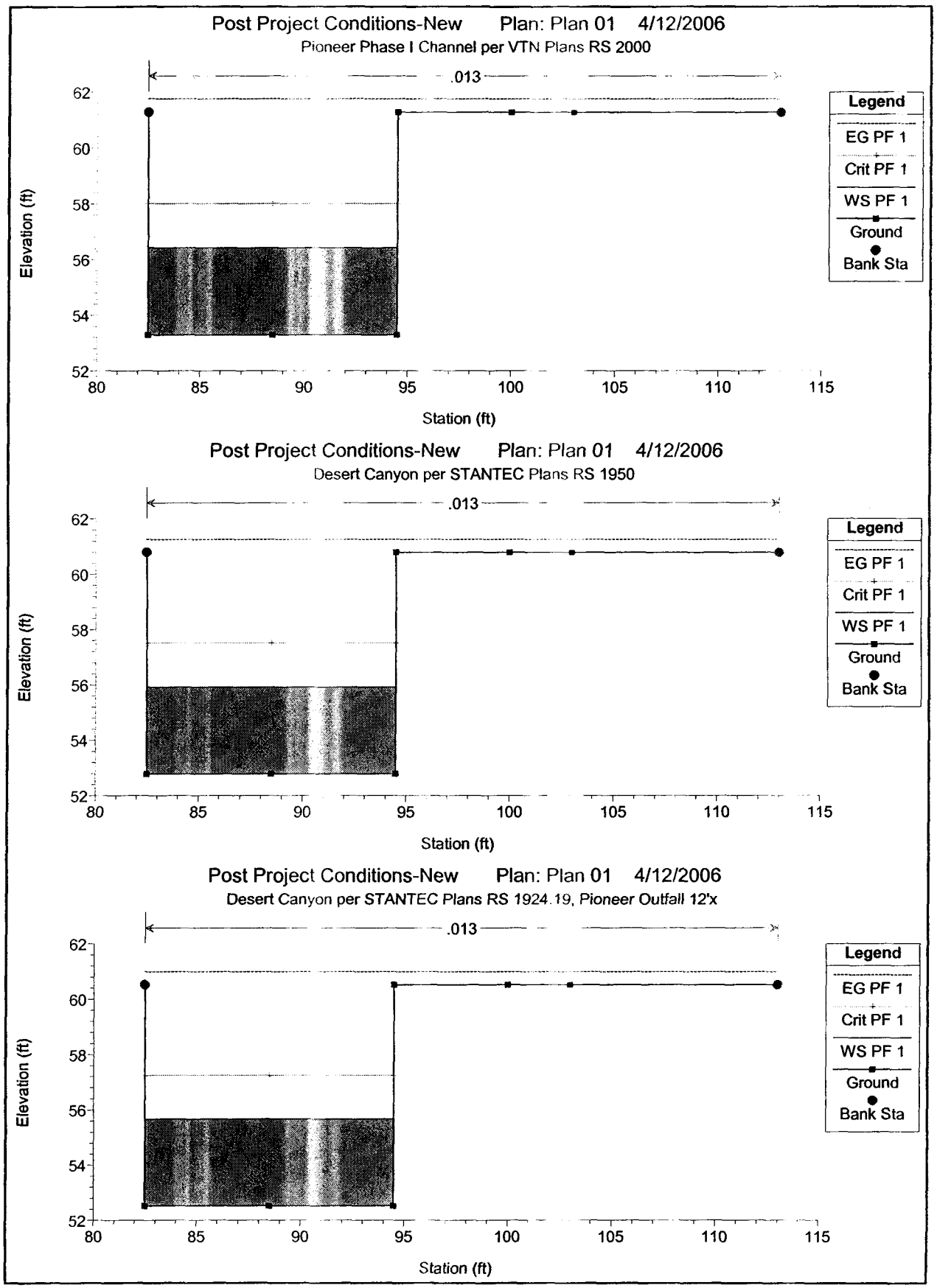

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2033.7, end abutment
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2033.69, end Easter Lily brid
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 2000
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

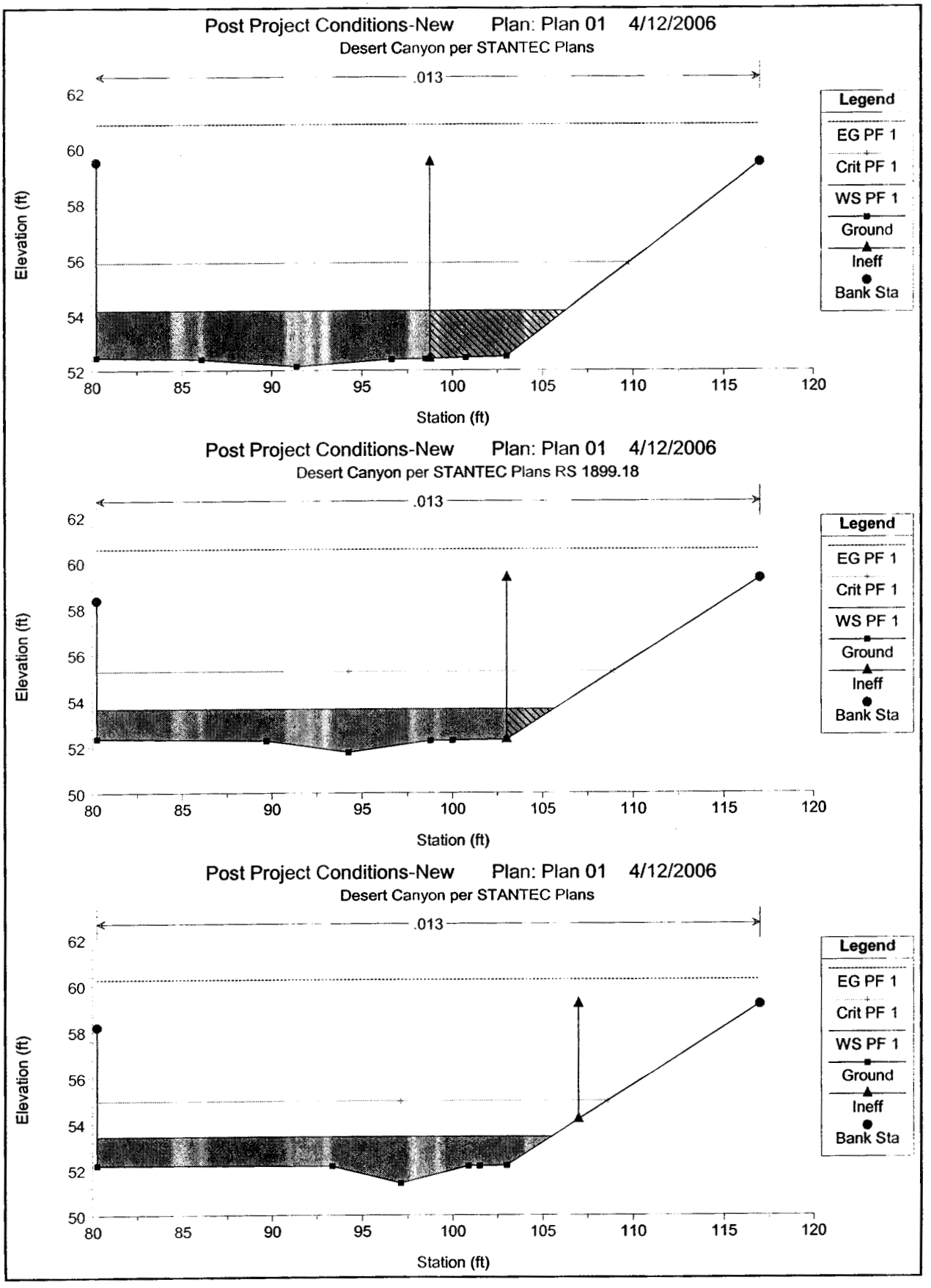

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1924.18, Pioneer Outfall 12'x
.03
.013
.03
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -

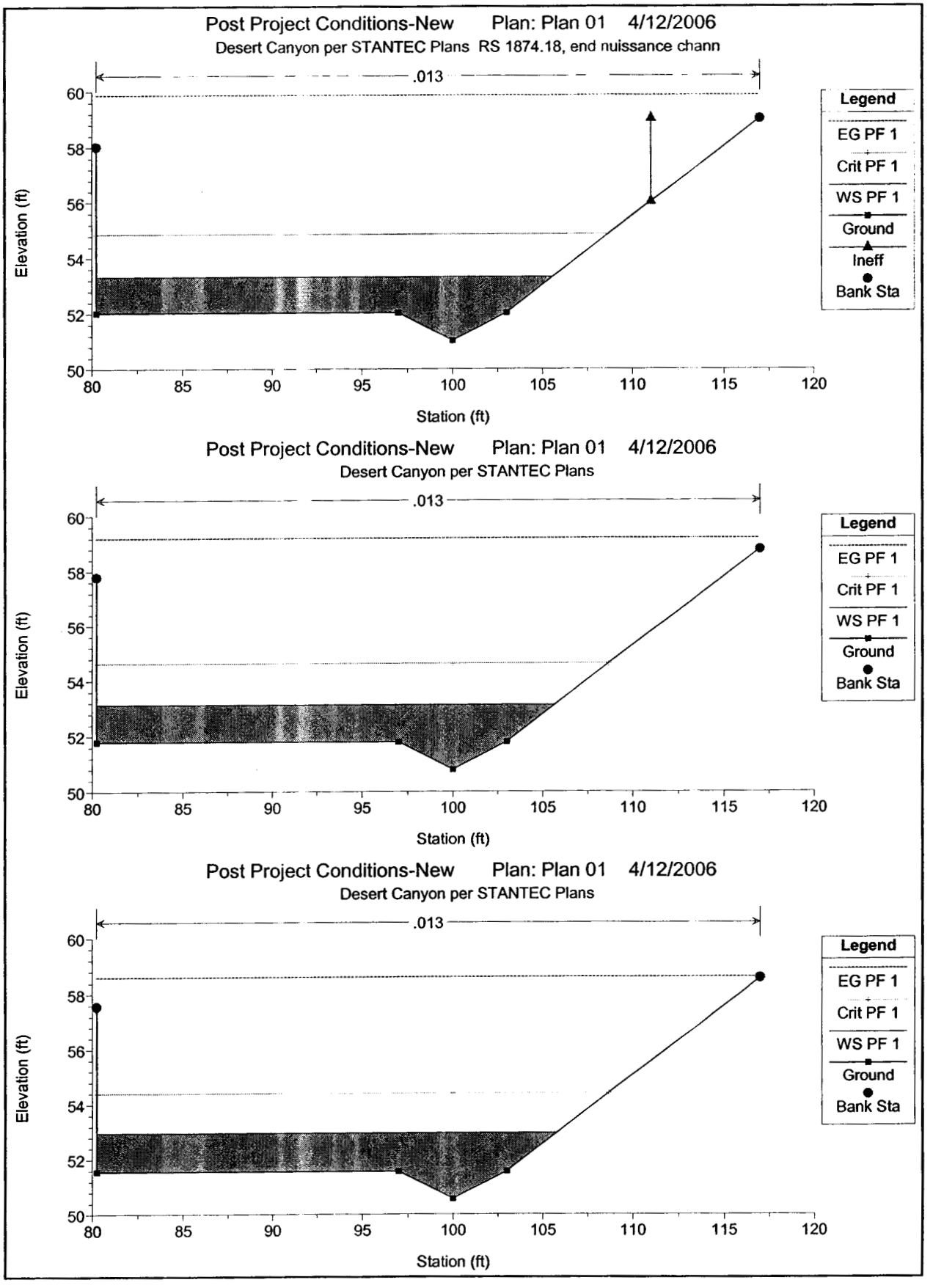

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1874.18, end south channel nu
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

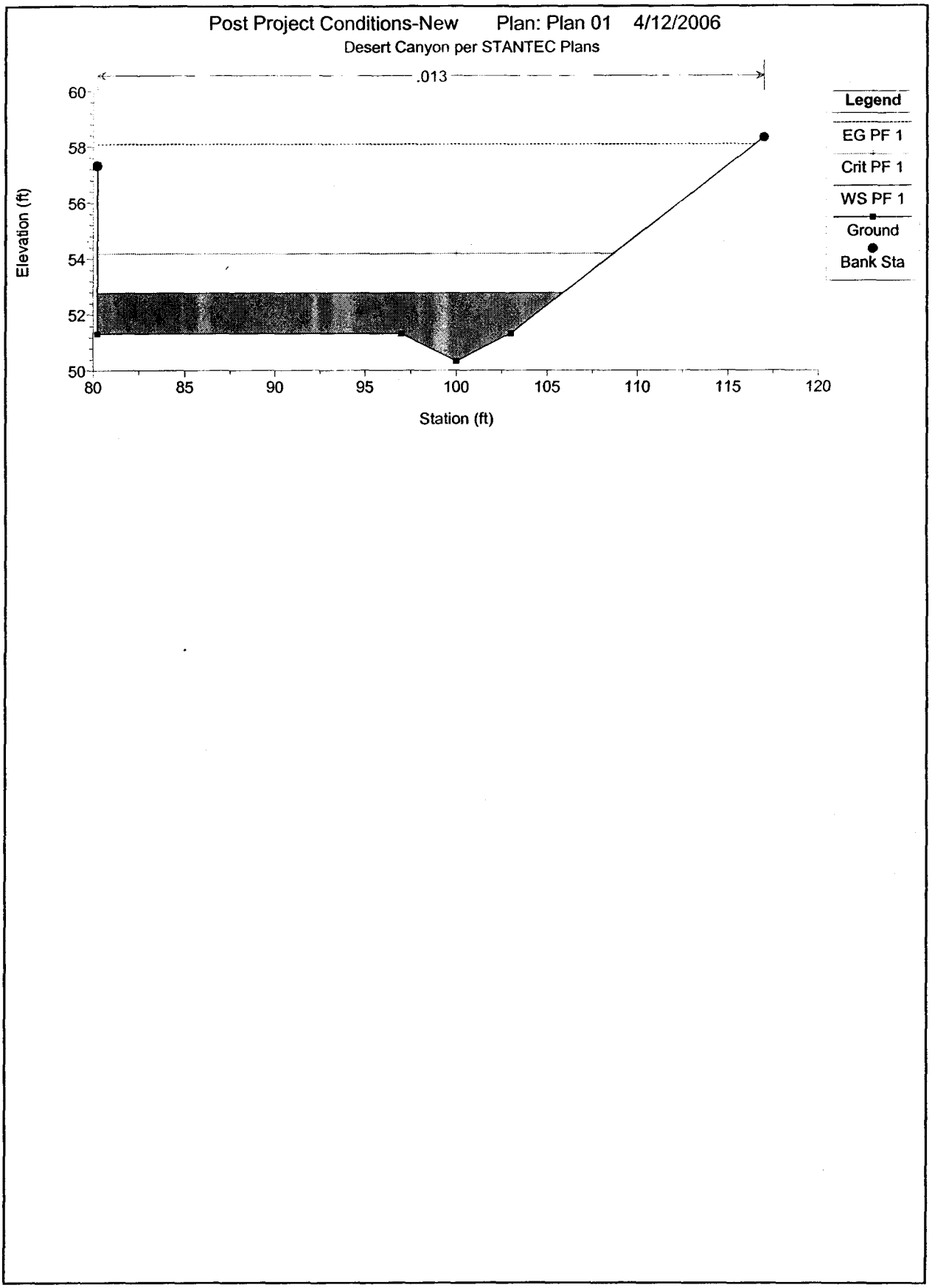

Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
60
58
56
54
52
50
75
80
85
90
95
100
105
110
115
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
60
58
56
54
52
50
75
80
85
90
95
100
105
110
115
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1805, reach end
.03
.013
.03
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
60
58
56
54
52
50
75
80
85
90
95
100
105
110
115
Station (ft)

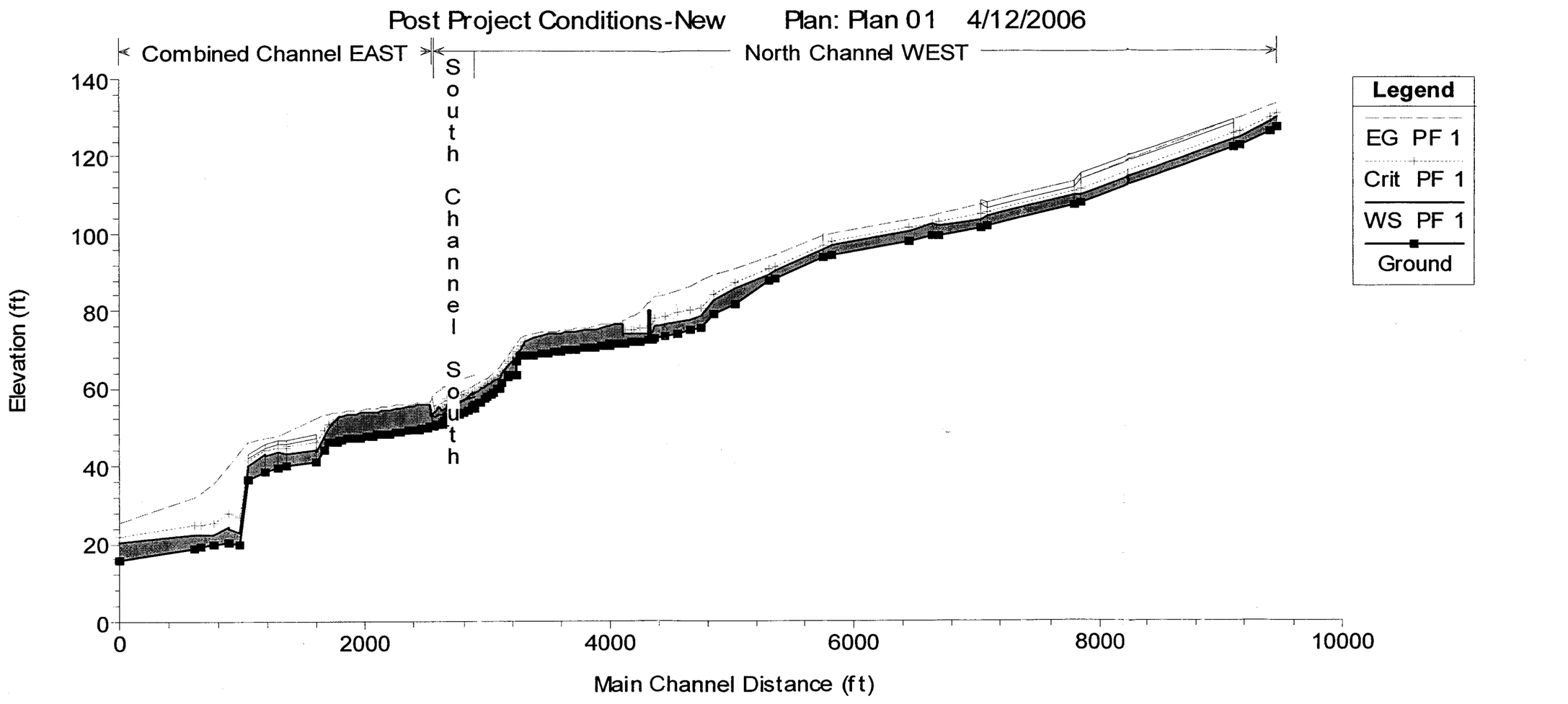

Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase I Channel per VTN Plans RS 2150, south channel app
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase I Channel per VTN Plans RS 2100
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase I Channel per VTN Plans RS 2050
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Post Project Conditions-New Plan: Plan 01 4/12/2006
Pioneer Phase I Channel per VTN Plans RS 2000
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1950
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1924.19, Pioneer Outfall 12'x
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
62
60
58
56
54
52
80
85
90
95
100
105
110
115
120
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1899.18
.013
Elevation (ft)
62
60
58
56
54
52
50
80
85
90
95
100
105
110
115
120
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
62
60
58
56
54
52
50
80
85
90
95
100
105
110
115
120
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta


Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans RS 1874.18, end nuissance chann
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Post Project Conditions-New Plan: Plan 01 4/12/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
60
58
56
54
52
50
80
85
90
95
100
105
110
115
120
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Post Project Conditions-New Plan: Plan 01 4/12/2006
Combined Channel EAST
South Channel South
North Channel WEST
Elevation (ft)
140
120
100
80
60
40
20
0
0
2000
4000
6000
8000
10000
Main Channel Distance (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground

Gibson Channel : Post-Project Conditions
HEC-RAS Plan: post River: Gibson Reach: Channel Profile: PF 1

Reach	Reach	HEC-RAS River Sta.	Cross Section Sta.	Plan Section Sta.	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Hydr Depth
						(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)
South Channel	WEST	18653.05	2+957	Gibson Channel per VTN Plans 10+00	PF 1	705	127.07	129.65	130.68	133.23	0.007003	15.2	46.38	18	1.67	2.58
South Channel	WEST	18603.05	3+007	Gibson Channel per VTN Plans 10+50	PF 1	705	126.35	128.67	129.87	132.78	0.008885	16.27	43.32	18.7	1.88	2.32
South Channel	WEST	18354.06	3+256	Gibson Channel per VTN Plans 12+98.99	PF 1	705	122.77	124.83	126.29	130.04	0.012783	18.31	38.49	18.7	2.25	2.06
South Channel	WEST	18314.47	3+296	Gibson Channel per VTN Plans 13+38.58	PF 1	705	122.2	124.36	125.82	129.45	0.015109	18.09	38.96	18	2.17	2.16
South Channel	WEST	17036.02	4+574	Gibson Channel per VTN Plans 26+17.03	PF 1	705	107.91	110.18	111.41	114.34	0.009181	16.38	43.04	19	1.92	2.27
South Channel	WEST	16991.39	4+624	Gibson Channel per VTN Plans 26+67.03	PF 1	709	107.51	109.88	111.05	113.84	0.008335	15.97	44.4	18.7	1.83	2.37
South Channel	WEST	16271.91	5+338	Gibson Channel per VTN Plans 33+81.14	PF 1	709	101.86	104.29	105.4	108.06	0.007717	15.57	45.53	18.7	1.76	2.43
South Channel	WEST	16221.83	5+388	Gibson Channel per VTN Plans 34+31.22	PF 1	709	101.46	103.7	104.86	107.59	0.010743	15.84	44.76	20	1.87	2.24
South Channel	WEST	15874.83	5+735	Gibson Channel per VTN Plans 37+78.22	PF 1	709	99.56	102.15	102.83	104.79	0.004916	13.04	54.35	21	1.43	2.59
South Channel	WEST	15824.82	5+785	Gibson Channel per VTN Plans 38+28.23	PF 1	807	99.22	102.47	102.7	104.49	0.002929	11.4	70.79	21.8	1.11	3.25
South Channel	WEST	15635.6	5+974	Gibson Channel per VTN Plans 40+17.45	PF 1	807	97.93	100.56	101.41	103.64	0.00557	14.07	57.34	21.8	1.53	2.63
South Channel	WEST	15080.09	6+530	Gibson Channel per VTN Plans 45+72.94	PF 1	807	94.19	96.75	97.67	100	0.006078	14.48	55.74	21.8	1.6	2.56
South Channel	WEST	15015.09	6+595	Gibson Channel per VTN Plans 46+37.97	PF 1	807	93.76	95.69	96.79	99.41	0.012252	15.47	52.17	27	1.96	1.93
North Channel	WEST	14592.55	7+017	Gibson Channel per VTN Plans 50+60	PF 1	807	88.41	90.07	91.29	94.42	0.012544	16.72	48.26	29	2.28	1.66
North Channel	WEST	14542.55	7+068	Gibson Channel per VTN Plans 51+10.50	PF 1	807	87.71	89.36	90.59	93.77	0.012844	16.85	47.91	29	2.31	1.65
North Channel	WEST	14252.5	7+358	Gibson Channel per VTN Plans 54+00.55	PF 1	807	81.74	85.6	87.07	90.73	0.008292	18.18	44.38	11.5	1.63	3.86
North Channel	WEST	14092.97	7+517	Gibson Channel per VTN Plans 55+60.08 - End Gibson CH	PF 1	807	79.1	82.53	84.43	89.04	0.011601	20.49	39.39	11.5	1.95	3.43
North Channel	WEST	13987.91	7+622	Desert Canyon per STANTEC Plans RS 3987.91	PF 1	807	75.56	78.45	80.89	87.59	0.010938	24.27	33.27	11.51	2.51	2.89
North Channel	WEST	13887.91	7+722	Desert Canyon per STANTEC Plans RS 3887.91	PF 1	807	74.86	77.86	80.19	86.38	0.009723	23.42	34.46	11.51	2.38	2.99
North Channel	WEST	13787.91	7+822	Desert Canyon per STANTEC Plans RS 3787.91	PF 1	807	74.16	77.24	79.49	85.31	0.008892	22.8	35.4	11.51	2.29	3.08
North Channel	WEST	13687.91	7+922	Desert Canyon per STANTEC Plans RS 3687.91	PF 1	807	73.46	76.6	78.79	84.36	0.008333	22.36	36.1	11.51	2.22	3.14
North Channel	WEST	13602.91	8+007	Desert Canyon per STANTEC Plans RS 3602.91, begin transition	PF 1	807	72.88	76.11	78.21	83.45	0.010562	21.75	37.11	11.51	2.13	3.22
North Channel	WEST	13582.54	8+027	Desert Canyon per STANTEC Plans -	PF 1	807	72.74	74.55	76.54	83.02	0.023852	23.36	34.55	19.09	3.06	1.81
North Channel	WEST	13562.17	8+048	Desert Canyon per STANTEC Plans RS 3562.17, end transition	PF 1	807	72.59	73.88	75.63	82.44	0.034016	23.48	34.37	26.67	3.64	1.29
North Channel	WEST	13562.16	8+048	Desert Canyon per STANTEC Plans RS 3562.16, RCB inlet	PF 1	807	72.59	74.04	75.85	82.37	0.029059	23.16	34.86	24.01	3.39	1.45
North Channel	WEST	13557.18	8+053	Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic analyisis only)	PF 1	Bridge										
North Channel	WEST	13552.2	8+058	Desert Canyon per STANTEC Plans RS 3552.2, begin existing south cell box	PF 1	807	72.49	73.97	75.75	81.98	0.027303	0.22	35.55	24.01	0.04	1.48
North Channel	WEST	13478.79	8+131	Desert Canyon per STANTEC Plans RS 3478.79, end existing south cell box	PF 1	807	72.15	73.87	75.41	79.8	0.016933	0.19	41.31	24.01	0.04	1.72
North Channel	WEST	13476.6	8+133	Desert Canyon per STANTEC Plans RS 3474.46, RCB PT	PF 1	807	72.14	73.87	75.4	79.75	0.016755	0.19	41.45	24.01	0.04	1.73
North Channel	WEST	13425.61	8+184	Desert Canyon per STANTEC Plans RS 3425.61, RCB PC	PF 1	807	71.97	73.87	75.23	78.75	0.012473	0.17	45.51	24.01	0.03	1.9
North Channel	WEST	13410.61	8+199	Desert Canyon per STANTEC Plans RS 3410.61, RCB PT	PF 1	807	71.92	73.86	75.18	78.51	0.011511	0.17	46.69	24.01	0.03	1.94
North Channel	WEST	13353.48	8+256	Desert Canyon per STANTEC Plans RS 3353.48, RCB PC	PF 1	807	71.73	73.87	75	77.7	0.008501	0.16	51.42	24.01	0.03	2.14
North Channel	WEST	13343.61	8+266	Desert Canyon per STANTEC Plans RS 3343.61, Dual 12'x6' RCB outlet	PF 1	807	71.7	73.88	74.96	77.58	0.008095	15.45	52.23	24.01	1.85	2.17
North Channel	WEST	13343.6	8+266	Desert Canyon per STANTEC Plans RS 3343.6, upstream limit of openspace channel	PF 1	807	71.7	73.59	74.73	77.55	0.008378	15.97	50.52	35.22	2.05	1.89
North Channel	WEST	13333.3	8+277	Desert Canyon per STANTEC Plans -	PF 1	807	71.66	76.44	74.52	76.87	0.000319	5.22	154.45	52.31	0.43	4.5
North Channel	WEST	13323	8+287	Desert Canyon per STANTEC Plans RS 3323, begin 50' channel	PF 1	807	71.62	76.45		76.86	0.000332	5.12	157.64	50.13	0.44	4.19
North Channel	WEST	13307.38	8+303	Desert Canyon per STANTEC Plans -	PF 1	807	71.56	76.55		76.81	0.00023	4.08	197.81	50.13	0.36	3.95
North Channel	WEST	13291.77	8+318	Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance road channel tie in	PF 1	807	71.49	76.58		76.79	0.000174	3.76	214.76	50.13	0.32	4.28
North Channel	WEST	13267.98	8+342	Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance road channel tie in		807	71.4	76.5		76.78	0.000257	4.29	188.01	50.12	0.39	3.75
North Channel	WEST	13244.2	8+366	Desert Canyon per STANTEC Plans RS 3244.2	PF 1	807	71.3	76.28		76.76	0.000507	5.55	145.52	44.48	0.54	3.27
North Channel	WEST	13234.75	8+375	Desert Canyon per STANTEC Plans RS 3234.75, end transition	PF 1	807	71.26	76.06		76.73	0.000765	6.56	122.99	40.16	0.66	3.1
North Channel	WEST	13234.74	8+375	Desert Canyon per STANTEC Plans RS 3234.74, end transition	PF 1	807	71.26	76.06		76.73	0.003702	6.56	122.99	40.16	0.66	3.1
North Channel	WEST	13229.38	8+381	Desert Canyon per STANTEC Plans RS 3229.38, Upstream of south ramp entrance	PF 1	807	71.24	76.01		76.71	0.00359	6.7	120.39	39.99	0.65	3.26
North Channel	WEST	13229.37	8+381	Desert Canyon per STANTEC Plans RS 3229.37, South ramp entrance	PF 1	807	71.24	76.01		76.71	0.003593	6.7	120.37	36.98	0.65	3.26
North Channel	WEST	13221.37	8+389	Desert Canyon per STANTEC Plans RS 3221.37, begin south ramp transition	PF 1	807	71.21	75.98		76.68	0.003627	6.7	120.41	36.98	0.65	3.26
North Channel	WEST	13167.84	8+442	Desert Canyon per STANTEC Plans -	PF 1	807	70.99	75.69		76.47	0.00389	7.09	113.83	33.88	0.68	3.36
North Channel	WEST	13114.31	8+496	Desert Canyon per STANTEC Plans RS 3114.31, begin south wall of south ramp	PF 1	807	70.76	74.99		76.17	0.006399	8.72	92.53	29.57	0.87	3.13
North Channel	WEST	13114.3	8+496	Desert Canyon per STANTEC Plans RS 3114.3, begin south wall of south ramp	PF 1	807	70.76	74.99	74.66	76.17	0.0064	8.72	92.52	29.57	0.87	3.13
North Channel	WEST	13060.1	8+550	Desert Canyon per STANTEC Plans RS 3060.10	PF 1	807	70.54	74.97		75.8	0.003972	7.33	110.03	37.91	0.76	2.9
North Channel	WEST	13044.11	8+566	Desert Canyon per STANTEC Plans RS 3044.11, upstream north ramp entrance	PF 1	807	70.48	74.95		75.73	0.003206	7.06	114.36	38.19	0.7	3.17
North Channel	WEST	13044.1	8+566	Desert Canyon per STANTEC Plans RS 3033.34, North ramp grade break	PF 1	807	70.43	75		75.7	0.002792	6.72	120.09	36.39	0.65	3.3
North Channel	WEST	13018.22	8+592	Desert Canyon per STANTEC Plans RS 3018.22, south ramp tie in	PF 1	807	70.37	75		75.65	0.002438	6.43	125.46	36.59	0.61	3.43
North Channel	WEST	13018.21	8+592	Desert Canyon per STANTEC Plans RS 3018.21, south ramp tie in	PF 1	807	70.37	75		75.65	0.002127	6.43	125.46	36.59	0.61	3.43
North Channel	WEST	13010.22	8+600	Desert Canyon per STANTEC Plans RS 3010.22, south ramp tie in	PF 1	807	70.34	74.98		75.63	0.00222	6.49	124.41	36.58	0.62	3.4
North Channel	WEST	13010.21	8+600	Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in	PF 1	807	70.34	74.97		75.63	0.003177	6.49	124.41	36.58	0.62	3.4
North Channel	WEST	12954.02	8+656	Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in	PF 1	807	70.11	74.66		75.42	0.00403	7	115.28	36.33	0.69	3.17
North Channel	WEST	12943.65	8+666	Desert Canyon per STANTEC Plans RS 2943.65, begin north wall north ramp	PF 1	807	70.07	74.58		75.38	0.004178	7.14	112.97	35.58	0.71	3.18
North Channel	WEST	12906.81	8+703	Desert Canyon per STANTEC Plans -	PF 1	807	69.92	74.4		75.22	0.004344	7.25	111.36	41.05	0.78	2.71
North Channel	WEST	12869.97	8+740	Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall	PF 1	807	69.76	74.32		75.06	0.003316	6.86	117.57	38.81	0.7	3.03
North Channel	WEST	12869.96	8+740	Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall	PF 1	807	69.76	74.32		75.05	0.003374	6.86	117.63	38.81	0.69	3.03
North Channel	WEST	12829.26	8+781	Desert Canyon per STANTEC Plans -	PF 1	807	69.6	74.25		74.91	0.002853	6.5	124.23	39.28	0.64	3.16
North Channel	WEST	12788.55	8+821	Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in	PF 1	807	69.43	74.2		74.78	0.002382	6.12	131.84	39.96	0.59	3.3
North Channel	WEST	12788.54	8+821	Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in	PF 1	807	69.43	74.2		74.78	0.002108	6.12	131.84	39.96	0.59	3.3
North Channel	WEST	12780.55	8+829	Desert Canyon per STANTEC Plans RS 2780.55, north ramp tie in	PF 1	807	69.4	74.17		74.76	0.002216	6.18	130.49	39.95	0.6	3.27
North Channel	WEST	12780.54	8+829	Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in	PF 1	807	69.4	74.17		74.76	0.003054	6.18	130.49	39.95	0.6	3.27
North Channel	WEST	12724.23	8+886	Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in	PF 1	807	69.17	73.87		74.56	0.00383	6.66	121.2	39.55	0.67	3.06
North Channel	WEST	12667.92	8+942	Desert Canyon per STANTEC Plans RS 2667.92, end north ramp wall	PF 1	807	68.94	73.58		74.32	0.004269	6.91	116.71	39.21	0.71	2.98
North Channel	WEST	12667.91	8+942	Desert Canyon per STANTEC Plans RS 2667.91, end north ramp wall	PF 1	807	68.94	73.58		74.32	0.004331	6.91	116.77	39.21	0.71	2.98
North Channel	WEST	12598.93	9+011	Desert Canyon per STANTEC Plans -	PF 1	807	68.65	73.26		74.02	0.004475	7	115.31	38.96	0.72	2.96
North Channel	WEST	12529.94	9+080	Desert Canyon per STANTEC Plans RS 2529.94, Begin Transition	PF 1	807	68.37	72.24	72.24	73.54	0.009136	9.14	88.33	34.58	1.01	2.55
North Channel	WEST	12499.95	9+110	Desert Canyon per STANTEC Plans RS 2499.93, end transition, begin 30' turn around pad	PF 1	807	68.25	70.08	70.95	72.88	0.040452	13.43	60.07	40.72	1.95	1.48
North Channel	WEST	12499.94	9+110	Desert Canyon per STANTEC Plans RS 2499.94, end transition, begin 30' turn around pad	PF 1	807	68.25	70.08	70.95	72.88	0.044517	13.43	60.08	40.72	1.95	1.48

North Channel	WEST	12469.94	9+140	Desert Canyon per STANTEC Plans RS 2469.94, top of nuissance drain headwall, end turn around pad	PF 1	807	67.05	68.94	69.75	71.55	0.039976	12.96	62.26	41.07	1.86	1.52
North Channel	WEST	12469.93	9+140	Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance channel, begin nuissance	PF 1	807	63.47	68.19	69.17	71.49	0.048706	14.58	55.35	36.52	2.09	1.52
North Channel	WEST	12435.49	9+174	Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance channel, begin nuissance	PF 1	807	63.33	67.12	67.96	69.81	0.039227	13.15	61.36	39.33	1.86	1.56
North Channel	WEST	12401.05	9+209	Desert Canyon per STANTEC Plans RS 2401.05, nuissance channel GB, end nuissance channel transition	PF 1	807	63.19	65.9	66.71	68.52	0.034688	13	62.09	41.22	1.87	1.51
North Channel	WEST	12400	9+210	Desert Canyon per STANTEC Plans RS 2400	PF 1	807	63.15	65.86	66.67	68.48	0.034598	12.99	62.15	41.23	1.86	1.51
North Channel	WEST	12350	9+260	Desert Canyon per STANTEC Plans RS 2350	PF 1	807	61.15	63.8	64.67	66.63	0.03879	13.49	59.82	40.89	1.97	1.46
North Channel	WEST	12320	9+290	Desert Canyon per STANTEC Plans RS 2320	PF 1	807	59.95	62.59	63.47	65.45	0.039406	13.56	59.5	40.85	1.98	1.46
North Channel	WEST	12312.18	9+298	Desert Canyon per STANTEC Plans RS 2312.18, upstream Eastgate Bridge face	PF 1	807	59.62	62.26	63.14	65.14	0.039827	13.62	59.27	40.78	1.99	1.45
North Channel	WEST	12312.17	9+298	Desert Canyon per STANTEC Plans RS 2312.17, begin abutments	PF 1	807	59.62	62.26	63.14	65.14	0.039922	13.62	59.26	40.82	1.99	1.45
North Channel	WEST	12278.95	9+331	Desert Canyon per STANTEC Plans RS 2278.95	PF 1	807	58.92	61.82	62.43	63.87	0.023892	11.48	70.3	42.32	1.57	1.66
North Channel	WEST	12253.91	9+356	Desert Canyon per STANTEC Plans RS 2253.91, south abutment bend	PF 1	807	58.39	61.35	61.91	63.26	0.02167	11.1	72.72	42.75	1.5	1.7
North Channel	WEST	12217.72	9+392	Desert Canyon per STANTEC Plans RS 2217.72, downstream Eastgate Bridge	PF 1	807	57.62	60.68	61.14	62.56	0.01714	10.99	73.42	36.98	1.37	1.99
North Channel	WEST	12203.57	9+406	Desert Canyon per STANTEC Plans RS 2203.57, begin half trapezoidal channel	PF 1	807	57.32	60.45	60.91	62.33	0.016469	11	73.39	35.89	1.36	2.04
North Channel	WEST	12162.19	9+448	Desert Canyon per STANTEC Plans RS 2162.19, end transition & bend	PF 1	807	56.45	59.91	60.27	61.67	0.013742	10.64	75.81	34.1	1.26	2.22
North Channel	WEST	12150	9+460	Desert Canyon per STANTEC Plans RS 2150, end 3:1 left side slope	PF 1	807	56.19	59.56	60.01	61.48	0.015683	11.12	72.55	33.81	1.34	2.15
North Channel	WEST	12125	9+485	Desert Canyon per STANTEC Plans RS 2125, begin 2:1 left side slope	PF 1	807	55.66	59.05	59.54	61.07	0.015568	11.42	70.69	31.58	1.34	2.24
North Channel	WEST	12097.31	9+513	Desert Canyon per STANTEC Plans RS 2097.31, upstream face Easter Lily	PF 1	807	55.08	58.27	58.91	60.57	0.019361	12.18	66.24	31.71	1.49	2.09
North Channel	WEST	12097.3	9+513	Desert Canyon per STANTEC Plans RS 2097.30, begin abutment	PF 1	807	55.08	58.6	58.98	60.44	0.013054	10.88	74.15	31.15	1.24	2.38
North Channel	WEST	12033.7	9+576	Desert Canyon per STANTEC Plans RS 2033.7, end abutment	PF 1	807	53.74	56.95	57.64	59.38	0.019874	12.49	64.61	30.52	1.51	2.12
North Channel	WEST	12033.69	9+576	Desert Canyon per STANTEC Plans RS 2033.69, end Easter Lily bridge	PF 1	807	53.74	56.83	57.57	59.36	0.022364	12.77	63.21	31.52	1.59	2.01
North Channel	WEST	12000	9+610	Desert Canyon per STANTEC Plans RS 2000	PF 1	807	53.02	56.25	56.92	58.59	0.019481	12.28	65.71	31.26	1.49	2.1
North Channel	WEST	11924.18	9+686	Desert Canyon per STANTEC Plans RS 1924.18, Pioneer Outfall 12'x8' RCB Outlet (South Channel)	PF 1	807	51.94	55.49	55.84	57.25	0.012531	10.64	75.88	31.9	1.22	2.38
North Channel	WEST	11911.68	9+698	Desert Canyon per STANTEC Plans -	PF 1	807	51.76	55.28	55.66	57.09	0.013077	10.78	74.83	31.84	1.24	2.35
North Channel	WEST	11899.18	9+711	Desert Canyon per STANTEC Plans -	PF 1	807	51.58	55.08	55.48	56.92	0.013451	10.88	74.14	31.8	1.26	2.33
North Channel	WEST	11886.68	9+723	Desert Canyon per STANTEC Plans -	PF 1	807	51.4	54.88	55.3	56.75	0.013738	10.96	73.63	31.76	1.27	2.32
North Channel	WEST	11874.18	9+736	Desert Canyon per STANTEC Plans RS 1874.18, end south channel nuissance channel transition	PF 1	807	51.22	54.69	55.12	56.58	0.013966	11.02	73.24	31.74	1.28	2.31
North Channel	WEST	11851.12	9+759	Desert Canyon per STANTEC Plans -	PF 1	807	50.89	54.35	54.79	56.25	0.014206	11.08	72.83	31.71	1.29	2.3
North Channel	WEST	11828.06	9+782	Desert Canyon per STANTEC Plans	PF 1	807	50.56	55.12	54.46	55.97	0.004177	7.39	109.2	33.94	0.73	3.22
North Channel	WEST	11826.06	9+784	Desert Canyon per STANTEC Plans -	PF 1	807	50.56	54.46	54.46	55.79	0.008255	9.27	87.06	32.61	1	2.67
North Channel	WEST	11805	9+805	Desert Canyon per STANTEC Plans RS 1805, reach end	PF 1	807	50.23	53.8	54.13	55.53	0.012256	10.56	76.45	31.95	1.2	2.39
Combined Channel	EAST	11800	9+810	Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin	PF 1	1850	50.18	53.13	54.46	57.71	0.043619	17.16	107.78	58.39	2.23	1.85
Combined Channel	EAST	11799.99	9+810	Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin	PF 1	1850	50.18	53.13	54.47	57.71	0.03039	17.16	107.78	58.39	2.23	1.85
Combined Channel	EAST	11790	9+820	Desert Canyon per STANTEC Plans RS 1790	PF 1	1850	50.08	52.99	54.23	57.26	0.042099	16.57	111.64	61.6	2.17	1.81
Combined Channel	EAST	11769.13	9+841	Desert Canyon per STANTEC Plans RS 1769.13	PF 1	1850	50	55.75	53.94	56.22	0.001582	5.52	335.38	78.77	0.47	4.26
Combined Channel	EAST	11751.44	9+859	Desert Canyon per STANTEC Plans RS 1751.44	PF 1	1850	49.92	55.79		56.17	0.001198	4.95	373.89	84.97	0.42	4.4
Combined Channel	EAST	11739.7	9+870	Desert Canyon per STANTEC Plans RS 1739.7, begin nuissance channel merge	PF 1	1850	49.87	55.81		56.14	0.00106	4.65	398.08	89.06	0.39	4.47
Combined Channel	EAST	11732.13	9+878	Desert Canyon per STANTEC Plans RS 1732.13	PF 1	1850	49.76	55.82		56.13	0.001014	4.48	413.28	91.7	0.37	4.51
Combined Channel	EAST	11720	9+890	Desert Canyon per STANTEC Plans RS 1720, end transition	PF 1	1850	49.58	55.83		56.11	0.000918	4.24	436.33	95.36	0.35	4.58
Combined Channel	EAST	11712.87	9+897	Desert Canyon per STANTEC Plans RS 1712.87, end nuissance channel merge	PF 1	1850	49.47	55.82		56.1	0.000901	4.22	438.81	95.41	0.35	4.6
Combined Channel	EAST	11689.21	9+921	Desert Canyon per STANTEC Plans RS 1689.21	PF 1	1850	49.38	55.81		56.08	0.000856	4.15	446.05	95.56	0.34	4.67
Combined Channel	EAST	11675	9+935	Desert Canyon per STANTEC Plans RS 1675	PF 1	1850	49.32	55.8		56.06	0.000826	4.1	451.02	95.66	0.33	4.71
Combined Channel	EAST	11634.34	9+976	Desert Canyon per STANTEC Plans 1634.34, begin left channel wall transition	PF 1	2549	49.16	55.44		55.98	0.001796	5.9	432.17	95.27	0.49	4.54
Combined Channel	EAST	11624.05	9+986	Desert Canyon per STANTEC Plans RS 1624.05, end left side slope	PF 1	2549	49.11	55.34		55.96	0.001989	6.3	404.72	87.41	0.52	4.63
Combined Channel	EAST	11618.85	9+991	Desert Canyon per STANTEC Plans RS 1618.85, end left channel wall transition	PF 1	2549	49.09	55.23		55.94	0.002327	6.74	378.34	83.31	0.56	4.54
Combined Channel	EAST	11596.34	10+014	Desert Canyon per STANTEC Plans RS 1596.34, begin left side slope transition	PF 1	2549	49	55.19		55.88	0.00225	6.67	382.42	83.41	0.55	4.58
Combined Channel	EAST	11527.17	10+083	Desert Canyon per STANTEC Plans RS 1527.17, end left slope transition, end left retaining wall	PF 1	2549	48.73	54.65		55.65	0.003766	8.01	318.15	78.09	0.7	4.07
Combined Channel	EAST	11500	10+110	Desert Canyon per STANTEC Plans RS 1500	PF 1	2549	48.62	54.55		55.54	0.003743	8	318.8	78.12	0.7	4.08
Combined Channel	EAST	11450	10+160	Desert Canyon per STANTEC Plans RS 1450	PF 1	2549	48.42	54.37		55.35	0.003694	7.96	320.22	78.2	0.69	4.1
Combined Channel	EAST	11400	10+210	Desert Canyon per STANTEC Plans RS 1400	PF 1	2549	48.22	54.19		55.16	0.003636	7.92	321.91	78.28	0.69	4.11
Combined Channel	EAST	11377.99	10+232	Desert Canyon per STANTEC Plans RS 1377.99, begin compound curve	PF 1	2549	48.13	54.11		55.08	0.003602	7.89	322.93	78.34	0.69	4.12
Combined Channel	EAST	11350	10+260	Desert Canyon per STANTEC Plans RS 1350	PF 1	2549	48.02	54.01		54.98	0.003575	7.87	323.71	78.37	0.68	4.13
Combined Channel	EAST	11300	10+310	Desert Canyon per STANTEC Plans RS 1300	PF 1	2549	47.82	53.85		54.8	0.003487	7.81	326.42	78.51	0.67	4.16
Combined Channel	EAST	11278.76	10+331	Desert Canyon per STANTEC Plans RS 1278.76, compound curve midpoint	PF 1	2549	47.73	53.78		54.72	0.003436	7.77	328.03	78.6	0.67	4.17
Combined Channel	EAST	11250	10+360	Desert Canyon per STANTEC Plans RS 1250	PF 1	2549	47.62	53.68		54.61	0.0034	7.74	329.18	78.65	0.67	4.19
Combined Channel	EAST	11200	10+410	Desert Canyon per STANTEC Plans RS 1200	PF 1	2549	47.42	53.53		54.44	0.003287	7.66	332.91	78.84	0.66	4.22
Combined Channel	EAST	11175.26	10+435	Desert Canyon per STANTEC Plans RS 1175.26	PF 1	2549	47.32	53.45		54.35	0.003232	7.61	334.79	78.94	0.65	4.24
Combined Channel	EAST	11154.55	10+455	Desert Canyon per STANTEC Plans RS 1154.55, end compound curve	PF 1	2549	47.24	53.39		54.28	0.003195	7.58	336.09	79	0.65	4.25
Combined Channel	EAST	11125	10+485	Desert Canyon per STANTEC Plans RS 1125, begin right channel wall	PF 1	2549	47.12	53.33		54.2	0.002325	7.48	340.98	79.37	0.64	4.3
Combined Channel	EAST	11116.35	10+494	Desert Canyon per STANTEC Plans RS 1116.35, begin channel transition	PF 1	2549	47.08	53.31		54.17	0.003028	7.45	342.15	79.3	0.63	4.31
Combined Channel	EAST	11100	10+510	Desert Canyon per STANTEC Plans RS 1100,	PF 1	2549	46.98	53.22		54.11	0.003151	7.6	335.42	77.82	0.65	4.31
Combined Channel	EAST	11050	10+560	Desert Canyon per STANTEC Plans RS 1050	PF 1	2549	46.67	52.88		53.93	0.003602	8.23	309.65	70.74	0.69	4.38
Combined Channel	EAST	11033.37	10+577	Desert Canyon per STANTEC Plans RS 1033.37, begin left channel wall	PF 1	2549	46.57	52.68		53.86	0.004031	8.69	293.46	67.49	0.73	4.35
Combined Channel	EAST	11007.4	10+603	Desert Canyon per STANTEC Plans RS 1007.4, begin nuissance channel transition	PF 1	2549	46.41	52.3	51.78	53.77	0.001155	9.74	261.72	60.61	0.83	4.32
Combined Channel	EAST	10973.86	10+636	Desert Canyon per STANTEC Plans RS 973.86, begin rectangular channel	PF 1	2549	46.2	51.37	51.37	53.64	0.001891	12.09	210.81	46.48	1	4.54
Combined Channel	EAST	10950.26	10+660	Desert Canyon per STANTEC Plans RS 950.26, end nuissance channel	PF 1	2549	46.06	49.93	50.79	53.46	0.003642	15.08	169.01	44.99	1.37	3.76
Combined Channel	EAST	10909.89	10+700	Desert Canyon per STANTEC Plans RS 909.89, begin channel bottom cross fall transition	PF 1	2549	44.37	47.83	49.39	53.1	0.006267	18.41	138.47	41.21	1.77	3.36
Combined Channel	EAST	10834.9	10+775	Desert Canyon per STANTEC Plans RS 834.9, end channel transition, begin VTN Pioneer Phase II 64+15.01	PF 1	2549	41.24	43.87	46.08	52.14	0.013131	23.07	110.48	42	2.51	2.63
Combined Channel	EAST	10834.89	10+775	Pioneer Phase II Channel per VTN Plans 64+15.01	PF 1	2549	41.24	44.04	46.26	52.06	0.015957	22.72	112.18	40	2.39	2.8
Combined Channel	EAST	10599.9	11+010	Pioneer Phase II Channel per VTN Plans 66+50.00	PF 1	2549	39.88	43.37	44.9	48.56	0.008482	18.28	139.42	40	1.73	3.49
Combined Channel	EAST	10599.89	11+010	Pioneer Phase II Channel per VTN Plans 66+50.01	PF 1	2549	39.88	43.14	44.74	48.53	0.006668	18.63	136.82	42	1.82	3.26
Combined Channel	EAST	10529.91	11+080	Pioneer Phase II Channel per VTN Plans 67+20.00	PF 1	2549	39.47	43.75	44.75	47.78	0.003775	16.11	158.25	37	1.37	4.28
Combined Channel	EAST	10429.91	11+180	Pioneer Phase II Channel per VTN Plans 68+20.01	PF 1	2549	38.63	42.59	43.91	47.29	0.004782	17.39	146.59	37	1.54	3.96
Combined Channel	EAST	10429.9	11+180	Pioneer Phase II Channel per VTN Plans 68+20.01	PF 1	2549	38.63	42.9	44.01	47.17	0.005093	16.58	153.78	36	1.41	4.27
Combined Channel	EAST	10289.92	11+320	Pioneer Phase II Channel per VTN Plans 69+60.00	PF 1	2549	36.32	39.87	41.7	46.06	0.008785	19.96	127.68	36	1.87	3.55
Combined Channel	EAST	10289.91	11+320	Pioneer Phase II Channel per VTN Plans 69+60.01	PF 1	2549	36.32	39.74	41.6	46.04	0.007566	20.15	126.5	37	1.92	3.42
Combined Channel	EAST	10209.93	11+400	Pioneer Phase II Channel per VTN Plans 70+40.00	PF 1	2549	19.67	22.85	27.12	43.52	0.03063	36.49	69.85	22	3.61	3.18
Combined Channel	EAST	10124.93	11+485	Pioneer Phase II Channel per VTN Plans 71+25.00	PF 1	2549	20.31	23.91	27.8	40.01	0.021003	32.21	79.15	22	2.99	3.6

Combined Channel	EAST	10124.92	11+485	Pioneer Phase II Channel per VTN Plans 71+25.01	PF 1	2549	20.31	24.11	28.08	39.93	0.027147	31.91	79.88	21	2.88	3.8
Combined Channel	EAST	9999.93	11+610	Pioneer Phase II Channel per VTN Plans 72+50.00	PF 1	2549	19.67	22.5	25.61	35.62	0.028941	29.18	87.68	31	3.06	2.83
Combined Channel	EAST	9999.92	11+610	Pioneer Phase II Channel per VTN Plans 72+50.01	PF 1	2549	19.67	22.31	25.35	35.6	0.02189	29.26	87.12	33	3.17	2.64
Combined Channel	EAST	9905.49	11+704	Pioneer Phase II Channel per VTN Plans 73+44.45	PF 1	2549	19.19	22.08	24.87	33.15	0.016418	26.7	95.47	33	2.77	2.89
Combined Channel	EAST	9845.49	11+764	Pioneer Phase II Channel per VTN Plans 74+04.45	PF 1	2549	18.88	22.32	24.86	31.81	0.012914	24.73	103.09	37.75	2.64	2.73
Combined Channel	EAST	9245.49	12+364	Pioneer Phase II Channel per VTN Plans 80+04.45 - End 600' DS	PF 1	2549	15.88	20.15	21.88	25.61	0.005797	18.75	135.94	41.08	1.82	3.31
Combined Channel	SOUTH	10529.91	-	Pioneer Phase I Channel per VTN Plans RS 2150, south channel approach (Pioneer Outfall 12'x8' RCB)	PF 1	699	54.78	57.92	59.5	63.25	0.009999	18.53	37.73	12.01	1.84	3.14
Combined Channel	SOUTH	10429.91	-	Pioneer Phase I Channel per VTN Plans RS 2100	PF 1	699	54.28	57.42	59	62.75	0.009999	18.53	37.73	12.01	1.84	3.14
Combined Channel	SOUTH	10429.9	-	Pioneer Phase I Channel per VTN Plans RS 2050	PF 1	699	53.78	56.92	58.51	62.25	0.009999	18.53	37.73	12.01	1.84	3.14
Combined Channel	SOUTH	10289.92	-	Pioneer Phase I Channel per VTN Plans RS 2000	PF 1	699	53.28	56.42	58	61.75	0.009998	18.52	37.73	12.01	1.84	3.14
Combined Channel	SOUTH	10289.91	-	Desert Canyon per STANTEC Plans RS 1950	PF 1	699	52.78	55.92	57.5	61.25	0.009997	18.52	37.73	12.01	1.84	3.14
Combined Channel	SOUTH	10209.93	-	Desert Canyon per STANTEC Plans RS 1924.19, Pioneer Outfall 12'x8' RCB outlet	PF 1	699	52.52	55.67	57.24	60.99	0.009977	18.51	37.76	12.01	1.84	3.14
Combined Channel	SOUTH	10124.93	-	Desert Canyon per STANTEC Plans	PF 1	699	52.14	54.16	55.87	60.85	0.016688	20.76	33.67	26.07	2.71	1.82
Combined Channel	SOUTH	10124.92	-	Desert Canyon per STANTEC Plans RS 1899.18	PF 1	699	51.77	53.65	55.28	60.58	0.022404	21.13	33.08	25.42	3.09	1.45
Combined Channel	SOUTH	9999.93	-	Desert Canyon per STANTEC Plans	PF 1	699	51.4	53.43	54.97	60.25	0.02532	20.96	33.35	25.28	3.22	1.32
Combined Channel	SOUTH	9999.92	-	Desert Canyon per STANTEC Plans RS 1874.18, end nuissance channel transition	PF 1	699	51.02	53.31	54.86	59.87	0.024042	20.55	34.02	25.33	3.12	1.34
Combined Channel	SOUTH	9905.49	-	Desert Canyon per STANTEC Plans	PF 1	699	50.79	53.13	54.62	59.2	0.021293	19.76	35.37	25.44	2.95	1.39
Combined Channel	SOUTH	9845.49	-	Desert Canyon per STANTEC Plans	PF 1	699	50.56	52.95	54.4	58.61	0.019088	19.08	36.63	25.54	2.81	1.43
Combined Channel	SOUTH	9245.49	-	Desert Canyon per STANTEC Plans	PF 1	699	50.33	52.77	54.17	58.09	0.017358	18.51	37.77	25.63	2.69	1.47

GIBSON CLOMR
POST- PROJECT CONDITIONS: CHECK-RAS OUTPUT

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.prj
Plan File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.p02
Geometry File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.g01
Flow File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.f01
Report File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.nt
Selected profiles: PF 1
Date: 4/12/2006
Time: 4:03:22 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Combined Channel,EAST						
11800		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11799.99		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11790		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11769.13		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11751.44		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11739.7		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11732.13		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11720		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11712.87		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11689.21		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11675		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11634.34		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11624.05		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11618.85		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11596.34		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		

	-----	0.03	-----		
11527.17	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11500	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11450	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11400	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11377.99	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11350	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11300	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11278.76	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11250	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11200	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11175.26	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11154.55	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11125	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11116.35	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11100	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11050	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11033.37	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11007.4	-----	0.013	-----	0.1	0.3
10973.86	-----	0.013	0	0.1	0.3
	-----	0	-----		
10950.26	-----	0	0	0.1	0.3
	-----	0.013	-----		
10909.89	-----	0	0	0.1	0.3
	-----	0.013	-----		
10834.9	0.013	0.013	0.013	0.1	0.3
10834.89	0.013	0.013	0.013	0.1	0.3
10599.9	0.013	0.013	0.013	0.1	0.3
10599.89	0.013	0.013	0.013	0.1	0.3
10529.91	0.013	0.013	0.013	0.1	0.3
10429.91	0.013	0.013	0.013	0.1	0.3
10429.9	0.013	0.013	0.013	0.1	0.3
10289.92	0.013	0.013	0.013	0.1	0.3
10289.91	0.013	0.013	0.013	0.1	0.3
10209.93	0.013	0.013	0.013	0.1	0.3
10124.93	0.013	0.013	0.013	0.1	0.3
10124.92	0.013	0.013	0.013	0.1	0.3
9999.93	0.013	0.013	0.013	0.1	0.3
9999.92	0.013	0.013	0.013	0.1	0.3
9905.49	0.013	0.013	0.013	0.1	0.3
9845.49	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
North Channel,WEST					
9245.49	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
18653.05	0.013	0.013	0.013	0.1	0.3
18603.05	0.013	0.013	0.013	0.1	0.3

18354.06	0.013	0.013	0.013	0.1	0.3
18314.47	0.013	0.013	0.013	0.1	0.3
17036.02	0.013	0.013	0.013	0.1	0.3
16991.39	0.013	0.013	0.013	0.1	0.3
16271.91	0.013	0.013	0.013	0.1	0.3
16221.83	0.013	0.013	0.013	0.1	0.3
15874.83	0.013	0.013	0.013	0.1	0.3
15824.82	0.013	0.013	0.013	0.1	0.3
15635.6	0.013	0.013	0.013	0.1	0.3
15080.09	0.013	0.013	0.013	0.1	0.3
15015.09	0.013	0.013	0.013	0.1	0.3
14592.55	0.013	0.013	0.013	0.1	0.3
14542.55	0.013	0.013	0.013	0.1	0.3
14252.5	0.013	0.013	0.013	0.1	0.3
14092.97	0.013	0.013	0.013	0.1	0.3
13987.91	0.013	0.013	0.013	0.1	0.3
13887.91	0.013	0.013	0.013	0.1	0.3
13787.91	0.013	0.013	0.013	0.1	0.3
13687.91	0.013	0.013	0.013	0.1	0.3
13602.91	0.013	0.013	0.013	0.1	0.3
13582.54	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
13562.17	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
13562.16	0.013	0.013	0.013	0.1	0.3
13557.18Bridge-Up	0.013	0.013	0.013	0.1	0.3
13557.18Bridge-Dn	0.013	0.013	0.013	0.1	0.3
13552.2	0.013	0.013	0.013	0.1	0.3
13478.79	0.013	0.013	0.013	0.1	0.3
13476.6	0.013	0.013	0.013	0.1	0.3
13425.61	0.013	0.013	0.013	0.1	0.3
13410.61	0.013	0.013	0.013	0.1	0.3
13353.48	0.013	0.013	0.013	0.1	0.3
13343.61	0.013	0.013	0.013	0.1	0.3
13343.6	-----	0.013	-----	0.1	0.3
13333.3	-----	0.013	0.013	0.1	0.3
13323	-----	0.013	-----	0.1	0.3
13307.38	-----	0.013	0.013	0.1	0.3
13291.77	-----	0.013	-----	0.1	0.3
13267.98	-----	0.013	0.013	0.1	0.3
13244.2	-----	0.013	-----	0.1	0.3
13234.75	-----	0.013	-----	0.1	0.3
13234.74	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13229.38	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13229.37	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13221.37	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13167.84	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13114.31	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13114.3	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13060.1	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		

	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13044.11	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13044.1	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13018.22	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13018.21	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13010.22	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13010.21	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12954.02	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12943.65	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12906.81	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12869.97	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
2869.96	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12829.26	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		

	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12788.55	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12788.54	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12780.55	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12780.54	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12724.23	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12667.92	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12667.91	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12598.93	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12529.94	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12499.95	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12499.94	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
12469.94	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
12469.93	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12435.49	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.021	-----		
	-----	0.021	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12401.05	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12400	-----	0.013	-----	0.1	0.3

	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12350	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12320	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12312.18	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12312.17	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12278.95	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12253.91	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12217.72	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12203.57	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12162.19	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12150	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12125	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12097.31	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12097.3	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12033.7	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12033.69	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12000	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11924.18	-----	0.013	-----	0.1	0.3

	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11911.68	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11899.18	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11886.68	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11874.18	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11851.12	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11828.06	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11826.06	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
South Channel,South					
11805	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12150	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
12100	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
12050	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
12000	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
11950	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
11924.19	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
11911.68	-----	0.013	0.013	0.1	0.3
11899.18	-----	0.013	-----	0.1	0.3
11886.68	-----	0.013	-----	0.1	0.3
11874.18	-----	0.013	-----	0.1	0.3
11851.12	-----	0.013	-----	0.1	0.3
11828.06	-----	0.013	-----	0.1	0.3
	-----	0.013	-----		

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.013	0.013
Right Overbank n Value:	0	0.013
Channel n Value:	0	0.03
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

)UGHNESS COEFFICIENT CHECK

RS: 11007.4
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10973.86
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10973.86
T RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10950.26
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10950.26
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10909.89
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10909.89
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10834.9
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10834.9
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10834.9
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10834.9
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 10834.89
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10834.89
NT RC 01 Right overbank n value is less than 0.035
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of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

: 10599.9
RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10599.9
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10599.9
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concrete lined channel.

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NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 10529.91
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10529.91
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10529.91
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The n value should be reevaluated.

RS: 10429.91
NT RC 01 Right overbank n value is less than 0.035
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The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10429.91
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The overbank n values should be reevaluated.

RS: 10429.9
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The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10429.9
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10429.9

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NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      10429.9
 T RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      10289.92
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      10289.92
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       10289.92
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

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NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      10289.91
NT RC 01 Left overbank n value is less than 0.035
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         The n value should be reevaluated.

RS:      10289.91
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

  :       10289.91
..f RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      10289.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      10209.93
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      10209.93
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       10209.93
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      10209.93
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      10124.93
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      10124.93
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       10124.93
NT RC 03 Channel n value is equal to or less than 0.025
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The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10124.93
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 10124.92
NT RC 01 Left overbank n value is less than 0.035
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RS: 10124.92
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The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10124.92
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10124.92
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 9999.93
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 9999.93
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 9999.93
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

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The overbank n values should be reevaluated.

RS: 9999.92
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 9999.92
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 9999.92
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 9999.92
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 9905.49
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 9905.49
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 9905.49
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.

The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 9905.49
NT RC 05 The left overbank n value of 0.013 and the right overbank n value of 0.013 are less than or equal to the channel n value of 0.013 The overbank n values should be reevaluated.

RS: 9845.49
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 9845.49
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 9245.49
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 9245.49
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 18653.05
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 18653.05
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 18653.05
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 18653.05
NT RC 05 The left overbank n value of 0.013 and the right overbank n value of 0.013 are less than or equal to the channel n value of 0.013 The overbank n values should be reevaluated.

RS: 18603.05
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 18603.05
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 18603.05
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 18603.05
NT RC 05 The left overbank n value of 0.013 and the right overbank n value of 0.013 are less than or equal to the channel n value of 0.013 The overbank n values should be reevaluated.

RS: 18354.06
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 18354.06
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 18354.06
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.

The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 18354.06
NT RC 05 The left overbank n value of 0.013 and the right overbank n value of 0.013 are less than or equal to the channel n value of 0.013 The overbank n values should be reevaluated.

RS: 18314.47
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 18314.47
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 18314.47
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 18314.47
NT RC 05 The left overbank n value of 0.013 and the right overbank n value of 0.013 are less than or equal to the channel n value of 0.013 The overbank n values should be reevaluated.

RS: 17036.02
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 17036.02
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 17036.02
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 17036.02
NT RC 05 The left overbank n value of 0.013 and the right overbank n value of 0.013 are less than or equal to the channel n value of 0.013 The overbank n values should be reevaluated.

RS: 16991.39
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 16991.39
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 16991.39
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a concrete lined channel.

RS: 16991.39
NT RC 05 The left overbank n value of 0.013 and the right overbank n value of 0.013 are less than or equal to the channel n value of 0.013 The overbank n values should be reevaluated.

RS: 16271.91
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 16271.91
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 16271.91
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a

concrete lined channel.

RS: 16271.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 16221.83
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 16221.83
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 16221.83
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 16221.83
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 15874.83
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15874.83
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15874.83
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 15874.83
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 15824.82
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15824.82
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15824.82
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 15824.82
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 15635.6
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15635.6
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15635.6
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 15635.6
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 15080.09
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15080.09
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15080.09
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 15080.09
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 15015.09
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15015.09
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15015.09
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 15015.09
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 14592.55
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14592.55
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14592.55
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 14592.55
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 14542.55
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14542.55
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14542.55
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 14542.55
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 14252.5
T RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14252.5
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14252.5
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 14252.5
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 14092.97
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14092.97
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14092.97
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

S: 14092.97
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13987.91
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13987.91
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13987.91
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13987.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13887.91
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13887.91
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13887.91
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13887.91

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NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      13787.91
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13787.91
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13787.91
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      13787.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      13687.91
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13687.91
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13687.91
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

:        13687.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      13602.91
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13602.91
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13602.91
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      13602.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      13582.54
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13582.54
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      13562.17
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13562.17
NT RC 03 Channel n value is equal to or less than 0.025
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The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13562.16
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13562.16
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13562.16
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13562.16
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13557.18
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13557.18
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13557.18
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13557.18
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13557.18
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13557.18
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13557.18
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13557.18
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13552.2
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13552.2
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13552.2
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13552.2
NT RC 05 The left overbank n value of 0.013 and the right overbank n value

of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13478.79
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13478.79
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13478.79
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13478.79
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13476.6
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13476.6
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13476.6
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13476.6
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13425.61
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13425.61
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13425.61
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13425.61
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13410.61
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13410.61
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13410.61
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13410.61
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013

The overbank n values should be reevaluated.

RS: 13353.48
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13353.48
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13353.48
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13353.48
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13343.61
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13343.61
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13343.61
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13343.61
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13343.6
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13333.3
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13333.3
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13323
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13307.38
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13307.38
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13291.77
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13267.98

```
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13267.98
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       13244.2
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       13234.75
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       12724.23
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12598.93
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12435.49
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11911.68
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11886.68
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11851.12
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11828.06
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11826.06
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12150
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12150
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       12100
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12100
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       12050
```

```
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12050
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       12000
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12000
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11950
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11950
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11924.19
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11924.19
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11911.68
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11911.68
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11899.18
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11886.68
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11874.18
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11851.12
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

RS:       13562.17
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         Hydraulic depth ratio is 2.00
```

```
          Froude Number ratio is 1.00
          Expansion loss coefficient is  0.3
          It is outside the range of 0.93 and 1.33 computed by the equations
          from HEC-RAS Hydraulics Reference Manual.

RS:       13562.16
NT TL 01 This is section 3
          Contraction and expansion loss coefficients are 0.1 and 0.3
          Hydraulic depth ratio is 2.00
          Froude Number ratio is 1.00
          Expansion loss coefficient is  0.3
          It is outside the range of 0.93 and 1.33 computed by the equations
          from HEC-RAS Hydraulics Reference Manual.

RS:       13557.18
NT TL 01 This is section Bridge-Up
          Contraction and expansion loss coefficients are 0.1 and 0.3
          Hydraulic depth ratio is 2.00
          Froude Number ratio is 1.00
          Expansion loss coefficient is  0.3
          It is outside the range of 0.93 and 1.33 computed by the equations
          from HEC-RAS Hydraulics Reference Manual.

RS:       13557.18
NT TL 01 This is section Bridge-Dn
          Contraction and expansion loss coefficients are 0.1 and 0.3
          Hydraulic depth ratio is 2.00
          Froude Number ratio is 1.00
          Expansion loss coefficient is  0.3
          It is outside the range of 0.93 and 1.33 computed by the equations
          from HEC-RAS Hydraulics Reference Manual.

RS:       13552.2
NT TL 01 This is section 2
          Contraction and expansion loss coefficients are 0.1 and 0.3
          Hydraulic depth ratio is 2.00
          Froude Number ratio is 1.00
          Expansion loss coefficient is  0.3
          It is outside the range of 0.93 and 1.33 computed by the equations
          from HEC-RAS Hydraulics Reference Manual.

 UGHNESS COEFFICIENT AT STRUCTURES
 ---------------------------------

RS:       13557.18
NT RS 02 The channel n value of 0.013 for the upstream internal bridge opening
          section is equal or larger than the channel n value of 0.013 at Section 3.
          Usually, the channel n value of the bridge opening section is
          less than the channel n value of Section 3.
          The selection of the n value(s) should be reevaluated.

RS:       13557.18
NT RS 02 The channel n value of 0.013 for the downstream internal bridge opening
          section is equal or larger than the channel n value of 0.013 at Section 2
          Usually, the channel n value of the bridge opening section is
          less than the channel n value of Section 2.
          The selection of the n value(s) should be reevaluated.

---END---
```

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.prj
Plan File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.p02
Geometry File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.g01
Flow File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.f01
Report File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.xs
Selected profiles: PF 1
Date: 4/12/2006
Time: 4:03:46 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Combined Channel,EAST						
11800	0	0	0	58.39	1850	
11799.99	0	0	0	58.39	1850	
11790	0	0	0	61.6	1850	
11769.13	0	0	0	78.77	1850	
11751.44	0	0	0	84.97	1850	
11739.7	0	0	0	89.06	1850	
11732.13	0	0	0	91.7	1850	
11720	0	0	0	95.36	1850	
11712.87	0	0	0	95.41	1850	
11689.21	0	0	0	95.56	1850	
11675	0	0	0	95.66	1850	
11634.34	0	0	0	95.27	2549	
11624.05	0	0	0	87.41	2549	
11618.85	0	0	0	83.31	2549	
11596.34	0	0	0	83.41	2549	
11527.17	0	0	0	78.09	2549	
11500	0	0	0	78.12	2549	
11450	0	0	0	78.2	2549	
11400	0	0	0	78.28	2549	
11377.99	0	0	0	78.34	2549	
11350	0	0	0	78.37	2549	
11300	0	0	0	78.51	2549	
11278.76	0	0	0	78.6	2549	
11250	0	0	0	78.65	2549	
11200	0	0	0	78.84	2549	
11175.26	0	0	0	78.94	2549	
11154.55	0	0	0	79	2549	
11125	8.65	8.65	8.65	79.37	2549	
11116.35	0	0	0	79.3	2549	
11100	0	0	0	77.82	2549	
11050	0	0	0	70.74	2549	
11033.37	0	0	0	67.49	2549	
11007.4	0	0	0	60.61	2549	
10973.86	0	0	0	46.48	2549	C
10950.26	0	0	0	44.99	2549	
10909.89	74.99	74.99	74.99	41.21	2549	
10834.9	0.01	0.01	0.01	42	2549	
10834.89	234.99	234.99	234.99	40	2549	D
10599.9	0.01	0.01	0.01	40	2549	D
10599.89	69.99	69.99	69.99	42	2549	
10529.91	100	100	100	37	2549	
10429.91	0.01	0.01	0.01	37	2549	
10429.9	139.99	139.99	139.99	36	2549	D
10289.92	0.01	0.01	0.01	36	2549	D
10289.91	79.99	79.99	79.99	37	2549	
10209.93	85	85	85	22	2549	
10124.93	0.01	0.01	0.01	22	2549	
10124.92	124.99	124.99	124.99	21	2549	D
9999.93	0.01	0.01	0.01	31	2549	D
9999.92	94.44	94.44	94.44	33	2549	
9905.49	60	60	60	33	2549	
9845.49	600	600	600	37.75	2549	
9245.49	0	0	0	41.08	2549	
North Channel,WEST						
18653.05	50	50	50	18	705	
18603.05	248.99	248.99	248.99	18.7	705	
18354.06	39.59	39.59	39.59	18.7	705	
18314.47	1278.45	1278.45	1278.45	18	705	D
17036.02	50	50	50	19	705	
16991.39	714.11	714.11	714.11	18.7	709	
16271.91	50.08	50.08	50.08	18.7	709	
16221.83	347	347	347	20	709	D
15874.83	50	50	50	21	709	
15824.82	189.22	189.22	189.22	21.8	807	
15635.6	620.51	620.51	620.51	21.8	807	
15080.09	65	65	65	21.8	807	
15015.09	374.89	398.39	421.9	27	807	D
14592.55	50.5	50.5	50.5	29	807	

14542.55	290.05	290.05	290.05	29	807	
14252.5	159.53	159.53	159.53	11.5	807	
14092.97	105.06	105.06	105.06	11.5	807	
13987.91	100	100	100	11.51	807	
13887.91	100	100	100	11.51	807	
13787.91	100	100	100	11.51	807	
13687.91	85	85	85	11.51	807	
13602.91	21.42	20.37	19.99	11.51	807	
13582.54	21.42	20.37	19.99	19.09	807	
13562.17	0.01	0.01	0.01	26.67	807	
13562.16	9.96	9.96	9.96	24.01	807	D
13557.18	Bridge #1-Up					
13557.18	Bridge #1-Dn					
13552.2	73.41	73.41	73.41	24.01	807	D
13478.79	2.19	2.19	2.19	24.01	807	D
13476.6	45.02	51.05	52.79	24.01	807	D
13425.61	15	15	15	24.01	807	D
13410.61	61.49	57.13	52.67	24.01	807	D
13353.48	9.88	9.88	9.88	24.01	807	D
13343.61	0.01	0.01	0.01	24.01	807	D
13343.6	10.3	10.3	10.3	26.77	807	
13333.3	10.3	10.3	10.3	34.3	807	D
13323	15.61	15.61	15.61	37.64	807	D
13307.38	15.61	15.61	15.61	50.13	807	
13291.77	23.78	23.78	23.78	50.13	807	
13267.98	23.78	23.78	23.78	50.12	807	
13244.2	0	0	0	44.48	807	
13234.75	0	0	0	39.65	807	D
13234.74	0	0	0	39.65	807	
13229.38	0.01	0.01	0.01	36.98	807	
13229.37	0	0	0	36.97	807	
13221.37	53.53	53.53	53.53	36.98	807	
13167.84	53.53	53.53	53.53	33.88	807	
13114.31	0	0	0	29.57	807	
13114.3	0	0	0	29.57	807	
13060.1	0	0	0	37.91	807	
13044.11	0	0	0	36.09	807	
13044.1	0	0	0	36.39	807	
13018.22	0	0	0	36.59	807	
13018.21	0	0	0	36.59	807	
13010.22	0	0	0	36.58	807	
13010.21	0	0	0	36.58	807	
12954.02	0	0	0	36.33	807	
12943.65	36.84	36.84	36.84	35.58	807	
12906.81	36.84	36.84	36.84	41.05	807	
12869.97	0	0	0	38.81	807	
12869.96	0	0	0	38.81	807	
12829.26	40.71	40.71	40.71	39.28	807	
12788.55	0	0	0	39.96	807	
12788.54	0	0	0	39.96	807	
12780.55	0	0	0	39.95	807	
12780.54	56.31	56.31	56.31	39.95	807	
12724.23	56.31	56.31	56.31	39.55	807	
12667.92	0	0	0	39.21	807	
12667.91	0	0	0	39.21	807	
12598.93	68.99	68.99	68.99	38.96	807	
12529.94	0	0	0	34.58	807	C
12499.95	0	0	0	40.72	807	
12499.94	0	0	0	40.72	807	
12469.94	0	0	0	41.07	807	
12469.93	34.44	34.44	34.44	36.52	807	
12435.49	34.44	34.44	34.44	39.33	807	
12401.05	0	0	0	41.22	807	
12400	0	0	0	41.23	807	
12350	0	0	0	40.89	807	
12320	6.94	7.82	8.74	40.85	807	
12312.18	0	0	0	40.78	807	
12312.17	31.46	33.22	35	40.82	807	
12278.95	23.07	25.04	27.02	42.32	807	
12253.91	33.33	36.19	39.05	42.75	807	
12217.72	13.04	14.15	15.27	36.98	807	
12203.57	38.1	41.38	44.32	35.89	807	
12162.19	0	0	0	34.1	807	
12150	0	0	0	33.81	807	
12125	42.36	27.69	20.72	31.58	807	
12097.31	0	0	0	31.71	807	
12097.3	0	0	0	31.15	807	
12033.7	0	0	0	30.52	807	
12033.69	19.64	34.29	41.27	31.52	807	
12000	0	0	0	31.26	807	
11924.18	0	0	0	31.9	807	
11911.68	0	0	0	31.84	807	
11899.18	0	0	0	31.8	807	
11886.68	0	0	0	31.76	807	
11874.18	0	0	0	31.74	807	

11851.12	0	0	0	31.71	807	
11828.06	0	0	0	33.94	807	
11826.06	0	0	0	32.61	807	C
11805	0	0	0	31.95	807	
South Channel,South						
12150	50	50	50	12.01	699	
2100	50	50	50	12.01	699	
2050	50	50	50	12.01	699	
12000	50	50	50	12.01	699	
11950	25.81	25.81	25.81	12.01	699	
11924.19	0.01	0.01	0.01	12.01	699	
11911.68	12.5	12.5	12.5	18.5	699	D
11899.18	12.5	12.5	12.5	22.75	699	D
11886.68	12.5	12.5	12.5	25.28	699	
11874.18	23.06	23.06	23.06	25.33	699	
11851.12	23.06	23.06	23.06	25.44	699	
11828.06	23.06	23.06	23.06	25.54	699	
11805	0	0	0	25.63	699	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

XS JT 01 Junction option is used.
For flood insurance study, this option should be used
if the tributary and main stream can have coincident peaks,
or it may be used for the stream without floodway.
It may also be used if the discharges at different time periods
are known from the rainfall-runoff model.
How to remove the junction is explained under Help.

RS: 11800
XS DT 02 Channel distance is equal to zero.

RS: 11800
XS DT 02 Left overbank distance is equal to zero.

RS: 11800
XS DT 02 Right overbank distance is equal to zero.

RS: 11799.99
XS DT 02 Channel distance is equal to zero.

RS: 11799.99
XS DT 02 Left overbank distance is equal to zero.

RS: 11799.99
XS DT 02 Right overbank distance is equal to zero.

RS: 11790
XS DT 02 Channel distance is equal to zero.

RS: 11790
XS DT 02 Left overbank distance is equal to zero.

RS: 11790
XS DT 02 Right overbank distance is equal to zero.

RS: 11769.13
XS DT 02 Channel distance is equal to zero.

RS: 11769.13
XS DT 02 Left overbank distance is equal to zero.

RS: 11769.13
XS DT 02 Right overbank distance is equal to zero.

RS: 11751.44
XS DT 02 Channel distance is equal to zero.

RS: 11751.44
XS DT 02 Left overbank distance is equal to zero.

RS: 11751.44
XS DT 02 Right overbank distance is equal to zero.

RS: 11739.7
XS DT 02 Channel distance is equal to zero.

RS: 11739.7
XS DT 02 Left overbank distance is equal to zero.

RS: 11739.7
XS DT 02 Right overbank distance is equal to zero.

RS: 11732.13
XS DT 02 Channel distance is equal to zero.

RS: 11732.13
XS DT 02 Left overbank distance is equal to zero.

RS: 11732.13
XS DT 02 Right overbank distance is equal to zero.

RS: 11720
XS DT 02 Channel distance is equal to zero.

RS: 11720
XS DT 02 Left overbank distance is equal to zero.

RS: 11720
XS DT 02 Right overbank distance is equal to zero.

RS: 11712.87
XS DT 02 Channel distance is equal to zero.

RS: 11712.87
XS DT 02 Left overbank distance is equal to zero.

RS: 11712.87
XS DT 02 Right overbank distance is equal to zero.

RS: 11689.21
XS DT 02 Channel distance is equal to zero.

RS: 11689.21
XS DT 02 Left overbank distance is equal to zero.

RS: 11689.21
XS DT 02 Right overbank distance is equal to zero.

RS: 11675
XS DT 02 Channel distance is equal to zero.

RS: 11675
XS DT 02 Left overbank distance is equal to zero.

RS: 11675
XS DT 02 Right overbank distance is equal to zero.

RS: 11634.34
XS DT 02 Channel distance is equal to zero.

RS: 11634.34
XS DT 02 Left overbank distance is equal to zero.

RS: 11634.34
XS DT 02 Right overbank distance is equal to zero.

RS: 11624.05
XS DT 02 Channel distance is equal to zero.

RS: 11624.05
XS DT 02 Left overbank distance is equal to zero.

RS: 11624.05
XS DT 02 Right overbank distance is equal to zero.

RS: 11618.85
XS DT 02 Channel distance is equal to zero.

RS: 11618.85
XS DT 02 Left overbank distance is equal to zero.

RS: 11618.85
XS DT 02 Right overbank distance is equal to zero.

RS: 11596.34
XS DT 02 Channel distance is equal to zero.

RS: 11596.34
XS DT 02 Left overbank distance is equal to zero.

RS: 11596.34

XS DT 02 Right overbank distance is equal to zero.

RS: 11527.17
XS DT 02 Channel distance is equal to zero.

RS: 11527.17
XS DT 02 Left overbank distance is equal to zero.

RS: 11527.17
XS DT 02 Right overbank distance is equal to zero.

RS: 11500
XS DT 02 Channel distance is equal to zero.

RS: 11500
XS DT 02 Left overbank distance is equal to zero.

RS: 11500
XS DT 02 Right overbank distance is equal to zero.

RS: 11450
XS DT 02 Channel distance is equal to zero.

RS: 11450
XS DT 02 Left overbank distance is equal to zero.

RS: 11450
XS DT 02 Right overbank distance is equal to zero.

RS: 11400
XS DT 02 Channel distance is equal to zero.

RS: 11400
XS DT 02 Left overbank distance is equal to zero.

RS: 11400
XS DT 02 Right overbank distance is equal to zero.

RS: 11377.99
XS DT 02 Channel distance is equal to zero.

RS: 11377.99
XS DT 02 Left overbank distance is equal to zero.

RS: 11377.99
XS DT 02 Right overbank distance is equal to zero.

RS: 11350
XS DT 02 Channel distance is equal to zero.

RS: 11350
XS DT 02 Left overbank distance is equal to zero.

RS: 11350
XS DT 02 Right overbank distance is equal to zero.

RS: 11300
XS DT 02 Channel distance is equal to zero.

RS: 11300
XS DT 02 Left overbank distance is equal to zero.

RS: 11300
XS DT 02 Right overbank distance is equal to zero.

RS: 11278.76
XS DT 02 Channel distance is equal to zero.

RS: 11278.76
XS DT 02 Left overbank distance is equal to zero.

RS: 11278.76
XS DT 02 Right overbank distance is equal to zero.

RS: 11250
XS DT 02 Channel distance is equal to zero.

RS: 11250
XS DT 02 Left overbank distance is equal to zero.

RS: 11250
XS DT 02 Right overbank distance is equal to zero.

RS: 11200
XS DT 02 Channel distance is equal to zero.

RS: 11200
XS DT 02 Left overbank distance is equal to zero.

RS: 11200
XS DT 02 Right overbank distance is equal to zero.

RS: 11175.26
XS DT 02 Channel distance is equal to zero.

RS: 11175.26
XS DT 02 Left overbank distance is equal to zero.

RS: 11175.26
XS DT 02 Right overbank distance is equal to zero.

RS: 11154.55
XS DT 02 Channel distance is equal to zero.

RS: 11154.55
XS DT 02 Left overbank distance is equal to zero.

RS: 11154.55
XS DT 02 Right overbank distance is equal to zero.

RS: 11116.35
XS DT 02 Channel distance is equal to zero.

RS: 11116.35
XS DT 02 Left overbank distance is equal to zero.

RS: 11116.35
XS DT 02 Right overbank distance is equal to zero.

RS: 11100
XS DT 02 Channel distance is equal to zero.

RS: 11100
XS DT 02 Left overbank distance is equal to zero.

RS: 11100
XS DT 02 Right overbank distance is equal to zero.

RS: 11050
XS DT 02 Channel distance is equal to zero.

RS: 11050
XS DT 02 Left overbank distance is equal to zero.

RS: 11050
XS DT 02 Right overbank distance is equal to zero.

RS: 11033.37
XS DT 02 Channel distance is equal to zero.

RS: 11033.37
XS DT 02 Left overbank distance is equal to zero.

RS: 11033.37
XS DT 02 Right overbank distance is equal to zero.

RS: 11007.4
XS DT 02 Channel distance is equal to zero.

RS: 11007.4
XS DT 02 Left overbank distance is equal to zero.

RS: 11007.4
XS DT 02 Right overbank distance is equal to zero.

RS: 10973.86
XS DT 02 Channel distance is equal to zero.

RS: 10973.86
XS DT 02 Left overbank distance is equal to zero.

RS: 10973.86
XS DT 02 Right overbank distance is equal to zero.

RS: 10950.26
XS DT 02 Channel distance is equal to zero.

RS: 10950.26
XS DT 02 Left overbank distance is equal to zero.

RS: 10950.26
XS DT 02 Right overbank distance is equal to zero.

RS: 13244.2
XS DT 02 Channel distance is equal to zero.

RS: 13244.2
XS DT 02 Left overbank distance is equal to zero.

RS: 13244.2
XS DT 02 Right overbank distance is equal to zero.

RS: 13234.75
XS DT 02 Channel distance is equal to zero.

RS: 13234.75
XS DT 02 Left overbank distance is equal to zero.

RS: 13234.75
XS DT 02 Right overbank distance is equal to zero.

RS: 13234.74
XS DT 02 Channel distance is equal to zero.

RS: 13234.74
XS DT 02 Left overbank distance is equal to zero.

RS: 13234.74
XS DT 02 Right overbank distance is equal to zero.

RS: 13229.37
XS DT 02 Channel distance is equal to zero.

RS: 13229.37
XS DT 02 Left overbank distance is equal to zero.

RS: 13229.37
XS DT 02 Right overbank distance is equal to zero.

RS: 13114.31
XS DT 02 Channel distance is equal to zero.

RS: 13114.31
XS DT 02 Left overbank distance is equal to zero.

RS: 13114.31
XS DT 02 Right overbank distance is equal to zero.

RS: 13114.3
XS DT 02 Channel distance is equal to zero.

RS: 13114.3
XS DT 02 Left overbank distance is equal to zero.

RS: 13114.3
XS DT 02 Right overbank distance is equal to zero.

RS: 13060.1
XS DT 02 Channel distance is equal to zero.

RS: 13060.1
XS DT 02 Left overbank distance is equal to zero.

RS: 13060.1
XS DT 02 Right overbank distance is equal to zero.

RS: 13044.11
XS DT 02 Channel distance is equal to zero.

RS: 13044.11
XS DT 02 Left overbank distance is equal to zero.

RS: 13044.11
XS DT 02 Right overbank distance is equal to zero.

RS: 13044.1
XS DT 02 Channel distance is equal to zero.

RS: 13044.1
XS DT 02 Left overbank distance is equal to zero.

RS: 13044.1
XS DT 02 Right overbank distance is equal to zero.

RS: 13018.22

XS DT 02 Channel distance is equal to zero.

RS: 13018.22
XS DT 02 Left overbank distance is equal to zero.

RS: 13018.22
XS DT 02 Right overbank distance is equal to zero.

RS: 13018.21
XS DT 02 Channel distance is equal to zero.

RS: 13018.21
XS DT 02 Left overbank distance is equal to zero.

RS: 13018.21
XS DT 02 Right overbank distance is equal to zero.

RS: 13010.22
XS DT 02 Channel distance is equal to zero.

RS: 13010.22
XS DT 02 Left overbank distance is equal to zero.

RS: 13010.22
XS DT 02 Right overbank distance is equal to zero.

RS: 13010.21
XS DT 02 Channel distance is equal to zero.

RS: 13010.21
XS DT 02 Left overbank distance is equal to zero.

RS: 13010.21
XS DT 02 Right overbank distance is equal to zero.

RS: 12954.02
XS DT 02 Channel distance is equal to zero.

RS: 12954.02
XS DT 02 Left overbank distance is equal to zero.

RS: 12954.02
XS DT 02 Right overbank distance is equal to zero.

RS: 12869.97
XS DT 02 Channel distance is equal to zero.

RS: 12869.97
XS DT 02 Left overbank distance is equal to zero.

RS: 12869.97
XS DT 02 Right overbank distance is equal to zero.

RS: 12869.96
XS DT 02 Channel distance is equal to zero.

RS: 12869.96
XS DT 02 Left overbank distance is equal to zero.

RS: 12869.96
XS DT 02 Right overbank distance is equal to zero.

RS: 12788.55
XS DT 02 Channel distance is equal to zero.

RS: 12788.55
XS DT 02 Left overbank distance is equal to zero.

RS: 12788.55
XS DT 02 Right overbank distance is equal to zero.

RS: 12788.54
XS DT 02 Channel distance is equal to zero.

RS: 12788.54
XS DT 02 Left overbank distance is equal to zero.

RS: 12788.54
XS DT 02 Right overbank distance is equal to zero.

RS: 12780.55
XS DT 02 Channel distance is equal to zero.

RS: 12780.55
XS DT 02 Left overbank distance is equal to zero.

RS: 12780.55
XS DT 02 Right overbank distance is equal to zero.

RS: 12667.92
XS DT 02 Channel distance is equal to zero.

RS: 12667.92
XS DT 02 Left overbank distance is equal to zero.

RS: 12667.92
XS DT 02 Right overbank distance is equal to zero.

RS: 12667.91
XS DT 02 Channel distance is equal to zero.

RS: 12667.91
XS DT 02 Left overbank distance is equal to zero.

RS: 12667.91
XS DT 02 Right overbank distance is equal to zero.

RS: 12529.94
XS DT 02 Channel distance is equal to zero.

RS: 12529.94
XS DT 02 Left overbank distance is equal to zero.

RS: 12529.94
XS DT 02 Right overbank distance is equal to zero.

RS: 12499.95
XS DT 02 Channel distance is equal to zero.

RS: 12499.95
XS DT 02 Left overbank distance is equal to zero.

RS: 12499.95
XS DT 02 Right overbank distance is equal to zero.

RS: 12499.94
XS DT 02 Channel distance is equal to zero.

RS: 12499.94
XS DT 02 Left overbank distance is equal to zero.

RS: 12499.94
XS DT 02 Right overbank distance is equal to zero.

RS: 12469.94
XS DT 02 Channel distance is equal to zero.

RS: 12469.94
XS DT 02 Left overbank distance is equal to zero.

RS: 12469.94
XS DT 02 Right overbank distance is equal to zero.

RS: 12401.05
XS DT 02 Channel distance is equal to zero.

RS: 12401.05
XS DT 02 Left overbank distance is equal to zero.

RS: 12401.05
XS DT 02 Right overbank distance is equal to zero.

RS: 12400
XS DT 02 Channel distance is equal to zero.

RS: 12400
XS DT 02 Left overbank distance is equal to zero.

RS: 12400
XS DT 02 Right overbank distance is equal to zero.

RS: 12350
XS DT 02 Channel distance is equal to zero.

RS: 12350
XS DT 02 Left overbank distance is equal to zero.

RS: 12350
XS DT 02 Right overbank distance is equal to zero.

RS: 12312.18
XS DT 02 Channel distance is equal to zero.

RS: 12312.18
XS DT 02 Left overbank distance is equal to zero.

RS: 12312.18
XS DT 02 Right overbank distance is equal to zero.

RS: 12162.19
XS DT 02 Channel distance is equal to zero.

RS: 12162.19
XS DT 02 Left overbank distance is equal to zero.

RS: 12162.19
XS DT 02 Right overbank distance is equal to zero.

RS: 12150
XS DT 02 Channel distance is equal to zero.

RS: 12150
XS DT 02 Left overbank distance is equal to zero.

RS: 12150
XS DT 02 Right overbank distance is equal to zero.

RS: 12097.31
XS DT 02 Channel distance is equal to zero.

RS: 12097.31
XS DT 02 Left overbank distance is equal to zero.

RS: 12097.31
XS DT 02 Right overbank distance is equal to zero.

RS: 12097.3
XS DT 02 Channel distance is equal to zero.

RS: 12097.3
XS DT 02 Left overbank distance is equal to zero.

RS: 12097.3
XS DT 02 Right overbank distance is equal to zero.

RS: 12033.7
XS DT 02 Channel distance is equal to zero.

RS: 12033.7
XS DT 02 Left overbank distance is equal to zero.

RS: 12033.7
XS DT 02 Right overbank distance is equal to zero.

RS: 12000
XS DT 02 Channel distance is equal to zero.

RS: 12000
XS DT 02 Left overbank distance is equal to zero.

RS: 12000
XS DT 02 Right overbank distance is equal to zero.

RS: 11924.18
XS DT 02 Channel distance is equal to zero.

RS: 11924.18
XS DT 02 Left overbank distance is equal to zero.

RS: 11924.18
XS DT 02 Right overbank distance is equal to zero.

RS: 11911.68
XS DT 02 Channel distance is equal to zero.

RS: 11911.68
XS DT 02 Left overbank distance is equal to zero.

RS: 11911.68
XS DT 02 Right overbank distance is equal to zero.

RS: 11899.18
XS DT 02 Channel distance is equal to zero.

RS: 11899.18

XS DT 02 Left overbank distance is equal to zero.

RS: 11899.18
XS DT 02 Right overbank distance is equal to zero.

RS: 11886.68
XS DT 02 Channel distance is equal to zero.

RS: 11886.68
XS DT 02 Left overbank distance is equal to zero.

RS: 11886.68
XS DT 02 Right overbank distance is equal to zero.

RS: 11874.18
XS DT 02 Channel distance is equal to zero.

RS: 11874.18
XS DT 02 Left overbank distance is equal to zero.

RS: 11874.18
XS DT 02 Right overbank distance is equal to zero.

RS: 11851.12
XS DT 02 Channel distance is equal to zero.

RS: 11851.12
XS DT 02 Left overbank distance is equal to zero.

RS: 11851.12
XS DT 02 Right overbank distance is equal to zero.

RS: 11828.06
XS DT 02 Channel distance is equal to zero.

RS: 11828.06
XS DT 02 Left overbank distance is equal to zero.

RS: 11828.06
XS DT 02 Right overbank distance is equal to zero.

RS: 11826.06
XS DT 02 Channel distance is equal to zero.

RS: 11826.06
XS DT 02 Left overbank distance is equal to zero.

RS: 11826.06
XS DT 02 Right overbank distance is equal to zero.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the South Channel,South

LOCATION CHECK

RS: 12598.93
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.00
MaxChlDpth Up/MaxChlDpth Dn = 1.19
TopwdthAct Up/TopwdthAct Dn = 1.13
This cross section is located too far upstream from the
critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Combined Channel,EAST
Critical is specified as the downstream boundary
for profile PF 1

XS BC 02 The name of the stream is North Channel,WEST
Normal S = 0.007 is specified as the upstream boundary

for profile PF 1

XS BC 02 The name of the stream is South Channel,South
Normal S = 0.01 is specified as the upstream boundary
for profile PF 1

'S BC 03 Maximum number of iterations is 0
It should not be less than 20.

XS FR 02 The profile is computed as mixed flow regime.

LATERAL WEIRS CHECK

---END---

CHECK-RAS Program: Structure Check

Project File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.prj
Plan File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.p02
Geometry File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.g01
Flow File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.f01
eport File: C:\Documents and Settings\ryant\Desktop\CD\Post Project Conditions\PostProject.br
elected profiles: PF 1
Date: 4/12/2006
Time: 4:04:00 PM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure
Combined Channel,EAST						
11800			57.71	53.13	50.18	
11799.99			57.71	53.13	50.18	
11790			57.26	52.99	50.08	
11769.13			56.22	55.75	50	
11751.44			56.17	55.79	49.92	
11739.7			56.14	55.81	49.87	
11732.13			56.13	55.82	49.76	
11720			56.11	55.83	49.58	
11712.87			56.1	55.82	49.47	
11689.21			56.08	55.81	49.38	
11675			56.06	55.8	49.32	
11634.34			55.98	55.44	49.16	
11624.05			55.96	55.34	49.11	
11618.85			55.94	55.23	49.09	
11596.34			55.88	55.19	49	
11527.17			55.65	54.65	48.73	
11500			55.54	54.55	48.62	
11450			55.35	54.37	48.42	
11400			55.16	54.19	48.22	
11377.99			55.08	54.11	48.13	
11350			54.98	54.01	48.02	
11300			54.8	53.85	47.82	
11278.76			54.72	53.78	47.73	
11250			54.61	53.68	47.62	
11200			54.44	53.53	47.42	
11175.26			54.35	53.45	47.32	
11154.55			54.28	53.39	47.24	
11125			54.2	53.33	47.12	
11116.35			54.17	53.31	47.08	
11100			54.11	53.22	46.98	
11050			53.93	52.88	46.67	
11033.37			53.86	52.68	46.57	
11007.4			53.77	52.3	46.41	
10973.86			53.64	51.37	46.2	
10950.26			53.46	49.93	46.06	
10909.89			53.1	47.83	44.37	
10834.9			52.14	43.87	41.24	
10834.89			52.06	44.04	41.24	Lid
10599.9			48.56	43.37	39.88	Lid
10599.89			48.53	43.14	39.88	Lid
10529.91			47.78	43.75	39.47	Lid
10429.91			47.29	42.59	38.63	Lid
10429.9			47.17	42.9	38.63	Lid
10289.92			46.06	39.87	36.32	Lid
10289.91			46.04	39.74	36.32	Lid
10209.93			43.52	22.85	19.67	
10124.93			40.01	23.91	20.31	
10124.92			39.93	24.11	20.31	
9999.93			35.62	22.5	19.67	
9999.92			35.6	22.31	19.67	
9905.49			33.15	22.08	19.19	
9845.49			31.81	22.32	18.88	
9245.49			25.61	20.15	15.88	
North Channel,WEST						
18653.05			133.23	129.65	127.07	
18603.05			132.78	128.67	126.35	
18354.06			130.04	124.83	122.77	
18314.47			129.45	124.36	122.2	Lid
17036.02			114.34	110.18	107.91	Lid
16991.39			113.84	109.88	107.51	Lid
16271.91			108.06	104.29	101.86	Lid
16221.83			107.59	103.7	101.46	Lid
15874.83			104.79	102.15	99.56	
15824.82			104.49	102.47	99.22	
15635.6			103.64	100.56	97.93	
15080.09			100	96.75	94.19	
15015.09			99.41	95.69	93.76	Lid
14592.55			94.42	90.07	88.41	
14542.55			93.77	89.36	87.71	
14252.5			90.73	85.6	81.74	

14092.97		89.04	82.53	79.1	
13987.91		87.59	78.45	75.56	
13887.91		86.38	77.86	74.86	
13787.91		85.31	77.24	74.16	
13687.91		84.36	76.6	73.46	
13602.91		83.45	76.11	72.88	
13582.54		83.02	74.55	72.74	
13562.17		82.44	73.88	72.59	
13562.16		82.37	74.04	72.59	
13557.18					
	78.59	80.29	82.36	74.06	72.59 Bridge #1-Up
13557.18					
	78.49	80.29	81.98	73.99	80.29 Bridge #1-Dn
13552.2			81.98	73.97	72.49
13478.79			79.8	73.87	72.15
13476.6			79.75	73.87	72.14
13425.61			78.75	73.87	71.97
13410.61			78.51	73.86	71.92
13353.48			77.7	73.87	71.73
13343.61			77.58	73.88	71.7
13343.6			77.55	73.59	71.7
13333.3			76.87	76.44	71.66
13323			76.86	76.45	71.62
13307.38			76.81	76.55	71.56
13291.77			76.79	76.58	71.49
13267.98			76.78	76.5	71.4
13244.2			76.76	76.28	71.3
13234.75			76.73	76.06	71.26
13234.74			76.73	76.06	71.26
13229.38			76.71	76.01	71.24
13229.37			76.71	76.01	71.24
13221.37			76.68	75.98	71.21
13167.84			76.47	75.69	70.99
13114.31			76.17	74.99	70.76
13114.3			76.17	74.99	70.76
13060.1			75.8	74.97	70.54
13044.11			75.73	74.95	70.48
13044.1			75.7	75	70.43
13018.22			75.65	75	70.37
13018.21			75.65	75	70.37
13010.22			75.63	74.98	70.34
13010.21			75.63	74.97	70.34
12954.02			75.42	74.66	70.11
12943.65			75.38	74.58	70.07
12906.81			75.22	74.4	69.92
12869.97			75.06	74.32	69.76
12869.96			75.05	74.32	69.76
12829.26			74.91	74.25	69.6
12788.55			74.78	74.2	69.43
12788.54			74.78	74.2	69.43
12780.55			74.76	74.17	69.4
12780.54			74.76	74.17	69.4
12724.23			74.56	73.87	69.17
12667.92			74.32	73.58	68.94
12667.91			74.32	73.58	68.94
12598.93			74.02	73.26	68.65
12529.94			73.54	72.24	68.37
12499.95			72.88	70.08	68.25
12499.94			72.88	70.08	68.25
12469.94			71.55	68.94	67.05
12469.93			71.49	68.19	63.47
12435.49			69.81	67.12	63.33
12401.05			68.52	65.9	63.19
12400			68.48	65.86	63.15
12350			66.63	63.8	61.15
12320			65.45	62.59	59.95
12312.18			65.14	62.26	59.62
12312.17			65.14	62.26	59.62
12278.95			63.87	61.82	58.92
12253.91			63.26	61.35	58.39
12217.72			62.56	60.68	57.62
12203.57			62.33	60.45	57.32
12162.19			61.67	59.91	56.45
12150			61.48	59.56	56.19
12125			61.07	59.05	55.66
12097.31			60.57	58.27	55.08
12097.3			60.44	58.6	55.08
12033.7			59.38	56.95	53.74
12033.69			59.36	56.83	53.74
12000			58.59	56.25	53.02
11924.18			57.25	55.49	51.94
11911.68			57.09	55.28	51.76
11899.18			56.92	55.08	51.58
11886.68			56.75	54.88	51.4
11874.18			56.58	54.69	51.22

11851.12	56.25	54.35	50.89
11828.06	55.97	55.12	50.56
11826.06	55.79	54.46	50.56
11805	55.53	53.8	50.23
South Channel,South			
12150	63.25	57.92	54.78
12100	62.75	57.42	54.28
12050	62.25	56.92	53.78
12000	61.75	56.42	53.28
11950	61.25	55.92	52.78
11924.19	60.99	55.67	52.52
11911.68	60.85	54.16	52.14
11899.18	60.58	53.65	51.77
11886.68	60.25	53.43	51.4
11874.18	59.87	53.31	51.02
11851.12	59.2	53.13	50.79
11828.06	58.61	52.95	50.56
11805	58.09	52.77	50.33

River Station: 10834.89
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 10599.9
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 10599.89
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 10529.91
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 10429.91
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 10429.9
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 10289.92
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 10289.91
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 18314.47
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 17036.02
ST GD 08 'Cross Section Lid' option is used for this section.

Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 16991.39
T GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 16271.91
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 16221.83
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

River Station: 15015.09
ST GD 08 'Cross Section Lid' option is used for this section.
Instead, Bridge or Culvert option should be used.
Cross section Lid option may be used to model small obstructions,
such as pipe crossing, or the type of flow through the lid sections
and the main stream is in supercritical flow.

RIVER/REACH: North Channel, WEST
RIVER STATION: 13557.18
TYPE OF STRUCTURE: Bridge

Description:	Desert Canyon per STANTEC Plans Dual Culvert Deck
Distance from Upstream XS:	0.1
eck/Roadway Width:	9.85
Weir Coefficient:	2.6
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	0
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	13562.17	0.01	73.88		82.44	26.67	
3	13562.16	9.96	74.04		82.37	24.01	
	13557.18	9.85	74.06		82.36	23.67	Bridge #1-Up
	13557.18	0.01	73.99		81.98	23.68	Bridge #1-Dn
2	13552.2	73.41	73.97		81.98	24.01	
1	13478.79	2.19	73.87		79.8	24.01	

Ineffective Flow, Section 3			Ineffective Flow, Section 2		
Sta L	Sta R	Elev	Sta L	Sta R	Elev

BRIDGE:
Bridge Name: Bridge #1
LowFlowMethod: Highest Energy Answer
Momentum Cd: 0
HighFlowMethod: Energy Only
SluiceGate Cd: 0 Submerged Cd: 0

---

dditional Bridge Parameters
dd Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

---

MaxLowChord: 78.59 MinTopRd: 80.3 MinElPrs: 78.59

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS	
Bridge							U
							D

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd	
Bridge #1	86.74	113.43	80.29	80.29	80.29	78.59	U
	86.74	113.43	80.29	80.29	80.29	78.49	D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
Bridge #1	807	807	0	Energy only	Sluicegate Pressure and Weir Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

RS: 13557.18 This is Bridge #1
BR PW 01 Type of sluicegate pressure and weir flow because,
1. EGEL 3 of 82.37 is greater than MinTopRd of 80.30.
2. EGEL 3 of 82.37 is equal to or greater than MxLoCdU of 78.59.
3. WSEL 2 of 73.97 is less than MxLoCdD of 78.49.

DISTANCE CHECK

RS: 13557.18 This is Bridge #1
ST DT 01 'Distance from Upstream XS' of 0.10 is less than the height of the bridge opening of 6.00
Section 3 should be placed at the foot of the road embankment or wing walls.
Distances at Sections 4 & 3, and 'Distance from Upstream XS' should be adjusted.

INEFFECTIVE FLOW CHECK

RS: 13552.2 This is section 2
ST GD 05 Weir flow occurs at Bridge
The velocity head at Section 2 is more than 0.5 foot and more than the velocity head at Section 1.
Section 2 should be recoded to represent the natural valley cross section.

---END

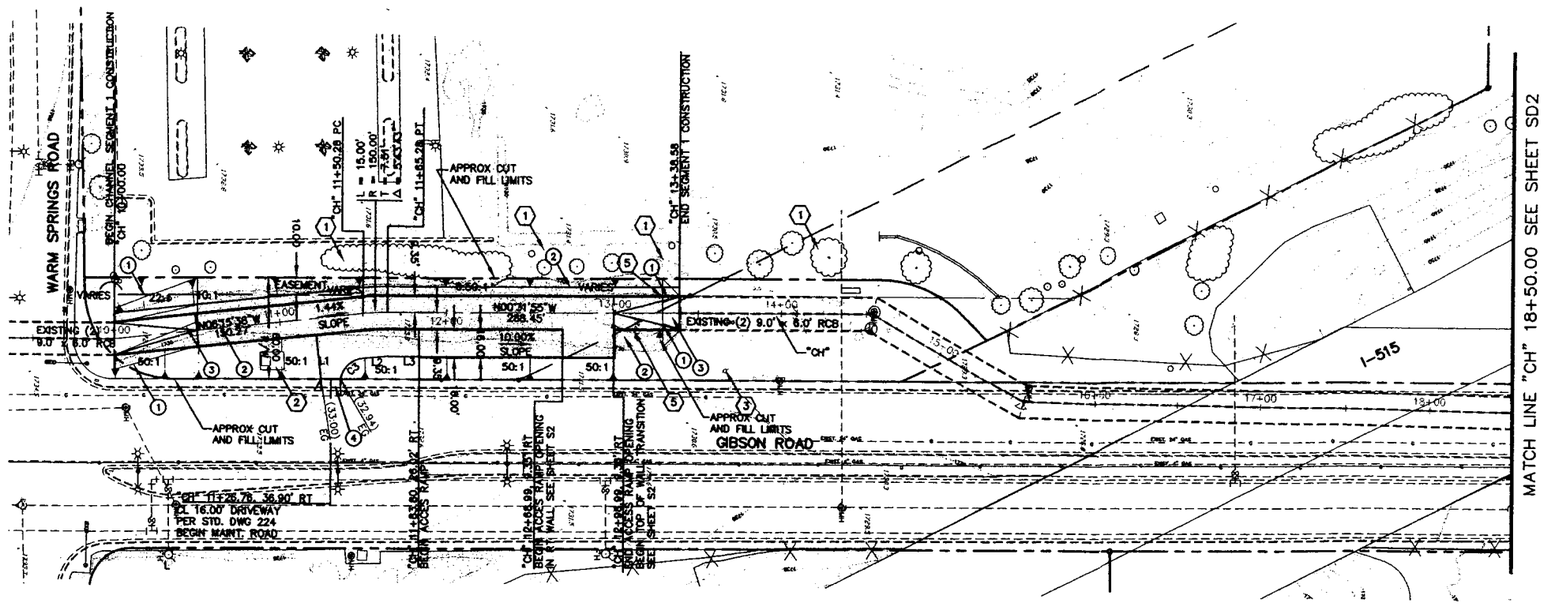
APPENDIX E

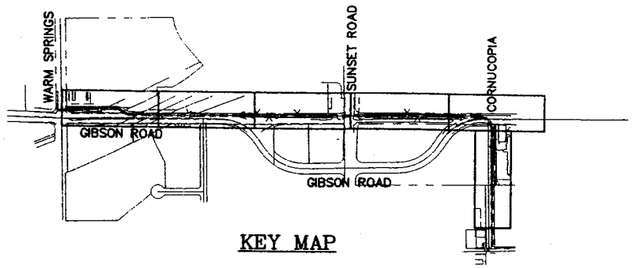
REFERENCE MATERIAL

GIBSON CHANNEL – VTN NEVADA

(Warm Springs to Cornucopia Avenue)

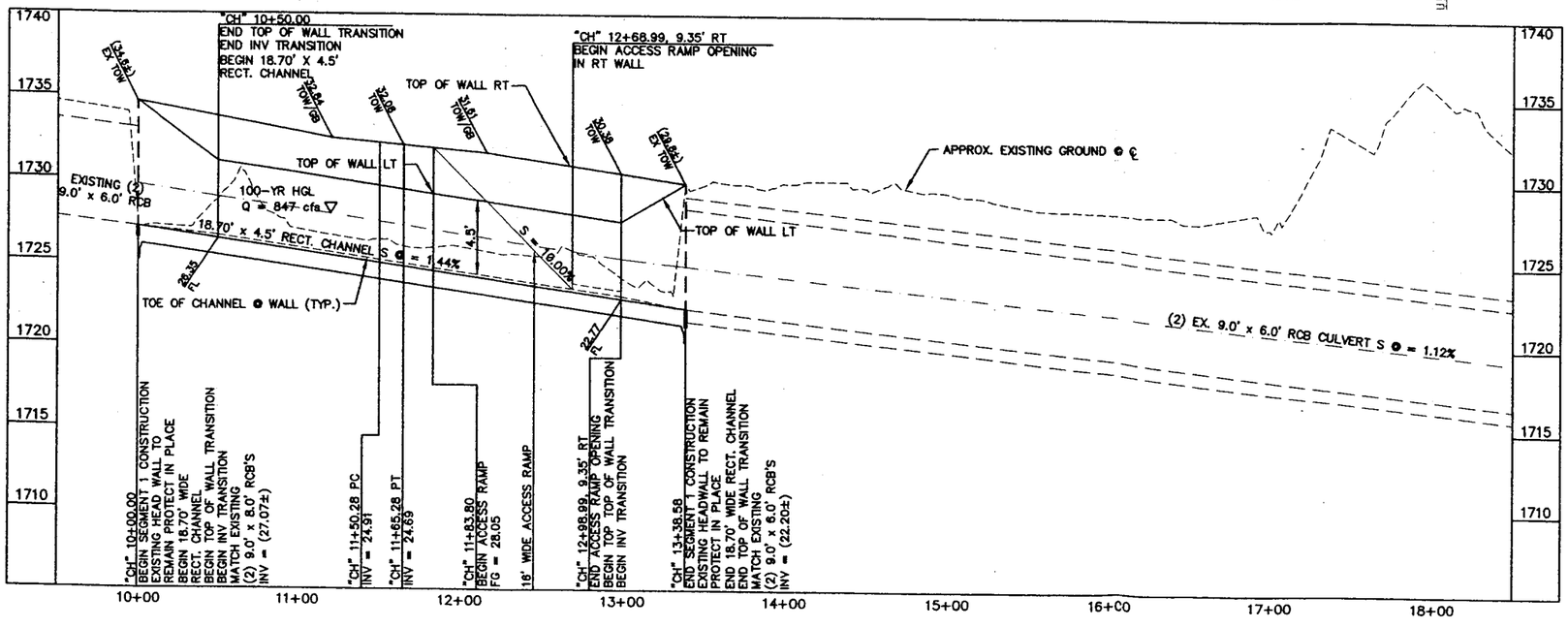
CHANNEL PLAN & PROFILE

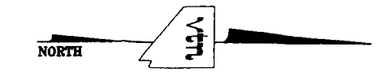




KEY MAP

SEGMENT 1
SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS





LEGEND

RIGHT-OF-WAY

PROPOSED MAINTENANCE ROAD

REMOVAL NOTES:

1. EXISTING CONCRETE TRANSITION & WINGWALL TO BE REMOVED
2. EXISTING GROUTED/RIP RAP SECTION TO BE REMOVED
3. EXISTING CONCRETE CHANNEL/APRON TO BE REMOVED
4. EXISTING CONCRETE CURB & GUTTER TO BE REMOVED

CONSTRUCTION NOTES:

1. LANDSCAPE AREA RESTORE TO EXISTING OR BETTER CONDITIONS
2. EXISTING ELECTRICAL BOX PROTECT IN PLACE
3. EXISTING POWER POLE PROTECT IN PLACE
4. NOT USED
5. CONSTRUCT CHANNEL LADDER SEE DETAIL SHEET F5

NOTES:

CONTRACTOR SHALL VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

FOR CHANNEL CONSTRUCTION AND EXPANSION JOINTS, WALL DRAIN AND STRUCTURAL DETAILS REFER TO DRAWINGS S1–S10.

FOR FENCING GATE, POST & CABLE RAILING AND SIGN PLAN REFER TO DRAWINGS F1 – F3.

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ACCESS ROAD CURVE TABLE				
CURVE	LENGTH	RADIUS	TANGENT	DELTA
C1	22.85	15.52	14.06	84°22'02"

ACCESS ROAD LINE TABLE		
LINE	LENGTH	BEARING
L1	26.29	N83°44'22"E
L2	12.29	N05°04'17"W
L3	51.13	N00°31'55"W

ABOVE AND UNDERGROUND UTILITY LINES EXIST. CALL BEFORE YOU DIG OVERHEAD

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Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE (USA)
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AND
CLARK COUNTY TRAFFIC MANAGEMENT 702-455-7991

REVIEWED BY _____ DATE: _____

REV	DATE	BY	REVISION

DEPARTMENT OF PUBLIC WORKS
CITY OF HENDERSON

vtn nevada
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LAS VEGAS, NEVADA 89146-5148 PHONE (702) 873-7550 FAX (702) 362-2597

TITLE: CHANNEL PLAN & PROFILE "CH" 10+00.00 TO "CH" 18+50.00

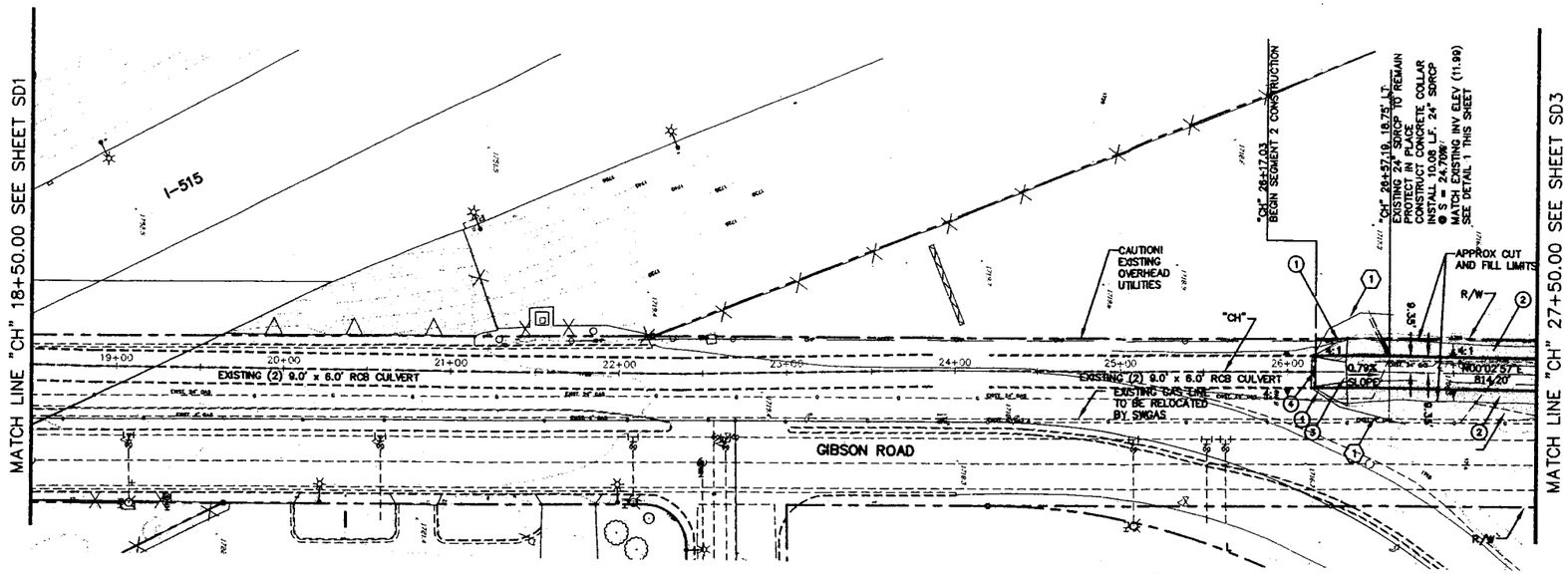
PROJECT: GIBSON CHANNEL
WARM SPRINGS ROAD TO CORNUCOPIA AVENUE

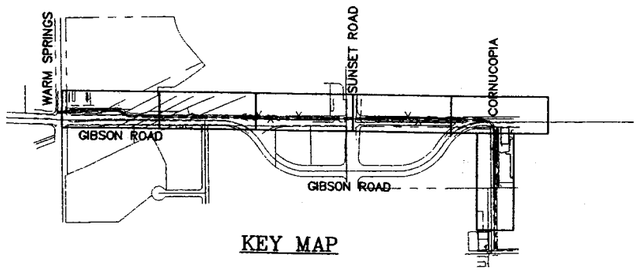
SEAL
PROFESSIONAL ENGINEER STATE OF NEVADA
JEREMY P. LEAVITT
EXP. 12/31/06
CIVIL
No. 15536
6-16-05

WO. NO.	6511
DESIGNED BY	JPL
DRAWN BY	BAH
DATE	8-16-05
SCALE	HORIZ. AS SHOWN VERT. AS SHOWN
DRAWING	SD1
SHEET	16 OF 27 SHEETS

FINAL

E:\6511\DWG\DES...DWG





KEY MAP

SEGMENT 2
SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS

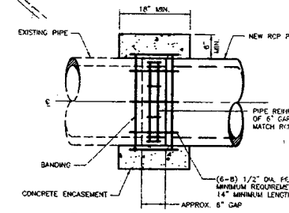
NOTES:

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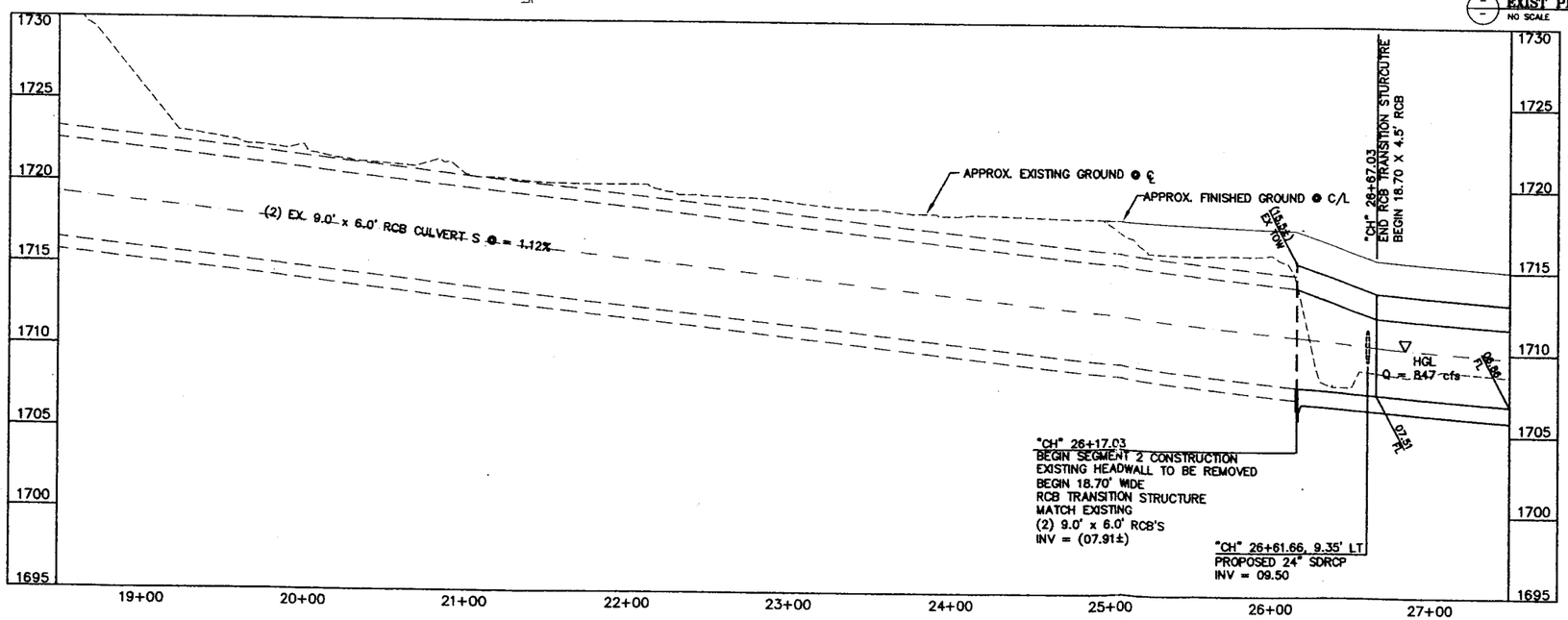
FOR CHANNEL CONSTRUCTION AND EXPANSION JOINTS, WALL DRAIN AND STRUCTURAL DETAILS REFER TO DRAWINGS S1–S10.

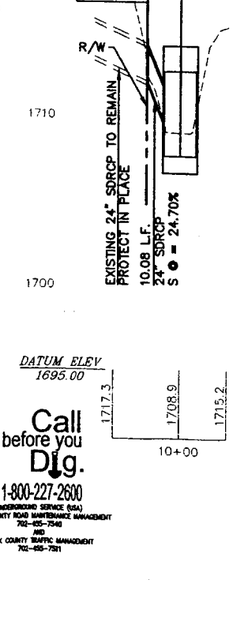
FOR FENCING GATE, POST & CABLE RAILING AND SIGN PLAN REFER TO DRAWINGS F1 – F3.

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TYPICAL NEW RCP TO EXIST PIPE CONNECTION DETAIL
NO SCALE





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Call before you Dig.
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UNDERGROUND SERVICE (USA)
CLARK COUNTY ROAD MAINTENANCE MANAGEMENT 702-455-7540
AND
CLARK COUNTY TRAFFIC MANAGEMENT 702-455-7511

NORTH

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

LEGEND
RIGHT-OF-WAY
PROPOSED MAINTENANCE ROAD

REMOVAL NOTES:
1. EXISTING CONCRETE TRANSITION & WINGWALL TO BE REMOVED
2. EXISTING GROUTED/RIP RAP SECTION TO BE REMOVED
3. EXISTING CONCRETE CHANNEL/APRON TO BE REMOVED
4. EXISTING CONCRETE HEADWALL TO REMAIN PROTECT IN PLACE

CONSTRUCTION NOTES:
1. EXISTING CONCRETE BARRIER RAIL TO BE REMOVED

REVIEWED BY _____ DATE: _____

DEPT. OF PUBLIC WORKES
CITY OF HENDERSON

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LAS VEGAS, NEVADA 89146-5148 PHONE (702) 873-7550 FAX (702) 362-2597

REV	DATE	BY	REVISION

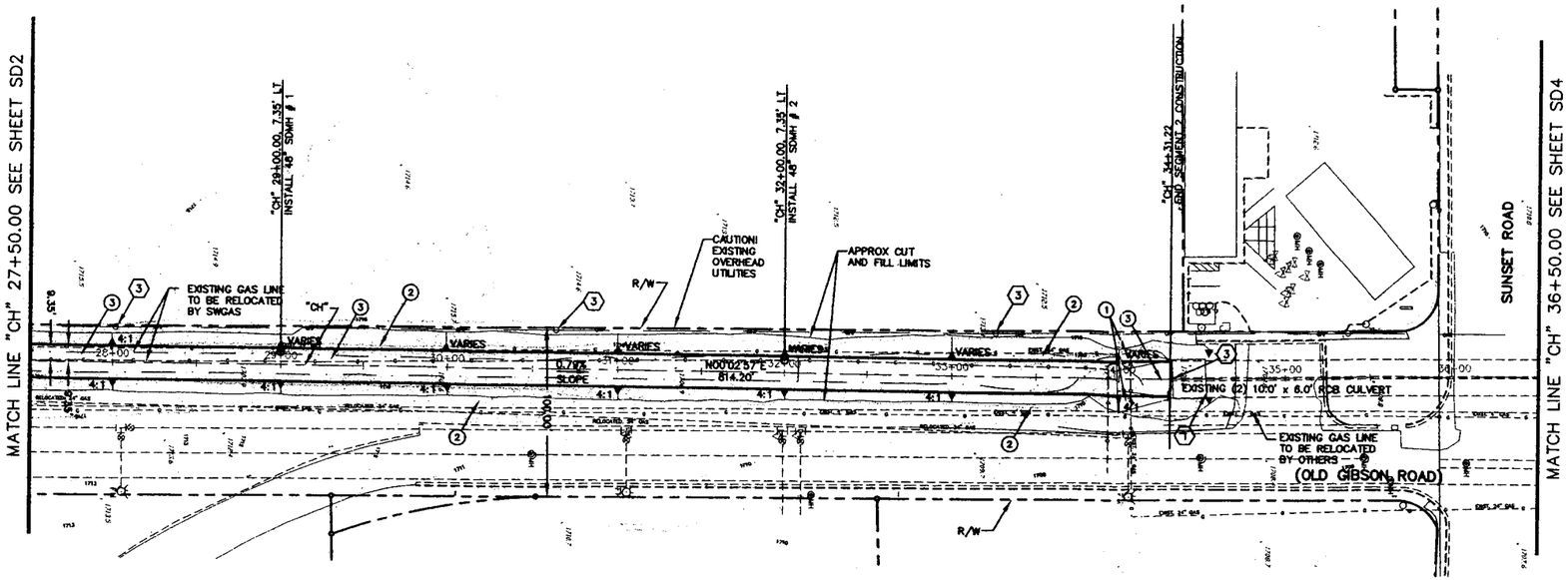
TITLE: CCHANNEL PLAN AND PROFILE "CH" 18+50.00 TO "CH" 27+50.00
PROJECT: GIBSON CHANNEL
WARM SPRINGS ROAD TO CORNUCOPIA AVENUE

SEAL
PROFESSIONAL ENGINEER STATE OF NEVADA
JEREMY P. LEAVITT
EXP. 12/31/06
CIVIL
No 15536

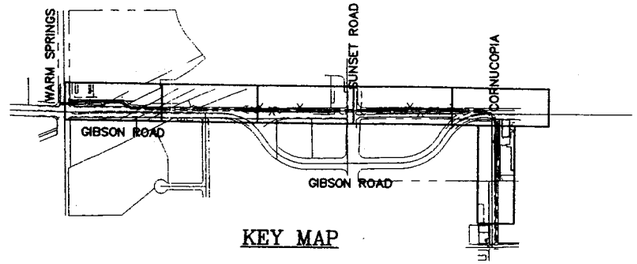
W.O. NO.	6511
DESIGNED BY	JPL
DRAWN BY	BAH
DATE	8-16-05
SCALE	HORIZ. AS SHOWN VERT. AS SHOWN
DRAWING	SD2
SHEET	17 OF 27 SHEETS

FINAL

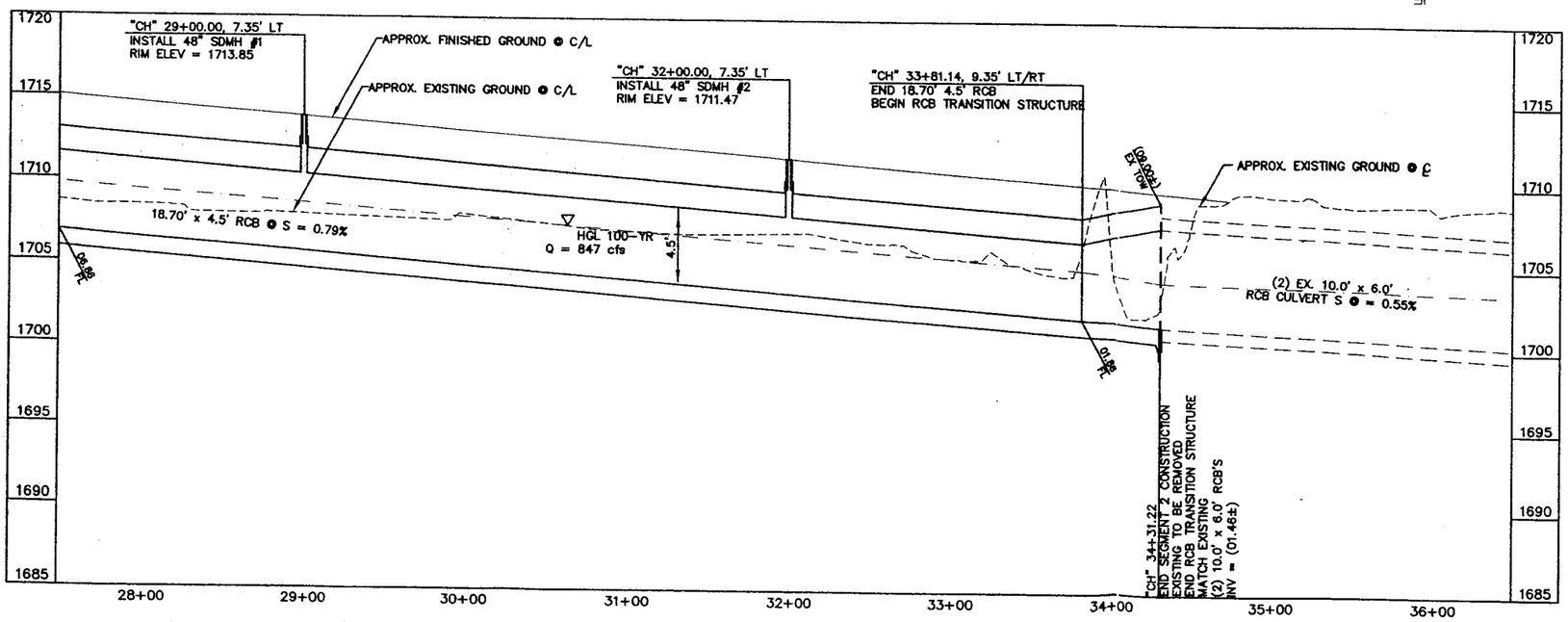
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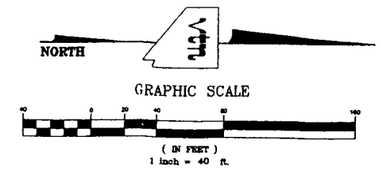


SEGMENT 2
SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS



KEY MAP





LEGEND

RIGHT-OF-WAY

PROPOSED MAINTENANCE ROAD

REMOVAL NOTES:

1. EXISTING CONCRETE TRANSITION & WINGWALL TO BE REMOVED
2. EXISTING GROUTED/RIP RAP SECTION TO BE REMOVED
3. EXISTING CONCRETE CHANNEL/APRON TO BE REMOVED

CONSTRUCTION NOTES:

1. EXISTING CONCRETE BARRIER RAIL TO BE REMOVED
2. EXISTING HEADWALL TO REMAIN PROTECT IN PLACE
3. EXISTING POWER POLE PROTECT IN PLACE

NOTES:

CONTRACTOR SHALL VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

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DATE:

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DEPT. OF PUBLIC WORKS
CITY OF HENDERSON

TITLE: CHANNEL PLAN AND PROFILE "CH" 27+50.00 TO "CH" 36+50.00

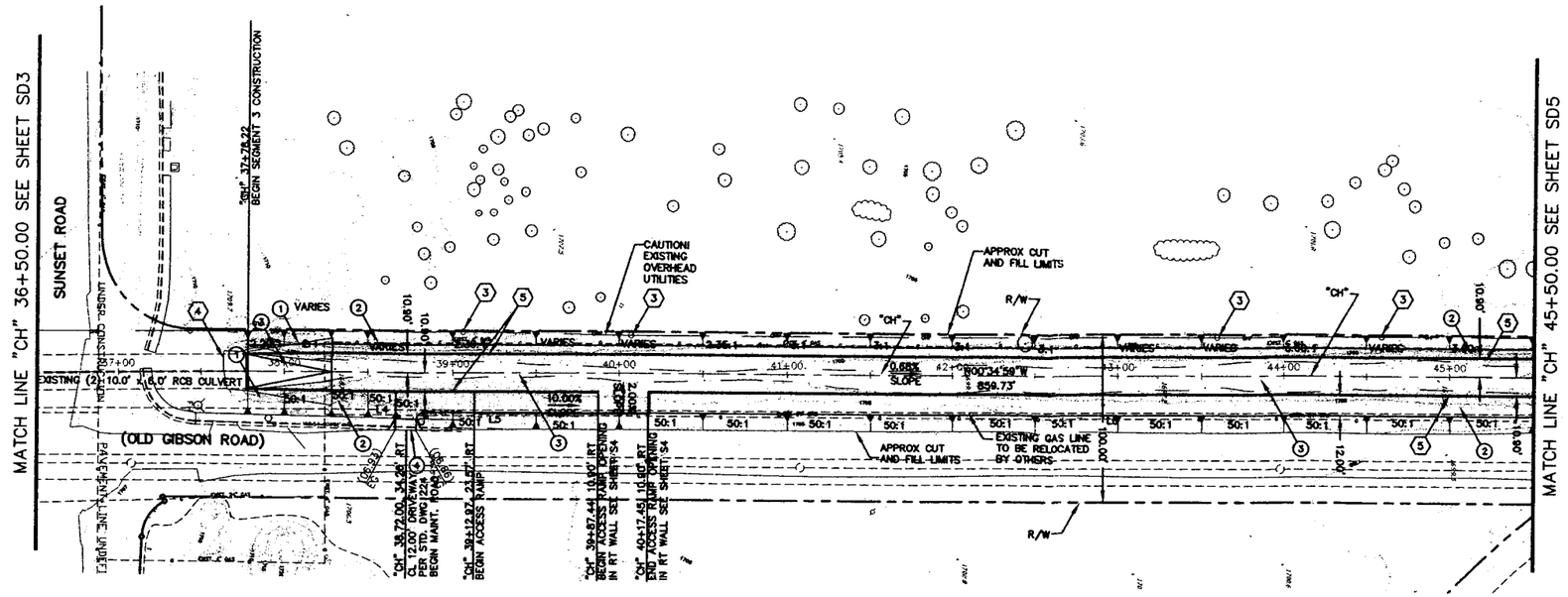
PROJECT: GIBSON CHANNEL
WARM SPRINGS ROAD TO CORNUCOPIA AVENUE

SEAL
PROFESSIONAL ENGINEER-STATE OF NEVADA
JEREMY P. LEAVITT
EXP. 12/31/05
CIVIL
No. 15536

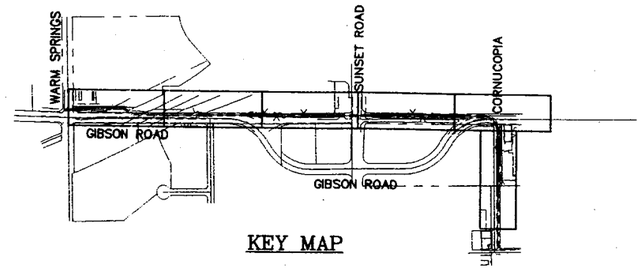
WO. NO.	6511
DESIGNED BY	JPL
DRAWN BY	BAH
DATE	8-16-05
SCALE HORIZ.	AS SHOWN
SCALE VERT.	AS SHOWN
DRAWING	SD3
SHEET	18 OF 27 SHEETS

FINAL

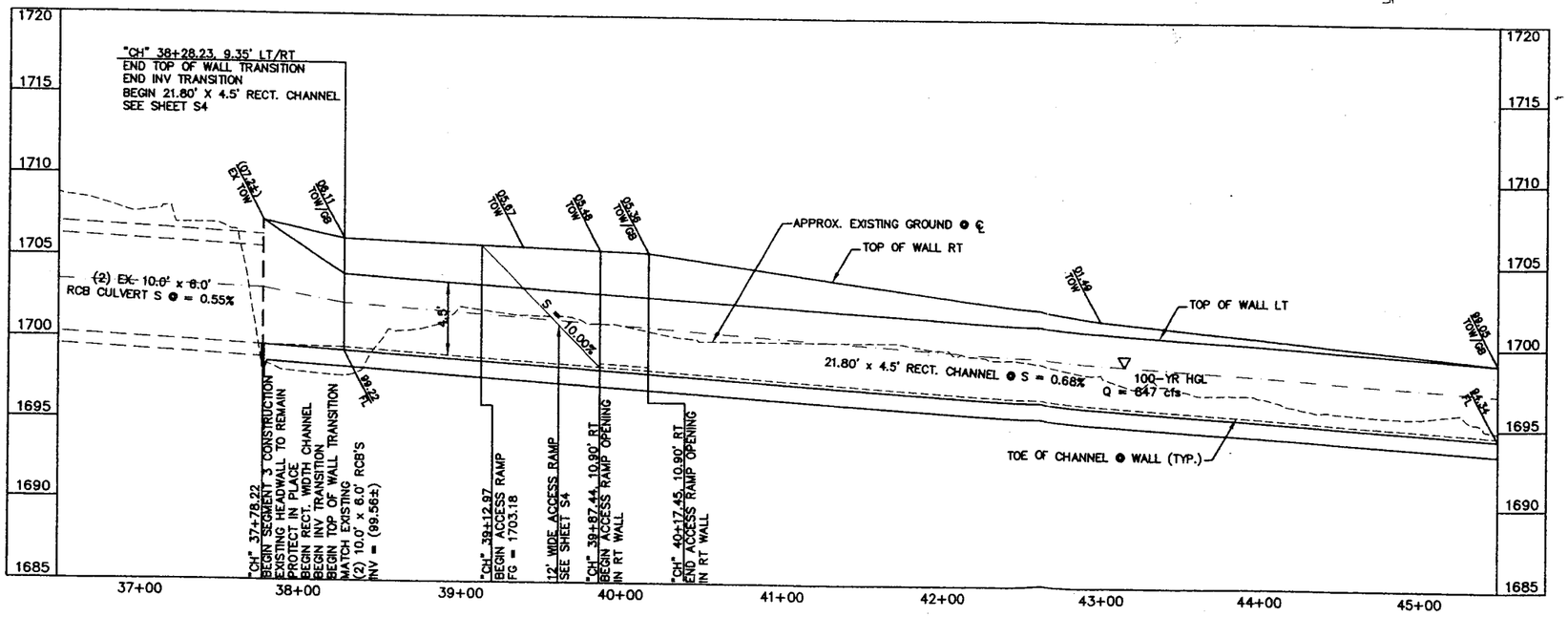
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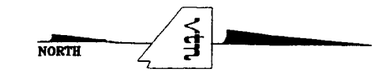


SEGMENT 3
SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS



KEY MAP





LEGEND

RIGHT-OF-WAY

PROPOSED MAINTENANCE ROAD

REMOVAL NOTES:

1. EXISTING CONCRETE TRANSITION & WINGWALL TO BE REMOVED
2. EXISTING GROUTED/RIP RAP SECTION TO BE REMOVED
3. EXISTING CONCRETE CHANNEL/APRON TO BE REMOVED
4. EXISTING CONCRETE CURB AND GUTTER TO BE REMOVED REMOVED

CONSTRUCTION NOTES:

1. NOT USED
2. NOT USED
3. EXISTING POWER POLE PROTECT IN PLACE
4. EXISTING CONCRETE BARRIER RAIL TO REMAIN PROTECT IN PLACE
5. CONSTRUCT CHANNEL LADDER SEE DETAIL SHEET F6

NOTES:

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ACCESS ROAD CURVE TABLE

CURVE	LENGTH	RADIUS	TANGENT	DELTA
C4	7.08	4.94	4.30	82°00'00"
C5	11.01	10.00	6.14	63°05'17"
C6	22.00	19.89	12.28	63°21'45"

ACCESS ROAD LINE TABLE

LINE	LENGTH	BEARING
L4	16.00	N69°27'19"W
L5	55.99	N00°34'59"W
L6	551.29	N00°34'59"W
L7	78.37	N02°22'03"E
L8	5.67	N65°27'20"E
L9	11.60	N02°17'10"E
L10	6.91	N65°27'20"E



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REV	DATE	BY	REVISION

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TITLE: CHANNEL PLAN AND PROFILE "CH" 36+50.00 TO "CH" 45+50.00

PROJECT: GIBSON CHANNEL
WARM SPRINGS ROAD TO CORNUCOPIA

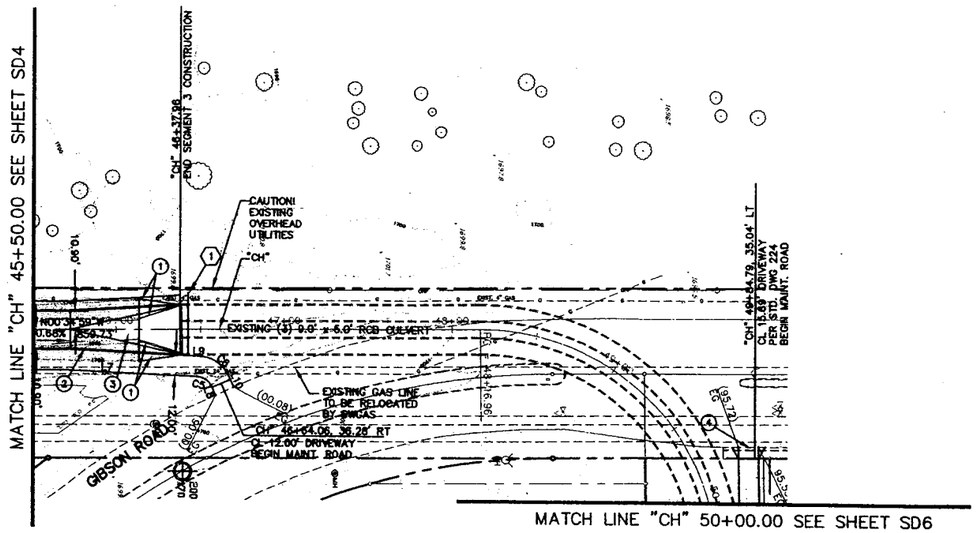
SEAL



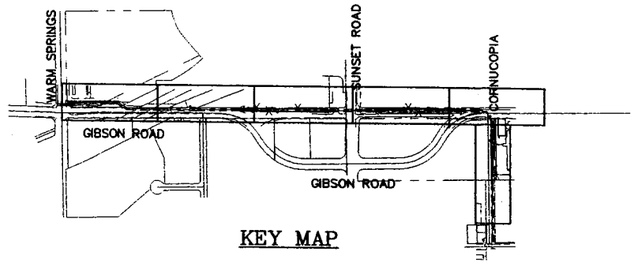
W.O. NO.	6511
DESIGNED BY	JPL
DRAWN BY	BAH
DATE	8-16-05
SCALE	HORIZ. AS SHOWN VERT. AS SHOWN
DRAWING	SD4
SHEET	19 OF 27 SHEETS

FINAL

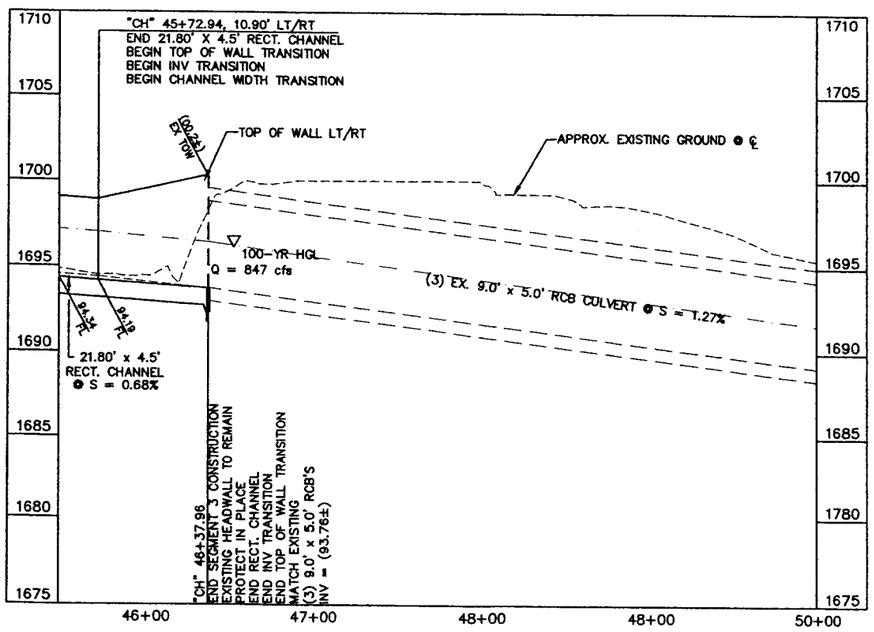
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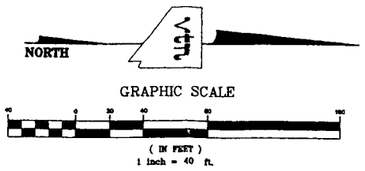


SEGMENT 3
SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS



KEY MAP





LEGEND

RIGHT-OF-WAY

PROPOSED MAINTENANCE ROAD

REMOVAL NOTES:

1. EXISTING CONCRETE TRANSITION & WINGWALL TO BE REMOVED
2. EXISTING GROUTED/RIP RAP SECTION TO BE REMOVED
3. EXISTING CONCRETE CHANNEL/APRON TO BE REMOVED
4. EXISTING CONCRETE CURB AND GUTTER TO BE REMOVED

CONSTRUCTION NOTES:

1. INSTALL PPCBR FROM "CH" 46+42.85, 22.00' LT TO "CH" 46+42.50, 15.50' RT

NOTES:

CONTRACTOR SHALL VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

FOR CHANNEL CONSTRUCTION AND EXPANSION JOINTS, WALL DRAIN AND STRUCTURAL DETAILS REFER TO DRAWINGS S1-S10.

FOR FENCING GATE, POST & CABLE RAILING AND SIGN PLAN REFER TO DRAWINGS F1 - F3.

CONTRACTOR SHALL VERIFY EXISTING INVERTS AND EXISTING FINISHED GRADE OF MATCH POINTS PRIOR TO CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

ACCESS ROAD CURVE TABLE				
CURVE	LENGTH	RADIUS	TANGENT	DELTA
C4	7.08	4.94	4.30	82°00'00"
C5	11.01	10.00	6.14	63°05'17"
C6	22.00	19.89	12.28	63°21'45"

ACCESS ROAD LINE TABLE		
LINE	LENGTH	BEARING
L4	16.06'	N89°27'19"W
L5	55.99	N00°34'59"W
L6	551.29	N00°34'59"W
L7	78.37	N82°22'03"E
L8	5.67	N65°27'20"E
L9	11.66	N02°17'10"E
L10	6.91	N65°27'20"E



Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE (USA)
CLARK COUNTY ROAD MAINTENANCE MANAGEMENT
702-455-7540
AND
CLARK COUNTY TRAFFIC MANAGEMENT
702-455-7501

REVIEWED BY _____ DATE: _____

DEPT. OF PUBLIC WORKES
CITH OF HENDERSON

vtn nevada
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148 PHONE (702) 873-7550 FAX (702) 362-2597

REV	DATE	BY	REVISION

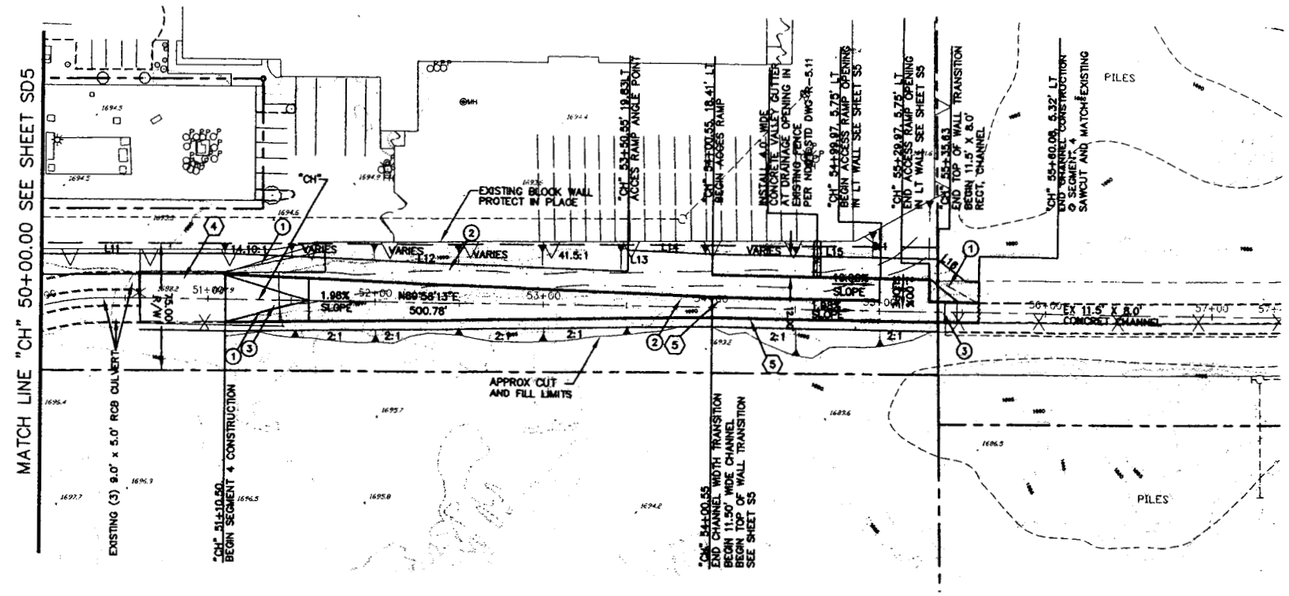
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PROJECT: GIBSON CHANNEL
WARM SPRINGS ROAD TO CORNUCOPIA AVENUE

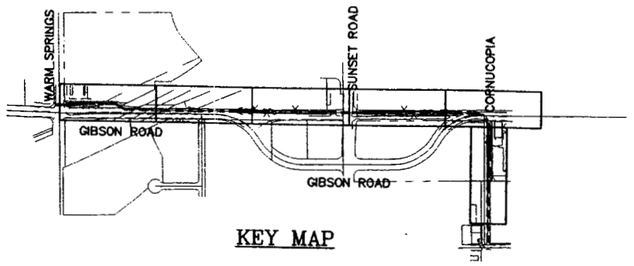
SEAL
INTERNATIONAL ENGINEER
JEREMY P. LEAVITT
EXP. 12/31/06
CIVIL
No 15536
8-16-05

WO. NO.	6511
DESIGNED BY	JPL
DRAWN BY	BAH
DATE	8-16-05
SCALE	HORIZ. AS SHOWN VERT. AS SHOWN
DRAWING	SD5
SHEET	20 OF 27 SHEETS

FINAL

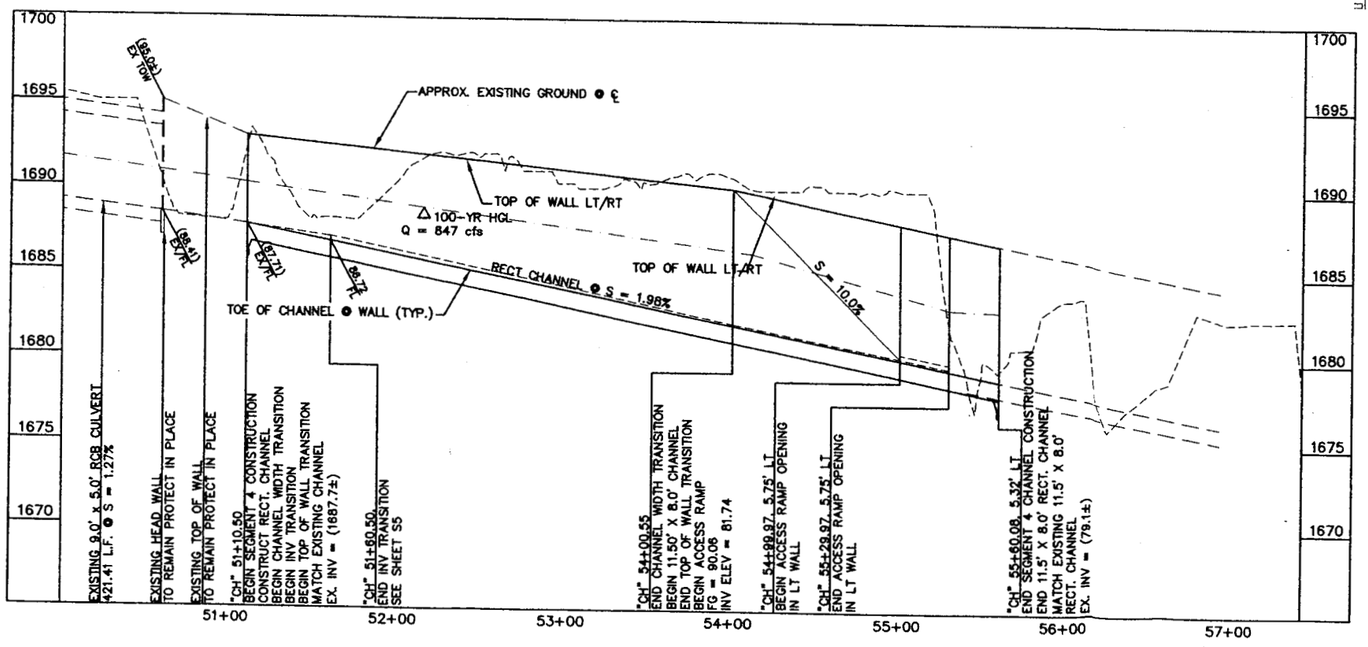
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WG





KEY MAP

SEGMENT 4
SEE SHEET S1 THRU S10
FOR STRUCTURAL DETAILS





Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE (USA)
CLARK COUNTY ROAD MAINTENANCE MANAGEMENT 702-455-7540
AND
CLARK COUNTY TRAFFIC MANAGEMENT 702-455-7511
AVOID TYING BETWEEN ASHEN CABLE AT OVERHEAD
CALL BEFORE YOU DIG OVERHEAD
1-702-593-6111

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

LEGEND
RIGHT-OF-WAY
PROPOSED MAINTENANCE ROAD

REMOVAL NOTES:
1. EXISTING CONCRETE TRANSITION & WINGWALL TO BE REMOVED
2. EXISTING GROUTED/RIP RAP SECTION TO BE REMOVED
3. EXISTING CONCRETE CHANNEL/APRON TO BE REMOVED

CONSTRUCTION NOTES:
1. NOT USED
2. NOT USED
3. NOT USED
4. EXISTING CONCRETE APRON PROTECT IN PLACE
5. CONSTRUCT CHANNEL LADDER SEE DETAIL SHEET F6

NOTES:

CONTRACTOR SHALL VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

FOR CHANNEL CONSTRUCTION AND EXPANSION JOINTS, WALL DRAIN AND STRUCTURAL DETAILS REFER TO DRAWINGS S1–S10.

FOR FENCING GATE, POST & CABLE RAILING AND SIGN PLAN REFER TO DRAWINGS F1 – F3.

CONTRACTOR SHALL VERIFY EXISTING INVERTS AND EXISTING FINISHED GRADE OF MATCH POINTS PRIOR TO CONSTRUCTION, AND PROVIDE THIS INFORMATION TO THE CITY IN ACCORDANCE WITH SPECIAL PROVISIONS AND SUPPLEMENTARY SPECIFICATIONS.

ACCESS ROAD LINE TABLE

LINE	LENGTH	BEARING
L11	137.13	N89°00'37"E
L12	240.51	S88°24'24"E
L13	12.66	N00°01'47"W
L14	56.02	S88°24'24"E
L15	134.17	N89°58'13"E
L16	21.98	S52°22'10"E

REVIEWED BY _____ DATE: _____

DEPT. OF PUBLIC WORKES
CITY OF HENDERSON

CONSULTING ENGINEERS ● PLANNERS ● LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89146-5148 PHONE (702) 873-7550 FAX (702) 362-2597

REV	DATE	BY	REVISION

TITLE: CHANNEL PLAN AND PROFILE "CH" 50+00.00 TO "CH" 55+60.08
PROJECT: GIBSON CHANNEL WARM SPRINGS ROAD TO CORNUCOPIA

SEAL
PROFESSIONAL ENGINEER - STATE OF NEVADA - JEREMY P LEAVITT EXP. 12/31/05 CIVIL #9936
8-16-05

WO. NO.	6511
DESIGNED BY	JPL
DRAWN BY	BAH
DATE	8-16-05
SCALE HORIZ.	AS SHOWN
SCALE VERT.	AS SHOWN
DRAWING	SD6
SHEET	21 OF 27 SHEETS

FINAL

I:\6511\DWG\SD6.DWG

DESERT CANYON OPEN SPACE CHANNEL

(STANTEC CONSULTING INC.)

CHANNEL PLAN & PROFILE

GENERAL NOTES

STANDARD GENERAL NOTES (REV. 3/99) (UPDATE 10/00)

1. ALL CONSTRUCTION SHALL CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, 1986, AND THE UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, 1986

2. APPLICATION FOR INSPECTION BY THE CITY OF HENDERSON PUBLIC WORKS SHALL BE MADE BY THE CONTRACTOR AT LEAST 24 HOURS BEFORE THE INSPECTION SERVICES WILL BE REQUIRED, 556-3144.

3. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.

4. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUNOFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH SUBDIVISION CONSTRUCTION.

5. PRIOR TO FINAL ACCEPTANCE, BOND RELEASES, AND A CERTIFICATE OF OCCUPANCY, A CERTIFIED LEGIBLE AS-BUILT DRAWING MUST BE SUBMITTED TO THE CITY OF HENDERSON. AS-BUILT MUST SHOW ALL CHANGES AND ACTUAL FIELD LOCATIONS. IN THE ABSENCE OF CHANGES, A COPY OF APPROVED DRAWINGS WILL BE REQUIRED STATING "INSTALLED AS PER DRAWINGS" AND CERTIFIED AS SUCH BY THE DEVELOPER'S ENGINEER.

6. APPROVAL OF THESE PLANS IS FOR THE CONSTRUCTION OF OFFSITE IMPROVEMENTS ONLY. ALL ONSITE IMPROVEMENTS, AS DEFINED BY CITY OF HENDERSON, INCLUDING BLOCK WALLS, MUST BE APPROVED BY THE BUILDING AND PLANNING DIVISIONS OF THE CITY OF HENDERSON.

7. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND OF INGRESS AND EGRESS TO SAID CONSTRUCTION, EXTENT OF TRANSITIONS TO BE DETERMINED BY THE CITY ENGINEER.

8. EXISTING UTILITIES ARE LOCATED ON PLANS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR THE PROTECTION OF UTILITIES AND THE ENGINEER BEARS NO RESPONSIBILITY FOR UTILITIES NOT SHOWN ON THE PLANS OR NOT IN THE LOCATION SHOWN ON THE PLANS. THIS INCLUDES ALL SERVICE LATERALS OF ANY KIND.

9. POWER POLES AND/OR OTHER EXISTING FACILITIES NOT IN PROPER LOCATION BASED ON PROPOSED IMPROVEMENTS SHOWN HEREON WILL BE RELOCATED AT NO EXPENSE TO THE CITY OF HENDERSON.

10. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING NO. 235. EXACT LOCATION OF RAMPS SHALL BE DETERMINED IN THE FIELD BY A CITY INSPECTOR, OR AS SHOWN ON PLAN.

11. CURB AND GUTTER WITH A GRADE OF LESS THAN FIVE-TENTHS OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.

12. ALL GRADING SHALL CONFORM TO THE SOILS REPORT:

ENGINEER: OWENS GEOTECHNICAL
DATE: 09/20/02
JOB NUMBER: E-02-175

13. EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PRELIMINARY GEOTECHNICAL REPORT.

14. ALL STREET STRUCTURAL SECTIONS SHALL BE PER THE RECOMMENDATIONS OF THE SOILS ENGINEER, BASED ON CBR OR R-VALUES. NO PAVING OR BASE WORK SHALL COMMENCE UNTIL A STREET STRUCTURAL SECTION IS APPROVED BY THE CITY ENGINEER, CITY OF HENDERSON.

15. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING PUBLIC STREETS IMMEDIATELY AFTER THE FIRST GRADING WORK IS ACCOMPLISHED AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "NEVADA TRAFFIC CONTROL MANUAL" - CURRENT EDITION AND TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" - CURRENT EDITION AND BE APPROVED BY THE CITY OF HENDERSON BEFORE CONSTRUCTION BEGINS.

16. WHERE EXISTING PAVEMENT IS CUT TO INSTALL UTILITY SERVICE LINES, BACKFILL AND PAVEMENT REPLACEMENT SHALL BE DONE PER STANDARD DRAWING SS02 AND SECTION 206, 207, AND 208 OF THE STANDARD SPECIFICATION ISSUE, 1986.

17. ALL STATIONING IS REFERENCED TO CENTERLINE.

18. EXACT LOCATION OF ALL SAWCUT LINES SHALL BE DETERMINED IN THE FIELD BY A CITY OF HENDERSON INSPECTOR.

19. PROTECTION AND REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES NOT DELINEATED ON THE CONTRACT DRAWINGS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES SHALL BE DONE TO THE COH SURVEY SECTION'S SATISFACTION.

20. AFFECTED UTILITY COMPANIES SHALL BE NOTIFIED AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

21. CALL BEFORE YOU DIG, 1-800-227-2600.

22. MODIFICATIONS TO EXISTING UTILITIES SHALL CONFORM TO THE OWNER'S UTILITY STANDARDS AND SPECIFICATIONS.

23. THE CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING IMPROVEMENTS FROM DAMAGE AND ALL SUCH IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR RECONSTRUCTED TO THE ENGINEER'S SATISFACTION AT THE EXPENSE OF THE CONTRACTOR.

24. CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED BY _____, 20 ____.

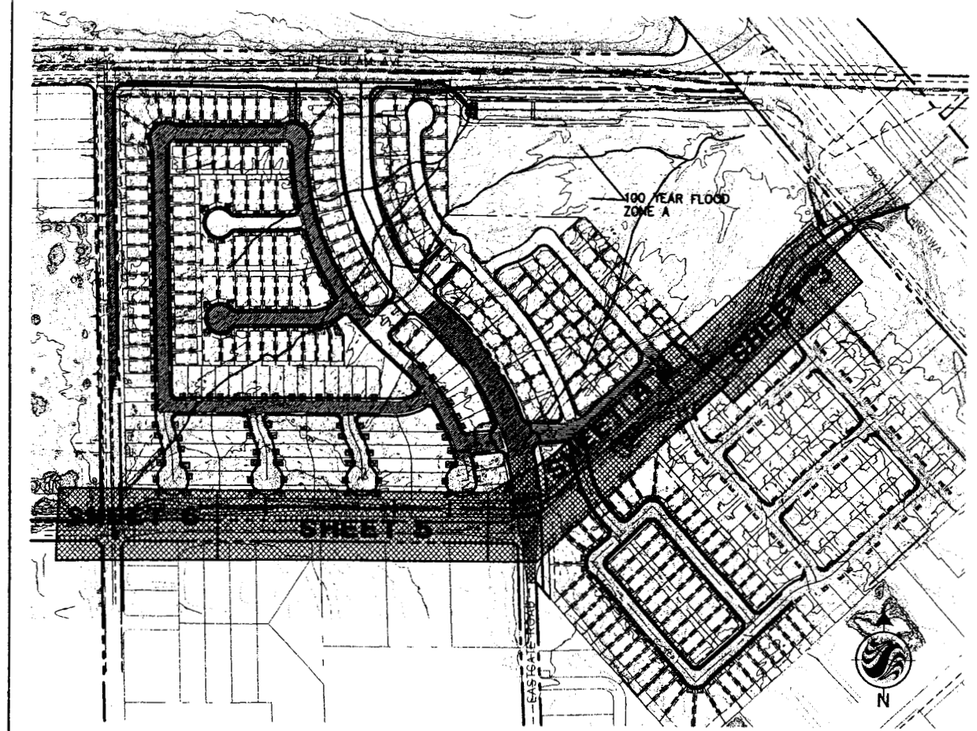
25. ALL OFFSITE AND ONSITE WATER AND SEWER FACILITIES UP TO WITHIN 5 FEET OF BUILDINGS SHALL BE CONSTRUCTED TO PUBLIC WORKS STANDARDS.

26. IF SEWER OR WATER LINES WITHIN THE PUBLIC UTILITY EASEMENTS REQUIRE REPAIRS, ALL SUCH REPAIRS WILL BE DONE IN ACCORDANCE WITH PUBLIC WORKS DEPARTMENT STANDARDS. CURBS AND GUTTERS AND SPECIAL PAVING REPAIRS SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER'S ASSOCIATION.

27. IF SIGNS ARE PRESENT ON THIS CONSTRUCTION SITE, PLEASE CONTACT THE SIGN COMPANY LISTED ON THE SIGN 24 HOURS PRIOR TO COMMENCING CONSTRUCTION IN THE SIGN'S LOCATION. CITY OWNED AND CITY SPONSORED SIGNS (KIOSKS) SHALL BE REMOVED AND REPLACED FOLLOWING CONSTRUCTION IN THEIR ORIGINAL LOCATION IN LIKE-NEW CONDITION AT CONSTRUCTION CONTRACTOR'S EXPENSE. ANY CONTRACTOR HAVING TO REMOVE A SIGN WHICH WAS DAMAGED PRIOR TO THE CONTRACTOR OCCUPYING THE SITE SHALL ARRANGE FOR VERIFICATION OF THE SIGN'S CONDITION BY A CITY INSPECTOR PRIOR TO REMOVAL. ALL SIGNS NOT PREVIOUSLY VERIFIED BY A CITY INSPECTOR SHALL BE ASSUMED TO BE IN LIKE-NEW CONDITION PRIOR TO REMOVAL.

GENERAL LEGEND

EX. 8" W / 8" W — EXISTING WATER LINE	STREET CENTERLINE
PROPOSED WATER LINE	23 — LOT NUMBER
EXISTING FIRE HYDRANT	FF=22.1 — PROPOSED FINISH FLOOR
PROPOSED FIRE HYDRANT W/6" LATERAL & 6" G.V.	(21.1) — PROPOSED PAD ELEVATION
GATE VALVE	2335 — EXISTING INDEX CONTOUR
REDUCER	EXISTING CONTOUR
EX. 8" S / 8" S — EXISTING SEWER LINE	(98.63) — EXISTING OFFSITE ELEVATION
PROPOSED SEWER LINE	98.63 — PROPOSED OFFSITE ELEVATION
PROPOSED SEWER LATERAL	[98.63] — FUTURE OFFSITE ELEVATION
MH — EXISTING SEWER MANHOLE	FL — FLOW LINE
MH — PROPOSED SEWER MANHOLE	FG — FINISHED GRADE
PROPOSED 1-1/4" PVC ST. LT. CONDUIT	TC — TOP OF CURB
CONCRETE DRIVEWAY	SWALE
1+00 "C" — CDS HEAD AND BACK OF CURB STATION	GRADE BREAK
250W HPS LUMINAIRE W/11 GA. POLE	BUILDING SETBACK
150W HPS LUMINAIRE W/11 GA. POLE	TOP OF SLOPE, (HINGE LINE) FRONT AND SIDEYARD
EXISTING 250W STREET LIGHT	FUTURE OFFSITE IMPROVEMENTS
P.B. — PROPOSED NO. 3-1/2 CONCRETE PULL BOX W/ METAL COVER	EXISTING OFFSITE IMPROVEMENTS
SUBDIVISION BOUNDARY	0" LIP DRIVEWAY



OVERALL SITE PLAN + SHEET LAY-OUT
scale: 1" = 200'

GRADING NOTES

1. THE GRADING PLANS SHALL BE AT THE PROJECT SITE THROUGHOUT THE COURSE OF CONSTRUCTION.
2. ALL GRADING SHALL BE PERFORMED IN CONFORMANCE WITH THE LINES, GRADES AND DETAILS AS SHOWN ON THESE PLANS. ANY DEVIATION FROM THESE PLANS WILL ONLY BE PERMITTED UPON WRITTEN APPROVAL FROM THE ENGINEER.
3. ALL PLACEMENT OF OVERSIZED MATERIALS AND/OR FILL MATERIALS SHALL BE PER THE SOILS REPORT REFERENCED ON THIS PLAN.
4. SOILS REPORT PREPARED BY OWENS GEOTECHNICAL, INC. WITH PROJECT NO. E-02-175 , DATED 9-20-02
5. EARTH QUANTITIES:
   CUT 0 C.Y.
   FILL 0 C.Y.
   A) THE ABOVE QUANTITIES DO NOT REFLECT LOSSES DUE TO SUBSIDENCE OR SHRINKAGE.
   B) THE ABOVE QUANTITIES DO NOT REFLECT USING TYPE 1 GRAVEL BASE MATERIAL FOR STREET SECTIONS.
   C) THE ABOVE QUANTITIES DO NOT REFLECT ANY EARTHWORK WHICH MAY BE REQUIRED BY THE ENGINEER TO CONSTRUCT ADDITIONAL PROTECTIVE DITCHES OR BERMS NOT SHOWN ON THESE DRAWINGS.

NOTE TO CONTRACTOR:
QUANTITIES SHOWN ARE APPROXIMATIONS ONLY AND ARE INTENDED TO ILLUSTRATE SCOPE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT QUANTITIES INVOLVED.

ABBREVIATIONS

AC	ASPHALTIC CONCRETE	INT	INTERSECTION
AVE	AVENUE	INV	INVERT
BLVD	BOULEVARD	LS	LUMP SUM
CICP	CAST IN PLACE CONCRETE PIPE	LF	LINEAR FOOT
CL	STREET CENTERLINE	N	NORTH
CONC.	CONCRETE	±	PLUS OR MINUS
DR	DRIVE	PAT	PATENT
DWG	DRAWING	P/L	PROPERTY LINE
E	EAST	PVC	POLYVINYL CHLORIDE
EA	EACH	RD	ROAD
EAC	EDGE A.C. PAVEMENT	R/W	RIGHT-OF-WAY
EASMT	EASEMENT	SMH	SEWER MANHOLE
EGL	ENERGY GRADE LINE	S	SOUTH
EX/EXIST	EXISTING	SHT	SHEET
FL	FLOW LINE	ST	STREET
GV	GATE VALVE	STA	STATION
HGL	HYDRAULIC GRADE LINE	STD	STANDARD
		SS	SANITARY SEWER
		W	WEST OR WATER
		SDMH	STORM DRAIN MANHOLE
		FS	FINISHED SURFACE

NOTE:

THESE PLANS SHALL NOT, IN PART OR IN WHOLE, BE USED FOR CONSTRUCTION UNTIL APPROVED AND SIGNED BY THE GOVERNING AGENCY.
ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES IMMEDIATELY.

EXISTING UTILITY LOCATIONS SHOWN HEREIN ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THERE PROPER LOCATION. CALL BEFORE YOU DIG:
1-800-227-2600.

BENCHMARK

CITY OF HENDERSON BENCHMARK #1
C&GS W 51

0.2 MILES NORTHWEST OF SUNSET ROAD ON THE WEST SIDE OF HIGHWAY 93, 25 FEET +/- A 6 X 6 CONCRETE POST WITH A BRASS CAP SET IN THE TOP.

ELEVATION = 504.851 meters (NAVD'88)
ELEVATION = 1656.33 U.S. SURVEY FEET (NAVD'88)

BASIS OF BEARING

SOUTH 87°58'17" WEST, BEING THE BEARING OF THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 32, TOWNSHIP 22 SOUTH, RANGE 61 EAST, M.D.M., CLARK COUNTY, NEVADA, AS SHOWN ON FILE 97, PAGE 49 OF SURVEYS.



Avoid hitting overhead power lines. It's costly.
Call before you do Overhead
1-702-593-6111

Avoid cutting underground utility lines. It's costly.
Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW & APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON IF WORK IS NOT COMPLETED
BY: _____ 20____.

APPROVED BY:

_____
KEN Y. KOSHIRO, P.E.,
NEW DEVELOPMENT ENGINEER, C.O.H.

DATE: _____

NO.	DESCRIPTION:	DATE:	APP'D

DATE: 3/25/2005
PM: G. BINFIELD
DRAWN BY:
DESIGNED BY:
CHECKED BY:
JOB NO.: 88100121
SCALE: N.T.S.

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Stantec Consulting, Inc.
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89117
Tel. (702) 258-0115
Fax. (702) 258-4956
www.stantec.com

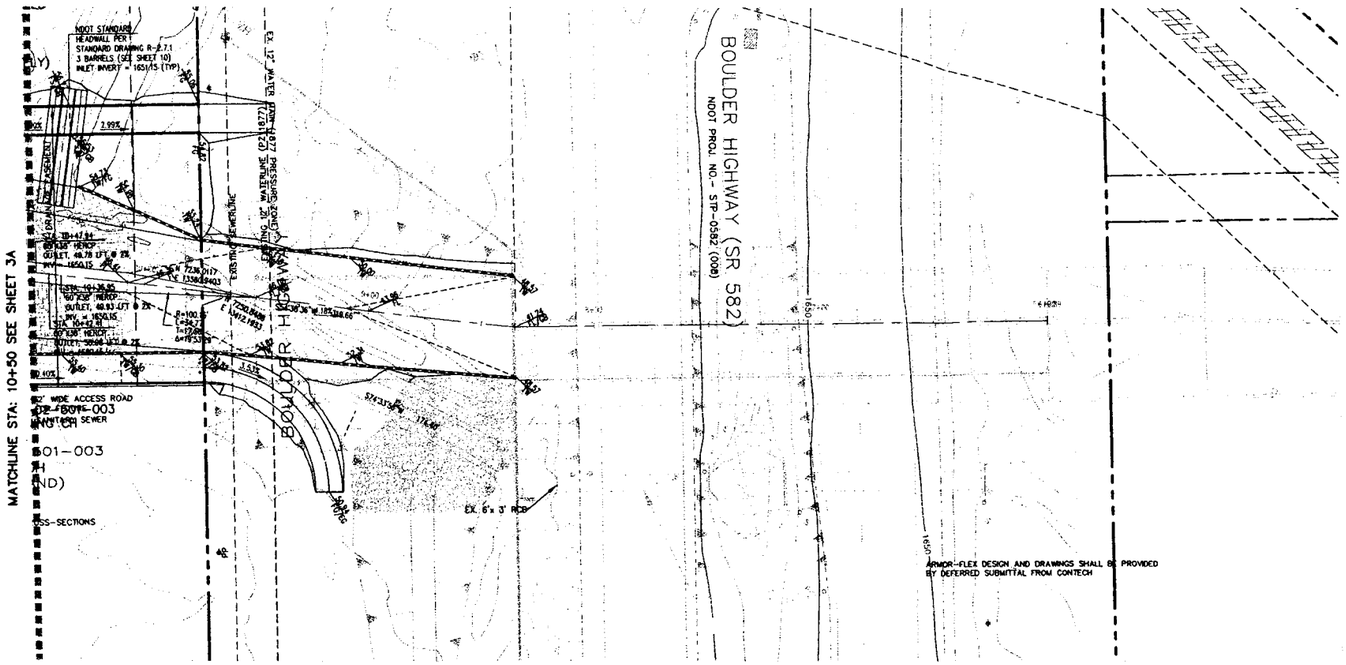
Stantec

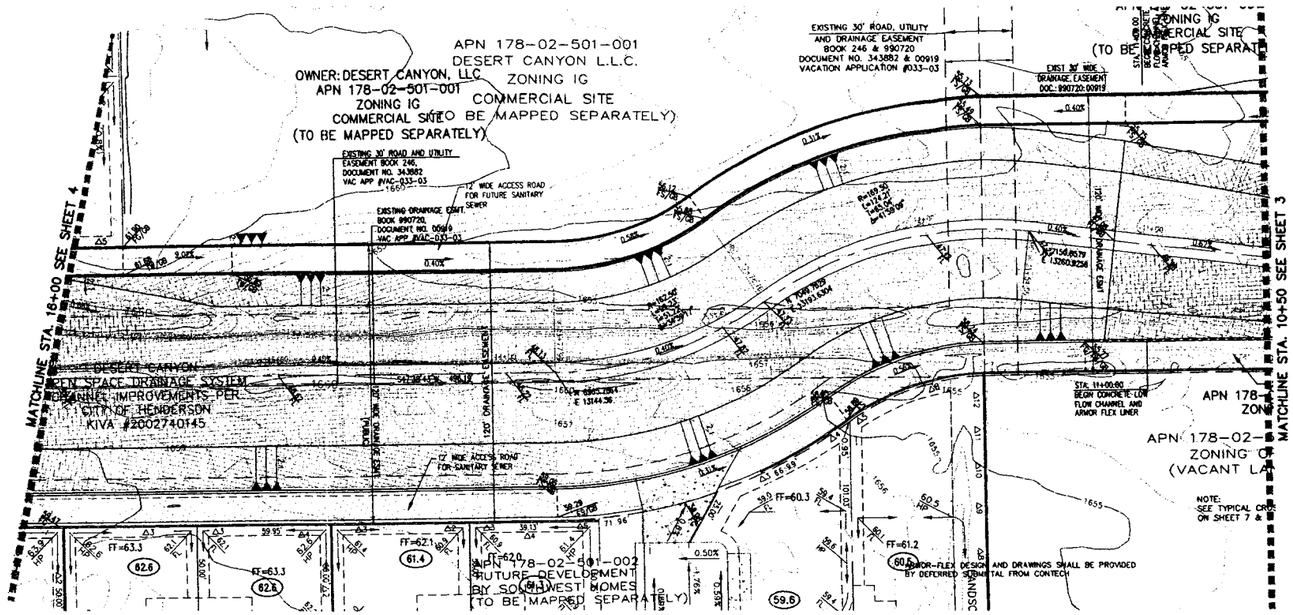
SOUTHWEST HOMES
DESERT CANYON OPEN SPACE
GENERAL NOTES AND OVERALL SITE PLAN & SHEET LAYOUT

PROFESSIONAL ENGINEER STATE OF NEVADA
GERALD S. BINFIELD
Exp. 12/31/06
CIVIL
No. 16511
3-25-05

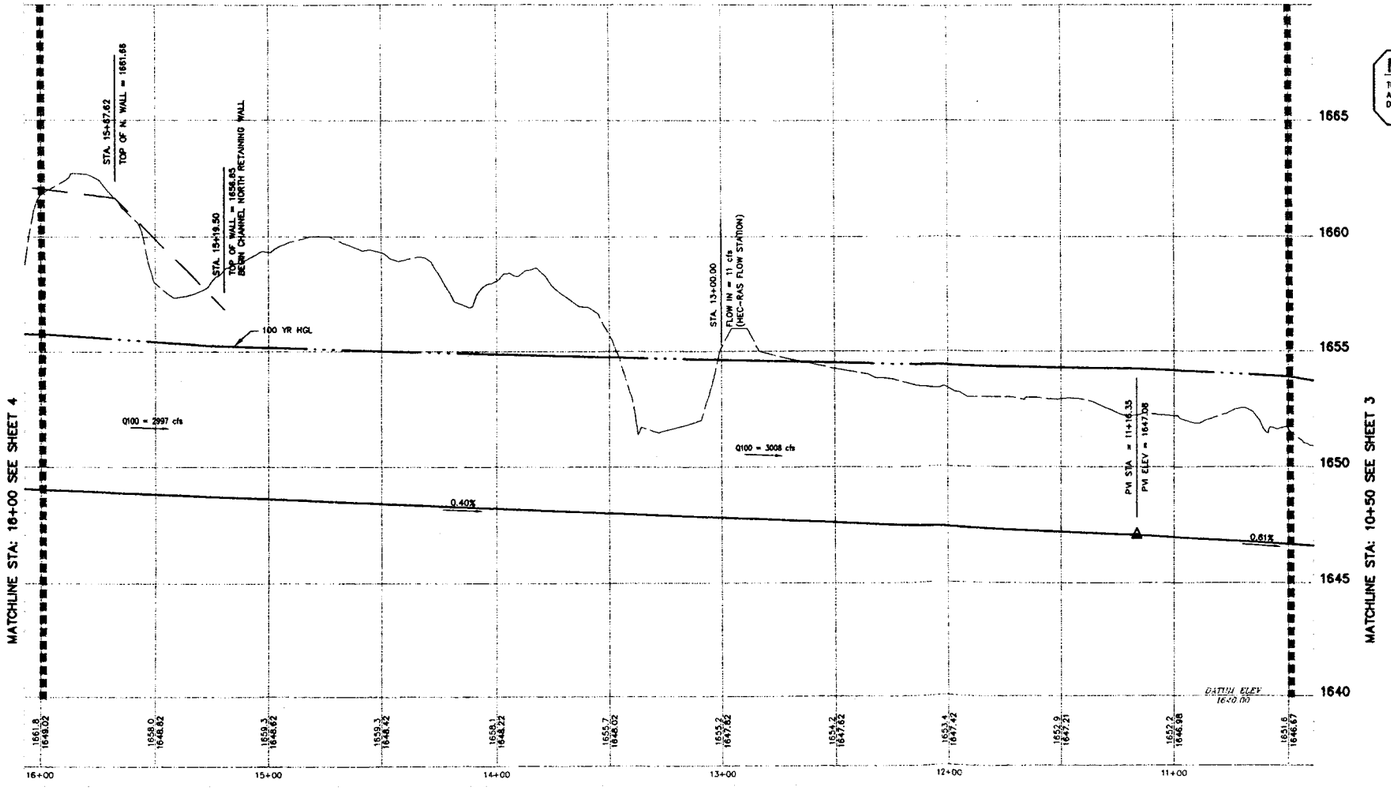
SHEET 2 OF 13

W:\Active\88100121\drawings\Improvement Plans\Channel-plans\From Back-up 9-30-04\channel-plans\NOTES.dwg dtemli Fri, 25 Mar 2005 - 10:18am


MATCHLINE STA: 10+50 SEE SHEET 3A
NDOT STANDARD HEADWALL PER STANDARD DRAWING R-2.7.1 3 BARRELS (SEE SHEET 10) INLET INVERT = 1651.15 (TYP)
2.99%
EX. 12" WATER
EX. 8" SEWER
EX. 24" RCP
EX. 6" WATER
EX. 12" WATER
EX. 8" WATER
EX. 6" WATER
EX. 8" SEWER
EX. 6" WATER
EX. 8" SEWER
EX. 6" WATER
EX. 8" SEW



PLAN

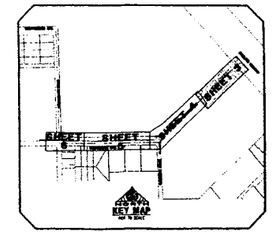


PROFILE

NOTE

TOP OF FOOTING ELEVATIONS ARE PRELIMINARY AND WILL BE FINALIZED AFTER THE STRUCTURAL DESIGN OF THE WALL IS COMPLETED.

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'



NOTE

AT BOULDER HIGHWAY, A CURRENT DESIGN BY VTN NEVADA IS BEING WORKED THROUGH THE CITY OF HENDERSON TO CONTINUE THE DRAINAGE FACILITY UNDER BOULDER HIGHWAY.

NOTE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

BASIS OF BEARINGS

NORTH 89°34'11" EAST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 2, TOWNSHIP 22 SOUTH, RANGE 60 EAST, M.D.M., CLARK COUNTY, NEVADA, AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE COUNTY RECORDER'S OFFICE IN FILE 11, PAGE 08 OF SURVEYS, IN BOOK 95, PAGE 24 OF PLATS.

BENCHMARK

CITY OF HENDERSON BENCHMARK # 1

A U.S. COAST AND GEODETIC SURVEY BRASS CAP STAMPED "M51 BENCHMARK" SET IN THE TOP OF A 6x6 CONCRETE POST, 0.2 MILES NORTHWEST OF SUNSET ROAD ON THE WEST SIDE OF HIGHWAY 93.

ELEVATION = 504.851 meters (NAVD'88)
ELEVATION = 1656.33 U.S. SURVEY FEET (NAVD'88)

Avoid hitting overhead power lines. It's costly.
Call before you do Overhead
1-702-593-6111

Avoid cutting underground utility lines. It's costly.
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1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW & APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON IF WORK IS NOT COMPLETED
BY: _____ 20____

APPROVED BY:

_____
KEN Y. KOSHIRO, P.E.,
NEW DEVELOPMENT ENGINEER, C.O.H.

DATE: _____

NO.	DESCRIPTION	DATE	APP'D

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DATE :	3/25/2005
PM :	C. BINFIELD
DRAWN BY :	
DESIGNED BY :	
CHECKED BY :	
JOB NO. :	8810121
SCALE :	1" = 30'

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Las Vegas, Nevada, U.S.A.
89117
Tel. (702) 258-0115
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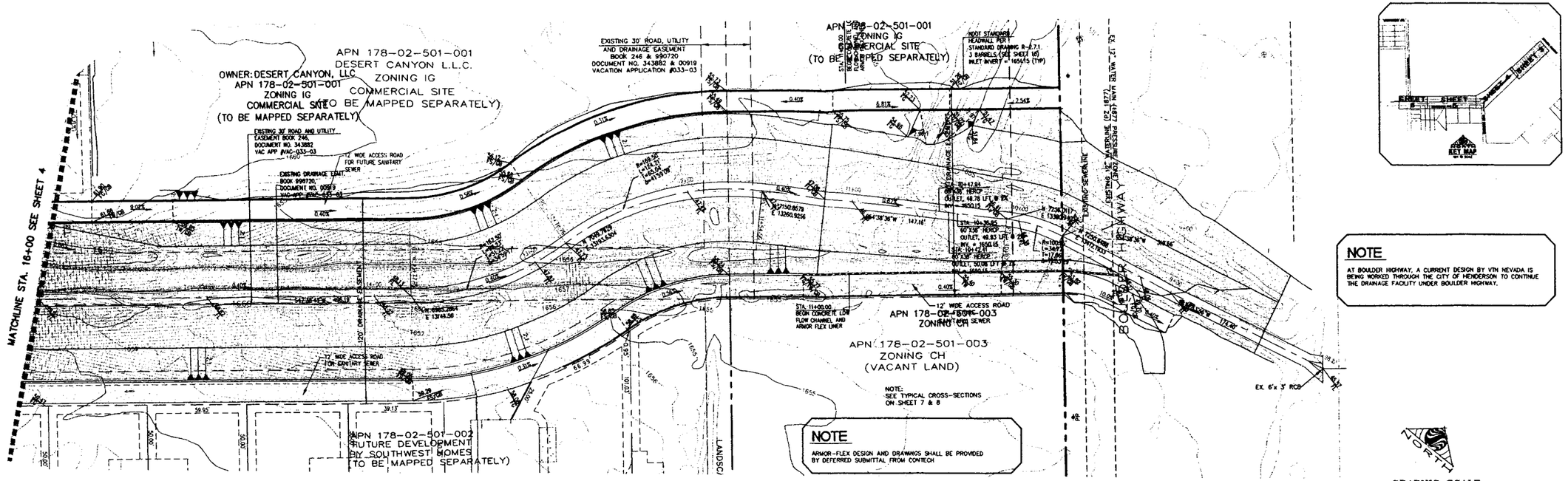
Stantec

SOUTHWEST HOMES
DESERT CANYON OPEN SPACE
ULTIMATE PLAN & PROFILE
STA: 10+50 TO 16+00

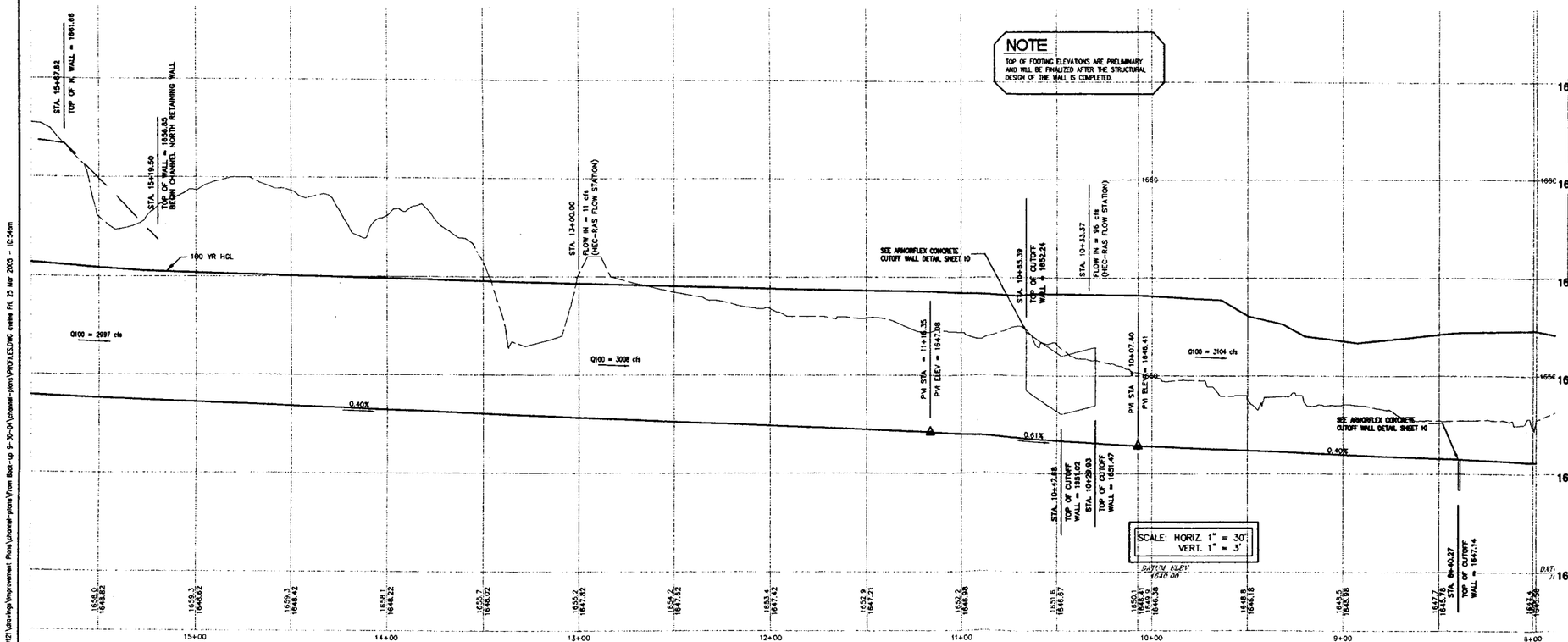
PROFESSIONAL ENGINEER STATE OF NEVADA
GERALD B. BINFIELD
Exp. 12/31/06
CIVIL
No. 16511
3-25-05

SHEET
3A
OF 13

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PLAN



PROFILE

NOTE

TOP OF FOOTING ELEVATIONS ARE PRELIMINARY AND WILL BE FINALIZED AFTER THE STRUCTURAL DESIGN OF THE WALL IS COMPLETED.

BASIS OF BEARINGS

NORTH 89°34'11" EAST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 2, TOWNSHIP 22 SOUTH, RANGE 60 EAST, M.D.M., CLARK COUNTY, NEVADA, AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE COUNTY RECORDER'S OFFICE IN FILE 11, PAGE 06 OF SURVEYS. IN BOOK 95, PAGE 24 OF PLATS.

BENCHMARK

CITY OF HENDERSON BENCHMARK # 1

A U.S. COAST AND GEODETIC SURVEY BRASS CAP STAMPED "M51 BENCHMARK" SET IN THE TOP OF A 6x6 CONCRETE POST, 0.2 MILES NORTHWEST OF SUNSET ROAD ON THE WEST SIDE OF HIGHWAY 93.

ELEVATION = 504.851 meters (NAVD'88)
ELEVATION = 1656.33 U.S. SURVEY FEET (NAVD'88)

Avoid hitting overhead power lines. It's costly.
Call before you do Overhead
1-702-593-6111

Avoid cutting underground utility lines. It's costly.
Call before you Dig.
1-800-227-2600
UNDERGROUND SERVICE ALERT (USA)

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BY: _____ 20____

APPROVED BY:

_____
KEN Y. KOSHIRO, P.E.,
NEW DEVELOPMENT ENGINEER, C.O.H.

DATE: _____

NO.	DESCRIPTION	DATE	APP'D

DATE: 3/25/2005
PM: G. BINFIELD
DRAWN BY:
DESIGNED BY:
CHECKED BY:
JOB NO.: 88100121
SCALE: 1" = 30'

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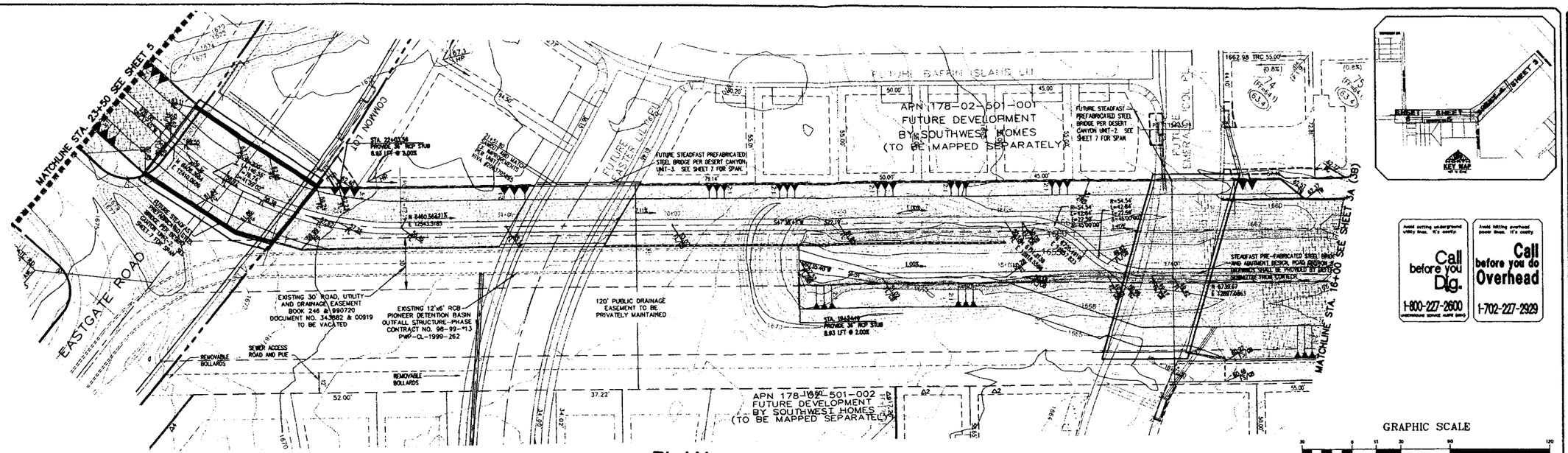
SOUTHWEST HOMES
DESERT CANYON OPEN SPACE
INTERIM PLAN & PROFILE
STA: 7+98 TO 16+00

PROFESSIONAL ENGINEER STATE OF NEVADA
GERALD S. BINFIELD
Exp. 12/31/06
CIVIL
No. 16511
3-25-05

SHEET
3B
OF 13

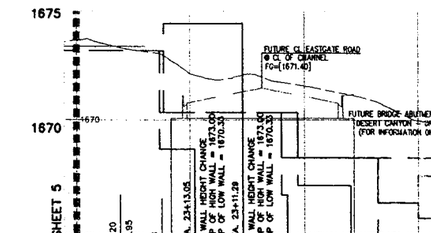
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PLAN



GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.



PROFILE

NOTE

TOP OF FOOTING ELEVATIONS ARE PRELIMINARY AND WILL BE FINALIZED AFTER THE STRUCTURAL DESIGN OF THE WALL IS COMPLETED.

NOTES:

ARMORFLEX DESIGN AND DRAWINGS SHALL BE PROVIDED BY DEFERRED SUBMITTAL FROM CONTECH.

STEADFAST PRE-FABRICATED STEEL BRIDGES AND ABUTMENT DESIGN AND DRAWINGS SHALL BE PROVIDED BY DEFERRED SUBMITTAL FROM CONTECH AS PART OF THE FUTURE DESERT CANYON UNITS 2 AND 3 SUBMITTALS.

BENCHMARK

CITY OF HENDERSON BENCHMARK #1

A U.S. COAST AND GEODETIC SURVEY BRASS CAP STAMPED "1951 BENCHMARK" SET IN THE TOP OF A 6x6 CONCRETE POST, 0.2 MILES NORTHWEST OF SUNSET ROAD ON THE WEST SIDE OF HIGHWAY 93.

ELEVATION = 504.851 meters (NAVD' 88)
ELEVATION = 1656.33 U.S. SURVEY FEET (NAVD' 88)

BASIS OF BEARINGS

NORTH 89°34'11" EAST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 2, TOWNSHIP 22 SOUTH, RANGE 60 EAST, M.D.M., CLARK COUNTY, NEVADA, AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE COUNTY RECORDER'S OFFICE IN FILE 11, PAGE 06 OF SURVEYS IN BOOK 95, PAGE 24 OF PLATS.

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW & APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON IF WORK IS NOT COMPLETED

BY:_____ 20___.

APPROVED BY:

_____
KEN Y. KOSHIRO, P.E.,
NEW DEVELOPMENT ENGINEER, C.O.H.

DATE:_____

NO.	DESCRIPTION	DATE	APP'D

DATE : 3/25/2005
PM : G. BINFIELD
DRAWN BY :
DESIGNED BY :
CHECKED BY :
JOB NO. : 88100121
SCALE : 1" = 30'

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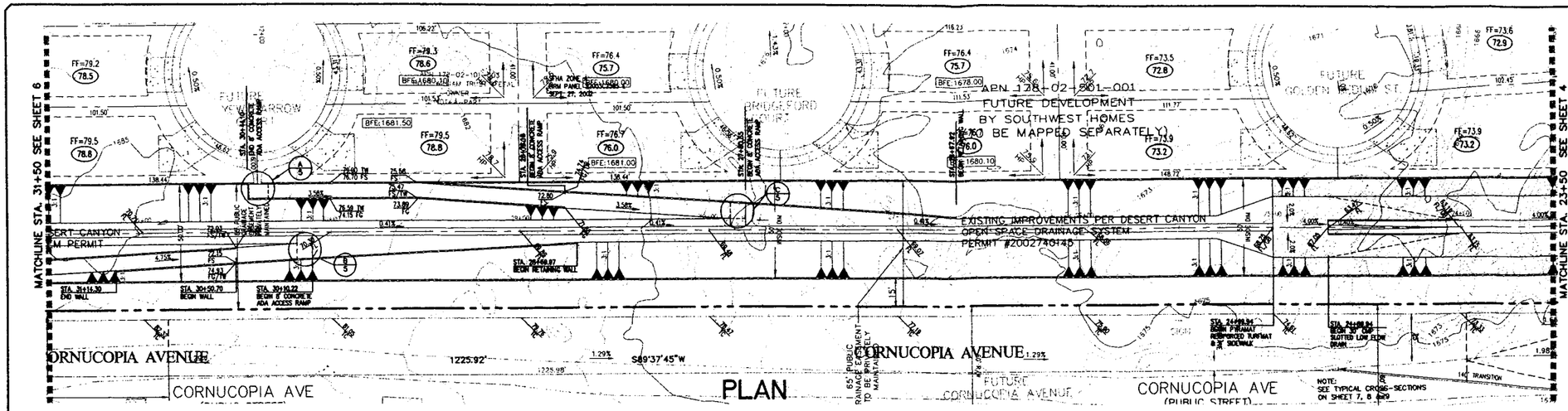
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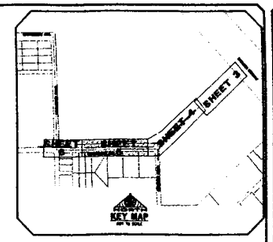
SOUTHWEST HOMES
DESERT CANYON OPEN SPACE
PLAN & PROFILE
STA: 16+00 TO STA: 23+50

PROFESSIONAL ENGINEER STATE OF NEVADA GERALD S. BINFIELD Exp. 12/31/08 CIVIL No. 16511 5-25-05

SHEET 4 OF 13

W:\Valley\88100121\drawings\Improvement Plans\Johnnie-plans\From Bost-up 9-30-04\Johnnie-plans\PROFILES.DWG mehta Fri, 25 Mar 2005 - 10:54am





Call before you Dig. 1-800-227-2600

Call before you do Overhead 1-702-227-2929

BENCHMARK

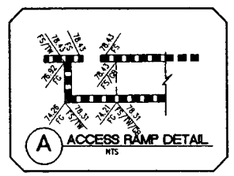
CITY OF HENDERSON BENCHMARK # 1

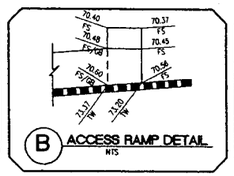
A U.S. COAST AND GEODETIC SURVEY BRASS CAP STAMPED "HSI BENCHMARK" SET IN THE TOP OF A 5x6 CONCRETE POST, 0.2 MILES NORTHWEST OF SUNSET ROAD ON THE WEST SIDE OF HIGHWAY 93.

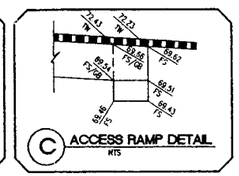
ELEVATION = 504.851 meters (NAVD'88)
ELEVATION = 1656.33 U.S. SURVEY FEET (NAVD'88)

BASIS OF BEARINGS

NORTH 89°34'11" EAST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 2, TOWNSHIP 22 SOUTH, RANGE 60 EAST, M.D.M., CLARK COUNTY, NEVADA, AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE COUNTY RECORDER'S OFFICE IN FILE 11, PAGE 06 OF SURVEYS. IN BOOK 95, PAGE 24 OF PLATS.





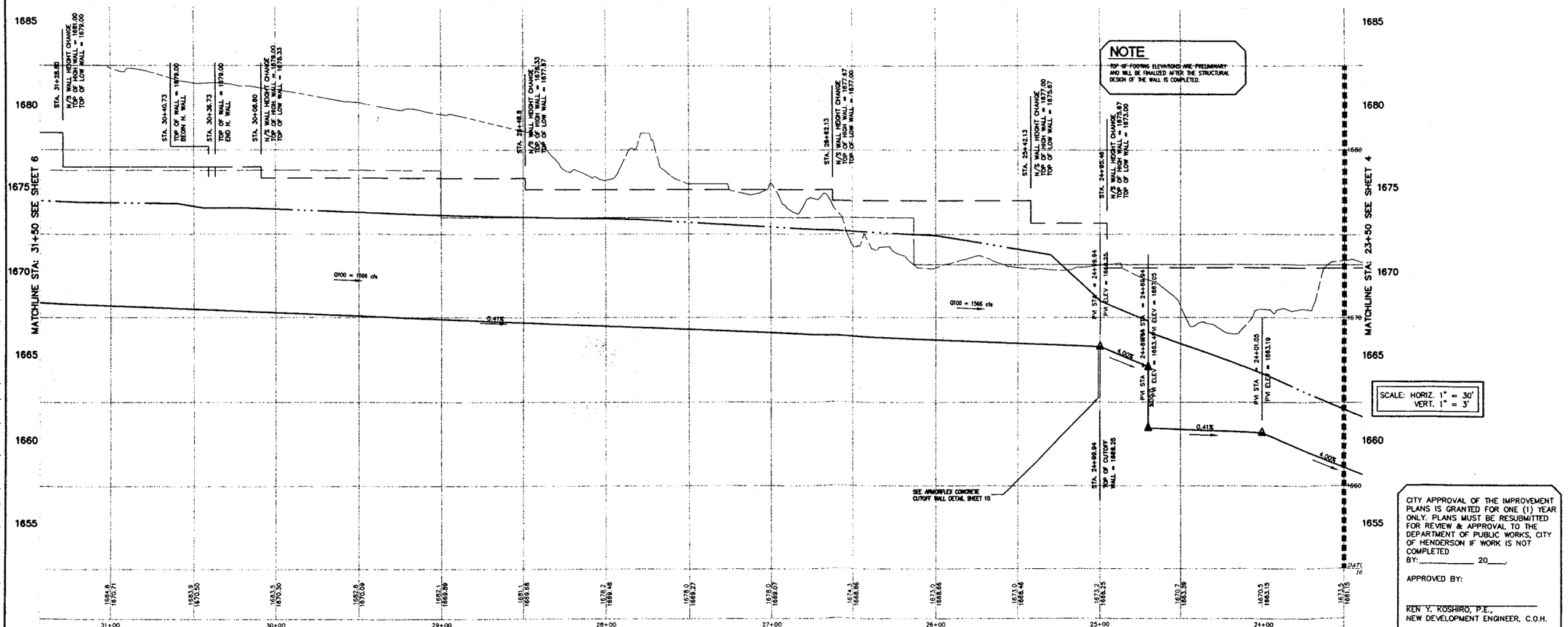


NORTH

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



PROFILE

NOTE
TOP OF FOOTING ELEVATIONS ARE PRELIMINARY AND WILL BE FINALIZED AFTER THE STRUCTURAL DESIGN OF THE WALL IS COMPLETED.

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW & APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON IF WORK IS NOT COMPLETED
BY: _____ 20____.

APPROVED BY:

REN Y. KOSHIRO, P.E.,
NEW DEVELOPMENT ENGINEER, C.O.H.

DATE:

NO.	DESCRIPTION	DATE	APP'D

DATE : 1/25/2006
PM : G. BINFIELD
DRAWN BY :
DESIGNED BY :
CHECKED BY :
JOB NO. : 8810121
SCALE : 1" = 30'

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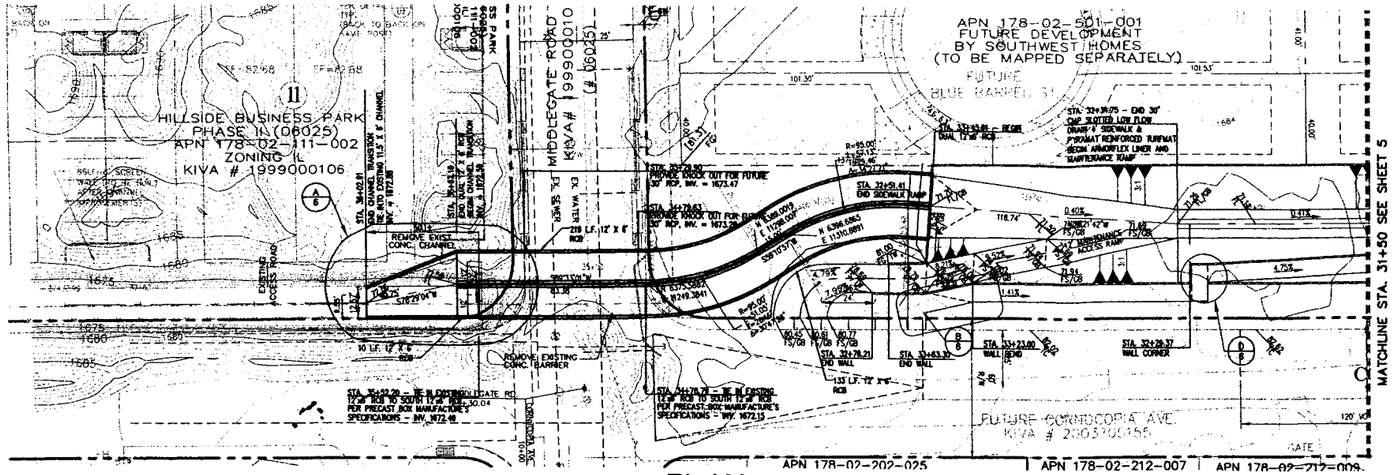
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SOUTHWEST HOMES
DESERT CANYON OPEN SPACE
PLAN & PROFILE
STA: 23+50 TO STA: 31+50

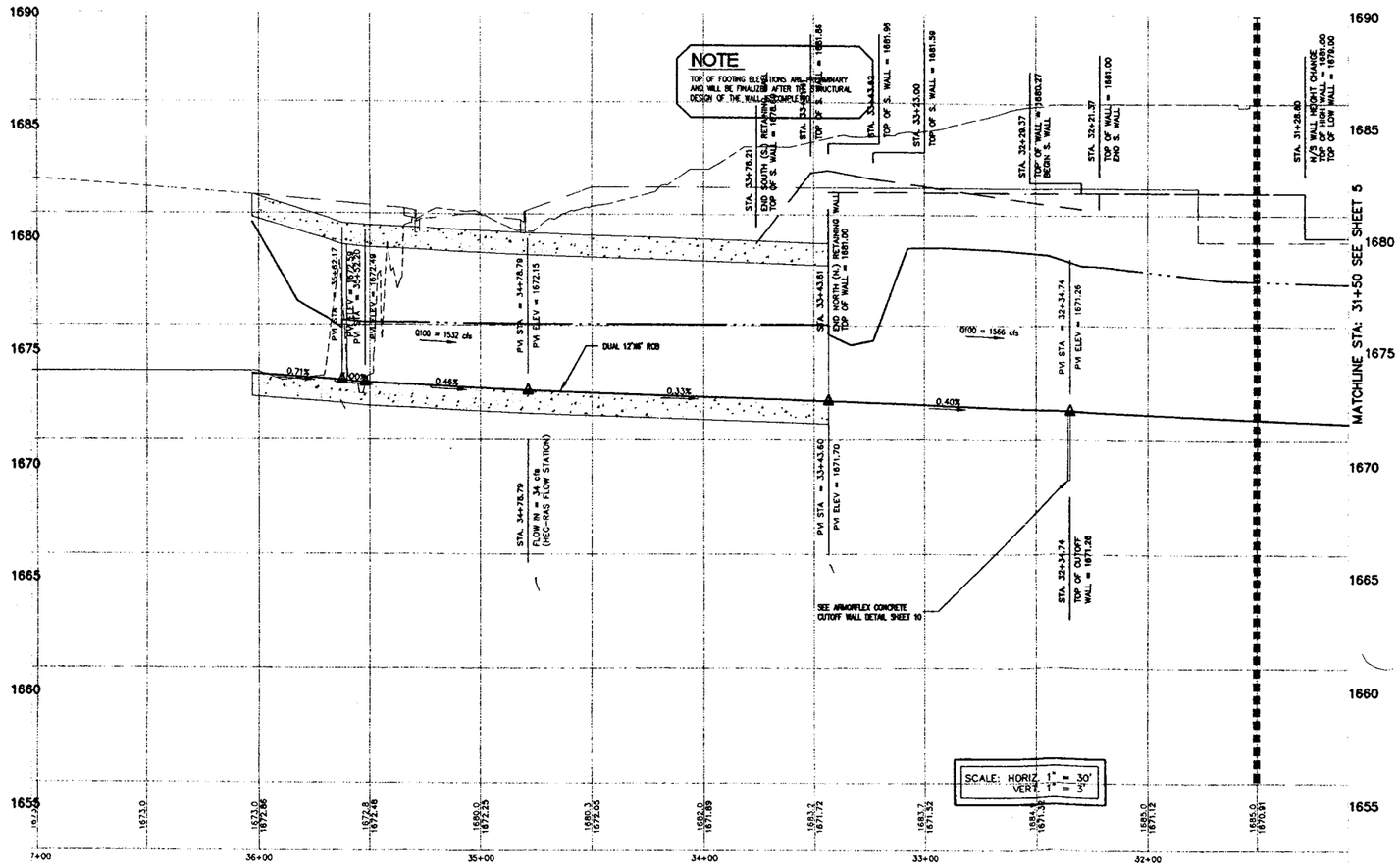
PROFESSIONAL ENGINEER — GERALD V. BINFIELD — Exp. 12/31/06 — CIVIL — No. 16511 — STATE OF NEVADA

SHEET 5 OF 13

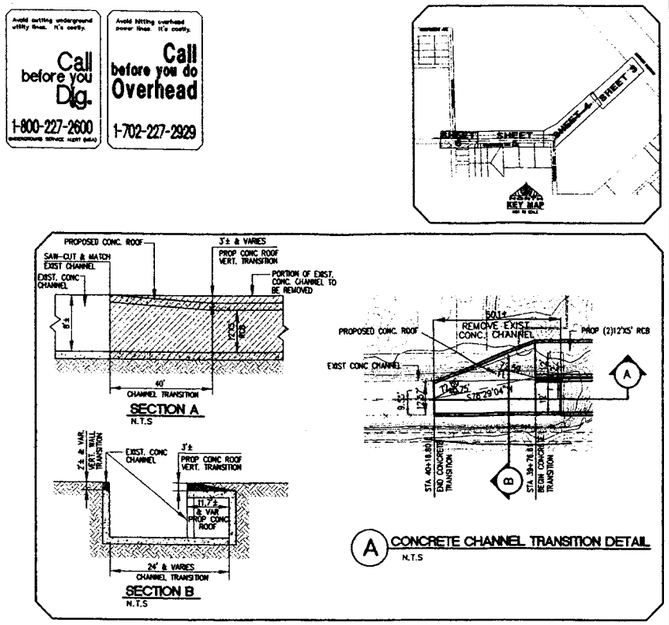
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PLAN



PROFILE



NORTH

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

BASIS OF BEARINGS

NORTH 89°34'11" EAST, BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 2, TOWNSHIP 22 SOUTH, RANGE 60 EAST, M.D.M., CLARK COUNTY, NEVADA, AS SHOWN ON THAT CERTAIN MAP ON FILE IN THE COUNTY RECORDER'S OFFICE IN FILE 11, PAGE 08 OF SURVEYS, IN BOOK 95, PAGE 24 OF PLATS.

BENCHMARK

CITY OF HENDERSON BENCHMARK # 1

A U.S. COAST AND GEODETIC SURVEY BRASS CAP STAMPED "M51 BENCHMARK" SET IN THE TOP OF A 6x6 CONCRETE POST, 0.2 MILES NORTHWEST OF SUNSET ROAD ON THE WEST SIDE OF HIGHWAY 93.

ELEVATION = 504.851 meters (NAVD'88)
ELEVATION = 1656.33 U.S. SURVEY FEET (NAVD'88)

CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW & APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON IF WORK IS NOT COMPLETED
BY: _____ 20____

APPROVED BY:

_____
REN Y. KOSHIRO, P.E.,
NEW DEVELOPMENT ENGINEER, C.O.H.

_____
DATE:

NO.	DESCRIPTION	DATE	APP'D

DATE: 3/25/2006
PM : G. BINFIELD
DRAWN BY :
DESIGNED BY :
CHECKED BY :
JOB NO. : 88100121
SCALE : 1" = 30'

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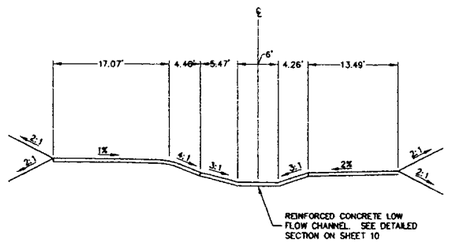
Stantec

SOUTHWEST HOMES
DESERT CANYON OPEN SPACE
PLAN & PROFILE
STA: 31+50 TO STA: 36+00.66

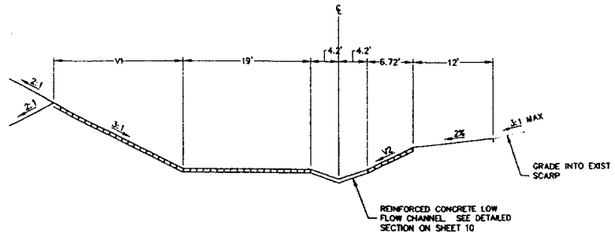
PROFESSIONAL ENGINEER STATE OF NEVADA
GERALD S. BINFIELD
Exp. 12/31/06
CIVIL
No. 16511

SHEET
6
OF 13

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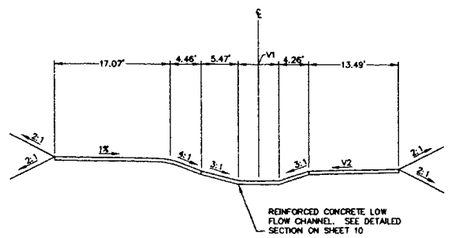
TYPICAL INTERIM SECTION – STA 07+98.23
N.T.S.



ARMORFLEX – ARTICULATING CONCRETE BLOCK REVETMENT PER CONTECH CONSTRUCTION PRODUCTS INC. (PLANS AND CALCULATIONS BY DEFERRED SUBMITTAL)

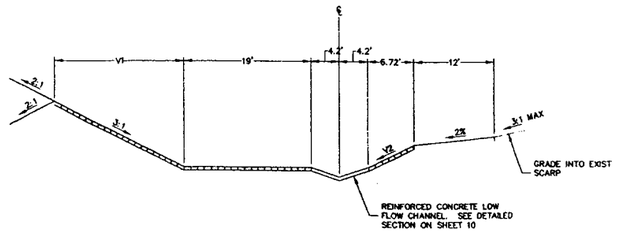
VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	31.51	09+32.06
	26.68	09+10.76
	29.82	09+02.51
	25.18	08+92.21
V2	2:1	09+32.06
	3:1	08+92.21

TYPICAL INTERIM SECTION – STA 08+92.21 TO STA 09+32.06
N.T.S.



VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	6'	07+98.23
	2.05'	08+08.23
	0'	08+01.30
V2	10:1	07+98.23
	8:1	08+08.23

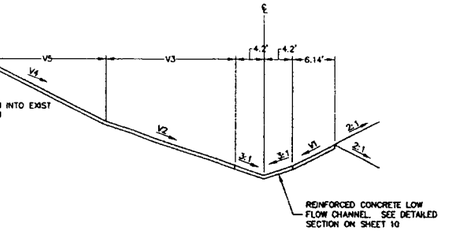
TYPICAL INTERIM SECTION – STA 07+98.23 TO 08+08.23
N.T.S.



ARMORFLEX – ARTICULATING CONCRETE BLOCK REVETMENT PER CONTECH CONSTRUCTION PRODUCTS INC. (PLANS AND CALCULATIONS BY DEFERRED SUBMITTAL)

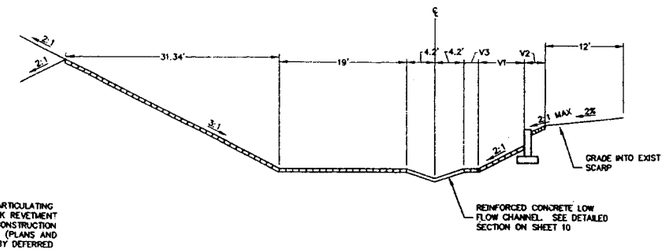
VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	31.51	09+32.06
	26.68	09+10.76
	29.82	09+02.51
	25.18	08+92.21
V2	2:1	09+32.06
	3:1	08+92.21

TYPICAL INTERIM SECTION – STA 09+32.06 TO STA 09+92.40
N.T.S.



VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	8:1	08+08.23
	3:1	08+40.28
V2	4:1	08+08.23
	20:1	08+40.28
V3	4.46'	08+08.23
	19'	08+40.28
V4	7.07	08+08.23
	17.43'	08+40.28
V5	8:1	08+08.23
	3:1	08+40.28

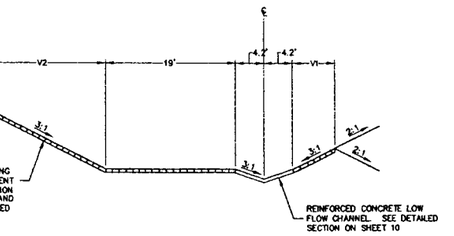
TYPICAL INTERIM SECTION – STA 08+08.23 TO STA 08+40.28
N.T.S.



APMORFLEX – ARTICULATING CONCRETE BLOCK REVETMENT PER CONTECH CONSTRUCTION PRODUCTS INC. (PLANS AND CALCULATIONS BY DEFERRED SUBMITTAL)

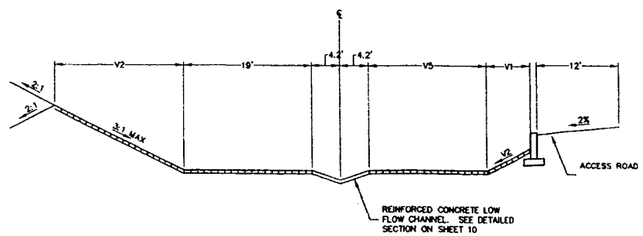
VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	5.32'	09+49.59
	2.17'	09+38.55
	0.81	09+32.06
V2	2.13'	09+38.55
	0.17'	09+38.55
	0'	09+32.06
V2	0.48'	09+38.55
	3.48'	09+38.55
	5.10'	09+32.06

TYPICAL INTERIM SECTION – STA 09+32.06 TO STA 09+49.59
N.T.S.



VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	6.71	08+92.21
	5.31	08+87.71
	0.08	08+50.00
	6.23	08+40.28
V2	25.18	08+92.21
	17.43	08+40.28

TYPICAL INTERIM SECTION – STA 08+40.28 TO STA 08+92.21
N.T.S.



ARMORFLEX – ARTICULATING CONCRETE BLOCK REVETMENT PER CONTECH CONSTRUCTION PRODUCTS INC. (PLANS AND CALCULATIONS BY DEFERRED SUBMITTAL)

VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	5.85'	09+92.40
	5.72'	09+66.11
	5.32'	09+49.59
V2	45.87	09+88.84
	27.30	09+88.84
	32.69	09+78.04
	31.34	09+92.21

TYPICAL INTERIM SECTION – STA 09+49.59 TO STA 09+92.40
N.T.S.

NO.	DESCRIPTION	DATE	APP'D

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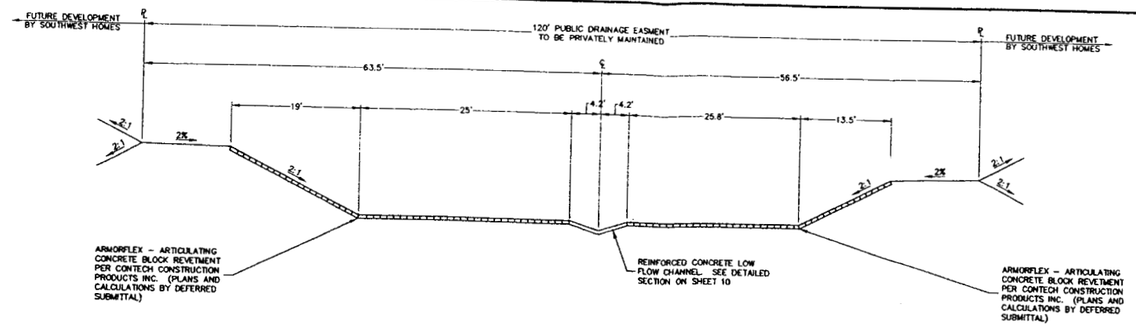
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TYPICAL SECTIONS

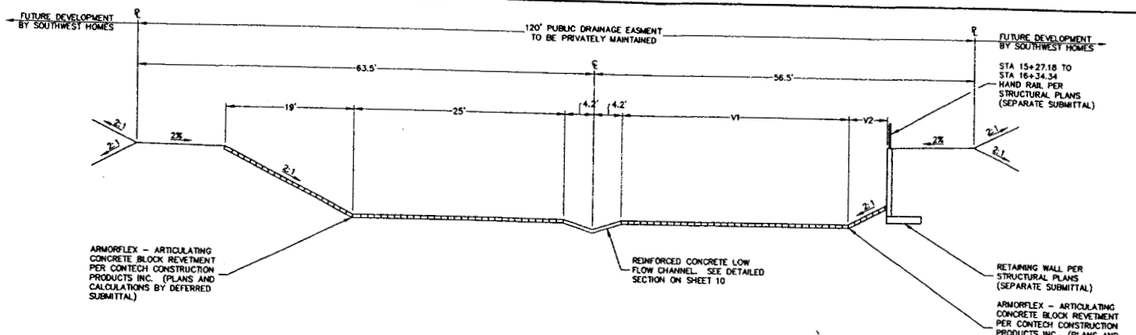
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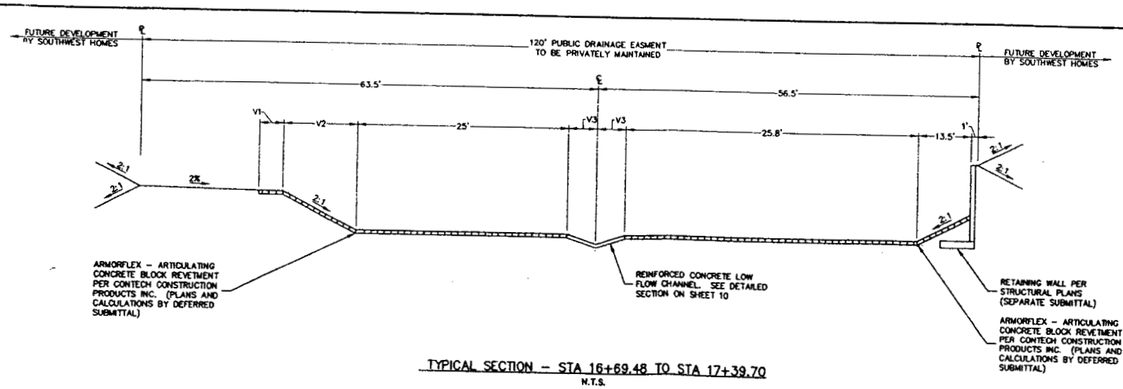


TYPICAL SECTION - STA 11+75.20 TO STA 15+27.18
N.T.S.



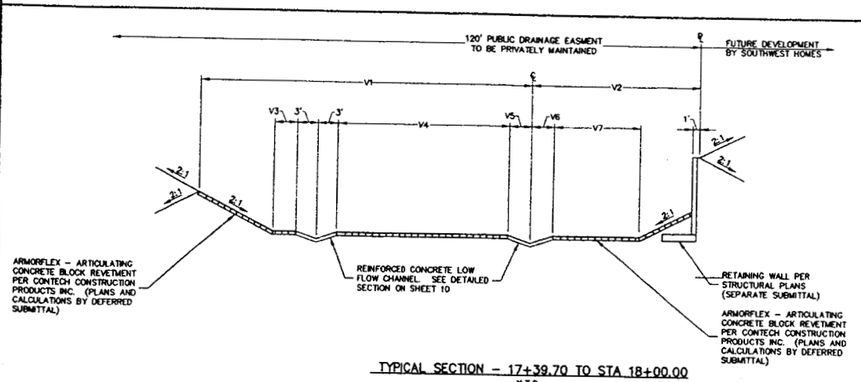
TYPICAL SECTION - STA 15+27.18 TO STA 16+69.48
N.T.S.

VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	25.80'	15+27.18
	30.83'	15+98.34
	39.83'	16+18.85
	43.55'	16+24.05
	43.55'	16+34.34
	43.55'	16+89.48
V2	13.50'	15+27.18
	0'	15+98.34
	0'	16+18.85
	0'	16+24.05
	7.75'	16+34.34
	7.75'	16+89.48



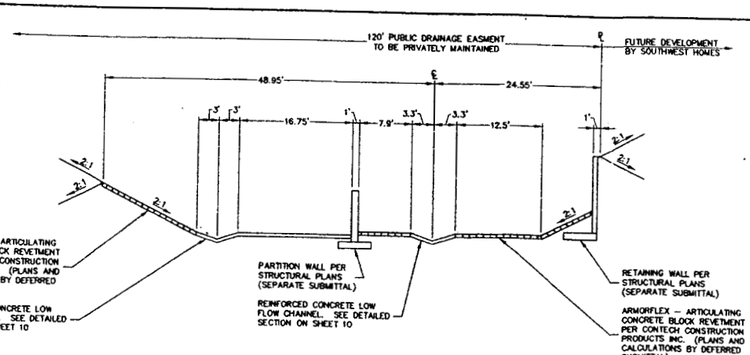
TYPICAL SECTION - STA 16+69.48 TO STA 17+39.70
N.T.S.

VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	0'	16+89.48
	3.5'	16+89.21
	3.5'	17+12.87
	3.5'	17+20.01
	2.89'	17+39.70
V2	19.00'	16+89.48
	11.00'	16+89.21
	11.00'	17+12.87
	11.00'	17+20.01
	11.61'	17+39.70
V3	4.2'	16+89.48
	4.2'	16+89.21
	4.2'	17+12.87
	SEE PLAN	17+20.01
	SEE PLAN	17+39.70



TYPICAL SECTION - 17+39.70 TO STA 18+00.00
N.T.S.

VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	42.02'	17+39.70
	53.10'	17+90.00
	49.73'	18+00.00
V2	49.44'	17+39.70
	24.55'	17+90.00
	24.55'	18+00.00
V3	20.05'	17+39.70
	3.38'	17+90.00
	0'	18+00.00
V4	0	17+39.70
	25.65'	17+90.00
	28.65'	18+00.00
V5	3.76'	17+39.70
	3.30'	17+90.00
	3.30'	18+00.00
V6	3.83'	17+39.70
	3.30'	17+90.00
	3.30'	18+00.00
V7	38.88'	17+39.70
	12.50'	17+90.00
	12.50'	18+00.00



TYPICAL SECTION - STA 18+00.00 TO STA 18+74.18
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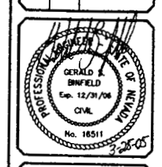
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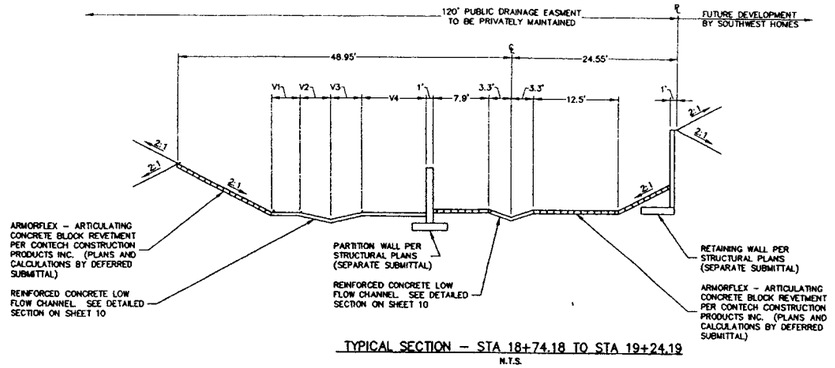
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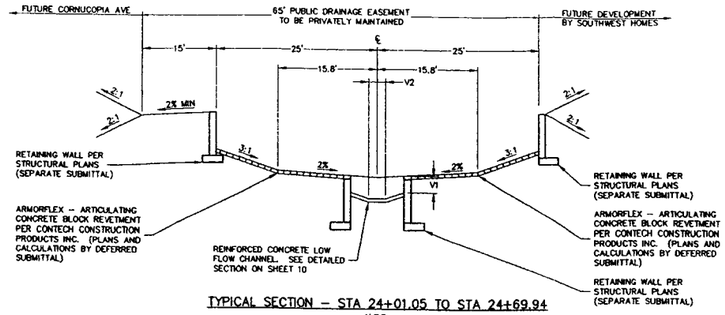
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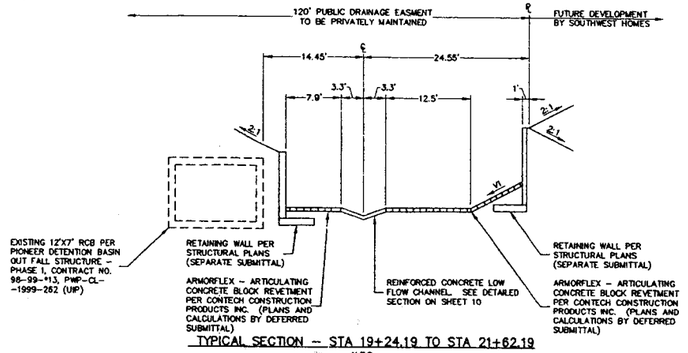
TYPICAL SECTION - STA 18+74.18 TO STA 19+24.19
N.T.S.

VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	X.XX'	18+74.18
	X.XX'	
	X.XX'	19+24.19
V2	20.05'	18+74.18
	3.38'	
	0'	19+24.19
V3	0	18+74.18
	25.65'	
	28.85'	19+24.19
V4	3.78'	18+74.18
	3.30'	
	3.30'	19+24.19



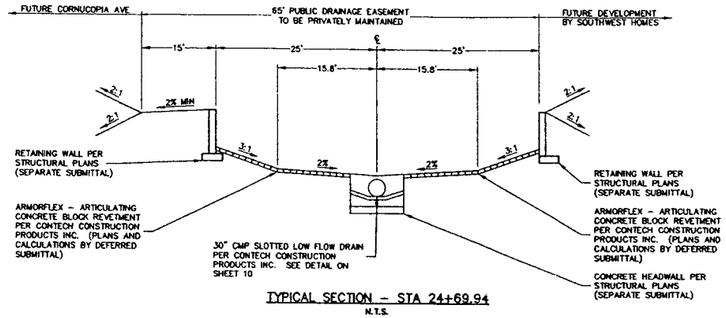
TYPICAL SECTION - STA 24+01.05 TO STA 24+69.94
N.T.S.

VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	0'	24+01.05
	4.00'	24+68.94
V2	0	24+01.05
	2.50'	24+68.94

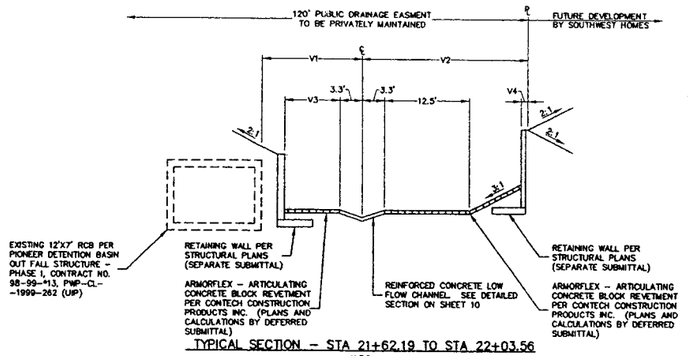


TYPICAL SECTION - STA 19+24.19 TO STA 21+62.19
N.T.S.

VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	2:1	19+24.19
	2:1	21+25.00
	3:1	21+50.00
	3:1	21+62.19

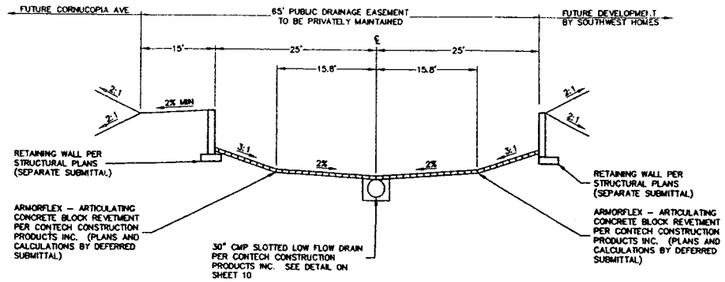


TYPICAL SECTION - STA 24+69.94
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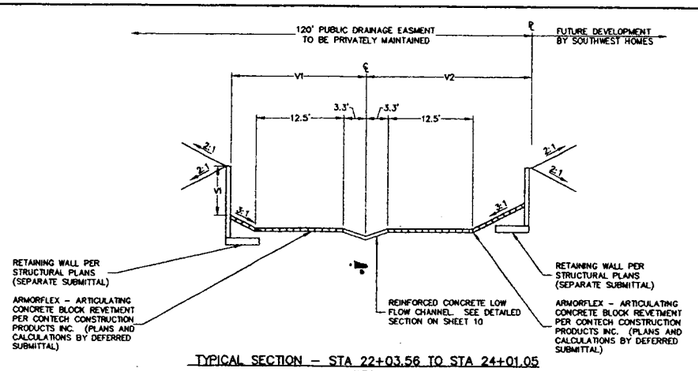


TYPICAL SECTION - STA 21+62.19 TO STA 22+03.56
N.T.S.

VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	14.45'	21+62.19
	15.70'	21+91.06
	18.10'	22+03.56
V2	24.55'	21+62.19
	22.69'	21+91.06
	20.73'	22+03.56
V3	7.90'	21+62.19
	10.12'	21+91.06
	12.50'	22+03.56
V4	1.00'	21+62.19
	1.01'	21+91.06
	0.64'	22+03.56

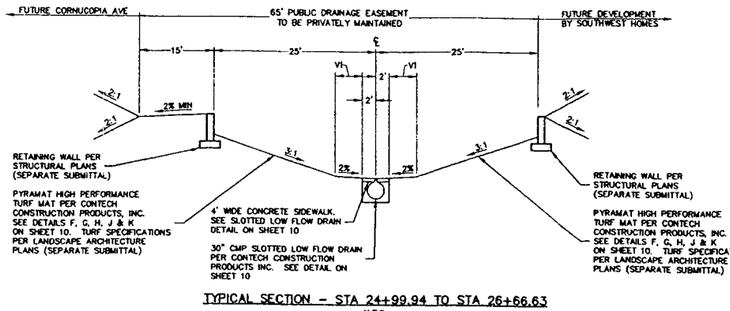


TYPICAL SECTION - STA 24+69.94 TO STA 24+99.94



TYPICAL SECTION - STA 22+03.56 TO STA 24+01.05
N.T.S.

VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	15.8'	22+03.56
	19.61'	22+17.71
	19.80'	22+18.36
	22.91'	22+53.90
	25.02'	23+11.25
	25.00'	24+01.05
V2	20.73	22+03.56
	17.37'	22+17.71
	17.22'	22+18.36
	24.16'	22+53.90
	25.02'	23+11.25
	25.00'	24+01.05



TYPICAL SECTION - STA 24+99.94 TO STA 26+66.63
N.T.S.

VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	13.8'	24+99.94
	4'	25+29.94
	4'	26+66.33

NO.	DESCRIPTION	DATE

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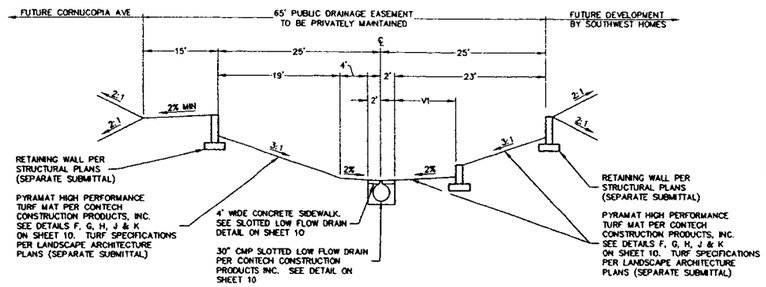
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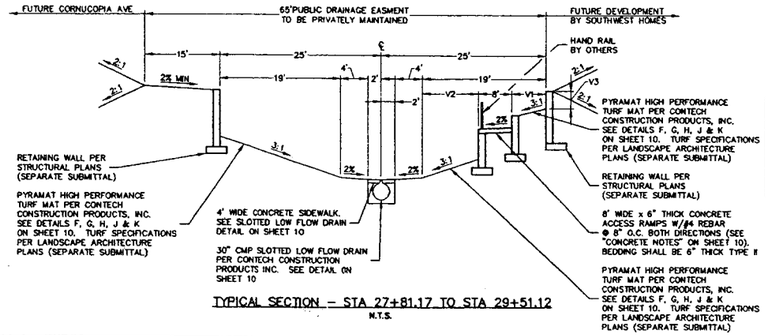
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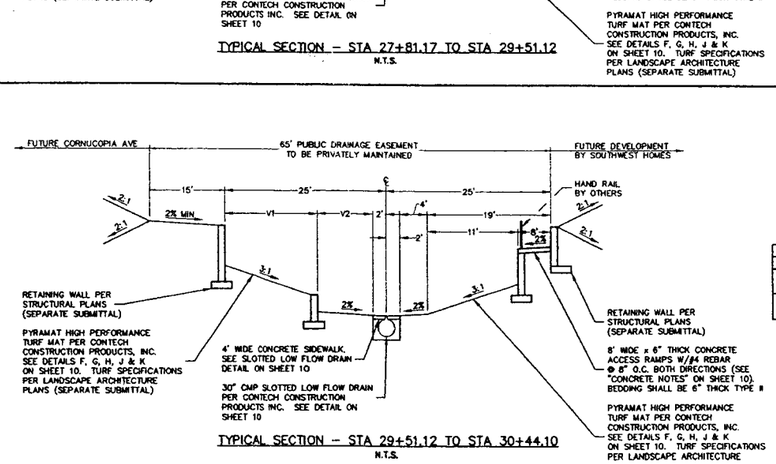
VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	4'	26+66.33
	12'	27+81.17

TYPICAL SECTION – STA 26+66.33 TO STA 27+81.17
N.T.S.



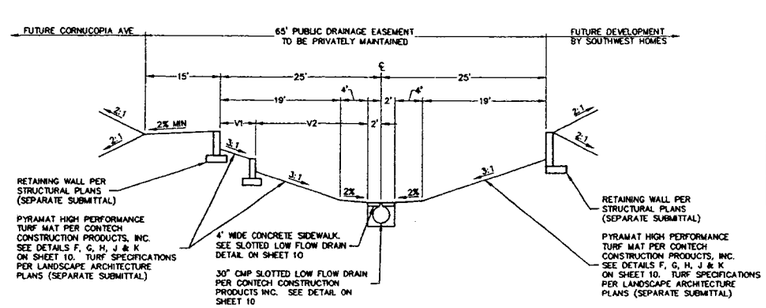
VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	11'	27+81.17
	0'	29+51.12
	1.81'	27+81.17
	4.20'	28+12.67
V2	0	27+81.17
	10.25'	29+51.12

TYPICAL SECTION – STA 27+81.17 TO STA 29+51.12
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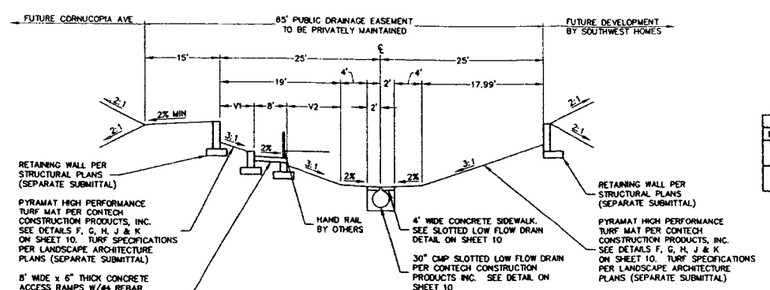
VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	19'	29+51.12
	12.07'	30+44.10
V2	4'	29+51.12
	10.92'	30+44.10

TYPICAL SECTION – STA 29+51.12 TO STA 30+44.10
N.T.S.



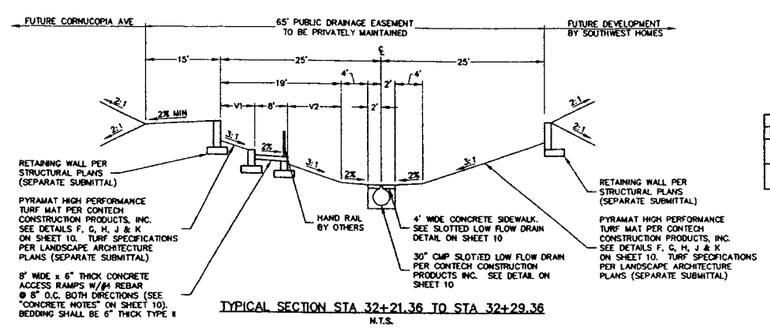
VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	12.96'	30+44.10
	11.75'	30+80.37
V2	8.04'	30+44.10
	7.25'	30+80.37

TYPICAL SECTION STA 30+44.10 TO STA 30+60.37
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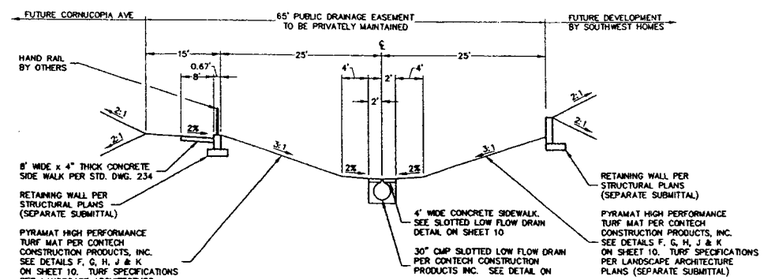
VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	11.75'	30+60.37
	0	32+29.40
V2	0'	30+60.37
	9.87'	32+29.40

TYPICAL SECTION STA 30+60.37 TO STA 32+21.36
N.T.S.

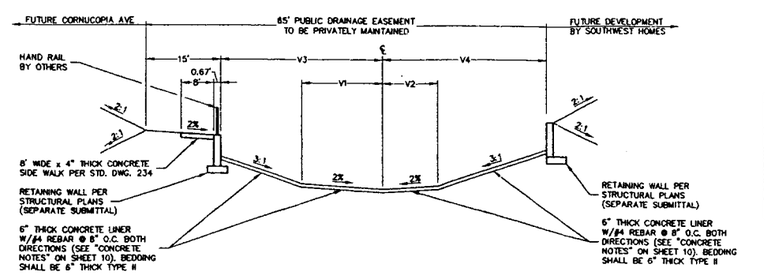


VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	11.75'	30+60.37
	0	32+29.40
V2	0'	30+60.37
	9.87'	32+29.40

TYPICAL SECTION STA 32+21.36 TO STA 32+29.36
N.T.S.



TYPICAL SECTION STA 32+29.40 TO 32+34.75
NOT TO SCALE



VARIABLE DIMENSIONS		
MARK	DIMENSION	STATION
V1	0'	32+34.75
	12.27'	32+91.78
V2	0	32+34.75
	3.84'	32+91.78
V3	19'	32+34.75
	11.35'	32+91.78
V4	2.63'	32+34.75
	4.85'	32+91.78

TYPICAL SECTION STA 32+34.75 TO STA 32+91.78
NOT TO SCALE

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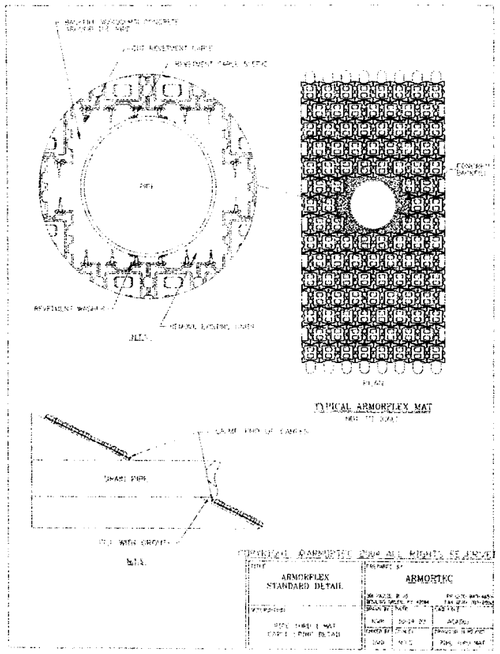
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CMP-VII-1
SPEC. MAN.

SLOTTED DRAIN SPECIFICATION
TRAPEZOIDAL SLOT

1.0 **General**

1.1 This specification covers Slotted Drain used for the removal of water as shown on the plans.
1.2 The Corrugated Steel Pipe used in the Slotted Drain shall meet the requirements of AASHTO M36/ASTM A760. The CMP shall be ALUMINIZED STEEL Type 2 per AASHTO M-274. The diameter and gage shall be as shown on the plans.

2. **Connections**

2.1 The Corrugated Steel Pipe shall have a minimum of two rerolled annular ends.
2.2 The Slotted Drain bands shall be a modified HUGGER Bands to secure the pipe and prevent infiltration of the backfill.
2.3 When the Slotted Drain is banded together, the adjacent grates shall have a maximum 3" gap.

3. **Grates**

3.1 The grates shall be manufactured from ASTM A1011, Grade 36 steel. The spacers and bearing bars (sides) shall be 3/16" material ± 0.008".
3.2 The spacers shall be on 6" centers and welded on both sides to each bearing bar (sides) with four (4) 1-1/4" long 3/16" fillet welds on each side of the bearing bar.
3.3 The engineer may call for tensile strength tests on the grate if the grate is not in compliance with Section 3.2. If tensile strength tests are called for, minimum results for an in-place specer pulled perpendicular to the bearing bar shall be:
T = 12,000 pounds for 2-1/2" grate
T = 15,000 pounds for 6" grate
3.4 The grates shall be trapezoidal with a 1-3/4" opening in the top and 30° slanted spacers unless shown otherwise on the plans. The grate shall be 2-1/2" or 6" high as shown on the plans.

4. **Galvanizing**

4.1 The grate shall be galvanized in accordance with ASTM A 123 except with ± 2 Oz. galvanized coating.

5. **Grate Attached to CSP**

5.1 The grate shall be fillet welded with a minimum weld 1" long to the CSP on each side of the grate at every other corrugation.

6. **Tolerances - Finished Slotted Drain -20' Lengths**

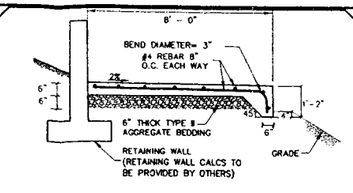
6.1 Vertical Bow - ± 3/8"
6.2 Horizontal Bow - ± 5/8"
6.3 Twist - ± 1/2"

Note : All fabrication of the product shall occur within the United States of America.

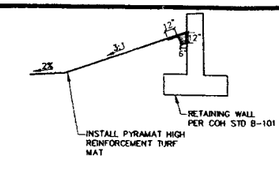
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SPECIFICATION
SLOTTED DRAIN-TRAPEZOIDAL SLOT
1120 & H25 LOADING

DRAWN BY: JPP | REV. BY: M. J. O. | SCALE: SCALE
DATE: 11-4-91 | DATE: 4-15-03 | 10085878



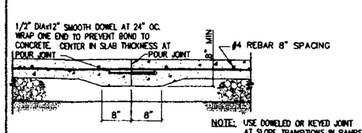
B 8' WIDE CONCRETE ACCESS RAMP W/ THICKENED SLAB
N.T.S.



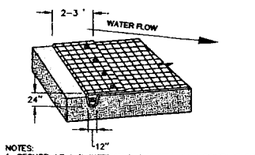
J TYPICAL LONGITUDINAL ANCHOR TRENCH DETAIL @ RETAINING WALL
N.T.S.

CONCRETE NOTES:

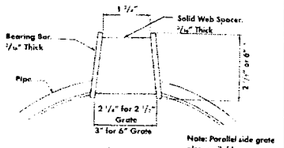
1. CONCRETE SHALL MEET THE REQUIREMENTS OF CLASS B PER THE NDOT 2001 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. THE MINIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE 4000 PSI.
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60
3. ALL REINFORCING LAPS SHALL BE A MINIMUM OF 12".
4. EXPANSION JOINTS SHALL BE CONSTRUCTED AT 100' INTERVALS PER DETAIL C/9.



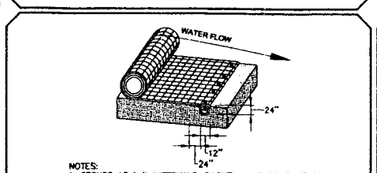
C DOWEL JOINT DETAIL
N.T.S.



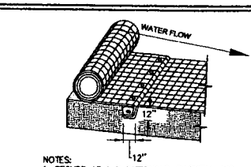
K TERMINAL CHANCHEL ANCHOR TRENCH
STA: 36+50.81±



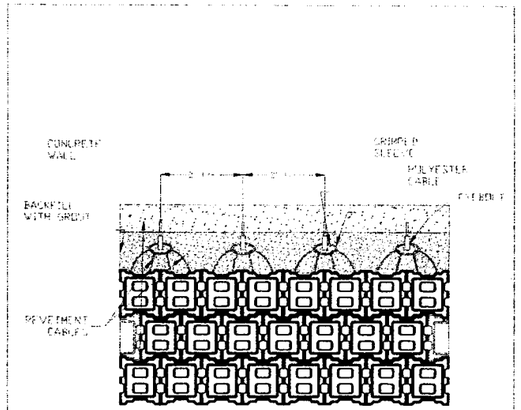
Section A-A – Standard Grate Detail



G INITIAL ANCHOR TRENCH DETAIL
STA: 27+80±

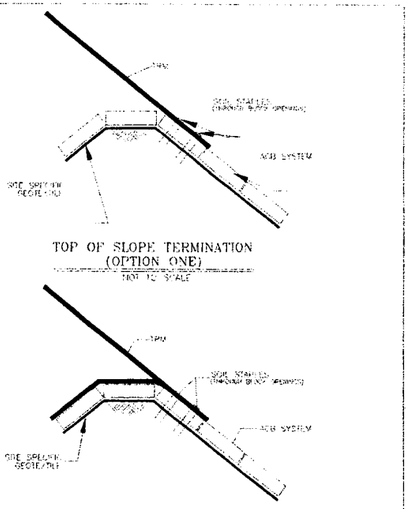


H INTERMITTENT CHECK SLOT
INSTALL @ 30' INTERVALS MAX.
STA: 27+80 TO 36+50.81



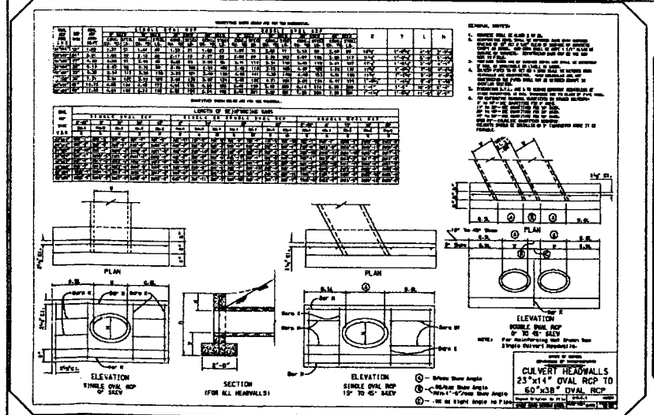
COPYRIGHT © ARMORTEC 2002 ALL RIGHTS RESERVED

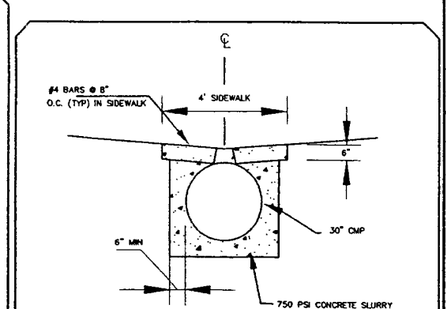
ARMORFLEX STANDARD DETAIL — ARMORTEC
MAT ANCHORED TO WALL



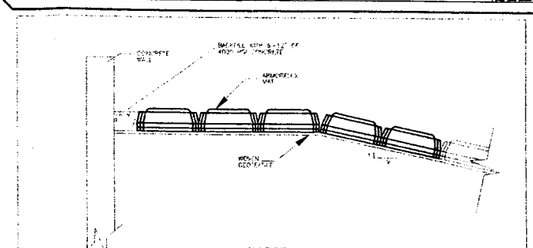
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ACB SYSTEM STANDARD DETAIL — ARMORTEC
TOP OF SLOPE ANCHORING DETAIL





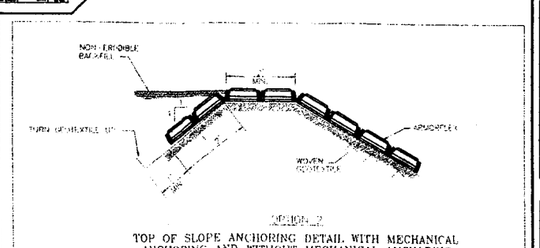
30" CMP SLOTTED LOW FLOW DRAIN
SECTION DETAIL



OPTION 1

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ARMORFLEX STANDARD DETAIL — ARMORTEC
MAT ANCHORED TO WALL



OPTION 2
TOP OF SLOPE ANCHORING DETAIL WITH MECHANICAL ANCHORING AND WITHOUT MECHANICAL ANCHORING
NOT TO SCALE

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ARMORFLEX STANDARD DETAIL — ARMORTEC
TOP OF SLOPE DETAILS WITH AND WITHOUT MECHANICAL ANCHORING

NO.	DESCRIPTION	DATE	APP'D

DATE: 3/25/2005
PM: K. HANG
DRAWN BY:
DESIGNED BY:
CHECKED BY:
JOB NO.: 185100121
SCALE: N.T.S.

The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing - any errors or omissions shall be reported to Stantec without delay. The Copyright to all designs and drawings are the property of Stantec. Reproduction or use for any purpose other than authorized by Stantec is prohibited.

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7251 W. Charleston Blvd.
Las Vegas, Nevada, U.S.A.
89117
Tel. (702) 258-0115
Fax. (702) 258-4956
www.stantec.com

Stantec

SOUTHWEST HOMES
DESERT CANYON OPEN SPACE
DETAIL SHEET

PROFESSIONAL ENGINEER — STATE OF NEVADA — GERALD S. BINFIELD — Exp. 12/31/06 — CIVIL — No. 16511

SHEET 10 OF 13

W:\Active\185100121\drawings\Improvement Plans\channel-plans\From Back-up 9-30-04\channel-plans\DETAIL3.dwg dierdi Fri, 25 Mar 2005 - 10:20am

PIONEER DETENTION BASIN PHASE I – VTN NEVADA

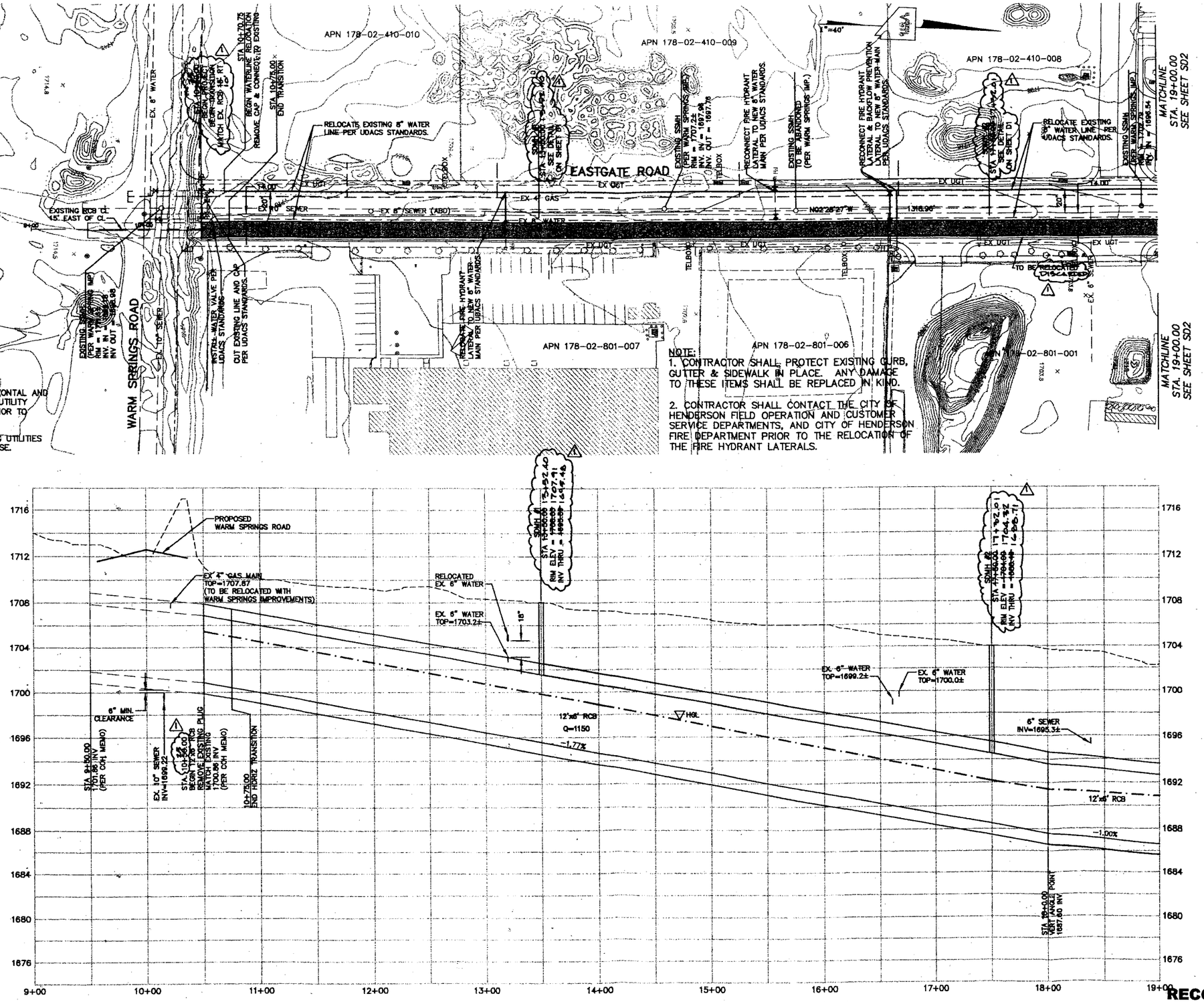
(Outfall Structure)

PLAN & PROFILE

Avoid cutting underground utility lines. It's costly.
2 working days **Call before you Dig**
1-800-227-2600
Underground Service Alert (U.S.A.)

Avoid overhead power line contact.
2 working days **Call before you Overhead**
1-702-593-6111
Nevada Power Environmental and Safety Services Department

NOTES:
1. CONTRACTOR TO VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITY CROSSINGS AND/OR CONFLICTS PRIOR TO EXCAVATION.
2. CONTRACTOR TO PROTECT EXISTING UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.



NOTE:
1. CONTRACTOR SHALL PROTECT EXISTING CURB, GUTTER & SIDEWALK IN PLACE. ANY DAMAGE TO THESE ITEMS SHALL BE REPLACED IN KIND.
2. CONTRACTOR SHALL CONTACT THE CITY OF HENDERSON FIELD OPERATION AND CUSTOMER SERVICE DEPARTMENTS, AND CITY OF HENDERSON FIRE DEPARTMENT PRIOR TO THE RELOCATION OF THE FIRE HYDRANT LATERALS.

RECORD DRAWING

REV	DATE	BY	REVISION
	11/12/99	BKP	RECORD DRAWING

CITY OF HENDERSON
CLARK COUNTY, NEVADA

vtn nevada
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

TITLE: PLAN AND PROFILE STA. 9+50.00 TO STA. 19+00.00
PROJECT: PIONEER DETENTION BASIN OUTFALL STRUCTURE - PHASE I

SEAL
KEN D. GILBRETH CIVIL No. 9177
11-99

W.O. NO.	4392-D
DESIGNED BY	KH
DRAWN BY	BKP
DATE	7/1/99
SCALE HORIZ.	1"=40'
SCALE VERT.	1"=4'
DRAWING	SD1
SHEET NO.	14 SHEETS

I:\CAD\VOBRRK\V2921BSE.dwg Thu Jul 01 09:48:59 1999 Plotted by M.B.M.
VIEW =PLT (DRV=...
I:\CAD\VOBRRK\Va...typ SE.DWG

MATCHLINE STA. 19+00.00 SEE SHEET SD1

MATCHLINE STA. 30+00.00 SEE SHEET SD3

APN 178-02-410-007

APN 178-02-302-009

APN 178-02-302-008

APN 178-02-302-007

APN 178-02-302-006

APN 178-02-801-001

APN 178-02-701-001

EASTGATE ROAD

CAPE HORN DRIVE

RELOCATE EXISTING 8" WATER LINE 5' WEST OF EXISTING GAS LINE PER UDACS STANDARDS

SDMH #2 STA 22+69.51 SEE DETAIL ON SHEET D1

15' LONG TYPE "C" DROP INLET W/ VANE GRATE

STA 22+74.29 30.78' LT REMOVE AND REPLACE VALLEY GUTTER AS NECESSARY TO CONSTRUCT RCB LATERAL

INSTALL WATER VALVE PER UCWCD STANDARDS

STA 22+78.00 8" WATER TEE

STA 23+11.74 END 8" WATERLINE RELOCATION CONNECT TO EXISTING 8" WATER LINE PER UDACS STANDARDS

STA 23+50.00 HORIZ ANGLE POINT ANGLE = 0°39'32" LT

SDMH #3 STA 25+69.68 SEE DETAIL ON SHEET D1

STA 27+00.00 HORIZ ANGLE POINT ANGLE = 0°39'19" RT

10' LONG TYPE "C" DROP INLET W/ VANE GRATE STA 23+74.29 10.73' RT

REMOVE AND REPLACE VALLEY GUTTER AS NECESSARY TO CONSTRUCT RCB STRUCTURE

CUT EXISTING LINE AND CAP PER UDACS STANDARDS

EX 8" SEWER — EX 8" WATER — EX 4" GAS — EX UGT — EX TELEC. BOX — TELBOX

N02°28'27"W 1318.98' — 29.30 LF 24" RCP — 36.59 LF 24" RCP — N02°28'41"W 329.74' — 10.00' — N02°28'41"W 328.74'

NOTE:
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NOTES:
1. CONTRACTOR TO VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITY CROSSINGS AND/OR CONFLICTS PRIOR TO EXCAVATION.
2. CONTRACTOR TO PROTECT EXISTING UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.

Avoid overhead power line contact. 2 working days. Call before you Overhead 1-702-593-6111 Nevada Power Environment and Safety Services Department

Avoid cutting underground utility lines. It's costly. 2 working days. Call before you Dig 1-800-227-2600 Underground Service Alert (U.S.A.)

EX TELE CROSSING CONTRACTOR TO FIELD VERIFY LOCATION AND ELEV.

SDMH #2 STA 22+69.51 RIM ELEV = 1694.66 INV THRU = 1685.84 1678.44 1678.44 1682.84

SDMH #3 STA 25+69.68 RIM ELEV = 1693.90 INV THRU = 1679.44 1679.44 1679.44

STA 22+78.00 8" LT 24" RCP LATERAL INV ELEV = 1686.38

STA 22+83.82 4" RT INV ELEV = 1686.18

STA 22+85.58 8" LT 24" RCP LATERAL INV ELEV = 1686.14

EX 4" GAS MAIN TOP=1694.65

EX 4" GAS MAIN

EX 6" WATER TOP=1691.10

ENCASE WATER W/ CONCRETE CASING

HGL

12'x6' RCB

Q=1150

1.00%

STA 23+50.00 HORIZ. ANGLE POINT 1682.10 INV

STA 27+00.00 HORIZ. ANGLE POINT 1678.60 INV

1708 1704 1700 1696 1692 1688 1684 1680 1676 1672 1668

19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00

RECORD DRAWING

CITY OF HENDERSON
CLARK COUNTY, NEVADA

REV	DATE	BY	REVISION
1	11/22/00	BKP	Revised Drainage

CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

TITLE: PLAN AND PROFILE STA. 19+00.00 TO STA. 30+00.00

PROJECT: PIONEER DETENTION BASIN OUTFALL STRUCTURE - PHASE I

SEAL: KEN D. GOLBRETH CIVIL No. 9171 NEVADA 7-1-99

W.O. NO.	4392-D
DESIGNED BY	EH
DRAWN BY	BKP
DATE	7/1/99
SCALE HORIZ.	1"=40'
SCALE VERT.	1"=4'
DRAWING	SD2
SHEET	8 OF 14 SHEETS

I:\CAD\PUBWRK\4392\4392BASE.dwg Thu Jul 01 09:49:39 1999 Plotted by W.B.M.

VIEW #FLY (BR-SD2A)
I:\CAD\PUBWRK\4392\4392_____.DWG

MATCHLINE STA. 30+00.00 SEE SHEET SD2

MATCHLINE STA. 41+00.00 SEE SHEET SD4

APN 178-02-302-005

APN 178-02-302-004

APN 178-02-202-010

APN 178-02-701-001

EASTGATE ROAD

SUNSET ROAD

10.00'

7.00'

N62°29'41"W — EX 8" SEWER — 659.49'

N62°29'19"W — 659.56'

EX UGT

TELBOX

ELEC BOX

EX 8" SEWER

EX 4" SEWER

EX 10" WATER

EX 2" GAS

EX (2) 2" PRESSURE SEWER

EX 2" GAS

EX 8" WATER

EX 12" WATER

EX 6" WATER

EX 1/2" GAS

EX 2" PVC

EX 16" MAIN

EX 8" SEWER

SDMH #5
STA 30+00.00
RIM ELEV = 1686.79
INV THRU = 1675.24

SDMH #6
STA 34+92.56
RIM ELEV = 1686.23
INV THRU = 1670.66

SDMH #7
STA 41+00.00
RIM ELEV = 1686.15
INV THRU = 1669.74

EXISTING SDMH
RIM = 1687.67
INV = 1680.29

PROPOSED SDMH
RIM = 1684.76
INV = 1679.72

SEE SHEET SD6 FOR SEWER RELOCATION PLANS

REMOVE AND REPLACE VALLEY GUTTER AS NECESSARY TO CONSTRUCT RCB STRUCTURE

24" RCB STUB W/ FLARED END SECTION 24" RCB STUB

2-4' LONG NDOT TYPE 3 DROP INLETS

STA 37+34.99 80.25' LT

STA 36+47.22 43.63' LT

38.30 LF~24" RCP

30.15 LF~24" RCP

STA 36+42.74 38.20' RT

2-4' LONG NDOT TYPE 3 DROP INLETS

STA 36+77.77 HORIZ. ANGLE POINT ANGLE = 114°34'

STA 37+00.00 BEGIN TRANS

STA 37+08.00 END TRANS

STA 37+27.77 HORIZ. ANGLE POINT ANGLE = 114°06'

15' LONG TYPE "C" DROP INLET W/ VANE GRATE

PROTECT EXISTING POLE IN PLACE

56.20 LF~24" RCP

PROTECT EXISTING GAS LINE IN PLACE

PROTECT EXISTING CURB AND GUTTER IN PLACE

PROTECT EXISTING 10" WATER LINE IN PLACE

NOTE:
SEE SHEET SD6 FOR PROFILES OF STORM DRAIN LATERALS

NOTE:
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Avoid overhead power line contact.
2 working days **Call before you Overhead** 1-702-593-6111
Nevada Power Environment and Safety Services Department

Avoid existing underground utility lines. It's costly.
2 working days **Call before you Dig** 1-800-227-2600
(Underground Service Alert (U.S.A.))

1" = 40'

1700 1696 1692 1688 1684 1680 1676 1672 1668 1664 1660

30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00

STA 30+00.00 HORIZ. ANGLE POINT 1668.80 INV

STA 34+92.56 EX UGT CROSSING CONTRACTOR TO CONFIRM LOCATION AND ELEV.

STA 36+45.64 - 6' RT 24" RCP LATERAL INV ELEV = 1672.01

STA 36+45.64 - 6' LT 24" RCP LATERAL INV ELEV = 1672.01

STA 37+45.59 - 6' LT 24" RCP LATERAL INV ELEV = 1673.64

STA 37+00.00 BEGIN TRANS 1668.60 INV

STA 37+08.00 END TRANS 1668.52 INV

STA 37+00.00 HORIZ. ANGLE POINT 1668.10 INV

EX 2" GAS MAIN TOP=1682.8±

EX 8" WATER TOP=1682.2±

EX 12" WATER TOP=1680.5±

RELOCATED 12" WATER

EX 8" WATER TOP=1680.4±

EX 8" SEWER 1679.5±

6"±

EX 4" SEWER INV=1680.1±

EX 1/2" GAS LATERAL TOP=1677.05

EX 10" WATER (PROTECT IN PLACE) TOP=1676.5±

EX 6" WATER (PROTECT IN PLACE) TOP=1676.5±

HGL

12'x5' RCB Q=1150 -1.00%

12'x5' RCB Q=1250 -1.00%

RECORD DRAWING

CITY OF HENDERSON
CLARK COUNTY, NEVADA

vtn nevada

CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

REV	DATE	BY	REVISION
1	11/22/00	BKP	Record Drawings

TITLE
PLAN AND PROFILE
STA. 30+00.00 TO STA. 41+00.00

PROJECT
PIONEER DETENTION BASIN
OUTFALL STRUCTURE - PHASE I

SEAL
REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA
KEN D. GILBRETH
CIVIL
No. 9177

W.O. NO.	4392-D
DESIGNED BY	EH
DRAWN BY	BKP
DATE	7/1/99
SCALE HORIZ.	1"=40'
SCALE VERT.	1"=4'
DRAWING	SD3
SHEET	7 OF 14 SHEETS

VIEW = PLT (SD-SD3)
I:\CAD\PUBWRK\4392\4392SD3.DWG

I:\CAD\PUBWRK\4392\4392SE.dwg Fri Jul 02 12:21:03 1999 Plotted by K.B.M.

MATCHLINE STA. 41+00.00 SEE SHEET SD3

APN 178-02-202-010

APN 178-02-202-010

APN 178-02-202-004

PROTECT EXISTING 10" WATER LINE IN PLACE

EASTGATE ROAD

PROTECT EXISTING 10" WATER LINE IN PLACE

EX UGT

EX 4" GAS

EX. 10" WATER

7.00'

N02°29'19"W 659.55'

TEEBOX

SDMH #3 STA 43+22.00 RIM ELEV = 1675.40 INV THRU = 1661.95 SEE DETAIL ON SHEET D1

SDMH #4 STA 47+96.50 RIM ELEV = 1672.83 INV THRU = 1657.53 SEE DETAIL ON SHEET D1

REPLACE DIRT PILE

R=120.00'
L=104.21'
T=55.65'
Δ=49°45'20"

N02°29'19"W 331.57'

CONSTRUCTION EASEMENT (TYP.)

R.O.W.

RCB BEGIN

RCB END

MATCHLINE STA. 52+00.00 SEE SHEET SD5

8" W

RELOCATE EXISTING 8" WATER LATERAL

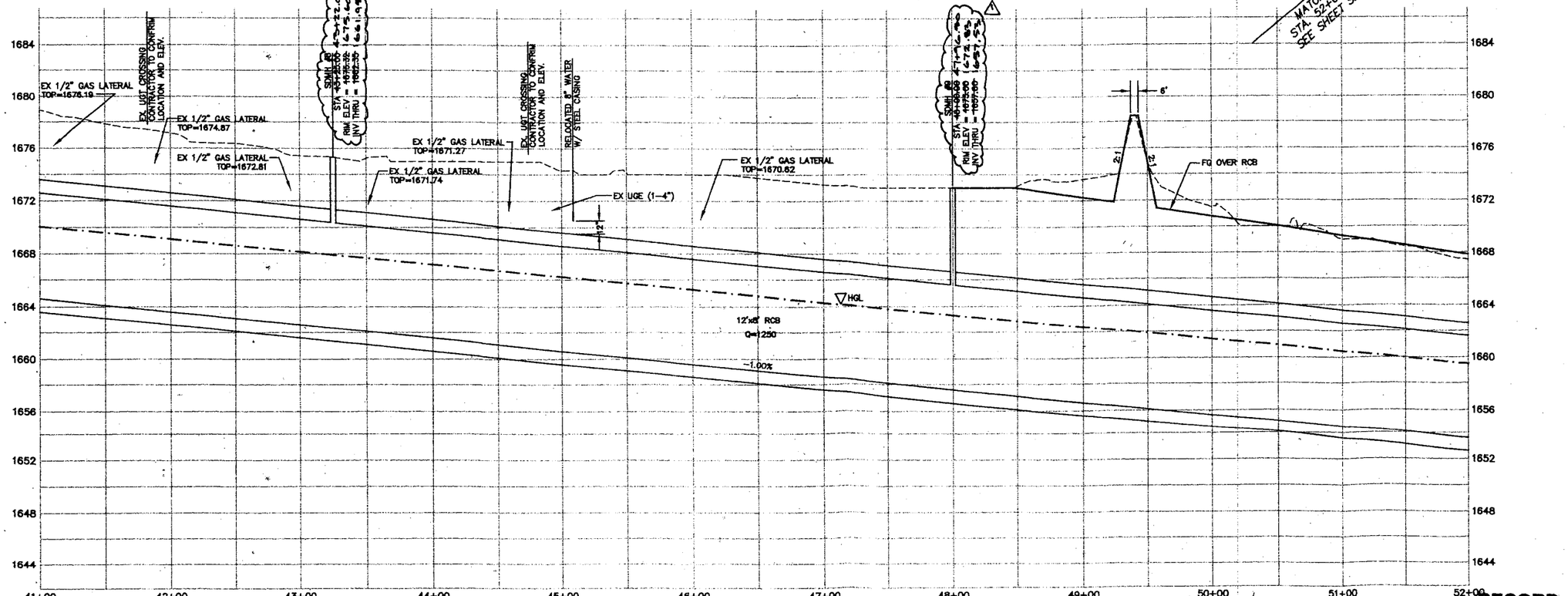
TEEBOX TO BE RELOCATED

NOTE:
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NOTES:
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2 working days **Call before you Overhead**
1-702-593-6111
Nevada Power Environment and Safety Services Department

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2 working days **Call before you Dig**
1-800-227-2600
Underground Service Alert (U.S.A.)



RECORD DRAWING

CITY OF HENDERSON
CLARK COUNTY, NEVADA

REV	DATE	BY	REVISION
1	11/24/99	EKP	Record Drawings

vtn nevada
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

TITLE: PLAN AND PROFILE STA. 41+00.00 TO STA. 52+00.00

PROJECT: PIONEER DETENTION BASIN OUTFALL STRUCTURE - PHASE I

SEAL
KEN D. GILBRETH CIVIL No. 6177
7-1-99

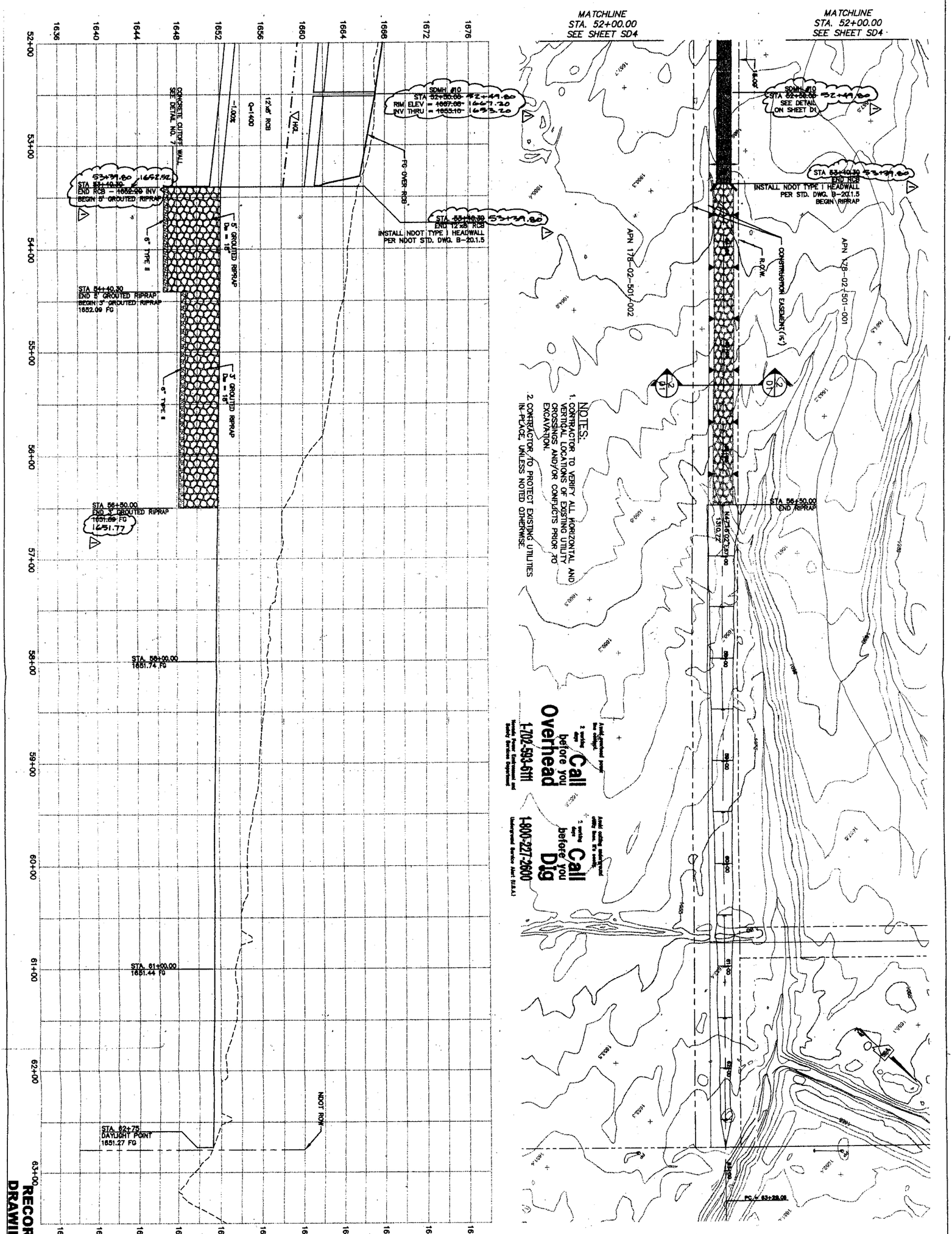
W.O. NO.	4392-D
DESIGNED BY	EH
DRAWN BY	BKP
DATE	7/1/99
SCALE HORIZ. VERT.	1"=40' 1"=4'
DRAWING	SD4
SHEET	8 OF 14 SHEETS

I:\CAD\PWORK\4392\4392BASE.dwg Thu Jul 01 09:56:11 1999 Plotted by M.B.W.

VIEW=PLT (BR-SD4)
I:\CAD\PWORK\4392\.MG

I:\CAD\PUBWRK\4392\4392BASE.dwg Thu Jul 01 09:56:30 1999 Plotted by W.B.W.

VIEW =PLT (BR-SD5)
L:\CAD\PUBWRK\4392\4392BASE.DWG



RECORD DRAWING

SD5	DRAWING NO.	4392-D	CITY OF HENDERSON	
	SCALE HORIZ. 1"=40' VERT. 1"=4'	DESIGNED BY EKF	CLARK COUNTY, NEVADA	
SHEET 8 OF 14 SHEETS	DATE 7/1/99	DRAWN BY EKP		

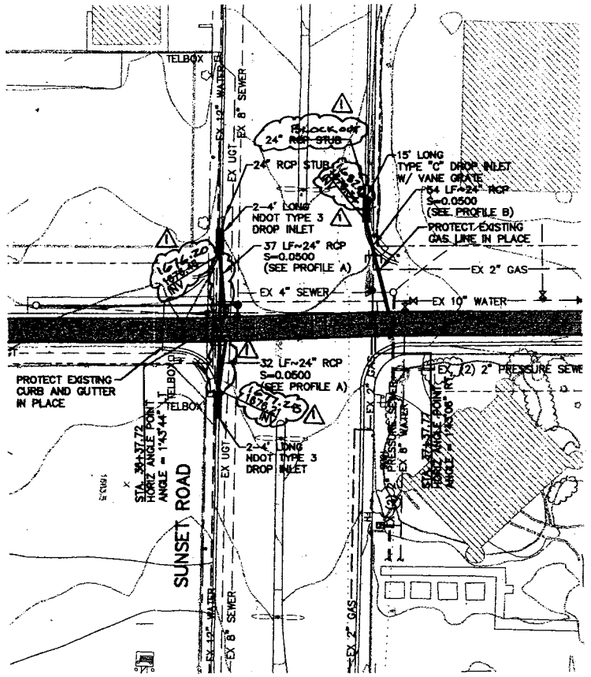
PROFESSIONAL ENGINEER — ERIC K. PETERSEN — No. 10177 — STATE OF NEVADA — SEAL — 7-1-99

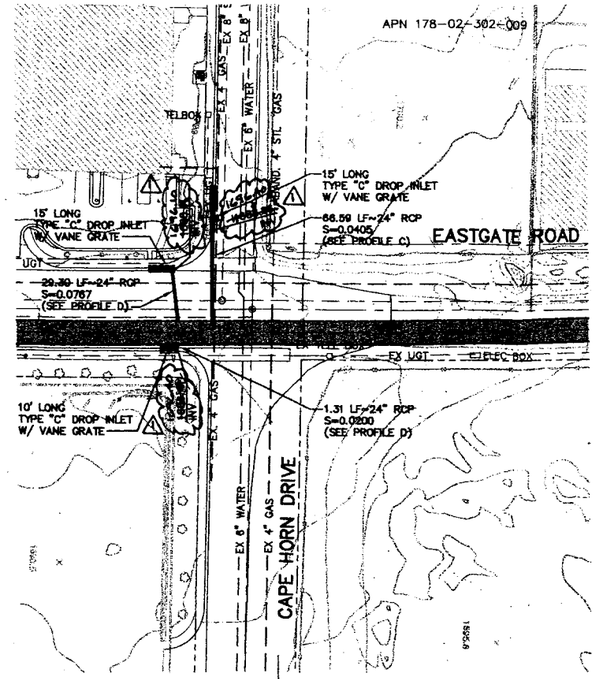
TITLE
PLAN AND PROFILE
STA. 52+00.00 TO END

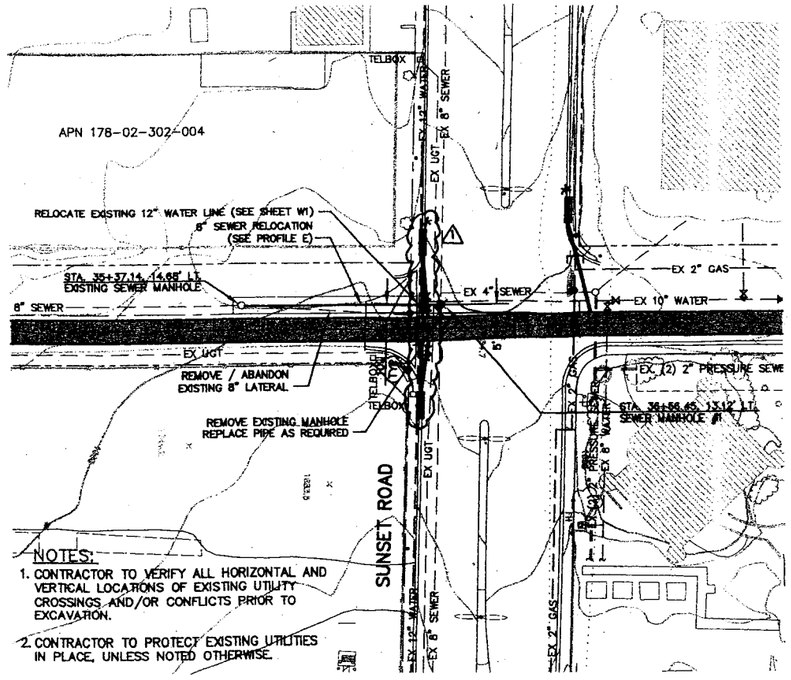
PROJECT
PIONEER DETENTION BASIN
OUTFALL STRUCTURE - PHASE I

REV	DATE	BY	REVISION
1	11/22/99	EKP	RECORD DRAWING

vtn nevada
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

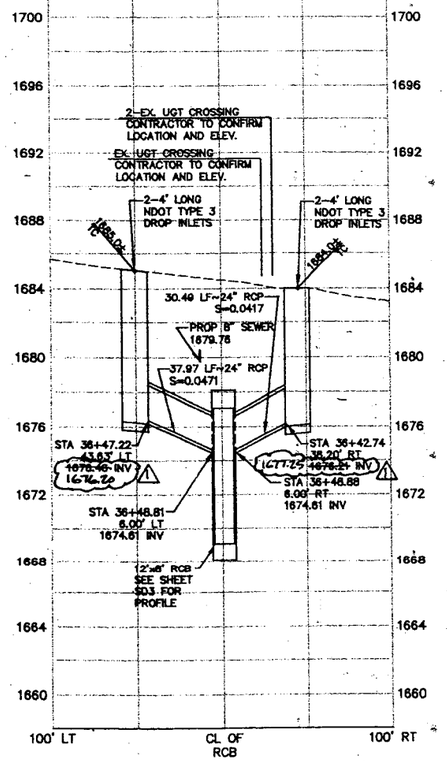




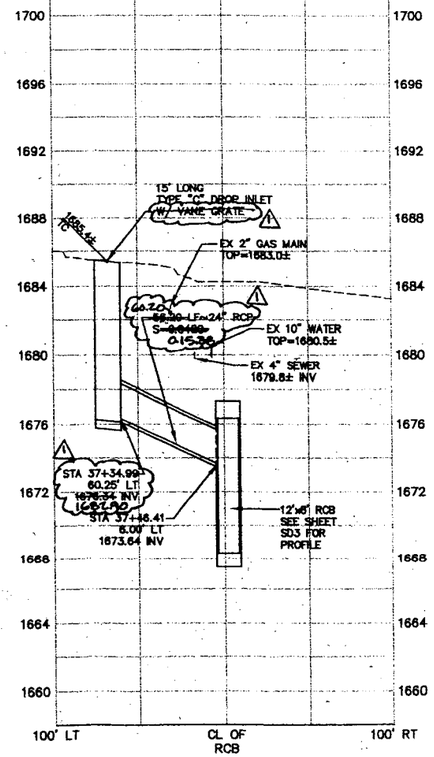


NOTES:

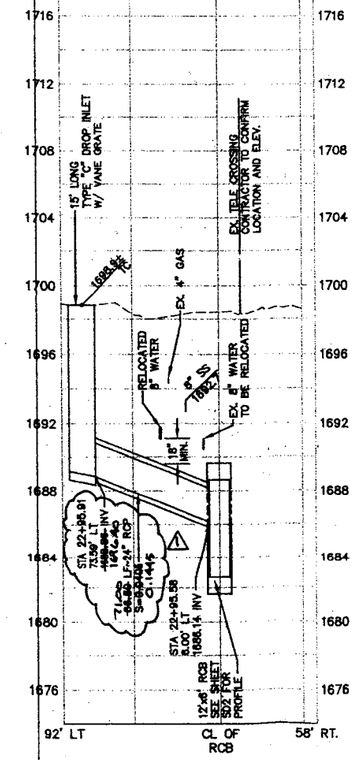
1. CONTRACTOR TO VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITY CROSSINGS AND/OR CONFLICTS PRIOR TO EXCAVATION.
2. CONTRACTOR TO PROTECT EXISTING UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.



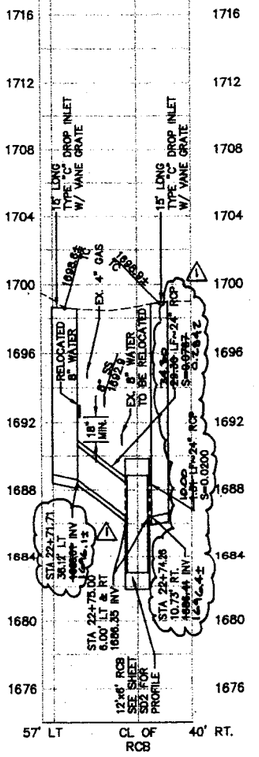
PROFILE A



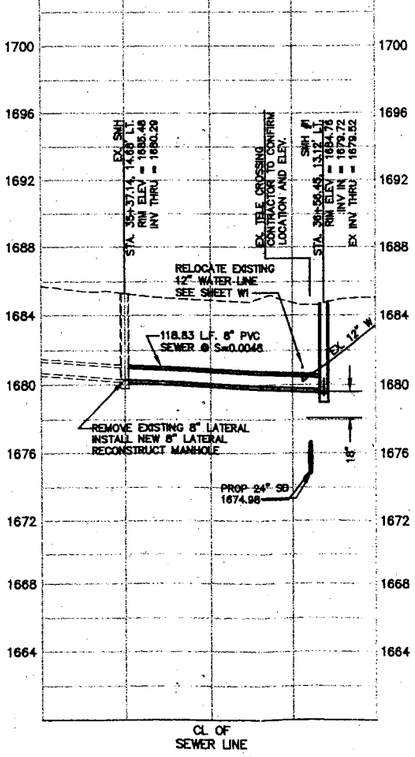
PROFILE B



PROFILE C



PROFILE D



PROFILE E

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LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

REV	DATE	BY	REVISION
1	11/11/99	BKP	Record Drawings

CITY OF HENDERSON
CLARK COUNTY, NEVADA

TITLE: 24" STORM DRAIN LATERALS SANITARY SEWER RELOCATION PLAN AND PROFILE

PROJECT: PIONEER DETENTION BASIN OUTFALL STRUCTURE - PHASE I

Avoid overhead power line contact.
2 working days **Call before you Overhead**
1-702-593-6111
Nevada Power Environment and Safety Services Department

Avoid cutting underground utility lines. It's costly.
2 working days **Call before you Dig**
1-800-227-2600
Underground Service Alert (U.S.A.)

RECORD DRAWING

KEN D. GILBRETH CIVIL No. 9177

WCL NO.	4392-D
DESIGNED BY	EH
DRAWN BY	BKP
DATE	7/1/99
SCALE HORIZ.	1"=40'
SCALE VERT.	1"=4'
DRAWING	SD6
SHEET	10 OF 14 SHEETS

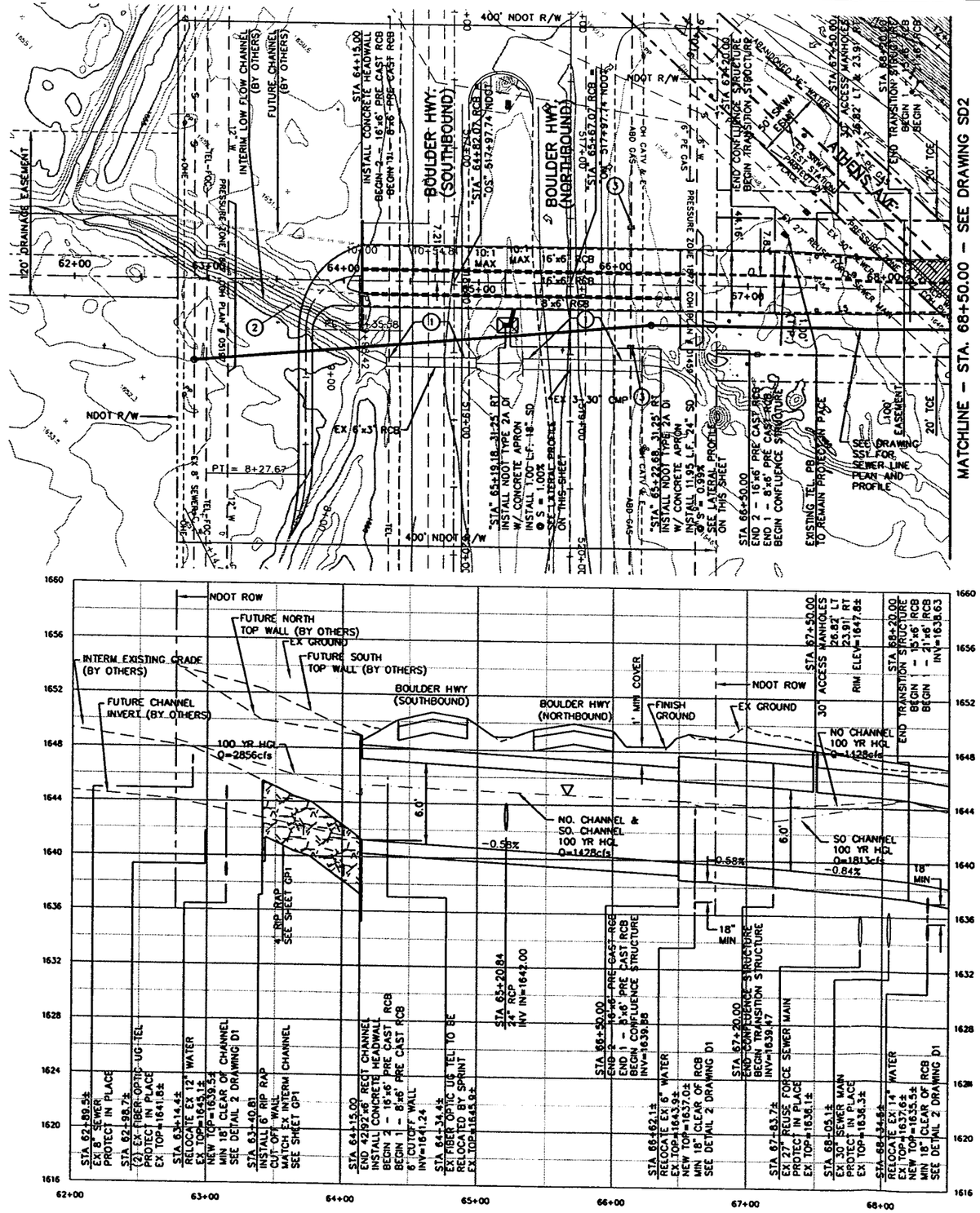
I:\CAD\PUBWRK\4392\4392SDSE.dwg Fri Jul 02 12:22:30 1999 Plotted by M.B.M.

VIEW=PLT (BR-SD, I:\CAD\PUBWRK\4392\v-sh_.DWG

PIONEER DETENTION BASIN PHASE II – VTN NEVADA

(Outfall Crossing at Boulder Highway)

PLAN & PROFILE



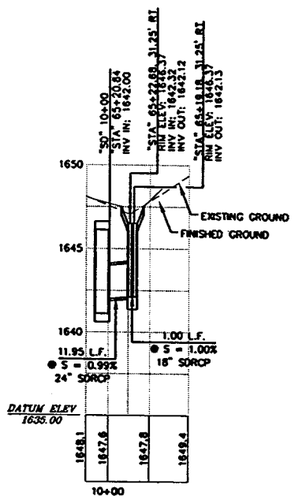


GENERAL NOTES:

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2. CONTRACTOR TO PROTECT EXISTING UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
3. SEE DRAWING D1 FOR TYPICAL TRENCH DETAILS.
4. SEE DRAWINGS S1–S4 & ST1–ST10 FOR STRUCTURAL DETAILS.
5. SEE SHEET T1 FOR PAVEMENT REMOVAL AND REPLACEMENT.

CONSTRUCTION NOTES:

1. EXISTING HEADWALL TO BE REMOVED EXISTING RCB & CMP TO BE REMOVED 10' FROM EDGE OF PAVEMENT. BRICK AND MORTAR PIPE END. PLUG PER DETAIL 3 ON DRAWING D1 AND BACKFILL TO EDGE OF PAVEMENT AT 6:1 OR FLATTER.
2. SEE GRADING PLAN SHEET GP1.
3. CUT AND PLUG CONFLICTING EXISTING PIPE PER DETAIL 3 SHEET D1.



LATERAL PROFILE

SNWA CONSTRUCTION NOTES:

1. CONTRACTOR SHALL FIELD LOCATE AND PROTECT ALL SNWA/SNWS APPURTENANCES INCLUDING BUT NOT LIMITED TO AV/AR, ACCESS MANWAYS AND CATHODIC PROTECTION SYSTEMS. ALL ABOVE GROUND STRUCTURES AND AT GRADE STRUCTURES MUST BE ADJUSTED TO NEW GRADE AT CONTRACTOR'S EXPENSE. CATHODIC PROTECTION TEST STATIONS, RECTIFIERS, AND AV/AR'S MUST BE RELOCATED TO THE SIDEWALK PER SNWA STANDARDS AND AT THE CONTRACTOR'S EXPENSE. CONTRACTOR TO NOTIFY SOUTHERN NEVADA WATER AUTHORITY, DEVELOPMENT PLAN REVIEW, AT (702) 862–3444 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY.

SOUTHERN NEVADA WATER AUTHORITY DATE

SNWA APPROVAL IS VALID FOR ONE (1) YEAR FROM THE SIGNATURE DATE. IF CONSTRUCTION WITHIN THE EASEMENT OR RESTRICTED PIPE SAFETY ZONE IS NOT COMPLETE, PLANS MUST BE RESUBMITTED TO SNWA FOR APPROVAL.

Avoid overhead power line contact. 2 working days Call before you Overhead 1-702-593-6111 Nevada Power Environment and Safety Services Department

Avoid cutting underground utility lines. It's costly. 2 working days Call before you Dig 1-800-227-2600 Underground Service Alert (U.S.A.)

CITY OF HENDERSON
CLARK COUNTY, NEVADA

REV	DATE	BY	REVISION

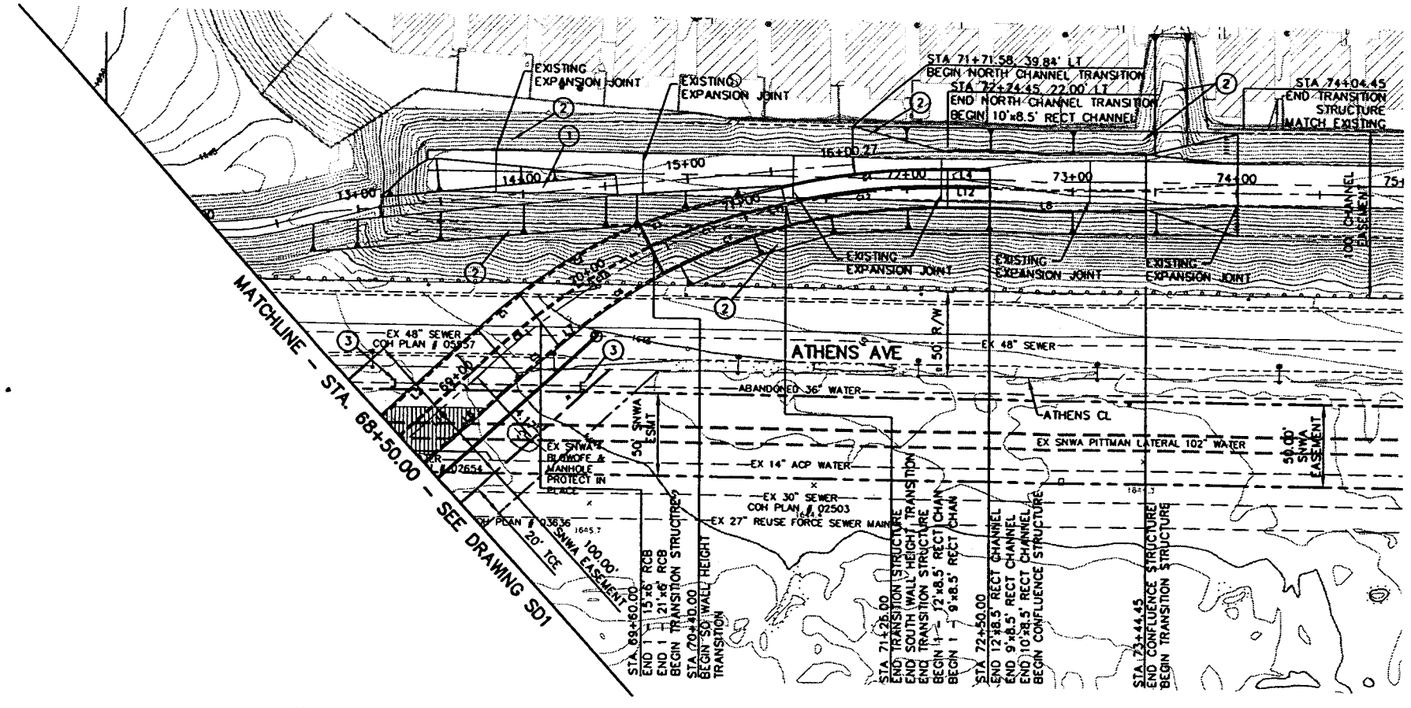
vtn nevada
CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

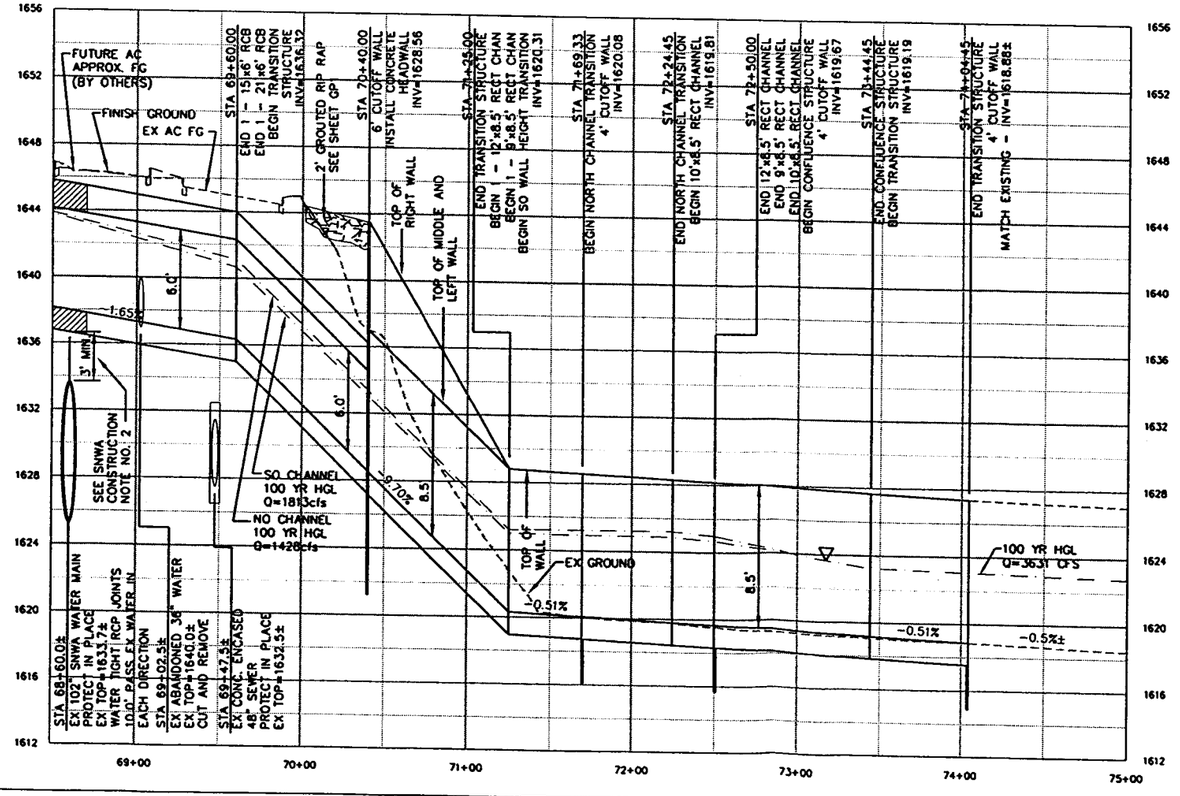
TITLE: PLAN AND PROFILE STA. 62+00 TO STA. 68+50

PROJECT: PIONEER DETENTION BASIN OUTFALL CROSSING AT BOULDER HIGHWAY

SEAL: PROFESSIONAL ENGINEER – STATE OF NEVADA – JEREMY LEE – 11/30/05 – CIVIL – No. 15998

WO. NO.	6285
DESIGNED BY	JL
DRAWN BY	BKP/BAH
DATE	11-30-05
SCALE	HORIZ. 1"=40' VERT. 1"=4'
DRAWING	SD1
SHEET	OF SHEETS





LINE TABLE		
LINE	LENGTH	BEARING
L1	100.14	N58°17'46"E
L2	108.37	N47°16'02"E
L3	53.85	S75°25'54"W
L4	25.55	N89°40'36"E
L5	100.02	N46°11'48"E
L6	108.37	N47°16'02"E
L7	21.68	S58°18'30"W
L8	120.00	N89°40'36"E
L9	100.00	N49°22'00"E
L10	108.36	N47°16'02"E
L11	13.55	S75°25'54"W
L12	25.55	N89°40'36"E

CURVE TABLE				
CURVE	LENGTH	RADIUS	TANGENT	DELTA
C1	33.30	424.17	16.66	4°29'53"
C2	83.88	295.94	42.22	16°14'25"
C3	34.36	295.94	17.20	6°39'06"
C4	102.18	411.00	51.36	14°14'42"
C5	30.29	375.83	15.16	4°37'06"
C6	55.42	351.83	27.77	9°01'32"
C7	82.49	351.83	41.44	13°26'03"
C8	96.71	389.00	48.61	14°14'42"
C9	31.93	403.83	15.97	4°31'48"
C10	80.82	363.28	40.58	12°44'48"
C11	71.96	363.28	36.10	11°21'00"
C12	99.70	401.00	50.11	14°14'42"

NORTH

GRAPHIC SCALE
40 0 20 40 80 120
(IN FEET)
1 inch = 40 ft.

GENERAL NOTES:

1. CONTRACTOR TO VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING UTILITY CROSSINGS AND/OR CONFLICTS PRIOR TO EXCAVATION.
2. CONTRACTOR TO PROTECT EXISTING UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
3. SEE DRAWING D1 FOR TYPICAL TRENCH DETAILS.
4. SEE DRAWINGS S1-S4 & ST1-ST10 FOR STRUCTURAL DETAILS.
5. SEE SHEET T-1 FOR PAVEMENT GUARD RAIL, SIDEWALK, STREET LIGHT, CURB & GUTTER REMOVAL AND REPLACEMENT.

CONSTRUCTION NOTES:

1. SEE ACCESS ROAD PLAN & PROFILE SHEET SD3
2. SEE GRADING PLAN SHEET GP1
3. CUT AND PLUG CONFLICTING EXISTING PIPE PER DETAIL 3 SHEET D1.

SNWA CONSTRUCTION NOTES:

1. CONTRACTOR SHALL FIELD LOCATE AND PROTECT ALL SNWA/SNWS APPURTENANCES INCLUDING BUT NOT LIMITED TO AV/AR, ACCESS MANWAYS AND CATHODIC PROTECTION SYSTEMS. ALL ABOVE GROUND STRUCTURES AND AT GRADE STRUCTURES MUST BE ADJUSTED TO NEW GRADE AT CONTRACTOR'S EXPENSE. CATHODIC PROTECTION TEST STATIONS, RECTIFIERS, AND AV/AR'S MUST BE RELOCATED TO THE SIDEWALK PER SNWA STANDARDS AND AT THE CONTRACTOR'S EXPENSE. CONTRACTOR TO NOTIFY SOUTHERN NEVADA WATER AUTHORITY, DEVELOPMENT PLAN REVIEW, AT (702) 862-3444 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY.
2. A MIN. 3' VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN BOTTOM EDGE OF CHANNEL OR BOX AND TOP EDGE OF SNWA PIPELINE.

SOUTHERN NEVADA WATER AUTHORITY DATE

SNWA APPROVAL IS VALID FOR ONE (1) YEAR FROM THE SIGNATURE DATE. IF CONSTRUCTION WITHIN THE EASEMENT OR RESTRICTED PIPE SAFETY ZONE IS NOT COMPLETE, PLANS MUST BE RESUBMITTED TO SNWA FOR APPROVAL.

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Avoid cutting underground utility lines. It's costly. 2 working days Call before you Dig 1-800-227-2600 Underground Service Alert (U.S.A.)

REV	DATE	BY	REVISION

vtn nevada
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2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

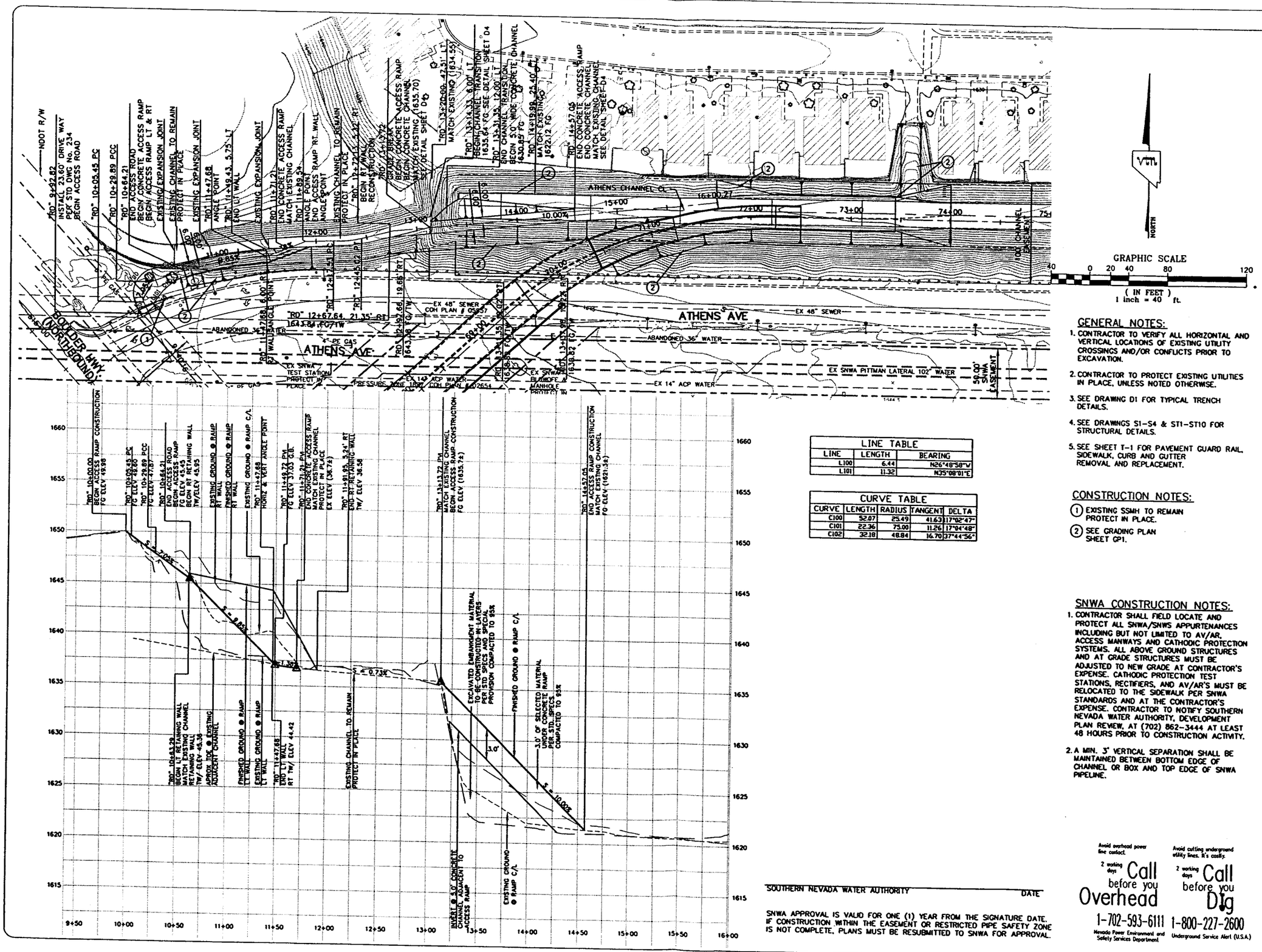
CITY OF HENDERSON
CLARK COUNTY, NEVADA

TITLE: PLAN AND PROFILE STA. 68+50 TO STA. 75+00

PROJECT: PIONEER DETENTION BASIN OUTFALL CROSSING AT BOULDER HIGHWAY

SEAL: PROFESSIONAL ENGINEER - STATE OF NEVADA - JEREMY D. LIGHT - No. 15506 - CIVIL

JOB NO.	6285
DESIGNED BY	JL
DRAWN BY	BKP/BAH
DATE	11-30-05
SCALE HORIZ.	1"=40'
SCALE VERT.	1"=4'
DRAWING	SD2
SHEET	OF SHEETS



LINE TABLE		
LINE	LENGTH	BEARING
L100	6.44	N26°48'58"W
L101	11.32	N35°08'01"E

CURVE TABLE				
CURVE	LENGTH	RADIUS	TANGENT	DELTA
C100	52.07	25.49	41.63	117°02'47"
C101	22.36	75.00	11.26	17°04'48"
C102	32.18	48.84	16.70	37°44'56"

SOUTHERN NEVADA WATER AUTHORITY DATE

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3. SEE DRAWING D1 FOR TYPICAL TRENCH DETAILS.
4. SEE DRAWINGS S1-S4 & ST1-ST10 FOR STRUCTURAL DETAILS.
5. SEE SHEET T-1 FOR PAVEMENT GUARD RAIL, SIDEWALK, CURB AND GUTTER REMOVAL AND REPLACEMENT.

CONSTRUCTION NOTES:

(1) EXISTING SSMH TO REMAIN PROTECT IN PLACE.

(2) SEE GRADING PLAN SHEET GP1.

SNWA CONSTRUCTION NOTES:

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CITY OF HENDERSON
CLARK COUNTY, NEVADA

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LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

REV	DATE	BY	REVISION

TITLE
ACCESS ROAD
PLAN AND PROFILE

PROJECT
PIONEER DETENTION BASIN
OUTFALL CROSSING AT BOULDER HIGHWAY

SEAL
JEREMY LEA SMITH No. 15516 CIVIL

NO. NO.	6285
DESIGNED BY	JL/TMM
DRAWN BY	BAH
DATE	11-30-05
SCALE HORIZ. VERT.	1"=40' 1"=4'
DRAWING	SD3
SHEET OF SHEETS	

APPENDIX F

DATA CD

CLOMR ADDENDUM #1

GIBSON CHANNEL TO PIONEER OUTFALL PHASE II

CASE NO.: 06-09-B898R

CLARK COUNTY, NEVADA

Prepared for:

CITY OF HENDERSON
240 Water Street
Henderson, Nevada 89009

Prepared by:

VTN Nevada
2727 S. Rainbow Boulevard
Las Vegas, Nevada 89146
(702) 247-4020

vtn nevada

August 2006

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

May 23, 2006

Mr. Jeremy Leavitt, P.E.
VTN Nevada
2727 South Rainbow Boulevard
Las Vegas, NV 89146

IN REPLY REFER TO:
Case No.: 06-09-B898R
Community: City of Henderson, NV
Community No.: 320005

316-AD

Dear Mr. Leavitt:

This responds to your request dated April 25, 2006, that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a conditional revision to the Flood Insurance Rate Map (FIRM) for Clark County, Nevada and Incorporated Areas. Pertinent information about the request is listed below.

Identifier:	Gibson Channel
Flooding Source:	Unnamed Tributary to Las Vegas Wash
FIRM Panel(s) Affected:	32003C2585 E and 2595 E

The data required to complete our review, which must be submitted within 90 days of the date of this letter, are listed on the enclosed summary.

If we do not receive the required data within 90 days, we will suspend our processing of your request. Any data submitted after 90 days will be treated as an original submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type established by the current fee schedule. A copy of the notice summarizing the current fee schedule, which was published in the *Federal Register,* is enclosed for your information.

FEMA receives a very large volume of requests and cannot maintain inactive requests for an indefinite period of time. In addition, as a result of the aftermath of recent hurricanes, many FEMA employees have been deployed to assist in disaster relief efforts. Therefore, we are unable to grant extensions for the submission of required data/fee for revision requests. If a requester is informed by letter that additional data are required to complete our review of a request, the data/fee **must** be submitted within 90 days of the date of the letter. Any fees already paid will be forfeited for any request for which the requested data are not received within 90 days.

We will continue to work expeditiously to review all submittals in accordance with National Flood Insurance Program (NFIP) regulations, and will aim to meet the regulatory timeframe for the review of all requests. However, requesters should be aware that delays may occur in the review process because of the current emergency situation. We appreciate the patience and cooperation of all requesters as FEMA assists in hurricane relief efforts.

If you have general questions about your request, FEMA policy, or the NFIP, please call the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please call the Revisions Coordinator for your State, Mr. Sacha Tohme, CFM, who may be reached at (703) 960-8800, ext. 3028.

Sincerely,

Sheila M. Norlin, CFM
National LOMC Manager
Michael Baker Jr., Inc.

Enclosures

cc: Mr. Curt Chandler, P.E., CFM
Land Development Manager
Department of Public Works
City of Henderson

Mr. Joseph Damiani, P.E.
Project Manager
Department of Public Works
City of Henderson

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

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

Summary of Additional Data Required to Support a
Conditional Letter of Map Revision

Case No.: 06-09-B898R

Requester: Mr. Jeremy Leavitt, P.E.

Community: City of Henderson, NV

Community No.: 320005

The issues listed below must be addressed before we can continue the review of your request.

1. The submitted proposed conditions HEC-1 model incorporates storage routing through the existing detention basin, "Wal-Mart Detention," modeled as DET01. However, no backup information was provided to support the use of this detention basin to attenuate the peak discharge associated with the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). Please provide backup data and calculations that support the storage-discharge relationship used in the model for the detention basin. In addition, please submit "as-built" plans, certified by a registered professional engineer, for this detention basin and the associated outlet works that connect the basin to the Gibson Channel, as indicated in the proposed conditions HEC-1 model.

2. The submitted proposed conditions HEC-1 model indicates that the existing detention basin has a base flood pool elevation of 36.67 feet, but no base floodplain boundary delineations were provided for the detention basin on the submitted work map entitled "Gibson Channel to Pioneer Outfall, Post-Project Conditions," prepared by your firm, dated April 24, 2006. Please submit a revised topographic work map that delineates the proposed conditions base floodplain boundaries and reflects the results of the proposed conditions hydrologic analysis and the "as-built" plans requested in Item 1.

3. The submitted drainage basin map entitled "Subbasin Map, Figure 1.1," prepared by your firm, dated January 26, 2006, indicates that Subbasin PBR140 would combine with Subbasin PBR150 and contribute to Combination Point CPBR150 at the Pioneer Outfall Phase II crossing with Boulder Highway; however, the submitted proposed conditions HEC-1 model does not include Subbasin PBR140 in the drainage area associated with Combination Point CPRB150. Please revise the proposed conditions HEC-1 model to correct this discrepancy, or provide backup information to justify routing Subbasin PBR140 downstream of Combination Point CPBR150. In addition, please submit a digital copy of the HEC-1 model.

4. Our preliminary review revealed that the submitted proposed conditions HEC-1 model does not incorporate the outflow from the Pioneer Detention Basin and its associated drainage area as contributing to the total drainage area at Combination Point CPBR035. The effective HEC-1 model from the Letter of Map Revision issued December 17, 2002, (Case No. 02-09-1335P) indicates that outflow from the Pioneer Detention Basin would contribute to the base flood peak discharge near this location. Please revise the proposed conditions HEC-1 model to include the Pioneer Detention Basin and its associated drainage area as tributaries to this location.

5. The submitted existing conditions HEC-RAS model indicates the presence of water-surface elevations (WSELs) higher than the cross section endpoints at several locations. The use of vertically extended cross sections may cause both an overestimation of WSELs and an underestimation of the width of the base floodplain. Please revise the submitted hydraulic analysis to include additional ground elevation data at the cross sections to eliminate all extended cross section warnings. Otherwise, please provide documentation that quantifies the amount of split flow that would occur if the cross sections were not extended and shows the extent of all flow breakouts.

Please send the required data directly to us at the address shown at the bottom of the first page. For identification purposes, please include the case number referenced above on all correspondence.

Federal Emergency Management Agency

Washington, D.C. 20472

FEE SCHEDULE FOR PROCESSING REQUESTS FOR MAP CHANGES

This notice contains the fee schedule for processing certain types of requests for changes to National Flood Insurance Program (NFIP) maps. The fee schedule allows FEMA to further reduce the expenses to the NFIP by more fully recovering the costs associated with processing conditional and final map change requests. The fee schedule for map changes is effective for all requests dated October 30, 2005, or later and supersedes the fee schedule that was established on September 1, 2002.

To develop the fee schedule for conditional and final map change requests, FEMA evaluated the actual costs of reviewing and processing requests for Conditional Letters of Map Amendment (CLOMAs), Conditional Letters of Map Revision – Based on Fill (CLOMR-Fs), Conditional Letters of Map Revision (CLOMRs), Letters of Map Revision – Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs), and Physical Map Revisions (PMRs).

Based on our review of actual cost data for Fiscal Years 2004 and 2005, FEMA has established the following review and processing fees, which are to be submitted with all requests that are not otherwise exempted under 44 CFR 72.5.

Fee Schedule for Requests for CLOMAs, CLOMR-Fs, and LOMR-Fs

Request for single-lot/single-structure CLOMA and CLOMR-F	$500
Request for single-lot/single structure LOMR-F	$425
Request for single-lot/single-structure LOMR-F based on as-built information (CLOMR-F previously issued by us)	$325
Request for multiple-lot/multiple-structure CLOMA	$700
Request for multiple-lot/multiple-structure CLOMR-F and LOMR-F	$800
Request for multiple-lot/multiple-structure LOMR-F based on as-built information (CLOMR-F previously issued)	$700

Fee Schedule for Requests for CLOMRs

Request based on new hydrology, bridge, culvert, channel, or combination of any of these	$4,000
Request based on levee, berm, or other structural measure	$5,000

Fee Schedule for Requests for LOMRs and PMRs

Requesters must submit the review and processing fees shown below with requests for LOMRs and PMRs that are not based on structural measures or alluvial fans.

Request based on bridge, culvert, channel, or combination thereof	$4,400
Request based on levee, berm, or other structural measure	$6,000
Request based on as-built information submitted as follow-up to CLOMR	$4,000

Fees for CLOMRs, LOMRs, and PMRs Based on Structural Measures on Alluvial Fans

FEMA has revised the initial fee for requests for CLOMRs and LOMRs based on structural measures on alluvial fans to $5,600. FEMA will also continue to recover the remainder of the review and processing costs by invoicing the requester before issuing a determination letter, consistent with current practice. The prevailing private-sector labor rate charged to FEMA ($60 per hour) will be used to calculate the total reimbursable fees.

Payment Submission Requirements

Requesters must make fee payments for non-exempt requests before we render services. This payment must be in the form of a check or money order or by credit card payment. Please make all checks and money orders in U.S. funds payable to the *National Flood Insurance Program.* We will deposit all fees collected to the National Flood Insurance Fund, which is the source of funding for providing this service.

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SERVICES SINCE 1960

August 18, 2005
File: 6511-CLOMR

Sheila M. Norlin, CFM
National LOMC Manager
Michael Baker Jr., Inc.

Federal Emergency Management Agency
3601 Eisenhower Avenue
Alexandria, VA 22304-6425

Reference: Case No.: 06-09-B898R (Gibson Channel to Pioneer Outfall Phase II)
Community: City of Henderson, NV
Community No.: 320005

Dear Ms. Norlin:

The enclosed addendum #1 is being provided in response to the comment letter dated May 23, 2006 for the Gibson Channel to Pioneer Outfall Phase II CLOMR; Case No.: 06-09-B898R. The comments that you provided for the specified project are addressed within the following response summary.

RESPONSE TO COMMENTS

Comment 1: In our addendum we have submitted the "As-Built" plans signed by a licensed professional engineer which are on file at the City of Henderson for the "Henderson Commerce Center", which includes the grading and outfall facilities for the "Wal-Mart Detention" modeled as DET01 in the HEC-1 Analysis. The electronic "tiff" files for these plans have also been included in the Updated Data CD. The HEC-1 models "gibson3.dat" and "gibson4.dat" were updated with the latest parameters as calculated for the "Wal-Mart Detention" area. Stage-storage relationship data and calculations are included in the Addendum package

Comment 2: Based on as-built conditions, the parameters for the "Wal-Mart Detention" area were updated in the Hec-1 models and a resulting 100-year flood pool elevation

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of 1732.44 was established. The 100-year flood pool elevation data for this area is incorporated in the "Pre-Project Conditions" and "Post Project Conditions" work maps, as well as the "Annotated Flood Map". All map revisions are included in the Addendum package.

Comment 3: The proposed conditions HEC-1 model has been revised so that Subbasin PBR140 would combine with Subbasin PBR150 and contribute to Combination Point CPBR150 at the Pioneer Outfall Phase II Crossing with Boulder Highway. Digital copies of HEC-1 models "gibson3.dat" and "gibson4.dat" have been included in the Updated Data CD (HEC-1, HEC-RAS, Work Maps & figures)

Comment 4: The outflow from Pioneer Detention Basin and its associated drainage areas contributing to the total drainage area at Combination point CPBR035 has been included with to the proposed conditions HEC-1 Model. Per the Clark County Regional Flood Control Manual, an additional Hec-1 model was added with a "SDN4" storm distribution to reflect combination points with tributary areas between 8 and 12 square miles. Combination points used from each model (SDN3 and SDN4) are indicated on the HEC-1 output included in the Addendum package.

Comment 5: The existing conditions HEC-RAS model was updated and cross section end points were extended using additional points in several areas that where the presence of water surface elevations (WSELs) appeared higher than the cross section endpoints. A digital copy of the HEC-RAS Pre-Project Existing Conditions "gib_pre.prj" and Post-Project Conditions "postproject.prj" are included in the addendum along with the updated work maps under Updated Data CD (HEC-1, WSPG, Work Maps & figures)

If you have any questions or require additional information, do not hesitate to contact me.

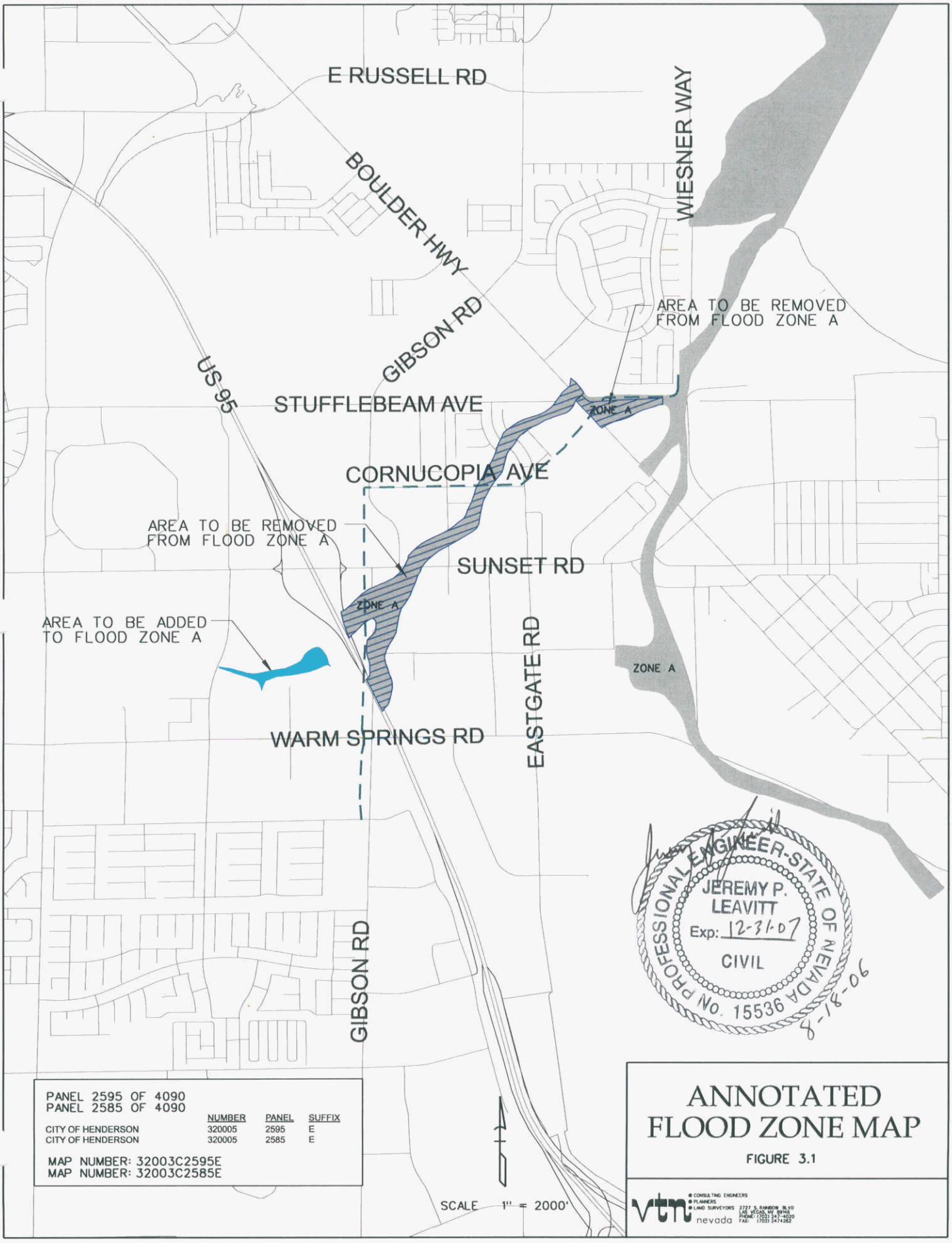
Sincerely,

Jeremy Leavitt, P.E.
VTN Nevada
2727 South Rainbow Boulevard
Las Vegas, NV 89146
jeremyl@vtnnv.com
(702) 253-2359

APPENDIX B

FIGURES

(Addendum #1)
FEMA ANNOTATED FLOOD ZONE MAP
- FIGURE 3.1


E RUSSELL RD
BOULDER HWY
WIESNER WAY
GIBSON RD
US 95
STUFFLEBEAM AVE
CORNUCOPIA AVE
SUNSET RD
EASTGATE RD
WARM SPRINGS RD
GIBSON RD
AREA TO BE REMOVED FROM FLOOD ZONE A
AREA TO BE REMOVED FROM FLOOD ZONE A
AREA TO BE ADDED TO FLOOD ZONE A
ZONE A
ZONE A
ZONE A
PANEL 2595 OF 4090
PANEL 2585 OF 4090
NUMBER PANEL SUFFIX
CITY OF HENDERSON 320005 2595 E
CITY OF HENDERSON 320005 2585 E
MAP NUMBER: 32003C2595E
MAP NUMBER: 32003C2585E
SCALE 1" = 2000'
PROFESSIONAL ENGINEER-STATE OF NEVADA
JEREMY P. LEAVITT
Exp: 12-31-07
CIVIL
No. 15536
9-18-06
ANNOTATED FLOOD ZONE MAP
FIGURE 3.1
vtn nevada
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PLANNERS
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LAS VEGAS, NV 89146
PHONE: (702) 247-4020
FAX: (702) 247-4382

GIBSON CLOMR (Addendum #1)
PRE-PROJECT CONDITIONS
(CORRECTIVE/EFFECTIVE) WORK MAP
- FIGURE 3.2

SCALE 1" = 200'

LEGEND

- EXISTING CHANNEL AREA
- EXISTING FEMA FLOOD ZONE
- EFFECTIVE 100-YEAR FLOOD PLAN
- 100-YEAR FLOW POST DEVELOPMENT

POND ELEVATION = 1732.4'

WARM SPRINGS RD

SUNSET RD

US HWY 95

SWEETSPICE ST

N GIBSON RD

KELSO DUNES AV

CAPE HORN DR

CORNUCOPIA AVE

705 cfs

709 cfs

823 cfs

3+000
3+124
3+224
3+262
4+505
4+610
4+710
4+910
5+110
5+210
5+310
5+340
5+688
5+800
6+000
6+200
6+310
6+510
6+548
6+970
7+020
7+110
7+310
7+610
7+810
7+910
7+930

EXISTING
(2) 9' x 6' RCB

EXISTING RIPRAP
TRAPEZOIDAL CHANNEL

EXISTING (2) 9' x 6' RCB

EXISTING RIPRAP
TRAPEZOIDAL CHANNEL

EXISTING
(2) 10' x 6'
RCB

EXISTING RIPRAP
TRAPEZOIDAL CHANNEL

EXISTING
(3) 9' x 5' RCB

EXISTING RIPRAP
TRAPEZOIDAL CHANNEL

EXISTING 11.5' x 8'
RECT CHANNEL

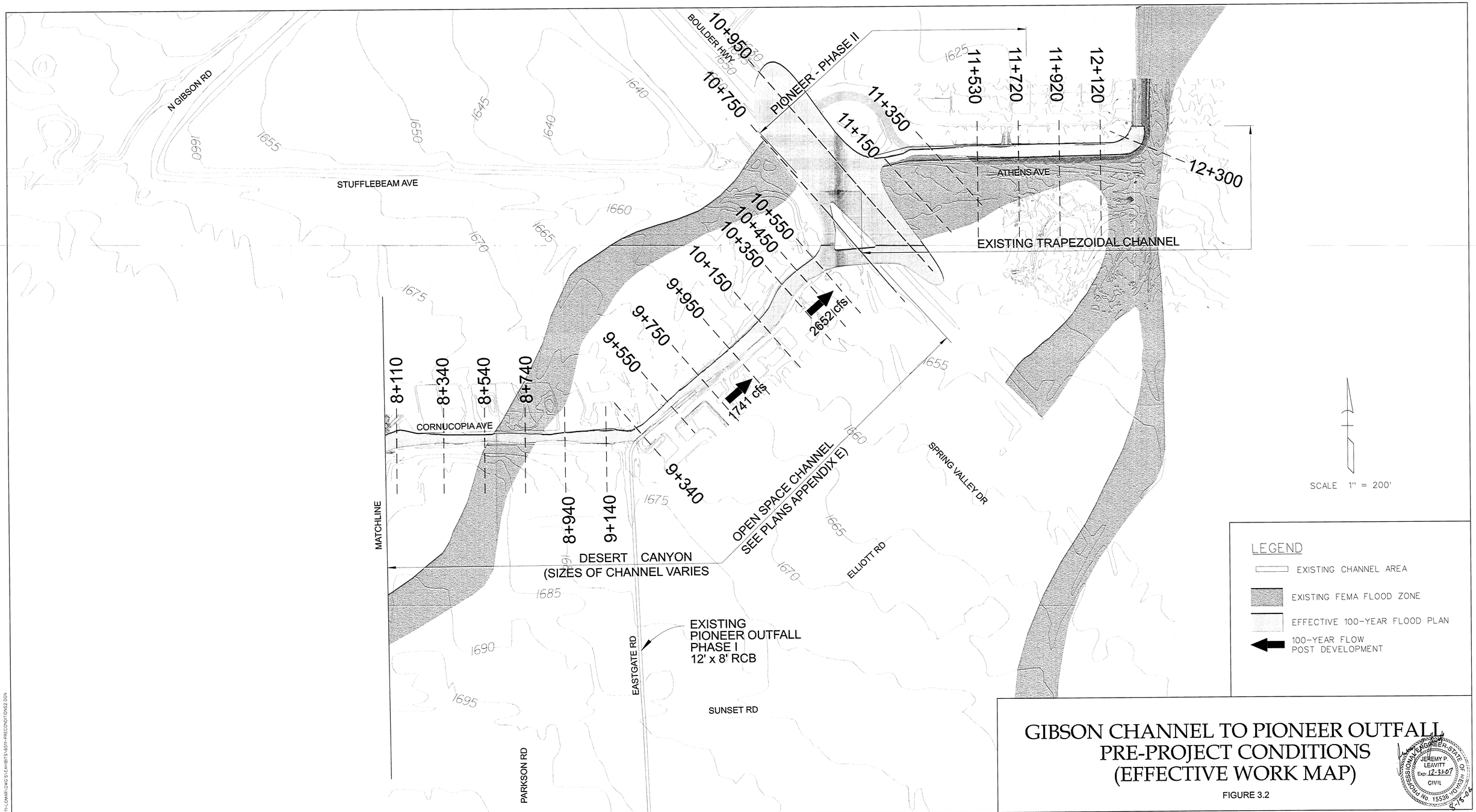
MATCHLINE

GIBSON CHANNEL TO PIONEER OUTFALL
PRE-PROJECT CONDITIONS
(EFFECTIVE WORK MAP)

FIGURE 3.2

JEREMY P. LEAVITT
Exp. 12-31-07
CIVIL
15538
STATE OF NEVADA
PROFESSIONAL ENGINEER
ON PROFESSIONAL
3-18-06

6511-LOMR\DWGS\EXHIBITS\6511-PRECONDITIONS1.DGN



GIBSON CHANNEL TO PIONEER OUTFALL
PRE-PROJECT CONDITIONS
(EFFECTIVE WORK MAP)

FIGURE 3.2

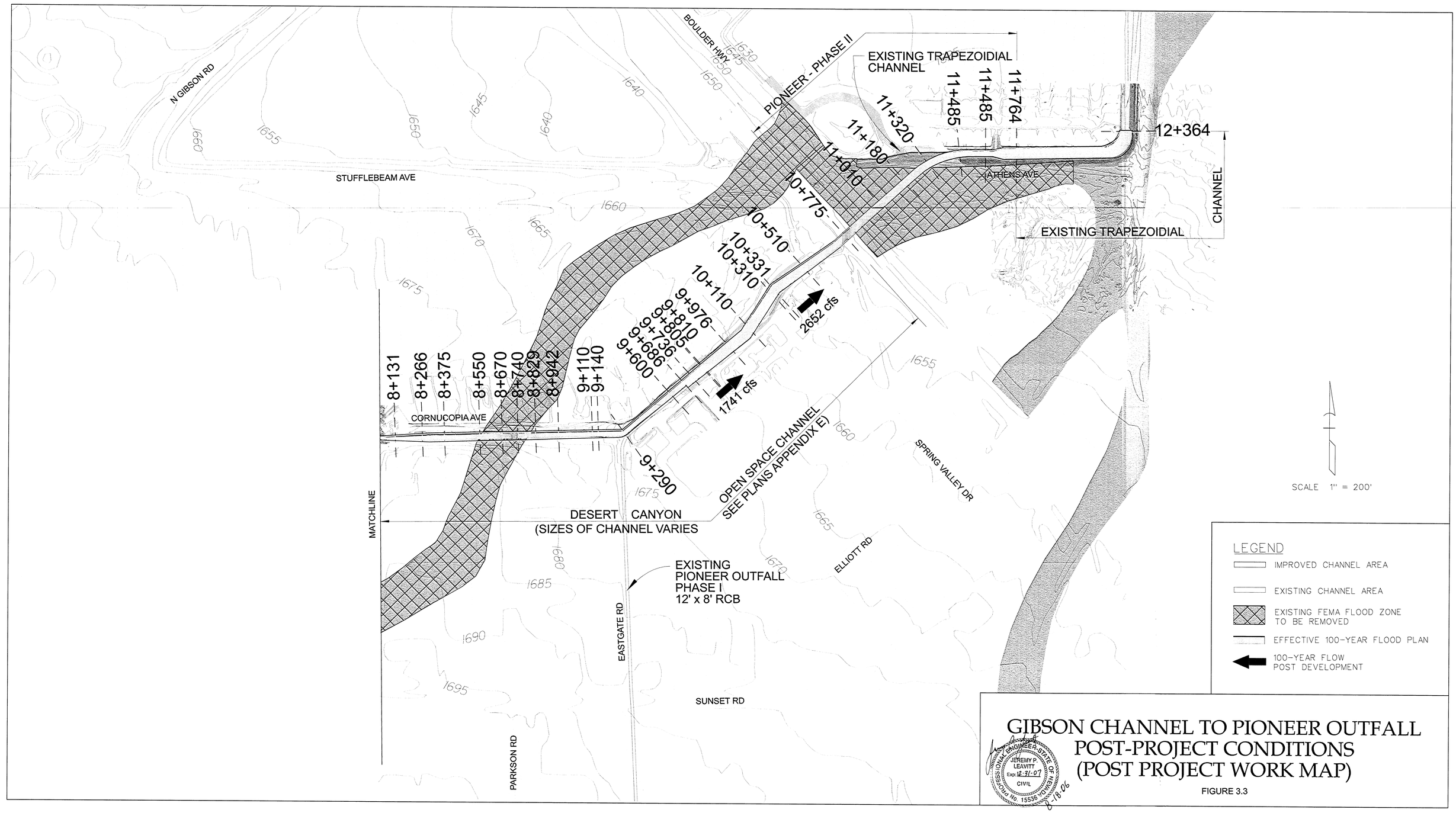
PROFESSIONAL ENGINEER, STATE OF NEVADA
JEREMY P. LEAVITT
Exp: 12-31-07
CIVIL
No. 15536
4-13-06

85TH-LOMR\DWGS\Exhibits\85TH-PRECONDITIONS2.DGN

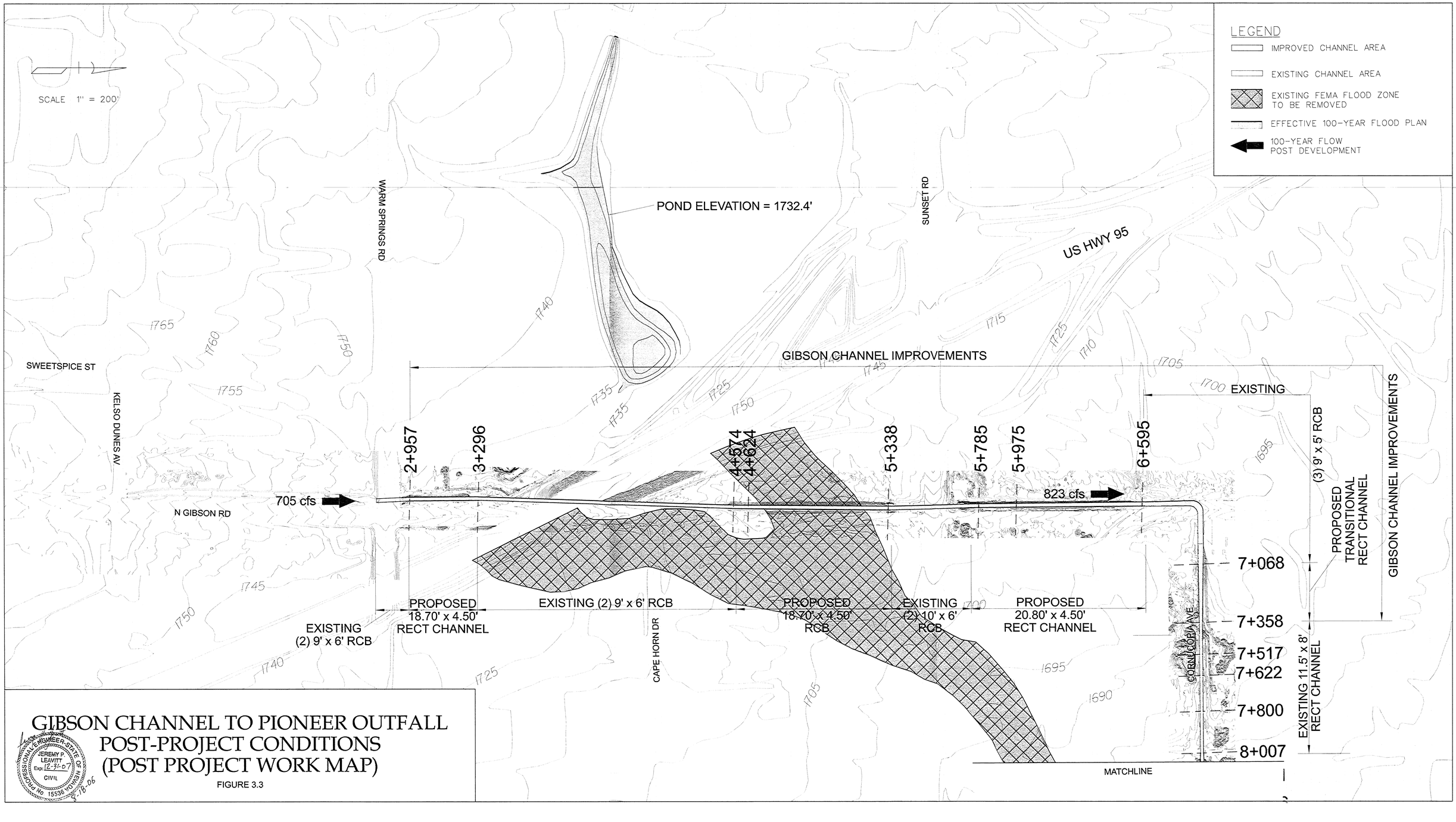
GIBSON CLOMR (Addendum #1)
POST-PROJECT CONDITIONS
POST-PROJECT WORK MAP
- FIGURE 3.3

GIBSON CHANNEL TO PIONEER OUTFALL
POST-PROJECT CONDITIONS
(POST PROJECT WORK MAP)

FIGURE 3.3



PROFESSIONAL ENGINEER - STATE OF NEVADA
JEREMY P. LEAVITT
Exp: 12-31-07
CIVIL
No. 15536
6-18-06



GIBSON CHANNEL TO PIONEER OUTFALL
POST-PROJECT CONDITIONS
(POST PROJECT WORK MAP)

FIGURE 3.3

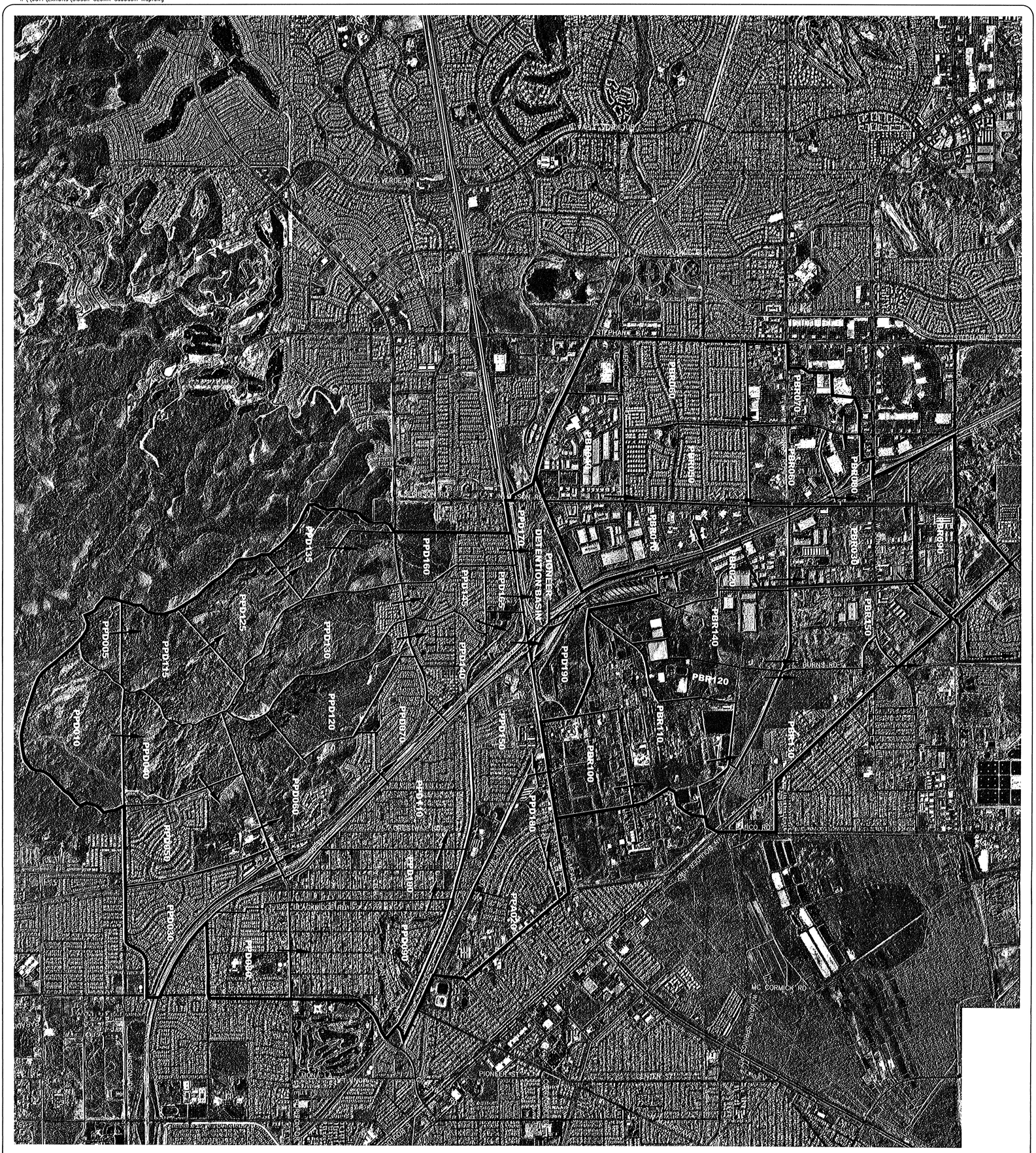
PROFESSIONAL ENGINEER - STATE OF NEVADA
JEREMY P. LEAVITT
Exp. 12-31-07
CIVIL
No. 15596
12-18-06

APPENDIX C

HYDROLOGY

GIBSON CLOMR (Addendum #1)
PRE & POST-PROJECT CONDITIONS
SUBBASIN MAP
- FIGURE 1.1

PLT (PS)
I:\\6511\Exhibits\Gibson CLOMR Subbasin Map.dwg



LEGEND

- FLOW DIRECTION
- EXISTING FACILITY
- PROJECT FACILITY
- PROPOSED FACILITY (BY OTHERS)

DRAWING	1
SHEET	1 OF 1 SHEETS
BY	DRF
DATE	1/26/06
SCALE HORIZ.	
VERT.	
WO. NO.	6511

SEAL

TITLE: SUBBASIN MAP

FIGURE 1.1

PROJECT: GIBSON CLOMR

PRE & POST IMPROVEMENTS

REV	DATE	BY	REVISION

vtn nevada

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LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

GIBSON CLOMR (Addendum #1)
PRE & POST PROJECT CONDITIONS: HEC-1 OUTPUT
SDN3 Model
(GIBSON3.OUT)

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUL  1997                 *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   18AUG06  TIME  08:18:18   *
*                                       *
*****************************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX          XXX
```

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

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


```
          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
                    *DIAGRAM
 *** FREE ***
             1      ID     GIBSON CHANNEL CLOMR/LOMR HYDROLOGY - POST DEVELOPMENT
             2      ID     SDN3 MODEL WITH SUBBASIN FROM DOWNSTREAM OF DETENTION BASIN ONLY
             3      ID     INPUT FILE = GIBSON3.DAT
             4      ID     TAKEN FROM VTN PIONEER DETENTION BASIN OUTFALL-PIOREV2.DAT WO#6582
             5      ID     INCORPORATED BROADBENT & ASSOCIATES GIBSON CHANNEL HYDROLOGY
             6      ID     INCORPORATED STANTEC DESERT CANYON OPEN SPACE HYDROLOGY 8/6/06
             7      ID     INPUT FILE DATE = 08/17/06
             8      ID     CONSIDERS EXISTING GIBSON CHANNEL IN PLACE & PIONEER OUTFALL PHASE I IN PLA
             9      ID
            10      ID     JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
            11      ID
            12      ID                    AREA (SQUARE MILES)    DARF
            13      ID                         0.0 -  0.5          0.980
            14      ID                         0.5 -  1.0          0.970
            15      ID                         1.0 -  2.0          0.930
            16      ID                         2.0 -  3.0          0.925
            17      ID                         3.0 -  4.0          0.910
            18      ID                         5.0 -  6.0          0.900
            19      ID                         7.0 -  8.0          0.880
            20      ID                        10.0 - 11.0          0.853
            21      ID                        13.0 - 14.0          0.832
            22      ID
            23      IT       5       0       0     300
            24      IO       5       0       0
            25      IN       5       0       0
            26      JR    PREC   0.980   0.970   0.930    .925    .910    .900    .880    .853    .832
                    *
            27      KK  PPD020
            28      KM   MPU TRIBUTARY FLOW INTO PIONEER DETENTION BASIN
            29      BA   0.356
            30      PC    0.00    0.02   0.057    0.07   0.087   0.108   0.124    0.13    0.13    0.13
            31      PC    0.13    0.13    0.13   0.133    0.14   0.142   0.148   0.158   0.172   0.181
            32      PC    0.19   0.197   0.199     0.2   0.201   0.204   0.214   0.229   0.241   0.249
            33      PC   0.251   0.256    0.27   0.278   0.281   0.283   0.295   0.322   0.352   0.409
            34      PC   0.499    0.59    0.71   0.744   0.781   0.812   0.819   0.835   0.851   0.856
            35      PC    0.86   0.868   0.876   0.888    0.91   0.926   0.937    0.95    0.97   0.976
            36      PC   0.982   0.985   0.987   0.989    0.99   0.993   0.993   0.994   0.995   0.998
            37      PC   0.998   0.999       1
            38      PB    3.15
            39      LS       0    84.1
            40      UD   0.257
                    *
            41      KK RPPD020
            42      KM   ROUTE PPD020 TO CPPD030
            43      KM   FACILITY = PITTMAN GAS LINE
            44      KM   FACILITY # = PTGL 0000
            45      KM   LINING = RCP
            46      RD    2920   0.032   0.013       0    CIRC       6
                    *
```



```
          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
            47      KK RPPD020
            48      KM   ROUTE PPD020 TO CPPD030
            49      KM   FACILITY = PITTMAN WASH - INTERSTATE
            50      KM   FACILITY # = PTIS 0198
            51      KM   LINING = CONCRETE
            52      RD    3130   0.026   0.015       0    TRAP      10       2
                    *
            53      KK  PPD030
            54      BA   0.330
            55      PB    3.13
            56      LS       0    82.3
            57      UD   0.316
                    *
            58      KK CPPD030
            59      KM   COMBINE PPD020 AND PPD030
            60      HC       2
                    *
            61      KK  PPD010
            62      BA   0.441
            63      PB    3.13
            64      LS       0    84.1
            65      UD   0.169
                    *
            66      KK RPPD010
            67      KM   ROUTE PPD010 TO CPPD040
            68      KM   FACILITY = PITTMAN WEST HORIZON
            69      KM   FACILITY # = PTWH 0011
            70      KM   LINING = CONCRETE
            71      RD    1350   0.044   0.015       0    TRAP      12       2
```

```
                *
     72         KK  PPD040
     73         BA   0.340
     74         PB    3.08
     75         LS       0     86.6
     76         UD   0.129
                *
     77         KK CPPD040
     78         KM   COMBINE PPD010 AND PPD040
     79         HC       2
                *
     80         KKRCPPD040
     81         KM   ROUTE CPPD040 TO CPPD045
     82         KM   FACILITY = PITTMAN WEST HORIZON
     83         KM   FACILITY # = PTWH 0011
     84         KM   LINING = CONCRETE
     85         RD    4740   0.042   0.015       0    TRAP      12       2
                *
1                                        HEC-1 INPUT                                                    PAGE  3

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

     86         KK  PPD050
     87         BA   0.391
     88         PB    3.10
     89         LS       0     82.7
     90         UD   0.199
                *
     91         KK CPPD045
     92         KM   COMBINE PPD050 AND CPPD040
     93         HC       2
                *
     94         KK CPPD050
     95         KM   COMBINE CPPD030 AND CPPD045
     96         HC       2
                *
     97         KKRCPPD050
     98         KM   ROUTE CPPD050 TO CPPD060
     99         KM   FACILITY = PITTMAN WASH - INTERSTATE
    100         KM   FACILITY # = PTIS 0166 ,PTIS 0102
    101         KM   LINING = RIPRAP/RCB
    102         RD    4420   0.035   0.040       0    TRAP      35       2
                *
    103         KK  PPD060
    104         BA   0.503
    105         PB    3.01
    106         LS       0     86.3
    107         UD   0.200
                *
    108         KK CPPD060
    109         KM   COMBINE CPPD050 AND PPD060
    110         HC       2
                *
    111         KKRCPPD060
    112         KM   ROUTE CPPD060 TO CPPD070
    113         KM   FACILITY = PITTMAN WASH - INTERSTATE
    114         KM   FACILITY # = PTIS 0068, PTIS 0087, PTIS 0102
    115         KM   LINING = RIPRAP
    116         RD    2700   0.037    0.04       0    TRAP      35       2
                *
    117         KK  PPD070
    118         BA   0.204
    119         PB    2.91
    120         LS       0     86.8
    121         UD   0.146
                *
1                                        HEC-1 INPUT                                                    PAGE  4

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

    122         KK CPPD070
    123         KM   COMBINE PPD070 AND CPPD060
    124         HC       2
                *
    125         KKRCPPD070
    126         KM   ROUTE CPPD070 TO CPPD140
    127         KM   FACILITY = TRAPEZOIDAL CONCRETE CHANNEL 30' W 2:1 SS
    128         KM   FACILITY # = PTIS 0055, 0050, 0029
    129         KM   LINING= CONCRETE
    130         RD    2675   0.037   0.015       0    TRAP      30       2
                *
    131         KK  PPD120
    132         BA   0.294
    133         PB    2.95
    134         LS       0     84.6
    135         UD   0.160
                *
    136         KK RPPD120
    137         KM   ROUTE PPD120 TO CPPD144
    138         KM   LAS PALMAS ENTRADA AVE
    139         RD    3750   0.025   0.016       0    TRAP       0      50
                *
    140         KK  PPD130
    141         BA   0.400
    142         PB    2.95
    143         LS       0     86.7
    144         UD   0.150
                *
    145         KK RPPD130
    146         KM   ROUTE PPD130 TO CPPD145
    147         KM   FACILITY = PITTMAN PIONEER DETENTION
    148         KM   FACILITY # = PTPD 0063, 0020, 0012, 0000
    149         KM   LINING = RCP/RIPRAP/CONCRETE
    150         RD    2930   0.038    0.04       0    TRAP      20       3
                *
    151         KK  PPD145
    152         BA   0.136
    153         PB    2.85
    154         LS       0     85.0
    155         UD   0.159
                *
```

```
 156          KK CPPD145
 157          KM   COMBINE PPD130 AND PPD145
 158          HC       2
              *
1                                        HEC-1 INPUT                                        PAGE  5

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

 159          KKRCPPD145
 160          KM   ROUTE CPPD145 TO CPPD144
 161          KM   FACILITY = PITTMAN PIONEER DETENTION
 162          KM   FACILITY # = PTPD 0063, 0020, 0012, 0000
 163          KM   LINING = RCP/RIPRAP/CONCRETE
 164          RD    1770   0.038    0.04       0    TRAP      20       3
              *

 165          KK  PPD140
 166          BA   0.280
 167          PB    2.85
 168          LS       0    85.6
 169          UD   0.240
              *

 170          KK CPPD144
 171          KM   COMBINE PPD120, CPPD145 AND PPD140
 172          HC       3
              *

 173          KK CPPD140
 174          KM   COMBINE CPPD070 AND CPPD144
 175          HC       2
              *

 176          KK  PPD080
 177          BA   0.263
 178          PB    3.12
 179          LS       0    84.5
 180          UD   0.267
              *

 181          KK RPPD080
 182          KM   ROUTE PPD080 TO CPPD090
 183          KM   GREENWAY ROAD
 184          RD    3270    0.03   0.016       0    TRAP       0      50
              *

 185          KK RPPD080
 186          KM   ROUTE PPD080 TO CPPD090
 187          KM   FACILITY = PITTMAN WASH - RAILROAD
 188          KM   FACILITY # = PTRR 0116
 189          KM   LINING = CONCRETE
 190          RD    4555    0.01   0.015       0    TRAP      10       2
              *

 191          KK  PPD090
 192          BA   0.545
 193          PB    3.02
 194          LS       0    74.4
 195          UD   0.381
              *
1                                        HEC-1 INPUT                                        PAGE  6

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

 196          KK CPPD090
 197          KM   COMBINE PPD080 AND PPD090
 198          HC       2
              *

 199          KKRCPPD090
 200          KM   ROUTE CPPD090 TO CPPD100
 201          KM   FACILITY = PITTMAN WASH - RAILROAD
 202          KM   FACILITY # = PTRR 0035
 203          KM   LINING = CONCRETE
 204          RD    1670   0.012   0.015       0    TRAP      10       2
              *

 205          KK  PPD100
 206          BA   0.352
 207          PB    3.00
 208          LS       0    82.6
 209          UD   0.361
              *

 210          KK CPPD100
 211          KM   COMBINE PPD100 AND CPPD090
 212          HC       2
              *

 213          KKRCPPD100
 214          KM   ROUTE CPPD100 TO CPPD110
 215          KM   FACILITY = PITTMAN WASH - RAILROAD
 216          KM   FACILITY # = PTRR 0035, 0027
 217          KM   LINING = CONCRETE
 218          RD    4680   0.013   0.015       0    TRAP      10       2
              *

 219          KK  PPD110
 220          BA   0.407
 221          PB    2.93
 222          LS       0    84.1
 223          UD   0.363
              *

 224          KK CPPD110
 225          KM   COMBINE PPD110 AND CPPD100
 226          HC       2
              *

 227          KKRCPPD110
 228          KM   ROUTE CPPD110 TO CPPD155
 229          KM   FACILITY = PITTMAN WASH - RAILROAD
 230          KM   FACILITY # = PTRR 0020, 0000
 231          KM   LINING = CONCRETE/RCB
 232          RD    2230   0.019   0.015       0    TRAP      14       0
              *
1                                        HEC-1 INPUT                                        PAGE  7

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

 233          KK CPPD155
 234          KM   COMBINE CPPD110 AND CPPD140
 235          HC       2
              *
```

```
KKRCPPD155
KM   ROUTE CPPD155 TO CPPD150
KM   FACILITY = PITTMAN WASH - INTERSTATE
KM   FACILITY # = PTIS 0008, 0000
KM   LINING = CONCRETE
RD    1000   0.019   0.015       0    TRAP      30       2
*

KK  PPD180
BA   0.181
PB    2.86
LS       0    82.8
UD   0.289
*

KK RPPD180
KM   ROUTE PPD180 TO CPPD154
KM   ALONG LAKE MEAD DRIVE
KM   RIPRAP LINED TRAPEZOIDAL CHANNEL
RD    3440   0.006    0.04       0    TRAP      10       3
*

KK  PPD150
BA   0.477
PB    2.87
LS       0    88.5
UD   0.623
*

KK CPPD154
KM   COMBINE PPD150 AND PPD180
HC       2
*

KK CPPD150
KM   COMBINE CPPD154 AND CPPD155
HC       2
*

KKRCPPD150
KM   ROUTE CPPD150 TO CPPD190
KM   FACILITY = PITTMAN WASH - INTERSTATE
KM   FACILITY # = PTIS 0000
KM   LINING = CONCRETE
RD    2800   0.014   0.015       0    TRAP      30       2
*
```

1 HEC-1 INPUT PAGE 8

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

KK  PPD005
BA   0.092
PB    3.07
LS       0    81.1
UD   0.065
*

KK RPPD005
KM   ROUTE PPD005 TO CPPD115
KM   UNNAMED STREET
RD    3150    0.14   0.015       0    TRAP       0      50
*

KK  PPD115
BA   0.349
PB    3.04
LS       0    85.6
UD   0.134
*

KK CPPD115
KM   COMBINE PPD005 AND PPD115
HC       2
*

KKRCPPD115
KM   ROUTE CPPD115 TO CPPD125
KM   FACILITY = PITTMAN HORIZON RIDGE
KM   FACILITY # =  PTHR 0210
KM   NATURAL CHANNEL
KM   TRAVEL LENGTH = 3570 FEET
KM   SLOPE = .013
KM   n=.04
KM   SHAPE = NATURAL CHANNEL
KM   BOTTOM WIDTH = 30
KM   SIDE SLOPE = 3:1
KM   VELOCITY = 8.9 FEET PER SECOND
RM       1   0.111    0.15
*

KK  PPD125
BA   0.277
PB    2.98
LS       0    87.0
UD   0.130
*

KK CPPD125
KM   COMBINE CPPD115 AND PPD125
HC       2
*
```

1 HEC-1 INPUT PAGE 9

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

KKRCPPD125
KM   ROUTE CPPD125 TO CPPD135
KM   FACILITY = PITTMAN HORIZON RIDGE
KM   FACILITY # = PTHR 0140
KM   LINING = CONCRETE
RD    4300    0.05   0.015       0    TRAP      15       2
*

KK  PPD135
BA   0.169
PB    2.91
LS       0    87.9
UD   0.154
*

KK CPPD135
KM   COMBINE CPPD125 AND PPD135
HC       2
*

KKRCPPD135
KM   ROUTE CPPD135 TO CPPD160
```

```
323         KM   FACILITY = PITTMAN HORIZON RIDGE
324         KM   FACILITY # = PTHR 0104
325         KM   LINING = CONCRETE
326         RD    1830   0.042   0.015       0    TRAP      15       2
            *

327         KKRCPPD135
328         KM   ROUTE CPPD135 TO CPPD160
329         KM   FACILITY = PITTMAN HORIZON RIDGE
330         KM   FACILITY # = PTHR 0067
331         KM   LINING = RCB
332         RD    2570   0.042   0.015       0    TRAP       8       0
            *

333         KK  PPD160
334         BA   0.310
335         PB    2.87
336         LS       0    85.9
337         UD   0.189
            *

338         KK CPPD160
339         KM   COMBINE PPD160 AND CPPD135
340         HC       2
            *

341         KKRCPPD160
342         KM   ROUTE CPPD160 TO CPPD165
343         KM   FACILITY = PITTMAN HORIZON RIDGE
344         KM   FACILITY # = PTHR 0044
345         KM   LINING = CONCRETE
346         RD    1260   0.025   0.015       0    TRAP      15       2
            *
```



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

347         KK  PPD165
348         BA   0.057
349         PB    2.83
350         LS       0    74.9
351         UD   0.163
            *

352         KK CPPD165
353         KM   COMBINE CPPD160 AND PPD165
354         HC       2
            *

355         KKRCPPD165
356         KM   ROUTE CPPD165 TO CPPD170
357         KM   FACILITY = PITTMAN HORIZON RIDGE
358         KM   FACILITY # = PTHR 0000
359         KM   LINING = CONCRETE
360         RD    2330   0.025   0.015       0    TRAP      15       2
            *

361         KK  PPD170
362         BA   0.236
363         PB    2.81
364         LS       0    93.6
365         UD   0.265
            *

366         KK CPPD170
367         KM   COMBINE CPPD165 AND PPD170
368         HC       2
            *

369         KK  PPD190
370         BA   0.272
371         PB    2.81
372         LS       0    94.4
373         UD   0.308
            *

374         KK CPPD190
375         KM   COMBINE CPPD150, CPPD170, AND PPD190
376         KO       3
377         HC       3
            *

378         KKPTVW0185
379         KM   PIONEER DETENTION BASIN
380         KM   STORAGE CURVE FROM DESIGN REPORT ADDENDUM #5
381         KO       3
382         KM   FACILITY # = PTVW 0185
383         KM   STORAGE VOLUME = 390 ACRE-FEET
384         KM   OUTLET = 60" RCP
385         KM   100-YEAR DISCHARGE = 420 CFS
386         KM   SPILLWAY LENGTH = 360 FEET
```



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

387         KM   SPILLWAY HEIGHT = 12 FEET
388         KM   SPILLWAY CREST ELEVATION = 1811
389         KM   SPILLWAY TYPE = UNCONTROLLED FREE OUTFALL RCC
390         KM   PMF DISCHARGE = 34,700 CFS
391         KM   TOP OF EMBANKMENT ELEVATION =1820
392         RS       1    ELEV       0
393         SV     0.0     6.3     9.9    14.6    27.4    42.1    57.9    92.7   111.7   152.8
394         SV   198.3   248.1   302.4   377.1   393.1   409.5   442.9   447.8   514.8   573.5
395         SE    1768    1774    1775    1776    1778    1780    1782    1786    1788    1792
396         SE    1796    1800    1804    1809    1810    1811    1813    1815    1817    1820
397         SQ       0  140.33  155.44     170  200.45  218.46  236.47  272.49     291  319.49
398         SQ  345.96  372.44  398.91     421     460 1555.98 6323.6913244.5921880.1437618.36
            *

399         KKRPIONEER
400         KM   ROUTE OUTFLOW FROM PIONEER TO CPBR010
401         KM   FACILITY = PITTMAN-VAN WAGENEN
402         KM   FACILITY # = PTVW 0180, PTVW 0163, PTVW 0157
403         KM   LINING = RCP
404         RD    3050   0.009   0.013       0    CIRC       6
            *

405         KK  PBR010
406         BA   0.460
407         PB    2.78
408         LS       0    93.5
409         UD   0.331
            *

410         KK CPBR010
411         KM   COMBINE PIONEER & PBR010
412         HC       2
            *
```

```
413          KK RPBR010
414          KM   ROUTE CPBR010 TO CPBR020
415          KM   FACILITY = PITTMAN-VAN WAGENEN
416          KM   FACILITY # = PTVW 0157, 0145, 0130, 0107
417          KM   LINING= RCP
418          RD    3100   0.012   0.013       0    CIRC       8
             *

419          KK  PBR020
420          BA   0.251
421          PB    2.77
422          LS       0    94.0
423          UD   0.310
             *

424          KK CPBR020
425          KM   COMBINE PBR010 AND PBR020
426          HC       2
             *
```



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

427          KKRCPBR020
428          KM   ROUTE CPBR020 TO CPBR030
429          KM   FACILITY = PITTMAN-VAN WAGENEN
430          KM   FACILITY # = PTVW 0055, 0025
431          KM   LINING= RCB
432          RD    3982    0.01   0.015       0    TRAP      12       0
             *

433          KK  PBR030
434          BA   0.357
435          PB    2.77
436          LS       0    94.1
437          UD   0.435
             *

438          KK CPBR030
439          KM   COMBINE PBR030 TO CPBR020
440          HC       2
             *

441          KK  PBR040
442          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
443          KM   ALSO REFERED TO AS 040 IN BROADBENT STUDY
444          BA   0.413
445          PB    2.77
446          LS       0    86.5
447          UD   0.413
             *

448          KK RPBR040
449          KM   ROUTE PBR040 TO CPBR050
450          KM   ALSO REFERED TO AS R040 IN BROADBENT STUDY
451          KM   GIBSON ROAD - SOUTH COMMERCIAL
452          RD    4500  0.0178   0.025       0    TRAP       0      20       2
             *

453          KK  PBR050
454          KM   SOUTHEAST PORTION OF GIBSON WATERSHED RESIDENTIAL
455          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
456          KM   ALSO REFERED TO AS 050 IN BROADBENT STUDY
457          BA   0.447
458          PB    2.77
459          LS       0    90.5
460          UD   0.462
             *

461          KK CPBR050
462          KM   COMBINE PBR040 TO PBR050
463          KM   ALSO REFERED TO AS C050 IN BROADBENT STUDY
464          KM   BEGINNING OF GIBSON
465          HC       2
             *
```



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

466          KKRCPBR050
467          KM   ROUTE CPBR050 TO CPBR055
468          KM   ALSO REFERED TO AS R050 IN BROADBENT STUDY
469          KM   FACILITY = PITTMAN WASH GIBSON
470          KM   FACILITY # = PTGB 0165, 0185
471          KM   LINING= RCB US-95
472          RD    1700   0.013   0.015       0    TRAP      19       0
             *

473          KK  PBR060
474          KM   AREAS PBR055+PBR060 IN PIONEER STUDY = 060 IN BROADBENT STUDY
475          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
476          KM   ALSO REFERED TO AS 060 IN BROADBENT STUDY
477          BA   0.581
478          PB    2.77
479          LS       0    88.1
480          UD   0.438
             *

481          KK  PBR070
482          KM   SUNSET STATION
483          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
484          KM   ALSO REFERED TO AS 060 IN BROADBENT STUDY
485          BA   0.234
486          PB    2.77
487          LS       0    93.0
488          UD   0.305
             *

489          KK CPBR060
490          KM   COMBINE PBR060 TO PBR070
491          KM   ALSO REFERED TO AS C060 IN BROADBENT STUDY
492          HC       2
             *

493          KK   DET01
494          KM   WAL-MART DETENTION
495          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
496          KO      22
497          RS       1    FLOW      -1
498          SA       0      .49    2.16    4.42   23.16      25
499          SE      14      20      25      30      35      40
500          SQ       0    28.4    38.4    63.5    73.3    73.3
501          SE      14      20      25      30      35      40
             *

502          KK CPBR070
```

```
503          KM   COMBINE PBR050 & 24" PIPE
504          KM   ALSO REFERED TO AS C070 IN BROADBENT STUDY
505          KM   GIBSON @ US-95
506          HC       2
             *
1                                    HEC-1 INPUT                                    PAGE 14

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

507          KKRCPBR070
508          KM   LINING = CONCRETE AT SUNSET
509          KM   ALSO REFERED TO AS R070 IN BROADBENT STUDY
510          RD    2350   0.008   0.015       0    TRAP      19       0
             *

511          KK  PBR080
512          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
513          KM   ALSO REFERED TO AS 080 IN BROADBENT STUDY
514          KM   BETWEEN 95 & GIBSON NORTH SUNSET
515          BA   0.150
516          PB    2.77
517          LS       0    91.3
518          UD   0.297
             *

519          KK CPBR080
520          KM   COMBINE PBR080 AND CHANNEL
521          KM   ALSO REFERED TO AS C080 IN BROADBENT STUDY
522          KM   GIBSON @ CORNUCOPIA
523          HC       2
             *

524          KKRCPBR080
525          KM   ROUTE CPBR080 TO CHANNEL
526          KM   ALSO REFERED TO AS R080 IN BROADBENT STUDY
527          KM   FACILITY = PITTMAN WASH GIBSON
528          KM   FACILITY # = PTGB 0093,  0058
529          KM   LINING= CONCRETE CORNUCOPIA
530          RD     600   0.015   0.015       0    TRAP      15       0
             *

531          KK CPBR035
532          KM   COMBINE CPBR080 AND CPBR030
533          KM   ALSO REFERED TO AS C080 IN BROADBENT STUDY
534          KM   COMBINATION OF GIBSON & PIONEER
535          HC       2
             *

536          KKRCPBR035
537          KM   ROUTE CPBR035 TO CPBR090
538          KM   FACILITY = PITTMAN-VAN WAGENEN
539          KM   FACILITY # = PTVW 0000
540          KM   LINING= CONCRETE
541          RD    2000   0.016   0.015       0    TRAP      25       2
             *

542          KK  PBR090
543          BA   0.359
544          PB    2.77
545          LS       0    94.0
546          UD   0.422
             *
1                                    HEC-1 INPUT                                    PAGE 15

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

547          KK CPBR090
548          KM   COMBINE PBR090 AND CPBR035
549          HC       2
             *

550          KK  PBR140
551          BA   0.387
552          PB    2.78
553          LS       0    94.6
554          UD   0.326
             *

555          KK RPBR140
556          KM   ROUTE PBR140 TO CPBR150
557          KM   UNNAMED STREET/SUNSET
558          RD    4211   0.012   0.016       0    TRAP       0      50
             *

559          KK  PBR150
560          BA   0.405
561          PB    2.77
562          LS       0    94.2
563          UD   0.418
             *

564          KK CPPD150
565          KM   COMBINE PBR140 AND PBR150
566          HC       2
             *

567          KK CPBR150
568          KM   COMBINE PBR150 AND RCPBR090
569          KM   TOTAL FLOW @ PIONEER OUTFALL & BOULDER HWY
570          HC       2
             *

571          KKRCPBR150
572          KM   ROUTE CPBR150 IN CHANNEL
573          KM   FACILITY = PITTMAN WASH-BURNS
574          KM   FACILITY # = PTBR 0140, 0160, 0163
575          KM   LINING= CONCRETE
576          RD    1200    0.01   0.015       0    TRAP      25       0
             *

577          KK  PBR100
578          BA   0.275
579          PB    2.83
580          LS       0    95.1
581          UD   0.144
             *
1                                    HEC-1 INPUT                                    PAGE 16

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

582          KK RPBR100
583          KM   ROUTE PBR100 TO CPBR110
584          KM   PRIVATE STREET - BMI COMPLEX
585          RD    3335   0.022   0.016       0    TRAP       0      50
             *
```

```
586          KK  PBR110
587          BA   0.533
588          PB    2.81
589          LS       0    96.0
590          UD   0.364
             *

591          KK CPBR110
592          KM   COMBINE PBR100 AND PBR110
593          HC       2
             *

594          KKRCPBR110
595          KM   ROUTE CPBR110 TO CPBR120
596          KM   WARM SPRINGS ROAD
597          RD    3504   0.011   0.016       0    TRAP       0      50
             *

598          KK  PBR120
599          BA   0.240
600          PB    2.79
601          LS       0    95.1
602          UD   0.254
             *

603          KK CPBR120
604          KM   COMBINE CPBR110 AND PBR120
605          HC       2
             *

606          KKRCPBR120
607          KM   ROUTE CPBR120 TO CPBR130
608          KM   BURNS/MERLAYNE/BOULDER HIGHWAY
609          RD    4567   0.009   0.016       0    TRAP       0      50
             *

610          KK  PBR130
611          BA   0.473
612          PB    2.78
613          LS       0    93.8
614          UD   0.524
             *
1                                        HEC-1 INPUT                                        PAGE 17

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

615          KK CPBR130
616          KM   COMBINE PBR140, PBR130, CPBR120
617          HC       2
             *

618          KKRCPBR130
619          KM   ROUTE CPBR130 TO CPBR150
620          KM   ALONG SUNSET/BURNS
621          KM   FACILITY = RCP
622          RD    2176    0.01   0.013       0    CIRC       4
             *

623          KK  COMALL
624          KM   COMBINE RCPBR150 AND RCPBR130
625          KM   TOTAL FLOW @ DOWNSTREAM END
626          KM   (WHERE CHANNEL IN ATHERNS TURNS FROM EAST TO NORTH)
627          HC       2
             *

628          KKRCPBR150
629          KM   ROUTE CPBR150 TO CPBR160
630          KM   FACILITY = PITTMAN WASH BURNS
631          KM   FACILITY # = PTBR 0091
632          KM   LINING= CONCRETE
633          RD    2800    0.01   0.015       0    TRAP      25       2
             *

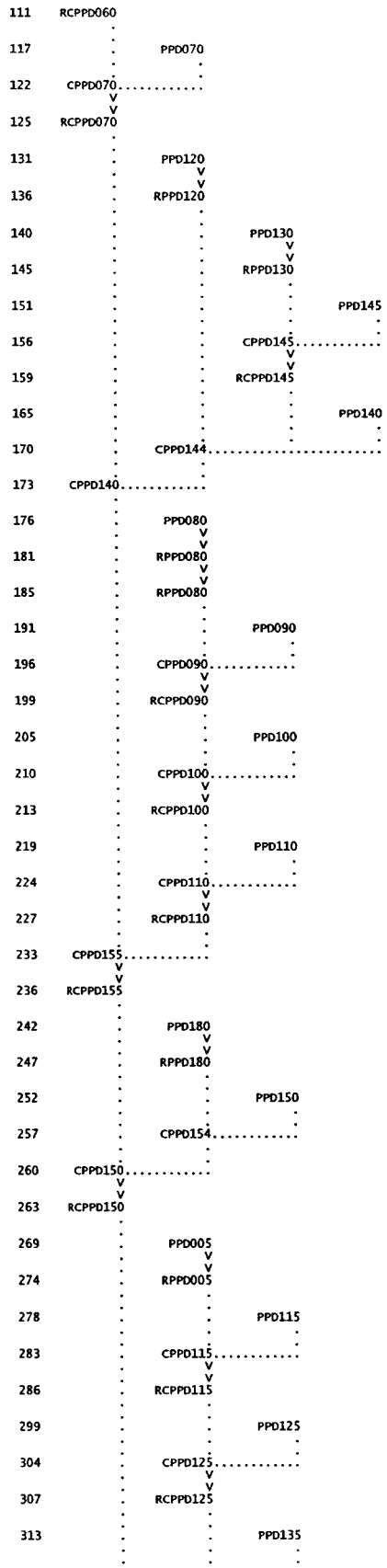
634          ZZ
1
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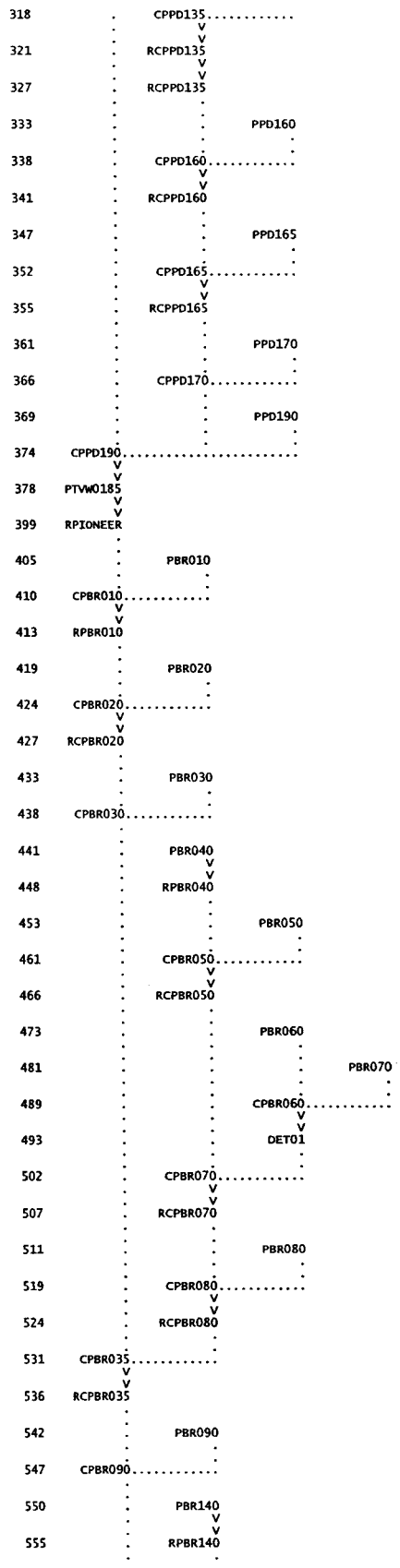
SCHEMATIC DIAGRAM OF STREAM NETWORK

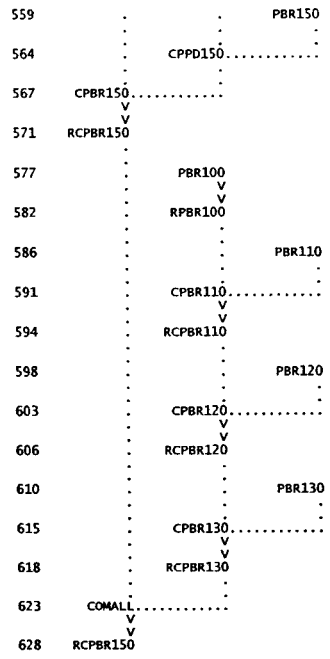
```
INPUT
 LINE      (V) ROUTING          (---->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<----) RETURN OF DIVERTED OR PUMPED FLOW

   27      PPD020
           V
           V
   41     RPPD020
           V
           V
   47     RPPD020
           .
           .
   53           .      PPD030
                .        .
                .        .
   58     CPPD030.........
           .
           .
   61           .      PPD010
                .        V
                .        V
   66           .     RPPD010
                .        .
                .        .
   72           .        .      PPD040
                .        .        .
                .        .        .
   77           .     CPPD040.........
                .        V
                .        V
   80           .    RCPPD040
                .        .
                .        .
   86           .        .      PPD050
                .        .        .
                .        .        .
   91           .     CPPD045.........
                .        .
                .        .
   94     CPPD050.........
           V
           V
   97     RCPPD050
           .
           .
  103           .      PPD060
                .        .
                .        .
  108     CPPD060.........
           V
           V
```


111 RCPPD060
117 PPD070
122 CPPD070
125 RCPPD070
131 PPD120
136 RPPD120
140 PPD130
145 RPPD130
151 PPD145
156 CPPD145
159 RCPPD145
165 PPD140
170 CPPD144
173 CPPD140
176 PPD080
181 RPPD080
185 RPPD080
191 PPD090
196 CPPD090
199 RCPPD090
205 PPD100
210 CPPD100
213 RCPPD100
219 PPD110
224 CPPD110
227 RCPPD110
233 CPPD155
236 RCPPD155
242 PPD180
247 RPPD180
252 PPD150
257 CPPD154
260 CPPD150
263 RCPPD150
269 PPD005
274 RPPD005
278 PPD115
283 CPPD115
286 RCPPD115
299 PPD125
304 CPPD125
307 RCPPD125
313 PPD135


318 CPPD135
321 RCPPD135
327 RCPPD135
333 PPD160
338 CPPD160
341 RCPPD160
347 PPD165
352 CPPD165
355 RCPPD165
361 PPD170
366 CPPD170
369 PPD190
374 CPPD190
378 PTVW0185
399 RPIONEER
405 PBR010
410 CPBR010
413 RPBR010
419 PBR020
424 CPBR020
427 RCPBR020
433 PBR030
438 CPBR030
441 PBR040
448 RPBR040
453 PBR050
461 CPBR050
466 RCPBR050
473 PBR060
481 PBR070
489 CPBR060
493 DET01
502 CPBR070
507 RCPBR070
511 PBR080
519 CPBR080
524 RCPBR080
531 CPBR035
536 RCPBR035
542 PBR090
547 CPBR090
550 PBR140
555 RPBR140



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUL   1997                *
*          VERSION 4.1                  *
*                                       *
*  RUN DATE   18AUG06  TIME  08:18:18   *
*                                       *
*****************************************
```

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

GIBSON CHANNEL CLOMR/LOMR HYDROLOGY - POST DEVELOPMENT
SDN3 MODEL WITH SUBBASIN FROM DOWNSTREAM OF DETENTION BASIN ONLY
INPUT FILE = GIBSON3.DAT
TAKEN FROM VTN PIONEER DETENTION BASIN OUTFALL-PIOREV2.DAT WO#6582
INCORPORATED BROADBENT & ASSOCIATES GIBSON CHANNEL HYDROLOGY
INCORPORATED STANTEC DESERT CANYON OPEN SPACE HYDROLOGY 8/6/06
INPUT FILE DATE = 08/17/06
CONSIDERS EXISTING GIBSON CHANNEL IN PLACE & PIONEER OUTFALL PHASE I IN PLA

JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

AREA (SQUARE MILES)	DARF
0.0 - 0.5	0.980
0.5 - 1.0	0.970
1.0 - 2.0	0.930
2.0 - 3.0	0.925
3.0 - 4.0	0.910
5.0 - 6.0	0.900
7.0 - 8.0	0.880
10.0 - 11.0	0.853
13.0 - 14.0	0.832

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

    IT         HYDROGRAPH TIME DATA
                   NMIN           5  MINUTES IN COMPUTATION INTERVAL
                   IDATE      1   0  STARTING DATE
                   ITIME        0000  STARTING TIME
                     NQ          300  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE      2   0  ENDING DATE
                  NDTIME        0055  ENDING TIME
                  ICENT           19  CENTURY MARK

                COMPUTATION INTERVAL      .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

    JP         MULTI-PLAN OPTION
                   NPLAN           1  NUMBER OF PLANS

    JR         MULTI-RATIO OPTION
                   RATIOS OF PRECIPITATION
                  .98       .97       .93       .93       .91       .90       .88       .85       .83
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*** ***

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          **************
          *            *
 374 KK   *   CPPD190   *
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          *           *
          **************

 376 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

 377 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                      ***

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

                        HYDROGRAPH AT STATION  CPPD190
                          FOR PLAN 1, RATIO =  .98

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     24.92-HR
+    (CFS)       (HR)
                  (CFS)
+     7078.      3.75          1265.         317.         306.         306.
                (INCHES)       1.534        1.540        1.540        1.540
                 (AC-FT)        627.         629.         629.         629.

                        CUMULATIVE AREA =    7.66 SQ MI

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

                        HYDROGRAPH AT STATION  CPPD190
                          FOR PLAN 1, RATIO =  .97

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     24.92-HR
+    (CFS)       (HR)
                  (CFS)
+     6946.      3.75          1243.         312.         300.         300.
                (INCHES)       1.509        1.514        1.514        1.514
                 (AC-FT)        617.         619.         619.         619.

                        CUMULATIVE AREA =    7.66 SQ MI

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

                        HYDROGRAPH AT STATION  CPPD190
                          FOR PLAN 1, RATIO =  .93

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     24.92-HR
+    (CFS)       (HR)
                  (CFS)
+     6461.      3.75          1161.         291.         281.         281.
                (INCHES)       1.409        1.414        1.414        1.414
                 (AC-FT)        576.         578.         578.         578.

                        CUMULATIVE AREA =    7.66 SQ MI

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

                        HYDROGRAPH AT STATION  CPPD190
                          FOR PLAN 1, RATIO =  .93

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     24.92-HR
+    (CFS)       (HR)
                  (CFS)
+     6411.      3.75          1151.         289.         278.         278.
                (INCHES)       1.397        1.402        1.402        1.402
                 (AC-FT)        571.         573.         573.         573.

                        CUMULATIVE AREA =    7.66 SQ MI

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

                        HYDROGRAPH AT STATION  CPPD190
                          FOR PLAN 1, RATIO =  .91

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     24.92-HR
+    (CFS)       (HR)
                  (CFS)
+     6254.      3.75          1124.         282.         271.         271.
                (INCHES)       1.363        1.368        1.368        1.368
                 (AC-FT)        557.         559.         559.         559.

                        CUMULATIVE AREA =    7.66 SQ MI

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

                        HYDROGRAPH AT STATION  CPPD190
                          FOR PLAN 1, RATIO =  .90

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     24.92-HR
+    (CFS)       (HR)
                  (CFS)
+     6166.      3.75          1105.         277.         267.         267.
                (INCHES)       1.341        1.345        1.345        1.345
                 (AC-FT)        548.         549.         549.         549.

                        CUMULATIVE AREA =    7.66 SQ MI

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

                        HYDROGRAPH AT STATION  CPPD190
                          FOR PLAN 1, RATIO =  .88

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     24.92-HR
+    (CFS)       (HR)
                  (CFS)
+     5946.      3.75          1065.         267.         257.         257.
                (INCHES)       1.292        1.296        1.296        1.296
                 (AC-FT)        528.         529.         529.         529.

                        CUMULATIVE AREA =    7.66 SQ MI

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

                        HYDROGRAPH AT STATION  CPPD190
                          FOR PLAN 1, RATIO =  .85
```

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 5596.	3.75		1010.	253.	244.	244.
		(INCHES)	1.226	1.230	1.230	1.230
		(AC-FT)	501.	502.	502.	502.

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION CPPD190
FOR PLAN 1, RATIO = .83

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 5337.	3.75		969.	243.	234.	234.
		(INCHES)	1.175	1.179	1.179	1.179
		(AC-FT)	480.	482.	482.	482.

CUMULATIVE AREA = 7.66 SQ MI

*** *** *** *

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .93

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS)				
+ 1657.	5.17		556.	291.	281.	281.
		(INCHES)	.674	1.414	1.414	1.414
		(AC-FT)	276.	578.	578.	578.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
+ 410.	5.17	349.	147.	142.	142.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
+ 1811.04	5.17	1807.06	1788.22	1787.48	1787.48

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .93

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS)				
+ 1583.	5.17		546.	289.	278.	278.
		(INCHES)	.663	1.401	1.402	1.402
		(AC-FT)	271.	573.	573.	573.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
+ 410.	5.17	348.	147.	142.	142.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
+ 1811.01	5.17	1807.02	1788.20	1787.46	1787.46

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .91

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS)				
+ 1447.	5.25		521.	282.	271.	271.
		(INCHES)	.632	1.368	1.368	1.368
		(AC-FT)	258.	559.	559.	559.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
+ 408.	5.25	346.	147.	141.	141.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
+ 1810.90	5.25	1806.90	1788.13	1787.39	1787.39

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .90

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS)				
+ 1339.	5.25		503.	277.	267.	267.
		(INCHES)	.610	1.345	1.345	1.345
		(AC-FT)	249.	549.	549.	549.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
+ 406.	5.25	345.	146.	141.	141.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
+ 1810.80	5.25	1806.81	1788.08	1787.34	1787.34

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .88

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS)				
+ 1057.	5.42		466.	267.	257.	257.
		(INCHES)	.565	1.296	1.296	1.296
		(AC-FT)	231.	529.	529.	529.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
+ 402.	5.42	342.	145.	140.	140.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
+ 1810.55	5.42	1806.60	1787.97	1787.23	1787.23

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .85

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR	
+ (CFS)	(HR)					
		(CFS)				
+ 550.	5.67	417.	253.	244.	244.	
		(INCHES)	.506	1.230	1.230	1.230
		(AC-FT)	207.	502.	502.	502.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR	
+ (AC-FT)	(HR)					
394.	5.67	337.	143.	138.	138.	

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR	
+ (FEET)	(HR)					
1810.08	5.67	1806.25	1787.78	1787.05	1787.05	

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .83

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR	
+ (CFS)	(HR)					
		(CFS)				
+ 423.	5.75	403.	243.	234.	234.	
		(INCHES)	.489	1.178	1.178	1.178
		(AC-FT)	200.	482.	482.	482.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR	
+ (AC-FT)	(HR)					
378.	5.75	322.	135.	130.	130.	

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR	
+ (FEET)	(HR)					
1809.06	5.75	1805.27	1786.93	1786.24	1786.24	

CUMULATIVE AREA = 7.66 SQ MI

496 KO OUTPUT CONTROL VARIABLES

IPRNT	22	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 .98	RATIO 2 .97	RATIO 3 .93	RATIO 4 .93	RATIO 5 .91	RATIO 6 .90	RATIO 7 .88	RATIO 8 .85	RATIO 9 .83
HYDROGRAPH AT													
+	PPD020	.36	1	FLOW	392.	386.	361.	358.	348.	342.	330.	313.	300.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RPPD020	.36	1	FLOW	381.	376.	352.	349.	340.	334.	322.	306.	294.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RPPD020	.36	1	FLOW	381.	378.	351.	351.	339.	335.	323.	305.	292.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD030	.33	1	FLOW	303.	298.	278.	275.	268.	263.	253.	239.	229.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPPD030	.69	1	FLOW	684.	677.	629.	626.	606.	598.	576.	544.	521.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD010	.44	1	FLOW	570.	561.	525.	520.	507.	498.	480.	456.	437.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RPPD010	.44	1	FLOW	556.	547.	512.	507.	493.	485.	467.	443.	425.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT													
+	PPD040	.34	1	FLOW	508.	501.	471.	468.	457.	449.	435.	415.	400.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD040	.78	1	FLOW	1064.	1048.	983.	974.	950.	934.	902.	858.	825.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RCPPD040	.78	1	FLOW	1003.	994.	925.	921.	892.	886.	854.	806.	775.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD050	.39	1	FLOW	429.	422.	394.	390.	380.	373.	359.	341.	326.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPPD045	1.17	1	FLOW	1431.	1415.	1316.	1309.	1269.	1258.	1214.	1147.	1102.
				TIME	3.58	3.58	3.58	3.58	3.58	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPPD050	1.86	1	FLOW	2054.	2035.	1893.	1887.	1827.	1812.	1745.	1649.	1582.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCPPD050	1.86	1	FLOW	2023.	1994.	1826.	1816.	1810.	1772.	1702.	1604.	1525.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD060	.50	1	FLOW	616.	606.	569.	564.	550.	540.	522.	497.	477.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													

+	CPPD060	2.36	1	FLOW	2598.	2529.	2332.	2318.	2295.	2238.	2170.	2037.	1938.
				TIME	3.67	3.67	3.67	3.67	3.67	3.75	3.67	3.67	3.75
ROUTED TO													
+	RCPPD060	2.36	1	FLOW	2570.	2525.	2337.	2335.	2291.	2253.	2183.	2058.	1933.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD070	.20	1	FLOW	277.	273.	256.	254.	248.	244.	236.	225.	217.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD070	2.57	1	FLOW	2748.	2700.	2503.	2499.	2451.	2411.	2335.	2204.	2074.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RCPPD070	2.57	1	FLOW	2732.	2685.	2483.	2480.	2436.	2394.	2318.	2177.	2053.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD120	.29	1	FLOW	361.	356.	333.	330.	321.	315.	304.	289.	277.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RPPD120	.29	1	FLOW	354.	348.	325.	309.	301.	295.	296.	269.	262.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD130	.40	1	FLOW	548.	540.	507.	503.	491.	483.	467.	445.	428.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RPPD130	.40	1	FLOW	531.	513.	482.	472.	464.	471.	436.	422.	411.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD145	.14	1	FLOW	162.	159.	149.	147.	144.	141.	136.	129.	124.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD145	.54	1	FLOW	674.	654.	614.	603.	592.	596.	557.	537.	521.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCPPD145	.54	1	FLOW	668.	648.	610.	600.	590.	595.	558.	534.	515.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD140	.28	1	FLOW	291.	286.	268.	265.	259.	254.	245.	233.	223.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
3 COMBINED AT													
+	CPPD144	1.11	1	FLOW	1313.	1282.	1203.	1174.	1150.	1144.	1099.	1037.	1000.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPPD140	3.68	1	FLOW	3949.	3881.	3612.	3582.	3512.	3468.	3357.	3161.	3004.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD080	.26	1	FLOW	284.	280.	262.	259.	253.	248.	239.	227.	218.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RPPD080	.26	1	FLOW	285.	281.	262.	260.	253.	249.	240.	227.	218.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RPPD080	.26	1	FLOW	287.	282.	264.	261.	254.	250.	240.	228.	218.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	PPD090	.55	1	FLOW	281.	275.	251.	247.	238.	232.	220.	205.	193.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPPD090	.81	1	FLOW	568.	557.	514.	509.	493.	482.	461.	433.	411.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RCPPD090	.81	1	FLOW	558.	547.	507.	502.	487.	477.	457.	429.	409.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PPD100	.35	1	FLOW	285.	280.	261.	259.	251.	247.	237.	225.	215.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPPD100	1.16	1	FLOW	837.	821.	759.	751.	728.	712.	682.	641.	612.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.92	3.92
ROUTED TO													
+	RCPPD100	1.16	1	FLOW	836.	811.	759.	752.	721.	714.	679.	641.	604.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PPD110	.41	1	FLOW	339.	333.	311.	308.	300.	295.	284.	269.	258.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPPD110	1.57	1	FLOW	1153.	1123.	1050.	1041.	1002.	991.	946.	894.	847.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCPPD110	1.57	1	FLOW	1147.	1118.	1045.	1035.	998.	984.	941.	887.	841.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
2 COMBINED AT													
+	CPPD155	5.24	1	FLOW	4884.	4798.	4448.	4408.	4311.	4245.	4097.	3849.	3651.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RCPPD155	5.24	1	FLOW	4859.	4772.	4423.	4382.	4284.	4219.	4069.	3821.	3625.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD180	.18	1	FLOW	152.	150.	139.	138.	134.	131.	126.	120.	114.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RPPD180	.18	1	FLOW	152.	149.	139.	137.	133.	131.	126.	119.	113.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PPD150	.48	1	FLOW	344.	339.	319.	317.	309.	304.	294.	281.	271.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
2 COMBINED AT													
+	CPPD154	.66	1	FLOW	483.	476.	447.	443.	433.	425.	411.	392.	377.

				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
2 COMBINED AT													
+	CPPD150	5.90	1	FLOW	5201.	5108.	4734.	4689.	4583.	4512.	4349.	4085.	3876.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RCPPD150	5.90	1	FLOW	5090.	5014.	4669.	4629.	4527.	4455.	4294.	4058.	3858.
				TIME	3.75	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	PPD005	.09	1	FLOW	132.	130.	121.	120.	117.	114.	110.	104.	99.
				TIME	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
ROUTED TO													
+	RPPD005	.09	1	FLOW	120.	118.	111.	108.	106.	104.	101.	96.	91.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT													
+	PPD115	.35	1	FLOW	490.	483.	453.	450.	439.	431.	417.	397.	382.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD115	.44	1	FLOW	610.	601.	564.	558.	545.	536.	517.	493.	473.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RCPPD115	.44	1	FLOW	538.	531.	497.	492.	479.	472.	455.	432.	415.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD125	.28	1	FLOW	401.	395.	372.	369.	360.	354.	343.	327.	315.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD125	.72	1	FLOW	889.	875.	820.	812.	792.	778.	751.	715.	686.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RCPPD125	.72	1	FLOW	876.	855.	803.	799.	776.	772.	744.	702.	677.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD135	.17	1	FLOW	236.	233.	219.	218.	212.	209.	202.	193.	186.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD135	.89	1	FLOW	1080.	1056.	992.	987.	959.	952.	919.	869.	838.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCPPD135	.89	1	FLOW	1076.	1053.	989.	983.	956.	948.	915.	866.	833.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCPPD135	.89	1	FLOW	1070.	1046.	982.	978.	951.	941.	907.	858.	826.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD160	.31	1	FLOW	358.	352.	330.	327.	319.	313.	302.	287.	275.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD160	1.20	1	FLOW	1417.	1388.	1302.	1296.	1261.	1246.	1201.	1138.	1096.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCPPD160	1.20	1	FLOW	1409.	1380.	1294.	1288.	1252.	1237.	1193.	1130.	1087.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD165	.06	1	FLOW	38.	37.	34.	34.	32.	32.	30.	28.	26.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD165	1.25	1	FLOW	1445.	1415.	1326.	1320.	1283.	1267.	1221.	1157.	1112.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCPPD165	1.25	1	FLOW	1425.	1398.	1304.	1296.	1263.	1243.	1196.	1134.	1090.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD170	.24	1	FLOW	315.	311.	296.	294.	288.	284.	277.	266.	258.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPPD170	1.49	1	FLOW	1740.	1709.	1600.	1590.	1551.	1527.	1473.	1400.	1348.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD190	.27	1	FLOW	345.	341.	325.	323.	317.	313.	305.	294.	285.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
3 COMBINED AT													
+	CPPD190	7.66	1	FLOW	7078.	6946.	6461.	6411.	6254.	6166.	5946.	5596.	5337.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	PTVW0185	7.66	1	FLOW	1929.	1894.	1657.	1583.	1447.	1339.	1057.	550.	423.
				TIME	5.00	5.08	5.17	5.17	5.25	5.25	5.42	5.67	5.75
			**	PEAK STAGES IN FEET **									
			1	STAGE	1811.16	1811.14	1811.04	1811.01	1810.90	1810.80	1810.55	1810.08	1809.06
				TIME	5.00	5.08	5.17	5.17	5.25	5.25	5.42	5.67	5.75
ROUTED TO													
+	RPIONEER	7.66	1	FLOW	1928.	1890.	1623.	1563.	1437.	1328.	1055.	540.	423.
				TIME	5.08	5.08	5.17	5.25	5.25	5.33	5.42	5.67	5.83
HYDROGRAPH AT													
+	PBR010	.46	1	FLOW	547.	540.	513.	510.	500.	493.	480.	461.	447.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPBR010	8.12	1	FLOW	2047.	2008.	1723.	1650.	1518.	1392.	1104.	748.	729.
				TIME	5.08	5.08	5.17	5.17	5.25	5.33	5.42	3.83	3.83
ROUTED TO													
+	RPBR010	8.12	1	FLOW	2043.	2000.	1701.	1647.	1499.	1389.	1093.	745.	726.
				TIME	5.08	5.08	5.25	5.25	5.25	5.33	5.42	3.83	3.83
HYDROGRAPH AT													
+	PBR020	.25	1	FLOW	309.	305.	291.	289.	283.	279.	272.	262.	254.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPBR020	8.37	1	FLOW	2107.	2063.	1744.	1690.	1541.	1421.	1118.	988.	962.
				TIME	5.08	5.08	5.25	5.25	5.25	5.33	5.42	3.83	3.83

ROUTED TO													
+	RCPBR020	8.37	1	FLOW	2100.	2050.	1742.	1683.	1526.	1410.	1100.	986.	961.
				TIME	5.08	5.08	5.25	5.25	5.33	5.33	5.50	3.83	3.83
HYDROGRAPH AT													
+	PBR030	.36	1	FLOW	373.	369.	351.	348.	342.	337.	328.	316.	306.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPBR030	8.73	1	FLOW	2201.	2150.	1821.	1761.	1593.	1477.	1347.	1302.	1268.
				TIME	5.08	5.08	5.25	5.25	5.33	5.33	3.83	3.83	3.83
HYDROGRAPH AT													
+	PBR040	.41	1	FLOW	330.	324.	304.	301.	294.	288.	278.	265.	254.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RPBR040	.41	1	FLOW	332.	326.	306.	303.	296.	291.	280.	267.	256.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	PBR050	.45	1	FLOW	397.	391.	370.	367.	359.	354.	343.	328.	317.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
2 COMBINED AT													
+	CPBR050	.86	1	FLOW	716.	705.	663.	657.	642.	631.	610.	582.	560.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	4.00	4.00
ROUTED TO													
+	RCPBR050	.86	1	FLOW	713.	702.	661.	655.	639.	629.	609.	581.	560.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	PBR060	.58	1	FLOW	478.	471.	443.	440.	429.	422.	408.	390.	375.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PBR070	.23	1	FLOW	281.	277.	263.	261.	256.	253.	246.	236.	229.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPBR060	.81	1	FLOW	736.	726.	685.	679.	664.	654.	633.	606.	584.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	DET01	.81	1	FLOW	68.	68.	68.	68.	67.	67.	67.	67.	66.
				TIME	5.67	5.58	5.58	5.58	5.58	5.58	5.58	5.58	5.58
			**	PEAK STAGES IN FEET **									
			1	STAGE	32.52	32.44	32.15	32.11	32.00	31.93	31.78	31.58	31.43
				TIME	5.67	5.67	5.58	5.58	5.58	5.58	5.58	5.58	5.58
2 COMBINED AT													
+	CPBR070	1.67	1	FLOW	777.	766.	725.	719.	703.	693.	673.	645.	623.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
ROUTED TO													
+	RCPBR070	1.67	1	FLOW	774.	764.	723.	716.	700.	690.	669.	640.	619.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	PBR080	.15	1	FLOW	171.	169.	160.	158.	155.	153.	148.	142.	138.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPBR080	1.82	1	FLOW	886.	873.	823.	816.	798.	786.	762.	730.	706.
				TIME	3.92	3.92	4.00	3.92	3.92	4.00	4.00	4.00	4.00
ROUTED TO													
+	RCPBR080	1.82	1	FLOW	883.	869.	822.	815.	797.	786.	762.	729.	705.
				TIME	3.92	3.92	4.00	4.00	4.00	4.00	4.00	4.00	4.00
2 COMBINED AT													
+	CPBR035	10.56	1	FLOW	2527.	2472.	2206.	2192.	2150.	2121.	2066.	1989.	1928.
				TIME	5.08	5.08	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCPBR035	10.56	1	FLOW	2520.	2460.	2202.	2188.	2148.	2118.	2060.	1985.	1924.
				TIME	5.08	5.08	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PBR090	.36	1	FLOW	381.	377.	358.	356.	349.	344.	335.	323.	313.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPBR090	10.91	1	FLOW	2717.	2684.	2550.	2535.	2488.	2454.	2386.	2300.	2229.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PBR140	.39	1	FLOW	479.	473.	451.	448.	439.	434.	422.	407.	395.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RPBR140	.39	1	FLOW	476.	470.	448.	445.	436.	430.	419.	403.	392.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.92	3.92
HYDROGRAPH AT													
+	PBR150	.41	1	FLOW	435.	430.	409.	407.	399.	394.	383.	369.	358.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPPD150	.79	1	FLOW	911.	900.	857.	851.	835.	824.	802.	772.	749.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPBR150	11.71	1	FLOW	3611.	3568.	3392.	3371.	3309.	3264.	3176.	3061.	2968.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCPBR150	11.71	1	FLOW	3609.	3566.	3389.	3368.	3306.	3261.	3172.	3057.	2964.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PBR100	.28	1	FLOW	478.	472.	451.	448.	440.	434.	423.	408.	397.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RPBR100	.28	1	FLOW	460.	455.	432.	429.	421.	416.	406.	395.	384.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PBR110	.53	1	FLOW	655.	648.	619.	615.	604.	596.	582.	562.	546.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPBR110	.81	1	FLOW	1064.	1052.	1002.	996.	978.	966.	942.	912.	887.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67

ROUTED TO													
+	RCPBR110	.81	1	FLOW	1047.	1036.	989.	984.	969.	958.	935.	909.	884.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	PBR120	.24	1	FLOW	338.	334.	319.	317.	311.	307.	299.	289.	280.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPBR120	1.05	1	FLOW	1356.	1340.	1275.	1267.	1252.	1236.	1205.	1165.	1131.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RCPBR120	1.05	1	FLOW	1351.	1336.	1275.	1267.	1253.	1238.	1207.	1170.	1138.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PBR130	.47	1	FLOW	442.	437.	415.	412.	404.	399.	388.	373.	362.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
2 COMBINED AT													
+	CPBR130	1.52	1	FLOW	1793.	1773.	1690.	1679.	1657.	1636.	1595.	1544.	1500.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCPBR130	1.52	1	FLOW	1781.	1758.	1675.	1665.	1639.	1621.	1577.	1524.	1479.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
2 COMBINED AT													
+	COMALL	13.23	1	FLOW	5390.	5324.	5064.	5033.	4945.	4882.	4750.	4581.	4443.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCPBR150	13.23	1	FLOW	5350.	5283.	5024.	4989.	4901.	4838.	4704.	4533.	4395.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92

1

*** NORMAL END OF HEC-1 ***

GIBSON CLOMR (Addendum #1)
PRE & POST PROJECT CONDITIONS: HEC-1 OUTPUT
SDN4 Model
(GIBSON4.OUT)

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUL  1997                *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   18AUG06  TIME  08:19:01   *
*                                       *
*****************************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

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

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

1 HEC-1 INPUT PAGE 1

```
          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
                    *DIAGRAM
 *** FREE ***
               1    ID     GIBSON CHANNEL CLOMR/LOMR HYDROLOGY - POST DEVELOPMENT
               2    ID     SDN4 MODEL WITH SUBBASIN FROM DOWNSTREAM OF DETENTION BASIN ONLY
               3    ID     INPUT FILE = GIBSON4.DAT
               4    ID     TAKEN FROM VTN PIONEER DETENTION BASIN OUTFALL-PIOREV2.DAT WO#6582
               5    ID     INCORPORATED BROADBENT & ASSOCIATES GIBSON CHANNEL HYDROLOGY
               6    ID     INCORPORATED STANTEC DESERT CANYON OPEN SPACE HYDROLOGY 8/6/06
               7    ID     INPUT FILE DATE = 08/17/06
               8    ID     CONSIDERS EXISTING GIBSON CHANNEL IN PLACE & PIONEER OUTFALL PHASE I IN PLA
               9    ID
              10    ID     JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
              11    ID
              12    ID                    AREA (SQUARE MILES)    DARF
              13    ID                          0.0 -  0.5        0.980
              14    ID                          0.5 -  1.0        0.970
              15    ID                          1.0 -  2.0        0.930
              16    ID                          2.0 -  3.0        0.925
              17    ID                          3.0 -  4.0        0.910
              18    ID                          5.0 -  6.0        0.900
              19    ID                          7.0 -  8.0        0.880
              20    ID                         10.0 - 11.0        0.853
              21    ID                         13.0 - 14.0        0.832
              22    ID
              23    IT       5       0       0     300
              24    IO       5       0       0
              25    IN       5       0       0
              26    JR    PREC   0.980   0.970   0.930    .925    .910    .900    .880    .853    .832
                    *
              27    KK  PPD020
              28    BA   0.356
              29    PC       0    0.02   0.058   0.075   0.099   0.126   0.137   0.145   0.149   0.151
              30    PC   0.155   0.156   0.159   0.162   0.169   0.172   0.179   0.189   0.201   0.211
              31    PC    0.22   0.228   0.232    0.24   0.246   0.252    0.26   0.269   0.276   0.283
              32    PC   0.286   0.292   0.302   0.312   0.321   0.332   0.352   0.376   0.415   0.462
              33    PC    0.53    0.61    0.71   0.732   0.756   0.782   0.799   0.813   0.823    0.83
              34    PC   0.835   0.844   0.851   0.864   0.885   0.908   0.924   0.944   0.968   0.973
              35    PC   0.978   0.982   0.984   0.986   0.988   0.991   0.992   0.993   0.994   0.997
              36    PC   0.998   0.999       1
              37    PB    3.15
              38    LS       0    84.1
              39    UD   0.257
                    *
              40    KK RPPD020
              41    KM   ROUTE PPD020 TO CPPD030
              42    KM   FACILITY = PITTMAN GAS LINE
              43    KM   FACILITY # = PTGL 0000
              44    KM   LINING = RCP
              45    RD    2920   0.032   0.013       0    CIRC       6
                    *
```

1 HEC-1 INPUT PAGE 2

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          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
              46    KK RPPD020
              47    KM   ROUTE PPD020 TO CPPD030
              48    KM   FACILITY = PITTMAN WASH - INTERSTATE
              49    KM   FACILITY # = PTIS 0198
              50    KM   LINING = CONCRETE
              51    RD    3130   0.026   0.015       0    TRAP      10       2
                    *
              52    KK  PPD030
              53    BA   0.330
              54    PB    3.13
              55    LS       0    82.3
              56    UD   0.316
                    *
              57    KK CPPD030
              58    KM   COMBINE PPD020 AND PPD030
              59    HC       2
                    *
              60    KK  PPD010
              61    BA   0.441
              62    PB    3.13
              63    LS       0    84.1
              64    UD   0.169
                    *
              65    KK RPPD010
              66    KM   ROUTE PPD010 TO CPPD040
              67    KM   FACILITY = PITTMAN WEST HORIZON
              68    KM   FACILITY # = PTWH 0011
              69    KM   LINING = CONCRETE
              70    RD    1350   0.044   0.015       0    TRAP      12       2
                    *
```

```
 71          KK  PPD040
 72          BA   0.340
 73          PB    3.08
 74          LS       0    86.6
 75          UD   0.129
             *

 76          KK CPPD040
 77          KM   COMBINE PPD010 AND PPD040
 78          HC       2
             *

 79          KKRCPPD040
 80          KM   ROUTE CPPD040 TO CPPD045
 81          KM   FACILITY = PITTMAN WEST HORIZON
 82          KM   FACILITY # = PTWH 0011
 83          KM   LINING = CONCRETE
 84          RD    4740   0.042   0.015       0    TRAP      12       2
             *
1                                        HEC-1 INPUT                                                    PAGE  3
      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 85          KK  PPD050
 86          BA   0.391
 87          PB    3.10
 88          LS       0    82.7
 89          UD   0.199
             *

 90          KK CPPD045
 91          KM   COMBINE PPD050 AND CPPD040
 92          HC       2
             *

 93          KK CPPD050
 94          KM   COMBINE CPPD030 AND CPPD045
 95          HC       2
             *

 96          KKRCPPD050
 97          KM   ROUTE CPPD050 TO CPPD060
 98          KM   FACILITY = PITTMAN WASH - INTERSTATE
 99          KM   FACILITY # = PTIS 0166 ,PTIS 0102
100          KM   LINING = RIPRAP/RCB
101          RD    4420   0.035   0.040       0    TRAP      35       2
             *

102          KK  PPD060
103          BA   0.503
104          PB    3.01
105          LS       0    86.3
106          UD   0.200
             *

107          KK CPPD060
108          KM   COMBINE CPPD050 AND PPD060
109          HC       2
             *

110          KKRCPPD060
111          KM   ROUTE CPPD060 TO CPPD070
112          KM   FACILITY = PITTMAN WASH - INTERSTATE
113          KM   FACILITY # = PTIS 0068, PTIS 0087, PTIS 0102
114          KM   LINING = RIPRAP
115          RD    2700   0.037    0.04       0    TRAP      35       2
             *

116          KK  PPD070
117          BA   0.204
118          PB    2.91
119          LS       0    86.8
120          UD   0.146
             *
1                                        HEC-1 INPUT                                                    PAGE  4
      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

121          KK CPPD070
122          KM   COMBINE PPD070 AND CPPD060
123          HC       2
             *

124          KKRCPPD070
125          KM   ROUTE CPPD070 TO CPPD140
126          KM   FACILITY = TRAPEZOIDAL CONCRETE CHANNEL 30' W 2:1 SS
127          KM   FACILITY # = PTIS 0055, 0050, 0029
128          KM   LINING= CONCRETE
129          RD    2675   0.037   0.015       0    TRAP      30       2
             *

130          KK  PPD120
131          BA   0.294
132          PB    2.95
133          LS       0    84.6
134          UD   0.160
             *

135          KK RPPD120
136          KM   ROUTE PPD120 TO CPPD144
137          KM   LAS PALMAS ENTRADA AVE
138          RD    3750   0.025   0.016       0    TRAP       0      50
             *

139          KK  PPD130
140          BA   0.400
141          PB    2.95
142          LS       0    86.7
143          UD   0.150
             *

144          KK RPPD130
145          KM   ROUTE PPD130 TO CPPD145
146          KM   FACILITY = PITTMAN PIONEER DETENTION
147          KM   FACILITY # = PTPD 0063, 0020, 0012, 0000
148          KM   LINING = RCP/RIPRAP/CONCRETE
149          RD    2930   0.038    0.04       0    TRAP      20       3
             *

150          KK  PPD145
151          BA   0.136
152          PB    2.85
153          LS       0    85.0
154          UD   0.159
             *
```

```
 155          KK CPPD145
 156          KM   COMBINE PPD130 AND PPD145
 157          HC       2
              *
1                                        HEC-1 INPUT                                        PAGE  5

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

 158          KKRCPPD145
 159          KM   ROUTE CPPD145 TO CPPD144
 160          KM   FACILITY = PITTMAN PIONEER DETENTION
 161          KM   FACILITY # = PTPD 0063, 0020, 0012, 0000
 162          KM   LINING = RCP/RIPRAP/CONCRETE
 163          RD    1770   0.038    0.04       0    TRAP      20       3
              *

 164          KK  PPD140
 165          BA   0.280
 166          PB    2.85
 167          LS       0    85.6
 168          UD   0.240
              *

 169          KK CPPD144
 170          KM   COMBINE PPD120, CPPD145 AND PPD140
 171          HC       3
              *

 172          KK CPPD140
 173          KM   COMBINE CPPD070 AND CPPD144
 174          HC       2
              *

 175          KK  PPD080
 176          BA   0.263
 177          PB    3.12
 178          LS       0    84.5
 179          UD   0.267
              *

 180          KK RPPD080
 181          KM   ROUTE PPD080 TO CPPD090
 182          KM   GREENWAY ROAD
 183          RD    3270    0.03   0.016       0    TRAP       0      50
              *

 184          KK RPPD080
 185          KM   ROUTE PPD080 TO CPPD090
 186          KM   FACILITY = PITTMAN WASH - RAILROAD
 187          KM   FACILITY # = PTRR 0116
 188          KM   LINING = CONCRETE
 189          RD    4555    0.01   0.015       0    TRAP      10       2
              *

 190          KK  PPD090
 191          BA   0.545
 192          PB    3.02
 193          LS       0    74.4
 194          UD   0.381
              *
1                                        HEC-1 INPUT                                        PAGE  6

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

 195          KK CPPD090
 196          KM   COMBINE PPD080 AND PPD090
 197          HC       2
              *

 198          KKRCPPD090
 199          KM   ROUTE CPPD090 TO CPPD100
 200          KM   FACILITY = PITTMAN WASH - RAILROAD
 201          KM   FACILITY # = PTRR 0035
 202          KM   LINING = CONCRETE
 203          RD    1670   0.012   0.015       0    TRAP      10       2
              *

 204          KK  PPD100
 205          BA   0.352
 206          PB    3.00
 207          LS       0    82.6
 208          UD   0.361
              *

 209          KK CPPD100
 210          KM   COMBINE PPD100 AND CPPD090
 211          HC       2
              *

 212          KKRCPPD100
 213          KM   ROUTE CPPD100 TO CPPD110
 214          KM   FACILITY = PITTMAN WASH - RAILROAD
 215          KM   FACILITY # = PTRR 0035, 0027
 216          KM   LINING = CONCRETE
 217          RD    4680   0.013   0.015       0    TRAP      10       2
              *

 218          KK  PPD110
 219          BA   0.407
 220          PB    2.93
 221          LS       0    84.1
 222          UD   0.363
              *

 223          KK CPPD110
 224          KM   COMBINE PPD110 AND CPPD100
 225          HC       2
              *

 226          KKRCPPD110
 227          KM   ROUTE CPPD110 TO CPPD155
 228          KM   FACILITY = PITTMAN WASH - RAILROAD
 229          KM   FACILITY # = PTRR 0020, 0000
 230          KM   LINING = CONCRETE/RCB
 231          RD    2230   0.019   0.015       0    TRAP      14       0
              *
1                                        HEC-1 INPUT                                        PAGE  7

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

 232          KK CPPD155
 233          KM   COMBINE CPPD110 AND CPPD140
 234          HC       2
              *

 235          KKRCPPD155
```

```
236          KM   ROUTE CPPD155 TO CPPD150
237          KM   FACILITY = PITTMAN WASH - INTERSTATE
238          KM   FACILITY # = PTIS 0008, 0000
239          KM   LINING = CONCRETE
240          RD    1000   0.019   0.015       0    TRAP       30       2
             *

241          KK  PPD180
242          BA   0.181
243          PB    2.86
244          LS       0    82.8
245          UD   0.289
             *

246          KK RPPD180
247          KM   ROUTE PPD180 TO CPPD154
248          KM   ALONG LAKE MEAD DRIVE
249          KM   RIPRAP LINED TRAPEZOIDAL CHANNEL
250          RD    3440   0.006    0.04       0    TRAP       10       3
             *

251          KK  PPD150
252          BA   0.477
253          PB    2.87
254          LS       0    88.5
255          UD   0.623
             *

256          KK CPPD154
257          KM   COMBINE PPD150 AND PPD180
258          HC       2
             *

259          KK CPPD150
260          KM   COMBINE CPPD154 AND CPPD155
261          HC       2
             *

262          KKRCPPD150
263          KM   ROUTE CPPD150 TO CPPD190
264          KM   FACILITY = PITTMAN WASH - INTERSTATE
265          KM   FACILITY # = PTIS 0000
266          KM   LINING = CONCRETE
267          RD    2800   0.014   0.015       0    TRAP       30       2
             *
```



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

268          KK  PPD005
269          BA   0.092
270          PB    3.07
271          LS       0    81.1
272          UD   0.065
             *

273          KK RPPD005
274          KM   ROUTE PPD005 TO CPPD115
275          KM   UNNAMED STREET
276          RD    3150    0.14   0.015       0    TRAP        0      50
             *

277          KK  PPD115
278          BA   0.349
279          PB    3.04
280          LS       0    85.6
281          UD   0.134
             *

282          KK CPPD115
283          KM   COMBINE PPD005 AND PPD115
284          HC       2
             *

285          KKRCPPD115
286          KM   ROUTE CPPD115 TO CPPD125
287          KM   FACILITY = PITTMAN HORIZON RIDGE
288          KM   FACILITY # =  PTHR 0210
289          KM   NATURAL CHANNEL
290          KM   TRAVEL LENGTH = 3570 FEET
291          KM   SLOPE = .013
292          KM   n=.04
293          KM   SHAPE = NATURAL CHANNEL
294          KM   BOTTOM WIDTH = 30
295          KM   SIDE SLOPE = 3:1
296          KM   VELOCITY = 8.9 FEET PER SECOND
297          RM       1   0.111    0.15
             *

298          KK  PPD125
299          BA   0.277
300          PB    2.98
301          LS       0    87.0
302          UD   0.130
             *

303          KK CPPD125
304          KM   COMBINE CPPD115 AND PPD125
305          HC       2
             *
```



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

306          KKRCPPD125
307          KM   ROUTE CPPD125 TO CPPD135
308          KM   FACILITY = PITTMAN HORIZON RIDGE
309          KM   FACILITY # = PTHR 0140
310          KM   LINING = CONCRETE
311          RD    4300    0.05   0.015       0    TRAP       15       2
             *

312          KK  PPD135
313          BA   0.169
314          PB    2.91
315          LS       0    87.9
316          UD   0.154
             *

317          KK CPPD135
318          KM   COMBINE CPPD125 AND PPD135
319          HC       2
             *

320          KKRCPPD135
321          KM   ROUTE CPPD135 TO CPPD160
322          KM   FACILITY = PITTMAN HORIZON RIDGE
```

```
KM   FACILITY # = PTHR 0104
KM   LINING = CONCRETE
RD    1830   0.042   0.015       0    TRAP      15       2
*

KKRCPPD135
KM   ROUTE CPPD135 TO CPPD160
KM   FACILITY = PITTMAN HORIZON RIDGE
KM   FACILITY # = PTHR 0067
KM   LINING = RCB
RD    2570   0.042   0.015       0    TRAP       8       0
*

KK  PPD160
BA   0.310
PB    2.87
LS       0    85.9
UD   0.189
*

KK CPPD160
KM   COMBINE PPD160 AND CPPD135
HC       2
*

KKRCPPD160
KM   ROUTE CPPD160 TO CPPD165
KM   FACILITY = PITTMAN HORIZON RIDGE
KM   FACILITY # = PTHR 0044
KM   LINING = CONCRETE
RD    1260   0.025   0.015       0    TRAP      15       2
*
```

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

KK  PPD165
BA   0.057
PB    2.83
LS       0    74.9
UD   0.163
*

KK CPPD165
KM   COMBINE CPPD160 AND PPD165
HC       2
*

KKRCPPD165
KM   ROUTE CPPD165 TO CPPD170
KM   FACILITY = PITTMAN HORIZON RIDGE
KM   FACILITY # = PTHR 0000
KM   LINING = CONCRETE
RD    2330   0.025   0.015       0    TRAP      15       2
*

KK  PPD170
BA   0.236
PB    2.81
LS       0    93.6
UD   0.265
*

KK CPPD170
KM   COMBINE CPPD165 AND PPD170
HC       2
*

KK  PPD190
BA   0.272
PB    2.81
LS       0    94.4
UD   0.308
*

KK CPPD190
KM   COMBINE CPPD150, CPPD170, AND PPD190
KO       3
HC       3
*

KKPTVW0185
KM   PIONEER DETENTION BASIN
KM   STORAGE CURVE FROM DESIGN REPORT ADDENDUM #5
KO       3
KM   FACILITY # = PTVW 0185
KM   STORAGE VOLUME = 390 ACRE-FEET
KM   OUTLET = 60" RCP
KM   100-YEAR DISCHARGE = 420 CFS
KM   SPILLWAY LENGTH = 360 FEET
```

1 HEC-1 INPUT PAGE 11

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

KM   SPILLWAY HEIGHT = 12 FEET
KM   SPILLWAY CREST ELEVATION = 1811
KM   SPILLWAY TYPE = UNCONTROLLED FREE OUTFALL RCC
KM   PMF DISCHARGE = 34,700 CFS
KM   TOP OF EMBANKMENT ELEVATION =1820
RS       1    ELEV       0
SV     0.0     6.3     9.9    14.6    27.4    42.1    57.9    92.7   111.7   152.8
SV   198.3   248.1   302.4   377.1   393.1   409.5   442.9   447.8   514.8   573.5
SE    1768    1774    1775    1776    1778    1780    1782    1786    1788    1792
SE    1796    1800    1804    1809    1810    1811    1813    1815    1817    1820
SQ       0  140.33  155.44     170  200.45  218.46  236.47  272.49     291  319.49
SQ  345.96  372.44  398.91     421     460 1555.98 6323.6913244.5921880.1437618.36
*

KKRPIONEER
KM   ROUTE OUTFLOW FROM PIONEER TO CPBR010
KM   FACILITY = PITTMAN-VAN WAGENEN
KM   FACILITY # = PTVW 0180, PTVW 0163, PTVW 0157
KM   LINING = RCP
RD    3050   0.009   0.013       0    CIRC       6
*

KK  PBR010
BA   0.460
PB    2.78
LS       0    93.5
UD   0.331
*

KK CPBR010
KM   COMBINE PIONEER & PBR010
HC       2
*
```

```
412          KK RPBR010
413          KM   ROUTE CPBR010 TO CPBR020
414          KM   FACILITY = PITTMAN-VAN WAGENEN
415          KM   FACILITY # = PTVW 0157, 0145, 0130, 0107
416          KM   LINING= RCP
417          RD    3100   0.012   0.013       0    CIRC       8
             *

418          KK  PBR020
419          BA   0.251
420          PB    2.77
421          LS       0    94.0
422          UD   0.310
             *

423          KK CPBR020
424          KM   COMBINE PBR010 AND PBR020
425          HC       2
             *
```

1 HEC-1 INPUT PAGE 12

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

426          KKRCPBR020
427          KM   ROUTE CPBR020 TO CPBR030
428          KM   FACILITY = PITTMAN-VAN WAGENEN
429          KM   FACILITY # = PTVW 0055, 0025
430          KM   LINING= RCB
431          RD    3982    0.01   0.015       0    TRAP      12       0
             *

432          KK  PBR030
433          BA   0.357
434          PB    2.77
435          LS       0    94.1
436          UD   0.435
             *

437          KK CPBR030
438          KM   COMBINE PBR030 TO CPBR020
439          HC       2
             *

440          KK  PBR040
441          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
442          KM   ALSO REFERED TO AS 040 IN BROADBENT STUDY
443          BA   0.413
444          PB    2.77
445          LS       0    86.5
446          UD   0.413
             *

447          KK RPBR040
448          KM   ROUTE PBR040 TO CPBR050
449          KM   ALSO REFERED TO AS R040 IN BROADBENT STUDY
450          KM   GIBSON ROAD - SOUTH COMMERCIAL
451          RD    4500  0.0178   0.025       0    TRAP       0      20       2
             *

452          KK  PBR050
453          KM   SOUTHEAST PORTION OF GIBSON WATERSHED RESIDENTIAL
454          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
455          KM   ALSO REFERED TO AS 050 IN BROADBENT STUDY
456          BA   0.447
457          PB    2.77
458          LS       0    90.5
459          UD   0.462
             *

460          KK CPBR050
461          KM   COMBINE PBR040 TO PBR050
462          KM   ALSO REFERED TO AS C050 IN BROADBENT STUDY
463          KM   BEGINNING OF GIBSON
464          HC       2
             *
```

1 HEC-1 INPUT PAGE 13

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

465          KKRCPBR050
466          KM   ROUTE CPBR050 TO CPBR055
467          KM   ALSO REFERED TO AS R050 IN BROADBENT STUDY
468          KM   FACILITY = PITTMAN WASH GIBSON
469          KM   FACILITY # = PTGB 0165, 0185
470          KM   LINING= RCB US-95
471          RD    1700   0.013   0.015       0    TRAP      19       0
             *

472          KK  PBR060
473          KM   AREAS PBR055+PBR060 IN PIONEER STUDY = 060 IN BROADBENT STUDY
474          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
475          KM   ALSO REFERED TO AS 060 IN BROADBENT STUDY
476          BA   0.581
477          PB    2.77
478          LS       0    88.1
479          UD   0.438
             *

480          KK  PBR070
481          KM   SUNSET STATION
482          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
483          KM   ALSO REFERED TO AS 060 IN BROADBENT STUDY
484          BA   0.234
485          PB    2.77
486          LS       0    93.0
487          UD   0.305
             *

488          KK CPBR060
489          KM   COMBINE PBR060 TO PBR070
490          KM   ALSO REFERED TO AS C060 IN BROADBENT STUDY
491          HC       2
             *

492          KK   DET01
493          KM   WAL-MART DETENTION
494          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
495          KO      22
496          RS       1    FLOW      -1
497          SA       0     .49    2.16    4.42   23.16      25
498          SE      14      20      25      30      35      40
499          SQ       0    28.4    38.4    63.5    73.3    73.3
500          SE      14      20      25      30      35      40
             *

501          KK CPBR070
502          KM   COMBINE PBR050 & 24" PIPE
```

```
 503          KM   ALSO REFERED TO AS C070 IN BROADBENT STUDY
 504          KM   GIBSON @ US-95
 505          HC       2
              *
1                                        HEC-1 INPUT                                                    PAGE 14

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

 506          KKRCPBR070
 507          KM   LINING = CONCRETE AT SUNSET
 508          KM   ALSO REFERED TO AS R070 IN BROADBENT STUDY
 509          RD    2350   0.008   0.015       0    TRAP      19       0
              *

 510          KK  PBR080
 511          KM   INFO FROM BROADBENT & ASSOCIATES GIBSON CHANNEL HYD STUDY
 512          KM   ALSO REFERED TO AS 080 IN BROADBENT STUDY
 513          KM   BETWEEN 95 & GIBSON NORTH SUNSET
 514          BA   0.150
 515          PB    2.77
 516          LS       0    91.3
 517          UD   0.297
              *

 518          KK CPBR080
 519          KM   COMBINE PBR080 AND CHANNEL
 520          KM   ALSO REFERED TO AS C080 IN BROADBENT STUDY
 521          KM   GIBSON @ CORNUCOPIA
 522          HC       2
              *

 523          KKRCPBR080
 524          KM   ROUTE CPBR080 TO CHANNEL
 525          KM   ALSO REFERED TO AS R080 IN BROADBENT STUDY
 526          KM   FACILITY = PITTMAN WASH GIBSON
 527          KM   FACILITY # = PTGB 0093,  0058
 528          KM   LINING= CONCRETE CORNUCOPIA
 529          RD     600   0.015   0.015       0    TRAP      15       0
              *

 530          KK CPBR035
 531          KM   COMBINE CPBR080 AND CPBR030
 532          KM   ALSO REFERED TO AS C080 IN BROADBENT STUDY
 533          KM   COMBINATION OF GIBSON & PIONEER
 534          HC       2
              *

 535          KKRCPBR035
 536          KM   ROUTE CPBR035 TO CPBR090
 537          KM   FACILITY = PITTMAN-VAN WAGENEN
 538          KM   FACILITY # = PTVW 0000
 539          KM   LINING= CONCRETE
 540          RD    2000   0.016   0.015       0    TRAP      25       2
              *

 541          KK  PBR090
 542          BA   0.359
 543          PB    2.77
 544          LS       0    94.0
 545          UD   0.422
              *
1                                        HEC-1 INPUT                                                    PAGE 15

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

 546          KK CPBR090
 547          KM   COMBINE PBR090 AND CPBR035
 548          HC       2
              *

 549          KK  PBR140
 550          BA   0.387
 551          PB    2.78
 552          LS       0    94.6
 553          UD   0.326
              *

 554          KK RPBR140
 555          KM   ROUTE PBR140 TO CPBR150
 556          KM   UNNAMED STREET/SUNSET
 557          RD    4211   0.012   0.016       0    TRAP       0      50
              *

 558          KK  PBR150
 559          BA   0.405
 560          PB    2.77
 561          LS       0    94.2
 562          UD   0.418
              *

 563          KK CPPD150
 564          KM   COMBINE PBR140 AND PBR150
 565          HC       2
              *

 566          KK CPBR150
 567          KM   COMBINE PBR150 AND RCPBR090
 568          KM   TOTAL FLOW @ PIONEER OUTFALL & BOULDER HWY
 569          HC       2
              *

 570          KKRCPBR150
 571          KM   ROUTE CPBR150 IN CHANNEL
 572          KM   FACILITY = PITTMAN WASH-BURNS
 573          KM   FACILITY # = PTBR 0140, 0160, 0163
 574          KM   LINING= CONCRETE
 575          RD    1200    0.01   0.015       0    TRAP      25       0
              *

 576          KK  PBR100
 577          BA   0.275
 578          PB    2.83
 579          LS       0    95.1
 580          UD   0.144
              *
1                                        HEC-1 INPUT                                                    PAGE 16

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

 581          KK RPBR100
 582          KM   ROUTE PBR100 TO CPBR110
 583          KM   PRIVATE STREET - BMI COMPLEX
 584          RD    3335   0.022   0.016       0    TRAP       0      50
              *

 585          KK  PBR110
```

```
          586          BA   0.533
          587          PB    2.81
          588          LS       0    96.0
          589          UD   0.364
                       *

          590          KK CPBR110
          591          KM   COMBINE PBR100 AND PBR110
          592          HC       2
                       *

          593          KKRCPBR110
          594          KM   ROUTE CPBR110 TO CPBR120
          595          KM   WARM SPRINGS ROAD
          596          RD    3504   0.011   0.016       0    TRAP       0      50
                       *

          597          KK  PBR120
          598          BA   0.240
          599          PB    2.79
          600          LS       0    95.1
          601          UD   0.254
                       *

          602          KK CPBR120
          603          KM   COMBINE CPBR110 AND PBR120
          604          HC       2
                       *

          605          KKRCPBR120
          606          KM   ROUTE CPBR120 TO CPBR130
          607          KM   BURNS/MERLAYNE/BOULDER HIGHWAY
          608          RD    4567   0.009   0.016       0    TRAP       0      50
                       *

          609          KK  PBR130
          610          BA   0.473
          611          PB    2.78
          612          LS       0    93.8
          613          UD   0.524
                       *
1                                                  HEC-1 INPUT                                                PAGE 17

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

          614          KK CPBR130
          615          KM   COMBINE PBR140, PBR130, CPBR120
          616          HC       2
                       *

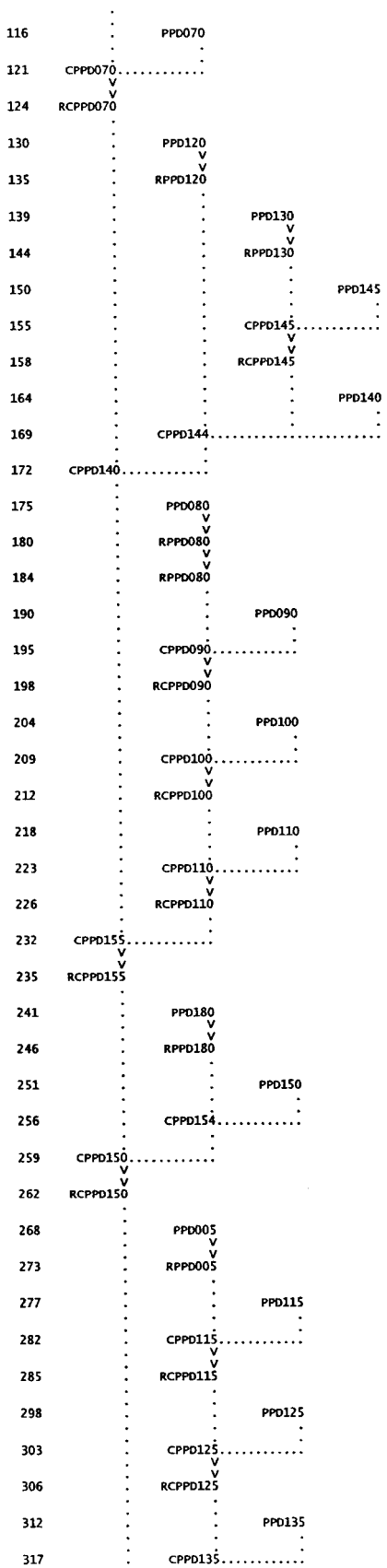
          617          KKRCPBR130
          618          KM   ROUTE CPBR130 TO CPBR150
          619          KM   ALONG SUNSET/BURNS
          620          KM   FACILITY = RCP
          621          RD    2176    0.01   0.013       0    CIRC       4
                       *

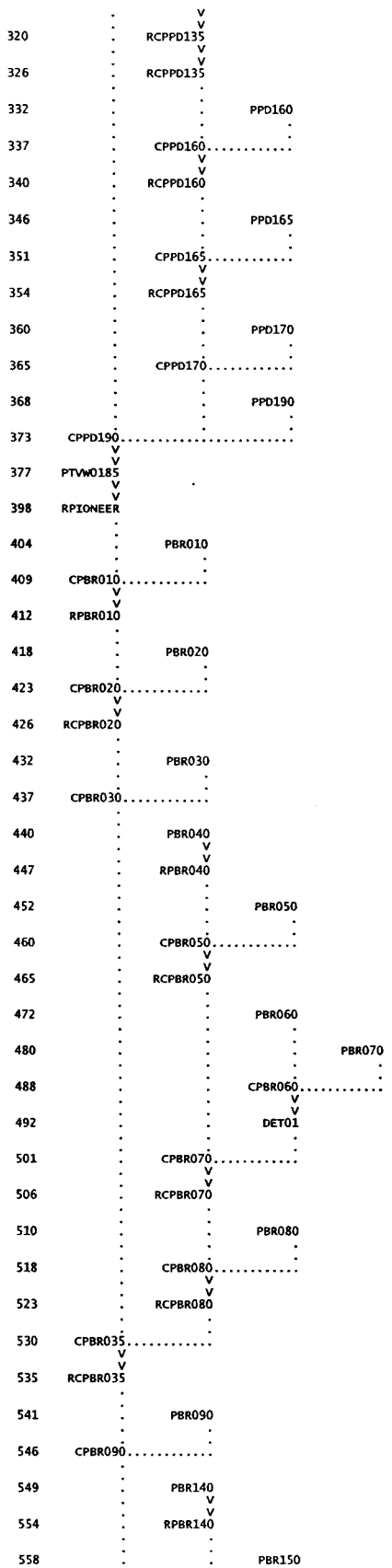
          622          KK  COMALL
          623          KM   COMBINE RCPBR150 AND RCPBR130
          624          KM   TOTAL FLOW @ DOWNSTREAM END
          625          KM   (WHERE CHANNEL IN ATHERNS TURNS FROM EAST TO NORTH)
          626          HC       2
                       *

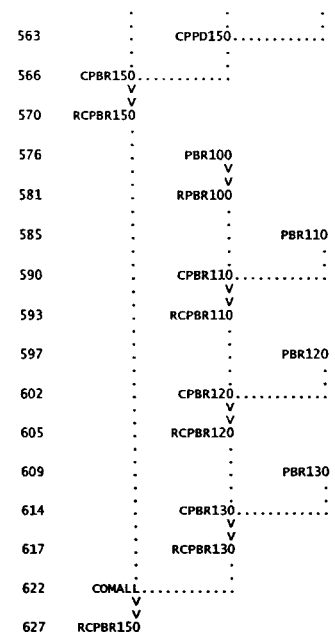
          627          KKRCPBR150
          628          KM   ROUTE CPBR150 TO CPBR160
          629          KM   FACILITY = PITTMAN WASH BURNS
          630          KM   FACILITY # = PTBR 0091
          631          KM   LINING= CONCRETE
          632          RD    2800    0.01   0.015       0    TRAP      25       2
                       *
          633          ZZ
1
            SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    27      PPD020
              V
              V
    40    RPPD020
              V
              V
    46    RPPD020
              .
              .
    52          .      PPD030
                .         .
                .         .
    57    CPPD030...........
              .
              .
    60          .      PPD010
                .         V
                .         V
    65          .     RPPD010
                .         .
                .         .
    71          .           .      PPD040
                .           .         .
                .           .         .
    76          .     CPPD040...........
                .           V
                .           V
    79          .    RCPPD040
                .           .
                .           .
    85          .           .      PPD050
                .           .         .
                .           .         .
    90          .     CPPD045...........
                .           .
                .           .
    93    CPPD050...........
              V
              V
    96    RCPPD050
              .
              .
   102          .      PPD060
                .         .
                .         .
   107    CPPD060...........
              V
              V
   110    RCPPD060
```


116 PPD070
121 CPPD070
124 RCPPD070
130 PPD120
135 RPPD120
139 PPD130
144 RPPD130
150 PPD145
155 CPPD145
158 RCPPD145
164 PPD140
169 CPPD144
172 CPPD140
175 PPD080
180 RPPD080
184 RPPD080
190 PPD090
195 CPPD090
198 RCPPD090
204 PPD100
209 CPPD100
212 RCPPD100
218 PPD110
223 CPPD110
226 RCPPD110
232 CPPD155
235 RCPPD155
241 PPD180
246 RPPD180
251 PPD150
256 CPPD154
259 CPPD150
262 RCPPD150
268 PPD005
273 RPPD005
277 PPD115
282 CPPD115
285 RCPPD115
298 PPD125
303 CPPD125
306 RCPPD125
312 PPD135
317 CPPD135


320 RCPPD135
326 RCPPD135
332 PPD160
337 CPPD160
340 RCPPD160
346 PPD165
351 CPPD165
354 RCPPD165
360 PPD170
365 CPPD170
368 PPD190
373 CPPD190
377 PTVW0185
398 RPIONEER
404 PBR010
409 CPBR010
412 RPBR010
418 PBR020
423 CPBR020
426 RCPBR020
432 PBR030
437 CPBR030
440 PBR040
447 RPBR040
452 PBR050
460 CPBR050
465 RCPBR050
472 PBR060
480 PBR070
488 CPBR060
492 DET01
501 CPBR070
506 RCPBR070
510 PBR080
518 CPBR080
523 RCPBR080
530 CPBR035
535 RCPBR035
541 PBR090
546 CPBR090
549 PBR140
554 RPBR140
558 PBR150



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUL  1997                 *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   18AUG06  TIME  08:19:01   *
*                                       *
*****************************************
```

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

GIBSON CHANNEL CLOMR/LOMR HYDROLOGY - POST DEVELOPMENT
SDN4 MODEL WITH SUBBASIN FROM DOWNSTREAM OF DETENTION BASIN ONLY
INPUT FILE = GIBSON4.DAT
TAKEN FROM VTN PIONEER DETENTION BASIN OUTFALL-PIOREV2.DAT WO#6582
INCORPORATED BROADBENT & ASSOCIATES GIBSON CHANNEL HYDROLOGY
INCORPORATED STANTEC DESERT CANYON OPEN SPACE HYDROLOGY 8/6/06
INPUT FILE DATE = 08/17/06
CONSIDERS EXISTING GIBSON CHANNEL IN PLACE & PIONEER OUTFALL PHASE I IN PLA

JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:

AREA (SQUARE MILES)	DARF
0.0 - 0.5	0.980
0.5 - 1.0	0.970
1.0 - 2.0	0.930
2.0 - 3.0	0.925
3.0 - 4.0	0.910
5.0 - 6.0	0.900
7.0 - 8.0	0.880
10.0 - 11.0	0.853
13.0 - 14.0	0.832

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

    IT          HYDROGRAPH TIME DATA
                     NMIN           5  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME         0000  STARTING TIME
                       NQ          300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2    0  ENDING DATE
                   NDTIME         0055  ENDING TIME
                   ICENT           19  CENTURY MARK

                 COMPUTATION INTERVAL      .08 HOURS
                     TOTAL TIME BASE   24.92 HOURS

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

    JP          MULTI-PLAN OPTION
                     NPLAN          1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                    RATIOS OF PRECIPITATION
                    .98       .97       .93       .91       .90       .88       .85       .83

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

           **************
           *            *
373 KK     *   CPPD190  *
           *            *
```

****

375 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

376 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION CPPD190
FOR PLAN 1, RATIO = .98

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS) 1260.	316.	305.	305.
6020.	3.75	(INCHES) 1.529	1.536	1.536	1.536
		(AC-FT) 625.	628.	628.	628.

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION CPPD190
FOR PLAN 1, RATIO = .97

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS) 1242.	312.	301.	301.
5944.	3.75	(INCHES) 1.508	1.515	1.515	1.515
		(AC-FT) 616.	619.	619.	619.

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION CPPD190
FOR PLAN 1, RATIO = .93

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS) 1161.	292.	281.	281.
5572.	3.75	(INCHES) 1.409	1.415	1.415	1.415
		(AC-FT) 576.	578.	578.	578.

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION CPPD190
FOR PLAN 1, RATIO = .93

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS) 1150.	289.	278.	278.
5495.	3.75	(INCHES) 1.396	1.402	1.402	1.402
		(AC-FT) 570.	573.	573.	573.

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION CPPD190
FOR PLAN 1, RATIO = .91

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS) 1119.	281.	271.	271.
5334.	3.75	(INCHES) 1.358	1.364	1.364	1.364
		(AC-FT) 555.	558.	558.	558.

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION CPPD190
FOR PLAN 1, RATIO = .90

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS) 1101.	276.	266.	266.
5274.	3.75	(INCHES) 1.335	1.341	1.341	1.341
		(AC-FT) 546.	548.	548.	548.

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION CPPD190
FOR PLAN 1, RATIO = .88

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
		(CFS) 1061.	266.	257.	257.
5054.	3.75	(INCHES) 1.288	1.293	1.293	1.293
		(AC-FT) 526.	528.	528.	528.

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION CPPD190
FOR PLAN 1, RATIO = .85

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 4819.	3.75		1007.	253.	244.	244.
		(INCHES)	1.222	1.228	1.228	1.228
		(AC-FT)	500.	502.	502.	502.

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION CPPD190
FOR PLAN 1, RATIO = .83

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 4634.	3.75		967.	243.	234.	234.
		(INCHES)	1.174	1.179	1.179	1.179
		(AC-FT)	480.	482.	482.	482.

CUMULATIVE AREA = 7.66 SQ MI

*** *** *** *

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .93

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1714.	5.25		538.	292.	281.	281.
		(INCHES)	.653	1.415	1.415	1.415
		(AC-FT)	267.	578.	578.	578.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
411.	5.25	347.	149.	143.	143.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
1811.07	5.25	1806.94	1788.49	1787.74	1787.74

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .93

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1597.	5.25		528.	289.	278.	278.
		(INCHES)	.640	1.402	1.402	1.402
		(AC-FT)	262.	573.	573.	573.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
410.	5.25	346.	148.	143.	143.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
1811.02	5.25	1806.89	1788.46	1787.71	1787.71

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .91

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1376.	5.33		499.	281.	271.	271.
		(INCHES)	.606	1.364	1.364	1.364
		(AC-FT)	248.	558.	558.	558.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
407.	5.33	344.	147.	142.	142.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
1810.84	5.33	1806.74	1788.38	1787.63	1787.63

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .90

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1218.	5.42		482.	276.	266.	266.
		(INCHES)	.585	1.341	1.341	1.341
		(AC-FT)	239.	548.	548.	548.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
404.	5.42	343.	147.	141.	141.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
1810.69	5.42	1806.65	1788.32	1787.57	1787.57

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .88

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 888.	5.50		446.	266.	257.	257.
		(INCHES)	.541	1.293	1.293	1.293
		(AC-FT)	221.	528.	528.	528.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
400.	5.50	339.	145.	140.	140.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
1810.39	5.50	1806.42	1788.20	1787.46	1787.46

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .85

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)					
		(CFS)				
445.	5.83		408.	253.	244.	244.
		(INCHES)	.495	1.228	1.228	1.228
		(AC-FT)	202.	502.	502.	502.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
(AC-FT)	(HR)				
387.	5.83	330.	140.	135.	135.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
(FEET)	(HR)				
1809.61	5.83	1805.76	1787.69	1786.97	1786.97

CUMULATIVE AREA = 7.66 SQ MI

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

HYDROGRAPH AT STATION PTVW0185
FOR PLAN 1, RATIO = .83

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)					
		(CFS)				
419.	5.83		400.	243.	234.	234.
		(INCHES)	.485	1.179	1.179	1.179
		(AC-FT)	198.	482.	482.	482.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
(AC-FT)	(HR)				
370.	5.83	314.	131.	126.	126.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
(FEET)	(HR)				
1808.53	5.83	1804.69	1786.75	1786.06	1786.06

CUMULATIVE AREA = 7.66 SQ MI

495 KO OUTPUT CONTROL VARIABLES

IPRNT	22	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 .98	RATIO 2 .97	RATIO 3 .93	RATIO 4 .93	RATIO 5 .91	RATIO 6 .90	RATIO 7 .88	RATIO 8 .85	RATIO 9 .83
HYDROGRAPH AT													
+	PPD020	.36	1	FLOW	336.	331.	309.	307.	299.	294.	283.	269.	258.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RPPD020	.36	1	FLOW	327.	322.	301.	299.	291.	285.	275.	261.	251.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RPPD020	.36	1	FLOW	323.	321.	298.	298.	288.	284.	274.	261.	250.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD030	.33	1	FLOW	258.	254.	237.	235.	228.	224.	216.	205.	196.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPPD030	.69	1	FLOW	581.	575.	535.	532.	516.	509.	490.	465.	446.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD010	.44	1	FLOW	490.	482.	451.	447.	436.	429.	413.	393.	377.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RPPD010	.44	1	FLOW	478.	471.	440.	437.	426.	418.	403.	383.	367.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT													
+	PPD040	.34	1	FLOW	428.	422.	397.	394.	385.	379.	367.	350.	338.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD040	.78	1	FLOW	906.	893.	838.	831.	811.	797.	770.	733.	705.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RCPPD040	.78	1	FLOW	865.	852.	798.	797.	769.	761.	735.	697.	670.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT													
+	PPD050	.39	1	FLOW	373.	366.	342.	339.	330.	323.	311.	295.	282.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD045	1.17	1	FLOW	1237.	1219.	1140.	1135.	1098.	1085.	1046.	992.	952.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD050	1.86	1	FLOW	1749.	1723.	1616.	1605.	1556.	1535.	1483.	1406.	1350.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCPPD050	1.86	1	FLOW	1705.	1697.	1583.	1556.	1499.	1509.	1420.	1399.	1346.
				TIME	3.67	3.67	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD060	.50	1	FLOW	532.	524.	492.	488.	476.	468.	452.	431.	414.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD060	2.36	1	FLOW	2214.	2198.	2042.	2009.	1944.	1957.	1828.	1799.	1724.

				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCPPD060	2.36	1	FLOW	2153.	2151.	2023.	1973.	1908.	1926.	1811.	1771.	1712.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD070	.20	1	FLOW	235.	232.	218.	216.	211.	208.	201.	192.	184.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD070	2.57	1	FLOW	2288.	2285.	2148.	2097.	2030.	2046.	1927.	1882.	1819.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RCPPD070	2.57	1	FLOW	2288.	2278.	2142.	2089.	2024.	2037.	1919.	1865.	1799.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD120	.29	1	FLOW	310.	305.	285.	283.	276.	271.	261.	248.	238.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RPPD120	.29	1	FLOW	304.	299.	280.	277.	270.	265.	255.	242.	232.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD130	.40	1	FLOW	466.	459.	432.	428.	418.	411.	398.	379.	365.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RPPD130	.40	1	FLOW	430.	432.	403.	407.	395.	380.	385.	351.	348.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD145	.14	1	FLOW	138.	136.	127.	126.	123.	121.	117.	111.	106.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD145	.54	1	FLOW	555.	553.	514.	514.	499.	484.	484.	445.	438.
				TIME	3.58	3.58	3.58	3.58	3.67	3.58	3.67	3.67	3.67
ROUTED TO													
+	RCPPD145	.54	1	FLOW	558.	555.	518.	520.	502.	484.	483.	448.	438.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD140	.28	1	FLOW	247.	243.	228.	226.	220.	216.	209.	199.	191.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
3 COMBINED AT													
+	CPPD144	1.11	1	FLOW	1109.	1097.	1026.	1023.	992.	965.	947.	888.	860.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPPD140	3.68	1	FLOW	3327.	3288.	3074.	3027.	2934.	2922.	2784.	2685.	2592.
				TIME	3.67	3.67	3.75	3.67	3.67	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD080	.26	1	FLOW	244.	241.	225.	223.	218.	214.	206.	196.	188.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RPPD080	.26	1	FLOW	245.	241.	225.	224.	218.	214.	206.	196.	188.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RPPD080	.26	1	FLOW	246.	242.	226.	224.	218.	214.	207.	196.	188.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	PPD090	.55	1	FLOW	243.	238.	217.	214.	207.	202.	191.	178.	168.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPPD090	.81	1	FLOW	489.	480.	443.	439.	425.	416.	398.	374.	356.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RCPPD090	.81	1	FLOW	478.	469.	432.	427.	414.	406.	389.	367.	350.
				TIME	3.83	3.83	3.83	3.83	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PPD100	.35	1	FLOW	244.	240.	223.	221.	215.	211.	203.	192.	183.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPPD100	1.16	1	FLOW	719.	706.	653.	646.	627.	614.	588.	553.	527.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RCPPD100	1.16	1	FLOW	712.	701.	642.	637.	622.	604.	581.	547.	527.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PPD110	.41	1	FLOW	290.	285.	266.	264.	257.	252.	243.	230.	220.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPPD110	1.57	1	FLOW	977.	962.	886.	880.	858.	836.	805.	760.	731.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCPPD110	1.57	1	FLOW	976.	959.	884.	879.	855.	835.	802.	756.	727.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
2 COMBINED AT													
+	CPPD155	5.24	1	FLOW	4141.	4099.	3839.	3774.	3659.	3635.	3462.	3317.	3190.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RCPPD155	5.24	1	FLOW	4130.	4085.	3824.	3760.	3645.	3618.	3449.	3299.	3172.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD180	.18	1	FLOW	129.	127.	118.	117.	114.	111.	107.	101.	97.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.75
ROUTED TO													
+	RPPD180	.18	1	FLOW	129.	127.	118.	117.	114.	112.	108.	102.	97.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PPD150	.48	1	FLOW	299.	295.	278.	276.	269.	265.	256.	245.	236.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
2 COMBINED AT													
+	CPPD154	.66	1	FLOW	419.	413.	388.	385.	376.	370.	357.	341.	328.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

2 COMBINED AT												
+	CPPD150	5.90	1	FLOW	4452.	4401.	4118.	4052.	3927.	3895.	3715.	3550.	3412.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RCPPD150	5.90	1	FLOW	4387.	4327.	4044.	3982.	3854.	3819.	3643.	3469.	3330.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	PPD005	.09	1	FLOW	114.	112.	104.	103.	101.	99.	95.	90.	86.
				TIME	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
ROUTED TO													
+	RPPD005	.09	1	FLOW	101.	98.	91.	90.	90.	89.	84.	78.	78.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
HYDROGRAPH AT													
+	PPD115	.35	1	FLOW	415.	408.	384.	381.	371.	365.	353.	337.	324.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD115	.44	1	FLOW	516.	507.	475.	471.	462.	454.	437.	415.	402.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RCPPD115	.44	1	FLOW	457.	449.	420.	416.	408.	401.	386.	366.	354.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD125	.28	1	FLOW	338.	333.	313.	311.	304.	299.	289.	276.	266.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD125	.72	1	FLOW	765.	753.	706.	700.	684.	671.	648.	617.	593.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RCPPD125	.72	1	FLOW	731.	729.	683.	676.	659.	646.	624.	594.	573.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD135	.17	1	FLOW	201.	198.	186.	185.	181.	178.	172.	165.	159.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD135	.89	1	FLOW	917.	906.	849.	841.	820.	805.	777.	738.	710.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RCPPD135	.89	1	FLOW	898.	892.	837.	829.	809.	793.	767.	730.	704.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCPPD135	.89	1	FLOW	895.	890.	834.	826.	807.	791.	763.	727.	700.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD160	.31	1	FLOW	309.	304.	285.	283.	276.	271.	261.	249.	239.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD160	1.20	1	FLOW	1183.	1173.	1100.	1090.	1064.	1044.	1008.	960.	924.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCPPD160	1.20	1	FLOW	1181.	1170.	1097.	1088.	1061.	1041.	1006.	956.	920.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD165	.06	1	FLOW	34.	33.	30.	30.	29.	28.	26.	25.	23.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2 COMBINED AT													
+	CPPD165	1.25	1	FLOW	1211.	1199.	1124.	1114.	1086.	1066.	1029.	979.	941.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCPPD165	1.25	1	FLOW	1202.	1186.	1109.	1102.	1074.	1054.	1016.	965.	927.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD170	.24	1	FLOW	266.	263.	250.	249.	244.	240.	234.	225.	219.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPPD170	1.49	1	FLOW	1468.	1449.	1359.	1351.	1317.	1295.	1250.	1191.	1146.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PPD190	.27	1	FLOW	291.	288.	274.	272.	267.	264.	257.	247.	240.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
3 COMBINED AT													
+	CPPD190	7.66	1	FLOW	6020.	5944.	5572.	5495.	5334.	5274.	5054.	4819.	4634.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	PTVW0185	7.66	1	FLOW	2251.	2184.	1714.	1597.	1376.	1218.	888.	445.	419.
				TIME	5.08	5.08	5.25	5.25	5.33	5.42	5.50	5.83	5.83
			**	PEAK STAGES IN FEET	**								
			1	STAGE	1811.29	1811.26	1811.07	1811.02	1810.84	1810.69	1810.39	1809.61	1808.53
				TIME	5.08	5.08	5.25	5.25	5.33	5.42	5.50	5.83	5.83
ROUTED TO													
+	RPIONEER	7.66	1	FLOW	2218.	2171.	1650.	1571.	1349.	1211.	875.	445.	419.
				TIME	5.17	5.17	5.25	5.33	5.33	5.42	5.58	5.83	5.83
HYDROGRAPH AT													
+	PBR010	.46	1	FLOW	460.	455.	432.	430.	421.	416.	404.	389.	378.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPBR010	8.12	1	FLOW	2348.	2296.	1748.	1648.	1424.	1269.	912.	675.	657.
				TIME	5.08	5.17	5.25	5.33	5.33	5.42	5.58	3.75	3.75
ROUTED TO													
+	RPBR010	8.12	1	FLOW	2343.	2280.	1727.	1643.	1412.	1251.	910.	674.	658.
				TIME	5.17	5.17	5.33	5.33	5.42	5.42	5.58	3.83	3.83
HYDROGRAPH AT													
+	PBR020	.25	1	FLOW	260.	257.	244.	243.	238.	235.	229.	220.	214.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPBR020	8.37	1	FLOW	2409.	2346.	1765.	1681.	1442.	1280.	929.	881.	856.
				TIME	5.17	5.17	5.33	5.33	5.42	5.42	5.58	3.75	3.75

ROUTED TO												
+	RCPBR020	8.37	1	FLOW	2392.	2315.	1753.	1663.	1432.	1267.	913.	877.	854.
				TIME	5.17	5.17	5.33	5.33	5.42	5.50	5.58	3.83	3.83
HYDROGRAPH AT													
+	PBR030	.36	1	FLOW	319.	315.	300.	298.	292.	288.	280.	270.	262.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPBR030	8.73	1	FLOW	2502.	2424.	1833.	1743.	1498.	1320.	1187.	1147.	1116.
				TIME	5.17	5.17	5.33	5.33	5.42	5.50	3.83	3.83	3.83
HYDROGRAPH AT													
+	PBR040	.41	1	FLOW	283.	279.	261.	259.	253.	248.	240.	228.	219.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RPBR040	.41	1	FLOW	284.	279.	262.	260.	253.	249.	240.	229.	220.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	PBR050	.45	1	FLOW	339.	335.	316.	314.	307.	302.	293.	281.	271.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPBR050	.86	1	FLOW	617.	608.	572.	567.	554.	545.	527.	502.	484.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCPBR050	.86	1	FLOW	611.	602.	565.	561.	548.	539.	521.	497.	479.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	4.00	4.00
HYDROGRAPH AT													
+	PBR060	.58	1	FLOW	413.	407.	383.	380.	371.	365.	352.	336.	324.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	PBR070	.23	1	FLOW	237.	234.	222.	221.	216.	213.	207.	199.	193.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPBR060	.81	1	FLOW	628.	620.	584.	580.	567.	558.	541.	517.	499.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	DET01	.81	1	FLOW	68.	68.	67.	67.	67.	67.	67.	66.	66.
				TIME	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.58
			** PEAK STAGES IN FEET **										
			1	STAGE	32.39	32.32	32.02	31.99	31.88	31.80	31.66	31.46	31.31
				TIME	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.67	5.58
2 COMBINED AT													
+	CPBR070	1.67	1	FLOW	675.	666.	629.	625.	611.	602.	584.	560.	541.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	4.00	4.00	4.00
ROUTED TO													
+	RCPBR070	1.67	1	FLOW	672.	663.	628.	624.	611.	602.	583.	559.	539.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	PBR080	.15	1	FLOW	145.	143.	136.	135.	132.	130.	126.	121.	117.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPBR080	1.82	1	FLOW	773.	761.	718.	713.	696.	686.	664.	635.	612.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	4.00	4.00
ROUTED TO													
+	RCPBR080	1.82	1	FLOW	771.	759.	716.	711.	694.	684.	662.	635.	612.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	4.00	4.00	4.00
2 COMBINED AT													
+	CPBR035	10.56	1	FLOW	2857.	2775.	2140.	2047.	1886.	1861.	1811.	1741.	1690.
				TIME	5.17	5.17	5.33	5.33	3.83	3.83	3.83	3.92	3.92
ROUTED TO													
+	RCPBR035	10.56	1	FLOW	2840.	2745.	2129.	2026.	1881.	1857.	1808.	1741.	1689.
				TIME	5.17	5.17	5.33	5.33	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PBR090	.36	1	FLOW	324.	320.	305.	303.	297.	293.	285.	275.	267.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPBR090	10.91	1	FLOW	2950.	2854.	2222.	2209.	2166.	2139.	2082.	2005.	1945.
				TIME	5.17	5.17	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PBR140	.39	1	FLOW	402.	397.	378.	376.	369.	364.	355.	342.	332.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RPBR140	.39	1	FLOW	405.	400.	381.	379.	371.	367.	357.	344.	334.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	PBR150	.41	1	FLOW	370.	365.	348.	345.	339.	334.	326.	314.	304.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPPD150	.79	1	FLOW	775.	766.	729.	724.	710.	701.	683.	658.	638.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CPBR150	11.71	1	FLOW	3209.	3110.	2949.	2932.	2874.	2834.	2757.	2652.	2571.
				TIME	5.17	5.17	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RCPBR150	11.71	1	FLOW	3197.	3092.	2932.	2915.	2857.	2818.	2745.	2644.	2565.
				TIME	5.17	5.17	3.83	3.83	3.83	3.83	3.92	3.92	3.92
HYDROGRAPH AT													
+	PBR100	.28	1	FLOW	400.	395.	377.	375.	368.	364.	355.	342.	333.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RPBR100	.28	1	FLOW	385.	381.	364.	362.	355.	351.	343.	331.	322.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	PBR110	.53	1	FLOW	556.	550.	525.	522.	513.	506.	494.	477.	464.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPBR110	.81	1	FLOW	913.	903.	862.	857.	842.	831.	811.	783.	762.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													

+	RCPBR110	.81	1	FLOW	892.	882.	841.	836.	819.	808.	788.	761.	730.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.83
	HYDROGRAPH AT												
+	PBR120	.24	1	FLOW	284.	281.	268.	266.	261.	258.	252.	243.	236.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
	2 COMBINED AT												
+	CPBR120	1.05	1	FLOW	1150.	1137.	1084.	1077.	1056.	1043.	1017.	981.	944.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
	ROUTED TO												
+	RCPBR120	1.05	1	FLOW	1129.	1116.	1067.	1060.	1026.	1013.	1013.	979.	943.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
	HYDROGRAPH AT												
+	PBR130	.47	1	FLOW	381.	377.	358.	356.	349.	344.	335.	323.	313.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
	2 COMBINED AT												
+	CPBR130	1.52	1	FLOW	1510.	1493.	1425.	1416.	1375.	1358.	1348.	1302.	1256.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
	ROUTED TO												
+	RCPBR130	1.52	1	FLOW	1501.	1485.	1415.	1406.	1363.	1346.	1338.	1290.	1244.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
	2 COMBINED AT												
+	COMALL	13.23	1	FLOW	4614.	4561.	4343.	4316.	4217.	4164.	4083.	3934.	3809.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
	ROUTED TO												
+	RCPBR150	13.23	1	FLOW	4596.	4540.	4321.	4295.	4194.	4141.	4057.	3905.	3782.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	1.61	333.87	221.97	1.60	5.00	327.26	220.00	1.60

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3029E+02 EXCESS= .0000E+00 OUTFLOW= .3029E+02 BASIN STORAGE= .2271E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	1.61	327.28	221.07	1.57	5.00	321.92	220.00	1.57

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2979E+02 EXCESS= .0000E+00 OUTFLOW= .2979E+02 BASIN STORAGE= .2316E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	1.64	306.61	222.37	1.47	5.00	301.26	220.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2782E+02 EXCESS= .0000E+00 OUTFLOW= .2782E+02 BASIN STORAGE= .2438E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	1.64	303.74	221.11	1.45	5.00	298.53	220.00	1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2758E+02 EXCESS= .0000E+00 OUTFLOW= .2758E+02 BASIN STORAGE= .2212E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	1.65	296.60	222.27	1.41	5.00	290.89	220.00	1.41

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2685E+02 EXCESS= .0000E+00 OUTFLOW= .2685E+02 BASIN STORAGE= .1961E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	1.65	292.01	221.40	1.39	5.00	285.38	220.00	1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2636E+02 EXCESS= .0000E+00 OUTFLOW= .2636E+02 BASIN STORAGE= .1971E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	1.66	281.26	221.35	1.34	5.00	275.20	220.00	1.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2540E+02 EXCESS= .0000E+00 OUTFLOW= .2540E+02 BASIN STORAGE= .1971E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	1.68	268.22	221.92	1.27	5.00	261.28	220.00	1.27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2410E+02 EXCESS= .0000E+00 OUTFLOW= .2410E+02 BASIN STORAGE= .2101E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	1.70	257.17	222.06	1.22	5.00	250.69	220.00	1.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2310E+02 EXCESS= .0000E+00 OUTFLOW= .2310E+02 BASIN STORAGE= .1965E-03 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	2.70	325.36	224.10	1.60	5.00	323.01	225.00	1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3029E+02 EXCESS= .0000E+00 OUTFLOW= .3029E+02 BASIN STORAGE= .1154E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	2.71	320.78	225.23	1.57	5.00	320.64	225.00	1.57

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2981E+02 EXCESS= .0000E+00 OUTFLOW= .2981E+02 BASIN STORAGE= .1206E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
	RPPD020 MANE	2.77	299.91	224.33	1.47	5.00	298.28	225.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2783E+02 EXCESS= .0000E+00 OUTFLOW= .2783E+02 BASIN STORAGE= .1068E-02 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00

APPENDIX D

HYDRAULICS

GIBSON CLOMR (Addendum #1)
PRE- PROJECT CONDITIONS: HEC-RAS OUTPUT (CORRECTIVE/EFFECTIVE)

gibpre.prj

Gibson Channel : Pre-Project Conditions
Stationing Quick Reference for use w/ HEC-RAS Pre-Project Conditions

Note: HEC-RAS Sta. = Cross Section Sta
See Gibson CLOMR Pre Project-Conditions (Corrective/Effective Work Map) Figure 3.2 Appendix B

HEC-RAS River Sta.	Cross Section Sta
92	3+000
91	3+024
90	3+124
89	3+224
88	3+262
87	4+505
86	4+610
85	4+710
83	4+910
81	5+110
79	5+310
78	5+340
77	5+688
75	5+800
74	6+000
72	6+200
70	6+310
68	6+510
66	6+548
65	6+970
64	7+020
63	7+110
61	7+310
59	7+610
58	7+810
57	7+910
55	7+930
53	8+110
52	8+340
50	8+540
48	8+740
46	8+940
44	9+140
42	9+340
40	9+550
38	9+750
36	9+950
34	10+150
32	10+350
31	10+450
30	10+550
28	10+750
26	10+950
24	11+150
22	11+350
21	11+530
19	11+720
17	11+920
15	12+120
13	12+300
11	12+475
10	12+575
9.78	12+598

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X       X    X       X   X     X  X    X
X     X  X            X       X   X    X    X   X
XXXXXXX  XXXX        X       XXX  XXXX    XXXXXX    XXXX
X     X  X           X                    X  X     X    X
X     X  X       X    X       X   X     X    X          X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

****

PROJECT DATA
Project Title: Gibson Pre-Project Conditions -E
Project File : GIB_PRE.prj
Run Date and Time: 8/18/2006 9:12:50 AM

Project in English units

Project Description:
Gibson CLOMR Pre-Project Conditions

****

PLAN DATA

Plan Title: Pre-Project
Plan File : j:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.p01

Geometry Title: Gibson Pre-Project
Geometry File : j:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.g01

Flow Title   : Gibson Pre-Flow
Flow File   : j:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.f01

Plan Summary Information:
Number of: Cross Sections = 53   Multiple Openings = 0
            Culverts   = 0   Inline Structures = 0
            Bridges   = 0   Lateral Structures = 0

Computational Information
    Water surface calculation tolerance = 0.01
    Critical depth calculation tolerance = 0.01
    Maximum number of iterations   = 20
    Maximum difference tolerance   = 0.3
    Flow tolerance factor   = 0.001

Computation Options
    Critical depth computed only where necessary
    Conveyance Calculation Method: At breaks in n values only
    Friction Slope Method: Average Conveyance
    Computational Flow Regime: Mixed Flow

****

FLOW DATA

Flow Title: Gibson Pre-Flow
Flow File : j:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.f01

Flow Data (cfs)

River	Reach	RS	PF 1
gibson	exist	92	705
gibson	exist	86	725
gibson	exist	68	823
gibson	exist	40	1741
gibson	exist	32	2652

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
gibson	exist	PF 1	Normal S = 0.0135	Critical

****

GEOMETRY DATA

Geometry Title: Gibson Pre-Project
Geometry File : j:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.g01

CROSS SECTION

RIVER: gibson
REACH: exist RS: 92

INPUT
Description: 3+000
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-260	1735	-197.5	1733.9	-172.8	1733	-72.4	1733	-58.4	1732
-46.6	1727	-37.9	1727	-25.9	1732	-14.6	1733	-3.5	1733.4
18.8	1733.4	51.5	1733.8	64.7	1733.7	78.4	1733	96.1	1733
104.2	1733.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-260	.03	-72.4	.03	-3.5	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-72.4 -3.5 24 24 24 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1732.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.65	Wt. n-Val.		0.030	
W.S. Elev (ft)	1730.83	Reach Len. (ft)	24.00	24.00	24.00
Crit W.S. (ft)	1731.09	Flow Area (sq ft)		68.33	
E.G. Slope (ft/ft)	0.013518	Area (sq ft)		68.33	
Q Total (cfs)	705.00	Flow (cfs)		705.00	
Top Width (ft)	26.95	Top Width (ft)		26.95	
Vel Total (ft/s)	10.32	Avg. Vel. (ft/s)		10.32	
Max Chl Dpth (ft)	3.83	Hydr. Depth (ft)		2.54	
Conv. Total (cfs)	6063.7	Conv. (cfs)		6063.7	

* Length Wtd. (ft)	* 24.00	* Wetted Per. (ft)	*	*	28.49	*	*	*	*
* Min Ch El (ft)	* 1727.00	* Shear (lb/sq ft)	*	*	2.02	*	*	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	*	20.88	*	*	*	*
* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	*	2.09	*	36.12	*	0.03	*
* C & E Loss (ft)	*	* Cum SA (acres)	*	1.28	*	16.77	*	0.11	*

CROSS SECTION

RIVER: gibson
REACH: exist RS: 91

INPUT
Description: 3+024
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-35.7	1732	-34.74	1732.57	-24.97	1731.97	-10.07	1727	1.15	1727
10.96	1732.02	30.16	1733.01						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-35.7	.03	-24.97	.03	10.96	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-24.97	10.96	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1732.14	* Element	*	*	Left OB	*	Channel	*	Right OB *
* Vel Head (ft)	* 1.74	* Wt. n-Val.	*	*		*	0.030	*	*
* W.S. Elev (ft)	* 1730.39	* Reach Len. (ft)	*	*	100.00	*	100.00	*	100.00 *
* Crit W.S. (ft)	* 1730.77	* Flow Area (sq ft)	*	*		*	66.51	*	*
* E.G. Slope (ft/ft)	*0.015406	* Area (sq ft)	*	*		*	66.51	*	*
* Q Total (cfs)	* 705.00	* Flow (cfs)	*	*		*	705.00	*	*
* Top Width (ft)	* 28.01	* Top Width (ft)	*	*		*	28.01	*	*
* Vel Total (ft/s)	* 10.60	* Avg. Vel. (ft/s)	*	*		*	10.60	*	*
* Max Chl Dpth (ft)	* 3.39	* Hydr. Depth (ft)	*	*		*	2.37	*	*
* Conv. Total (cfs)	* 5680.0	* Conv. (cfs)	*	*		*	5680.0	*	*
* Length Wtd. (ft)	* 100.00	* Wetted Per. (ft)	*	*		*	29.38	*	*
* Min Ch El (ft)	* 1727.00	* Shear (lb/sq ft)	*	*		*	2.18	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	*		*	23.08	*	*
* Frctn Loss (ft)	* 0.35	* Cum Volume (acre-ft)	*	2.09	*	36.08	*	0.03	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	1.28	*	16.75	*	0.11	*

CROSS SECTION

RIVER: gibson
REACH: exist RS: 90

INPUT
Description: 3+124
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-32.68	1731.43	-29.42	1731.15	-16.52	1730	-3.97	1725.94	4.38	1725.92
9.28	1727	22.85	1732	25.19	1732.3	31.11	1732.43	45	1732.01

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-32.68	.03	-16.52	.03	22.85	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-16.52	22.85	100	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1730.93	* Element	*	*	Left OB	*	Channel	*	Right OB *
* Vel Head (ft)	* 1.25	* Wt. n-Val.	*	*		*	0.030	*	*
* W.S. Elev (ft)	* 1729.69	* Reach Len. (ft)	*	*	100.00	*	100.00	*	100.00 *
* Crit W.S. (ft)	* 1729.69	* Flow Area (sq ft)	*	*		*	78.73	*	*
* E.G. Slope (ft/ft)	*0.010386	* Area (sq ft)	*	*		*	78.73	*	*
* Q Total (cfs)	* 705.00	* Flow (cfs)	*	*		*	705.00	*	*
* Top Width (ft)	* 32.13	* Top Width (ft)	*	*		*	32.13	*	*
* Vel Total (ft/s)	* 8.95	* Avg. Vel. (ft/s)	*	*		*	8.95	*	*
* Max Chl Dpth (ft)	* 3.77	* Hydr. Depth (ft)	*	*		*	2.45	*	*
* Conv. Total (cfs)	* 6917.8	* Conv. (cfs)	*	*		*	6917.8	*	*
* Length Wtd. (ft)	* 100.00	* Wetted Per. (ft)	*	*		*	33.32	*	*
* Min Ch El (ft)	* 1725.92	* Shear (lb/sq ft)	*	*		*	1.53	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	*		*	13.72	*	*
* Frctn Loss (ft)	* 1.04	* Cum Volume (acre-ft)	*	2.09	*	35.91	*	0.03	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	1.28	*	16.68	*	0.11	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 89

INPUT
Description: 3+224
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-42.47	1728.45	-39.87	1730	-21.43	1730	-5.78	1724	-2.41	1723.91
3.41	1724.15	12.19	1726	23.93	1731.53	26.11	1731.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-42.47	.03	-21.43	.03	23.93	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-21.43	23.93	38	38	38	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1729.32	* Element	*	*	Left OB	*	Channel	*	Right OB *
* Vel Head (ft)	* 2.30	* Wt. n-Val.	*	*		*	0.030	*	*
* W.S. Elev (ft)	* 1727.03	* Reach Len. (ft)	*	*	38.00	*	38.00	*	38.00 *
* Crit W.S. (ft)	* 1727.70	* Flow Area (sq ft)	*	*		*	57.96	*	*
* E.G. Slope (ft/ft)	*0.023980	* Area (sq ft)	*	*		*	57.96	*	*
* Q Total (cfs)	* 705.00	* Flow (cfs)	*	*		*	705.00	*	*
* Top Width (ft)	* 28.04	* Top Width (ft)	*	*		*	28.04	*	*
* Vel Total (ft/s)	* 12.16	* Avg. Vel. (ft/s)	*	*		*	12.16	*	*

* Max Chl Dpth (ft)	*	3.12	* Hydr. Depth (ft)	*		*	2.07	*		*	
* Conv. Total (cfs)	*	4552.7	* Conv. (cfs)	*		*	4552.7	*		*	
* Length Wtd. (ft)	*	38.00	* Wetted Per. (ft)	*		*	29.03	*		*	
* Min Ch El (ft)	*	1723.91	* Shear (lb/sq ft)	*		*	2.99	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	36.36	*		*	
* Frctn Loss (ft)	*	1.51	* Cum Volume (acre-ft)	*	2.09	*	35.76	*	0.03	*	
* C & E Loss (ft)	*	0.11	* Cum SA (acres)	*	1.28	*	16.61	*	0.11	*	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 88

INPUT
Description: 3+262 existing (2) 9'x6' RCB (Gib sta. 13+38.58)
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10.5	1728.2	-9.5	1728.2	-9.5	1722.2	-.5	1722.2	-.5	1728.2
.5	1728.2	.5	1722.2	9.5	1722.2	9.5	1728.2	10.5	1728.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-10.5	.013	-9.5	.013	9.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-9.5	9.5	1258.42	1258.42	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-10.5	1729.2	1728.2	10.5	1729.2	1728.2

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1728.59	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 3.92	* Wt. n-Val.	*	* 0.013	* *
* W.S. Elev (ft)	* 1724.67	* Reach Len. (ft)	* 1258.42	* 1258.42	* 1258.42 *
* Crit W.S. (ft)	* 1725.84	* Flow Area (sq ft)	*	* 44.37	* *
* E.G. Slope (ft/ft)	*0.010392	* Area (sq ft)	*	* 44.37	* *
* Q Total (cfs)	* 705.00	* Flow (cfs)	*	* 705.00	* *
* Top Width (ft)	* 18.00	* Top Width (ft)	*	* 18.00	* *
* Vel Total (ft/s)	* 15.89	* Avg. Vel. (ft/s)	*	* 15.89	* *
* Max Chl Dpth (ft)	* 2.46	* Hydr. Depth (ft)	*	* 2.46	* *
* Conv. Total (cfs)	* 6915.8	* Conv. (cfs)	*	* 6915.8	* *
* Length Wtd. (ft)	* 1258.42	* Wetted Per. (ft)	*	* 27.86	* *
* Min Ch El (ft)	* 1722.20	* Shear (lb/sq ft)	*	* 1.03	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 16.42	* *
* Frctn Loss (ft)	* 0.57	* Cum Volume (acre-ft)	* 2.09	* 35.71	* 0.03 *
* C & E Loss (ft)	* 0.16	* Cum SA (acres)	* 1.28	* 16.59	* 0.11 *

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 87

INPUT
Description: 4+505 existing (2) 9'x6' RCB (Gib sta. 26+17)
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-10.5	1713.91	-9.5	1713.91	-9.5	1707.91	-.5	1707.91	-.5	1713.91
.5	1713.91	.5	1707.91	9.5	1707.91	9.5	1713.91	10.5	1713.91

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-10.5	.013	-9.5	.013	9.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-9.5	9.5	83	83	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-10.5	1714.91	1713.91	10.5	1714.91	1713.91

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1714.47	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.69	* Wt. n-Val.	*	* 0.013	* *
* W.S. Elev (ft)	* 1713.78	* Reach Len. (ft)	* 83.00	* 83.00	* 83.00 *
* Crit W.S. (ft)	* 1711.55	* Flow Area (sq ft)	*	* 105.70	* *
* E.G. Slope (ft/ft)	*0.000979	* Area (sq ft)	*	* 105.70	* *
* Q Total (cfs)	* 705.00	* Flow (cfs)	*	* 705.00	* *
* Top Width (ft)	* 18.00	* Top Width (ft)	*	* 18.00	* *
* Vel Total (ft/s)	* 6.67	* Avg. Vel. (ft/s)	*	* 6.67	* *
* Max Chl Dpth (ft)	* 5.87	* Hydr. Depth (ft)	*	* 5.87	* *
* Conv. Total (cfs)	* 22535.3	* Conv. (cfs)	*	* 22535.3	* *
* Length Wtd. (ft)	* 83.00	* Wetted Per. (ft)	*	* 41.49	* *
* Min Ch El (ft)	* 1707.91	* Shear (lb/sq ft)	*	* 0.16	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 1.04	* *
* Frctn Loss (ft)	* 0.14	* Cum Volume (acre-ft)	* 2.09	* 33.55	* 0.03 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 1.28	* 16.07	* 0.11 *

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 86

INPUT
Description: 4+610
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

```
*****************************************************************************
  -48.55    1717  -24.33 1716.21   -7.18    1709   -3.71 1708.71    6.11    1709
   17.91    1714   30.35 1714.32

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
  -48.55     .03  -24.33     .03   17.91     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -24.33   17.91               100      100      100          .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          * 1714.31  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.60  * Wt. n-Val.             *          *    0.030  *          *
* W.S. Elev (ft)          * 1713.71  * Reach Len. (ft)       *  100.00  *  100.00  *  100.00  *
* Crit W.S. (ft)          *           * Flow Area (sq ft)     *          *  117.07  *          *
* E.G. Slope (ft/ft)      *0.003430  * Area (sq ft)          *          *  117.07  *          *
* Q Total (cfs)           *  725.00  * Flow (cfs)            *          *  725.00  *          *
* Top Width (ft)          *   35.61  * Top Width (ft)        *          *   35.61  *          *
* Vel Total (ft/s)        *    6.19  * Avg. Vel. (ft/s)      *          *    6.19  *          *
* Max Chl Dpth (ft)       *    5.00  * Hydr. Depth (ft)      *          *    3.29  *          *
* Conv. Total (cfs)       * 12378.8  * Conv. (cfs)           *          * 12378.8  *          *
* Length Wtd. (ft)        *  100.00  * Wetted Per. (ft)      *          *   37.53  *          *
* Min Ch El (ft)          * 1708.71  * Shear (lb/sq ft)      *          *    0.67  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    4.14  *          *
* Frctn Loss (ft)         *    0.37  * Cum Volume (acre-ft)  *    2.09  *   33.33  *    0.03  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)        *    1.28  *   16.02  *    0.11  *
*****************************************************************************************************

CROSS SECTION


RIVER: gibson
REACH: exist              RS: 85

INPUT
Description: 4+710
Station Elevation Data    num=       8
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************
     -45 1715.56  -31.91 1715.63   -22.2    1715   -7.34    1709    5.26 1708.19
   16.33    1713   25.47    1715   34.57    1714

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
     -45     .03   -22.2     .03   25.47     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -22.2   25.47               200      200      200          .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          * 1713.93  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.66  * Wt. n-Val.             *          *    0.030  *          *
* W.S. Elev (ft)          * 1713.26  * Reach Len. (ft)       *  200.00  *  200.00  *  200.00  *
* Crit W.S. (ft)          *           * Flow Area (sq ft)     *          *  111.05  *          *
* E.G. Slope (ft/ft)      *0.004059  * Area (sq ft)          *          *  111.05  *          *
* Q Total (cfs)           *  725.00  * Flow (cfs)            *          *  725.00  *          *
* Top Width (ft)          *   35.44  * Top Width (ft)        *          *   35.44  *          *
* Vel Total (ft/s)        *    6.53  * Avg. Vel. (ft/s)      *          *    6.53  *          *
* Max Chl Dpth (ft)       *    5.07  * Hydr. Depth (ft)      *          *    3.13  *          *
* Conv. Total (cfs)       * 11379.4  * Conv. (cfs)           *          * 11379.4  *          *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)      *          *   37.32  *          *
* Min Ch El (ft)          * 1708.19  * Shear (lb/sq ft)      *          *    0.75  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    4.92  *          *
* Frctn Loss (ft)         *    1.01  * Cum Volume (acre-ft)  *    2.09  *   33.07  *    0.03  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)        *    1.28  *   15.94  *    0.11  *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: gibson
REACH: exist              RS: 83

INPUT
Description: 4+910
Station Elevation Data    num=       9
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************
  -32.77    1716  -28.67    1716   -6.19 1707.97    6.08 1707.97      15 1711.12
   20.16    1712   23.68    1713   26.13 1713.26      30 1713.27

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
  -32.77     .03  -28.67     .03   26.13     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -28.67   26.13               200      200      200          .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          * 1712.90  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.83  * Wt. n-Val.             *          *    0.030  *          *
* W.S. Elev (ft)          * 1712.07  * Reach Len. (ft)       *  200.00  *  200.00  *  200.00  *
* Crit W.S. (ft)          *           * Flow Area (sq ft)     *          *   99.09  *          *
* E.G. Slope (ft/ft)      *0.006386  * Area (sq ft)          *          *   99.09  *          *
* Q Total (cfs)           *  725.00  * Flow (cfs)            *          *  725.00  *          *
* Top Width (ft)          *   38.09  * Top Width (ft)        *          *   38.09  *          *
* Vel Total (ft/s)        *    7.32  * Avg. Vel. (ft/s)      *          *    7.32  *          *
* Max Chl Dpth (ft)       *    4.10  * Hydr. Depth (ft)      *          *    2.60  *          *
* Conv. Total (cfs)       *  9072.6  * Conv. (cfs)           *          *  9072.6  *          *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)      *          *   39.42  *          *
* Min Ch El (ft)          * 1707.97  * Shear (lb/sq ft)      *          *    1.00  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    7.33  *          *
* Frctn Loss (ft)         *    1.52  * Cum Volume (acre-ft)  *    2.09  *   32.59  *    0.03  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)        *    1.28  *   15.77  *    0.11  *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: gibson
REACH: exist              RS: 81

INPUT
Description: 5+110
Station Elevation Data    num=       6
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
```

```
**********************************************************************************
  -53.57    1714  -27.63    1714  -10.84    1707    7.47    1707   20.54    1712
   27.95    1712

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
  -53.57     .03  -27.63     .03   20.54     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -27.63   20.54              200      200     200             .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
**********************************************************************************************
* E.G. Elev (ft)         * 1711.35  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.12  * Wt. n-Val.             *          *    0.030  *          *
* W.S. Elev (ft)         * 1710.23  * Reach Len. (ft)        *  200.00  *   200.00  *  200.00  *
* Crit W.S. (ft)         * 1710.13  * Flow Area (sq ft)      *          *    85.31  *          *
* E.G. Slope (ft/ft)     *0.009231  * Area (sq ft)           *          *    85.31  *          *
* Q Total (cfs)          *  725.00  * Flow (cfs)             *          *   725.00  *          *
* Top Width (ft)         *   34.50  * Top Width (ft)         *          *    34.50  *          *
* Vel Total (ft/s)       *    8.50  * Avg. Vel. (ft/s)       *          *     8.50  *          *
* Max Chl Dpth (ft)      *    3.23  * Hydr. Depth (ft)       *          *     2.47  *          *
* Conv. Total (cfs)      *  7545.9  * Conv. (cfs)            *          *   7545.9  *          *
* Length Wtd. (ft)       *  200.00  * Wetted Per. (ft)       *          *    35.75  *          *
* Min Ch El (ft)         * 1707.00  * Shear (lb/sq ft)      *          *     1.38  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    11.69  *          *
* Frctn Loss (ft)        *    2.14  * Cum Volume (acre-ft)   *    2.09  *    32.17  *    0.03  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         *    1.28  *    15.61  *    0.11  *
**********************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: gibson
REACH: exist              RS: 79

INPUT
Description: 5+310
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
  -23.73 1711.99  -15.67    1708  -12.57    1703   -8.82    1703   -7.33 1706.53
   -4.59 1707.02    1.03 1704.94    15.8    1707   23.54 1707.57      30    1709

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
  -23.73     .03  -15.67     .03      30     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -15.67      30             31.32   31.32   31.32             .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
**********************************************************************************************
* E.G. Elev (ft)         * 1709.20  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.08  * Wt. n-Val.             *  0.030   *    0.030  *          *
* W.S. Elev (ft)         * 1708.12  * Reach Len. (ft)        *  31.32   *    31.32  *   31.32   *
* Crit W.S. (ft)         * 1708.12  * Flow Area (sq ft)      *    0.02  *    87.11  *          *
* E.G. Slope (ft/ft)     *0.012569  * Area (sq ft)           *    0.02  *    87.11  *          *
* Q Total (cfs)          *  725.00  * Flow (cfs)             *    0.01  *   724.99  *          *
* Top Width (ft)         *   41.97  * Top Width (ft)         *    0.25  *    41.71  *          *
* Vel Total (ft/s)       *    8.32  * Avg. Vel. (ft/s)       *    0.81  *     8.32  *          *
* Max Chl Dpth (ft)      *    5.12  * Hydr. Depth (ft)       *    0.06  *     2.09  *          *
* Conv. Total (cfs)      *  6466.8  * Conv. (cfs)            *     0.1  *   6466.7  *          *
* Length Wtd. (ft)       *   31.32  * Wetted Per. (ft)       *    0.28  *    47.48  *          *
* Min Ch El (ft)         * 1703.00  * Shear (lb/sq ft)      *    0.04  *     1.44  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *    0.04  *    11.98  *          *
* Frctn Loss (ft)        *    0.07  * Cum Volume (acre-ft)   *    2.09  *    31.77  *    0.03  *
* C & E Loss (ft)        *    0.13  * Cum SA (acres)         *    1.28  *    15.43  *    0.11  *
**********************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION


RIVER: gibson
REACH: exist              RS: 78

INPUT
Description: 5+342 - existing (2) 10'x6' RCB (Gib-Sta 34+31.22)
Station Elevation Data    num=      10
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
   -11.5 1707.46   -10.5 1707.46   -10.5 1701.46     -.5 1701.46     -.5 1707.46
     .5 1707.46      .5 1701.46    10.5 1701.46    10.5 1707.46    11.5 1707.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
   -11.5    .013   -10.5    .013    10.5    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -10.5    10.5              347      347     347             .1      .3
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
**************************************************
   -11.5 1708.46 1707.46    11.5 1708.46 1707.46

CROSS SECTION OUTPUT  Profile #PF 1
**********************************************************************************************
* E.G. Elev (ft)         * 1707.79  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.63  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)         * 1707.16  * Reach Len. (ft)        *  347.00  *   347.00  *  347.00  *
* Crit W.S. (ft)         * 1704.90  * Flow Area (sq ft)      *          *   114.04  *          *
* E.G. Slope (ft/ft)     *0.000838  * Area (sq ft)           *          *   114.04  *          *
* Q Total (cfs)          *  725.00  * Flow (cfs)             *          *   725.00  *          *
* Top Width (ft)         *   20.00  * Top Width (ft)         *          *    20.00  *          *
* Vel Total (ft/s)       *    6.36  * Avg. Vel. (ft/s)       *          *     6.36  *          *
* Max Chl Dpth (ft)      *    5.70  * Hydr. Depth (ft)       *          *     5.70  *          *
* Conv. Total (cfs)      * 25048.1  * Conv. (cfs)            *          *  25048.1  *          *
* Length Wtd. (ft)       *  347.00  * Wetted Per. (ft)       *          *    42.81  *          *
* Min Ch El (ft)         * 1701.46  * Shear (lb/sq ft)      *          *     0.14  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *     0.89  *          *
* Frctn Loss (ft)        *    0.38  * Cum Volume (acre-ft)   *    2.09  *    31.70  *    0.03  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)         *    1.28  *    15.41  *    0.11  *
```

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 77

INPUT
Description: 5+688 - existing (2) 10'x6' RCB (Gib-Sta 37+78.22)
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-11.5	1705.56	-10.5	1705.56	-10.5	1699.56	-.5	1699.56	-.5	1705.56
.5	1705.56	.5	1699.56	10.5	1699.56	10.5	1705.56	11.5	1705.56

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-11.5	.013	-10.5	.013	10.5	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-10.5 10.5 122 122 122 .1 .3
Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-11.5 1706.56	1705.56	11.5 1706.56	1705.56

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1707.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	1706.86	Reach Len. (ft)	122.00	122.00	122.00
Crit W.S. (ft)	1703.00	Flow Area (sq ft)	0.30	126.31	0.30
E.G. Slope (ft/ft)	*0.001530	Area (sq ft)	0.30	126.31	0.30
Q Total (cfs)	725.00	Flow (cfs)	0.51	723.99	0.51
Top Width (ft)	23.00	Top Width (ft)	1.00	21.00	1.00
Vel Total (ft/s)	5.71	Avg. Vel. (ft/s)	1.68	5.73	1.68
Max Chl Dpth (ft)	7.30	Hydr. Depth (ft)	0.30	6.01	0.30
Conv. Total (cfs)	18536.1	Conv. (cfs)	12.9	18510.3	12.9
Length Wtd. (ft)	122.00	Wetted Per. (ft)	1.30	87.00	1.30
Min Ch El (ft)	1699.56	Shear (lb/sq ft)	0.02	0.14	0.02
Alpha	1.01	Stream Power (lb/ft s)	0.04	0.79	0.04
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	2.09	30.74	0.03
C & E Loss (ft)	0.09	Cum SA (acres)	1.28	15.25	0.11

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 75

INPUT
Description: 5+800
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-102.1	1706	-87.9	1705	-58.5	1705	-52.7	1706.4	-32.1	1709
-16.8	1709	-3.1	1701	4.2	1701	8.7	1702	10.8	1704
26.2	1709.4	28	1709.4	35	1707	60.8	1706		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-102.1	.03	-16.8	.03	26.2	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-16.8 26.2 100 100 100 .1 .3
Left Levee Station= -16.8 Elevation= 1709

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1706.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.45	Wt. n-Val.		0.030	
W.S. Elev (ft)	1705.43	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	1705.43	Flow Area (sq ft)		74.90	
E.G. Slope (ft/ft)	*0.010249	Area (sq ft)		74.90	
Q Total (cfs)	725.00	Flow (cfs)		725.00	
Top Width (ft)	25.57	Top Width (ft)		25.57	
Vel Total (ft/s)	9.68	Avg. Vel. (ft/s)		9.68	
Max Chl Dpth (ft)	4.43	Hydr. Depth (ft)		2.93	
Conv. Total (cfs)	7161.5	Conv. (cfs)		7161.5	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		27.93	
Min Ch El (ft)	1701.00	Shear (lb/sq ft)		1.72	
Alpha	1.00	Stream Power (lb/ft s)		16.61	
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	2.09	30.46	0.03
C & E Loss (ft)	0.07	Cum SA (acres)	1.28	15.18	0.11

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 74

INPUT
Description: 6+000
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-109.2	1707	-76.5	1705	-38.9	1705.6	-16.3	1706	-6.6	1701
1.4	1700	7.3	1700	10.9	1701	16.4	1703.1	19.4	1706.2
23.5	1707	25.5	1707	34	1704.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-109.2	.03	-16.3	.03	19.4	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

-16.3 19.4 200 200 200 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1705.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.20	Wt. n-Val.		0.030	
W.S. Elev (ft)	1703.19	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1703.78	Flow Area (sq ft)		60.94	
E.G. Slope (ft/ft)	0.020930	Area (sq ft)		60.94	
Q Total (cfs)	725.00	Flow (cfs)		725.00	
Top Width (ft)	27.33	Top Width (ft)		27.33	
Vel Total (ft/s)	11.90	Avg. Vel. (ft/s)		11.90	
Max Chl Dpth (ft)	3.19	Hydr. Depth (ft)		2.23	
Conv. Total (cfs)	5011.3	Conv. (cfs)		5011.3	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		28.49	
Min Ch El (ft)	1700.00	Shear (lb/sq ft)		2.80	
Alpha	1.00	Stream Power (lb/ft s)		33.25	
Frctn Loss (ft)	1.42	Cum Volume (acre-ft)	2.09	30.30	0.03
C & E Loss (ft)	0.07	Cum SA (acres)	1.28	15.12	0.11

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 72

INPUT
Description: 6+200
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-43.6	1702	-28.9	1706	-17	1705.9	-6.8	1699	14.1	1699
20.8	1704	27.3	1705	33.8	1702	54.6	1701.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-43.6	.03	-17	.03	27.3	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-17	27.3	200	200	.1	.3

Left Levee Station= -17 Elevation= 1705.9
Right Levee Station= 27.3 Elevation= 1705

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1703.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.04	Wt. n-Val.		0.030	
W.S. Elev (ft)	1702.44	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1702.11	Flow Area (sq ft)		88.57	
E.G. Slope (ft/ft)	0.007261	Area (sq ft)		88.57	
Q Total (cfs)	725.00	Flow (cfs)		725.00	
Top Width (ft)	30.59	Top Width (ft)		30.59	
Vel Total (ft/s)	8.19	Avg. Vel. (ft/s)		8.19	
Max Chl Dpth (ft)	3.44	Hydr. Depth (ft)		2.89	
Conv. Total (cfs)	8508.3	Conv. (cfs)		8508.3	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		32.79	
Min Ch El (ft)	1699.00	Shear (lb/sq ft)		1.22	
Alpha	1.00	Stream Power (lb/ft s)		10.02	
Frctn Loss (ft)	1.72	Cum Volume (acre-ft)	2.09	29.96	0.03
C & E Loss (ft)	0.04	Cum SA (acres)	1.28	14.99	0.11

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 70

INPUT
Description: 6+310
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-32.38	1704.01	-20.62	1703.28	-17.97	1703.25	-17.08	1703	-9.14	1698
.25	1696.81	7.84	1696.62	11.1	1697	12.1	1697.57	15.38	1702
22.95	1704								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-32.38	.03	-17.08	.03	15.38	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-17.08	15.38	110	110	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1701.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.41	Wt. n-Val.		0.030	
W.S. Elev (ft)	1700.31	Reach Len. (ft)	110.00	110.00	110.00
Crit W.S. (ft)	1700.31	Flow Area (sq ft)		76.04	
E.G. Slope (ft/ft)	0.010359	Area (sq ft)		76.04	
Q Total (cfs)	725.00	Flow (cfs)		725.00	
Top Width (ft)	26.94	Top Width (ft)		26.94	
Vel Total (ft/s)	9.53	Avg. Vel. (ft/s)		9.53	
Max Chl Dpth (ft)	3.69	Hydr. Depth (ft)		2.82	
Conv. Total (cfs)	7123.1	Conv. (cfs)		7123.1	
Length Wtd. (ft)	110.00	Wetted Per. (ft)		29.24	
Min Ch El (ft)	1696.62	Shear (lb/sq ft)		1.68	
Alpha	1.00	Stream Power (lb/ft s)		16.04	
Frctn Loss (ft)	1.13	Cum Volume (acre-ft)	2.09	29.58	0.03
C & E Loss (ft)	0.00	Cum SA (acres)	1.28	14.86	0.11

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 68

INPUT
Description: 6+510
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-29.53	1700.77	-17.02	1700	-6.51	1695	6.14	1694.16	6.34	1694.19
18.4	1700	21.51	1700.64						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-29.53	.03	-17.02	.03	18.4	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-17.02	18.4	38	38	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1700.19	Element	Left OB	Channel	Right OB	
Vel Head (ft)	2.13	Wt. n-Val.		0.030		
W.S. Elev (ft)	1698.06	Reach Len. (ft)	38.00	38.00	38.00	
Crit W.S. (ft)	1698.57	Flow Area (sq ft)		70.24		
E.G. Slope (ft/ft)	0.017151	Area (sq ft)		70.24		
Q Total (cfs)	823.00	Flow (cfs)		823.00		
Top Width (ft)	27.32	Top Width (ft)		27.32		
Vel Total (ft/s)	11.72	Avg. Vel. (ft/s)		11.72		
Max Chl Dpth (ft)	3.90	Hydr. Depth (ft)		2.57		
Conv. Total (cfs)	6284.3	Conv. (cfs)		6284.3		
Length Wtd. (ft)	38.00	Wetted Per. (ft)		28.93		
Min Ch El (ft)	1694.16	Shear (lb/sq ft)		2.60		
Alpha	1.00	Stream Power (lb/ft s)		30.46		
Frctn Loss (ft)	1.47	Cum Volume (acre-ft)	2.09	29.40	0.03	
C & E Loss (ft)	0.07	Cum SA (acres)	1.28	14.79	0.11	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 66

INPUT
Description: 6+548 - existing 9'x5' RCB (Gib sta. 46+37.96)
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-15.5	1698.76	-14.5	1698.76	-14.5	1693.76	-5.5	1693.76	-5.5	1698.76
-4.5	1698.76	-4.5	1693.76	4.5	1693.76	4.5	1698.76	5.5	1698.76
5.5	1693.76	14.5	1693.76	14.5	1698.76	15.5	1698.76		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-15.5	.013	-14.5	.013	14.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-14.5	14.5	374.89	398.39	421.9	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-15.5	1699.76	1698.76	15.5	1699.76	1698.76

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1699.48	Element	Left OB	Channel	Right OB	
Vel Head (ft)	3.76	Wt. n-Val.		0.013		
W.S. Elev (ft)	1695.72	Reach Len. (ft)	374.89	398.39	421.90	
Crit W.S. (ft)	1696.83	Flow Area (sq ft)		52.92		
E.G. Slope (ft/ft)	0.012223	Area (sq ft)		52.92		
Q Total (cfs)	823.00	Flow (cfs)		823.00		
Top Width (ft)	27.00	Top Width (ft)		27.00		
Vel Total (ft/s)	15.55	Avg. Vel. (ft/s)		15.55		
Max Chl Dpth (ft)	1.96	Hydr. Depth (ft)		1.96		
Conv. Total (cfs)	7444.2	Conv. (cfs)		7444.2		
Length Wtd. (ft)	398.39	Wetted Per. (ft)		38.76		
Min Ch El (ft)	1693.76	Shear (lb/sq ft)		1.04		
Alpha	1.00	Stream Power (lb/ft s)		16.20		
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	2.09	29.34	0.03	
C & E Loss (ft)	0.16	Cum SA (acres)	1.28	14.76	0.11	

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 65

INPUT
Description: 6+970 - existing 9'x5' RCB (Gib sta. 50+60)
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-15.5	1693.41	-14.5	1693.41	-14.5	1688.41	-5.5	1688.41	-5.5	1693.41
-4.5	1693.41	-4.5	1688.41	4.5	1688.41	4.5	1693.41	5.5	1693.41
5.5	1688.41	14.5	1688.41	14.5	1693.41	15.5	1693.41		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-15.5	.013	-14.5	.013	14.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-14.5	14.5	50.5	50.5	50.5	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-15.5	1694.41	1693.41	15.5	1694.41	1693.41

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1694.33	Element	Left OB	Channel	Right OB		
Vel Head (ft)	4.02	Wt. n-Val.		0.013			
W.S. Elev (ft)	1690.30	Reach Len. (ft)	50.50	50.50	50.50		
Crit W.S. (ft)	1691.48	Flow Area (sq ft)		51.14			
E.G. Slope (ft/ft)	0.013513	Area (sq ft)		51.14			
Q Total (cfs)	823.00	Flow (cfs)		823.00			
Top Width (ft)	27.00	Top Width (ft)		27.00			
Vel Total (ft/s)	16.09	Avg. Vel. (ft/s)		16.09			
Max Chl Dpth (ft)	1.89	Hydr. Depth (ft)		1.89			
Conv. Total (cfs)	7079.8	Conv. (cfs)		7079.8			
Length Wtd. (ft)	50.50	Wetted Per. (ft)		38.36			
Min Ch El (ft)	1688.41	Shear (lb/sq ft)		1.12			
Alpha	1.00	Stream Power (lb/ft s)		18.10			
Frctn Loss (ft)	5.12	Cum Volume (acre-ft)	2.09	28.87	0.03		
C & E Loss (ft)	0.03	Cum SA (acres)	1.28	14.52	0.11		

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 64

INPUT
Description: 7+020 - existing Headwall (Gib sta. 51+10.50)
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-15.5	1693.41	-14.5	1693.41	-14.5	1688.41	14.5	1688.41	14.5	1693.41
15.5	1693.41								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-15.5	.013	-14.5	.013	14.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-14.5	14.5	89	89	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1693.41	Element	Left OB	Channel	Right OB		
Vel Head (ft)	0.67	Wt. n-Val.		0.013			
W.S. Elev (ft)	1692.74	Reach Len. (ft)	89.00	89.00	89.00		
Crit W.S. (ft)	1691.33	Flow Area (sq ft)		125.55			
E.G. Slope (ft/ft)	0.000660	Area (sq ft)		125.55			
Q Total (cfs)	823.00	Flow (cfs)		823.00			
Top Width (ft)	29.00	Top Width (ft)		29.00			
Vel Total (ft/s)	6.56	Avg. Vel. (ft/s)		6.56			
Max Chl Dpth (ft)	4.33	Hydr. Depth (ft)		4.33			
Conv. Total (cfs)	32025.1	Conv. (cfs)		32025.1			
Length Wtd. (ft)	89.00	Wetted Per. (ft)		37.66			
Min Ch El (ft)	1688.41	Shear (lb/sq ft)		0.14			
Alpha	1.00	Stream Power (lb/ft s)		0.90			
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	2.09	28.76	0.03		
C & E Loss (ft)	0.02	Cum SA (acres)	1.28	14.48	0.11		

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 63

INPUT
Description: 7+110
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-75	1695	-37.3	1694	-29.82	1693.03	-16.56	1687	-14.08	1687
-4.84	1688	8.11	1693.99	17.57	1694	24.29	1696		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-75	.03	-37.3	.03	8.11	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-37.3	8.11	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1693.27	Element	Left OB	Channel	Right OB		
Vel Head (ft)	0.82	Wt. n-Val.		0.030			
W.S. Elev (ft)	1692.45	Reach Len. (ft)	200.00	200.00	200.00		
Crit W.S. (ft)		Flow Area (sq ft)		113.19			
E.G. Slope (ft/ft)	0.004595	Area (sq ft)		113.19			
Q Total (cfs)	823.00	Flow (cfs)		823.00			
Top Width (ft)	33.31	Top Width (ft)		33.31			
Vel Total (ft/s)	7.27	Avg. Vel. (ft/s)		7.27			
Max Chl Dpth (ft)	5.45	Hydr. Depth (ft)		3.40			
Conv. Total (cfs)	12140.9	Conv. (cfs)		12140.9			
Length Wtd. (ft)	200.00	Wetted Per. (ft)		35.52			
Min Ch El (ft)	1687.00	Shear (lb/sq ft)		0.91			
Alpha	1.00	Stream Power (lb/ft s)		6.65			
Frctn Loss (ft)	1.36	Cum Volume (acre-ft)	2.09	28.52	0.03		
C & E Loss (ft)	0.01	Cum SA (acres)	1.28	14.42	0.11		

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 61

INPUT
Description: 7+310
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-52.95	1691.72	-34.75	1690.18	-22.82	1687	-11.32	1687	-2.73	1691
-.75	1691	1.68	1690	11.55	1690	17.27	1692.69		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
  -52.95     .03  -52.95     .03   17.27     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -52.95   17.27              200     200     200            .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
**********************************************************************************************
* E.G. Elev (ft)         * 1691.90  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.95  * Wt. n-Val.             *          *    0.030  *          *
* W.S. Elev (ft)         * 1690.95  * Reach Len. (ft)       *  200.00  *  200.00  *  200.00  *
* Crit W.S. (ft)         * 1690.95  * Flow Area (sq ft)     *          *  105.27  *          *
* E.G. Slope (ft/ft)     *0.010980  * Area (sq ft)          *          *  105.27  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)         *   55.21  * Top Width (ft)        *          *   55.21  *          *
* Vel Total (ft/s)       *    7.82  * Avg. Vel. (ft/s)      *          *    7.82  *          *
* Max Chl Dpth (ft)      *    3.95  * Hydr. Depth (ft)      *          *    1.91  *          *
* Conv. Total (cfs)      *  7854.3  * Conv. (cfs)           *          *  7854.3  *          *
* Length Wtd. (ft)       *  200.00  * Wetted Per. (ft)      *          *   56.93  *          *
* Min Ch El (ft)         * 1687.00  * Shear (lb/sq ft)      *          *    1.27  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    9.91  *          *
* Frctn Loss (ft)        *    2.07  * Cum Volume (acre-ft)  *    2.09  *   28.02  *    0.03  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *    1.28  *   14.22  *    0.11  *
**********************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION


RIVER: gibson
REACH: exist              RS: 59

INPUT
Description: 7+610
Station Elevation Data    num=      13
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
**********************************************************************************************
  -71.23 1689.92   -42.88     1690   -32.57 1683.96   -26.05 1683.53   -24.95     1684
  -22.54     1684  -17.56 1682.76    -7.22   1683.3    10.99     1684    15.88  1682.8
   20.85 1683.07    31.48 1693.45    43.25 1699.49

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
***********************************************
  -71.23      .03   -42.88      .03    31.48      .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -42.88   31.48              100     100     100            .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
**********************************************************************************************
* E.G. Elev (ft)         * 1687.32  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.74  * Wt. n-Val.             *          *    0.030  *          *
* W.S. Elev (ft)         * 1684.58  * Reach Len. (ft)       *  100.00  *  100.00  *  100.00  *
* Crit W.S. (ft)         * 1685.35  * Flow Area (sq ft)     *          *   61.99  *          *
* E.G. Slope (ft/ft)     *0.064599  * Area (sq ft)          *          *   61.99  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)         *   56.02  * Top Width (ft)        *          *   56.02  *          *
* Vel Total (ft/s)       *   13.28  * Avg. Vel. (ft/s)      *          *   13.28  *          *
* Max Chl Dpth (ft)      *    1.82  * Hydr. Depth (ft)      *          *    1.11  *          *
* Conv. Total (cfs)      *  3238.1  * Conv. (cfs)           *          *  3238.1  *          *
* Length Wtd. (ft)       *  100.00  * Wetted Per. (ft)      *          *   57.24  *          *
* Min Ch El (ft)         * 1682.76  * Shear (lb/sq ft)      *          *    4.37  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   57.98  *          *
* Frctn Loss (ft)        *    4.40  * Cum Volume (acre-ft)  *    2.09  *   27.63  *    0.03  *
* C & E Loss (ft)        *    0.18  * Cum SA (acres)        *    1.28  *   13.96  *    0.11  *
**********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Program found supercritical flow starting at this cross section.

CROSS SECTION


RIVER: gibson
REACH: exist              RS: 58

INPUT
Description: 7+810
Station Elevation Data    num=      18
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
**********************************************************************************************
  -88.57 1693.55   -72.12   1687.8   -65.76 1687.89   -59.88 1688.43   -55.31 1687.66
  -52.55 1687.66   -47.69     1689   -45.98 1688.92    -37.9     1684    -25.8     1684
  -23.59     1683  -11.66 1682.21    -3.36 1682.28    10.07     1683    16.71     1682
   25.82     1682   34.84     1695    37.53 1695.33

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
***********************************************
  -88.57      .03   -45.98      .03    34.84      .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         -45.98   34.84              100     100     100            .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
**********************************************************************************************
* E.G. Elev (ft)         * 1685.35  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.68  * Wt. n-Val.             *          *    0.030  *          *
* W.S. Elev (ft)         * 1684.67  * Reach Len. (ft)       *  100.00  *  100.00  *  100.00  *
* Crit W.S. (ft)         * 1684.47  * Flow Area (sq ft)     *          *  124.38  *          *
* E.G. Slope (ft/ft)     *0.008072  * Area (sq ft)          *          *  124.38  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)         *   66.68  * Top Width (ft)        *          *   66.68  *          *
* Vel Total (ft/s)       *    6.62  * Avg. Vel. (ft/s)      *          *    6.62  *          *
* Max Chl Dpth (ft)      *    2.67  * Hydr. Depth (ft)      *          *    1.87  *          *
* Conv. Total (cfs)      *  9160.1  * Conv. (cfs)           *          *  9160.1  *          *
* Length Wtd. (ft)       *  100.00  * Wetted Per. (ft)      *          *   68.60  *          *
* Min Ch El (ft)         * 1682.00  * Shear (lb/sq ft)      *          *    0.91  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    6.05  *          *
* Frctn Loss (ft)        *    0.52  * Cum Volume (acre-ft)  *    2.09  *   27.42  *    0.03  *
* C & E Loss (ft)        *    0.11  * Cum SA (acres)        *    1.28  *   13.82  *    0.11  *
**********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Hydraulic jump has occurred between this cross section and the previous upstream section.
```

CROSS SECTION

RIVER: gibson
REACH: exist RS: 57

INPUT
Description: 7+910
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-52.51	1688.33	-40.45	1683.09	-25.72	1682	-18.34	1682	-16.62	1681.46
-15	1682	0	1681.99	9.41	1681.02	10.62	1682	18.81	1682
31.41	1683	36.62	1683.8	50.75	1684	53.2	1684.74	56.9	1684.5
60	1684	75	1684	106.5	1685				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-52.51	.03	-52.51	.03	53.2	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-52.51	53.2	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1684.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.030	0.030
W.S. Elev (ft)	1684.41	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)		179.99	9.37
E.G. Slope (ft/ft)	0.003606	Area (sq ft)		179.99	9.37
Q Total (cfs)	823.00	Flow (cfs)		810.33	12.67
Top Width (ft)	126.12	Top Width (ft)		95.60	30.52
Vel Total (ft/s)	4.35	Avg. Vel. (ft/s)		4.50	1.35
Max Chl Dpth (ft)	3.39	Hydr. Depth (ft)		1.88	0.31
Conv. Total (cfs)	13705.3	Conv. (cfs)		13494.3	211.0
Length Wtd. (ft)	200.00	Wetted Per. (ft)		96.65	30.56
Min Ch El (ft)	1681.02	Shear (lb/sq ft)		0.42	0.07
Alpha	1.06	Stream Power (lb/ft s)		1.89	0.09
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)	2.09	27.07	0.02
C & E Loss (ft)	0.03	Cum SA (acres)	1.28	13.63	0.07

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 55

INPUT
Description: 7+930
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-154.27	1683.11	-121.22	1683.48	-107.45	1683.35	-102.06	1683	-84.74	1683
-65.33	1684	-49.5	1684	-7	1681.37	0	1681.15	27.88	1681
38.17	1682	98.88	1683.71	141.56	1685	173.75	1685		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-154.27	.03	-65.33	.03	141.56	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-65.33	141.56	200	200	.1	.3

Left Levee Station= -49.5 Elevation= 1684

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1684.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.		0.030	
W.S. Elev (ft)	1683.78	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1683.11	Flow Area (sq ft)		219.17	
E.G. Slope (ft/ft)	0.003378	Area (sq ft)		219.17	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	146.97	Top Width (ft)		146.97	
Vel Total (ft/s)	3.76	Avg. Vel. (ft/s)		3.76	
Max Chl Dpth (ft)	2.78	Hydr. Depth (ft)		1.49	
Conv. Total (cfs)	14159.6	Conv. (cfs)		14159.6	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		147.12	
Min Ch El (ft)	1681.00	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		1.18	
Frctn Loss (ft)	1.10	Cum Volume (acre-ft)	2.09	26.16	
C & E Loss (ft)	0.11	Cum SA (acres)	1.28	13.08	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 53

INPUT
Description: 8+110
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-27.63	1684.76	-15.26	1679	-13.34	1677.23	-4.5	1676.43	-.51	1679.26
9.84	1680	16.74	1684	18.74	1684				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-27.63	.03	-27.63	.03	16.74	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-27.63	16.74	230	230	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1682.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.35	Wt. n-Val.		0.030	
W.S. Elev (ft)	1681.44	Reach Len. (ft)	230.00	230.00	230.00
Crit W.S. (ft)	1681.44	Flow Area (sq ft)		88.32	
E.G. Slope (ft/ft)	0.010457	Area (sq ft)		88.32	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	32.82	Top Width (ft)		32.82	

* Vel Total (ft/s)	* 9.32	* Avg. Vel. (ft/s)	*	* 9.32	*
* Max Chl Dpth (ft)	* 5.01	* Hydr. Depth (ft)	*	* 2.69	*
* Conv. Total (cfs)	* 8048.1	* Conv. (cfs)	*	* 8048.1	*
* Length Wtd. (ft)	* 230.00	* Wetted Per. (ft)	*	* 35.40	*
* Min Ch El (ft)	* 1676.43	* Shear (lb/sq ft)	*	* 1.63	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 15.18	*
* Frctn Loss (ft)	* 0.79	* Cum Volume (acre-ft)	* 2.09	* 25.45	*
* C & E Loss (ft)	* 0.31	* Cum SA (acres)	* 1.28	* 12.66	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 52

INPUT
Description: 8+340
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1680	-63.4	1680	-59.6	1676.2	-51.2	1674	-49.6	1672
-26.5	1672	-10.9	1674	-8	1676	10.9	1680	44.8	1682
61.8	1684	104.4	1686	150	1686				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-63.4	.03	10.9	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-63.4	10.9	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1676.87	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.31	* Wt. n-Val.	*	* 0.030	* *
* W.S. Elev (ft)	* 1676.56	* Reach Len. (ft)	* 200.00	* 200.00	* 200.00 *
* Crit W.S. (ft)	* 1674.80	* Flow Area (sq ft)	*	* 184.39	* *
* E.G. Slope (ft/ft)	*0.001691	* Area (sq ft)	*	* 184.39	* *
* Q Total (cfs)	* 823.00	* Flow (cfs)	*	* 823.00	* *
* Top Width (ft)	* 54.63	* Top Width (ft)	*	* 54.63	* *
* Vel Total (ft/s)	* 4.46	* Avg. Vel. (ft/s)	*	* 4.46	* *
* Max Chl Dpth (ft)	* 4.56	* Hydr. Depth (ft)	*	* 3.38	* *
* Conv. Total (cfs)	* 20015.5	* Conv. (cfs)	*	* 20015.5	* *
* Length Wtd. (ft)	* 200.00	* Wetted Per. (ft)	*	* 56.84	* *
* Min Ch El (ft)	* 1672.00	* Shear (lb/sq ft)	*	* 0.34	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 1.53	* *
* Frctn Loss (ft)	* 0.69	* Cum Volume (acre-ft)	* 2.09	* 24.73	* *
* C & E Loss (ft)	* 0.08	* Cum SA (acres)	* 1.28	* 12.43	* *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 50

INPUT
Description: 8+540
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1677	-128	1676.5	-118.2	1676	-87.2	1676	-80.4	1678
-64.6	1678	-62.5	1676.2	-50.8	1674	-44	1672	-24.3	1672
-13.5	1674	-10.6	1676	4	1678	36.4	1680	48.4	1680
86.9	1685	104.6	1686	134.9	1686				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-64.6	.03	4	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-64.6	4	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1676.10	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.12	* Wt. n-Val.	*	* 0.030	* *
* W.S. Elev (ft)	* 1674.98	* Reach Len. (ft)	* 200.00	* 200.00	* 200.00 *
* Crit W.S. (ft)	* 1674.98	* Flow Area (sq ft)	*	* 96.88	* *
* E.G. Slope (ft/ft)	*0.010524	* Area (sq ft)	*	* 96.88	* *
* Q Total (cfs)	* 823.00	* Flow (cfs)	*	* 823.00	* *
* Top Width (ft)	* 43.94	* Top Width (ft)	*	* 43.94	* *
* Vel Total (ft/s)	* 8.50	* Avg. Vel. (ft/s)	*	* 8.50	* *
* Max Chl Dpth (ft)	* 2.98	* Hydr. Depth (ft)	*	* 2.20	* *
* Conv. Total (cfs)	* 8022.6	* Conv. (cfs)	*	* 8022.6	* *
* Length Wtd. (ft)	* 200.00	* Wetted Per. (ft)	*	* 44.81	* *
* Min Ch El (ft)	* 1672.00	* Shear (lb/sq ft)	*	* 1.42	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 12.07	* *
* Frctn Loss (ft)	* 0.81	* Cum Volume (acre-ft)	* 2.09	* 24.08	* *
* C & E Loss (ft)	* 0.23	* Cum SA (acres)	* 1.28	* 12.21	* *

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson

REACH: exist RS: 48

INPUT
Description: 8+740
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1675	-114.8	1674.5	-94.8	1676	-65.7	1676	-53.5	1674
-49.5	1670	-23.1	1670	2.7	1676	9.4	1678	130.6	1682.7
150	1683								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-65.7	.03	9.4	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-65.7	9.4	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1674.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.030	
W.S. Elev (ft)	1674.42	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1672.81	Flow Area (sq ft)		169.08	
E.G. Slope (ft/ft)	0.002119	Area (sq ft)		169.08	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	52.00	Top Width (ft)		52.00	
Vel Total (ft/s)	4.87	Avg. Vel. (ft/s)		4.87	
Max Chl Dpth (ft)	4.42	Hydr. Depth (ft)		3.25	
Conv. Total (cfs)	17879.1	Conv. (cfs)		17879.1	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		54.20	
Min Ch El (ft)	1670.00	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		2.01	
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	2.09	23.47	
C & E Loss (ft)	0.07	Cum SA (acres)	1.28	11.99	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 46

INPUT
Description: 8+940
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1675.6	-73.4	1675.8	-65.1	1674	-52.2	1672	-44.9	1670
-20.6	1670	-13.8	1672	5.6	1676	85.4	1678.7	132.3	1679.7
150	1679.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-73.4	.03	5.6	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-73.4	5.6	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1673.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.05	Wt. n-Val.		0.030	
W.S. Elev (ft)	1672.87	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1672.87	Flow Area (sq ft)		100.14	
E.G. Slope (ft/ft)	0.010582	Area (sq ft)		100.14	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	48.17	Top Width (ft)		48.17	
Vel Total (ft/s)	8.22	Avg. Vel. (ft/s)		8.22	
Max Chl Dpth (ft)	2.86	Hydr. Depth (ft)		2.08	
Conv. Total (cfs)	8000.5	Conv. (cfs)		8000.5	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		48.89	
Min Ch El (ft)	1670.00	Shear (lb/sq ft)		1.35	
Alpha	1.00	Stream Power (lb/ft s)		11.12	
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)	2.09	22.86	
C & E Loss (ft)	0.02	Cum SA (acres)	1.28	11.76	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 44

INPUT
Description: 9+140
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1672	-66.6	1672	-64.1	1668	-49	1666.1	-40.5	1664
-24.3	1664	-15.9	1666	1.9	1668	5.3	1674	43.4	1676
66	1676.4	150	1677.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-66.6	.03	5.3	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-66.6	5.3	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1669.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.48	Wt. n-Val.		0.030	
W.S. Elev (ft)	1666.18	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1667.28	Flow Area (sq ft)		54.98	
E.G. Slope (ft/ft)	0.051613	Area (sq ft)		54.98	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	35.33	Top Width (ft)		35.33	
Vel Total (ft/s)	14.97	Avg. Vel. (ft/s)		14.97	
Max Chl Dpth (ft)	2.18	Hydr. Depth (ft)		1.56	
Conv. Total (cfs)	3622.6	Conv. (cfs)		3622.6	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		35.83	

* Min Ch El (ft)	* 1664.00	* Shear (lb/sq ft)	*	*	4.94	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	*	74.01	*	*
* Frctn Loss (ft)	* 4.01	* Cum Volume (acre-ft)	*	2.09	* 22.50	*	*
* C & E Loss (ft)	* 0.24	* Cum SA (acres)	*	1.28	* 11.57	*	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 42

INPUT
Description: 9+340
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-147	1670	-123.9	1671.5	-77	1670	-64.7	1668	-55.5	1666
-46.6	1658	-7.1	1658	-1.9	1666	5.5	1667.7	21.4	1666.6
32.9	1666	58.6	1666	66.6	1668	69.4	1668	78.2	1672
95.5	1672	106.1	1671.4	150	1670.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-147	.03	-64.7	.03	5.5	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-64.7	5.5	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1662.71	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.29	* Wt. n-Val.	*	* 0.030 *	*
* W.S. Elev (ft)	* 1662.42	* Reach Len. (ft)	* 200.00 *	200.00 *	200.00 *
* Crit W.S. (ft)	* 1660.33	* Flow Area (sq ft)	*	* 191.83 *	*
* E.G. Slope (ft/ft)	*0.001296	* Area (sq ft)	*	* 191.83 *	*
* Q Total (cfs)	* 823.00	* Flow (cfs)	*	* 823.00 *	*
* Top Width (ft)	* 47.29	* Top Width (ft)	*	* 47.29 *	*
* Vel Total (ft/s)	* 4.29	* Avg. Vel. (ft/s)	*	* 4.29 *	*
* Max Chl Dpth (ft)	* 4.42	* Hydr. Depth (ft)	*	* 4.06 *	*
* Conv. Total (cfs)	* 22864.6	* Conv. (cfs)	*	* 22864.6 *	*
* Length Wtd. (ft)	* 200.00	* Wetted Per. (ft)	*	* 51.38 *	*
* Min Ch El (ft)	* 1658.00	* Shear (lb/sq ft)	*	* 0.30 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 1.30 *	*
* Frctn Loss (ft)	* 0.82	* Cum Volume (acre-ft)	* 2.09 *	21.93 *	*
* C & E Loss (ft)	* 0.21	* Cum SA (acres)	* 1.28 *	11.38 *	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 40

INPUT
Description: 9+550
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1666	-135.9	1666	-77.8	1665.2	-53.4	1665.7	-51.1	1665.4
-43.5	1666	-36.7	1654	-13	1654	-8.9	1662	72.3	1666
81.4	1670	97.8	1670	108.6	1669.5	150	1668.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-43.5	.03	72.3	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-43.5	72.3	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1661.68	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 2.41	* Wt. n-Val.	*	* 0.030 *	*
* W.S. Elev (ft)	* 1659.27	* Reach Len. (ft)	* 200.00 *	200.00 *	200.00 *
* Crit W.S. (ft)	* 1659.27	* Flow Area (sq ft)	*	* 139.88 *	*
* E.G. Slope (ft/ft)	*0.010215	* Area (sq ft)	*	* 139.88 *	*
* Q Total (cfs)	* 1741.00	* Flow (cfs)	*	* 1741.00 *	*
* Top Width (ft)	* 29.39	* Top Width (ft)	*	* 29.39 *	*
* Vel Total (ft/s)	* 12.45	* Avg. Vel. (ft/s)	*	* 12.45 *	*
* Max Chl Dpth (ft)	* 5.27	* Hydr. Depth (ft)	*	* 4.76 *	*
* Conv. Total (cfs)	* 17226.0	* Conv. (cfs)	*	* 17226.0 *	*
* Length Wtd. (ft)	* 200.00	* Wetted Per. (ft)	*	* 35.68 *	*
* Min Ch El (ft)	* 1654.00	* Shear (lb/sq ft)	*	* 2.50 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 31.12 *	*
* Frctn Loss (ft)	* 1.32	* Cum Volume (acre-ft)	* 2.09 *	21.17 *	*
* C & E Loss (ft)	* 0.45	* Cum SA (acres)	* 1.28 *	11.20 *	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 38

INPUT
Description: 9+750
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1664	-51.7	1664	-43.3	1660	-39.3	1652	-18.5	1650.6

-8.4	1650.7	-5.6	1650.3	-2.6	1652	16.9	1654	43.9	1664
52.6	1664.4	150	1664.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-51.7	.03	43.9	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-51.7	43.9	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1657.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.17	Wt. n-Val.		0.030	
W.S. Elev (ft)	1653.59	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1654.84	Flow Area (sq ft)		106.27	
E.G. Slope (ft/ft)	0.045012	Area (sq ft)		106.27	
Q Total (cfs)	1741.00	Flow (cfs)		1741.00	
Top Width (ft)	53.00	Top Width (ft)		53.00	
Vel Total (ft/s)	16.38	Avg. Vel. (ft/s)		16.38	
Max Chl Dpth (ft)	3.29	Hydr. Depth (ft)		2.01	
Conv. Total (cfs)	8206.1	Conv. (cfs)		8206.1	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		54.59	
Min Ch El (ft)	1650.30	Shear (lb/sq ft)		5.47	
Alpha	1.00	Stream Power (lb/ft s)		89.62	
Frctn Loss (ft)	3.74	Cum Volume (acre-ft)	2.09	20.61	
C & E Loss (ft)	0.18	Cum SA (acres)	1.28	11.01	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 36

INPUT
Description: 9+950
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-150	1662.2	-135.6	1662	-59.2	1662	-41.2	1660	-38.6	1656
-35	1650	6.8	1650	12.5	1652	18.5	1652	29.7	1658
36.2	1660	60	1662	65.3	1664	80.4	1664	104	1662
150	1662								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-150	.03	-59.2	.03	60	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-59.2	60	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1655.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.		0.030	
W.S. Elev (ft)	1655.22	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1653.51	Flow Area (sq ft)		279.18	
E.G. Slope (ft/ft)	0.002352	Area (sq ft)		279.18	
Q Total (cfs)	1741.00	Flow (cfs)		1741.00	
Top Width (ft)	62.63	Top Width (ft)		62.63	
Vel Total (ft/s)	6.24	Avg. Vel. (ft/s)		6.24	
Max Chl Dpth (ft)	5.22	Hydr. Depth (ft)		4.46	
Conv. Total (cfs)	35902.2	Conv. (cfs)		35902.2	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		66.73	
Min Ch El (ft)	1650.00	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		3.83	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	2.09	19.72	
C & E Loss (ft)	0.09	Cum SA (acres)	1.28	10.75	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 34

INPUT
Description: 10+150
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-289.5	1662.4	-88.9	1660	-44.8	1656	-28.7	1650	7.3	1648
13.8	1648	17.5	1650	31.9	1652	44.2	1658	70.5	1660
76.2	1662	101.1	1662	106.7	1660	271.4	1660		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-289.5	.03	-88.9	.03	70.5	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-88.9	70.5	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1655.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.030	
W.S. Elev (ft)	1655.14	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)		395.02	
E.G. Slope (ft/ft)	0.000992	Area (sq ft)		395.02	
Q Total (cfs)	1741.00	Flow (cfs)		1741.00	
Top Width (ft)	80.81	Top Width (ft)		80.81	
Vel Total (ft/s)	4.41	Avg. Vel. (ft/s)		4.41	
Max Chl Dpth (ft)	7.14	Hydr. Depth (ft)		4.89	
Conv. Total (cfs)	55288.0	Conv. (cfs)		55288.0	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		83.16	
Min Ch El (ft)	1648.00	Shear (lb/sq ft)		0.29	
Alpha	1.00	Stream Power (lb/ft s)		1.30	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	2.09	18.17	
C & E Loss (ft)	0.02	Cum SA (acres)	1.28	10.42	

CROSS SECTION

RIVER: gibson
REACH: exist RS: 32

INPUT
Description: 10+350
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-265.6	1658	-244.9	1658	-212.7	1656	-194.3	1656	-173.1	1658
-56.3	1658	-49.4	1656	-28.6	1654	-11.4	1648	38.5	1648
39.8	1650	47.1	1650	58	1656	107	1661.3	122.1	1662
133	1661.8	136.9	1660	213.6	1660	222.7	1658.9	233.2	1658.7
261.8	1656	280.7	1656	286.5	1655.7	287.6	1658.8	292.4	1657.7
296.8	1658.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-265.6	.03	-56.3	.03	107	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-56.3	107	100	100	100 .1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1655.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.53	Wt. n-Val.		0.030	
W.S. Elev (ft)	1654.62	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		454.89	
E.G. Slope (ft/ft)	0.001689	Area (sq ft)		454.89	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	90.52	Top Width (ft)		90.52	
Vel Total (ft/s)	5.83	Avg. Vel. (ft/s)		5.83	
Max Chl Dpth (ft)	6.62	Hydr. Depth (ft)		5.03	
Conv. Total (cfs)	64533.2	Conv. (cfs)		64533.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		93.84	
Min Ch El (ft)	1648.00	Shear (lb/sq ft)		0.51	
Alpha	1.00	Stream Power (lb/ft s)		2.98	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	2.09	16.22	
C & E Loss (ft)	0.01	Cum SA (acres)	1.28	10.02	

CROSS SECTION

RIVER: gibson
REACH: exist RS: 31

INPUT
Description: 10+450
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-202.9	1656	-65.1	1656	-36.6	1654	-20.2	1648	25.2	1648
27.2	1650	37.1	1650	46.4	1656	108.2	1656	128.6	1655.7
138.9	1656	147.1	1656	181.3	1654.4	208.2	1654.7	233.4	1656
267.5	1656	278.7	1655						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-202.9	.03	-65.1	.03	46.4	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-65.1	46.4	100	100	100 .1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1654.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.030	
W.S. Elev (ft)	1654.28	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)		Flow Area (sq ft)		406.46	
E.G. Slope (ft/ft)	0.002237	Area (sq ft)		406.46	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	84.30	Top Width (ft)		84.30	
Vel Total (ft/s)	6.52	Avg. Vel. (ft/s)		6.52	
Max Chl Dpth (ft)	6.28	Hydr. Depth (ft)		4.82	
Conv. Total (cfs)	56065.3	Conv. (cfs)		56065.3	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		87.46	
Min Ch El (ft)	1648.00	Shear (lb/sq ft)		0.65	
Alpha	1.00	Stream Power (lb/ft s)		4.24	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	2.09	15.23	
C & E Loss (ft)	0.11	Cum SA (acres)	1.28	9.82	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 30

INPUT
Description: 10+550
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1653.5	-281.3	1653.7	-268.6	1654	-263	1654	-241.4	1654.3
-199	1654.3	-193	1654.4	-160.2	1654.3	-121.2	1656	-83.2	1654
-30.3	1654	-15.3	1648	23.1	1648	26.3	1650	34	1650
45.5	1654	201.3	1654	208.5	1653.8	237.2	1654	250.2	1654
272.6	1653.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-30.3	.03	45.5	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-30.3	45.5	200	200	200 .1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1654.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.80	Wt. n-Val.		0.030	
W.S. Elev (ft)	1652.63	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1652.63	Flow Area (sq ft)		246.30	
E.G. Slope (ft/ft)	0.008887	Area (sq ft)		246.30	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	68.43	Top Width (ft)		68.43	
Vel Total (ft/s)	10.77	Avg. Vel. (ft/s)		10.77	
Max Chl Dpth (ft)	4.63	Hydr. Depth (ft)		3.60	
Conv. Total (cfs)	28131.0	Conv. (cfs)		28131.0	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		70.34	

* Min Ch El (ft)	* 1648.00	* Shear (lb/sq ft)	*	*	1.94	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	*	20.92	*	*
* Frctn Loss (ft)	* 1.17	* Cum Volume (acre-ft)	* 2.09	*	14.48	*	*
* C & E Loss (ft)	* 0.46	* Cum SA (acres)	* 1.28	*	9.65	*	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 28

INPUT
Description: 10+750
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-850.2	1652.08	-803.19	1652	-793.74	1651.52	-707.89	1650	-629.76	1649.43
-608.2	1648.98	-600	1649.96	-519.53	1650	-513.6	1650.32	-377.81	1652
-353.77	1652	-333.63	1653.44	-315.82	1653.98	-284.67	1653.84	-252.38	1652.01
-98.21	1651.67	-83.72	1651.53	-17.94	1652	56.92	1652	64.96	1650
76.67	1650	83.44	1650.18	137.57	1650.68	162.82	1650.61	183.89	1652
253.88	1652	350	1652.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-850.2	.03	-519.53	.03	183.89	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-519.53	183.89	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1651.99	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.26	* Wt. n-Val.	* 0.030	* 0.030	* *
* W.S. Elev (ft)	* 1651.73	* Reach Len. (ft)	* 200.00	* 200.00	* 200.00 *
* Crit W.S. (ft)	* 1651.30	* Flow Area (sq ft)	* 455.16	* 240.06	* *
* E.G. Slope (ft/ft)	*0.004130	* Area (sq ft)	* 455.16	* 240.06	* *
* Q Total (cfs)	* 2652.00	* Flow (cfs)	* 2010.62	* 641.39	* *
* Top Width (ft)	* 590.30	* Top Width (ft)	* 278.36	* 311.94	* *
* Vel Total (ft/s)	* 3.81	* Avg. Vel. (ft/s)	* 4.42	* 2.67	* *
* Max Chl Dpth (ft)	* 2.75	* Hydr. Depth (ft)	* 1.64	* 0.77	* *
* Conv. Total (cfs)	* 41264.3	* Conv. (cfs)	* 31284.5	* 9979.7	* *
* Length Wtd. (ft)	* 200.00	* Wetted Per. (ft)	* 278.44	* 312.21	* *
* Min Ch El (ft)	* 1650.00	* Shear (lb/sq ft)	* 0.42	* 0.20	* *
* Alpha	* 1.14	* Stream Power (lb/ft s)	* 1.86	* 0.53	* *
* Frctn Loss (ft)	* 1.49	* Cum Volume (acre-ft)	* 1.04	* 13.37	* *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 0.64	* 8.77	* *

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 26

INPUT
Description: 10+950
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-920.52	1650.34	-800.15	1650.2	-644.72	1650	-386.97	1650	-259.5	1650
-134.2	1650	-91.2	1649.6	-66.7	1649.6	-1.8	1648.6	33.6	1648.7
52.4	1648.3	136.4	1649	171.1	1648.9	289.4	1649.9	465	1650.1
600	1650.35								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-920.52	.03	-920.52	.03	600	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-920.52	600	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1650.49	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.25	* Wt. n-Val.	*	* 0.030	* *
* W.S. Elev (ft)	* 1650.23	* Reach Len. (ft)	* 200.00	* 200.00	* 200.00 *
* Crit W.S. (ft)	* 1650.23	* Flow Area (sq ft)	*	* 659.65	* *
* E.G. Slope (ft/ft)	*0.017407	* Area (sq ft)	*	* 659.65	* *
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00	* *
* Top Width (ft)	* 1366.98	* Top Width (ft)	*	* 1366.98	* *
* Vel Total (ft/s)	* 4.02	* Avg. Vel. (ft/s)	*	* 4.02	* *
* Max Chl Dpth (ft)	* 1.93	* Hydr. Depth (ft)	*	* 0.48	* *
* Conv. Total (cfs)	* 20100.8	* Conv. (cfs)	*	* 20100.8	* *
* Length Wtd. (ft)	* 200.00	* Wetted Per. (ft)	*	* 1367.00	* *
* Min Ch El (ft)	* 1648.30	* Shear (lb/sq ft)	*	* 0.52	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 2.11	* *
* Frctn Loss (ft)	* 2.40	* Cum Volume (acre-ft)	*	* 11.30	* *
* C & E Loss (ft)	* 0.18	* Cum SA (acres)	*	* 4.92	* *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 24

INPUT

Description: 11+150
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1652	-317.7	1652	-232.6	1650	-206.5	1646	-200.5	1645.3
-187	1644	-171.7	1638	-154.2	1638	-127.1	1648	-73.7	1648
-52.7	1647.2	-31.6	1647.3	54.3	1648	88.9	1648.2	99.1	1648
230.2	1648								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-232.6	.03	-127.1	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-232.6	-127.1	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1646.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.30	Wt. n-Val.		0.030	
W.S. Elev (ft)	1643.63	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1644.59	Flow Area (sq ft)		181.96	
E.G. Slope (ft/ft)	0.015135	Area (sq ft)		181.96	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	47.12	Top Width (ft)		47.12	
Vel Total (ft/s)	14.57	Avg. Vel. (ft/s)		14.57	
Max Chl Dpth (ft)	5.63	Hydr. Depth (ft)		3.86	
Conv. Total (cfs)	21556.5	Conv. (cfs)		21556.5	
Length Wtd. (ft)	200.00	Wetted Per. (ft)		49.19	
Min Ch El (ft)	1638.00	Shear (lb/sq ft)		3.50	
Alpha	1.00	Stream Power (lb/ft s)		50.94	
Frctn Loss (ft)	3.24	Cum Volume (acre-ft)		9.37	
C & E Loss (ft)	0.30	Cum SA (acres)		1.67	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 22

INPUT
Description: 11+350
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1631.2	-299.6	1631.6	-287.4	1632.6	-269.1	1633.3	-226.6	1632.9
-150.1	1633.1	-112.2	1632	-88.2	1632	-59.6	1622	-25	1622
18.1	1640	43.1	1644	79.3	1644.6	118.6	1644.9	167.7	1645.3
224.2	1646	253.5	1646	261.6	1646.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-88.2	.03	18.1	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-88.2	18.1	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1638.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	14.50	Wt. n-Val.		0.030	
W.S. Elev (ft)	1624.16	Reach Len. (ft)	100.00	100.00	100.00
Crit W.S. (ft)	1626.97	Flow Area (sq ft)		86.78	
E.G. Slope (ft/ft)	0.166762	Area (sq ft)		86.78	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	45.92	Top Width (ft)		45.92	
Vel Total (ft/s)	30.56	Avg. Vel. (ft/s)		30.56	
Max Chl Dpth (ft)	2.16	Hydr. Depth (ft)		1.89	
Conv. Total (cfs)	6494.2	Conv. (cfs)		6494.2	
Length Wtd. (ft)	100.00	Wetted Per. (ft)		46.72	
Min Ch El (ft)	1622.00	Shear (lb/sq ft)		19.34	
Alpha	1.00	Stream Power (lb/ft s)		590.93	
Frctn Loss (ft)	7.15	Cum Volume (acre-ft)		8.75	
C & E Loss (ft)	1.12	Cum SA (acres)		1.46	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 21

INPUT
Description: 11+530
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-339	1627.3	-297.1	1627.6	-277.2	1627.5	-267	1628	-256.2	1628
-128.2	1630	-121.7	1631	-112	1631.8	-104.4	1631.7	-81.6	1632
-49.1	1632	-33	1632	-30.8	1628	-11.4	1621	-10.1	1614
14.4	1614.5	15.5	1621.3	54.8	1640.3	79.7	1641.9	95.9	1643.7
199	1646	228.5	1646						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-339	.03	-33	.03	54.8	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-33	54.8	200	200	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1628.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	9.93	Wt. n-Val.		0.030	
W.S. Elev (ft)	1618.41	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)	1621.34	Flow Area (sq ft)		104.85	
E.G. Slope (ft/ft)	0.055700	Area (sq ft)		104.85	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	25.95	Top Width (ft)		25.95	
Vel Total (ft/s)	25.29	Avg. Vel. (ft/s)		25.29	
Max Chl Dpth (ft)	4.41	Hydr. Depth (ft)		4.04	
Conv. Total (cfs)	11236.9	Conv. (cfs)		11236.9	

* Length Wtd. (ft)	* 200.00	* Wetted Per. (ft)	*	* 32.94	*
* Min Ch El (ft)	* 1614.00	* Shear (lb/sq ft)	*	* 11.07	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 279.94	*
* Frctn Loss (ft)	* 8.95	* Cum Volume (acre-ft)	*	* 8.53	*
* C & E Loss (ft)	* 1.37	* Cum SA (acres)	*	* 1.38	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 19

INPUT
Description: 11+720
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1624.9	-336.8	1624.7	-253.2	1626.9	-236.9	1627.2	-205	1628.1
-189.2	1628.5	-181.9	1628	-147.1	1628	-129.4	1629	-102	1630.9
-92	1631	-40.9	1631	-33.1	1629	-10.9	1620	-8.5	1614.1
14.6	1614.5	14.9	1620	65.2	1642	97.7	1643	127.3	1643.1
148.9	1644	168	1644.2	208.6	1644.4	242.2	1646	259.5	1646
291.8	1647	311.5	1647	323.4	1646	331.4	1645.8	334.9	1646
350	1646								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-40.9	.03	65.2	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-40.9 65.2 200 200 200 .1 .3
Left Levee Station= -40.9 Elevation= 1631

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1625.59	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.24	* Wt. n-Val.	*	* 0.030	* *
* W.S. Elev (ft)	* 1624.35	* Reach Len. (ft)	* 200.00	* 200.00	* 200.00 *
* Crit W.S. (ft)	* 1621.89	* Flow Area (sq ft)	*	* 296.71	* *
* E.G. Slope (ft/ft)	*0.003644	* Area (sq ft)	*	* 296.71	* *
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00	* *
* Top Width (ft)	* 46.47	* Top Width (ft)	*	* 46.47	* *
* Vel Total (ft/s)	* 8.94	* Avg. Vel. (ft/s)	*	* 8.94	* *
* Max Chl Dpth (ft)	* 10.25	* Hydr. Depth (ft)	*	* 6.39	* *
* Conv. Total (cfs)	* 43931.3	* Conv. (cfs)	*	* 43931.3	* *
* Length Wtd. (ft)	* 200.00	* Wetted Per. (ft)	*	* 57.41	* *
* Min Ch El (ft)	* 1614.10	* Shear (lb/sq ft)	*	* 1.18	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.51	* *
* Frctn Loss (ft)	* 0.58	* Cum Volume (acre-ft)	*	* 7.61	* *
* C & E Loss (ft)	* 0.09	* Cum SA (acres)	*	* 1.21	* *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 17

INPUT
Description: 11+920
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1624.1	-319.8	1624	-300	1624.5	-291.7	1624.2	-282.4	1624.6
-266.6	1625.2	-249.2	1625.1	-230.3	1626	-213.2	1626	-186.6	1627
-180	1627	-129.1	1628	-121.9	1629	-108	1630	-32.2	1630
-10.2	1614	14.4	1614.5	14.9	1619	66.9	1641	101.1	1642
195.4	1642	215.1	1643	249.9	1643	284.9	1644	309.2	1644
323.5	1643	335.4	1643	350	1643.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-32.2	.03	66.9	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-32.2 66.9 200 200 200 .1 .3
Left Levee Station= -32.2 Elevation= 1630

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1624.92	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.94	* Wt. n-Val.	*	* 0.030	* *
* W.S. Elev (ft)	* 1623.98	* Reach Len. (ft)	* 200.00	* 200.00	* 200.00 *
* Crit W.S. (ft)	* 1620.97	* Flow Area (sq ft)	*	* 340.49	* *
* E.G. Slope (ft/ft)	*0.002381	* Area (sq ft)	*	* 340.49	* *
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00	* *
* Top Width (ft)	* 50.57	* Top Width (ft)	*	* 50.57	* *
* Vel Total (ft/s)	* 7.79	* Avg. Vel. (ft/s)	*	* 7.79	* *
* Max Chl Dpth (ft)	* 9.97	* Hydr. Depth (ft)	*	* 6.73	* *
* Conv. Total (cfs)	* 54346.9	* Conv. (cfs)	*	* 54346.9	* *
* Length Wtd. (ft)	* 200.00	* Wetted Per. (ft)	*	* 58.86	* *
* Min Ch El (ft)	* 1614.00	* Shear (lb/sq ft)	*	* 0.86	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 6.70	* *
* Frctn Loss (ft)	* 0.65	* Cum Volume (acre-ft)	*	* 6.15	* *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	*	* 0.99	* *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 15

INPUT
Description: 12+120
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

-349.7	1623.5	-338.2	1623.9	-332.4	1623.7	-282.1	1625	-274.3	1625
-188.8	1627	-136.4	1627	-106.7	1629	-32.9	1629	-31.8	1626
-11.4	1618	-10.6	1614	14.2	1614.5	15	1618	55.4	1638
68.2	1640	76.2	1640	101.1	1641	114.8	1642	118	1642
127.3	1641	199.4	1641	252.4	1641.7	265	1641.6	273.9	1642
350	1642								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-349.7	.03	-32.9	.03	55.4	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-32.9 55.4 200 200 200 .1 .3
Left Levee Station= -32.9 Elevation= 1629

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1624.22	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.47	Wt. n-Val.		0.030
W.S. Elev (ft)	1622.75	Reach Len. (ft)	200.00	200.00 / 200.00
Crit W.S. (ft)	1621.32	Flow Area (sq ft)		272.93
E.G. Slope (ft/ft)	0.004679	Area (sq ft)		272.93
Q Total (cfs)	2652.00	Flow (cfs)		2652.00
Top Width (ft)	48.10	Top Width (ft)		48.10
Vel Total (ft/s)	9.72	Avg. Vel. (ft/s)		9.72
Max Chl Dpth (ft)	8.75	Hydr. Depth (ft)		5.67
Conv. Total (cfs)	38771.9	Conv. (cfs)		38771.9
Length Wtd. (ft)	200.00	Wetted Per. (ft)		56.19
Min Ch El (ft)	1614.00	Shear (lb/sq ft)		1.42
Alpha	1.00	Stream Power (lb/ft s)		13.79
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)		4.74
C & E Loss (ft)	0.35	Cum SA (acres)		0.76

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 13

INPUT
Description: 12+300
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1627	-302.1	1627.3	-292.4	1627	-258.1	1627	-221.2	1628.5
-210.3	1628.2	-187.6	1629	-167.3	1629	-159.1	1628.3	-144.4	1628.9
-129.2	1628.8	-95.8	1628.9	-58.3	1629	-42.1	1620	-38.2	1617
-37.7	1614	4.4	1615.6	26	1614.5	31.9	1624	63.6	1637.1
75.5	1638	82.5	1638	116.1	1637	124.5	1636.9	132.6	1637
140.5	1637	160.7	1637.5	176.9	1637.3	185.9	1638	207.1	1638
217.2	1638.2	278.2	1638.8	300.8	1638.7	332.9	1638.9	350	1638.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-58.3	.03	63.6	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-58.3 63.6 200 200 200 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1623.59	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.030
W.S. Elev (ft)	1623.28	Reach Len. (ft)	200.00	200.00 / 200.00
Crit W.S. (ft)		Flow Area (sq ft)		590.82
E.G. Slope (ft/ft)	0.000656	Area (sq ft)		590.82
Q Total (cfs)	2652.00	Flow (cfs)		2652.00
Top Width (ft)	79.45	Top Width (ft)		79.45
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)		4.49
Max Chl Dpth (ft)	9.28	Hydr. Depth (ft)		7.44
Conv. Total (cfs)	103514.8	Conv. (cfs)		103514.8
Length Wtd. (ft)	200.00	Wetted Per. (ft)		88.80
Min Ch El (ft)	1614.00	Shear (lb/sq ft)		0.27
Alpha	1.00	Stream Power (lb/ft s)		1.22
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)		2.76
C & E Loss (ft)	0.11	Cum SA (acres)		0.47

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 11

INPUT
Description: 12+475
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1627.5	-332.5	1628	-296.3	1627.8	-277.2	1627	-271.2	1627
-263.2	1626.2	-249.2	1626.3	-240.9	1626.1	-196	1626	-178	1624
-136.2	1624	-92	1625.5	-76.1	1625.5	-57.1	1625.7	-41.4	1625.9
-9	1614.8	12	1614.5	33.2	1624.4	40.4	1629	47.6	1630
53.5	1635	58.6	1635	69.7	1634	88.6	1634	130.8	1633
138.3	1635	143.8	1635	150.2	1634	159.8	1633.6	165.9	1634
275.5	1634	297.8	1633.1	326.8	1634	350	1634		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-41.4	.03	40.4	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-41.4 40.4 100 100 100 .1 .3
Left Levee Station= -41.4 Elevation= 1625.9

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1623.20	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.41	Wt. n-Val.		0.030
W.S. Elev (ft)	1621.79	Reach Len. (ft)	100.00	100.00 / 100.00
Crit W.S. (ft)	1620.83	Flow Area (sq ft)		278.26
E.G. Slope (ft/ft)	0.004767	Area (sq ft)		278.26
Q Total (cfs)	2652.00	Flow (cfs)		2652.00

* Top Width (ft)	57.02	* Top Width (ft)		57.02	
* Vel Total (ft/s)	9.53	* Avg. Vel. (ft/s)		9.53	
* Max Chl Dpth (ft)	7.29	* Hydr. Depth (ft)		4.88	
* Conv. Total (cfs)	38409.5	* Conv. (cfs)		38409.5	
* Length Wtd. (ft)	100.00	* Wetted Per. (ft)		59.81	
* Min Ch El (ft)	1614.50	* Shear (lb/sq ft)		1.38	
* Alpha	1.00	* Stream Power (lb/ft s)		13.20	
* Frctn Loss (ft)	0.47	* Cum Volume (acre-ft)		0.76	
* C & E Loss (ft)	0.00	* Cum SA (acres)		0.16	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 10

INPUT
Description: 12+575
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1625.1	-305.8	1625.8	-286.3	1625	-272.9	1624.8	-242.3	1623.9
-205.5	1623.7	-186	1623	-178.4	1622.2	-164.3	1622.3	-127	1623.1
-114.4	1624	-68.1	1624	-56.8	1624.2	-45.6	1624	-32.2	1624
-11.4	1614	12.1	1614.5	32.7	1623.1	42	1629	49	1630
53.8	1633	133.3	1633	138.9	1634	144	1634	148.5	1633
186	1633	208.6	1633.6	227.8	1633	279.1	1632.9	295.5	1632
350	1632								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-305.8	.03	53.8	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-305.8	53.8	22	22	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	1622.73	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	1.43	* Wt. n-Val.		0.030	
* W.S. Elev (ft)	1621.30	* Reach Len. (ft)	22.00	22.00	22.00
* Crit W.S. (ft)	1620.26	* Flow Area (sq ft)		276.27	
* E.G. Slope (ft/ft)	*0.004685	* Area (sq ft)		276.27	
* Q Total (cfs)	2652.00	* Flow (cfs)		2652.00	
* Top Width (ft)	54.96	* Top Width (ft)		54.96	
* Vel Total (ft/s)	9.60	* Avg. Vel. (ft/s)		9.60	
* Max Chl Dpth (ft)	7.30	* Hydr. Depth (ft)		5.03	
* Conv. Total (cfs)	38744.3	* Conv. (cfs)		38744.3	
* Length Wtd. (ft)	22.00	* Wetted Per. (ft)		57.98	
* Min Ch El (ft)	1614.00	* Shear (lb/sq ft)		1.39	
* Alpha	1.00	* Stream Power (lb/ft s)		13.38	
* Frctn Loss (ft)	0.14	* Cum Volume (acre-ft)		0.13	
* C & E Loss (ft)	0.08	* Cum SA (acres)		0.03	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: gibson
REACH: exist RS: 09.78

INPUT
Description: 12+598
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-350	1625	-204.8	1623.2	-147.8	1622.4	-127	1623	-95.3	1624
-85.9	1623.6	-61.4	1624	-33.4	1624	-11.4	1614	12.2	1614.5
19.3	1618	33.5	1623.3	37.8	1627	42.5	1629	49.5	1630
54.3	1633	74.1	1633	220.8	1633	290.4	1632	350	1632

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-350	.03	-33.4	.03	54.3	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-33.4	54.3	0	0	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	1622.51	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	2.21	* Wt. n-Val.		0.030	
* W.S. Elev (ft)	1620.30	* Reach Len. (ft)			
* Crit W.S. (ft)	1620.30	* Flow Area (sq ft)		222.08	
* E.G. Slope (ft/ft)	*0.008670	* Area (sq ft)		222.08	
* Q Total (cfs)	2652.00	* Flow (cfs)		2652.00	
* Top Width (ft)	50.70	* Top Width (ft)		50.70	
* Vel Total (ft/s)	11.94	* Avg. Vel. (ft/s)		11.94	
* Max Chl Dpth (ft)	6.30	* Hydr. Depth (ft)		4.38	
* Conv. Total (cfs)	28482.1	* Conv. (cfs)		28482.1	
* Length Wtd. (ft)		* Wetted Per. (ft)		53.30	
* Min Ch El (ft)	1614.00	* Shear (lb/sq ft)		2.26	
* Alpha	1.00	* Stream Power (lb/ft s)		26.93	
* Frctn Loss (ft)		* Cum Volume (acre-ft)			
* C & E Loss (ft)		* Cum SA (acres)			

SUMMARY OF MANNING'S N VALUES

River:gibson

Reach	River Sta.	n1	n2	n3
exist	92	.03	.03	.03
exist	91	.03	.03	.03
exist	90	.03	.03	.03
exist	89	.03	.03	.03
exist	88	.013	.013	.013
exist	87	.013	.013	.013
exist	86	.03	.03	.03
exist	85	.03	.03	.03
exist	83	.03	.03	.03
exist	81	.03	.03	.03
exist	79	.03	.03	.03
exist	78	.013	.013	.013
exist	77	.013	.013	.013
exist	75	.03	.03	.03
exist	74	.03	.03	.03

*exist	*	72	*	.03*	.03*	.03*
*exist	*	70	*	.03*	.03*	.03*
*exist	*	68	*	.03*	.03*	.03*
*exist	*	66	*	.013*	.013*	.013*
*exist	*	65	*	.013*	.013*	.013*
*exist	*	64	*	.013*	.013*	.013*
*exist	*	63	*	.03*	.03*	.03*
*exist	*	61	*	.03*	.03*	.03*
*exist	*	59	*	.03*	.03*	.03*
*exist	*	58	*	.03*	.03*	.03*
*exist	*	57	*	.03*	.03*	.03*
*exist	*	55	*	.03*	.03*	.03*
*exist	*	53	*	.03*	.03*	.03*
*exist	*	52	*	.03*	.03*	.03*
*exist	*	50	*	.03*	.03*	.03*
*exist	*	48	*	.03*	.03*	.03*
*exist	*	46	*	.03*	.03*	.03*
*exist	*	44	*	.03*	.03*	.03*
*exist	*	42	*	.03*	.03*	.03*
*exist	*	40	*	.03*	.03*	.03*
*exist	*	38	*	.03*	.03*	.03*
*exist	*	36	*	.03*	.03*	.03*
*exist	*	34	*	.03*	.03*	.03*
*exist	*	32	*	.03*	.03*	.03*
*exist	*	31	*	.03*	.03*	.03*
*exist	*	30	*	.03*	.03*	.03*
*exist	*	28	*	.03*	.03*	.03*
*exist	*	26	*	.03*	.03*	.03*
*exist	*	24	*	.03*	.03*	.03*
*exist	*	22	*	.03*	.03*	.03*
*exist	*	21	*	.03*	.03*	.03*
*exist	*	19	*	.03*	.03*	.03*
*exist	*	17	*	.03*	.03*	.03*
*exist	*	15	*	.03*	.03*	.03*
*exist	*	13	*	.03*	.03*	.03*
*exist	*	11	*	.03*	.03*	.03*
*exist	*	10	*	.03*	.03*	.03*
*exist	*	09.78	*	.03*	.03*	.03*

SUMMARY OF REACH LENGTHS

River: gibson

Reach	River Sta.	Left	Channel	Right
*exist	92	24*	24*	24*
*exist	91	100*	100*	100*
*exist	90	100*	100*	100*
*exist	89	38*	38*	38*
*exist	88	1258.42*	1258.42*	1258.42*
*exist	87	83*	83*	83*
*exist	86	100*	100*	100*
*exist	85	200*	200*	200*
*exist	83	200*	200*	200*
*exist	81	200*	200*	200*
*exist	79	31.32*	31.32*	31.32*
*exist	78	347*	347*	347*
*exist	77	122*	122*	122*
*exist	75	100*	100*	100*
*exist	74	200*	200*	200*
*exist	72	200*	200*	200*
*exist	70	110*	110*	110*
*exist	68	38*	38*	38*
*exist	66	374.89*	398.39*	421.9*
*exist	65	50.5*	50.5*	50.5*
*exist	64	89*	89*	89*
*exist	63	200*	200*	200*
*exist	61	200*	200*	200*
*exist	59	100*	100*	100*
*exist	58	100*	100*	100*
*exist	57	200*	200*	200*
*exist	55	200*	200*	200*
*exist	53	230*	230*	230*
*exist	52	200*	200*	200*
*exist	50	200*	200*	200*
*exist	48	200*	200*	200*
*exist	46	200*	200*	200*
*exist	44	200*	200*	200*
*exist	42	200*	200*	200*
*exist	40	200*	200*	200*
*exist	38	200*	200*	200*
*exist	36	200*	200*	200*
*exist	34	200*	200*	200*
*exist	32	100*	100*	100*
*exist	31	100*	100*	100*
*exist	30	200*	200*	200*
*exist	28	200*	200*	200*
*exist	26	200*	200*	200*
*exist	24	200*	200*	200*
*exist	22	100*	100*	100*
*exist	21	200*	200*	200*
*exist	19	200*	200*	200*
*exist	17	200*	200*	200*
*exist	15	200*	200*	200*
*exist	13	200*	200*	200*
*exist	11	100*	100*	100*
*exist	10	22*	22*	22*
*exist	09.78	0*	0*	0*

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: gibson

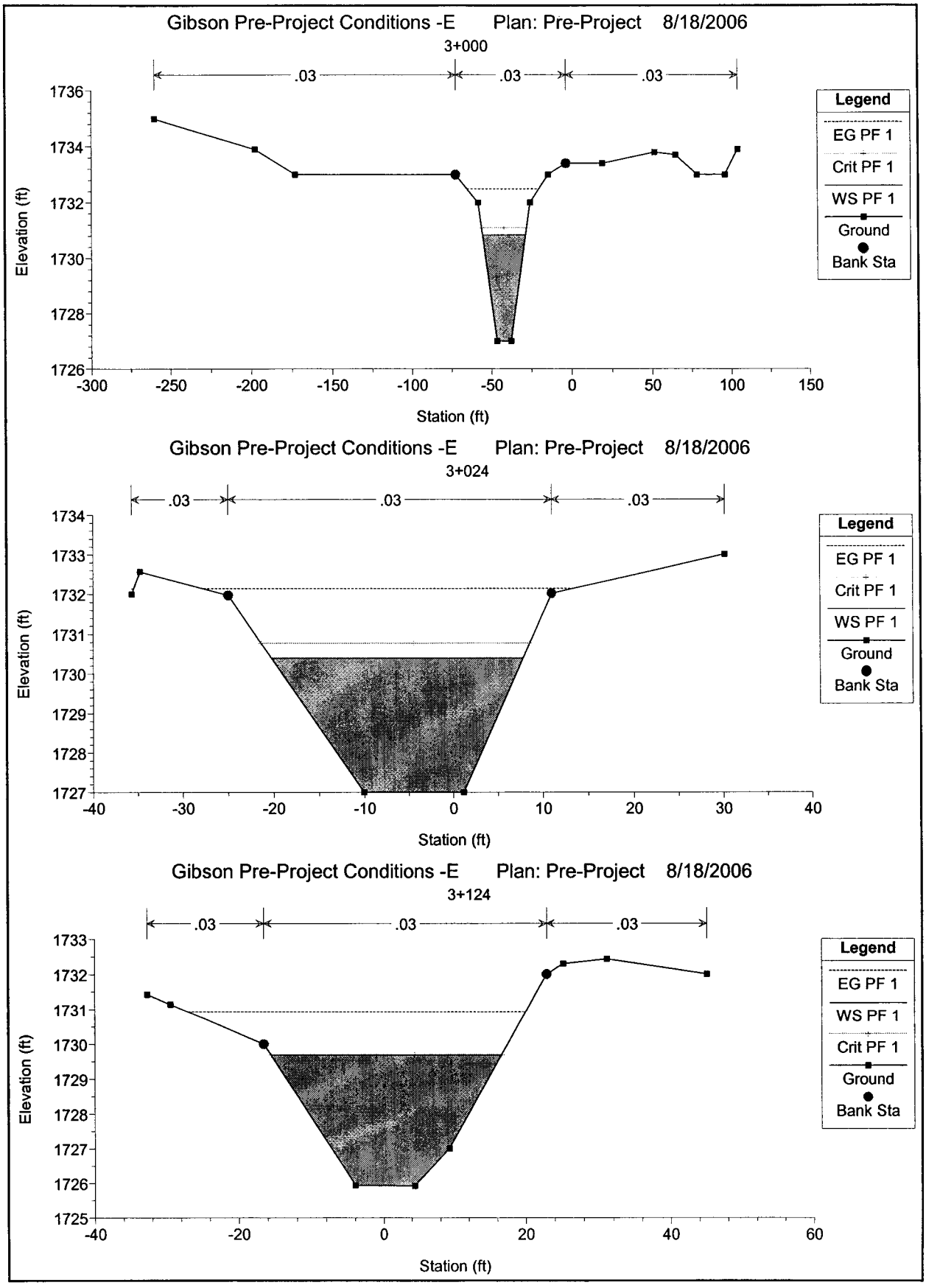
Reach	River Sta.	Contr.	Expan.
*exist	92	.1*	.3*
*exist	91	.1*	.3*
*exist	90	.1*	.3*
*exist	89	.1*	.3*
*exist	88	.1*	.3*
*exist	87	.1*	.3*
*exist	86	.1*	.3*
*exist	85	.1*	.3*
*exist	83	.1*	.3*
*exist	81	.1*	.3*
*exist	79	.1*	.3*
*exist	78	.1*	.3*
*exist	77	.1*	.3*
*exist	75	.1*	.3*
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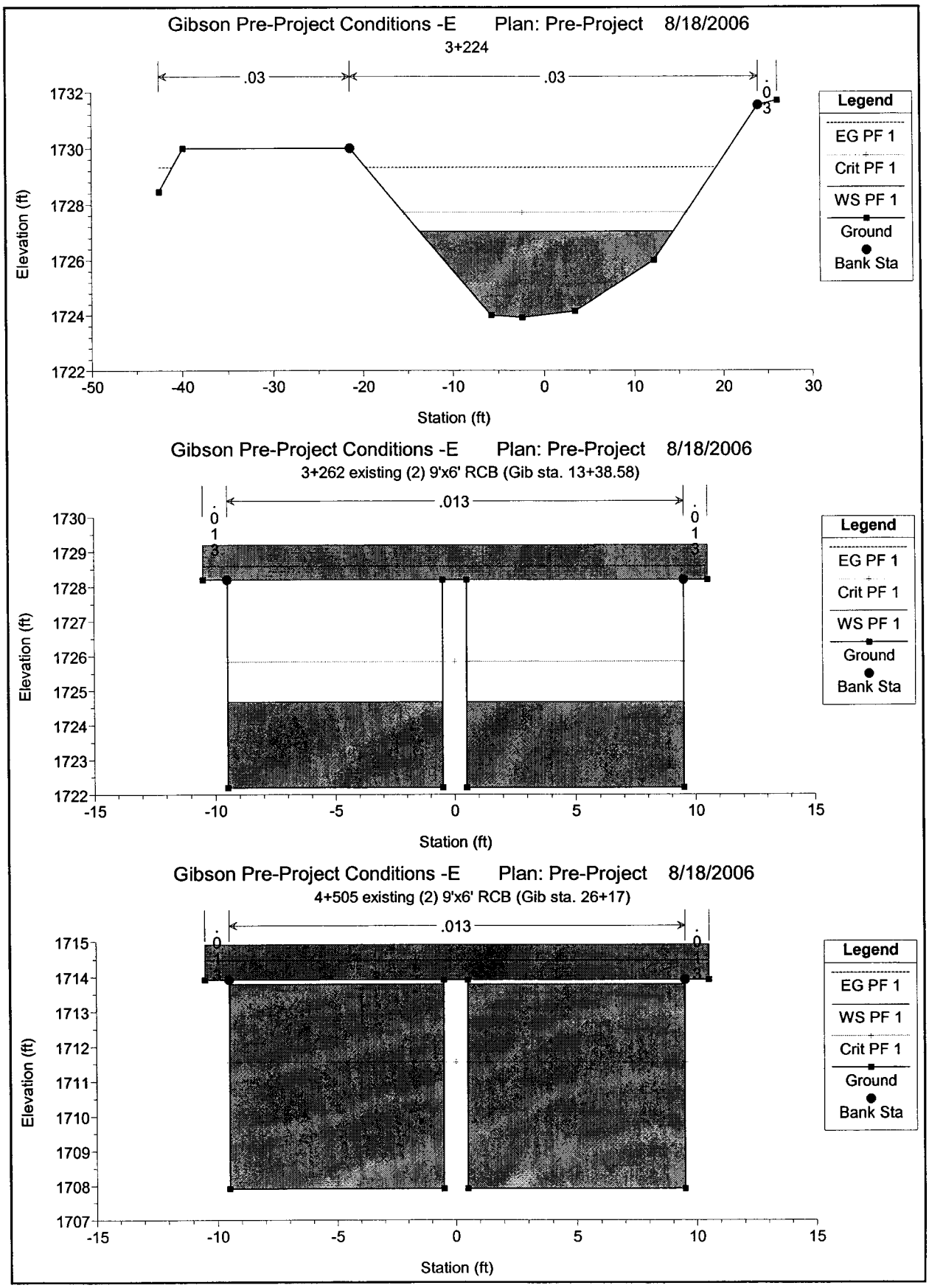
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*exist          *   65      *       .1*       .3*
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*exist          *   61      *       .1*       .3*
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*exist          *   58      *       .1*       .3*
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*exist          *   53      *       .1*       .3*
*exist          *   52      *       .1*       .3*
*exist          *   50      *       .1*       .3*
*exist          *   48      *       .1*       .3*
*exist          *   46      *       .1*       .3*
*exist          *   44      *       .1*       .3*
*exist          *   42      *       .1*       .3*
*exist          *   40      *       .1*       .3*
*exist          *   38      *       .1*       .3*
*exist          *   36      *       .1*       .3*
*exist          *   34      *       .1*       .3*
*exist          *   32      *       .1*       .3*
*exist          *   31      *       .1*       .3*
*exist          *   30      *       .1*       .3*
*exist          *   28      *       .1*       .3*
*exist          *   26      *       .1*       .3*
*exist          *   24      *       .1*       .3*
*exist          *   22      *       .1*       .3*
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*exist          *   17      *       .1*       .3*
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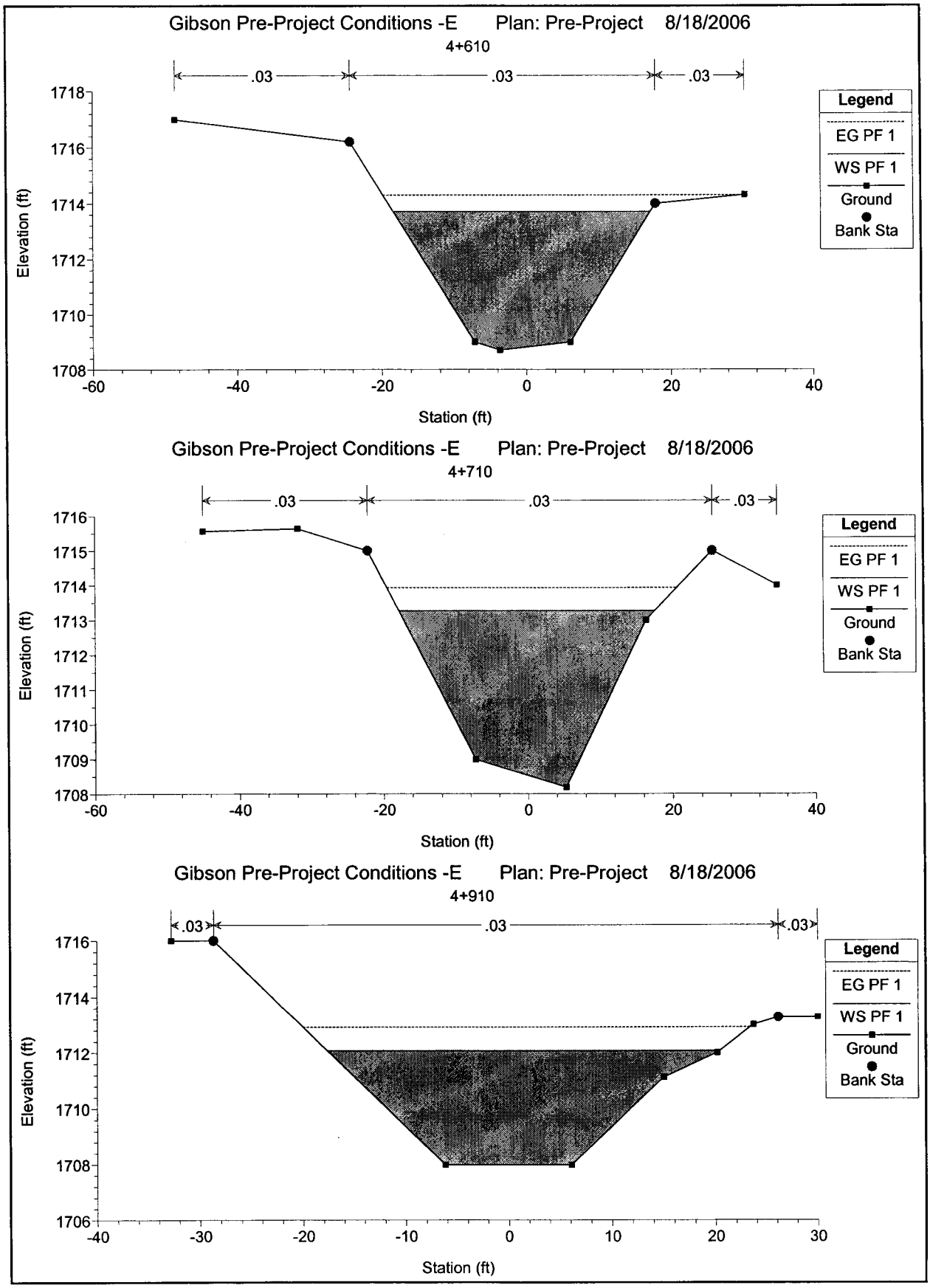
Profile Output Table - CHECKRAS

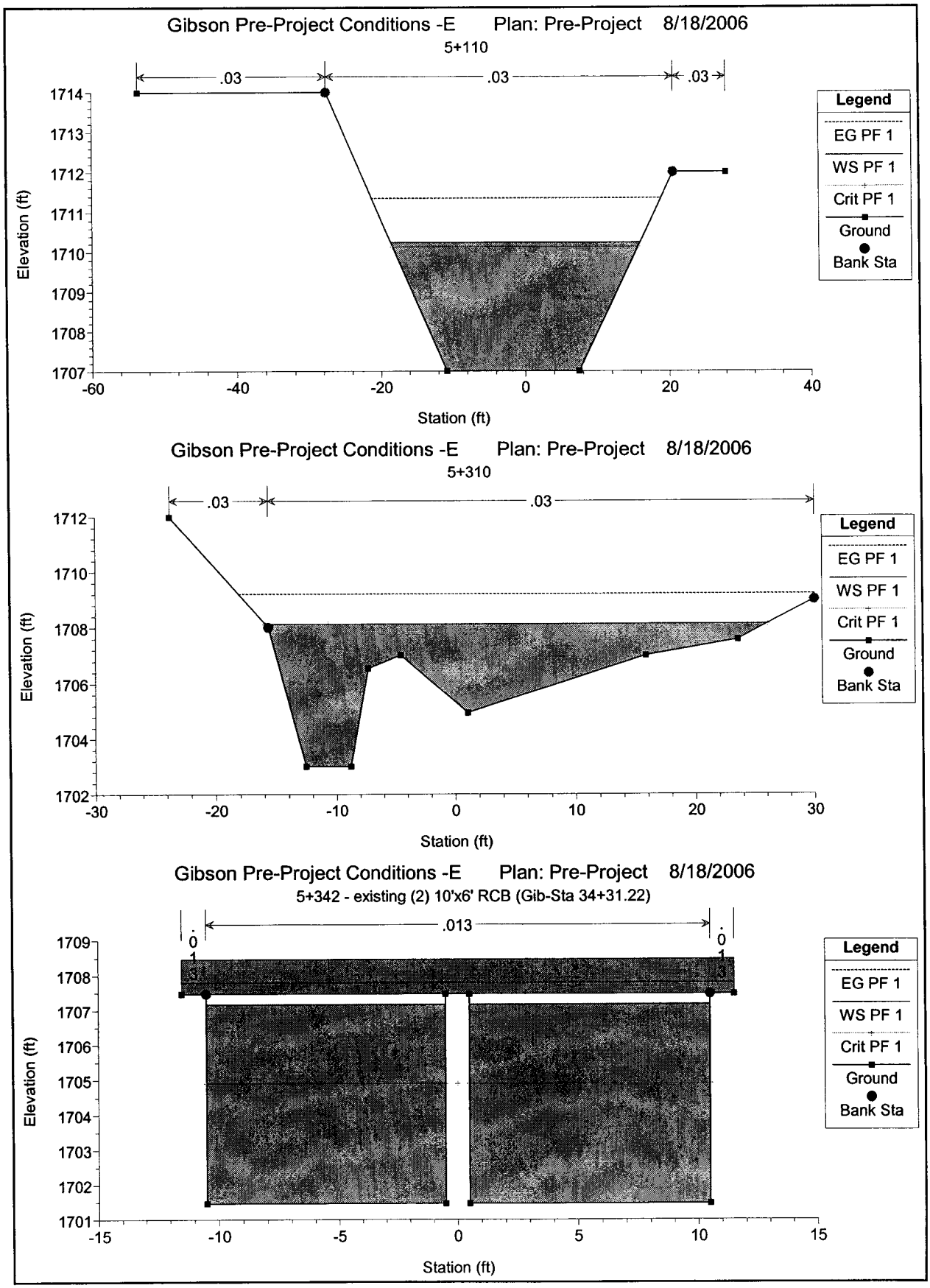
Reach	River Sta	Profile	Froude # Chl	Top Wdth Act	Conv. Total	Prof Delta WS	Left Sta Eff	Enc Sta L	Center Station	Enc Sta R	Rght Sta Eff
Min Ch El	Left Stagn	Right Stagn		(ft)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
exist	92	PF 1	1.14	26.95	6063.7		-55.65		-37.95		-28.70
1727.00											
exist	91	PF 1	1.21	28.01	5680.0		-20.24		-7.01		7.78
1727.00											
exist	90	PF 1	1.01	32.13	6917.8		-15.56		3.17		16.58
1725.92											
exist	89	PF 1	1.49	28.04	4552.7		-13.67		1.25		14.37
1723.91											
exist	88	PF 1	1.78	18.00	6915.8		-9.50		0.00		9.50
1722.20											
exist	87	PF 1	0.49	18.00	22535.3		-9.50		0.00		9.50
1707.91											
exist	86	PF 1	0.60	35.61	12378.8		-18.38		-3.21		17.22
1708.71											
exist	85	PF 1	0.65	35.44	11379.4		-17.90		1.63		17.54
1708.19											
exist	83	PF 1	0.80	38.09	9072.6		-17.67		-1.27		20.41
1707.97											
exist	81	PF 1	0.95	34.50	7545.9		-18.59		-3.54		15.91
1707.00											
exist	79	PF 1	1.01	41.97	6466.8		-15.92		7.17		26.04
1703.00											
exist	78	PF 1	0.47	20.00	25048.1		-10.50		0.00		10.50
1701.46											
exist	77	PF 1	0.37	23.00	18536.1		-11.50		0.00		11.50
1699.56											
exist	75	PF 1	1.00	25.57	7161.5		-10.69		4.70		14.88
1701.00											
exist	74	PF 1	1.40	27.33	5011.3		-10.85		1.55		16.49
1700.00											
exist	72	PF 1	0.85	30.59	8508.3		-11.89		5.15		18.71
1699.00											
exist	70	PF 1	1.00	26.94	7123.1		-12.81		-0.85		14.13
1696.62											
exist	68	PF 1	1.29	27.32	6284.3		-12.95		0.69		14.38
1694.16											
exist	66	PF 1	1.96	27.00	7444.2		-14.50		0.00		14.50
1693.76											
exist	65	PF 1	2.06	27.00	7079.8		-14.50		0.00		14.50
1688.41											
exist	64	PF 1	0.56	29.00	32025.1		-14.50		0.00		14.50
1688.41											
exist	63	PF 1	0.70	33.31	12140.9		-28.54		-14.60		4.77
1687.00											
exist	61	PF 1	1.00	55.21	7854.3		-43.85		-17.84		13.57
1687.00											
exist	59	PF 1	2.22	56.02	3238.1		-33.62		-5.70		22.39
1682.76											
exist	58	PF 1	0.85	66.68	9160.1		-39.00		-5.57		27.67
1682.00											
exist	57	PF 1	0.58	126.12	13705.3		-43.49		0.35		87.97
1681.02											
exist	55	PF 1	0.54	146.97	14159.6		-45.89		38.12		101.08
1681.00											
exist	53	PF 1	1.00	32.82	8048.1		-20.50		-5.45		12.32
1676.43											
exist	52	PF 1	0.43	54.63	20015.5		-59.96		-26.25		-5.33
1672.00											
exist	50	PF 1	1.01	43.94	8022.6		-56.02		-30.30		-12.08
1672.00											
exist	48	PF 1	0.48	52.00	17879.1		-56.08		-28.15		-4.08
1670.00											
exist	46	PF 1	1.00	48.17	8000.5		-57.78		-33.90		-9.60
1670.00											
exist	44	PF 1	2.11	35.33	3622.6		-49.63		-30.65		-14.30
1664.00											
exist	42	PF 1	0.38	47.29	22864.6		-51.52		-29.60		-4.23
1658.00											
exist	40	PF 1	1.01	29.39	17226.0		-39.69		14.40		-10.30
1654.00											
exist	38	PF 1	2.04	53.00	8206.1		-40.10		-3.90		12.90
1650.30											
exist	36	PF 1	0.52	62.63	35902.2		-38.13		0.40		24.50
1650.00											
exist	34	PF 1	0.35	80.81	55288.0		-42.48		-9.20		38.33
1648.00											
exist	32	PF 1	0.46	90.52	64533.2		-35.03		25.35		55.49
1648.00											
exist	31	PF 1	0.52	84.30	56065.3		-40.57		-9.35		43.73
1648.00											
exist	30	PF 1	1.00	68.43	28131.0		-26.87		7.60		41.56
1648.00											
exist	28	PF 1	0.54	590.30	41264.3		-797.89		-167.82		179.81

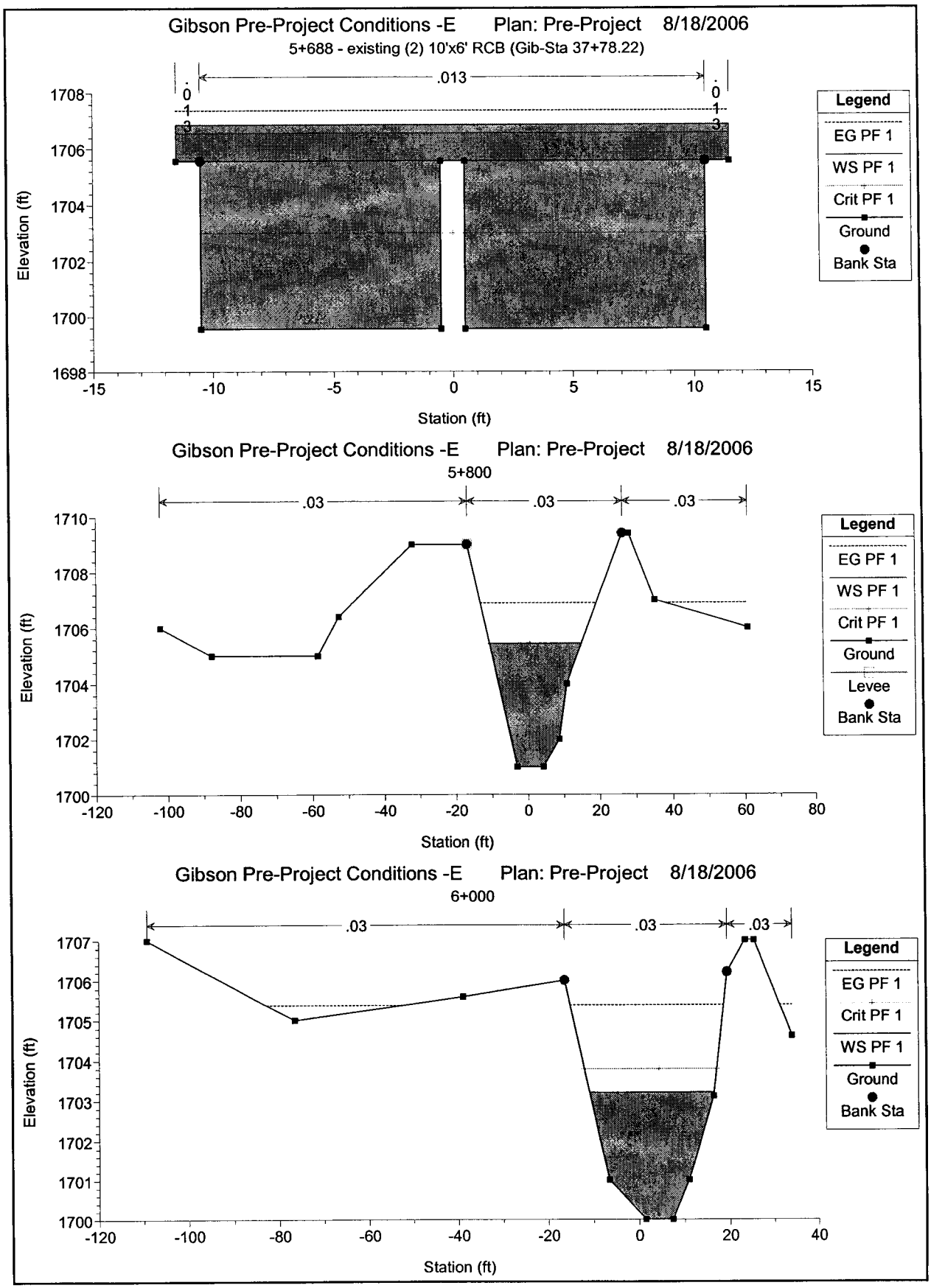
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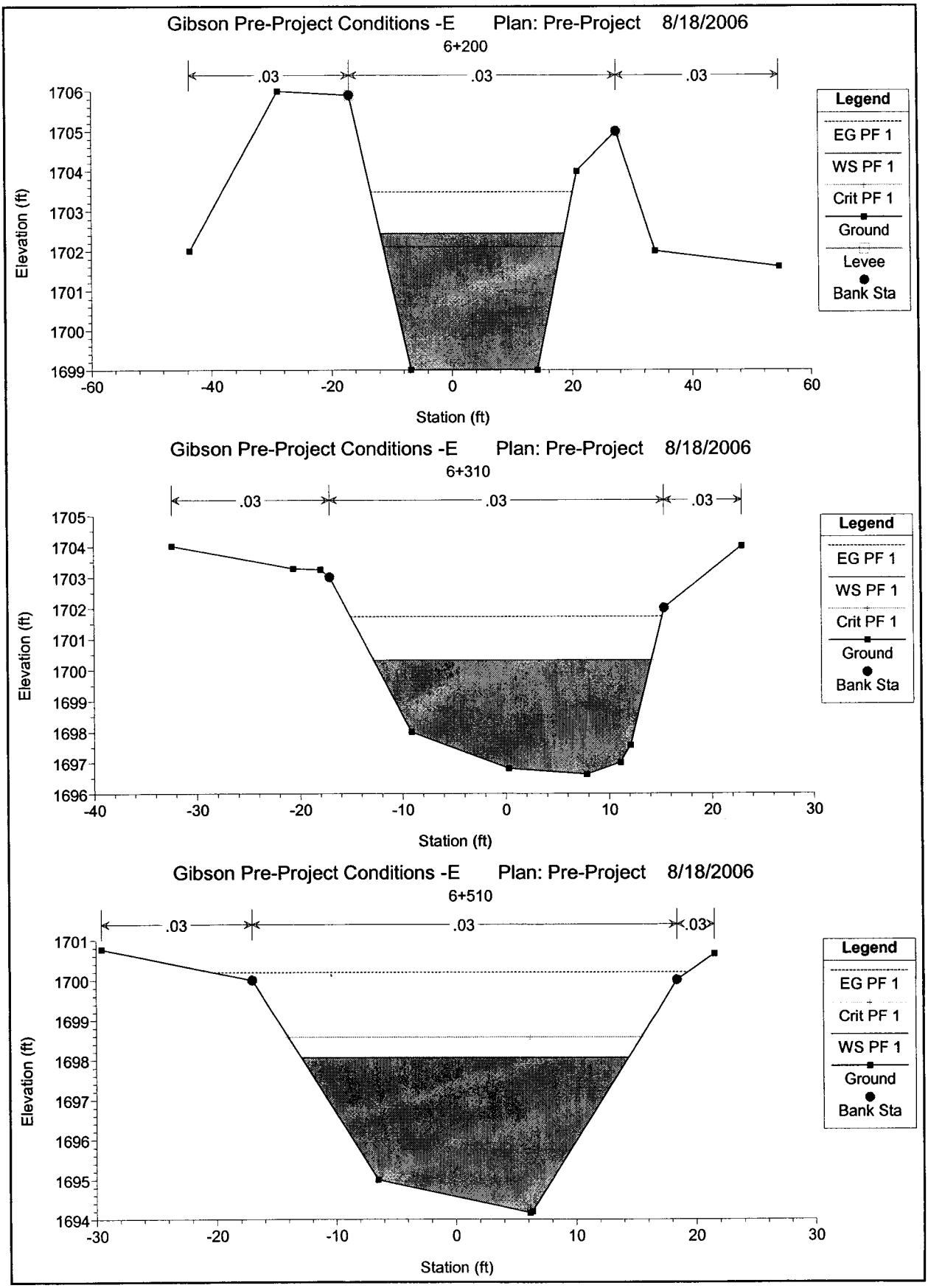

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
3+000
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
3+024
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
3+124
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

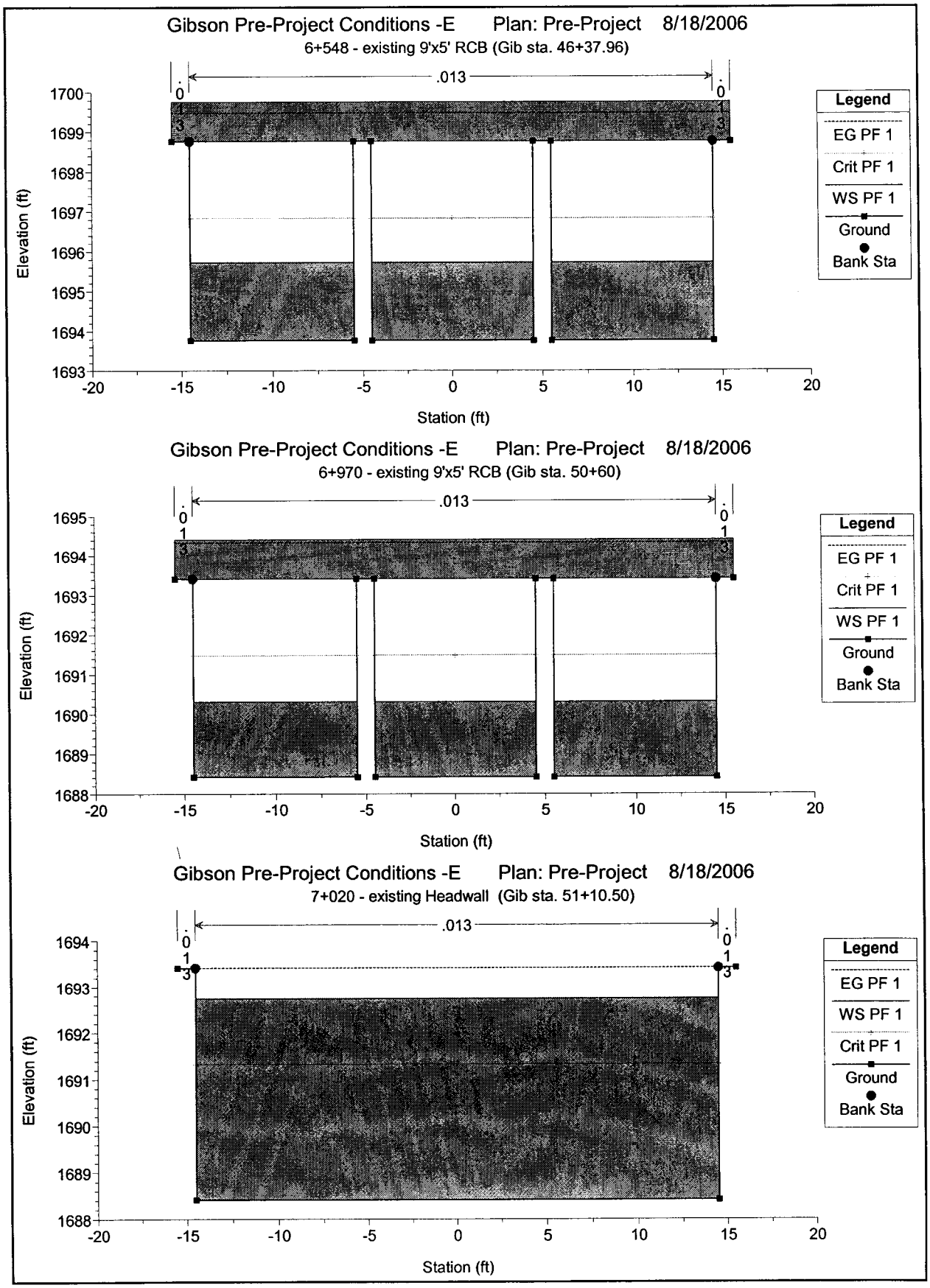

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
3+224
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
3+262 existing (2) 9'x6' RCB (Gib sta. 13+38.58)
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
4+505 existing (2) 9'x6' RCB (Gib sta. 26+17)
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

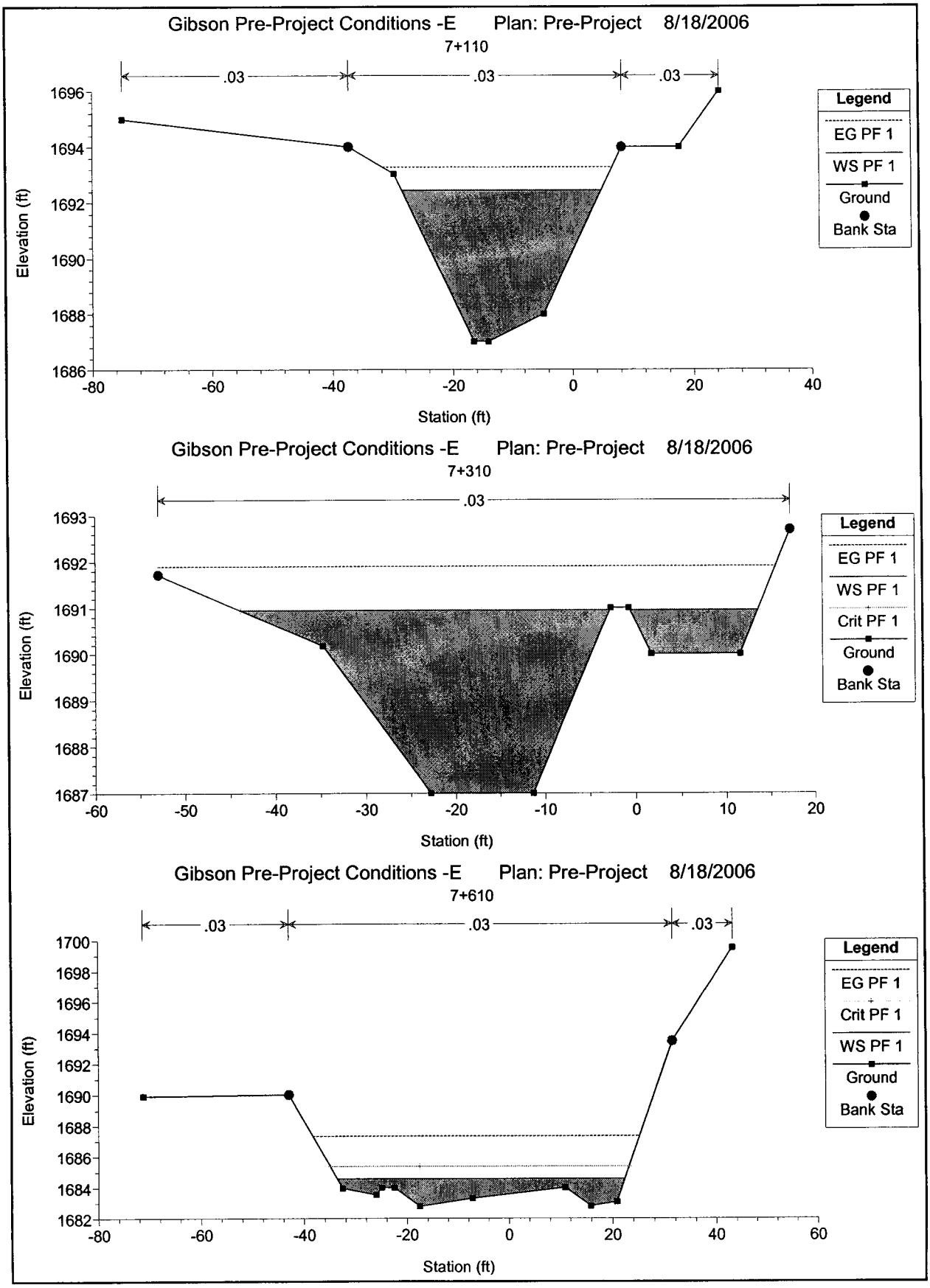

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
4+610
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
4+710
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
4+910
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

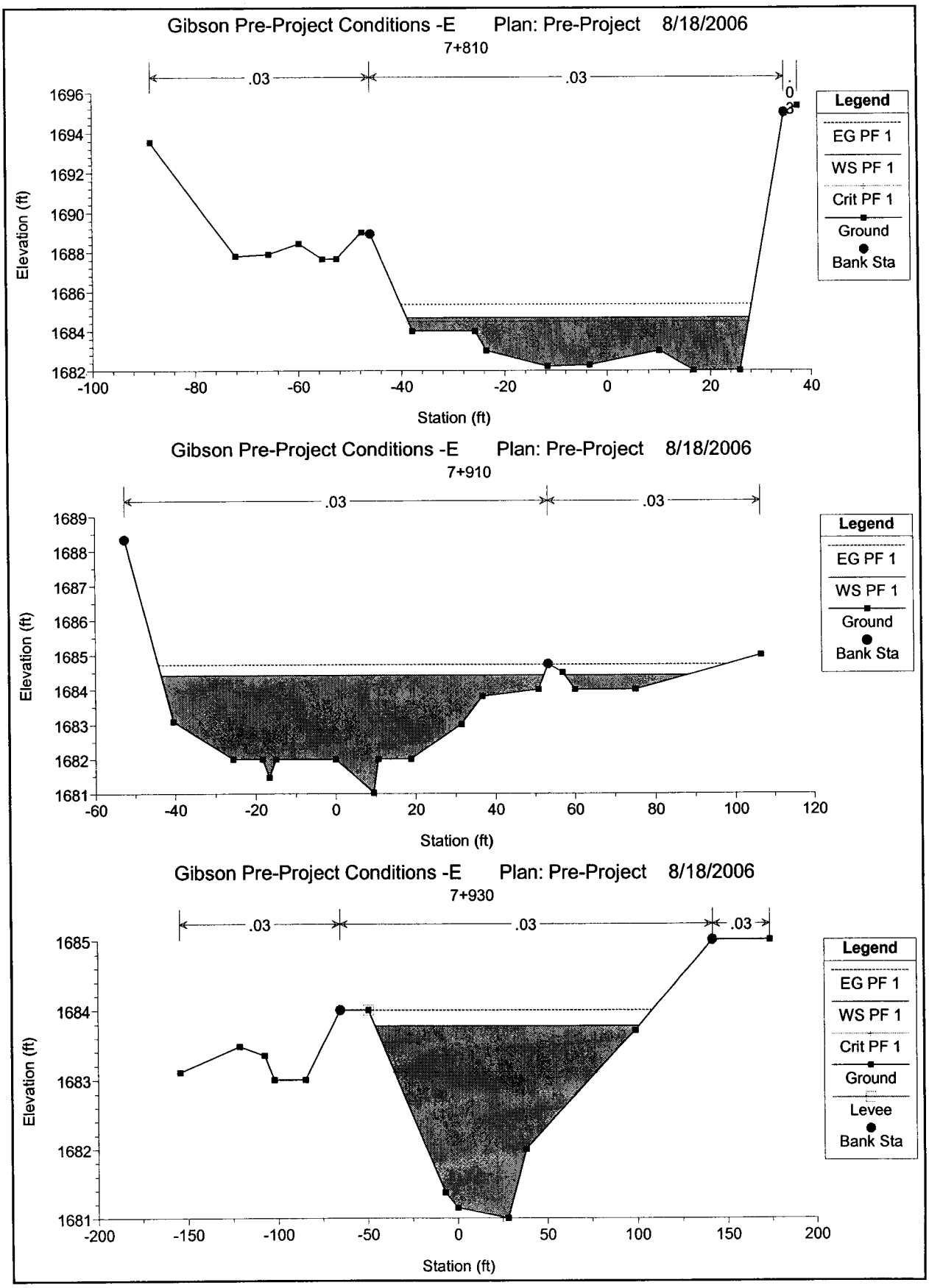

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
5+110
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
5+310
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
5+342 - existing (2) 10'x6' RCB (Gib-Sta 34+31.22)
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta

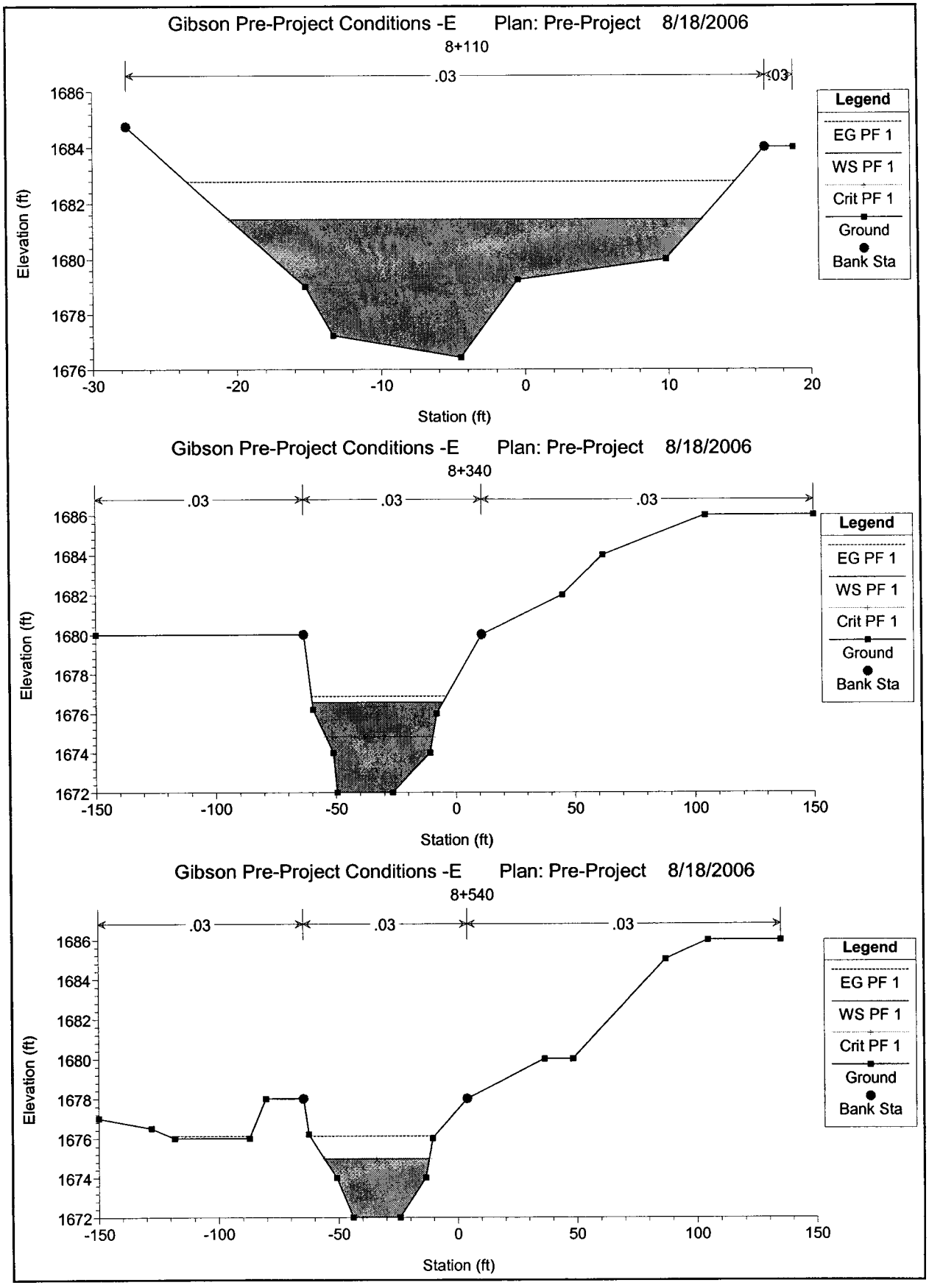

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
5+688 - existing (2) 10'x6' RCB (Gib-Sta 37+78.22)
.013
0
1
3
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
5+800
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
6+000
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

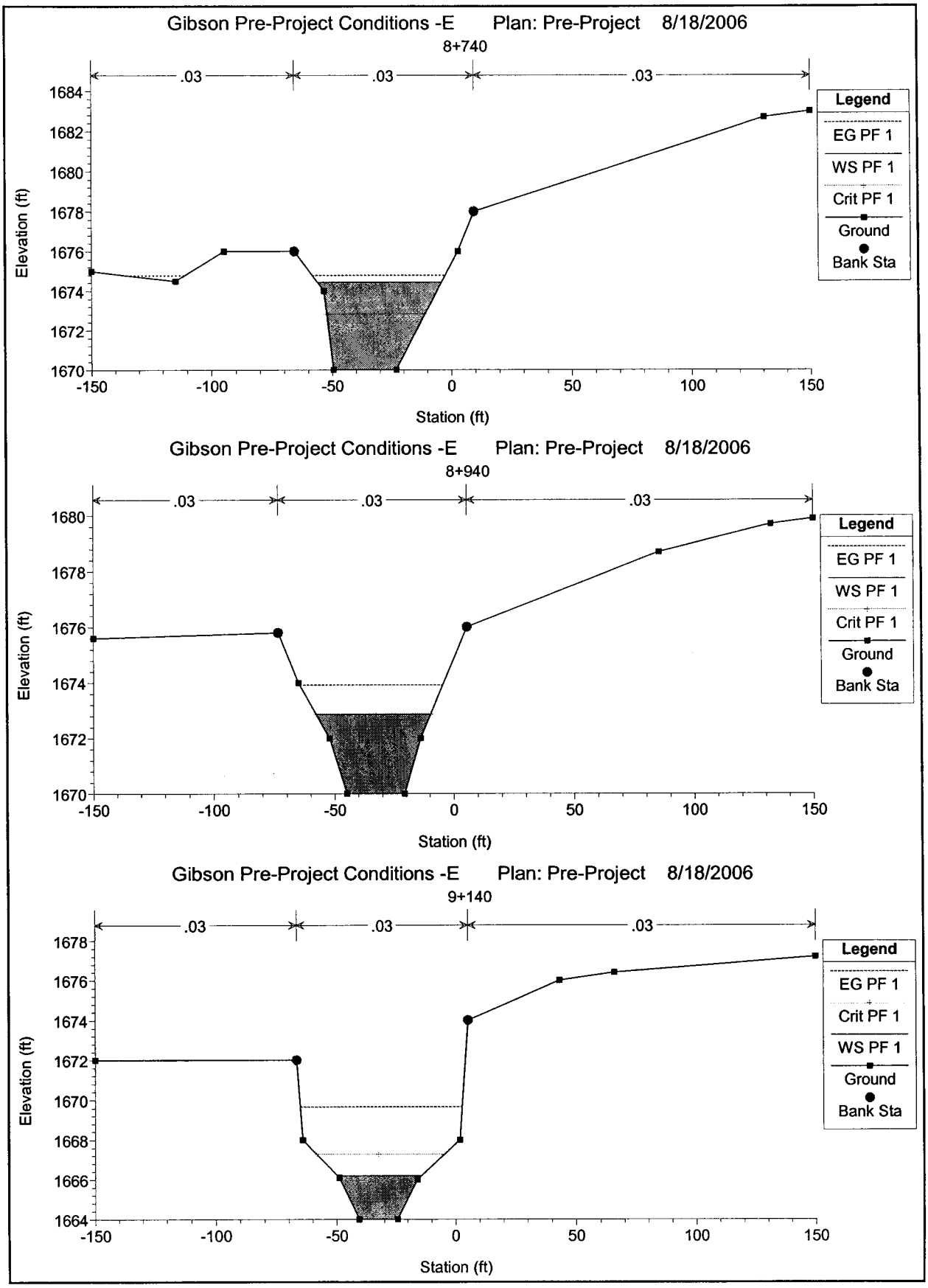

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
6+200
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
6+310
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
6+510
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

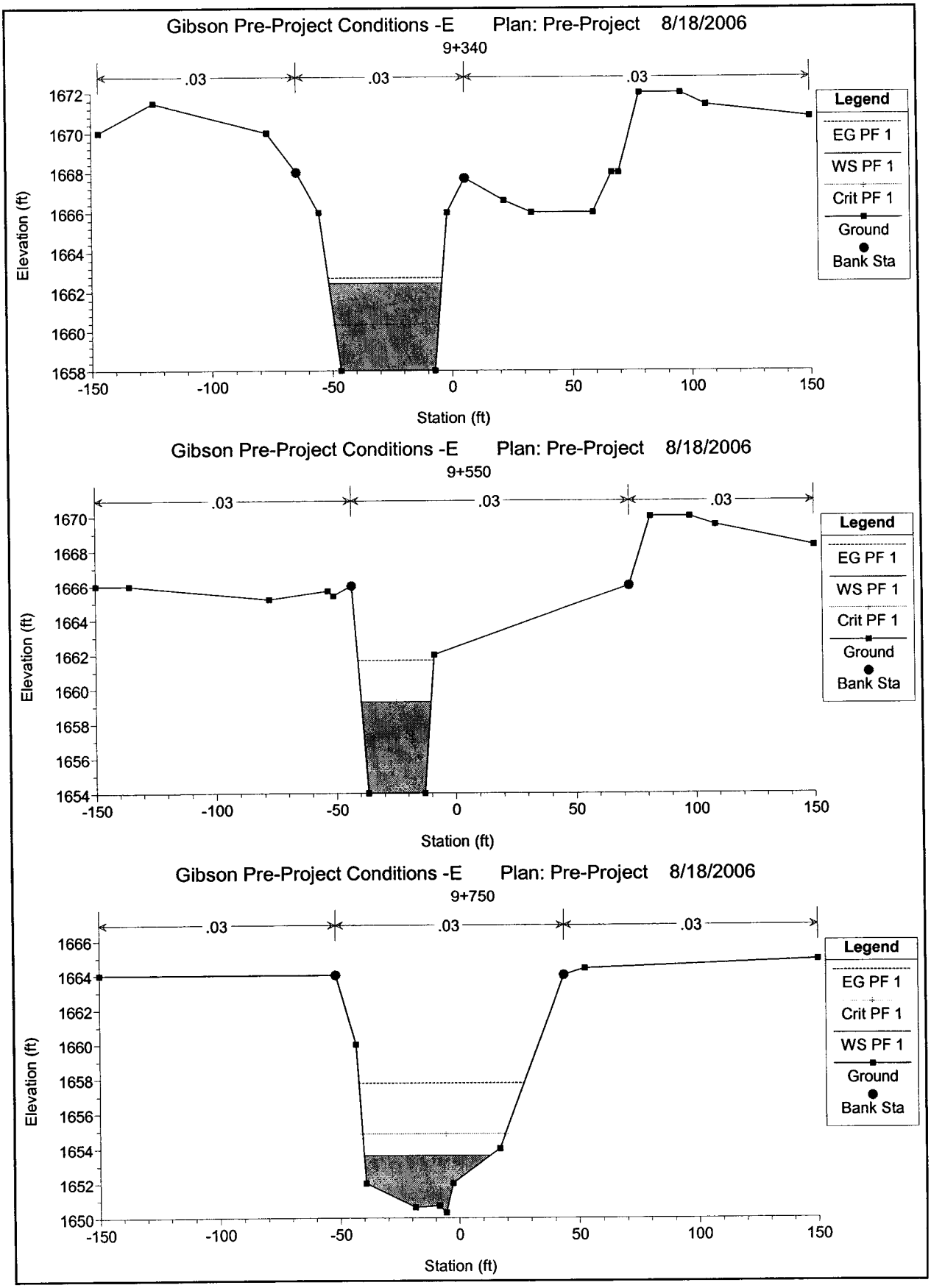

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
6+548 - existing 9'x5' RCB (Gib sta. 46+37.96)
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
6+970 - existing 9'x5' RCB (Gib sta. 50+60)
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
7+020 - existing Headwall (Gib sta. 51+10.50)
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

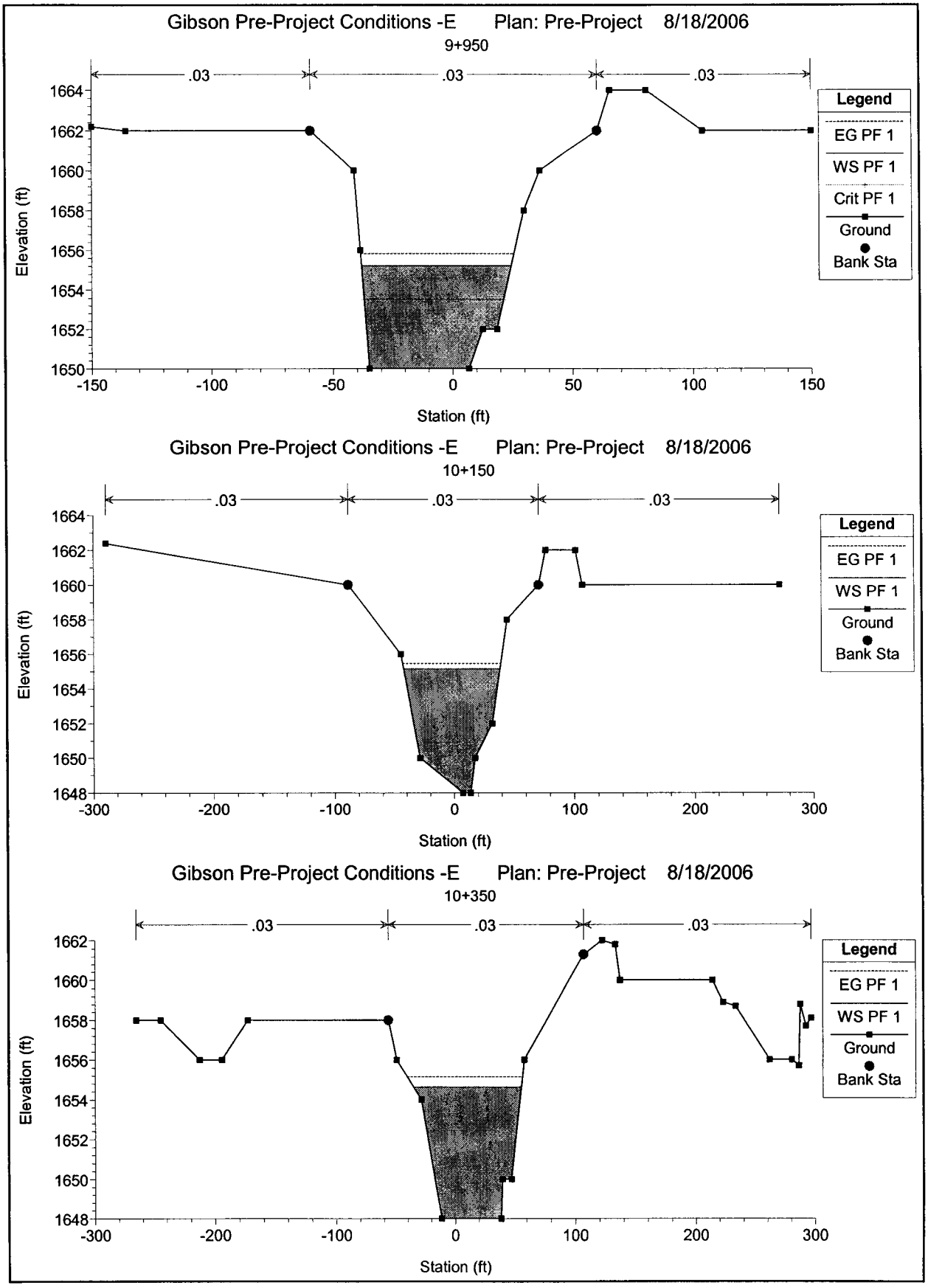

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
7+110
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
7+310
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
7+610
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

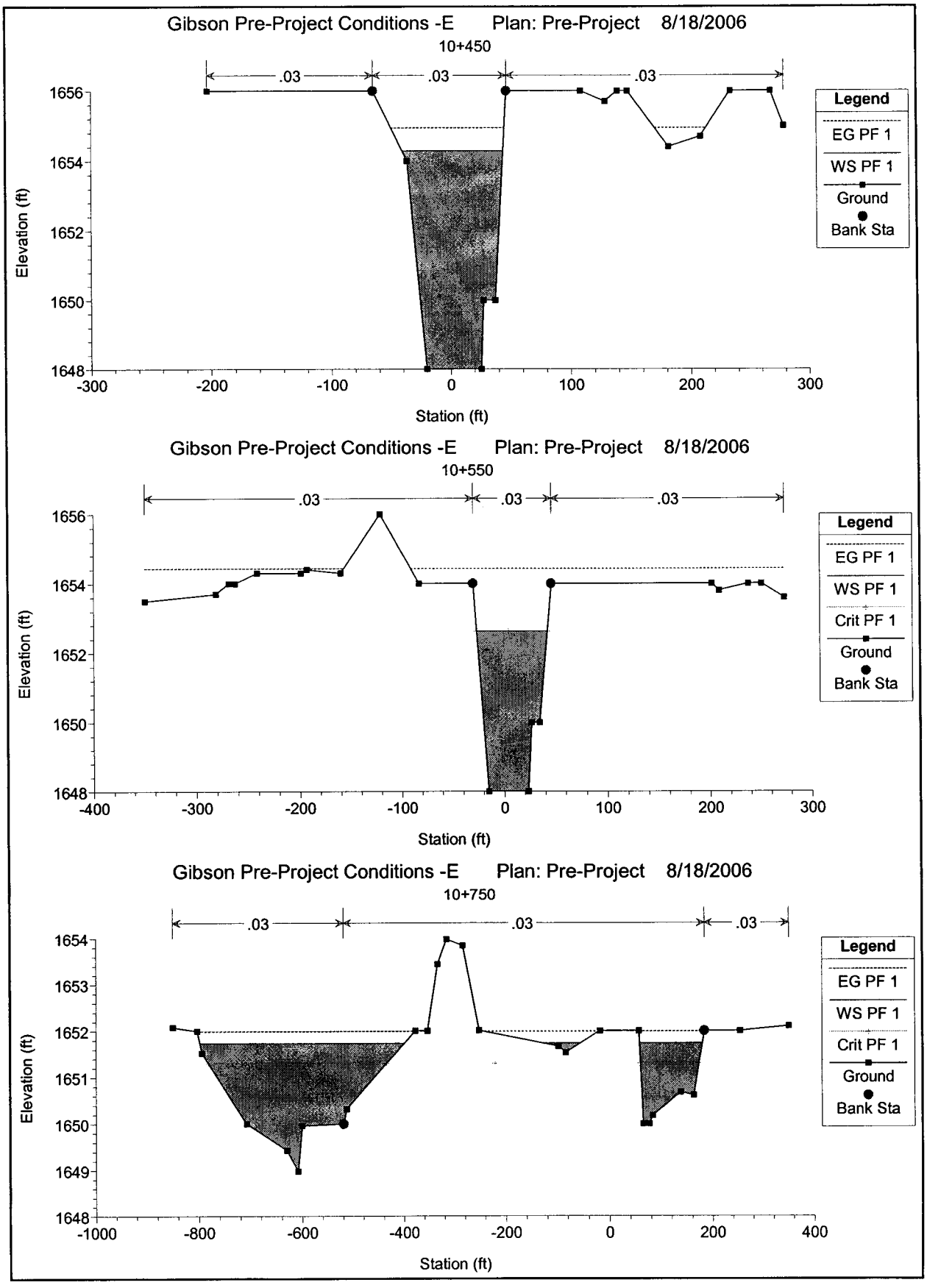

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
7+810
.03
.03
0
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
7+910
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
7+930
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

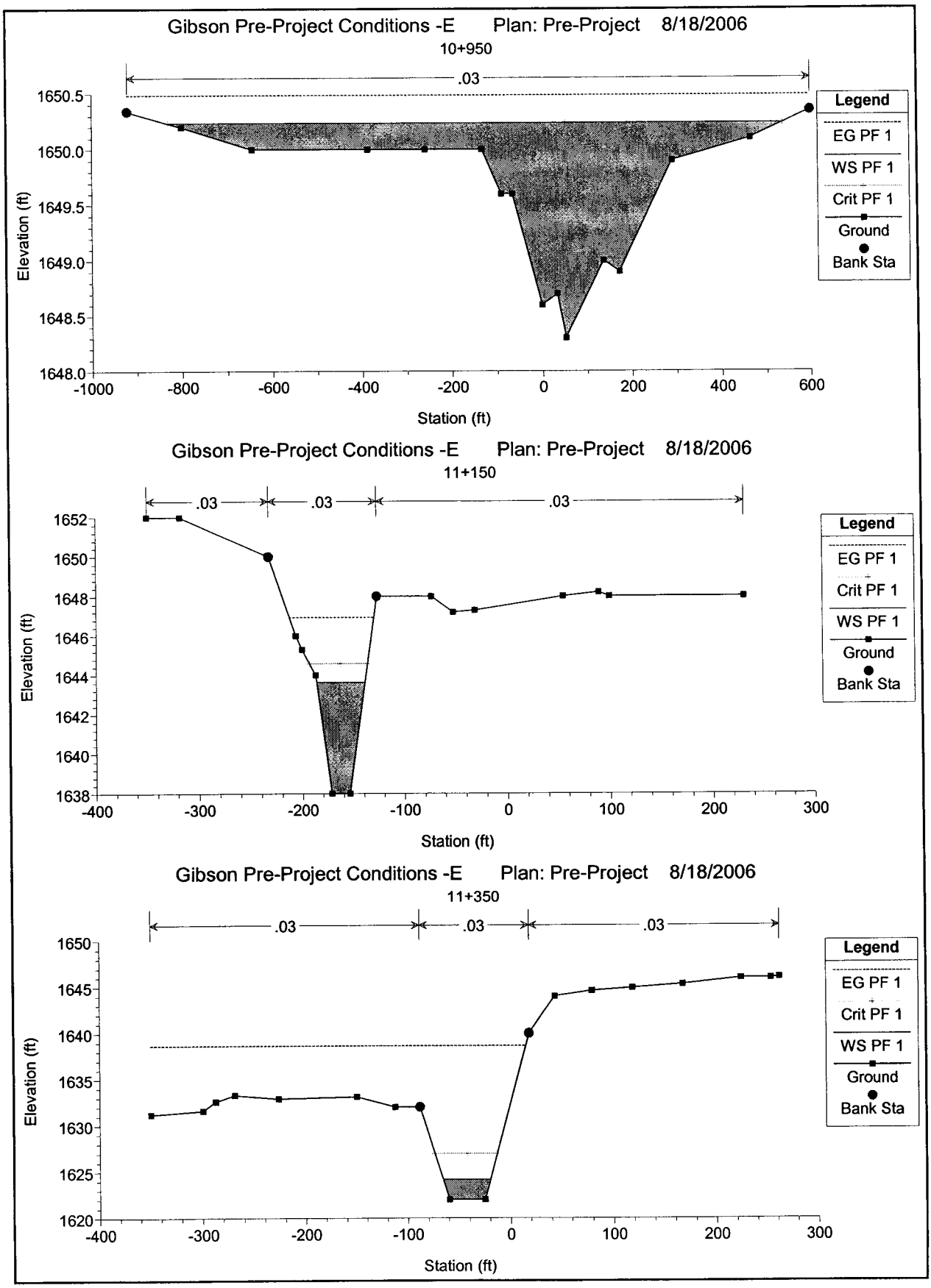

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
8+110
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1686
1684
1682
1680
1678
1676
-30
-20
-10
0
10
20
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
8+340
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1686
1684
1682
1680
1678
1676
1674
1672
-150
-100
-50
0
50
100
150
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
8+540
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1686
1684
1682
1680
1678
1676
1674
1672
-150
-100
-50
0
50
100
150
Station (ft)

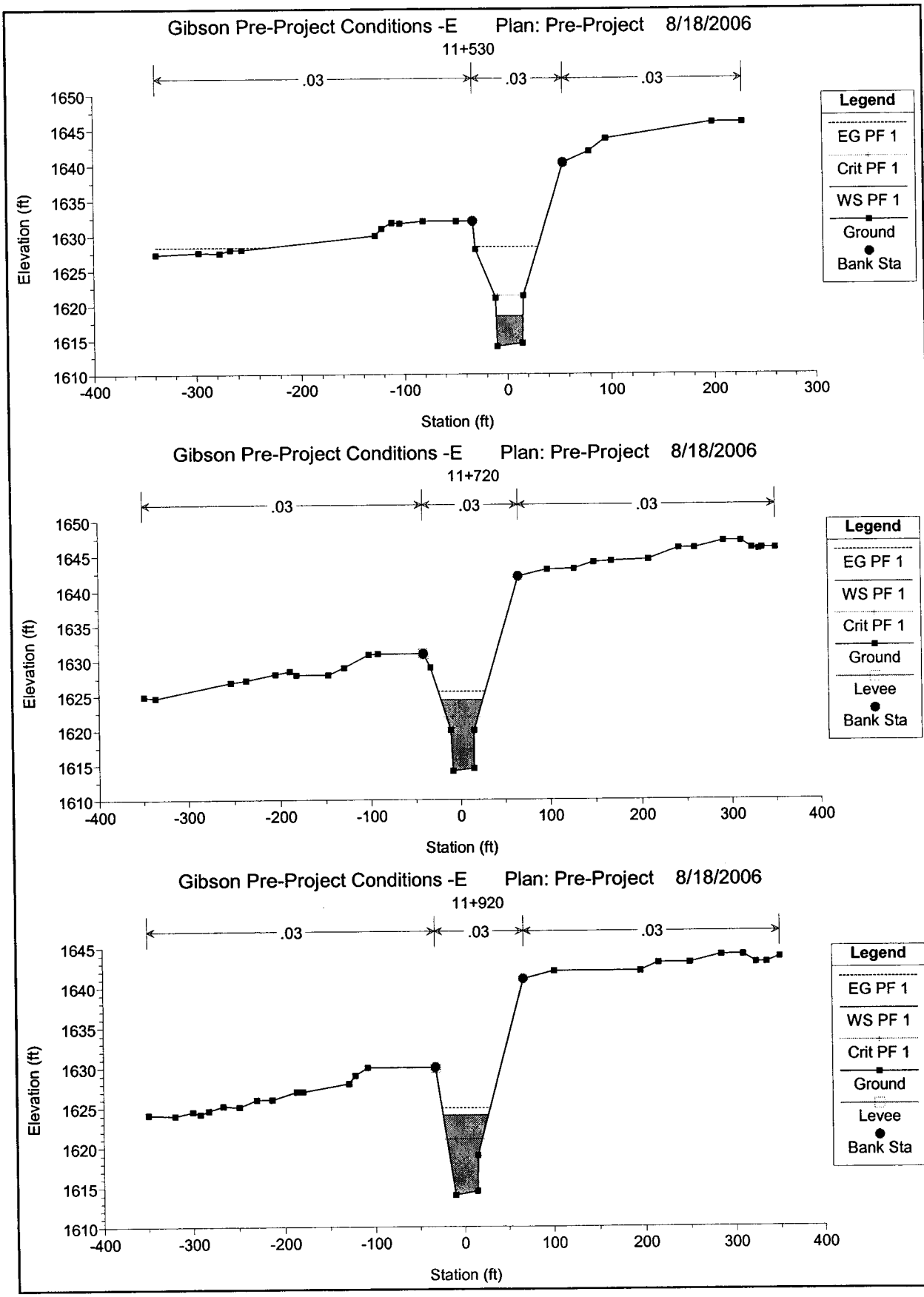

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
8+740
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
8+940
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
9+140
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

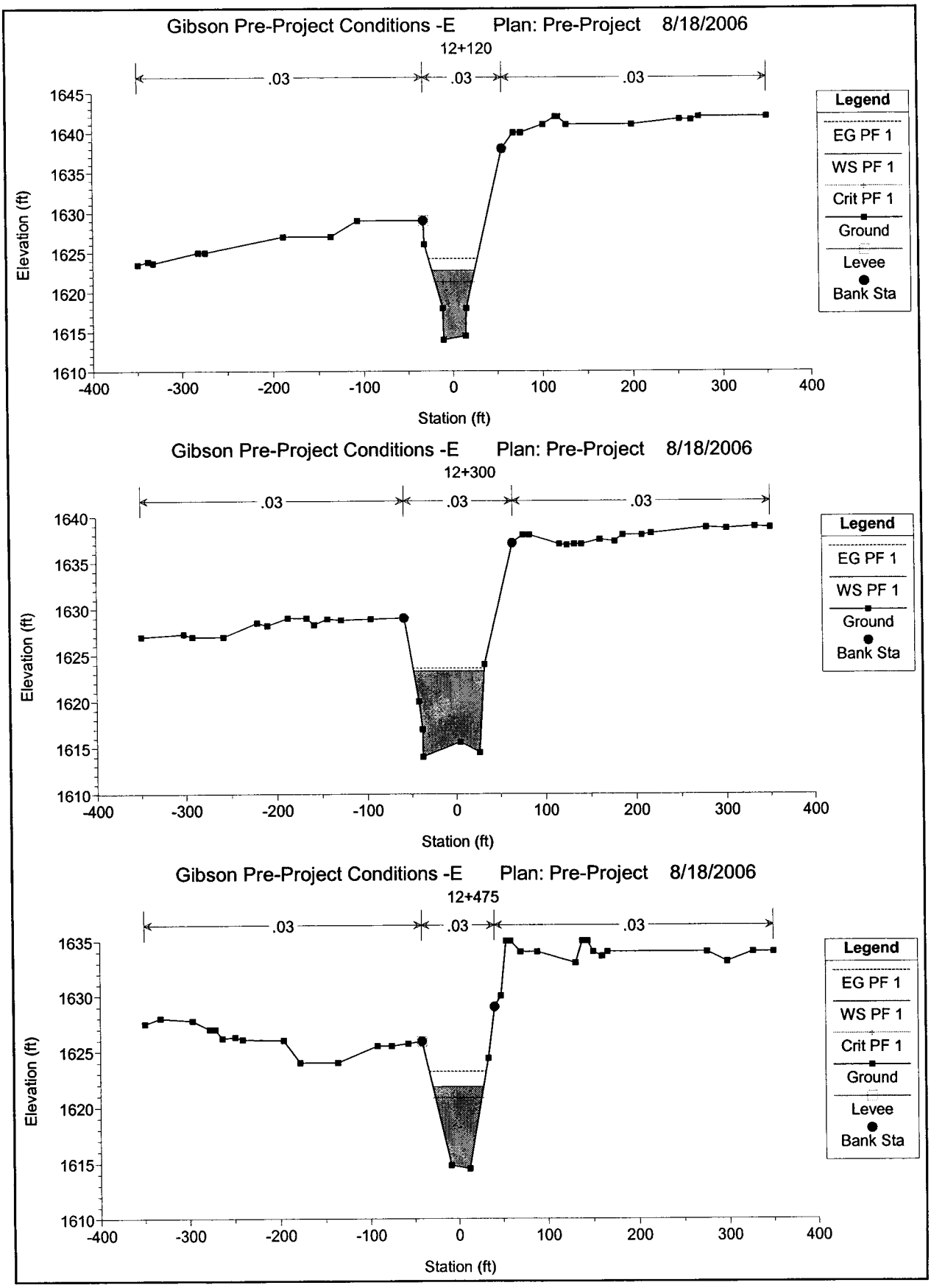

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
9+340
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
9+550
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
9+750
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

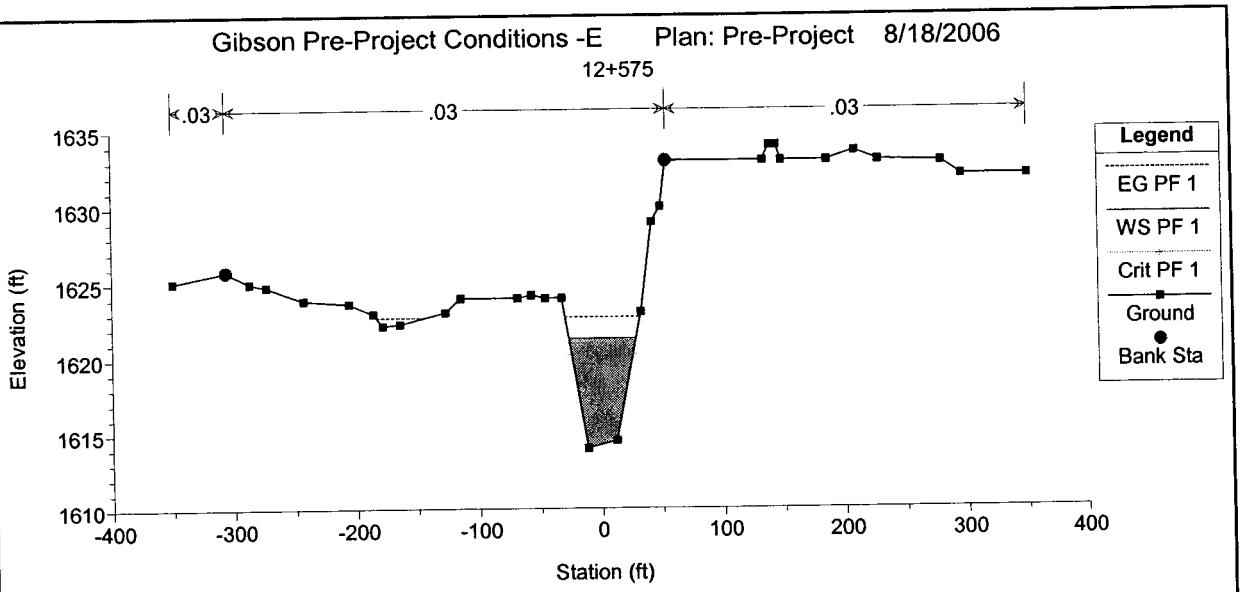

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
9+950
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
10+150
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
10+350
.03
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

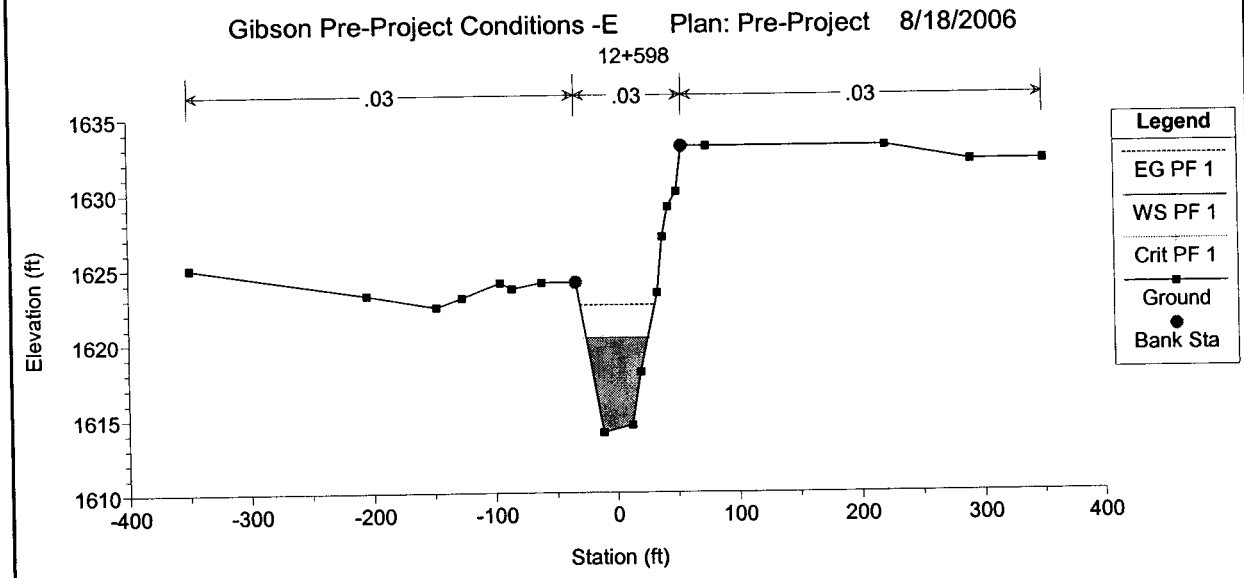

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
10+450
.03
.03
.03
1656
1654
1652
1650
1648
Elevation (ft)
-300
-200
-100
0
100
200
300
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
10+550
.03
.03
.03
1656
1654
1652
1650
1648
Elevation (ft)
-400
-300
-200
-100
0
100
200
300
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
10+750
.03
.03
.03
1654
1653
1652
1651
1650
1649
1648
Elevation (ft)
-1000
-800
-600
-400
-200
0
200
400
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta


Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
10+950
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
11+150
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
11+350
.03
.03
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
11+530
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
11+720
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
11+920
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta

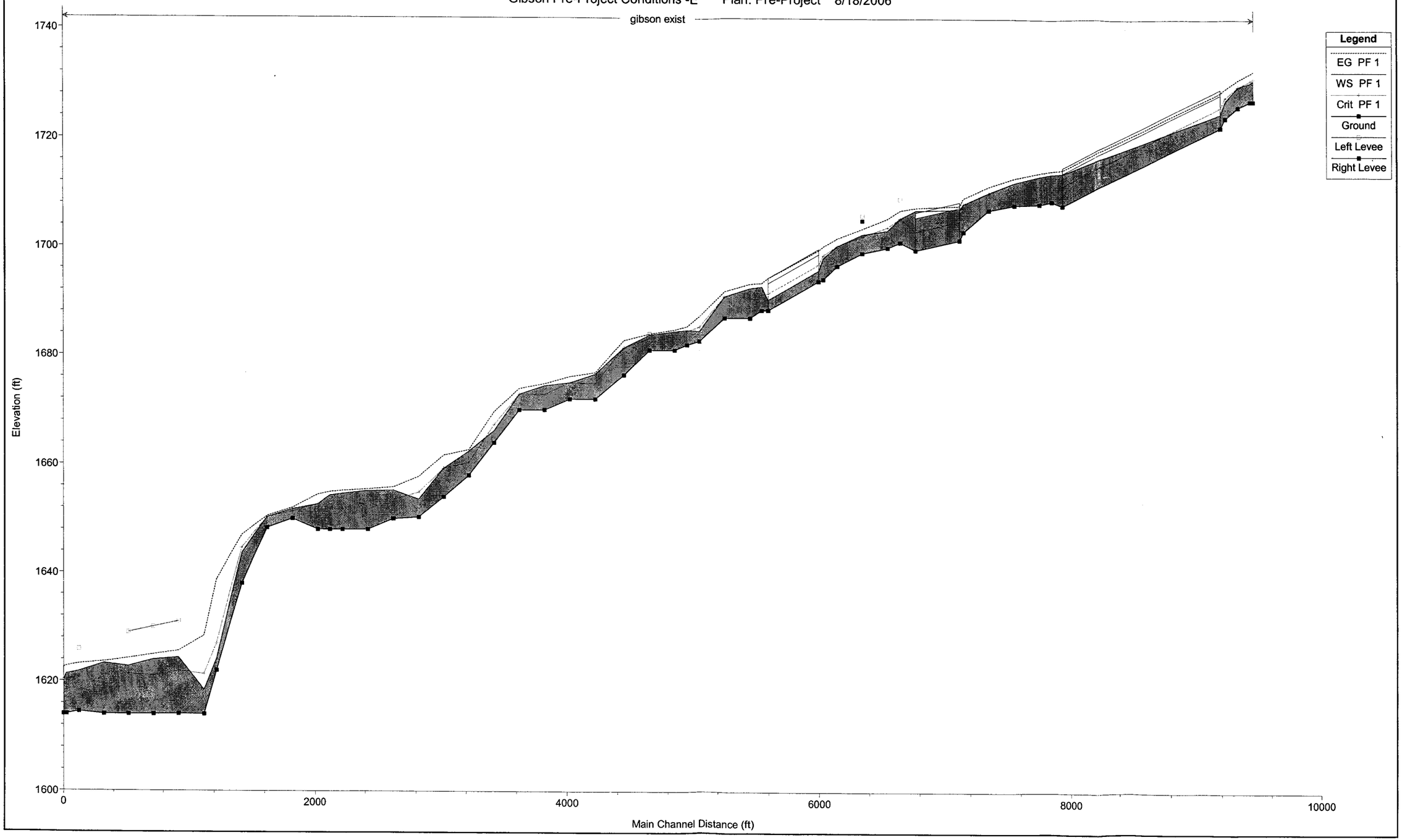

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
12+120
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
12+300
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
12+475
.03
.03
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Bank Sta


Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
12+575
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1635
1630
1625
1620
1615
1610
-400
-300
-200
-100
0
100
200
300
400
Station (ft)


Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006
12+598
.03
.03
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1635
1630
1625
1620
1615
1610
-400
-300
-200
-100
0
100
200
300
400
Station (ft)

Gibson Pre-Project Conditions -E Plan: Pre-Project 8/18/2006

gibson exist



Gibson Channel: Pre-Project Conditions (Corrective/Effective)

HEC-RAS Plan: pre River: gibson Reach: exist Profile: PF 1

Reach	River Sta	Cross Section Sta.	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Hydr Depth	
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)	
exist	92	3+000	PF 1	705	1727	1730.83	1731.09	1732.49	0.013518	10.32	68.33	26.95	1.14	2.54	
exist	91	3+024	PF 1	705	1727	1730.39	1730.77	1732.14	0.015406	10.6	66.51	28.01	1.21	2.37	
exist	90	3+124	PF 1	705	1725.92	1729.69	1729.69	1730.93	0.010386	8.95	78.73	32.13	1.01	2.45	
exist	89	3+224	PF 1	705	1723.91	1727.03	1727.7	1729.32	0.02398	12.16	57.96	28.04	1.49	2.07	
exist	88	3+262	PF 1	705	1722.2	1724.67	1725.84	1728.59	0.010392	15.89	44.37	18	1.78	2.46	
exist	87	4+505	PF 1	705	1707.91	1713.78	1711.55	1714.47	0.000979	6.67	105.7	18	0.49	5.87	
exist	86	4+610	PF 1	725	1708.71	1713.71		1714.31	0.00343	6.19	117.07	35.61	0.6	3.29	
exist	85	4+710	PF 1	725	1708.19	1713.26		1713.93	0.004059	6.53	111.05	35.44	0.65	3.13	
exist	83	4+910	PF 1	725	1707.97	1712.07		1712.9	0.006386	7.32	99.09	38.09	0.8	2.6	
exist	81	5+110	PF 1	725	1707	1710.23	1710.13	1711.35	0.009231	8.5	85.31	34.5	0.95	2.47	
exist	79	5+310	PF 1	725	1703	1708.12	1708.12	1709.2	0.012569	8.32	87.13	41.97	1.01	2.08	
exist	78	5+340	PF 1	725	1701.46	1707.16	1704.9	1707.79	0.000838	6.36	114.04	20	0.47	5.7	
exist	77	5+688	PF 1	725	1699.56	1706.86	1703	1707.37	0.00153	5.73	126.91	23	0.37	5.52	
exist	75	5+800	PF 1	725	1701	1705.43	1705.43	1706.89	0.010249	9.68	74.9	25.57	1	2.93	
exist	74	6+000	PF 1	725	1700	1703.19	1703.78	1705.39	0.02093	11.9	60.94	27.33	1.4	2.23	
exist	72	6+200	PF 1	725	1699	1702.44	1702.11	1703.48	0.007261	8.19	88.57	30.59	0.85	2.89	
exist	70	6+310	PF 1	725	1696.62	1700.31	1700.31	1701.72	0.010359	9.53	76.04	26.94	1	2.82	
exist	68	6+510	PF 1	823	1694.16	1698.06	1698.57	1700.19	0.017151	11.72	70.24	27.32	1.29	2.57	
exist	66	6+548	PF 1	823	1693.76	1695.72	1696.83	1699.48	0.012223	15.55	52.92	27	1.96	1.96	
exist	65	6+970	PF 1	823	1688.41	1690.3	1691.48	1694.33	0.013513	16.09	51.14	27	2.06	1.89	
exist	64	7+020	PF 1	823	1688.41	1692.74	1691.33	1693.41	0.00066	6.56	125.55	29	0.56	4.33	
exist	63	7+110	PF 1	823	1687	1692.45		1693.27	0.004595	7.27	113.19	33.31	0.7	3.4	
exist	61	7+310	PF 1	823	1687	1690.95	1690.95	1691.9	0.01098	7.82	105.27	55.21	1	1.91	
exist	59	7+610	PF 1	823	1682.76	1684.58	1685.35	1687.32	0.064599	13.28	61.99	56.02	2.22	1.11	
exist	58	7+810	PF 1	823	1682	1684.67	1684.47	1685.35	0.008072	6.62	124.38	66.68	0.85	1.87	
exist	57	7+910	PF 1	823	1681.02	1684.41		1684.72	0.003606	4.5	189.36	126.12	0.58	1.5	
exist	55	7+930	PF 1	823	1681	1683.78	1683.11	1684	0.003378	3.76	219.17	146.97	0.54	1.49	
exist	53	8+110	PF 1	823	1676.43	1681.44	1681.44	1682.79	0.010457	9.32	88.32	32.82	1	2.69	
exist	52	8+340	PF 1	823	1672	1676.56	1674.8	1676.87	0.001691	4.46	184.39	54.63	0.43	3.38	
exist	50	8+540	PF 1	823	1672	1674.98	1674.98	1676.1	0.010524	8.5	96.88	43.94	1.01	2.2	
exist	48	8+740	PF 1	823	1670	1674.42	1672.81	1674.79	0.002119	4.87	169.08	52	0.48	3.25	
exist	46	8+940	PF 1	823	1670	1672.87	1672.87	1673.91	0.010582	8.22	100.14	48.17	1	2.08	
exist	44	9+140	PF 1	823	1664	1666.18	1667.28	1669.66	0.051613	14.97	54.98	35.33	2.11	1.56	
exist	42	9+340	PF 1	823	1658	1662.42	1660.33	1662.71	0.001296	4.29	191.83	47.29	0.38	4.06	
exist	40	9+550	PF 1	1741	1654	1659.27	1659.27	1661.68	0.010215	12.45	139.88	29.39	1.01	4.76	
exist	38	9+750	PF 1	1741	1650.3	1653.59	1654.84	1657.76	0.045012	16.38	106.27	53	2.04	2.01	
exist	36	9+950	PF 1	1741	1650	1655.22	1653.51	1655.82	0.002352	6.24	279.18	62.63	0.52	4.46	
exist	34	10+150	PF 1	1741	1648	1655.14		1655.44	0.000992	4.41	395.02	80.81	0.35	4.89	
exist	32	10+350	PF 1	2652	1648	1654.62		1655.15	0.001689	5.83	454.89	90.52	0.46	5.03	
exist	31	10+450	PF 1	2652	1648	1654.28		1654.94	0.002237	6.52	406.46	84.3	0.52	4.82	
exist	30	10+550	PF 1	2652	1648	1652.63	1652.63	1654.43	0.008887	10.77	246.3	68.43	1	3.6	
exist	28	10+750	PF 1	2652	1650	1651.73	1651.3	1651.99	0.00413	2.67	695.23	590.3	0.54	1.18	
exist	26	10+950	PF 1	2652	1648.3	1650.23	1650.23	1650.49	0.017407	4.02	659.65	1366.98	1.02	0.48	
exist	24	11+150	PF 1	2652	1638	1643.63	1644.59	1646.93	0.015135	14.57	181.96	47.12	1.31	3.86	
exist	22	11+350	PF 1	2652	1622	1624.16	1626.97	1638.66	0.166762	30.56	86.78	45.92	3.92	1.89	
exist	21	11+530	PF 1	2652	1614	1618.41	1621.34	1628.34	0.0557	25.29	104.85	25.95	2.22	4.04	
exist	19	11+720	PF 1	2652	1614.1	1624.35	1621.89	1625.59	0.003644	8.94	296.71	46.47	0.62	6.39	
exist	17	11+920	PF 1	2652	1614	1623.98	1620.97	1624.92	0.002381	7.79	340.49	50.57	0.53	6.73	
exist	15	12+120	PF 1	2652	1614	1622.75	1621.32	1624.22	0.004679	9.72	272.93	48.1	0.72	5.67	
exist	13	12+300	PF 1	2652	1614	1623.28		1623.59	0.000656	4.49	590.82	79.45	0.29	7.44	
exist	11	12+475	PF 1	2652	1614.5	1621.79	1620.83	1623.2	0.004767	9.53	278.26	57.02	0.76	4.88	
exist	10	12+575	PF 1	2652	1614	1621.3	1620.26	1622.73	0.004685	9.6	276.27	54.96	0.75	5.03	
exist	9.78	12+598	PF 1	2652	1614	1620.3	1620.3	1622.51	0.00867	11.94	222.08	50.7	1.01	4.38	

Note: HEC-RAS Sta = Cross Section Sta.
See Gibson CLOMR Pre-Project Conditions (Corrective/Effective Work Map) Figure 3.2 Appendix B

GIBSON CLOMR (Addendum #1)
PRE- PROJECT CONDITIONS: CHECK-RAS OUTPUT

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.prj
Plan File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.p01
Geometry File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.g01
Flow File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.f01
Report File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.nt
Selected profiles: PF 1
Date: 8/18/2006
Time: 9:52:01 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
gibson,exist						
92		0.03	0.03	0.03	0.1	0.3
91		0.03	0.03	0.03	0.1	0.3
90		0.03	0.03	0.03	0.1	0.3
89		0.03	0.03	0.03	0.1	0.3
88		0.013	0.013	0.013	0.1	0.3
87		0.013	0.013	0.013	0.1	0.3
86		0.03	0.03	0.03	0.1	0.3
85		0.03	0.03	0.03	0.1	0.3
83		0.03	0.03	0.03	0.1	0.3
81		0.03	0.03	0.03	0.1	0.3
79		0.03	0.03	0.03	0.1	0.3
78		0.013	0.013	0.013	0.1	0.3
77		0.013	0.013	0.013	0.1	0.3
75		0.03	0.03	0.03	0.1	0.3
74		0.03	0.03	0.03	0.1	0.3
72		0.03	0.03	0.03	0.1	0.3
70		0.03	0.03	0.03	0.1	0.3
68		0.03	0.03	0.03	0.1	0.3
66		0.013	0.013	0.013	0.1	0.3
65		0.013	0.013	0.013	0.1	0.3
64		0.013	0.013	0.013	0.1	0.3
63		0.03	0.03	0.03	0.1	0.3
61		-----	0.03	0.03	0.1	0.3
		-----	0.03	-----		
59		0.03	0.03	0.03	0.1	0.3
58		0.03	0.03	0.03	0.1	0.3
57		-----	0.03	0.03	0.1	0.3
		-----	0.03	-----		
55		0.03	0.03	0.03	0.1	0.3
53		-----	0.03	0.03	0.1	0.3
		-----	0.03	-----		
52		0.03	0.03	0.03	0.1	0.3
50		0.03	0.03	0.03	0.1	0.3
48		0.03	0.03	0.03	0.1	0.3
46		0.03	0.03	0.03	0.1	0.3
44		0.03	0.03	0.03	0.1	0.3
42		0.03	0.03	0.03	0.1	0.3
40		0.03	0.03	0.03	0.1	0.3
38		0.03	0.03	0.03	0.1	0.3
36		0.03	0.03	0.03	0.1	0.3
34		0.03	0.03	0.03	0.1	0.3
32		0.03	0.03	0.03	0.1	0.3
31		0.03	0.03	0.03	0.1	0.3
30		0.03	0.03	0.03	0.1	0.3
28		0.03	0.03	0.03	0.1	0.3
26		-----	0.03	0.03	0.1	0.3
		-----	0.03	-----		
24		0.03	0.03	0.03	0.1	0.3
22		0.03	0.03	0.03	0.1	0.3
21		0.03	0.03	0.03	0.1	0.3
19		0.03	0.03	0.03	0.1	0.3
17		0.03	0.03	0.03	0.1	0.3
15		0.03	0.03	0.03	0.1	0.3
13		0.03	0.03	0.03	0.1	0.3
11		0.03	0.03	0.03	0.1	0.3
10		0.03	0.03	0.03	0.1	0.3
9.78		0.03	0.03	0.03	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.013	0.03
Right Overbank n Value:	0.013	0.03
Channel n Value:	0.013	0.03
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

RS: 92
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 92
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 92
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 91
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 91
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 91
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 90
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 90
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 90
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 89
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 89
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 89
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
of 0.03 are less than or equal to the channel n value of 0.03
The overbank n values should be reevaluated.

RS: 88
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 88
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 88
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 88
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 87

```
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      87
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       87
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      87
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      86
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      86
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      86
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      85
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      85
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      85
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      83
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      83
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      83
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      81
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      81
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      81
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      79
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:      79
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      79
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      78
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      78
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       78
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      78
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      77
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      77
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       77
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      77
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      75
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      75
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      75
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      74
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      74
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      74
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      72
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
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         The n value should be reevaluated.

RS:      72
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      72
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      70
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      70
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      70
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      68
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      68
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      68
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      66
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      66
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       66
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      66
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      65
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      65
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       65
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      65
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      64
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NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      64
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       64
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      64
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      63
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      63
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      63
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      61
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      59
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      59
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      59
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      58
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      58
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      58
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      57
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      55
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      55
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:       55
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       53
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       52
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       52
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       52
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       50
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       50
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       50
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       48
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       48
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       48
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       46
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       46
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       46
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       44
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       44
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       44
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.
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RS:       42
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       42
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       42
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       40
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       40
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       40
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       38
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       38
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       38
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       36
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       36
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       36
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       34
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       34
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       34
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       32
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       32
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:      32
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      31
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      31
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      31
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      30
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      30
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      30
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      28
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      28
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      28
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      26
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      24
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      24
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      24
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      22
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      22
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      22
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.
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RS:      21
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      21
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      21
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      19
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      17
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      17
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      17
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      15
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      15
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      15
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      13
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:      11
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      11
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:       11
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

RS:       10
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       10
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       10
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.03
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.prj
Plan File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.p01
Geometry File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.g01
Flow File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.f01
Report File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Pre Project Conditions\GIB_PRE.xs
Selected profiles: PF 1
Date: 8/18/2006
Time: 9:52:24 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
gibson,exist						
92	24	24	24	26.95	705	
91	100	100	100	28.01	705	
90	100	100	100	32.13	705	C
89	38	38	38	28.04	705	
88	1258.42	1258.42	1258.42	18	705	D
87	83	83	83	18	705	D
86	100	100	100	35.61	725	
85	200	200	200	35.44	725	
83	200	200	200	38.09	725	
81	200	200	200	34.5	725	
79	31.32	31.32	31.32	41.97	725	C
78	347	347	347	20	725	D
77	122	122	122	23	725	E
75	100	100	100	25.57	725	C
74	200	200	200	27.33	725	
72	200	200	200	30.59	725	E
70	110	110	110	26.94	725	C
68	38	38	38	27.32	823	
66	374.89	398.39	421.9	27	823	D
65	50.5	50.5	50.5	27	823	D
64	89	89	89	29	823	
63	200	200	200	33.31	823	
61	200	200	200	55.21	823	D,C
59	100	100	100	56.02	823	
58	100	100	100	66.68	823	
57	200	200	200	126.12	823	D
55	200	200	200	146.97	823	E
53	230	230	230	32.82	823	C
52	200	200	200	54.63	823	
50	200	200	200	43.94	823	C
48	200	200	200	52	823	
46	200	200	200	48.17	823	C
44	200	200	200	35.33	823	
42	200	200	200	47.29	823	
40	200	200	200	29.39	1741	C
38	200	200	200	53	1741	
36	200	200	200	62.63	1741	
34	200	200	200	80.81	1741	
32	100	100	100	90.52	2652	
31	100	100	100	84.3	2652	
30	200	200	200	68.43	2652	C
28	200	200	200	590.3	2652	D
26	200	200	200	1366.98	2652	C
24	200	200	200	47.12	2652	
22	100	100	100	45.92	2652	
21	200	200	200	25.95	2652	
19	200	200	200	46.47	2652	
17	200	200	200	50.57	2652	
15	200	200	200	48.1	2652	
13	200	200	200	79.45	2652	
11	100	100	100	57.02	2652	
10	22	22	22	54.96	2652	
9.78	0	0	0	50.7	2652	C

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

RS: 75
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 72
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 72
XS IF 01 Right Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 55
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 19
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 17
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 15
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

RS: 11
XS IF 01 Left Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

DISCHARGE CHECK

LOCATION CHECK

RS: 52
XS LC 01 Lenchl Up/TopwdthAct Dn = 4.55
MaxChlDpth Up/MaxChlDpth Dn = 1.53
TopwdthAct Up/TopwdthAct Dn = 1.24
This cross section is located too far upstream from the
critical depth cross section.

RS: 31
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.46
MaxChlDpth Up/MaxChlDpth Dn = 1.36
TopwdthAct Up/TopwdthAct Dn = 1.23
This cross section is located too far upstream from the
critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is gibson,exist
Critical is specified as the downstream boundary
for profile PF 1

XS BC 02 The name of the stream is gibson,exist
Normal S = 0.0135 is specified as the upstream boundary
for profile PF 1

XS BC 03 Maximum number of iterations is 0
It should not be less than 20.

XS FR 02 The profile is computed as mixed flow regime.

LATERAL WEIRS CHECK

---END---

GIBSON CLOMR (Addendum #1)
POST- PROJECT CONDITIONS: HEC-RAS OUTPUT

postproject.prj

Gibson Channel : Pre-Project Conditions
Stationing Quick Reference for use w/ HEC-RAS Post-Project Conditions

Note: HEC-RAS Sta. = Cross Section Sta
See Gibson CLOMR Post-Project Conditions (Post Project Work Map) Figure 3.3 Appendix B

NEW HEC-RAS River Sta.	Cross Section Sta	DESCRIPTION OF FACILITY	Channel
18653.05	2+957	Gibson Channel per VTN Plans 10+00	North Channel
18603.05	3+007	Gibson Channel per VTN Plans 10+50	North Channel
18354.06	3+256	Gibson Channel per VTN Plans 12+98.99	North Channel
18314.47	3+296	Gibson Channel per VTN Plans 13+38.58	North Channel
17036.02	4+574	Gibson Channel per VTN Plans 26+17.03	North Channel
16991.39	4+624	Gibson Channel per VTN Plans 26+67.03	North Channel
16271.91	5+338	Gibson Channel per VTN Plans 33+81.14	North Channel
16221.83	5+388	Gibson Channel per VTN Plans 34+31.22	North Channel
15874.83	5+735	Gibson Channel per VTN Plans 37+78.22	North Channel
15824.82	5+785	Gibson Channel per VTN Plans 38+28.23	North Channel
15635.6	5+974	Gibson Channel per VTN Plans 40+17.45	North Channel
15080.09	6+530	Gibson Channel per VTN Plans 45+72.94	North Channel
15015.09	6+595	Gibson Channel per VTN Plans 46+37.97	North Channel
14592.55	7+017	Gibson Channel per VTN Plans 50+60	North Channel
14542.55	7+068	Gibson Channel per VTN Plans 51+10.50	North Channel
14252.5	7+358	Gibson Channel per VTN Plans 54+00.55	North Channel
14092.97	7+517	Gibson Channel per VTN Plans 55+60.08 - End Gibson CH	North Channel
13987.91	7+622	Desert Canyon per STANTEC Plans RS 3987.91	North Channel
13887.91	7+722	Desert Canyon per STANTEC Plans RS 3887.91	North Channel
13787.91	7+822	Desert Canyon per STANTEC Plans RS 3787.91	North Channel
13687.91	7+922	Desert Canyon per STANTEC Plans RS 3687.91	North Channel
13602.91	8+007	Desert Canyon per STANTEC Plans RS 3602.91, begin transition	North Channel
13582.54	8+027	Desert Canyon per STANTEC Plans -	North Channel
13562.17	8+048	Desert Canyon per STANTEC Plans RS 3562.17, end transition	North Channel
13562.16	8+048	Desert Canyon per STANTEC Plans RS 3562.16, RCB inlet	North Channel
13557.18	8+053	Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic analyisis only)	North Channel
13552.2	8+058	Desert Canyon per STANTEC Plans RS 3552.2, begin existing south cell box	North Channel
13478.79	8+131	Desert Canyon per STANTEC Plans RS 3478.79, end existing south cell box	North Channel
13476.6	8+133	Desert Canyon per STANTEC Plans RS 3474.46, RCB PT	North Channel
13425.61	8+184	Desert Canyon per STANTEC Plans RS 3425.61, RCB PC	North Channel
13410.61	8+199	Desert Canyon per STANTEC Plans RS 3410.61, RCB PT	North Channel
13353.48	8+256	Desert Canyon per STANTEC Plans RS 3353.48, RCB PC	North Channel
13343.61	8+266	Desert Canyon per STANTEC Plans RS 3343.61, Dual 12'x6' RCB outlet	North Channel
13343.6	8+266	Desert Canyon per STANTEC Plans RS 3343.6, upstream limit of openspace channel	North Channel
13333.3	8+277	Desert Canyon per STANTEC Plans -	North Channel
13323	8+287	Desert Canyon per STANTEC Plans RS 3323, begin 50' channel	North Channel
13307.38	8+303	Desert Canyon per STANTEC Plans -	North Channel
13291.77	8+318	Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance road channel tie in	North Channel
13267.98	8+342	Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance road channel tie in	North Channel
13244.2	8+366	Desert Canyon per STANTEC Plans RS 3244.2	North Channel
13234.75	8+375	Desert Canyon per STANTEC Plans RS 3234.75, end transition	North Channel
13234.74	8+375	Desert Canyon per STANTEC Plans RS 3234.74, end transition	North Channel
13229.38	8+381	Desert Canyon per STANTEC Plans RS 3229.38, Upstream of south ramp entrance	North Channel
13229.37	8+381	Desert Canyon per STANTEC Plans RS 3229.37, South ramp entrance	North Channel
13221.37	8+389	Desert Canyon per STANTEC Plans RS 3221.37, begin south ramp transition	North Channel
13167.84	8+442	Desert Canyon per STANTEC Plans -	North Channel
13114.31	8+496	Desert Canyon per STANTEC Plans RS 3114.31, begin south wall of south ramp	North Channel
13114.3	8+496	Desert Canyon per STANTEC Plans RS 3114.3, begin south wall of south ramp	North Channel
13060.1	8+550	Desert Canyon per STANTEC Plans RS 3060.10	North Channel
13044.11	8+566	Desert Canyon per STANTEC Plans RS 3044.11, upstream north ramp entrance	North Channel
13044.1	8+566	Desert Canyon per STANTEC Plans RS 3033.34, North ramp grade break	North Channel
13018.22	8+592	Desert Canyon per STANTEC Plans RS 3018.22, south ramp tie in	North Channel
13018.21	8+592	Desert Canyon per STANTEC Plans RS 3018.21, south ramp tie in	North Channel
13010.22	8+600	Desert Canyon per STANTEC Plans RS 3010.22, south ramp tie in	North Channel
13010.21	8+600	Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in	North Channel
12954.02	8+656	Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in	North Channel
12943.65	8+666	Desert Canyon per STANTEC Plans RS 2943.65, begin north wall north ramp	North Channel
12906.81	8+703	Desert Canyon per STANTEC Plans -	North Channel
12869.97	8+740	Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall	North Channel
12869.96	8+740	Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall	North Channel
12829.26	8+781	Desert Canyon per STANTEC Plans -	North Channel
12788.55	8+821	Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in	North Channel
12788.54	8+821	Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in	North Channel
12780.55	8+829	Desert Canyon per STANTEC Plans RS 2780.55, north ramp tie in	North Channel
12780.54	8+829	Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in	North Channel
12724.23	8+886	Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in	North Channel
12667.92	8+942	Desert Canyon per STANTEC Plans RS 2667.92, end north ramp wall	North Channel
12667.91	8+942	Desert Canyon per STANTEC Plans RS 2667.91, end north ramp wall	North Channel
12598.93	9+011	Desert Canyon per STANTEC Plans -	North Channel
12529.94	9+080	Desert Canyon per STANTEC Plans RS 2529.94, Begin Transition	North Channel
12499.95	9+110	Desert Canyon per STANTEC Plans RS 2499.93, end transition, begin 30' turn around pad	North Channel
12499.94	9+110	Desert Canyon per STANTEC Plans RS 2499.94, end transition, begin 30' turn around pad	North Channel
12469.94	9+140	Desert Canyon per STANTEC Plans RS 2469.94, top of nuissance drain headwall, end turn around pad	North Channel
12469.93	9+140	Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance channel, begin nuissance	North Channel
12435.49	9+174	Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance channel, begin nuissance	North Channel
12401.05	9+209	Desert Canyon per STANTEC Plans RS 2401.05, nuissance channel GB, end nuissance channel transi	North Channel
12400	9+210	Desert Canyon per STANTEC Plans RS 2400	North Channel
12350	9+260	Desert Canyon per STANTEC Plans RS 2350	North Channel
12320	9+290	Desert Canyon per STANTEC Plans RS 2320	North Channel
12312.18	9+298	Desert Canyon per STANTEC Plans RS 2312.18, upstream Eastgate Bridge face	North Channel
12312.17	9+298	Desert Canyon per STANTEC Plans RS 2312.17, begin abutments	North Channel
12278.95	9+331	Desert Canyon per STANTEC Plans RS 2278.95	North Channel
12253.91	9+356	Desert Canyon per STANTEC Plans RS 2253.91, south abutment bend	North Channel

12217.72	9+392	Desert Canyon per STANTEC Plans RS 2217.72, downstream Eastgate Bridge	North Channel
12203.57	9+406	Desert Canyon per STANTEC Plans RS 2203.57, begin half trapezoidal channel	North Channel
12162.19	9+448	Desert Canyon per STANTEC Plans RS 2162.19, end transition & bend	North Channel
12150	9+460	Desert Canyon per STANTEC Plans RS 2150, end 3:1 left side slope	North Channel
12125	9+485	Desert Canyon per STANTEC Plans RS 2125, begin 2:1 left side slope	North Channel
12097.31	9+513	Desert Canyon per STANTEC Plans RS 2097.31, upstream face Easter Lily	North Channel
12097.3	9+513	Desert Canyon per STANTEC Plans RS 2097.30, begin abutment	North Channel
12033.7	9+576	Desert Canyon per STANTEC Plans RS 2033.7, end abutment	North Channel
12033.69	9+576	Desert Canyon per STANTEC Plans RS 2033.69, end Easter Lily bridge	North Channel
12000	9+610	Desert Canyon per STANTEC Plans RS 2000	North Channel
11924.18	9+686	Desert Canyon per STANTEC Plans RS 1924.18, Pioneer Outfall 12'x8' RCB Outlet (South Channel)	North Channel
11911.68	9+698	Desert Canyon per STANTEC Plans -	North Channel
11899.18	9+711	Desert Canyon per STANTEC Plans -	North Channel
11886.68	9+723	Desert Canyon per STANTEC Plans -	North Channel
11874.18	9+736	Desert Canyon per STANTEC Plans RS 1874.18, end south channel nuissance channel transition	North Channel
11851.12	9+759	Desert Canyon per STANTEC Plans -	North Channel
11828.06	9+782	Desert Canyon per STANTEC Plans	North Channel
11826.06	9+784	Desert Canyon per STANTEC Plans -	North Channel
11805	9+805	Desert Canyon per STANTEC Plans RS 1805, reach end	North Channel
11800	9+810	Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin	Combined Channel
11799.99	9+810	Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin	Combined Channel
11790	9+820	Desert Canyon per STANTEC Plans RS 1790	Combined Channel
11769.13	9+841	Desert Canyon per STANTEC Plans RS 1769.13	Combined Channel
11751.44	9+859	Desert Canyon per STANTEC Plans RS 1751.44	Combined Channel
11739.7	9+870	Desert Canyon per STANTEC Plans RS 1739.7, begin nuissance channel merge	Combined Channel
11732.13	9+878	Desert Canyon per STANTEC Plans RS 1732.13	Combined Channel
11720	9+890	Desert Canyon per STANTEC Plans RS 1720, end transition	Combined Channel
11712.87	9+897	Desert Canyon per STANTEC Plans RS 1712.87, end nuissance channel merge	Combined Channel
11689.21	9+921	Desert Canyon per STANTEC Plans RS 1689.21	Combined Channel
11675	9+935	Desert Canyon per STANTEC Plans RS 1675	Combined Channel
11634.34	9+976	Desert Canyon per STANTEC Plans 1634.34, begin left channel wall transition	Combined Channel
11624.05	9+986	Desert Canyon per STANTEC Plans RS 1624.05, end left side slope	Combined Channel
11618.85	9+991	Desert Canyon per STANTEC Plans RS 1618.85, end left channel wall transition	Combined Channel
11596.34	10+014	Desert Canyon per STANTEC Plans RS 1596.34, begin left side slope transition	Combined Channel
11527.17	10+083	Desert Canyon per STANTEC Plans RS 1527.17, end left slope transition, end left retaining wall	Combined Channel
11500	10+110	Desert Canyon per STANTEC Plans RS 1500	Combined Channel
11450	10+160	Desert Canyon per STANTEC Plans RS 1450	Combined Channel
11400	10+210	Desert Canyon per STANTEC Plans RS 1400	Combined Channel
11377.99	10+232	Desert Canyon per STANTEC Plans RS 1377.99, begin compound curve	Combined Channel
11350	10+260	Desert Canyon per STANTEC Plans RS 1350	Combined Channel
11300	10+310	Desert Canyon per STANTEC Plans RS 1300	Combined Channel
11278.76	10+331	Desert Canyon per STANTEC Plans RS 1278.76, compound curve midpoint	Combined Channel
11250	10+360	Desert Canyon per STANTEC Plans RS 1250	Combined Channel
11200	10+410	Desert Canyon per STANTEC Plans RS 1200	Combined Channel
11175.26	10+435	Desert Canyon per STANTEC Plans RS 1175.26	Combined Channel
11154.55	10+455	Desert Canyon per STANTEC Plans RS 1154.55, end compound curve	Combined Channel
11125	10+485	Desert Canyon per STANTEC Plans RS 1125, begin right channel wall	Combined Channel
11116.35	10+494	Desert Canyon per STANTEC Plans RS 1116.35, begin channel transition	Combined Channel
11100	10+510	Desert Canyon per STANTEC Plans RS 1100,	Combined Channel
11050	10+560	Desert Canyon per STANTEC Plans RS 1050	Combined Channel
11033.37	10+577	Desert Canyon per STANTEC Plans RS 1033.37, begin left channel wall	Combined Channel
11007.4	10+603	Desert Canyon per STANTEC Plans RS 1007.4, begin nuissance channel transition	Combined Channel
10973.86	10+636	Desert Canyon per STANTEC Plans RS 973.86, begin rectangular channel	Combined Channel
10950.26	10+660	Desert Canyon per STANTEC Plans RS 950.26, end nuissance channel	Combined Channel
10909.89	10+700	Desert Canyon per STANTEC Plans RS 909.89, begin channel bottom cross fall transition	Combined Channel
10834.9	10+775	Desert Canyon per STANTEC Plans RS 834.9, end channel transition, begin VTN Pioneer Phase II 64+1	Combined Channel
10834.89	10+775	Pioneer Phase II Channel per VTN Plans 64+15.01	Combined Channel
10599.9	11+010	Pioneer Phase II Channel per VTN Plans 66+50.00	Combined Channel
10599.89	11+010	Pioneer Phase II Channel per VTN Plans 66+50.01	Combined Channel
10529.91	11+080	Pioneer Phase II Channel per VTN Plans 67+20.00	Combined Channel
10429.91	11+180	Pioneer Phase II Channel per VTN Plans 68+20.01	Combined Channel
10429.9	11+180	Pioneer Phase II Channel per VTN Plans 68+20.01	Combined Channel
10289.92	11+320	Pioneer Phase II Channel per VTN Plans 69+60.00	Combined Channel
10289.91	11+320	Pioneer Phase II Channel per VTN Plans 69+60.01	Combined Channel
10209.93	11+400	Pioneer Phase II Channel per VTN Plans 70+40.00	Combined Channel
10124.93	11+485	Pioneer Phase II Channel per VTN Plans 71+25.00	Combined Channel
10124.92	11+485	Pioneer Phase II Channel per VTN Plans 71+25.01	Combined Channel
9999.93	11+610	Pioneer Phase II Channel per VTN Plans 72+50.00	Combined Channel
9999.92	11+610	Pioneer Phase II Channel per VTN Plans 72+50.01	Combined Channel
9905.49	11+704	Pioneer Phase II Channel per VTN Plans 73+44.45	Combined Channel
9845.49	11+764	Pioneer Phase II Channel per VTN Plans 74+04.45	Combined Channel
9245.49	12+364	Pioneer Phase II Channel per VTN Plans 80+04.45 - End 600' DS	Combined Channel
12150	-	Pioneer Phase I Channel per VTN Plans RS 2150, south channel approach (Pioneer Outfall 12'x8' RCB)	South Channel
12100	-	Pioneer Phase I Channel per VTN Plans RS 2100	South Channel
12050	-	Pioneer Phase I Channel per VTN Plans RS 2050	South Channel
12000	-	Pioneer Phase I Channel per VTN Plans RS 2000	South Channel
11950	-	Desert Canyon per STANTEC Plans RS 1950	South Channel
11924.19	-	Desert Canyon per STANTEC Plans RS 1924.19, Pioneer Outfall 12'x8' RCB outlet	South Channel
11911.68	-	Desert Canyon per STANTEC Plans	South Channel
11899.18	-	Desert Canyon per STANTEC Plans RS 1899.18	South Channel
11886.68	-	Desert Canyon per STANTEC Plans	South Channel
11874.18	-	Desert Canyon per STANTEC Plans RS 1874.18, end nuissance channel transition	South Channel
11851.12	-	Desert Canyon per STANTEC Plans	South Channel
11828.06	-	Desert Canyon per STANTEC Plans	South Channel
11805	-	Desert Canyon per STANTEC Plans	South Channel

Note: South Channel section does not have post project stations, since south channel connection runs along combined channel

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X     X
X     X  X        X            X   X    X    X    X
XXXXXXX  XXXX     X        XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X      X    X       X
X     X  X        X    X       X   X     X    X       X
X     X  XXXXXX    XXXX        X    X    X    X   XXXXX
```

****

PROJECT DATA
Project Title: Post Project Conditions-New
Project File : PostProject.prj
Run Date and Time: 8/18/2006 10:42:34 AM

Project in English units

Project Description:
Gibson CLOMR - Post Project Condition; VTN Nevada w/Stantec Desert Canyon Open
Space

****

PLAN DATA

Plan Title: Plan 01
Plan File : j:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.p02

Geometry Title: Post Project VTN-Stantec Geo
Geometry File : j:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.g01

Flow Title : VTN New-Post Cond Flow2
Flow File : j:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.f01

Plan Summary Information:
Number of: Cross Sections = 167 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 1 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

****

FLOW DATA

Flow Title: VTN New-Post Cond Flow2
Flow File : j:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.f01

Flow Data (cfs)

River	Reach	RS	PF 1
Combined Channel	EAST	11800.	1741
Combined Channel	EAST	11634.34*	2652
North Channel	WEST	18653.05*	705
North Channel	WEST	16991.39*	725
North Channel	WEST	15824.82*	823
South Channel	South	12150.	911

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Combined Channel	EAST	PF 1		Critical
North Channel	WEST	PF 1	Normal S = 0.007	
South Channel	South	PF 1	Normal S = 0.01	

****

GEOMETRY DATA

Geometry Title: Post Project VTN-Stantec Geo
Geometry File : j:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.g01

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
Combined Channel	EAST	S-N JUNC	
North Channel	WEST		S-N JUNC
South Channel	South		S-N JUNC

JUNCTION INFORMATION

Name: S-N JUNC
Description: North and South Channel Confluence
Energy computation Method

Length across Junction River	Reach	Tributary River	Reach	Length	Angle
North Channel	WEST	to Combined Channel	EAST	5	
South Channel	South	to Combined Channel	EAST	5	

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11800.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1800, north and south channel
confluence, begin
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

****

44.49	58.52	44.5	55.15	52.25	51.28	64.75	51.28	68.05	50.18
71.35	51.28	97	51.28	100	50.28	103	51.28	117.78	58.26

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	64.75	.013	71.35	.03	97	.013
103	.03								

Bank Sta: Left Right Coeff Contr. Expan.
44.49 117.78 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	59.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.67	Wt. n-Val.		0.027	
W.S. Elev (ft)	52.72	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)	54.34	Flow Area (sq ft)		84.02	
E.G. Slope (ft/ft)	*0.084191	Area (sq ft)		84.02	
Q Total (cfs)	1741.00	Flow (cfs)		1741.00	
Top Width (ft)	56.69	Top Width (ft)		56.69	
Vel Total (ft/s)	20.72	Avg. Vel. (ft/s)		20.72	
Max Chl Dpth (ft)	2.54	Hydr. Depth (ft)		1.48	
Conv. Total (cfs)	6000.2	Conv. (cfs)		6000.2	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		58.03	
Min Ch El (ft)	50.18	Shear (lb/sq ft)		7.61	
Alpha	1.00	Stream Power (lb/ft s)		157.69	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)		11.41	0.04
C & E Loss (ft)	0.01	Cum SA (acres)		2.95	0.01

Warning: During supercritical flow calculations a junction was encountered. During standard step calculations the program used the stream with the greatest momentum to balance the energy equation.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11799.99

INPUT
Description: Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	55.15	52.25	51.28	64.75	51.28	68.05	50.18
71.35	51.28	80.25	51.28	97	51.28	100	50.28	103	51.28
117.78	58.26								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	64.75	.013	71.35	.03	80.25	.013
103	.03								

Bank Sta: Left Right Coeff Contr. Expan.
44.49 117.78 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	59.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.67	Wt. n-Val.		0.022	
W.S. Elev (ft)	52.72	Reach Len. (ft)	0.00	9.99	0.00
Crit W.S. (ft)	54.34	Flow Area (sq ft)		84.02	
E.G. Slope (ft/ft)	*0.057711	Area (sq ft)		84.02	
Q Total (cfs)	1741.00	Flow (cfs)		1741.00	
Top Width (ft)	56.69	Top Width (ft)		56.69	
Vel Total (ft/s)	20.72	Avg. Vel. (ft/s)		20.72	
Max Chl Dpth (ft)	2.54	Hydr. Depth (ft)		1.48	
Conv. Total (cfs)	7247.2	Conv. (cfs)		7247.2	
Length Wtd. (ft)	9.99	Wetted Per. (ft)		58.03	
Min Ch El (ft)	50.18	Shear (lb/sq ft)		5.22	
Alpha	1.00	Stream Power (lb/ft s)		108.09	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		11.41	0.04
C & E Loss (ft)	0.00	Cum SA (acres)		2.95	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11790.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1790
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	55.06	52.25	51.18	64.75	51.18	68.05	50.08
71.35	51.18	97	51.18	100	50.18	103	51.18	106.38	51.18
121.15	58.16								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	64.75	.013	71.35	.03	97	.013
103	.03								

Bank Sta: Left Right Coeff Contr. Expan.
44.49 121.15 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	58.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.87	Wt. n-Val.		0.027	
W.S. Elev (ft)	52.63	Reach Len. (ft)	0.00	20.87	0.00
Crit W.S. (ft)	54.11	Flow Area (sq ft)		89.53	
E.G. Slope (ft/ft)	*0.074606	Area (sq ft)		89.53	
Q Total (cfs)	1741.00	Flow (cfs)		1741.00	
Top Width (ft)	60.10	Top Width (ft)		60.10	
Vel Total (ft/s)	19.45	Avg. Vel. (ft/s)		19.45	
Max Chl Dpth (ft)	2.55	Hydr. Depth (ft)		1.49	
Conv. Total (cfs)	6374.0	Conv. (cfs)		6374.0	
Length Wtd. (ft)	20.87	Wetted Per. (ft)		61.45	
Min Ch El (ft)	50.08	Shear (lb/sq ft)		6.79	
Alpha	1.00	Stream Power (lb/ft s)		131.96	
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)		11.40	0.04
C & E Loss (ft)	0.24	Cum SA (acres)		2.93	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11769.13

INPUT
Description: Desert Canyon per STANTEC Plans RS 1769.13
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.98	52.25	51.1	68.65	51.1	72.2	50
75.79	51.1	96.88	51.1	100	50.06	103.12	51.1	113.42	51.1
128.2	58.08								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	68.65	.013	75.79	.03	96.88	.013
103.12	.03								

Bank Sta: Left Right Coeff Contr. Expan.
44.49 128.2 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.027	
W.S. Elev (ft)	55.95	Reach Len. (ft)	0.00	17.69	0.00
Crit W.S. (ft)	53.83	Flow Area (sq ft)		351.08	
E.G. Slope (ft/ft)	*0.001214	Area (sq ft)		351.08	
Q Total (cfs)	1741.00	Flow (cfs)		1741.00	
Top Width (ft)	79.19	Top Width (ft)		79.19	
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)		4.96	
Max Chl Dpth (ft)	5.95	Hydr. Depth (ft)		4.43	
Conv. Total (cfs)	49960.8	Conv. (cfs)		49960.8	
Length Wtd. (ft)	17.69	Wetted Per. (ft)		82.82	
Min Ch El (ft)	50.00	Shear (lb/sq ft)		0.32	
Alpha	1.00	Stream Power (lb/ft s)		1.59	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		11.29	0.04
C & E Loss (ft)	0.02	Cum SA (acres)		2.90	0.01

Note: Manning's n values were composited to a single value in the main channel.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11751.44

INPUT
Description: Desert Canyon per STANTEC Plans RS 1751.44
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.9	52.25	51.03	79.49	51.03	84.03	49.92
88.57	51.03	96.77	51.03	100	49.95	103.23	51.03	119.39	51.03
134.17	58.01								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	79.49	.013	88.57	.03	96.77	.013
103.23	.03								

Bank Sta: Left Right Coeff Contr. Expan.
44.49 134.17 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.027	
W.S. Elev (ft)	55.98	Reach Len. (ft)	0.00	11.74	0.00
Crit W.S. (ft)		Flow Area (sq ft)		390.12	
E.G. Slope (ft/ft)	*0.000929	Area (sq ft)		390.12	
Q Total (cfs)	1741.00	Flow (cfs)		1741.00	
Top Width (ft)	85.37	Top Width (ft)		85.37	
Vel Total (ft/s)	4.46	Avg. Vel. (ft/s)		4.46	
Max Chl Dpth (ft)	6.06	Hydr. Depth (ft)		4.57	
Conv. Total (cfs)	57113.6	Conv. (cfs)		57113.6	
Length Wtd. (ft)	11.74	Wetted Per. (ft)		89.09	
Min Ch El (ft)	49.92	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		1.13	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		11.14	0.04
C & E Loss (ft)	0.01	Cum SA (acres)		2.87	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11739.7

INPUT
Description: Desert Canyon per STANTEC Plans RS 1739.7, begin nuissance channel
merge
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.85	52.25	50.98	89.11	50.98	92.94	49.87
96.7	50.98	100	49.88	103.3	50.98	123.35	50.98	134.96	56.47

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	89.11	.013	103.3	.03

Bank Sta: Left Right Coeff Contr. Expan.
44.49 134.96 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.027	
W.S. Elev (ft)	55.99	Reach Len. (ft)	0.00	7.57	0.00
Crit W.S. (ft)		Flow Area (sq ft)		414.78	
E.G. Slope (ft/ft)	*0.000825	Area (sq ft)		414.78	
Q Total (cfs)	1741.00	Flow (cfs)		1741.00	
Top Width (ft)	89.46	Top Width (ft)		89.46	
Vel Total (ft/s)	4.20	Avg. Vel. (ft/s)		4.20	
Max Chl Dpth (ft)	6.12	Hydr. Depth (ft)		4.64	
Conv. Total (cfs)	60603.2	Conv. (cfs)		60603.2	
Length Wtd. (ft)	7.57	Wetted Per. (ft)		93.31	
Min Ch El (ft)	49.87	Shear (lb/sq ft)		0.23	
Alpha	1.00	Stream Power (lb/ft s)		0.96	

* Frctn Loss (ft)	* 0.01	* Cum Volume (acre-ft)	*	* 11.03	* 0.04	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	* 2.84	* 0.01	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11732.13

INPUT
Description: Desert Canyon per STANTEC Plans RS 1732.13
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.83	52.25	50.95	92.73	50.95	96.49	49.76
98.31	50.55	100	49.76	103.55	50.95	125.91	50.95	137.52	56.44

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	92.73	.013	103.55	.03

Bank Sta: Left Right Coeff Contr. Expan.
44.49 137.52 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 56.26	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.25	* Wt. n-Val.	*	* 0.028	* *
* W.S. Elev (ft)	* 56.00	* Reach Len. (ft)	* 0.00	* 12.13	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 430.32	* *
* E.G. Slope (ft/ft)	*0.000791	* Area (sq ft)	*	* 430.32	* *
* Q Total (cfs)	* 1741.00	* Flow (cfs)	*	* 1741.00	* *
* Top Width (ft)	* 92.10	* Top Width (ft)	*	* 92.10	* *
* Vel Total (ft/s)	* 4.05	* Avg. Vel. (ft/s)	*	* 4.05	* *
* Max Chl Dpth (ft)	* 6.24	* Hydr. Depth (ft)	*	* 4.67	* *
* Conv. Total (cfs)	* 61899.9	* Conv. (cfs)	*	* 61899.9	* *
* Length Wtd. (ft)	* 12.13	* Wetted Per. (ft)	*	* 96.03	* *
* Min Ch El (ft)	* 49.76	* Shear (lb/sq ft)	*	* 0.22	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 0.90	* *
* Frctn Loss (ft)	* 0.01	* Cum Volume (acre-ft)	*	* 10.96	* 0.04 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	* 2.83	* 0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11720.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1720, end transition
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.77	52.25	50.9	95.5	50.9	99.53	49.58
99.76	49.87	100	49.58	103.96	50.9	130	50.9	141	56.4

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	95.5	.013	103.96	.03

Bank Sta: Left Right Coeff Contr. Expan.
44.49 141 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 56.24	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.23	* Wt. n-Val.	*	* 0.028	* *
* W.S. Elev (ft)	* 56.01	* Reach Len. (ft)	* 0.00	* 7.13	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 453.87	* *
* E.G. Slope (ft/ft)	*0.000718	* Area (sq ft)	*	* 453.87	* *
* Q Total (cfs)	* 1741.00	* Flow (cfs)	*	* 1741.00	* *
* Top Width (ft)	* 95.72	* Top Width (ft)	*	* 95.72	* *
* Vel Total (ft/s)	* 3.84	* Avg. Vel. (ft/s)	*	* 3.84	* *
* Max Chl Dpth (ft)	* 6.43	* Hydr. Depth (ft)	*	* 4.74	* *
* Conv. Total (cfs)	* 64985.4	* Conv. (cfs)	*	* 64985.4	* *
* Length Wtd. (ft)	* 7.13	* Wetted Per. (ft)	*	* 99.78	* *
* Min Ch El (ft)	* 49.58	* Shear (lb/sq ft)	*	* 0.20	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 0.78	* *
* Frctn Loss (ft)	* 0.01	* Cum Volume (acre-ft)	*	* 10.83	* 0.04 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 2.80	* 0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11712.87

INPUT
Description: Desert Canyon per STANTEC Plans RS 1712.87, end nuissance channel merge
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.75	52.25	50.87	95.8	50.87	100	49.47
104.2	50.87	130	50.87	141	56.37				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
44.49 141 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 56.23	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.23	* Wt. n-Val.	*	* 0.029	* *
* W.S. Elev (ft)	* 56.01	* Reach Len. (ft)	* 0.00	* 23.66	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 456.45	* *
* E.G. Slope (ft/ft)	*0.000705	* Area (sq ft)	*	* 456.45	* *
* Q Total (cfs)	* 1741.00	* Flow (cfs)	*	* 1741.00	* *
* Top Width (ft)	* 95.78	* Top Width (ft)	*	* 95.78	* *
* Vel Total (ft/s)	* 3.81	* Avg. Vel. (ft/s)	*	* 3.81	* *
* Max Chl Dpth (ft)	* 6.54	* Hydr. Depth (ft)	*	* 4.77	* *
* Conv. Total (cfs)	* 65582.9	* Conv. (cfs)	*	* 65582.9	* *
* Length Wtd. (ft)	* 23.66	* Wetted Per. (ft)	*	* 99.62	* *
* Min Ch El (ft)	* 49.47	* Shear (lb/sq ft)	*	* 0.20	* *

* Alpha	*	1.00	* Stream Power (lb/ft s)	*	*	0.77	*		*
* Frctn Loss (ft)	*	0.02	* Cum Volume (acre-ft)	*	*	10.76	*	0.04	*
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	*	2.79	*	0.01	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11689.21

INPUT
Description: Desert Canyon per STANTEC Plans RS 1689.21

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.65	52.25	50.78	95.8	50.78	100	49.38
104.2	50.78	130	50.78	141	56.28				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	95.8	.013	104.2	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
44.49	141	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	56.21	* Element	*	Left OB *	Channel *		Right OB	*
* Vel Head (ft)	*	0.22	* Wt. n-Val.	*	*	0.029	*		*
* W.S. Elev (ft)	*	56.00	* Reach Len. (ft)	*	0.00	* 14.21	*	0.00	*
* Crit W.S. (ft)	*		* Flow Area (sq ft)	*	*	464.05	*		*
* E.G. Slope (ft/ft)	*	0.000669	* Area (sq ft)	*	*	464.05	*		*
* Q Total (cfs)	*	1741.00	* Flow (cfs)	*	*	1741.00	*		*
* Top Width (ft)	*	95.94	* Top Width (ft)	*	*	95.94	*		*
* Vel Total (ft/s)	*	3.75	* Avg. Vel. (ft/s)	*	*	3.75	*		*
* Max Chl Dpth (ft)	*	6.62	* Hydr. Depth (ft)	*	*	4.84	*		*
* Conv. Total (cfs)	*	67317.5	* Conv. (cfs)	*	*	67317.5	*		*
* Length Wtd. (ft)	*	14.21	* Wetted Per. (ft)	*	*	99.88	*		*
* Min Ch El (ft)	*	49.38	* Shear (lb/sq ft)	*	*	0.19	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	*	0.73	*		*
* Frctn Loss (ft)	*	0.01	* Cum Volume (acre-ft)	*	*	10.51	*	0.04	*
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	*	2.73	*	0.01	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11675.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1675

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	58.52	44.5	54.59	52.25	50.72	95.8	50.72	100	49.32
104.2	50.72	130	50.72	146.23	58.84				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	95.8	.013	104.2	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
44.49	146.23	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	56.20	* Element	*	Left OB *	Channel *		Right OB	*
* Vel Head (ft)	*	0.21	* Wt. n-Val.	*	*	0.029	*		*
* W.S. Elev (ft)	*	55.99	* Reach Len. (ft)	*	0.00	* 40.66	*	0.00	*
* Crit W.S. (ft)	*		* Flow Area (sq ft)	*	*	469.22	*		*
* E.G. Slope (ft/ft)	*	0.000646	* Area (sq ft)	*	*	469.22	*		*
* Q Total (cfs)	*	1741.00	* Flow (cfs)	*	*	1741.00	*		*
* Top Width (ft)	*	96.04	* Top Width (ft)	*	*	96.04	*		*
* Vel Total (ft/s)	*	3.71	* Avg. Vel. (ft/s)	*	*	3.71	*		*
* Max Chl Dpth (ft)	*	6.67	* Hydr. Depth (ft)	*	*	4.89	*		*
* Conv. Total (cfs)	*	68507.1	* Conv. (cfs)	*	*	68507.1	*		*
* Length Wtd. (ft)	*	40.66	* Wetted Per. (ft)	*	*	100.05	*		*
* Min Ch El (ft)	*	49.32	* Shear (lb/sq ft)	*	*	0.19	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	*	0.70	*		*
* Frctn Loss (ft)	*	0.05	* Cum Volume (acre-ft)	*	*	10.36	*	0.04	*
* C & E Loss (ft)	*	0.03	* Cum SA (acres)	*	*	2.70	*	0.01	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11634.34

INPUT
Description: Desert Canyon per STANTEC Plans 1634.34, begin left channel wall transition

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
44.49	62.57	44.5	54.43	52.25	50.56	95.8	50.56	100	49.16
104.2	50.56	130	50.56	149	60.06				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
44.49	.013	44.5	.03	95.8	.013	104.2	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
44.49	149	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	56.12	* Element	*	Left OB *	Channel *		Right OB	*
* Vel Head (ft)	*	0.55	* Wt. n-Val.	*	*	0.029	*		*
* W.S. Elev (ft)	*	55.57	* Reach Len. (ft)	*	0.00	* 10.29	*	0.00	*
* Crit W.S. (ft)	*		* Flow Area (sq ft)	*	*	444.49	*		*
* E.G. Slope (ft/ft)	*	0.001778	* Area (sq ft)	*	*	444.49	*		*
* Q Total (cfs)	*	2652.00	* Flow (cfs)	*	*	2652.00	*		*
* Top Width (ft)	*	95.52	* Top Width (ft)	*	*	95.52	*		*
* Vel Total (ft/s)	*	5.97	* Avg. Vel. (ft/s)	*	*	5.97	*		*
* Max Chl Dpth (ft)	*	6.41	* Hydr. Depth (ft)	*	*	4.65	*		*
* Conv. Total (cfs)	*	62887.1	* Conv. (cfs)	*	*	62887.1	*		*
* Length Wtd. (ft)	*	10.29	* Wetted Per. (ft)	*	*	99.21	*		*

* Min Ch El (ft)	* 49.16	* Shear (lb/sq ft)	*	* 0.50	*		*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 2.97	*		*
* Frctn Loss (ft)	* 0.02	* Cum Volume (acre-ft)	*	* 9.93	*	0.04	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	* 2.61	*	0.01	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11624.05

INPUT
Description: Desert Canyon per STANTEC Plans RS 1624.05, end left side slope
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
52.24	62.42	52.25	50.51	95.8	50.51	100	49.11	104.2	50.51
130	50.51	149	60.01						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
52.24	.013	52.25	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
52.24 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 56.10	* Element	* Left OB *	Channel * Right OB *
* Vel Head (ft)	* 0.63	* Wt. n-Val.	*	* 0.028 *	*
* W.S. Elev (ft)	* 55.47	* Reach Len. (ft)	* 0.00 *	* 5.31 *	0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 415.70 *	*
* E.G. Slope (ft/ft)	*0.001979	* Area (sq ft)	*	* 415.70 *	*
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00 *	*
* Top Width (ft)	* 87.66	* Top Width (ft)	*	* 87.66 *	*
* Vel Total (ft/s)	* 6.38	* Avg. Vel. (ft/s)	*	* 6.38 *	*
* Max Chl Dpth (ft)	* 6.36	* Hydr. Depth (ft)	*	* 4.74 *	*
* Conv. Total (cfs)	* 59620.1	* Conv. (cfs)	*	* 59620.1 *	*
* Length Wtd. (ft)	* 5.31	* Wetted Per. (ft)	*	* 94.24 *	*
* Min Ch El (ft)	* 49.11	* Shear (lb/sq ft)	*	* 0.54 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 3.48 *	*
* Frctn Loss (ft)	* 0.01	* Cum Volume (acre-ft)	*	* 9.83 *	0.04 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	* 2.59 *	0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11618.85

INPUT
Description: Desert Canyon per STANTEC Plans RS 1618.85, end left channel wall transition
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.16	62.37	56.17	50.49	95.8	50.49	100	49.09	104.2	50.49
130	50.49	149	59.99						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
56.16	.013	56.17	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.16 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 56.08	* Element	* Left OB *	Channel * Right OB *
* Vel Head (ft)	* 0.72	* Wt. n-Val.	*	* 0.028 *	*
* W.S. Elev (ft)	* 55.35	* Reach Len. (ft)	* 0.00 *	* 22.51 *	0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 388.60 *	*
* E.G. Slope (ft/ft)	*0.002316	* Area (sq ft)	*	* 388.60 *	*
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00 *	*
* Top Width (ft)	* 83.56	* Top Width (ft)	*	* 83.56 *	*
* Vel Total (ft/s)	* 6.82	* Avg. Vel. (ft/s)	*	* 6.82 *	*
* Max Chl Dpth (ft)	* 6.26	* Hydr. Depth (ft)	*	* 4.65 *	*
* Conv. Total (cfs)	* 55105.4	* Conv. (cfs)	*	* 55105.4 *	*
* Length Wtd. (ft)	* 22.51	* Wetted Per. (ft)	*	* 90.02 *	*
* Min Ch El (ft)	* 49.09	* Shear (lb/sq ft)	*	* 0.62 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 4.26 *	*
* Frctn Loss (ft)	* 0.05	* Cum Volume (acre-ft)	*	* 9.78 *	0.04 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 2.58 *	0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11596.34

INPUT
Description: Desert Canyon per STANTEC Plans RS 1596.34, begin left side slope transition
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.16	62.6	56.17	50.4	95.8	50.4	100	49	104.2	50.4
130	50.4	149	59.9						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
56.16	.013	56.17	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.16 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 56.02	* Element	* Left OB *	Channel * Right OB *
* Vel Head (ft)	* 0.71	* Wt. n-Val.	*	* 0.028 *	*
* W.S. Elev (ft)	* 55.31	* Reach Len. (ft)	* 0.00 *	* 69.17 *	0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 392.72 *	*
* E.G. Slope (ft/ft)	*0.002241	* Area (sq ft)	*	* 392.72 *	*
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00 *	*
* Top Width (ft)	* 83.66	* Top Width (ft)	*	* 83.66 *	*
* Vel Total (ft/s)	* 6.75	* Avg. Vel. (ft/s)	*	* 6.75 *	*
* Max Chl Dpth (ft)	* 6.31	* Hydr. Depth (ft)	*	* 4.69 *	*

* Conv. Total (cfs)	* 56024.9	* Conv. (cfs)	*	* 56024.9	*		*
* Length Wtd. (ft)	* 69.17	* Wetted Per. (ft)	*	* 90.18	*		*
* Min Ch El (ft)	* 49.00	* Shear (lb/sq ft)	*	* 0.61	*		*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 4.11	*		*
* Frctn Loss (ft)	* 0.20	* Cum Volume (acre-ft)	*	* 9.58	*	0.04	*
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	*	* 2.54	*	0.01	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11527.17

INPUT
Description: Desert Canyon per STANTEC Plans RS 1527.17, end left slope transition, end left retaining wall

Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.88	70	50.13	95.8	50.13	100	48.73	104.2	50.13
130	50.13	149	59.63						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left 56.5 Right 149 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 55.79	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 1.02	* Wt. n-Val.	*	* 0.028 *	*
* W.S. Elev (ft)	* 54.78	* Reach Len. (ft)	* 0.00 *	* 27.17 *	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 327.80 *	*
* E.G. Slope (ft/ft)	*0.003727	* Area (sq ft)	*	* 327.80 *	*
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00 *	*
* Top Width (ft)	* 78.58	* Top Width (ft)	*	* 78.58 *	*
* Vel Total (ft/s)	* 8.09	* Avg. Vel. (ft/s)	*	* 8.09 *	*
* Max Chl Dpth (ft)	* 6.05	* Hydr. Depth (ft)	*	* 4.17 *	*
* Conv. Total (cfs)	* 43440.5	* Conv. (cfs)	*	* 43440.5 *	*
* Length Wtd. (ft)	* 27.17	* Wetted Per. (ft)	*	* 81.23 *	*
* Min Ch El (ft)	* 48.73	* Shear (lb/sq ft)	*	* 0.94 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 7.60 *	*
* Frctn Loss (ft)	* 0.10	* Cum Volume (acre-ft)	*	* 9.01 *	* 0.04 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 2.41 *	* 0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11500.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1500

Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.77	70	50.02	95.8	50.02	100	48.62	104.2	50.02
130	50.02	149	59.52						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left 56.5 Right 149 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 55.69	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 1.01	* Wt. n-Val.	*	* 0.028 *	*
* W.S. Elev (ft)	* 54.68	* Reach Len. (ft)	* 0.00 *	* 50.00 *	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 328.54 *	*
* E.G. Slope (ft/ft)	*0.003702	* Area (sq ft)	*	* 328.54 *	*
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00 *	*
* Top Width (ft)	* 78.62	* Top Width (ft)	*	* 78.62 *	*
* Vel Total (ft/s)	* 8.07	* Avg. Vel. (ft/s)	*	* 8.07 *	*
* Max Chl Dpth (ft)	* 6.06	* Hydr. Depth (ft)	*	* 4.18 *	*
* Conv. Total (cfs)	* 43587.9	* Conv. (cfs)	*	* 43587.9 *	*
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 81.27 *	*
* Min Ch El (ft)	* 48.62	* Shear (lb/sq ft)	*	* 0.93 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 7.54 *	*
* Frctn Loss (ft)	* 0.18	* Cum Volume (acre-ft)	*	* 8.80 *	* 0.04 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 2.36 *	* 0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11450.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1450

Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.57	70	49.82	95.8	49.82	100	48.42	104.2	49.82
130	49.82	149	59.32						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left 56.5 Right 149 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 55.50	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 1.00	* Wt. n-Val.	*	* 0.028 *	*
* W.S. Elev (ft)	* 54.50	* Reach Len. (ft)	* 0.00 *	* 50.00 *	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 330.20 *	*
* E.G. Slope (ft/ft)	*0.003646	* Area (sq ft)	*	* 330.20 *	*
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00 *	*
* Top Width (ft)	* 78.71	* Top Width (ft)	*	* 78.71 *	*
* Vel Total (ft/s)	* 8.03	* Avg. Vel. (ft/s)	*	* 8.03 *	*

* Max Chl Dpth (ft)	* 6.08	* Hydr. Depth (ft)	*	* 4.20	*
* Conv. Total (cfs)	* 43917.4	* Conv. (cfs)	*	* 43917.4	*
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 81.37	*
* Min Ch El (ft)	* 48.42	* Shear (lb/sq ft)	*	* 0.92	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 7.42	*
* Frctn Loss (ft)	* 0.18	* Cum Volume (acre-ft)	*	* 8.42	* 0.04 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 2.27	* 0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11400.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1400
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.37	70	49.62	95.8	49.62	100	48.22	104.2	49.62
130	49.62	149	59.12						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 55.31	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.99	* Wt. n-Val.	*	* 0.028	* *
* W.S. Elev (ft)	* 54.33	* Reach Len. (ft)	* 0.00	* 22.02	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 332.50	* *
* E.G. Slope (ft/ft)	*0.003571	* Area (sq ft)	*	* 332.50	* *
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00	* *
* Top Width (ft)	* 78.82	* Top Width (ft)	*	* 78.82	* *
* Vel Total (ft/s)	* 7.98	* Avg. Vel. (ft/s)	*	* 7.98	* *
* Max Chl Dpth (ft)	* 6.11	* Hydr. Depth (ft)	*	* 4.22	* *
* Conv. Total (cfs)	* 44377.7	* Conv. (cfs)	*	* 44377.7	* *
* Length Wtd. (ft)	* 22.02	* Wetted Per. (ft)	*	* 81.50	* *
* Min Ch El (ft)	* 48.22	* Shear (lb/sq ft)	*	* 0.91	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 7.25	* *
* Frctn Loss (ft)	* 0.08	* Cum Volume (acre-ft)	*	* 8.04	* 0.04 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 2.18	* 0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11377.99

INPUT
Description: Desert Canyon per STANTEC Plans RS 1377.99, begin compound curve
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.28	70	49.53	95.8	49.53	100	48.13	104.2	49.53
130	49.53	149	59.03						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 55.23	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.98	* Wt. n-Val.	*	* 0.028	* *
* W.S. Elev (ft)	* 54.25	* Reach Len. (ft)	* 0.00	* 27.98	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 333.66	* *
* E.G. Slope (ft/ft)	*0.003534	* Area (sq ft)	*	* 333.66	* *
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00	* *
* Top Width (ft)	* 78.88	* Top Width (ft)	*	* 78.88	* *
* Vel Total (ft/s)	* 7.95	* Avg. Vel. (ft/s)	*	* 7.95	* *
* Max Chl Dpth (ft)	* 6.12	* Hydr. Depth (ft)	*	* 4.23	* *
* Conv. Total (cfs)	* 44610.1	* Conv. (cfs)	*	* 44610.1	* *
* Length Wtd. (ft)	* 27.98	* Wetted Per. (ft)	*	* 81.56	* *
* Min Ch El (ft)	* 48.13	* Shear (lb/sq ft)	*	* 0.90	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 7.17	* *
* Frctn Loss (ft)	* 0.10	* Cum Volume (acre-ft)	*	* 7.87	* 0.04 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 2.14	* 0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11350.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1350
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	56.17	70	49.42	95.8	49.42	100	48.02	104.2	49.42
130	49.42	149	58.92						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 55.13	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.97	* Wt. n-Val.	*	* 0.028	* *
* W.S. Elev (ft)	* 54.15	* Reach Len. (ft)	* 0.00	* 50.00	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 334.81	* *
* E.G. Slope (ft/ft)	*0.003498	* Area (sq ft)	*	* 334.81	* *
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00	* *
* Top Width (ft)	* 78.94	* Top Width (ft)	*	* 78.94	* *
* Vel Total (ft/s)	* 7.92	* Avg. Vel. (ft/s)	*	* 7.92	* *

Max Chl Dpth (ft)	6.13	Hydr. Depth (ft)		4.24	
Conv. Total (cfs)	44840.8	Conv. (cfs)		44840.8	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		81.63	
Min Ch El (ft)	48.02	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		7.09	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		7.66	0.04
C & E Loss (ft)	0.01	Cum SA (acres)		2.09	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11300.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1300
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.97	70	49.22	95.8	49.22	100	47.82	104.2	49.22
130	49.22	149	58.72						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	54.95	Element		0.028	
Vel Head (ft)	0.96	Wt. n-Val.		21.24	0.00
W.S. Elev (ft)	54.00	Reach Len. (ft)	0.00	338.00	
Crit W.S. (ft)		Flow Area (sq ft)		338.00	
E.G. Slope (ft/ft)	*0.003400	Area (sq ft)		2652.00	
Q Total (cfs)	2652.00	Flow (cfs)		79.10	
Top Width (ft)	79.10	Top Width (ft)		7.85	
Vel Total (ft/s)	7.85	Avg. Vel. (ft/s)		4.27	
Max Chl Dpth (ft)	6.18	Hydr. Depth (ft)		45482.6	
Conv. Total (cfs)	45482.6	Conv. (cfs)		81.81	
Length Wtd. (ft)	21.24	Wetted Per. (ft)		0.88	
Min Ch El (ft)	47.82	Shear (lb/sq ft)		6.88	
Alpha	1.00	Stream Power (lb/ft s)		7.27	0.04
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		2.00	0.01
C & E Loss (ft)	0.00	Cum SA (acres)			

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11278.76

INPUT
Description: Desert Canyon per STANTEC Plans RS 1278.76, compound curve midpoint
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.88	70	49.13	95.8	49.13	100	47.73	104.2	49.13
130	49.13	149	58.63						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	54.87	Element		0.028	
Vel Head (ft)	0.95	Wt. n-Val.		28.76	0.00
W.S. Elev (ft)	53.93	Reach Len. (ft)	0.00	339.80	
Crit W.S. (ft)		Flow Area (sq ft)		339.80	
E.G. Slope (ft/ft)	*0.003346	Area (sq ft)		2652.00	
Q Total (cfs)	2652.00	Flow (cfs)		79.19	
Top Width (ft)	79.19	Top Width (ft)		7.80	
Vel Total (ft/s)	7.80	Avg. Vel. (ft/s)		6.20	
Max Chl Dpth (ft)	6.20	Hydr. Depth (ft)		45845.2	
Conv. Total (cfs)	45845.2	Conv. (cfs)		28.76	
Length Wtd. (ft)	28.76	Wetted Per. (ft)		47.73	
Min Ch El (ft)	47.73	Shear (lb/sq ft)		1.00	
Alpha	1.00	Stream Power (lb/ft s)		0.10	0.04
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		0.00	0.01
C & E Loss (ft)	0.00	Cum SA (acres)		1.96	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11250.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1250
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.77	70	49.02	95.8	49.02	100	47.62	104.2	49.02
130	49.02	149	58.52						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	54.77	Element		0.028	
Vel Head (ft)	0.94	Wt. n-Val.		50.00	0.00
W.S. Elev (ft)	53.84	Reach Len. (ft)	0.00	341.21	
Crit W.S. (ft)		Flow Area (sq ft)		341.21	
E.G. Slope (ft/ft)	*0.003305	Area (sq ft)		2652.00	
Q Total (cfs)	2652.00	Flow (cfs)		79.26	
Top Width (ft)	79.26	Top Width (ft)		7.77	
Vel Total (ft/s)	7.77	Avg. Vel. (ft/s)			

* Max Chl Dpth (ft)	*	6.22	* Hydr. Depth (ft)	*	*	4.30	*	*
* Conv. Total (cfs)	*	46130.5	* Conv. (cfs)	*	*	46130.5	*	*
* Length Wtd. (ft)	*	50.00	* Wetted Per. (ft)	*	*	81.99	*	*
* Min Ch El (ft)	*	47.62	* Shear (lb/sq ft)	*	*	0.86	*	*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	*	6.67	*	*
* Frctn Loss (ft)	*	0.16	* Cum Volume (acre-ft)	*	*	6.88	*	0.04	*
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	*	1.91	*	0.01	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11200.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1200
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.57	70	48.82	95.8	48.82	100	47.42	104.2	48.82
130	48.82	149	58.32						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	54.60	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.91	* Wt. n-Val.	*		*	0.028	*		*
* W.S. Elev (ft)	*	53.69	* Reach Len. (ft)	*	0.00	*	24.74	*	0.00	*
* Crit W.S. (ft)	*		* Flow Area (sq ft)	*		*	345.49	*		*
* E.G. Slope (ft/ft)	*	0.003184	* Area (sq ft)	*		*	345.49	*		*
* Q Total (cfs)	*	2652.00	* Flow (cfs)	*		*	2652.00	*		*
* Top Width (ft)	*	79.48	* Top Width (ft)	*		*	79.48	*		*
* Vel Total (ft/s)	*	7.68	* Avg. Vel. (ft/s)	*		*	7.68	*		*
* Max Chl Dpth (ft)	*	6.27	* Hydr. Depth (ft)	*		*	4.35	*		*
* Conv. Total (cfs)	*	46999.9	* Conv. (cfs)	*		*	46999.9	*		*
* Length Wtd. (ft)	*	24.74	* Wetted Per. (ft)	*		*	82.23	*		*
* Min Ch El (ft)	*	47.42	* Shear (lb/sq ft)	*		*	0.84	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	6.41	*		*
* Frctn Loss (ft)	*	0.08	* Cum Volume (acre-ft)	*		*	6.49	*	0.04	*
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*		*	1.82	*	0.01	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11175.26

INPUT
Description: Desert Canyon per STANTEC Plans RS 1175.26
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.47	70	48.72	95.8	48.72	100	47.32	104.2	48.72
130	48.72	149	58.22						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 149 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	54.52	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.90	* Wt. n-Val.	*		*	0.028	*		*
* W.S. Elev (ft)	*	53.62	* Reach Len. (ft)	*	0.00	*	20.70	*	0.00	*
* Crit W.S. (ft)	*		* Flow Area (sq ft)	*		*	347.97	*		*
* E.G. Slope (ft/ft)	*	0.003117	* Area (sq ft)	*		*	347.97	*		*
* Q Total (cfs)	*	2652.00	* Flow (cfs)	*		*	2652.00	*		*
* Top Width (ft)	*	79.60	* Top Width (ft)	*		*	79.60	*		*
* Vel Total (ft/s)	*	7.62	* Avg. Vel. (ft/s)	*		*	7.62	*		*
* Max Chl Dpth (ft)	*	6.30	* Hydr. Depth (ft)	*		*	4.37	*		*
* Conv. Total (cfs)	*	47504.9	* Conv. (cfs)	*		*	47504.9	*		*
* Length Wtd. (ft)	*	20.70	* Wetted Per. (ft)	*		*	82.37	*		*
* Min Ch El (ft)	*	47.32	* Shear (lb/sq ft)	*		*	0.82	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	6.26	*		*
* Frctn Loss (ft)	*	0.06	* Cum Volume (acre-ft)	*		*	6.29	*	0.04	*
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*		*	1.77	*	0.01	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11154.55

INPUT
Description: Desert Canyon per STANTEC Plans RS 1154.55, end compound curve
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.39	70	48.64	95.8	48.64	100	47.24	104.2	48.64
130	48.64	148.1	57.69						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left Right Coeff Contr. Expan.
56.5 148.1 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	54.45	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.89	* Wt. n-Val.	*		*	0.028	*		*
* W.S. Elev (ft)	*	53.56	* Reach Len. (ft)	*	0.00	*	29.55	*	0.00	*
* Crit W.S. (ft)	*		* Flow Area (sq ft)	*		*	349.51	*		*
* E.G. Slope (ft/ft)	*	0.003076	* Area (sq ft)	*		*	349.51	*		*
* Q Total (cfs)	*	2652.00	* Flow (cfs)	*		*	2652.00	*		*
* Top Width (ft)	*	79.68	* Top Width (ft)	*		*	79.68	*		*
* Vel Total (ft/s)	*	7.59	* Avg. Vel. (ft/s)	*		*	7.59	*		*

Max Chl Dpth (ft)	6.32	Hydr. Depth (ft)		4.39	
Conv. Total (cfs)	47820.0	Conv. (cfs)		47820.0	
Length Wtd. (ft)	29.55	Wetted Per. (ft)		82.46	
Min Ch El (ft)	47.24	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		6.18	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)		6.13	0.04
C & E Loss (ft)	0.01	Cum SA (acres)		1.73	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11125.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1125, begin right channel wall
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.27	70	48.52	95.8	48.52	100	47.12	104.2	48.52
130	48.52	144.7	55.77						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
56.5	144.7	8.65	8.65	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	54.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.87	Wt. n-Val.		0.025	
W.S. Elev (ft)	53.50	Reach Len. (ft)	8.65	8.65	8.65
Crit W.S. (ft)		Flow Area (sq ft)		354.74	
E.G. Slope (ft/ft)	*0.002240	Area (sq ft)		354.74	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	80.06	Top Width (ft)		80.06	
Vel Total (ft/s)	7.48	Avg. Vel. (ft/s)		7.48	
Max Chl Dpth (ft)	6.38	Hydr. Depth (ft)		4.43	
Conv. Total (cfs)	56031.5	Conv. (cfs)		56031.5	
Length Wtd. (ft)	8.65	Wetted Per. (ft)		82.86	
Min Ch El (ft)	47.12	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		4.48	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		5.89	0.04
C & E Loss (ft)	0.00	Cum SA (acres)		1.68	0.01

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11116.35

INPUT
Description: Desert Canyon per STANTEC Plans RS 1116.35, begin channel transition
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
56.5	55.23	70	48.48	95.8	48.48	100	47.08	104.2	48.48
130	48.48	143.41	55.19	143.42	55.74				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
56.5	.03	95.8	.013	104.2	.03	143.41	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
56.5	143.42	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	54.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.86	Wt. n-Val.		0.028	
W.S. Elev (ft)	53.48	Reach Len. (ft)	0.00	16.35	0.00
Crit W.S. (ft)		Flow Area (sq ft)		355.97	
E.G. Slope (ft/ft)	*0.002912	Area (sq ft)		355.97	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	80.00	Top Width (ft)		80.00	
Vel Total (ft/s)	7.45	Avg. Vel. (ft/s)		7.45	
Max Chl Dpth (ft)	6.40	Hydr. Depth (ft)		4.45	
Conv. Total (cfs)	49148.3	Conv. (cfs)		49148.3	
Length Wtd. (ft)	16.35	Wetted Per. (ft)		82.81	
Min Ch El (ft)	47.08	Shear (lb/sq ft)		0.78	
Alpha	1.00	Stream Power (lb/ft s)		5.82	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)		5.82	0.04
C & E Loss (ft)	0.00	Cum SA (acres)		1.66	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11100.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1100,
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
57.49	55.15	71.02	48.38	95.8	48.38	100	46.98	104.2	48.38
129.5	48.38	141.4	54.33	141.41	55.67				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
57.49	.03	95.8	.013	104.2	.03	141.4	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
57.49	141.41	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	54.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.89	Wt. n-Val.		0.028	
W.S. Elev (ft)	53.39	Reach Len. (ft)	0.00	50.00	0.00
Crit W.S. (ft)		Flow Area (sq ft)		349.39	
E.G. Slope (ft/ft)	*0.003020	Area (sq ft)		349.39	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	78.53	Top Width (ft)		78.53	
Vel Total (ft/s)	7.59	Avg. Vel. (ft/s)		7.59	
Max Chl Dpth (ft)	6.41	Hydr. Depth (ft)		4.45	

* Conv. Total (cfs)	* 48261.1	* Conv. (cfs)	*	* 48261.1	*		*
* Length Wtd. (ft)	* 50.00	* Wetted Per. (ft)	*	* 81.35	*		*
* Min Ch El (ft)	* 46.98	* Shear (lb/sq ft)	*	* 0.81	*		*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 6.15	*		*
* Frctn Loss (ft)	* 0.16	* Cum Volume (acre-ft)	*	* 5.69	*	0.04	*
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	*	* 1.63	*	0.01	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11050.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1050
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
60.6	54.84	74.13	48.07	95.8	48.07	100	46.67
104.2	48.07	127.97	48.07	135.26	51.72	135.27	55.47

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
60.6	.03	95.8	.013	104.2	.03	135.26	.013

Bank Sta: Left Right Coeff Contr. Expan.
60.6 135.27 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 54.12	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 1.04	* Wt. n-Val.	*	* 0.028 *	
* W.S. Elev (ft)	* 53.07	* Reach Len. (ft)	* 0.00 *	16.63 *	0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 323.29 *	
* E.G. Slope (ft/ft)	*0.003410	* Area (sq ft)	*	* 323.29 *	
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00 *	
* Top Width (ft)	* 71.13	* Top Width (ft)	*	* 71.13 *	
* Vel Total (ft/s)	* 8.20	* Avg. Vel. (ft/s)	*	* 8.20 *	
* Max Chl Dpth (ft)	* 6.40	* Hydr. Depth (ft)	*	* 4.55 *	
* Conv. Total (cfs)	* 45417.3	* Conv. (cfs)	*	* 45417.3 *	
* Length Wtd. (ft)	* 16.63	* Wetted Per. (ft)	*	* 74.97 *	
* Min Ch El (ft)	* 46.67	* Shear (lb/sq ft)	*	* 0.92 *	
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 7.53 *	
* Frctn Loss (ft)	* 0.06	* Cum Volume (acre-ft)	*	* 5.30 *	0.04 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	* 1.55 *	0.01 *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11033.37

INPUT
Description: Desert Canyon per STANTEC Plans RS 1033.37, begin left channel wall
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
61.64	54.73	75.16	47.97	95.8	47.97	100	46.57
104.2	47.97	127.46	47.97	133.22	50.86	133.23	55.4

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
61.64	.03	95.8	.013	104.2	.03	133.22	.013

Bank Sta: Left Right Coeff Contr. Expan.
61.64 133.23 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 54.04	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 1.16	* Wt. n-Val.	*	* 0.028 *	
* W.S. Elev (ft)	* 52.89	* Reach Len. (ft)	* 0.00 *	25.97 *	0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 307.33 *	
* E.G. Slope (ft/ft)	*0.003782	* Area (sq ft)	*	* 307.33 *	
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00 *	
* Top Width (ft)	* 67.90	* Top Width (ft)	*	* 67.90 *	
* Vel Total (ft/s)	* 8.63	* Avg. Vel. (ft/s)	*	* 8.63 *	
* Max Chl Dpth (ft)	* 6.32	* Hydr. Depth (ft)	*	* 4.53 *	
* Conv. Total (cfs)	* 43125.9	* Conv. (cfs)	*	* 43125.9 *	
* Length Wtd. (ft)	* 25.97	* Wetted Per. (ft)	*	* 72.23 *	
* Min Ch El (ft)	* 46.57	* Shear (lb/sq ft)	*	* 1.00 *	
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 8.67 *	
* Frctn Loss (ft)	* 0.05	* Cum Volume (acre-ft)	*	* 5.18 *	0.04 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	*	* 1.52 *	0.01 *

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 11007.4

INPUT
Description: Desert Canyon per STANTEC Plans RS 1007.4, begin nuissance channel transition
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
69.42	54.96	69.43	51.49	76.78	47.81	95.8	47.81	100	46.41
104.2	47.81	126.66	47.81	130.03	49.5	130.04	55.3		

Manning's n Values num= 1

Sta	n Val
69.42	.013

Bank Sta: Left Right Coeff Contr. Expan.
69.42 130.04 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 53.97	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 1.44	* Wt. n-Val.	*	* 0.013 *	
* W.S. Elev (ft)	* 52.52	* Reach Len. (ft)	* 0.00 *	33.54 *	0.00 *
* Crit W.S. (ft)	* 51.88	* Flow Area (sq ft)	*	* 275.02 *	
* E.G. Slope (ft/ft)	*0.001069	* Area (sq ft)	*	* 275.02 *	
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00 *	

* Top Width (ft)	60.61	* Top Width (ft)	*	60.61	*
* Vel Total (ft/s)	9.64	* Avg. Vel. (ft/s)	*	9.64	*
* Max Chl Dpth (ft)	6.11	* Hydr. Depth (ft)	*	4.54	*
* Conv. Total (cfs)	81095.0	* Conv. (cfs)	*	81095.0	*
* Length Wtd. (ft)	33.54	* Wetted Per. (ft)	*	66.38	*
* Min Ch El (ft)	46.41	* Shear (lb/sq ft)	*	0.28	*
* Alpha	1.00	* Stream Power (lb/ft s)	*	2.67	*
* Frctn Loss (ft)	0.05	* Cum Volume (acre-ft)	*	5.01	* 0.04 *
* C & E Loss (ft)	0.09	* Cum SA (acres)	*	1.48	* 0.01 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10973.86

INPUT
Description: Desert Canyon per STANTEC Plans RS 973.86, begin rectangular channel
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
78.095	55.24	78.105	46.97	85.618	46.94	97.507	46.78	99.244	46.2
100.951	46.77	116.066	46.87	124.551	46.84	124.591	53.82		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
78.095		78.095	.013	124.591	

Bank Sta: Left Right Coeff Contr. Expan.
78.095 124.591 .1 .3
Skew Angle = 7.05

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	53.82	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	2.33	* Wt. n-Val.	*	0.013	* *
* W.S. Elev (ft)	51.49	* Reach Len. (ft)	* 0.00	* 23.60	* 0.00 *
* Crit W.S. (ft)	51.49	* Flow Area (sq ft)	*	* 216.45	* *
* E.G. Slope (ft/ft)	*0.001886	* Area (sq ft)	*	* 216.45	* *
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00	* *
* Top Width (ft)	46.48	* Top Width (ft)	*	46.48	* *
* Vel Total (ft/s)	12.25	* Avg. Vel. (ft/s)	*	12.25	* *
* Max Chl Dpth (ft)	5.29	* Hydr. Depth (ft)	*	4.66	* *
* Conv. Total (cfs)	* 61072.5	* Conv. (cfs)	*	* 61072.5	* *
* Length Wtd. (ft)	23.60	* Wetted Per. (ft)	*	55.81	* *
* Min Ch El (ft)	46.20	* Shear (lb/sq ft)	*	0.46	* *
* Alpha	1.00	* Stream Power (lb/ft s)	*	5.59	* *
* Frctn Loss (ft)	0.04	* Cum Volume (acre-ft)	*	4.82	* 0.04 *
* C & E Loss (ft)	0.01	* Cum SA (acres)	*	1.44	* 0.01 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10950.26

INPUT
Description: Desert Canyon per STANTEC Plans RS 950.26, end nuissance channel
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.146	53.18	80.156	46.26	100.762	46.06	125.136	46.3	125.146	53.82

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
80.146		80.146	.013	125.146	

Bank Sta: Left Right Coeff Contr. Expan.
80.146 125.146 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	53.64	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	3.60	* Wt. n-Val.	*	0.013	* *
* W.S. Elev (ft)	50.04	* Reach Len. (ft)	* 0.00	* 40.37	* 0.00 *
* Crit W.S. (ft)	50.91	* Flow Area (sq ft)	*	* 174.27	* *
* E.G. Slope (ft/ft)	*0.003581	* Area (sq ft)	*	* 174.27	* *
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00	* *
* Top Width (ft)	44.99	* Top Width (ft)	*	44.99	* *
* Vel Total (ft/s)	15.22	* Avg. Vel. (ft/s)	*	15.22	* *
* Max Chl Dpth (ft)	3.98	* Hydr. Depth (ft)	*	3.87	* *
* Conv. Total (cfs)	* 44318.2	* Conv. (cfs)	*	* 44318.2	* *
* Length Wtd. (ft)	40.37	* Wetted Per. (ft)	*	52.51	* *
* Min Ch El (ft)	46.06	* Shear (lb/sq ft)	*	0.74	* *
* Alpha	1.00	* Stream Power (lb/ft s)	*	11.29	* *
* Frctn Loss (ft)	0.06	* Cum Volume (acre-ft)	*	4.71	* 0.04 *
* C & E Loss (ft)	0.13	* Cum SA (acres)	*	1.42	* 0.01 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10909.89

INPUT
Description: Desert Canyon per STANTEC Plans RS 909.89, begin channel bottom cross fall transition
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
81.466	50	81.476	44.56	100.762	44.37	122.678	44.59	122.688	52.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
81.466		81.466	.013	122.688	

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
81.466 122.688 74.99 74.99 74.99 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	53.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.33	Wt. n-Val.		0.013	
W.S. Elev (ft)	47.95	Reach Len. (ft)	74.99	74.99	74.99
Crit W.S. (ft)	49.52	Flow Area (sq ft)		143.10	
E.G. Slope (ft/ft)	*0.006118	Area (sq ft)		143.10	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	41.21	Top Width (ft)		41.21	
Vel Total (ft/s)	18.53	Avg. Vel. (ft/s)		18.53	
Max Chl Dpth (ft)	3.58	Hydr. Depth (ft)		3.47	
Conv. Total (cfs)	33905.2	Conv. (cfs)		33905.2	
Length Wtd. (ft)	74.99	Wetted Per. (ft)		47.95	
Min Ch El (ft)	44.37	Shear (lb/sq ft)		1.14	
Alpha	1.00	Stream Power (lb/ft s)		21.13	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		4.56	0.04
C & E Loss (ft)	0.17	Cum SA (acres)		1.38	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10834.9

INPUT
Description: Desert Canyon per STANTEC Plans RS 834.9, end channel transition, begin VTN Pioneer Phase II 64+15.01
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	47.24	0	47.24	0	41.24	42	41.24	42	47.24
43	47.24								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	42	.01	.01	.1	.3

Skew Angle = 7

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	52.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.37	Wt. n-Val.		0.013	
W.S. Elev (ft)	43.96	Reach Len. (ft)	0.01	0.01	0.01
Crit W.S. (ft)	46.22	Flow Area (sq ft)		114.20	
E.G. Slope (ft/ft)	*0.012794	Area (sq ft)		114.20	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	42.00	Top Width (ft)		42.00	
Vel Total (ft/s)	23.22	Avg. Vel. (ft/s)		23.22	
Max Chl Dpth (ft)	2.72	Hydr. Depth (ft)		2.72	
Conv. Total (cfs)	23445.8	Conv. (cfs)		23445.8	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		47.44	
Min Ch El (ft)	41.24	Shear (lb/sq ft)		1.92	
Alpha	1.00	Stream Power (lb/ft s)		44.65	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)		4.34	0.04
C & E Loss (ft)	0.30	Cum SA (acres)		1.30	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10834.89

INPUT
Description: Pioneer Phase II Channel per VTN Plans 64+15.01
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	47.24	0	47.24	0	41.24	16	41.24	16	47.24
17	47.24	17	41.24	33	41.24	33	47.24	34	47.24
34	41.24	42	41.24	42	47.24	43	47.24		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	42	234.99	234.99	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 48.24	47.24	43 48.24	47.24

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	52.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.12	Wt. n-Val.		0.013	
W.S. Elev (ft)	44.14	Reach Len. (ft)	234.99	234.99	234.99
Crit W.S. (ft)	46.39	Flow Area (sq ft)		116.00	
E.G. Slope (ft/ft)	*0.015657	Area (sq ft)		116.00	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	40.00	Top Width (ft)		40.00	
Vel Total (ft/s)	22.86	Avg. Vel. (ft/s)		22.86	
Max Chl Dpth (ft)	2.90	Hydr. Depth (ft)		2.90	
Conv. Total (cfs)	21194.6	Conv. (cfs)		21194.6	
Length Wtd. (ft)	234.99	Wetted Per. (ft)		57.40	
Min Ch El (ft)	41.24	Shear (lb/sq ft)		1.98	
Alpha	1.00	Stream Power (lb/ft s)		45.16	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		4.34	0.04
C & E Loss (ft)	0.08	Cum SA (acres)		1.30	0.01

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10599.9

INPUT
Description: Pioneer Phase II Channel per VTN Plans 66+50.00
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

-1	45.88	0	45.88	0	39.88	16	39.88	16	45.88
17	45.88	17	39.88	33	39.88	33	45.88	34	45.88
34	39.88	42	39.88	42	45.88	43	45.88		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	42	.01	.01	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 46.88	45.88	43 46.88	45.88

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	48.78	Element	Left OB	Channel	Right OB		
Vel Head (ft)	5.32	Wt. n-Val.		0.013			
W.S. Elev (ft)	43.46	Reach Len. (ft)	0.01	0.01	0.01		
Crit W.S. (ft)	45.03	Flow Area (sq ft)		143.31			
E.G. Slope (ft/ft)	*0.008484	Area (sq ft)		143.31			
Q Total (cfs)	2652.00	Flow (cfs)		2652.00			
Top Width (ft)	40.00	Top Width (ft)		40.00			
Vel Total (ft/s)	18.51	Avg. Vel. (ft/s)		18.51			
Max Chl Dpth (ft)	3.58	Hydr. Depth (ft)		3.58			
Conv. Total (cfs)	28791.6	Conv. (cfs)		28791.6			
Length Wtd. (ft)	0.01	Wetted Per. (ft)		61.50			
Min Ch El (ft)	39.88	Shear (lb/sq ft)		1.23			
Alpha	1.00	Stream Power (lb/ft s)		22.84			
Frctn Loss (ft)	2.65	Cum Volume (acre-ft)		3.64	0.04		
C & E Loss (ft)	0.84	Cum SA (acres)		1.09	0.01		

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10599.89

INPUT
Description: Pioneer Phase II Channel per VTN Plans 66+50.01
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	45.88	0	45.88	0	39.88	42	39.88	42	45.88
43	45.88								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	42	69.99	69.99	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 46.88	45.88	43 46.88	45.88

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	48.75	Element	Left OB	Channel	Right OB		
Vel Head (ft)	5.52	Wt. n-Val.		0.013			
W.S. Elev (ft)	43.23	Reach Len. (ft)	69.99	69.99	69.99		
Crit W.S. (ft)	44.87	Flow Area (sq ft)		140.62			
E.G. Slope (ft/ft)	*0.006620	Area (sq ft)		140.62			
Q Total (cfs)	2652.00	Flow (cfs)		2652.00			
Top Width (ft)	42.00	Top Width (ft)		42.00			
Vel Total (ft/s)	18.86	Avg. Vel. (ft/s)		18.86			
Max Chl Dpth (ft)	3.35	Hydr. Depth (ft)		3.35			
Conv. Total (cfs)	32595.0	Conv. (cfs)		32595.0			
Length Wtd. (ft)	69.99	Wetted Per. (ft)		48.70			
Min Ch El (ft)	39.88	Shear (lb/sq ft)		1.19			
Alpha	1.00	Stream Power (lb/ft s)		22.51			
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.64	0.04		
C & E Loss (ft)	0.02	Cum SA (acres)		1.09	0.01		

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10529.91

INPUT
Description: Pioneer Phase II Channel per VTN Plans 67+20.00
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	45.47	0	45.47	0	39.47	37	39.47	37	45.47
38	45.47								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	37	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	37	100	100	.1	.3

Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 46.47	45.47	38 46.47	45.47

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	47.99	Element	Left OB	Channel	Right OB		
Vel Head (ft)	4.12	Wt. n-Val.		0.013			
W.S. Elev (ft)	43.87	Reach Len. (ft)	100.00	100.00	100.00		
Crit W.S. (ft)	44.90	Flow Area (sq ft)		162.89			
E.G. Slope (ft/ft)	*0.003738	Area (sq ft)		162.89			
Q Total (cfs)	2652.00	Flow (cfs)		2652.00			
Top Width (ft)	37.00	Top Width (ft)		37.00			
Vel Total (ft/s)	16.28	Avg. Vel. (ft/s)		16.28			
Max Chl Dpth (ft)	4.40	Hydr. Depth (ft)		4.40			
Conv. Total (cfs)	43377.1	Conv. (cfs)		43377.1			
Length Wtd. (ft)	100.00	Wetted Per. (ft)		45.80			
Min Ch El (ft)	39.47	Shear (lb/sq ft)		0.83			

* Alpha	*	1.00	* Stream Power (lb/ft s)	*	*	13.51	*		*
* Frctn Loss (ft)	*	0.34	* Cum Volume (acre-ft)	*	*	3.40	*	0.04	*
* C & E Loss (ft)	*	0.42	* Cum SA (acres)	*	*	1.03	*	0.01	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10429.91

INPUT
Description: Pioneer Phase II Channel per VTN Plans 68+20.01
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	44.63	0	44.63	0	38.63	37	38.63	37	44.63
38	44.63								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	37	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 37 .01 .01 .01 .1 .3
Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 45.63	44.63	38 45.63	44.63

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 47.50	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 4.79	* Wt. n-Val.	*	* 0.013	*	*
* W.S. Elev (ft)	* 42.71	* Reach Len. (ft)	* 0.01	* 0.01	* 0.01	*
* Crit W.S. (ft)	* 44.06	* Flow Area (sq ft)	*	* 150.94	*	*
* E.G. Slope (ft/ft)	*0.004728	* Area (sq ft)	*	* 150.94	*	*
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00	*	*
* Top Width (ft)	* 37.00	* Top Width (ft)	*	* 37.00	*	*
* Vel Total (ft/s)	* 17.57	* Avg. Vel. (ft/s)	*	* 17.57	*	*
* Max Chl Dpth (ft)	* 4.08	* Hydr. Depth (ft)	*	* 4.08	*	*
* Conv. Total (cfs)	* 38569.1	* Conv. (cfs)	*	* 38569.1	*	*
* Length Wtd. (ft)	* 0.01	* Wetted Per. (ft)	*	* 45.16	*	*
* Min Ch El (ft)	* 38.63	* Shear (lb/sq ft)	*	* 0.99	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 17.33	*	*
* Frctn Loss (ft)	* 0.42	* Cum Volume (acre-ft)	*	* 3.04	* 0.04	*
* C & E Loss (ft)	* 0.07	* Cum SA (acres)	*	* 0.94	* 0.01	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10429.90

INPUT
Description: Pioneer Phase II Channel per VTN Plans 68+20.01
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	44.63	0	44.63	0	38.63	15	38.63	15	44.63
16	44.63	16	38.63	37	38.63	37	44.63	38	44.63

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	37	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 37 139.99 139.99 139.99 .1 .3
Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 45.63	44.63	38 45.63	44.63

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 47.36	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 4.30	* Wt. n-Val.	*	* 0.013	*	*
* W.S. Elev (ft)	* 43.06	* Reach Len. (ft)	* 139.99	* 139.99	* 139.99	*
* Crit W.S. (ft)	* 44.15	* Flow Area (sq ft)	*	* 159.40	*	*
* E.G. Slope (ft/ft)	*0.004968	* Area (sq ft)	*	* 159.40	*	*
* Q Total (cfs)	* 2652.00	* Flow (cfs)	*	* 2652.00	*	*
* Top Width (ft)	* 36.00	* Top Width (ft)	*	* 36.00	*	*
* Vel Total (ft/s)	* 16.64	* Avg. Vel. (ft/s)	*	* 16.64	*	*
* Max Chl Dpth (ft)	* 4.43	* Hydr. Depth (ft)	*	* 4.43	*	*
* Conv. Total (cfs)	* 37626.9	* Conv. (cfs)	*	* 37626.9	*	*
* Length Wtd. (ft)	* 139.99	* Wetted Per. (ft)	*	* 53.71	*	*
* Min Ch El (ft)	* 38.63	* Shear (lb/sq ft)	*	* 0.92	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 15.31	*	*
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	*	* 3.04	* 0.04	*
* C & E Loss (ft)	* 0.15	* Cum SA (acres)	*	* 0.94	* 0.01	*

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10289.92

INPUT
Description: Pioneer Phase II Channel per VTN Plans 69+60.00
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	42.32	0	42.32	0	36.32	15	36.32	15	42.32
16	42.32	16	36.32	37	36.32	37	42.32	38	42.32

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	37	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 37 .01 .01 .01 .1 .3
Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord

```
**********************************************
      -1   43.32   42.32      38   43.32   42.32

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         *   46.26  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    6.27  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)         *   39.99  * Reach Len. (ft)        *    0.01  *    0.01  *    0.01  *
* Crit W.S. (ft)         *   41.84  * Flow Area (sq ft)      *          *  131.94  *          *
* E.G. Slope (ft/ft)     *0.008629  * Area (sq ft)           *          *  131.94  *          *
* Q Total (cfs)          * 2652.00  * Flow (cfs)             *          * 2652.00  *          *
* Top Width (ft)         *   36.00  * Top Width (ft)         *          *   36.00  *          *
* Vel Total (ft/s)       *   20.10  * Avg. Vel. (ft/s)       *          *   20.10  *          *
* Max Chl Dpth (ft)      *    3.67  * Hydr. Depth (ft)       *          *    3.67  *          *
* Conv. Total (cfs)      * 28548.6  * Conv. (cfs)            *          * 28548.6  *          *
* Length Wtd. (ft)       *    0.01  * Wetted Per. (ft)       *          *   50.66  *          *
* Min Ch El (ft)         *   36.32  * Shear (lb/sq ft)       *          *    1.40  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   28.20  *          *
* Frctn Loss (ft)        *    0.90  * Cum Volume (acre-ft)   *          *    2.57  *    0.04  *
* C & E Loss (ft)        *    0.20  * Cum SA (acres)         *          *    0.82  *    0.01  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Combined Channel
REACH: EAST               RS: 10289.91

INPUT
Description: Pioneer Phase II Channel per VTN Plans 69+60.01
Station Elevation Data    num=       6
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
      -1   42.32       0   42.32       0   36.32      37   36.32      37   42.32
      38   42.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************
      -1    .013       0    .013      37    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0      37             79.99   79.99   79.99             .1       .3
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
**********************************************
      -1   43.32   42.32      38   43.32   42.32

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         *   46.25  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    6.39  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)         *   39.85  * Reach Len. (ft)        *   79.99  *   79.99  *   79.99  *
* Crit W.S. (ft)         *   41.75  * Flow Area (sq ft)      *          *  130.69  *          *
* E.G. Slope (ft/ft)     *0.007396  * Area (sq ft)           *          *  130.69  *          *
* Q Total (cfs)          * 2652.00  * Flow (cfs)             *          * 2652.00  *          *
* Top Width (ft)         *   37.00  * Top Width (ft)         *          *   37.00  *          *
* Vel Total (ft/s)       *   20.29  * Avg. Vel. (ft/s)       *          *   20.29  *          *
* Max Chl Dpth (ft)      *    3.53  * Hydr. Depth (ft)       *          *    3.53  *          *
* Conv. Total (cfs)      * 30837.3  * Conv. (cfs)            *          * 30837.3  *          *
* Length Wtd. (ft)       *   79.99  * Wetted Per. (ft)       *          *   44.06  *          *
* Min Ch El (ft)         *   36.32  * Shear (lb/sq ft)       *          *    1.37  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   27.79  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)   *          *    2.57  *    0.04  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         *          *    0.82  *    0.01  *
*************************************************************************************************

CROSS SECTION


RIVER: Combined Channel
REACH: EAST               RS: 10209.93

INPUT
Description: Pioneer Phase II Channel per VTN Plans 70+40.00
Station Elevation Data    num=       6
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
      -1   28.17       0   28.17       0   19.67      22   19.67      22   28.17
      23   28.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************
      -1    .013       0    .013      22    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             0      22             85      85      85             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         *   43.75  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *   20.79  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)         *   22.96  * Reach Len. (ft)        *   85.00  *   85.00  *   85.00  *
* Crit W.S. (ft)         *   27.32  * Flow Area (sq ft)      *          *   72.49  *          *
* E.G. Slope (ft/ft)     *0.029636  * Area (sq ft)           *          *   72.49  *          *
* Q Total (cfs)          * 2652.00  * Flow (cfs)             *          * 2652.00  *          *
* Top Width (ft)         *   22.00  * Top Width (ft)         *          *   22.00  *          *
* Vel Total (ft/s)       *   36.59  * Avg. Vel. (ft/s)       *          *   36.59  *          *
* Max Chl Dpth (ft)      *    3.29  * Hydr. Depth (ft)       *          *    3.29  *          *
* Conv. Total (cfs)      * 15405.2  * Conv. (cfs)            *          * 15405.2  *          *
* Length Wtd. (ft)       *   85.00  * Wetted Per. (ft)       *          *   28.59  *          *
* Min Ch El (ft)         *   19.67  * Shear (lb/sq ft)       *          *    4.69  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *  171.62  *          *
* Frctn Loss (ft)        *    1.05  * Cum Volume (acre-ft)   *          *    2.38  *    0.04  *
* C & E Loss (ft)        *    1.44  * Cum SA (acres)         *          *    0.77  *    0.01  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Combined Channel
REACH: EAST               RS: 10124.93

INPUT
```

Description: Pioneer Phase II Channel per VTN Plans 71+25.00
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	26.31	0	26.31	0	20.31	22	20.31	22	26.31
23	26.31								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	22	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 22 .01 .01 .01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	40.32	Element	Left OB	Channel / Right OB
Vel Head (ft)	16.29	Wt. n-Val.		0.013
W.S. Elev (ft)	24.03	Reach Len. (ft)	0.01	0.01 / 0.01
Crit W.S. (ft)	27.99	Flow Area (sq ft)		81.88
E.G. Slope (ft/ft)	*0.020533	Area (sq ft)		81.88
Q Total (cfs)	2652.00	Flow (cfs)		2652.00
Top Width (ft)	22.00	Top Width (ft)		22.00
Vel Total (ft/s)	32.39	Avg. Vel. (ft/s)		32.39
Max Chl Dpth (ft)	3.72	Hydr. Depth (ft)		3.72
Conv. Total (cfs)	18507.3	Conv. (cfs)		18507.3
Length Wtd. (ft)	0.01	Wetted Per. (ft)		29.44
Min Ch El (ft)	20.31	Shear (lb/sq ft)		3.56
Alpha	1.00	Stream Power (lb/ft s)		115.46
Frctn Loss (ft)	2.08	Cum Volume (acre-ft)		2.23 / 0.04
C & E Loss (ft)	1.35	Cum SA (acres)		0.73 / 0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 10124.92

INPUT
Description: Pioneer Phase II Channel per VTN Plans 71+25.01
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	26.31	0	26.31	0	20.31	12	20.31	12	26.31
13	26.31	13	20.31	22	20.31	22	26.31	23	26.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	22	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 22 124.99 124.99 124.99 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	40.23	Element	Left OB	Channel / Right OB
Vel Head (ft)	15.98	Wt. n-Val.		0.013
W.S. Elev (ft)	24.25	Reach Len. (ft)	124.99	124.99 / 124.99
Crit W.S. (ft)	28.27	Flow Area (sq ft)		82.66
E.G. Slope (ft/ft)	*0.026731	Area (sq ft)		82.66
Q Total (cfs)	2652.00	Flow (cfs)		2652.00
Top Width (ft)	21.00	Top Width (ft)		21.00
Vel Total (ft/s)	32.08	Avg. Vel. (ft/s)		32.08
Max Chl Dpth (ft)	3.94	Hydr. Depth (ft)		3.94
Conv. Total (cfs)	16220.4	Conv. (cfs)		16220.4
Length Wtd. (ft)	124.99	Wetted Per. (ft)		36.74
Min Ch El (ft)	20.31	Shear (lb/sq ft)		3.75
Alpha	1.00	Stream Power (lb/ft s)		120.45
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.23 / 0.04
C & E Loss (ft)	0.09	Cum SA (acres)		0.73 / 0.01

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 9999.93

INPUT
Description: Pioneer Phase II Channel per VTN Plans 72+50.00
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	28.17	0	28.17	0	19.67	12	19.67	12	28.17
13	28.17	13	19.67	22	19.67	22	28.17	23	28.17
23	19.67	33	19.67	33	28.17	34	28.17		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	22	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 22 .01 .01 .01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	35.99	Element	Left OB	Channel / Right OB
Vel Head (ft)	13.41	Wt. n-Val.		0.013 / 0.013
W.S. Elev (ft)	22.58	Reach Len. (ft)	0.01	0.01 / 0.01
Crit W.S. (ft)	25.77	Flow Area (sq ft)		61.13 / 29.11
E.G. Slope (ft/ft)	*0.028863	Area (sq ft)		61.13 / 29.11
Q Total (cfs)	2652.00	Flow (cfs)		1803.33 / 848.67
Top Width (ft)	31.00	Top Width (ft)		21.00 / 10.00
Vel Total (ft/s)	29.39	Avg. Vel. (ft/s)		29.50 / 29.16
Max Chl Dpth (ft)	2.91	Hydr. Depth (ft)		2.91 / 2.91
Conv. Total (cfs)	15610.1	Conv. (cfs)		10614.7 / 4995.4
Length Wtd. (ft)	0.01	Wetted Per. (ft)		32.64 / 15.82
Min Ch El (ft)	19.67	Shear (lb/sq ft)		3.37 / 3.32
Alpha	1.00	Stream Power (lb/ft s)		99.54 / 96.65
Frctn Loss (ft)	3.47	Cum Volume (acre-ft)		2.03 / 0.00
C & E Loss (ft)	0.77	Cum SA (acres)		0.67 / 0.00

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 9999.92

INPUT
Description: Pioneer Phase II Channel per VTN Plans 72+50.01
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	28.17	0	28.17	0	19.67	33	19.67	33	28.17
34	28.17								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	33	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

Left	Right	Left Channel	Right	Coeff Contr.	Expan.
0	33	94.44	94.44	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	35.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	13.59	Wt. n-Val.		0.013	
W.S. Elev (ft)	22.39	Reach Len. (ft)	94.44	94.44	94.44
Crit W.S. (ft)	25.51	Flow Area (sq ft)		89.65	
E.G. Slope (ft/ft)	*0.021654	Area (sq ft)		89.65	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	33.00	Top Width (ft)		33.00	
Vel Total (ft/s)	29.58	Avg. Vel. (ft/s)		29.58	
Max Chl Dpth (ft)	2.72	Hydr. Depth (ft)		2.72	
Conv. Total (cfs)	18022.2	Conv. (cfs)		18022.2	
Length Wtd. (ft)	94.44	Wetted Per. (ft)		38.43	
Min Ch El (ft)	19.67	Shear (lb/sq ft)		3.15	
Alpha	1.00	Stream Power (lb/ft s)		93.28	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.03	
C & E Loss (ft)	0.02	Cum SA (acres)		0.67	

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 9905.49

INPUT
Description: Pioneer Phase II Channel per VTN Plans 73+44.45
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	27.69	0	27.69	0	19.19	33	19.19	33	27.69
34	27.69								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	33	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

Left	Right	Left Channel	Right	Coeff Contr.	Expan.
0	33	60	60	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	33.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	11.38	Wt. n-Val.		0.013	
W.S. Elev (ft)	22.16	Reach Len. (ft)	60.00	60.00	60.00
Crit W.S. (ft)	25.02	Flow Area (sq ft)		97.96	
E.G. Slope (ft/ft)	*0.016394	Area (sq ft)		97.96	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	33.00	Top Width (ft)		33.00	
Vel Total (ft/s)	27.07	Avg. Vel. (ft/s)		27.07	
Max Chl Dpth (ft)	2.97	Hydr. Depth (ft)		2.97	
Conv. Total (cfs)	20712.7	Conv. (cfs)		20712.7	
Length Wtd. (ft)	60.00	Wetted Per. (ft)		38.94	
Min Ch El (ft)	19.19	Shear (lb/sq ft)		2.57	
Alpha	1.00	Stream Power (lb/ft s)		69.71	
Frctn Loss (ft)	1.77	Cum Volume (acre-ft)		1.82	
C & E Loss (ft)	0.66	Cum SA (acres)		0.60	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 9845.49

INPUT
Description: Pioneer Phase II Channel per VTN Plans 74+04.45
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-18	28.13	0	19.13	12.5	18.88	25	19.13	43	28.13

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-18	.013	-18	.013	43	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

Left	Right	Left Channel	Right	Coeff Contr.	Expan.
-18	43	600	600	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	32.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	9.83	Wt. n-Val.		0.013	
W.S. Elev (ft)	22.38	Reach Len. (ft)	600.00	600.00	600.00
Crit W.S. (ft)	25.00	Flow Area (sq ft)		105.41	
E.G. Slope (ft/ft)	*0.013100	Area (sq ft)		105.41	
Q Total (cfs)	2652.00	Flow (cfs)		2652.00	
Top Width (ft)	37.99	Top Width (ft)		37.99	
Vel Total (ft/s)	25.16	Avg. Vel. (ft/s)		25.16	
Max Chl Dpth (ft)	3.50	Hydr. Depth (ft)		2.77	
Conv. Total (cfs)	23170.4	Conv. (cfs)		23170.4	
Length Wtd. (ft)	600.00	Wetted Per. (ft)		39.53	
Min Ch El (ft)	18.88	Shear (lb/sq ft)		2.18	
Alpha	1.00	Stream Power (lb/ft s)		54.87	
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)		1.68	
C & E Loss (ft)	0.47	Cum SA (acres)		0.55	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Combined Channel
REACH: EAST RS: 9245.49

INPUT
Description: Pioneer Phase II Channel per VTN Plans 80+04.45 - End 600' DS
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-18	25.13	0	16.13	12.5	15.88	25	16.13	43	25.13

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-18	.013	-18	.013	43	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-18	43	0	0	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	25.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.66	Wt. n-Val.		0.013	
W.S. Elev (ft)	20.22	Reach Len. (ft)			
Crit W.S. (ft)	22.00	Flow Area (sq ft)		138.96	
E.G. Slope (ft/ft)	*0.005891	Area (sq ft)		138.96	
Q Total (cfs)	* 2652.00	Flow (cfs)		* 2652.00	
Top Width (ft)	41.37	Top Width (ft)		41.37	
Vel Total (ft/s)	19.09	Avg. Vel. (ft/s)		19.09	
Max Chl Dpth (ft)	4.34	Hydr. Depth (ft)		3.36	
Conv. Total (cfs)	* 34551.1	Conv. (cfs)		* 34551.1	
Length Wtd. (ft)		Wetted Per. (ft)		43.31	
Min Ch El (ft)	15.88	Shear (lb/sq ft)		1.18	
Alpha	1.00	Stream Power (lb/ft s)		22.52	
Frctn Loss (ft)	5.07	Cum Volume (acre-ft)			
C & E Loss (ft)	1.25	Cum SA (acres)			

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 18653.05

INPUT
Description: Gibson Channel per VTN Plans 10+00
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	134.6	0	134.6	0	127.07	18	127.07	18	134.6
19	134.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	18	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	18	50	50	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	133.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.59	Wt. n-Val.		0.013	
W.S. Elev (ft)	129.65	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	130.68	Flow Area (sq ft)		46.38	
E.G. Slope (ft/ft)	*0.007003	Area (sq ft)		46.38	
Q Total (cfs)	705.00	Flow (cfs)		705.00	
Top Width (ft)	18.00	Top Width (ft)		18.00	
Vel Total (ft/s)	15.20	Avg. Vel. (ft/s)		15.20	
Max Chl Dpth (ft)	2.58	Hydr. Depth (ft)		2.58	
Conv. Total (cfs)	8424.6	Conv. (cfs)		8424.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		23.15	
Min Ch El (ft)	127.07	Shear (lb/sq ft)		0.88	
Alpha	1.00	Stream Power (lb/ft s)		13.31	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.10	9.00	0.10
C & E Loss (ft)		Cum SA (acres)	0.06	3.62	0.06

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 18603.05

INPUT
Description: Gibson Channel per VTN Plans 10+50
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	130.85	0	130.85	0	126.35	18.7	126.35	18.7	133.88
19.7	133.88								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	18.7	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	18.7	248.99	248.99	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	132.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.11	Wt. n-Val.		0.013	
W.S. Elev (ft)	128.67	Reach Len. (ft)	248.99	248.99	248.99
Crit W.S. (ft)	129.87	Flow Area (sq ft)		43.32	
E.G. Slope (ft/ft)	*0.008885	Area (sq ft)		43.32	
Q Total (cfs)	705.00	Flow (cfs)		705.00	
Top Width (ft)	18.70	Top Width (ft)		18.70	
Vel Total (ft/s)	16.27	Avg. Vel. (ft/s)		16.27	
Max Chl Dpth (ft)	2.32	Hydr. Depth (ft)		2.32	
Conv. Total (cfs)	7479.5	Conv. (cfs)		7479.5	
Length Wtd. (ft)	248.99	Wetted Per. (ft)		23.33	
Min Ch El (ft)	126.35	Shear (lb/sq ft)		1.03	
Alpha	1.00	Stream Power (lb/ft s)		16.76	

* Frctn Loss (ft)	*	0.39	* Cum Volume (acre-ft)	*	0.10	*	8.95	*	0.10	*
* C & E Loss (ft)	*	0.05	* Cum SA (acres)	*	0.06	*	3.60	*	0.06	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 18354.06

INPUT
Description: Gibson Channel per VTN Plans 12+98.99
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	127.27	0	127.27	0	122.77	18.7	122.77	18.7	130.38
19.7	130.38								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	18.7	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	18.7	39.59	39.59	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	130.04	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	5.21	* Wt. n-Val.	*		*	0.013	*		*
* W.S. Elev (ft)	*	124.83	* Reach Len. (ft)	*	39.59	*	39.59	*	39.59	*
* Crit W.S. (ft)	*	126.29	* Flow Area (sq ft)	*		*	38.49	*		*
* E.G. Slope (ft/ft)	*	0.012783	* Area (sq ft)	*		*	38.49	*		*
* Q Total (cfs)	*	705.00	* Flow (cfs)	*		*	705.00	*		*
* Top Width (ft)	*	18.70	* Top Width (ft)	*		*	18.70	*		*
* Vel Total (ft/s)	*	18.31	* Avg. Vel. (ft/s)	*		*	18.31	*		*
* Max Chl Dpth (ft)	*	2.06	* Hydr. Depth (ft)	*		*	2.06	*		*
* Conv. Total (cfs)	*	6235.5	* Conv. (cfs)	*		*	6235.5	*		*
* Length Wtd. (ft)	*	39.59	* Wetted Per. (ft)	*		*	22.82	*		*
* Min Ch El (ft)	*	122.77	* Shear (lb/sq ft)	*		*	1.35	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	24.66	*		*
* Frctn Loss (ft)	*	2.63	* Cum Volume (acre-ft)	*	0.10	*	8.71	*	0.10	*
* C & E Loss (ft)	*	0.11	* Cum SA (acres)	*	0.06	*	3.49	*	0.06	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 18314.47

INPUT
Description: Gibson Channel per VTN Plans 13+38.58
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	128.2	0	128.2	0	122.2	9	122.2	9	128.2
10	128.2	10	122.2	19	122.2	19	128.2	20	128.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	19	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	19	1278.45	1278.45	.1	.3

Cross Section Lid num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
-1	129.2	128.2	20	129.2	128.2

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	129.45	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	5.08	* Wt. n-Val.	*		*	0.013	*		*
* W.S. Elev (ft)	*	124.36	* Reach Len. (ft)	*	1278.45	*	1278.45	*	1278.45	*
* Crit W.S. (ft)	*	125.82	* Flow Area (sq ft)	*		*	38.96	*		*
* E.G. Slope (ft/ft)	*	0.015109	* Area (sq ft)	*		*	38.96	*		*
* Q Total (cfs)	*	705.00	* Flow (cfs)	*		*	705.00	*		*
* Top Width (ft)	*	18.00	* Top Width (ft)	*		*	18.00	*		*
* Vel Total (ft/s)	*	18.09	* Avg. Vel. (ft/s)	*		*	18.09	*		*
* Max Chl Dpth (ft)	*	2.16	* Hydr. Depth (ft)	*		*	2.16	*		*
* Conv. Total (cfs)	*	5735.6	* Conv. (cfs)	*		*	5735.6	*		*
* Length Wtd. (ft)	*	1278.45	* Wetted Per. (ft)	*		*	26.66	*		*
* Min Ch El (ft)	*	122.20	* Shear (lb/sq ft)	*		*	1.38	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	24.94	*		*
* Frctn Loss (ft)	*	0.55	* Cum Volume (acre-ft)	*	0.10	*	8.68	*	0.10	*
* C & E Loss (ft)	*	0.04	* Cum SA (acres)	*	0.06	*	3.47	*	0.06	*

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 17036.02

INPUT
Description: Gibson Channel per VTN Plans 26+17.03
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	113.91	0	113.91	0	107.91	19	107.91	19	113.91
20	113.91								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	19	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	19	50	50	.1	.3

Cross Section Lid num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
-1	115.5	113.91	20	115.5	113.91

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	114.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.17	Wt. n-Val.		0.013	
W.S. Elev (ft)	110.18	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	111.41	Flow Area (sq ft)		43.04	
E.G. Slope (ft/ft)	*0.009181	Area (sq ft)		43.04	
Q Total (cfs)	705.00	Flow (cfs)		705.00	
Top Width (ft)	19.00	Top Width (ft)		19.00	
Vel Total (ft/s)	16.38	Avg. Vel. (ft/s)		16.38	
Max Chl Dpth (ft)	2.27	Hydr. Depth (ft)		2.27	
Conv. Total (cfs)	7357.8	Conv. (cfs)		7357.8	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		23.53	
Min Ch El (ft)	107.91	Shear (lb/sq ft)		1.05	
Alpha	1.00	Stream Power (lb/ft s)		17.17	
Frctn Loss (ft)	14.83	Cum Volume (acre-ft)	0.10	7.47	0.10
C & E Loss (ft)	0.28	Cum SA (acres)	0.06	2.93	0.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 16991.39

INPUT
Description: Gibson Channel per VTN Plans 26+67.03

Station Elevation Data	num=	6					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	112.01	0	112.01	0	107.51	18.7	107.51
18.7	112.01						

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	18.7	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	18.7	714.11	714.11	714.11	.1	.3

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1	113.6	112.01	19.7	113.6	112.01

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	113.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.85	Wt. n-Val.		0.013	
W.S. Elev (ft)	109.97	Reach Len. (ft)	714.11	714.11	714.11
Crit W.S. (ft)	111.11	Flow Area (sq ft)		46.02	
E.G. Slope (ft/ft)	*0.007809	Area (sq ft)		46.02	
Q Total (cfs)	725.00	Flow (cfs)		725.00	
Top Width (ft)	18.70	Top Width (ft)		18.70	
Vel Total (ft/s)	15.76	Avg. Vel. (ft/s)		15.76	
Max Chl Dpth (ft)	2.46	Hydr. Depth (ft)		2.46	
Conv. Total (cfs)	8204.2	Conv. (cfs)		8204.2	
Length Wtd. (ft)	714.11	Wetted Per. (ft)		23.62	
Min Ch El (ft)	107.51	Shear (lb/sq ft)		0.95	
Alpha	1.00	Stream Power (lb/ft s)		14.96	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	0.10	7.42	0.10
C & E Loss (ft)	0.09	Cum SA (acres)	0.06	2.91	0.06

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 16271.91

INPUT
Description: Gibson Channel per VTN Plans 33+81.14

Station Elevation Data	num=	6					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	106.36	0	106.36	0	101.86	18.7	101.86
18.7	106.36						

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	18.7	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	18.7	50.08	50.08	50.08	.1	.3

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1	107.95	106.36	19.7	107.95	106.36

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	108.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.89	Wt. n-Val.		0.013	
W.S. Elev (ft)	104.31	Reach Len. (ft)	50.08	50.08	50.08
Crit W.S. (ft)	105.46	Flow Area (sq ft)		45.78	
E.G. Slope (ft/ft)	*0.007932	Area (sq ft)		45.78	
Q Total (cfs)	725.00	Flow (cfs)		725.00	
Top Width (ft)	18.70	Top Width (ft)		18.70	
Vel Total (ft/s)	15.84	Avg. Vel. (ft/s)		15.84	
Max Chl Dpth (ft)	2.45	Hydr. Depth (ft)		2.45	
Conv. Total (cfs)	8140.2	Conv. (cfs)		8140.2	
Length Wtd. (ft)	50.08	Wetted Per. (ft)		23.60	
Min Ch El (ft)	101.86	Shear (lb/sq ft)		0.96	
Alpha	1.00	Stream Power (lb/ft s)		15.22	
Frctn Loss (ft)	5.62	Cum Volume (acre-ft)	0.10	6.67	0.10
C & E Loss (ft)	0.00	Cum SA (acres)	0.06	2.60	0.06

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 16221.83

INPUT
Description: Gibson Channel per VTN Plans 34+31.22

Station Elevation Data	num=	10					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

-1	107.46	0	107.46	0	101.46	10	101.46	10	107.46
11	107.46	11	101.46	21	101.46	21	107.46	22	107.46

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	21	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	21	347	347	.1	.3

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 108.46	107.46	22 108.46	107.46

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	107.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.01	Wt. n-Val.		0.013	
W.S. Elev (ft)	103.72	Reach Len. (ft)	347.00	347.00	347.00
Crit W.S. (ft)	104.90	Flow Area (sq ft)		45.11	
E.G. Slope (ft/ft)	*0.010978	Area (sq ft)		45.11	
Q Total (cfs)	725.00	Flow (cfs)		725.00	
Top Width (ft)	20.00	Top Width (ft)		20.00	
Vel Total (ft/s)	16.07	Avg. Vel. (ft/s)		16.07	
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)		2.26	
Conv. Total (cfs)	6919.7	Conv. (cfs)		6919.7	
Length Wtd. (ft)	347.00	Wetted Per. (ft)		29.02	
Min Ch El (ft)	101.46	Shear (lb/sq ft)		1.07	
Alpha	1.00	Stream Power (lb/ft s)		17.12	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	0.10	6.62	0.10
C & E Loss (ft)	0.01	Cum SA (acres)	0.06	2.58	0.06

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 15874.83

INPUT
Description: Gibson Channel per VTN Plans 37+78.22
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	107.2	0	107.2	0	99.56	21	99.56	21	107.2
22	107.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	21	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	21	50	50	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	104.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.69	Wt. n-Val.		0.013	
W.S. Elev (ft)	102.18	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	102.88	Flow Area (sq ft)		55.06	
E.G. Slope (ft/ft)	*0.004942	Area (sq ft)		55.06	
Q Total (cfs)	725.00	Flow (cfs)		725.00	
Top Width (ft)	21.00	Top Width (ft)		21.00	
Vel Total (ft/s)	13.17	Avg. Vel. (ft/s)		13.17	
Max Chl Dpth (ft)	2.62	Hydr. Depth (ft)		2.62	
Conv. Total (cfs)	10312.9	Conv. (cfs)		10312.9	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		26.24	
Min Ch El (ft)	99.56	Shear (lb/sq ft)		0.65	
Alpha	1.00	Stream Power (lb/ft s)		8.52	
Frctn Loss (ft)	2.46	Cum Volume (acre-ft)	0.10	6.22	0.10
C & E Loss (ft)	0.40	Cum SA (acres)	0.06	2.42	0.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 15824.82

INPUT
Description: Gibson Channel per VTN Plans 38+28.23
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	103.7	0	103.7	0	99.22	21.8	99.22	21.8	106.11
22.8	106.11								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	21.8	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	21.8	189.22	189.22	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	104.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.09	Wt. n-Val.		0.013	
W.S. Elev (ft)	102.48	Reach Len. (ft)	189.22	189.22	189.22
Crit W.S. (ft)	102.75	Flow Area (sq ft)		71.02	
E.G. Slope (ft/ft)	*0.003017	Area (sq ft)		71.02	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	21.80	Top Width (ft)		21.80	
Vel Total (ft/s)	11.59	Avg. Vel. (ft/s)		11.59	
Max Chl Dpth (ft)	3.26	Hydr. Depth (ft)		3.26	
Conv. Total (cfs)	14984.6	Conv. (cfs)		14984.6	
Length Wtd. (ft)	189.22	Wetted Per. (ft)		28.32	
Min Ch El (ft)	99.22	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		5.47	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	0.10	6.15	0.10
C & E Loss (ft)	0.27	Cum SA (acres)	0.06	2.39	0.06

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 15635.6

INPUT
Description: Gibson Channel per VTN Plans 40+17.45
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	102.43	0	102.43	0	97.93	21.8	97.93	21.8	105.36
22.8	105.36								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	21.8	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 21.8 620.51 620.51 620.51 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	103.71	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.11	Wt. n-Val.		0.013
W.S. Elev (ft)	100.60	Reach Len. (ft)	620.51	620.51 / 620.51
Crit W.S. (ft)	101.46	Flow Area (sq ft)		58.18
E.G. Slope (ft/ft)	0.005541	Area (sq ft)		58.18
Q Total (cfs)	823.00	Flow (cfs)		823.00
Top Width (ft)	21.80	Top Width (ft)		21.80
Vel Total (ft/s)	14.15	Avg. Vel. (ft/s)		14.15
Max Chl Dpth (ft)	2.67	Hydr. Depth (ft)		2.67
Conv. Total (cfs)	11056.0	Conv. (cfs)		11056.0
Length Wtd. (ft)	620.51	Wetted Per. (ft)		27.14
Min Ch El (ft)	97.93	Shear (lb/sq ft)		0.74
Alpha	1.00	Stream Power (lb/ft s)		10.49
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	0.10	5.87 / 0.10
C & E Loss (ft)	0.10	Cum SA (acres)	0.06	2.30 / 0.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 15080.09

INPUT
Description: Gibson Channel per VTN Plans 45+72.94
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	98.69	0	98.69	0	94.19	21.8	94.19	21.8	98.69
22.8	98.69								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	21.8	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 21.8 65 65 65 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	100.08	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.30	Wt. n-Val.		0.013
W.S. Elev (ft)	96.78	Reach Len. (ft)	65.00	65.00 / 65.00
Crit W.S. (ft)	97.71	Flow Area (sq ft)		56.45
E.G. Slope (ft/ft)	0.006079	Area (sq ft)		56.45
Q Total (cfs)	823.00	Flow (cfs)		823.00
Top Width (ft)	21.80	Top Width (ft)		21.80
Vel Total (ft/s)	14.58	Avg. Vel. (ft/s)		14.58
Max Chl Dpth (ft)	2.59	Hydr. Depth (ft)		2.59
Conv. Total (cfs)	10556.0	Conv. (cfs)		10556.0
Length Wtd. (ft)	65.00	Wetted Per. (ft)		26.98
Min Ch El (ft)	94.19	Shear (lb/sq ft)		0.79
Alpha	1.00	Stream Power (lb/ft s)		11.58
Frctn Loss (ft)	3.60	Cum Volume (acre-ft)	0.10	5.05 / 0.10
C & E Loss (ft)	0.02	Cum SA (acres)	0.06	1.99 / 0.06

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 15015.09

INPUT
Description: Gibson Channel per VTN Plans 46+37.97
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	98.76	0	98.76	0	93.76	9	93.76	9	98.76
10	98.76	10	93.76	19	93.76	19	98.76	20	98.76
20	93.76	29	93.76	29	98.76	30	98.76		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	29	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
0 29 374.89 398.39 421.9 .1 .3
Cross Section Lid num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-1 99.76	98.76	30 99.76	98.76

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	99.48	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.77	Wt. n-Val.		0.013
W.S. Elev (ft)	95.72	Reach Len. (ft)	374.89	398.39 / 421.90
Crit W.S. (ft)	96.82	Flow Area (sq ft)		52.84
E.G. Slope (ft/ft)	0.012277	Area (sq ft)		52.84
Q Total (cfs)	823.00	Flow (cfs)		823.00

* Top Width (ft)	27.00	* Top Width (ft)			27.00		
* Vel Total (ft/s)	15.58	* Avg. Vel. (ft/s)			15.58		
* Max Chl Dpth (ft)	1.96	* Hydr. Depth (ft)			1.96		
* Conv. Total (cfs)	7427.6	* Conv. (cfs)			7427.6		
* Length Wtd. (ft)	398.39	* Wetted Per. (ft)			38.74		
* Min Ch El (ft)	93.76	* Shear (lb/sq ft)			1.05		
* Alpha	1.00	* Stream Power (lb/ft s)			16.28		
* Frctn Loss (ft)	0.54	* Cum Volume (acre-ft)		0.10	4.97	0.10	
* C & E Loss (ft)	0.05	* Cum SA (acres)		0.06	1.95	0.06	

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 14592.55

INPUT
Description: Gibson Channel per VTN Plans 50+60
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	95	0	95	0	88.41	29	88.41	29	95
30	95								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	29	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	29	50.5	50.5	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	94.49	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	4.39	* Wt. n-Val.		0.013	
* W.S. Elev (ft)	90.10	* Reach Len. (ft)	50.50	50.50	50.50
* Crit W.S. (ft)	91.32	* Flow Area (sq ft)		48.93	
* E.G. Slope (ft/ft)	*0.012482	* Area (sq ft)		48.93	
* Q Total (cfs)	823.00	* Flow (cfs)		823.00	
* Top Width (ft)	29.00	* Top Width (ft)		29.00	
* Vel Total (ft/s)	16.82	* Avg. Vel. (ft/s)		16.82	
* Max Chl Dpth (ft)	1.69	* Hydr. Depth (ft)		1.69	
* Conv. Total (cfs)	7366.4	* Conv. (cfs)		7366.4	
* Length Wtd. (ft)	50.50	* Wetted Per. (ft)		32.37	
* Min Ch El (ft)	88.41	* Shear (lb/sq ft)		1.18	
* Alpha	1.00	* Stream Power (lb/ft s)		19.81	
* Frctn Loss (ft)	4.93	* Cum Volume (acre-ft)	0.10	4.50	0.10
* C & E Loss (ft)	0.06	* Cum SA (acres)	0.06	1.69	0.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 14542.55

INPUT
Description: Gibson Channel per VTN Plans 51+10.50
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	92.71	0	92.71	0	87.71	29	87.71	29	92.71
30	92.71								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	29	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	29	290.05	290.05	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	93.84	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	4.46	* Wt. n-Val.		0.013	
* W.S. Elev (ft)	89.38	* Reach Len. (ft)	290.05	290.05	290.05
* Crit W.S. (ft)	90.62	* Flow Area (sq ft)		48.56	
* E.G. Slope (ft/ft)	*0.012791	* Area (sq ft)		48.56	
* Q Total (cfs)	823.00	* Flow (cfs)		823.00	
* Top Width (ft)	29.00	* Top Width (ft)		29.00	
* Vel Total (ft/s)	16.95	* Avg. Vel. (ft/s)		16.95	
* Max Chl Dpth (ft)	1.67	* Hydr. Depth (ft)		1.67	
* Conv. Total (cfs)	7276.8	* Conv. (cfs)		7276.8	
* Length Wtd. (ft)	290.05	* Wetted Per. (ft)		32.35	
* Min Ch El (ft)	87.71	* Shear (lb/sq ft)		1.20	
* Alpha	1.00	* Stream Power (lb/ft s)		20.32	
* Frctn Loss (ft)	0.64	* Cum Volume (acre-ft)	0.10	4.45	0.10
* C & E Loss (ft)	0.01	* Cum SA (acres)	0.06	1.66	0.06

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 14252.5

INPUT
Description: Gibson Channel per VTN Plans 54+00.55
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	89.74	0	89.74	0	81.74	11.5	81.74	11.5	89.74
12.5	89.74								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	11.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	11.5	159.53	159.53	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	90.83	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	5.17	* Wt. n-Val.		0.013	
* W.S. Elev (ft)	85.66	* Reach Len. (ft)	159.53	159.53	159.53

* Crit W.S. (ft)	*	87.16	* Flow Area (sq ft)	*		*	45.11	*		*
* E.G. Slope (ft/ft)	*	0.008238	* Area (sq ft)	*		*	45.11	*		*
* Q Total (cfs)	*	823.00	* Flow (cfs)	*		*	823.00	*		*
* Top Width (ft)	*	11.50	* Top Width (ft)	*		*	11.50	*		*
* Vel Total (ft/s)	*	18.24	* Avg. Vel. (ft/s)	*		*	18.24	*		*
* Max Chl Dpth (ft)	*	3.92	* Hydr. Depth (ft)	*		*	3.92	*		*
* Conv. Total (cfs)	*	9067.3	* Conv. (cfs)	*		*	9067.3	*		*
* Length Wtd. (ft)	*	159.53	* Wetted Per. (ft)	*		*	19.35	*		*
* Min Ch El (ft)	*	81.74	* Shear (lb/sq ft)	*		*	1.20	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	21.88	*		*
* Frctn Loss (ft)	*	2.94	* Cum Volume (acre-ft)	*	0.10	*	4.13	*	0.10	*
* C & E Loss (ft)	*	0.07	* Cum SA (acres)	*	0.06	*	1.52	*	0.06	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 14092.97

INPUT
Description: Gibson Channel per VTN Plans 55+60.08 - End Gibson CH
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1	87.1	0	87.1	0	79.1	11.5	79.1	11.5	87.1
12.5	87.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
-1	.013	0	.013	11.5	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	11.5	105.06	105.06	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	89.15	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	6.57	* Wt. n-Val.	*		*	0.013	*		*	
* W.S. Elev (ft)	*	82.58	* Reach Len. (ft)	*	105.06	*	105.06	*	105.06	*	
* Crit W.S. (ft)	*	84.52	* Flow Area (sq ft)	*		*	40.02	*		*	
* E.G. Slope (ft/ft)	*	0.011538	* Area (sq ft)	*		*	40.02	*		*	
* Q Total (cfs)	*	823.00	* Flow (cfs)	*		*	823.00	*		*	
* Top Width (ft)	*	11.50	* Top Width (ft)	*		*	11.50	*		*	
* Vel Total (ft/s)	*	20.57	* Avg. Vel. (ft/s)	*		*	20.57	*		*	
* Max Chl Dpth (ft)	*	3.48	* Hydr. Depth (ft)	*		*	3.48	*		*	
* Conv. Total (cfs)	*	7662.0	* Conv. (cfs)	*		*	7662.0	*		*	
* Length Wtd. (ft)	*	105.06	* Wetted Per. (ft)	*		*	18.46	*		*	
* Min Ch El (ft)	*	79.10	* Shear (lb/sq ft)	*		*	1.56	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	32.11	*		*	
* Frctn Loss (ft)	*	1.54	* Cum Volume (acre-ft)	*	0.10	*	3.98	*	0.10	*	
* C & E Loss (ft)	*	0.14	* Cum SA (acres)	*	0.06	*	1.48	*	0.06	*	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13987.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 3987.91
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
94.24	83	94.25	75.56	100	75.56	105.75	75.56	105.76	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
94.24	.013	94.25	.013	105.75	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.25	105.75	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	87.71	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	9.21	* Wt. n-Val.	*	0.013	*	0.013	*	0.013	*	
* W.S. Elev (ft)	*	78.50	* Reach Len. (ft)	*	100.00	*	100.00	*	100.00	*	
* Crit W.S. (ft)	*	80.97	* Flow Area (sq ft)	*	0.01	*	33.79	*	0.01	*	
* E.G. Slope (ft/ft)	*	0.010788	* Area (sq ft)	*	0.01	*	33.79	*	0.01	*	
* Q Total (cfs)	*	823.00	* Flow (cfs)	*	0.00	*	823.00	*	0.00	*	
* Top Width (ft)	*	11.51	* Top Width (ft)	*		*	11.50	*		*	
* Vel Total (ft/s)	*	24.35	* Avg. Vel. (ft/s)	*	0.19	*	24.36	*	0.19	*	
* Max Chl Dpth (ft)	*	2.94	* Hydr. Depth (ft)	*	1.47	*	2.94	*	1.47	*	
* Conv. Total (cfs)	*	7923.6	* Conv. (cfs)	*	0.0	*	7923.6	*	0.0	*	
* Length Wtd. (ft)	*	100.00	* Wetted Per. (ft)	*	2.94	*	11.50	*	2.94	*	
* Min Ch El (ft)	*	75.56	* Shear (lb/sq ft)	*	0.00	*	1.98	*	0.00	*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*	0.00	*	48.20	*	0.00	*	
* Frctn Loss (ft)	*	1.17	* Cum Volume (acre-ft)	*	0.10	*	3.89	*	0.10	*	
* C & E Loss (ft)	*	0.26	* Cum SA (acres)	*	0.06	*	1.45	*	0.06	*	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13887.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 3887.91
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
94.24	83	94.25	74.86	100	74.86	105.75	74.86	105.76	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
94.24	.013	94.25	.013	105.75	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

	94.25	105.75		100	100	100		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	86.51	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	8.61	* Wt. n-Val.	*	0.000	*	0.013	*	0.000	*
* W.S. Elev (ft)	*	77.90	* Reach Len. (ft)	*	100.00	*	100.00	*	100.00	*
* Crit W.S. (ft)	*	80.27	* Flow Area (sq ft)	*	0.01	*	34.95	*	0.01	*
* E.G. Slope (ft/ft)	*	0.009637	* Area (sq ft)	*	0.01	*	34.95	*	0.01	*
* Q Total (cfs)	*	823.00	* Flow (cfs)	*	0.00	*	823.00	*	0.00	*
* Top Width (ft)	*	11.51	* Top Width (ft)	*		*	11.50	*		*
* Vel Total (ft/s)	*	23.54	* Avg. Vel. (ft/s)	*	0.17	*	23.54	*	0.17	*
* Max Chl Dpth (ft)	*	3.04	* Hydr. Depth (ft)	*	1.52	*	3.04	*	1.52	*
* Conv. Total (cfs)	*	8383.5	* Conv. (cfs)	*	0.0	*	8383.5	*	0.0	*
* Length Wtd. (ft)	*	100.00	* Wetted Per. (ft)	*	3.04	*	11.50	*	3.04	*
* Min Ch El (ft)	*	74.86	* Shear (lb/sq ft)	*		*	1.83	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	43.06	*		*
* Frctn Loss (ft)	*	1.02	* Cum Volume (acre-ft)	*	0.10	*	3.81	*	0.10	*
* C & E Loss (ft)	*	0.18	* Cum SA (acres)	*	0.06	*	1.43	*	0.06	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13787.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 3787.91
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
94.24	83	94.25	74.16	100	74.16	105.75	74.16	105.76	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
94.24	.013	94.25	.013	105.75	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.25	105.75	100	100	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	85.45	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	8.18	* Wt. n-Val.	*	0.000	*	0.013	*	0.000	*
* W.S. Elev (ft)	*	77.28	* Reach Len. (ft)	*	100.00	*	100.00	*	100.00	*
* Crit W.S. (ft)	*	79.57	* Flow Area (sq ft)	*	0.01	*	35.87	*	0.01	*
* E.G. Slope (ft/ft)	*	0.008844	* Area (sq ft)	*	0.01	*	35.87	*	0.01	*
* Q Total (cfs)	*	823.00	* Flow (cfs)	*	0.00	*	823.00	*	0.00	*
* Top Width (ft)	*	11.51	* Top Width (ft)	*		*	11.50	*		*
* Vel Total (ft/s)	*	22.94	* Avg. Vel. (ft/s)	*	0.16	*	22.95	*	0.16	*
* Max Chl Dpth (ft)	*	3.12	* Hydr. Depth (ft)	*	1.56	*	3.12	*	1.56	*
* Conv. Total (cfs)	*	8751.2	* Conv. (cfs)	*	0.0	*	8751.2	*	0.0	*
* Length Wtd. (ft)	*	100.00	* Wetted Per. (ft)	*	3.12	*	11.50	*	3.12	*
* Min Ch El (ft)	*	74.16	* Shear (lb/sq ft)	*		*	1.72	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	39.51	*		*
* Frctn Loss (ft)	*	0.92	* Cum Volume (acre-ft)	*	0.10	*	3.73	*	0.10	*
* C & E Loss (ft)	*	0.13	* Cum SA (acres)	*	0.06	*	1.40	*	0.06	*

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13687.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 3687.91
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
94.24	83	94.25	73.46	100	73.46	105.75	73.46	105.76	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
94.24	.013	94.25	.013	105.75	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.25	105.75	85	85	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	84.51	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	7.87	* Wt. n-Val.	*	0.000	*	0.013	*	0.000	*
* W.S. Elev (ft)	*	76.64	* Reach Len. (ft)	*	85.00	*	85.00	*	85.00	*
* Crit W.S. (ft)	*	78.87	* Flow Area (sq ft)	*	0.01	*	36.55	*	0.01	*
* E.G. Slope (ft/ft)	*	0.008307	* Area (sq ft)	*	0.01	*	36.55	*	0.01	*
* Q Total (cfs)	*	823.00	* Flow (cfs)	*	0.00	*	823.00	*	0.00	*
* Top Width (ft)	*	11.51	* Top Width (ft)	*		*	11.50	*		*
* Vel Total (ft/s)	*	22.51	* Avg. Vel. (ft/s)	*	0.15	*	22.52	*	0.15	*
* Max Chl Dpth (ft)	*	3.18	* Hydr. Depth (ft)	*	1.59	*	3.18	*	1.59	*
* Conv. Total (cfs)	*	9029.6	* Conv. (cfs)	*	0.0	*	9029.6	*	0.0	*
* Length Wtd. (ft)	*	85.00	* Wetted Per. (ft)	*	3.18	*	11.50	*	3.18	*
* Min Ch El (ft)	*	73.46	* Shear (lb/sq ft)	*		*	1.65	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	37.12	*		*
* Frctn Loss (ft)	*	0.86	* Cum Volume (acre-ft)	*	0.10	*	3.65	*	0.10	*
* C & E Loss (ft)	*	0.09	* Cum SA (acres)	*	0.06	*	1.38	*	0.06	*

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13602.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 3602.91, begin transition
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
94.24	80.88	94.25	72.88	100	72.88	105.75	72.88	105.76	80.88

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
94.24	.013	94.25	.013	105.76	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
94.25	105.76	21.42	20.37	19.99	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	83.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	7.46	Wt. n-Val.	0.013	0.013	
W.S. Elev (ft)	76.15	Reach Len. (ft)	21.42	20.37	19.99
Crit W.S. (ft)	78.29	Flow Area (sq ft)	0.01	37.56	
E.G. Slope (ft/ft)	*0.010585	Area (sq ft)	0.01	37.56	
Q Total (cfs)	823.00	Flow (cfs)	0.00	823.00	
Top Width (ft)	11.51	Top Width (ft)		11.50	
Vel Total (ft/s)	21.91	Avg. Vel. (ft/s)	0.19	21.91	
Max Chl Dpth (ft)	3.27	Hydr. Depth (ft)	1.63	3.26	
Conv. Total (cfs)	7999.5	Conv. (cfs)	0.0	7999.4	
Length Wtd. (ft)	20.37	Wetted Per. (ft)	3.26	14.76	
Min Ch El (ft)	72.88	Shear (lb/sq ft)	0.00	1.68	
Alpha	1.00	Stream Power (lb/ft s)	0.00	36.83	
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	0.10	3.57	0.10
C & E Loss (ft)	0.13	Cum SA (acres)	0.06	1.35	0.06

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13582.54

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
90.49	79.74	90.5	72.74	99.98	72.74	100.04	72.74	109.58	72.74
109.6	79.74								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
90.49	.013	90.49	.013	109.6	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
90.49	109.6	21.42	20.37	19.99	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	83.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.60	Wt. n-Val.		0.013	
W.S. Elev (ft)	74.57	Reach Len. (ft)	21.42	20.37	19.99
Crit W.S. (ft)	76.59	Flow Area (sq ft)		34.98	
E.G. Slope (ft/ft)	*0.023874	Area (sq ft)		34.98	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	19.09	Top Width (ft)		19.09	
Vel Total (ft/s)	23.53	Avg. Vel. (ft/s)		23.53	
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)		1.83	
Conv. Total (cfs)	5326.5	Conv. (cfs)		5326.5	
Length Wtd. (ft)	20.37	Wetted Per. (ft)		22.74	
Min Ch El (ft)	72.74	Shear (lb/sq ft)		2.29	
Alpha	1.00	Stream Power (lb/ft s)		53.93	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	0.10	3.56	0.10
C & E Loss (ft)	0.11	Cum SA (acres)	0.06	1.35	0.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13562.17

INPUT
Description: Desert Canyon per STANTEC Plans RS 3562.17, end transition
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	78.59	86.75	72.59	100	72.59	113.42	72.59	113.43	78.59

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	86.74	.013	113.43	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
86.74	113.43	.01	.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	82.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.69	Wt. n-Val.		0.013	
W.S. Elev (ft)	73.89	Reach Len. (ft)	0.01	0.01	0.01
Crit W.S. (ft)	75.67	Flow Area (sq ft)		34.79	
E.G. Slope (ft/ft)	*0.034037	Area (sq ft)		34.79	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	26.67	Top Width (ft)		26.67	
Vel Total (ft/s)	23.66	Avg. Vel. (ft/s)		23.66	
Max Chl Dpth (ft)	1.30	Hydr. Depth (ft)		1.30	
Conv. Total (cfs)	4460.9	Conv. (cfs)		4460.9	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		29.28	
Min Ch El (ft)	72.59	Shear (lb/sq ft)		2.52	
Alpha	1.00	Stream Power (lb/ft s)		59.73	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	0.10	3.54	0.10
C & E Loss (ft)	0.01	Cum SA (acres)	0.06	1.33	0.06

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13562.16

INPUT
Description: Desert Canyon per STANTEC Plans RS 3562.16, RCB inlet
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	78.59	86.75	72.59	98.75	72.59	98.76	78.59	100	78.59
101.41	78.59	101.42	72.59	113.42	72.59	113.43	78.59		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	86.75	.013	113.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
86.75	113.42	9.96	9.96	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	82.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.45	Wt. n-Val.	0.000	0.013	0.000
W.S. Elev (ft)	74.06	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	75.90	Flow Area (sq ft)	0.00	35.27	0.00
E.G. Slope (ft/ft)	0.029094	Area (sq ft)	0.00	35.27	0.00
Q Total (cfs)	823.00	Flow (cfs)	0.00	823.00	0.00
Top Width (ft)	24.01	Top Width (ft)		24.00	
Vel Total (ft/s)	23.33	Avg. Vel. (ft/s)	0.22	23.33	0.22
Max Chl Dpth (ft)	1.47	Hydr. Depth (ft)	0.73	1.47	0.73
Conv. Total (cfs)	4825.0	Conv. (cfs)	0.0	4825.0	0.0
Length Wtd. (ft)	0.10	Wetted Per. (ft)	1.47	26.94	1.47
Min Ch El (ft)	72.59	Shear (lb/sq ft)		2.38	
Alpha	1.00	Stream Power (lb/ft s)		55.49	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.10	3.54	0.10
C & E Loss (ft)	0.07	Cum SA (acres)	0.06	1.33	0.06

Warning: Divided flow computed for this cross-section.

BRIDGE

RIVER: North Channel
REACH: WEST RS: 13557.18

INPUT
Description: Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic analyisis only)
Distance from Upstream XS = .1
Deck/Roadway Width = 9.85
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
86.74	80.29	78.59	113.43
80.29	78.59		

Upstream Bridge Cross Section Data
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	78.59	86.75	72.59	98.75	72.59	98.76	78.59	100	78.59
101.41	78.59	101.42	72.59	113.42	72.59	113.43	78.59		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	86.75	.013	113.42	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
86.75	113.42	.1	.3

Downstream Deck/Roadway Coordinates
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
86.74	80.29	78.49	113.43
80.29	78.49		

Downstream Bridge Cross Section Data
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	78.49	86.75	72.49	98.75	72.49	98.76	78.49	100	78.49
101.41	78.49	101.42	72.49	113.42	72.49	113.43	78.49		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	98.75	.013	101.42	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
98.75	101.42	.1	.3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 1

Pier Data
Pier Station Upstream= 100.085 Downstream= 100.085
Upstream num= 2

Width	Elev	Width	Elev
3	72.59	3	78.59

Downstream num= 2

Width	Elev	Width	Elev
3	72.49	3	78.49

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF 1

			Inside BR US	Inside BR DS
E.G. US. (ft)	82.51	Element	82.51	82.12
W.S. US. (ft)	74.06	E.G. Elev (ft)	74.08	74.01
Q Total (cfs)	823.00	W.S. Elev (ft)	75.94	75.84
Q Bridge (cfs)	823.00	Crit W.S. (ft)	1.49	1.52
Q Weir (cfs)		Max Chl Dpth (ft)	23.30	22.86
Weir Sta Lft (ft)		Vel Total (ft/s)	35.33	36.01
Weir Sta Rgt (ft)		Flow Area (sq ft)	3.36	0.00
Weir Submerg		Froude # Chl	621.83	611.59
Weir Max Depth (ft)		Specif Force (cu ft)	1.49	1.52
Min El Weir Flow (ft)	80.30	Hydr Depth (ft)	29.64	29.75
Min El Prs (ft)	78.59	W.P. Total (ft)	4871.7	4673.8
Delta EG (ft)	0.39	Conv. Total (cfs)	23.67	23.68
Delta WS (ft)	0.07	Top Width (ft)	0.00	0.29
BR Open Area (sq ft)	142.08	Frctn Loss (ft)	0.01	0.09
BR Open Vel (ft/s)	23.30	C & E Loss (ft)	2.12	2.34
Coef of Q		Shear Total (lb/sq ft)		

```
* Br Sel Method          *Energy only  * Power Total (lb/ft s)  *      49.47  *      53.55  *
*********************************************************************************************

Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Note:    Momentum answer is not valid if the water surface is above the low chord or if there is weir
         flow.  The momentum answer has been disregarded.
Warning: There is no flow in the channel.  Check that the channel stations are correctly coded. To force
         flow into the channel, a levee or ineffective flow may have to be added or the Manning's n of
         the overbank could be increased.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 13552.2

INPUT
Description: Desert Canyon per STANTEC Plans RS 3552.2, begin existing south
             cell box
Station Elevation Data    num=       9
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
***********************************************************************************************
    86.74   78.49    86.75   72.49    98.75   72.49    98.76   78.49      100   78.49
   101.41   78.49   101.42   72.49   113.42   72.49   113.43   78.49

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***************************************************
    86.74    .013    98.75    .013   101.42    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
          98.75  101.42             73.41   73.41   73.41            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
***********************************************************************************************
* E.G. Elev (ft)          *   82.12  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    8.13  * Wt. n-Val.            *   0.013  *   0.013  *   0.013  *
* W.S. Elev (ft)          *   73.99  * Reach Len. (ft)       *   73.41  *   73.41  *   73.41  *
* Crit W.S. (ft)          *   75.80  * Flow Area (sq ft)     *   17.98  *    0.00  *   17.98  *
* E.G. Slope (ft/ft)      *0.027351  * Area (sq ft)          *   17.98  *    0.00  *   17.98  *
* Q Total (cfs)           *  823.00  * Flow (cfs)            *  411.50  *    0.00  *  411.50  *
* Top Width (ft)          *   24.01  * Top Width (ft)       *   12.00  *          *   12.00  *
* Vel Total (ft/s)        *   22.88  * Avg. Vel. (ft/s)     *   22.89  *    0.22  *   22.89  *
* Max Chl Dpth (ft)       *    1.50  * Hydr. Depth (ft)     *    1.50  *    0.75  *    1.50  *
* Conv. Total (cfs)       *  4976.4  * Conv. (cfs)          *  2488.2  *     0.0  *  2488.2  *
* Length Wtd. (ft)        *   73.41  * Wetted Per. (ft)     *   13.50  *    2.99  *   13.50  *
* Min Ch El (ft)          *   72.49  * Shear (lb/sq ft)     *    2.27  *          *    2.27  *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *  52.06  *          *   52.06  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)  *    0.10  *    3.54  *    0.10  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)        *    0.06  *    1.33  *    0.06  *
***********************************************************************************************

Warning: Divided flow computed for this cross-section.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 13478.79

INPUT
Description: Desert Canyon per STANTEC Plans RS 3478.79, end existing south
             cell box
Station Elevation Data    num=       9
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
***********************************************************************************************
    86.74   78.15    86.75   72.15    98.75   72.15    98.76   78.15      100   78.15
   101.41   78.15   101.42   72.15   113.42   72.15   113.43   78.15

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***************************************************
    86.74    .013    98.75    .013   101.42    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
          98.75  101.42             2.19    2.19    2.19            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
***********************************************************************************************
* E.G. Elev (ft)          *   79.93  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    6.04  * Wt. n-Val.            *   0.013  *   0.013  *   0.013  *
* W.S. Elev (ft)          *   73.89  * Reach Len. (ft)       *    2.19  *    2.19  *    2.19  *
* Crit W.S. (ft)          *   75.46  * Flow Area (sq ft)     *   20.86  *    0.01  *   20.86  *
* E.G. Slope (ft/ft)      *0.017070  * Area (sq ft)          *   20.86  *    0.01  *   20.86  *
* Q Total (cfs)           *  823.00  * Flow (cfs)            *  411.51  *    0.00  *  411.49  *
* Top Width (ft)          *   24.01  * Top Width (ft)       *   12.00  *          *   12.00  *
* Vel Total (ft/s)        *   19.73  * Avg. Vel. (ft/s)     *   19.73  *    0.19  *   19.73  *
* Max Chl Dpth (ft)       *    1.74  * Hydr. Depth (ft)     *    1.74  *    0.87  *    1.74  *
* Conv. Total (cfs)       *  6299.2  * Conv. (cfs)          *  3149.7  *     0.0  *  3149.5  *
* Length Wtd. (ft)        *    2.19  * Wetted Per. (ft)     *   13.74  *    3.48  *   13.74  *
* Min Ch El (ft)          *   72.15  * Shear (lb/sq ft)     *    1.62  *          *    1.62  *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *  31.92  *          *   31.92  *
* Frctn Loss (ft)         *    1.56  * Cum Volume (acre-ft)  *    0.07  *    3.54  *    0.07  *
* C & E Loss (ft)         *    0.63  * Cum SA (acres)        *    0.04  *    1.33  *    0.04  *
***********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 13476.6

INPUT
Description: Desert Canyon per STANTEC Plans RS 3474.46, RCB PT
Station Elevation Data    num=       9
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
***********************************************************************************************
    86.74   78.14    86.75   72.14    98.75   72.14    98.76   78.14      100   78.14
   101.41   78.14   101.42   72.14   113.42   72.14   113.43   78.14

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***************************************************
    86.74    .013    98.75    .013   101.42    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
          98.75  101.42            45.02   51.05   52.79            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
***********************************************************************************************
* E.G. Elev (ft)          *   79.89  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    6.00  * Wt. n-Val.            *   0.013  *   0.013  *   0.013  *
* W.S. Elev (ft)          *   73.88  * Reach Len. (ft)       *   45.02  *   51.05  *   52.79  *
```

Crit W.S. (ft)	75.45	Flow Area (sq ft)	20.93		0.01		20.93
E.G. Slope (ft/ft)	0.016894	Area (sq ft)	20.93		0.01		20.93
Q Total (cfs)	823.00	Flow (cfs)	411.50		0.00		411.50
Top Width (ft)	24.01	Top Width (ft)	12.00				12.00
Vel Total (ft/s)	19.66	Avg. Vel. (ft/s)	19.66		0.19		19.66
Max Chl Dpth (ft)	1.74	Hydr. Depth (ft)	1.74		0.87		1.74
Conv. Total (cfs)	6331.9	Conv. (cfs)	3166.0		0.0		3166.0
Length Wtd. (ft)	48.90	Wetted Per. (ft)	13.74		3.49		13.74
Min Ch El (ft)	72.14	Shear (lb/sq ft)	1.61				1.61
Alpha	1.00	Stream Power (lb/ft s)	31.58				31.58
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.07		3.54		0.07
C & E Loss (ft)	0.01	Cum SA (acres)	0.03		1.33		0.03

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13425.61

INPUT
Description: Desert Canyon per STANTEC Plans RS 3425.61, RCB PC
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	77.97	86.75	71.97	98.75	71.97	98.76	77.97	100	77.97
101.41	77.97	101.42	71.97	113.42	71.97	113.43	77.97		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	98.75	.013	101.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
98.75	101.42	15	15	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	78.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.99	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	73.88	Reach Len. (ft)	15.00	15.00	15.00
Crit W.S. (ft)	75.28	Flow Area (sq ft)	22.95	0.01	22.95
E.G. Slope (ft/ft)	0.012619	Area (sq ft)	22.95	0.01	22.95
Q Total (cfs)	823.00	Flow (cfs)	411.50	0.00	411.49
Top Width (ft)	24.01	Top Width (ft)	12.00		12.00
Vel Total (ft/s)	17.93	Avg. Vel. (ft/s)	17.93	0.18	17.93
Max Chl Dpth (ft)	1.91	Hydr. Depth (ft)	1.91	0.96	1.91
Conv. Total (cfs)	7326.4	Conv. (cfs)	3663.2	0.0	3663.1
Length Wtd. (ft)	15.00	Wetted Per. (ft)	13.91	3.83	13.91
Min Ch El (ft)	71.97	Shear (lb/sq ft)	1.30		1.30
Alpha	1.00	Stream Power (lb/ft s)	23.30		23.30
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	0.05	3.54	0.04
C & E Loss (ft)	0.30	Cum SA (acres)	0.02	1.33	0.02

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13410.61

INPUT
Description: Desert Canyon per STANTEC Plans RS 3410.61, RCB PT
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	77.92	86.75	71.92	98.75	71.92	98.76	77.92	100	77.92
101.41	77.92	101.42	71.92	113.42	71.92	113.43	77.92		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	98.75	.013	101.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
98.75	101.42	61.49	57.13	52.67	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	78.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.75	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	73.88	Reach Len. (ft)	61.49	57.13	52.67
Crit W.S. (ft)	75.23	Flow Area (sq ft)	23.54	0.01	23.54
E.G. Slope (ft/ft)	0.011658	Area (sq ft)	23.54	0.01	23.54
Q Total (cfs)	823.00	Flow (cfs)	411.52	0.00	411.48
Top Width (ft)	24.01	Top Width (ft)	12.00		12.00
Vel Total (ft/s)	17.48	Avg. Vel. (ft/s)	17.48	0.17	17.48
Max Chl Dpth (ft)	1.96	Hydr. Depth (ft)	1.96	0.98	1.96
Conv. Total (cfs)	7622.5	Conv. (cfs)	3811.4	0.0	3811.0
Length Wtd. (ft)	57.08	Wetted Per. (ft)	13.96	3.92	13.96
Min Ch El (ft)	71.92	Shear (lb/sq ft)	1.23	0.00	1.23
Alpha	1.00	Stream Power (lb/ft s)	21.45	0.00	21.45
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.04	3.54	0.03
C & E Loss (ft)	0.07	Cum SA (acres)	0.02	1.33	0.02

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13353.48

INPUT
Description: Desert Canyon per STANTEC Plans RS 3353.48, RCB PC
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	77.733	86.75	71.733	98.75	71.733	98.76	77.733	100	77.733
101.41	77.733	101.42	71.733	113.42	71.733	113.43	77.733		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	98.75	.013	101.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
98.75	101.42	9.88	9.88	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	77.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.92	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	73.89	Reach Len. (ft)	9.88	9.88	9.88
Crit W.S. (ft)	75.04	Flow Area (sq ft)	25.90	0.01	25.90
E.G. Slope (ft/ft)	*0.008636	Area (sq ft)	25.90	0.01	25.90
Q Total (cfs)	823.00	Flow (cfs)	411.52	0.00	411.48
Top Width (ft)	24.01	Top Width (ft)	12.00		12.00
Vel Total (ft/s)	15.89	Avg. Vel. (ft/s)	15.89	0.16	15.89
Max Chl Dpth (ft)	2.16	Hydr. Depth (ft)	2.16	1.08	2.16
Conv. Total (cfs)	8856.2	Conv. (cfs)	4428.3	0.0	4427.9
Length Wtd. (ft)	9.88	Wetted Per. (ft)	14.16	4.32	14.16
Min Ch El (ft)	71.73	Shear (lb/sq ft)	0.99	0.00	0.99
Alpha	1.00	Stream Power (lb/ft s)	15.67	0.00	15.67
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	0.00	3.54	0.00
C & E Loss (ft)	0.25	Cum SA (acres)	0.00	1.33	0.00

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13343.61

INPUT
Description: Desert Canyon per STANTEC Plans RS 3343.61, Dual 12'x6' RCB outlet
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
86.74	77.7	86.75	71.7	98.75	71.7	98.76	77.7	100	77.7
101.41	77.7	101.42	71.7	113.42	71.7	113.43	77.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
86.74	.013	86.75	.013	113.42	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
86.75	113.42	.01	.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	77.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.80	Wt. n-Val.	0.000	0.013	0.000
W.S. Elev (ft)	73.89	Reach Len. (ft)	0.01	0.01	0.01
Crit W.S. (ft)	75.01	Flow Area (sq ft)	0.00	52.61	0.00
E.G. Slope (ft/ft)	*0.008226	Area (sq ft)	0.00	52.61	0.00
Q Total (cfs)	823.00	Flow (cfs)	0.00	823.00	0.00
Top Width (ft)	24.01	Top Width (ft)		24.01	
Vel Total (ft/s)	15.64	Avg. Vel. (ft/s)	0.15	15.64	0.15
Max Chl Dpth (ft)	2.19	Hydr. Depth (ft)	1.10	2.19	1.10
Conv. Total (cfs)	9073.9	Conv. (cfs)	0.0	9073.9	0.0
Length Wtd. (ft)	0.01	Wetted Per. (ft)	2.19	28.38	2.19
Min Ch El (ft)	71.70	Shear (lb/sq ft)		0.95	
Alpha	1.00	Stream Power (lb/ft s)		14.89	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.00	3.53	0.00
C & E Loss (ft)	0.04	Cum SA (acres)		1.33	

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13343.6

INPUT
Description: Desert Canyon per STANTEC Plans RS 3343.6, upstream limit of openspace channel
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.56	80	82.57	73.1	86.75	71.7	100	71.7	113.42	71.7
124.63	76.54	137.07	76.79	137.08	81.96				

Manning's n Values num= 1

Sta	n Val
82.56	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
82.56	137.08	10.3	10.3	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
82.56	86.75		T
113.52	137.08		T

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	77.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.06	Wt. n-Val.		0.013	
W.S. Elev (ft)	73.60	Reach Len. (ft)	10.30	10.30	10.30
Crit W.S. (ft)	74.77	Flow Area (sq ft)		50.89	
E.G. Slope (ft/ft)	*0.008507	Area (sq ft)		59.90	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	35.25	Top Width (ft)		35.25	
Vel Total (ft/s)	16.17	Avg. Vel. (ft/s)		16.17	
Max Chl Dpth (ft)	1.90	Hydr. Depth (ft)		1.90	
Conv. Total (cfs)	8923.3	Conv. (cfs)		8923.3	
Length Wtd. (ft)	10.30	Wetted Per. (ft)		26.78	
Min Ch El (ft)	71.70	Shear (lb/sq ft)		1.01	
Alpha	1.00	Stream Power (lb/ft s)		16.32	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		3.53	
C & E Loss (ft)	0.03	Cum SA (acres)		1.33	

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13333.3

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
81.83	80	81.85	73.65	87.44	71.78	93.38	71.66	100	71.66
106.71	71.66	112.71	71.78	121.69	75.66	134.15	75.9	134.17	81.77

Manning's n Values num= 2

Sta	n Val	Sta	n Val
81.83	.013	134.17	.013

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         81.83  134.17              10.3    10.3    10.3             .1      .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
  116.14  134.17                F

CROSS SECTION OUTPUT  Profile #PF 1
*********************************************************************************************
* E.G. Elev (ft)         *   76.92  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.43  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)         *   76.49  * Reach Len. (ft)        *   10.30  *   10.30  *   10.30  *
* Crit W.S. (ft)         *   74.55  * Flow Area (sq ft)      *          *  156.18  *          *
* E.G. Slope (ft/ft)     *0.000320  * Area (sq ft)           *          *  176.35  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)             *          *  823.00  *          *
* Top Width (ft)         *   52.31  * Top Width (ft)         *          *   52.31  *          *
* Vel Total (ft/s)       *    5.27  * Avg. Vel. (ft/s)       *          *    5.27  *          *
* Max Chl Dpth (ft)      *    4.83  * Hydr. Depth (ft)       *          *    4.55  *          *
* Conv. Total (cfs)      * 46008.0  * Conv. (cfs)           *          * 46008.0  *          *
* Length Wtd. (ft)       *   10.30  * Wetted Per. (ft)       *          *   37.75  *          *
* Min Ch El (ft)         *   71.66  * Shear (lb/sq ft)       *          *    0.08  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    0.44  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)   *          *    3.51  *          *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         *          *    1.32  *          *
*********************************************************************************************

Note:    Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 13323.

INPUT
Description: Desert Canyon per STANTEC Plans RS 3323, begin 50' channel
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   81.11      80   81.12    74.2   88.13   71.86     100   71.62  112.01   71.86
  118.76   74.78  131.24   75.02  131.25   81.59

Manning's n Values        num=       1
     Sta   n Val
****************
   81.11    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         81.11  131.25             15.61   15.61   15.61             .1      .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
  118.76  131.25                F

CROSS SECTION OUTPUT  Profile #PF 1
*********************************************************************************************
* E.G. Elev (ft)         *   76.92  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.41  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)         *   76.50  * Reach Len. (ft)        *   15.61  *   15.61  *   15.61  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)      *          *  159.56  *          *
* E.G. Slope (ft/ft)     *0.000332  * Area (sq ft)           *          *  179.56  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)             *          *  823.00  *          *
* Top Width (ft)         *   50.13  * Top Width (ft)         *          *   50.13  *          *
* Vel Total (ft/s)       *    5.16  * Avg. Vel. (ft/s)       *          *    5.16  *          *
* Max Chl Dpth (ft)      *    4.88  * Hydr. Depth (ft)       *          *    4.24  *          *
* Conv. Total (cfs)      * 45174.5  * Conv. (cfs)           *          * 45174.5  *          *
* Length Wtd. (ft)       *   15.61  * Wetted Per. (ft)       *          *   40.93  *          *
* Min Ch El (ft)         *   71.62  * Shear (lb/sq ft)       *          *    0.08  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    0.42  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)   *          *    3.46  *          *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)         *          *    1.31  *          *
*********************************************************************************************

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 13307.38

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   80.02      80   80.03   74.83   89.18   71.78     100   71.56  110.94   71.78
  114.32   73.24  126.79   73.48  130.15    74.6  130.16   81.37

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
*******************************
   80.02    .013  130.16    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         80.02  130.16             15.61   15.61   15.61             .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
*********************************************************************************************
* E.G. Elev (ft)         *   76.87  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.26  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)         *   76.60  * Reach Len. (ft)        *   15.61  *   15.61  *   15.61  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)      *          *  200.47  *          *
* E.G. Slope (ft/ft)     *0.000229  * Area (sq ft)           *          *  200.47  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)             *          *  823.00  *          *
* Top Width (ft)         *   50.13  * Top Width (ft)         *          *   50.13  *          *
* Vel Total (ft/s)       *    4.11  * Avg. Vel. (ft/s)       *          *    4.11  *          *
* Max Chl Dpth (ft)      *    5.04  * Hydr. Depth (ft)       *          *    4.00  *          *
* Conv. Total (cfs)      * 54348.7  * Conv. (cfs)           *          * 54348.7  *          *
* Length Wtd. (ft)       *   15.61  * Wetted Per. (ft)       *          *   54.88  *          *
* Min Ch El (ft)         *   71.56  * Shear (lb/sq ft)       *          *    0.05  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    0.21  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)   *          *    3.40  *          *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         *          *    1.29  *          *
*********************************************************************************************

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 13291.77

INPUT
Description: Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance
             road channel tie in
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   78.93      80   78.94   75.47   90.22   71.69     100   71.49  109.87   71.69
  122.35   71.94  129.06   74.18  129.07   81.15

Manning's n Values        num=       1
```

```
    Sta   n Val
****************
   78.93    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         78.93  129.07             23.78   23.78   23.78             .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
*********************************************************************************************
* E.G. Elev (ft)         *   76.85  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.22  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)         *   76.63  * Reach Len. (ft)        *   23.78  *   23.78  *   23.78  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)      *          *  217.42  *          *
* E.G. Slope (ft/ft)     *0.000174  * Area (sq ft)           *          *  217.42  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)             *          *  823.00  *          *
* Top Width (ft)         *   50.13  * Top Width (ft)         *          *   50.13  *          *
* Vel Total (ft/s)       *    3.79  * Avg. Vel. (ft/s)       *          *    3.79  *          *
* Max Chl Dpth (ft)      *    5.14  * Hydr. Depth (ft)       *          *    4.34  *          *
* Conv. Total (cfs)      * 62350.9  * Conv. (cfs)           *          * 62350.9  *          *
* Length Wtd. (ft)       *   23.78  * Wetted Per. (ft)       *          *   54.71  *          *
* Min Ch El (ft)         *   71.49  * Shear (lb/sq ft)       *          *    0.04  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    0.16  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)   *          *    3.32  *          *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         *          *    1.27  *          *
*********************************************************************************************

CROSS SECTION


RIVER: North Channel
REACH: WEST              RS: 13267.98

INPUT
Description: Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance
             road channel tie in
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   77.26      80   77.27   76.43   91.82   71.56     100    71.4  106.88   71.53
  115.57   71.71  127.39    75.6   127.4   80.82

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
*****************************
   77.26    .013   127.4    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         77.26   127.4             23.78   23.78   23.78             .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
*********************************************************************************************
* E.G. Elev (ft)         *   76.84  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.29  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)         *   76.55  * Reach Len. (ft)        *   23.78  *   23.78  *   23.78  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)      *          *  190.68  *          *
* E.G. Slope (ft/ft)     *0.000256  * Area (sq ft)           *          *  190.68  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)             *          *  823.00  *          *
* Top Width (ft)         *   50.12  * Top Width (ft)         *          *   50.12  *          *
* Vel Total (ft/s)       *    4.32  * Avg. Vel. (ft/s)       *          *    4.32  *          *
* Max Chl Dpth (ft)      *    5.15  * Hydr. Depth (ft)       *          *    3.80  *          *
* Conv. Total (cfs)      * 51422.8  * Conv. (cfs)           *          * 51422.8  *          *
* Length Wtd. (ft)       *   23.78  * Wetted Per. (ft)       *          *   52.61  *          *
* Min Ch El (ft)         *   71.40  * Shear (lb/sq ft)       *          *    0.06  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    0.25  *          *
* Frctn Loss (ft)        *    0.01  * Cum Volume (acre-ft)   *          *    3.21  *          *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *          *    1.25  *          *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: North Channel
REACH: WEST              RS: 13244.2

INPUT
Description: Desert Canyon per STANTEC Plans RS 3244.2
Station Elevation Data    num=       7
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   75.59      80    75.6    77.4   93.41   71.43     100    71.3   108.8   71.48
  125.72   77.03  125.73    80.5

Manning's n Values        num=       1
     Sta   n Val
***************
   75.59    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
         75.59  125.73             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  125.72  125.73                F

CROSS SECTION OUTPUT  Profile #PF 1
*********************************************************************************************
* E.G. Elev (ft)         *   76.81  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.48  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)         *   76.33  * Reach Len. (ft)        *    0.00  *    9.45  *    0.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)      *          *  147.88  *          *
* E.G. Slope (ft/ft)     *0.000505  * Area (sq ft)           *          *  147.88  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)             *          *  823.00  *          *
* Top Width (ft)         *   44.80  * Top Width (ft)         *          *   44.80  *          *
* Vel Total (ft/s)       *    5.57  * Avg. Vel. (ft/s)       *          *    5.57  *          *
* Max Chl Dpth (ft)      *    5.03  * Hydr. Depth (ft)       *          *    3.30  *          *
* Conv. Total (cfs)      * 36620.6  * Conv. (cfs)           *          * 36620.6  *          *
* Length Wtd. (ft)       *    9.45  * Wetted Per. (ft)       *          *   46.37  *          *
* Min Ch El (ft)         *   71.30  * Shear (lb/sq ft)       *          *    0.10  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    0.56  *          *
* Frctn Loss (ft)        *    0.01  * Cum Volume (acre-ft)   *          *    3.12  *          *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *          *    1.22  *          *
*********************************************************************************************

CROSS SECTION


RIVER: North Channel
REACH: WEST              RS: 13234.75

INPUT
Description: Desert Canyon per STANTEC Plans RS 3234.75, end transition
Station Elevation Data    num=       9
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   74.99      80      75    77.7      94   71.37      98   71.29     100   71.26
     102   71.29     106   71.37     125    77.7  125.01   80.35
```

```
Manning's n Values        num=       1
    Sta   n Val
****************
   74.99    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
        74.99  125.01           .1         .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  119.57  125.01                F

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          *   76.79  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.67  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)          *   76.11  * Reach Len. (ft)        *    0.00  *    0.01  *    0.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)      *          *  125.09  *          *
* E.G. Slope (ft/ft)      *0.000756  * Area (sq ft)           *          *  125.16  *          *
* Q Total (cfs)           *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)          *   40.48  * Top Width (ft)         *          *   40.48  *          *
* Vel Total (ft/s)        *    6.58  * Avg. Vel. (ft/s)       *          *    6.58  *          *
* Max Chl Dpth (ft)       *    4.85  * Hydr. Depth (ft)       *          *    3.14  *          *
* Conv. Total (cfs)       * 29924.2  * Conv. (cfs)           *          * 29924.2  *          *
* Length Wtd. (ft)        *    0.01  * Wetted Per. (ft)       *          *   41.31  *          *
* Min Ch El (ft)          *   71.26  * Shear (lb/sq ft)      *          *    0.14  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    0.94  *          *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   *          *    3.09  *          *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         *          *    1.21  *          *
*************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 13234.74

INPUT
Description: Desert Canyon per STANTEC Plans RS 3234.74, end transition
Station Elevation Data    num=       9
    Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   74.99      80      75   77.7       94   71.37      98   71.29     100   71.26
     102   71.29     106   71.37      125   77.7   125.01   80.35

Manning's n Values        num=       5
    Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
   74.99    .013      75     .03      98    .013     102     .03     125    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
        74.99  125.01           .1         .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  119.57  125.01                F

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          *   76.79  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.67  * Wt. n-Val.             *          *    0.029  *          *
* W.S. Elev (ft)          *   76.11  * Reach Len. (ft)        *    0.00  *    5.36  *    0.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)      *          *  125.09  *          *
* E.G. Slope (ft/ft)      *0.003661  * Area (sq ft)           *          *  125.16  *          *
* Q Total (cfs)           *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)          *   40.48  * Top Width (ft)         *          *   40.48  *          *
* Vel Total (ft/s)        *    6.58  * Avg. Vel. (ft/s)       *          *    6.58  *          *
* Max Chl Dpth (ft)       *    4.85  * Hydr. Depth (ft)       *          *    3.14  *          *
* Conv. Total (cfs)       * 13602.1  * Conv. (cfs)           *          * 13602.1  *          *
* Length Wtd. (ft)        *    5.36  * Wetted Per. (ft)       *          *   41.31  *          *
* Min Ch El (ft)          *   71.26  * Shear (lb/sq ft)      *          *    0.69  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    4.55  *          *
* Frctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)   *          *    3.09  *          *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         *          *    1.21  *          *
*************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 13229.38

INPUT
Description: Desert Canyon per STANTEC Plans RS 3229.38, Upstream of south ramp
             entrance
Station Elevation Data    num=       9
    Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   74.99      80      75   77.68      94   71.35      98   71.27     100   71.24
     102   71.27     106   71.35      125   77.68  125.01   80.27

Manning's n Values        num=       5
    Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
   74.99    .013      75     .03      98    .013     102     .03     125    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        74.99  125.01             .01     .01     .01            .1         .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  116.98  125.01                F

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          *   76.77  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.70  * Wt. n-Val.             *          *    0.028  *          *
* W.S. Elev (ft)          *   76.06  * Reach Len. (ft)        *    0.01  *    0.01  *    0.01  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)      *          *  122.27  *          *
* E.G. Slope (ft/ft)      *0.003568  * Area (sq ft)           *          *  123.94  *          *
* Q Total (cfs)           *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)          *   40.29  * Top Width (ft)         *          *   40.29  *          *
* Vel Total (ft/s)        *    6.73  * Avg. Vel. (ft/s)       *          *    6.73  *          *
* Max Chl Dpth (ft)       *    4.82  * Hydr. Depth (ft)       *          *    3.29  *          *
* Conv. Total (cfs)       * 13778.7  * Conv. (cfs)           *          * 13778.7  *          *
* Length Wtd. (ft)        *    0.01  * Wetted Per. (ft)       *          *   38.49  *          *
* Min Ch El (ft)          *   71.24  * Shear (lb/sq ft)      *          *    0.71  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    4.76  *          *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   *          *    3.07  *          *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         *          *    1.21  *          *
*************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION
```

RIVER: North Channel
REACH: WEST RS: 13229.37

INPUT
Description: Desert Canyon per STANTEC Plans RS 3229.37, South ramp entrance
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.68	94	71.35	98	71.27	100	71.24
102	71.27	106	71.35	116.98	75.01	116.99	80.15	125	80.27

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	116.98	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
116.98	125		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.		0.028	
W.S. Elev (ft)	76.06	Reach Len. (ft)	0.00	8.00	0.00
Crit W.S. (ft)		Flow Area (sq ft)		122.25	
E.G. Slope (ft/ft)	*0.003570	Area (sq ft)		122.25	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	37.13	Top Width (ft)		37.13	
Vel Total (ft/s)	6.73	Avg. Vel. (ft/s)		6.73	
Max Chl Dpth (ft)	4.82	Hydr. Depth (ft)		3.29	
Conv. Total (cfs)	13774.8	Conv. (cfs)		13774.8	
Length Wtd. (ft)	8.00	Wetted Per. (ft)		38.49	
Min Ch El (ft)	71.24	Shear (lb/sq ft)		0.71	
Alpha	1.00	Stream Power (lb/ft s)		4.77	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		3.07	
C & E Loss (ft)	0.00	Cum SA (acres)		1.21	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13221.37

INPUT
Description: Desert Canyon per STANTEC Plans RS 3221.37, begin south ramp transition
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.65	94	71.32	98	71.24	100	71.21
102	71.24	106	71.32	116.98	74.98	116.99	80.15	125	80.27

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	116.98	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125 53.53 53.53 53.53 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.		0.028	
W.S. Elev (ft)	76.03	Reach Len. (ft)	53.53	53.53	53.53
Crit W.S. (ft)		Flow Area (sq ft)		122.30	
E.G. Slope (ft/ft)	*0.003606	Area (sq ft)		122.30	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	37.13	Top Width (ft)		37.13	
Vel Total (ft/s)	6.73	Avg. Vel. (ft/s)		6.73	
Max Chl Dpth (ft)	4.82	Hydr. Depth (ft)		3.29	
Conv. Total (cfs)	13706.2	Conv. (cfs)		13706.2	
Length Wtd. (ft)	53.53	Wetted Per. (ft)		39.54	
Min Ch El (ft)	71.21	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		4.68	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)		3.05	
C & E Loss (ft)	0.01	Cum SA (acres)		1.20	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13167.84

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.43	94	71.1	98	71.01	100	70.99
102	71.01	106	71.1	114.09	73.79	114.1	77.6	122.1	77.72
125	78.74	125.01	80.13						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	114.09	.013
122.1	.03	125	.013						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 53.53 53.53 53.53 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.		0.028	
W.S. Elev (ft)	75.74	Reach Len. (ft)	53.53	53.53	53.53
Crit W.S. (ft)		Flow Area (sq ft)		115.53	
E.G. Slope (ft/ft)	*0.003878	Area (sq ft)		115.53	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	34.03	Top Width (ft)		34.03	
Vel Total (ft/s)	7.12	Avg. Vel. (ft/s)		7.12	
Max Chl Dpth (ft)	4.75	Hydr. Depth (ft)		3.39	
Conv. Total (cfs)	13215.4	Conv. (cfs)		13215.4	
Length Wtd. (ft)	53.53	Wetted Per. (ft)		37.17	
Min Ch El (ft)	70.99	Shear (lb/sq ft)		0.75	
Alpha	1.00	Stream Power (lb/ft s)		5.36	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)		2.90	
C & E Loss (ft)	0.04	Cum SA (acres)		1.16	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13114.31

INPUT
Description: Desert Canyon per STANTEC Plans RS 3114.31, begin south wall of south ramp

Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.2	94	70.87	98	70.79	100	70.76
102	70.79	106	70.87	111.19	72.6	111.2	75.06	119.2	75.18
125	77.2	125.01	80						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	111.19	.013
119.2	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.19	Wt. n-Val.		0.027	
W.S. Elev (ft)	75.03	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)		Flow Area (sq ft)		93.85	
E.G. Slope (ft/ft)	*0.006394	Area (sq ft)		93.85	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	29.70	Top Width (ft)		29.70	
Vel Total (ft/s)	8.77	Avg. Vel. (ft/s)		8.77	
Max Chl Dpth (ft)	4.27	Hydr. Depth (ft)		3.16	
Conv. Total (cfs)	10292.5	Conv. (cfs)		10292.5	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		33.09	
Min Ch El (ft)	70.76	Shear (lb/sq ft)		1.13	
Alpha	1.00	Stream Power (lb/ft s)		9.93	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.78	
C & E Loss (ft)	0.00	Cum SA (acres)		1.12	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13114.3

INPUT
Description: Desert Canyon per STANTEC Plans RS 3114.3, begin south wall of south ramp

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	77.2	94	70.87	98	70.79	100	70.76
102	70.79	106	70.87	111.19	72.6	111.2	75.06	119.2	75.18
119.21	75.4	119.88	75.4	125	77.2	125.01	80		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	111.19	.013
119.88	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	76.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.19	Wt. n-Val.		0.027	
W.S. Elev (ft)	75.03	Reach Len. (ft)	0.00	54.20	0.00
Crit W.S. (ft)	74.70	Flow Area (sq ft)		93.85	
E.G. Slope (ft/ft)	*0.006394	Area (sq ft)		93.85	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	29.70	Top Width (ft)		29.70	
Vel Total (ft/s)	8.77	Avg. Vel. (ft/s)		8.77	
Max Chl Dpth (ft)	4.27	Hydr. Depth (ft)		3.16	
Conv. Total (cfs)	10292.0	Conv. (cfs)		10292.0	
Length Wtd. (ft)	54.20	Wetted Per. (ft)		33.08	
Min Ch El (ft)	70.76	Shear (lb/sq ft)		1.13	
Alpha	1.00	Stream Power (lb/ft s)		9.93	
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)		2.78	
C & E Loss (ft)	0.10	Cum SA (acres)		1.12	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13060.1

INPUT
Description: Desert Canyon per STANTEC Plans RS 3060.10
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	76.98	94	70.65	98	70.57	100	70.54
102	70.57	106	70.65	108.26	71.4	108.27	72.47	116.28	72.59
116.29	74.3	116.95	74.3	125	76.98	125.01	80		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	108.26	.013
116.95	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
74.99	75		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.84	Wt. n-Val.		0.024	
W.S. Elev (ft)	75.01	Reach Len. (ft)	0.00	15.99	0.00
Crit W.S. (ft)		Flow Area (sq ft)		111.61	
E.G. Slope (ft/ft)	*0.003985	Area (sq ft)		111.61	

Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	38.16	Top Width (ft)		38.16	
Vel Total (ft/s)	7.37	Avg. Vel. (ft/s)		7.37	
Max Chl Dpth (ft)	4.47	Hydr. Depth (ft)		2.93	
Conv. Total (cfs)	13036.6	Conv. (cfs)		13036.6	
Length Wtd. (ft)	15.99	Wetted Per. (ft)		41.86	
Min Ch El (ft)	70.54	Shear (lb/sq ft)		0.66	
Alpha	1.00	Stream Power (lb/ft s)		4.89	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)		2.65	
C & E Loss (ft)	0.02	Cum SA (acres)		1.07	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13044.11

INPUT
Description: Desert Canyon per STANTEC Plans RS 3044.11, upstream north ramp entrance

Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	76.92	94	70.59	98	70.51	100	70.48
102	70.51	106	70.59	107.4	71.06	107.41	71.71	115.41	71.83
115.42	73.95	116.08	73.95	125	76.92	125.01	80		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	107.4	.013
116.08	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
74.99	83		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.78	Wt. n-Val.		0.024	
W.S. Elev (ft)	74.99	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)		Flow Area (sq ft)		115.80	
E.G. Slope (ft/ft)	*0.003217	Area (sq ft)		116.62	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	38.43	Top Width (ft)		38.43	
Vel Total (ft/s)	7.11	Avg. Vel. (ft/s)		7.11	
Max Chl Dpth (ft)	4.51	Hydr. Depth (ft)		3.20	
Conv. Total (cfs)	14511.0	Conv. (cfs)		14511.0	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		39.80	
Min Ch El (ft)	70.48	Shear (lb/sq ft)		0.58	
Alpha	1.00	Stream Power (lb/ft s)		4.15	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		2.61	
C & E Loss (ft)	0.02	Cum SA (acres)		1.06	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13044.1

INPUT
Description: Desert Canyon per STANTEC Plans RS 3033.34, North ramp grade break

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75	78.43	82.99	78.31	83	74.21	94	70.54	98	70.46
100	70.43	102	70.46	106	70.54	106.82	70.81	106.83	71.2
114.83	71.32	114.84	73.71	115.5	73.71	125	76.87	125.01	80

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
75	.013	83	.03	98	.013	102	.03	106.82	.013
115.5	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
75 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	75.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.		0.024	
W.S. Elev (ft)	75.04	Reach Len. (ft)	0.00	15.12	0.00
Crit W.S. (ft)		Flow Area (sq ft)		121.55	
E.G. Slope (ft/ft)	*0.002807	Area (sq ft)		121.55	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	36.51	Top Width (ft)		36.51	
Vel Total (ft/s)	6.77	Avg. Vel. (ft/s)		6.77	
Max Chl Dpth (ft)	4.61	Hydr. Depth (ft)		3.33	
Conv. Total (cfs)	15534.4	Conv. (cfs)		15534.4	
Length Wtd. (ft)	15.12	Wetted Per. (ft)		40.96	
Min Ch El (ft)	70.43	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		3.52	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		2.61	
C & E Loss (ft)	0.02	Cum SA (acres)		1.06	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 13018.22

INPUT
Description: Desert Canyon per STANTEC Plans RS 3018.22, south ramp tie in

Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75	77.89	82.99	77.76	83	74.15	94	70.48	98	70.4
100	70.37	102	70.4	106	70.48	114.01	70.6	114.02	73.37
114.68	73.37	125	76.81	125.01	80				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
75	.013	83	.03	98	.013	102	.03	106	.013
114.68	.03	125	.013						

```
Bank Sta: Left   Right    Coeff Contr.   Expan.
           75  125.01          .1         .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)        *   75.70  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    0.65  * Wt. n-Val.            *          *    0.024 *          *
* W.S. Elev (ft)        *   75.04  * Reach Len. (ft)       *    0.00  *     0.01 *    0.00  *
* Crit W.S. (ft)        *          * Flow Area (sq ft)     *          *  126.93  *          *
* E.G. Slope (ft/ft)    *0.002455  * Area (sq ft)          *          *  126.93  *          *
* Q Total (cfs)         *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)        *   36.71  * Top Width (ft)        *          *   36.71  *          *
* Vel Total (ft/s)      *    6.48  * Avg. Vel. (ft/s)      *          *    6.48  *          *
* Max Chl Dpth (ft)     *    4.67  * Hydr. Depth (ft)      *          *    3.46  *          *
* Conv. Total (cfs)     * 16611.8  * Conv. (cfs)           *          * 16611.8  *          *
* Length Wtd. (ft)      *    0.01  * Wetted Per. (ft)      *          *   41.23  *          *
* Min Ch El (ft)        *   70.37  * Shear (lb/sq ft)      *          *    0.47  *          *
* Alpha                 *    1.00  * Stream Power (lb/ft s) *          *    3.06  *          *
* Frctn Loss (ft)       *    0.00  * Cum Volume (acre-ft)  *          *    2.56  *          *
* C & E Loss (ft)       *    0.00  * Cum SA (acres)        *          *    1.05  *          *
*************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 13018.21

INPUT
Description: Desert Canyon per STANTEC Plans RS 3018.21, south ramp tie in
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
      75   77.89   82.99   77.76      83   74.15      94   70.48      98    70.4
     100   70.37     102    70.4     106   70.48  114.01    70.6  114.02   73.37
  114.68   73.37     125   76.81  125.01      80

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************************************
      75    .013      83     .03      98    .013  114.68     .03     125    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
           75  125.01          .1         .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)        *   75.70  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    0.65  * Wt. n-Val.            *          *    0.022 *          *
* W.S. Elev (ft)        *   75.04  * Reach Len. (ft)       *    0.00  *     7.99 *    0.00  *
* Crit W.S. (ft)        *          * Flow Area (sq ft)     *          *  126.93  *          *
* E.G. Slope (ft/ft)    *0.002143  * Area (sq ft)          *          *  126.93  *          *
* Q Total (cfs)         *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)        *   36.71  * Top Width (ft)        *          *   36.71  *          *
* Vel Total (ft/s)      *    6.48  * Avg. Vel. (ft/s)      *          *    6.48  *          *
* Max Chl Dpth (ft)     *    4.67  * Hydr. Depth (ft)      *          *    3.46  *          *
* Conv. Total (cfs)     * 17777.7  * Conv. (cfs)           *          * 17777.7  *          *
* Length Wtd. (ft)      *    7.99  * Wetted Per. (ft)      *          *   41.23  *          *
* Min Ch El (ft)        *   70.37  * Shear (lb/sq ft)      *          *    0.41  *          *
* Alpha                 *    1.00  * Stream Power (lb/ft s) *          *    2.67  *          *
* Frctn Loss (ft)       *    0.02  * Cum Volume (acre-ft)  *          *    2.56  *          *
* C & E Loss (ft)       *    0.00  * Cum SA (acres)        *          *    1.05  *          *
*************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 13010.22

INPUT
Description: Desert Canyon per STANTEC Plans RS 3010.22, south ramp tie in
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
      75    77.6   82.99   77.48      83   74.12      94   70.45      98   70.37
     100   70.34     102   70.37     106   70.45  113.58   70.56  113.59    73.2
  114.25    73.2     125   76.78  125.01      80

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************************************
      75    .013      83     .03      98    .013  114.25     .03     125    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
           75  125.01          .1         .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)        *   75.68  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    0.66  * Wt. n-Val.            *          *    0.023 *          *
* W.S. Elev (ft)        *   75.01  * Reach Len. (ft)       *    0.00  *     0.01 *    0.00  *
* Crit W.S. (ft)        *          * Flow Area (sq ft)     *          *  125.87  *          *
* E.G. Slope (ft/ft)    *0.002236  * Area (sq ft)          *          *  125.87  *          *
* Q Total (cfs)         *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)        *   36.70  * Top Width (ft)        *          *   36.70  *          *
* Vel Total (ft/s)      *    6.54  * Avg. Vel. (ft/s)      *          *    6.54  *          *
* Max Chl Dpth (ft)     *    4.67  * Hydr. Depth (ft)      *          *    3.43  *          *
* Conv. Total (cfs)     * 17406.0  * Conv. (cfs)           *          * 17406.0  *          *
* Length Wtd. (ft)      *    0.01  * Wetted Per. (ft)      *          *   41.12  *          *
* Min Ch El (ft)        *   70.34  * Shear (lb/sq ft)      *          *    0.43  *          *
* Alpha                 *    1.00  * Stream Power (lb/ft s) *          *    2.79  *          *
* Frctn Loss (ft)       *    0.00  * Cum Volume (acre-ft)  *          *    2.54  *          *
* C & E Loss (ft)       *    0.00  * Cum SA (acres)        *          *    1.04  *          *
*************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 13010.21

INPUT
Description: Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
      75    77.6   82.99   77.48      83   74.12      94   70.45      98   70.37
     100   70.34     102   70.37     106   70.45  113.58   70.56  113.59    73.2
  114.25    73.2     125   76.78  125.01      80

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
```

```
*****************************************************************************
     75    .013      83     .03      98    .013     102     .03  113.58    .013
 114.25     .03     125    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
             75  125.01            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          *   75.68  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.66  * Wt. n-Val.             *          *    0.027  *          *
* W.S. Elev (ft)          *   75.01  * Reach Len. (ft)        *    0.00  *   56.19  *    0.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)      *          *  125.87  *          *
* E.G. Slope (ft/ft)      *0.003194  * Area (sq ft)           *          *  125.87  *          *
* Q Total (cfs)           *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)          *   36.70  * Top Width (ft)         *          *   36.70  *          *
* Vel Total (ft/s)        *    6.54  * Avg. Vel. (ft/s)       *          *    6.54  *          *
* Max Chl Dpth (ft)       *    4.67  * Hydr. Depth (ft)       *          *    3.43  *          *
* Conv. Total (cfs)       * 14562.0  * Conv. (cfs)           *          * 14562.0  *          *
* Length Wtd. (ft)        *   56.19  * Wetted Per. (ft)       *          *   41.12  *          *
* Min Ch El (ft)          *   70.34  * Shear (lb/sq ft)       *          *    0.61  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    3.99  *          *
* Frctn Loss (ft)         *    0.20  * Cum Volume (acre-ft)   *          *    2.54  *          *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)         *          *    1.04  *          *
*****************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 12954.02

INPUT
Description: Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in
Station Elevation Data    num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   74.99      80      75   75.58   82.99   75.47      83   73.89      94   70.22
      98   70.14     100   70.11     102   70.14     106   70.22  110.54   70.31
  110.55   71.95  111.21   71.95     125   76.55  125.01      80

Manning's n Values        num=      7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
   74.99    .013      83     .03      98    .013     102     .03  110.54    .013
  111.21     .03     125    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
          74.99  125.01            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          *   75.47  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.77  * Wt. n-Val.             *          *    0.027  *          *
* W.S. Elev (ft)          *   74.69  * Reach Len. (ft)        *    0.00  *   10.37  *    0.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)      *          *  116.61  *          *
* E.G. Slope (ft/ft)      *0.004054  * Area (sq ft)           *          *  116.61  *          *
* Q Total (cfs)           *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)          *   36.44  * Top Width (ft)         *          *   36.44  *          *
* Vel Total (ft/s)        *    7.06  * Avg. Vel. (ft/s)       *          *    7.06  *          *
* Max Chl Dpth (ft)       *    4.58  * Hydr. Depth (ft)       *          *    3.20  *          *
* Conv. Total (cfs)       * 12925.5  * Conv. (cfs)           *          * 12925.5  *          *
* Length Wtd. (ft)        *   10.37  * Wetted Per. (ft)       *          *   39.91  *          *
* Min Ch El (ft)          *   70.11  * Shear (lb/sq ft)       *          *    0.74  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    5.22  *          *
* Frctn Loss (ft)         *    0.04  * Cum Volume (acre-ft)   *          *    2.38  *          *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         *          *    0.99  *          *
*****************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 12943.65

INPUT
Description: Desert Canyon per STANTEC Plans RS 2943.65, begin north wall north
             ramp
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   74.99      80      75   76.51   75.66   76.51   75.67   75.22   83.68    75.1
   83.69   73.62      94   70.18      98    70.1     100   70.07     102    70.1
  109.98   70.25  109.99   71.72  110.73   71.72     125   76.51  125.01      80

Manning's n Values        num=      7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
   74.99    .013   83.69     .03      98    .013     102     .03  109.98    .013
  110.73     .03     125    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          74.99  125.01             36.84   36.84   36.84            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          *   75.42  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.81  * Wt. n-Val.             *          *    0.027  *          *
* W.S. Elev (ft)          *   74.62  * Reach Len. (ft)        *   36.84  *   36.84  *   36.84  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)      *          *  114.22  *          *
* E.G. Slope (ft/ft)      *0.004209  * Area (sq ft)           *          *  114.22  *          *
* Q Total (cfs)           *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)          *   35.68  * Top Width (ft)         *          *   35.68  *          *
* Vel Total (ft/s)        *    7.21  * Avg. Vel. (ft/s)       *          *    7.21  *          *
* Max Chl Dpth (ft)       *    4.55  * Hydr. Depth (ft)       *          *    3.20  *          *
* Conv. Total (cfs)       * 12686.3  * Conv. (cfs)           *          * 12686.3  *          *
* Length Wtd. (ft)        *   36.84  * Wetted Per. (ft)       *          *   39.17  *          *
* Min Ch El (ft)          *   70.07  * Shear (lb/sq ft)       *          *    0.77  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    5.52  *          *
* Frctn Loss (ft)         *    0.16  * Cum Volume (acre-ft)   *          *    2.36  *          *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         *          *    0.99  *          *
*****************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 12906.81

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
*****************************************************************************
   74.99      80       75   76.35   77.45   75.54   78.11   75.54   78.12    73.9
   86.13   73.78    86.14   72.65      94   70.03      98   69.94     100   69.92
     102   69.94   107.99   70.06     108    70.9  108.67    70.9     125   76.35
  125.01      80

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
   74.99    .013      75     .03   77.45    .013   86.14     .03      98    .013
     102     .03  107.99    .013  108.67     .03     125    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          74.99  125.01             36.84   36.84   36.84              .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         *   75.27  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.82  * Wt. n-Val.            *          *    0.025  *          *
* W.S. Elev (ft)         *   74.45  * Reach Len. (ft)       *   36.84  *   36.84  *   36.84  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *          *  113.25  *          *
* E.G. Slope (ft/ft)     *0.004298  * Area (sq ft)          *          *  113.25  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)         *   41.19  * Top Width (ft)        *          *   41.19  *          *
* Vel Total (ft/s)       *    7.27  * Avg. Vel. (ft/s)      *          *    7.27  *          *
* Max Chl Dpth (ft)      *    4.53  * Hydr. Depth (ft)      *          *    2.75  *          *
* Conv. Total (cfs)      * 12553.5  * Conv. (cfs)           *          * 12553.5  *          *
* Length Wtd. (ft)       *   36.84  * Wetted Per. (ft)      *          *   44.69  *          *
* Min Ch El (ft)         *   69.92  * Shear (lb/sq ft)      *          *    0.68  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    4.94  *          *
* Frctn Loss (ft)        *    0.14  * Cum Volume (acre-ft)  *          *    2.26  *          *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *          *    0.95  *          *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 12869.97

INPUT
Description: Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall
Station Elevation Data    num=      16
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************
   74.99       80      75     76.2    79.9   74.57   80.56   74.57   80.57   72.58
   88.58    72.46   88.59    71.67      94   69.87      98   69.79     100   69.76
     102    69.79     106    69.87  106.01   70.09  106.67   70.09     125    76.2
  125.01       80

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
   74.99    .013      75     .03    79.9    .013   88.59     .03      98    .013
     102     .03     106    .013  106.67     .03     125    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
          74.99  125.01             .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         *   75.11  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.74  * Wt. n-Val.            *          *    0.025  *          *
* W.S. Elev (ft)         *   74.37  * Reach Len. (ft)       *    0.00  *    0.01  *    0.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *          *  119.33  *          *
* E.G. Slope (ft/ft)     *0.003304  * Area (sq ft)          *          *  119.33  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)         *   38.95  * Top Width (ft)        *          *   38.95  *          *
* Vel Total (ft/s)       *    6.90  * Avg. Vel. (ft/s)      *          *    6.90  *          *
* Max Chl Dpth (ft)      *    4.61  * Hydr. Depth (ft)      *          *    3.06  *          *
* Conv. Total (cfs)      * 14318.2  * Conv. (cfs)           *          * 14318.2  *          *
* Length Wtd. (ft)       *    0.01  * Wetted Per. (ft)      *          *   42.70  *          *
* Min Ch El (ft)         *   69.76  * Shear (lb/sq ft)      *          *    0.58  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    3.98  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)  *          *    2.16  *          *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *          *    0.92  *          *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: North Channel
REACH: WEST               RS: 12869.96

INPUT
Description: Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall
Station Elevation Data    num=      14
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************
   74.99       80      75     76.2    79.9   74.57   80.56   74.57   80.57   72.58
   88.58    72.46   88.59    71.67      94   69.87      98   69.79     100   69.76
     102    69.79     106    69.87     125    76.2  125.01      80

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
   74.99    .013      75     .03    79.9    .013   88.59     .03      98    .013
     102     .03     125    .013

Bank Sta: Left   Right    Coeff Contr.   Expan.
          74.99  125.01             .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         *   75.11  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.74  * Wt. n-Val.            *          *    0.025  *          *
* W.S. Elev (ft)         *   74.37  * Reach Len. (ft)       *    0.00  *   40.70  *    0.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *          *  119.39  *          *
* E.G. Slope (ft/ft)     *0.003361  * Area (sq ft)          *          *  119.39  *          *
* Q Total (cfs)          *  823.00  * Flow (cfs)            *          *  823.00  *          *
* Top Width (ft)         *   38.94  * Top Width (ft)        *          *   38.94  *          *
* Vel Total (ft/s)       *    6.89  * Avg. Vel. (ft/s)      *          *    6.89  *          *
* Max Chl Dpth (ft)      *    4.61  * Hydr. Depth (ft)      *          *    3.07  *          *
* Conv. Total (cfs)      * 14195.4  * Conv. (cfs)           *          * 14195.4  *          *
* Length Wtd. (ft)       *   40.70  * Wetted Per. (ft)      *          *   42.53  *          *
* Min Ch El (ft)         *   69.76  * Shear (lb/sq ft)      *          *    0.59  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    4.06  *          *
* Frctn Loss (ft)        *    0.13  * Cum Volume (acre-ft)  *          *    2.16  *          *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *          *    0.92  *          *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION
```

RIVER: North Channel
REACH: WEST RS: 12829.26

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	76.04	82.6	73.5	83.26	73.5	83.28	71.12
91.29	71	91.29	70.6	94	69.71	98	69.62	100	69.6
102	69.62	106	69.71	125	76.04	125.01	80		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	82.6	.013	91.29	.03	98	.013
102	.03	125	.013						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 40.71 40.71 40.71 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.025	
W.S. Elev (ft)	74.30	Reach Len. (ft)	40.71	40.71	40.71
Crit W.S. (ft)		Flow Area (sq ft)		126.01	
E.G. Slope (ft/ft)	*0.002863	Area (sq ft)		126.01	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	39.55	Top Width (ft)		39.55	
Vel Total (ft/s)	6.53	Avg. Vel. (ft/s)		6.53	
Max Chl Dpth (ft)	4.70	Hydr. Depth (ft)		3.19	
Conv. Total (cfs)	15382.4	Conv. (cfs)		15382.4	
Length Wtd. (ft)	40.71	Wetted Per. (ft)		43.33	
Min Ch El (ft)	69.60	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		3.39	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)		2.05	
C & E Loss (ft)	0.02	Cum SA (acres)		0.88	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12788.55

INPUT
Description: Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.87	85.31	72.43	85.97	72.43	85.98	69.66
94	69.54	98	69.46	100	69.43	102	69.46	106	69.54
125	75.87	125.01	80						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	85.31	.013	94	.03	98	.013
102	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.025	
W.S. Elev (ft)	74.24	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)		Flow Area (sq ft)		133.63	
E.G. Slope (ft/ft)	*0.002395	Area (sq ft)		133.63	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	40.23	Top Width (ft)		40.23	
Vel Total (ft/s)	6.16	Avg. Vel. (ft/s)		6.16	
Max Chl Dpth (ft)	4.81	Hydr. Depth (ft)		3.32	
Conv. Total (cfs)	16815.2	Conv. (cfs)		16815.2	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		44.05	
Min Ch El (ft)	69.43	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		2.79	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.93	
C & E Loss (ft)	0.00	Cum SA (acres)		0.84	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12788.54

INPUT
Description: Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.87	85.31	72.43	85.97	72.43	85.98	69.66
94	69.54	98	69.46	100	69.43	102	69.46	106	69.54
125	75.87	125.01	80						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	85.31	.013	102	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.023	
W.S. Elev (ft)	74.24	Reach Len. (ft)	0.00	7.99	0.00
Crit W.S. (ft)		Flow Area (sq ft)		133.63	
E.G. Slope (ft/ft)	*0.002123	Area (sq ft)		133.63	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	40.23	Top Width (ft)		40.23	
Vel Total (ft/s)	6.16	Avg. Vel. (ft/s)		6.16	
Max Chl Dpth (ft)	4.81	Hydr. Depth (ft)		3.32	
Conv. Total (cfs)	17862.3	Conv. (cfs)		17862.3	
Length Wtd. (ft)	7.99	Wetted Per. (ft)		44.05	
Min Ch El (ft)	69.43	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.48	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		1.93	
C & E Loss (ft)	0.00	Cum SA (acres)		0.84	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12780.55

INPUT
Description: Desert Canyon per STANTEC Plans RS 2780.55, north ramp tie in
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.84	85.84	72.23	86.5	72.23	86.51	69.62
94	69.51	98	69.43	100	69.4	102	69.43	106	69.51
125	75.84	125.01	80						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	85.84	.013	102	.03	125	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
74.99	125.01	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.81	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.60	Wt. n-Val.		0.024		
W.S. Elev (ft)	74.21	Reach Len. (ft)	0.00	0.01	0.00	
Crit W.S. (ft)		Flow Area (sq ft)		132.28		
E.G. Slope (ft/ft)	0.002230	Area (sq ft)		132.28		
Q Total (cfs)	823.00	Flow (cfs)		823.00		
Top Width (ft)	40.21	Top Width (ft)		40.21		
Vel Total (ft/s)	6.22	Avg. Vel. (ft/s)		6.22		
Max Chl Dpth (ft)	4.81	Hydr. Depth (ft)		3.29		
Conv. Total (cfs)	17428.3	Conv. (cfs)		17428.3		
Length Wtd. (ft)	0.01	Wetted Per. (ft)		43.90		
Min Ch El (ft)	69.40	Shear (lb/sq ft)		0.42		
Alpha	1.00	Stream Power (lb/ft s)		2.61		
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.90		
C & E Loss (ft)	0.00	Cum SA (acres)		0.84		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12780.54

INPUT
Description: Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.84	85.84	72.23	86.5	72.23	86.51	69.62
94	69.51	98	69.43	100	69.4	102	69.43	106	69.51
125	75.84	125.01	80						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	85.84	.013	86.51	.03	98	.013
102	.03	125	.013						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
74.99	125.01	56.31	56.31	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.81	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.60	Wt. n-Val.		0.028		
W.S. Elev (ft)	74.21	Reach Len. (ft)	56.31	56.31	56.31	
Crit W.S. (ft)		Flow Area (sq ft)		132.28		
E.G. Slope (ft/ft)	0.003065	Area (sq ft)		132.28		
Q Total (cfs)	823.00	Flow (cfs)		823.00		
Top Width (ft)	40.21	Top Width (ft)		40.21		
Vel Total (ft/s)	6.22	Avg. Vel. (ft/s)		6.22		
Max Chl Dpth (ft)	4.81	Hydr. Depth (ft)		3.29		
Conv. Total (cfs)	14865.8	Conv. (cfs)		14865.8		
Length Wtd. (ft)	56.31	Wetted Per. (ft)		43.90		
Min Ch El (ft)	69.40	Shear (lb/sq ft)		0.58		
Alpha	1.00	Stream Power (lb/ft s)		3.59		
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		1.90		
C & E Loss (ft)	0.01	Cum SA (acres)		0.84		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12724.23

INPUT
Description: Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.61	89.58	70.75	90.24	70.75	90.26	69.34
95.3	69.25	98	69.2	100	69.17	102	69.2	106	69.28
125	75.61	125.01	80						

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	89.58	.013	90.26	.03	98	.013
102	.03	125	.013	125.01	.013				

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
74.99	125.01	56.31	56.31	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	74.61	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.70	Wt. n-Val.		0.028		
W.S. Elev (ft)	73.91	Reach Len. (ft)	56.31	56.31	56.31	
Crit W.S. (ft)		Flow Area (sq ft)		122.94		
E.G. Slope (ft/ft)	0.003836	Area (sq ft)		122.94		
Q Total (cfs)	823.00	Flow (cfs)		823.00		
Top Width (ft)	39.82	Top Width (ft)		39.82		
Vel Total (ft/s)	6.69	Avg. Vel. (ft/s)		6.69		
Max Chl Dpth (ft)	4.74	Hydr. Depth (ft)		3.09		
Conv. Total (cfs)	13287.6	Conv. (cfs)		13287.6		
Length Wtd. (ft)	56.31	Wetted Per. (ft)		42.47		

* Min Ch El (ft)	* 69.17	* Shear (lb/sq ft)	*	* 0.69	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 4.64	*
* Frctn Loss (ft)	* 0.23	* Cum Volume (acre-ft)	*	* 1.74	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	* 0.79	*

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12667.92

INPUT
Description: Desert Canyon per STANTEC Plans RS 2667.92, end north ramp wall
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.38	93.33	69.27	93.99	69.27	94	69.05
98	68.97	100	68.94	102	68.97	106	69.05	125	75.38
125.01	80								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	93.33	.013	94	.03	98	.013
102	.03	125	.013						

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 74.38	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.75	* Wt. n-Val.	*	* 0.028	* *
* W.S. Elev (ft)	* 73.63	* Reach Len. (ft)	* 0.00	* 0.01	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 118.42	* *
* E.G. Slope (ft/ft)	*0.004272	* Area (sq ft)	*	* 118.42	* *
* Q Total (cfs)	* 823.00	* Flow (cfs)	*	* 823.00	* *
* Top Width (ft)	* 39.47	* Top Width (ft)	*	* 39.47	* *
* Vel Total (ft/s)	* 6.95	* Avg. Vel. (ft/s)	*	* 6.95	* *
* Max Chl Dpth (ft)	* 4.69	* Hydr. Depth (ft)	*	* 3.00	* *
* Conv. Total (cfs)	* 12591.7	* Conv. (cfs)	*	* 12591.7	* *
* Length Wtd. (ft)	* 0.01	* Wetted Per. (ft)	*	* 41.13	* *
* Min Ch El (ft)	* 68.94	* Shear (lb/sq ft)	*	* 0.77	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 5.34	* *
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	*	* 1.58	* *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 0.73	* *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12667.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 2667.91, end north ramp wall
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.38	94	69.05	98	68.97	100	68.94
102	68.97	106	69.05	125	75.38	125.01	80		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 74.38	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.75	* Wt. n-Val.	*	* 0.029	* *
* W.S. Elev (ft)	* 73.63	* Reach Len. (ft)	* 0.00	* 68.98	* 0.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 118.48	* *
* E.G. Slope (ft/ft)	*0.004333	* Area (sq ft)	*	* 118.48	* *
* Q Total (cfs)	* 823.00	* Flow (cfs)	*	* 823.00	* *
* Top Width (ft)	* 39.47	* Top Width (ft)	*	* 39.47	* *
* Vel Total (ft/s)	* 6.95	* Avg. Vel. (ft/s)	*	* 6.95	* *
* Max Chl Dpth (ft)	* 4.69	* Hydr. Depth (ft)	*	* 3.00	* *
* Conv. Total (cfs)	* 12502.2	* Conv. (cfs)	*	* 12502.2	* *
* Length Wtd. (ft)	* 68.98	* Wetted Per. (ft)	*	* 40.96	* *
* Min Ch El (ft)	* 68.94	* Shear (lb/sq ft)	*	* 0.78	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 5.44	* *
* Frctn Loss (ft)	* 0.30	* Cum Volume (acre-ft)	*	* 1.58	* *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 0.73	* *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12598.93

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	75.1	94	68.76	98	68.68	100	68.65
102	68.68	106	68.76	125	75.1	125.01	80		

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	125	.013
125.01	.013								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 68.99 68.99 68.99 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 74.07	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.77	* Wt. n-Val.	*	* 0.029	* *
* W.S. Elev (ft)	* 73.30	* Reach Len. (ft)	* 68.99	* 68.99	* 68.99 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 116.98	* *
* E.G. Slope (ft/ft)	*0.004479	* Area (sq ft)	*	* 116.98	* *
* Q Total (cfs)	* 823.00	* Flow (cfs)	*	* 823.00	* *
* Top Width (ft)	* 39.22	* Top Width (ft)	*	* 39.22	* *
* Vel Total (ft/s)	* 7.04	* Avg. Vel. (ft/s)	*	* 7.04	* *

* Max Chl Dpth (ft)	* 4.65	* Hydr. Depth (ft)	*	* 2.98	*
* Conv. Total (cfs)	* 12297.1	* Conv. (cfs)	*	* 12297.1	*
* Length Wtd. (ft)	* 68.99	* Wetted Per. (ft)	*	* 40.69	*
* Min Ch El (ft)	* 68.65	* Shear (lb/sq ft)	*	* 0.80	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 5.66	*
* Frctn Loss (ft)	* 0.43	* Cum Volume (acre-ft)	*	* 1.39	*
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	*	* 0.67	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12529.94

INPUT
Description: Desert Canyon per STANTEC Plans RS 2529.94, Begin Transition
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	74.81	94	68.48	98	68.4	100	68.37
102	68.4	106	68.48	125	74.81	125.01	80		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 73.59	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.31	* Wt. n-Val.	*	* 0.028	* *
* W.S. Elev (ft)	* 72.28	* Reach Len. (ft)	* 0.00	* 29.99	* 0.00 *
* Crit W.S. (ft)	* 72.28	* Flow Area (sq ft)	*	* 89.69	* *
* E.G. Slope (ft/ft)	*0.009119	* Area (sq ft)	*	* 89.69	* *
* Q Total (cfs)	* 823.00	* Flow (cfs)	*	* 823.00	* *
* Top Width (ft)	* 34.82	* Top Width (ft)	*	* 34.82	* *
* Vel Total (ft/s)	* 9.18	* Avg. Vel. (ft/s)	*	* 9.18	* *
* Max Chl Dpth (ft)	* 3.91	* Hydr. Depth (ft)	*	* 2.58	* *
* Conv. Total (cfs)	* 8618.2	* Conv. (cfs)	*	* 8618.2	* *
* Length Wtd. (ft)	* 29.99	* Wetted Per. (ft)	*	* 36.06	* *
* Min Ch El (ft)	* 68.37	* Shear (lb/sq ft)	*	* 1.42	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 13.00	* *
* Frctn Loss (ft)	* 0.28	* Cum Volume (acre-ft)	*	* 1.23	* *
* C & E Loss (ft)	* 0.07	* Cum SA (acres)	*	* 0.61	* *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12499.95

INPUT
Description: Desert Canyon per STANTEC Plans RS 2499.93, end transition, begin 30' turn around pad
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	71.63	84.2	68.56	98	68.28	100	68.25
102	68.28	115.8	68.56	125	71.63	125.01	80		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	98	.013	102	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 72.93	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.83	* Wt. n-Val.	*	* 0.029	* *
* W.S. Elev (ft)	* 70.10	* Reach Len. (ft)	* 0.00	* 0.01	* 0.00 *
* Crit W.S. (ft)	* 70.98	* Flow Area (sq ft)	*	* 60.95	* *
* E.G. Slope (ft/ft)	*0.040268	* Area (sq ft)	*	* 60.95	* *
* Q Total (cfs)	* 823.00	* Flow (cfs)	*	* 823.00	* *
* Top Width (ft)	* 40.85	* Top Width (ft)	*	* 40.85	* *
* Vel Total (ft/s)	* 13.50	* Avg. Vel. (ft/s)	*	* 13.50	* *
* Max Chl Dpth (ft)	* 1.85	* Hydr. Depth (ft)	*	* 1.49	* *
* Conv. Total (cfs)	* 4101.3	* Conv. (cfs)	*	* 4101.3	* *
* Length Wtd. (ft)	* 0.01	* Wetted Per. (ft)	*	* 41.36	* *
* Min Ch El (ft)	* 68.25	* Shear (lb/sq ft)	*	* 3.71	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 50.03	* *
* Frctn Loss (ft)	* 0.50	* Cum Volume (acre-ft)	*	* 1.18	* *
* C & E Loss (ft)	* 0.15	* Cum SA (acres)	*	* 0.59	* *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12499.94

INPUT
Description: Desert Canyon per STANTEC Plans RS 2499.94, end transition, begin 30' turn around pad
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	71.63	84.2	68.56	98	68.28	100	68.25
102	68.28	115.8	68.56	125	71.63	125.01	80		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	125	.013

Bank Sta: Left 74.99 Right 125.01 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	72.93	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.83	Wt. n-Val.		0.030 /
W.S. Elev (ft)	70.10	Reach Len. (ft)	0.00	30.00 / 0.00
Crit W.S. (ft)	70.98	Flow Area (sq ft)		60.95 /
E.G. Slope (ft/ft)	*0.044304	Area (sq ft)		60.95 /
Q Total (cfs)	823.00	Flow (cfs)		823.00 /
Top Width (ft)	40.85	Top Width (ft)		40.85 /
Vel Total (ft/s)	13.50	Avg. Vel. (ft/s)		13.50 /
Max Chl Dpth (ft)	1.85	Hydr. Depth (ft)		1.49 /
Conv. Total (cfs)	3910.0	Conv. (cfs)		3910.0 /
Length Wtd. (ft)	30.00	Wetted Per. (ft)		41.36 /
Min Ch El (ft)	68.25	Shear (lb/sq ft)		4.08 /
Alpha	1.00	Stream Power (lb/ft s)		55.04 /
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.18 /
C & E Loss (ft)	0.00	Cum SA (acres)		0.59 /

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12469.94

INPUT
Description: Desert Canyon per STANTEC Plans RS 2469.94, top of nuissance drain headwall, end turn around pad
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	70.43	84.2	67.37	100	67.05	115.8	67.37
125	70.43	125.01	80						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	125	.013

Bank Sta: Left 74.99 Right 125.01 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	71.61	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.64	Wt. n-Val.		0.030 /
W.S. Elev (ft)	68.96	Reach Len. (ft)	0.00	0.01 / 0.00
Crit W.S. (ft)	69.78	Flow Area (sq ft)		63.08 /
E.G. Slope (ft/ft)	*0.039975	Area (sq ft)		63.08 /
Q Total (cfs)	823.00	Flow (cfs)		823.00 /
Top Width (ft)	41.19	Top Width (ft)		41.19 /
Vel Total (ft/s)	13.05	Avg. Vel. (ft/s)		13.05 /
Max Chl Dpth (ft)	1.91	Hydr. Depth (ft)		1.53 /
Conv. Total (cfs)	4116.3	Conv. (cfs)		4116.3 /
Length Wtd. (ft)	0.01	Wetted Per. (ft)		41.71 /
Min Ch El (ft)	67.05	Shear (lb/sq ft)		3.77 /
Alpha	1.00	Stream Power (lb/ft s)		49.24 /
Frctn Loss (ft)	1.26	Cum Volume (acre-ft)		1.14 /
C & E Loss (ft)	0.06	Cum SA (acres)		0.56 /

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12469.93

INPUT
Description: Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance channel, begin nuissance
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	70.43	84.2	67.37	96.69	67.12	96.7	64.15
98.75	63.47	100	63.47	101.25	63.47	103.3	64.15	103.31	67.12
115.8	67.37	125	70.43	125.01	80				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.69	.013	103.3	.03	125	.013

Bank Sta: Left 74.99 Right 125.01 Lengths: Left Channel 34.44 Right 34.44 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	71.54	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.33	Wt. n-Val.		0.027 /
W.S. Elev (ft)	68.21	Reach Len. (ft)	34.44	34.44 / 34.44
Crit W.S. (ft)	69.21	Flow Area (sq ft)		56.18 /
E.G. Slope (ft/ft)	*0.048466	Area (sq ft)		56.18 /
Q Total (cfs)	823.00	Flow (cfs)		823.00 /
Top Width (ft)	36.65	Top Width (ft)		36.65 /
Vel Total (ft/s)	14.65	Avg. Vel. (ft/s)		14.65 /
Max Chl Dpth (ft)	4.74	Hydr. Depth (ft)		1.53 /
Conv. Total (cfs)	3738.4	Conv. (cfs)		3738.4 /
Length Wtd. (ft)	34.44	Wetted Per. (ft)		43.07 /
Min Ch El (ft)	63.47	Shear (lb/sq ft)		3.95 /
Alpha	1.00	Stream Power (lb/ft s)		57.82 /
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		1.14 /
C & E Loss (ft)	0.07	Cum SA (acres)		0.56 /

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12435.49

INPUT
Description: Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance

channel, begin nuissance
Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	68.9	84.2	65.83	96.69	65.71	96.7	64.22
99.38	63.33	100	63.33	100.62	63.33	103.3	64.22	103.31	65.71
115.8	65.83	125	68.9	125.01	80				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.69	.021	96.7	.021	103.3	.03
125	.013	125.01	.013						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 34.44 34.44 34.44 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	69.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.73	Wt. n-Val.		0.028	
W.S. Elev (ft)	67.14	Reach Len. (ft)	34.44	34.44	34.44
Crit W.S. (ft)	67.99	Flow Area (sq ft)		62.12	
E.G. Slope (ft/ft)	*0.039319	Area (sq ft)		62.12	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	39.44	Top Width (ft)		39.44	
Vel Total (ft/s)	13.25	Avg. Vel. (ft/s)		13.25	
Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)		1.57	
Conv. Total (cfs)	4150.5	Conv. (cfs)		4150.5	
Length Wtd. (ft)	34.44	Wetted Per. (ft)		43.12	
Min Ch El (ft)	63.33	Shear (lb/sq ft)		3.54	
Alpha	1.00	Stream Power (lb/ft s)		46.85	
Frctn Loss (ft)	1.50	Cum Volume (acre-ft)		1.09	
C & E Loss (ft)	0.18	Cum SA (acres)		0.53	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12401.05

INPUT
Description: Desert Canyon per STANTEC Plans RS 2401.05, nuissance channel GB, end nuissance channel transition
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	80	75	67.36	84.2	64.29	96.7	64.29	100	63.19
103.3	64.29	115.8	64.29	125	67.36	125.01	80		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.7	.013	103.3	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	68.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.66	Wt. n-Val.		0.028	
W.S. Elev (ft)	65.91	Reach Len. (ft)	0.00	1.05	0.00
Crit W.S. (ft)	66.74	Flow Area (sq ft)		62.89	
E.G. Slope (ft/ft)	*0.034721	Area (sq ft)		62.89	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	41.34	Top Width (ft)		41.34	
Vel Total (ft/s)	13.09	Avg. Vel. (ft/s)		13.09	
Max Chl Dpth (ft)	2.72	Hydr. Depth (ft)		1.52	
Conv. Total (cfs)	4416.8	Conv. (cfs)		4416.8	
Length Wtd. (ft)	1.05	Wetted Per. (ft)		42.22	
Min Ch El (ft)	63.19	Shear (lb/sq ft)		3.23	
Alpha	1.00	Stream Power (lb/ft s)		42.25	
Frctn Loss (ft)	1.27	Cum Volume (acre-ft)		1.04	
C & E Loss (ft)	0.02	Cum SA (acres)		0.50	

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12400.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2400
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	75	75	67.32	84.2	64.25	96.7	64.25	100	63.15
103.3	64.25	115.8	64.25	125	67.32	125.01	75		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.7	.013	103.3	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	68.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.65	Wt. n-Val.		0.028	
W.S. Elev (ft)	65.88	Reach Len. (ft)	0.00	50.00	0.00
Crit W.S. (ft)	66.70	Flow Area (sq ft)		62.94	
E.G. Slope (ft/ft)	*0.034636	Area (sq ft)		62.94	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	41.35	Top Width (ft)		41.35	
Vel Total (ft/s)	13.08	Avg. Vel. (ft/s)		13.08	
Max Chl Dpth (ft)	2.73	Hydr. Depth (ft)		1.52	
Conv. Total (cfs)	4422.2	Conv. (cfs)		4422.2	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		42.23	
Min Ch El (ft)	63.15	Shear (lb/sq ft)		3.22	
Alpha	1.00	Stream Power (lb/ft s)		42.14	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)		1.04	
C & E Loss (ft)	0.00	Cum SA (acres)		0.50	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12350.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2350
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	70	75	65.32	84.2	62.25	96.7	62.25	100	61.15
103.3	62.25	115.8	62.25	125	65.32	125.01	70		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.7	.013	103.3	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
74.99 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	66.68	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.86	Wt. n-Val.		0.028
W.S. Elev (ft)	63.82	Reach Len. (ft)	0.00	30.00 / 0.00
Crit W.S. (ft)	64.70	Flow Area (sq ft)		60.62
E.G. Slope (ft/ft)	0.038758	Area (sq ft)		60.62
Q Total (cfs)	823.00	Flow (cfs)		823.00
Top Width (ft)	41.01	Top Width (ft)		41.01
Vel Total (ft/s)	13.58	Avg. Vel. (ft/s)		13.58
Max Chl Dpth (ft)	2.67	Hydr. Depth (ft)		1.48
Conv. Total (cfs)	4180.4	Conv. (cfs)		4180.4
Length Wtd. (ft)	30.00	Wetted Per. (ft)		41.88
Min Ch El (ft)	61.15	Shear (lb/sq ft)		3.50
Alpha	1.00	Stream Power (lb/ft s)		47.55
Frctn Loss (ft)	1.83	Cum Volume (acre-ft)		0.97
C & E Loss (ft)	0.02	Cum SA (acres)		0.45

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12320.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2320
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.99	67.62	75	64.12	84.2	61.05	96.7	61.05	100	59.95
103.3	61.05	115.8	61.05	125	64.12	125.01	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.99	.013	75	.03	96.7	.013	103.3	.03	125	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
74.99 125.01 6.94 7.82 8.74 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	65.50	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.89	Wt. n-Val.		0.028
W.S. Elev (ft)	62.61	Reach Len. (ft)	6.94	7.82 / 8.74
Crit W.S. (ft)	63.50	Flow Area (sq ft)		60.30
E.G. Slope (ft/ft)	0.039387	Area (sq ft)		60.30
Q Total (cfs)	823.00	Flow (cfs)		823.00
Top Width (ft)	40.96	Top Width (ft)		40.96
Vel Total (ft/s)	13.65	Avg. Vel. (ft/s)		13.65
Max Chl Dpth (ft)	2.66	Hydr. Depth (ft)		1.47
Conv. Total (cfs)	4146.9	Conv. (cfs)		4146.9
Length Wtd. (ft)	7.82	Wetted Per. (ft)		41.83
Min Ch El (ft)	59.95	Shear (lb/sq ft)		3.54
Alpha	1.00	Stream Power (lb/ft s)		48.38
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)		0.92
C & E Loss (ft)	0.00	Cum SA (acres)		0.42

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12312.18

INPUT
Description: Desert Canyon per STANTEC Plans RS 2312.18, upstream Eastgate Bridge face
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.11	67.62	76.12	63.45	84.2	60.73	96.7	60.72	100	59.62
103.3	60.72	115.8	60.71	125	63.78	125.01	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.11	.013	76.12	.03	96.7	.013	103.3	.03	125	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.11 125.01 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	65.19	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.92	Wt. n-Val.		0.028
W.S. Elev (ft)	62.28	Reach Len. (ft)	0.00	0.01 / 0.00
Crit W.S. (ft)	63.17	Flow Area (sq ft)		60.06
E.G. Slope (ft/ft)	0.039805	Area (sq ft)		60.06
Q Total (cfs)	823.00	Flow (cfs)		823.00
Top Width (ft)	40.89	Top Width (ft)		40.89
Vel Total (ft/s)	13.70	Avg. Vel. (ft/s)		13.70
Max Chl Dpth (ft)	2.66	Hydr. Depth (ft)		1.47
Conv. Total (cfs)	4125.1	Conv. (cfs)		4125.1
Length Wtd. (ft)	0.01	Wetted Per. (ft)		41.76
Min Ch El (ft)	59.62	Shear (lb/sq ft)		3.57

* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 48.98	* *
* Frctn Loss (ft)	* 0.31	* Cum Volume (acre-ft)	*	* 0.91	* *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	* 0.41	* *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12312.17

INPUT
Description: Desert Canyon per STANTEC Plans RS 2312.17, begin abutments
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
77.04	67.62	77.05	63.11	84.2	60.73	96.7	60.72	100	59.62
103.3	60.72	115.8	60.71	124.02	63.45	124.03	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
77.04	.013	77.05	.03	96.7	.013	103.3	.03	124.02	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
77.04	124.03	31.46	33.22	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 65.19	* Element	* Left OB *	Channel * Right OB *
* Vel Head (ft)	* 2.92	* Wt. n-Val.	* *	0.028 * *
* W.S. Elev (ft)	* 62.28	* Reach Len. (ft)	* 31.46 *	33.22 * 35.00 *
* Crit W.S. (ft)	* 63.17	* Flow Area (sq ft)	* *	60.05 * *
* E.G. Slope (ft/ft)	*0.039900	* Area (sq ft)	* *	60.05 * *
* Q Total (cfs)	* 823.00	* Flow (cfs)	* *	823.00 * *
* Top Width (ft)	* 40.94	* Top Width (ft)	* *	40.94 * *
* Vel Total (ft/s)	* 13.71	* Avg. Vel. (ft/s)	* *	13.71 * *
* Max Chl Dpth (ft)	* 2.66	* Hydr. Depth (ft)	* *	1.47 * *
* Conv. Total (cfs)	* 4120.1	* Conv. (cfs)	* *	4120.1 * *
* Length Wtd. (ft)	* 33.22	* Wetted Per. (ft)	* *	41.80 * *
* Min Ch El (ft)	* 59.62	* Shear (lb/sq ft)	* *	3.58 * *
* Alpha	* 1.00	* Stream Power (lb/ft s)	* *	49.04 * *
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	* *	0.91 * *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* *	0.41 * *

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12278.95

INPUT
Description: Desert Canyon per STANTEC Plans RS 2278.95
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
74.75	67.62	74.76	63.17	84.2	60.02	96.7	60.02	100	58.92
103.3	60.02	115.8	60.02	121.16	61.84	121.17	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
74.75	.013	74.76	.03	96.7	.013	103.3	.03	121.16	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
74.75	121.17	23.07	25.04	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 63.92	* Element	* Left OB *	Channel * Right OB *
* Vel Head (ft)	* 2.08	* Wt. n-Val.	* *	0.028 * *
* W.S. Elev (ft)	* 61.84	* Reach Len. (ft)	* 23.07 *	25.04 * 27.02 *
* Crit W.S. (ft)	* 62.46	* Flow Area (sq ft)	* *	71.14 * *
* E.G. Slope (ft/ft)	*0.023986	* Area (sq ft)	* *	71.14 * *
* Q Total (cfs)	* 823.00	* Flow (cfs)	* *	823.00 * *
* Top Width (ft)	* 42.43	* Top Width (ft)	* *	42.43 * *
* Vel Total (ft/s)	* 11.57	* Avg. Vel. (ft/s)	* *	11.57 * *
* Max Chl Dpth (ft)	* 2.92	* Hydr. Depth (ft)	* *	1.68 * *
* Conv. Total (cfs)	* 5314.0	* Conv. (cfs)	* *	5314.0 * *
* Length Wtd. (ft)	* 25.04	* Wetted Per. (ft)	* *	43.38 * *
* Min Ch El (ft)	* 58.92	* Shear (lb/sq ft)	* *	2.46 * *
* Alpha	* 1.00	* Stream Power (lb/ft s)	* *	28.41 * *
* Frctn Loss (ft)	* 1.01	* Cum Volume (acre-ft)	* *	0.86 * *
* C & E Loss (ft)	* 0.25	* Cum SA (acres)	* *	0.38 * *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12253.91

INPUT
Description: Desert Canyon per STANTEC Plans RS 2253.91, south abutment bend
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75.83	67.62	75.84	62.28	84.2	59.49	96.7	59.49	100	58.39
103.3	59.49	115.8	59.49	122.91	61.86	122.92	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
75.83	.013	75.84	.03	96.7	.013	103.3	.03	122.91	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
75.83	122.92	33.33	36.19	39.05	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 63.31	* Element	* Left OB *	Channel * Right OB *
* Vel Head (ft)	* 1.94	* Wt. n-Val.	* *	0.028 * *
* W.S. Elev (ft)	* 61.37	* Reach Len. (ft)	* 33.33 *	36.19 * 39.05 *
* Crit W.S. (ft)	* 61.94	* Flow Area (sq ft)	* *	73.64 * *
* E.G. Slope (ft/ft)	*0.021719	* Area (sq ft)	* *	73.64 * *
* Q Total (cfs)	* 823.00	* Flow (cfs)	* *	823.00 * *
* Top Width (ft)	* 42.87	* Top Width (ft)	* *	42.87 * *
* Vel Total (ft/s)	* 11.18	* Avg. Vel. (ft/s)	* *	11.18 * *

* Max Chl Dpth (ft)	2.98	* Hydr. Depth (ft)		1.72	
* Conv. Total (cfs)	5584.4	* Conv. (cfs)		5584.4	
* Length Wtd. (ft)	36.19	* Wetted Per. (ft)		43.84	
* Min Ch El (ft)	58.39	* Shear (lb/sq ft)		2.28	
* Alpha	1.00	* Stream Power (lb/ft s)		25.45	
* Frctn Loss (ft)	0.57	* Cum Volume (acre-ft)		0.82	
* C & E Loss (ft)	0.04	* Cum SA (acres)		0.36	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12217.72

INPUT
Description: Desert Canyon per STANTEC Plans RS 2217.72, downstream Eastgate Bridge

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.62	67.62	82.63	59.24	84.2	58.72	96.7	58.72	100	57.62
103.3	58.72	115.8	58.72	119.61	59.99	119.62	67.62		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
82.62	.013	82.63	.03	96.7	.013	103.3	.03	119.61	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
82.62	119.62	13.04	14.15	15.27	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	62.61	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	1.90	* Wt. n-Val.		0.027	
* W.S. Elev (ft)	60.71	* Reach Len. (ft)	13.04	14.15	15.27
* Crit W.S. (ft)	61.17	* Flow Area (sq ft)		74.45	
* E.G. Slope (ft/ft)	*0.017024	* Area (sq ft)		74.45	
* Q Total (cfs)	823.00	* Flow (cfs)		823.00	
* Top Width (ft)	36.98	* Top Width (ft)		36.98	
* Vel Total (ft/s)	11.05	* Avg. Vel. (ft/s)		11.05	
* Max Chl Dpth (ft)	3.09	* Hydr. Depth (ft)		2.01	
* Conv. Total (cfs)	6307.6	* Conv. (cfs)		6307.6	
* Length Wtd. (ft)	14.15	* Wetted Per. (ft)		39.82	
* Min Ch El (ft)	57.62	* Shear (lb/sq ft)		1.99	
* Alpha	1.00	* Stream Power (lb/ft s)		21.97	
* Frctn Loss (ft)	0.69	* Cum Volume (acre-ft)		0.76	
* C & E Loss (ft)	0.01	* Cum SA (acres)		0.32	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12203.57

INPUT
Description: Desert Canyon per STANTEC Plans RS 2203.57, begin half trapezoidal channel

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
79.9	65	79.91	59.85	84.2	58.42	96.7	58.42	100	57.32
103.3	58.42	115.8	58.42	115.81	65				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
79.9	.013	79.91	.03	96.7	.013	103.3	.03	115.8	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
79.9	115.81	38.1	41.38	44.32	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	62.38	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	1.90	* Wt. n-Val.		0.026	
* W.S. Elev (ft)	60.48	* Reach Len. (ft)	38.10	41.38	44.32
* Crit W.S. (ft)	60.94	* Flow Area (sq ft)		74.41	
* E.G. Slope (ft/ft)	*0.016371	* Area (sq ft)		74.41	
* Q Total (cfs)	823.00	* Flow (cfs)		823.00	
* Top Width (ft)	35.89	* Top Width (ft)		35.89	
* Vel Total (ft/s)	11.06	* Avg. Vel. (ft/s)		11.06	
* Max Chl Dpth (ft)	3.16	* Hydr. Depth (ft)		2.07	
* Conv. Total (cfs)	6432.2	* Conv. (cfs)		6432.2	
* Length Wtd. (ft)	41.38	* Wetted Per. (ft)		39.17	
* Min Ch El (ft)	57.32	* Shear (lb/sq ft)		1.94	
* Alpha	1.00	* Stream Power (lb/ft s)		21.48	
* Frctn Loss (ft)	0.24	* Cum Volume (acre-ft)		0.74	
* C & E Loss (ft)	0.00	* Cum SA (acres)		0.31	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12162.19

INPUT
Description: Desert Canyon per STANTEC Plans RS 2162.19, end transition & bend

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	65	76.45	60.13	84.2	57.55	96.7	57.55	100	56.45
103.3	57.55	111.2	57.55	111.21	65				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
76.44	111.21	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	61.72	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	1.78	* Wt. n-Val.		0.026	
* W.S. Elev (ft)	59.94	* Reach Len. (ft)	0.00	12.19	0.00
* Crit W.S. (ft)	60.31	* Flow Area (sq ft)		76.81	
* E.G. Slope (ft/ft)	*0.013741	* Area (sq ft)		76.81	
* Q Total (cfs)	823.00	* Flow (cfs)		823.00	

* Top Width (ft)	34.19	* Top Width (ft)		34.19	
* Vel Total (ft/s)	10.71	* Avg. Vel. (ft/s)		10.71	
* Max Chl Dpth (ft)	3.49	* Hydr. Depth (ft)		2.25	
* Conv. Total (cfs)	7020.9	* Conv. (cfs)		7020.9	
* Length Wtd. (ft)	12.19	* Wetted Per. (ft)		37.32	
* Min Ch El (ft)	56.45	* Shear (lb/sq ft)		1.77	
* Alpha	1.00	* Stream Power (lb/ft s)		18.92	
* Frctn Loss (ft)	0.62	* Cum Volume (acre-ft)		0.66	
* C & E Loss (ft)	0.04	* Cum SA (acres)		0.28	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12150.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2150, end 3:1 left side slope

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	65	76.45	59.87	84.2	57.29	96.7	57.29	100	56.19
103.3	57.29	111.2	57.29	111.21	65				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
76.44	111.21	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	61.53	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	1.94	* Wt. n-Val.		0.026	
* W.S. Elev (ft)	59.59	* Reach Len. (ft)	0.00	25.00	0.00
* Crit W.S. (ft)	60.05	* Flow Area (sq ft)		73.54	
* E.G. Slope (ft/ft)	*0.015656	* Area (sq ft)		73.54	
* Q Total (cfs)	823.00	* Flow (cfs)		823.00	
* Top Width (ft)	33.90	* Top Width (ft)		33.90	
* Vel Total (ft/s)	11.19	* Avg. Vel. (ft/s)		11.19	
* Max Chl Dpth (ft)	3.40	* Hydr. Depth (ft)		2.17	
* Conv. Total (cfs)	6577.4	* Conv. (cfs)		6577.4	
* Length Wtd. (ft)	25.00	* Wetted Per. (ft)		36.92	
* Min Ch El (ft)	56.19	* Shear (lb/sq ft)		1.95	
* Alpha	1.00	* Stream Power (lb/ft s)		21.79	
* Frctn Loss (ft)	0.18	* Cum Volume (acre-ft)		0.64	
* C & E Loss (ft)	0.02	* Cum SA (acres)		0.27	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12125.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2125, begin 2:1 left side slope

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	63.31	76.45	60.64	84.2	56.76	96.7	56.76	100	55.66
103.3	56.76	111.2	56.76	111.21	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
76.44	111.21	42.36	27.69	20.72	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	61.13	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	2.05	* Wt. n-Val.		0.026	
* W.S. Elev (ft)	59.08	* Reach Len. (ft)	42.36	27.69	20.72
* Crit W.S. (ft)	59.58	* Flow Area (sq ft)		71.68	
* E.G. Slope (ft/ft)	*0.015512	* Area (sq ft)		71.68	
* Q Total (cfs)	823.00	* Flow (cfs)		823.00	
* Top Width (ft)	31.64	* Top Width (ft)		31.64	
* Vel Total (ft/s)	11.48	* Avg. Vel. (ft/s)		11.48	
* Max Chl Dpth (ft)	3.42	* Hydr. Depth (ft)		2.27	
* Conv. Total (cfs)	6608.0	* Conv. (cfs)		6608.0	
* Length Wtd. (ft)	27.69	* Wetted Per. (ft)		34.86	
* Min Ch El (ft)	55.66	* Shear (lb/sq ft)		1.99	
* Alpha	1.00	* Stream Power (lb/ft s)		22.86	
* Frctn Loss (ft)	0.39	* Cum Volume (acre-ft)		0.60	
* C & E Loss (ft)	0.01	* Cum SA (acres)		0.25	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12097.31

INPUT
Description: Desert Canyon per STANTEC Plans RS 2097.31, upstream face Easter Lily

Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.442	63.31	76.45	59.75	84.2	55.97	96.7	56.14	100	55.08
103.3	56.22	111.2	56.32	111.208	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.442	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left	Right	Coeff Contr.	Expan.
76.442	111.208	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	60.63	* Element	Left OB	Channel	Right OB
* Vel Head (ft)	2.33	* Wt. n-Val.		0.026	
* W.S. Elev (ft)	58.30	* Reach Len. (ft)	0.00	0.01	0.00
* Crit W.S. (ft)	58.94	* Flow Area (sq ft)		67.16	
* E.G. Slope (ft/ft)	*0.019296	* Area (sq ft)		67.16	

Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	31.77	Top Width (ft)		31.77	
Vel Total (ft/s)	12.25	Avg. Vel. (ft/s)		12.25	
Max Chl Dpth (ft)	3.22	Hydr. Depth (ft)		2.11	
Conv. Total (cfs)	5924.7	Conv. (cfs)		5924.7	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		34.64	
Min Ch El (ft)	55.08	Shear (lb/sq ft)		2.34	
Alpha	1.00	Stream Power (lb/ft s)		28.62	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)		0.56	
C & E Loss (ft)	0.03	Cum SA (acres)		0.23	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12097.3

INPUT
Description: Desert Canyon per STANTEC Plans RS 2097.30, begin abutment
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.442	63.31	76.45	59.75	84.2	55.97	96.7	56.14	100	55.08
103.3	56.22	109.95	56.31	109.96	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.442	.013	76.45	.03	96.7	.013	103.3	.03	109.95	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.442 109.96 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	60.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.86	Wt. n-Val.		0.026	
W.S. Elev (ft)	58.64	Reach Len. (ft)	0.00	63.00	0.00
Crit W.S. (ft)	59.02	Flow Area (sq ft)		75.21	
E.G. Slope (ft/ft)	0.013004	Area (sq ft)		75.21	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	31.22	Top Width (ft)		31.22	
Vel Total (ft/s)	10.94	Avg. Vel. (ft/s)		10.94	
Max Chl Dpth (ft)	3.56	Hydr. Depth (ft)		2.41	
Conv. Total (cfs)	7217.2	Conv. (cfs)		7217.2	
Length Wtd. (ft)	63.00	Wetted Per. (ft)		34.52	
Min Ch El (ft)	55.08	Shear (lb/sq ft)		1.77	
Alpha	1.00	Stream Power (lb/ft s)		19.35	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		0.56	
C & E Loss (ft)	0.28	Cum SA (acres)		0.23	

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12033.7

INPUT
Description: Desert Canyon per STANTEC Plans RS 2033.7, end abutment
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	63.31	76.45	58.41	84.2	54.63	96.7	54.8	100	53.74
103.3	54.88	109.95	54.97	109.96	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	109.95	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 109.96 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	59.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.45	Wt. n-Val.		0.026	
W.S. Elev (ft)	56.98	Reach Len. (ft)	0.00	0.01	0.00
Crit W.S. (ft)	57.67	Flow Area (sq ft)		65.52	
E.G. Slope (ft/ft)	0.019805	Area (sq ft)		65.52	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	30.58	Top Width (ft)		30.58	
Vel Total (ft/s)	12.56	Avg. Vel. (ft/s)		12.56	
Max Chl Dpth (ft)	3.24	Hydr. Depth (ft)		2.14	
Conv. Total (cfs)	5848.0	Conv. (cfs)		5848.0	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		33.50	
Min Ch El (ft)	53.74	Shear (lb/sq ft)		2.42	
Alpha	1.00	Stream Power (lb/ft s)		30.38	
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)		0.46	
C & E Loss (ft)	0.06	Cum SA (acres)		0.19	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12033.69

INPUT
Description: Desert Canyon per STANTEC Plans RS 2033.69, end Easter Lily bridge
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	63.31	76.45	58.41	84.2	54.63	96.7	54.8	100	53.74
103.3	54.88	111.2	54.98	111.21	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
76.44 111.21 19.64 34.29 41.27 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	59.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.56	Wt. n-Val.		0.026	
W.S. Elev (ft)	56.86	Reach Len. (ft)	19.64	34.29	41.27
Crit W.S. (ft)	57.60	Flow Area (sq ft)		64.10	
E.G. Slope (ft/ft)	0.022282	Area (sq ft)		64.10	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	31.57	Top Width (ft)		31.57	
Vel Total (ft/s)	12.84	Avg. Vel. (ft/s)		12.84	
Max Chl Dpth (ft)	3.12	Hydr. Depth (ft)		2.03	
Conv. Total (cfs)	5513.5	Conv. (cfs)		5513.5	
Length Wtd. (ft)	34.29	Wetted Per. (ft)		34.33	
Min Ch El (ft)	53.74	Shear (lb/sq ft)		2.60	
Alpha	1.00	Stream Power (lb/ft s)		33.35	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		0.46	
C & E Loss (ft)	0.01	Cum SA (acres)		0.19	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 12000.

INPUT
Description: Desert Canyon per STANTEC Plans RS 2000
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	63.31	76.45	58	84.2	54.12	96.7	54.12	100	53.02
103.3	54.12	111.2	54.12	111.21	63.31				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	58.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.37	Wt. n-Val.		0.026	
W.S. Elev (ft)	56.28	Reach Len. (ft)	0.00	75.82	0.00
Crit W.S. (ft)	56.96	Flow Area (sq ft)		66.56	
E.G. Slope (ft/ft)	0.019479	Area (sq ft)		66.56	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	31.31	Top Width (ft)		31.31	
Vel Total (ft/s)	12.37	Avg. Vel. (ft/s)		12.37	
Max Chl Dpth (ft)	3.26	Hydr. Depth (ft)		2.13	
Conv. Total (cfs)	5896.8	Conv. (cfs)		5896.8	
Length Wtd. (ft)	75.82	Wetted Per. (ft)		34.34	
Min Ch El (ft)	53.02	Shear (lb/sq ft)		2.36	
Alpha	1.00	Stream Power (lb/ft s)		29.15	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)		0.40	
C & E Loss (ft)	0.06	Cum SA (acres)		0.16	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11924.18

INPUT
Description: Desert Canyon per STANTEC Plans RS 1924.18, Pioneer Outfall 12'x8'
RCB Outlet (South Channel)
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	57.51	76.45	56.92	84.2	53.04	96.7	53.04	100	51.94
103.3	53.04	111.2	53.04	111.21	59.69				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	57.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.78	Wt. n-Val.		0.026	
W.S. Elev (ft)	55.52	Reach Len. (ft)	0.00	12.50	0.00
Crit W.S. (ft)	55.88	Flow Area (sq ft)		76.78	
E.G. Slope (ft/ft)	0.012571	Area (sq ft)		76.78	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	31.96	Top Width (ft)		31.96	
Vel Total (ft/s)	10.72	Avg. Vel. (ft/s)		10.72	
Max Chl Dpth (ft)	3.58	Hydr. Depth (ft)		2.40	
Conv. Total (cfs)	7340.5	Conv. (cfs)		7340.5	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		35.38	
Min Ch El (ft)	51.94	Shear (lb/sq ft)		1.70	
Alpha	1.00	Stream Power (lb/ft s)		18.26	
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)		0.28	
C & E Loss (ft)	0.18	Cum SA (acres)		0.11	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11911.68

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.01	76.45	56.74	84.2	52.86	96.7	52.86	100	51.76
103.3	52.86	111.2	52.86	111.21	59.5				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val

76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013
111.21	.013								

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	57.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.83	Wt. n-Val.		0.026	
W.S. Elev (ft)	55.31	Reach Len. (ft)	0.00	12.50	0.00
Crit W.S. (ft)	55.70	Flow Area (sq ft)		75.76	
E.G. Slope (ft/ft)	*0.013098	Area (sq ft)		75.76	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	31.90	Top Width (ft)		31.90	
Vel Total (ft/s)	10.86	Avg. Vel. (ft/s)		10.86	
Max Chl Dpth (ft)	3.55	Hydr. Depth (ft)		2.38	
Conv. Total (cfs)	7191.1	Conv. (cfs)		7191.1	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		35.28	
Min Ch El (ft)	51.76	Shear (lb/sq ft)		1.76	
Alpha	1.00	Stream Power (lb/ft s)		19.08	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)		0.26	
C & E Loss (ft)	0.00	Cum SA (acres)		0.10	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11899.18

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	56.56	84.2	52.68	96.7	52.68	100	51.58
103.3	52.68	111.2	52.68	111.21	58.36				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.87	Wt. n-Val.		0.026	
W.S. Elev (ft)	55.11	Reach Len. (ft)	0.00	12.50	0.00
Crit W.S. (ft)	55.52	Flow Area (sq ft)		75.08	
E.G. Slope (ft/ft)	*0.013461	Area (sq ft)		75.08	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	31.85	Top Width (ft)		31.85	
Vel Total (ft/s)	10.96	Avg. Vel. (ft/s)		10.96	
Max Chl Dpth (ft)	3.53	Hydr. Depth (ft)		2.36	
Conv. Total (cfs)	7093.5	Conv. (cfs)		7093.5	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		35.21	
Min Ch El (ft)	51.58	Shear (lb/sq ft)		1.79	
Alpha	1.00	Stream Power (lb/ft s)		19.64	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		0.24	
C & E Loss (ft)	0.00	Cum SA (acres)		0.09	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11886.68

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	56.38	84.2	52.5	96.7	52.5	100	51.4
103.3	52.5	111.2	52.5	111.21	58.19				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013
111.21	.013								

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.89	Wt. n-Val.		0.026	
W.S. Elev (ft)	54.91	Reach Len. (ft)	0.00	12.50	0.00
Crit W.S. (ft)	55.34	Flow Area (sq ft)		74.57	
E.G. Slope (ft/ft)	*0.013743	Area (sq ft)		74.57	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	31.82	Top Width (ft)		31.82	
Vel Total (ft/s)	11.04	Avg. Vel. (ft/s)		11.04	
Max Chl Dpth (ft)	3.51	Hydr. Depth (ft)		2.34	
Conv. Total (cfs)	7020.3	Conv. (cfs)		7020.3	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		35.16	
Min Ch El (ft)	51.40	Shear (lb/sq ft)		1.82	
Alpha	1.00	Stream Power (lb/ft s)		20.08	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		0.22	
C & E Loss (ft)	0.00	Cum SA (acres)		0.08	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11874.18

INPUT
Description: Desert Canyon per STANTEC Plans RS 1874.18, end south channel
nuissance channel transition
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	56.2	84.2	52.32	96.7	52.32	100	51.22
103.3	52.32	111.2	52.32	111.21	58.02				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.91	Wt. n-Val.		0.026	
W.S. Elev (ft)	54.72	Reach Len. (ft)	0.00	23.06	0.00
Crit W.S. (ft)	55.16	Flow Area (sq ft)		74.18	
E.G. Slope (ft/ft)	*0.013967	Area (sq ft)		74.18	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	31.80	Top Width (ft)		31.80	
Vel Total (ft/s)	11.09	Avg. Vel. (ft/s)		11.09	
Max Chl Dpth (ft)	3.50	Hydr. Depth (ft)		2.33	
Conv. Total (cfs)	6963.9	Conv. (cfs)		6963.9	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		35.12	
Min Ch El (ft)	51.22	Shear (lb/sq ft)		1.84	
Alpha	1.00	Stream Power (lb/ft s)		20.43	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)		0.19	
C & E Loss (ft)	0.00	Cum SA (acres)		0.07	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11851.12

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	55.87	84.2	51.99	96.7	51.99	100	50.89
103.3	51.99	111.2	51.99	111.21	57.79				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013
111.21	.013								

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.93	Wt. n-Val.		0.026	
W.S. Elev (ft)	54.38	Reach Len. (ft)	0.00	23.06	0.00
Crit W.S. (ft)	54.83	Flow Area (sq ft)		73.77	
E.G. Slope (ft/ft)	*0.014207	Area (sq ft)		73.77	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	31.77	Top Width (ft)		31.77	
Vel Total (ft/s)	11.16	Avg. Vel. (ft/s)		11.16	
Max Chl Dpth (ft)	3.49	Hydr. Depth (ft)		2.32	
Conv. Total (cfs)	6904.8	Conv. (cfs)		6904.8	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		35.08	
Min Ch El (ft)	50.89	Shear (lb/sq ft)		1.87	
Alpha	1.00	Stream Power (lb/ft s)		20.81	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)		0.15	
C & E Loss (ft)	0.00	Cum SA (acres)		0.05	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11828.06

INPUT
Description: Desert Canyon per STANTEC Plans
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	55.53	84.2	51.66	96.7	51.66	100	50.56
103.3	51.66	111.2	51.66	111.21	57.56				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013
111.21	.013								

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	56.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.86	Wt. n-Val.		0.026	
W.S. Elev (ft)	55.17	Reach Len. (ft)	0.00	23.06	0.00
Crit W.S. (ft)	54.49	Flow Area (sq ft)		110.60	
E.G. Slope (ft/ft)	*0.004182	Area (sq ft)		110.60	
Q Total (cfs)	823.00	Flow (cfs)		823.00	
Top Width (ft)	34.03	Top Width (ft)		34.03	
Vel Total (ft/s)	7.44	Avg. Vel. (ft/s)		7.44	
Max Chl Dpth (ft)	4.61	Hydr. Depth (ft)		3.25	
Conv. Total (cfs)	12726.5	Conv. (cfs)		12726.5	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		38.71	
Min Ch El (ft)	50.56	Shear (lb/sq ft)		0.75	
Alpha	1.00	Stream Power (lb/ft s)		5.55	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)		0.11	
C & E Loss (ft)	0.05	Cum SA (acres)		0.03	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11826.06

INPUT
Description: Desert Canyon per STANTEC Plans -
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	55.53	84.2	51.66	96.7	51.66	100	50.56
103.3	51.66	111.2	51.66	111.21	57.56				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013
111.21	.013								

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.85	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.35	Wt. n-Val.		0.026
W.S. Elev (ft)	54.50	Reach Len. (ft)	0.00	23.06 / 0.00
Crit W.S. (ft)	54.50	Flow Area (sq ft)		88.27
E.G. Slope (ft/ft)	*0.008233	Area (sq ft)		88.27
Q Total (cfs)	823.00	Flow (cfs)		823.00
Top Width (ft)	32.68	Top Width (ft)		32.68
Vel Total (ft/s)	9.32	Avg. Vel. (ft/s)		9.32
Max Chl Dpth (ft)	3.94	Hydr. Depth (ft)		2.70
Conv. Total (cfs)	9070.2	Conv. (cfs)		9070.2
Length Wtd. (ft)	23.06	Wetted Per. (ft)		36.54
Min Ch El (ft)	50.56	Shear (lb/sq ft)		1.24
Alpha	1.00	Stream Power (lb/ft s)		11.58
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		0.05
C & E Loss (ft)	0.00	Cum SA (acres)		0.02

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: North Channel
REACH: WEST RS: 11805.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1805, reach end
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
76.44	58.52	76.45	55.2	84.2	51.33	96.7	51.33	100	50.23
103.3	51.33	111.2	51.33	111.21	57.33				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
76.44	.013	76.45	.03	96.7	.013	103.3	.03	111.2	.013

Bank Sta: Left Right Coeff Contr. Expan.
76.44 111.21 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	55.58	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.75	Wt. n-Val.		0.026
W.S. Elev (ft)	53.83	Reach Len. (ft)	5.00	5.00 / 5.00
Crit W.S. (ft)	54.17	Flow Area (sq ft)		77.54
E.G. Slope (ft/ft)	*0.012207	Area (sq ft)		77.54
Q Total (cfs)	823.00	Flow (cfs)		823.00
Top Width (ft)	32.02	Top Width (ft)		32.02
Vel Total (ft/s)	10.61	Avg. Vel. (ft/s)		10.61
Max Chl Dpth (ft)	3.60	Hydr. Depth (ft)		2.42
Conv. Total (cfs)	7448.8	Conv. (cfs)		7448.8
Length Wtd. (ft)	5.00	Wetted Per. (ft)		35.47
Min Ch El (ft)	50.23	Shear (lb/sq ft)		1.67
Alpha	1.00	Stream Power (lb/ft s)		17.68
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)		0.01
C & E Loss (ft)	0.04	Cum SA (acres)		

Note: Manning's n values were composited to a single value in the main channel.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION

RIVER: South Channel
REACH: South RS: 12150.

INPUT
Description: Pioneer Phase I Channel per VTN Plans RS 2150, south channel approach (Pioneer Outfall 12'x8' RCB)
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.49	62.78	82.5	54.78	88.5	54.78	94.5	54.78	94.51	62.78
100	62.78	103	62.78	113	62.78				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
82.49	.013	82.49	.013	113	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
82.49 113 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	64.80	Element	Left OB	Channel / Right OB
Vel Head (ft)	6.24	Wt. n-Val.		0.013
W.S. Elev (ft)	58.57	Reach Len. (ft)	50.00	50.00 / 50.00
Crit W.S. (ft)	60.40	Flow Area (sq ft)		45.45
E.G. Slope (ft/ft)	*0.009997	Area (sq ft)		45.45
Q Total (cfs)	911.00	Flow (cfs)		911.00
Top Width (ft)	12.01	Top Width (ft)		12.01
Vel Total (ft/s)	20.04	Avg. Vel. (ft/s)		20.04
Max Chl Dpth (ft)	3.79	Hydr. Depth (ft)		3.78
Conv. Total (cfs)	9111.2	Conv. (cfs)		9111.2
Length Wtd. (ft)	50.00	Wetted Per. (ft)		19.57
Min Ch El (ft)	54.78	Shear (lb/sq ft)		1.45
Alpha	1.00	Stream Power (lb/ft s)		29.06
Frctn Loss (ft)		Cum Volume (acre-ft)		0.35
C & E Loss (ft)		Cum SA (acres)		0.13

CROSS SECTION

RIVER: South Channel
REACH: South RS: 12100.

INPUT
Description: Pioneer Phase I Channel per VTN Plans RS 2100
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.49	62.28	82.5	54.28	88.5	54.28	94.5	54.28	94.51	62.28
100	62.28	103	62.28	113	62.28				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
82.49	.013	82.49	.013	113	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
82.49 113 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	64.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.24	Wt. n-Val.		0.013	
W.S. Elev (ft)	58.07	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	59.90	Flow Area (sq ft)		45.45	
E.G. Slope (ft/ft)	*0.009997	Area (sq ft)		45.45	
Q Total (cfs)	911.00	Flow (cfs)		911.00	
Top Width (ft)	12.01	Top Width (ft)		12.01	
Vel Total (ft/s)	20.04	Avg. Vel. (ft/s)		20.04	
Max Chl Dpth (ft)	3.79	Hydr. Depth (ft)		3.78	
Conv. Total (cfs)	9111.2	Conv. (cfs)		9111.2	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		19.57	
Min Ch El (ft)	54.28	Shear (lb/sq ft)		1.45	
Alpha	1.00	Stream Power (lb/ft s)		29.06	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)		0.30	
C & E Loss (ft)	0.00	Cum SA (acres)		0.11	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 12050.

INPUT
Description: Pioneer Phase I Channel per VTN Plans RS 2050
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.49	61.78	82.5	53.78	88.5	53.78	94.5	53.78	94.51	61.78
100	61.78	103	61.78	113	61.78				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
82.49	.013	82.49	.013	113	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
82.49 113 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	63.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.24	Wt. n-Val.		0.013	
W.S. Elev (ft)	57.57	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	59.40	Flow Area (sq ft)		45.45	
E.G. Slope (ft/ft)	*0.009996	Area (sq ft)		45.45	
Q Total (cfs)	911.00	Flow (cfs)		911.00	
Top Width (ft)	12.01	Top Width (ft)		12.01	
Vel Total (ft/s)	20.04	Avg. Vel. (ft/s)		20.04	
Max Chl Dpth (ft)	3.79	Hydr. Depth (ft)		3.78	
Conv. Total (cfs)	9111.7	Conv. (cfs)		9111.7	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		19.57	
Min Ch El (ft)	53.78	Shear (lb/sq ft)		1.45	
Alpha	1.00	Stream Power (lb/ft s)		29.06	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)		0.24	
C & E Loss (ft)	0.00	Cum SA (acres)		0.10	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 12000.

INPUT
Description: Pioneer Phase I Channel per VTN Plans RS 2000
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
82.49	61.28	82.5	53.28	88.5	53.28	94.5	53.28	94.51	61.28
100	61.28	103	61.28	113	61.28				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
82.49	.013	82.49	.013	113	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
82.49 113 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	63.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.24	Wt. n-Val.		0.013	
W.S. Elev (ft)	57.07	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)	58.90	Flow Area (sq ft)		45.45	
E.G. Slope (ft/ft)	*0.009995	Area (sq ft)		45.45	
Q Total (cfs)	911.00	Flow (cfs)		911.00	
Top Width (ft)	12.01	Top Width (ft)		12.01	
Vel Total (ft/s)	20.04	Avg. Vel. (ft/s)		20.04	
Max Chl Dpth (ft)	3.79	Hydr. Depth (ft)		3.78	
Conv. Total (cfs)	9112.3	Conv. (cfs)		9112.3	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		19.57	
Min Ch El (ft)	53.28	Shear (lb/sq ft)		1.45	
Alpha	1.00	Stream Power (lb/ft s)		29.05	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)		0.19	
C & E Loss (ft)	0.00	Cum SA (acres)		0.08	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11950.

INPUT
Description: Desert Canyon per STANTEC Plans RS 1950

```
Station Elevation Data    num=       8
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
   82.49   60.78    82.5   52.78    88.5   52.78    94.5   52.78   94.51   60.78
     100   60.78     103   60.78     113   60.78

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
   82.49    .013   82.49    .013     113    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          82.49     113              25.81   25.81   25.81             .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          *   62.80  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    6.24  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)          *   56.57  * Reach Len. (ft)        *   25.81  *   25.81  *   25.81   *
* Crit W.S. (ft)          *   58.40  * Flow Area (sq ft)      *          *   45.45  *           *
* E.G. Slope (ft/ft)      *0.009993  * Area (sq ft)           *          *   45.45  *           *
* Q Total (cfs)           *  911.00  * Flow (cfs)            *          *  911.00  *           *
* Top Width (ft)          *   12.01  * Top Width (ft)         *          *   12.01  *           *
* Vel Total (ft/s)        *   20.04  * Avg. Vel. (ft/s)       *          *   20.04  *           *
* Max Chl Dpth (ft)       *    3.79  * Hydr. Depth (ft)       *          *    3.78  *           *
* Conv. Total (cfs)       *  9113.2  * Conv. (cfs)           *          *  9113.2  *           *
* Length Wtd. (ft)        *   25.81  * Wetted Per. (ft)       *          *   19.57  *           *
* Min Ch El (ft)          *   52.78  * Shear (lb/sq ft)       *          *    1.45  *           *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *   29.05  *           *
* Frctn Loss (ft)         *    0.50  * Cum Volume (acre-ft)   *          *    0.14  *           *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         *          *    0.07  *           *
*************************************************************************************************

CROSS SECTION


RIVER: South Channel
REACH: South              RS: 11924.19

INPUT
Description: Desert Canyon per STANTEC Plans RS 1924.19, Pioneer Outfall 12'x8'
             RCB outlet
Station Elevation Data    num=       8
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
   82.49   60.52    82.5   52.52    88.5   52.52    94.5   52.52   94.51   60.52
     100   60.52     103   60.52     113   60.52

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
   82.49    .013   82.49    .013     113    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          82.49     113              .01     .01     .01             .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          *   62.54  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    6.23  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)          *   56.31  * Reach Len. (ft)        *    0.01  *     0.01  *    0.01   *
* Crit W.S. (ft)          *   58.14  * Flow Area (sq ft)      *          *   45.48  *           *
* E.G. Slope (ft/ft)      *0.009983  * Area (sq ft)           *          *   45.48  *           *
* Q Total (cfs)           *  911.00  * Flow (cfs)            *          *  911.00  *           *
* Top Width (ft)          *   12.01  * Top Width (ft)         *          *   12.01  *           *
* Vel Total (ft/s)        *   20.03  * Avg. Vel. (ft/s)       *          *   20.03  *           *
* Max Chl Dpth (ft)       *    3.79  * Hydr. Depth (ft)       *          *    3.79  *           *
* Conv. Total (cfs)       *  9118.0  * Conv. (cfs)           *          *  9118.0  *           *
* Length Wtd. (ft)        *    0.01  * Wetted Per. (ft)       *          *   19.58  *           *
* Min Ch El (ft)          *   52.52  * Shear (lb/sq ft)       *          *    1.45  *           *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *   29.00  *           *
* Frctn Loss (ft)         *    0.26  * Cum Volume (acre-ft)   *          *    0.11  *           *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         *          *    0.06  *           *
*************************************************************************************************

CROSS SECTION


RIVER: South Channel
REACH: South              RS: 11911.68

INPUT
Description: Desert Canyon per STANTEC Plans
Station Elevation Data    num=       9
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
   80.24    59.5    80.25   52.47    86.1    52.4    91.38   52.14   96.63    52.4
   98.49   52.42   100.75   52.46     103    52.5     117    59.5

Manning's n Values        num=       2
     Sta   n Val      Sta   n Val
*********************************
   80.24    .013     117    .013

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          80.24     117              12.5    12.5    12.5             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   98.75     117                F

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          *   62.38  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    7.85  * Wt. n-Val.             *          *    0.013  *          *
* W.S. Elev (ft)          *   54.53  * Reach Len. (ft)        *   12.50  *   12.50  *   12.50   *
* Crit W.S. (ft)          *   56.56  * Flow Area (sq ft)      *          *   40.52  *           *
* E.G. Slope (ft/ft)      *0.015665  * Area (sq ft)           *          *   53.42  *           *
* Q Total (cfs)           *  911.00  * Flow (cfs)            *          *  911.00  *           *
* Top Width (ft)          *   26.81  * Top Width (ft)         *          *   26.81  *           *
* Vel Total (ft/s)        *   22.48  * Avg. Vel. (ft/s)       *          *   22.48  *           *
* Max Chl Dpth (ft)       *    2.39  * Hydr. Depth (ft)       *          *    2.19  *           *
* Conv. Total (cfs)       *  7278.7  * Conv. (cfs)           *          *  7278.7  *           *
* Length Wtd. (ft)        *   12.50  * Wetted Per. (ft)       *          *   20.57  *           *
* Min Ch El (ft)          *   52.14  * Shear (lb/sq ft)       *          *    1.93  *           *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *   43.31  *           *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   *          *    0.11  *           *
* C & E Loss (ft)         *    0.16  * Cum SA (acres)         *          *    0.06  *           *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.

CROSS SECTION


RIVER: South Channel
REACH: South              RS: 11899.18

INPUT
```

Description: Desert Canyon per STANTEC Plans RS 1899.18
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	58.36	80.25	52.36	89.69	52.27	94.25	51.77	98.77	52.27
100	52.28	103	52.31	117	59.31				

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80.24 117 12.5 12.5 12.5 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
103	117		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	62.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.18	Wt. n-Val.		0.013	
W.S. Elev (ft)	53.94	Reach Len. (ft)	12.50	12.50	12.50
Crit W.S. (ft)	55.87	Flow Area (sq ft)		39.69	
E.G. Slope (ft/ft)	*0.021052	Area (sq ft)		42.34	
Q Total (cfs)	911.00	Flow (cfs)		911.00	
Top Width (ft)	26.01	Top Width (ft)		26.01	
Vel Total (ft/s)	22.95	Avg. Vel. (ft/s)		22.95	
Max Chl Dpth (ft)	2.17	Hydr. Depth (ft)		1.74	
Conv. Total (cfs)	6278.7	Conv. (cfs)		6278.7	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		24.38	
Min Ch El (ft)	51.77	Shear (lb/sq ft)		2.14	
Alpha	1.00	Stream Power (lb/ft s)		49.11	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)		0.10	
C & E Loss (ft)	0.03	Cum SA (acres)		0.06	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11886.68

INPUT
Description: Desert Canyon per STANTEC Plans
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	58.19	80.25	52.19	93.35	52.15	97.12	51.4	100.88	52.15
101.5	52.15	103	52.17	117	59.17				

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80.24 117 12.5 12.5 12.5 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
107	117		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	61.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.13	Wt. n-Val.		0.013	
W.S. Elev (ft)	53.69	Reach Len. (ft)	12.50	12.50	12.50
Crit W.S. (ft)	55.51	Flow Area (sq ft)		39.81	
E.G. Slope (ft/ft)	*0.024825	Area (sq ft)		39.81	
Q Total (cfs)	911.00	Flow (cfs)		911.00	
Top Width (ft)	25.79	Top Width (ft)		25.79	
Vel Total (ft/s)	22.89	Avg. Vel. (ft/s)		22.89	
Max Chl Dpth (ft)	2.29	Hydr. Depth (ft)		1.54	
Conv. Total (cfs)	5782.0	Conv. (cfs)		5782.0	
Length Wtd. (ft)	12.50	Wetted Per. (ft)		27.79	
Min Ch El (ft)	51.40	Shear (lb/sq ft)		2.22	
Alpha	1.00	Stream Power (lb/ft s)		50.81	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)		0.09	
C & E Loss (ft)	0.01	Cum SA (acres)		0.05	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11874.18

INPUT
Description: Desert Canyon per STANTEC Plans RS 1874.18, end nuissance channel transition
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	58.02	80.25	52.02	97	52.02	100	51.02	103	52.02
117	59.02								

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80.24 117 23.06 23.06 23.06 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
111	117		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	61.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	7.87	Wt. n-Val.		0.013	
W.S. Elev (ft)	53.56	Reach Len. (ft)	23.06	23.06	23.06
Crit W.S. (ft)	55.40	Flow Area (sq ft)		40.46	
E.G. Slope (ft/ft)	*0.023820	Area (sq ft)		40.46	
Q Total (cfs)	911.00	Flow (cfs)		911.00	
Top Width (ft)	25.84	Top Width (ft)		25.84	
Vel Total (ft/s)	22.51	Avg. Vel. (ft/s)		22.51	
Max Chl Dpth (ft)	2.54	Hydr. Depth (ft)		1.57	
Conv. Total (cfs)	5902.6	Conv. (cfs)		5902.6	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		28.06	
Min Ch El (ft)	51.02	Shear (lb/sq ft)		2.14	
Alpha	1.00	Stream Power (lb/ft s)		48.27	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)		0.07	
C & E Loss (ft)	0.08	Cum SA (acres)		0.04	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11851.12

INPUT
Description: Desert Canyon per STANTEC Plans
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	57.79	80.25	51.79	97	51.79	100	50.79	103	51.79
117	58.79								

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80.24 117 23.06 23.06 23.06 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	60.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	7.38	Wt. n-Val.		0.013	
W.S. Elev (ft)	53.38	Reach Len. (ft)	23.06	23.06	23.06
Crit W.S. (ft)	55.17	Flow Area (sq ft)		41.78	
E.G. Slope (ft/ft)	*0.021570	Area (sq ft)		41.78	
Q Total (cfs)	911.00	Flow (cfs)		911.00	
Top Width (ft)	25.94	Top Width (ft)		25.94	
Vel Total (ft/s)	21.80	Avg. Vel. (ft/s)		21.80	
Max Chl Dpth (ft)	2.59	Hydr. Depth (ft)		1.61	
Conv. Total (cfs)	6202.9	Conv. (cfs)		6202.9	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		28.23	
Min Ch El (ft)	50.79	Shear (lb/sq ft)		1.99	
Alpha	1.00	Stream Power (lb/ft s)		43.46	
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)		0.05	
C & E Loss (ft)	0.15	Cum SA (acres)		0.03	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11828.06

INPUT
Description: Desert Canyon per STANTEC Plans
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	57.56	80.25	51.56	97	51.56	100	50.56	103	51.56
117	58.56								

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80.24 117 23.06 23.06 23.06 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	60.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.95	Wt. n-Val.		0.013	
W.S. Elev (ft)	53.20	Reach Len. (ft)	23.06	23.06	23.06
Crit W.S. (ft)	54.94	Flow Area (sq ft)		43.05	
E.G. Slope (ft/ft)	*0.019666	Area (sq ft)		43.05	
Q Total (cfs)	911.00	Flow (cfs)		911.00	
Top Width (ft)	26.04	Top Width (ft)		26.04	
Vel Total (ft/s)	21.16	Avg. Vel. (ft/s)		21.16	
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)		1.65	
Conv. Total (cfs)	6496.2	Conv. (cfs)		6496.2	
Length Wtd. (ft)	23.06	Wetted Per. (ft)		28.39	
Min Ch El (ft)	50.56	Shear (lb/sq ft)		1.86	
Alpha	1.00	Stream Power (lb/ft s)		39.40	
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)		0.03	
C & E Loss (ft)	0.13	Cum SA (acres)		0.01	

CROSS SECTION

RIVER: South Channel
REACH: South RS: 11805.

INPUT
Description: Desert Canyon per STANTEC Plans
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
80.24	57.33	80.25	51.33	97	51.33	100	50.33	103	51.33
117	58.33								

Manning's n Values num= 1

Sta	n Val
80.24	.013

Bank Sta: Left Right Coeff Contr. Expan.
80.24 117 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	59.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.59	Wt. n-Val.		0.013	
W.S. Elev (ft)	53.02	Reach Len. (ft)	5.00	5.00	5.00
Crit W.S. (ft)	54.71	Flow Area (sq ft)		44.21	
E.G. Slope (ft/ft)	*0.018127	Area (sq ft)		44.21	
Q Total (cfs)	911.00	Flow (cfs)		911.00	
Top Width (ft)	26.13	Top Width (ft)		26.13	
Vel Total (ft/s)	20.61	Avg. Vel. (ft/s)		20.61	
Max Chl Dpth (ft)	2.69	Hydr. Depth (ft)		1.69	
Conv. Total (cfs)	6766.3	Conv. (cfs)		6766.3	
Length Wtd. (ft)	5.00	Wetted Per. (ft)		28.53	
Min Ch El (ft)	50.33	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		36.14	
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)		0.01	
C & E Loss (ft)	0.11	Cum SA (acres)			

SUMMARY OF MANNING'S N VALUES

River:Combined Channel

Reach	River Sta.	n1	n2	n3	n4	n5	n6
EAST	11800.	.013	.03	.013	.03	.013	.03

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9
*EAST	11799.99	.013*	.03*	.013*	.03*	.013*	.03*			
*EAST	11790.	.013*	.03*	.013*	.03*	.013*	.03*			
*EAST	11769.13	.013*	.03*	.013*	.03*	.013*	.03*			
*EAST	11751.44	.013*	.03*	.013*	.03*	.013*	.03*			
*EAST	11739.7	.013*	.03*	.013*	.03*					
*EAST	11732.13	.013*	.03*	.013*	.03*					
*EAST	11720.	.013*	.03*	.013*	.03*					
*EAST	11712.87	.013*	.03*	.013*	.03*					
*EAST	11689.21	.013*	.03*	.013*	.03*					
*EAST	11675.	.013*	.03*	.013*	.03*					
*EAST	11634.34	.013*	.03*	.013*	.03*					
*EAST	11624.05	.013*	.03*	.013*	.03*					
*EAST	11618.85	.013*	.03*	.013*	.03*					
*EAST	11596.34	.013*	.03*	.013*	.03*					
*EAST	11527.17	.03*	.013*	.03*						
*EAST	11500.	.03*	.013*	.03*						
*EAST	11450.	.03*	.013*	.03*						
*EAST	11400.	.03*	.013*	.03*						
*EAST	11377.99	.03*	.013*	.03*						
*EAST	11350.	.03*	.013*	.03*						
*EAST	11300.	.03*	.013*	.03*						
*EAST	11278.76	.03*	.013*	.03*						
*EAST	11250.	.03*	.013*	.03*						
*EAST	11200.	.03*	.013*	.03*						
*EAST	11175.26	.03*	.013*	.03*						
*EAST	11154.55	.03*	.013*	.03*						
*EAST	11125.	.03*	.013*	.03*						
*EAST	11116.35	.03*	.013*	.03*	.013*					
*EAST	11100.	.03*	.013*	.03*	.013*					
*EAST	11050.	.03*	.013*	.03*	.013*					
*EAST	11033.37	.03*	.013*	.03*	.013*					
*EAST	11007.4	.013*	*	*	*					
*EAST	10973.86	*	.013*	*	*					
*EAST	10950.26	*	.013*	*	*					
*EAST	10909.89	*	.013*	*	*					
*EAST	10834.9	.013*	.013*	.013*	*					
*EAST	10834.89	.013*	.013*	.013*	*					
*EAST	10599.9	.013*	.013*	.013*	*					
*EAST	10599.89	.013*	.013*	.013*	*					
*EAST	10529.91	.013*	.013*	.013*	*					
*EAST	10429.91	.013*	.013*	.013*	*					
*EAST	10429.90	.013*	.013*	.013*	*					
*EAST	10289.92	.013*	.013*	.013*	*					
*EAST	10289.91	.013*	.013*	.013*	*					
*EAST	10209.93	.013*	.013*	.013*	*					
*EAST	10124.93	.013*	.013*	.013*	*					
*EAST	10124.92	.013*	.013*	.013*	*					
*EAST	9999.93	.013*	.013*	.013*	*					
*EAST	9999.92	.013*	.013*	.013*	*					
*EAST	9905.49	.013*	.013*	.013*	*					
*EAST	9845.49	.013*	.013*	.013*	*					
*EAST	9245.49	.013*	.013*	.013*	*					

River:North Channel

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9
*WEST	18653.05	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	18603.05	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	18354.06	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	18314.47	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	17036.02	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	16991.39	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	16271.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	16221.83	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	15874.83	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	15824.82	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	15635.6	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	15080.09	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	15015.09	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	14592.55	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	14542.55	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	14252.5	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	14092.97	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13987.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13887.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13787.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13687.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13602.91	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13582.54	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13562.17	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13562.16	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13557.18	*Bridge	*	*	*	*	*	*	*	*
*WEST	13552.2	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13478.79	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13476.6	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13425.61	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13410.61	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13353.48	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13343.61	.013*	.013*	.013*	*	*	*	*	*	*
*WEST	13343.6	.013*	*	*	*	*	*	*	*	*
*WEST	13333.3	.013*	.013*	*	*	*	*	*	*	*
*WEST	13323.	.013*	*	*	*	*	*	*	*	*
*WEST	13307.38	.013*	.013*	*	*	*	*	*	*	*
*WEST	13291.77	.013*	*	*	*	*	*	*	*	*
*WEST	13267.98	.013*	.013*	*	*	*	*	*	*	*
*WEST	13244.2	.013*	*	*	*	*	*	*	*	*
*WEST	13234.75	.013*	*	*	*	*	*	*	*	*
*WEST	13234.74	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13229.38	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13229.37	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13221.37	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13167.84	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13114.31	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13114.3	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13060.1	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13044.11	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13044.1	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13018.22	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	13018.21	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13010.22	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	13010.21	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12954.02	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12943.65	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12906.81	.013*	.03*	.013*	.03*	.013*	.03*	.013*	.03*	.013*
*WEST	12869.97	.013*	.03*	.013*	.03*	.013*	.03*	.013*	.03*	.013*
*WEST	12869.96	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12829.26	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12788.55	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12788.54	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	12780.55	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	12780.54	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12724.23	.013*	.03*	.013*	.03*	.013*	.03*	.013*	.013*	*
*WEST	12667.92	.013*	.03*	.013*	.03*	.013*	.03*	.013*	*	*
*WEST	12667.91	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	12598.93	.013*	.03*	.013*	.03*	.013*	.013*	*	*	*
*WEST	12529.94	.013*	.03*	.013*	.03*	.013*	*	*	*	*
*WEST	12499.95	.013*	.03*	.013*	.03*	.013*	*	*	*	*

*WEST		12499.94	*	.013*	.03*	.013*	*	*	*	*	*
*WEST		12469.94	*	.013*	.03*	.013*	*	*	*	*	*
*WEST		12469.93	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12435.49	*	.013*	.03*	.021*	.021*	.03*	.013*	.013*	*
*WEST		12401.05	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12400.	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12350.	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12320.	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12312.18	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12312.17	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12278.95	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12253.91	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12217.72	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12203.57	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12162.19	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12150.	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12125.	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12097.31	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12097.3	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12033.7	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12033.69	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		12000.	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		11924.18	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		11911.68	*	.013*	.03*	.013*	.03*	.013*	.013*	*	*
*WEST		11899.18	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		11886.68	*	.013*	.03*	.013*	.03*	.013*	.013*	*	*
*WEST		11874.18	*	.013*	.03*	.013*	.03*	.013*	*	*	*
*WEST		11851.12	*	.013*	.03*	.013*	.03*	.013*	.013*	*	*
*WEST		11828.06	*	.013*	.03*	.013*	.03*	.013*	.013*	*	*
*WEST		11826.06	*	.013*	.03*	.013*	.03*	.013*	.013*	*	*
*WEST		11805.	*	.013*	.03*	.013*	.03*	.013*	*	*	*

River:South Channel

* Reach	* River Sta.	* n1	* n2	* n3	*
*South	* 12150.	* .013*	.013*	.013*	
*South	* 12100.	* .013*	.013*	.013*	
*South	* 12050.	* .013*	.013*	.013*	
*South	* 12000.	* .013*	.013*	.013*	
*South	* 11950.	* .013*	.013*	.013*	
*South	* 11924.19	* .013*	.013*	.013*	
*South	* 11911.68	* .013*	.013*	*	
*South	* 11899.18	* .013*	*	*	
*South	* 11886.68	* .013*	*	*	
*South	* 11874.18	* .013*	*	*	
*South	* 11851.12	* .013*	*	*	
*South	* 11828.06	* .013*	*	*	
*South	* 11805.	* .013*	*	*	

SUMMARY OF REACH LENGTHS

River: Combined Channel

* Reach	* River Sta.	* Left	* Channel	* Right	*
*EAST	* 11800.	*	* .01*	*	
*EAST	* 11799.99	*	* 9.99*	*	
*EAST	* 11790.	*	* 20.87*	*	
*EAST	* 11769.13	*	* 17.69*	*	
*EAST	* 11751.44	*	* 11.74*	*	
*EAST	* 11739.7	*	* 7.57*	*	
*EAST	* 11732.13	*	* 12.13*	*	
*EAST	* 11720.	*	* 7.13*	*	
*EAST	* 11712.87	*	* 23.66*	*	
*EAST	* 11689.21	*	* 14.21*	*	
*EAST	* 11675.	*	* 40.66*	*	
*EAST	* 11634.34	*	* 10.29*	*	
*EAST	* 11624.05	*	* 5.31*	*	
*EAST	* 11618.85	*	* 22.51*	*	
*EAST	* 11596.34	*	* 69.17*	*	
*EAST	* 11527.17	*	* 27.17*	*	
*EAST	* 11500.	*	* 50*	*	
*EAST	* 11450.	*	* 50*	*	
*EAST	* 11400.	*	* 22.02*	*	
*EAST	* 11377.99	*	* 27.98*	*	
*EAST	* 11350.	*	* 50*	*	
*EAST	* 11300.	*	* 21.24*	*	
*EAST	* 11278.76	*	* 28.76*	*	
*EAST	* 11250.	*	* 50*	*	
*EAST	* 11200.	*	* 24.74*	*	
*EAST	* 11175.26	*	* 20.7*	*	
*EAST	* 11154.55	*	* 29.55*	*	
*EAST	* 11125.	* 8.65*	* 8.65*	* 8.65*	
*EAST	* 11116.35	*	* 16.35*	*	
*EAST	* 11100.	*	* 50*	*	
*EAST	* 11050.	*	* 16.63*	*	
*EAST	* 11033.37	*	* 25.97*	*	
*EAST	* 11007.4	*	* 33.54*	*	
*EAST	* 10973.86	*	* 23.6*	*	
*EAST	* 10950.26	*	* 40.37*	*	
*EAST	* 10909.89	* 74.99*	74.99*	* 74.99*	
*EAST	* 10834.9	* .01*	.01*	* .01*	
*EAST	* 10834.89	* 234.99*	234.99*	* 234.99*	
*EAST	* 10599.9	* .01*	.01*	* .01*	
*EAST	* 10599.89	* 69.99*	69.99*	* 69.99*	
*EAST	* 10529.91	* 100*	100*	* 100*	
*EAST	* 10429.91	* .01*	.01*	* .01*	
*EAST	* 10429.90	* 139.99*	139.99*	* 139.99*	
*EAST	* 10289.92	* .01*	.01*	* .01*	
*EAST	* 10289.91	* 79.99*	79.99*	* 79.99*	
*EAST	* 10209.93	* 85*	85*	* 85*	
*EAST	* 10124.93	* .01*	.01*	* .01*	
*EAST	* 10124.92	* 124.99*	124.99*	* 124.99*	
*EAST	* 9999.93	* .01*	.01*	* .01*	
*EAST	* 9999.92	* 94.44*	94.44*	* 94.44*	
*EAST	* 9905.49	* 60*	60*	* 60*	
*EAST	* 9845.49	* 600*	600*	* 600*	
*EAST	* 9245.49	* 0*	0*	* 0*	

River: North Channel

* Reach	* River Sta.	* Left	* Channel	* Right	*
*WEST	* 18653.05	* 50*	50*	* 50*	
*WEST	* 18603.05	* 248.99*	248.99*	* 248.99*	
*WEST	* 18354.06	* 39.59*	39.59*	* 39.59*	
*WEST	* 18314.47	* 1278.45*	1278.45*	* 1278.45*	
*WEST	* 17036.02	* 50*	50*	* 50*	
*WEST	* 16991.39	* 714.11*	714.11*	* 714.11*	
*WEST	* 16271.91	* 50.08*	50.08*	* 50.08*	
*WEST	* 16221.83	* 347*	347*	* 347*	
*WEST	* 15874.83	* 50*	50*	* 50*	
*WEST	* 15824.82	* 189.22*	189.22*	* 189.22*	

*WEST	*	15635.6	* 620.51*	620.51*	620.51*
*WEST	*	15080.09	* 65*	65*	65*
*WEST	*	15015.09	* 374.89*	398.39*	421.9*
*WEST	*	14592.55	* 50.5*	50.5*	50.5*
*WEST	*	14542.55	* 290.05*	290.05*	290.05*
*WEST	*	14252.5	* 159.53*	159.53*	159.53*
*WEST	*	14092.97	* 105.06*	105.06*	105.06*
*WEST	*	13987.91	* 100*	100*	100*
*WEST	*	13887.91	* 100*	100*	100*
*WEST	*	13787.91	* 100*	100*	100*
*WEST	*	13687.91	* 85*	85*	85*
*WEST	*	13602.91	* 21.42*	20.37*	19.99*
*WEST	*	13582.54	* 21.42*	20.37*	19.99*
*WEST	*	13562.17	* .01*	.01*	.01*
*WEST	*	13562.16	* 9.96*	9.96*	9.96*
*WEST	*	13557.18	*Bridge *	*	*
*WEST	*	13552.2	* 73.41*	73.41*	73.41*
*WEST	*	13478.79	* 2.19*	2.19*	2.19*
*WEST	*	13476.6	* 45.02*	51.05*	52.79*
*WEST	*	13425.61	* 15*	15*	15*
*WEST	*	13410.61	* 61.49*	57.13*	52.67*
*WEST	*	13353.48	* 9.88*	9.88*	9.88*
*WEST	*	13343.61	* .01*	.01*	.01*
*WEST	*	13343.6	* 10.3*	10.3*	10.3*
*WEST	*	13333.3	* 10.3*	10.3*	10.3*
*WEST	*	13323.	* 15.61*	15.61*	15.61*
*WEST	*	13307.38	* 15.61*	15.61*	15.61*
*WEST	*	13291.77	* 23.78*	23.78*	23.78*
*WEST	*	13267.98	* 23.78*	23.78*	23.78*
*WEST	*	13244.2	* *	9.45*	*
*WEST	*	13234.75	* *	.01*	*
*WEST	*	13234.74	* *	5.36*	*
*WEST	*	13229.38	* .01*	.01*	.01*
*WEST	*	13229.37	* *	8*	*
*WEST	*	13221.37	* 53.53*	53.53*	53.53*
*WEST	*	13167.84	* 53.53*	53.53*	53.53*
*WEST	*	13114.31	* *	.01*	*
*WEST	*	13114.3	* *	54.2*	*
*WEST	*	13060.1	* *	15.99*	*
*WEST	*	13044.11	* *	.01*	*
*WEST	*	13044.1	* *	15.12*	*
*WEST	*	13018.22	* *	.01*	*
*WEST	*	13018.21	* *	7.99*	*
*WEST	*	13010.22	* *	.01*	*
*WEST	*	13010.21	* *	56.19*	*
*WEST	*	12954.02	* *	10.37*	*
*WEST	*	12943.65	* 36.84*	36.84*	36.84*
*WEST	*	12906.81	* 36.84*	36.84*	36.84*
*WEST	*	12869.97	* *	.01*	*
*WEST	*	12869.96	* *	40.7*	*
*WEST	*	12829.26	* 40.71*	40.71*	40.71*
*WEST	*	12788.55	* *	.01*	*
*WEST	*	12788.54	* *	7.99*	*
*WEST	*	12780.55	* *	.01*	*
*WEST	*	12780.54	* 56.31*	56.31*	56.31*
*WEST	*	12724.23	* 56.31*	56.31*	56.31*
*WEST	*	12667.92	* *	.01*	*
*WEST	*	12667.91	* *	68.98*	*
*WEST	*	12598.93	* 68.99*	68.99*	68.99*
*WEST	*	12529.94	* *	29.99*	*
*WEST	*	12499.95	* *	.01*	*
*WEST	*	12499.94	* *	30*	*
*WEST	*	12469.94	* *	.01*	*
*WEST	*	12469.93	* 34.44*	34.44*	34.44*
*WEST	*	12435.49	* 34.44*	34.44*	34.44*
*WEST	*	12401.05	* *	1.05*	*
*WEST	*	12400.	* *	50*	*
*WEST	*	12350.	* *	30*	*
*WEST	*	12320.	* 6.94*	7.82*	8.74*
*WEST	*	12312.18	* *	.01*	*
*WEST	*	12312.17	* 31.46*	33.22*	35*
*WEST	*	12278.95	* 23.07*	25.04*	27.02*
*WEST	*	12253.91	* 33.33*	36.19*	39.05*
*WEST	*	12217.72	* 13.04*	14.15*	15.27*
*WEST	*	12203.57	* 38.1*	41.38*	44.32*
*WEST	*	12162.19	* *	12.19*	*
*WEST	*	12150.	* *	25*	*
*WEST	*	12125.	* 42.36*	27.69*	20.72*
*WEST	*	12097.31	* *	.01*	*
*WEST	*	12097.3	* *	63*	*
*WEST	*	12033.7	* *	.01*	*
*WEST	*	12033.69	* 19.64*	34.29*	41.27*
*WEST	*	12000.	* *	75.82*	*
*WEST	*	11924.18	* *	12.5*	*
*WEST	*	11911.68	* *	12.5*	*
*WEST	*	11899.18	* *	12.5*	*
*WEST	*	11886.68	* *	12.5*	*
*WEST	*	11874.18	* *	23.06*	*
*WEST	*	11851.12	* *	23.06*	*
*WEST	*	11828.06	* *	23.06*	*
*WEST	*	11826.06	* *	23.06*	*
*WEST	*	11805.	* *	*	*

River: South Channel

*South	*	12150.	* 50*	50*	50*
*South	*	12100.	* 50*	50*	50*
*South	*	12050.	* 50*	50*	50*
*South	*	12000.	* 50*	50*	50*
*South	*	11950.	* 25.81*	25.81*	25.81*
*South	*	11924.19	* .01*	.01*	.01*
*South	*	11911.68	* 12.5*	12.5*	12.5*
*South	*	11899.18	* 12.5*	12.5*	12.5*
*South	*	11886.68	* 12.5*	12.5*	12.5*
*South	*	11874.18	* 23.06*	23.06*	23.06*
*South	*	11851.12	* 23.06*	23.06*	23.06*
*South	*	11828.06	* 23.06*	23.06*	23.06*
*South	*	11805.	* *	*	*

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Combined Channel

*EAST	*	11800. *	.1*	.3*
*EAST	*	11799.99*	.1*	.3*
*EAST	*	11790. *	.1*	.3*
*EAST	*	11769.13*	.1*	.3*
*EAST	*	11751.44*	.1*	.3*
*EAST	*	11739.7 *	.1*	.3*
*EAST	*	11732.13*	.1*	.3*
*EAST	*	11720. *	.1*	.3*

*EAST	*	11712.87*	.1*	.3*
*EAST	*	11689.21*	.1*	.3*
*EAST	*	11675. *	.1*	.3*
*EAST	*	11634.34*	.1*	.3*
*EAST	*	11624.05*	.1*	.3*
*EAST	*	11618.85*	.1*	.3*
*EAST	*	11596.34*	.1*	.3*
*EAST	*	11527.17*	.1*	.3*
*EAST	*	11500. *	.1*	.3*
*EAST	*	11450. *	.1*	.3*
*EAST	*	11400. *	.1*	.3*
*EAST	*	11377.99*	.1*	.3*
*EAST	*	11350. *	.1*	.3*
*EAST	*	11300. *	.1*	.3*
*EAST	*	11278.76*	.1*	.3*
*EAST	*	11250. *	.1*	.3*
*EAST	*	11200. *	.1*	.3*
*EAST	*	11175.26*	.1*	.3*
*EAST	*	11154.55*	.1*	.3*
*EAST	*	11125. *	.1*	.3*
*EAST	*	11116.35*	.1*	.3*
*EAST	*	11100. *	.1*	.3*
*EAST	*	11050. *	.1*	.3*
*EAST	*	11033.37*	.1*	.3*
*EAST	*	11007.4 *	.1*	.3*
*EAST	*	10973.86*	.1*	.3*
*EAST	*	10950.26*	.1*	.3*
*EAST	*	10909.89*	.1*	.3*
*EAST	*	10834.9 *	.1*	.3*
*EAST	*	10834.89*	.1*	.3*
*EAST	*	10599.9 *	.1*	.3*
*EAST	*	10599.89*	.1*	.3*
*EAST	*	10529.91*	.1*	.3*
*EAST	*	10429.91*	.1*	.3*
*EAST	*	10429.90*	.1*	.3*
*EAST	*	10289.92*	.1*	.3*
*EAST	*	10289.91*	.1*	.3*
*EAST	*	10209.93*	.1*	.3*
*EAST	*	10124.93*	.1*	.3*
*EAST	*	10124.92*	.1*	.3*
*EAST	*	9999.93 *	.1*	.3*
*EAST	*	9999.92 *	.1*	.3*
*EAST	*	9905.49 *	.1*	.3*
*EAST	*	9845.49 *	.1*	.3*
*EAST	*	9245.49 *	.1*	.3*

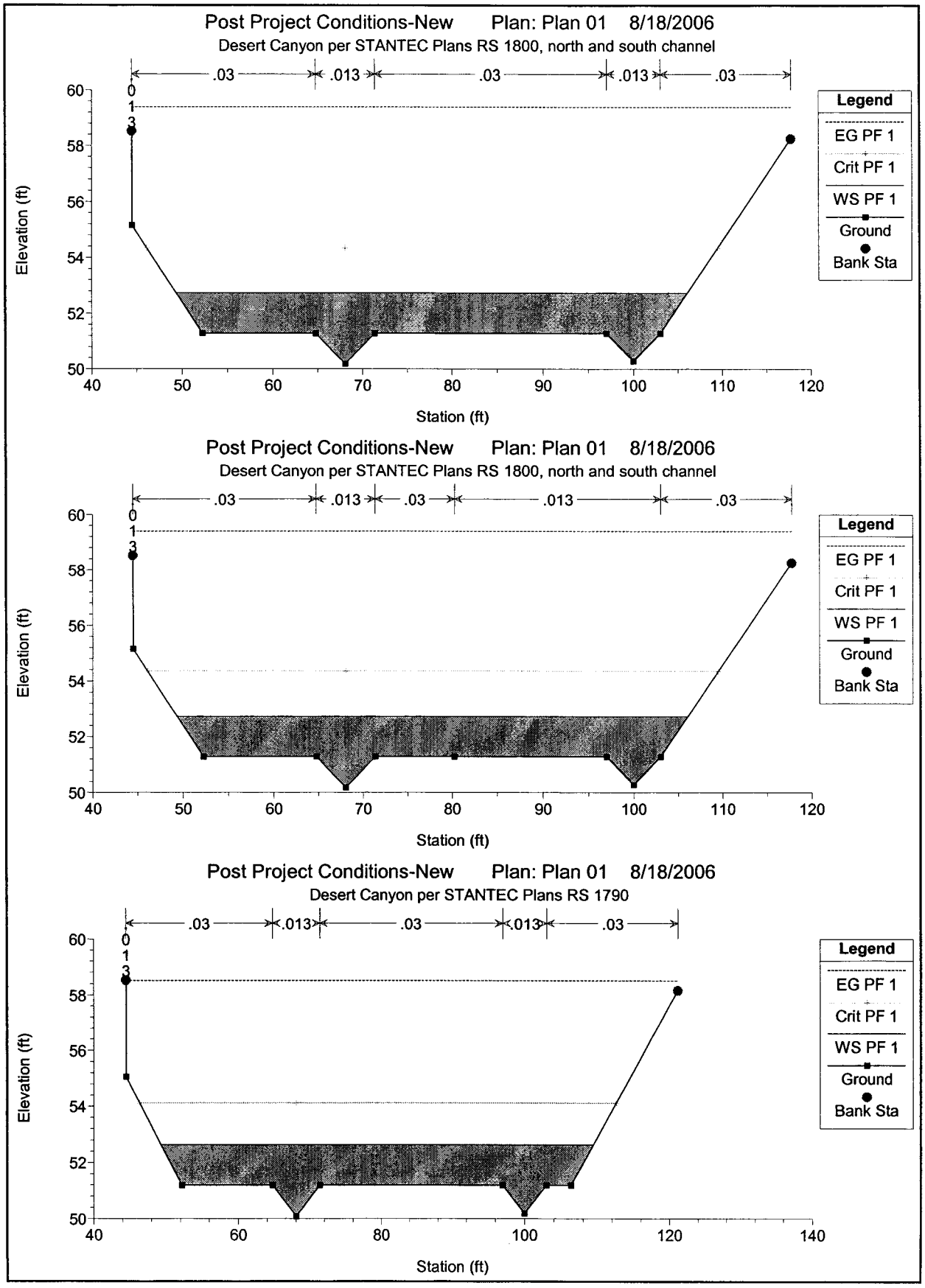
River: North Channel

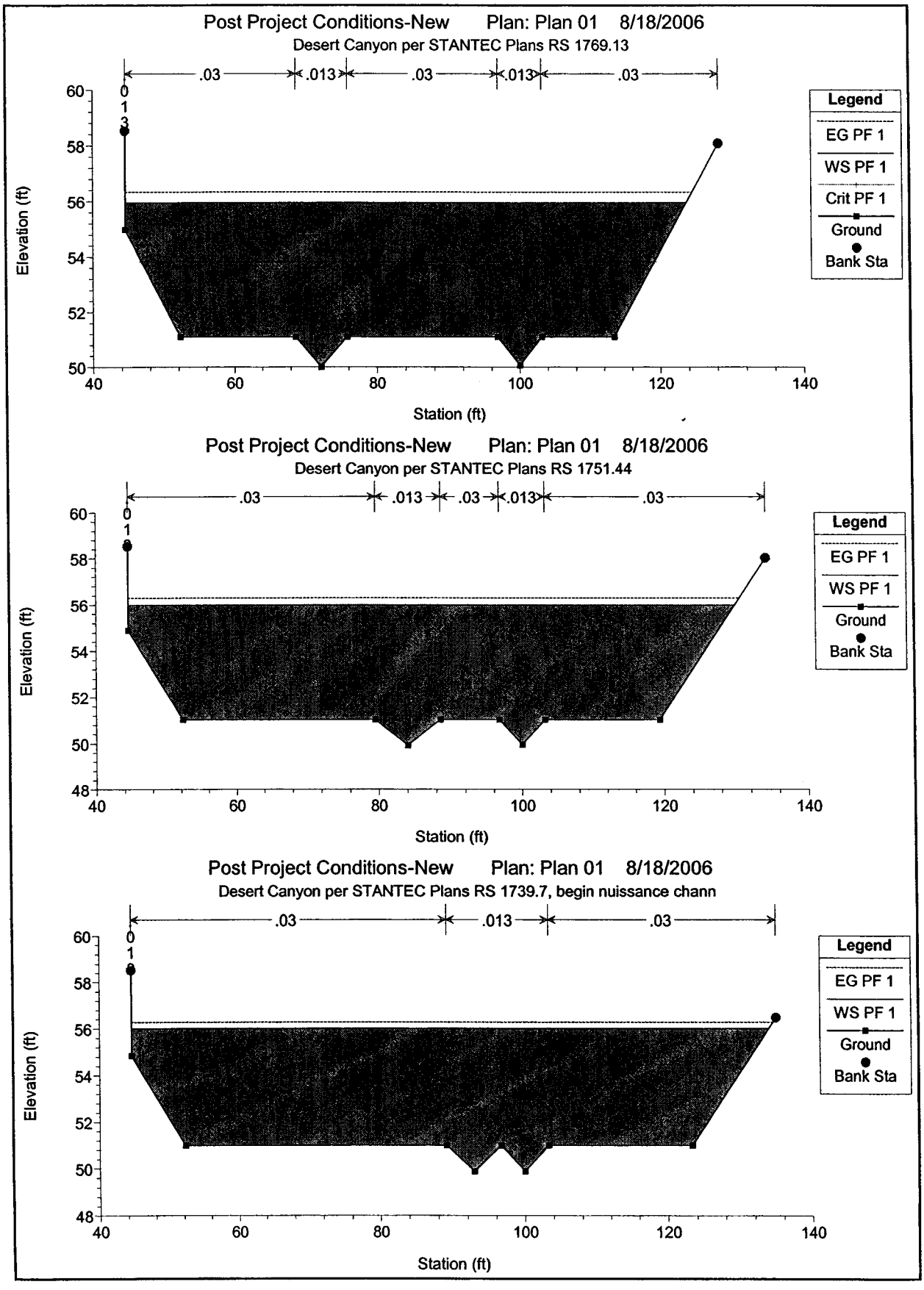
* Reach	*	River Sta.	* Contr.	* Expan. *
*WEST	*	18653.05*	.1*	.3*
*WEST	*	18603.05*	.1*	.3*
*WEST	*	18354.06*	.1*	.3*
*WEST	*	18314.47*	.1*	.3*
*WEST	*	17036.02*	.1*	.3*
*WEST	*	16991.39*	.1*	.3*
*WEST	*	16271.91*	.1*	.3*
*WEST	*	16221.83*	.1*	.3*
*WEST	*	15874.83*	.1*	.3*
*WEST	*	15824.82*	.1*	.3*
*WEST	*	15635.6 *	.1*	.3*
*WEST	*	15080.09*	.1*	.3*
*WEST	*	15015.09*	.1*	.3*
*WEST	*	14592.55*	.1*	.3*
*WEST	*	14542.55*	.1*	.3*
*WEST	*	14252.5 *	.1*	.3*
*WEST	*	14092.97*	.1*	.3*
*WEST	*	13987.91*	.1*	.3*
*WEST	*	13887.91*	.1*	.3*
*WEST	*	13787.91*	.1*	.3*
*WEST	*	13687.91*	.1*	.3*
*WEST	*	13602.91*	.1*	.3*
*WEST	*	13582.54*	.1*	.3*
*WEST	*	13562.17*	.1*	.3*
*WEST	*	13562.16*	.1*	.3*
*WEST	*	13557.18*Bridge	*	*
*WEST	*	13552.2 *	.1*	.3*
*WEST	*	13478.79*	.1*	.3*
*WEST	*	13476.6 *	.1*	.3*
*WEST	*	13425.61*	.1*	.3*
*WEST	*	13410.61*	.1*	.3*
*WEST	*	13353.48*	.1*	.3*
*WEST	*	13343.61*	.1*	.3*
*WEST	*	13343.6 *	.1*	.3*
*WEST	*	13333.3 *	.1*	.3*
*WEST	*	13323. *	.1*	.3*
*WEST	*	13307.38*	.1*	.3*
*WEST	*	13291.77*	.1*	.3*
*WEST	*	13267.98*	.1*	.3*
*WEST	*	13244.2 *	.1*	.3*
*WEST	*	13234.75*	.1*	.3*
*WEST	*	13234.74*	.1*	.3*
*WEST	*	13229.38*	.1*	.3*
*WEST	*	13229.37*	.1*	.3*
*WEST	*	13221.37*	.1*	.3*
*WEST	*	13167.84*	.1*	.3*
*WEST	*	13114.31*	.1*	.3*
*WEST	*	13114.3 *	.1*	.3*
*WEST	*	13060.1 *	.1*	.3*
*WEST	*	13044.11*	.1*	.3*
*WEST	*	13044.1 *	.1*	.3*
*WEST	*	13018.22*	.1*	.3*
*WEST	*	13018.21*	.1*	.3*
*WEST	*	13010.22*	.1*	.3*
*WEST	*	13010.21*	.1*	.3*
*WEST	*	12954.02*	.1*	.3*
*WEST	*	12943.65*	.1*	.3*
*WEST	*	12906.81*	.1*	.3*
*WEST	*	12869.97*	.1*	.3*
*WEST	*	12869.96*	.1*	.3*
*WEST	*	12829.26*	.1*	.3*
*WEST	*	12788.55*	.1*	.3*
*WEST	*	12788.54*	.1*	.3*
*WEST	*	12780.55*	.1*	.3*
*WEST	*	12780.54*	.1*	.3*
*WEST	*	12724.23*	.1*	.3*
*WEST	*	12667.92*	.1*	.3*
*WEST	*	12667.91*	.1*	.3*
*WEST	*	12598.93*	.1*	.3*
*WEST	*	12529.94*	.1*	.3*
*WEST	*	12499.95*	.1*	.3*
*WEST	*	12499.94*	.1*	.3*
*WEST	*	12469.94*	.1*	.3*
*WEST	*	12469.93*	.1*	.3*
*WEST	*	12435.49*	.1*	.3*
*WEST	*	12401.05*	.1*	.3*
*WEST	*	12400. *	.1*	.3*
*WEST	*	12350. *	.1*	.3*

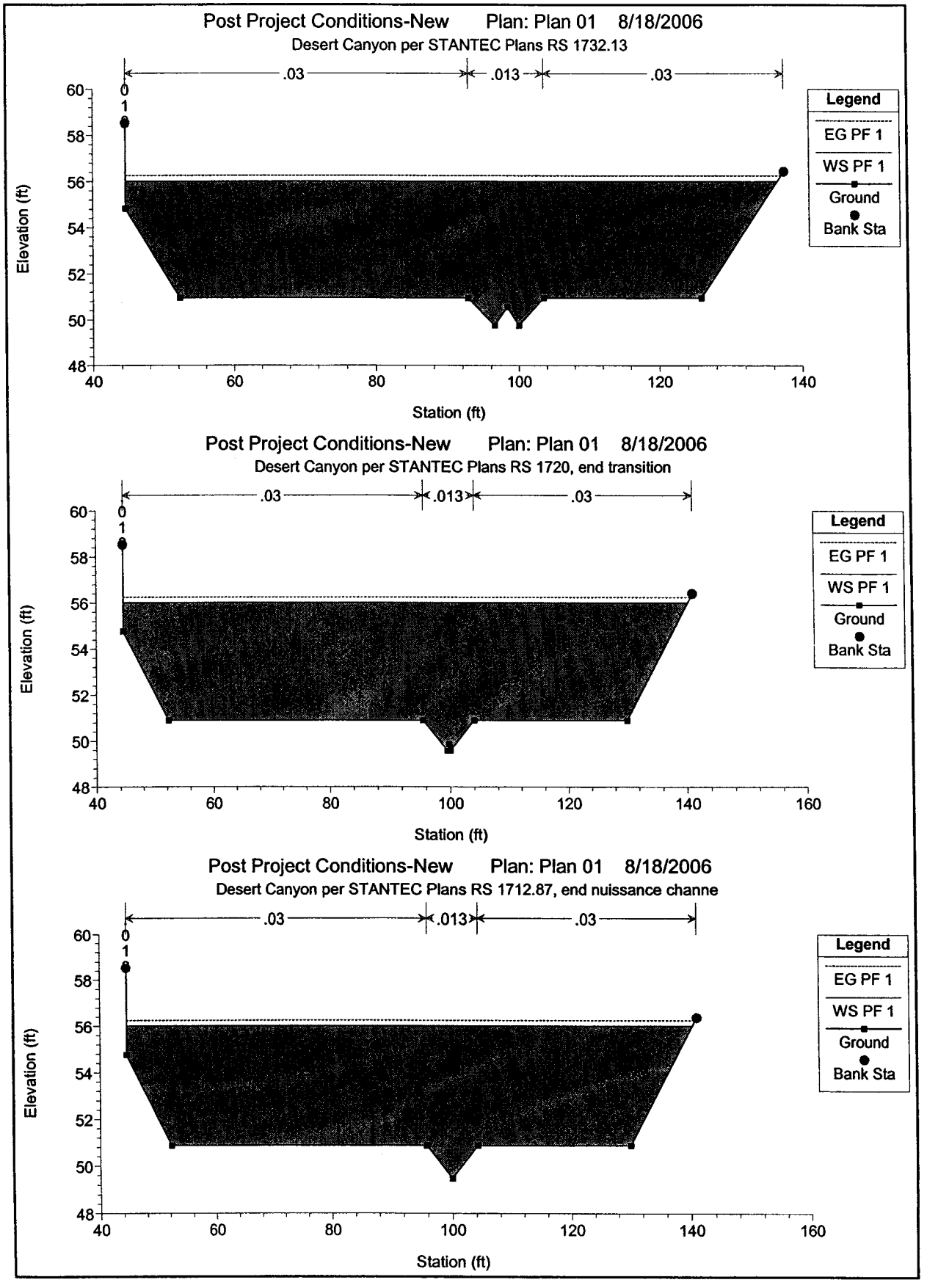
Reach	River Sta.	Contr.	Expan.
*WEST	12320.	.1	.3
*WEST	12312.18	.1	.3
*WEST	12312.17	.1	.3
*WEST	12278.95	.1	.3
*WEST	12253.91	.1	.3
*WEST	12217.72	.1	.3
*WEST	12203.57	.1	.3
*WEST	12162.19	.1	.3
*WEST	12150.	.1	.3
*WEST	12125.	.1	.3
*WEST	12097.31	.1	.3
*WEST	12097.3	.1	.3
*WEST	12033.7	.1	.3
*WEST	12033.69	.1	.3
*WEST	12000.	.1	.3
*WEST	11924.18	.1	.3
*WEST	11911.68	.1	.3
*WEST	11899.18	.1	.3
*WEST	11886.68	.1	.3
*WEST	11874.18	.1	.3
*WEST	11851.12	.1	.3
*WEST	11828.06	.1	.3
*WEST	11826.06	.1	.3
*WEST	11805.	.1	.3

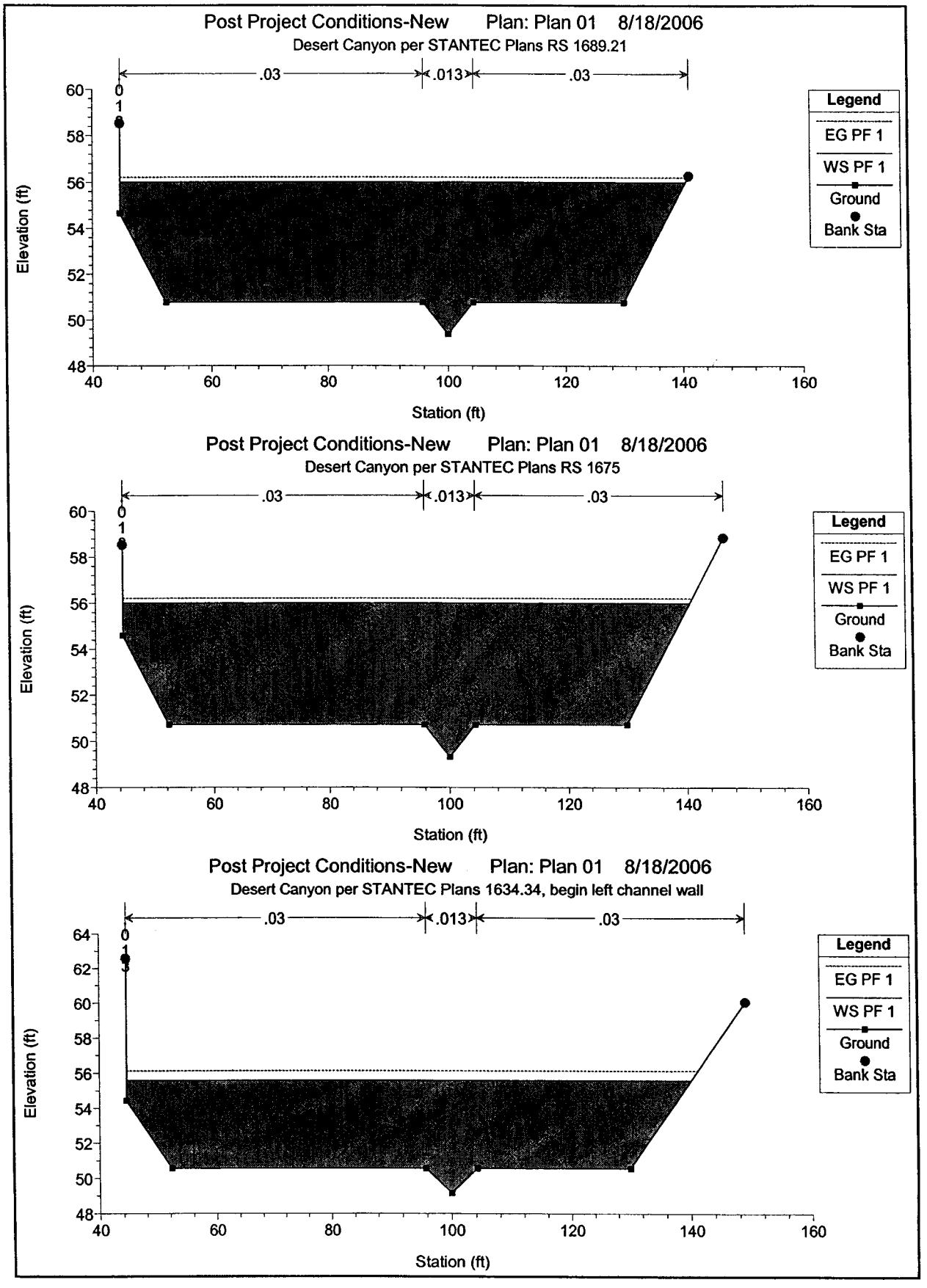
River: South Channel

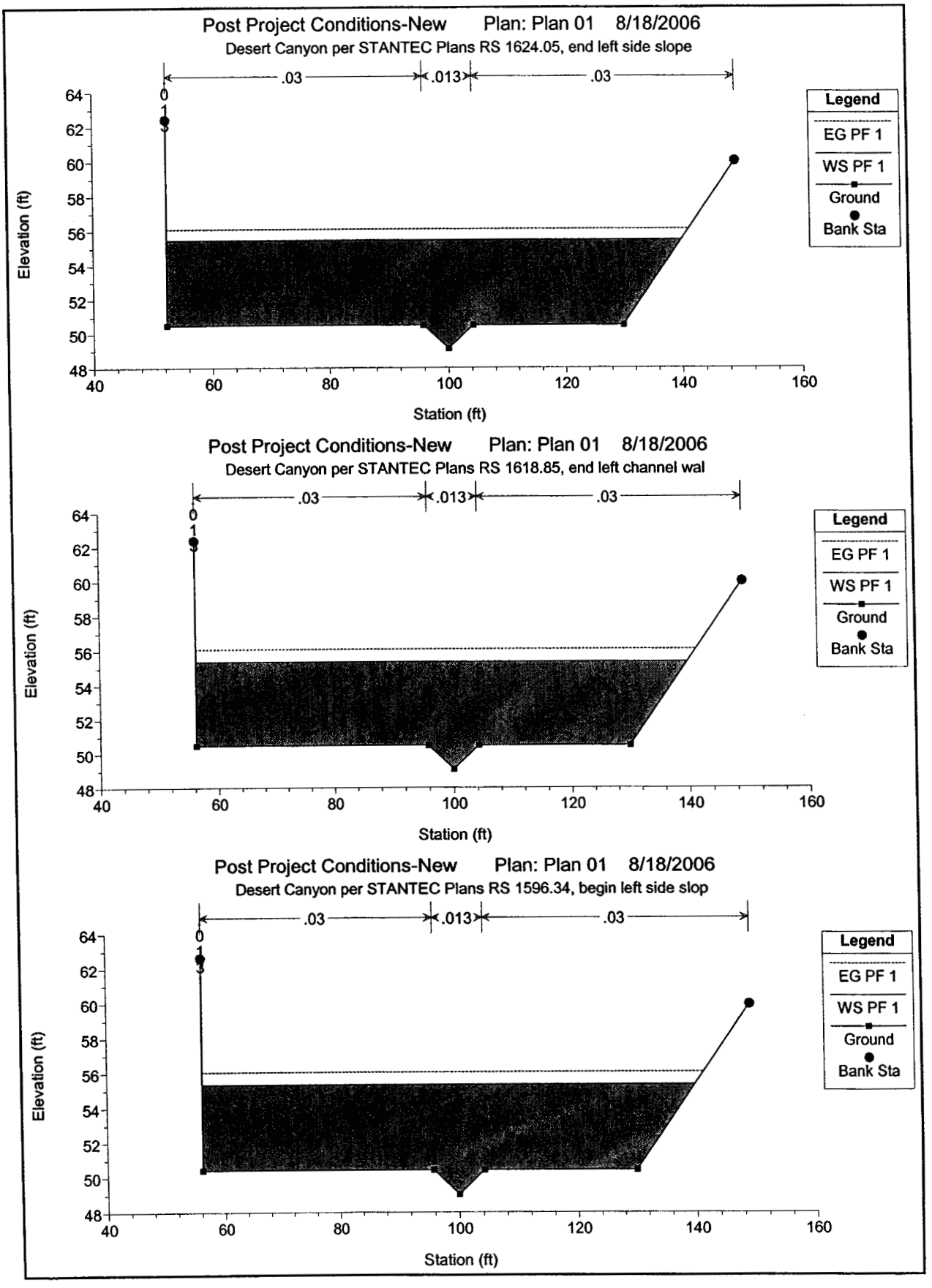
Reach	River Sta.	Contr.	Expan.
*South	12150.	.1	.3
*South	12100.	.1	.3
*South	12050.	.1	.3
*South	12000.	.1	.3
*South	11950.	.1	.3
*South	11924.19	.1	.3
*South	11911.68	.1	.3
*South	11899.18	.1	.3
*South	11886.68	.1	.3
*South	11874.18	.1	.3
*South	11851.12	.1	.3
*South	11828.06	.1	.3
*South	11805.	.1	.3

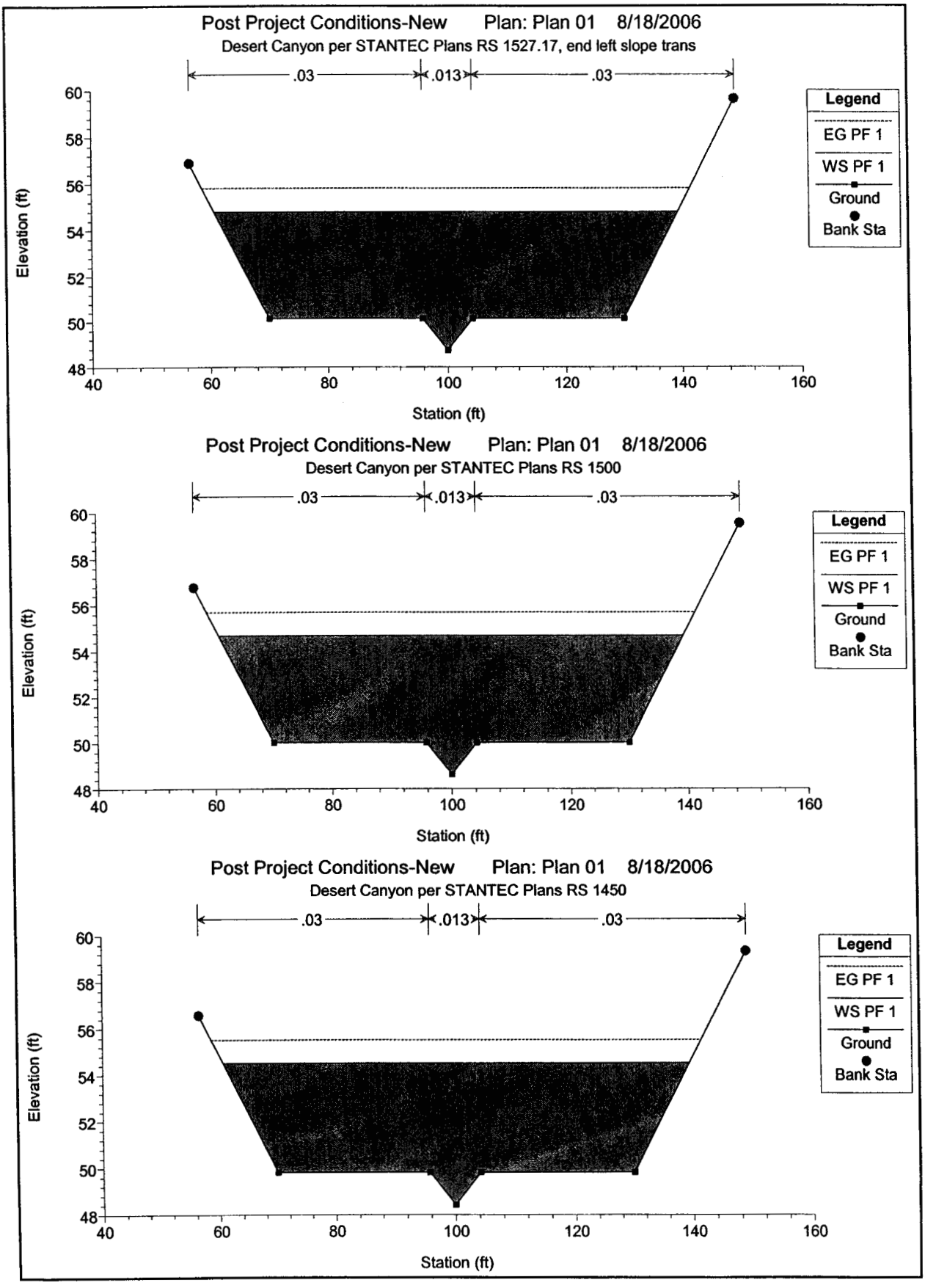

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1800, north and south channel
.03
.013
.03
.013
.03
0
1
3
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1800, north and south channel
.03
.013
.03
.013
.03
0
1
3
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1790
.03
.013
.03
.013
.03
0
1
3
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

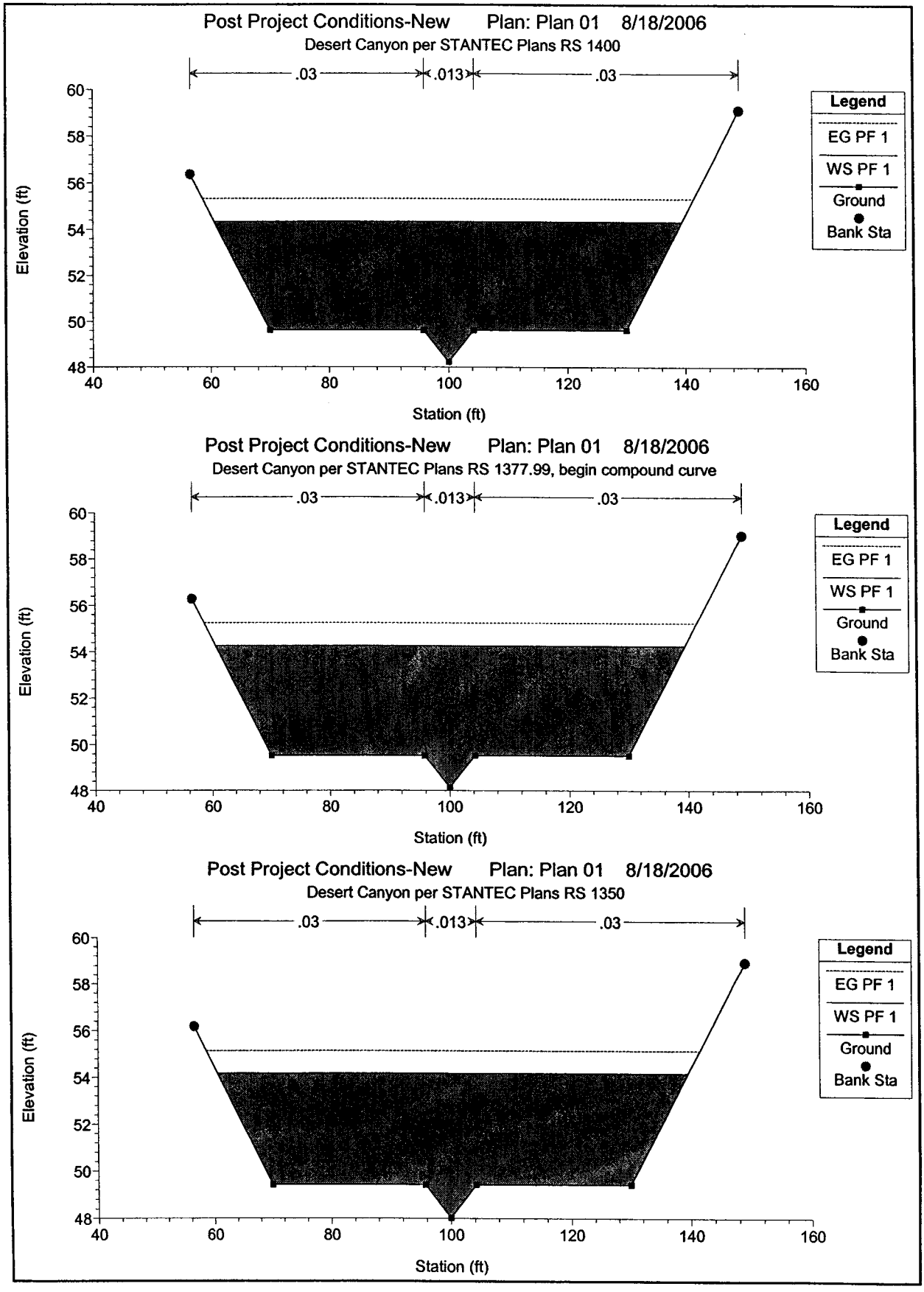

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1769.13
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1751.44
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1739.7, begin nuissance chann
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

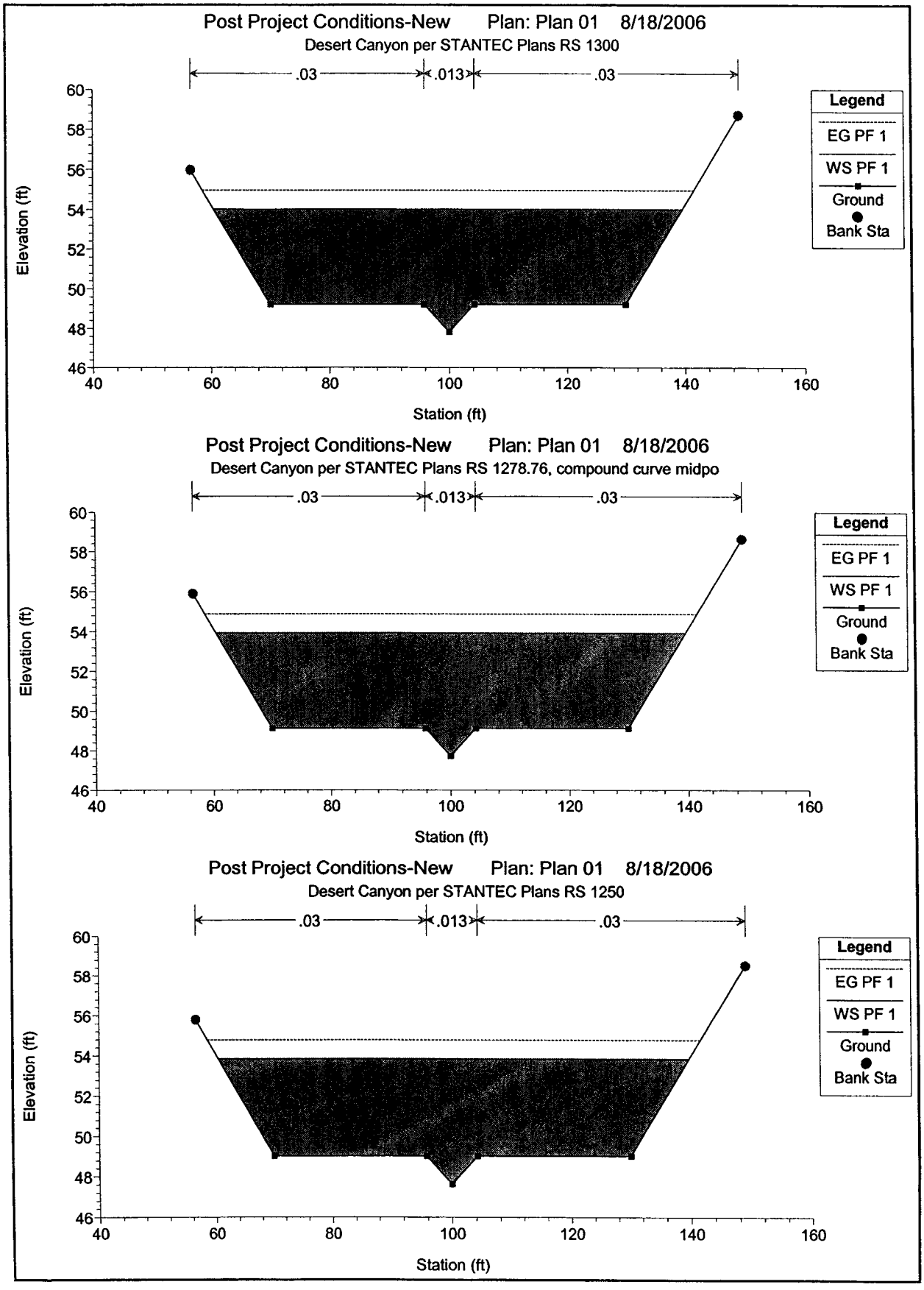

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1732.13
.03
.013
.03
0
1
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1720, end transition
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1712.87, end nuissance channe
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

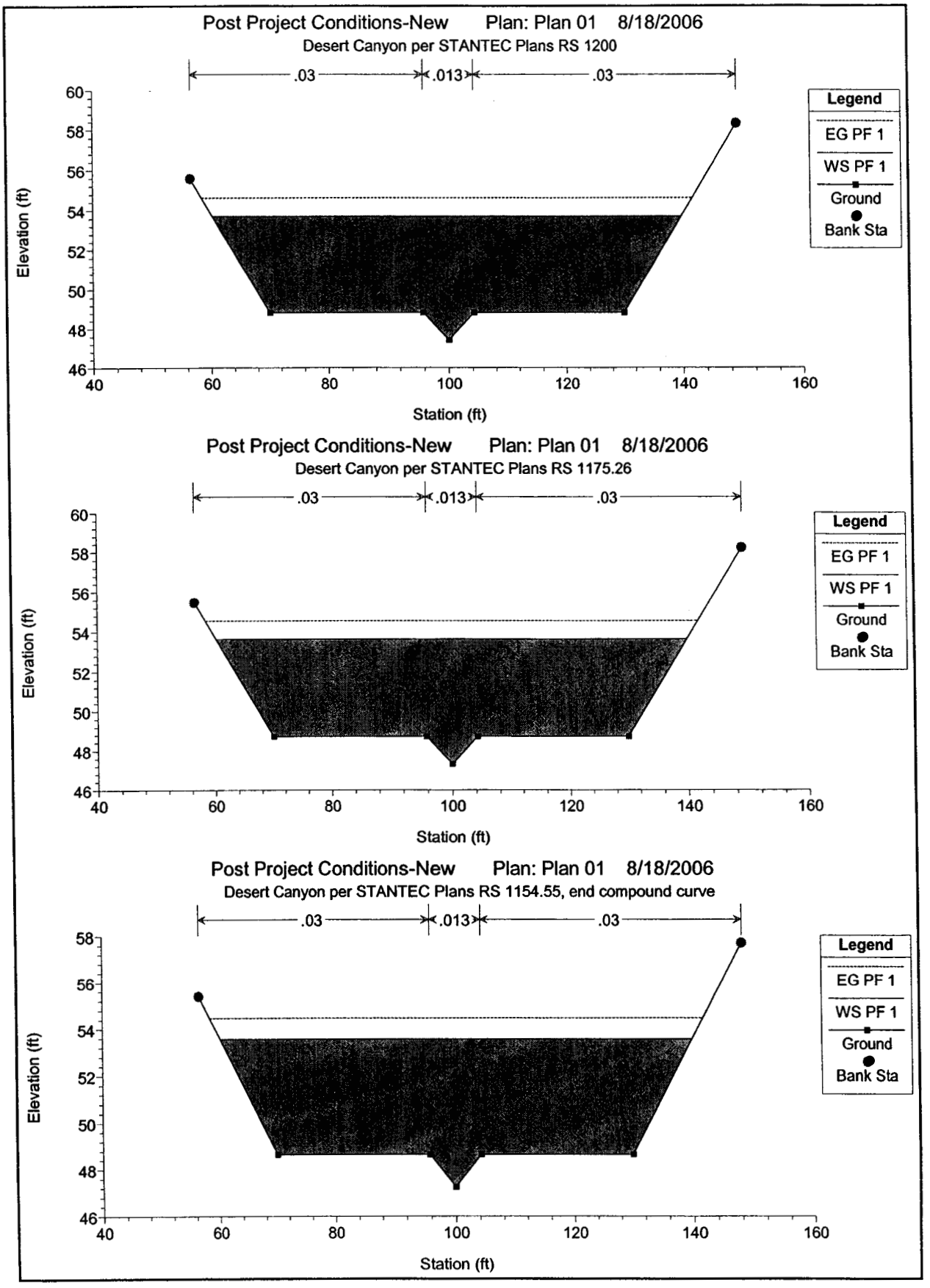

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1689.21
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1675
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans 1634.34, begin left channel wall
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

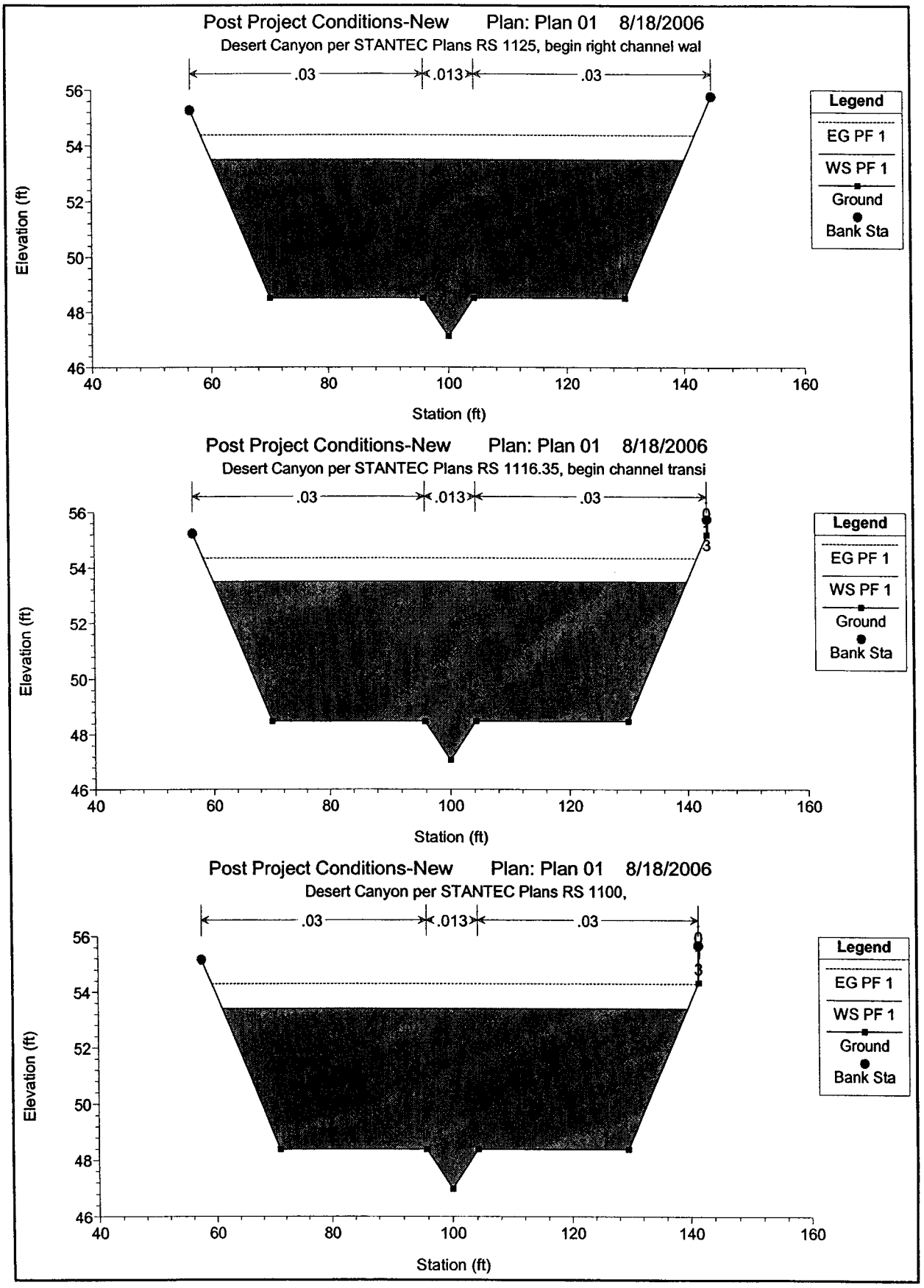

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1624.05, end left side slope
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1618.85, end left channel wal
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1596.34, begin left side slop
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

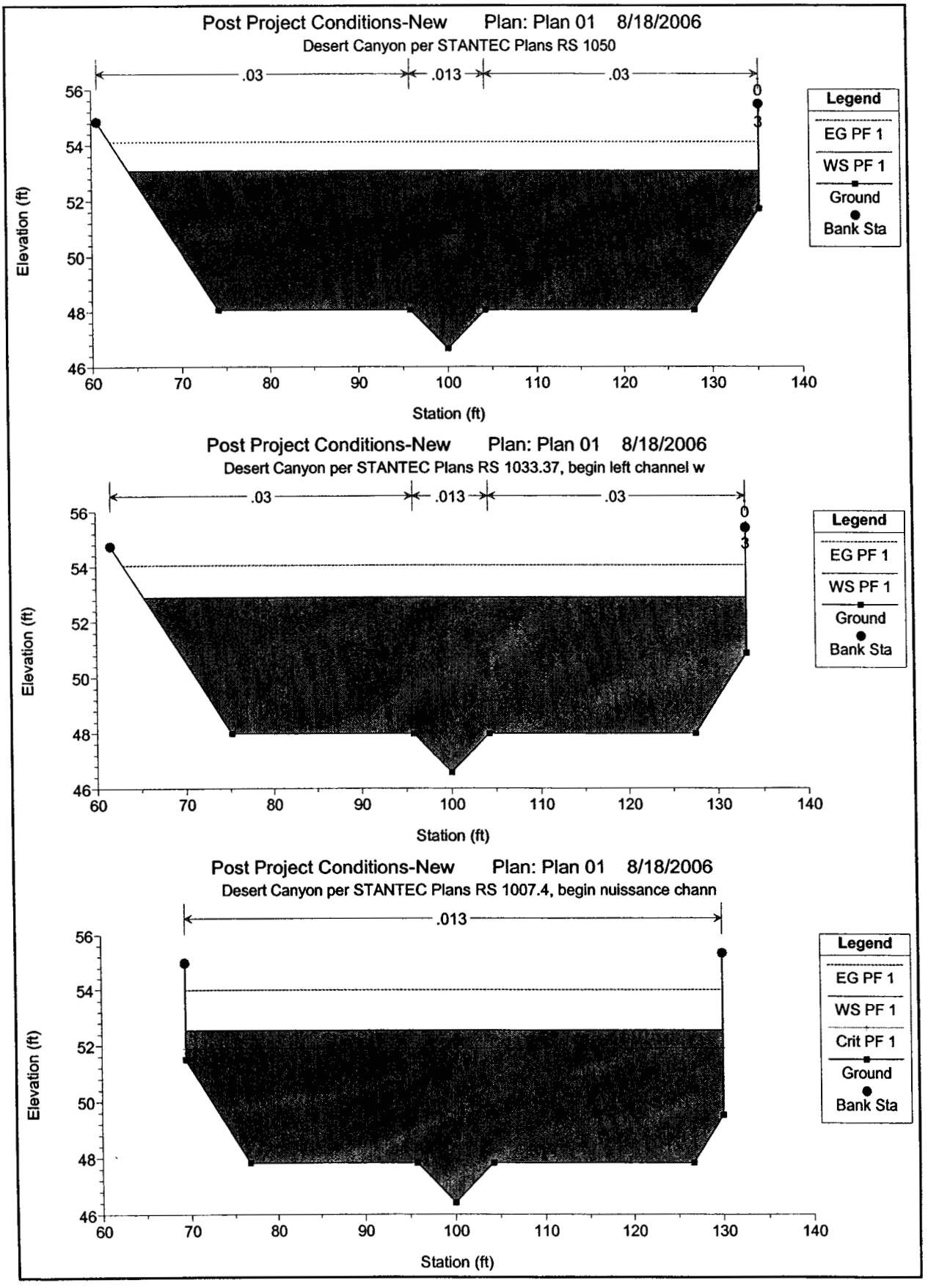

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1527.17, end left slope trans
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1500
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1450
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

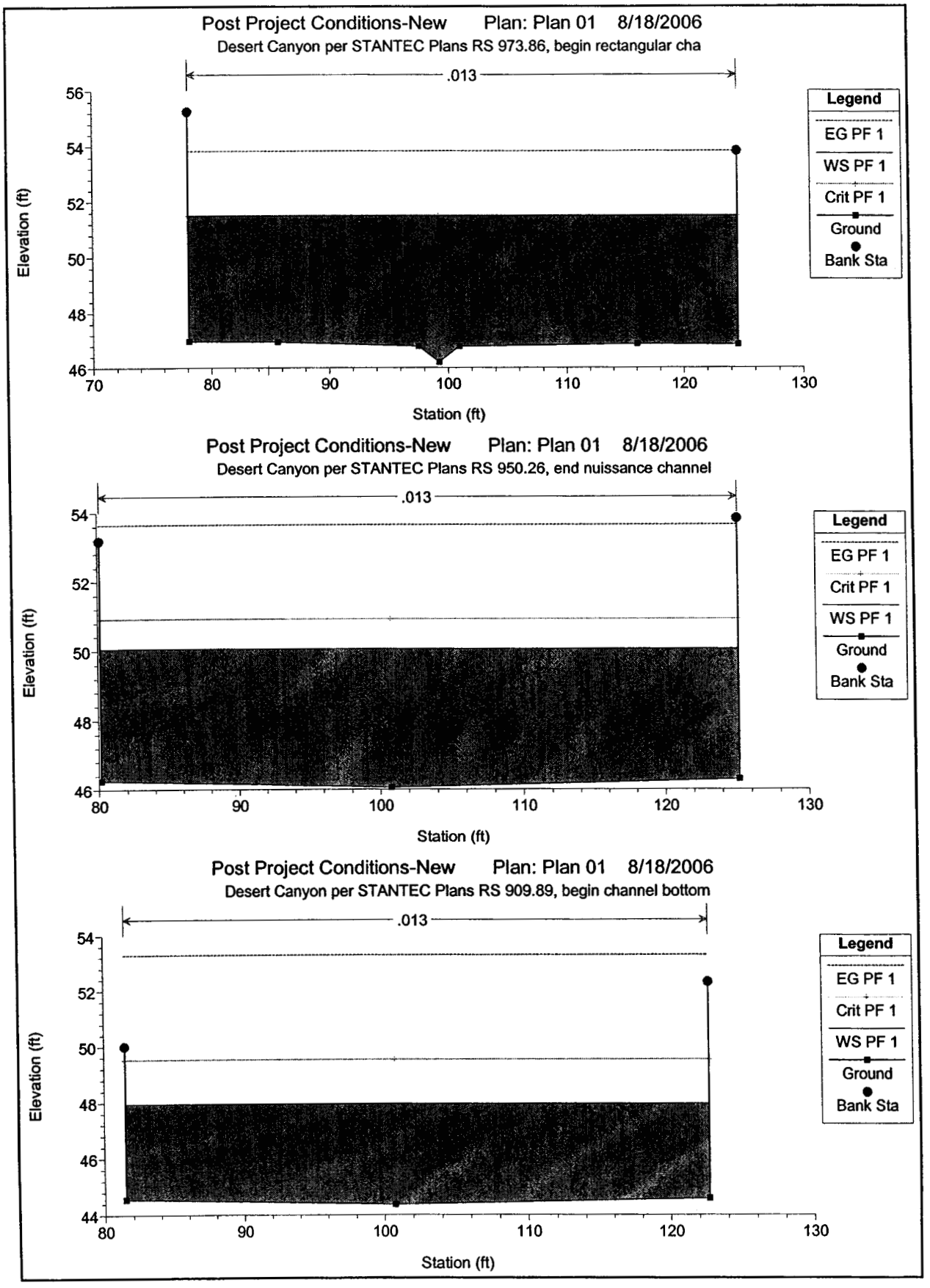

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1400
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1377.99, begin compound curve
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1350
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

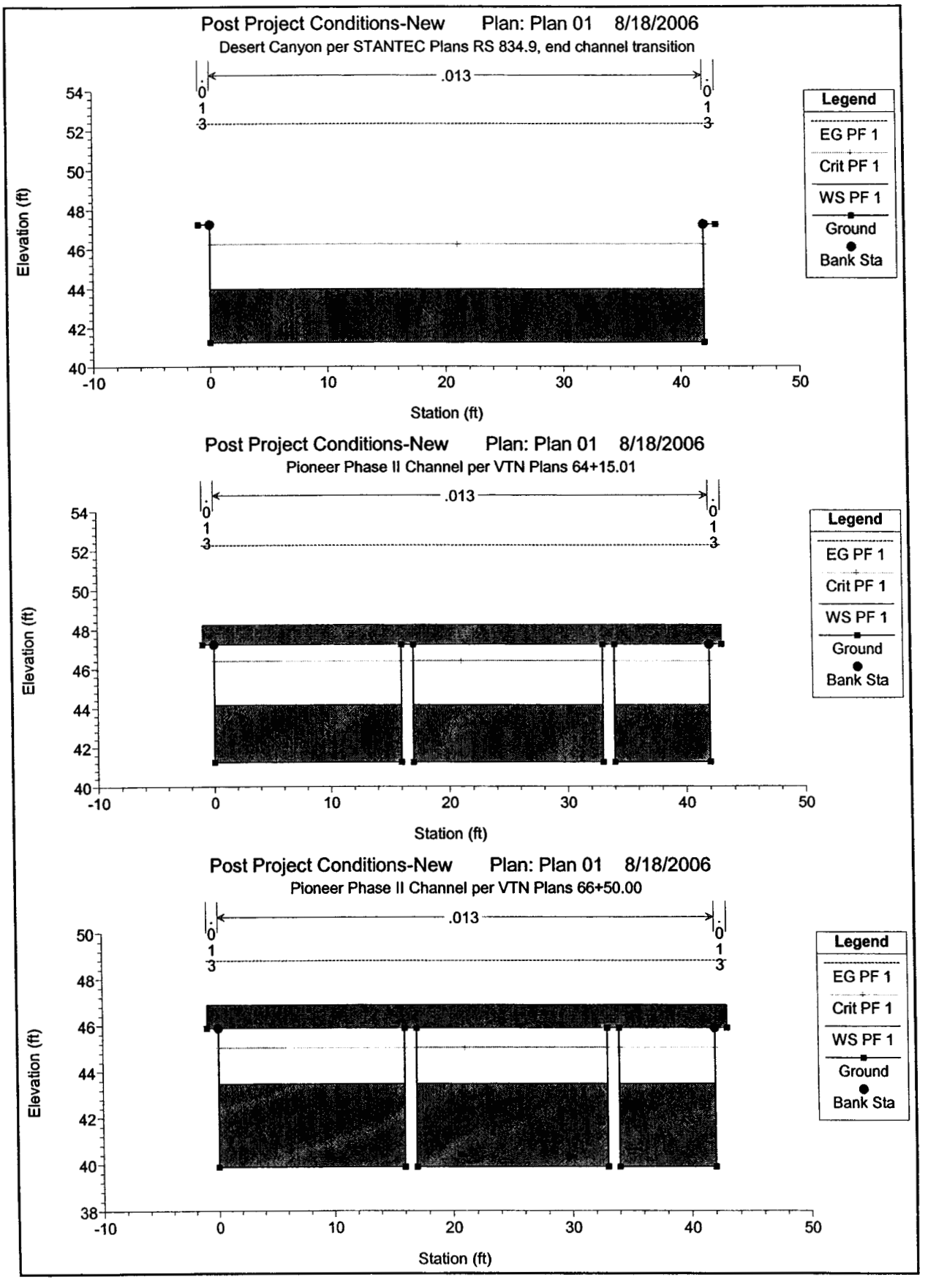

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1300
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1278.76, compound curve midpo
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1250
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

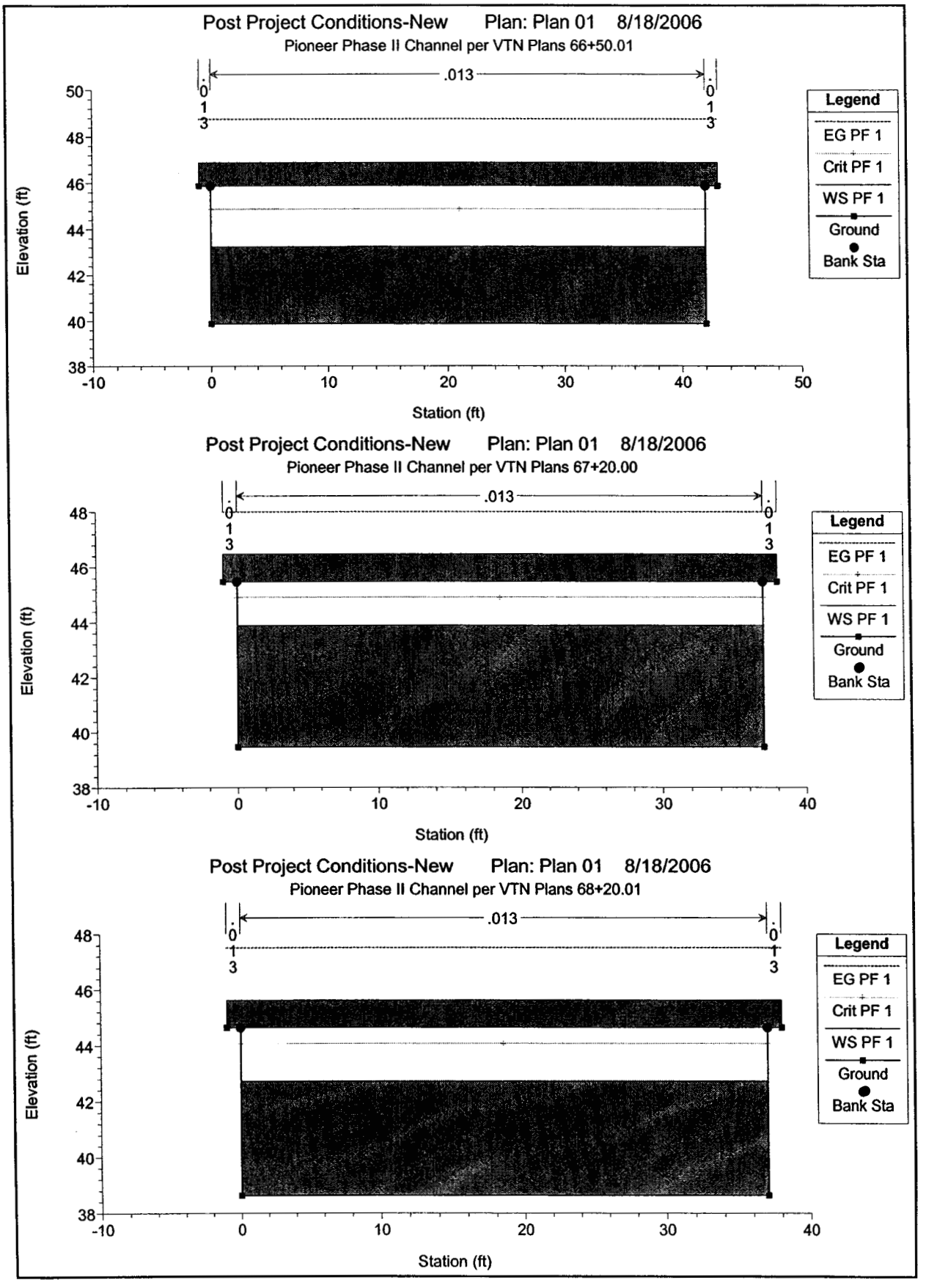

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1200
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1175.26
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1154.55, end compound curve
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

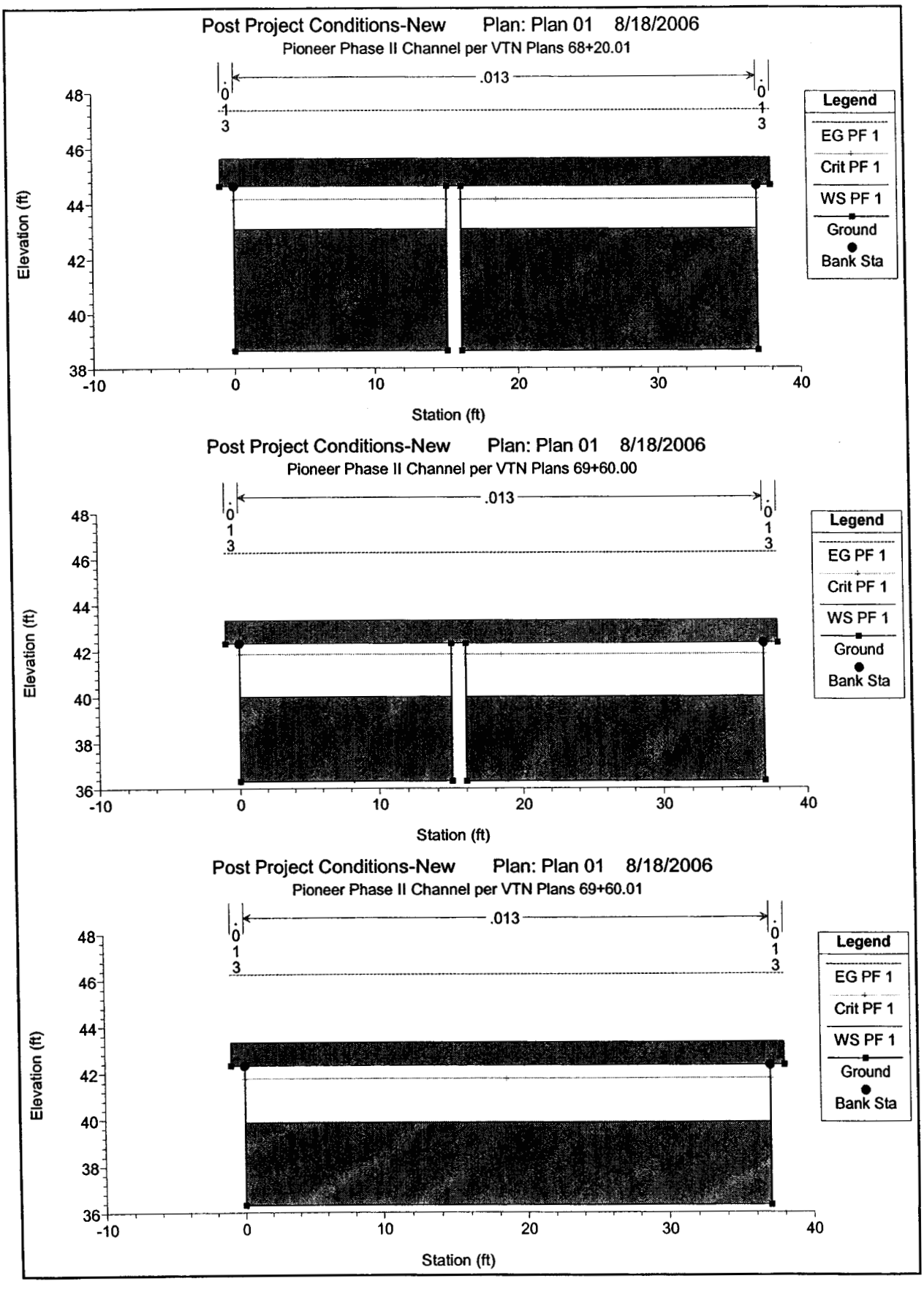

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1125, begin right channel wal
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1116.35, begin channel transi
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1100,
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

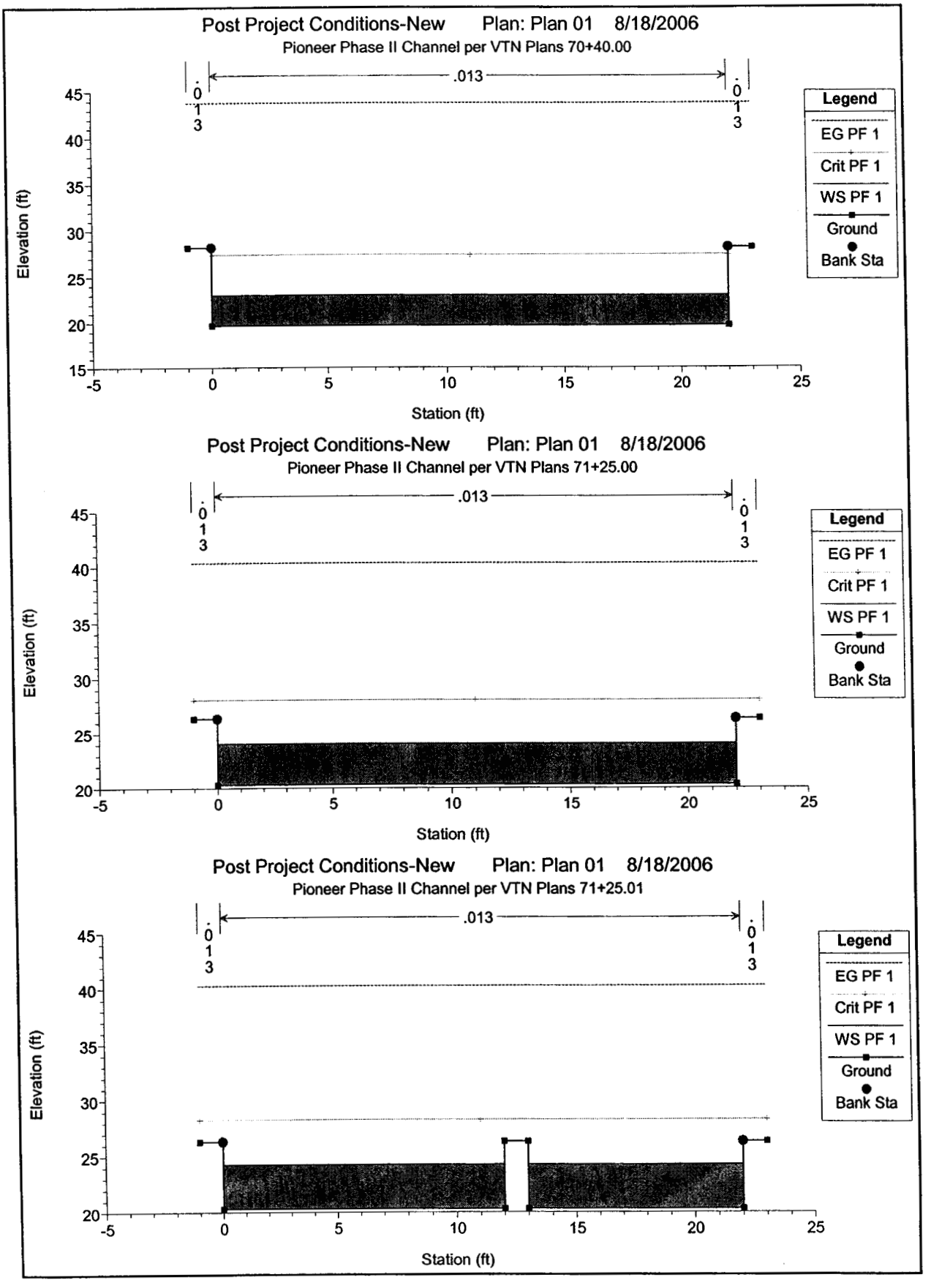

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1050
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1033.37, begin left channel w
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1007.4, begin nuissance chann
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

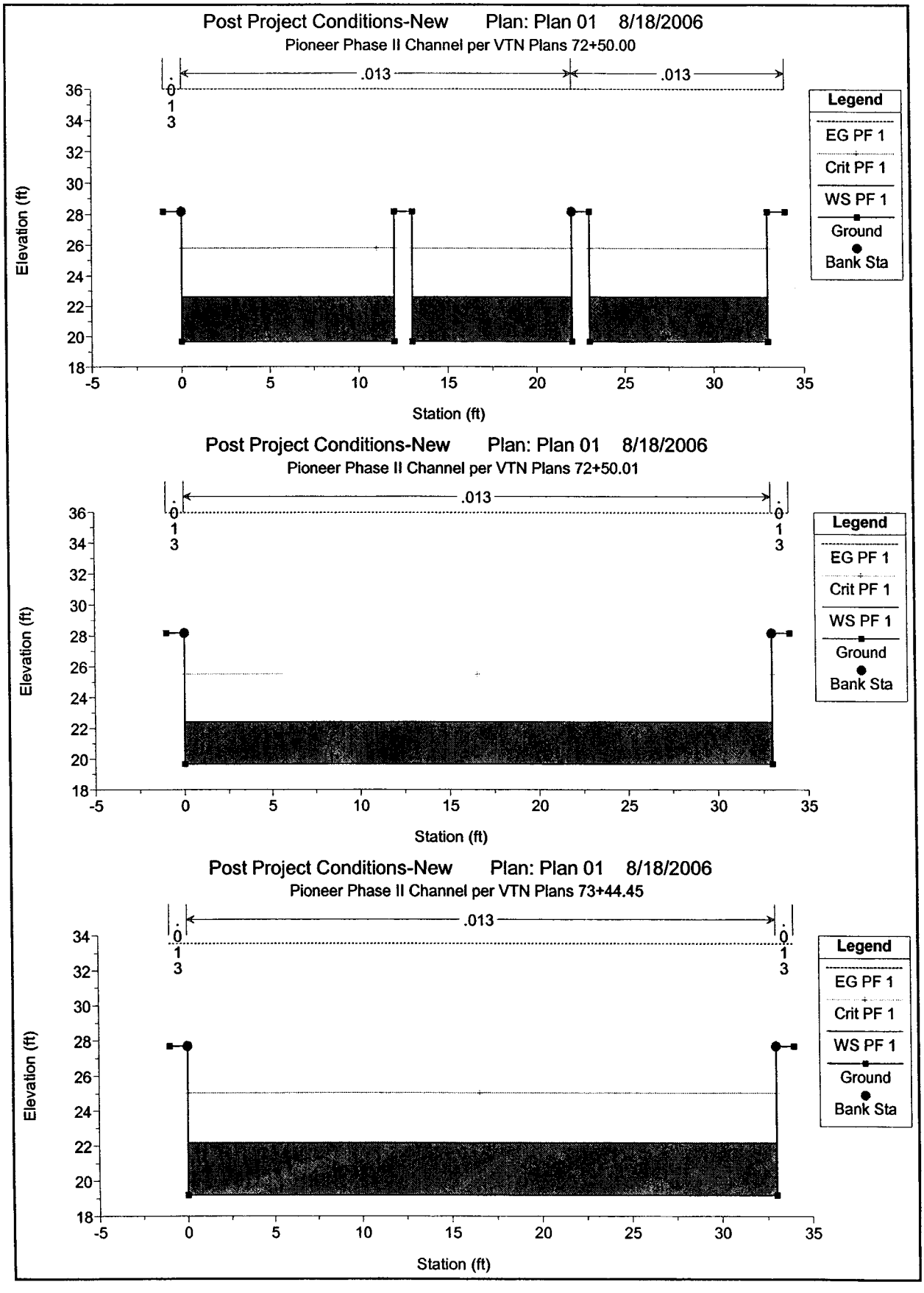

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 973.86, begin rectangular cha
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 950.26, end nuissance channel
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 909.89, begin channel bottom
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

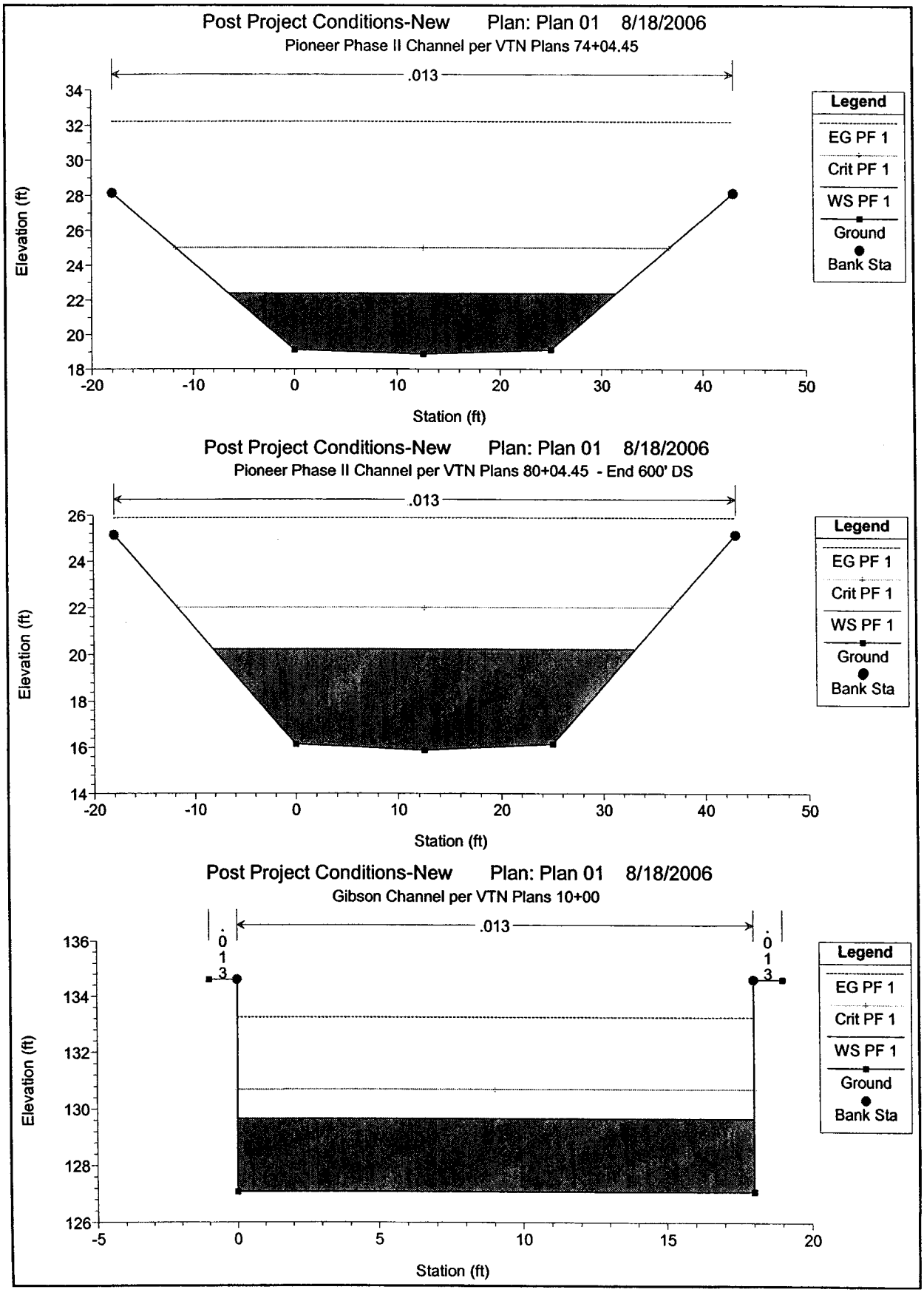

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 834.9, end channel transition
.013
0.1
0.1
3
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
54
52
50
48
46
44
42
40
-10
0
10
20
30
40
50
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 64+15.01
.013
0.1
0.1
3
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
54
52
50
48
46
44
42
40
-10
0
10
20
30
40
50
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 66+50.00
.013
0.1
0.1
3
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
50
48
46
44
42
40
38
-10
0
10
20
30
40
50
Station (ft)

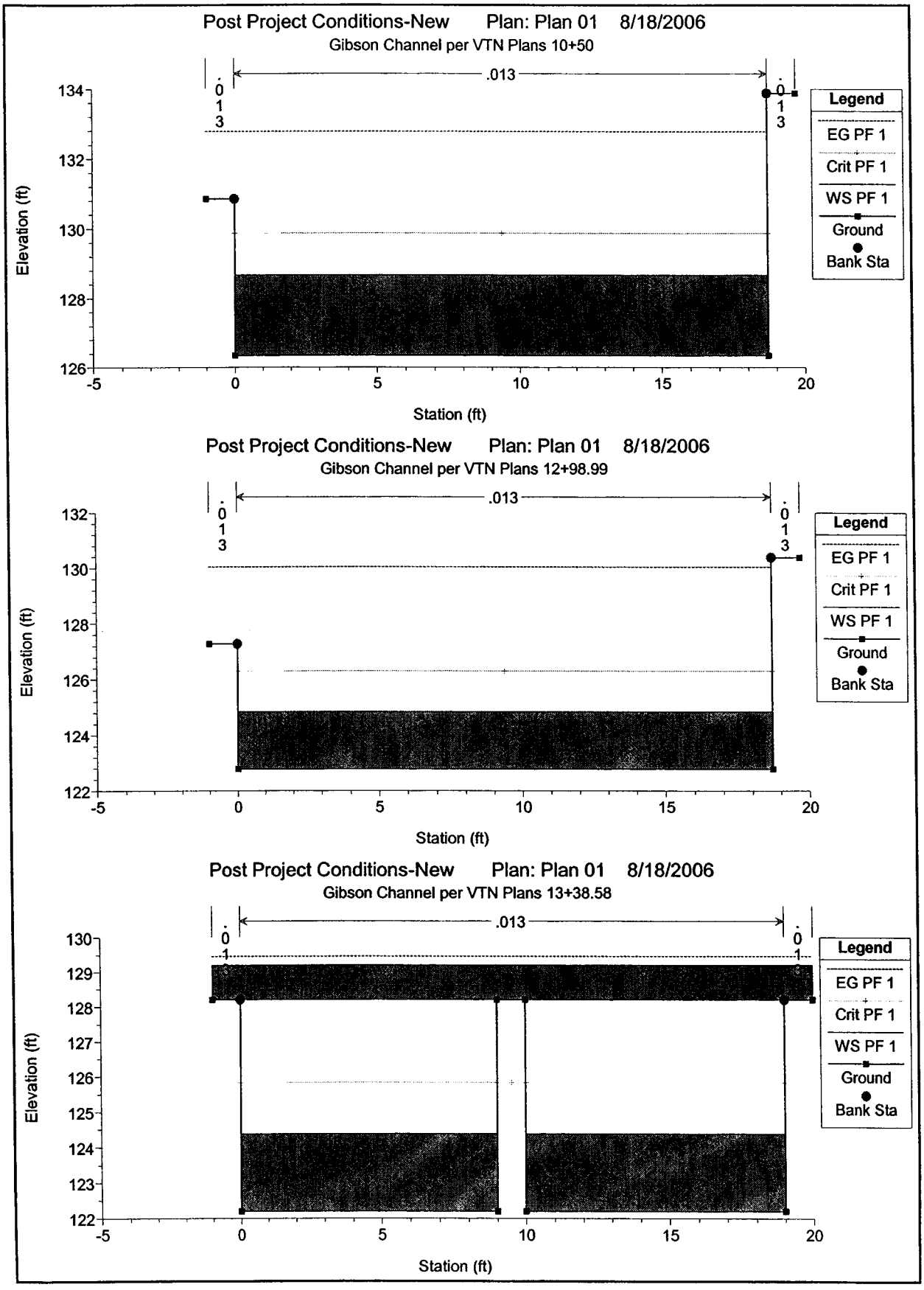

Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 66+50.01
.013
0.1
0.1
3
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 67+20.00
.013
0.1
0.1
3
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 68+20.01
.013
0.1
0.1
3
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

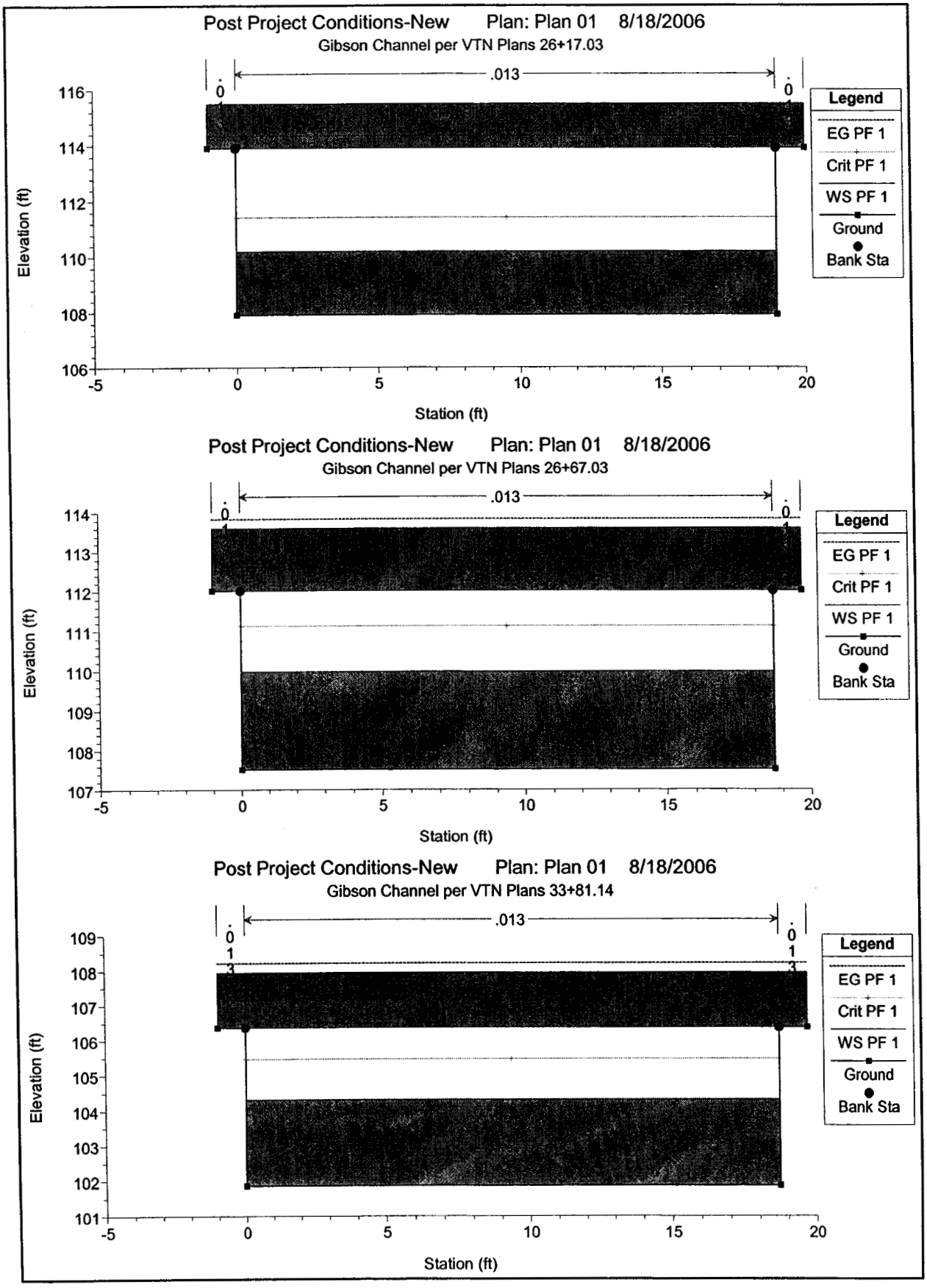

Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 68+20.01
.013
0.1
0.1
3
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 69+60.00
.013
0.1
0.1
3
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 69+60.01
.013
0.1
0.1
3
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

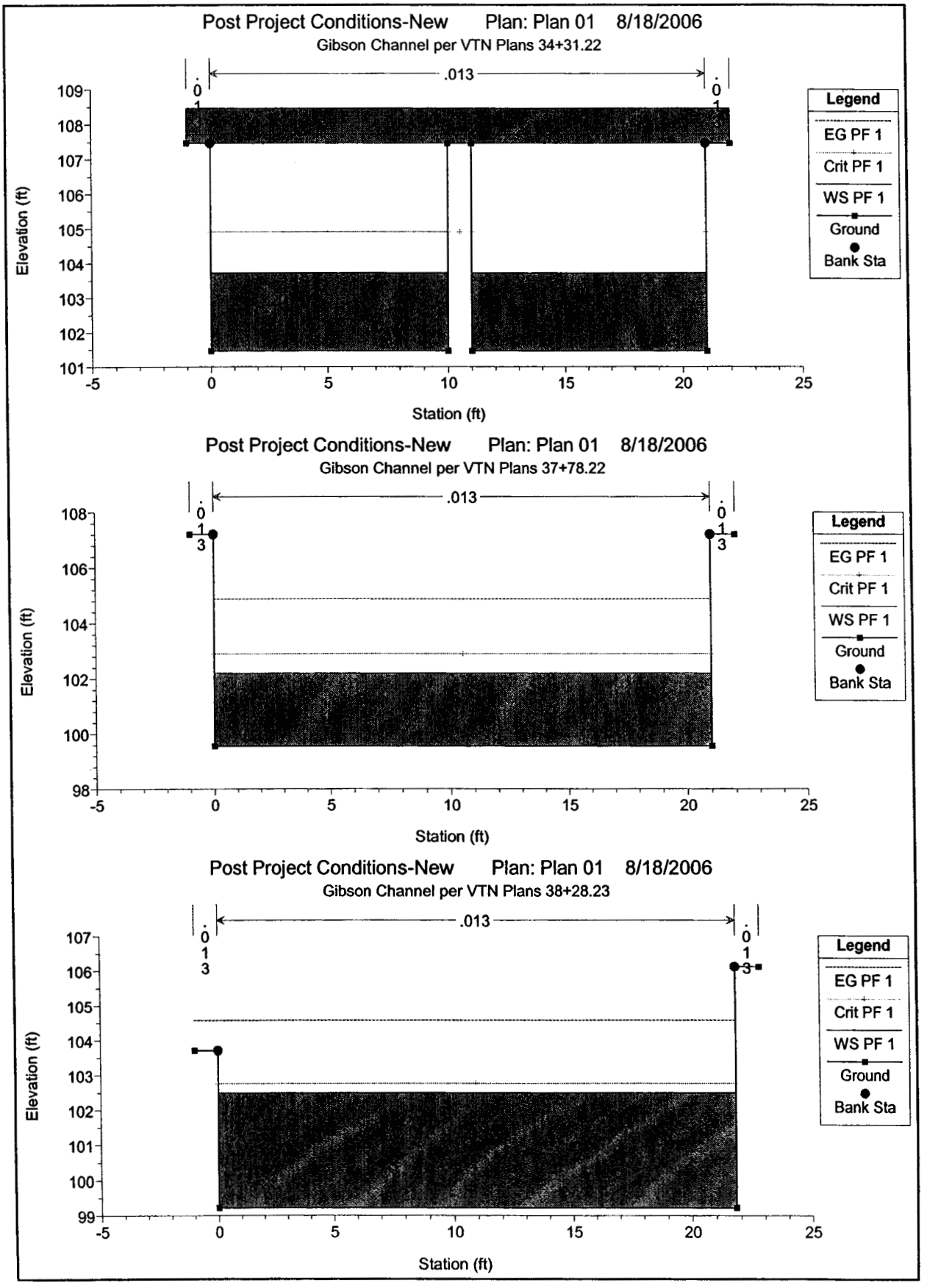

Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 70+40.00
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 71+25.00
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 71+25.01
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

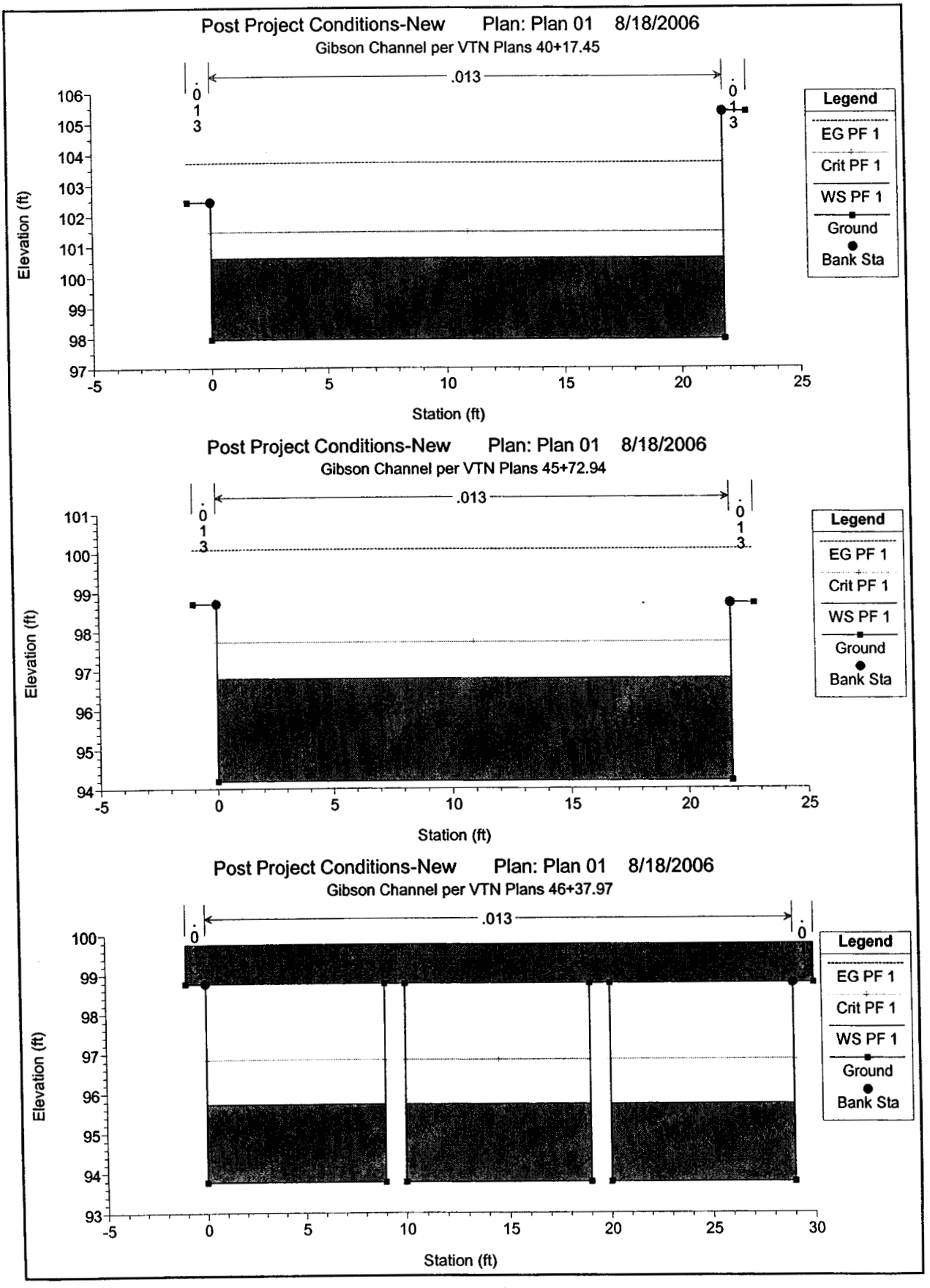

Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 72+50.00
.013
.013
.0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 72+50.01
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 73+44.45
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

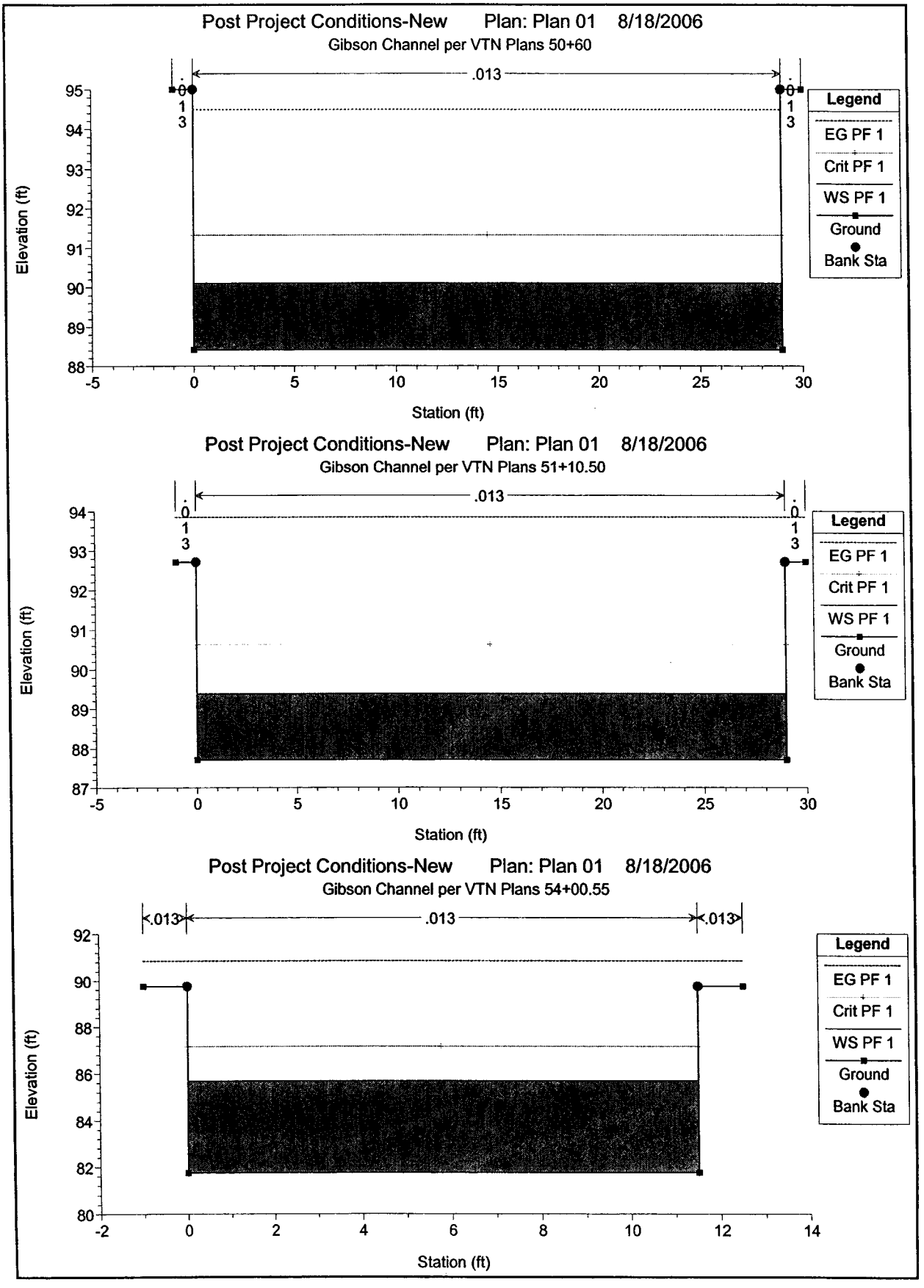

Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 74+04.45
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 80+04.45 - End 600' DS
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 10+00
.013
.013
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

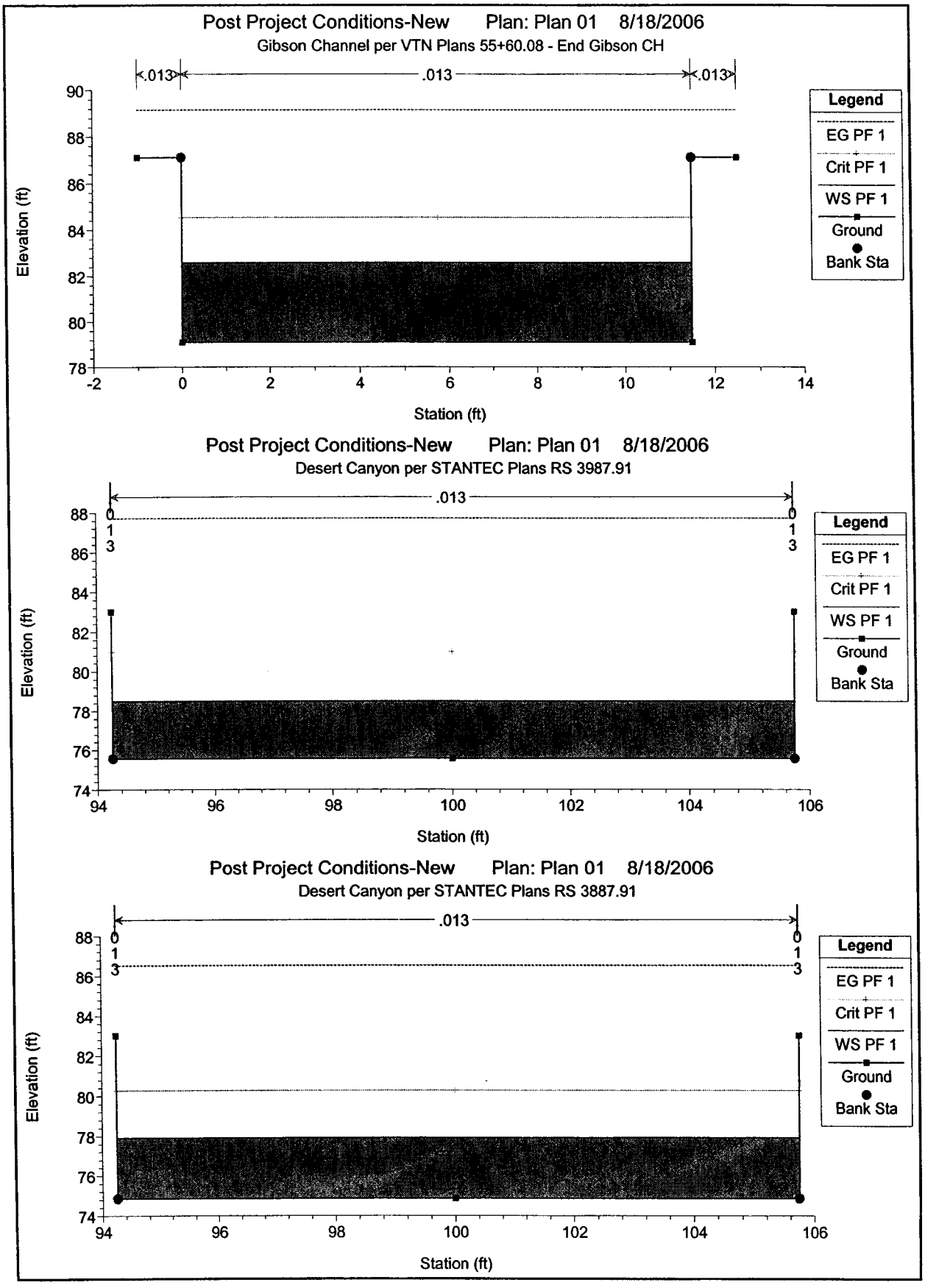

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 10+50
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 12+98.99
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 13+38.58
.013
.01
.01
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

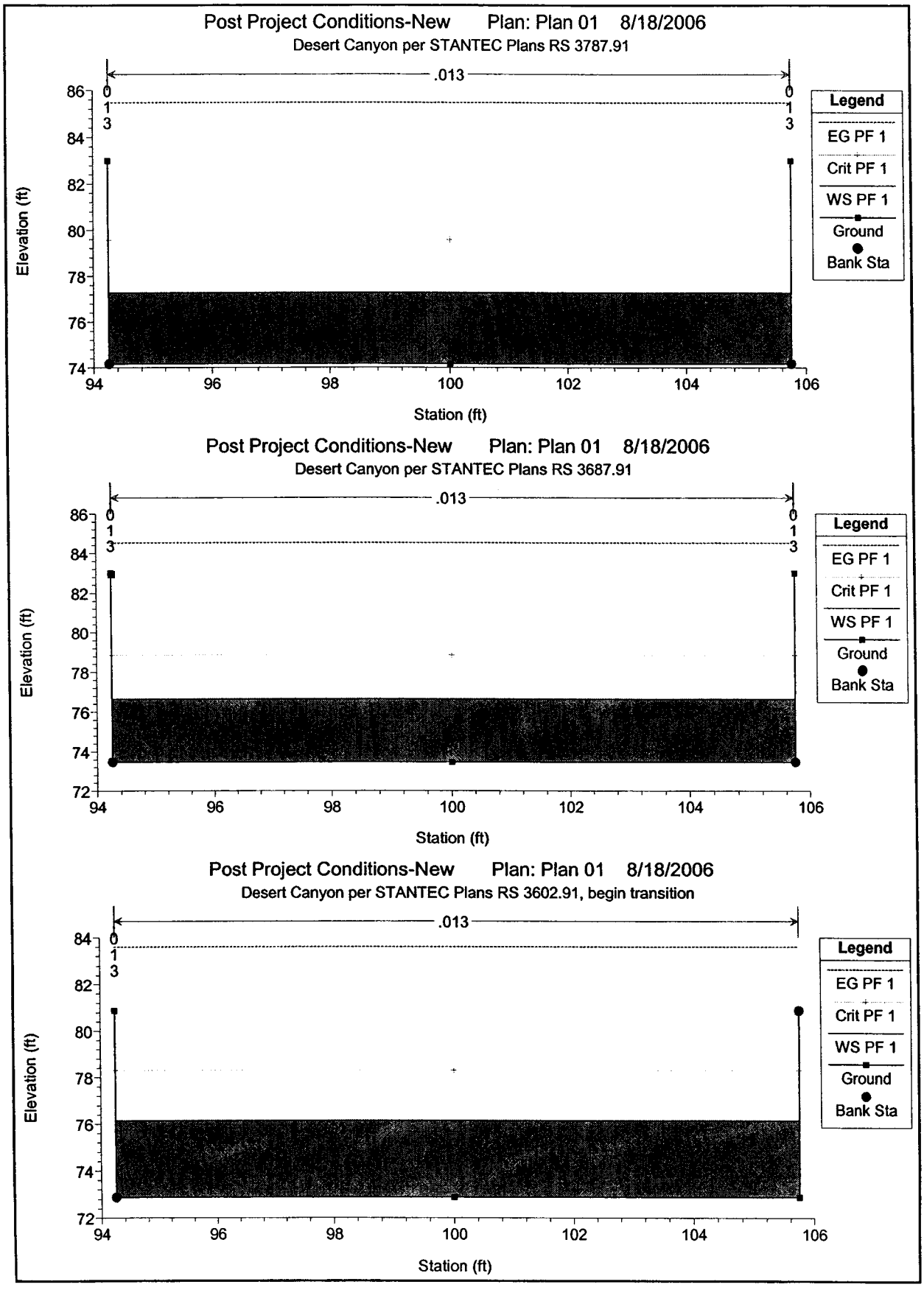

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 26+17.03
.013
0
0
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 26+67.03
.013
0
0
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 33+81.14
.013
0
1
3
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

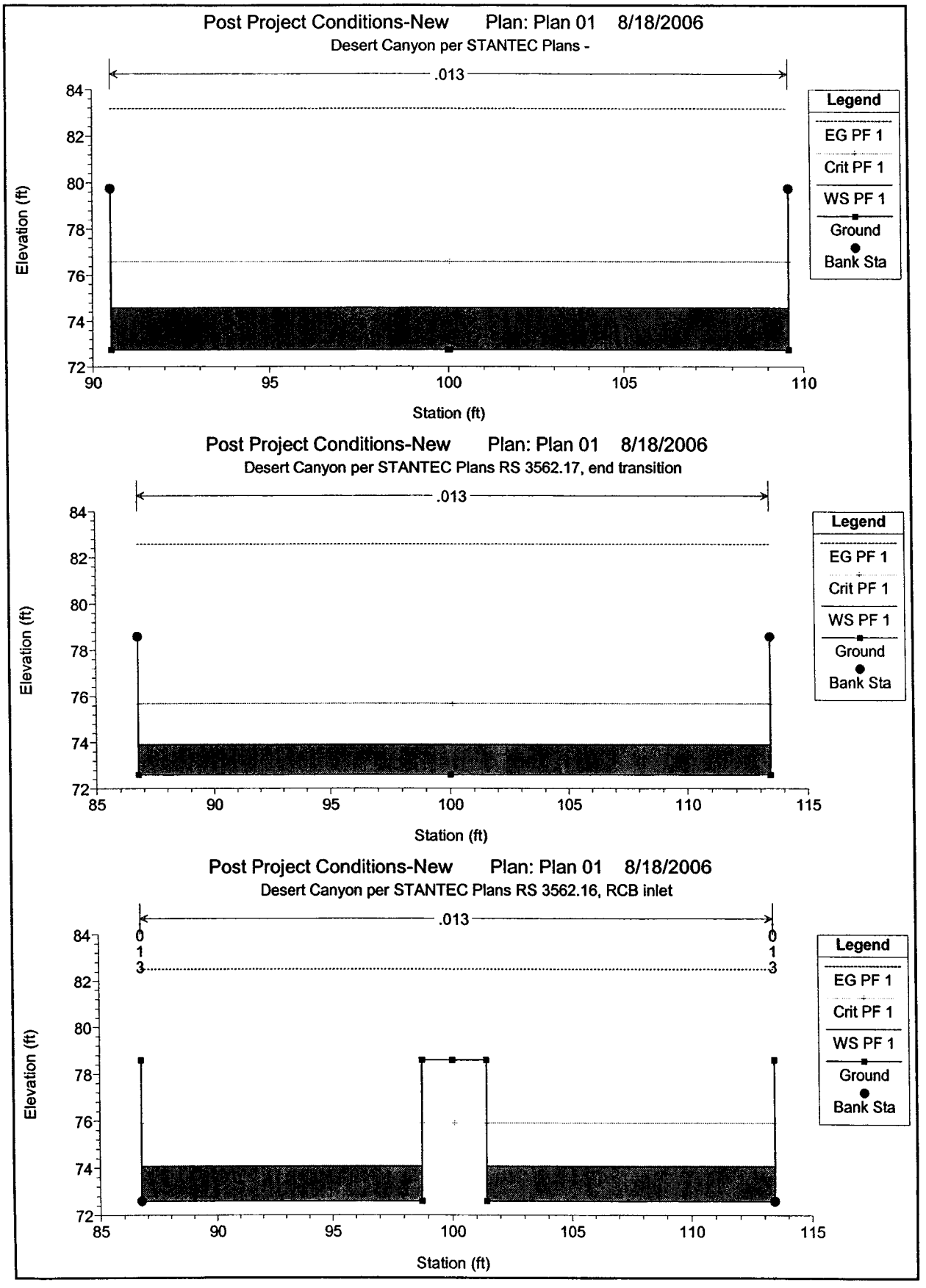

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 34+31.22
.013
0
1
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 37+78.22
.013
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 38+28.23
.013
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

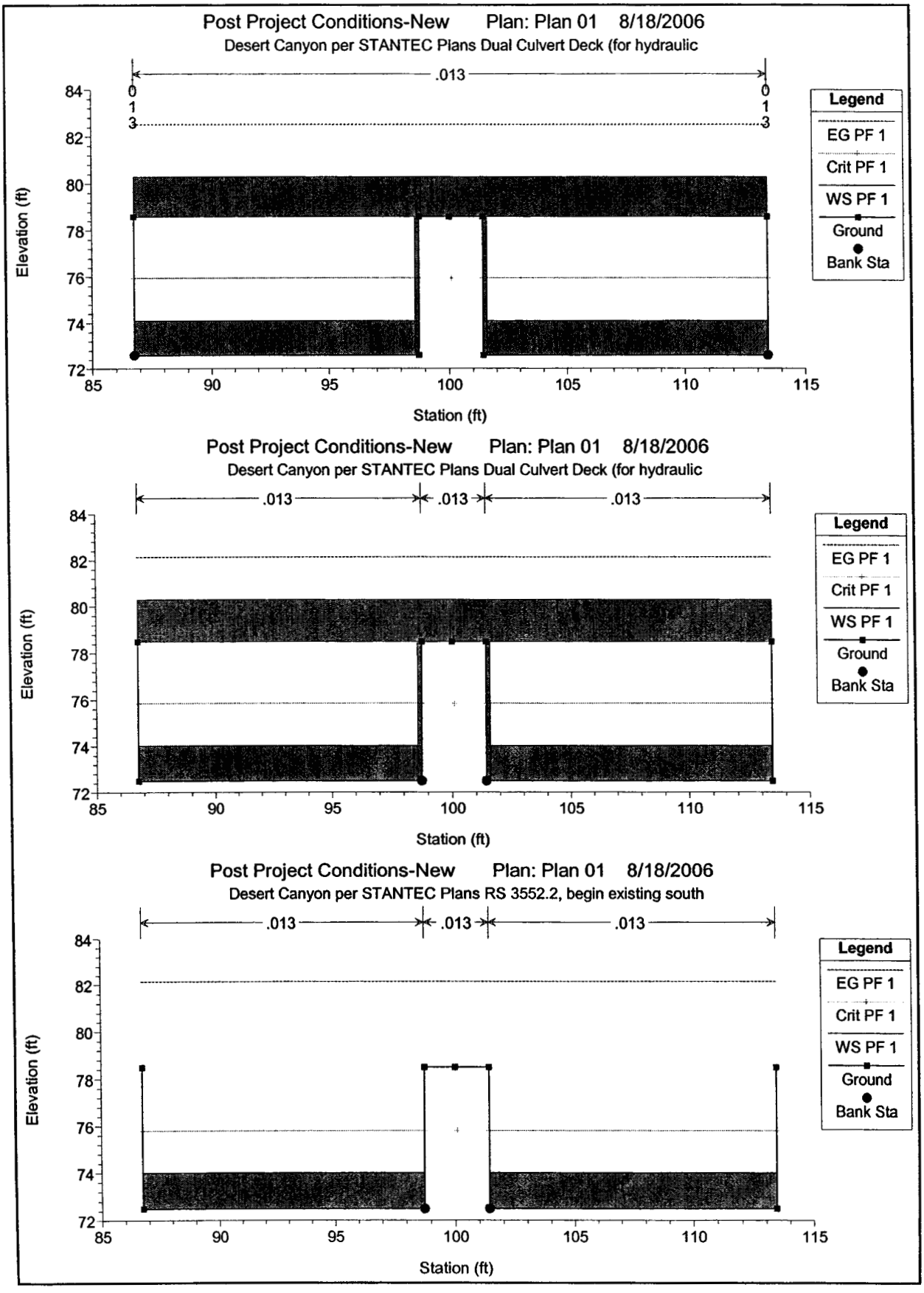

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 40+17.45
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 45+72.94
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 46+37.97
.013
.0
.0
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

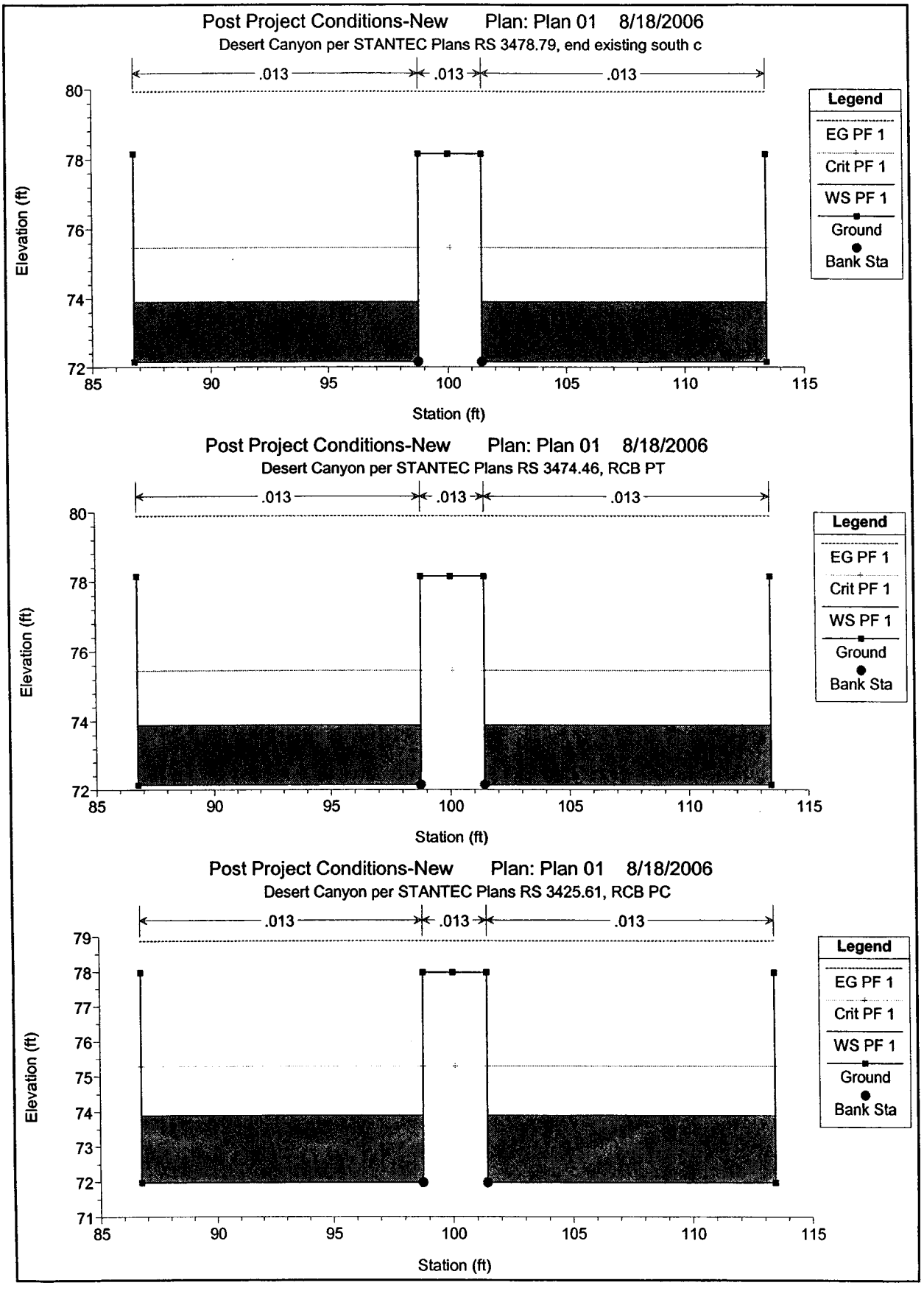

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 50+60
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 51+10.50
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 54+00.55
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

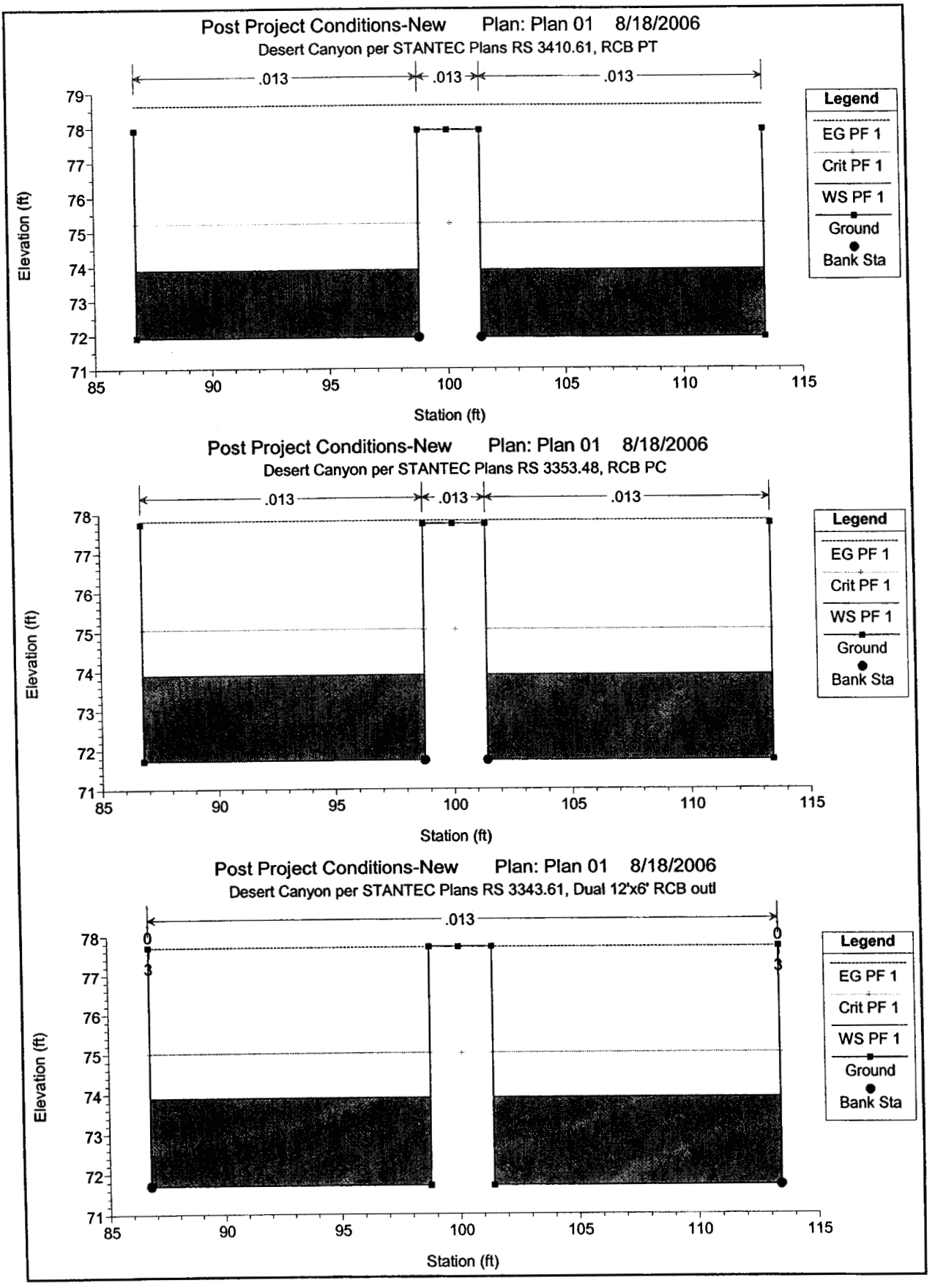

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 55+60.08 - End Gibson CH
.013
.013
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3987.91
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3887.91
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

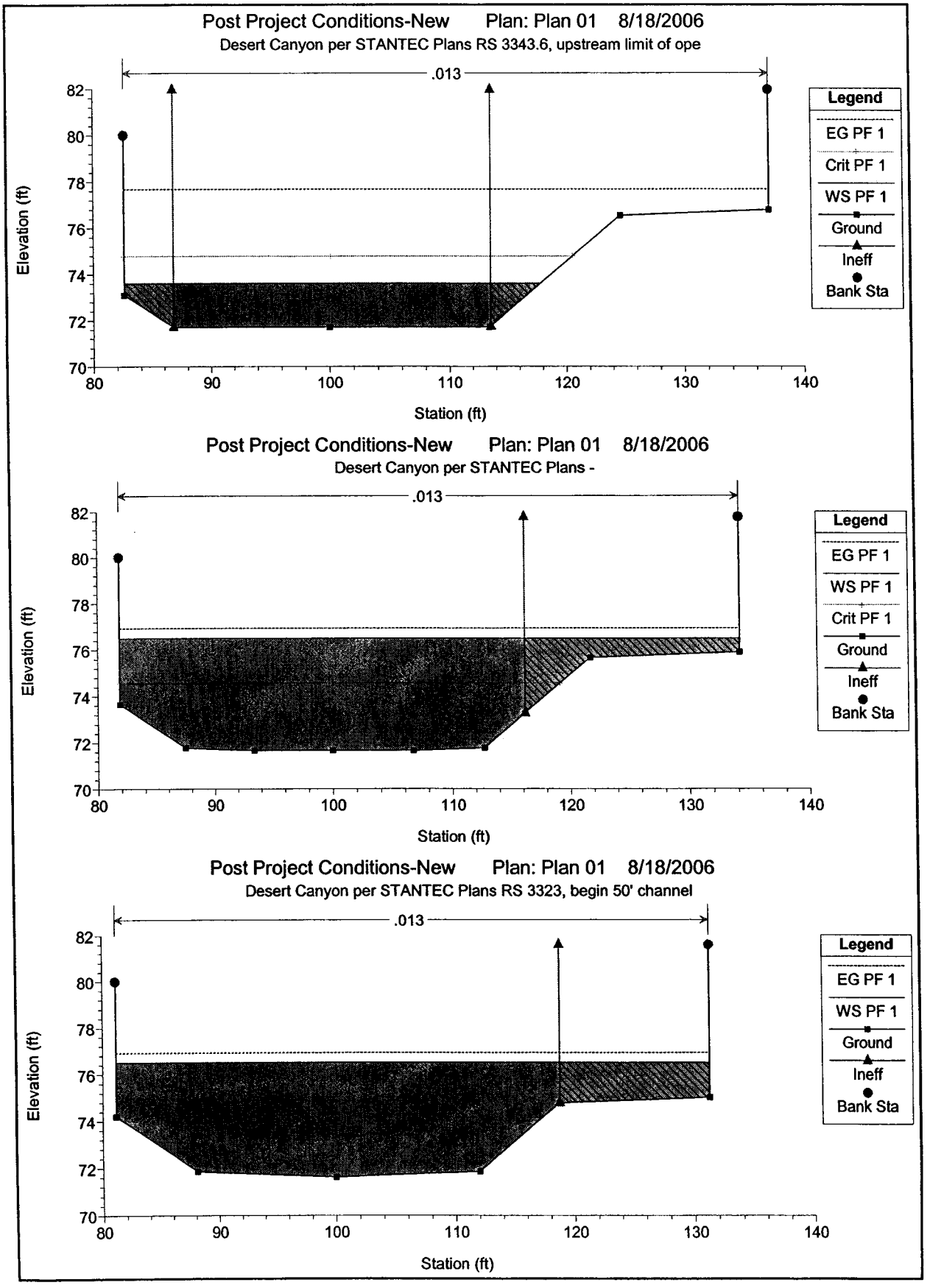

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3787.91
.013
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3687.91
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3602.91, begin transition
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

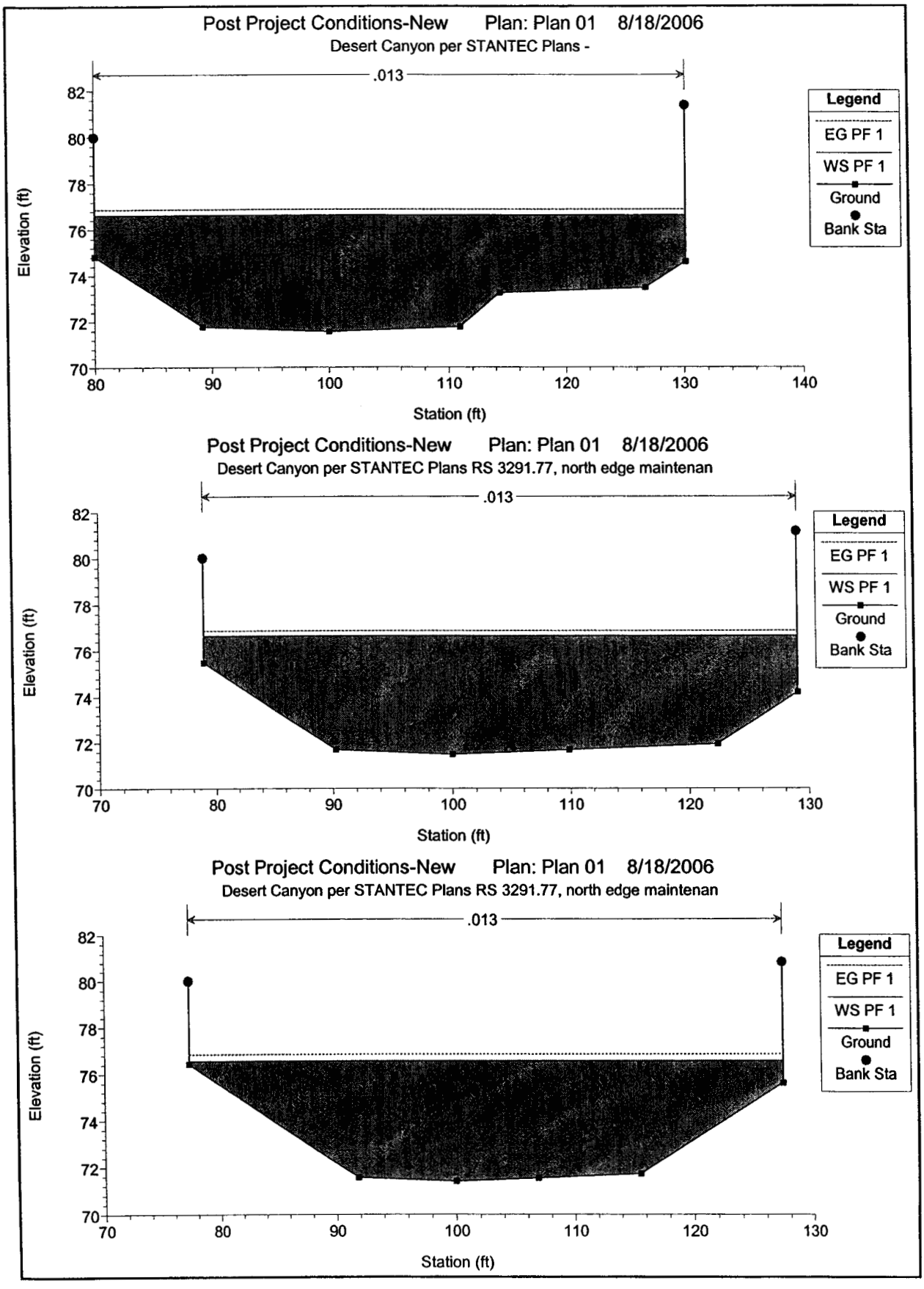

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3562.17, end transition
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3562.16, RCB inlet
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

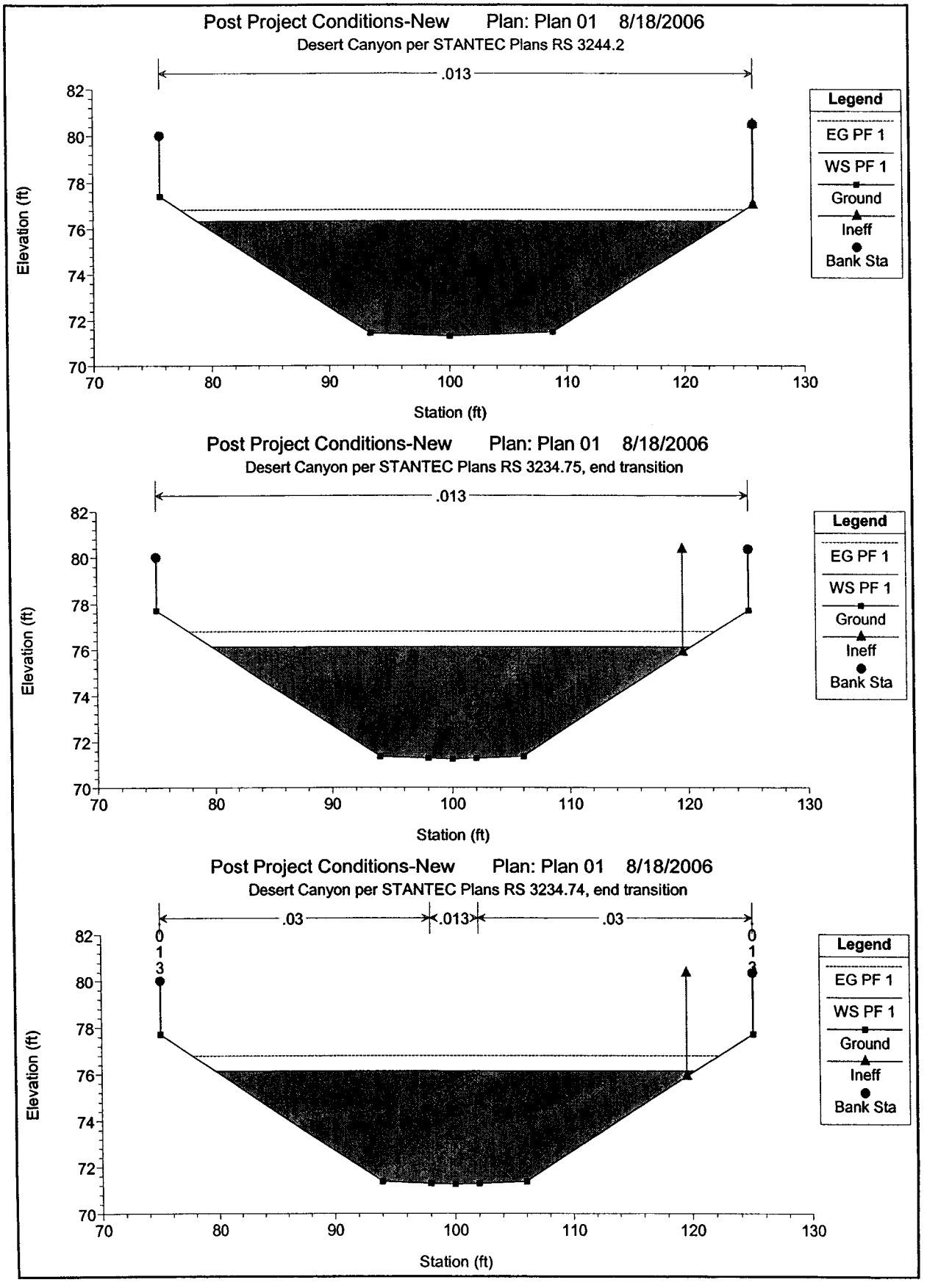

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic
.013
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3552.2, begin existing south
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

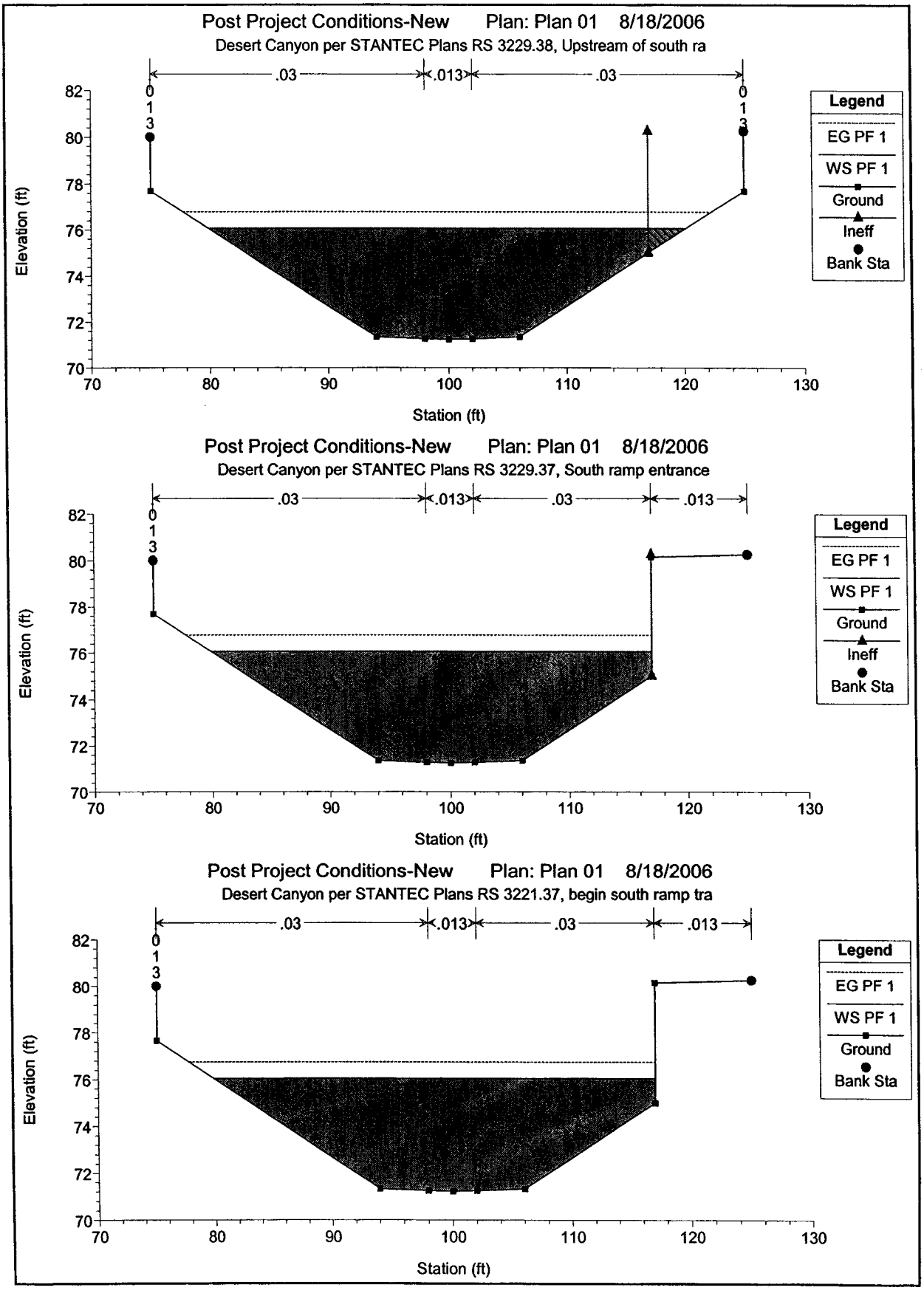

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3478.79, end existing south c
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3474.46, RCB PT
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3425.61, RCB PC
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

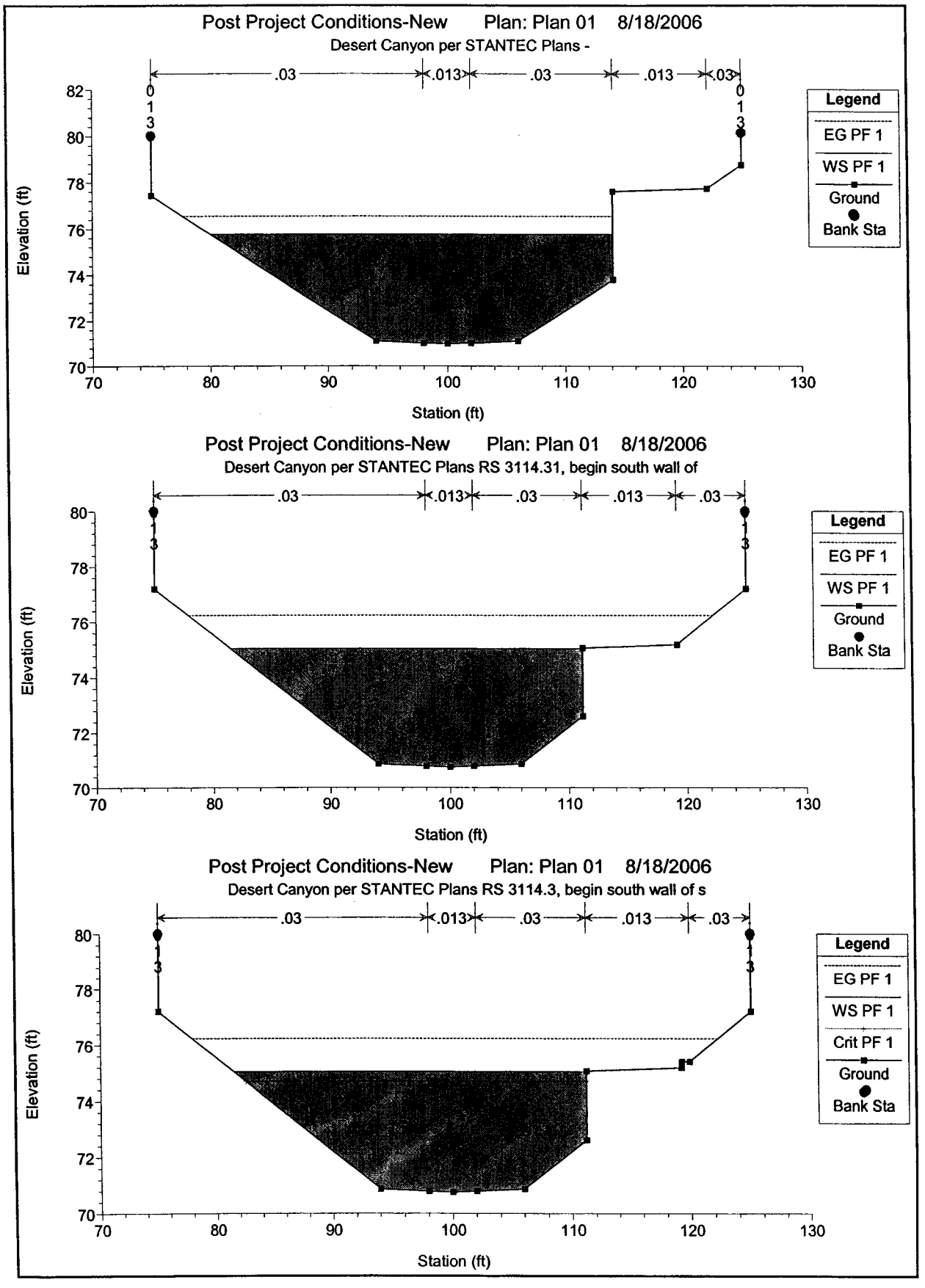

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3410.61, RCB PT
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3353.48, RCB PC
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3343.61, Dual 12'x6' RCB outl
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

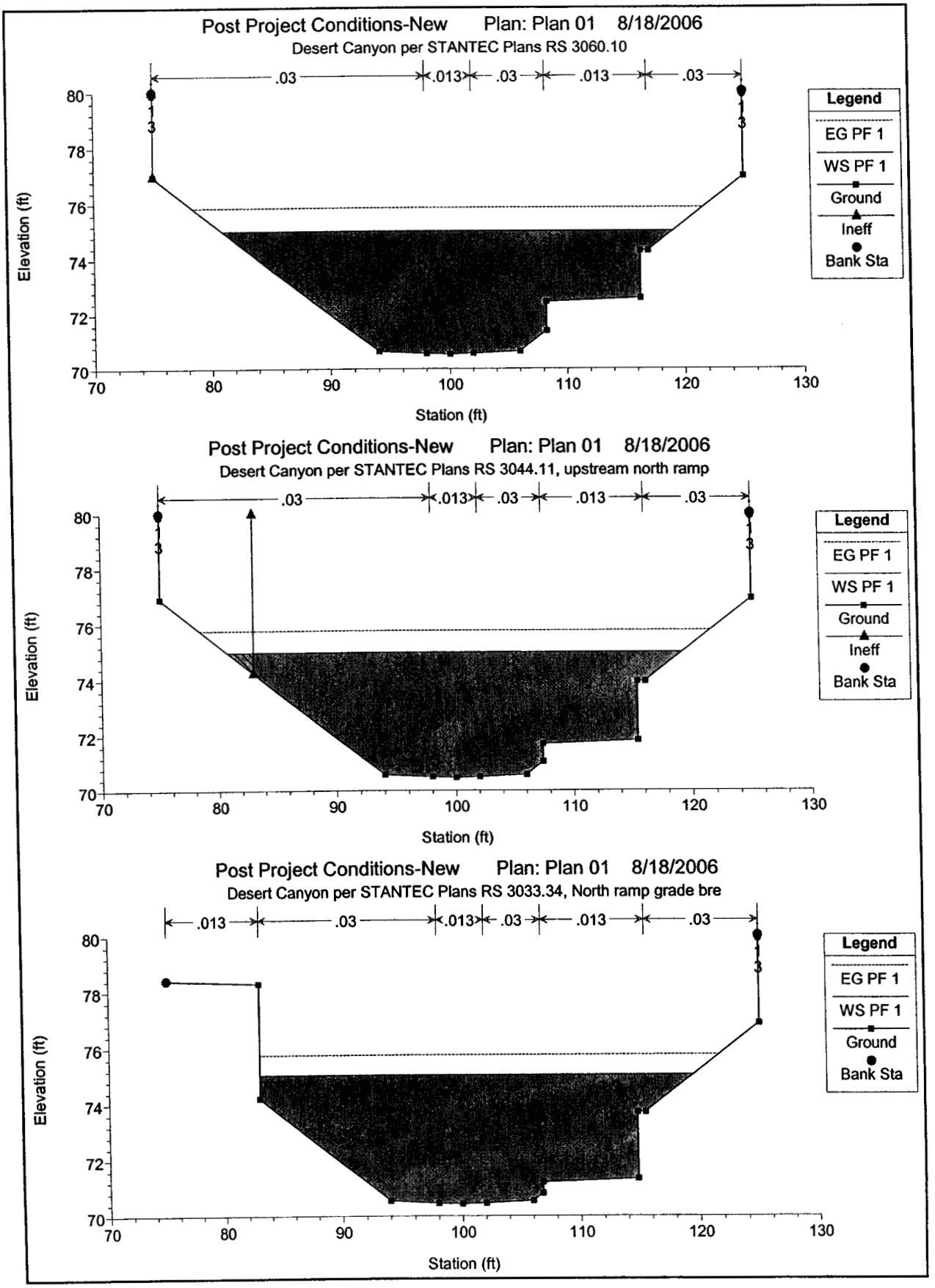

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3343.6, upstream limit of ope
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3323, begin 50' channel
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta

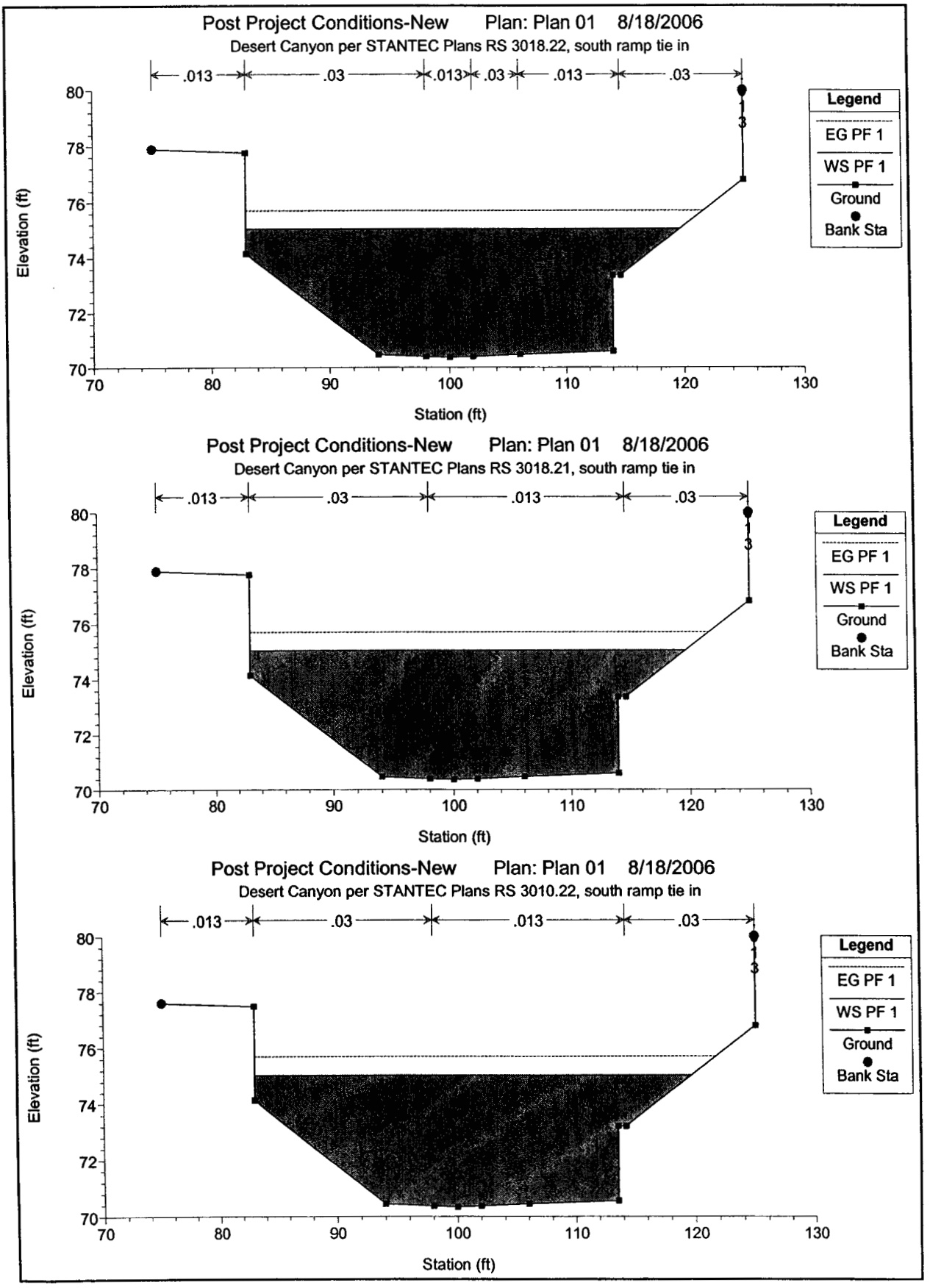

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenan
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenan
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta

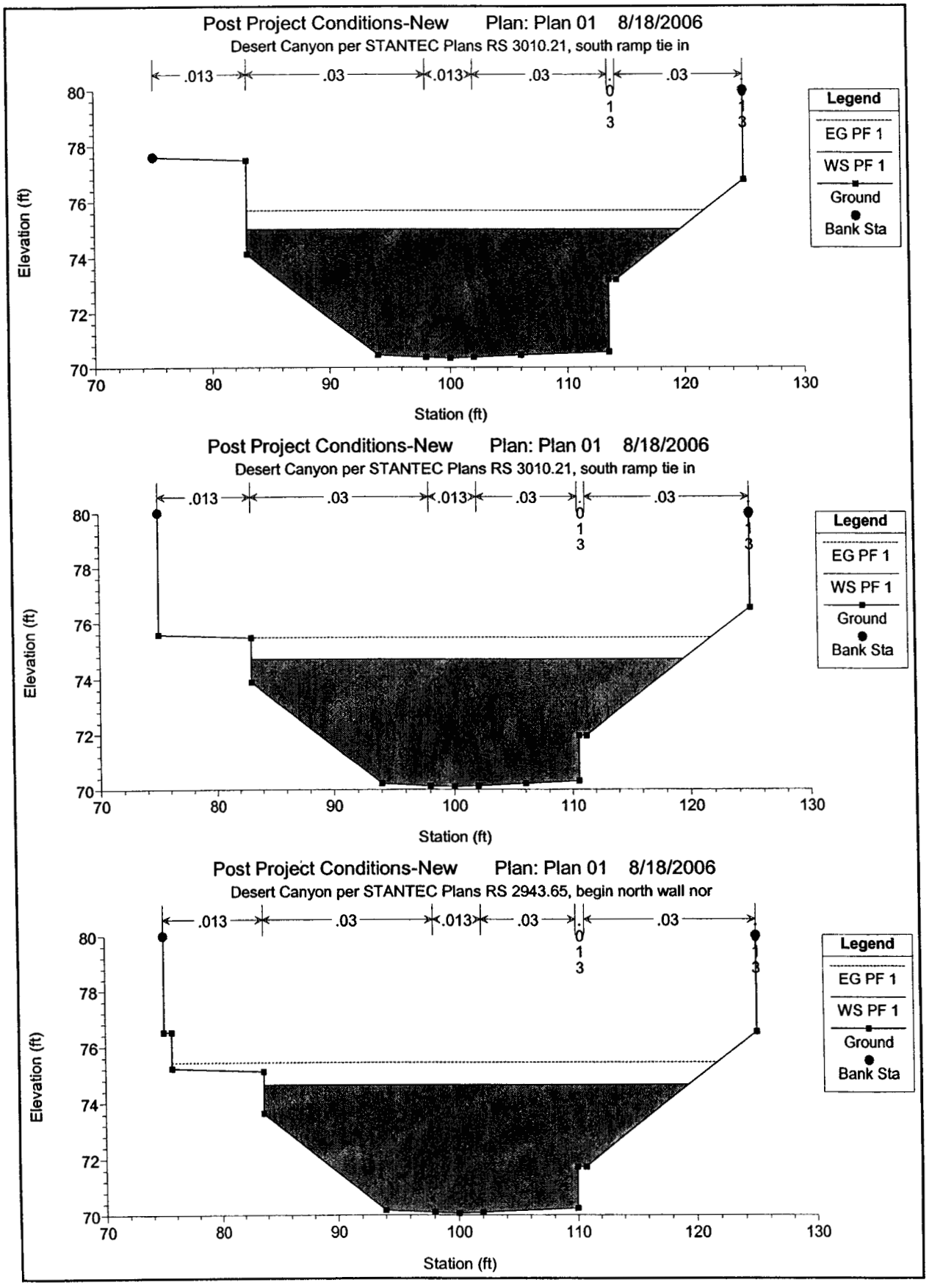

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3244.2
.013
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3234.75, end transition
.013
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3234.74, end transition
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

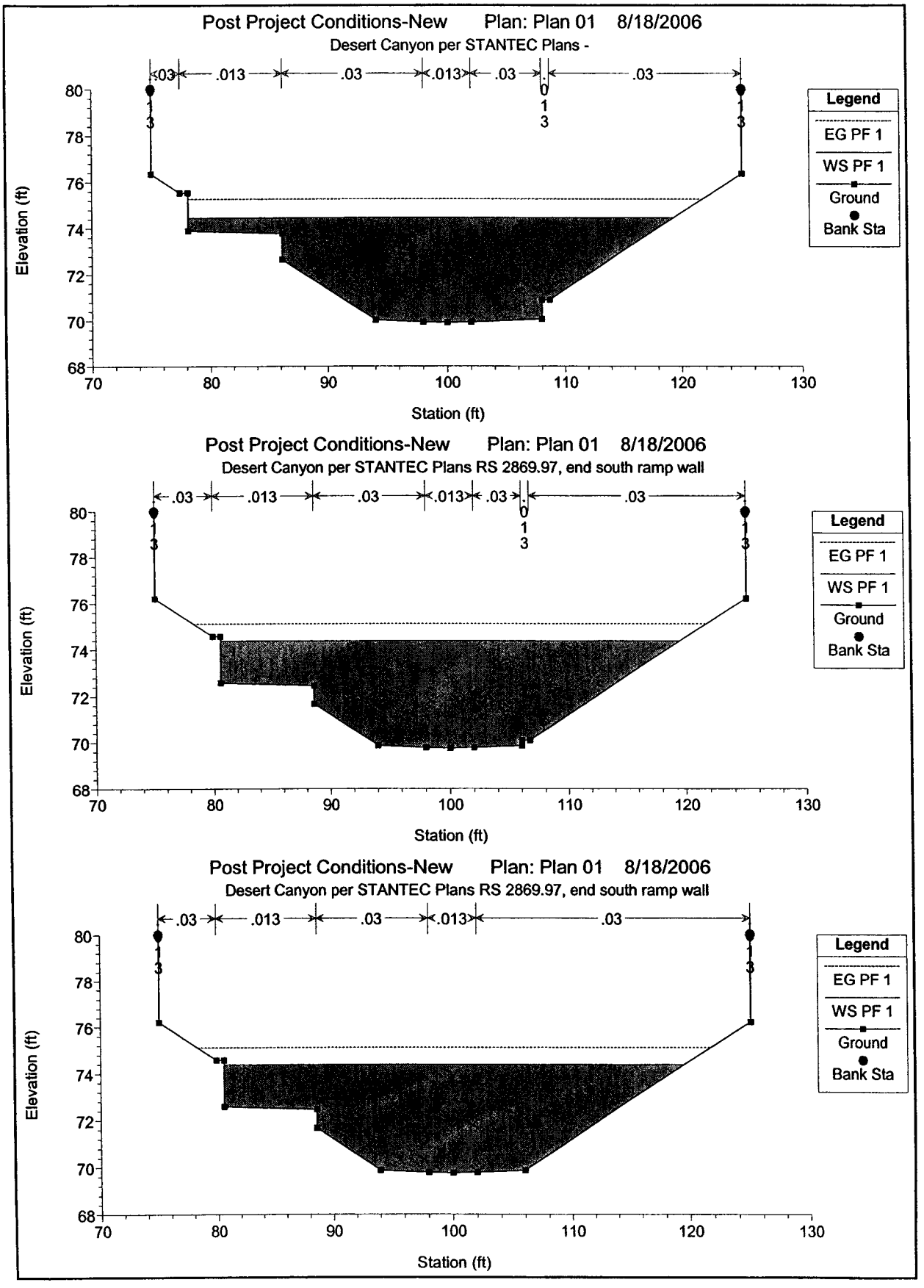

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3229.38, Upstream of south ra
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3229.37, South ramp entrance
.03
.013
.03
.013
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3221.37, begin south ramp tra
.03
.013
.03
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

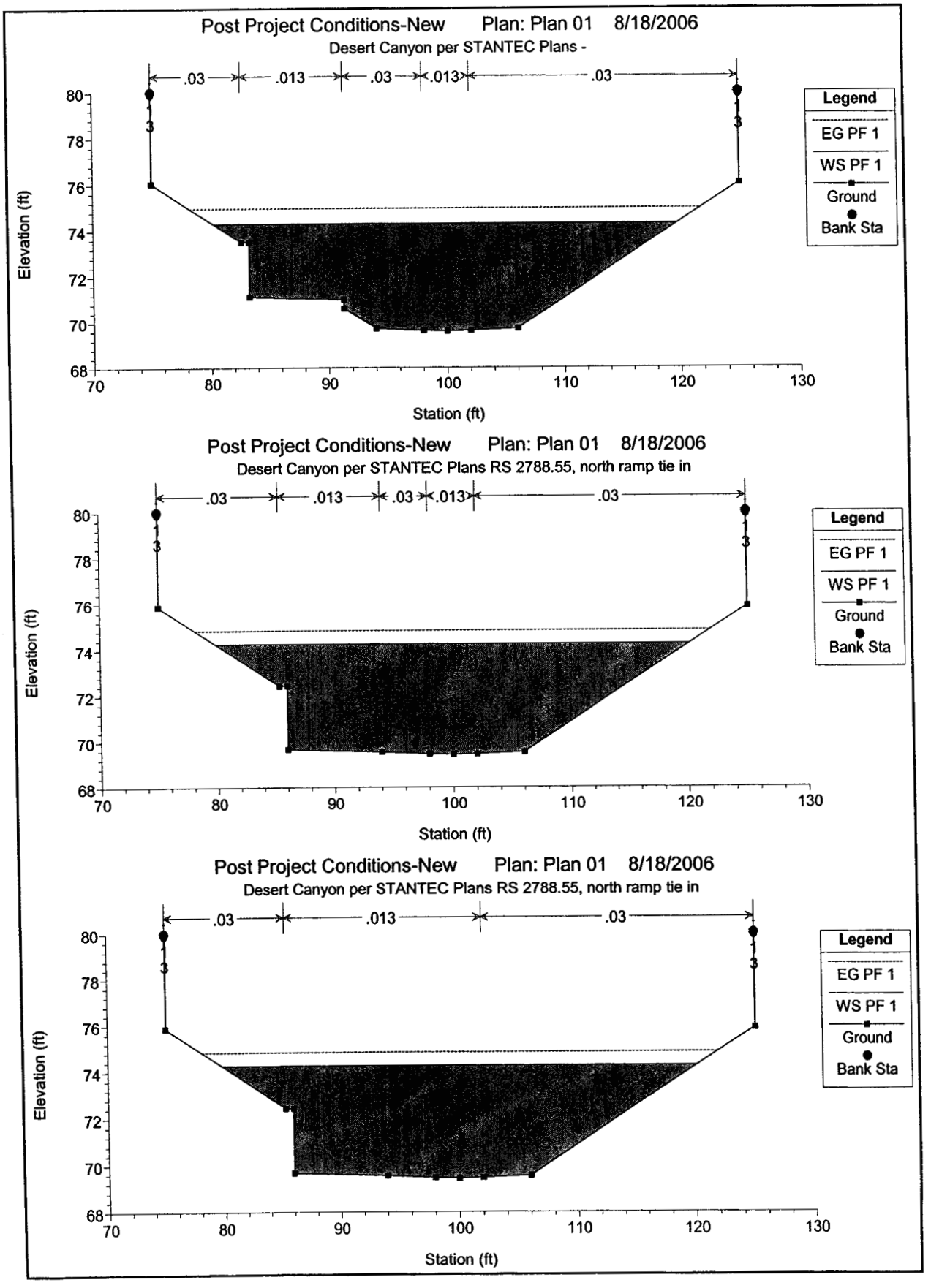

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3114.31, begin south wall of
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3114.3, begin south wall of s
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

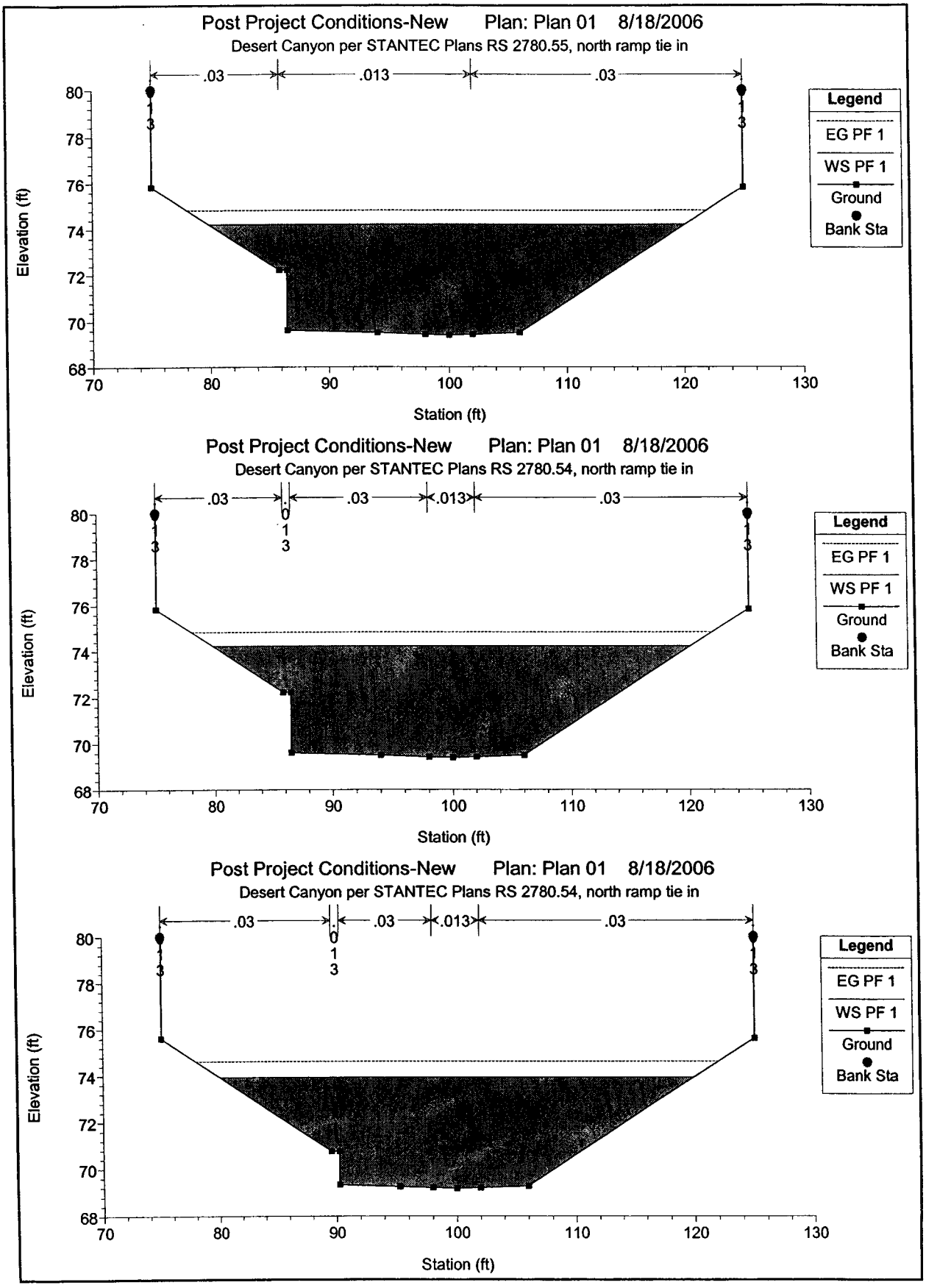

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3060.10
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3044.11, upstream north ramp
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3033.34, North ramp grade bre
.013
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

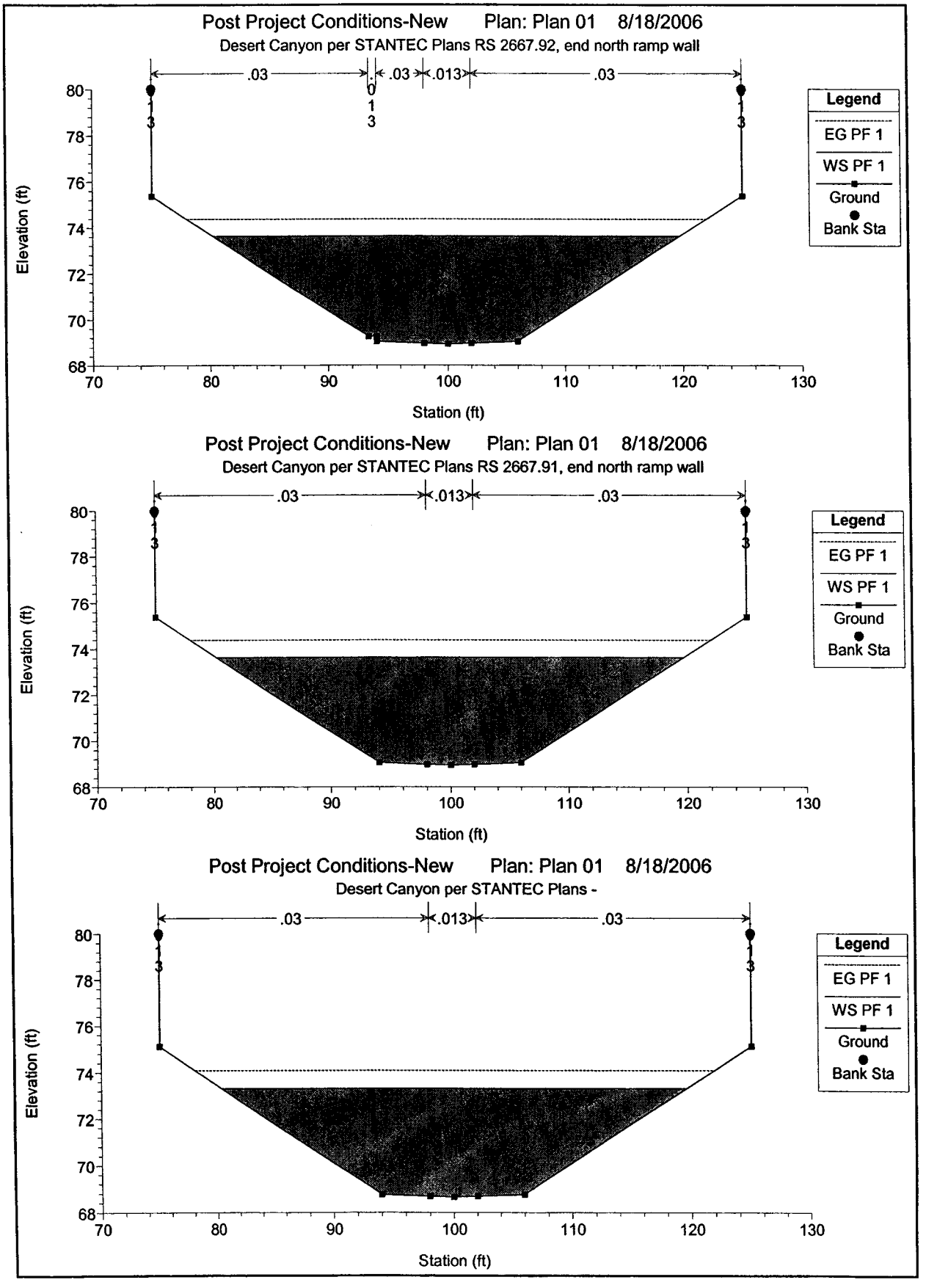

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3018.22, south ramp tie in
.013
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3018.21, south ramp tie in
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3010.22, south ramp tie in
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in
.013
.03
.013
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2943.65, begin north wall nor


Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
.013
.03
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall

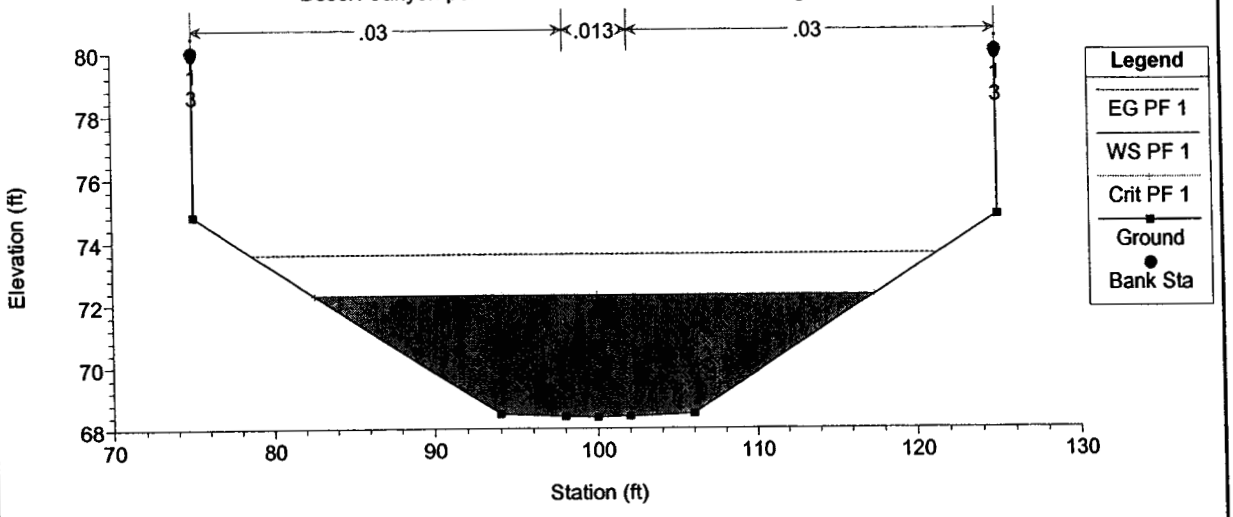

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2780.55, north ramp tie in
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in
.03
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in
.03
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2667.92, end north ramp wall
.03
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2667.91, end north ramp wall
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

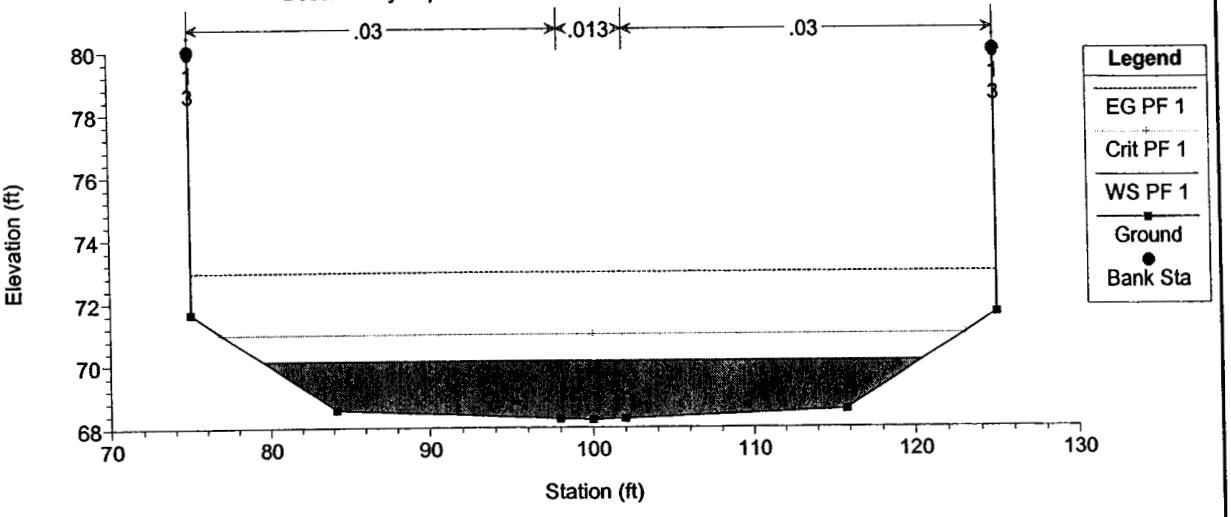
Post Project Conditions-New Plan: Plan 01 8/18/2006

Desert Canyon per STANTEC Plans RS 2529.94, Begin Transition



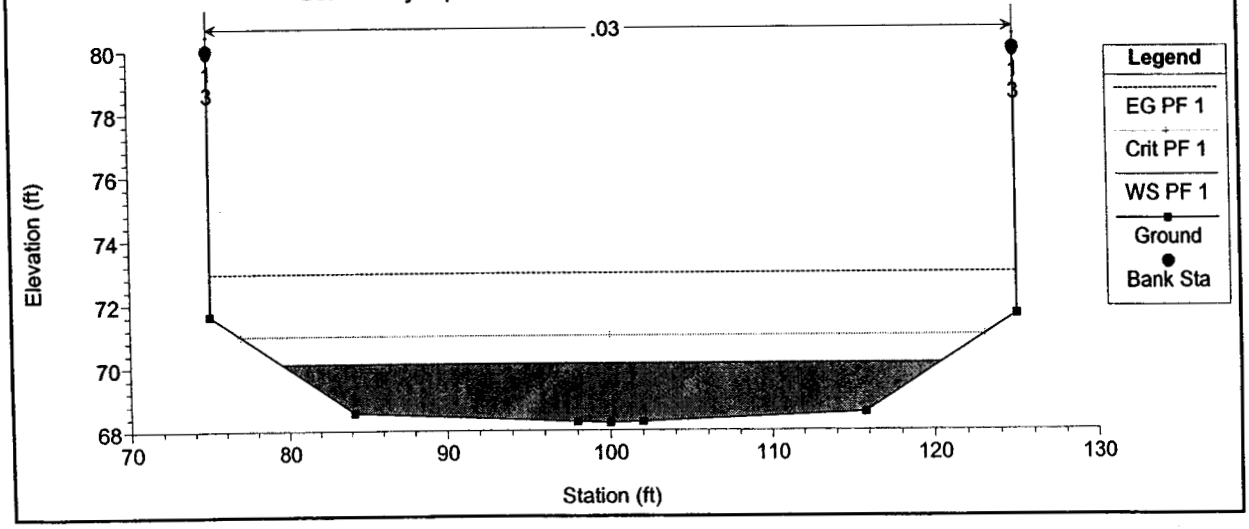
Post Project Conditions-New Plan: Plan 01 8/18/2006

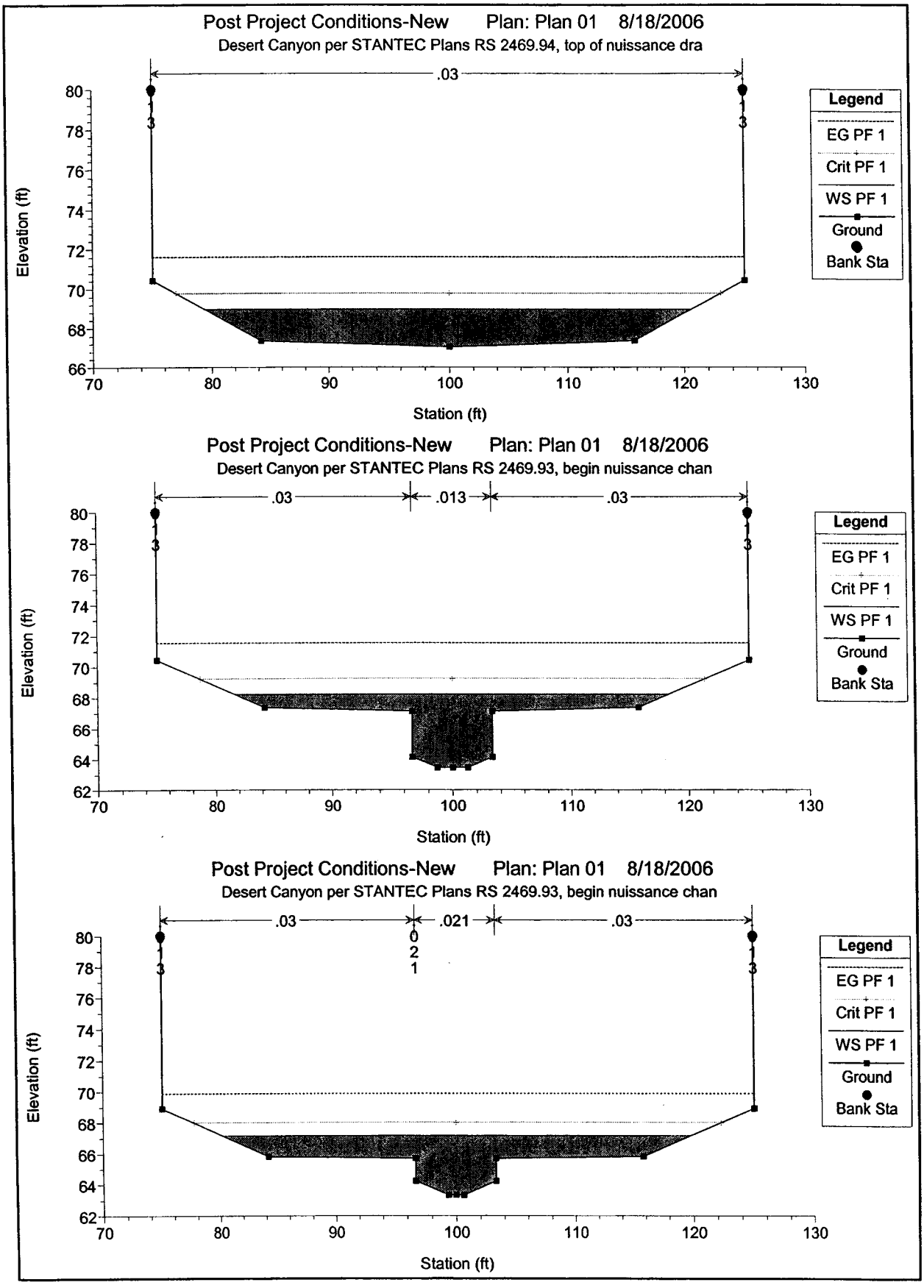
Desert Canyon per STANTEC Plans RS 2499.93, end transition, begi

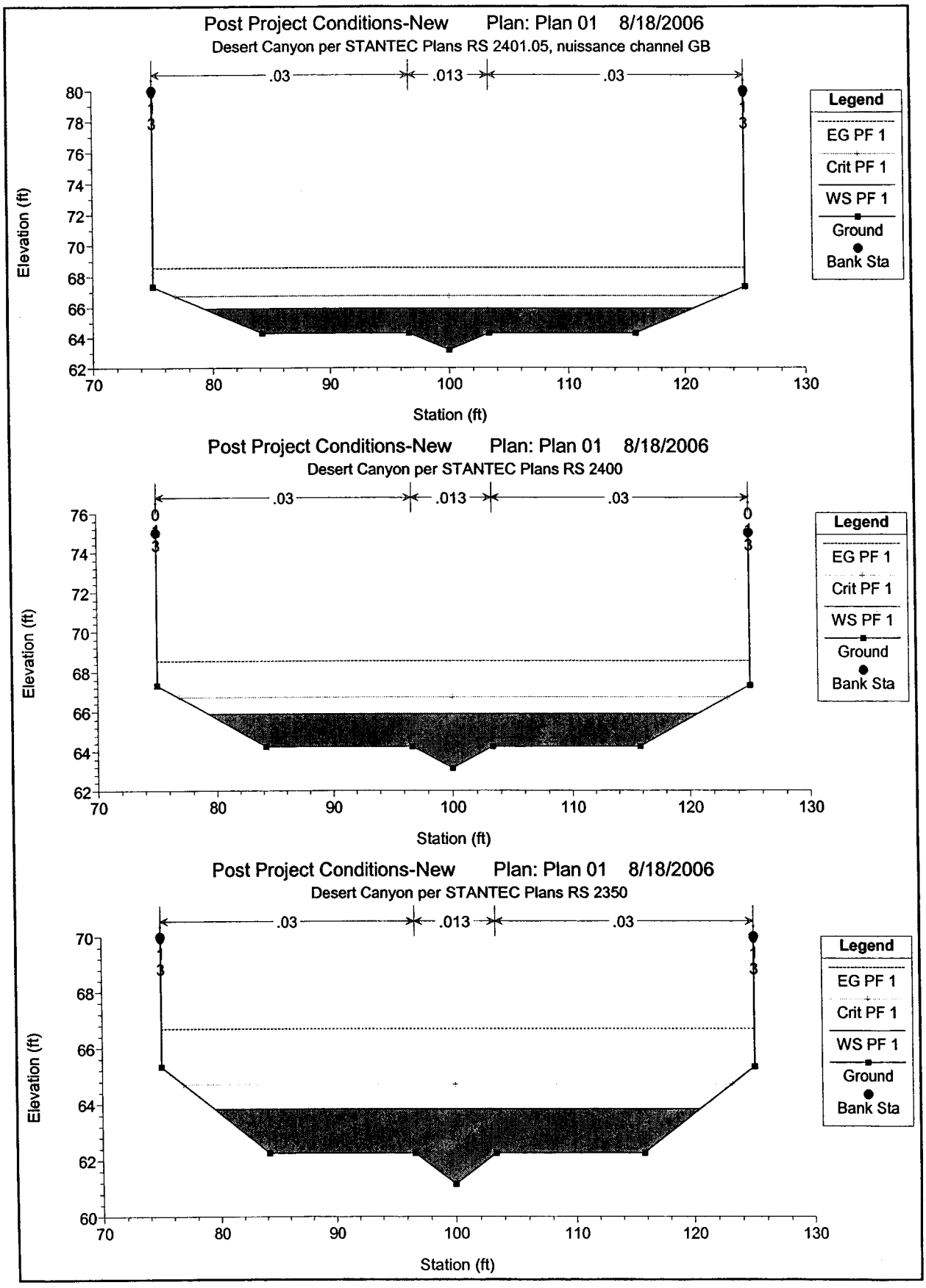


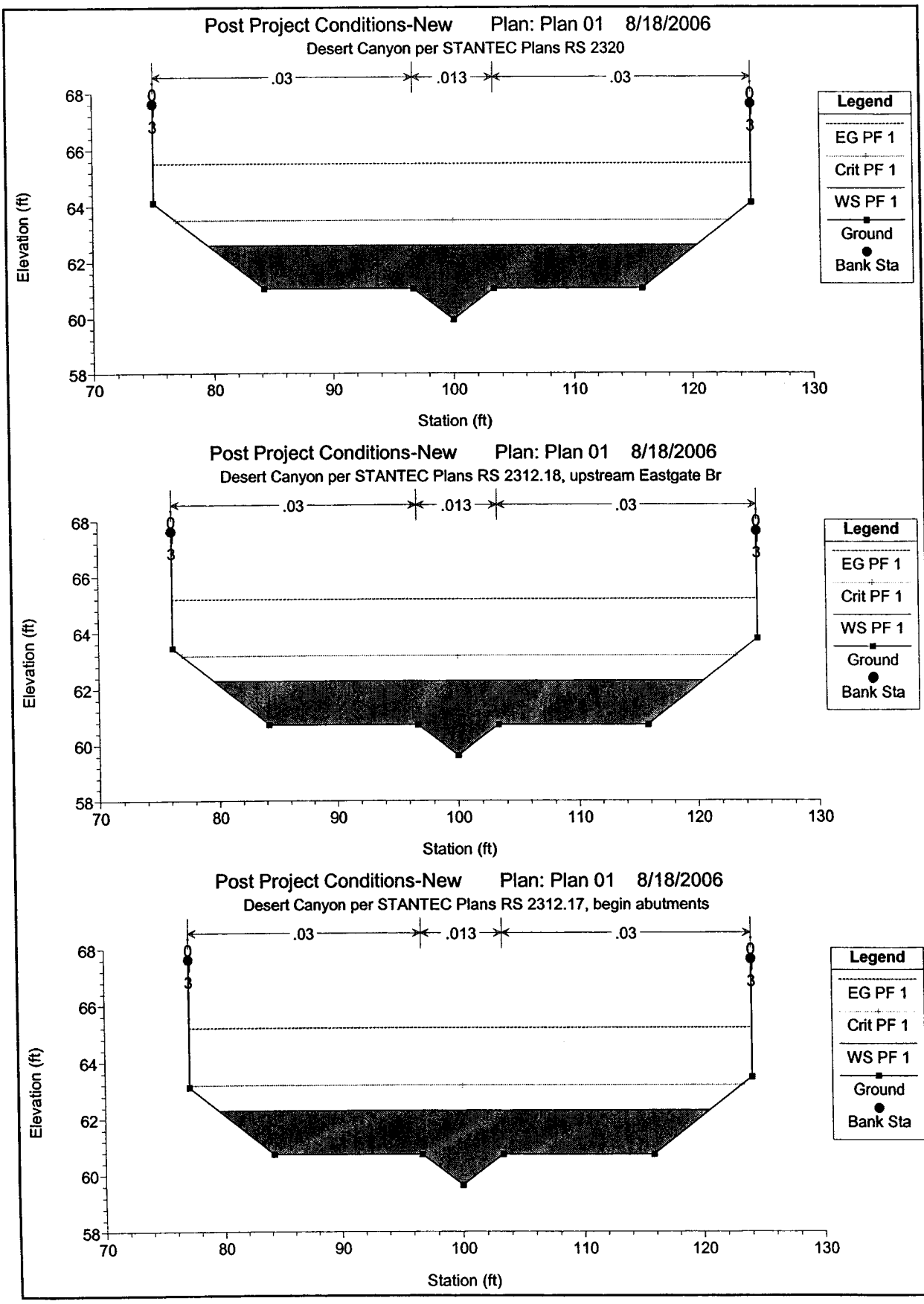
Post Project Conditions-New Plan: Plan 01 8/18/2006

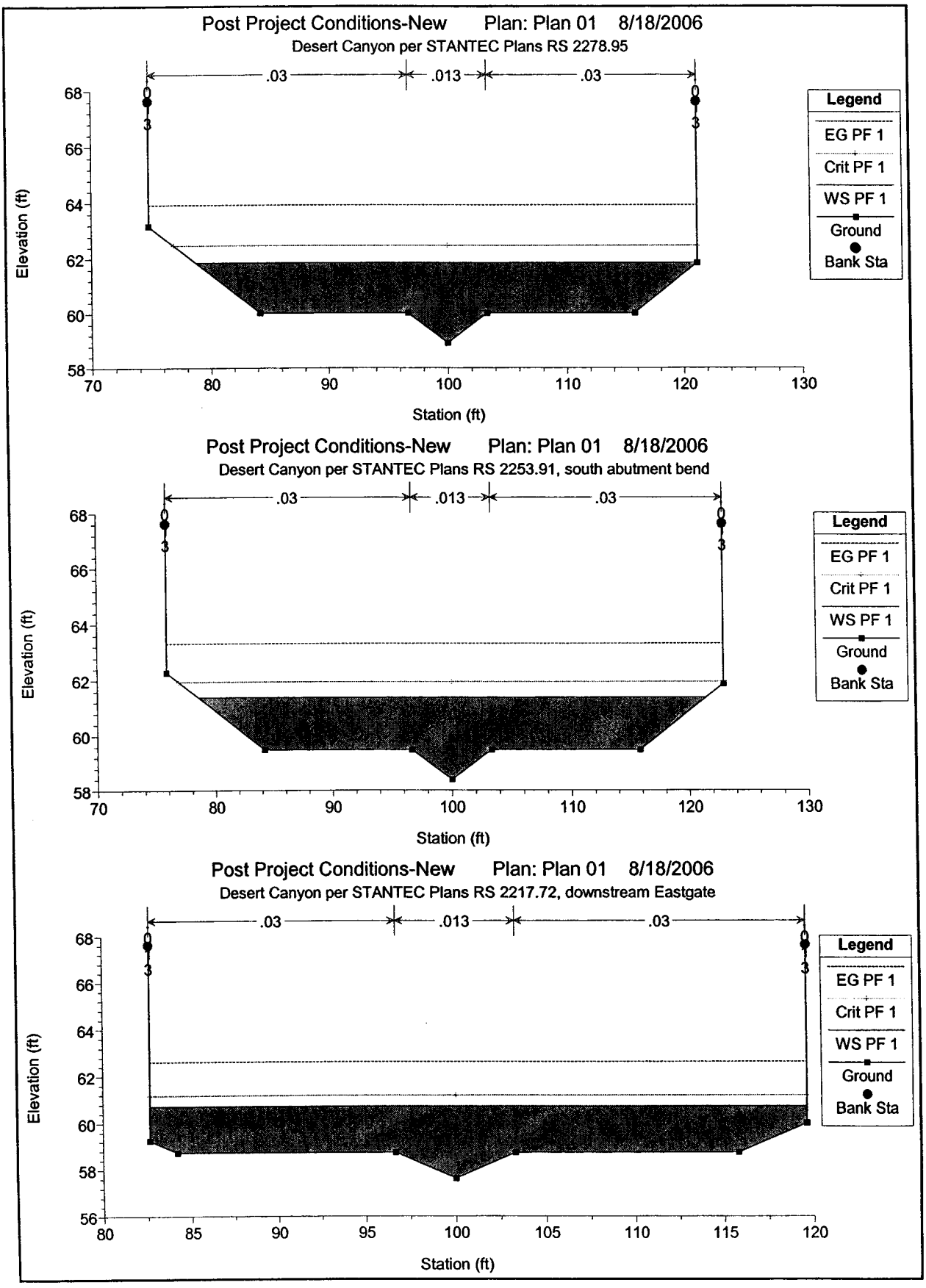
Desert Canyon per STANTEC Plans RS 2499.94, end transition, begi

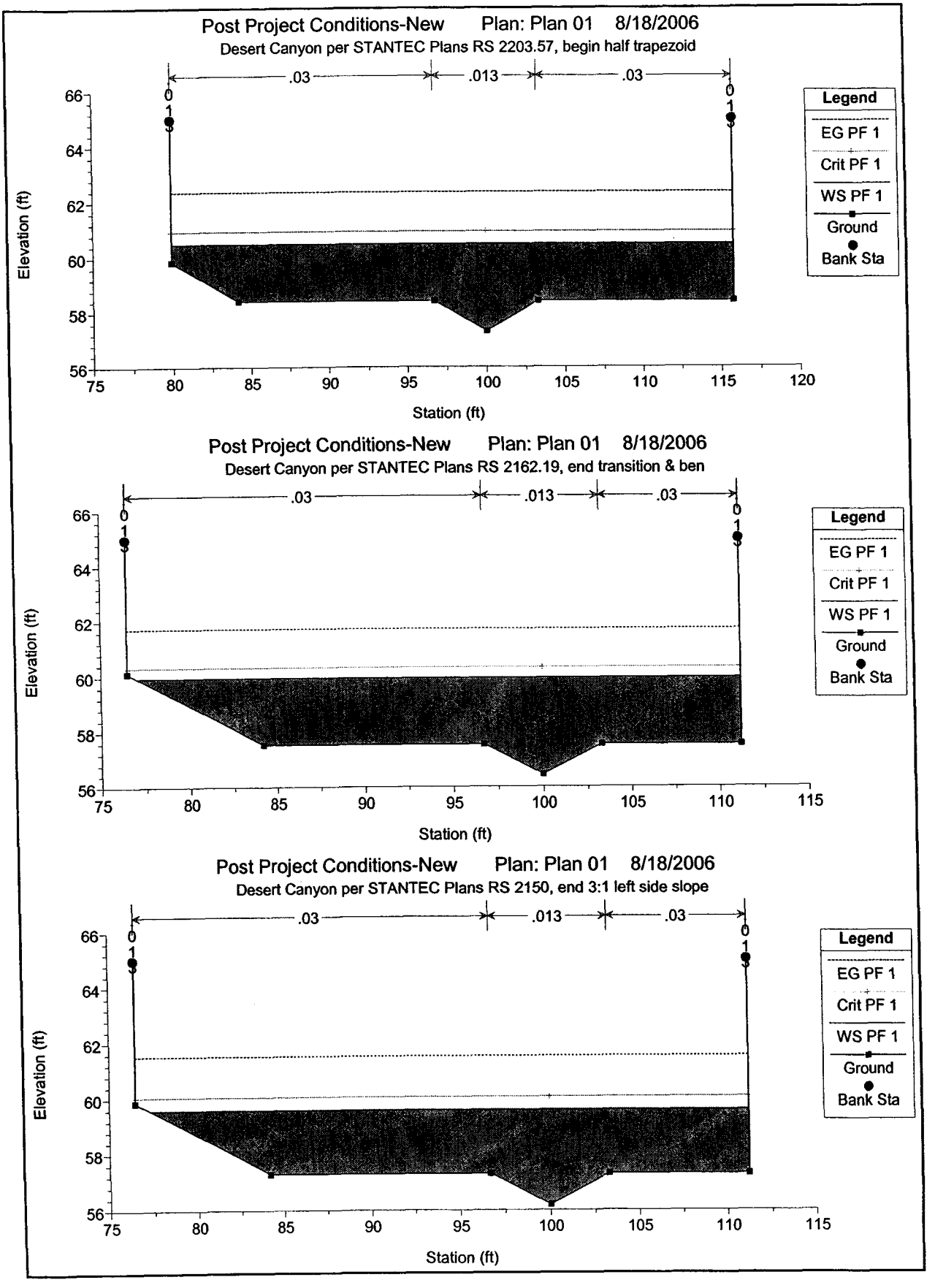


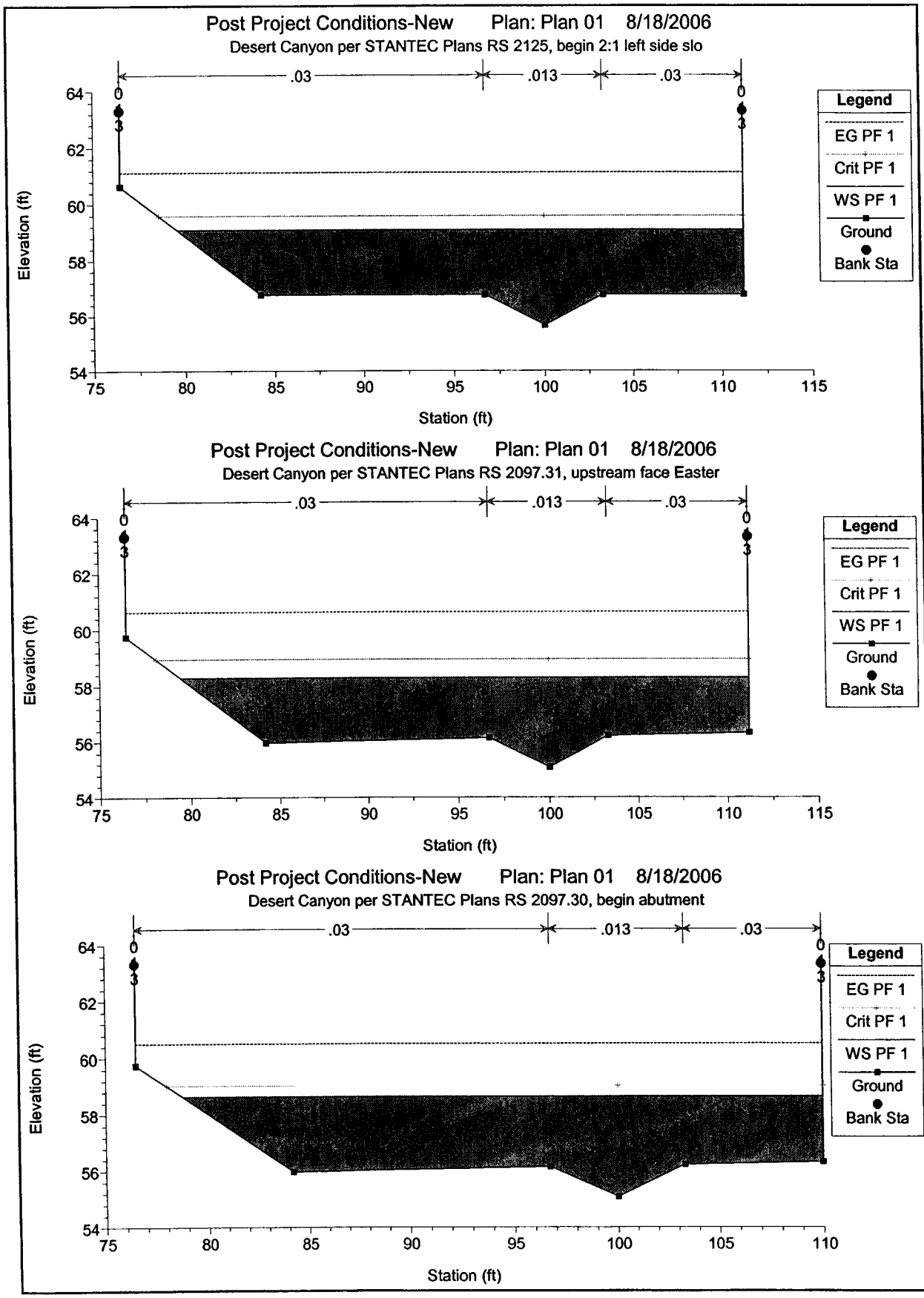

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2469.94, top of nuissance dra
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance chan
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance chan
.03
.021
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

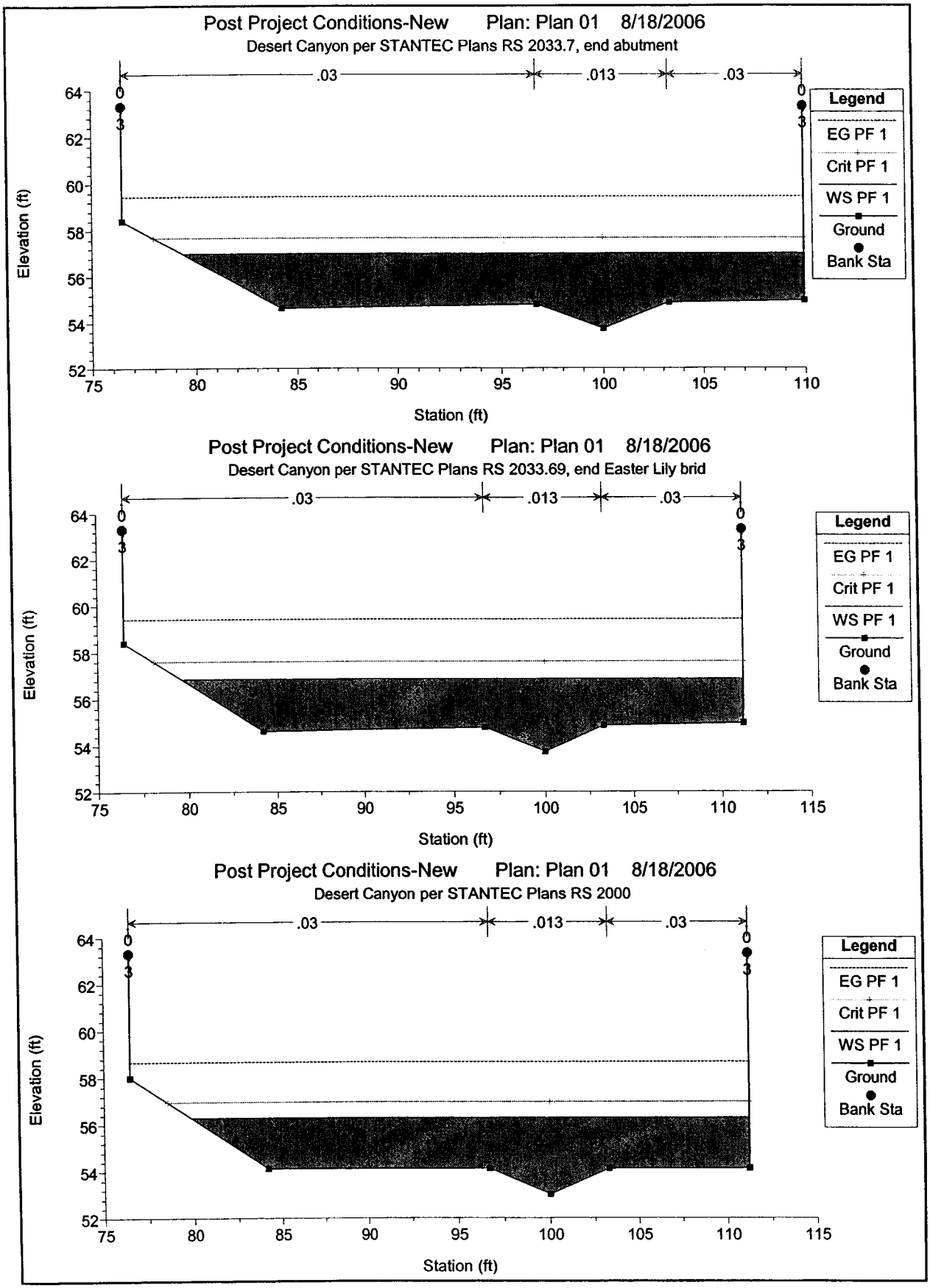

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2401.05, nuissance channel GB
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2400
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2350
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

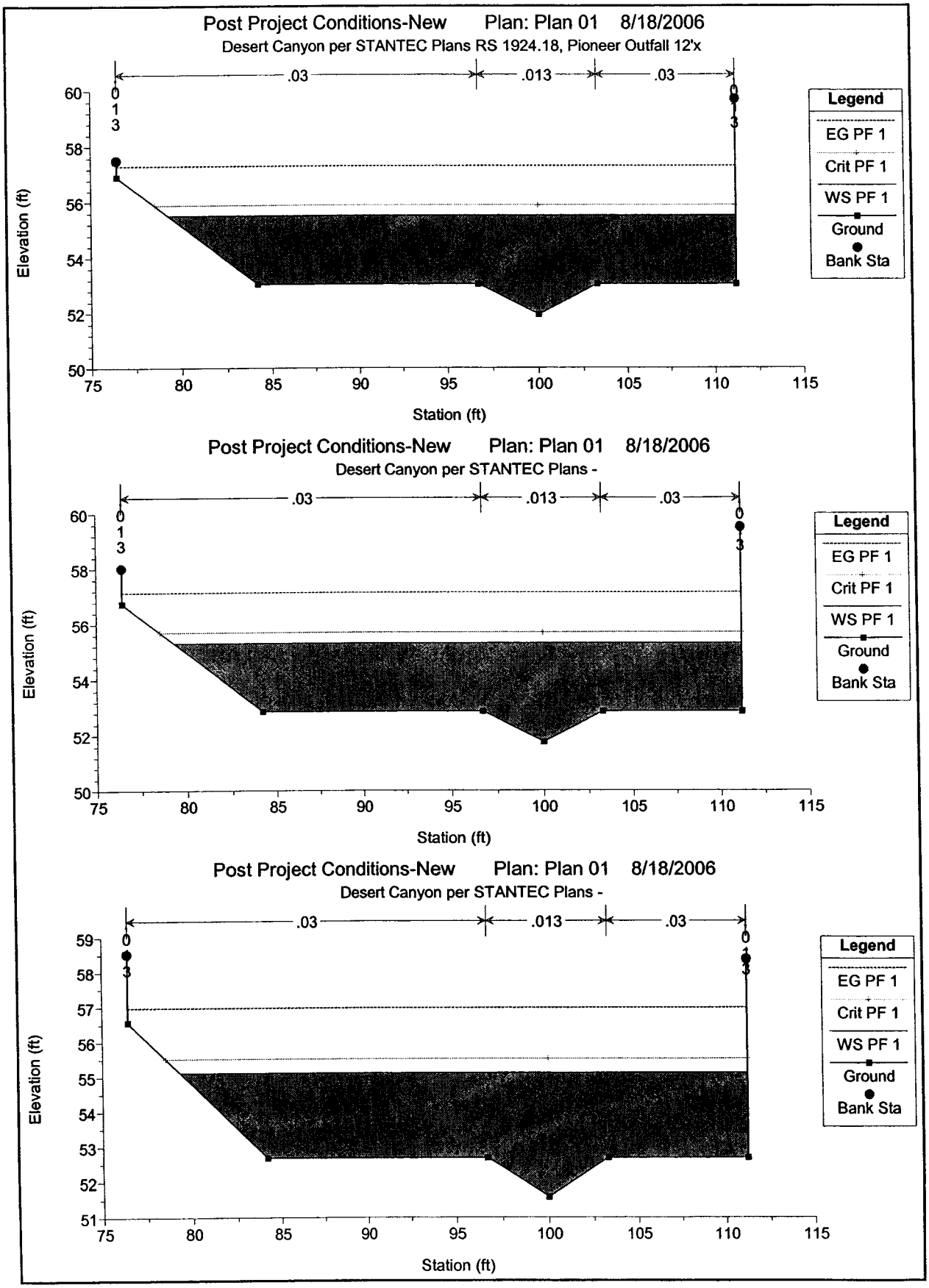

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2320
.03
.013
.03
0
3
0
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
68
66
64
62
60
58
70
80
90
100
110
120
130
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2312.18, upstream Eastgate Br
.03
.013
.03
0
3
0
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
68
66
64
62
60
58
70
80
90
100
110
120
130
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2312.17, begin abutments
.03
.013
.03
0
3
0
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
68
66
64
62
60
58
70
80
90
100
110
120
130
Station (ft)

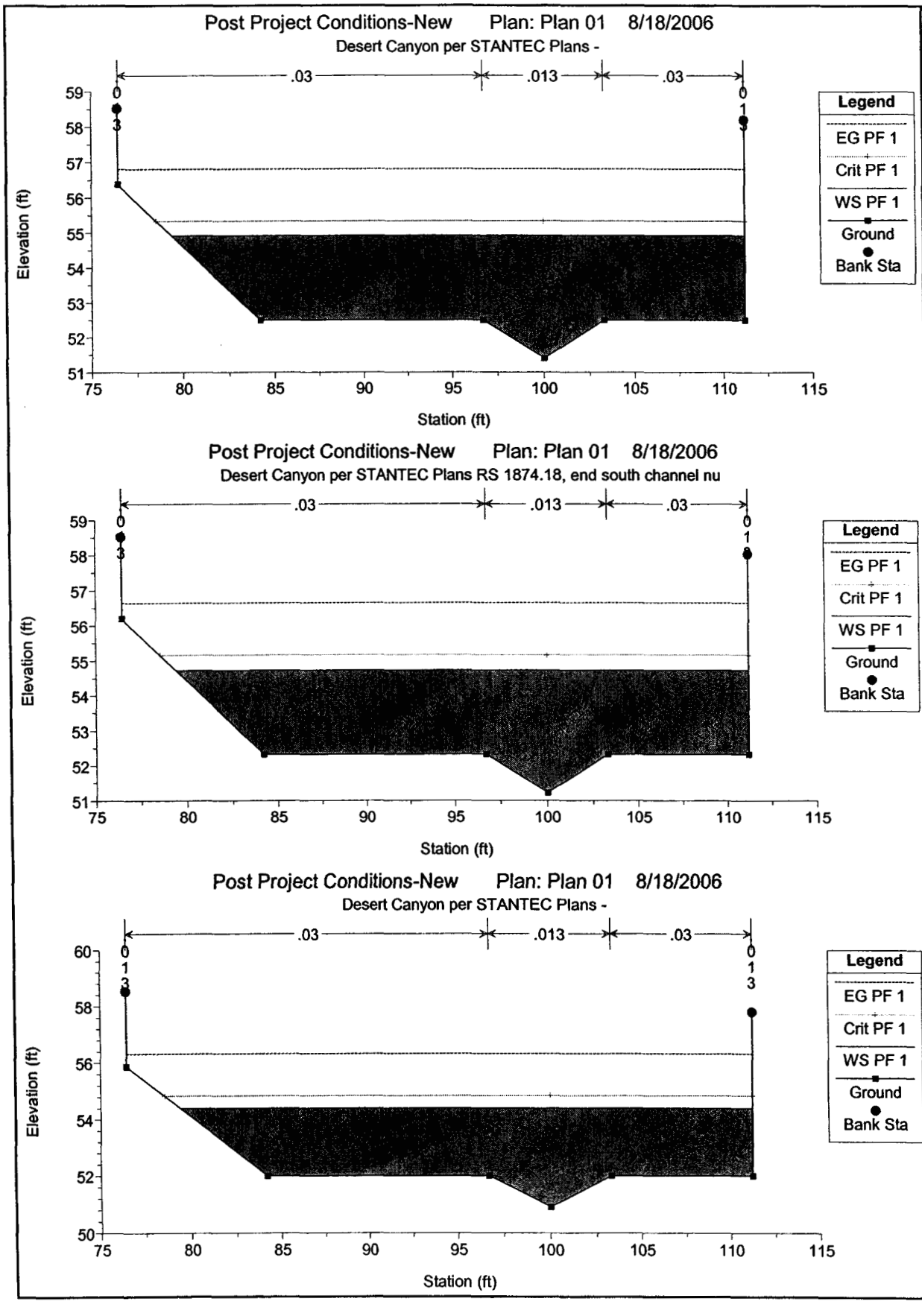

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2278.95
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2253.91, south abutment bend
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2217.72, downstream Eastgate
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

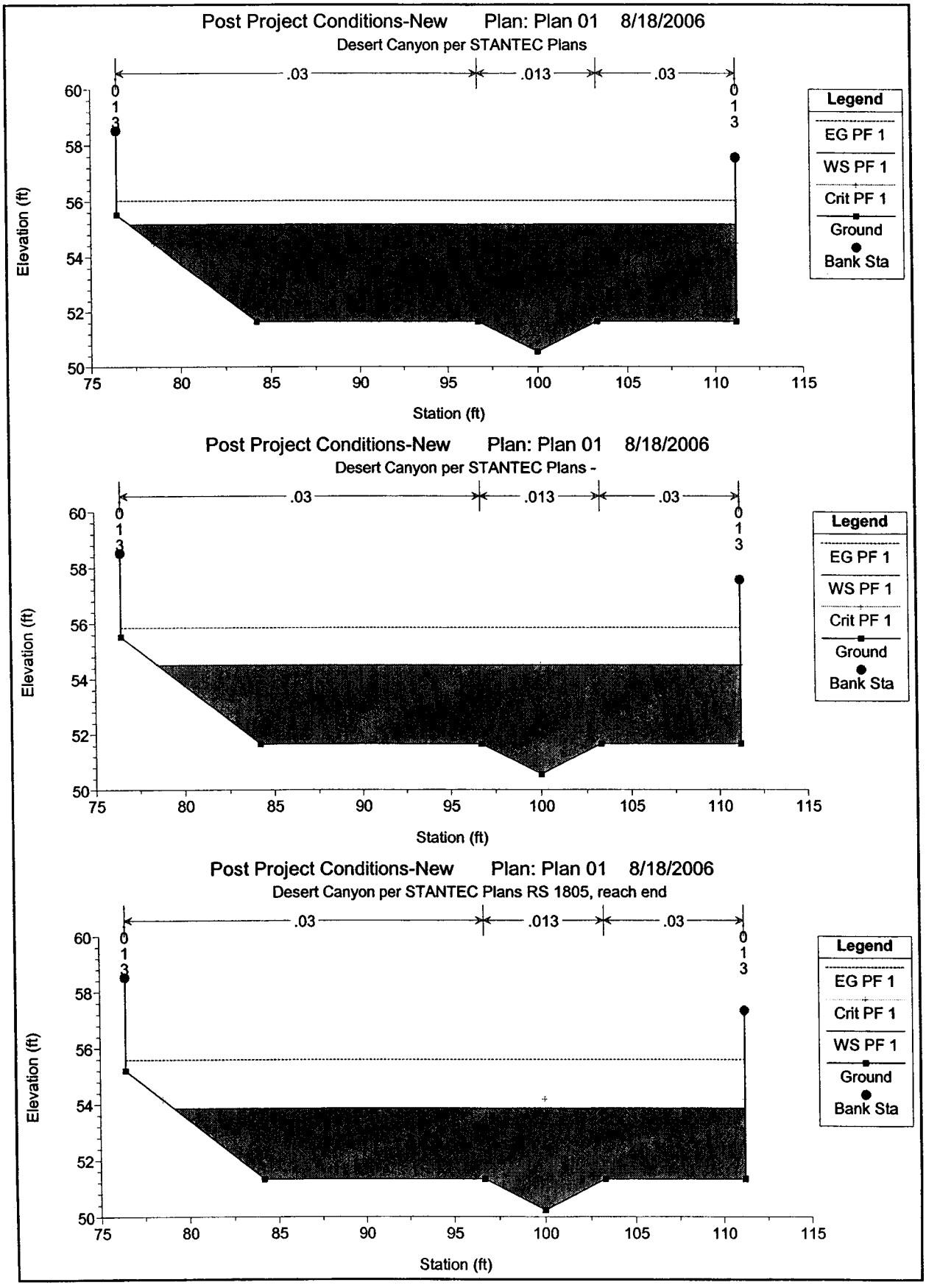

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2203.57, begin half trapezoid
.03
.013
.03
Elevation (ft)
66
64
62
60
58
56
75
80
85
90
95
100
105
110
115
120
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2162.19, end transition & ben
.03
.013
.03
Elevation (ft)
66
64
62
60
58
56
75
80
85
90
95
100
105
110
115
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2150, end 3:1 left side slope
.03
.013
.03
Elevation (ft)
66
64
62
60
58
56
75
80
85
90
95
100
105
110
115
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

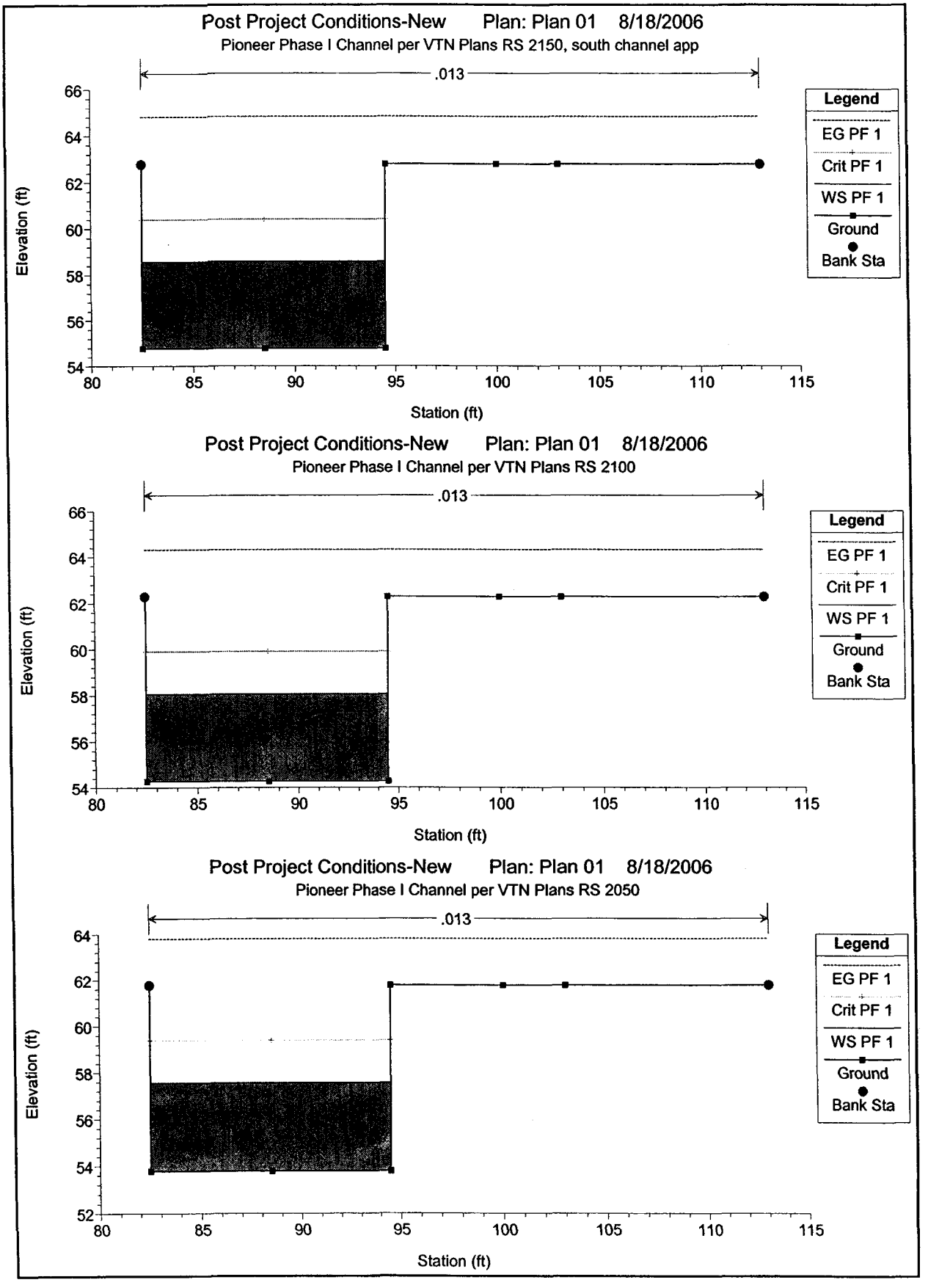

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2125, begin 2:1 left side slo
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2097.31, upstream face Easter
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2097.30, begin abutment
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

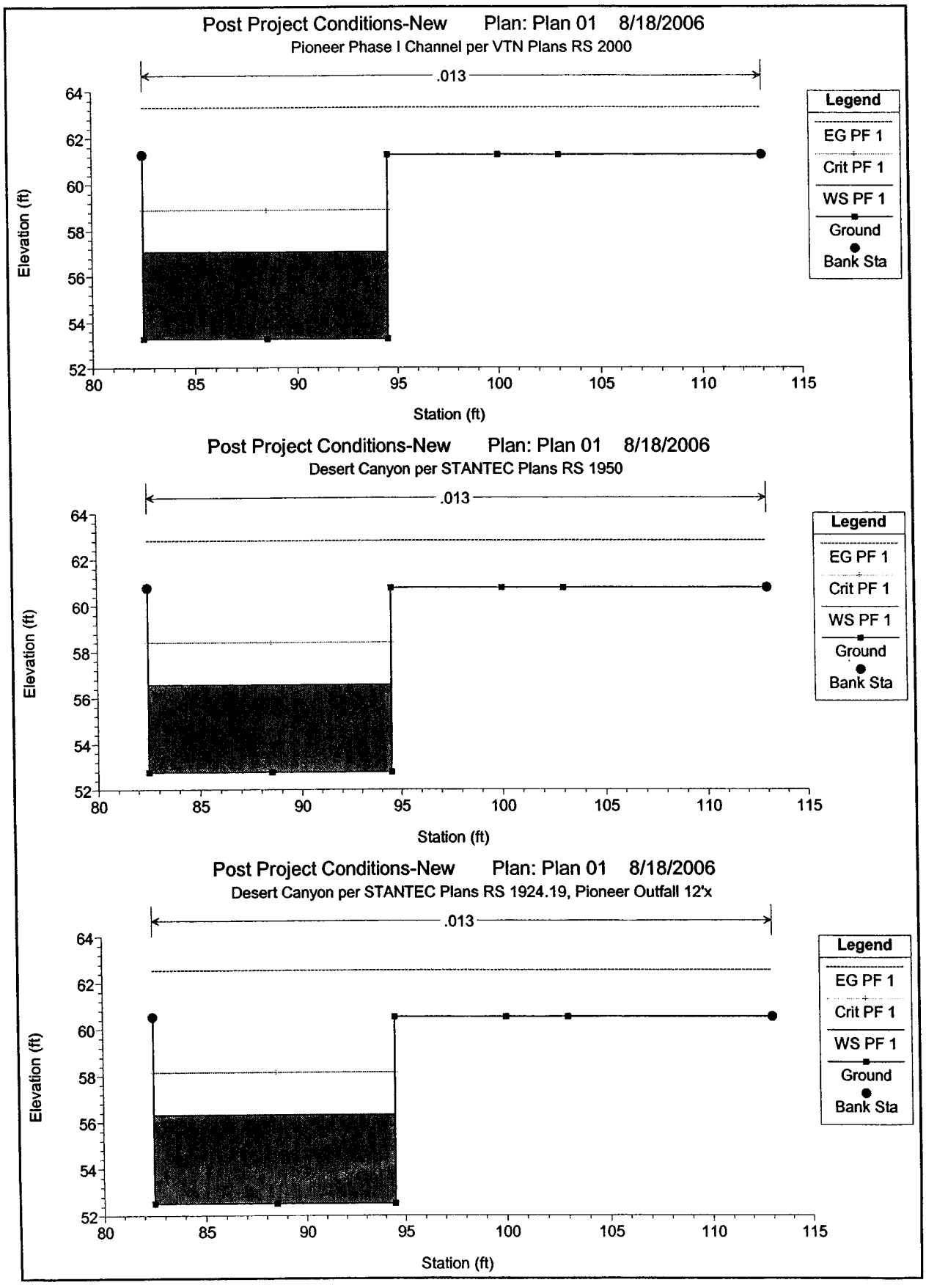

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2033.7, end abutment
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2033.69, end Easter Lily brid
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2000
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

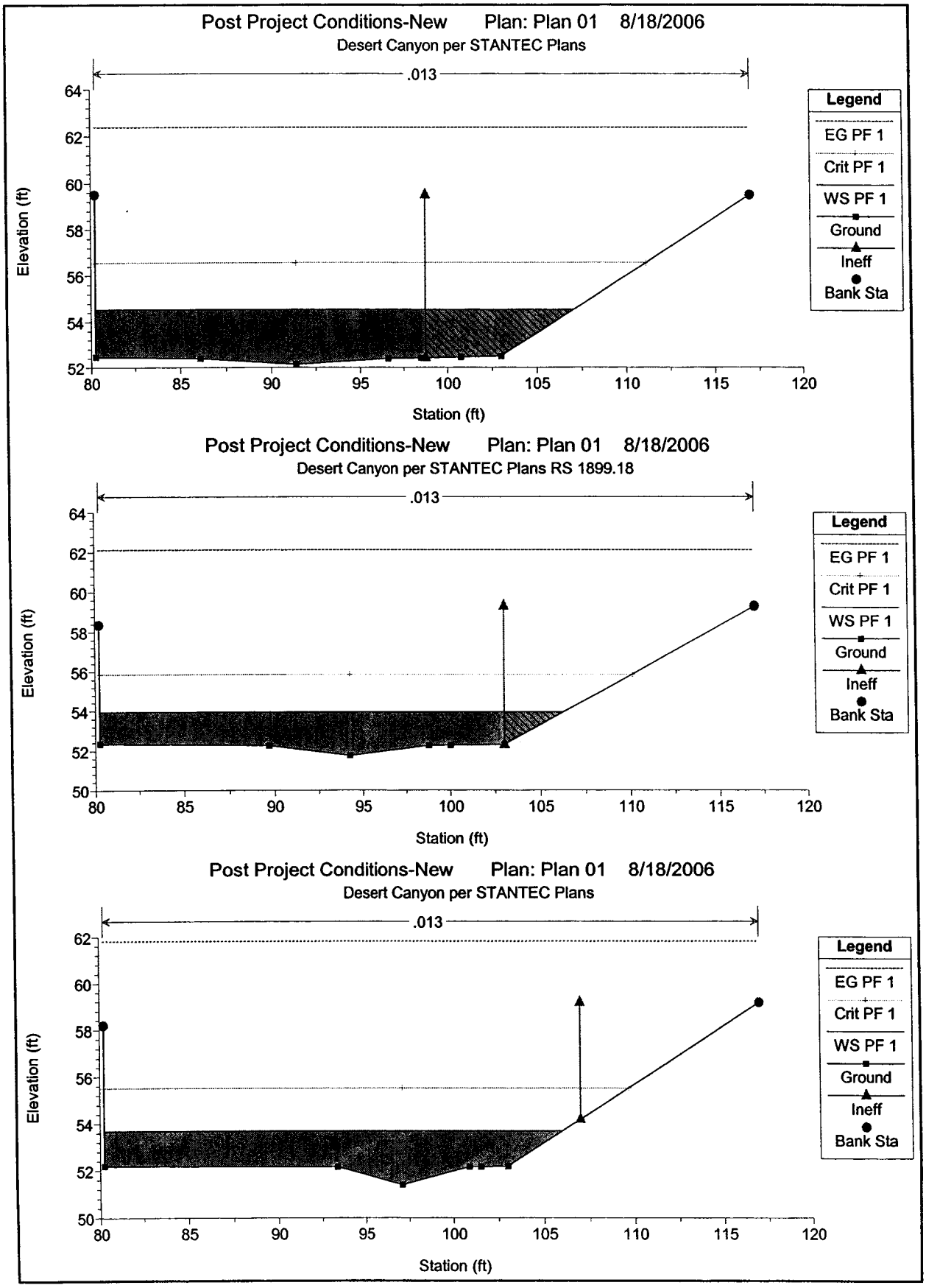

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1924.18, Pioneer Outfall 12'x
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

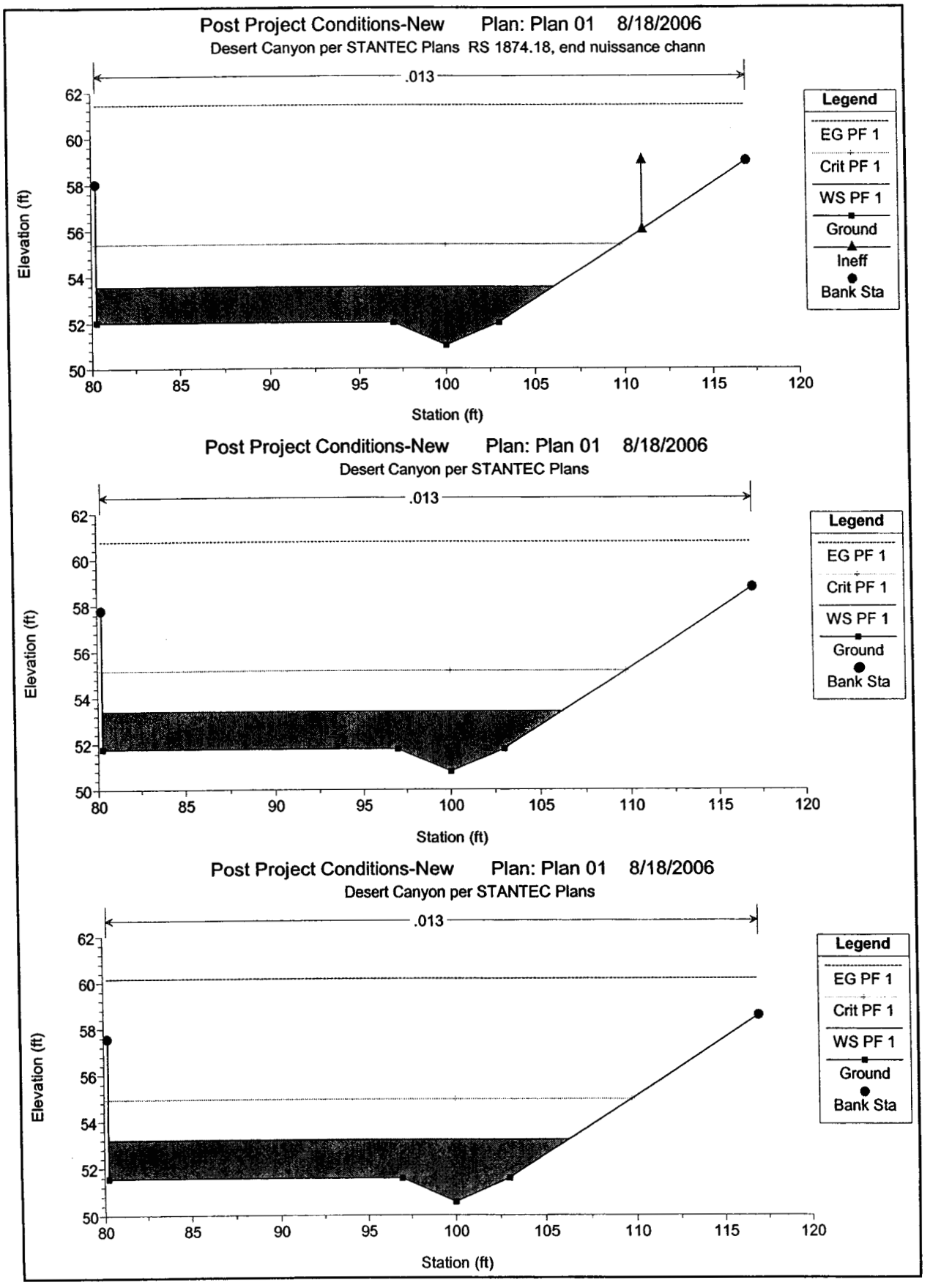

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1874.18, end south channel nu
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

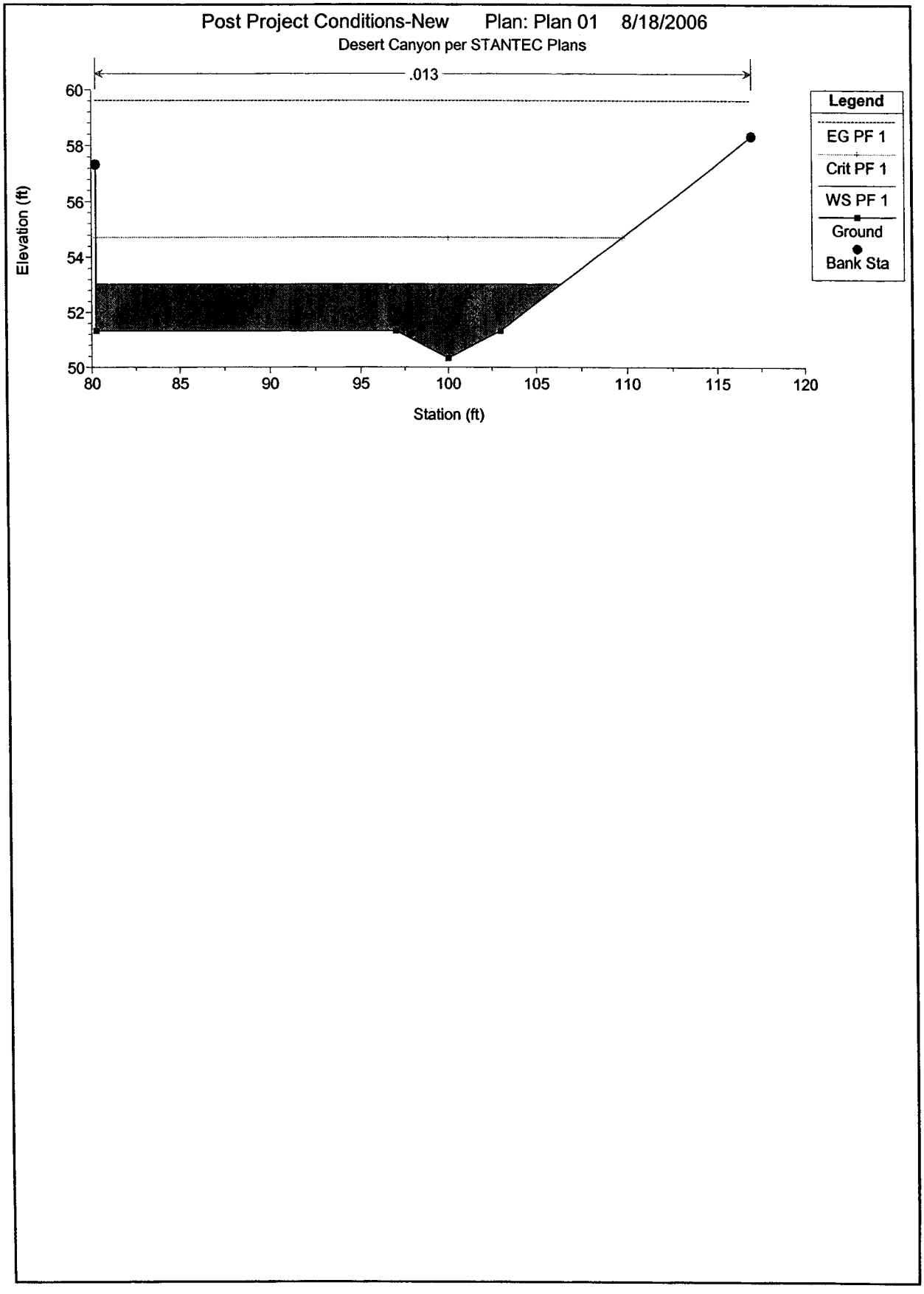

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1805, reach end


Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase I Channel per VTN Plans RS 2150, south channel app
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase I Channel per VTN Plans RS 2100
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase I Channel per VTN Plans RS 2050
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase I Channel per VTN Plans RS 2000
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1950
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1924.19, Pioneer Outfall 12'x
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1899.18
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta


Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1874.18, end nuissance chann
.013
Elevation (ft)
62
60
58
56
54
52
50
80
85
90
95
100
105
110
115
120
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
60
58
56
54
52
50
80
85
90
95
100
105
110
115
120
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

Post Project Conditions-New Plan: Plan 01 8/18/2006

Combined Channel EAST

South Channel South

North Channel WEST

Legend

EG PF 1

Crit PF 1

WS PF 1

Ground

Elevation (ft)

140

120

100

80

60

40

20

0

0

2000

4000

6000

8000

10000

Main Channel Distance (ft)

Gibson Channel: Post-Project Conditions

HEC-RAS Plan: Post River: North Channel Reach: WEST Profile: PF 1

Reach	River Sta	Cross Section Sta.	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Hydr Depth
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)
WEST	18653.05	2+957	PF 1	705	127.07	129.65	130.68	133.23	0.007003	15.2	46.38	18	1.67	2.58
WEST	18603.05	3+007	PF 1	705	126.35	128.67	129.87	132.78	0.008885	16.27	43.32	18.7	1.88	2.32
WEST	18354.06	3+256	PF 1	705	122.77	124.83	126.29	130.04	0.012783	18.31	38.49	18.7	2.25	2.06
WEST	18314.47	3+296	PF 1	705	122.2	124.36	125.82	129.45	0.015109	18.09	38.96	18	2.17	2.16
WEST	17036.02	4+574	PF 1	705	107.91	110.18	111.41	114.34	0.009181	16.38	43.04	19	1.92	2.27
WEST	16991.39	4+624	PF 1	725	107.51	109.97	111.11	113.83	0.007809	15.76	46.02	18.7	1.77	2.46
WEST	16271.91	5+338	PF 1	725	101.86	104.31	105.46	108.2	0.007932	15.84	45.78	18.7	1.78	2.45
WEST	16221.83	5+388	PF 1	725	101.46	103.72	104.9	107.73	0.010978	16.07	45.11	20	1.89	2.26
WEST	15874.83	5+735	PF 1	725	99.56	102.18	102.88	104.87	0.004942	13.17	55.06	21	1.43	2.62
WEST	15824.82	5+785	PF 1	823	99.22	102.48	102.75	104.56	0.003017	11.59	71.02	21.8	1.13	3.26
WEST	15635.6	5+974	PF 1	823	97.93	100.6	101.46	103.71	0.005541	14.15	58.18	21.8	1.53	2.67
WEST	15080.09	6+530	PF 1	823	94.19	96.78	97.71	100.08	0.006079	14.58	56.45	21.8	1.6	2.59
WEST	15015.09	6+595	PF 1	823	93.76	95.72	96.82	99.48	0.012277	15.58	52.84	27	1.96	1.96
WEST	14592.55	7+017	PF 1	823	88.41	90.1	91.32	94.49	0.012482	16.82	48.93	29	2.28	1.69
WEST	14542.55	7+068	PF 1	823	87.71	89.38	90.62	93.84	0.012791	16.95	48.56	29	2.31	1.67
WEST	14252.5	7+358	PF 1	823	81.74	85.66	87.16	90.83	0.008238	18.24	45.11	11.5	1.62	3.92
WEST	14092.97	7+517	PF 1	823	79.1	82.58	84.52	89.15	0.011538	20.57	40.02	11.5	1.94	3.48
WEST	13987.91	7+622	PF 1	823	75.56	78.5	80.97	87.71	0.010788	24.36	33.8	11.51	2.5	2.94
WEST	13887.91	7+722	PF 1	823	74.86	77.9	80.27	86.51	0.009637	23.54	34.97	11.51	2.38	3.04
WEST	13787.91	7+822	PF 1	823	74.16	77.28	79.57	85.45	0.008844	22.95	35.88	11.51	2.29	3.12
WEST	13687.91	7+922	PF 1	823	73.46	76.64	78.87	84.51	0.008307	22.52	36.56	11.51	2.23	3.18
WEST	13602.91	8+007	PF 1	823	72.88	76.15	78.29	83.6	0.010585	21.91	37.56	11.51	2.14	3.26
WEST	13582.54	8+027	PF 1	823	72.74	74.57	76.59	83.17	0.023874	23.53	34.98	19.09	3.06	1.83
WEST	13562.17	8+048	PF 1	823	72.59	73.89	75.67	82.58	0.034037	23.66	34.79	26.67	3.65	1.3
WEST	13562.16	8+048	PF 1	823	72.59	74.06	75.9	82.51	0.029094	23.33	35.27	24.01	3.39	1.47
WEST	13557.18	8+053		Bridge										
WEST	13552.2	8+058	PF 1	823	72.49	73.99	75.8	82.12	0.027351	0.22	35.96	24.01	0.04	1.5
WEST	13478.79	8+131	PF 1	823	72.15	73.89	75.46	79.93	0.01707	0.19	41.72	24.01	0.04	1.74
WEST	13476.6	8+133	PF 1	823	72.14	73.88	75.45	79.89	0.016894	0.19	41.86	24.01	0.04	1.74
WEST	13425.61	8+184	PF 1	823	71.97	73.88	75.28	78.87	0.012619	0.18	45.91	24.01	0.03	1.91
WEST	13410.61	8+199	PF 1	823	71.92	73.88	75.23	78.63	0.011658	0.17	47.08	24.01	0.03	1.96
WEST	13353.48	8+256	PF 1	823	71.73	73.89	75.04	77.81	0.008636	0.16	51.81	24.01	0.03	2.16
WEST	13343.61	8+266	PF 1	823	71.7	73.89	75.01	77.69	0.008226	15.64	52.62	24.01	1.86	2.19
WEST	13343.6	8+266	PF 1	823	71.7	73.6	74.77	77.66	0.008507	16.17	50.89	35.25	2.07	1.9
WEST	13333.3	8+277	PF 1	823	71.66	76.49	74.55	76.92	0.00032	5.27	156.18	52.31	0.44	4.55
WEST	13323	8+287	PF 1	823	71.62	76.5		76.92	0.000332	5.16	159.56	50.13	0.44	4.24
WEST	13307.38	8+303	PF 1	823	71.56	76.6		76.87	0.000229	4.11	200.47	50.13	0.36	4
WEST	13291.77	8+318	PF 1	823	71.49	76.63		76.85	0.000174	3.79	217.42	50.13	0.32	4.34
WEST	13267.98	8+342	PF 1	823	71.4	76.55		76.84	0.000256	4.32	190.68	50.12	0.39	3.8
WEST	13244.2	8+366	PF 1	823	71.3	76.33		76.81	0.000505	5.57	147.88	44.8	0.54	3.3
WEST	13234.75	8+375	PF 1	823	71.26	76.11		76.79	0.000756	6.58	125.09	40.48	0.65	3.14
WEST	13234.74	8+375	PF 1	823	71.26	76.11		76.79	0.003661	6.58	125.09	40.48	0.65	3.14
WEST	13229.38	8+381	PF 1	823	71.24	76.06		76.77	0.003568	6.73	122.27	40.29	0.65	3.29
WEST	13229.37	8+381	PF 1	823	71.24	76.06		76.77	0.00357	6.73	122.25	37.13	0.65	3.29
WEST	13221.37	8+389	PF 1	823	71.21	76.03		76.74	0.003606	6.73	122.3	37.13	0.65	3.29
WEST	13167.84	8+442	PF 1	823	70.99	75.74		76.53	0.003878	7.12	115.53	34.03	0.68	3.39
WEST	13114.31	8+496	PF 1	823	70.76	75.03		76.23	0.006394	8.77	93.85	29.7	0.87	3.16
WEST	13114.3	8+496	PF 1	823	70.76	75.03	74.7	76.23	0.006394	8.77	93.85	29.7	0.87	3.16
WEST	13060.1	8+550	PF 1	823	70.54	75.01		75.85	0.003985	7.37	111.61	38.16	0.76	2.93
WEST	13044.11	8+566	PF 1	823	70.48	74.99		75.78	0.003217	7.11	115.8	38.43	0.7	3.2
WEST	13044.1	8+566	PF 1	823	70.43	75.04		75.75	0.002807	6.77	121.55	36.51	0.65	3.33
WEST	13018.22	8+592	PF 1	823	70.37	75.04		75.7	0.002455	6.48	126.93	36.71	0.61	3.46
WEST	13018.21	8+592	PF 1	823	70.37	75.04		75.7	0.002143	6.48	126.93	36.71	0.61	3.46

WEST	13010.22	8+600	PF 1	823	70.34	75.01		75.68	0.002236	6.54	125.87	36.7	0.62	3.43
WEST	13010.21	8+600	PF 1	823	70.34	75.01		75.68	0.003194	6.54	125.87	36.7	0.62	3.43
WEST	12954.02	8+656	PF 1	823	70.11	74.69		75.47	0.004054	7.06	116.61	36.44	0.7	3.2
WEST	12943.65	8+666	PF 1	823	70.07	74.62		75.42	0.004209	7.21	114.22	35.68	0.71	3.2
WEST	12906.81	8+703	PF 1	823	69.92	74.45		75.27	0.004298	7.27	113.25	41.19	0.77	2.75
WEST	12869.97	8+740	PF 1	823	69.76	74.37		75.11	0.003304	6.9	119.33	38.95	0.69	3.06
WEST	12869.96	8+740	PF 1	823	69.76	74.37		75.11	0.003361	6.89	119.39	38.94	0.69	3.07
WEST	12829.26	8+781	PF 1	823	69.6	74.3		74.96	0.002863	6.53	126.01	39.55	0.64	3.19
WEST	12788.55	8+821	PF 1	823	69.43	74.24		74.83	0.002395	6.16	133.63	40.23	0.6	3.32
WEST	12788.54	8+821	PF 1	823	69.43	74.24		74.83	0.002123	6.16	133.63	40.23	0.6	3.32
WEST	12780.55	8+829	PF 1	823	69.4	74.21		74.81	0.00223	6.22	132.28	40.21	0.6	3.29
WEST	12780.54	8+829	PF 1	823	69.4	74.21		74.81	0.003065	6.22	132.28	40.21	0.6	3.29
WEST	12724.23	8+886	PF 1	823	69.17	73.91		74.61	0.003836	6.69	122.94	39.82	0.67	3.09
WEST	12667.92	8+942	PF 1	823	68.94	73.63		74.38	0.004272	6.95	118.42	39.47	0.71	3
WEST	12667.91	8+942	PF 1	823	68.94	73.63		74.38	0.004333	6.95	118.48	39.47	0.71	3
WEST	12598.93	9+011	PF 1	823	68.65	73.3		74.07	0.004479	7.04	116.98	39.22	0.72	2.98
WEST	12529.94	9+080	PF 1	823	68.37	72.28	72.28	73.59	0.009119	9.18	89.69	34.82	1.01	2.58
WEST	12499.95	9+110	PF 1	823	68.25	70.1	70.98	72.93	0.040268	13.5	60.95	40.85	1.95	1.49
WEST	12499.94	9+110	PF 1	823	68.25	70.1	70.98	72.93	0.044304	13.5	60.95	40.85	1.95	1.49
WEST	12469.94	9+140	PF 1	823	67.05	68.96	69.78	71.61	0.039975	13.05	63.08	41.19	1.86	1.53
WEST	12469.93	9+140	PF 1	823	63.47	68.21	69.21	71.54	0.048466	14.65	56.18	36.65	2.09	1.53
WEST	12435.49	9+174	PF 1	823	63.33	67.14	67.99	69.86	0.039319	13.25	62.12	39.44	1.86	1.57
WEST	12401.05	9+209	PF 1	823	63.19	65.91	66.74	68.57	0.034721	13.09	62.89	41.34	1.87	1.52
WEST	12400	9+210	PF 1	823	63.15	65.88	66.7	68.53	0.034636	13.08	62.94	41.35	1.87	1.52
WEST	12350	9+260	PF 1	823	61.15	63.82	64.7	66.68	0.038758	13.58	60.62	41.01	1.97	1.48
WEST	12320	9+290	PF 1	823	59.95	62.61	63.5	65.5	0.039387	13.65	60.3	40.96	1.98	1.47
WEST	12312.18	9+298	PF 1	823	59.62	62.28	63.17	65.19	0.039805	13.7	60.06	40.89	1.99	1.47
WEST	12312.17	9+298	PF 1	823	59.62	62.28	63.17	65.19	0.0399	13.71	60.05	40.94	1.99	1.47
WEST	12278.95	9+331	PF 1	823	58.92	61.84	62.46	63.92	0.023986	11.57	71.14	42.43	1.57	1.68
WEST	12253.91	9+356	PF 1	823	58.39	61.37	61.94	63.31	0.021719	11.18	73.64	42.87	1.5	1.72
WEST	12217.72	9+392	PF 1	823	57.62	60.71	61.17	62.61	0.017024	11.05	74.45	36.98	1.37	2.01
WEST	12203.57	9+406	PF 1	823	57.32	60.48	60.94	62.38	0.016371	11.06	74.41	35.89	1.35	2.07
WEST	12162.19	9+448	PF 1	823	56.45	59.94	60.31	61.72	0.013741	10.71	76.81	34.19	1.26	2.25
WEST	12150	9+460	PF 1	823	56.19	59.59	60.05	61.53	0.015656	11.19	73.54	33.9	1.34	2.17
WEST	12125	9+485	PF 1	823	55.66	59.08	59.58	61.13	0.015512	11.48	71.68	31.64	1.34	2.27
WEST	12097.31	9+513	PF 1	823	55.08	58.3	58.94	60.63	0.019296	12.25	67.16	31.77	1.49	2.11
WEST	12097.3	9+513	PF 1	823	55.08	58.64	59.02	60.5	0.013004	10.94	75.21	31.22	1.24	2.41
WEST	12033.7	9+576	PF 1	823	53.74	56.98	57.67	59.43	0.019805	12.56	65.52	30.58	1.51	2.14
WEST	12033.69	9+576	PF 1	823	53.74	56.86	57.6	59.42	0.022282	12.84	64.1	31.57	1.59	2.03
WEST	12000	9+610	PF 1	823	53.02	56.28	56.96	58.65	0.019479	12.37	66.56	31.31	1.49	2.13
WEST	11924.18	9+686	PF 1	823	51.94	55.52	55.88	57.31	0.012571	10.72	76.78	31.96	1.22	2.4
WEST	11911.68	9+698	PF 1	823	51.76	55.31	55.7	57.14	0.013098	10.86	75.76	31.9	1.24	2.38
WEST	11899.18	9+711	PF 1	823	51.58	55.11	55.52	56.97	0.013461	10.96	75.08	31.85	1.26	2.36
WEST	11886.68	9+723	PF 1	823	51.4	54.91	55.34	56.8	0.013743	11.04	74.57	31.82	1.27	2.34
WEST	11874.18	9+736	PF 1	823	51.22	54.72	55.16	56.63	0.013967	11.09	74.18	31.8	1.28	2.33
WEST	11851.12	9+759	PF 1	823	50.89	54.38	54.83	56.31	0.014207	11.16	73.77	31.77	1.29	2.32
WEST	11828.06	9+782	PF 1	823	50.56	55.17	54.49	56.03	0.004182	7.44	110.6	34.03	0.73	3.25
WEST	11826.06	9+784	PF 1	823	50.56	54.5	54.5	55.85	0.008233	9.32	88.27	32.68	1	2.7
WEST	11805	9+805	PF 1	823	50.23	53.83	54.17	55.58	0.012207	10.61	77.54	32.02	1.2	2.42
EAST	11800	9+810	PF 1	1741	50.18	52.72	54.34	59.39	0.084191	20.72	84.02	56.69	3	1.48
EAST	11799.99	9+820	PF 1	1741	50.18	52.72	54.34	59.39	0.057711	20.72	84.02	56.69	3	1.48
EAST	11790	9+841	PF 1	1741	50.08	52.63	54.11	58.5	0.074606	19.45	89.53	60.1	2.81	1.49
EAST	11769.13	9+859	PF 1	1741	50	55.95	53.83	56.33	0.001214	4.96	351.08	79.19	0.42	4.43
EAST	11751.44	9+870	PF 1	1741	49.92	55.98		56.29	0.000929	4.46	390.12	85.37	0.37	4.57
EAST	11739.7	9+878	PF 1	1741	49.87	55.99		56.27	0.000825	4.2	414.78	89.46	0.34	4.64
EAST	11732.13	9+890	PF 1	1741	49.76	56		56.26	0.000791	4.05	430.32	92.1	0.33	4.67
EAST	11720	9+897	PF 1	1741	49.58	56.01		56.24	0.000718	3.84	453.87	95.72	0.31	4.74
EAST	11712.87	9+921	PF 1	1741	49.47	56.01		56.23	0.000705	3.81	456.45	95.78	0.31	4.77

EAST	11689.21	9+935	PF 1	1741	49.38	56		56.21	0.000669	3.75	464.05	95.94	0.3	4.84
EAST	11675	9+976	PF 1	1741	49.32	55.99		56.2	0.000646	3.71	469.22	96.04	0.3	4.89
EAST	11634.34	9+986	PF 1	2652	49.16	55.57		56.12	0.001778	5.97	444.49	95.52	0.49	4.65
EAST	11624.05	9+991	PF 1	2652	49.11	55.47		56.1	0.001979	6.38	415.7	87.66	0.52	4.74
EAST	11618.85	10+014	PF 1	2652	49.09	55.35		56.08	0.002316	6.82	388.6	83.56	0.56	4.65
EAST	11596.34	10+083	PF 1	2652	49	55.31		56.02	0.002241	6.75	392.72	83.66	0.55	4.69
EAST	11527.17	10+110	PF 1	2652	48.73	54.78		55.79	0.003727	8.09	327.8	78.58	0.7	4.17
EAST	11500	10+160	PF 1	2652	48.62	54.68		55.69	0.003702	8.07	328.54	78.62	0.7	4.18
EAST	11450	10+210	PF 1	2652	48.42	54.5		55.5	0.003646	8.03	330.2	78.71	0.69	4.2
EAST	11400	10+232	PF 1	2652	48.22	54.33		55.31	0.003571	7.98	332.5	78.82	0.68	4.22
EAST	11377.99	10+260	PF 1	2652	48.13	54.25		55.23	0.003534	7.95	333.66	78.88	0.68	4.23
EAST	11350	10+310	PF 1	2652	48.02	54.15		55.13	0.003498	7.92	334.81	78.94	0.68	4.24
EAST	11300	10+331	PF 1	2652	47.82	54		54.95	0.0034	7.85	338	79.1	0.67	4.27
EAST	11278.76	10+360	PF 1	2652	47.73	53.93		54.87	0.003346	7.8	339.8	79.19	0.66	4.29
EAST	11250	10+410	PF 1	2652	47.62	53.84		54.77	0.003305	7.77	341.21	79.26	0.66	4.3
EAST	11200	10+435	PF 1	2652	47.42	53.69		54.6	0.003184	7.68	345.49	79.48	0.65	4.35
EAST	11175.26	10+455	PF 1	2652	47.32	53.62		54.52	0.003117	7.62	347.97	79.6	0.64	4.37
EAST	11154.55	10+485	PF 1	2652	47.24	53.56		54.45	0.003076	7.59	349.51	79.68	0.64	4.39
EAST	11125	10+494	PF 1	2652	47.12	53.5		54.37	0.00224	7.48	354.74	80.06	0.63	4.43
EAST	11116.35	10+510	PF 1	2652	47.08	53.48		54.34	0.002912	7.45	355.97	80	0.62	4.45
EAST	11100	10+560	PF 1	2652	46.98	53.39		54.29	0.00302	7.59	349.39	78.53	0.63	4.45
EAST	11050	10+577	PF 1	2652	46.67	53.07		54.12	0.00341	8.2	323.29	71.13	0.68	4.55
EAST	11033.37	10+603	PF 1	2652	46.57	52.89		54.04	0.003782	8.63	307.33	67.9	0.71	4.53
EAST	11007.4	10+636	PF 1	2652	46.41	52.52	51.88	53.97	0.001069	9.64	275.02	60.61	0.8	4.54
EAST	10973.86	10+660	PF 1	2652	46.2	51.49	51.49	53.82	0.001886	12.25	216.45	46.48	1	4.66
EAST	10950.26	10+700	PF 1	2652	46.06	50.04	50.91	53.64	0.003581	15.22	174.27	44.99	1.36	3.87
EAST	10909.89	10+775	PF 1	2652	44.37	47.95	49.52	53.28	0.006118	18.53	143.1	41.21	1.75	3.47
EAST	10834.9	10+775	PF 1	2652	41.24	43.96	46.22	52.33	0.012794	23.22	114.2	42	2.48	2.72
EAST	10834.89	11+010	PF 1	2652	41.24	44.14	46.39	52.26	0.015657	22.86	116	40	2.37	2.9
EAST	10599.9	11+010	PF 1	2652	39.88	43.46	45.03	48.78	0.008484	18.51	143.31	40	1.72	3.58
EAST	10599.89	11+080	PF 1	2652	39.88	43.23	44.87	48.75	0.00662	18.86	140.62	42	1.82	3.35
EAST	10529.91	11+180	PF 1	2652	39.47	43.87	44.9	47.99	0.003738	16.28	162.89	37	1.37	4.4
EAST	10429.91	11+180	PF 1	2652	38.63	42.71	44.06	47.5	0.004728	17.57	150.94	37	1.53	4.08
EAST	10429.9	11+320	PF 1	2652	38.63	43.06	44.15	47.36	0.004968	16.64	159.4	36	1.39	4.43
EAST	10289.92	11+320	PF 1	2652	36.32	39.99	41.84	46.26	0.008629	20.1	131.94	36	1.85	3.67
EAST	10289.91	11+400	PF 1	2652	36.32	39.85	41.75	46.25	0.007396	20.29	130.69	37	1.9	3.53
EAST	10209.93	11+485	PF 1	2652	19.67	22.96	27.32	43.75	0.029636	36.59	72.49	22	3.55	3.29
EAST	10124.93	11+485	PF 1	2652	20.31	24.03	27.99	40.32	0.020533	32.39	81.88	22	2.96	3.72
EAST	10124.92	11+610	PF 1	2652	20.31	24.25	28.27	40.23	0.026731	32.08	82.66	21	2.85	3.94
EAST	9999.93	11+610	PF 1	2652	19.67	22.58	25.77	35.99	0.028863	29.5	90.23	31	3.05	2.91
EAST	9999.92	11+704	PF 1	2652	19.67	22.39	25.51	35.98	0.021654	29.58	89.65	33	3.16	2.72
EAST	9905.49	11+764	PF 1	2652	19.19	22.16	25.02	33.54	0.016394	27.07	97.96	33	2.77	2.97
EAST	9845.49	12+364	PF 1	2652	18.88	22.38	25	32.21	0.0131	25.16	105.41	37.99	2.66	2.77
EAST	9245.49	9+460	PF 1	2652	15.88	20.22	22	25.88	0.005891	19.09	138.96	41.37	1.84	3.36
South	12150	-	PF 1	911	54.78	58.57	60.4	64.8	0.009997	20.04	45.45	12.01	1.82	3.78
South	12100	-	PF 1	911	54.28	58.07	59.9	64.3	0.009997	20.04	45.45	12.01	1.82	3.78
South	12050	-	PF 1	911	53.78	57.57	59.4	63.8	0.009996	20.04	45.45	12.01	1.82	3.78
South	12000	-	PF 1	911	53.28	57.07	58.9	63.3	0.009995	20.04	45.45	12.01	1.82	3.78
South	11950	-	PF 1	911	52.78	56.57	58.4	62.8	0.009993	20.04	45.45	12.01	1.82	3.78
South	11924.19	-	PF 1	911	52.52	56.31	58.14	62.54	0.009983	20.03	45.48	12.01	1.81	3.79
South	11911.68	-	PF 1	911	52.14	54.53	56.56	62.38	0.015665	22.48	40.52	26.81	2.68	2.19
South	11899.18	-	PF 1	911	51.77	53.94	55.87	62.12	0.021052	22.95	39.69	26.01	3.06	1.74
South	11886.68	-	PF 1	911	51.4	53.69	55.51	61.82	0.024825	22.89	39.81	25.79	3.25	1.54
South	11874.18	-	PF 1	911	51.02	53.56	55.4	61.43	0.02382	22.51	40.46	25.84	3.17	1.57
South	11851.12	-	PF 1	911	50.79	53.38	55.17	60.76	0.02157	21.8	41.78	25.94	3.03	1.61
South	11828.06	-	PF 1	911	50.56	53.2	54.94	60.15	0.019666	21.16	43.05	26.04	2.9	1.65
South	11805	-	PF 1	911	50.33	53.02	54.71	59.61	0.018127	20.61	44.21	26.13	2.79	1.69

GIBSON CLOMR (Addendum #1)
POST- PROJECT CONDITIONS: CHECK-RAS OUTPUT

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.prj
Plan File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.p02
Geometry File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.g01
Flow File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.f01
Report File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.nt
Selected profiles: PF 1
Date: 8/18/2006
Time: 1:03:25 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Combined Channel,EAST						
11800		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11799.99		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11790		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11769.13		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11751.44		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11739.7		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11732.13		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11720		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11712.87		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11689.21		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11675		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11634.34		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11624.05		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11618.85		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		
		-----	0.03	-----		
11596.34		-----	0.013	-----	0.1	0.3
		-----	0.03	-----		
		-----	0.013	-----		

	-----	0.03	-----		
11527.17	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11500	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11450	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11400	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11377.99	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11350	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11300	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11278.76	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11250	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11200	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11175.26	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11154.55	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11125	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
11116.35	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11100	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11050	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11033.37	-----	0.03	-----	0.1	0.3
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11007.4	-----	0.013	-----	0.1	0.3
10973.86	-----	0.013	0	0.1	0.3
	-----	0	-----		
10950.26	-----	0	0	0.1	0.3
	-----	0.013	-----		
10909.89	-----	0	0	0.1	0.3
	-----	0.013	-----		
10834.9	0.013	0.013	0.013	0.1	0.3
10834.89	0.013	0.013	0.013	0.1	0.3
10599.9	0.013	0.013	0.013	0.1	0.3
10599.89	0.013	0.013	0.013	0.1	0.3
10529.91	0.013	0.013	0.013	0.1	0.3
10429.91	0.013	0.013	0.013	0.1	0.3
10429.9	0.013	0.013	0.013	0.1	0.3
10289.92	0.013	0.013	0.013	0.1	0.3
10289.91	0.013	0.013	0.013	0.1	0.3
10209.93	0.013	0.013	0.013	0.1	0.3
10124.93	0.013	0.013	0.013	0.1	0.3
10124.92	0.013	0.013	0.013	0.1	0.3
9999.93	0.013	0.013	0.013	0.1	0.3
9999.92	0.013	0.013	0.013	0.1	0.3
9905.49	0.013	0.013	0.013	0.1	0.3
9845.49	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
North Channel,WEST					
9245.49	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
18653.05	0.013	0.013	0.013	0.1	0.3
18603.05	0.013	0.013	0.013	0.1	0.3

18354.06	0.013	0.013	0.013	0.1	0.3
18314.47	0.013	0.013	0.013	0.1	0.3
17036.02	0.013	0.013	0.013	0.1	0.3
16991.39	0.013	0.013	0.013	0.1	0.3
16271.91	0.013	0.013	0.013	0.1	0.3
16221.83	0.013	0.013	0.013	0.1	0.3
15874.83	0.013	0.013	0.013	0.1	0.3
15824.82	0.013	0.013	0.013	0.1	0.3
15635.6	0.013	0.013	0.013	0.1	0.3
15080.09	0.013	0.013	0.013	0.1	0.3
15015.09	0.013	0.013	0.013	0.1	0.3
14592.55	0.013	0.013	0.013	0.1	0.3
14542.55	0.013	0.013	0.013	0.1	0.3
14252.5	0.013	0.013	0.013	0.1	0.3
14092.97	0.013	0.013	0.013	0.1	0.3
13987.91	0.013	0.013	0.013	0.1	0.3
13887.91	0.013	0.013	0.013	0.1	0.3
13787.91	0.013	0.013	0.013	0.1	0.3
13687.91	0.013	0.013	0.013	0.1	0.3
13602.91	0.013	0.013	0.013	0.1	0.3
13582.54	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
13562.17	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
13562.16	0.013	0.013	0.013	0.1	0.3
13557.18Bridge-Up	0.013	0.013	0.013	0.1	0.3
13557.18Bridge-Dn	0.013	0.013	0.013	0.1	0.3
13552.2	0.013	0.013	0.013	0.1	0.3
13478.79	0.013	0.013	0.013	0.1	0.3
13476.6	0.013	0.013	0.013	0.1	0.3
13425.61	0.013	0.013	0.013	0.1	0.3
13410.61	0.013	0.013	0.013	0.1	0.3
13353.48	0.013	0.013	0.013	0.1	0.3
13343.61	0.013	0.013	0.013	0.1	0.3
13343.6	-----	0.013	-----	0.1	0.3
13333.3	-----	0.013	0.013	0.1	0.3
13323	-----	0.013	-----	0.1	0.3
13307.38	-----	0.013	0.013	0.1	0.3
13291.77	-----	0.013	-----	0.1	0.3
13267.98	-----	0.013	0.013	0.1	0.3
13244.2	-----	0.013	-----	0.1	0.3
13234.75	-----	0.013	-----	0.1	0.3
13234.74	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13229.38	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13229.37	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13221.37	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13167.84	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13114.31	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13114.3	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13060.1	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		

	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13044.11	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13044.1	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13018.22	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13018.21	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13010.22	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
13010.21	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12954.02	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12943.65	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12906.81	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12869.97	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12869.96	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12829.26	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		

	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12788.55	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12788.54	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12780.55	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12780.54	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12724.23	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12667.92	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12667.91	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12598.93	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12529.94	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12499.95	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12499.94	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
12469.94	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
12469.93	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12435.49	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.021	-----		
	-----	0.021	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12401.05	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12400	-----	0.013	-----	0.1	0.3

	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12350	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12320	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12312.18	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12312.17	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12278.95	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12253.91	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12217.72	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12203.57	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12162.19	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12150	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12125	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12097.31	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12097.3	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12033.7	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12033.69	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12000	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11924.18	-----	0.013	-----	0.1	0.3

	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11911.68	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11899.18	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11886.68	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11874.18	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11851.12	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11828.06	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
11826.06	-----	0.013	0.013	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
South Channel,South					
11805	-----	0.013	-----	0.1	0.3
	-----	0.03	-----		
	-----	0.013	-----		
	-----	0.03	-----		
	-----	0.013	-----		
12150	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
12100	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
12050	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
12000	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
11950	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
11924.19	-----	0.013	0.013	0.1	0.3
	-----	0.013	-----		
11911.68	-----	0.013	0.013	0.1	0.3
11899.18	-----	0.013	-----	0.1	0.3
11886.68	-----	0.013	-----	0.1	0.3
11874.18	-----	0.013	-----	0.1	0.3
11851.12	-----	0.013	-----	0.1	0.3
11828.06	-----	0.013	-----	0.1	0.3
	-----	0.013	-----		

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.013	0.013
Right Overbank n Value:	0	0.013
Channel n Value:	0	0.03
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

ROUGHNESS COEFFICIENT CHECK

RS: 11007.4

NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10973.86
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10973.86
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10950.26
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10950.26
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10909.89
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10909.89
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10834.9
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10834.9
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10834.9
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10834.9
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 10834.89
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10834.89
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10834.89
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10834.89
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 10599.9
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10599.9
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10599.9
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10599.9
T RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 10599.89
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10599.89
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10599.89
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10599.89
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 10529.91
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10529.91
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10529.91
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10529.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 10429.91
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10429.91
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10429.91
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 10429.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 10429.9
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10429.9
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 10429.9

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NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      10429.9
'T RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      10289.92
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      10289.92
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       10289.92
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      10289.92
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      10289.91
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      10289.91
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

 S:       10289.91
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      10289.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      10209.93
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      10209.93
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       10209.93
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      10209.93
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      10124.93
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      10124.93
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       10124.93
NT RC 03 Channel n value is equal to or less than 0.025
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         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      10124.93
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      10124.92
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      10124.92
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       10124.92
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      10124.92
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      9999.93
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      9999.93
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       9999.93
T RC 03  Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      9999.93
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      9999.92
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      9999.92
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       9999.92
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      9999.92
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      9905.49
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      9905.49
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       9905.49
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
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         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      9905.49
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      9845.49
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       9845.49
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      9245.49
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       9245.49
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      18653.05
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      18653.05
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18653.05
 T RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      18653.05
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      18603.05
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      18603.05
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18603.05
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      18603.05
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      18354.06
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      18354.06
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18354.06
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
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         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      18354.06
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      18314.47
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      18314.47
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18314.47
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      18314.47
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      17036.02
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      17036.02
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       17036.02
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      17036.02
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      16991.39
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16991.39
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       16991.39
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      16991.39
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      16271.91
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      16271.91
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       16271.91
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
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concrete lined channel.

RS: 16271.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

S: 16221.83
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 16221.83
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 16221.83
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 16221.83
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 15874.83
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15874.83
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15874.83
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 15874.83
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 15824.82
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15824.82
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15824.82
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 15824.82
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 15635.6
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

:S: 15635.6
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15635.6
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 15635.6
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

`S: 15080.09
Γ RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15080.09
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15080.09
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 15080.09
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 15015.09
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15015.09
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 15015.09
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 15015.09
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 14592.55
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14592.55
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14592.55
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 14592.55
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 14542.55
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14542.55
JT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14542.55
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 14542.55
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 14252.5
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14252.5
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14252.5
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 14252.5
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 14092.97
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14092.97
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 14092.97
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 14092.97
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13987.91
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13987.91
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13987.91
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13987.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13887.91
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13887.91
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13887.91
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13887.91

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NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      13787.91
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13787.91
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13787.91
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      13787.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      13687.91
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13687.91
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13687.91
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

 S:      13687.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      13602.91
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13602.91
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13602.91
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      13602.91
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      13582.54
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13582.54
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      13562.17
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13562.17
NT RC 03 Channel n value is equal to or less than 0.025
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         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      13562.16
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13562.16
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13562.16
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      13562.16
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      13557.18
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13557.18
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13557.18
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

 S:      13557.18
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      13557.18
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13557.18
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13557.18
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      13557.18
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
         of 0.013 are less than or equal to the channel n value of 0.013
         The overbank n values should be reevaluated.

RS:      13552.2
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      13552.2
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13552.2
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:      13552.2
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
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of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13478.79
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13478.79
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13478.79
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13478.79
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13476.6
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13476.6
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13476.6
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13476.6
T RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13425.61
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13425.61
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13425.61
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13425.61
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13410.61
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13410.61
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13410.61
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13410.61
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013

The overbank n values should be reevaluated.

RS: 13353.48
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

S: 13353.48
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13353.48
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13353.48
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13343.61
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13343.61
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13343.61
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13343.61
NT RC 05 The left overbank n value of 0.013 and the right overbank n value
of 0.013 are less than or equal to the channel n value of 0.013
The overbank n values should be reevaluated.

RS: 13343.6
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13333.3
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13333.3
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13323
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13307.38
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 13307.38
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13291.77
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 13267.98

```
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       13267.98
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       13244.2
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       13234.75
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       12724.23
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12598.93
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12435.49
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11911.68
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11886.68
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11851.12
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11828.06
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11826.06
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12150
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12150
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       12100
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12100
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       12050
```

```
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12050
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       12000
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       12000
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11950
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11950
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11924.19
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11924.19
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11911.68
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       11911.68
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11899.18
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11886.68
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11874.18
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

RS:       11851.12
NT RC 03 Channel n value is equal to or less than 0.025
         The n value of the channel is usually larger than 0.025.
         The n value should be reevaluated it if is not representing a
         concrete lined channel.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

RS:       13562.17
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         Hydraulic depth ratio is 2.00
```

```
         Froude Number ratio is 1.00
         Expansion loss coefficient is  0.3
         It is outside the range of 0.93 and 1.33 computed by the equations
         from HEC-RAS Hydraulics Reference Manual.

RS:      13562.16
'T TL 01 This is section 3
         Contraction and expansion loss coefficients are 0.1 and 0.3
         Hydraulic depth ratio is 2.00
         Froude Number ratio is 1.00
         Expansion loss coefficient is  0.3
         It is outside the range of 0.93 and 1.33 computed by the equations
         from HEC-RAS Hydraulics Reference Manual.

RS:      13557.18
NT TL 01 This is section Bridge-Up
         Contraction and expansion loss coefficients are 0.1 and 0.3
         Hydraulic depth ratio is 2.00
         Froude Number ratio is 1.00
         Expansion loss coefficient is  0.3
         It is outside the range of 0.93 and 1.33 computed by the equations
         from HEC-RAS Hydraulics Reference Manual.

RS:      13557.18
NT TL 01 This is section Bridge-Dn
         Contraction and expansion loss coefficients are 0.1 and 0.3
         Hydraulic depth ratio is 2.00
         Froude Number ratio is 1.00
         Expansion loss coefficient is  0.3
         It is outside the range of 0.93 and 1.33 computed by the equations
         from HEC-RAS Hydraulics Reference Manual.

RS:      13552.2
NT TL 01 This is section 2
         Contraction and expansion loss coefficients are 0.1 and 0.3
         Hydraulic depth ratio is 2.00
         Froude Number ratio is 1.00
         Expansion loss coefficient is  0.3
         It is outside the range of 0.93 and 1.33 computed by the equations
         from HEC-RAS Hydraulics Reference Manual.

'OUGHNESS COEFFICIENT AT STRUCTURES
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RS:      13557.18
NT RS 02 The channel n value of 0.013 for the upstream internal bridge opening
         section is equal or larger than the channel n value of 0.013 at Section 3.
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 3.
         The selection of the n value(s) should be reevaluated.

RS:      13557.18
NT RS 02 The channel n value of 0.013 for the downstream internal bridge opening
         section is equal or larger than the channel n value of 0.013 at Section 2
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 2.
         The selection of the n value(s) should be reevaluated.

---END---
```

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.prj
Plan File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.p02
Geometry File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.g01
Flow File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.f01
Report File: J:\JOBS\6511\GIBSON CLOMR\Misc\Gibson CLOMR CD\Post Project Conditions\PostProject.xs
Selected profiles: PF 1
Date: 8/18/2006
Time: 1:03:52 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Combined Channel,EAST						
11800	0	0	0	56.69	1741	
11799.99	0	0	0	56.69	1741	
11790	0	0	0	60.1	1741	
11769.13	0	0	0	79.19	1741	
11751.44	0	0	0	85.37	1741	
11739.7	0	0	0	89.46	1741	
11732.13	0	0	0	92.1	1741	
11720	0	0	0	95.72	1741	
11712.87	0	0	0	95.78	1741	
11689.21	0	0	0	95.94	1741	
11675	0	0	0	96.04	1741	
11634.34	0	0	0	95.52	2652	
11624.05	0	0	0	87.66	2652	
11618.85	0	0	0	83.56	2652	
11596.34	0	0	0	83.66	2652	
11527.17	0	0	0	78.58	2652	
11500	0	0	0	78.62	2652	
11450	0	0	0	78.71	2652	
11400	0	0	0	78.82	2652	
11377.99	0	0	0	78.88	2652	
11350	0	0	0	78.94	2652	
11300	0	0	0	79.1	2652	
11278.76	0	0	0	79.19	2652	
11250	0	0	0	79.26	2652	
1200	0	0	0	79.48	2652	
11175.26	0	0	0	79.6	2652	
11154.55	0	0	0	79.68	2652	
11125	8.65	8.65	8.65	80.06	2652	
11116.35	0	0	0	80	2652	
11100	0	0	0	78.53	2652	
11050	0	0	0	71.13	2652	
11033.37	0	0	0	67.9	2652	
11007.4	0	0	0	60.61	2652	
10973.86	0	0	0	46.48	2652	C
10950.26	0	0	0	44.99	2652	
10909.89	74.99	74.99	74.99	41.21	2652	
10834.9	0.01	0.01	0.01	42	2652	
10834.89	234.99	234.99	234.99	40	2652	D
10599.9	0.01	0.01	0.01	40	2652	D
10599.89	69.99	69.99	69.99	42	2652	
10529.91	100	100	100	37	2652	
10429.91	0.01	0.01	0.01	37	2652	
10429.9	139.99	139.99	139.99	36	2652	D
10289.92	0.01	0.01	0.01	36	2652	D
10289.91	79.99	79.99	79.99	37	2652	
10209.93	85	85	85	22	2652	
10124.93	0.01	0.01	0.01	22	2652	
10124.92	124.99	124.99	124.99	21	2652	D
9999.93	0.01	0.01	0.01	31	2652	D
9999.92	94.44	94.44	94.44	33	2652	
9905.49	60	60	60	33	2652	
9845.49	600	600	600	37.99	2652	
9245.49	0	0	0	41.37	2652	
North Channel,WEST						
18653.05	50	50	50	18	705	
18603.05	248.99	248.99	248.99	18.7	705	
18354.06	39.59	39.59	39.59	18.7	705	
18314.47	1278.45	1278.45	1278.45	18	705	D
17036.02	50	50	50	19	705	
16991.39	714.11	714.11	714.11	18.7	725	
16271.91	50.08	50.08	50.08	18.7	725	
16221.83	347	347	347	20	725	D
15874.83	50	50	50	21	725	
15824.82	189.22	189.22	189.22	21.8	823	
15635.6	620.51	620.51	620.51	21.8	823	
15080.09	65	65	65	21.8	823	
15015.09	374.89	398.39	421.9	27	823	D
14592.55	50.5	50.5	50.5	29	823	

14542.55	290.05	290.05	290.05	29	823	
14252.5	159.53	159.53	159.53	11.5	823	
14092.97	105.06	105.06	105.06	11.5	823	
13987.91	100	100	100	11.51	823	
13887.91	100	100	100	11.51	823	
13787.91	100	100	100	11.51	823	
13687.91	85	85	85	11.51	823	
3602.91	21.42	20.37	19.99	11.51	823	
13582.54	21.42	20.37	19.99	19.09	823	
13562.17	0.01	0.01	0.01	26.67	823	
13562.16	9.96	9.96	9.96	24.01	823	D
13557.18	Bridge #1-Up					
13557.18	Bridge #1-Dn					
13552.2	73.41	73.41	73.41	24.01	823	D
13478.79	2.19	2.19	2.19	24.01	823	D
13476.6	45.02	51.05	52.79	24.01	823	D
13425.61	15	15	15	24.01	823	D
13410.61	61.49	57.13	52.67	24.01	823	D
13353.48	9.88	9.88	9.88	24.01	823	D
13343.61	0.01	0.01	0.01	24.01	823	D
13343.6	10.3	10.3	10.3	26.77	823	
13333.3	10.3	10.3	10.3	34.3	823	D
13323	15.61	15.61	15.61	37.64	823	D
13307.38	15.61	15.61	15.61	50.13	823	
13291.77	23.78	23.78	23.78	50.13	823	
13267.98	23.78	23.78	23.78	50.12	823	
13244.2	0	0	0	44.8	823	
13234.75	0	0	0	39.81	823	D
13234.74	0	0	0	39.81	823	
13229.38	0.01	0.01	0.01	37.13	823	
13229.37	0	0	0	37.13	823	
13221.37	53.53	53.53	53.53	37.13	823	
13167.84	53.53	53.53	53.53	34.03	823	
13114.31	0	0	0	29.7	823	
13114.3	0	0	0	29.7	823	
13060.1	0	0	0	38.16	823	
13044.11	0	0	0	36.21	823	
13044.1	0	0	0	36.51	823	
13018.22	0	0	0	36.71	823	
13018.21	0	0	0	36.71	823	
13010.22	0	0	0	36.7	823	
3010.21	0	0	0	36.7	823	
2954.02	0	0	0	36.44	823	
12943.65	36.84	36.84	36.84	35.68	823	
12906.81	36.84	36.84	36.84	41.19	823	
12869.97	0	0	0	38.95	823	
12869.96	0	0	0	38.94	823	
12829.26	40.71	40.71	40.71	39.55	823	
12788.55	0	0	0	40.23	823	
12788.54	0	0	0	40.23	823	
12780.55	0	0	0	40.21	823	
12780.54	56.31	56.31	56.31	40.21	823	
12724.23	56.31	56.31	56.31	39.82	823	
12667.92	0	0	0	39.47	823	
12667.91	0	0	0	39.47	823	
12598.93	68.99	68.99	68.99	39.22	823	
12529.94	0	0	0	34.82	823	C
12499.95	0	0	0	40.85	823	
12499.94	0	0	0	40.85	823	
12469.94	0	0	0	41.19	823	
12469.93	34.44	34.44	34.44	36.65	823	
12435.49	34.44	34.44	34.44	39.44	823	
12401.05	0	0	0	41.34	823	
12400	0	0	0	41.35	823	
12350	0	0	0	41.01	823	
12320	6.94	7.82	8.74	40.96	823	
12312.18	0	0	0	40.89	823	
12312.17	31.46	33.22	35	40.94	823	
12278.95	23.07	25.04	27.02	42.43	823	
12253.91	33.33	36.19	39.05	42.87	823	
12217.72	13.04	14.15	15.27	36.98	823	
12203.57	38.1	41.38	44.32	35.89	823	
12162.19	0	0	0	34.19	823	
12150	0	0	0	33.9	823	
12125	42.36	27.69	20.72	31.64	823	
12097.31	0	0	0	31.77	823	
2097.3	0	0	0	31.22	823	
12033.7	0	0	0	30.58	823	
12033.69	19.64	34.29	41.27	31.57	823	
12000	0	0	0	31.31	823	
11924.18	0	0	0	31.96	823	
11911.68	0	0	0	31.9	823	
11899.18	0	0	0	31.85	823	
11886.68	0	0	0	31.82	823	
11874.18	0	0	0	31.8	823	

11851.12	0	0	0	31.77	823	
11828.06	0	0	0	34.03	823	
11826.06	0	0	0	32.68	823	C
11805	0	0	0	32.02	823	
South Channel,South						
12150	50	50	50	12.01	911	
12100	50	50	50	12.01	911	
.2050	50	50	50	12.01	911	
12000	50	50	50	12.01	911	
11950	25.81	25.81	25.81	12.01	911	
11924.19	0.01	0.01	0.01	12.01	911	
11911.68	12.5	12.5	12.5	18.5	911	D
11899.18	12.5	12.5	12.5	22.75	911	D
11886.68	12.5	12.5	12.5	25.79	911	
11874.18	23.06	23.06	23.06	25.84	911	
11851.12	23.06	23.06	23.06	25.94	911	
11828.06	23.06	23.06	23.06	26.04	911	
11805	0	0	0	26.13	911	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

XS JT 01 Junction option is used.
For flood insurance study, this option should be used
if the tributary and main stream can have coincident peaks,
or it may be used for the stream without floodway.
It may also be used if the discharges at different time periods
are known from the rainfall-runoff model.
How to remove the junction is explained under Help.

RS: 11800
XS DT 02 Channel distance is equal to zero.

RS: 11800
XS DT 02 Left overbank distance is equal to zero.

RS: 11800
XS DT 02 Right overbank distance is equal to zero.

RS: 11799.99
XS DT 02 Channel distance is equal to zero.

RS: 11799.99
XS DT 02 Left overbank distance is equal to zero.

RS: 11799.99
XS DT 02 Right overbank distance is equal to zero.

RS: 11790
XS DT 02 Channel distance is equal to zero.

RS: 11790
XS DT 02 Left overbank distance is equal to zero.

RS: 11790
XS DT 02 Right overbank distance is equal to zero.

RS: 11769.13
XS DT 02 Channel distance is equal to zero.

RS: 11769.13
XS DT 02 Left overbank distance is equal to zero.

RS: 11769.13
XS DT 02 Right overbank distance is equal to zero.

RS: 11751.44
XS DT 02 Channel distance is equal to zero.

RS: 11751.44
XS DT 02 Left overbank distance is equal to zero.

RS: 11751.44
XS DT 02 Right overbank distance is equal to zero.

RS: 11739.7
XS DT 02 Channel distance is equal to zero.

RS: 11739.7
XS DT 02 Left overbank distance is equal to zero.

RS: 11739.7
XS DT 02 Right overbank distance is equal to zero.

RS: 11732.13
S DT 02 Channel distance is equal to zero.

RS: 11732.13
XS DT 02 Left overbank distance is equal to zero.

RS: 11732.13
XS DT 02 Right overbank distance is equal to zero.

RS: 11720
XS DT 02 Channel distance is equal to zero.

RS: 11720
XS DT 02 Left overbank distance is equal to zero.

RS: 11720
XS DT 02 Right overbank distance is equal to zero.

RS: 11712.87
XS DT 02 Channel distance is equal to zero.

RS: 11712.87
XS DT 02 Left overbank distance is equal to zero.

RS: 11712.87
XS DT 02 Right overbank distance is equal to zero.

RS: 11689.21
XS DT 02 Channel distance is equal to zero.

RS: 11689.21
XS DT 02 Left overbank distance is equal to zero.

RS: 11689.21
XS DT 02 Right overbank distance is equal to zero.

RS: 11675
XS DT 02 Channel distance is equal to zero.

RS: 11675
XS DT 02 Left overbank distance is equal to zero.

RS: 11675
XS DT 02 Right overbank distance is equal to zero.

RS: 11634.34
XS DT 02 Channel distance is equal to zero.

RS: 11634.34
XS DT 02 Left overbank distance is equal to zero.

RS: 11634.34
XS DT 02 Right overbank distance is equal to zero.

RS: 11624.05
XS DT 02 Channel distance is equal to zero.

RS: 11624.05
XS DT 02 Left overbank distance is equal to zero.

RS: 11624.05
XS DT 02 Right overbank distance is equal to zero.

RS: 11618.85
XS DT 02 Channel distance is equal to zero.

RS: 11618.85
XS DT 02 Left overbank distance is equal to zero.

RS: 11618.85
S DT 02 Right overbank distance is equal to zero.

RS: 11596.34
XS DT 02 Channel distance is equal to zero.

RS: 11596.34
XS DT 02 Left overbank distance is equal to zero.

RS: 11596.34

XS DT 02 Right overbank distance is equal to zero.

RS: 11527.17
XS DT 02 Channel distance is equal to zero.

RS: 11527.17
XS DT 02 Left overbank distance is equal to zero.

RS: 11527.17
XS DT 02 Right overbank distance is equal to zero.

RS: 11500
XS DT 02 Channel distance is equal to zero.

RS: 11500
XS DT 02 Left overbank distance is equal to zero.

RS: 11500
XS DT 02 Right overbank distance is equal to zero.

RS: 11450
XS DT 02 Channel distance is equal to zero.

RS: 11450
XS DT 02 Left overbank distance is equal to zero.

RS: 11450
XS DT 02 Right overbank distance is equal to zero.

RS: 11400
XS DT 02 Channel distance is equal to zero.

RS: 11400
XS DT 02 Left overbank distance is equal to zero.

RS: 11400
XS DT 02 Right overbank distance is equal to zero.

RS: 11377.99
XS DT 02 Channel distance is equal to zero.

RS: 11377.99
XS DT 02 Left overbank distance is equal to zero.

RS: 11377.99
XS DT 02 Right overbank distance is equal to zero.

RS: 11350
XS DT 02 Channel distance is equal to zero.

RS: 11350
XS DT 02 Left overbank distance is equal to zero.

RS: 11350
XS DT 02 Right overbank distance is equal to zero.

RS: 11300
XS DT 02 Channel distance is equal to zero.

RS: 11300
XS DT 02 Left overbank distance is equal to zero.

RS: 11300
XS DT 02 Right overbank distance is equal to zero.

RS: 11278.76
XS DT 02 Channel distance is equal to zero.

RS: 11278.76
XS DT 02 Left overbank distance is equal to zero.

RS: 11278.76
XS DT 02 Right overbank distance is equal to zero.

RS: 11250
XS DT 02 Channel distance is equal to zero.

RS: 11250
XS DT 02 Left overbank distance is equal to zero.

RS: 11250
XS DT 02 Right overbank distance is equal to zero.

RS: 11200
XS DT 02 Channel distance is equal to zero.

RS: 11200
XS DT 02 Left overbank distance is equal to zero.

RS: 11200
XS DT 02 Right overbank distance is equal to zero.

RS: 11175.26
XS DT 02 Channel distance is equal to zero.

RS: 11175.26
XS DT 02 Left overbank distance is equal to zero.

RS: 11175.26
XS DT 02 Right overbank distance is equal to zero.

RS: 11154.55
XS DT 02 Channel distance is equal to zero.

RS: 11154.55
XS DT 02 Left overbank distance is equal to zero.

RS: 11154.55
XS DT 02 Right overbank distance is equal to zero.

RS: 11116.35
XS DT 02 Channel distance is equal to zero.

RS: 11116.35
XS DT 02 Left overbank distance is equal to zero.

RS: 11116.35
XS DT 02 Right overbank distance is equal to zero.

RS: 11100
XS DT 02 Channel distance is equal to zero.

RS: 11100
XS DT 02 Left overbank distance is equal to zero.

RS: 11100
XS DT 02 Right overbank distance is equal to zero.

RS: 11050
XS DT 02 Channel distance is equal to zero.

RS: 11050
XS DT 02 Left overbank distance is equal to zero.

RS: 11050
XS DT 02 Right overbank distance is equal to zero.

RS: 11033.37
XS DT 02 Channel distance is equal to zero.

RS: 11033.37
XS DT 02 Left overbank distance is equal to zero.

RS: 11033.37
XS DT 02 Right overbank distance is equal to zero.

RS: 11007.4
XS DT 02 Channel distance is equal to zero.

RS: 11007.4
XS DT 02 Left overbank distance is equal to zero.

RS: 11007.4
XS DT 02 Right overbank distance is equal to zero.

RS: 10973.86
XS DT 02 Channel distance is equal to zero.

RS: 10973.86
XS DT 02 Left overbank distance is equal to zero.

RS: 10973.86
XS DT 02 Right overbank distance is equal to zero.

RS: 10950.26
XS DT 02 Channel distance is equal to zero.

RS: 10950.26
XS DT 02 Left overbank distance is equal to zero.

RS: 10950.26
XS DT 02 Right overbank distance is equal to zero.

RS: 13244.2
XS DT 02 Channel distance is equal to zero.

RS: 13244.2
XS DT 02 Left overbank distance is equal to zero.

RS: 13244.2
XS DT 02 Right overbank distance is equal to zero.

RS: 13234.75
XS DT 02 Channel distance is equal to zero.

RS: 13234.75
XS DT 02 Left overbank distance is equal to zero.

RS: 13234.75
XS DT 02 Right overbank distance is equal to zero.

RS: 13234.74
XS DT 02 Channel distance is equal to zero.

RS: 13234.74
XS DT 02 Left overbank distance is equal to zero.

RS: 13234.74
XS DT 02 Right overbank distance is equal to zero.

RS: 13229.37
XS DT 02 Channel distance is equal to zero.

RS: 13229.37
XS DT 02 Left overbank distance is equal to zero.

RS: 13229.37
XS DT 02 Right overbank distance is equal to zero.

RS: 13114.31
XS DT 02 Channel distance is equal to zero.

RS: 13114.31
XS DT 02 Left overbank distance is equal to zero.

RS: 13114.31
XS DT 02 Right overbank distance is equal to zero.

RS: 13114.3
XS DT 02 Channel distance is equal to zero.

RS: 13114.3
XS DT 02 Left overbank distance is equal to zero.

RS: 13114.3
XS DT 02 Right overbank distance is equal to zero.

RS: 13060.1
XS DT 02 Channel distance is equal to zero.

RS: 13060.1
XS DT 02 Left overbank distance is equal to zero.

RS: 13060.1
XS DT 02 Right overbank distance is equal to zero.

RS: 13044.11
XS DT 02 Channel distance is equal to zero.

RS: 13044.11
XS DT 02 Left overbank distance is equal to zero.

RS: 13044.11
XS DT 02 Right overbank distance is equal to zero.

RS: 13044.1
XS DT 02 Channel distance is equal to zero.

RS: 13044.1
XS DT 02 Left overbank distance is equal to zero.

RS: 13044.1
XS DT 02 Right overbank distance is equal to zero.

RS: 13018.22

XS DT 02 Channel distance is equal to zero.

RS: 13018.22
XS DT 02 Left overbank distance is equal to zero.

RS: 13018.22
XS DT 02 Right overbank distance is equal to zero.

RS: 13018.21
XS DT 02 Channel distance is equal to zero.

RS: 13018.21
XS DT 02 Left overbank distance is equal to zero.

RS: 13018.21
XS DT 02 Right overbank distance is equal to zero.

RS: 13010.22
XS DT 02 Channel distance is equal to zero.

RS: 13010.22
XS DT 02 Left overbank distance is equal to zero.

RS: 13010.22
XS DT 02 Right overbank distance is equal to zero.

RS: 13010.21
XS DT 02 Channel distance is equal to zero.

RS: 13010.21
XS DT 02 Left overbank distance is equal to zero.

RS: 13010.21
XS DT 02 Right overbank distance is equal to zero.

RS: 12954.02
XS DT 02 Channel distance is equal to zero.

RS: 12954.02
XS DT 02 Left overbank distance is equal to zero.

RS: 12954.02
XS DT 02 Right overbank distance is equal to zero.

RS: 12869.97
XS DT 02 Channel distance is equal to zero.

RS: 12869.97
XS DT 02 Left overbank distance is equal to zero.

RS: 12869.97
XS DT 02 Right overbank distance is equal to zero.

RS: 12869.96
XS DT 02 Channel distance is equal to zero.

RS: 12869.96
XS DT 02 Left overbank distance is equal to zero.

RS: 12869.96
XS DT 02 Right overbank distance is equal to zero.

RS: 12788.55
XS DT 02 Channel distance is equal to zero.

RS: 12788.55
XS DT 02 Left overbank distance is equal to zero.

RS: 12788.55
XS DT 02 Right overbank distance is equal to zero.

RS: 12788.54
XS DT 02 Channel distance is equal to zero.

RS: 12788.54
XS DT 02 Left overbank distance is equal to zero.

RS: 12788.54
XS DT 02 Right overbank distance is equal to zero.

RS: 12780.55
XS DT 02 Channel distance is equal to zero.

RS: 12780.55
XS DT 02 Left overbank distance is equal to zero.

RS: 12780.55
XS DT 02 Right overbank distance is equal to zero.

RS: 12667.92
XS DT 02 Channel distance is equal to zero.

RS: 12667.92
XS DT 02 Left overbank distance is equal to zero.

RS: 12667.92
XS DT 02 Right overbank distance is equal to zero.

RS: 12667.91
XS DT 02 Channel distance is equal to zero.

RS: 12667.91
XS DT 02 Left overbank distance is equal to zero.

RS: 12667.91
XS DT 02 Right overbank distance is equal to zero.

RS: 12529.94
XS DT 02 Channel distance is equal to zero.

RS: 12529.94
XS DT 02 Left overbank distance is equal to zero.

RS: 12529.94
XS DT 02 Right overbank distance is equal to zero.

RS: 12499.95
XS DT 02 Channel distance is equal to zero.

RS: 12499.95
XS DT 02 Left overbank distance is equal to zero.

RS: 12499.95
XS DT 02 Right overbank distance is equal to zero.

RS: 12499.94
XS DT 02 Channel distance is equal to zero.

RS: 12499.94
XS DT 02 Left overbank distance is equal to zero.

RS: 12499.94
XS DT 02 Right overbank distance is equal to zero.

RS: 12469.94
XS DT 02 Channel distance is equal to zero.

RS: 12469.94
XS DT 02 Left overbank distance is equal to zero.

RS: 12469.94
XS DT 02 Right overbank distance is equal to zero.

RS: 12401.05
XS DT 02 Channel distance is equal to zero.

RS: 12401.05
XS DT 02 Left overbank distance is equal to zero.

RS: 12401.05
XS DT 02 Right overbank distance is equal to zero.

RS: 12400
XS DT 02 Channel distance is equal to zero.

RS: 12400
XS DT 02 Left overbank distance is equal to zero.

RS: 12400
XS DT 02 Right overbank distance is equal to zero.

RS: 12350
XS DT 02 Channel distance is equal to zero.

RS: 12350
XS DT 02 Left overbank distance is equal to zero.

RS: 12350
XS DT 02 Right overbank distance is equal to zero.

RS: 12312.18
XS DT 02 Channel distance is equal to zero.

RS: 12312.18
XS DT 02 Left overbank distance is equal to zero.

RS: 12312.18
XS DT 02 Right overbank distance is equal to zero.

RS: 12162.19
XS DT 02 Channel distance is equal to zero.

RS: 12162.19
XS DT 02 Left overbank distance is equal to zero.

RS: 12162.19
XS DT 02 Right overbank distance is equal to zero.

RS: 12150
XS DT 02 Channel distance is equal to zero.

RS: 12150
XS DT 02 Left overbank distance is equal to zero.

RS: 12150
XS DT 02 Right overbank distance is equal to zero.

RS: 12097.31
XS DT 02 Channel distance is equal to zero.

RS: 12097.31
XS DT 02 Left overbank distance is equal to zero.

RS: 12097.31
XS DT 02 Right overbank distance is equal to zero.

RS: 12097.3
XS DT 02 Channel distance is equal to zero.

RS: 12097.3
XS DT 02 Left overbank distance is equal to zero.

RS: 12097.3
XS DT 02 Right overbank distance is equal to zero.

RS: 12033.7
XS DT 02 Channel distance is equal to zero.

RS: 12033.7
XS DT 02 Left overbank distance is equal to zero.

RS: 12033.7
XS DT 02 Right overbank distance is equal to zero.

RS: 12000
XS DT 02 Channel distance is equal to zero.

RS: 12000
XS DT 02 Left overbank distance is equal to zero.

RS: 12000
XS DT 02 Right overbank distance is equal to zero.

RS: 11924.18
XS DT 02 Channel distance is equal to zero.

RS: 11924.18
XS DT 02 Left overbank distance is equal to zero.

RS: 11924.18
XS DT 02 Right overbank distance is equal to zero.

RS: 11911.68
XS DT 02 Channel distance is equal to zero.

RS: 11911.68
XS DT 02 Left overbank distance is equal to zero.

RS: 11911.68
XS DT 02 Right overbank distance is equal to zero.

RS: 11899.18
XS DT 02 Channel distance is equal to zero.

RS: 11899.18

XS DT 02 Left overbank distance is equal to zero.

RS: 11899.18
XS DT 02 Right overbank distance is equal to zero.

RS: 11886.68
XS DT 02 Channel distance is equal to zero.

RS: 11886.68
XS DT 02 Left overbank distance is equal to zero.

RS: 11886.68
XS DT 02 Right overbank distance is equal to zero.

RS: 11874.18
XS DT 02 Channel distance is equal to zero.

RS: 11874.18
XS DT 02 Left overbank distance is equal to zero.

RS: 11874.18
XS DT 02 Right overbank distance is equal to zero.

RS: 11851.12
XS DT 02 Channel distance is equal to zero.

RS: 11851.12
XS DT 02 Left overbank distance is equal to zero.

RS: 11851.12
XS DT 02 Right overbank distance is equal to zero.

RS: 11828.06
XS DT 02 Channel distance is equal to zero.

RS: 11828.06
XS DT 02 Left overbank distance is equal to zero.

RS: 11828.06
XS DT 02 Right overbank distance is equal to zero.

RS: 11826.06
XS DT 02 Channel distance is equal to zero.

RS: 11826.06
XS DT 02 Left overbank distance is equal to zero.

RS: 11826.06
XS DT 02 Right overbank distance is equal to zero.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the South Channel,South

LOCATION CHECK

RS: 12598.93
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.98
MaxChlDpth Up/MaxChlDpth Dn = 1.19
TopwdthAct Up/TopwdthAct Dn = 1.13
This cross section is located too far upstream from the
critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Combined Channel,EAST
Critical is specified as the downstream boundary
for profile PF 1

XS BC 02 The name of the stream is North Channel,WEST
Normal S = 0.007 is specified as the upstream boundary

```
         for profile PF 1

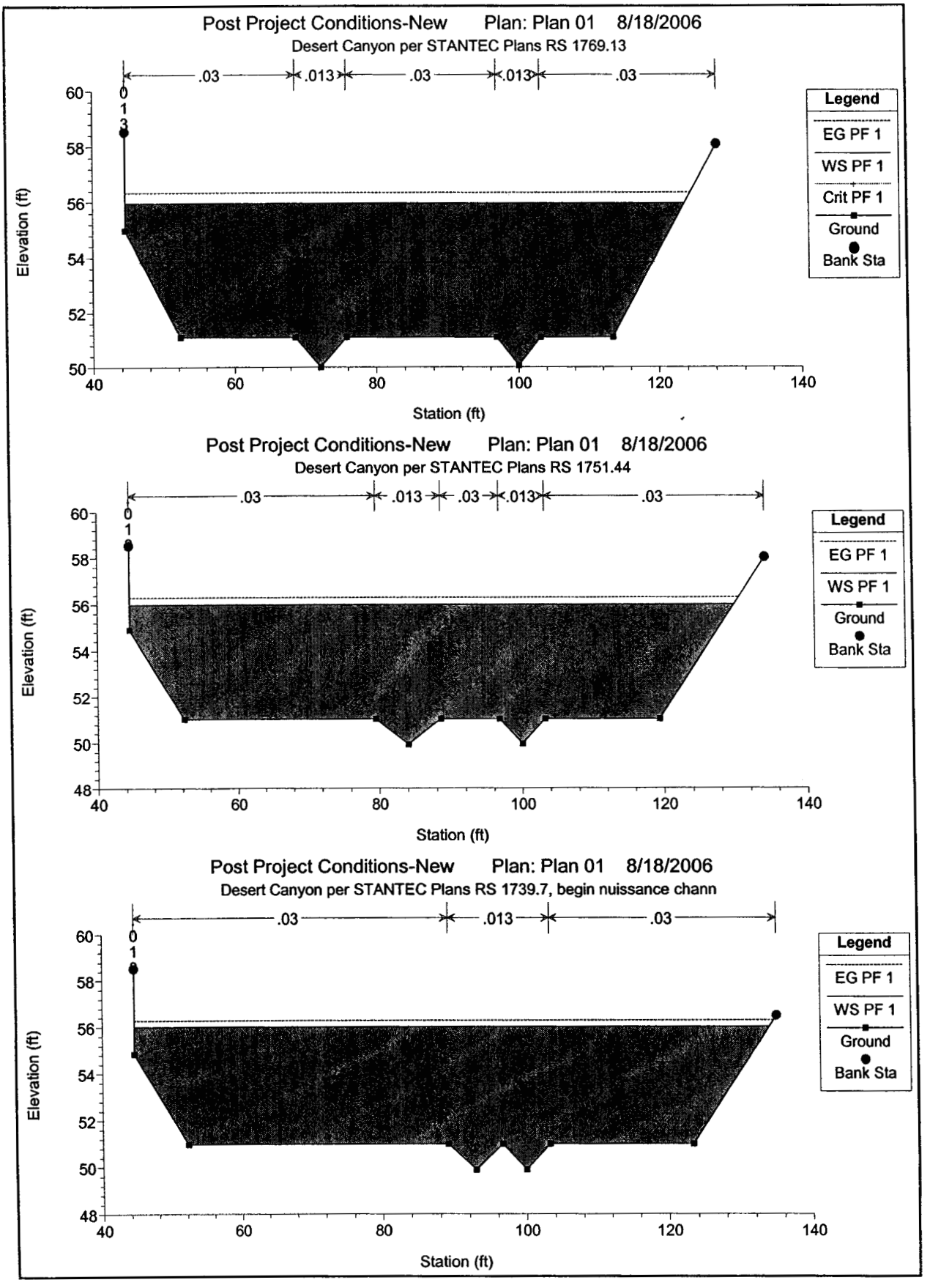
XS BC 02 The name of the stream is South Channel,South
         Normal S = 0.01 is specified as the upstream boundary
         for profile PF 1

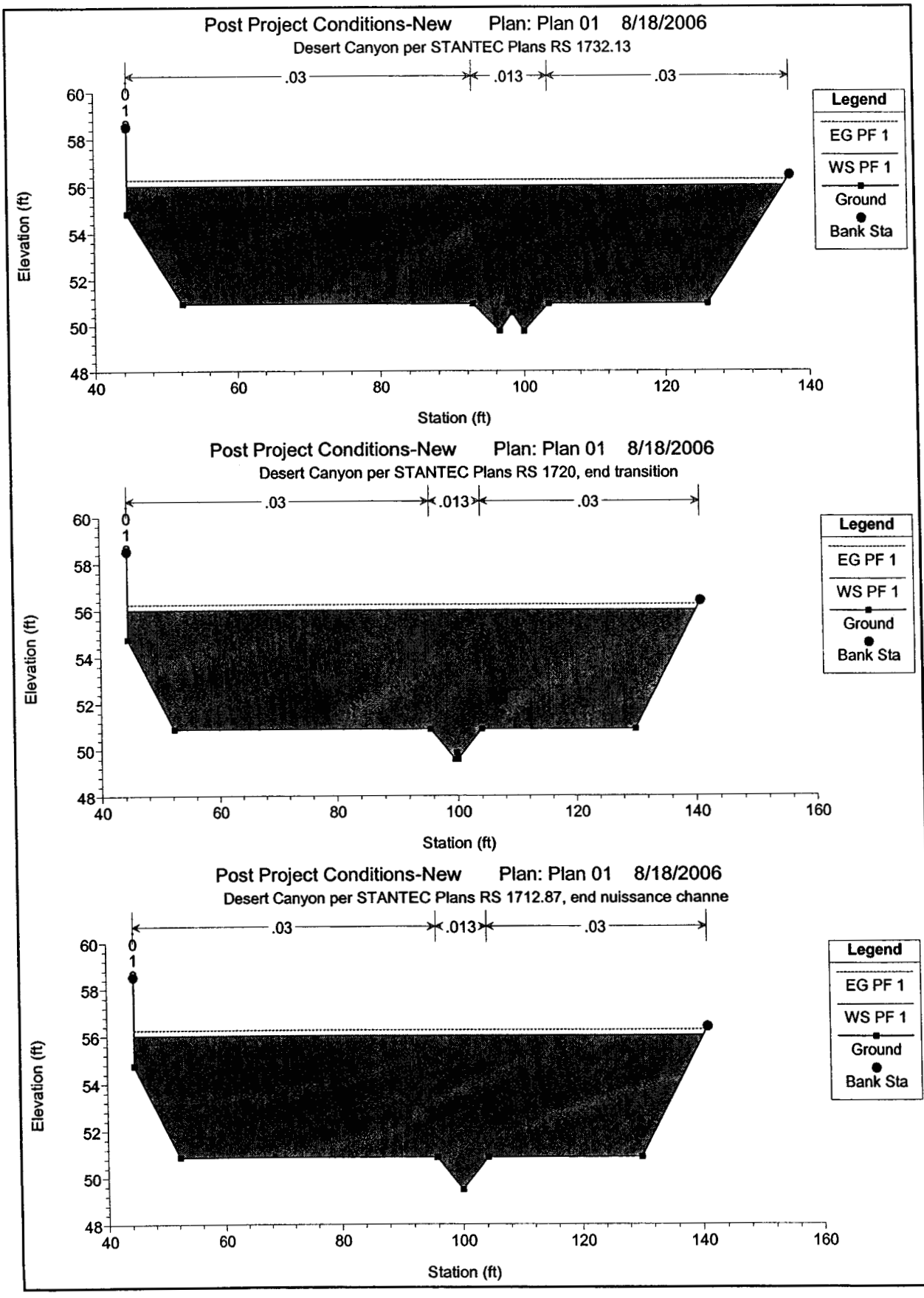
XS BC 03 Maximum number of iterations is 0
         It should not be less than 20.

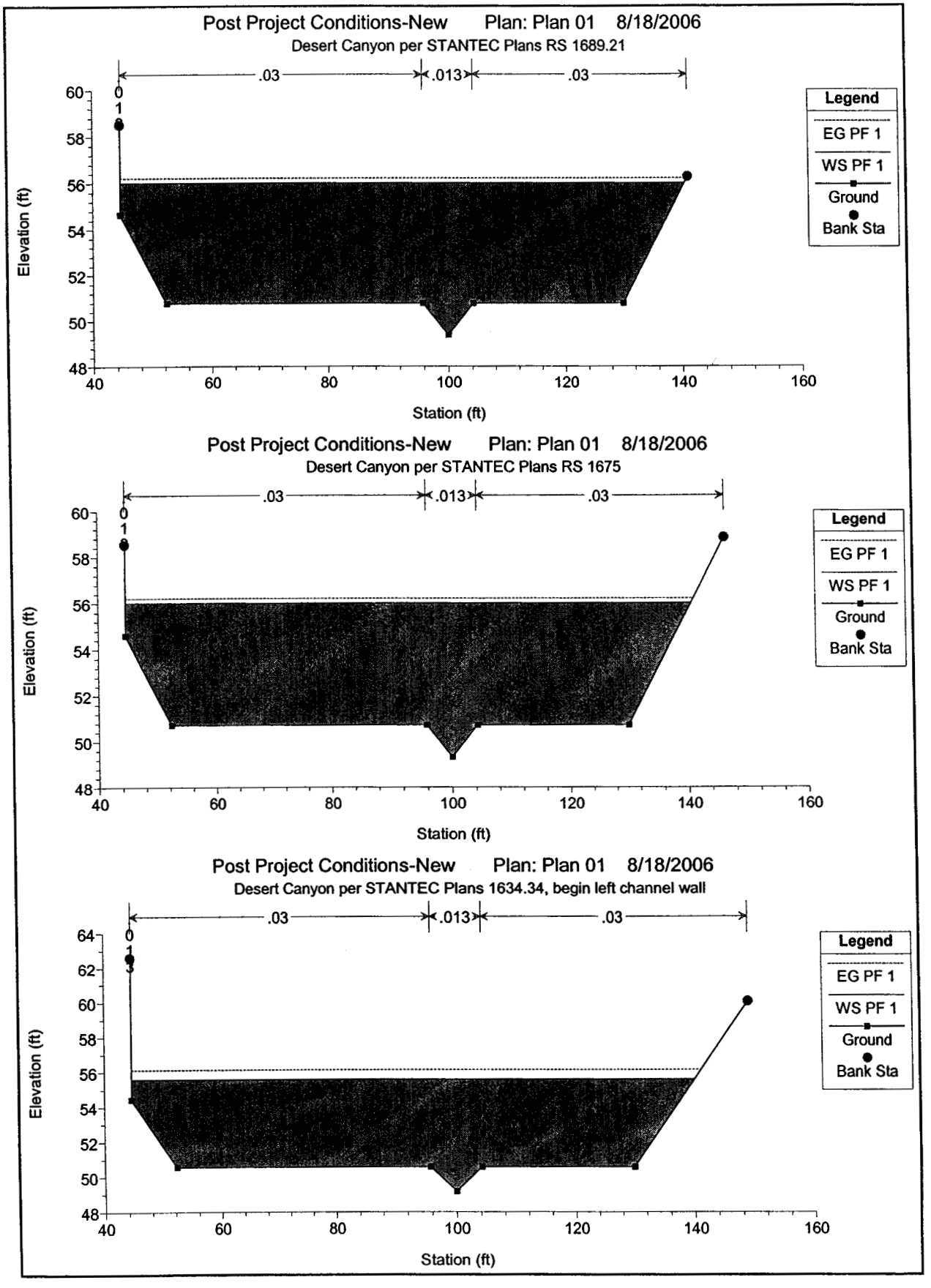
XS FR 02 The profile is computed as mixed flow regime.

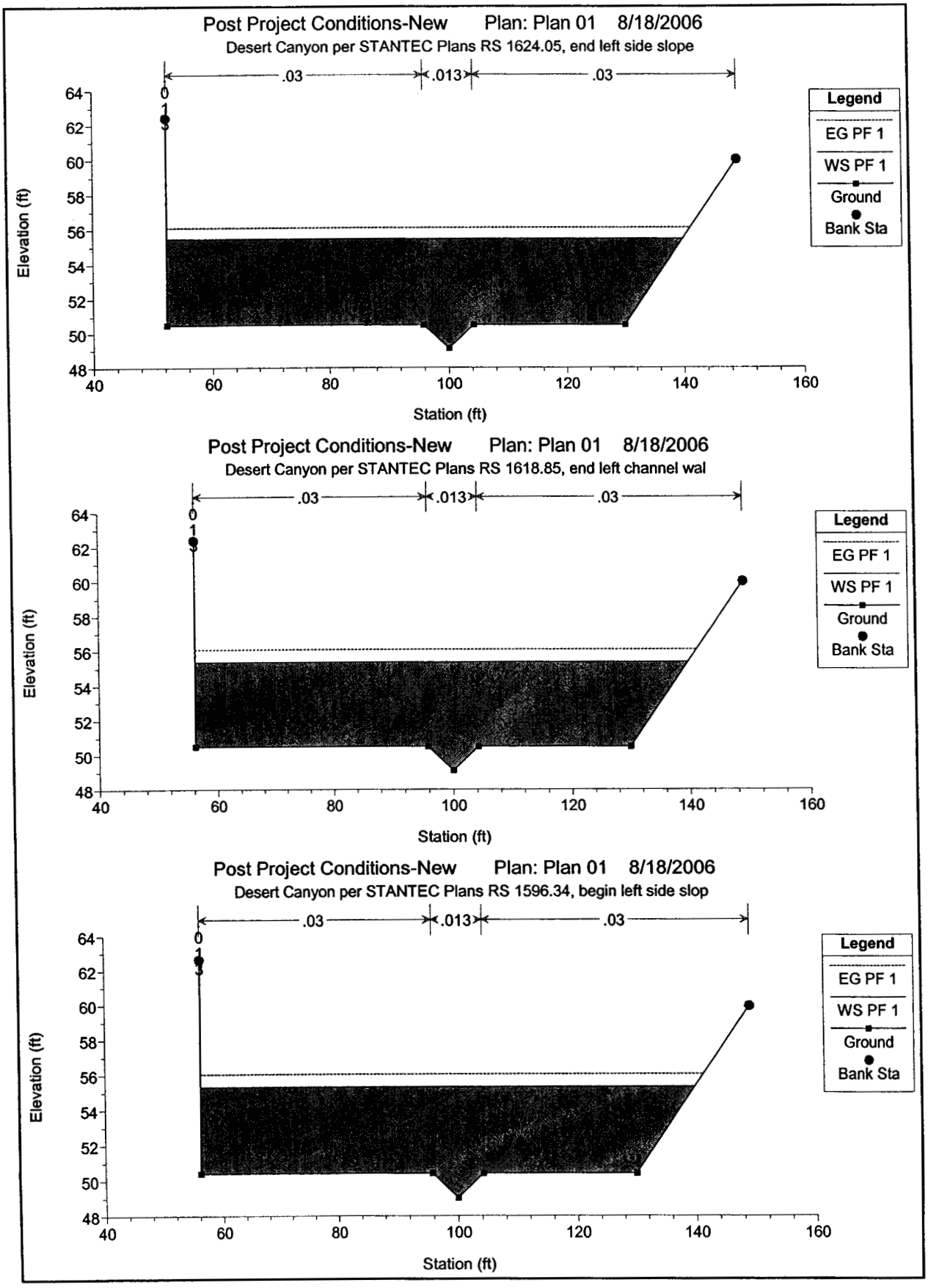

LATERAL WEIRS CHECK
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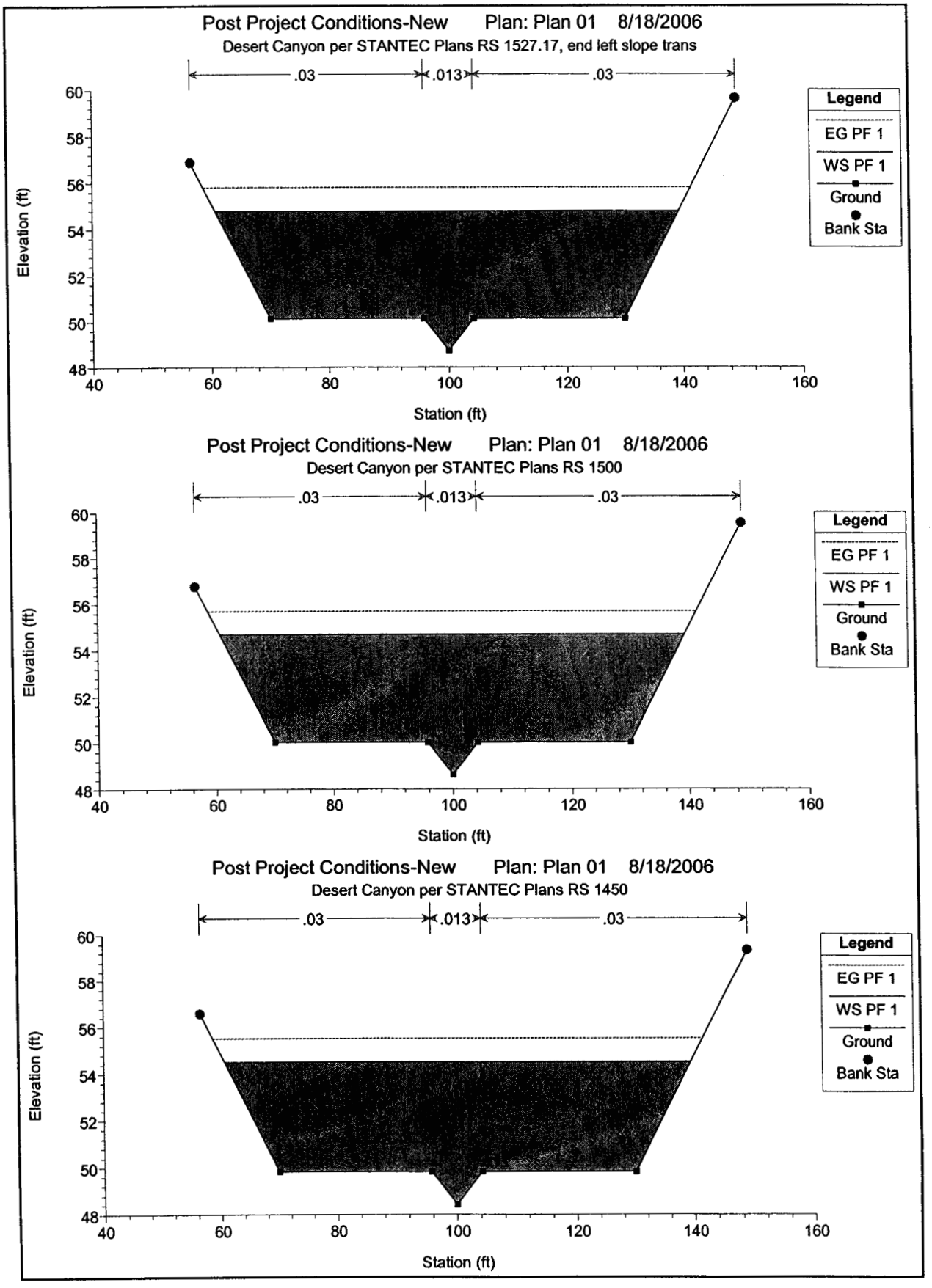
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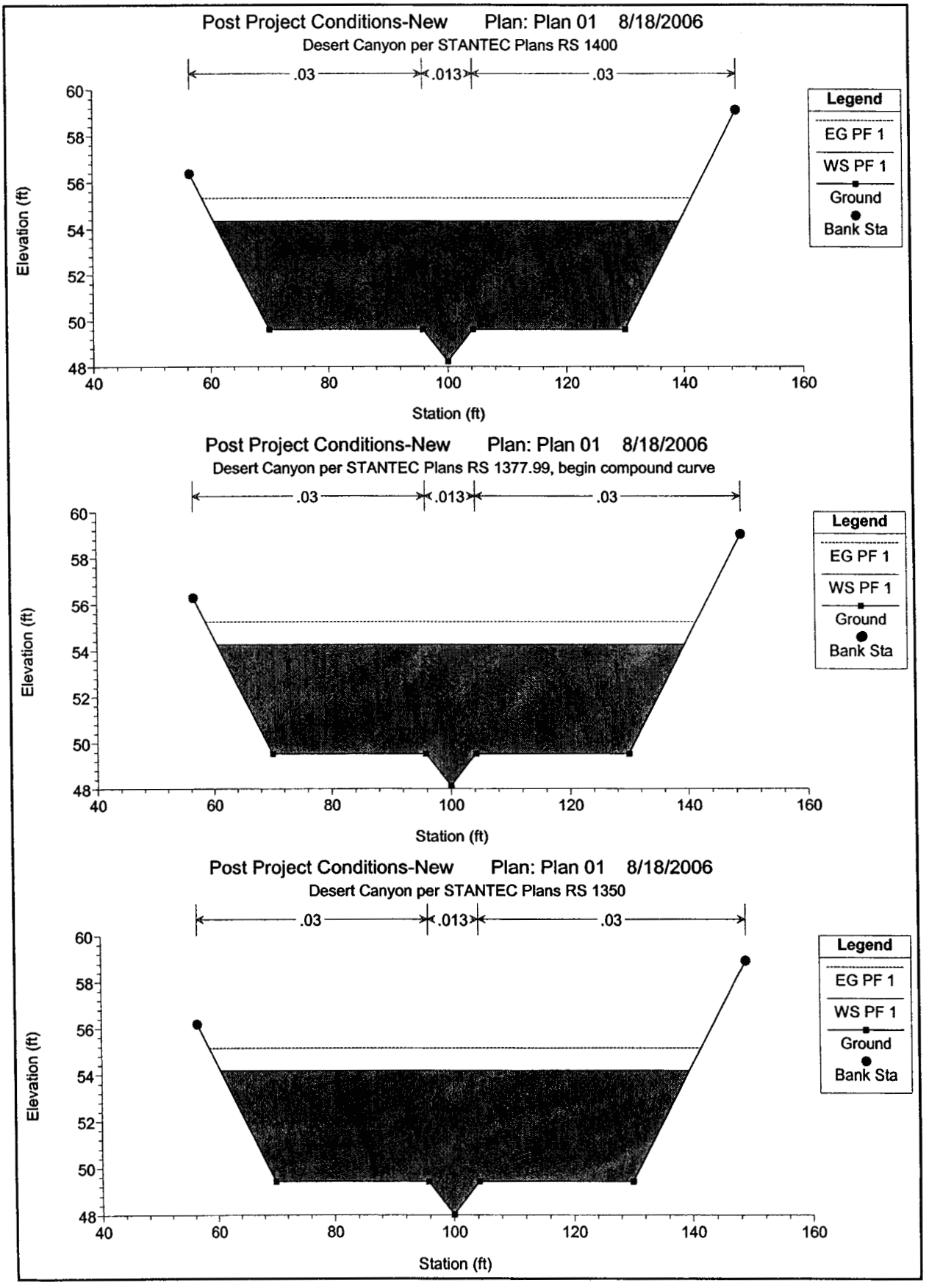

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1769.13
.03
.013
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
60
58
56
54
52
50
40
60
80
100
120
140
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1751.44
.03
.013
.03
.013
.03
0
1
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
60
58
56
54
52
50
48
40
60
80
100
120
140
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1739.7, begin nuissance chann
.03
.013
.03
0
1
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
60
58
56
54
52
50
48
40
60
80
100
120
140
Station (ft)

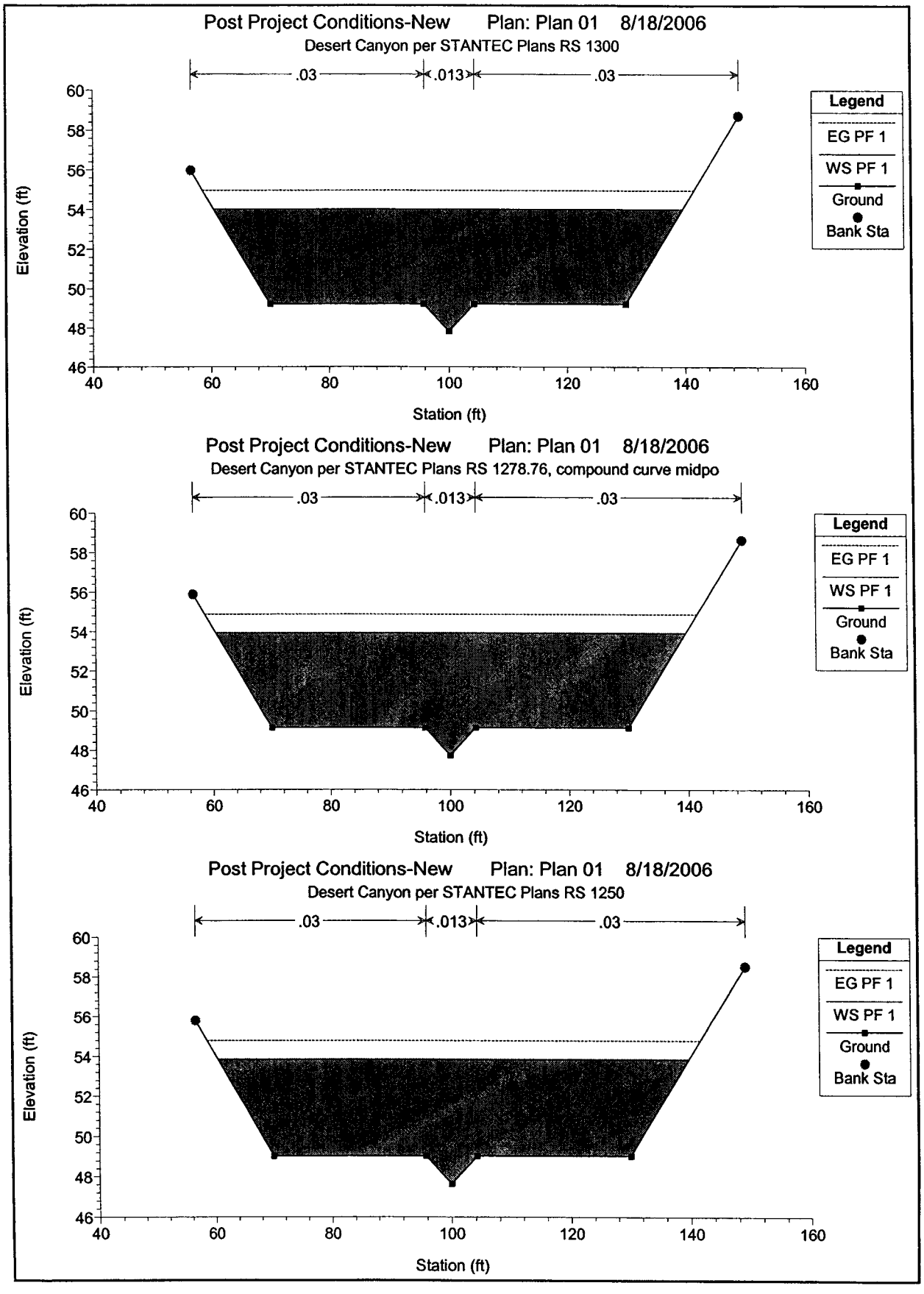

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1732.13
.03
.013
.03
0
1
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1720, end transition
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1712.87, end nuissance channe
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

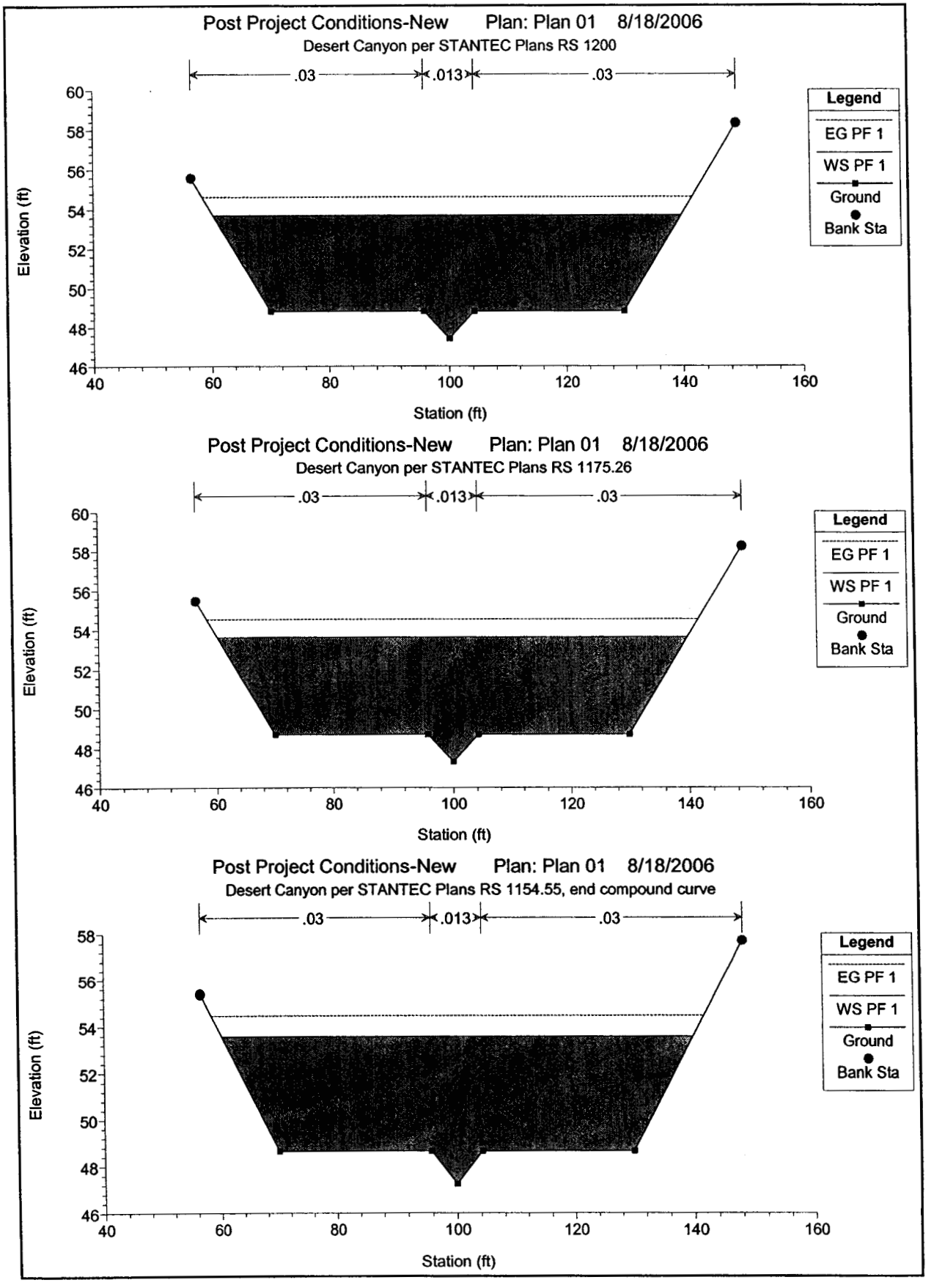

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1689.21
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1675
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans 1634.34, begin left channel wall
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

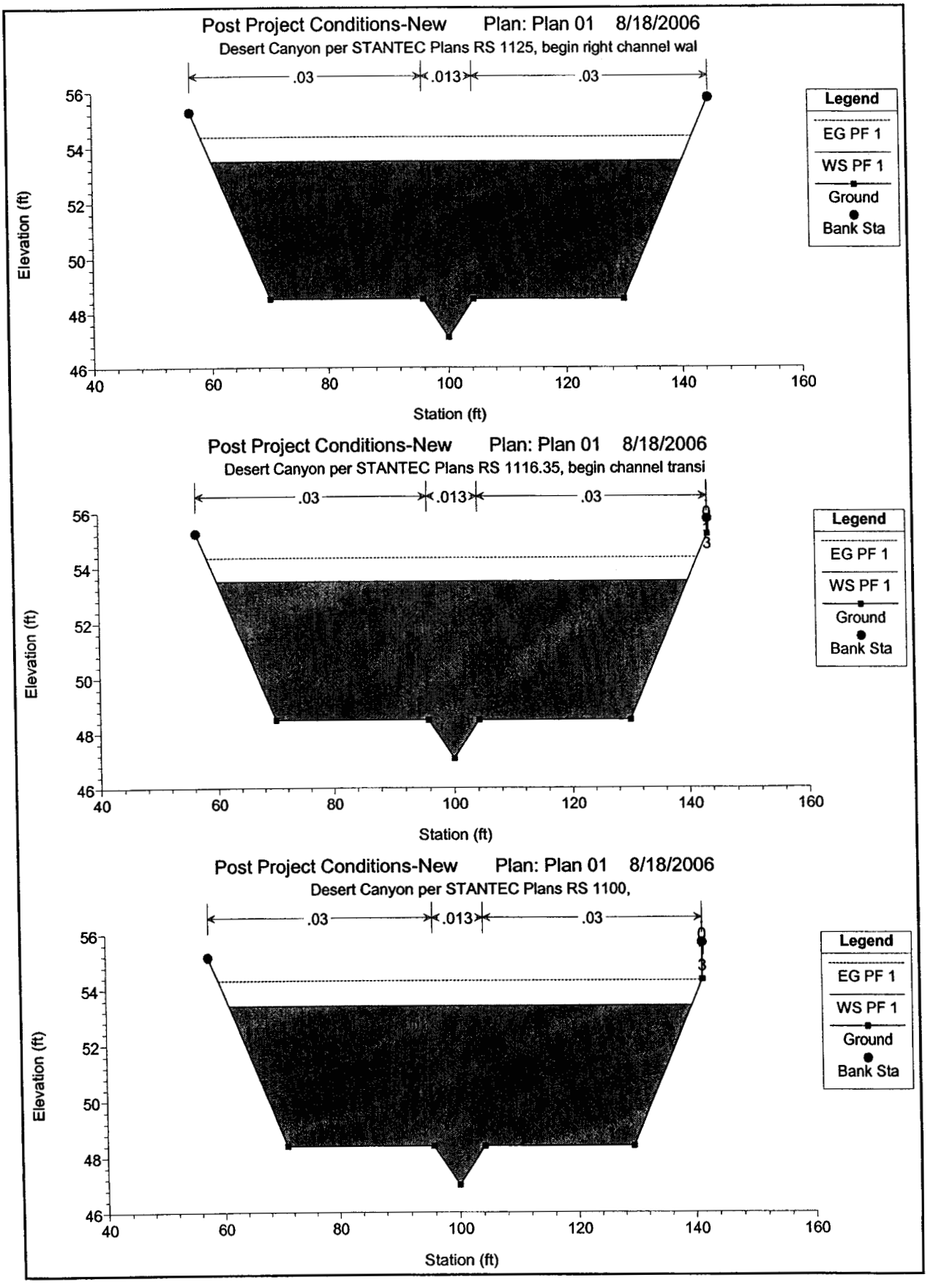

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1624.05, end left side slope
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1618.85, end left channel wal
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1596.34, begin left side slop
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

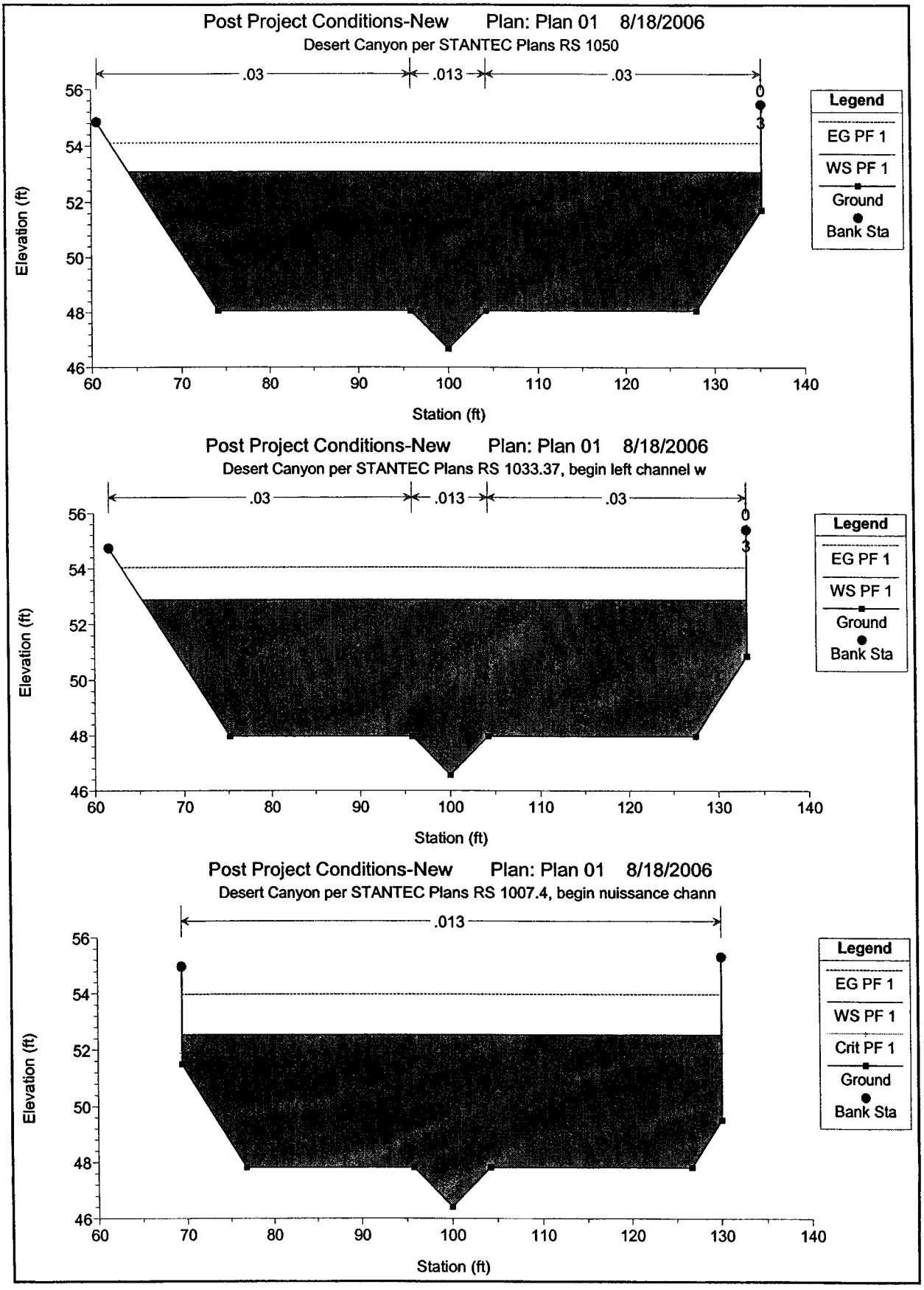

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1527.17, end left slope trans
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1500
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1450
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

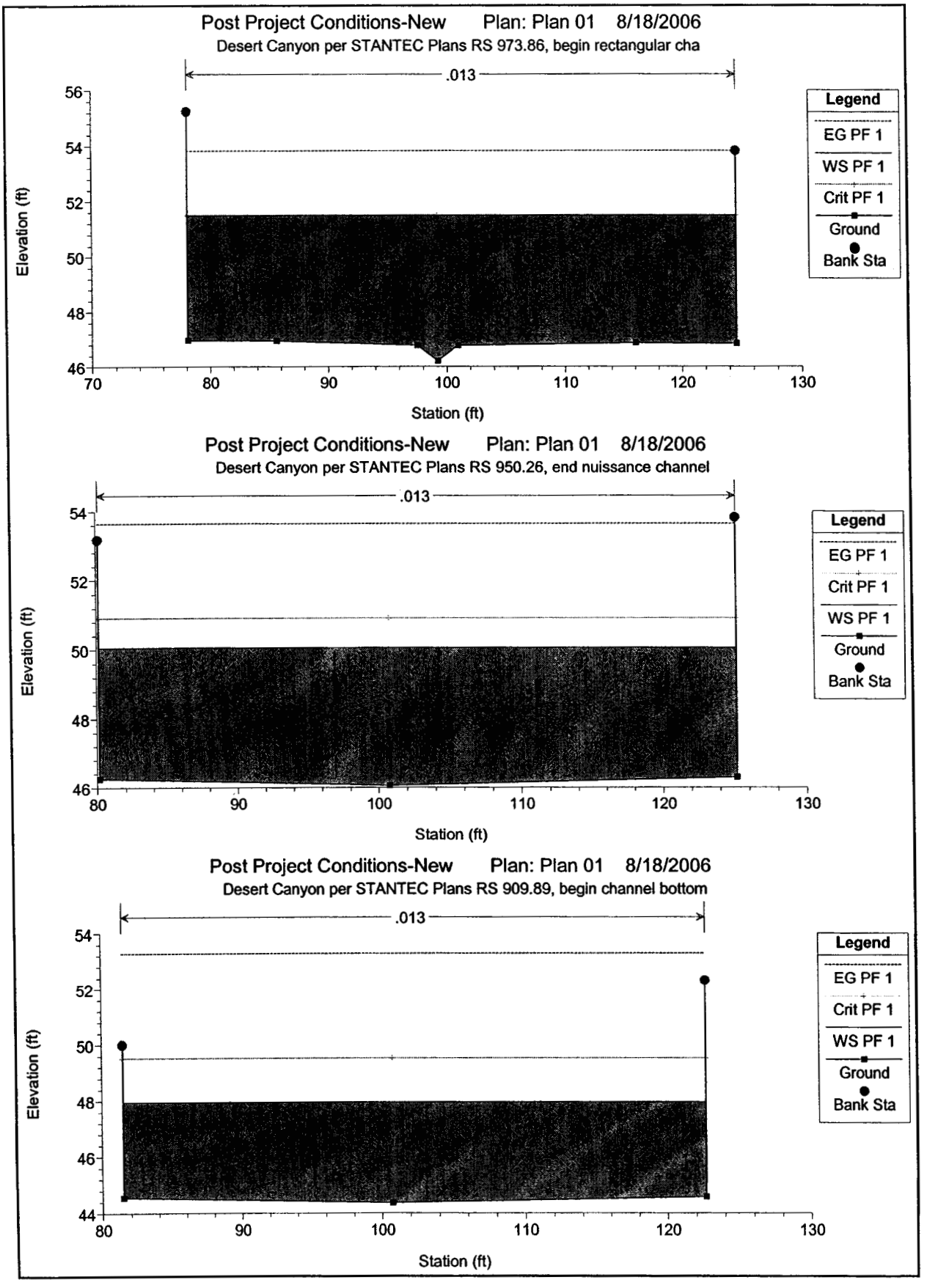

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1400
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1377.99, begin compound curve
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1350
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

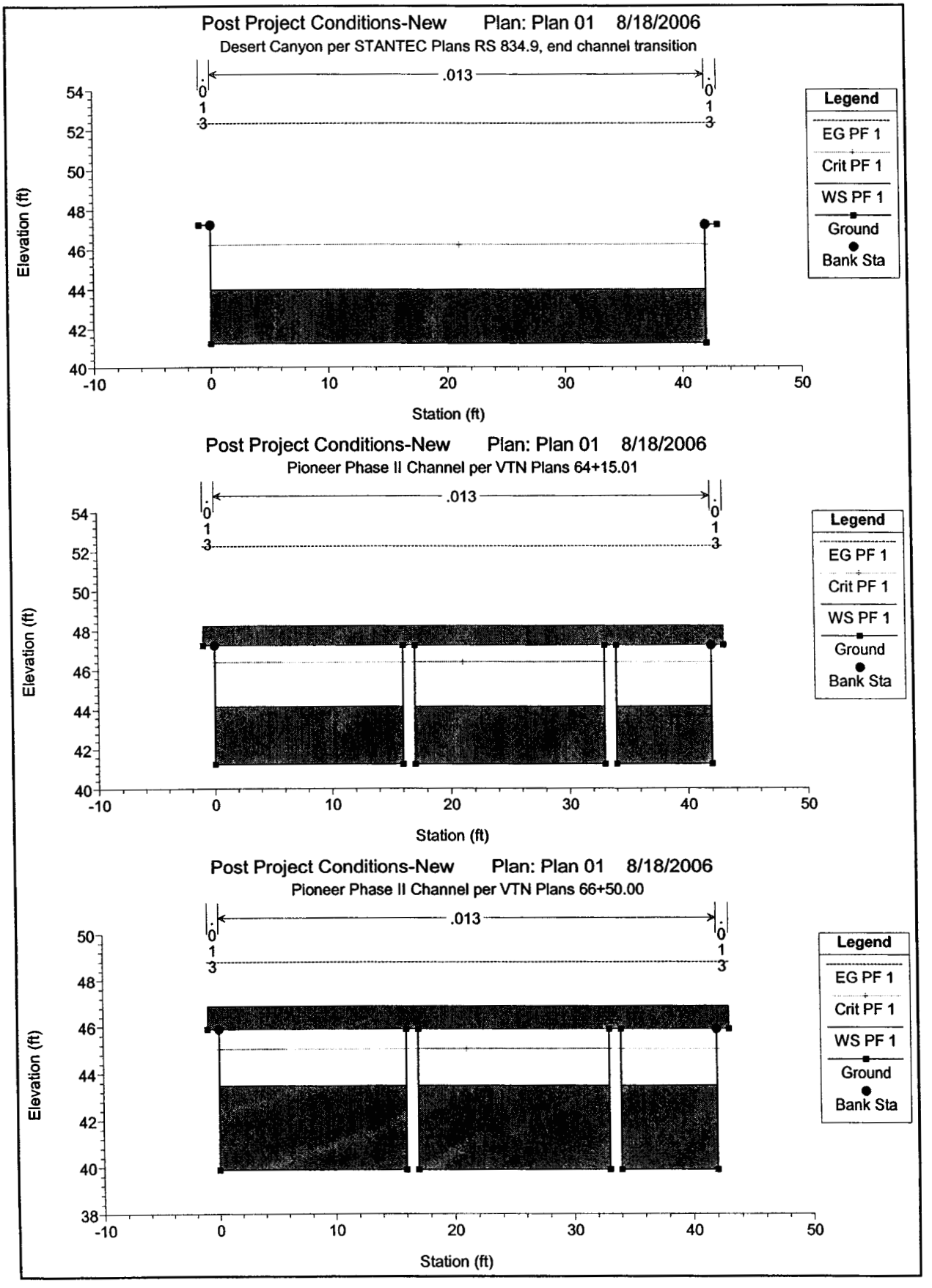

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1300
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1278.76, compound curve midpo
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1250
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

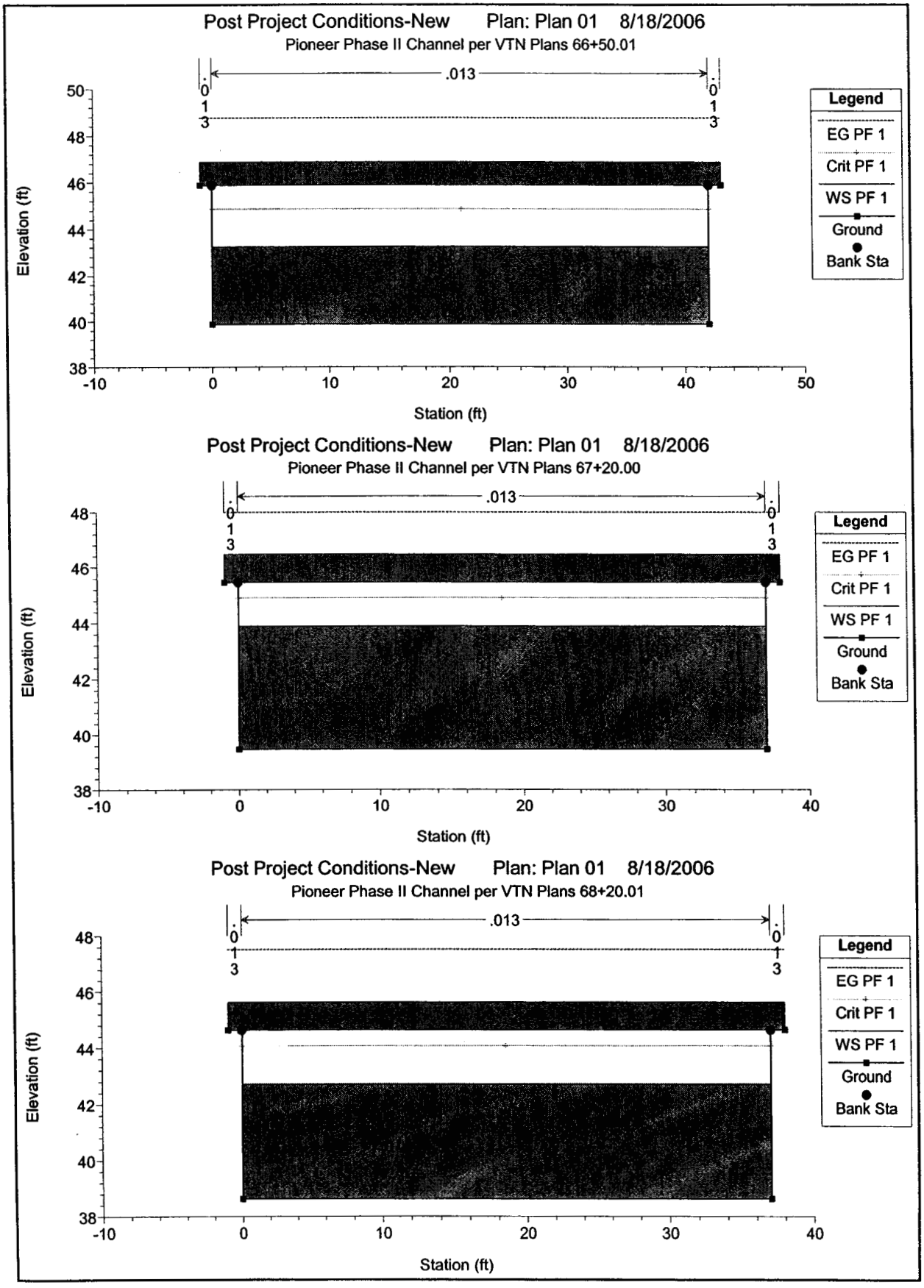

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1200
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1175.26
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1154.55, end compound curve
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

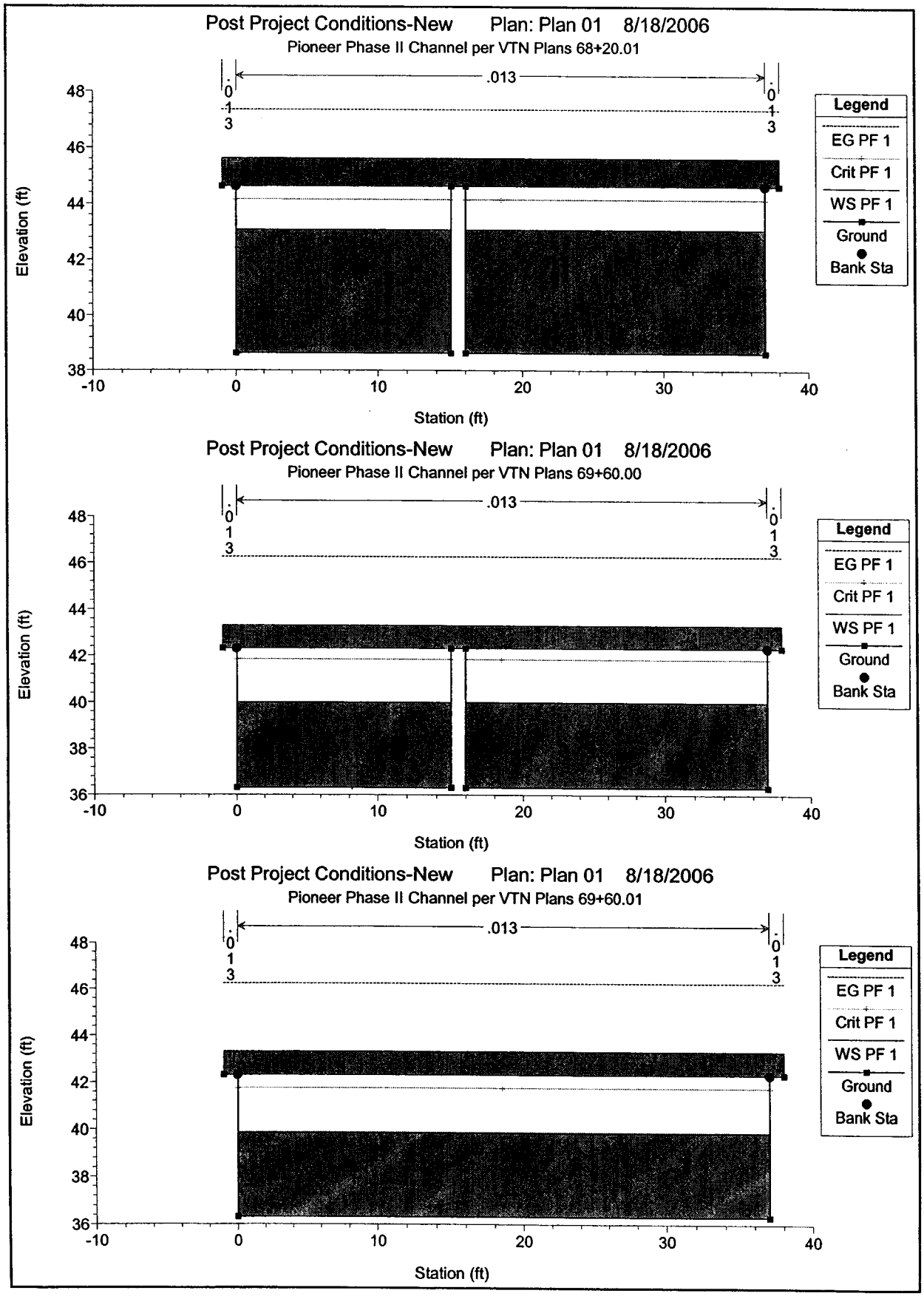

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1125, begin right channel wal
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1116.35, begin channel transi
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1100,
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

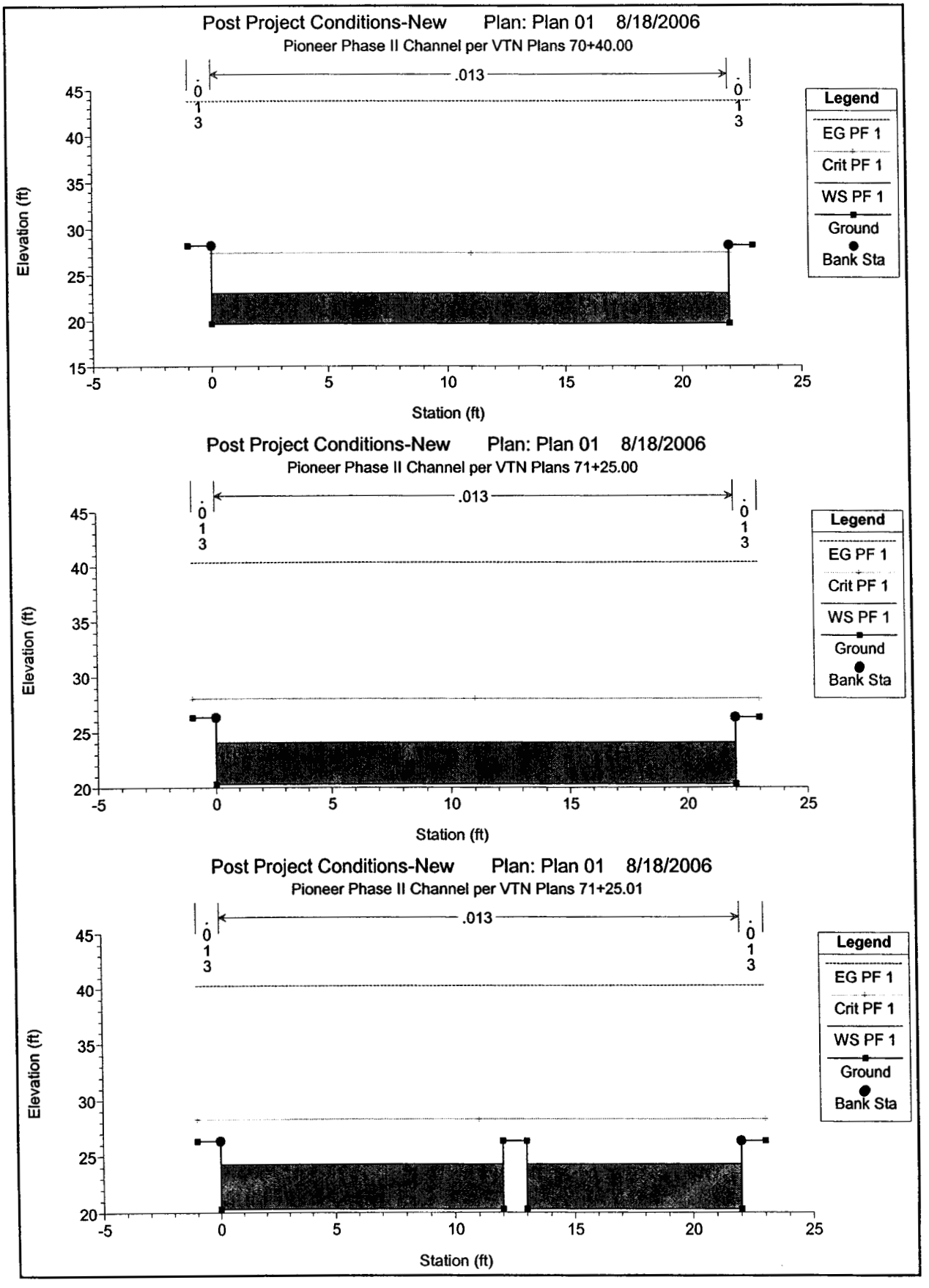

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1050
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1033.37, begin left channel w
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1007.4, begin nuissance chann
.013
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

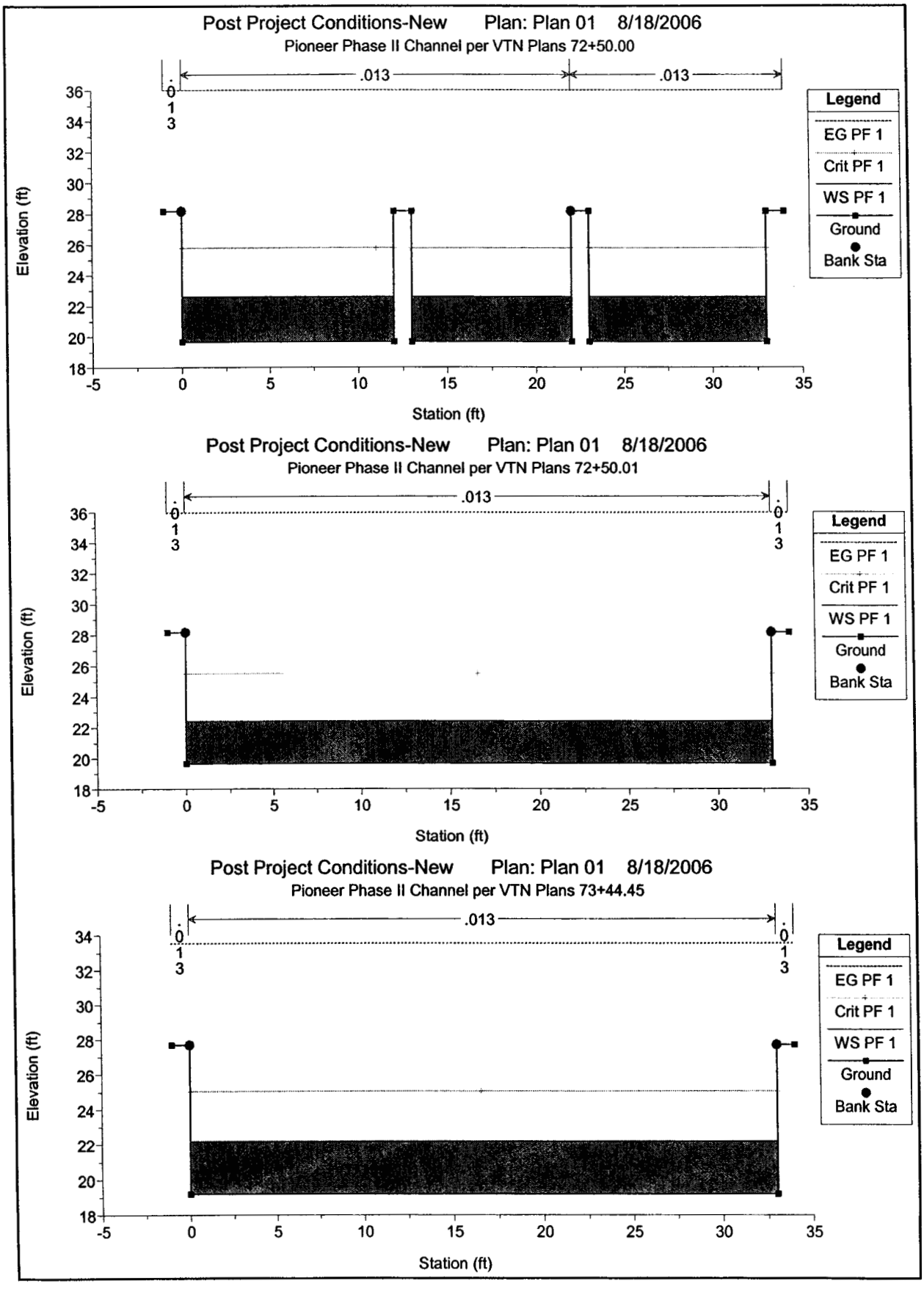

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 973.86, begin rectangular cha
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 950.26, end nuissance channel
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 909.89, begin channel bottom
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

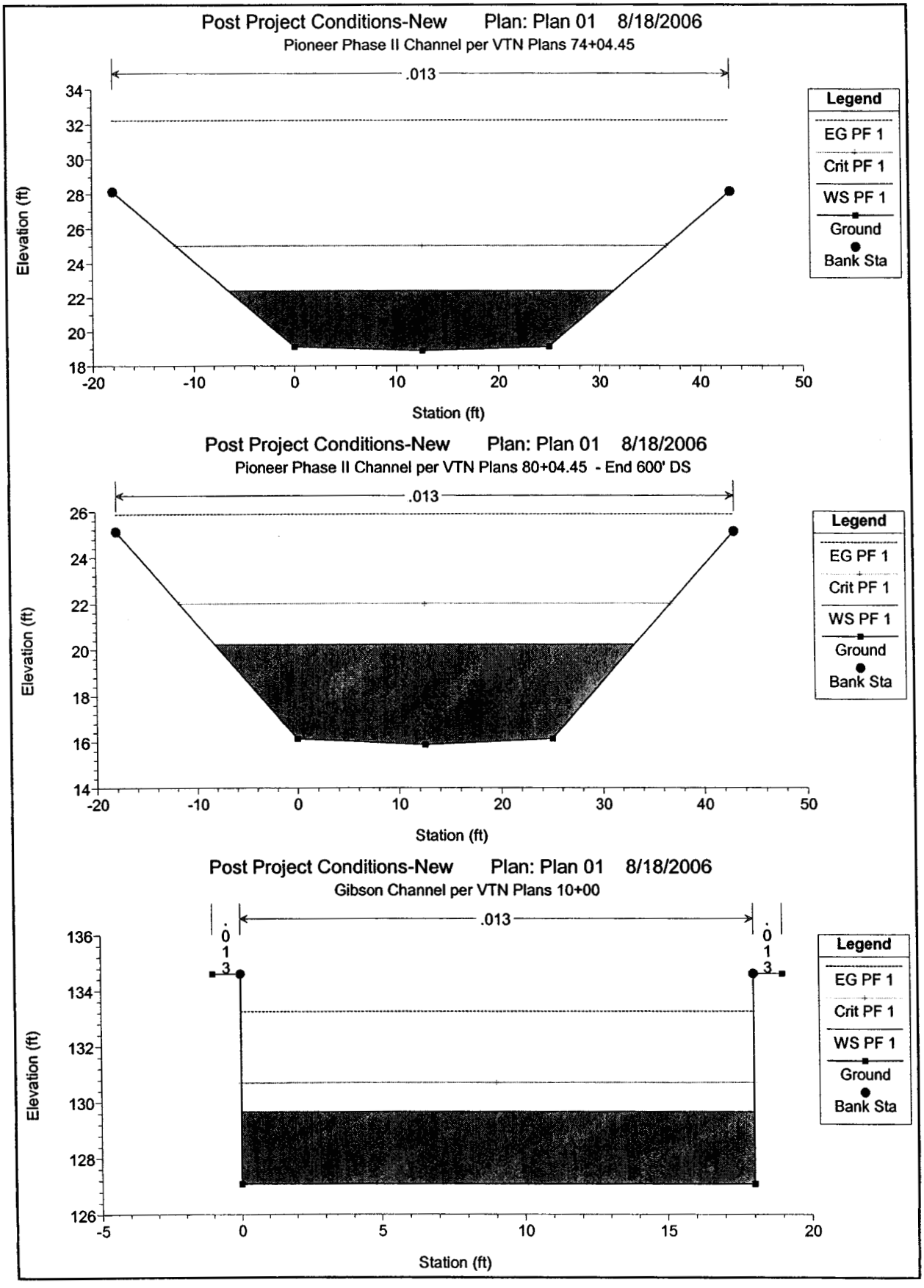

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 834.9, end channel transition
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 64+15.01
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 66+50.00
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

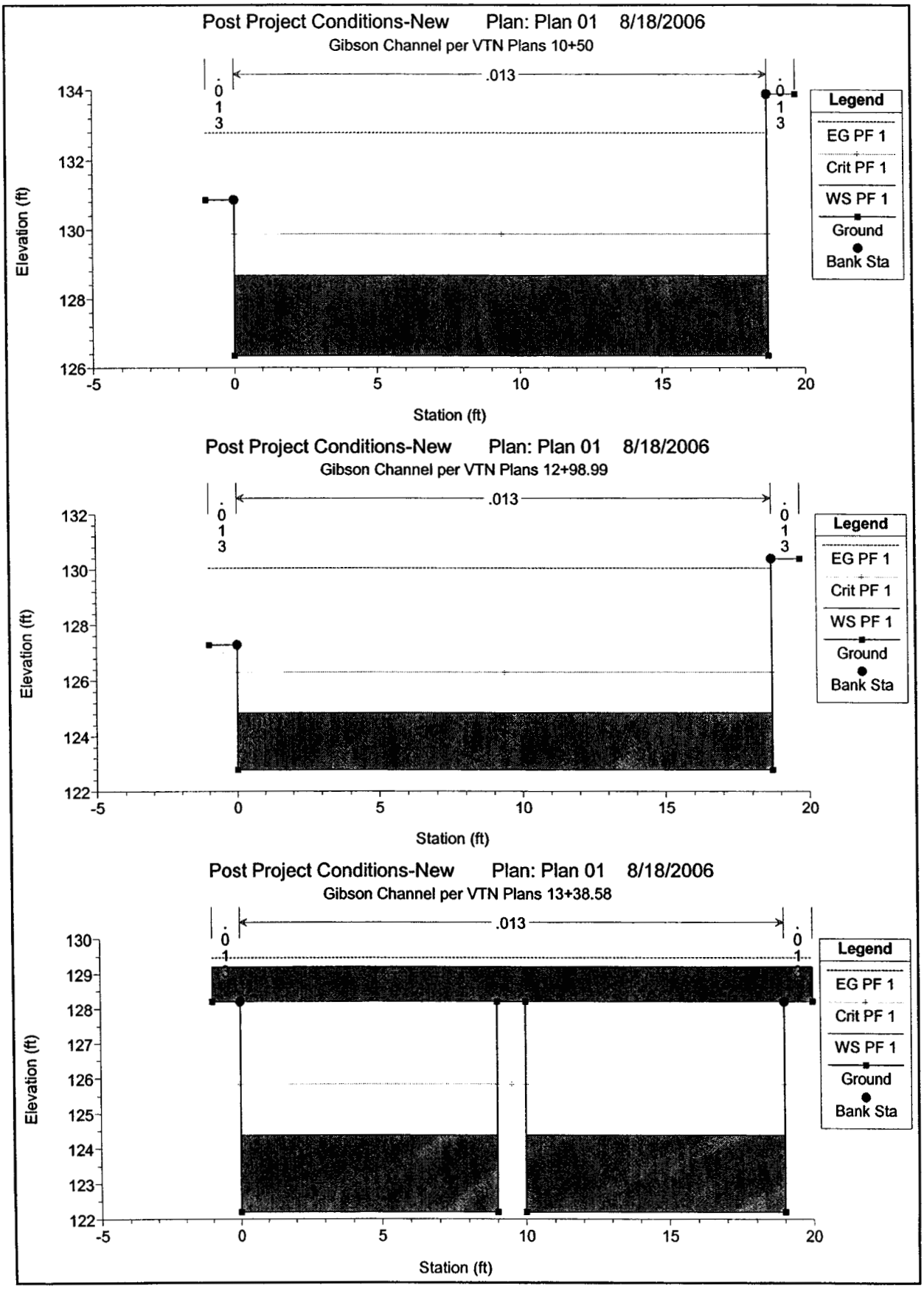

Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 66+50.01
.013
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 67+20.00
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 68+20.01
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

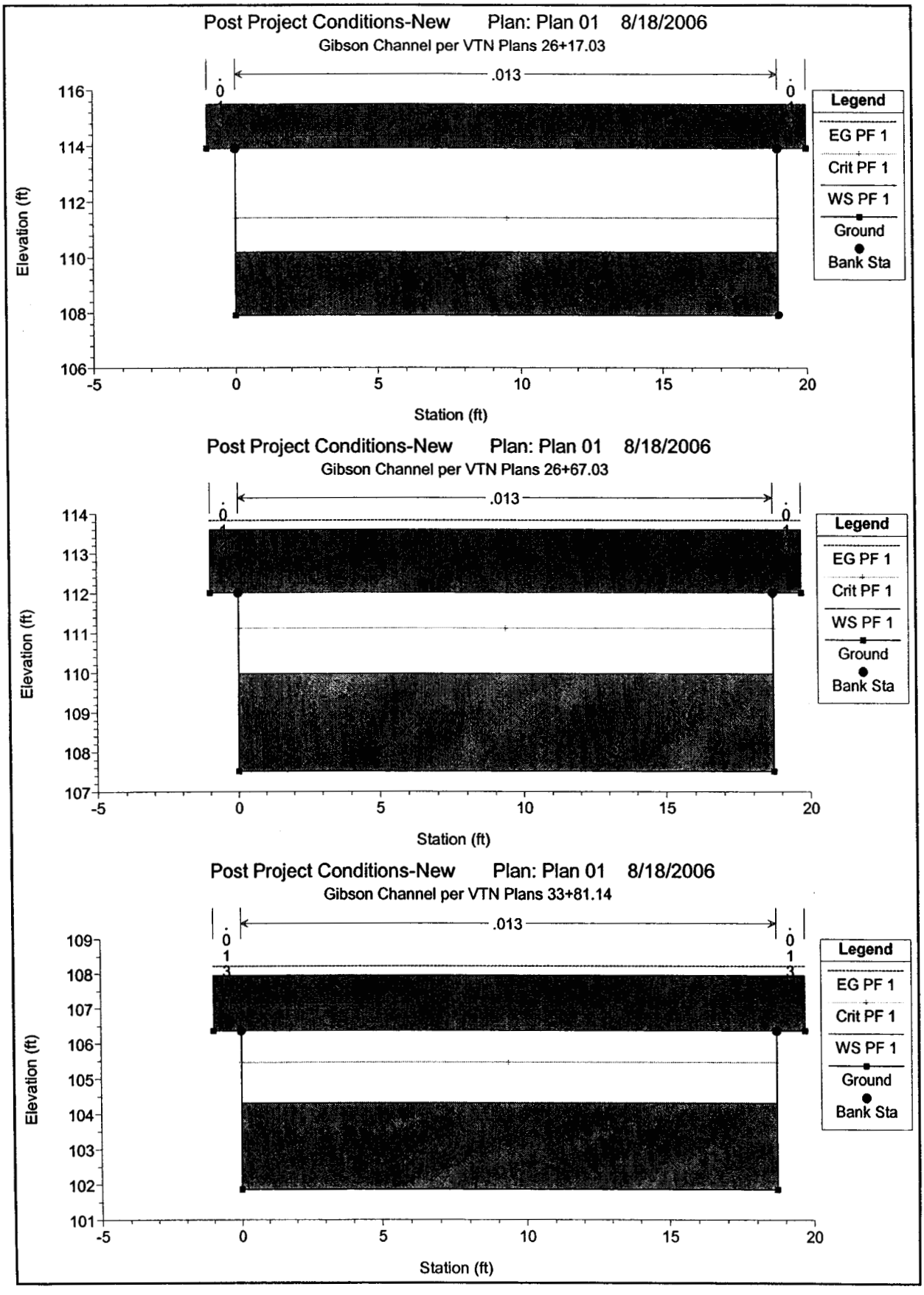

Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 68+20.01
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 69+60.00
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 69+60.01
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

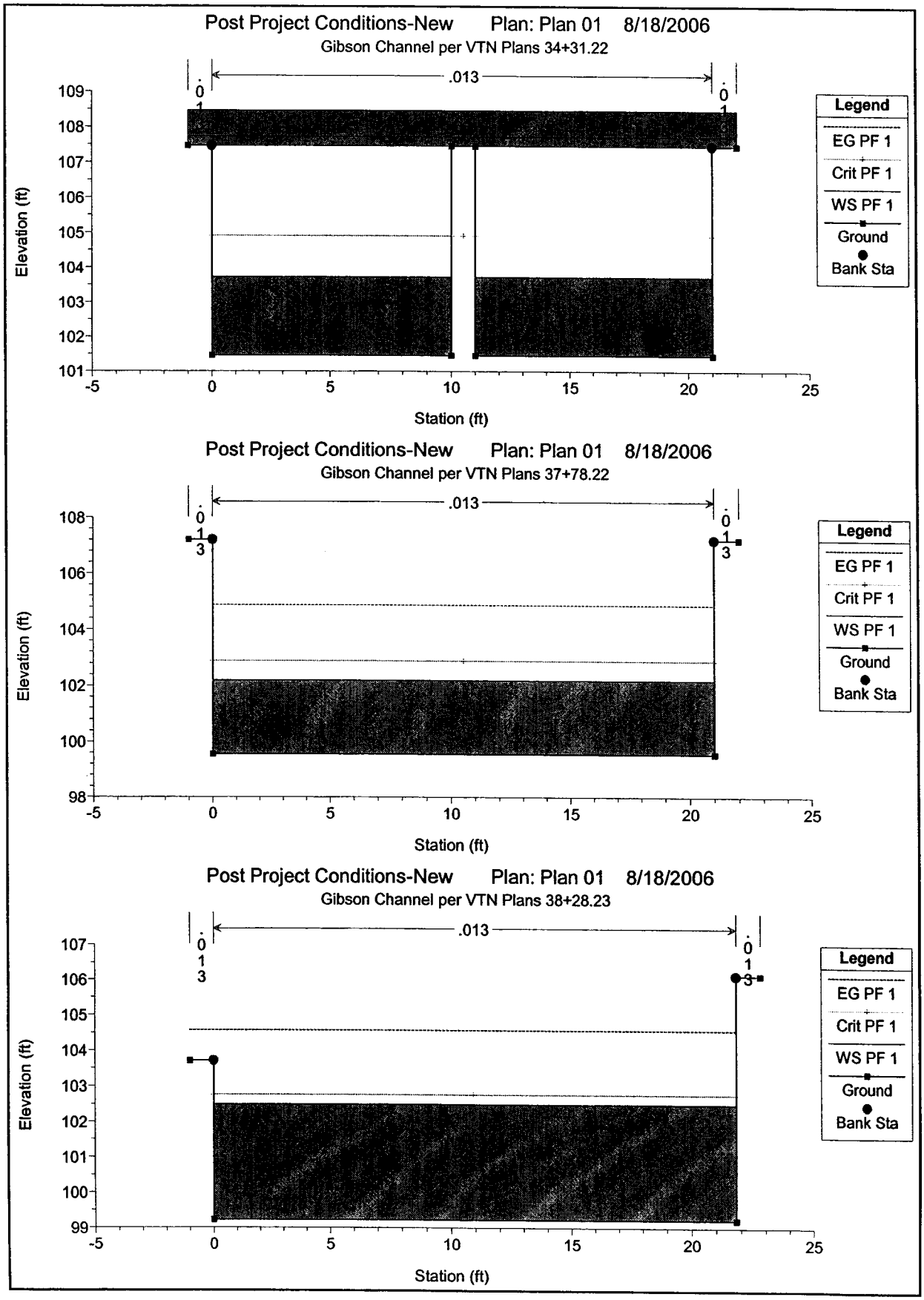

Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 70+40.00
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 71+25.00
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 71+25.01
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

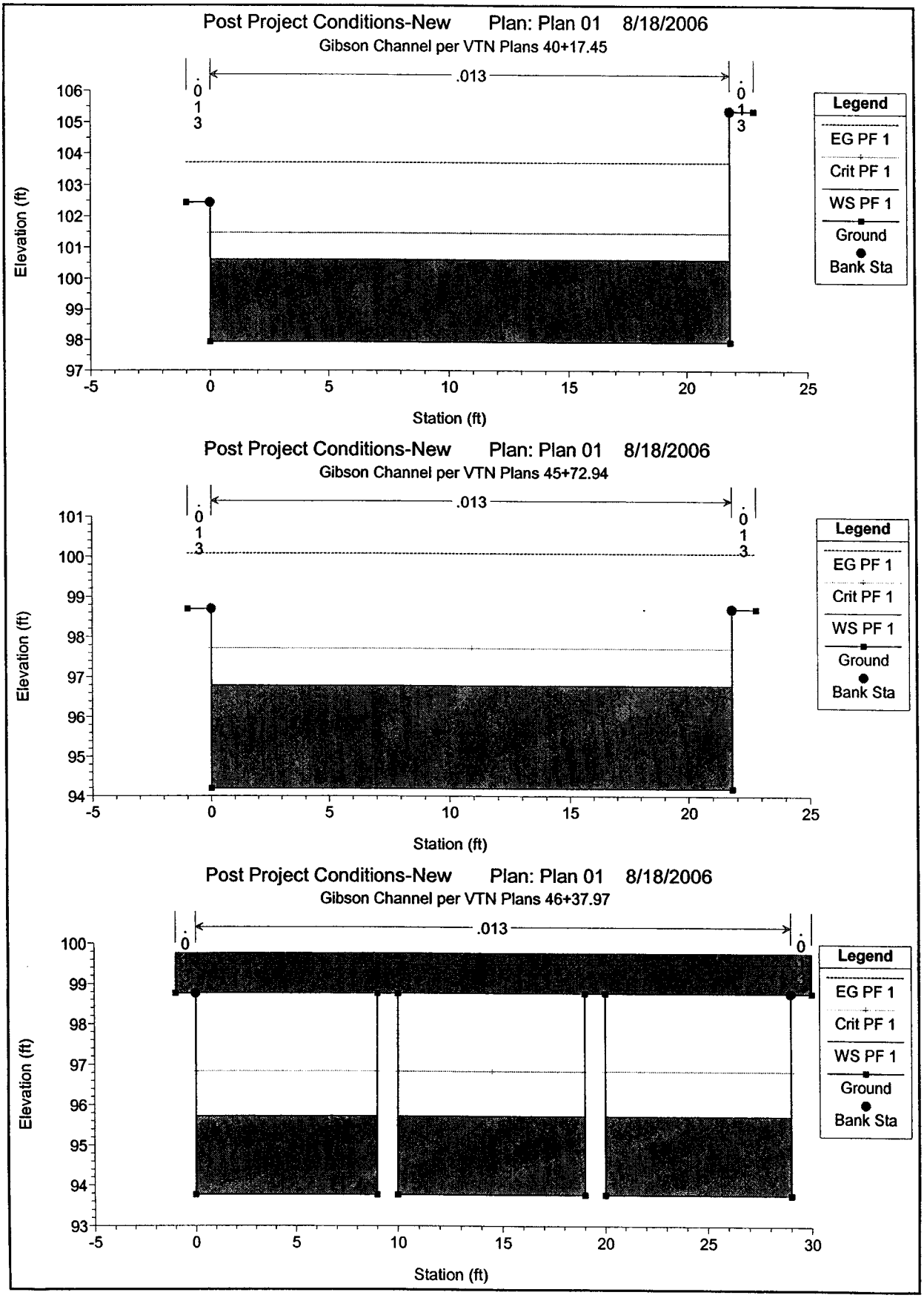

Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 72+50.00
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 72+50.01
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 73+44.45
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

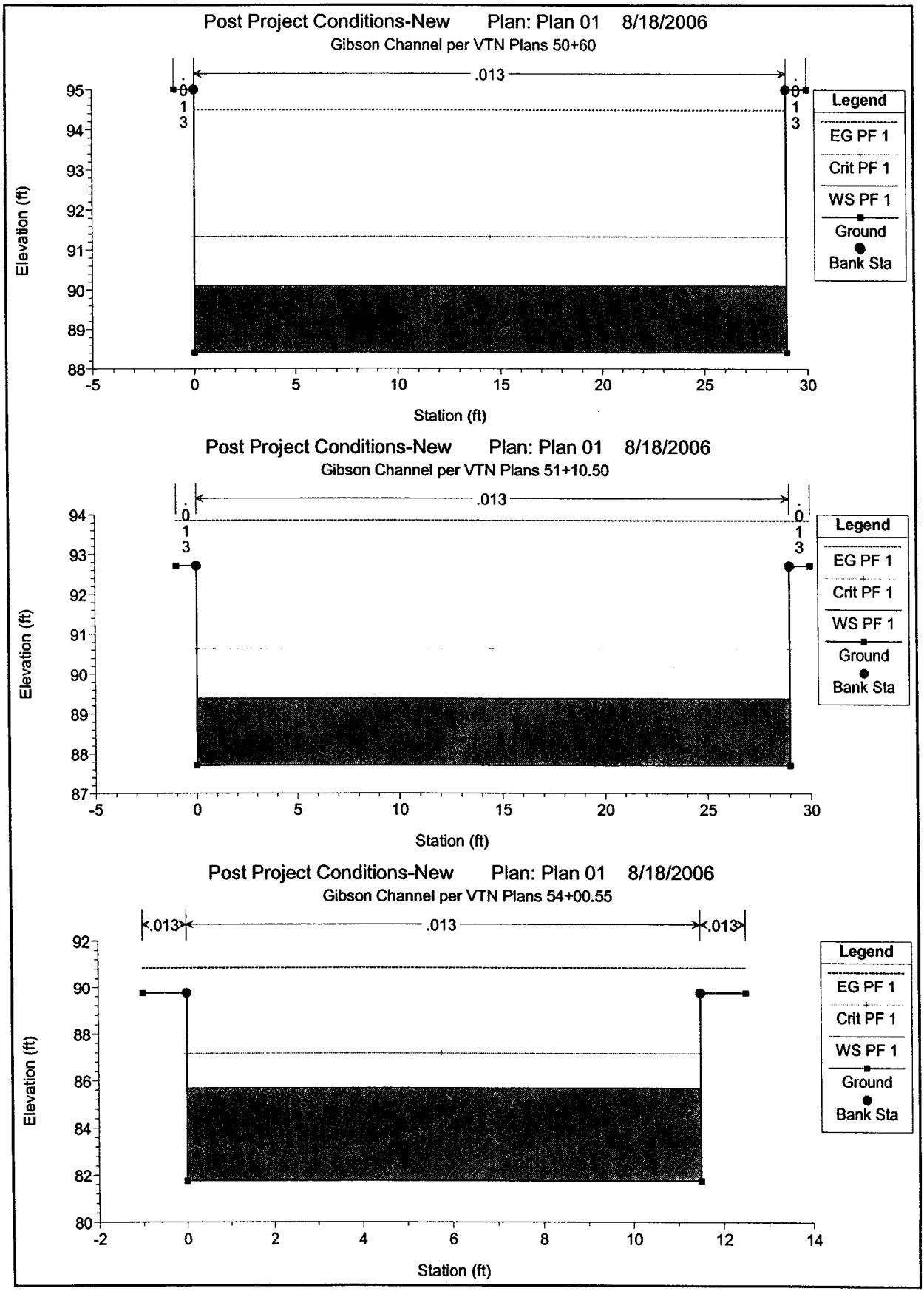

Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 74+04.45
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase II Channel per VTN Plans 80+04.45 - End 600' DS
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 10+00
.013
.013
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

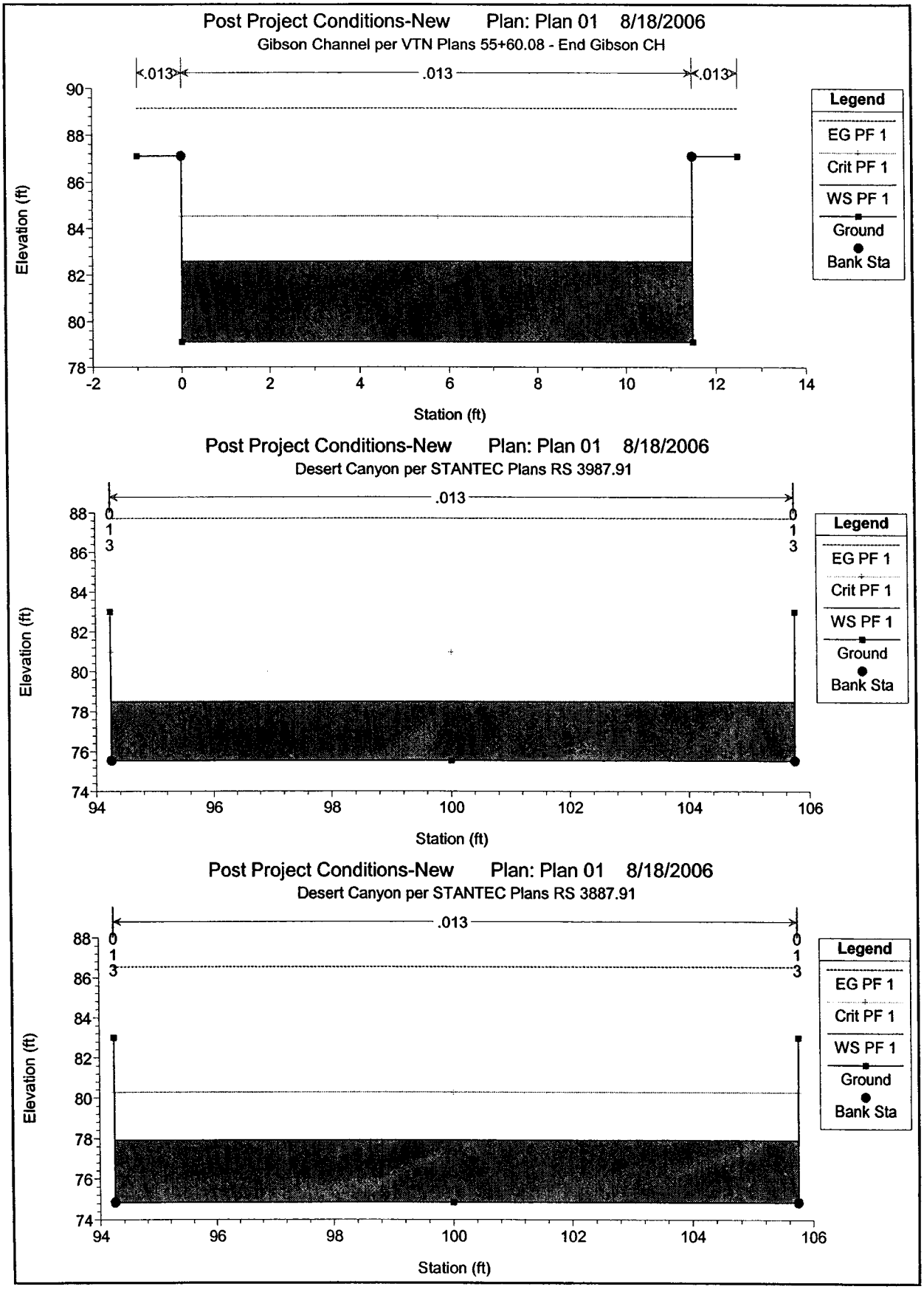

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 10+50
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 12+98.99
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 13+38.58
.013
.01
.01
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

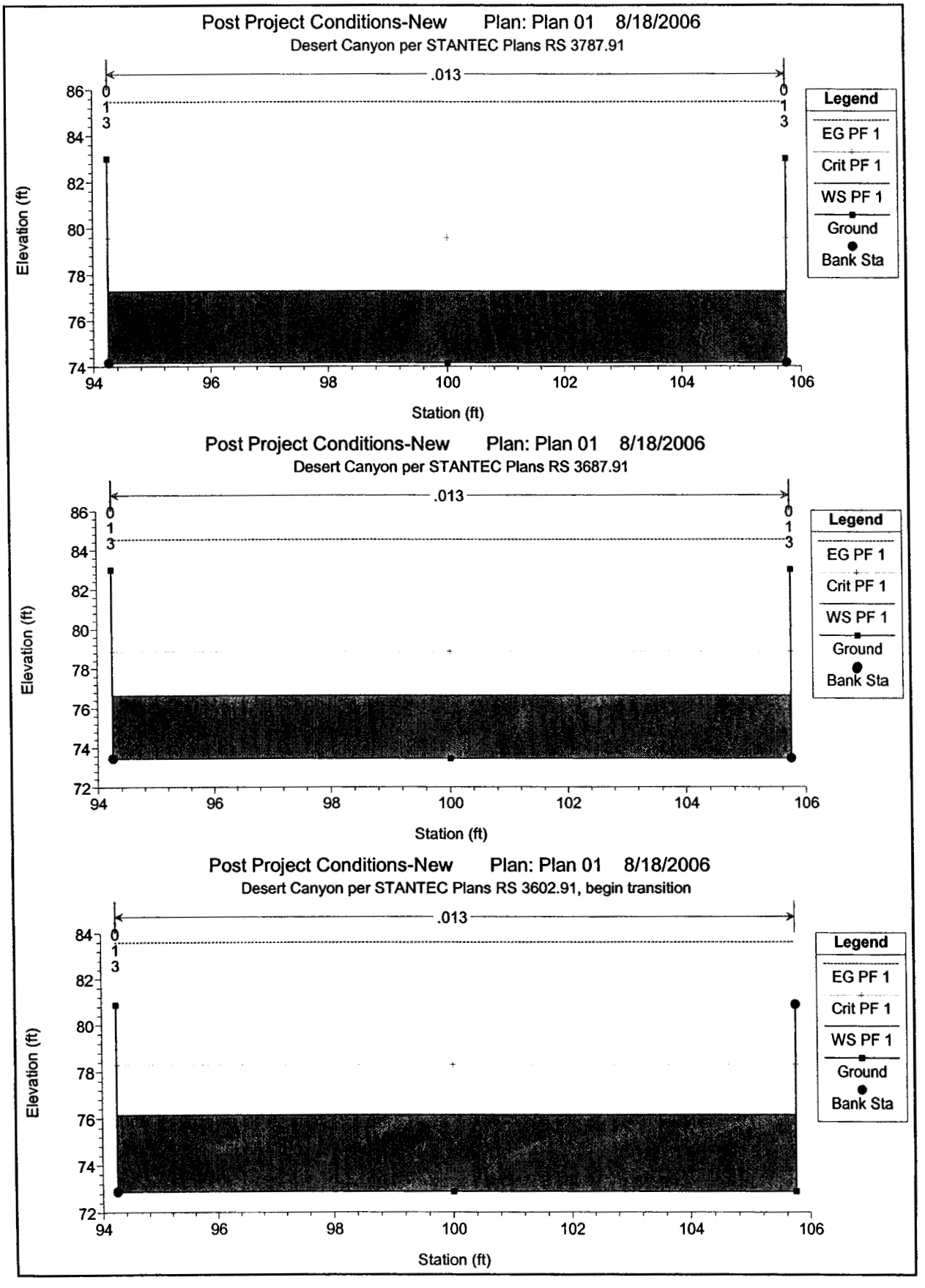

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 26+17.03
.013
0
0
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
116
114
112
110
108
106
-5
0
5
10
15
20
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 26+67.03
.013
0
0
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
114
113
112
111
110
109
108
107
-5
0
5
10
15
20
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 33+81.14
.013
0
1
3
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
109
108
107
106
105
104
103
102
101
-5
0
5
10
15
20
Station (ft)

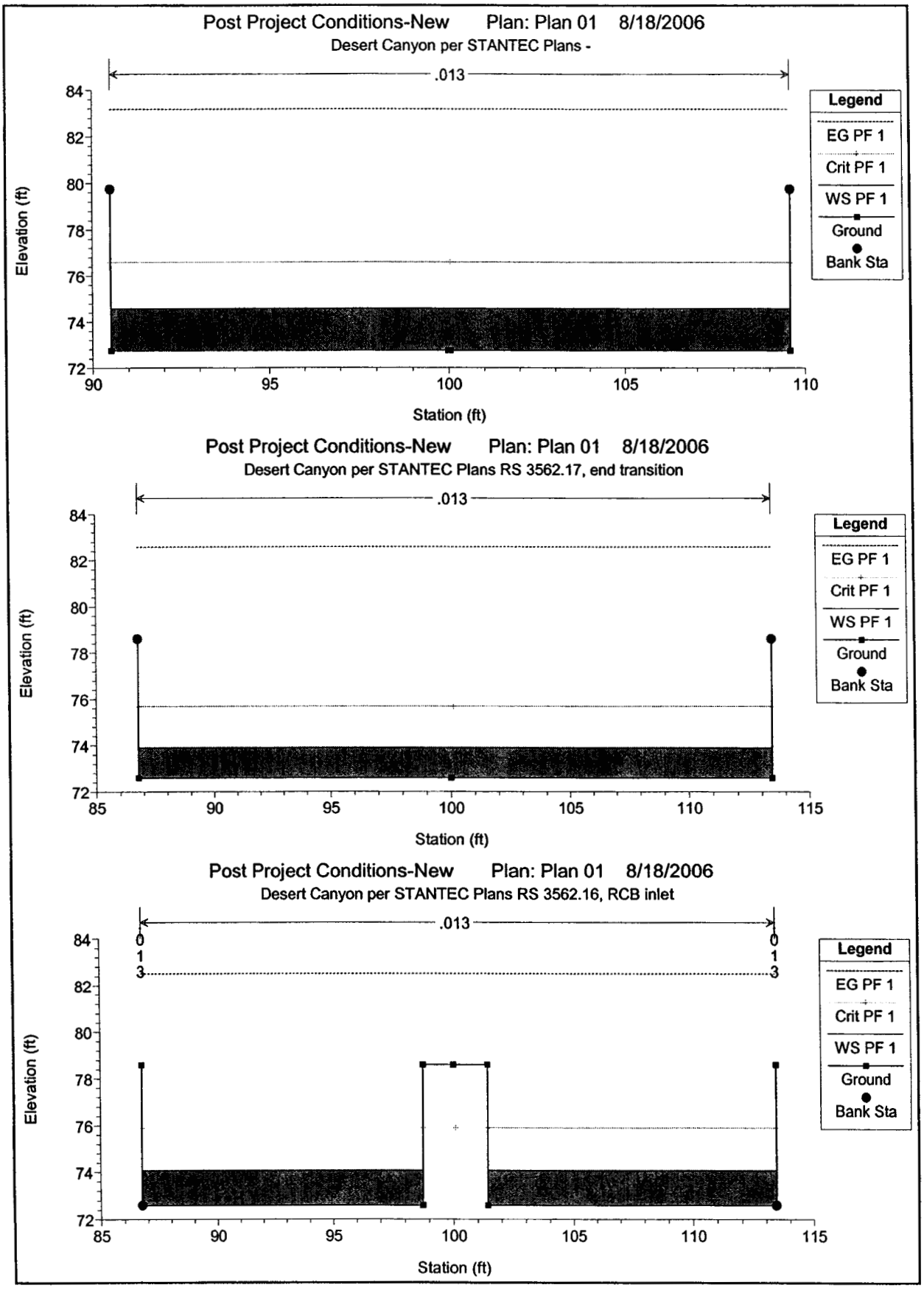

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 34+31.22
.013
0.1
0.1
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 37+78.22
.013
0.13
0.13
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 38+28.23
.013
0.13
0.13
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

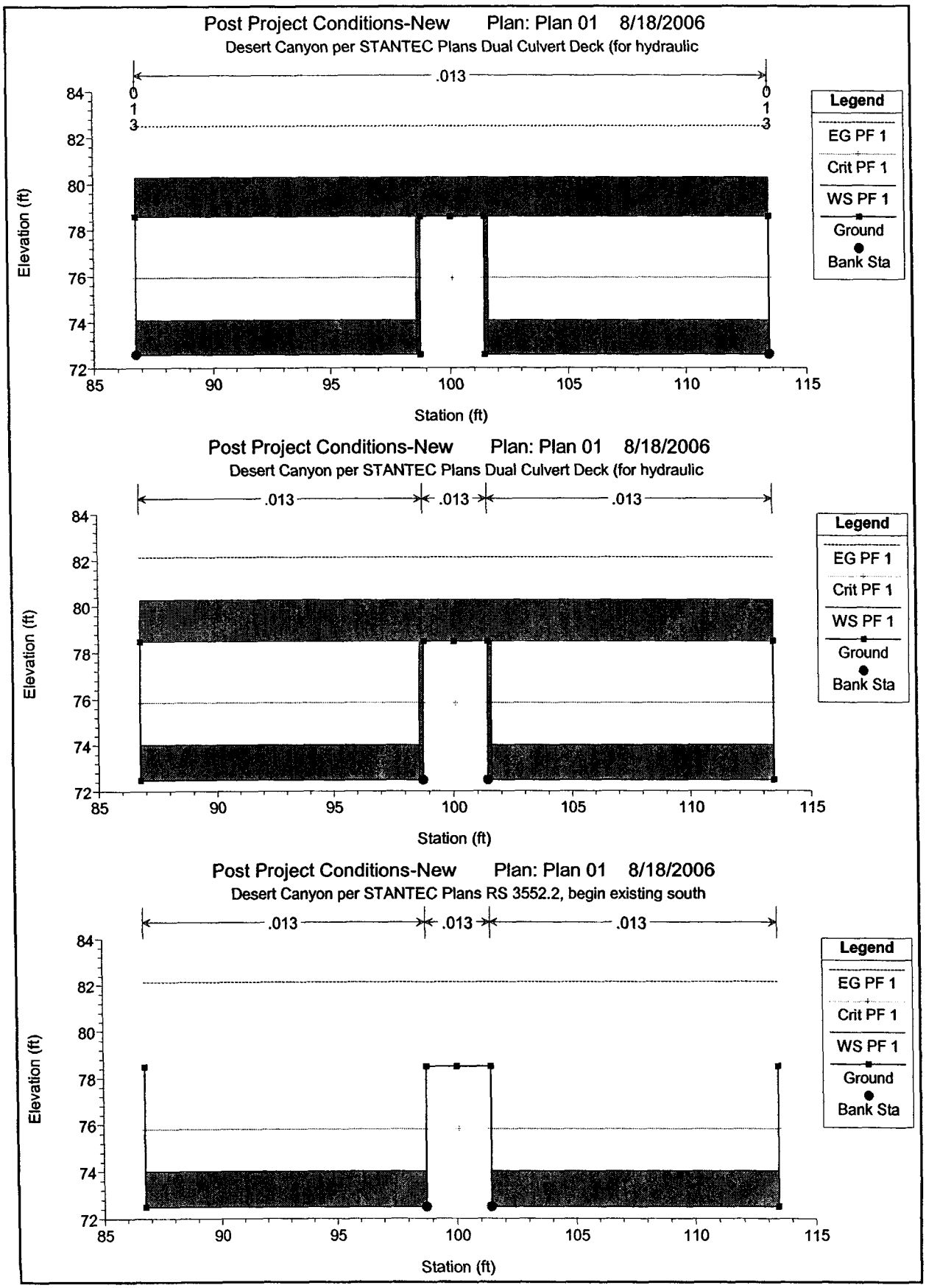

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 40+17.45
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 45+72.94
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 46+37.97
.013
.0
.0
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

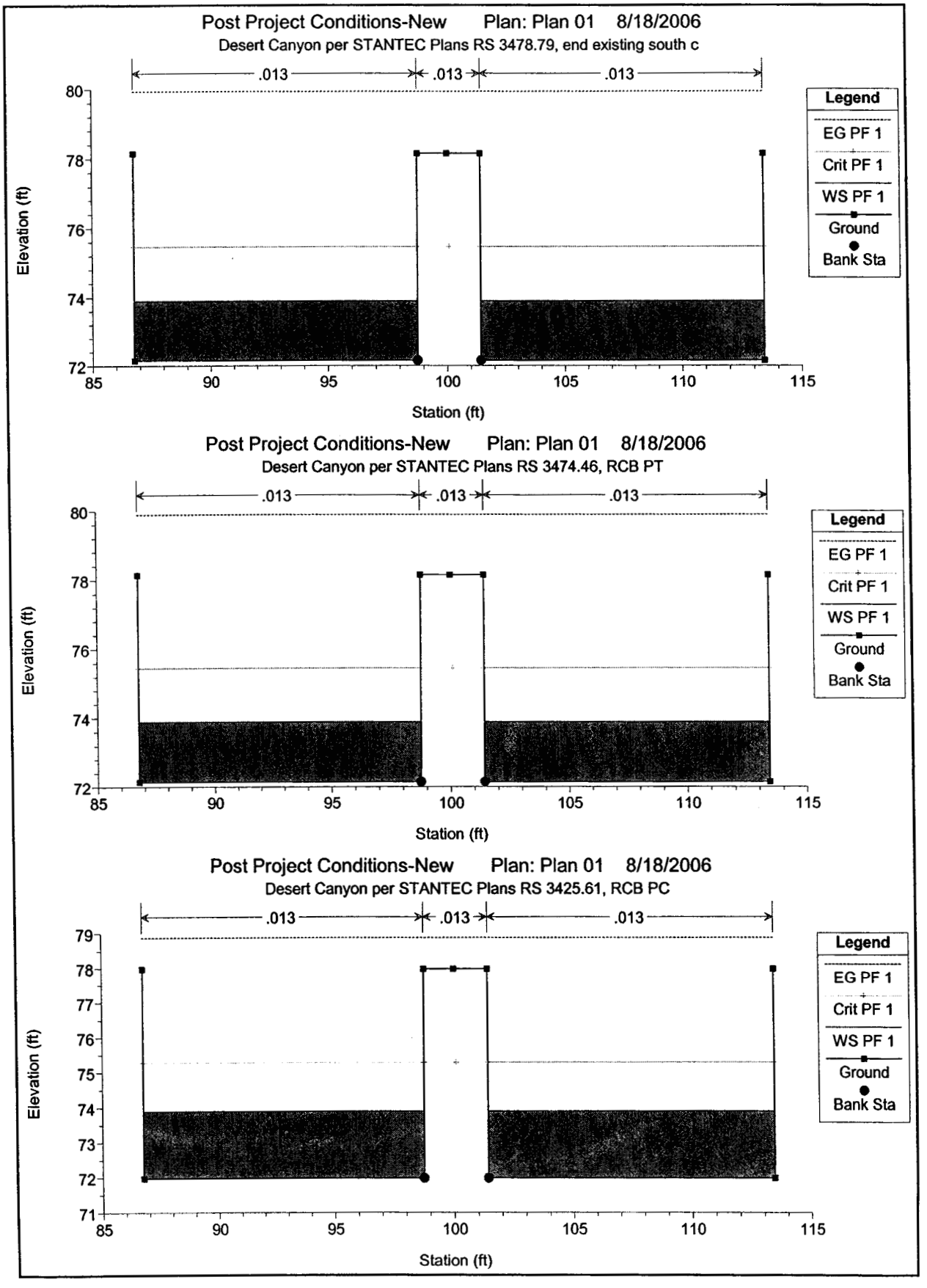

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 50+60
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 51+10.50
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 54+00.55
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

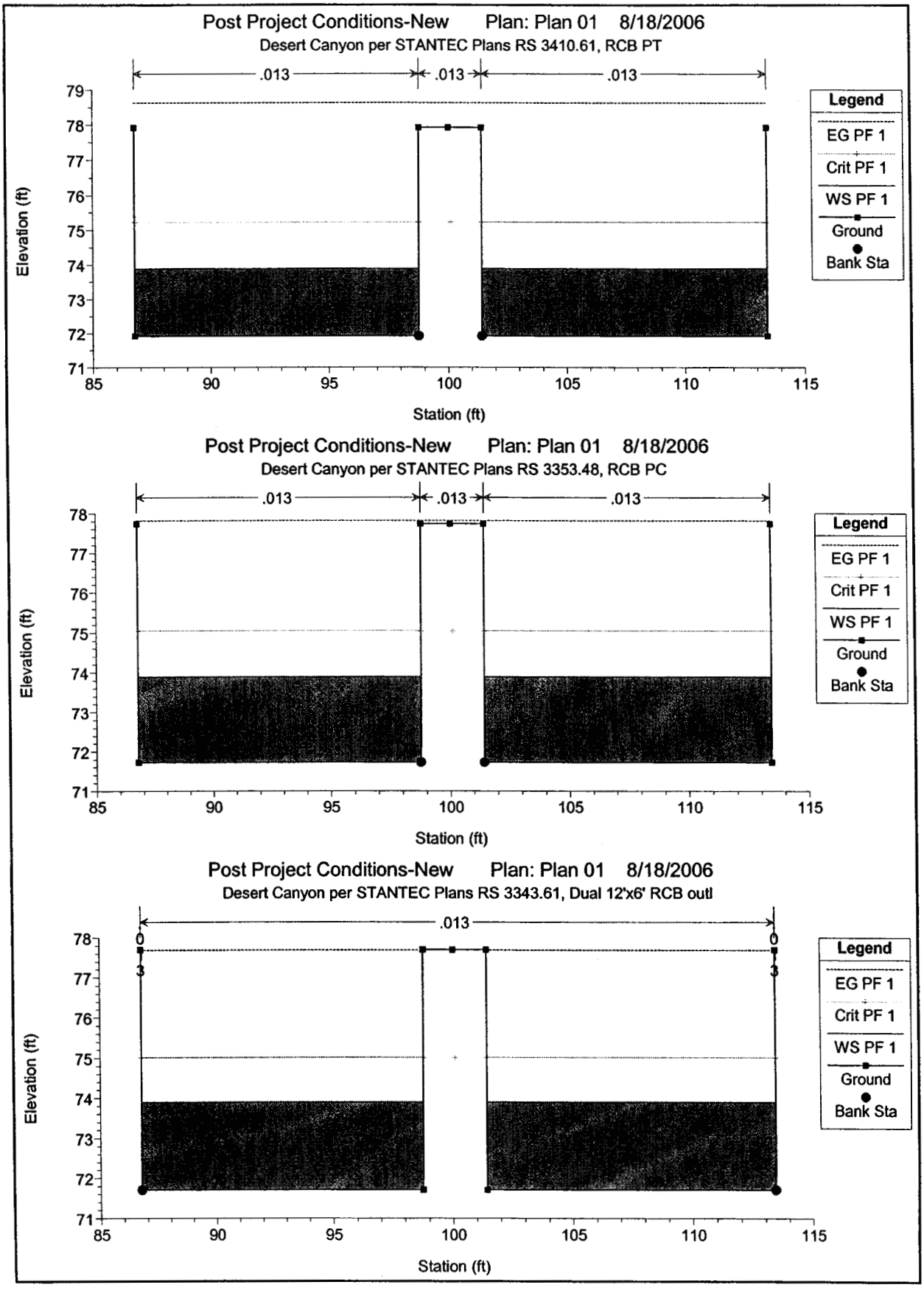

Post Project Conditions-New Plan: Plan 01 8/18/2006
Gibson Channel per VTN Plans 55+60.08 - End Gibson CH
.013
.013
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3987.91
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3887.91
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

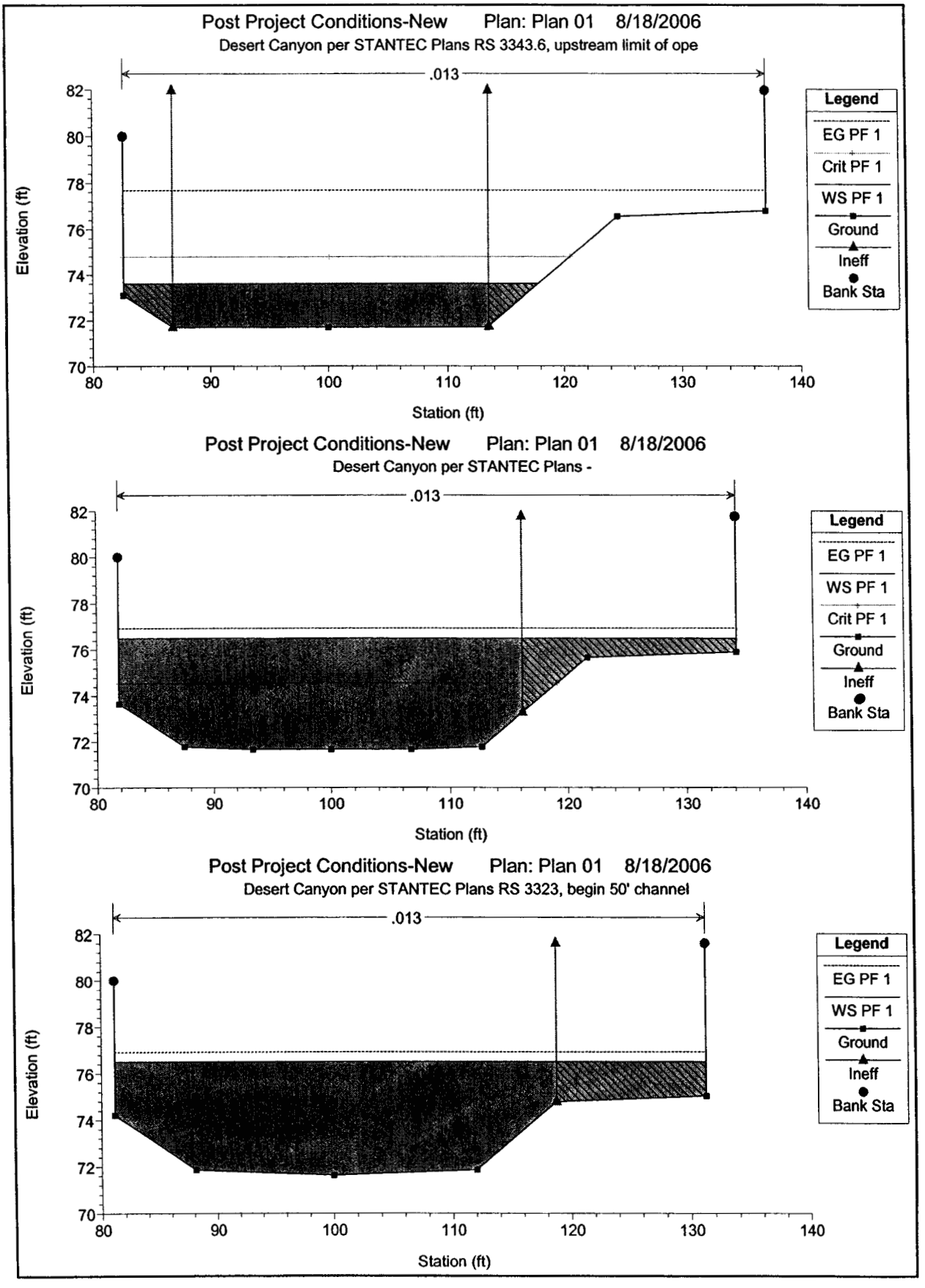

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3787.91
.013
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3687.91
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3602.91, begin transition
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

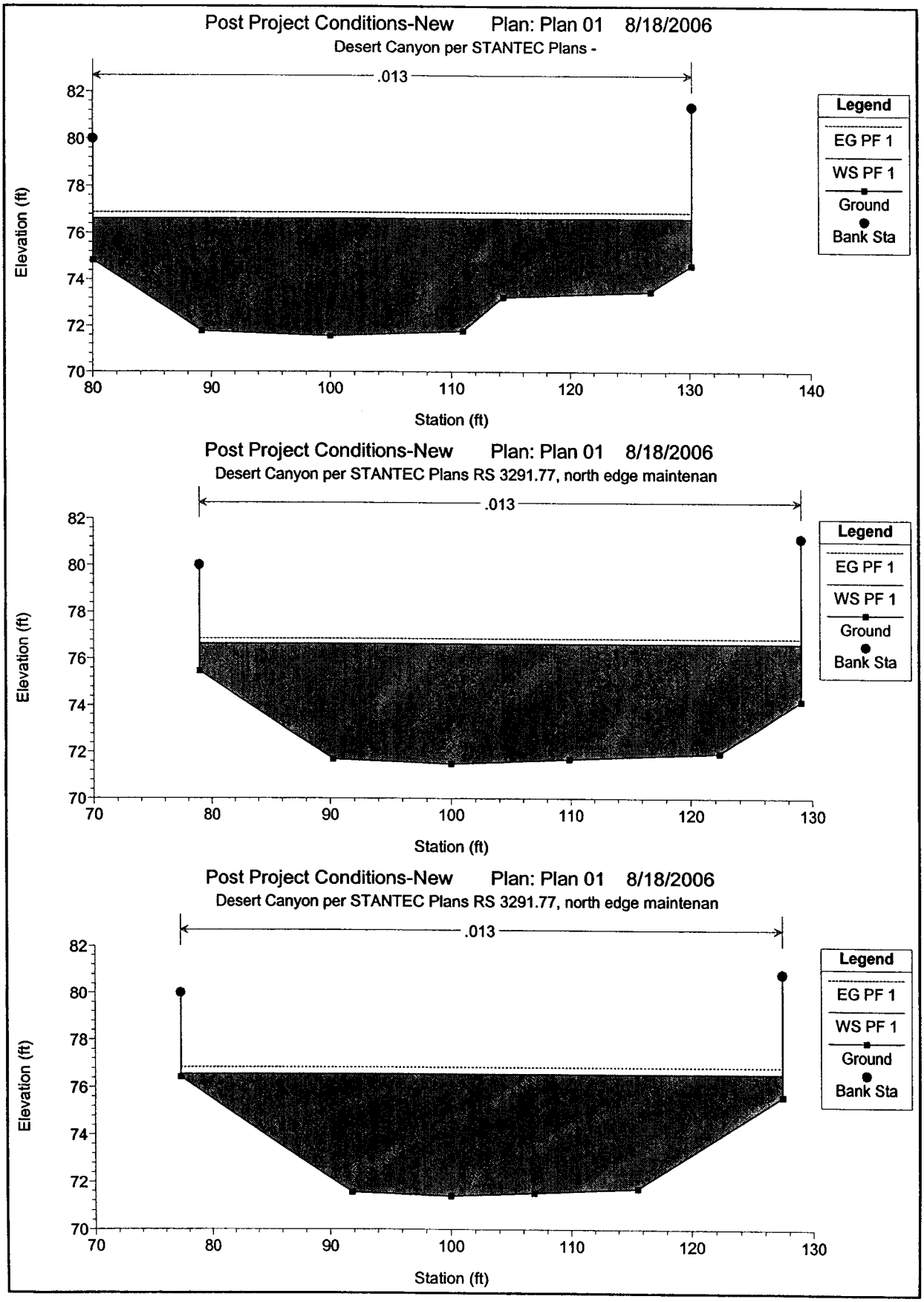

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3562.17, end transition
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3562.16, RCB inlet
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

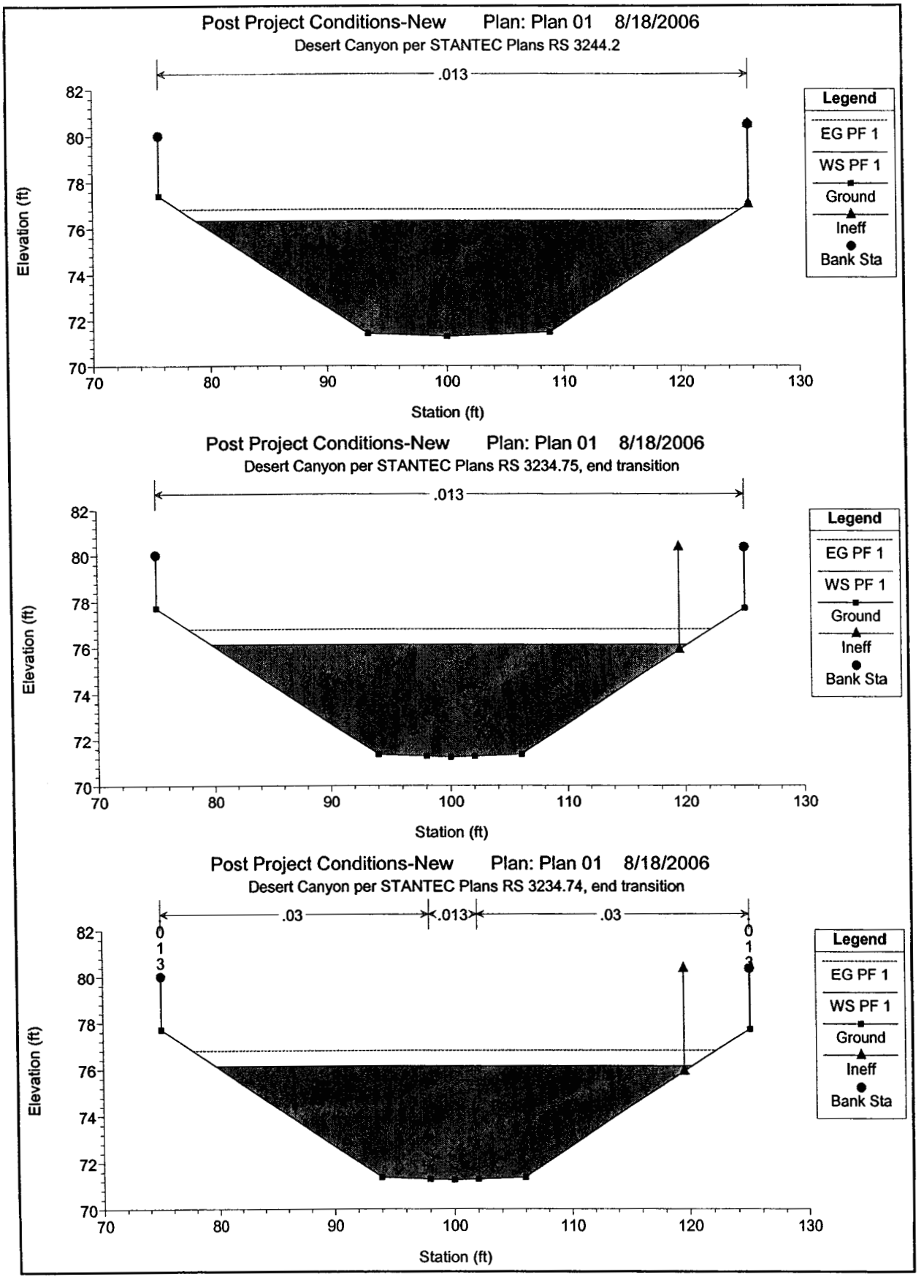

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic
.013
0
1
3
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
84
82
80
78
76
74
72
85
90
95
100
105
110
115
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
84
82
80
78
76
74
72
85
90
95
100
105
110
115
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3552.2, begin existing south
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
84
82
80
78
76
74
72
85
90
95
100
105
110
115
Station (ft)

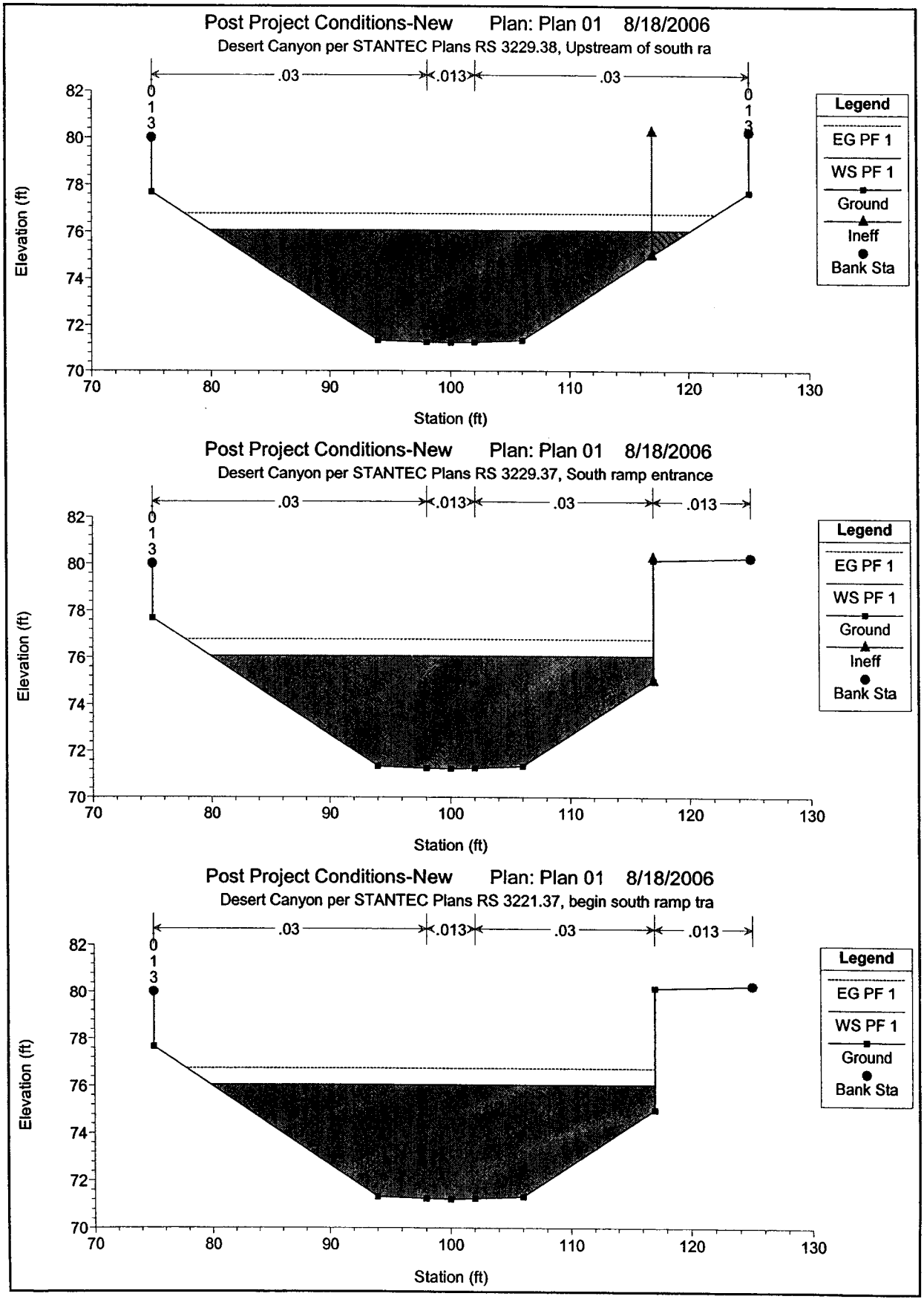

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3478.79, end existing south c
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3474.46, RCB PT
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3425.61, RCB PC
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

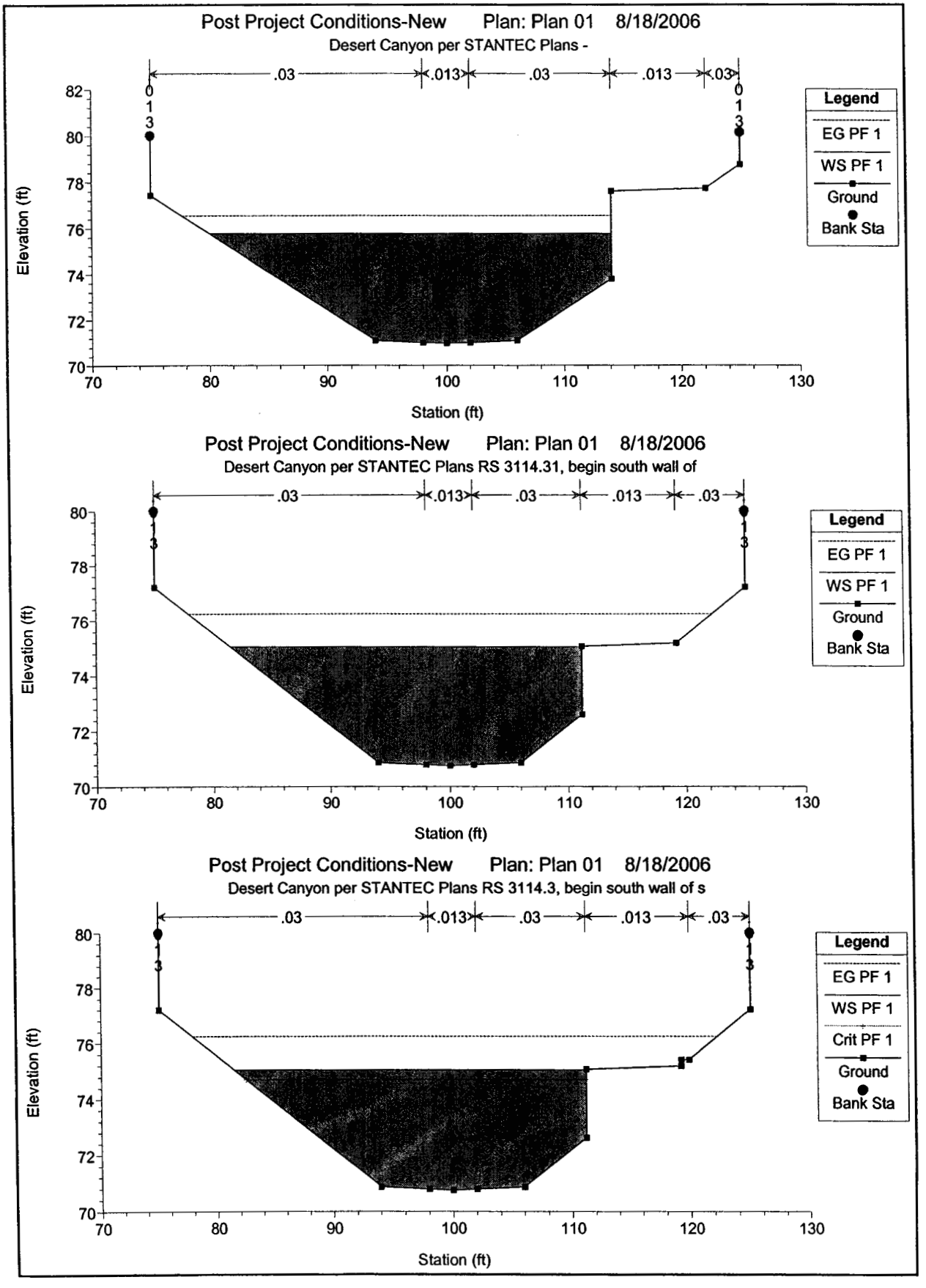

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3410.61, RCB PT
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3353.48, RCB PC
.013
.013
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3343.61, Dual 12'x6' RCB outl
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

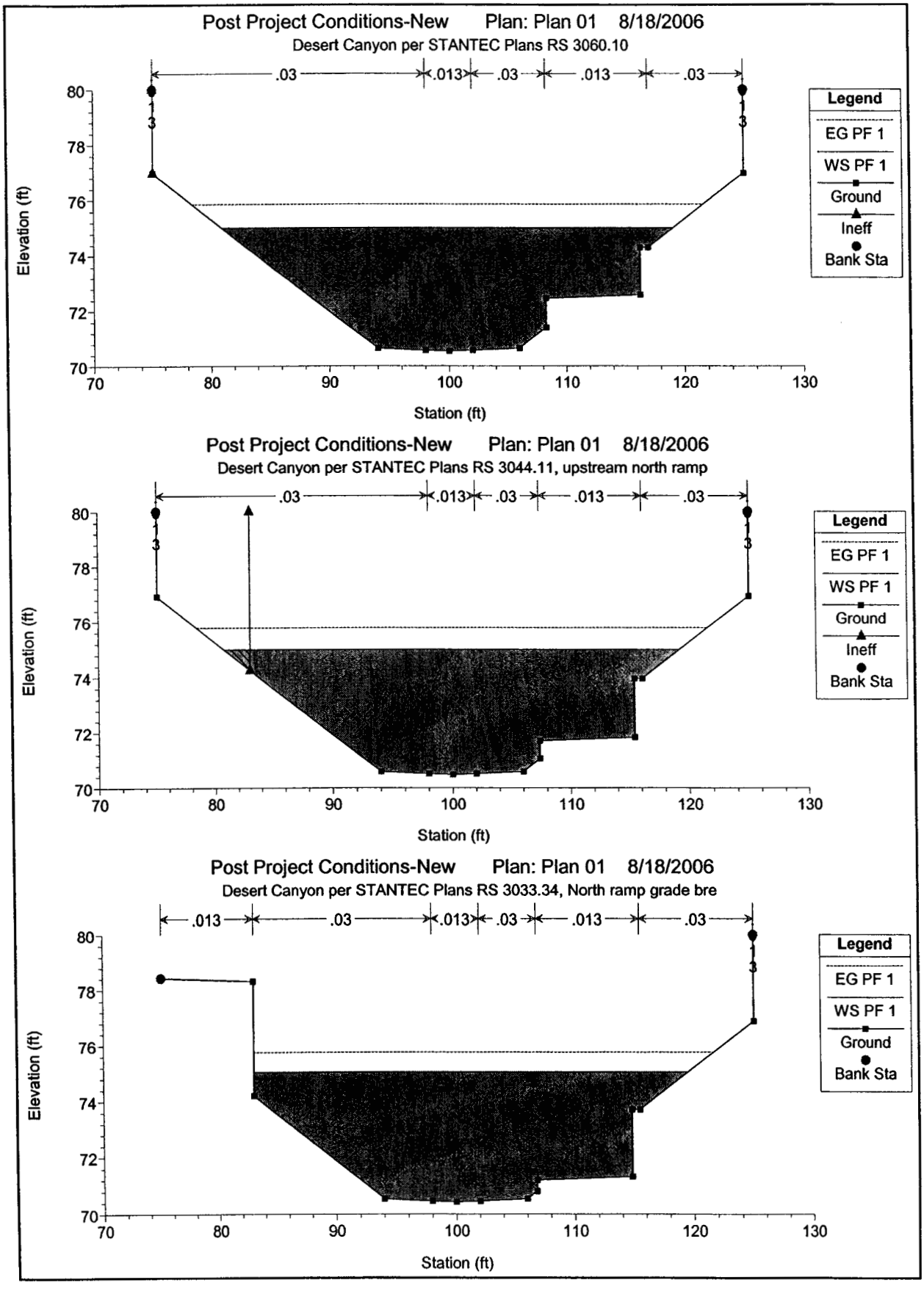

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3343.6, upstream limit of ope
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3323, begin 50' channel
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta

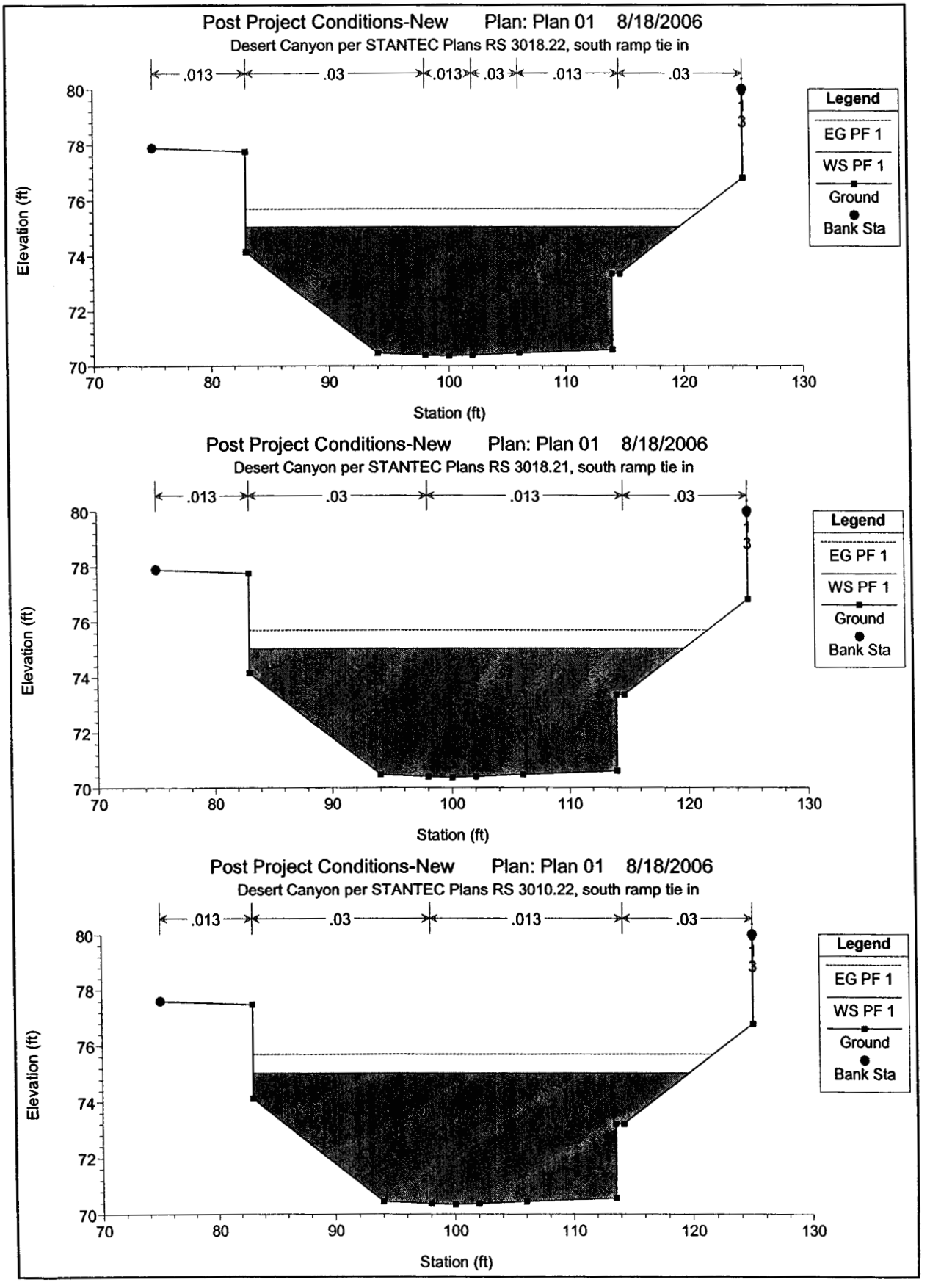

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenan
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenan
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta

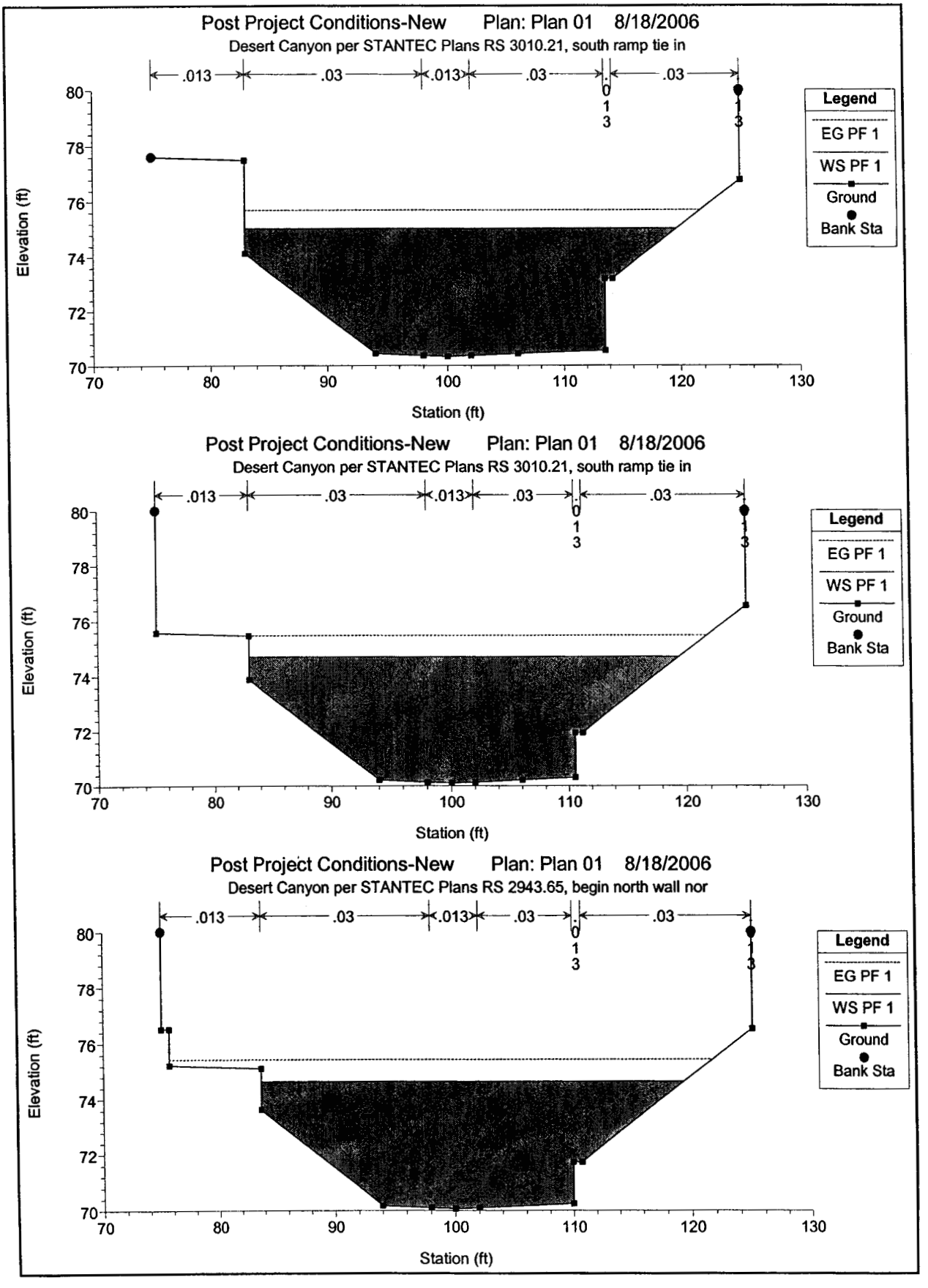

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3244.2
.013
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3234.75, end transition
.013
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3234.74, end transition
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

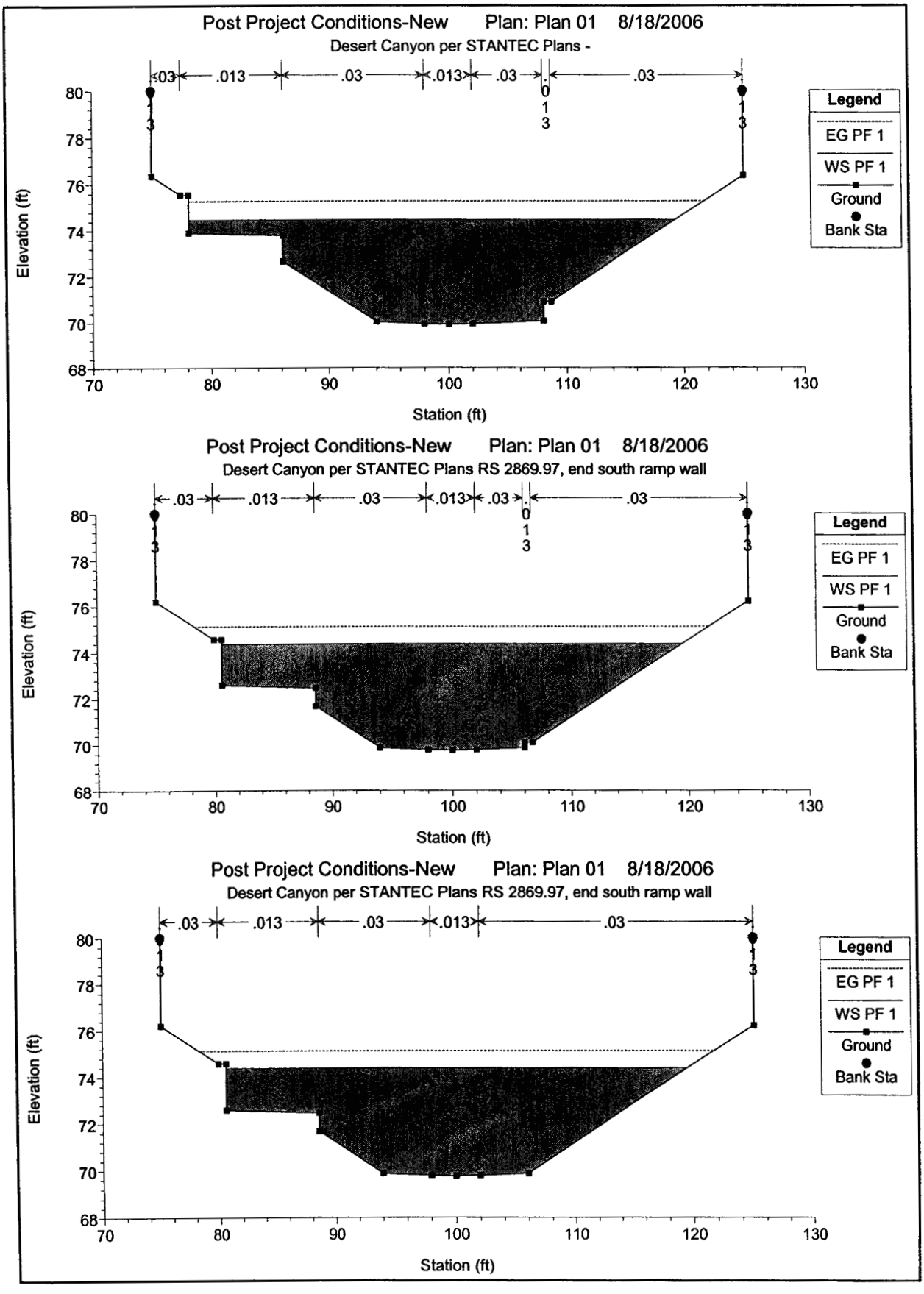

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3229.38, Upstream of south ra
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3229.37, South ramp entrance
.03
.013
.03
.013
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3221.37, begin south ramp tra
.03
.013
.03
.013
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

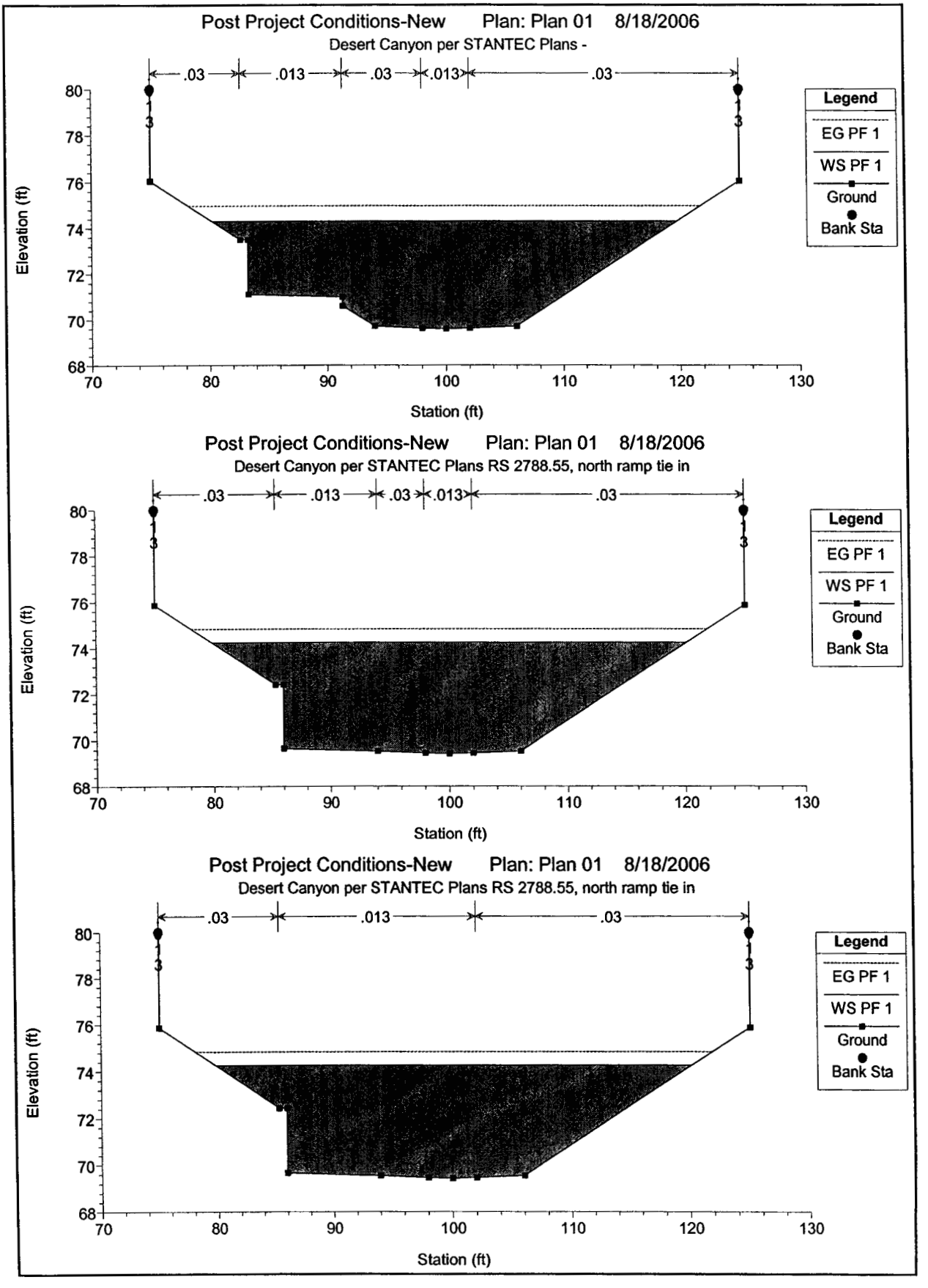

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3114.31, begin south wall of
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3114.3, begin south wall of s
Crit PF 1

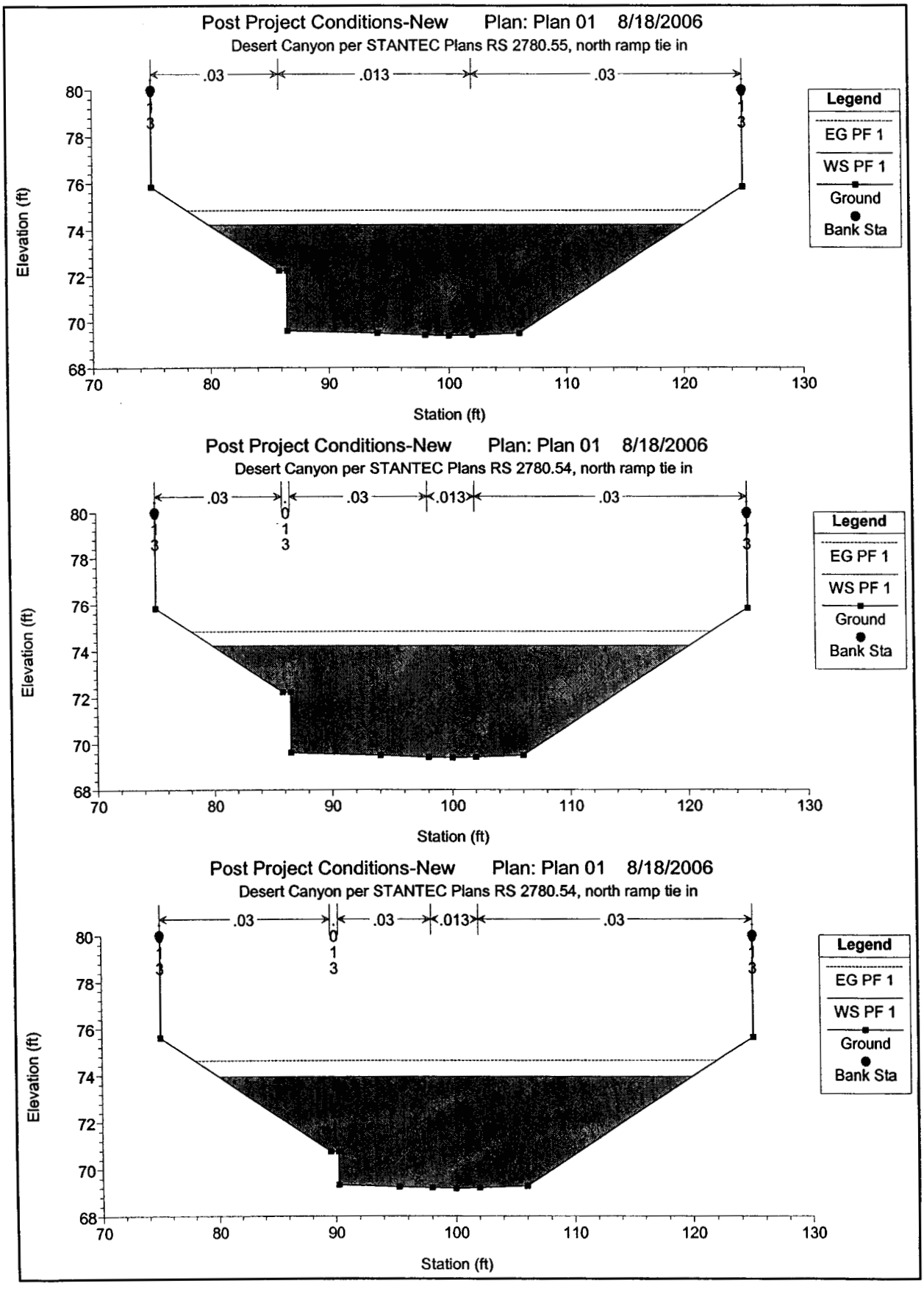

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3060.10
.03
.013
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3044.11, upstream north ramp
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3033.34, North ramp grade bre

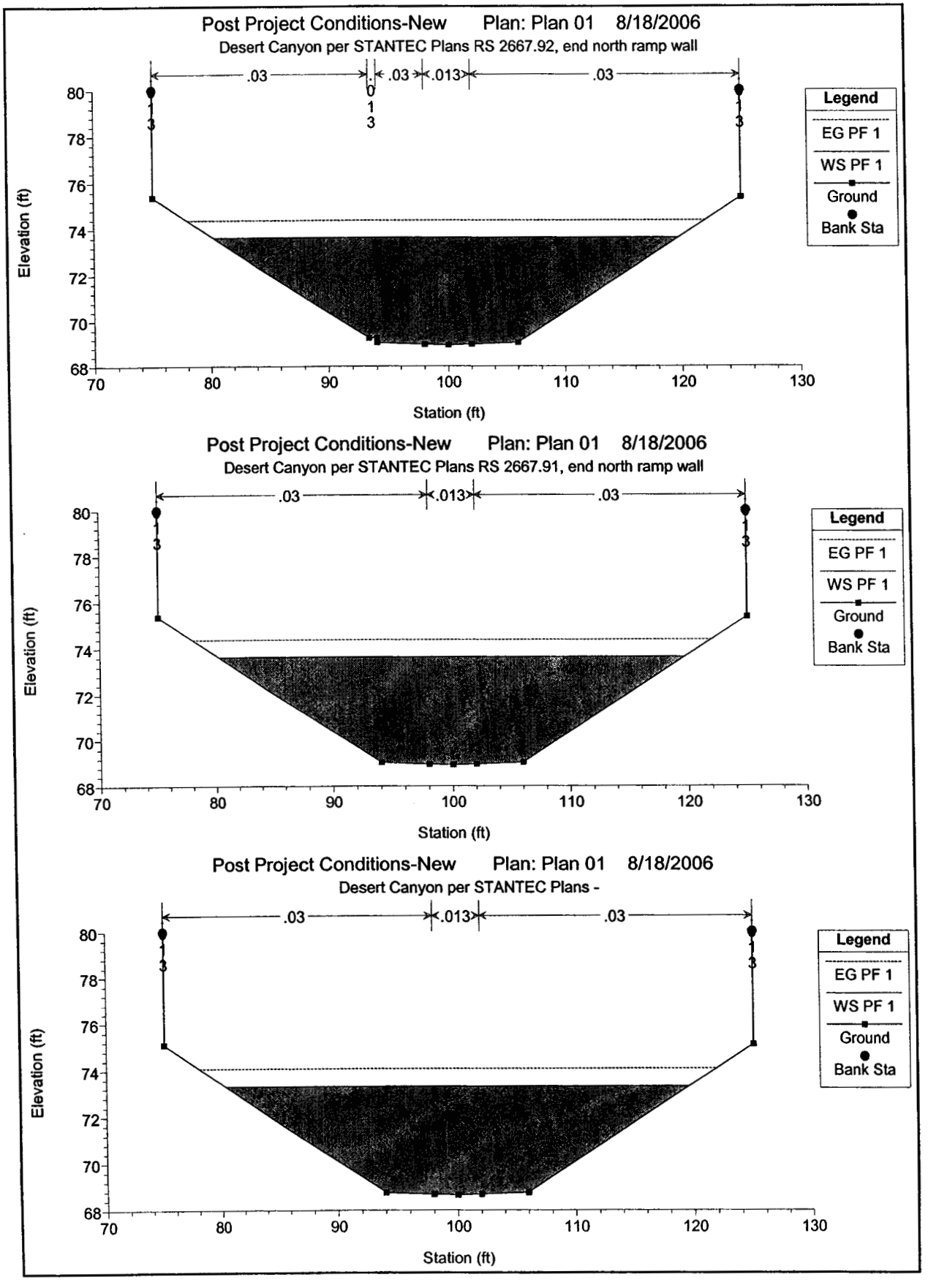

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3018.22, south ramp tie in
.013
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3018.21, south ramp tie in
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3010.22, south ramp tie in
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.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

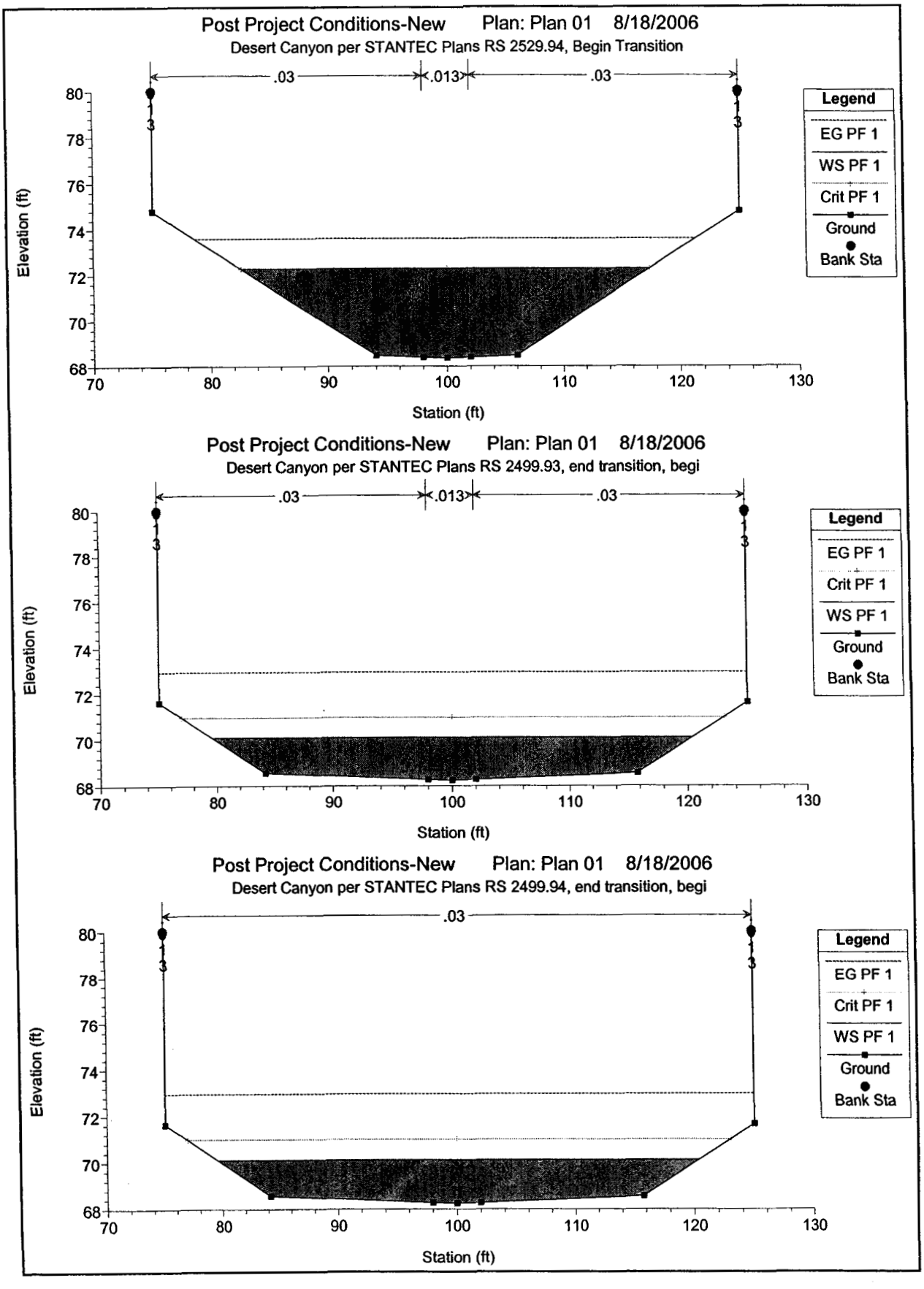

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in
.013
.03
.013
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2943.65, begin north wall nor

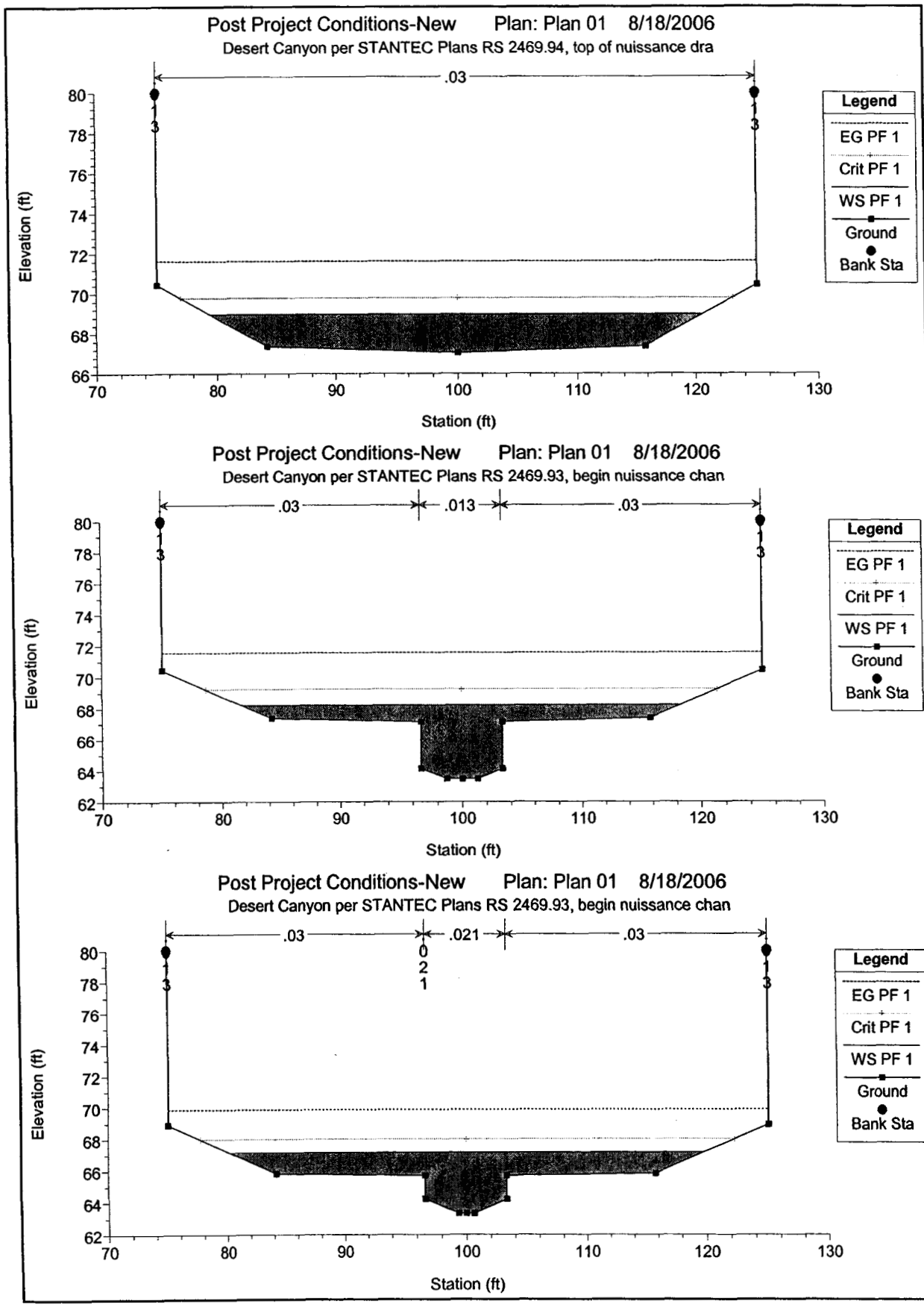

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
.013
.03
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall

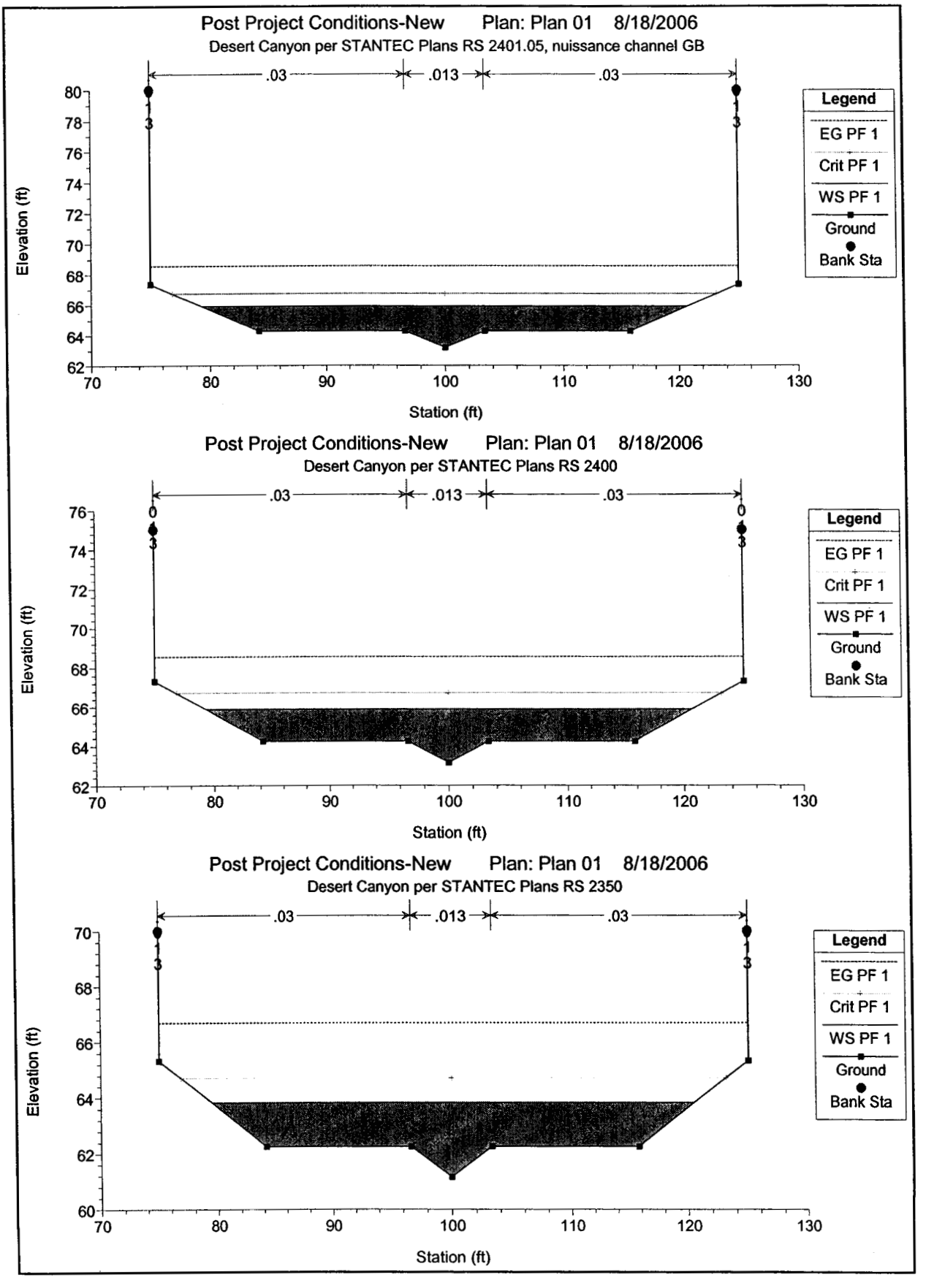

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in
.03
.013
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

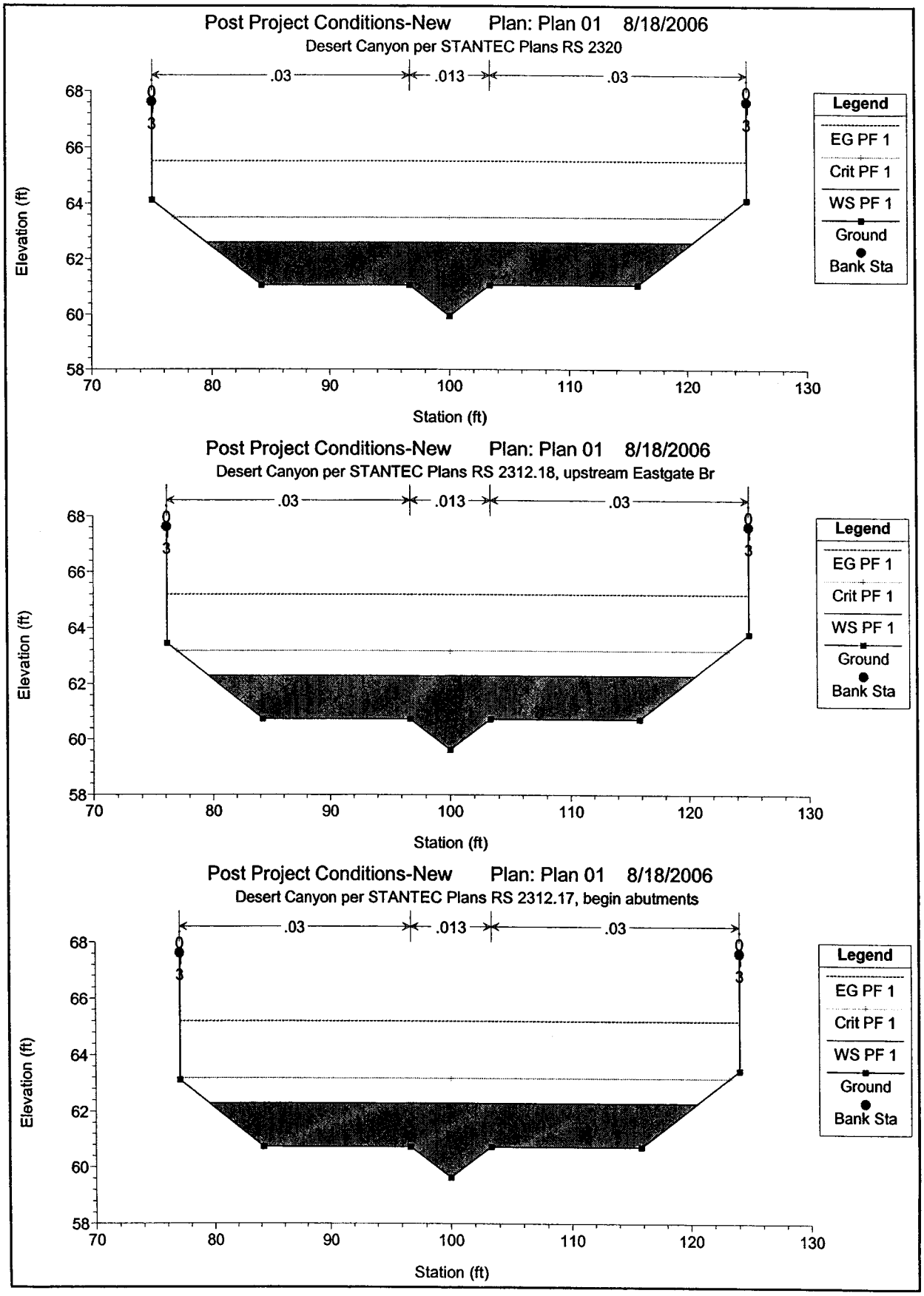

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2780.55, north ramp tie in
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in
.03
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in
.03
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

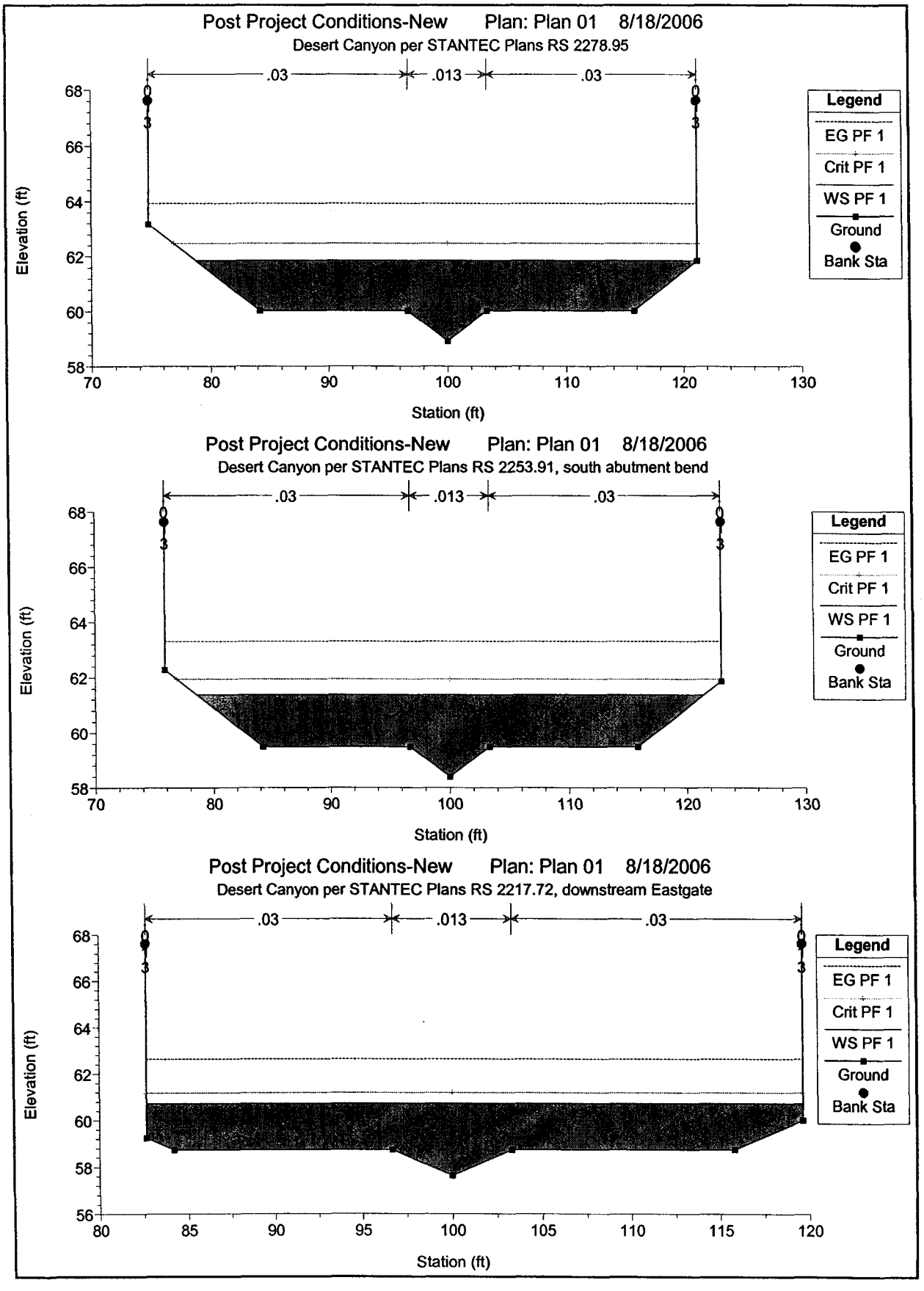

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2667.92, end north ramp wall
.03
.03
.013
.03
0
1
3
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2667.91, end north ramp wall
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

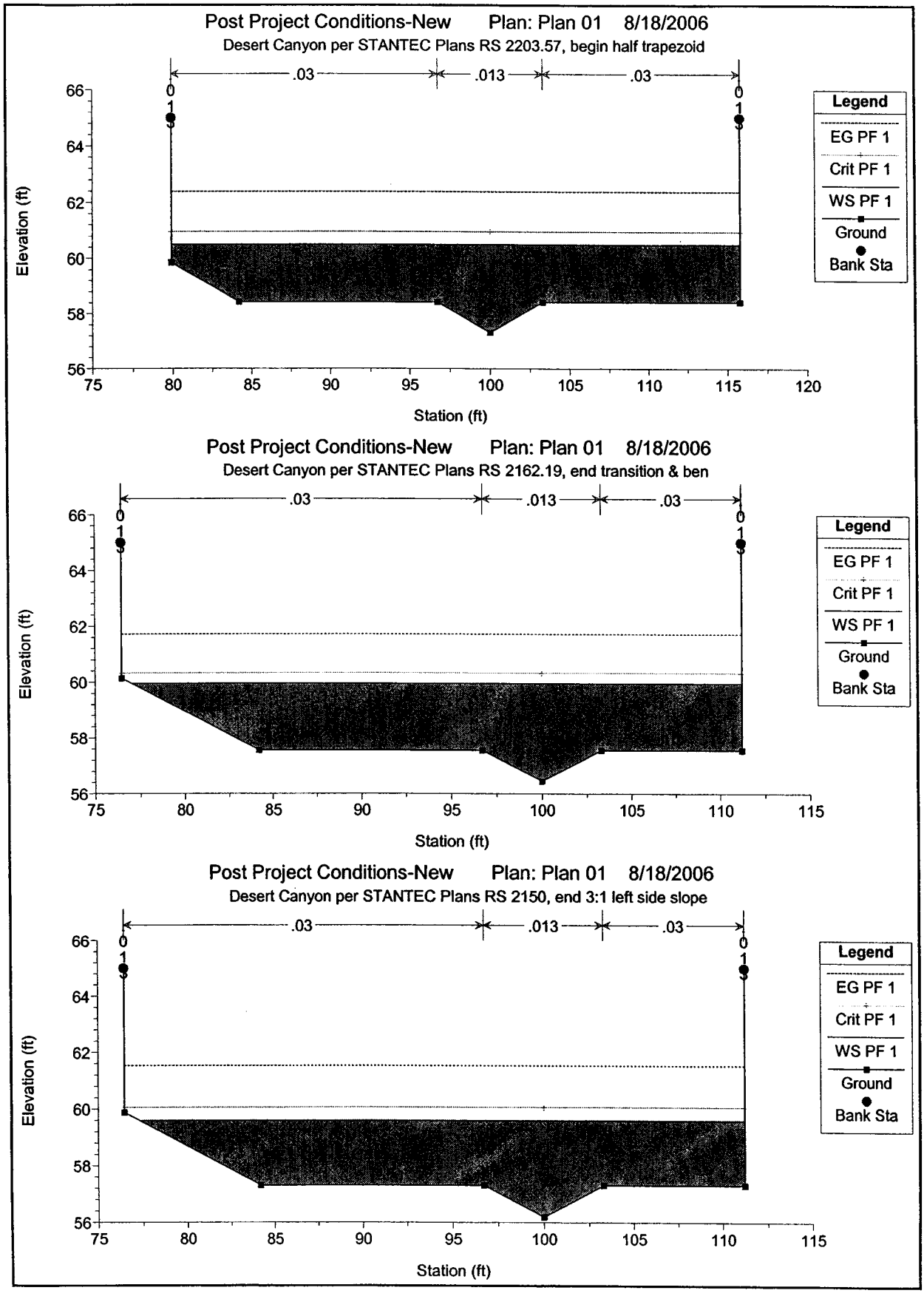

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2529.94, Begin Transition
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2499.93, end transition, begi
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2499.94, end transition, begi
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

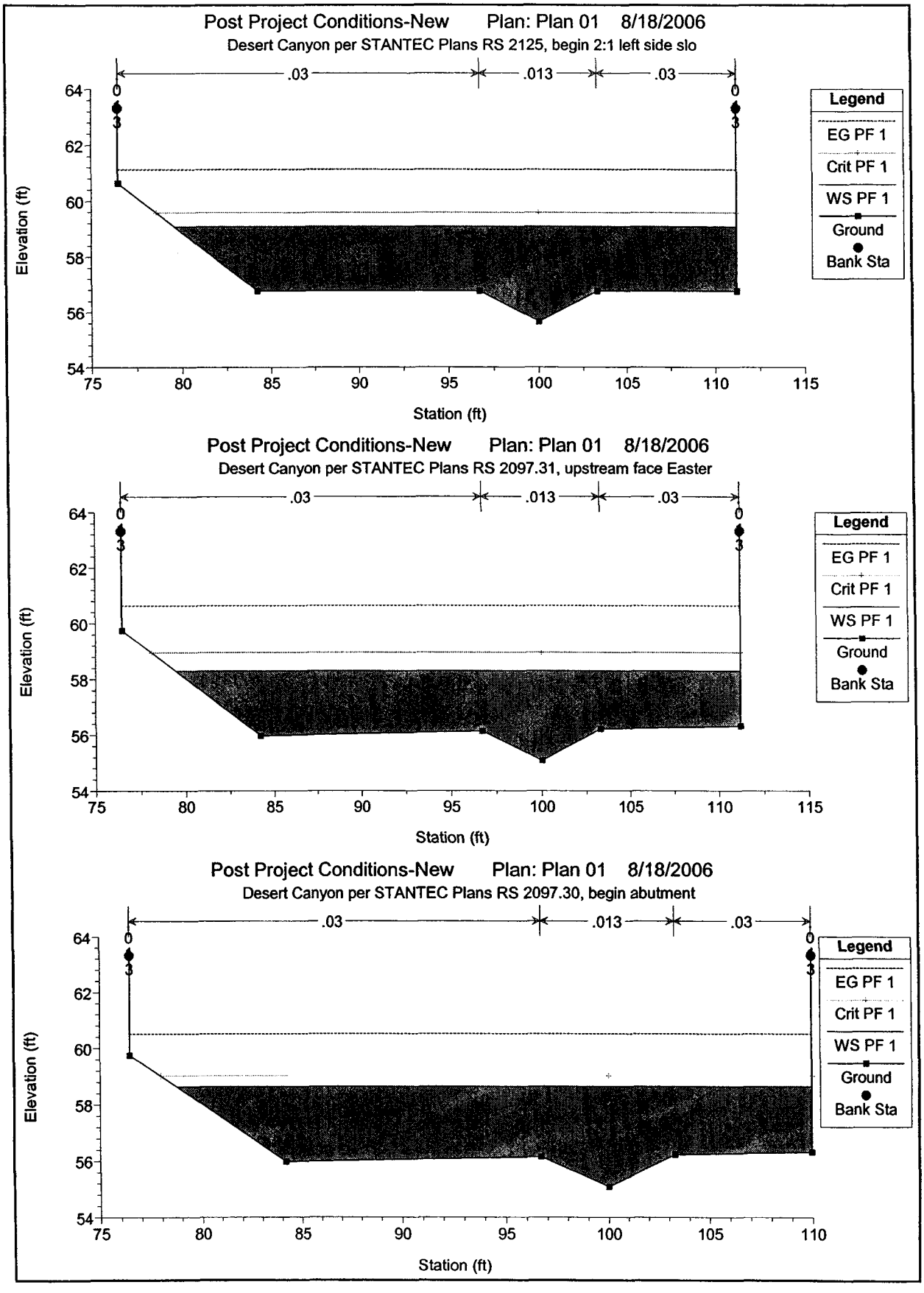

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2469.94, top of nuissance dra
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance chan
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance chan
.03
.021
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

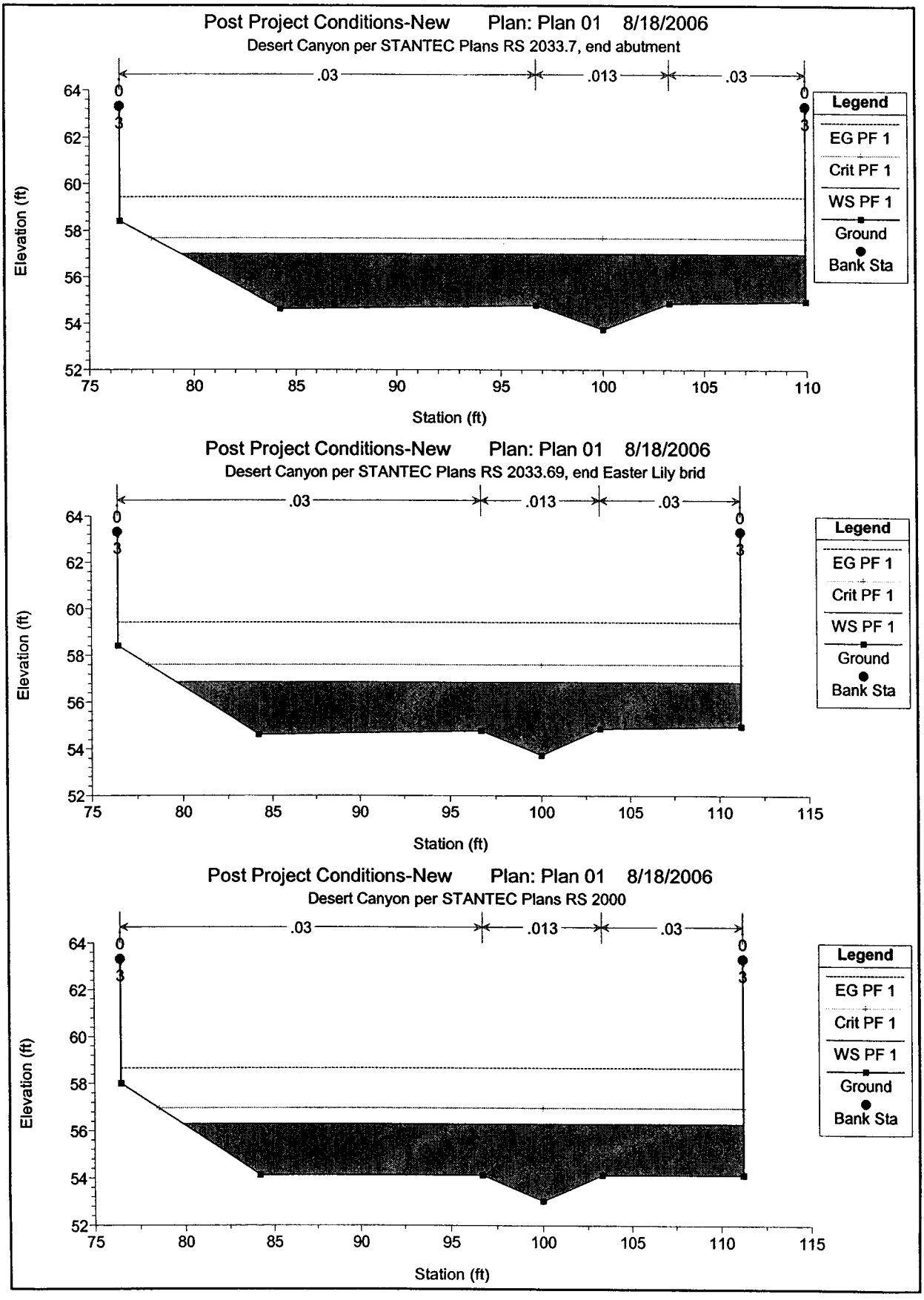

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2401.05, nuissance channel GB
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2400
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2350
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

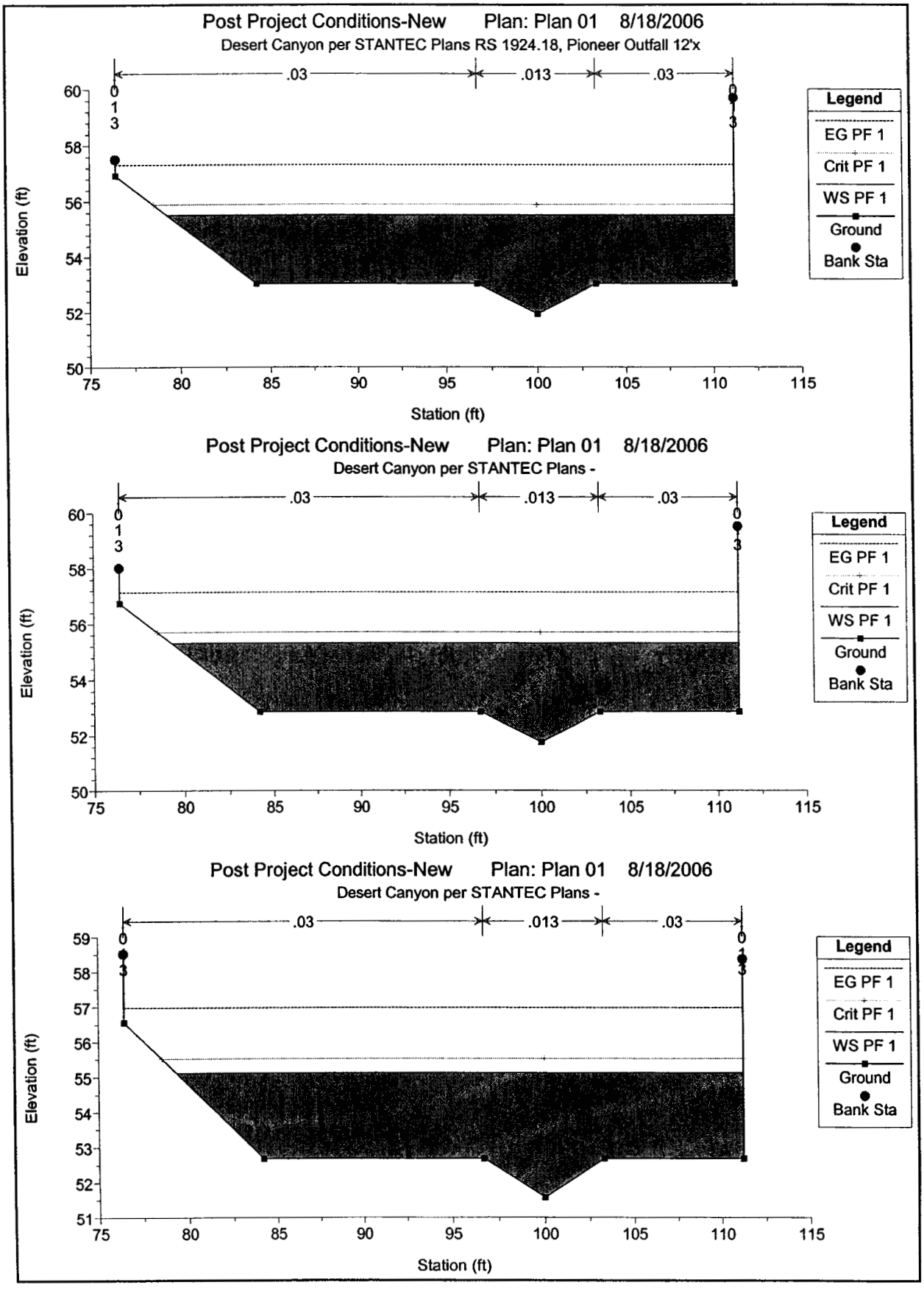

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2320
.03
.013
.03
0.3
0.3
Elevation (ft)
68
66
64
62
60
58
70
80
90
100
110
120
130
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2312.18, upstream Eastgate Br
.03
.013
.03
0.3
0.3
Elevation (ft)
68
66
64
62
60
58
70
80
90
100
110
120
130
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2312.17, begin abutments
.03
.013
.03
0.3
0.3
Elevation (ft)
68
66
64
62
60
58
70
80
90
100
110
120
130
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

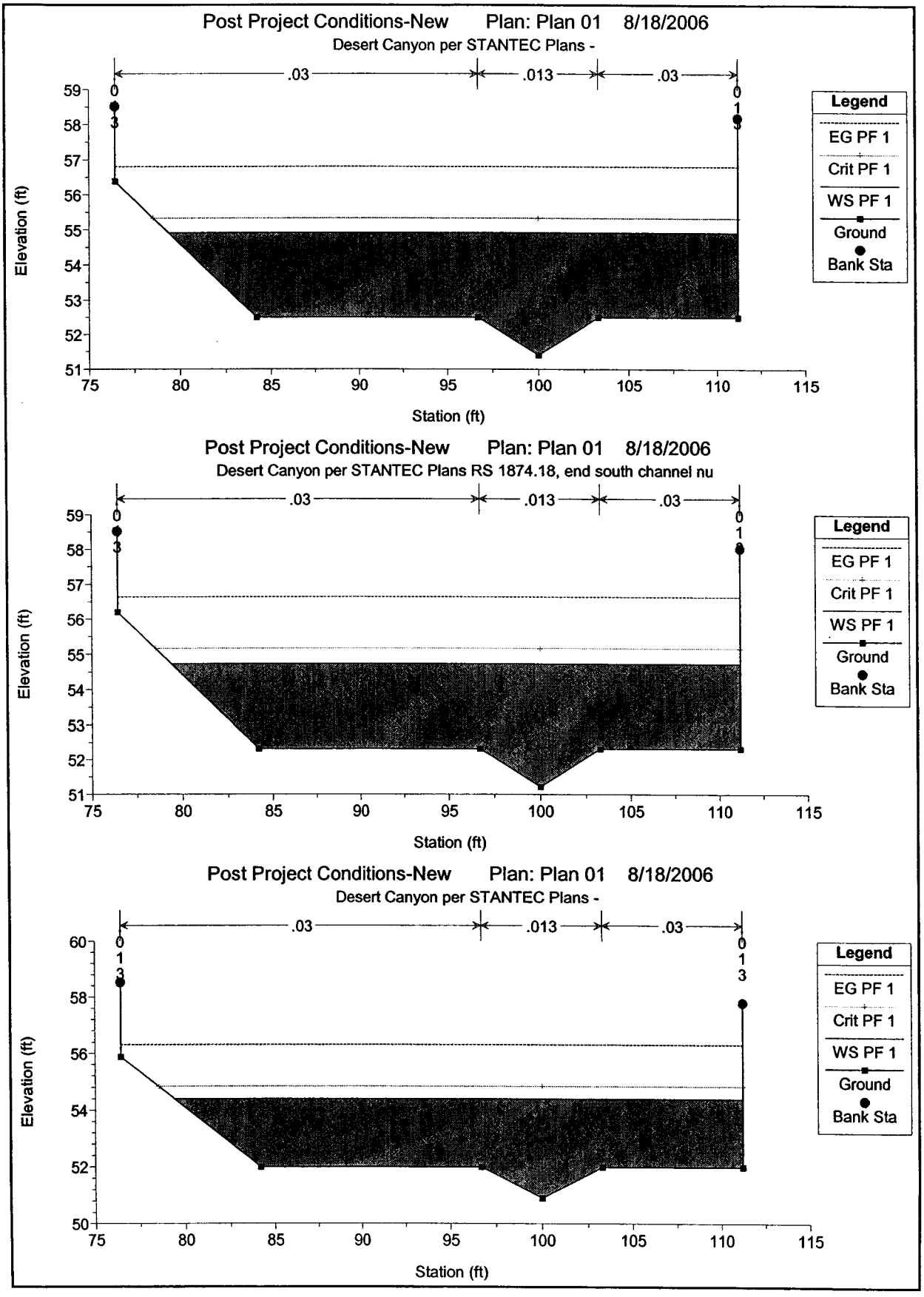

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2278.95
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2253.91, south abutment bend
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2217.72, downstream Eastgate
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

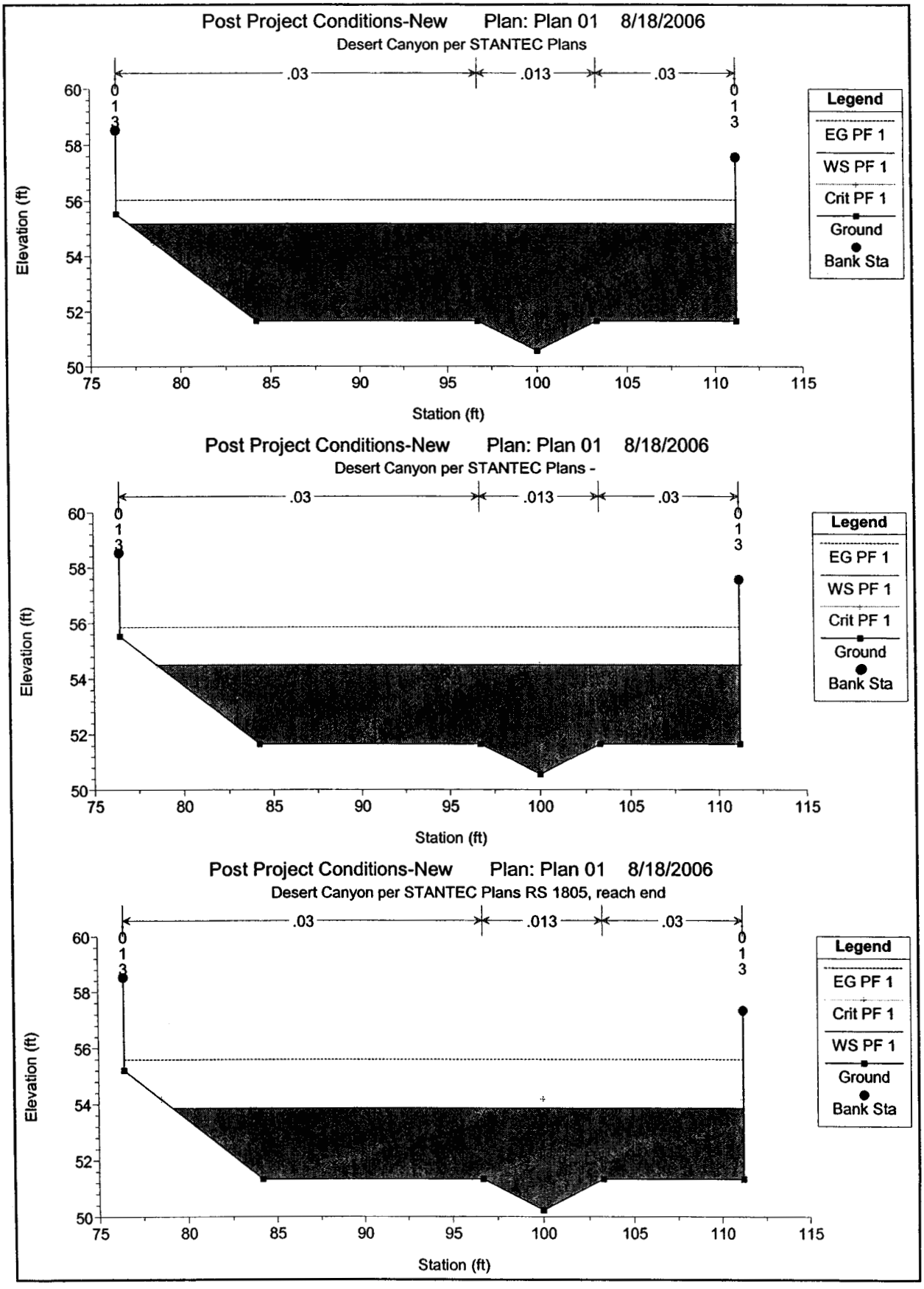

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2203.57, begin half trapezoid
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2162.19, end transition & ben
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2150, end 3:1 left side slope
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

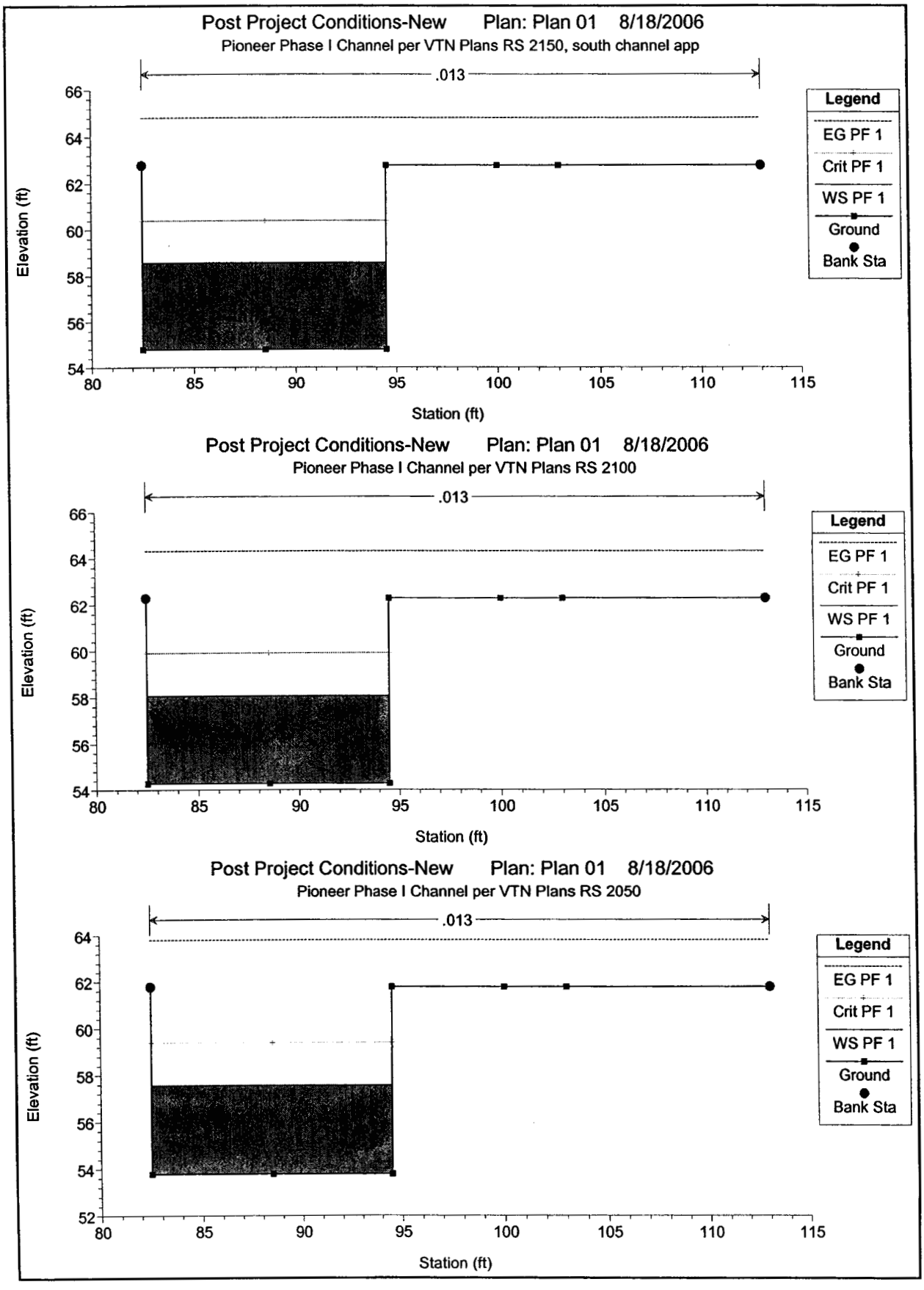

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2125, begin 2:1 left side slo
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2097.31, upstream face Easter
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2097.30, begin abutment
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

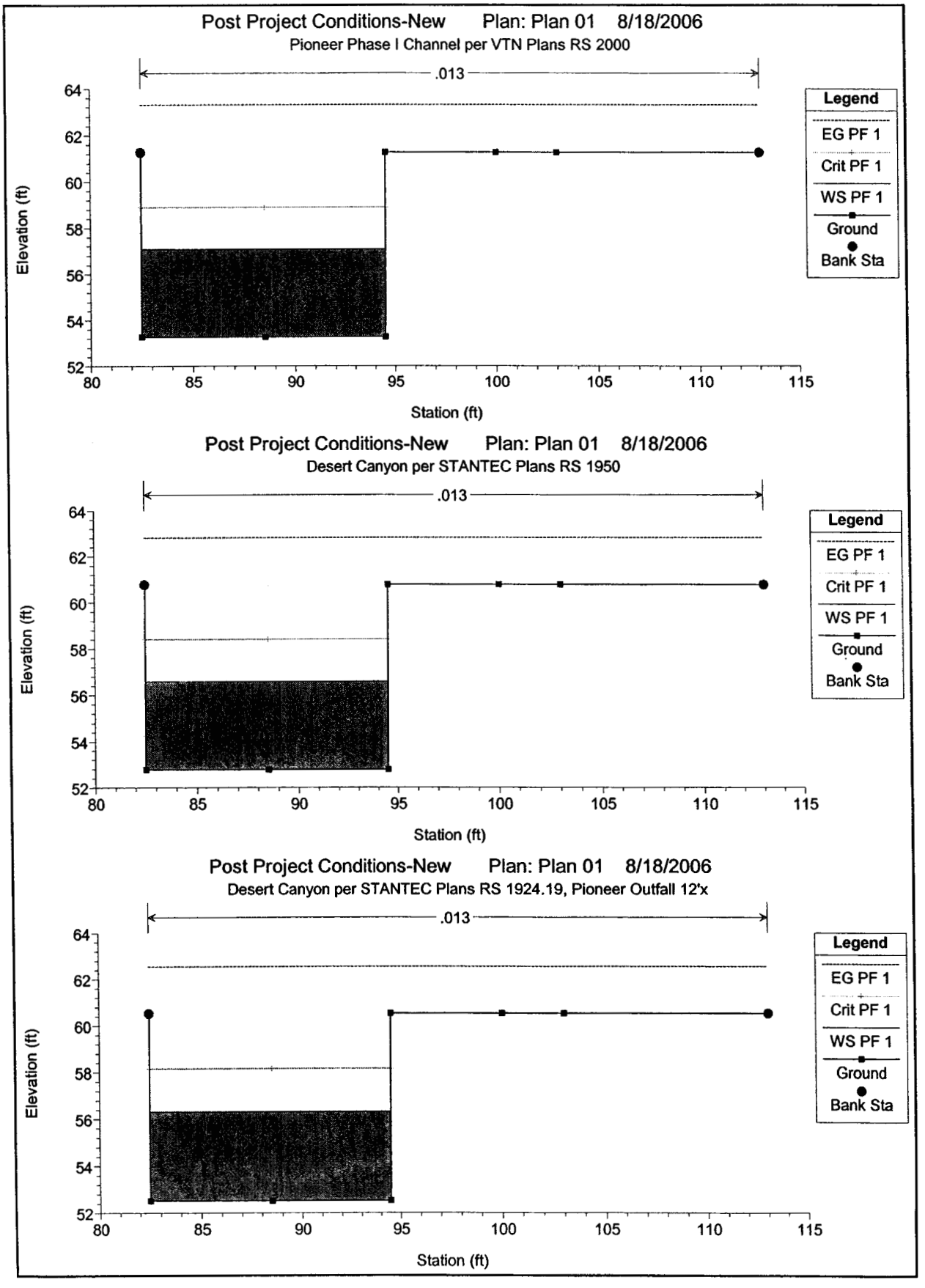

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2033.7, end abutment
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2033.69, end Easter Lily brid
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 2000
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

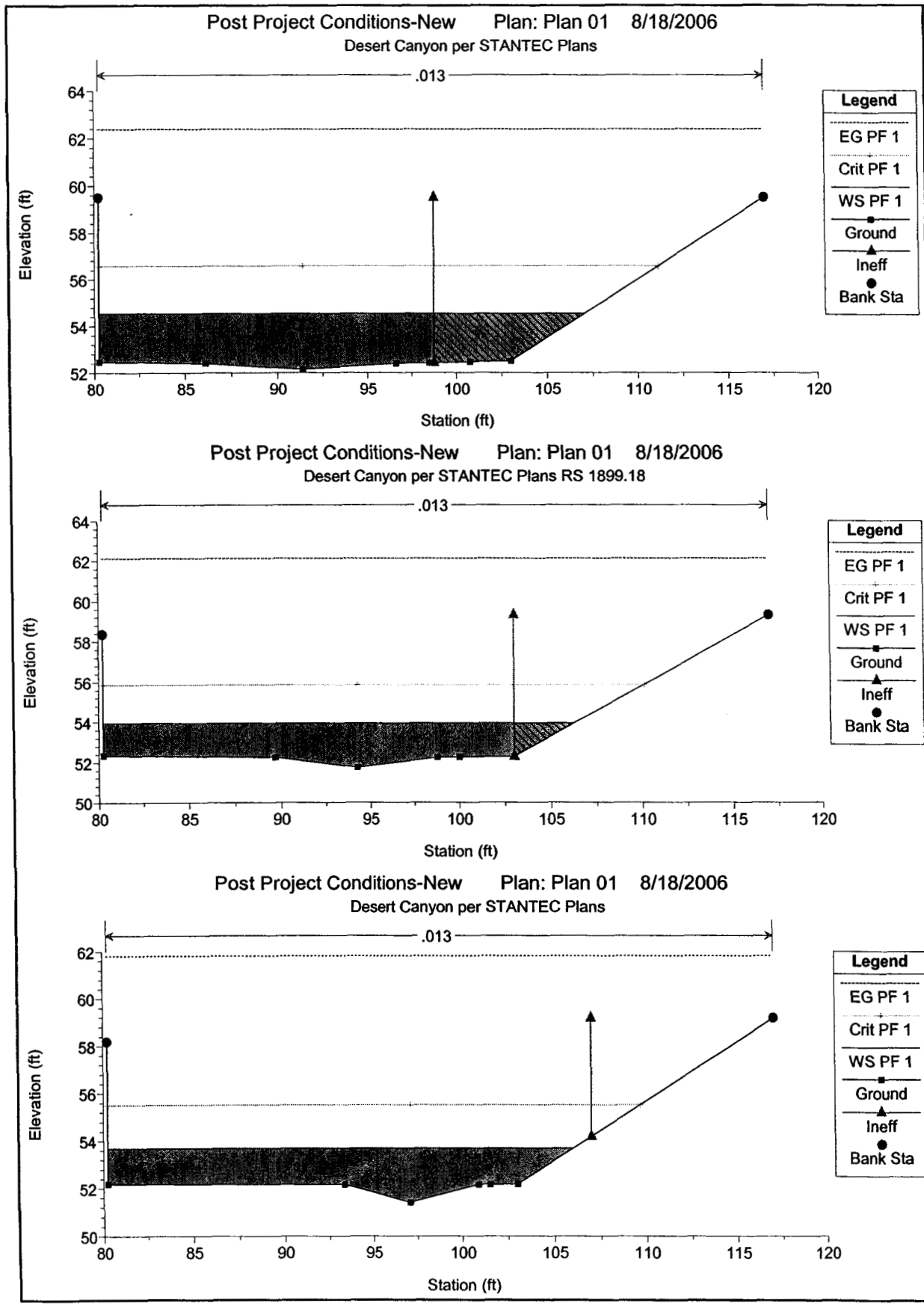

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1924.18, Pioneer Outfall 12'x
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

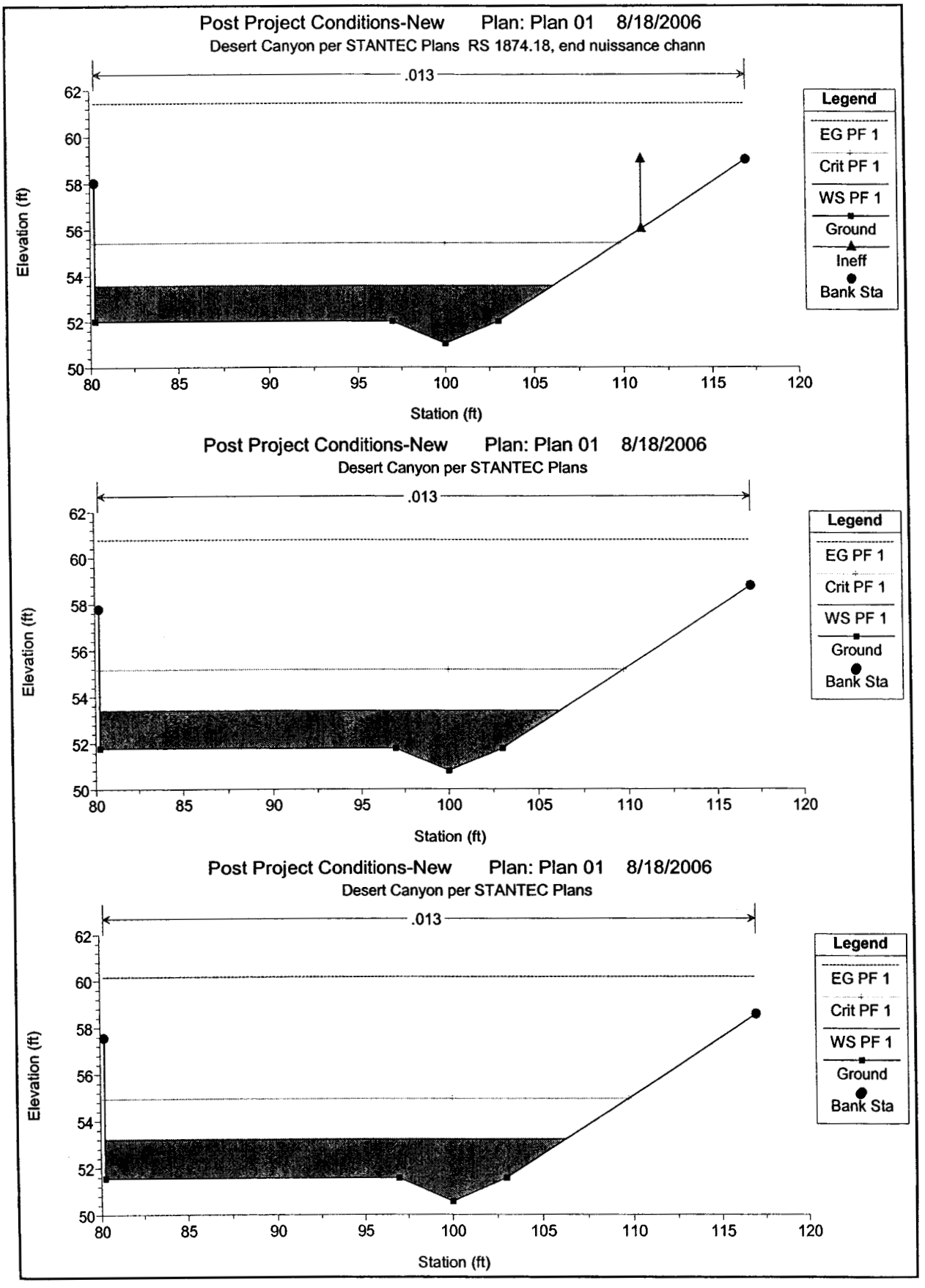

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1874.18, end south channel nu
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
.03
.013
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

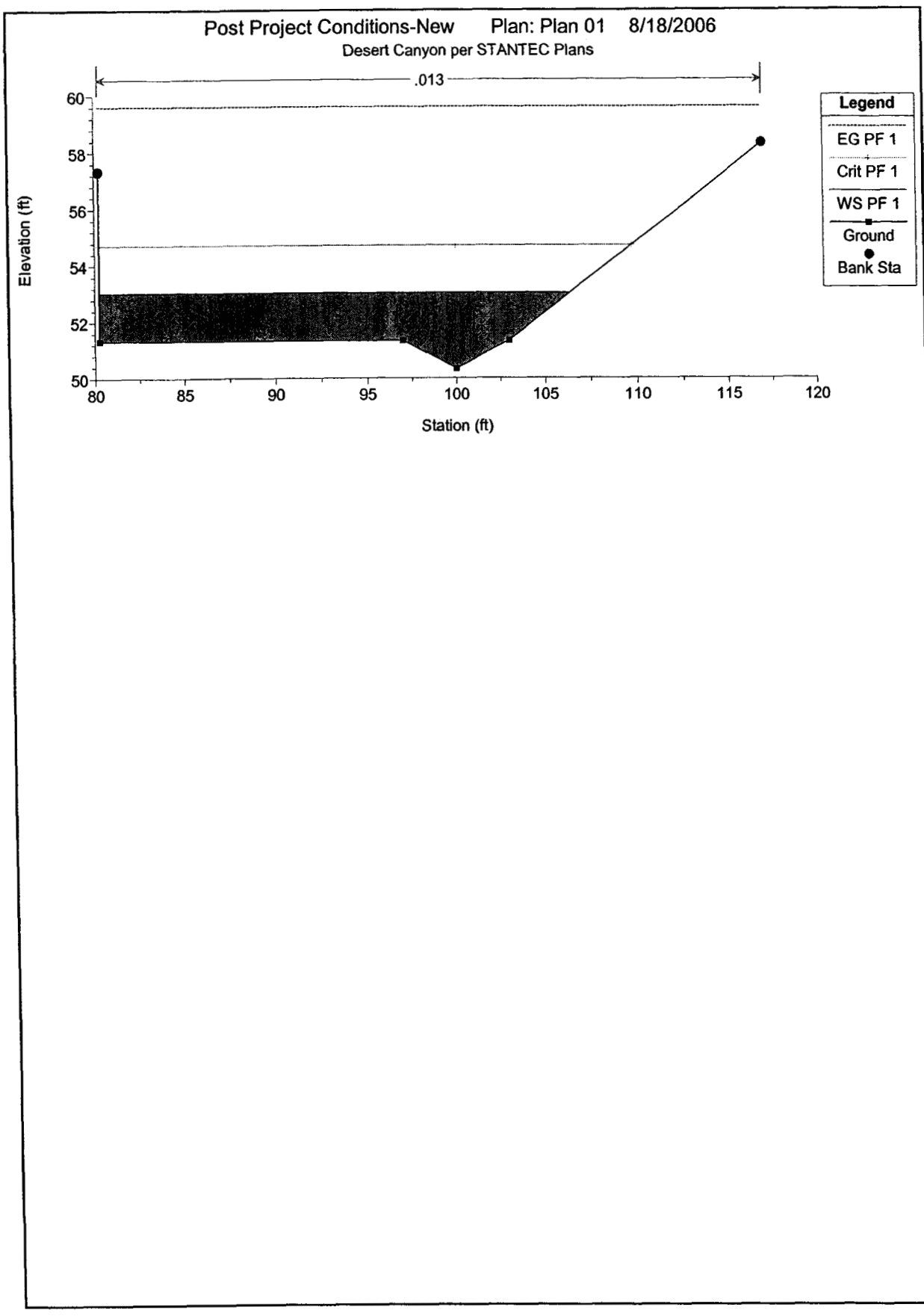

Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.03
.013
.03
0
1
3
Elevation (ft)
60
58
56
54
52
50
75
80
85
90
95
100
105
110
115
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans -
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1805, reach end


Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase I Channel per VTN Plans RS 2150, south channel app
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase I Channel per VTN Plans RS 2100
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase I Channel per VTN Plans RS 2050
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Post Project Conditions-New Plan: Plan 01 8/18/2006
Pioneer Phase I Channel per VTN Plans RS 2000
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1950
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1924.19, Pioneer Outfall 12'x
.013
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1899.18
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta


Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans RS 1874.18, end nuissance chann
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Ineff
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Post Project Conditions-New Plan: Plan 01 8/18/2006
Desert Canyon per STANTEC Plans
.013
Elevation (ft)
60
58
56
54
52
50
80
85
90
95
100
105
110
115
120
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta

Post Project Conditions-New Plan: Plan 01 8/18/2006

Combined Channel EAST

South Channel South

North Channel WEST

Legend

EG PF 1

Crit PF 1

WS PF 1

Ground

Elevation (ft)

140

120

100

80

60

40

20

0

0

2000

4000

6000

8000

10000

Main Channel Distance (ft)

Gibson Channel: Post-Project Conditions

HEC-RAS Plan: Post River: North Channel Reach: WEST Profile: PF 1

Reach	River Sta	Cross Section Sta.	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Hydr Depth
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)
WEST	18653.05	2+957	PF 1	705	127.07	129.65	130.68	133.23	0.007003	15.2	46.38	18	1.67	2.58
WEST	18603.05	3+007	PF 1	705	126.35	128.67	129.87	132.78	0.008885	16.27	43.32	18.7	1.88	2.32
WEST	18354.06	3+256	PF 1	705	122.77	124.83	126.29	130.04	0.012783	18.31	38.49	18.7	2.25	2.06
WEST	18314.47	3+296	PF 1	705	122.2	124.36	125.82	129.45	0.015109	18.09	38.96	18	2.17	2.16
WEST	17036.02	4+574	PF 1	705	107.91	110.18	111.41	114.34	0.009181	16.38	43.04	19	1.92	2.27
WEST	16991.39	4+624	PF 1	725	107.51	109.97	111.11	113.83	0.007809	15.76	46.02	18.7	1.77	2.46
WEST	16271.91	5+338	PF 1	725	101.86	104.31	105.46	108.2	0.007932	15.84	45.78	18.7	1.78	2.45
WEST	16221.83	5+388	PF 1	725	101.46	103.72	104.9	107.73	0.010978	16.07	45.11	20	1.89	2.26
WEST	15874.83	5+735	PF 1	725	99.56	102.18	102.88	104.87	0.004942	13.17	55.06	21	1.43	2.62
WEST	15824.82	5+785	PF 1	823	99.22	102.48	102.75	104.56	0.003017	11.59	71.02	21.8	1.13	3.26
WEST	15635.6	5+974	PF 1	823	97.93	100.6	101.46	103.71	0.005541	14.15	58.18	21.8	1.53	2.67
WEST	15080.09	6+530	PF 1	823	94.19	96.78	97.71	100.08	0.006079	14.58	56.45	21.8	1.6	2.59
WEST	15015.09	6+595	PF 1	823	93.76	95.72	96.82	99.48	0.012277	15.58	52.84	27	1.96	1.96
WEST	14592.55	7+017	PF 1	823	88.41	90.1	91.32	94.49	0.012482	16.82	48.93	29	2.28	1.69
WEST	14542.55	7+068	PF 1	823	87.71	89.38	90.62	93.84	0.012791	16.95	48.56	29	2.31	1.67
WEST	14252.5	7+358	PF 1	823	81.74	85.66	87.16	90.83	0.008238	18.24	45.11	11.5	1.62	3.92
WEST	14092.97	7+517	PF 1	823	79.1	82.58	84.52	89.15	0.011538	20.57	40.02	11.5	1.94	3.48
WEST	13987.91	7+622	PF 1	823	75.56	78.5	80.97	87.71	0.010788	24.36	33.8	11.51	2.5	2.94
WEST	13887.91	7+722	PF 1	823	74.86	77.9	80.27	86.51	0.009637	23.54	34.97	11.51	2.38	3.04
WEST	13787.91	7+822	PF 1	823	74.16	77.28	79.57	85.45	0.008844	22.95	35.88	11.51	2.29	3.12
WEST	13687.91	7+922	PF 1	823	73.46	76.64	78.87	84.51	0.008307	22.52	36.56	11.51	2.23	3.18
WEST	13602.91	8+007	PF 1	823	72.88	76.15	78.29	83.6	0.010585	21.91	37.56	11.51	2.14	3.26
WEST	13582.54	8+027	PF 1	823	72.74	74.57	76.59	83.17	0.023874	23.53	34.98	19.09	3.06	1.83
WEST	13562.17	8+048	PF 1	823	72.59	73.89	75.67	82.58	0.034037	23.66	34.79	26.67	3.65	1.3
WEST	13562.16	8+048	PF 1	823	72.59	74.06	75.9	82.51	0.029094	23.33	35.27	24.01	3.39	1.47
WEST	13557.18	8+053		Bridge										
WEST	13552.2	8+058	PF 1	823	72.49	73.99	75.8	82.12	0.027351	0.22	35.96	24.01	0.04	1.5
WEST	13478.79	8+131	PF 1	823	72.15	73.89	75.46	79.93	0.01707	0.19	41.72	24.01	0.04	1.74
WEST	13476.6	8+133	PF 1	823	72.14	73.88	75.45	79.89	0.016894	0.19	41.86	24.01	0.04	1.74
WEST	13425.61	8+184	PF 1	823	71.97	73.88	75.28	78.87	0.012619	0.18	45.91	24.01	0.03	1.91
WEST	13410.61	8+199	PF 1	823	71.92	73.88	75.23	78.63	0.011658	0.17	47.08	24.01	0.03	1.96
WEST	13353.48	8+256	PF 1	823	71.73	73.89	75.04	77.81	0.008636	0.16	51.81	24.01	0.03	2.16
WEST	13343.61	8+266	PF 1	823	71.7	73.89	75.01	77.69	0.008226	15.64	52.62	24.01	1.86	2.19
WEST	13343.6	8+266	PF 1	823	71.7	73.6	74.77	77.66	0.008507	16.17	50.89	35.25	2.07	1.9
WEST	13333.3	8+277	PF 1	823	71.66	76.49	74.55	76.92	0.00032	5.27	156.18	52.31	0.44	4.55
WEST	13323	8+287	PF 1	823	71.62	76.5		76.92	0.000332	5.16	159.56	50.13	0.44	4.24
WEST	13307.38	8+303	PF 1	823	71.56	76.6		76.87	0.000229	4.11	200.47	50.13	0.36	4
WEST	13291.77	8+318	PF 1	823	71.49	76.63		76.85	0.000174	3.79	217.42	50.13	0.32	4.34
WEST	13267.98	8+342	PF 1	823	71.4	76.55		76.84	0.000256	4.32	190.68	50.12	0.39	3.8
WEST	13244.2	8+366	PF 1	823	71.3	76.33		76.81	0.000505	5.57	147.88	44.8	0.54	3.3
WEST	13234.75	8+375	PF 1	823	71.26	76.11		76.79	0.000756	6.58	125.09	40.48	0.65	3.14
WEST	13234.74	8+375	PF 1	823	71.26	76.11		76.79	0.003661	6.58	125.09	40.48	0.65	3.14
WEST	13229.38	8+381	PF 1	823	71.24	76.06		76.77	0.003568	6.73	122.27	40.29	0.65	3.29
WEST	13229.37	8+381	PF 1	823	71.24	76.06		76.77	0.00357	6.73	122.25	37.13	0.65	3.29
WEST	13221.37	8+389	PF 1	823	71.21	76.03		76.74	0.003606	6.73	122.3	37.13	0.65	3.29
WEST	13167.84	8+442	PF 1	823	70.99	75.74		76.53	0.003878	7.12	115.53	34.03	0.68	3.39
WEST	13114.31	8+496	PF 1	823	70.76	75.03		76.23	0.006394	8.77	93.85	29.7	0.87	3.16
WEST	13114.3	8+496	PF 1	823	70.76	75.03	74.7	76.23	0.006394	8.77	93.85	29.7	0.87	3.16
WEST	13060.1	8+550	PF 1	823	70.54	75.01		75.85	0.003985	7.37	111.61	38.16	0.76	2.93
WEST	13044.11	8+566	PF 1	823	70.48	74.99		75.78	0.003217	7.11	115.8	38.43	0.7	3.2
WEST	13044.1	8+566	PF 1	823	70.43	75.04		75.75	0.002807	6.77	121.55	36.51	0.65	3.33
WEST	13018.22	8+592	PF 1	823	70.37	75.04		75.7	0.002455	6.48	126.93	36.71	0.61	3.46
WEST	13018.21	8+592	PF 1	823	70.37	75.04		75.7	0.002143	6.48	126.93	36.71	0.61	3.46

WEST	13010.22	8+600	PF 1	823	70.34	75.01		75.68	0.002236	6.54	125.87	36.7	0.62	3.43
WEST	13010.21	8+600	PF 1	823	70.34	75.01		75.68	0.003194	6.54	125.87	36.7	0.62	3.43
WEST	12954.02	8+656	PF 1	823	70.11	74.69		75.47	0.004054	7.06	116.61	36.44	0.7	3.2
WEST	12943.65	8+666	PF 1	823	70.07	74.62		75.42	0.004209	7.21	114.22	35.68	0.71	3.2
WEST	12906.81	8+703	PF 1	823	69.92	74.45		75.27	0.004298	7.27	113.25	41.19	0.77	2.75
WEST	12869.97	8+740	PF 1	823	69.76	74.37		75.11	0.003304	6.9	119.33	38.95	0.69	3.06
WEST	12869.96	8+740	PF 1	823	69.76	74.37		75.11	0.003361	6.89	119.39	38.94	0.69	3.07
WEST	12829.26	8+781	PF 1	823	69.6	74.3		74.96	0.002863	6.53	126.01	39.55	0.64	3.19
WEST	12788.55	8+821	PF 1	823	69.43	74.24		74.83	0.002395	6.16	133.63	40.23	0.6	3.32
WEST	12788.54	8+821	PF 1	823	69.43	74.24		74.83	0.002123	6.16	133.63	40.23	0.6	3.32
WEST	12780.55	8+829	PF 1	823	69.4	74.21		74.81	0.00223	6.22	132.28	40.21	0.6	3.29
WEST	12780.54	8+829	PF 1	823	69.4	74.21		74.81	0.003065	6.22	132.28	40.21	0.6	3.29
WEST	12724.23	8+886	PF 1	823	69.17	73.91		74.61	0.003836	6.69	122.94	39.82	0.67	3.09
WEST	12667.92	8+942	PF 1	823	68.94	73.63		74.38	0.004272	6.95	118.42	39.47	0.71	3
WEST	12667.91	8+942	PF 1	823	68.94	73.63		74.38	0.004333	6.95	118.48	39.47	0.71	3
WEST	12598.93	9+011	PF 1	823	68.65	73.3		74.07	0.004479	7.04	116.98	39.22	0.72	2.98
WEST	12529.94	9+080	PF 1	823	68.37	72.28	72.28	73.59	0.009119	9.18	89.69	34.82	1.01	2.58
WEST	12499.95	9+110	PF 1	823	68.25	70.1	70.98	72.93	0.040268	13.5	60.95	40.85	1.95	1.49
WEST	12499.94	9+110	PF 1	823	68.25	70.1	70.98	72.93	0.044304	13.5	60.95	40.85	1.95	1.49
WEST	12469.94	9+140	PF 1	823	67.05	68.96	69.78	71.61	0.039975	13.05	63.08	41.19	1.86	1.53
WEST	12469.93	9+140	PF 1	823	63.47	68.21	69.21	71.54	0.048466	14.65	56.18	36.65	2.09	1.53
WEST	12435.49	9+174	PF 1	823	63.33	67.14	67.99	69.86	0.039319	13.25	62.12	39.44	1.86	1.57
WEST	12401.05	9+209	PF 1	823	63.19	65.91	66.74	68.57	0.034721	13.09	62.89	41.34	1.87	1.52
WEST	12400	9+210	PF 1	823	63.15	65.88	66.7	68.53	0.034636	13.08	62.94	41.35	1.87	1.52
WEST	12350	9+260	PF 1	823	61.15	63.82	64.7	66.68	0.038758	13.58	60.62	41.01	1.97	1.48
WEST	12320	9+290	PF 1	823	59.95	62.61	63.5	65.5	0.039387	13.65	60.3	40.96	1.98	1.47
WEST	12312.18	9+298	PF 1	823	59.62	62.28	63.17	65.19	0.039805	13.7	60.06	40.89	1.99	1.47
WEST	12312.17	9+298	PF 1	823	59.62	62.28	63.17	65.19	0.0399	13.71	60.05	40.94	1.99	1.47
WEST	12278.95	9+331	PF 1	823	58.92	61.84	62.46	63.92	0.023986	11.57	71.14	42.43	1.57	1.68
WEST	12253.91	9+356	PF 1	823	58.39	61.37	61.94	63.31	0.021719	11.18	73.64	42.87	1.5	1.72
WEST	12217.72	9+392	PF 1	823	57.62	60.71	61.17	62.61	0.017024	11.05	74.45	36.98	1.37	2.01
WEST	12203.57	9+406	PF 1	823	57.32	60.48	60.94	62.38	0.016371	11.06	74.41	35.89	1.35	2.07
WEST	12162.19	9+448	PF 1	823	56.45	59.94	60.31	61.72	0.013741	10.71	76.81	34.19	1.26	2.25
WEST	12150	9+460	PF 1	823	56.19	59.59	60.05	61.53	0.015656	11.19	73.54	33.9	1.34	2.17
WEST	12125	9+485	PF 1	823	55.66	59.08	59.58	61.13	0.015512	11.48	71.68	31.64	1.34	2.27
WEST	12097.31	9+513	PF 1	823	55.08	58.3	58.94	60.63	0.019296	12.25	67.16	31.77	1.49	2.11
WEST	12097.3	9+513	PF 1	823	55.08	58.64	59.02	60.5	0.013004	10.94	75.21	31.22	1.24	2.41
WEST	12033.7	9+576	PF 1	823	53.74	56.98	57.67	59.43	0.019805	12.56	65.52	30.58	1.51	2.14
WEST	12033.69	9+576	PF 1	823	53.74	56.86	57.6	59.42	0.022282	12.84	64.1	31.57	1.59	2.03
WEST	12000	9+610	PF 1	823	53.02	56.28	56.96	58.65	0.019479	12.37	66.56	31.31	1.49	2.13
WEST	11924.18	9+686	PF 1	823	51.94	55.52	55.88	57.31	0.012571	10.72	76.78	31.96	1.22	2.4
WEST	11911.68	9+698	PF 1	823	51.76	55.31	55.7	57.14	0.013098	10.86	75.76	31.9	1.24	2.38
WEST	11899.18	9+711	PF 1	823	51.58	55.11	55.52	56.97	0.013461	10.96	75.08	31.85	1.26	2.36
WEST	11886.68	9+723	PF 1	823	51.4	54.91	55.34	56.8	0.013743	11.04	74.57	31.82	1.27	2.34
WEST	11874.18	9+736	PF 1	823	51.22	54.72	55.16	56.63	0.013967	11.09	74.18	31.8	1.28	2.33
WEST	11851.12	9+759	PF 1	823	50.89	54.38	54.83	56.31	0.014207	11.16	73.77	31.77	1.29	2.32
WEST	11828.06	9+782	PF 1	823	50.56	55.17	54.49	56.03	0.004182	7.44	110.6	34.03	0.73	3.25
WEST	11826.06	9+784	PF 1	823	50.56	54.5	54.5	55.85	0.008233	9.32	88.27	32.68	1	2.7
WEST	11805	9+805	PF 1	823	50.23	53.83	54.17	55.58	0.012207	10.61	77.54	32.02	1.2	2.42
EAST	11800	9+810	PF 1	1741	50.18	52.72	54.34	59.39	0.084191	20.72	84.02	56.69	3	1.48
EAST	11799.99	9+820	PF 1	1741	50.18	52.72	54.34	59.39	0.057711	20.72	84.02	56.69	3	1.48
EAST	11790	9+841	PF 1	1741	50.08	52.63	54.11	58.5	0.074606	19.45	89.53	60.1	2.81	1.49
EAST	11769.13	9+859	PF 1	1741	50	55.95	53.83	56.33	0.001214	4.96	351.08	79.19	0.42	4.43
EAST	11751.44	9+870	PF 1	1741	49.92	55.98		56.29	0.000929	4.46	390.12	85.37	0.37	4.57
EAST	11739.7	9+878	PF 1	1741	49.87	55.99		56.27	0.000825	4.2	414.78	89.46	0.34	4.64
EAST	11732.13	9+890	PF 1	1741	49.76	56		56.26	0.000791	4.05	430.32	92.1	0.33	4.67
EAST	11720	9+897	PF 1	1741	49.58	56.01		56.24	0.000718	3.84	453.87	95.72	0.31	4.74
EAST	11712.87	9+921	PF 1	1741	49.47	56.01		56.23	0.000705	3.81	456.45	95.78	0.31	4.77

EAST	11689.21	9+935	PF 1	1741	49.38	56		56.21	0.000669	3.75	464.05	95.94	0.3	4.84
EAST	11675	9+976	PF 1	1741	49.32	55.99		56.2	0.000646	3.71	469.22	96.04	0.3	4.89
EAST	11634.34	9+986	PF 1	2652	49.16	55.57		56.12	0.001778	5.97	444.49	95.52	0.49	4.65
EAST	11624.05	9+991	PF 1	2652	49.11	55.47		56.1	0.001979	6.38	415.7	87.66	0.52	4.74
EAST	11618.85	10+014	PF 1	2652	49.09	55.35		56.08	0.002316	6.82	388.6	83.56	0.56	4.65
EAST	11596.34	10+083	PF 1	2652	49	55.31		56.02	0.002241	6.75	392.72	83.66	0.55	4.69
EAST	11527.17	10+110	PF 1	2652	48.73	54.78		55.79	0.003727	8.09	327.8	78.58	0.7	4.17
EAST	11500	10+160	PF 1	2652	48.62	54.68		55.69	0.003702	8.07	328.54	78.62	0.7	4.18
EAST	11450	10+210	PF 1	2652	48.42	54.5		55.5	0.003646	8.03	330.2	78.71	0.69	4.2
EAST	11400	10+232	PF 1	2652	48.22	54.33		55.31	0.003571	7.98	332.5	78.82	0.68	4.22
EAST	11377.99	10+260	PF 1	2652	48.13	54.25		55.23	0.003534	7.95	333.66	78.88	0.68	4.23
EAST	11350	10+310	PF 1	2652	48.02	54.15		55.13	0.003498	7.92	334.81	78.94	0.68	4.24
EAST	11300	10+331	PF 1	2652	47.82	54		54.95	0.0034	7.85	338	79.1	0.67	4.27
EAST	11278.76	10+360	PF 1	2652	47.73	53.93		54.87	0.003346	7.8	339.8	79.19	0.66	4.29
EAST	11250	10+410	PF 1	2652	47.62	53.84		54.77	0.003305	7.77	341.21	79.26	0.66	4.3
EAST	11200	10+435	PF 1	2652	47.42	53.69		54.6	0.003184	7.68	345.49	79.48	0.65	4.35
EAST	11175.26	10+455	PF 1	2652	47.32	53.62		54.52	0.003117	7.62	347.97	79.6	0.64	4.37
EAST	11154.55	10+485	PF 1	2652	47.24	53.56		54.45	0.003076	7.59	349.51	79.68	0.64	4.39
EAST	11125	10+494	PF 1	2652	47.12	53.5		54.37	0.00224	7.48	354.74	80.06	0.63	4.43
EAST	11116.35	10+510	PF 1	2652	47.08	53.48		54.34	0.002912	7.45	355.97	80	0.62	4.45
EAST	11100	10+560	PF 1	2652	46.98	53.39		54.29	0.00302	7.59	349.39	78.53	0.63	4.45
EAST	11050	10+577	PF 1	2652	46.67	53.07		54.12	0.00341	8.2	323.29	71.13	0.68	4.55
EAST	11033.37	10+603	PF 1	2652	46.57	52.89		54.04	0.003782	8.63	307.33	67.9	0.71	4.53
EAST	11007.4	10+636	PF 1	2652	46.41	52.52	51.88	53.97	0.001069	9.64	275.02	60.61	0.8	4.54
EAST	10973.86	10+660	PF 1	2652	46.2	51.49	51.49	53.82	0.001886	12.25	216.45	46.48	1	4.66
EAST	10950.26	10+700	PF 1	2652	46.06	50.04	50.91	53.64	0.003581	15.22	174.27	44.99	1.36	3.87
EAST	10909.89	10+775	PF 1	2652	44.37	47.95	49.52	53.28	0.006118	18.53	143.1	41.21	1.75	3.47
EAST	10834.9	10+775	PF 1	2652	41.24	43.96	46.22	52.33	0.012794	23.22	114.2	42	2.48	2.72
EAST	10834.89	11+010	PF 1	2652	41.24	44.14	46.39	52.26	0.015657	22.86	116	40	2.37	2.9
EAST	10599.9	11+010	PF 1	2652	39.88	43.46	45.03	48.78	0.008484	18.51	143.31	40	1.72	3.58
EAST	10599.89	11+080	PF 1	2652	39.88	43.23	44.87	48.75	0.00662	18.86	140.62	42	1.82	3.35
EAST	10529.91	11+180	PF 1	2652	39.47	43.87	44.9	47.99	0.003738	16.28	162.89	37	1.37	4.4
EAST	10429.91	11+180	PF 1	2652	38.63	42.71	44.06	47.5	0.004728	17.57	150.94	37	1.53	4.08
EAST	10429.9	11+320	PF 1	2652	38.63	43.06	44.15	47.36	0.004968	16.64	159.4	36	1.39	4.43
EAST	10289.92	11+320	PF 1	2652	36.32	39.99	41.84	46.26	0.008629	20.1	131.94	36	1.85	3.67
EAST	10289.91	11+400	PF 1	2652	36.32	39.85	41.75	46.25	0.007396	20.29	130.69	37	1.9	3.53
EAST	10209.93	11+485	PF 1	2652	19.67	22.96	27.32	43.75	0.029636	36.59	72.49	22	3.55	3.29
EAST	10124.93	11+485	PF 1	2652	20.31	24.03	27.99	40.32	0.020533	32.39	81.88	22	2.96	3.72
EAST	10124.92	11+610	PF 1	2652	20.31	24.25	28.27	40.23	0.026731	32.08	82.66	21	2.85	3.94
EAST	9999.93	11+610	PF 1	2652	19.67	22.58	25.77	35.99	0.028863	29.5	90.23	31	3.05	2.91
EAST	9999.92	11+704	PF 1	2652	19.67	22.39	25.51	35.98	0.021654	29.58	89.65	33	3.16	2.72
EAST	9905.49	11+764	PF 1	2652	19.19	22.16	25.02	33.54	0.016394	27.07	97.96	33	2.77	2.97
EAST	9845.49	12+364	PF 1	2652	18.88	22.38	25	32.21	0.0131	25.16	105.41	37.99	2.66	2.77
EAST	9245.49	9+460	PF 1	2652	15.88	20.22	22	25.88	0.005891	19.09	138.96	41.37	1.84	3.36
South	12150	-	PF 1	911	54.78	58.57	60.4	64.8	0.009997	20.04	45.45	12.01	1.82	3.78
South	12100	-	PF 1	911	54.28	58.07	59.9	64.3	0.009997	20.04	45.45	12.01	1.82	3.78
South	12050	-	PF 1	911	53.78	57.57	59.4	63.8	0.009996	20.04	45.45	12.01	1.82	3.78
South	12000	-	PF 1	911	53.28	57.07	58.9	63.3	0.009995	20.04	45.45	12.01	1.82	3.78
South	11950	-	PF 1	911	52.78	56.57	58.4	62.8	0.009993	20.04	45.45	12.01	1.82	3.78
South	11924.19	-	PF 1	911	52.52	56.31	58.14	62.54	0.009983	20.03	45.48	12.01	1.81	3.79
South	11911.68	-	PF 1	911	52.14	54.53	56.56	62.38	0.015665	22.48	40.52	26.81	2.68	2.19
South	11899.18	-	PF 1	911	51.77	53.94	55.87	62.12	0.021052	22.95	39.69	26.01	3.06	1.74
South	11886.68	-	PF 1	911	51.4	53.69	55.51	61.82	0.024825	22.89	39.81	25.79	3.25	1.54
South	11874.18	-	PF 1	911	51.02	53.56	55.4	61.43	0.02382	22.51	40.46	25.84	3.17	1.57
South	11851.12	-	PF 1	911	50.79	53.38	55.17	60.76	0.02157	21.8	41.78	25.94	3.03	1.61
South	11828.06	-	PF 1	911	50.56	53.2	54.94	60.15	0.019666	21.16	43.05	26.04	2.9	1.65
South	11805	-	PF 1	911	50.33	53.02	54.71	59.61	0.018127	20.61	44.21	26.13	2.79	1.69

APPENDIX E

REFERENCE MATERIAL

REFERENCE MATERIAL FOR
WAL MART DETENTION BASIN "DET 0 1"
HEC-1

8/16/2006

"Gibson CLOMR Walmart Detention Basin"

ORIFICE EQUATION

STAGE-STORAGE CALCULATIONS

VOLUME AND DISCHARGE TABLES
30% BASIN DESIGN

ORIFICE DIAM. =	2 ft.
ORIFICE AREA =	3.14 sq. ft.
NUMBER OF PIPES	1
ORIFICE COEF. =	0.65
ORIFICE INVERT =	2214 ft.

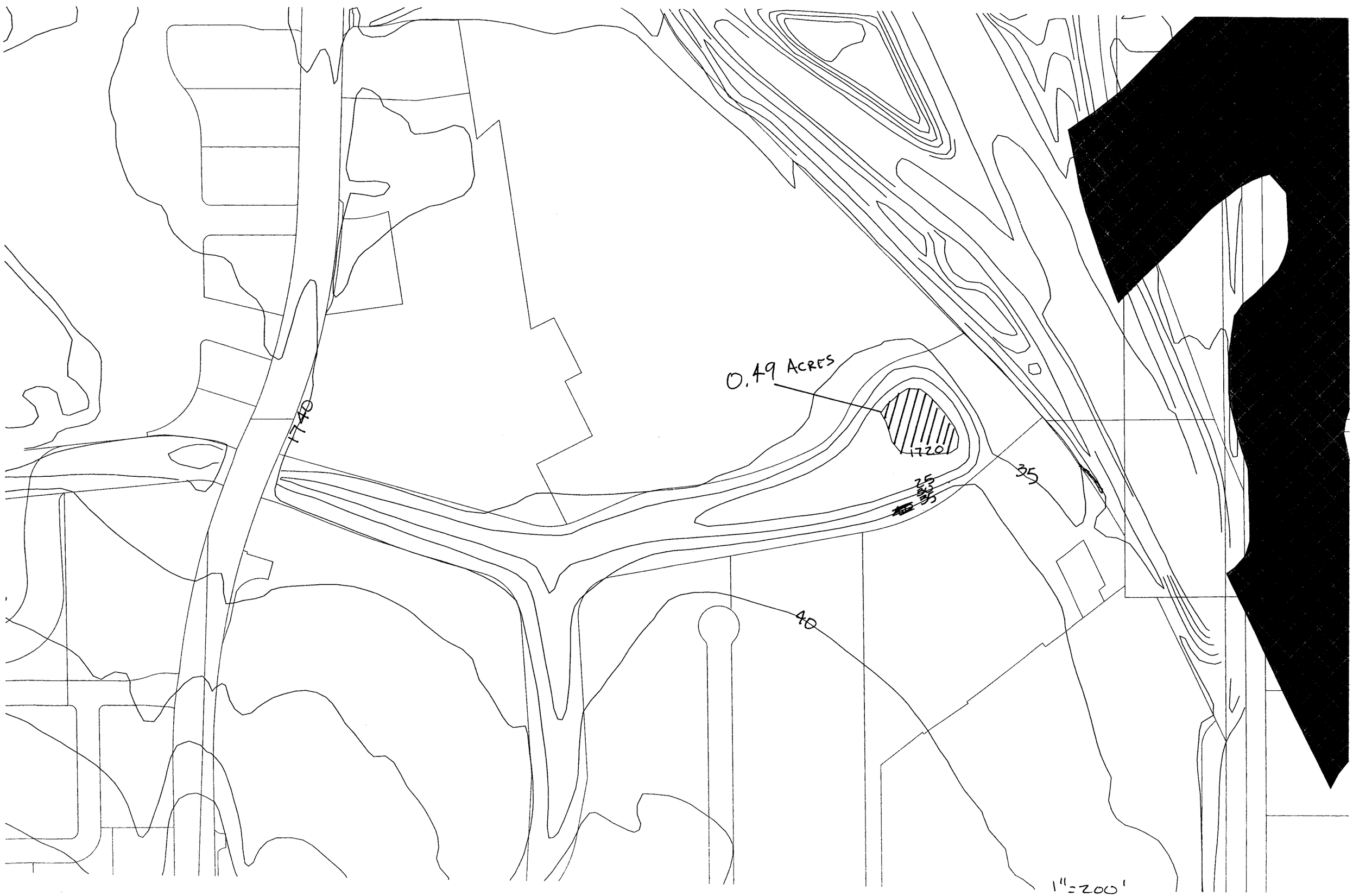
ORIFICE EQUATION:

$$Q = C_O A\left[2g\left(d_o - \frac{d}{2}\right)\right]^{0.5}$$

Where:
Q = Discharge (cfs)
C_o= Discharge coefficient
A= area of orifice (ft^2)
d_o= depth of ponding above invert (ft.)
d= diameter of orifice (ft.)

ELEVATION	CUM. VOLUME	DISCHARGE
FT.	ACRE-FT.	CFS
2214.00	0.00	0.00
2220	0.49	28.38
2225	2.16	38.43
2230	4.42	63.47
2235	23.16	73.28

* $$Q = C_O A\left[2g\left(\frac{d_o}{2}\right)\right]^{0.5}$$


0.49 ACRES
1720
1740
25
35
40
1"=200'


2.16 ACRES
1740
1770
35
40
1"=200'

4.42 ACRES

1740

1720

35

40

1"=200'

AREA = 23.16 ac

1735

1" = 300'

IMPROVEMENT PLANS

FOR

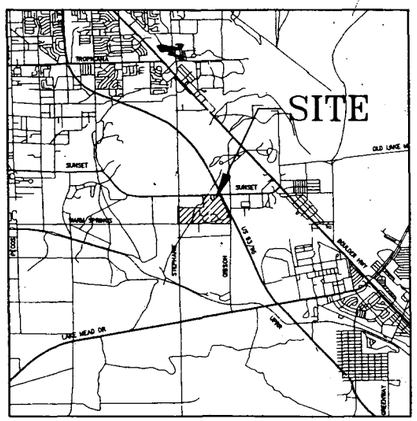
HENDERSON COMMERCE CENTER

DRAINAGE OUTFALL PLANS

CITY OF HENDERSON
STATE OF NEVADA

ESTIMATE OF QUANTITIES

4" A.C.	S.Y.
5" A.C.	S.Y.
CURB & GUTTER	L.F.
TYPE I AND/OR TYPE II BASE.	C.Y.
SIDEWALK	S.F.
CONC. VALLEY GUTTER	S.F.
8" SEWER	L.F.
12" SEWER	L.F.
MANHOLES	EA.
STREETLIGHT & S.P.	EA.
12" WATER	L.F.
WATER SERVICES	EA.
FIRE HYDRANTS	EA.
UTILITY TRENCH	L.F.
STREET SIGNS	EA.
18" STORM DRAIN	L.F.
24" STORM DRAIN	L.F.
36" STORM DRAIN	L.F.
42" STORM DRAIN	L.F.
5' TYPE 'A' DROP INLET	EA.
8' TYPE 'A' DROP INLET	EA.
14' TYPE 'C' DROP INLET	EA.
12' TYPE 'C' DROP INLET	EA.
16' TYPE 'C' DROP INLET	EA.
9' X 4' DOUBLE RCB SIPHON	L.F.
4' X 4' DOUBLE RCB SIPHON	L.F.
4' X 8' DOUBLE RCB SIPHON	L.F.
EXCAVATION & EMBANKMENTS	C.Y.



VICINITY MAP

APPROVAL

MARK T. CALHOUN, P.E. — DIRECTOR OF PUBLIC WORKS — DATE 12-29-93

CURT CHANDLER — FLOOD CONTROL — DATE 12-29-93

SOUTHWEST GAS COMPANY — DATE 12.15.93

CENTEL — DATE 12.15.93

NEVADA POWER COMPANY — DATE 12-15-93

THIS APPROVAL IS ONLY FOR THE PLACEMENT & CLEARANCE OF STREETLIGHT & TRAFFIC SIGNAL INSTALLATION.

SHEET INDEX

1. COVER SHEET
2. DRAINAGE OUTFALL PLAN
3. INLET / OUTLET SECTIONS & DETAILS

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, 1986, AND THE UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, 1986.
2. APPLICATION FOR INSPECTION BY THE CITY OF HENDERSON PUBLIC WORKS SHALL BE MADE BY THE CONTRACTOR AT LEAST 24 HOURS BEFORE THE INSPECTION SERVICES WILL BE REQUIRED, 565-2136 OR 565-2140.
3. WORK IN THE PUBLIC STREETS, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
4. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUN-OFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH SUBDIVISION CONSTRUCTION.
5. PRIOR TO FINAL ACCEPTANCE, BOND RELEASES, AND A CERTIFICATE OF OCCUPANCY, A CERTIFIED LEGIBLE AS-BUILT DRAWING MUST BE SUBMITTED TO THE CITY OF HENDERSON. AS-BUILT MUST SHOW ALL CHANGES AND ACTUAL FIELD LOCATIONS. IN THE ABSENCE OF CHANGES, A COPY OF APPROVED DRAWINGS WILL BE REQUIRED STATING "INSTALLED AS PER DRAWINGS" AND CERTIFIED AS SUCH BY THE DEVELOPER'S ENGINEER OR LAND SURVEYOR.
6. APPROVAL OF THESE PLANS IS FOR THE CONSTRUCTION OF OFFSITE IMPROVEMENTS ONLY. ALL ONSITE IMPROVEMENTS, AS DEFINED BY THE CITY OF HENDERSON, INCLUDING BLOCK WALLS, MUST BE APPROVED BY THE BUILDING AND PLANNING DIVISIONS OF THE CITY OF HENDERSON.
7. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF THE TRANSITIONS TO BE DETERMINED BY THE CITY ENGINEER.
8. EXISTING UTILITIES ARE LOCATED ON PLANS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR THE PROTECTION OF UTILITIES AND THE ENGINEER BEARS NO RESPONSIBILITY FOR UTILITIES NOT SHOWN ON THE PLANS OR NOT IN THE LOCATION SHOWN ON THE PLANS. THIS INCLUDES ALL SERVICE LATERALS OF ANY KIND.
9. POWER POLES AND/OR OTHER EXISTING FACILITIES NOT IN PROPER LOCATION BASED ON PROPOSED IMPROVEMENTS SHOWN HEREON WILL BE RELOCATED AT NO EXPENSE TO THE CITY OF HENDERSON.
10. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING NO. 235. EXACT LOCATION OF RAMPS SHALL BE DETERMINED IN THE FIELD BY A CITY INSPECTOR, OR AS SHOWN ON PLAN.
11. CURB AND GUTTER WITH GRADE OF LESS THAN FOUR-TENTHS OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION
12. ALL GRADING SHALL CONFORM TO THE SOILS REPORTS:

    ENGINEER: WESTERN TECHNOLOGIES, INC.

    DATES: JUNE 21, 1989 AND JUNE 22, 1992

    JOB NUMBERS: 4129.159, 4122.R173
13. EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PRELIMINARY GEOTECHNICAL REPORT.
14. ALL STREET STRUCTURAL SECTIONS SHALL BE PER THE RECOMMENDATIONS OF THE SOILS ENGINEER. BASED ON CBR OR R-VALUES. NO PAVING OR BASE WORK SHALL COMMENCE UNTIL A STREET STRUCTURAL SECTION IS APPROVED BY THE CITY ENGINEER, CITY OF HENDERSON.
15. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING PUBLIC STREETS IMMEDIATELY AFTER THE FIRST GRADING WORK IS ACCOMPLISHED AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "NEVADA TRAFFIC CONTROL MANUAL" - CURRENT EDITION AND TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" - CURRENT EDITION AND BE APPROVED BY THE CITY OF HENDERSON BEFORE CONSTRUCTION BEGINS.
16. WHERE EXISTING PAVEMENT IS CUT TO INSTALL UTILITY SERVICE LINES, BACKFILL AND PAVEMENT REPLACEMENT SHALL BE DONE PER STANDARD DRAWING 502 AND SECTION 206, 207, AND 208 OF THE STANDARD SPECIFICATION ISSUE, 1986.
17. ALL STATIONING IS REFERENCED TO CENTERLINE, EXCEPT AS NOTED.
18. EXACT LOCATION OF ALL SAWCUT LINES SHALL BE DETERMINED IN THE FIELD BY A CITY OF HENDERSON INSPECTOR.
19. PROTECTION AND REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES NOT DELINEATED ON THE CONTRACT DRAWINGS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES SHALL BE DONE TO THE CITY OF HENDERSON SURVEY SECTION'S SATISFACTION.
20. AFFECTED UTILITY COMPANIES SHALL BE NOTIFIED AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
21. CALL BEFORE YOU DIG, 1-800-227-2600
22. MODIFICATIONS TO EXISTING UTILITIES SHALL CONFORM TO THE OWNERS UTILITY STANDARDS AND SPECIFICATIONS.
23. THE CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING IMPROVEMENTS FROM DAMAGE AND ALL SUCH IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR RECONSTRUCTED TO THE CITY ENGINEER'S SATISFACTION AT THE EXPENSE OF THE CONTRACTOR.
24. CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED BY _____ 19__
25. ALL OFFSITE AND ONSITE WATER AND SEWER FACILITIES UP TO WITHIN 5 FEET OF BUILDINGS SHALL BE CONSTRUCTED TO PUBLIC WORKS STANDARDS (FOR APARTMENT BUILDINGS AND COMMERCIAL PROJECTS ONLY).

BENCHMARK

CITY OF HENDERSON BENCH MARK #130, DRIVE RIVET IN 2X2 ALUMINUM PLATE IN TOP OF CURB ON SOUTHEAST CORNER OF SUNSET RD. AND STEPHANIE ST. NEAR PC OF SUNSET RD.
ELEVATION = 1743.08 CITY OF HENDERSON DATUM

CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597
vtn nevada

P.H. PROPERTY DEV. CO.
CITY OF HENDERSON, NEVADA

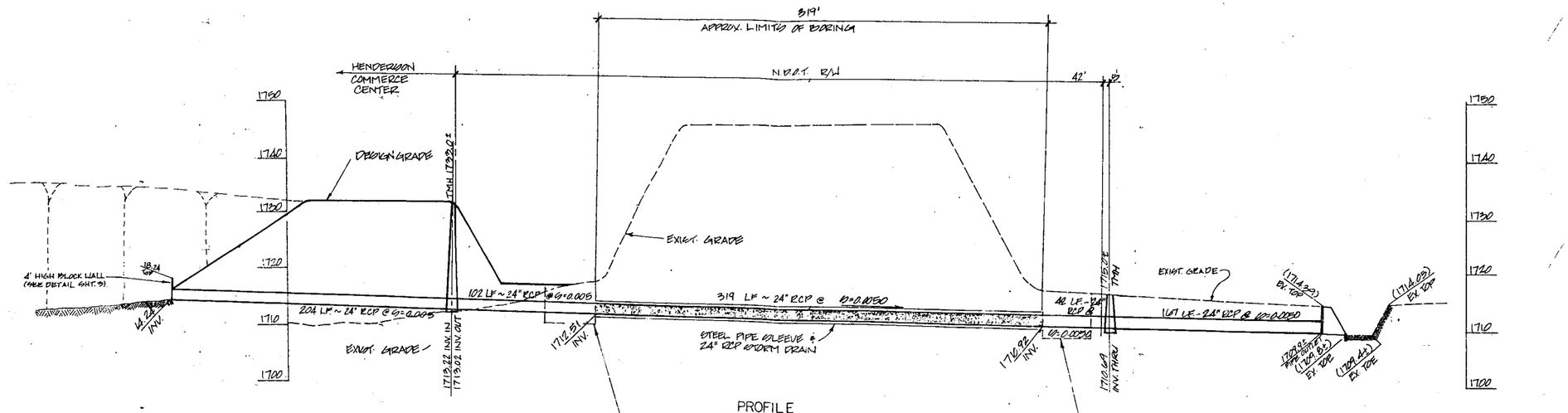
REV	DATE	BY	REVISION

TITLE: COVER SHEET

PROJECT: HENDERSON COMMERCE CENTER
DRAINAGE OUTFALL PLANS

SEAL

WO NO.	4097-2
BY	JPD/TEH
DATE	11/93
SCALE	NONE
SHEET	1 OF 3 SHEETS



NOTE:

1. ALL BORE & JACK PROCEDURES & MATERIALS SHALL CONFORM TO THE SPECIFICATIONS & REQUIREMENTS OF THE NEVADA DEPT. OF TRANSPORTATION.
2. THE CONTRACTOR SHALL COORDINATE HIS PROPOSED CONSTRUCTION TECHNIQUES & MATERIALS WITH N.D.O.T. PRIOR TO SUBMITTING HIS BID FOR THIS WORK.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DESIGN REVISIONS OR ADDITIONS NECESSARY TO ACCOMODATE THE CONTRACTORS METHOD OF PIPE BORING.
4. CONTRACTOR SHALL BEGIN BORING OPERATIONS AT THE DOWNSTREAM BORE PIT

BENCHMARK
C.O.H. BM#130 - DRIVE RIVET IN 2"X2' ALUMINUM PLATE IN TOP OF CURB ON THE SOUTHEAST CORNER OF SUNSET ROAD AND STEPHANIE STREET NEAR PC OF SUNSET ROAD.
ELEVATION = 1743.08 CITY OF HENDERSON DATUM

REV	DATE	BY	REVISION

CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597
vtn nevada

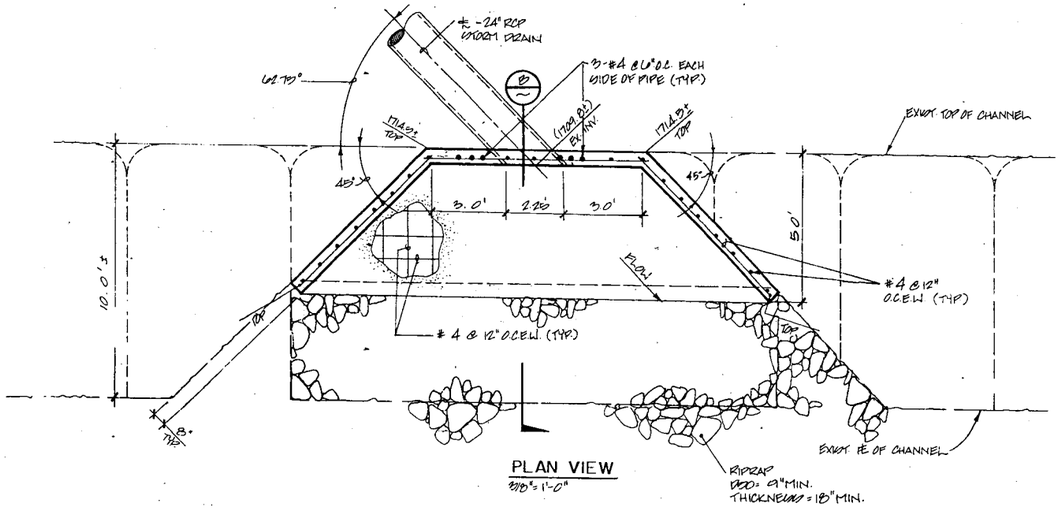
P.H. PROPERTY DEV. CO.
CITY OF HENDERSON

TITLE: PLAN & PROFILE

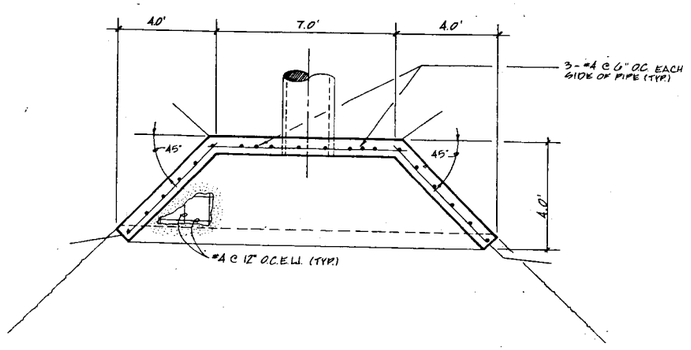
PROJECT: HENDERSON COMMERCE CENTER DRAINAGE OUTFALL PLANS

SEAL

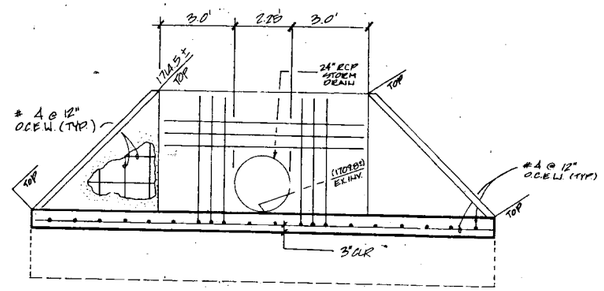
WO NO.	4097-2
BY	JPD
DATE	11/93
SCALE	AS SHOWN
SHEET	2 OF 3 SHEETS



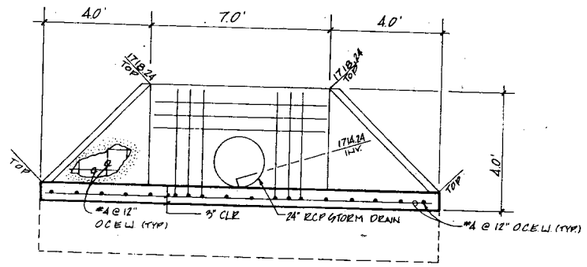
PLAN VIEW
3/8" = 1'-0"



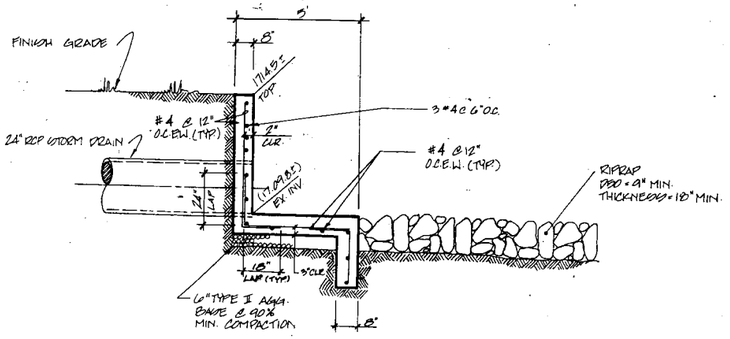
PLAN VIEW
3/8" = 1'-0"



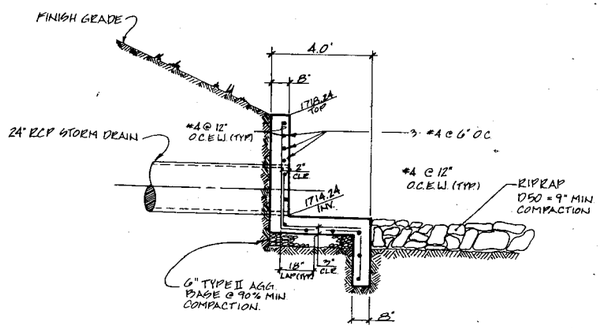
SECTION A
3/8" = 1'-0"



SECTION C
3/8" = 1'-0"



SECTION B
3/8" = 1'-0"



SECTION D
3/8" = 1'-0"

CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

REV	DATE	BY	REVISION

P.H. PROPERTY DEV. CO.
CITY OF HENDERSON

TITLE: INLET/OUTLET SECTIONS & DETAILS

PROJECT: HENDERSON COMMERCE CENTER DRAINAGE OUTFALL PLANS

SEAL
12-17-93

WO NO.	4097-2
BY	KFN/WJR
DATE	11/93
SCALE	3/8" = 1'
SHEET	3 OF 3 SHEETS

940224

011614

HENDERSON COMMERCE CENTER

(A COMMERCIAL SUBDIVISION)
A POR. OF THE SOUTH HALF (S 1/2) OF SEC. 3, T. 22 S., R. 62 E.,
M. D. M., CITY OF HENDERSON, CLARK COUNTY, NEVADA.

NOTE:

1. DIRECT VEHICULAR ACCESS TO SUNSET ROAD OTHER THAN VIA MARKS STREET IS PROHIBITED.

DETAIL "B"

DETAIL "C"

SUNSET ROAD

"BASIS OF BEARINGS"

FND WELL MON. PLS 6030 (PER SUNSET ROAD IMPROVEMENTS)

FND WELL MON. PLS 4541 (FILE 56 OF SURVEYS, PG. 27)

FND WELL MON. NO I.D.

CENTER SECTION LINE

NOT A PART APN 180-020-019 SIOELINE INC.

NOT A PART APN 180-020-001 PETER TRUST L.P. ETAL

NOT A PART APN 180-020-004 CITY OF HENDERSON

WENDY'S LAS VEGAS, INC. APN 180-020-23 AND APN 180-020-24 JERRY AND MARYANNA HERBST

FND IRON PIPE, PLS 4865 PER P.M. 65-42

NORCROSS STREET

MARKS STREET (DEDICATED PER THIS MAP)

STEPHANIE STREET

GIBSON ROAD

WARM SPRINGS ROAD

INTERSTATE 515 / US 95 EXPRESSWAY RIGHT - OF - WAY

SCALE: 1" = 200'

SOUTHERN NEVADA WATER PROJECT EASEMENT BEING THE EAST 50' OF THE WEST 55' OF THE SOUTH 523.35' OF THE NW 1/4 OF THE SW1/4 OF SEC.3 BK. 1689 DOC. 1648157 REC'D 2-14-83

50' CONVEYED TO C.O.H. BK. 2237, DOC. 2196404 REC'D 12-23-85

THE EAST 20' OF THE WEST 75' BY ORDER OF CONDEMNATION, BK. 1519, DOC. 1478682, REC'D 2-05-82.

SOUTHERN NEVADA WATER PROJECT EASEMENT, BEING THE EAST 50' OF THE WEST 55' OF THE NORTH 1019.45' OF THE SW1/4 OF THE SW1/4 OF SEC. 3, BK 1689, DOC. 1648158, REC'D 2-14-83

T.P.O.B.

FND 60D NAIL / RESET W/TYPE I MON., PLS 9105 W/TIES

FND IRON PIPE W/CAP UNREADABLE RESET W/TYPE I MON., W/TIES PLS 9105

40' NORCROSS ST. VACATED PER File: 001 Pb: 0047 Rec., 10/15/92

50' CONVEYED, BY DEED, TO C.O.H. BK. 301, DOC. 260674 REC'D 2-13-73

100' NEVADA POWER CO. ESM'T BLM APPLICATION NO. NEV.043455 Filed: 12/12/55

50' CONVEYED TO C.O.H., PER BK. 1890 DOC. 1849757 REC'D 3-15-84

50' NEVADA POWER CO. ESM'T BK. 380 INST. NO. 339598 REC'D 11-15-73

SEE DETAIL "A"

SEE DETAIL "C"

SEE SETAIL "D"

LOT 1
106.340 ACRES
4,632,185 S.F.

LOT 2
100.195 ACRES
4,364,477 S.F.

1. 10' NEVEDA POWER CO. EASEMENT BK. 496, INST.# 399745 REC'D 12-04-63
2. 10' NEVEDA POWER CO. EASEMENT BK. 496, INST.# 399746 REC'D 12-04-63
3. 30' SLOPE, INGRESS AND EGRESS EASEMENT BK. 1253, INST.# 1212977 REC'D 07-16-80

R/W HEREBY DEDICATED TO THE CITY OF HENDERSON 480 S.F.

DETAIL "A"

CURVE TABLE

CURVE	ARC	DELTA	RADIUS	TAN LENGTH
C1	77.90	88°55'35"	50.00	48.87
C2	39.01	89°23'50"	25.00	24.76
C3	34.81	19°40'02"	101.42	17.56
C4	41.68	19°40'02"	121.42	21.05
C5	84.25	89°23'50"	54.00	53.45

COURSE TABLE

LINE	BEARING	DISTANCE
L1	N 89°18'16" E	150.03
L2	N 89°18'16" E	200.00
L3	N 89°18'16" E	139.15
L4	S 0°41'44" E	15.00
L5	N 89°18'16" E	120.50
L6	S 0°32'12" E	148.99
L7	N 89°54'20" E	77.95
L8	N 89°54'05" E	50.00
L9	N 88°55'32" E	50.00
L10	N 0°14'55" E	50.00
L11	S 10°45'36" W	42.57
L12	S 77°38'41" W	42.57
L13	N 79°47'57" W	42.49
L14	N 12°24'33" W	42.49
L15	N 12°51'00" E	42.76

COURSE TABLE (con'T)

LINE	BEARING	DISTANCE
L16	N 77°59'40" E	42.76
L17	N 89°18'16" E	24.66
L18	N 77°35'29" E	12.49
L19	N 12°12'40" E	42.49
L20	N 00°46'11" W	42.23
L21	N 79°23'08" W	4.01
L22	N 1°32'25" E	7.50
L23	N 89°18'16" E	64.63
L24	N 89°18'16" E	110.71
L25	N02°10'33"E	10.01
L26	N 01°05'55" W	50.00
L27	S 0°31'47" E	28.71
L28	S 88°53'26" W	28.70
L29	S 88°53'26" W	100.00
L30	S 89°54'05" W	100.00
L31	N 01°32'25" E	88.21
L 32	N02°10'33"E	50.06

LEGEND

- BOUNDARY LINE
- STREET CENTERLINE
- CI CURVE NUMBER
- LI COURSE NUMBER
- ● SET 5/8" REBAR & 1 1/2" CAP PLS 9105 W/ TIES
- △ SET REBAR W/ALUM. CAP, PLS 9105
- ⊙ FND POINT AS INDICATED
- LOT 2 LOT NUMBER/TOTAL LOTS=2

ACT	DATE	BY	REVISION
1	12-92	T.F.	RE-ALIGN MARKS STREET AND ADD ADDITIONAL R/W EASEMENT

W.O. 4097 - 2
SHEET 2 OF 2

2092-1

BOOK 60 PAGE 67

LEGEND

TOP OF SPILLWAY ELEVATION (1733.0)

100 YEAR WATER SURFACE ELEVATION (1731.5)

PROPERTY LINE

NORTH

SCALE: 1"=80'

1736.00
1735.00
1734.00
1732.00
1729.00
1727.00
1726.00
1725.00
1724.00
1723.00
1722.00
1721.00
1720.00
1719.00
1718.00
1737.00
1738.00
1743.00
1745.00

REV	DATE	BY	REVISION

P.H. PROPERTY DEVELOPEMENT
CITY OF HENDERSON

vtn nevada

CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

TITLE: TOPO

PROJECT: HENDERSON COMMERCE CENTER
▲ COMMERCIAL SUBDIVISION

SEAL

WO NO. 4097
BY T.H.
DATE 03-19-94
SCALE HORIZ. 1"=80'
VERT.
SHEET 1 SHEETS

G:\CAD\SURVEY\4097\4097GRDNG.DWG

APPENDIX F

DATA CD

CLOMR Addendum #2

Gibson Channel

to

Pioneer Outfall Phase II

Case No.: 06-09-B898R
(Gibson Channel)
Clark County, Nevada

January 2007

vtn nevada

2727 S. Rainbow Boulevard, Las Vegas, Nevada 89146

CLOMR ADDENDUM #2

GIBSON CHANNEL TO PIONEER OUTFALL PHASE II

CASE NO.: 06-09-B898R

CLARK COUNTY, NEVADA

Prepared for:

CITY OF HENDERSON
240 Water Street
Henderson, Nevada 89009

Prepared by:

VTN Nevada
2727 S. Rainbow Boulevard
Las Vegas, Nevada 89146
(702) 247-4020

vtn nevada

January 2007

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

November 15, 2006

Mr. Jeremy Leavitt, P.E.
VTN Nevada
2727 South Rainbow Boulevard
Las Vegas, NV 89146

IN REPLY REFER TO:
Case No.: 06-09-B898R
Community: City of Henderson, NV
Community No.: 320005

316-AD

Dear Mr. Leavitt:

This is in regard to your submittal dated August 18, 2006, concerning an April 25, 2006, request that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a conditional revision to the Flood Insurance Rate Map (FIRM) for Clark County, Nevada and Incorporated Areas. Pertinent information about the request is listed below.

Identifier:	Gibson Channel
Flooding Source:	Unnamed Tributary to Las Vegas Wash
FIRM Panel(s) Affected:	32003C2585 E and 2595 E

The data required to complete our review, which must be submitted within 90 days of the date of this letter, are listed on the enclosed summary.

If we do not receive the required data within 90 days, we will suspend our processing of your request. Any data submitted after 90 days will be treated as an original submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type established by the current fee schedule. A copy of the notice summarizing the current fee schedule, which was published in the *Federal Register,* is enclosed for your information.

FEMA receives a very large volume of requests and cannot maintain inactive requests for an indefinite period of time. Therefore, we are unable to grant extensions for the submission of required data/fee for revision requests. If a requester is informed by letter that additional data are required to complete our review of a request, the data/fee **must** be submitted within 90 days of the date of the letter. Any fees already paid will be forfeited for any request for which the requested data are not received within 90 days.

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please call the Revisions Coordinator for your State, Mr. Sacha Tohme, CFM, who may be reached at (703) 960-8800, ext. 3028.

Sincerely,

Sheila M. Norlin, CFM
National LOMC Manager
Michael Baker Jr., Inc.

Enclosures

cc: Mr. Curt Chandler, P.E., CFM
Land Development Manager
Department of Public Works
City of Henderson

Mr. Joseph Damiani, P.E.
Project Manager
Department of Public Works
City of Henderson

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

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

Summary of Additional Data Required to Support a
Conditional Letter of Map Revision (CLOMR)

Case No.: 06-09-B898R

Requester: Mr. Jeremy Leavitt, P.E.

Community: City of Henderson, NV

Community No.: 320005

The issues listed below must be addressed before we can continue the review of your request.

1. Our review of the submitted report entitled "CLOMR Addendum #1, Gibson Channel to Pioneer Outfall Phase II," prepared by your firm, dated August 18, 2006, revealed an increase in the width of the Special Flood Hazard Area (SFHA), the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), along the unnamed tributary to Las Vegas Wash. Please submit documentation of the individual legal notice distributed by the City of Henderson to all property owners affected by the increase in SFHA width, or a signed letter from the City of Henderson stating that it has notified all affected property owners.

2. The base floodplain topwidths shown in the submitted proposed conditions HEC-RAS model from River Station 11100 (downstream) to River Station 11800 (upstream) along the unnamed tributary to Las Vegas Wash do not match the approximate topwidths shown on the submitted topographic work map entitled "Gibson Channel to Pioneer Outfall, Post-Project Conditions," prepared by your firm, dated August 18, 2006. Please revise the topographic work map to show proposed conditions floodplain boundary delineations along the unnamed tributary to Las Vegas Wash that reflect the results of the proposed conditions HEC-RAS model. Please also provide a digital copy of the work map, if available.

3. The submitted plans entitled "Henderson Commerce Center, Drainage Outfall Plans," prepared by your firm, dated December 15, 1993, were not certified by a registered professional engineer as representing as-built conditions. Please provide "as-built" plans for the existing detention basin and associated outlet works, or a statement certified by a registered professional engineer that the above-referenced plans represent as-built conditions.

4. Our review of the above-referenced submitted plans revealed that the outlets works associated with the existing detention basin comprise an existing 24-inch reinforced-concrete pipe storm drain. However, the existing storm drain was not delineated on the submitted topographic work map and no hydraulic analysis for the existing storm drain was provided in the submitted report. Please revise the topographic work map to include the location and alignment of the existing storm drain and provide a hydraulic analysis for the above-referenced storm drain along the unnamed tributary to Las Vegas Wash.

Please send the required data directly to us at the address shown at the bottom of this page. For identification purposes, please include the case number referenced above on all correspondence.

Federal Emergency Management Agency

Washington, D.C. 20472

FEE SCHEDULE FOR PROCESSING REQUESTS FOR MAP CHANGES

This notice contains the fee schedule for processing certain types of requests for changes to National Flood Insurance Program (NFIP) maps. The fee schedule allows FEMA to further reduce the expenses to the NFIP by more fully recovering the costs associated with processing conditional and final map change requests. The fee schedule for map changes is effective for all requests dated October 30, 2005, or later and supersedes the fee schedule that was established on September 1, 2002.

To develop the fee schedule for conditional and final map change requests, FEMA evaluated the actual costs of reviewing and processing requests for Conditional Letters of Map Amendment (CLOMAs), Conditional Letters of Map Revision – Based on Fill (CLOMR-Fs), Conditional Letters of Map Revision (CLOMRs), Letters of Map Revision – Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs), and Physical Map Revisions (PMRs).

Based on our review of actual cost data for Fiscal Years 2004 and 2005, FEMA has established the following review and processing fees, which are to be submitted with all requests that are not otherwise exempted under 44 CFR 72.5.

Fee Schedule for Requests for CLOMAs, CLOMR-Fs, and LOMR-Fs

Request for single-lot/single-structure CLOMA and CLOMR-F	$500
Request for single-lot/single structure LOMR-F	$425
Request for single-lot/single-structure LOMR-F based on as-built information (CLOMR-F previously issued by us)	$325
Request for multiple-lot/multiple-structure CLOMA	$700
Request for multiple-lot/multiple-structure CLOMR-F and LOMR-F	$800
Request for multiple-lot/multiple-structure LOMR-F based on as-built information (CLOMR-F previously issued)	$700

Fee Schedule for Requests for CLOMRs

Request based on new hydrology, bridge, culvert, channel, or combination of any of these	$4,000
Request based on levee, berm, or other structural measure	$5,000

Fee Schedule for Requests for LOMRs and PMRs

Requesters must submit the review and processing fees shown below with requests for LOMRs and PMRs that are not based on structural measures or alluvial fans.

Request based on bridge, culvert, channel, or combination thereof	$4,400
Request based on levee, berm, or other structural measure	$6,000
Request based on as-built information submitted as follow-up to CLOMR	$4,000

Fees for CLOMRs, LOMRs, and PMRs Based on Structural Measures on Alluvial Fans

FEMA has revised the initial fee for requests for CLOMRs and LOMRs based on structural measures on alluvial fans to $5,600. FEMA will also continue to recover the remainder of the review and processing costs by invoicing the requester before issuing a determination letter, consistent with current practice. The prevailing private-sector labor rate charged to FEMA ($60 per hour) will be used to calculate the total reimbursable fees.

Payment Submission Requirements

Requesters must make fee payments for non-exempt requests before we render services. This payment must be in the form of a check or money order or by credit card payment. Please make all checks and money orders in U.S. funds payable to the *National Flood Insurance Program.* We will deposit all fees collected to the National Flood Insurance Fund, which is the source of funding for providing this service.

CONSULTING ENGINEERS • PLANNERS • SURVEYORS
nevada
PROVIDING QUALITY PROFESSIONAL
SERVICES SINCE 1960

January 31, 2007
File: 6511-CLOMR

Sheila M. Norlin, CFM; National LOMC Manager
Federal Emergency Management Agency
Michael Baker Jr., Inc.
3601 Eisenhower Avenue
Alexandria, VA 22304-6425

Reference: **Case No.:** 06-09-B898R (Gibson Channel to Pioneer Outfall Phase II)
Community: City of Henderson, NV
Community No.: 320005

Dear Ms. Norlin:

The enclosed Addendum #2 is being provided in response to the comment letter dated November 15, 2006 for the Gibson Channel to Pioneer Outfall Phase II CLOMR; Case No.: 06-09-B898R. The comments that you provided for the specified project are addressed within the following response summary.

RESPONSE TO COMMENTS

Comment 1: All areas & property within the increased width of the Special Flood Hazard Areas (SFHA), which would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given flood year (base flood) along the unnamed tributary to Las Vegas Wash has been notified. A signed letter by the City of Henderson has been provided by your request notifying those in the affected area namely Eastgate Owners Association. This letter is found in Appendix E.

Comment 2: The Topographic work map "Post Project Conditions (Post-Project Work Map)" has been revised to show the approximate top widths calculated in the HEC-RAS model for the "Gibson Channel to Pioneer Outfall, Post-Project Conditions" from HEC-RAS River Station 11100 (downstream) to River Station 11800 (upstream)

2727 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146-5148
TEL. (702) 873-7550 FAX: 362-2597

along the unnamed tributary to Las Vegas Wash. A digital copy of the HEC-RAS Post-Project Existing Conditions is included in Appendix F along with the updated work maps under Addendum #2 Data CD (HEC-1, WSPG, & Work Maps)

Comment 3: Submitted plans "Henderson Commerce Center, Drainage Outfall Plans"; prepared by VTN Nevada, have been certified by a registered professional engineer by the City of Henderson. A letter by the City of Henderson is provided stating "As-Built" Conditions for the existing detention basin and associated outlet works, this letter is found in Appendix E.

Comment 4: Hydraulic analysis for the existing 24-inch reinforced concrete pipe for the "Henderson Commerce Center, Drainage Outfall Pipe" has been provided. The existing 24-inch pipe has also been added to the submitted topographic work map "Post Project Conditions (Post-Project Work Map)" Figure 3.3 in Appendix B.

If you have any questions or require additional information, do not hesitate to contact me.

Sincerely,

Jeremy Leavitt, P.E.
VTN Nevada
2727 South Rainbow Boulevard
Las Vegas, NV 89146
jeremyl@vtnnv.com
(702) 253-2359

APPENDIX B

FIGURES

GIBSON CLOMR (Addendum #2)
POST PROJECT CONDITIONS
POST PROJECT WORK MAP
-FIGURE 3.3

Gibson Channel : Pre-Project Conditions
Stationing Quick Reference for use w/ HEC-RAS Post-Project Conditions

Note: HEC-RAS Sta. = Cross Section Sta
See Gibson CLOMR Post-Project Conditions (Post Project Work Map) Figure 3.3 Appendix B

NEW HEC-RAS River Sta.	Cross Section Sta	DESCRIPTION OF FACILITY	Channel
18653.05	2+957	Gibson Channel per VTN Plans 10+00	North Channel
18603.05	3+007	Gibson Channel per VTN Plans 10+50	North Channel
18354.06	3+256	Gibson Channel per VTN Plans 12+98.99	North Channel
18314.47	3+296	Gibson Channel per VTN Plans 13+38.58	North Channel
17036.02	4+574	Gibson Channel per VTN Plans 26+17.03	North Channel
16991.39	4+624	Gibson Channel per VTN Plans 26+67.03	North Channel
16271.91	5+338	Gibson Channel per VTN Plans 33+81.14	North Channel
16221.83	5+388	Gibson Channel per VTN Plans 34+31.22	North Channel
15874.83	5+735	Gibson Channel per VTN Plans 37+78.22	North Channel
15824.82	5+785	Gibson Channel per VTN Plans 38+28.23	North Channel
15635.6	5+974	Gibson Channel per VTN Plans 40+17.45	North Channel
15080.09	6+530	Gibson Channel per VTN Plans 45+72.94	North Channel
15015.09	6+595	Gibson Channel per VTN Plans 46+37.97	North Channel
14592.55	7+017	Gibson Channel per VTN Plans 50+60	North Channel
14542.55	7+068	Gibson Channel per VTN Plans 51+10.50	North Channel
14252.5	7+358	Gibson Channel per VTN Plans 54+00.55	North Channel
14092.97	7+517	Gibson Channel per VTN Plans 55+60.08 - End Gibson CH	North Channel
13987.91	7+622	Desert Canyon per STANTEC Plans RS 3987.91	North Channel
13887.91	7+722	Desert Canyon per STANTEC Plans RS 3887.91	North Channel
13787.91	7+822	Desert Canyon per STANTEC Plans RS 3787.91	North Channel
13687.91	7+922	Desert Canyon per STANTEC Plans RS 3687.91	North Channel
13602.91	8+007	Desert Canyon per STANTEC Plans RS 3602.91, begin transition	North Channel
13582.54	8+027	Desert Canyon per STANTEC Plans -	North Channel
13562.17	8+048	Desert Canyon per STANTEC Plans RS 3562.17, end transition	North Channel
13562.16	8+048	Desert Canyon per STANTEC Plans RS 3562.16, RCB inlet	North Channel
13557.18	8+053	Desert Canyon per STANTEC Plans Dual Culvert Deck (for hydraulic analyisis only)	North Channel
13552.2	8+058	Desert Canyon per STANTEC Plans RS 3552.2, begin existing south cell box	North Channel
13478.79	8+131	Desert Canyon per STANTEC Plans RS 3478.79, end existing south cell box	North Channel
13476.6	8+133	Desert Canyon per STANTEC Plans RS 3474.46, RCB PT	North Channel
13425.61	8+184	Desert Canyon per STANTEC Plans RS 3425.61, RCB PC	North Channel
13410.61	8+199	Desert Canyon per STANTEC Plans RS 3410.61, RCB PT	North Channel
13353.48	8+256	Desert Canyon per STANTEC Plans RS 3353.48, RCB PC	North Channel
13343.61	8+266	Desert Canyon per STANTEC Plans RS 3343.61, Dual 12'x6' RCB outlet	North Channel
13343.6	8+266	Desert Canyon per STANTEC Plans RS 3343.6, upstream limit of openspace channel	North Channel
13333.3	8+277	Desert Canyon per STANTEC Plans -	North Channel
13323	8+287	Desert Canyon per STANTEC Plans RS 3323, begin 50' channel	North Channel
13307.38	8+303	Desert Canyon per STANTEC Plans -	North Channel
13291.77	8+318	Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance road channel tie in	North Channel
13267.98	8+342	Desert Canyon per STANTEC Plans RS 3291.77, north edge maintenance road channel tie in	North Channel
13244.2	8+366	Desert Canyon per STANTEC Plans RS 3244.2	North Channel
13234.75	8+375	Desert Canyon per STANTEC Plans RS 3234.75, end transition	North Channel
13234.74	8+375	Desert Canyon per STANTEC Plans RS 3234.74, end transition	North Channel
13229.38	8+381	Desert Canyon per STANTEC Plans RS 3229.38, Upstream of south ramp entrance	North Channel
13229.37	8+381	Desert Canyon per STANTEC Plans RS 3229.37, South ramp entrance	North Channel
13221.37	8+389	Desert Canyon per STANTEC Plans RS 3221.37, begin south ramp transition	North Channel
13167.84	8+442	Desert Canyon per STANTEC Plans -	North Channel
13114.31	8+496	Desert Canyon per STANTEC Plans RS 3114.31, begin south wall of south ramp	North Channel
13114.3	8+496	Desert Canyon per STANTEC Plans RS 3114.3, begin south wall of south ramp	North Channel
13060.1	8+550	Desert Canyon per STANTEC Plans RS 3060.10	North Channel
13044.11	8+566	Desert Canyon per STANTEC Plans RS 3044.11, upstream north ramp entrance	North Channel
13044.1	8+566	Desert Canyon per STANTEC Plans RS 3033.34, North ramp grade break	North Channel
13018.22	8+592	Desert Canyon per STANTEC Plans RS 3018.22, south ramp tie in	North Channel
13018.21	8+592	Desert Canyon per STANTEC Plans RS 3018.21, south ramp tie in	North Channel
13010.22	8+600	Desert Canyon per STANTEC Plans RS 3010.22, south ramp tie in	North Channel
13010.21	8+600	Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in	North Channel
12954.02	8+656	Desert Canyon per STANTEC Plans RS 3010.21, south ramp tie in	North Channel
12943.65	8+666	Desert Canyon per STANTEC Plans RS 2943.65, begin north wall north ramp	North Channel
12906.81	8+703	Desert Canyon per STANTEC Plans -	North Channel
12869.97	8+740	Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall	North Channel
12869.96	8+740	Desert Canyon per STANTEC Plans RS 2869.97, end south ramp wall	North Channel
12829.26	8+781	Desert Canyon per STANTEC Plans -	North Channel
12788.55	8+821	Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in	North Channel
12788.54	8+821	Desert Canyon per STANTEC Plans RS 2788.55, north ramp tie in	North Channel
12780.55	8+829	Desert Canyon per STANTEC Plans RS 2780.55, north ramp tie in	North Channel
12780.54	8+829	Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in	North Channel
12724.23	8+886	Desert Canyon per STANTEC Plans RS 2780.54, north ramp tie in	North Channel
12667.92	8+942	Desert Canyon per STANTEC Plans RS 2667.92, end north ramp wall	North Channel
12667.91	8+942	Desert Canyon per STANTEC Plans RS 2667.91, end north ramp wall	North Channel
12598.93	9+011	Desert Canyon per STANTEC Plans -	North Channel
12529.94	9+080	Desert Canyon per STANTEC Plans RS 2529.94, Begin Transition	North Channel
12499.95	9+110	Desert Canyon per STANTEC Plans RS 2499.93, end transition, begin 30' turn around pad	North Channel
12499.94	9+110	Desert Canyon per STANTEC Plans RS 2499.94, end transition, begin 30' turn around pad	North Channel
12469.94	9+140	Desert Canyon per STANTEC Plans RS 2469.94, top of nuissance drain headwall, end turn around pad	North Channel
12469.93	9+140	Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance channel, begin nuissance	North Channel
12435.49	9+174	Desert Canyon per STANTEC Plans RS 2469.93, begin nuissance channel, begin nuissance	North Channel
12401.05	9+209	Desert Canyon per STANTEC Plans RS 2401.05, nuissance channel GB, end nuissance channel transi	North Channel
12400	9+210	Desert Canyon per STANTEC Plans RS 2400	North Channel
12350	9+260	Desert Canyon per STANTEC Plans RS 2350	North Channel
12320	9+290	Desert Canyon per STANTEC Plans RS 2320	North Channel
12312.18	9+298	Desert Canyon per STANTEC Plans RS 2312.18, upstream Eastgate Bridge face	North Channel
12312.17	9+298	Desert Canyon per STANTEC Plans RS 2312.17, begin abutments	North Channel
12278.95	9+331	Desert Canyon per STANTEC Plans RS 2278.95	North Channel
12253.91	9+356	Desert Canyon per STANTEC Plans RS 2253.91, south abutment bend	North Channel

12217.72	9+392	Desert Canyon per STANTEC Plans RS 2217.72, downstream Eastgate Bridge	North Channel
12203.57	9+406	Desert Canyon per STANTEC Plans RS 2203.57, begin half trapezoidal channel	North Channel
12162.19	9+448	Desert Canyon per STANTEC Plans RS 2162.19, end transition & bend	North Channel
12150	9+460	Desert Canyon per STANTEC Plans RS 2150, end 3:1 left side slope	North Channel
12125	9+485	Desert Canyon per STANTEC Plans RS 2125, begin 2:1 left side slope	North Channel
12097.31	9+513	Desert Canyon per STANTEC Plans RS 2097.31, upstream face Easter Lily	North Channel
12097.3	9+513	Desert Canyon per STANTEC Plans RS 2097.30, begin abutment	North Channel
12033.7	9+576	Desert Canyon per STANTEC Plans RS 2033.7, end abutment	North Channel
12033.69	9+576	Desert Canyon per STANTEC Plans RS 2033.69, end Easter Lily bridge	North Channel
12000	9+610	Desert Canyon per STANTEC Plans RS 2000	North Channel
11924.18	9+686	Desert Canyon per STANTEC Plans RS 1924.18, Pioneer Outfall 12'x8' RCB Outlet (South Channel)	North Channel
11911.68	9+698	Desert Canyon per STANTEC Plans -	North Channel
11899.18	9+711	Desert Canyon per STANTEC Plans -	North Channel
11886.68	9+723	Desert Canyon per STANTEC Plans -	North Channel
11874.18	9+736	Desert Canyon per STANTEC Plans RS 1874.18, end south channel nuissance channel transition	North Channel
11851.12	9+759	Desert Canyon per STANTEC Plans -	North Channel
11828.06	9+782	Desert Canyon per STANTEC Plans	North Channel
11826.06	9+784	Desert Canyon per STANTEC Plans -	North Channel
11805	9+805	Desert Canyon per STANTEC Plans RS 1805, reach end	North Channel
11800	9+810	Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin	Combined Channel
11799.99	9+810	Desert Canyon per STANTEC Plans RS 1800, north and south channel confluence, begin	Combined Channel
11790	9+820	Desert Canyon per STANTEC Plans RS 1790	Combined Channel
11769.13	9+841	Desert Canyon per STANTEC Plans RS 1769.13	Combined Channel
11751.44	9+859	Desert Canyon per STANTEC Plans RS 1751.44	Combined Channel
11739.7	9+870	Desert Canyon per STANTEC Plans RS 1739.7, begin nuissance channel merge	Combined Channel
11732.13	9+878	Desert Canyon per STANTEC Plans RS 1732.13	Combined Channel
11720	9+890	Desert Canyon per STANTEC Plans RS 1720, end transition	Combined Channel
11712.87	9+897	Desert Canyon per STANTEC Plans RS 1712.87, end nuissance channel merge	Combined Channel
11689.21	9+921	Desert Canyon per STANTEC Plans RS 1689.21	Combined Channel
11675	9+935	Desert Canyon per STANTEC Plans RS 1675	Combined Channel
11634.34	9+976	Desert Canyon per STANTEC Plans 1634.34, begin left channel wall transition	Combined Channel
11624.05	9+986	Desert Canyon per STANTEC Plans RS 1624.05, end left side slope	Combined Channel
11618.85	9+991	Desert Canyon per STANTEC Plans RS 1618.85, end left channel wall transition	Combined Channel
11596.34	10+014	Desert Canyon per STANTEC Plans RS 1596.34, begin left side slope transition	Combined Channel
11527.17	10+083	Desert Canyon per STANTEC Plans RS 1527.17, end left slope transition, end left retaining wall	Combined Channel
11500	10+110	Desert Canyon per STANTEC Plans RS 1500	Combined Channel
11450	10+160	Desert Canyon per STANTEC Plans RS 1450	Combined Channel
11400	10+210	Desert Canyon per STANTEC Plans RS 1400	Combined Channel
11377.99	10+232	Desert Canyon per STANTEC Plans RS 1377.99, begin compound curve	Combined Channel
11350	10+260	Desert Canyon per STANTEC Plans RS 1350	Combined Channel
11300	10+310	Desert Canyon per STANTEC Plans RS 1300	Combined Channel
11278.76	10+331	Desert Canyon per STANTEC Plans RS 1278.76, compound curve midpoint	Combined Channel
11250	10+360	Desert Canyon per STANTEC Plans RS 1250	Combined Channel
11200	10+410	Desert Canyon per STANTEC Plans RS 1200	Combined Channel
11175.26	10+435	Desert Canyon per STANTEC Plans RS 1175.26	Combined Channel
11154.55	10+455	Desert Canyon per STANTEC Plans RS 1154.55, end compound curve	Combined Channel
11125	10+485	Desert Canyon per STANTEC Plans RS 1125, begin right channel wall	Combined Channel
11116.35	10+494	Desert Canyon per STANTEC Plans RS 1116.35, begin channel transition	Combined Channel
11100	10+510	Desert Canyon per STANTEC Plans RS 1100,	Combined Channel
11050	10+560	Desert Canyon per STANTEC Plans RS 1050	Combined Channel
11033.37	10+577	Desert Canyon per STANTEC Plans RS 1033.37, begin left channel wall	Combined Channel
11007.4	10+603	Desert Canyon per STANTEC Plans RS 1007.4, begin nuissance channel transition	Combined Channel
10973.86	10+636	Desert Canyon per STANTEC Plans RS 973.86, begin rectangular channel	Combined Channel
10950.26	10+660	Desert Canyon per STANTEC Plans RS 950.26, end nuissance channel	Combined Channel
10909.89	10+700	Desert Canyon per STANTEC Plans RS 909.89, begin channel bottom cross fall transition	Combined Channel
10834.9	10+775	Desert Canyon per STANTEC Plans RS 834.9, end channel transition, begin VTN Pioneer Phase II 64+1	Combined Channel
10834.89	10+775	Pioneer Phase II Channel per VTN Plans 64+15.01	Combined Channel
10599.9	11+010	Pioneer Phase II Channel per VTN Plans 66+50.00	Combined Channel
10599.89	11+010	Pioneer Phase II Channel per VTN Plans 66+50.01	Combined Channel
10529.91	11+080	Pioneer Phase II Channel per VTN Plans 67+20.00	Combined Channel
10429.91	11+180	Pioneer Phase II Channel per VTN Plans 68+20.01	Combined Channel
10429.9	11+180	Pioneer Phase II Channel per VTN Plans 68+20.01	Combined Channel
10289.92	11+320	Pioneer Phase II Channel per VTN Plans 69+60.00	Combined Channel
10289.91	11+320	Pioneer Phase II Channel per VTN Plans 69+60.01	Combined Channel
10209.93	11+400	Pioneer Phase II Channel per VTN Plans 70+40.00	Combined Channel
10124.93	11+485	Pioneer Phase II Channel per VTN Plans 71+25.00	Combined Channel
10124.92	11+485	Pioneer Phase II Channel per VTN Plans 71+25.01	Combined Channel
9999.93	11+610	Pioneer Phase II Channel per VTN Plans 72+50.00	Combined Channel
9999.92	11+610	Pioneer Phase II Channel per VTN Plans 72+50.01	Combined Channel
9905.49	11+704	Pioneer Phase II Channel per VTN Plans 73+44.45	Combined Channel
9645.49	11+764	Pioneer Phase II Channel per VTN Plans 74+04.45	Combined Channel
9245.49	12+364	Pioneer Phase II Channel per VTN Plans 80+04.45 - End 600' DS	Combined Channel
12150	-	Pioneer Phase I Channel per VTN Plans RS 2150, south channel approach (Pioneer Outfall 12'x8' RCB)	South Channel
12100	-	Pioneer Phase I Channel per VTN Plans RS 2100	South Channel
12050	-	Pioneer Phase I Channel per VTN Plans RS 2050	South Channel
12000	-	Pioneer Phase I Channel per VTN Plans RS 2000	South Channel
11950	-	Desert Canyon per STANTEC Plans RS 1950	South Channel
11924.19	-	Desert Canyon per STANTEC Plans RS 1924.19, Pioneer Outfall 12'x8' RCB outlet	South Channel
11911.68	-	Desert Canyon per STANTEC Plans	South Channel
11899.18	-	Desert Canyon per STANTEC Plans RS 1899.18	South Channel
11886.68	-	Desert Canyon per STANTEC Plans	South Channel
11874.18	-	Desert Canyon per STANTEC Plans RS 1874.18, end nuissance channel transition	South Channel
11851.12	-	Desert Canyon per STANTEC Plans	South Channel
11828.06	-	Desert Canyon per STANTEC Plans	South Channel
11805	-	Desert Canyon per STANTEC Plans	South Channel

Note: South Channel section does not have post project stations, since south channel connection runs along combined channel

LEGEND

- IMPROVED CHANNEL AREA
- EXISTING CHANNEL AREA
- EXISTING FEMA FLOOD ZONE TO BE REMOVED
- EFFECTIVE 100-YEAR FLOOD PLAN
- 100-YEAR FLOW POST DEVELOPMENT

SCALE 1" = 200'

POND ELEVATION = 1732.4'

WARM SPRINGS RD

SUNSET RD

US HWY 95

SWEETSPICE ST

KELSO DUNES AV

N GIBSON RD

GIBSON CHANNEL IMPROVEMENTS

24" STORM DRAIN
(HENDERSON COMMERCE CENTER)

705 cfs

823 cfs

2+957

3+296

5+338

5+785

5+975

6+595

7+068

7+358

7+517

7+622

7+800

8+007

EXISTING
(2) 9' x 6' RCB

PROPOSED
18.70' x 4.50'
RECT CHANNEL

EXISTING (2) 9' x 6' RCB

EXISTING
(3) 9' x 5' RCB

PROPOSED
20.80' x 4.50'
RECT CHANNEL

PROPOSED
TRANSITIONAL
RECT CHANNEL

GIBSON CHANNEL IMPROVEMENTS

EXISTING 11.5' x 8'
RECT CHANNEL

CAPE HORN DR

MATCHLINE

GIBSON CHANNEL TO PIONEER OUTFALL
(POST-PROJECT CONDITIONS (POST PROJECT WORK MAP)

FIGURE 3.3

PROFESSIONAL ENGINEER - STATE OF NEVADA
JEREMY P. LEAVITT
Exp: 12-31-07
CIVIL
No. 15536
12-31-07

N GIBSON RD

BOULDER HWY

PIONEER - PHASE II

EXISTING TRAPEZOIDIAL CHANNEL

11+764
11+485
11+485
11+320
11+180

12+364

CHANNEL

EXISTING ZOIDIAL

STUFFLEBEAM AVE

0+775
0+510
10+331
10+310
10+110
9+976
9+810
9+805
9+736
9+686
9+600
9+290

2549 cfs

1850 cfs

8+131
8+266
8+375
8+550
8+670
9+110
9+140

CORNUCOPIA AVE

OPEN SPACE CHANNEL
(SEE PLANS APPENDIX E)

SPRING VALLEY DR

MATCHLINE

DESERT CANYON
(SIZES OF CHANNEL VARIES

EXISTING
PIONEER OUTFALL
PHASE I
12' x 8' RCB

ELLIOTT RD

EASTGATE RD

SUNSET RD

PARKSON RD

1630 1645 1650 1655 1660 1665 1670 1675 1680 1685 1690 1695

SCALE 1" = 150'

LEGEND

- IMPROVED CHANNEL AREA
- EXISTING CHANNEL AREA
- EXISTING FEMA FLOOD ZONE TO BE REMOVED
- EFFECTIVE 100-YEAR FLOOD PLAN
- 100-YEAR FLOW POST DEVELOPMENT

GIBSON CHANNEL TO PIONEER OUTFALL
POST-PROJECT CONDITIONS
(POST PROJECT WORK MAP)

FIGURE 3.3

PROFESSIONAL ENGINEER STATE OF NEVADA
JEREMY P. LEAVITT
Exp: 12-31-07
CIVIL
No. 15536

12-31-07

APPENDIX E

REFERENCE MATERIAL

GIBSON CLOMR (Addendum #2)
Letters to FEMA

CITY OF HENDERSON
240 Water Street
P. O. Box 95050
Henderson, NV 89009

January 29, 2007

Federal Emergency Management Agency
3601 Eisenhower Avenue
Alexandria, VA 22304-6425

Attention: Sheila M. Norlin, CFM
National LOMC Manager
Michael Baker Jr. Inc.

Reference: Affected Special Flood Hazard Area (SFHA) Property Notification
Case No.: 06-09-B898R (Gibson Channel to Pioneer Outfall Phase II)
Community: City of Henderson, NV
Community No.: 320005

Dear Ms Norlin,

The City of Henderson was notified by VTN Nevada on January 25, 2007 that there has been a revision to the current flood zone due to the Gibson Channel to Pioneer Outfall Phase II CLOMR Report Case No.: 06-09-B898R. The revised flood zone affects parcel number 17803810010 owned by Eastgate Owners Association. The affected parcel is presently designated as a drainage easement with the underlying owner being Eastgate Owners Association. The City of Henderson & Eastgate Owners Association understands that the flood zone has been revised in parcel number 17803810010 and accepts the changes that are shown on Gibson Channel to Pioneer Outfall Phase II CLOMR done by VTN Nevada.

Sincerely,

Joseph V. Damiani

Joe Damiani, P.E.
Project Engineer III
City of Henderson
Phone: 267-3061
Fax: 267-3051
email: joe.damiani@cityofhenderson.com

PROFESSIONAL ENGINEER STATE OF NEVADA
JOSEPH V. DAMIANI
Exp 12-31-2008
CIVIL
No 11886
1-29-2007

CITY OF HENDERSON
240 Water Street
P. O. Box 95050
Henderson, NV 89009

January 29, 2007

Federal Emergency Management Agency
3601 Eisenhower Avenue
Alexandria, VA 22304-6425

Attention: Sheila M. Norlin, CFM
National LOMC Manager
Michael Baker Jr. Inc.

Reference: Completion of the Henderson Commerce Center, Drainage Outfall Plans for the City of Henderson 12-15-93
Case No.: 06-09-B898R (Gibson Channel to Pioneer Outfall Phase II)
Community: City of Henderson, NV
Community No.: 320005

Dear Ms Norlin,

City of Henderson has reviewed the "As-Built" drawings for the subject project. Based on the review of the "As-Built" drawings and field observations, the Henderson Commerce Center Drainage Outfall Project has substantially been completed construction of all roadway and storm drain improvements indicated on the drainage outfall plans and technical documents.

If you have any questions regarding substantial completion of the project, please contact me at (702) 267-3061.

Sincerely,

Joseph V. Damiani

Joe Damiani, P.E.
Project Engineer III
City of Henderson
Phone: 267-3061
Fax: 267-3051
email: joe.damiani@cityofhenderson.com

PROFESSIONAL ENGINEER STATE OF NEVADA
JOSEPH V. DAMIANI
EXP 12-31-2008
CIVIL
No 11888
1-29-2007

GIBSON CLOMR (Addendum #2)
Henderson Commerce Center
Drainage Outfall
24" RCP Analysis

Gibson Channel

HYDRAULICS SUMMARY

Henderson Commerce Center - 24" RCP Outfall Plans

(n=0.015)

Values in English Units:

CHANNEL STATION	WSPG STATION	REMARKS	DESIGN FLOW Q	DEPTH OF FLOW y	DEPTH W/AIR[1] y*	INVERT ELEV	VELOCITY V	H.G.L.	E.G.L.	CHANNEL TYPE
10+00.00	50+00.00	START 24" RCP	68	1.994	2.133	1714.24	21.65	1716.23	1723.51	RCP
10+00.00	50+00.00	at HCC Detention Basin	68	1.994	2.133	1714.24	21.65	1716.23	1723.51	RCP
	204.00					0.50				
12+04.00	47+96.00	R-MH	68	2.000	2.139	1713.22	21.65	1715.22	1722.50	RCP
12+04.00	47+96.00	w/165 deg angle	68	2.000	2.139	1713.22	21.65	1715.22	1722.50	RCP
	463.00					0.55				
16+67.00	43+33.00	R - 24" RCP	68	57.487	57.487	1710.69	21.65	1768.18	1775.46	RCP
16+67.00	43+33.00	comb 102'+319'+42'	68	57.487	57.487	1710.69	21.65	1768.18	1775.46	RCP
	167.00					0.47				
18+34.00	41+66.00	R - 24" RCP	68	74.899	74.899	1709.90	21.65	1784.80	1792.08	RCP
18+34.00	41+66.00	167'	68	74.899	74.899	1709.90	21.65	1784.80	1792.08	RCP
		End @ Gibson RD								

Note:

(1) Depth with air entrainment, $y^*/y = 0.906(e)^{0.0415}$ (Fr >= 1.60; $y^* = y$, Fr < 1.60). See *WASURO User's Manual (Draft), US Army Corps of Engineers Los Angeles District, July 1985.*

(2) To be calculated in the future.

HCC-OUT1.WSW

```
T1 Gibson CLOMR - Existing Facility Analysis                                    0
T2 Henderson Commerce Center - 24" RCP Outfall Plans Q=68cfs
T3 WSPG file: HCC-OUT.WSW, by: VTN
SO    4166.00 1709.090  1
R     4333.00 1710.920  1      .013                                            .000 1
R     4796.00 1713.220  1      .013                                  165.000   .000 1
R     5000.00 1714.240  1      .013
SH    5000.00 1714.240  1                              1716.000
CD    1  4               2.000    0.000
Q             68.000    .0
```

FILE: hcc-out1.WSW W S P G W - EDIT LISTING - Version 14.05 Date: 1-30-2007 Time: 3:47:54

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	0		2.000														

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS - Gibson CLOMR - Existing Facility Analysis

HEADING LINE NO 2 IS - Henderson Commerce Center - 24" RCP Outfall Plans Q=68cfs

HEADING LINE NO 3 IS - WSPG file: HCC-OUT.WSW, by: VTN

W S P G W PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET		*	*	*				W S ELEV			
U/S DATA	STATION	INVERT	SECT					.000			
	4166.000	1709.090	1								
ELEMENT NO 2 IS A REACH		*	*	*							
U/S DATA	STATION	INVERT	SECT	N				RADIUS	ANGLE	ANG PT	MAN H
	4333.000	1710.920	1	.013				.000	.000	.000	1
ELEMENT NO 3 IS A REACH		*	*	*							
U/S DATA	STATION	INVERT	SECT	N				RADIUS	ANGLE	ANG PT	MAN H
	4796.000	1713.220	1	.013				160.775	165.000	.000	1
ELEMENT NO 4 IS A REACH		*	*	*							
U/S DATA	STATION	INVERT	SECT	N				RADIUS	ANGLE	ANG PT	MAN H
	5000.000	1714.240	1	.013				.000	.000	.000	0
ELEMENT NO 5 IS A SYSTEM HEADWORKS				*				W S ELEV			
U/S DATA	STATION	INVERT	SECT					1716.000			
	5000.000	1714.240	1								

Gibson CLOMR - Existing Facility Analysis
Henderson Commerce Center - 24" RCP Outfall Plans Q=68cfs
WSPG file: HCC-OUT.WSW; by: VTN

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
4166.000	1709.090	1.994	1711.084	68.00	21.65	7.28	1718.36	.00	1.99	.22	2.000	.000	.00	0 .0
.026	.0110					.0856	.00	1.99	1.00	2.00	.013	.00	.00	PIPE
4166.026	1709.090	2.000	1711.090	68.00	21.65	7.27	1718.37	.00	1.99	.00	2.000	.000	.00	0 .0
166.974	.0110					.0877	14.64	2.00	.00	2.00	.013	.00	.00	PIPE
4333.000	1710.920	15.620	1726.540	68.00	21.65	7.27	1733.82	.00	1.99	.00	2.000	.000	.00	0 .0
463.000	.0050					.0904	41.83	.00	.00	2.00	.013	.00	.00	PIPE
4796.000	1713.220	57.487	1770.707	68.00	21.65	7.27	1777.98	.00	1.99	.00	2.000	.000	.00	0 .0
204.000	.0050					.0904	18.43	57.49	.00	2.00	.013	.00	.00	PIPE
5000.000	1714.240	74.899	1789.139	68.00	21.65	7.27	1796.41	.00	1.99	.00	2.000	.000	.00	0 .0

"Gibson CLOMR: Henderson Commerce Center"

24" RCP Outlet Pipe

ORIFICE EQUATION

STAGE-STORAGE CALCULATIONS

VOLUME AND DISCHARGE TABLES
30% BASIN DESIGN

ORIFICE DIAM. =	2	ft.
ORIFICE AREA =	3.14	sq. ft.
NUMBER OF PIPES	1	
ORIFICE COEF. =	0.65	
ORIFICE INVERT =	1714.24	ft.

ORIFICE EQUATION:

$$Q = C_O A\left[2g\left(d_o - \frac{d}{2}\right)\right]^{0.5}$$

Where:
Q = Discharge (cfs)
C_o= Discharge coefficient
A= area of orifice (ft^2)
d_o= depth of ponding above invert (ft.)
d= diameter of orifice (ft.)

ELEVATION	DISCHARGE
FT.	CFS
1714.24	0.00
1720	27.81
1725	38.01
1730	62.96
1732.5	68.08

* $$Q = C_O A\left[2g\left(\frac{d_o}{2}\right)\right]^{0.5}$$

GIBSON CLOMR (Addendum #2)
Henderson Commerce Center
Drainage Outfall Plans

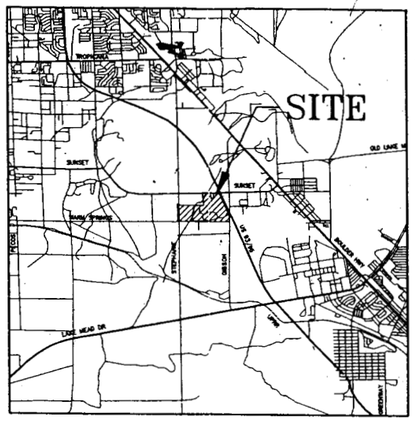
IMPROVEMENT PLANS

FOR

HENDERSON COMMERCE CENTER

DRAINAGE OUTFALL PLANS

CITY OF HENDERSON
STATE OF NEVADA



VICINITY MAP

ESTIMATE OF QUANTITIES

4" A.C.	S.Y.
5" A.C.	S.Y.
CURB & GUTTER	L.F.
TYPE I AND/OR TYPE II BASE.	C.Y.
SIDEWALK	S.F.
CONC. VALLEY GUTTER	S.F.
8" SEWER	L.F.
12" SEWER	L.F.
MANHOLES	EA.
STREETLIGHT & S.P.	EA.
12" WATER	L.F.
WATER SERVICES	EA.
FIRE HYDRANTS	EA.
UTILITY TRENCH	L.F.
STREET SIGNS	EA.
18" STORM DRAIN	L.F.
24" STORM DRAIN	L.F.
36" STORM DRAIN	L.F.
42" STORM DRAIN	L.F.
5' TYPE 'A' DROP INLET	EA.
8' TYPE 'A' DROP INLET	EA.
14' TYPE 'C' DROP INLET	EA.
12' TYPE 'C' DROP INLET	EA.
16' TYPE 'C' DROP INLET	EA.
9' X 4' DOUBLE RCB SIPHON	L.F.
4' X 4' DOUBLE RCB SIPHON	L.F.
4' X 8' DOUBLE RCB SIPHON	L.F.
EXCAVATION & EMBANKMENTS	C.Y.

APPROVAL

MARK T CALHOUN, P.E.
DIRECTOR OF PUBLIC WORKS — 12-29-93 DATE

CURT CHANDLER
FLOOD CONTROL — 12-29-93 DATE

SOUTHWEST GAS COMPANY — 12.15.93 DATE

CENTEL — 12.15.93 DATE

NEVADA POWER COMPANY — 12-15-93 DATE

THIS APPROVAL IS ONLY FOR THE PLACEMENT & CLEARANCE OF STREETLIGHT & TRAFFIC SIGNAL INSTALLATION.

SHEET INDEX

1. COVER SHEET
2. DRAINAGE OUTFALL PLAN
3. INLET / OUTLET SECTIONS & DETAILS

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, 1986, AND THE UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, OFFSITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, 1988.
2. APPLICATION FOR INSPECTION BY THE CITY OF HENDERSON PUBLIC WORKS SHALL BE MADE BY THE CONTRACTOR AT LEAST 24 HOURS BEFORE THE INSPECTION SERVICES WILL BE REQUIRED, 565-2136 OR 565-2140.
3. WORK IN THE PUBLIC STREETS, ONCE BEGUN, SHALL BE PROSECUTED TO COMPLETION WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
4. THE CONTRACTOR SHALL TAKE ALL NECESSARY AND PROPER PRECAUTIONS TO PROTECT ADJACENT PROPERTIES FROM ANY AND ALL DAMAGE THAT MAY OCCUR FROM STORM WATER RUN-OFF AND/OR DEPOSITION OF DEBRIS RESULTING FROM ANY AND ALL WORK IN CONNECTION WITH SUBDIVISION CONSTRUCTION.
5. PRIOR TO FINAL ACCEPTANCE, BOND RELEASES, AND A CERTIFICATE OF OCCUPANCY, A CERTIFIED LEGIBLE AS-BUILT DRAWING MUST BE SUBMITTED TO THE CITY OF HENDERSON. AS-BUILT MUST SHOW ALL CHANGES AND ACTUAL FIELD LOCATIONS. IN THE ABSENCE OF CHANGES, A COPY OF APPROVED DRAWINGS WILL BE REQUIRED STATING "INSTALLED AS PER DRAWINGS" AND CERTIFIED AS SUCH BY THE DEVELOPER'S ENGINEER OR LAND SURVEYOR.
6. APPROVAL OF THESE PLANS IS FOR THE CONSTRUCTION OF OFFSITE IMPROVEMENTS ONLY. ALL ONSITE IMPROVEMENTS, AS DEFINED BY THE CITY OF HENDERSON, INCLUDING BLOCK WALLS, MUST BE APPROVED BY THE BUILDING AND PLANNING DIVISIONS OF THE CITY OF HENDERSON.
7. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITION BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND INGRESS AND EGRESS TO SAID CONSTRUCTION. EXTENT OF THE TRANSITIONS TO BE DETERMINED BY THE CITY ENGINEER.
8. EXISTING UTILITIES ARE LOCATED ON PLANS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR THE PROTECTION OF UTILITIES AND THE ENGINEER BEARS NO RESPONSIBILITY FOR UTILITIES NOT SHOWN ON THE PLANS OR NOT IN THE LOCATION SHOWN ON THE PLANS. THIS INCLUDES ALL SERVICE LATERALS OF ANY KIND.
9. POWER POLES AND/OR OTHER EXISTING FACILITIES NOT IN PROPER LOCATION BASED ON PROPOSED IMPROVEMENTS SHOWN HEREON WILL BE RELOCATED AT NO EXPENSE TO THE CITY OF HENDERSON.
10. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING NO. 235. EXACT LOCATION OF RAMPS SHALL BE DETERMINED IN THE FIELD BY A CITY INSPECTOR, OR AS SHOWN ON PLAN.
11. CURB AND GUTTER WITH GRADE OF LESS THAN FOUR-TENTHS OF ONE PERCENT SHALL BE CONSTRUCTED BY FORMING. EACH JOINT SHALL BE CHECKED FOR GRADE PRIOR TO CONSTRUCTION AND WATER TESTED AS SOON AS POSSIBLE AFTER CONSTRUCTION.
12. ALL GRADING SHALL CONFORM TO THE SOILS REPORTS:

    ENGINEER: WESTERN TECHNOLOGIES, INC.

    DATES: JUNE 21, 1989 AND JUNE 22, 1992

    JOB NUMBERS: 4129.158, 4122.R173
13. EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PRELIMINARY GEOTECHNICAL REPORT.
14. ALL STREET STRUCTURAL SECTIONS SHALL BE PER THE RECOMMENDATIONS OF THE SOILS ENGINEER, BASED ON CBR OR R-VALUES. NO PAVING OR BASE WORK SHALL COMMENCE UNTIL A STREET STRUCTURAL SECTION IS APPROVED BY THE CITY ENGINEER, CITY OF HENDERSON.
15. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING PUBLIC STREETS IMMEDIATELY AFTER THE FIRST GRADING WORK IS ACCOMPLISHED AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "NEVADA TRAFFIC CONTROL MANUAL" - CURRENT EDITION AND TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" - CURRENT EDITION AND BE APPROVED BY THE CITY OF HENDERSON BEFORE CONSTRUCTION BEGINS.
16. WHERE EXISTING PAVEMENT IS CUT TO INSTALL UTILITY SERVICE LINES, BACKFILL AND PAVEMENT REPLACEMENT SHALL BE DONE PER STANDARD DRAWING 502 AND SECTION 206, 207, AND 208 OF THE STANDARD SPECIFICATION ISSUE, 1986.
17. ALL STATIONING IS REFERENCED TO CENTERLINE, EXCEPT AS NOTED.
18. EXACT LOCATION OF ALL SAWCUT LINES SHALL BE DETERMINED IN THE FIELD BY A CITY OF HENDERSON INSPECTOR.
19. PROTECTION AND REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES NOT DELINEATED ON THE CONTRACT DRAWINGS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. REPLACEMENT OF SURVEY MONUMENTS OR PROPERTY STAKES SHALL BE DONE TO THE CITY OF HENDERSON SURVEY SECTION'S SATISFACTION.
20. AFFECTED UTILITY COMPANIES SHALL BE NOTIFIED AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
21. CALL BEFORE YOU DIG, 1-800-227-2600
22. MODIFICATIONS TO EXISTING UTILITIES SHALL CONFORM TO THE OWNERS UTILITY STANDARDS AND SPECIFICATIONS.
23. THE CONTRACTOR SHALL TAKE REASONABLE MEASURES TO PROTECT EXISTING IMPROVEMENTS FROM DAMAGE AND ALL SUCH IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR RECONSTRUCTED TO THE CITY ENGINEER'S SATISFACTION AT THE EXPENSE OF THE CONTRACTOR.
24. CITY APPROVAL OF THE IMPROVEMENT PLANS IS GRANTED FOR ONE (1) YEAR ONLY. PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS, CITY OF HENDERSON, IF WORK IS NOT COMPLETED BY _____, 19__.
25. ALL OFFSITE AND ONSITE WATER AND SEWER FACILITIES UP-TO WITHIN 5 FEET OF BUILDINGS SHALL BE CONSTRUCTED TO PUBLIC WORKS STANDARDS (FOR APARTMENT BUILDINGS AND COMMERCIAL PROJECTS ONLY).

BENCHMARK

CITY OF HENDERSON BENCH MARK #130, DRIVE RIVET IN 2X2 ALUMINUM PLATE IN TOP OF CURB ON SOUTHEAST CORNER OF SUNSET RD. AND STEPHANIE ST. NEAR PC OF SUNSET RD.
ELEVATION = 1743.08 CITY OF HENDERSON DATUM

CONSULTING ENGINEERS • PLANNERS • LAND SURVEYORS
2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597
vtn nevada

REV	DATE	BY	REVISION

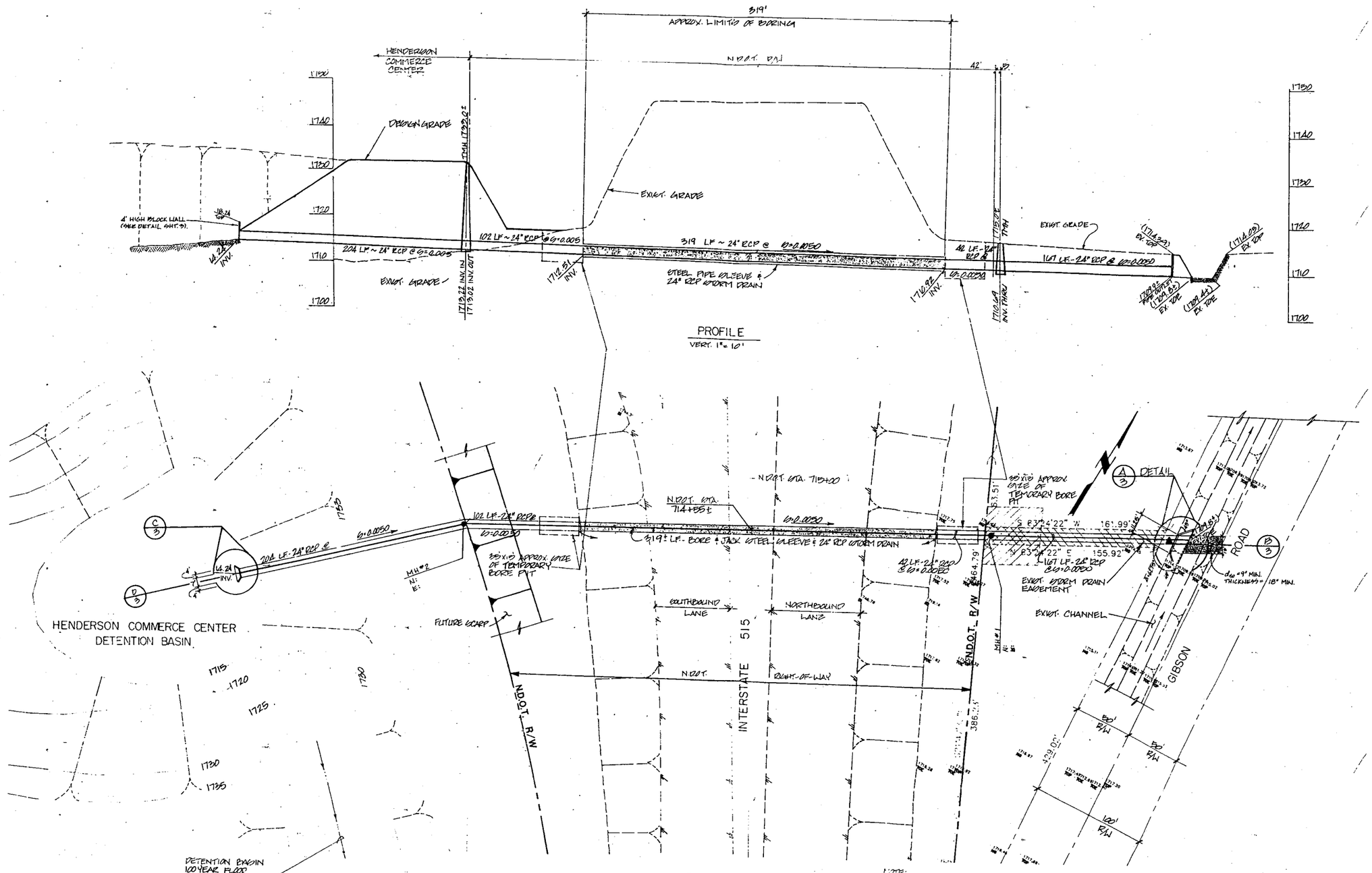
P.H. PROPERTY DEV. CO.
CITY OF HENDERSON, NEVADA

TITLE: COVER SHEET

PROJECT: HENDERSON COMMERCE CENTER
DRAINAGE OUTFALL PLANS

SEAL

WO NO.	4097-2
BY	JPD/TEH
DATE	11/93
SCALE	NONE
SHEET	1 OF 3 SHEETS



NOTE:

1. ALL BORE & JACK PROCEDURES & MATERIALS SHALL CONFORM TO THE SPECIFICATIONS & REQUIREMENTS OF THE NEVADA DEPT. OF TRANSPORTATION.
2. THE CONTRACTOR SHALL COORDINATE HIS PROPOSED CONSTRUCTION TECHNIQUES & MATERIALS WITH N.D.O.T. PRIOR TO SUBMITTING HIS BID FOR THIS WORK.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DESIGN REVISIONS OR ADDITIONS NECESSARY TO ACCOMODATE THE CONTRACTORS METHOD OF PIPE BORING.
4. CONTRACTOR SHALL BEGIN BORING OPERATIONS AT THE DOWNSTREAM BORE PIT.

BENCHMARK
C.O.H. BM#130 - DRIVE RIVET IN 2"X2' ALUMINUM PLATE IN TOP OF CURB ON THE SOUTHEAST CORNER OF SUNSET ROAD AND STEPHANIE STREET NEAR PC OF SUNSET ROAD.
ELEVATION = 1743.08 CITY OF HENDERSON DATUM

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2727 SOUTH RAINBOW BOULEVARD
LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597
vtn nevada

REV	DATE	BY	REVISION

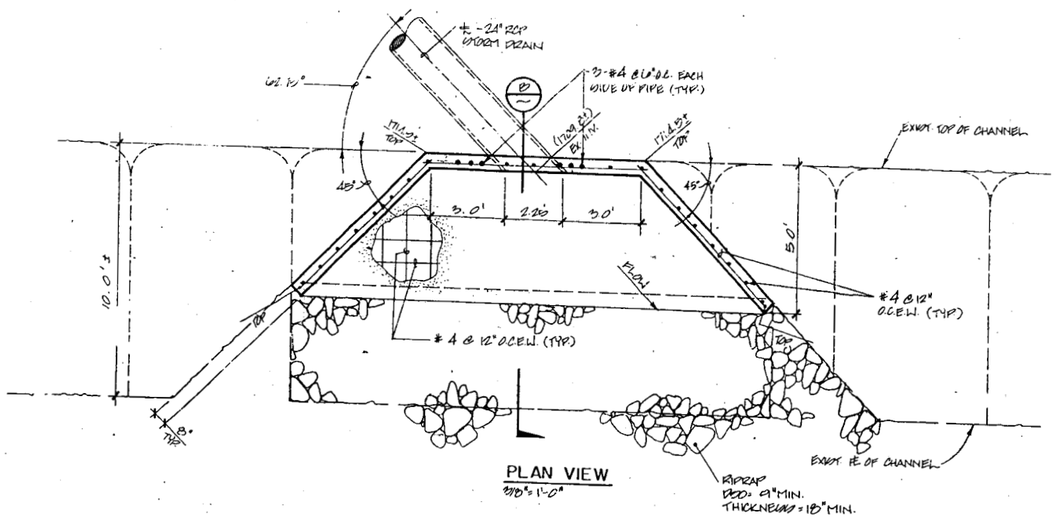
P.H. PROPERTY DEV. CO.
CITY OF HENDERSON

TITLE: PLAN & PROFILE

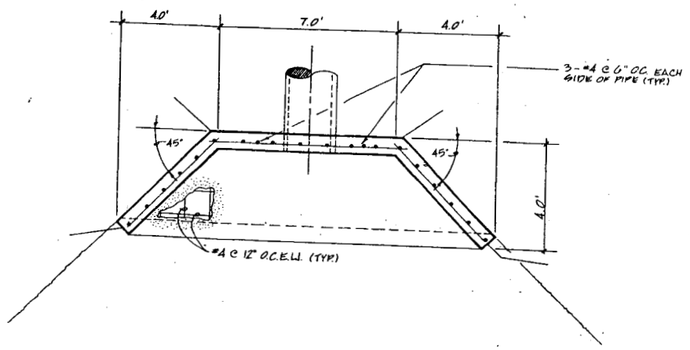
PROJECT: HENDERSON COMMERCE CENTER DRAINAGE OUTFALL PLANS

SEAL

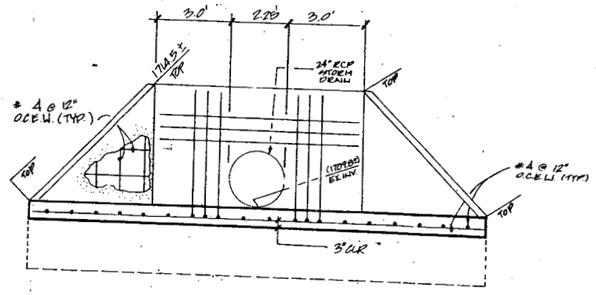
WO NO.	4097-2
BY	JPD
DATE	11/93
SCALE	AS SHOWN
SHEET	2 OF 3 SHEETS



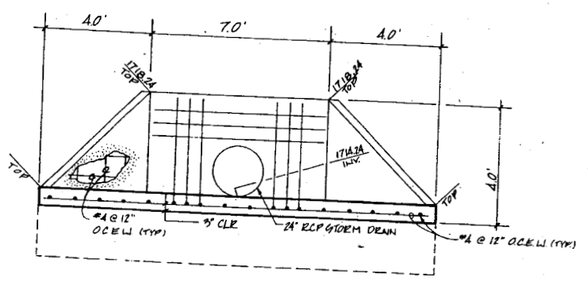
PLAN VIEW
3/16" = 1'-0"



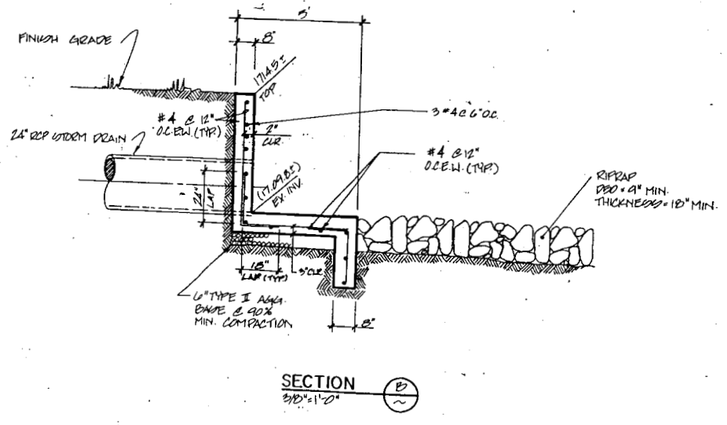
PLAN VIEW
3/16" = 1'-0"



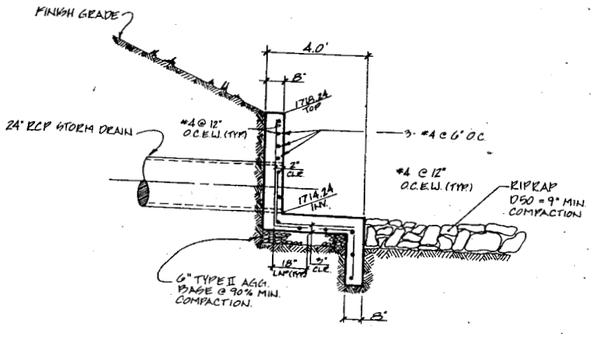
SECTION (A)
3/16" = 1'-0"



SECTION (C)
3/16" = 1'-0"



SECTION (B)
3/16" = 1'-0"



SECTION (D)
3/16" = 1'-0"

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LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2597

REV | DATE | BY | REVISION

P.H. PROPERTY DEV. CO.
CITY OF HENDERSON

TITLE: INLET/OUTLET SECTIONS & DETAILS

PROJECT: HENDERSON COMMERCE CENTER DRAINAGE OUTFALL PLANS

SEAL

12-17-93

WO NO.	4097-2
BY	KFN/WJR
DATE	11/93
SCALE	3/8" = 1'
SHEET	3 OF 3 SHEETS

940224

011614

HENDERSON COMMERCE CENTER

(A COMMERCIAL SUBDIVISION)
A POR. OF THE SOUTH HALF (S 1/2) OF SEC. 3, T. 22 S., R 62 E.,
M. D. M., CITY OF HENDERSON, CLARK COUNTY, NEVADA.

NOTE:
1. DIRECT VEHICULAR ACCESS TO SUNSET ROAD OTHER THAN VIA MARKS STREET IS PROHIBITED.

DETAIL "B"

DETAIL "C"

SUNSET ROAD

"BASIS OF BEARINGS"

FND WELL MON. PLS 6030 (PER SUNSET ROAD IMPROVEMENTS)

FND WELL MON. PLS 4541 (FILE 56 OF SURVEYS, PG. 27)

FND WELL MON. NO I.D.

CENTER SECTION LINE

NOT A PART APN 180-020-019 SIDELINE INC.

NOT A PART APN 180-020-001 PETER TRUST L.P. ETAL

NOT A PART APN 180-020-004 CITY OF HENDERSON

WENDY'S LAS VEGAS, INC. APN 180-020-23 AND APN 180-020-24 JERRY AND MARYANNA HERBST

FND IRON PIPE, PLS 4865 PER P.M. 85-42

NORCROSS STREET

40' NORCROSS ST. VACATED PER File. 001 Pg. 0047 Rec., 10/15/92

MARKS STREET (DEDICATED PER THIS MAP)

STEPHANIE STREET

INTERSTATE 515 / US 95 EXPRESSWAY RIGHT - OF - WAY

GIBSON ROAD

WARM SPRINGS ROAD

SCALE: 1" = 200'

SOUTHERN NEVADA WATER PROJECT EASEMENT BEING THE EAST 50' OF THE WEST 55' OF THE SOUTH 523.35' OF THE NW1/4 OF THE SW1/4 OF SEC. 3 BK. 1689 DOC. 1648157 REC'D 2-14-83

50' CONVEYED TO C.O.H. BK. 2237, DOC. 2196404 REC'D 12-23-85

THE EAST 20' OF THE WEST 75' BY ORDER OF CONDEMNATION, BK. 1519, DOC. 1478682, REC'D 2-05-82.

SOUTHERN NEVADA WATER PROJECT EASEMENT, BEING THE EAST 50' OF THE WEST 55' OF THE NORTH 1019.45' OF THE SW1/4 OF THE SW1/4 OF SEC. 3, BK 1689, DOC. 1648158, REC'D 2-14-83

T.P.O.B.

FND 60D NAIL / RESET W/TYPE I MON., PLS 9105 W/TIES

FND IRON PIPE W/CAP UNREADABLE RESET W/TYPE I MON., W/TIES PLS 9105

50' CONVEYED, BY DEED, TO C.O.H. BK. 301, DOC. 260674 REC'D 2-13-73

LOT 1
106.340 ACRES
4,632,185 S.F.

LOT 2
100.195 ACRES
4,364,477 S.F.

1. 10' NEVEDA POWER CO. EASEMENT BK. 496, INST.# 399745 REC'D 12-04-63
2. 10' NEVEDA POWER CO. EASEMENT BK. 496, INST.# 399746 REC'D 12-04-63
3. 30' SLOPE, INGRESS AND EGRESS EASEMENT BK. 1253, INST.# 1212977 REC'D 07-15-80

100' NEVADA POWER CO. ESM'T BLM APPLICATION NO. NEV.043455 FILED: 12/12/55

50' CONVEYED TO C.O.H. PER BK. 1890 DOC. 1849757 REC'D 3-15-84

50' NEVADA POWER CO. ESM'T BK. 380 INST. NO. 339598 REC'D 11-15-73

SEE DETAIL "A"

SEE DETAIL "B"

SEE DETAIL "C"

CURVE TABLE

CURVE	ARC	DELTA	RADIUS	TAN LENGTH
C1	77.60	88°55'35"	50.00	48.67
C2	39.01	89°23'50"	25.00	24.74
C3	34.81	19°40'02"	101.42	17.58
C4	41.58	19°40'02"	121.42	21.05
C5	84.25	89°23'50"	54.00	53.43

COURSE TABLE

LINE	BEARING	DISTANCE
L1	N 89°18'16" E	150.03
L2	N 89°18'16" E	200.00
L3	N 89°18'16" E	139.15
L4	S 0°41'44" E	15.00
L5	N 89°18'16" E	120.50
L6	S 0°32'25" E	148.99
L7	N 89°59'20" E	77.95
L8	N 88°54'05" E	50.00
L9	N 88°56'30" E	50.00
L10	N 0°14'55" E	50.00
L11	S 10°45'30" W	42.57
L12	S 77°36'41" W	42.57
L13	N 79°47'57" W	42.49
L14	N 12°24'33" W	42.49
L15	N 12°51'00" E	42.76

COURSE TABLE '(con'T)

LINE	BEARING	DISTANCE
L16	N 77°59'40" E	42.76
L17	N 89°18'16" E	24.66
L18	N 77°35'29" E	42.49
L19	N 12°12'40" E	42.49
L20	N 89°46'11" W	42.23
L21	N 79°23'08" W	4.01
L22	N 1°30'25" E	7.50
L23	N 89°18'16" E	64.63
L24	N 89°18'16" E	110.71
L25	N 02°10'33" E	10.01
L26	N 01°05'55" W	50.00
L27	S 8°31'47" E	28.71
L28	S 88°53'26" W	28.70
L29	S 88°53'26" W	100.00
L30	S 88°54'05" W	100.00
L31	N 89°18'16" E	88.21
L32	N 02°10'33" E	50.06

LEGEND

- BOUNDARY LINE
- STREET CENTERLINE
- C1 CURVE NUMBER
- L1 COURSE NUMBER
- ● SET 5/8" REBAR W/AL CAP PLS 9105 W/TIES
- △ SET REBAR W/ALUM. CAP, PLS 9105
- ⊙ FND POINT AS INDICATED
- LOT2 LOT NUMBER/TOTAL LOTS=2

DETAIL "A"

R/W HEREBY DEDICATED TO THE CITY OF HENDERSON 480 S.F.

ACT	DATE	BY	REVISION
1	7-7-92	T.T.	RE-ALIGN MARKS STREET - ADD NON-ROD EASEMENTS

W.O. 4097 - 2
SHEET 2 OF 2

2092-1

BOOK 60 PAGE 67

LEGEND

TOP OF SPILLWAY ELEVATION (1733.0)

100 YEAR WATER SURFACE ELEVATION (1731.5)

PROPERTY LINE

NORTH

SCALE: 1"=80'

1736.00 1735.00 1734.00 1732.00 1729.00 1727.00 1726.00 1725.00 1724.00 1723.00 1722.00 1721.00 1720.00 1719.00 1718.00 1720.00 1726.00 1727.00 1728.00 1729.00 1730.00 1734.00 1735.00 1736.00 1737.00 1738.00 1743.00 1745.00

PL

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LAS VEGAS, NEVADA 89102-5148 PHONE (702) 873-7550 FAX (702) 362-2697

REV	DATE	BY	REVISION

P.H. PROPERTY DEVELOPEMENT
CITY OF HENDERSON

vtn nevada

TITLE: TOPO

PROJECT: HENDERSON COMMERCE CENTER
A COMMERCIAL SUBDIVISION

SEAL

WO NO.	4097
BY	T.H.
DATE	03-19-94
SCALE	HORIZ. 1"=60' VERT.
SHEET	1 OF SHEETS

G:\CAD\SURVEY\4097\4097TOPO.DWG

APPENDIX F

DATA CD

CLOMR ADDENDUM #3

GIBSON CHANNEL TO PIONEER OUTFALL PHASE II

CASE NO.: 06-09-B898R

CLARK COUNTY, NEVADA

Prepared for:

CITY OF HENDERSON
240 Water Street
Henderson, Nevada 89009

Prepared by:

VTN Nevada
2727 S. Rainbow Boulevard
Las Vegas, Nevada 89146
(702) 247-4020

June 2007

vtn nevada

nevada

CONSULTING ENGINEERS • PLANNERS • SURVEYORS

PROVIDING QUALITY PROFESSIONAL
SERVICES SINCE 1960

June 25, 2007
File: 6511-CLOMR

Sheila M. Norlin, CFM; National LOMC Manager
Federal Emergency Management Agency
Michael Baker Jr., Inc.
3601 Eisenhower Avenue
Alexandria, VA 22304-6425

Reference: **Case No.:** 06-09-B898R (Gibson Channel to Pioneer Outfall Phase II)
Community: City of Henderson, NV
Community No.: 320005

Dear Ms. Norlin:

The enclosed Addendum #3 is being provided in response to the comment letter dated April 16, 2007 for the Gibson Channel to Pioneer Outfall Phase II CLOMR; Case No.: 06-09-B898R. The comments that you provided for the specified project are addressed within the following response summary.

RESPONSE TO COMMENTS

Comment 1: An electronic copy of the Regional Flood Control District, Operations & Maintenance (O&M) Manual can be found on the Data CD in Appendix F. The Gibson Channel is owned and operated by the City of Henderson. The Gibson Channel is a flood control facility included in the Las Vegas Valley Flood Control Master Plan. As such, the City of Henderson is eligible to receive funds from the District for maintenance in accordance with the District's Operations and Maintenance Manual. The current 06/07 annual maintenance work program contract identifies the Gibson Channel as MWP Facility HEN-04. The Gibson Channel is expected to be included in all future MWP contracts.

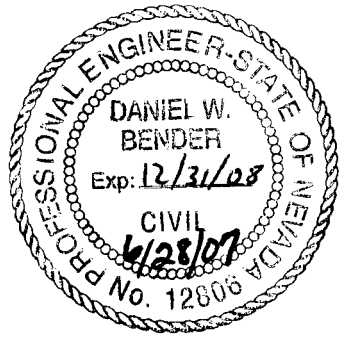
2727 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146-5148
TEL. (702) 873-7550 FAX: 362-2597

Comment 2: For the Submitted report "Henderson Commerce Center, Drainage Outfall Report"; prepared by VTN Nevada has been included in the Data CD in Appendix F. which provides documentation and design information for the Henderson Commerce Center Detention Basin.

If you have any questions or require additional information, do not hesitate to contact me.

Sincerely,

Dan Bender, P.E.
VTN Nevada
2727 South Rainbow Boulevard
Las Vegas, NV 89146
danb@vtnnv.com
(702) 253-2357



NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

April 16, 2007

Mr. Jeremy Leavitt, P.E.
VTN Nevada
2727 South Rainbow Boulevard
Las Vegas, NV 89146

IN REPLY REFER TO:
Case No.: 06-09-B898R
Community: City of Henderson, NV
Community No.: 320005

316-AD

Dear Mr. Leavitt:

This is in regard to your submittal dated January 31, 2007, concerning an April 25, 2006, request that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a conditional revision to the Flood Insurance Rate Map (FIRM) for Clark County, Nevada and Incorporated Areas. Pertinent information about the request is listed below.

Identifier:	Gibson Channel
Flooding Source:	Unnamed Tributary to Las Vegas Wash
FIRM Panel(s) Affected:	32003C2585 E and 2595 E

The data required to complete our review, which must be submitted within 90 days of the date of this letter, are listed on the enclosed summary.

If we do not receive the required data within 90 days, we will suspend our processing of your request. Any data submitted after 90 days will be treated as an original submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type established by the current fee schedule. A copy of the notice summarizing the current fee schedule, which was published in the *Federal Register,* is enclosed for your information.

FEMA receives a very large volume of requests and cannot maintain inactive requests for an indefinite period of time. Therefore, we are unable to grant extensions for the submission of required data/fee for revision requests. If a requester is informed by letter that additional data are required to complete our review of a request, the data/fee **must** be submitted within 90 days of the date of the letter. Any fees already paid will be forfeited for any request for which the requested data are not received within 90 days.

RECEIVED
VTN Nevada - Public Works
APR 20 2007
WO # 6511 | File:
Entered By: | Entered Date:
Dist: FILE, JL, RT, COH, CCRFCD J.D. R-E

3601 Eisenhower Avenue, Alexandria, VA 22304-6425 PH:1-877-FEMA MAP FX: 703.960.9125

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please call the Revisions Coordinator for your State, Mr. Sacha Tohme, CFM, who may be reached at (703) 960-8800, ext. 3028.

Sincerely,

Sheila M. Norlin, CFM
National LOMC Manager
Michael Baker Jr., Inc.

Enclosures

cc: Mr. Curt Chandler, P.E., CFM
Land Development Manager
Department of Public Works
City of Henderson

Mr. Joseph Damiani, P.E.
Project Engineer
Department of Public Works
City of Henderson

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

Federal Emergency Management Agency

Washington, D.C. 20472

FEE SCHEDULE FOR PROCESSING REQUESTS FOR MAP CHANGES

This notice contains the fee schedule for processing certain types of requests for changes to National Flood Insurance Program (NFIP) maps. The fee schedule allows FEMA to further reduce the expenses to the NFIP by more fully recovering the costs associated with processing conditional and final map change requests. The fee schedule for map changes is effective for all requests dated October 30, 2005, or later and supersedes the fee schedule that was established on September 1, 2002.

To develop the fee schedule for conditional and final map change requests, FEMA evaluated the actual costs of reviewing and processing requests for Conditional Letters of Map Amendment (CLOMAs), Conditional Letters of Map Revision – Based on Fill (CLOMR-Fs), Conditional Letters of Map Revision (CLOMRs), Letters of Map Revision – Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs), and Physical Map Revisions (PMRs).

Based on our review of actual cost data for Fiscal Years 2004 and 2005, FEMA has established the following review and processing fees, which are to be submitted with all requests that are not otherwise exempted under 44 CFR 72.5.

Fee Schedule for Requests for CLOMAs, CLOMR-Fs, and LOMR-Fs

Request for single-lot/single-structure CLOMA and CLOMR-F	$500
Request for single-lot/single structure LOMR-F	$425
Request for single-lot/single-structure LOMR-F based on as-built information (CLOMR-F previously issued by us)	$325
Request for multiple-lot/multiple-structure CLOMA	$700
Request for multiple-lot/multiple-structure CLOMR-F and LOMR-F	$800
Request for multiple-lot/multiple-structure LOMR-F based on as-built information (CLOMR-F previously issued)	$700

Fee Schedule for Requests for CLOMRs

Request based on new hydrology, bridge, culvert, channel, or combination of any of these	$4,000
Request based on levee, berm, or other structural measure	$5,000

Fee Schedule for Requests for LOMRs and PMRs

Requesters must submit the review and processing fees shown below with requests for LOMRs and PMRs that are not based on structural measures or alluvial fans.

Request based on bridge, culvert, channel, or combination thereof	$4,400
Request based on levee, berm, or other structural measure	$6,000
Request based on as-built information submitted as follow-up to CLOMR	$4,000

Fees for CLOMRs, LOMRs, and PMRs Based on Structural Measures on Alluvial Fans

FEMA has revised the initial fee for requests for CLOMRs and LOMRs based on structural measures on alluvial fans to $5,600. FEMA will also continue to recover the remainder of the review and processing costs by invoicing the requester before issuing a determination letter, consistent with current practice. The prevailing private-sector labor rate charged to FEMA ($60 per hour) will be used to calculate the total reimbursable fees.

Payment Submission Requirements

Requesters must make fee payments for non-exempt requests before we render services. This payment must be in the form of a check or money order or by credit card payment. Please make all checks and money orders in U.S. funds payable to the *National Flood Insurance Program*. We will deposit all fees collected to the National Flood Insurance Fund, which is the source of funding for providing this service.

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

Summary of Additional Data Required to Support a
Conditional Letter of Map Revision

Case No.: 06-09-B898R

Requester: Mr. Jeremy Leavitt, P.E.

Community: City of Henderson, NV

Community No.: 320005

The issues listed below must be addressed before we can continue the review of your request.

1. Please submit an officially adopted operation and maintenance (O&M) plan for the existing Henderson Commerce Center (HCC) detention basin. This plan, which may be in the form of a written statement from the community Chief Executive Officer, an ordinance, or other legislation, must describe the nature of the maintenance activities, the frequency with which they will be performed, and the title of the local community official who will be responsible for ensuring that the maintenance activities are accomplished. Items that should be addressed in the O&M plan include, but are not limited to: sediment and debris buildup, preventative measures to keep the detention basin drainage outlet free from obstructions, and guidelines for maintaining the storage capacity of the detention basin.

2. Our detailed review revealed that the submitted HEC-1 hydrologic computer analysis was modeled using a 100-year, 6-hour storm. Because the submitted HEC-1 analysis includes the HCC detention basin, which is used to reduce the peak discharge of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), please provide documentation that the HCC detention basin was designed using the critical storm duration that would yield the maximum reservoir stage or maximum reservoir outflow during the design storm.

Please send the required data directly to us at the address shown at the bottom of this page. For identification purposes, please include the case number referenced above on all correspondence.

APPENDIX F
DATA CD

GIBSON CLOMR (ADDENDUM #3)
DATA CD

CLOMR ADDENDUM #4

GIBSON CHANNEL TO PIONEER OUTFALL PHASE II

CASE NO.: 06-09-B898R

CLARK COUNTY, NEVADA

Prepared for:

CITY OF HENDERSON
240 Water Street
Henderson, Nevada 89009

Prepared by:

VTN Nevada
2727 S. Rainbow Boulevard
Las Vegas, Nevada 89146
(702) 247-4020

July 2007

vtn nevada

2007 JUL 20 AM 10:04
RFCD

VTN nevada
CONSULTING ENGINEERS • PLANNERS • SURVEYORS
PROVIDING QUALITY PROFESSIONAL
SERVICES SINCE 1960

July 18, 2007
File: 6511-CLOMR

Sheila M. Norlin, CFM; National LOMC Manager
Federal Emergency Management Agency
Michael Baker Jr., Inc.
3601 Eisenhower Avenue
Alexandria, VA 22304-6425

Reference: **Case No.:** 06-09-B898R (Gibson Channel to Pioneer Outfall Phase II)
Community: City of Henderson, NV
Community No.: 320005

Dear Ms. Norlin:

The enclosed Addendum #4 is being provided in response to the comment letter dated July 9, 2007, for the Gibson Channel to Pioneer Outfall Phase II CLOMR; Case No.: 06-09-B898R. The comments that you provided for the specified project are addressed within the following response summary.

RESPONSE TO COMMENTS

Comment 1: The City of Henderson is responsible for maintenance and operation of the Henderson Commerce Center (HCC) detention basin. Although the HCC is not on the CCRFCD Master Plan, the City has agreed to follow the maintenance procedures and frequencies outlined in the CCRFCD O&M plan. An electronic copy of the CCRFCD O&M plan was previously submitted along with Addendum #3. The City has written a letter to document this statement (see attached).

Comment 2: VTN has analyzed the 100-year, 24-hour storm impact on the HCC detention basin. We recreated the original HEC-1 model input file, and modified it for the storm distribution and rainfall intensity to model the 100-year, 24-hour storm. A comparison of the results revealed 100-year, 6-hour storm yielded both a higher

2727 SOUTH RAINBOW BOULEVARD LAS VEGAS, NEVADA 89146-5148
TEL. (702) 873-7550 FAX: 362-2597

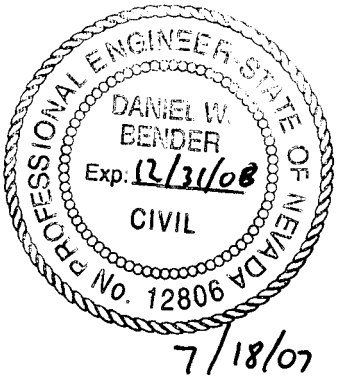
maximum reservoir stage, and a higher maximum outflow during the design storm. Thus, the 100-year, 6-hour storm is the critical storm. Below is a table that summarizes the results of our analysis. An electronic copy of the HEC-1 models is included on the data CD in Appendix F.

Frequency	100-Year Storm Event	
Duration	6-Hour	24-Hour
Maximum Reservoir Stage =	29.51 ft	28.23 ft
Maximum Reservoir Outflow =	67 cfs	64 cfs
Maximum Reservoir Storage =	49 ac-ft	41 ac-ft

If you have any questions or require additional information, do not hesitate to contact me.

Sincerely,

Daniel W. Bender, P.E.
VTN Nevada
2727 South Rainbow Boulevard
Las Vegas, NV 89146
danb@vtnnv.com
(702) 253-2357



NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

July 9, 2007

Mr. Jeremy Leavitt, P.E.
VTN Nevada
2727 South Rainbow Boulevard
Las Vegas, NV 89146

IN REPLY REFER TO:
Case No.: 06-09-B898R
Community: City of Henderson, NV
Community No.: 320005

316-AD/INC

Dear Mr. Leavitt:

This acknowledges receipt of your recent submittal of data in support of your request that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a Conditional Letter of Map Revision for the above-referenced community. Our review of the submitted data indicates we do not have all the data requested in our previous letter dated April 16, 2007. The data required to complete our review are listed on the enclosed summary.

We will not begin a detailed review of the submitted data until we receive the additional required data. We have suspended processing of your request pending our receipt of the data. Once we receive all required data, we will continue our review.

Please note that the deadline for submitting the requested data is July 20, 2007. If we do not receive the required data by this date, we will terminate your request. Any data submitted after July 20, 2007, will be treated as a new submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type. A copy of the notice summarizing the current fee schedule, which was published in the *Federal Register,* is enclosed for your information.

FEMA receives a very large volume of requests and cannot maintain inactive requests for an indefinite period of time. Therefore, we are unable to grant extensions for the submission of required data/fee for revision requests. If a requester is informed by letter that additional data are required to complete our review of a request, the data/fee **must** be submitted within 90 days of the date of the letter. Any fees already paid will be forfeited for any request for which the requested data are not received within 90 days.

Please direct questions concerning your request to us at the address shown at the bottom of this page. For identification purposes, please include the case number referenced above on all correspondence.

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

If you have specific questions concerning your request, please call the Revisions Coordinator for your State, Mr. Sacha Tohme, CFM, who may be reached at (703) 317-6250.

Sincerely,

Syed Qayum

Syed Qayum, CFM
National LOMR Technical Manager
Michael Baker Jr., Inc.

Enclosures

cc: Mr. Curt Chandler, P.E., CFM
Land Development Manager
City of Henderson

Mr. Joseph Damiani, P.E.
Project Engineer
City of Henderson

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

Mr. Daniel Bender, P.E.
VTN Nevada

NATIONAL FLOOD INSURANCE PROGRAM

FEMA NATIONAL SERVICE PROVIDER

Summary of Additional Data Required to Support a
Conditional Letter of Map Revision (CLOMR)

Case No.: 06-09-B898R

Requester: Mr. Jeremy Leavitt, P.E.

Community: City of Henderson, NV

Community No.: 320005

The issues listed below must be addressed before we can continue the review of your request.

1. The submitted report entitled, "CLOMR Addendum #3, Gibson Channel to Pioneer Outfall Phase II," prepared by your firm, dated June 2007, included an electronic copy of the Clark County Regional Flood Control District (CCRFCD) operation and maintenance (O&M) manual. However, the Henderson Commerce Center (HCC) detention basin is not identified in the CCRFCD Master Plan, and therefore would not be eligible for maintenance by the CCRFCD. Please submit an officially adopted O&M plan for the existing HCC detention basin. This plan, which may be in the form of a written statement from the community Chief Executive Officer, an ordinance, or other legislation, must describe the nature of the maintenance activities, the frequency with which they will be performed, and the title of the local community official who will be responsible for ensuring that the maintenance activities are accomplished. Items that should be addressed in the O&M plan include, but are not limited to: sediment and debris buildup, preventative measures to keep the detention basin drainage outlet free from obstructions, and guidelines for maintaining the storage capacity of the detention basin.

2. The above-referenced submitted report included an electronic copy of the HCC design report entitled, "Revised Conceptual Study and Phase 1 Technical Drainage Study for Henderson Commercial Center," prepared by your firm, and dated June 1992. However, the HCC design report did not provide documentation that the HCC detention basin was designed using the critical storm duration. Our detailed review revealed that the submitted HEC-1 hydrologic computer analysis was modeled using a 100-year, 6-hour storm. Because the submitted HEC-1 analysis includes the HCC detention basin, which is used to reduce the peak discharge of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), please provide documentation that the HCC detention basin was designed using the critical storm duration that would yield the maximum reservoir stage or maximum reservoir outflow during the design storm.

Please send the required data directly to us at the address shown at the bottom of this page. For identification purposes, please include the case number referenced above on all correspondence.

Federal Emergency Management Agency

Washington, D.C. 20472

FEE SCHEDULE FOR PROCESSING REQUESTS FOR MAP CHANGES

This notice contains the fee schedule for processing certain types of requests for changes to National Flood Insurance Program (NFIP) maps. The fee schedule allows FEMA to further reduce the expenses to the NFIP by more fully recovering the costs associated with processing conditional and final map change requests. The fee schedule for map changes is effective for all requests dated October 30, 2005, or later and supersedes the fee schedule that was established on September 1, 2002.

To develop the fee schedule for conditional and final map change requests, FEMA evaluated the actual costs of reviewing and processing requests for Conditional Letters of Map Amendment (CLOMAs), Conditional Letters of Map Revision – Based on Fill (CLOMR-Fs), Conditional Letters of Map Revision (CLOMRs), Letters of Map Revision – Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs), and Physical Map Revisions (PMRs).

Based on our review of actual cost data for Fiscal Years 2004 and 2005, FEMA has established the following review and processing fees, which are to be submitted with all requests that are not otherwise exempted under 44 CFR 72.5.

Fee Schedule for Requests for CLOMAs, CLOMR-Fs, and LOMR-Fs

Request for single-lot/single-structure CLOMA and CLOMR-F	$500
Request for single-lot/single structure LOMR-F	$425
Request for single-lot/single-structure LOMR-F based on as-built information (CLOMR-F previously issued by us)	$325
Request for multiple-lot/multiple-structure CLOMA	$700
Request for multiple-lot/multiple-structure CLOMR-F and LOMR-F	$800
Request for multiple-lot/multiple-structure LOMR-F based on as-built information (CLOMR-F previously issued)	$700

Fee Schedule for Requests for CLOMRs

Request based on new hydrology, bridge, culvert, channel, or combination of any of these	$4,000
Request based on levee, berm, or other structural measure	$5,000

Fee Schedule for Requests for LOMRs and PMRs

Requesters must submit the review and processing fees shown below with requests for LOMRs and PMRs that are not based on structural measures or alluvial fans.

Request based on bridge, culvert, channel, or combination thereof	$4,400
Request based on levee, berm, or other structural measure	$6,000
Request based on as-built information submitted as follow-up to CLOMR	$4,000

Fees for CLOMRs, LOMRs, and PMRs Based on Structural Measures on Alluvial Fans

FEMA has revised the initial fee for requests for CLOMRs and LOMRs based on structural measures on alluvial fans to $5,600. FEMA will also continue to recover the remainder of the review and processing costs by invoicing the requester before issuing a determination letter, consistent with current practice. The prevailing private-sector labor rate charged to FEMA ($60 per hour) will be used to calculate the total reimbursable fees.

Payment Submission Requirements

Requesters must make fee payments for non-exempt requests before we render services. This payment must be in the form of a check or money order or by credit card payment. Please make all checks and money orders in U.S. funds payable to the *National Flood Insurance Program.* We will deposit all fees collected to the National Flood Insurance Fund, which is the source of funding for providing this service.

APPENDIX F

GIBSON CLOMR (ADDENDUM #4)
DATA CD

GIBSON CLOMR (ADDENDUM #4)
HCC 100-YR, 6 HR STORM

1

****

FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) -FEB 1.1985
U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616

****

THIS HEC-1 VERSION CONTAINS ALL OPTIONS EXCEPT ECONOMICS, AND THE NUMBER OF PLANS ARE REDUCED TO 3

-1 HEC-1 INPUT PAGE 1

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

              *DIAGRAM
    1         ID       HENDERSON COMMERCIAL CENTER
    2         ID       06/18/92            ER     100-YR / 6-HR STORM
    3         ID       HCCU2B.DAT  EXIST OFFSITE/DEV ONSITE   W/ 24"RCP
    4         ID       ULTIMATE SCENARIO   WEIR LENGTH=110 FEET
    5         IT      5       0       0     300
    6         IO      5       0
    7         IN      5       0       0

    8         KK   D1
    9         BA  .08188
   10         PB   2.60
   11         PC   .000    .020    .057    .070    .087    .108    .124    .130    .130    .130
   12         PC   .130    .130    .130    .133    .140    .142    .148    .158    .172    .181
   13         PC   .190    .197    .199    .200    .201    .204    .214    .229    .241    .249
   14         PC   .251    .256    .270    .278    .281    .283    .295    .322    .352    .409
   15         PC   .499    .590    .710    .744    .781    .812    .819    .835    .851    .856
   16         PC   .860    .868    .876    .888    .910    .926    .937    .950    .970    .976
   17         PC   .982    .985    .987    .989    .990    .993    .993    .994    .995    .998
   18         PC   .998    .999    1.00
   19         LS     0      93
   20         UD    .23

   21         KK      A
   22         KM  OFFSITE FLOWS UNDER WARM SPRINGS
   23         BA   .2922
   24         PB   2.62
   25         LS      0      77
   26         UD    .55

   27         KK     R1
   28         KM  ROUTE A TO PT.5
   29         RK    1200     .01    .028       0    TRAP     100      10

   30         KK    PT.5
   31         KM  COMBINE D1 AND A AT PT.5
   32         HC       2

   33         KK     R2
   34         KM  ROUTE D1 AND A TO PT.6
   35         RK    1600     .01    .029       0    TRAP     100      10
```

```
 37          KM    BASIN D3
 38          BA  .0718R
 39          PB   2.60
 40          LS      0      93
 41          UD    .21

 42          KK      D2
 43          KM      BASIN D2
 44          BA  .02359
 45          LS      0      93
 46          UD    .15
```



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

 47          KK      R3
 48          KM  ROUTE D2 TO PT.6
 49          RK     450      01      017        0    CIRC        2

 50          KK    PT.6
 51          KM  COMBINE D2 AND D3 AT PT.6
 52          HC       3

 53          KK      R4
 54          KM  ROUTE ABOVE TO PT.7
 55          RK    1700    .012    .028        0    TRAP      100       10

 56          KK       B
 57          KM  OFF-SITE FLOWS UNDER WARM SPRINGS
 58          BA   .6000
 59          PB   2.62
 60          LS       0      77
 61          UD     .66

 62          KK      R5
 63          KM  ROUTE
 64          RK     700    .007    .028        0    TRAP      100       10

 65          KK      D4
 66          KM    BASIN D4
 67          BA  .02422
 68          PB   2.60
 69          LS       0      93
 70          UD     .18

 71          KK       .
 72          KM  COMBINE B AND D4
 73          HC       2

 74          KK      R6
 75          KM  ROUTE B AND D4 TO PT.7
 76          RK    1080     .01    .028        0    TRAP      100       10

 77          KK      D5
 78          KM    BASIN D5
 79          BA  .0967
 80          LS       0      93
 81          UD     .19
```

```
 84          KO      2
 85          HC      3
                                        HEC-1 INPUT                                        PAGE  3

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

 86          KK    DET
 87          KM  DETENTION POND
 88          KO      3
 89          RS      1   STOR      0
 90          SV      0   1.89   8.47   22.65   51.97   97.66
 91          SE     10     15     20      25      30      33
 92          SL     10   3.14    0.6     0.5
 93          SS     30   [redacted]      3     1.5

 94          KK     R7
 95          KM  ROUTE OUTFALL TO PT.4
 96          RK   1200    004   .016       0   TRAP       0      50

 97          KK      C
 98          KM  OFFSITE FLOWS UNDER WARM SPRINGS
 99          BA  .6297
100          PB  2.47
101          LS      0      77
102          UD     .49

103          KK     RR
104          KM  ROUTE C TO PT.4
105          RK    680    .004    .03       0   TRAP      28       2

106          KK     D6
107          KM   BASIN D6
108          BA  .0203
109          PB   2.60
110          LS      0      93
111          UD    .19

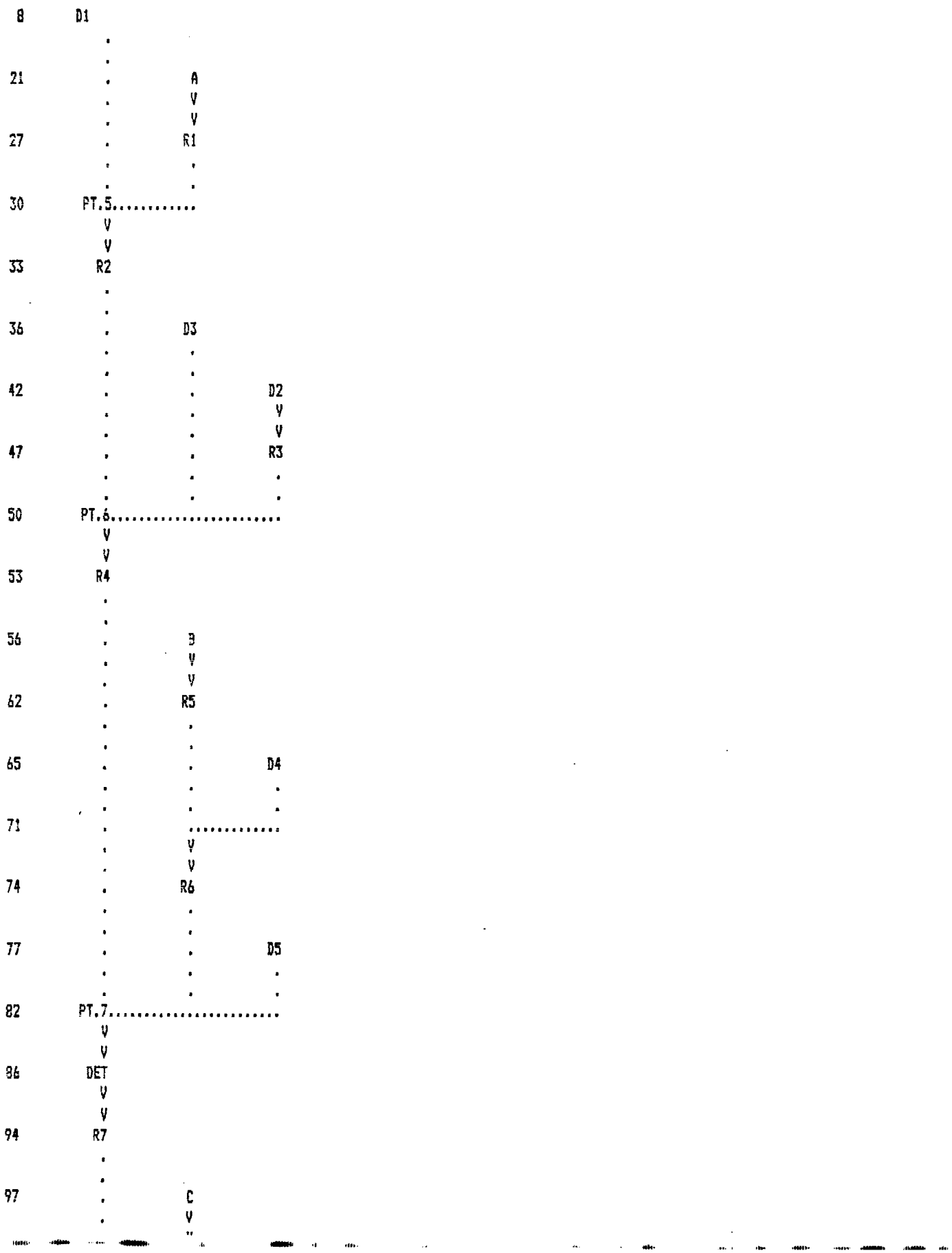
112          KK     D7
113          KM   BASIN D7
114          BA  .0178
115          LS      0      93
116          UD    .13

117          KK    COM1
118          KM  COMBINE DETENTION  D6  & D7
119          HC      2

120          KK    COM2
121          KM  COMBINE D6, D7, & C
122          HC      2

123          KK    PT.4
124          KM  COMBINE DETENTION OUTFALL W/ C, D6, & D7
125          HC      2
126          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK

 INPUT
  LINE      (V) ROUTING          (---->) DIVERSION OR PUMP FLOW
```


8 D1
21 A
27 R1
30 PT.5
33 R2
36 D3
42 D2
47 R3
50 PT.6
53 R4
56 B
62 R5
65 D4
71
74 R6
77 D5
82 PT.7
86 DET
94 R7
97 C

```
                .
                .
   106          .          .          DA
                .          .          .
                .          .          .
   112          .          .          .          D7
                .          .          .          .
                .          .          .          .
   117          .          .       COM1.....
                .          .          .
                .          .          .
   120          .       COM2.....
                .          .
                .          .
   123       PT.4.....
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1 ****

FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) -FEB 1,1985
U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616
****

HENDERSON COMMERCIAL CENTER
06/18/92 ER 100-YR / 6-HR STORM
HCCU2B.DAT EXIST OFFSITE/DEV ONSITE W/ 24"RCP
ULTIMATE SCENARIO WEIR LENGTH=110 FEET

6 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN		5	MINUTES IN COMPUTATION INTERVAL
IDATE	1	0	STARTING DATE
ITIME		0000	STARTING TIME
NQ		300	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	2	0	ENDING DATE
NDTIME		0035	ENDING TIME

COMPUTATION INTERVAL .08 HOURS
TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

```
          ***************
          *             *
82 KK     *      PT.7   *
          *             *
          ***************

84 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          2  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

85 HC          HYDROGRAPH COMBINATION
                    ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***
```

****

HYDROGRAPH AT STATION PT.7
SUM OF 3 HYDROGRAPHS

****

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0615	76	52.	1		1230	151	0.	1		1845	226	0.
1		0005	2	0.	1		0620	77	45.	1		1235	152	0.	1		1850	227	0.
1		0010	3	0.	1		0625	78	39.	1		1240	153	0.	1		1855	228	0.
1		0015	4	0.	1		0630	79	34.	1		1245	154	0.	1		1900	229	0.
1		0020	5	1.	1		0635	80	30.	1		1250	155	0.	1		1905	230	0.
1		0025	6	2.	1		0640	81	26.	1		1255	156	0.	1		1910	231	0.
1		0030	7	4.	1		0645	82	23.	1		1300	157	0.	1		1915	232	0.
1		0035	8	6.	1		0650	83	20.	1		1305	158	0.	1		1920	233	0.
1		0040	9	7.	1		0655	84	17.	1		1310	159	0.	1		1925	234	0.
1		0045	10	7.	1		0700	85	15.	1		1315	160	0.	1		1930	235	0.
1		0050	11	6.	1		0705	86	13.	1		1320	161	0.	1		1935	236	0.
1		0055	12	6.	1		0710	87	11.	1		1325	162	0.	1		1940	237	0.
1		0100	13	6.	1		0715	88	10.	1		1330	163	0.	1		1945	238	0.
1		0105	14	5.	1		0720	89	8.	1		1335	164	0.	1		1950	239	0.
1		0110	15	5.	1		0725	90	7.	1		1340	165	0.	1		1955	240	0.
1		0115	16	6.	1		0730	91	6.	1		1345	166	0.	1		2000	241	0.
1		0120	17	7.	1		0735	92	6.	1		1350	167	0.	1		2005	242	0.
1		0125	18	7.	1		0740	93	5.	1		1355	168	0.	1		2010	243	0.
1		0130	19	9.	1		0745	94	4.	1		1400	169	0.	1		2015	244	0.
1		0135	20	12.	1		0750	95	4.	1		1405	170	0.	1		2020	245	0.
1		0140	21	15.	1		0755	96	3.	1		1410	171	0.	1		2025	246	0.
1		0145	22	18.	1		0800	97	3.	1		1415	172	0.	1		2030	247	0.
1		0150	23	19.	1		0805	98	3.	1		1420	173	0.	1		2035	248	0.
1		0155	24	19.	1		0810	99	2.	1		1425	174	0.	1		2040	249	0.
1		0200	25	18.	1		0815	100	2.	1		1430	175	0.	1		2045	250	0.
1		0205	26	16.	1		0820	101	2.	1		1435	176	0.	1		2050	251	0.
1		0210	27	15.	1		0825	102	2.	1		1440	177	0.	1		2055	252	0.
1		0215	28	17.	1		0830	103	2.	1		1445	178	0.	1		2100	253	0.
1		0220	29	20.	1		0835	104	1.	1		1450	179	0.	1		2105	254	0.
1		0225	30	24.	1		0840	105	1.	1		1455	180	0.	1		2110	255	0.
1		0230	31	26.	1		0845	106	1.	1		1500	181	0.	1		2115	256	0.
1		0235	32	26.	1		0850	107	1.	1		1505	182	0.	1		2120	257	0.
1		0240	33	26.	1		0855	108	1.	1		1510	183	0.	1		2125	258	0.
1		0245	34	28.	1		0900	109	1.	1		1515	184	0.	1		2130	259	0.

1	0300	37	27.	*	1	0915	112	1.	*	1	1530	187	0.	*	1	2145	262	0.
1	0305	38	30.	*	1	0920	113	1.	*	1	1535	188	0.	*	1	2150	263	0.
1	0310	39	39.	*	1	0925	114	1.	*	1	1540	189	0.	*	1	2155	264	0.
1	0315	40	58.	*	1	0930	115	0.	*	1	1545	190	0.	*	1	2200	265	0.
1	0320	41	96.	*	1	0935	116	0.	*	1	1550	191	0.	*	1	2205	266	0.
1	0325	42	166.	*	1	0940	117	0.	*	1	1555	192	0.	*	1	2210	267	0.
1	0330	43	268.	*	1	0945	118	0.	*	1	1600	193	0.	*	1	2215	268	0.
1	0335	44	366.	*	1	0950	119	0.	*	1	1605	194	0.	*	1	2220	269	0.
1	0340	45	427.	*	1	0955	120	0.	*	1	1610	195	0.	*	1	2225	270	0.
1	0345	46	434.	*	1	1000	121	0.	*	1	1615	196	0.	*	1	2230	271	0.
1	0350	47	443.	*	1	1005	122	0.	*	1	1620	197	0.	*	1	2235	272	0.
1	0355	48	443.	*	1	1010	123	0.	*	1	1625	198	0.	*	1	2240	273	0.
1	0400	49	438.	*	1	1015	124	0.	*	1	1630	199	0.	*	1	2245	274	0.
1	0405	50	425.	*	1	1020	125	0.	*	1	1635	200	0.	*	1	2250	275	0.
1	0410	51	414.	*	1	1025	126	0.	*	1	1640	201	0.	*	1	2255	276	0.
1	0415	52	396.	*	1	1030	127	0.	*	1	1645	202	0.	*	1	2300	277	0.
1	0420	53	374.	*	1	1035	128	0.	*	1	1650	203	0.	*	1	2305	278	0.
1	0425	54	351.	*	1	1040	129	0.	*	1	1655	204	0.	*	1	2310	279	0.
1	0430	55	330.	*	1	1045	130	0.	*	1	1700	205	0.	*	1	2315	280	0.
1	0435	56	311.	*	1	1050	131	0.	*	1	1705	206	0.	*	1	2320	281	0.
1	0440	57	295.	*	1	1055	132	0.	*	1	1710	207	0.	*	1	2325	282	0.
1	0445	58	279.	*	1	1100	133	0.	*	1	1715	208	0.	*	1	2330	283	0.
1	0450	59	265.	*	1	1105	134	0.	*	1	1720	209	0.	*	1	2335	284	0.
1	0455	60	255.	*	1	1110	135	0.	*	1	1725	210	0.	*	1	2340	285	0.
1	0500	61	245.	*	1	1115	136	0.	*	1	1730	211	0.	*	1	2345	286	0.
1	0505	62	232.	*	1	1120	137	0.	*	1	1735	212	0.	*	1	2350	287	0.
1	0510	63	217.	*	1	1125	138	0.	*	1	1740	213	0.	*	1	2355	288	0.
1	0515	64	203.	*	1	1130	139	0.	*	1	1745	214	0.	*	2	0000	289	0.
1	0520	65	189.	*	1	1135	140	0.	*	1	1750	215	0.	*	2	0005	290	0.
1	0525	66	175.	*	1	1140	141	0.	*	1	1755	216	0.	*	2	0010	291	0.
1	0530	67	162.	*	1	1145	142	0.	*	1	1800	217	0.	*	2	0015	292	0.
1	0535	68	148.	*	1	1150	143	0.	*	1	1805	218	0.	*	2	0020	293	0.
1	0540	69	133.	*	1	1155	144	0.	*	1	1810	219	0.	*	2	0025	294	0.
1	0545	70	119.	*	1	1200	145	0.	*	1	1815	220	0.	*	2	0030	295	0.
1	0550	71	103.	*	1	1205	146	0.	*	1	1820	221	0.	*	2	0035	296	0.
1	0555	72	91.	*	1	1210	147	0.	*	1	1825	222	0.	*	2	0040	297	0.
1	0600	73	80.	*	1	1215	148	0.	*	1	1830	223	0.	*	2	0045	298	0.
1	0605	74	69.	*	1	1220	149	0.	*	1	1835	224	0.	*	2	0050	299	0.
1	0610	75	60.	*	1	1225	150	0.	*	1	1840	225	0.	*	2	0055	300	0.
				*					*					*					

****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)					
		(CFS)				
443.	3.83		137.	35.	33.	33.
		(INCHES)	1.071	1.086	1.086	1.086
		(AC-FT)	68.	69.	69.	69.

CUMULATIVE AREA = 1.19 SQ MI

*** ***

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* *

****

88 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

89 RS STORAGE ROUTING

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

90 SV	STORAGE	.0	1.9	8.5	22.6	52.0	97.7
91 SE	ELEVATION	10.00	15.00	20.00	25.00	30.00	33.00

92 SL LOW-LEVEL OUTLET

ELEVL	10.00	ELEVATION AT CENTER OF OUTLET
CAREA	3.14	CROSS-SECTIONAL AREA
COGL	.60	COEFFICIENT
EXPL	.50	EXPONENT OF HEAD

93 SS SPILLWAY

CREL	30.00	SPILLWAY CREST ELEVATION
SPWID	30.00	SPILLWAY WIDTH
COSW	3.00	WEIR COEFFICIENT
EXPW	1.50	EXPONENT OF HEAD

***

COMPUTED OUTFLOW-ELEVATION DATA

OUTFLOW	.00	15.24	16.87	18.89	21.47	24.87	29.53	36.35	47.27	67.57
ELEVATION	10.00	11.02	11.25	11.56	12.02	12.71	13.82	15.79	19.79	30.00
OUTFLOW	68.19	71.86	81.32	99.31	128.58	171.87	231.93	311.49	413.31	540.12
ELEVATION	30.03	30.13	30.28	30.49	30.76	31.09	31.48	31.93	32.43	33.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.38	.47	.59	.76	1.02	1.44	1.89	2.93	8.19
OUTFLOW	.00	15.24	16.87	18.89	21.47	24.87	29.53	33.79	36.35	47.27
ELEVATION	10.00	11.02	11.25	11.56	12.02	12.71	13.82	15.00	15.79	19.79
STORAGE	8.47	22.65	51.97	52.49	53.90	56.22	59.44	63.56	68.58	74.50
OUTFLOW	47.78	58.52	67.57	68.19	71.86	81.32	99.31	128.58	171.87	231.93
ELEVATION	20.00	25.00	30.00	30.03	30.13	30.28	30.49	30.76	31.09	31.48
STORAGE	81.32	89.04	97.66							
OUTFLOW	311.49	413.31	540.12							
ELEVATION	31.93	32.43	33.00							

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

HYDROGRAPH AT STATION DET

(CFS)	(HR)					
		(CFS)				
67.	6.08		64.	35.	33.	33.
		(INCHES)	.501	1.086	1.086	1.086
		(AC-FT)	32.	69.	69.	69.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
(AC-FT)	(HR)				
49.	6.08	41.	15.	14.	14.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
(FEET)	(HR)				
29.51	6.08	28.14	18.47	18.16	18.16

CUMULATIVE AREA = 1.19 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	D1	105.	3.67	16.	4.	4.	.08		
HYDROGRAPH AT	A	110.	4.08	26.	6.	6.	.29		
ROUTED TO	R1	110.	4.08	26.	6.	6.	.29		
2 COMBINED AT	PT.5	161.	3.83	42.	11.	10.	.37		
ROUTED TO	R2	159.	3.92	42.	11.	10.	.37		
HYDROGRAPH AT	D3	94.	3.58	14.	4.	3.	.07		
HYDROGRAPH AT	D2	35.	3.58	5.	1.	1.	.02		
ROUTED TO	R3	35.	3.58	5.	1.	1.	.02		
3 COMBINED AT	PT.6	243.	3.75	61.	15.	15.	.47		
ROUTED TO	R4	243.	3.83	61.	15.	15.	.47		

+		B	203.	4.17	53.	13.	13.	.60	
	ROUTED TO								
+		R5	201.	4.17	53.	13.	13.	.60	
	HYDROGRAPH AT								
+		D4	34.	3.58	5.	1.	1.	.02	
	2 COMBINED AT								
+		.	207.	4.17	57.	14.	14.	.62	
	ROUTED TO								
+		R6	207.	4.25	57.	14.	14.	.62	
	HYDROGRAPH AT								
+		D5	134.	3.58	19.	5.	5.	.10	
	3 COMBINED AT								
+		PT.7	443.	3.83	137.	33.	33.	1.19	
	ROUTED TO								
+		DET	67.	6.08	64.	35.	33.	1.19	
+									29.51 6.08
	ROUTED TO								
+		R7	67.	6.17	64.	35.	33.	1.19	
	HYDROGRAPH AT								
+		C	206.	4.17	55.	14.	13.	.63	
	ROUTED TO								
+		R8	205.	4.25	55.	14.	13.	.63	
	HYDROGRAPH AT								
+		D6	28.	3.58	4.	1.	1.	.02	
	HYDROGRAPH AT								
+		D7	27.	3.58	4.	1.	1.	.02	
	2 COMBINED AT								
+		COM1	55.	3.58	8.	2.	2.	.04	
	2 COMBINED AT								
+		COM2	213.	4.17	63.	16.	15.	.67	
	2 COMBINED AT								
+		PT.4	271.	4.25	123.	51.	49.	1.86	

*** NORMAL END OF HEC-1 ***

GIBSON CLOMR (ADDENDUM #4)
HCC 100-YR, 24 HR STORM

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             JUL  1997                *
*          VERSION 4.1                 *
*                                      *
*  RUN DATE   18JUL07  TIME  18:27:31  *
*                                      *
****************************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

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

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

1 HEC-1 INPUT PAGE 1

```
          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
                    *DIAGRAM
 *** FREE ***
                    *
               1    ID   ********************************************************************************
               2    ID   HENDERSON COMMERCIAL CENTER FILE: HCC-24H.DAT
               3    ID   07/13/07 ER 100-YR / 24-HR STORM
               4    ID   HCCU2B.DAT EXIST OFFSITE/DEV ONSITE W/ 24" RCP
               5    ID   ULTIMATE SCENARIO WEIR LENGTH=110 FEET
               6    ID   ********************************************************************************
               7    ID
               8    ID     JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
               9    ID
              10    ID
              11    IT      30       0       0     300
              12    IO       5       0
              13    IN      30       0       0
                    *
                    *
              14    KK      D1
              15    KM   SCS TYPE II 24-HR STORM RAINFALL DISTRIBUTION (TABLE 6.5)
              16    BA  .08188
              17    PB    2.96
              18    PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
              19    PC    .063    .071    .080    .089    .098    .109    .120    .133    .147    .162
              20    PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
              21    PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
              22    PC    .952    .959    .965    .972    .978    .984    .989    .995   1.00
              23    LS       0      93
              24    UD     .23
                    *
              25    KK       A
              26    KM   OFFSITE FLOWS UNDER WARM SPRINGS
              27    BA   .2922
              28    LS       0      77
              29    UD     .55
                    *
              30    KK      R1
              31    KM   ROUTE A TO PT.5
              32    RK    1200     .01    .028       0    TRAP     100      10
                    *
              33    KK    PT.5
              34    KM   COMBINE D1 AND A AT PT.5
              35    HC       2
                    *
              36    KK      R2
              37    KM   ROUTE D1 AND A TO PT.6
              38    RK    1600     .01    .028       0    TRAP     100      10
                    *
```

1 HEC-1 INPUT PAGE 2

```
          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
              39    KK      D3
              40    KM   BASIN D3
              41    BA   .07188
              42    LS       0      93
              43    UD     .21
                    *
              44    KK      D2
              45    KM   BASIN D2
              46    BA   .02359
```

```
47          LS       0      93
48          UD     .15
            *

49          KK       R3
50          KM    ROUTE D2 TO PT.6
51          RK      650     .01     .13       0    CIRC        2
            *

52          KK     PT.6
53          KM    COMBINE D2 AND D3 AT PT.6
54          HC        3
            *

55          KK       R4
56          KM    ROUTE ABOVE TO PT.7
57          RK     1700    .012    .028       0    TRAP      100       10
            *

58          KK        B
59          KM    OFF-SITE FLOWS UNDER WARM SPRINGS
60          BA    .6000
61          LS        0      77
62          UD      .66
            *

63          KK       R5
64          KM    ROUTE
65          RK      700    .007    .028       0    TRAP      100       10
            *

66          KK       D4
67          KM    BASIN D4
68          BA   .02422
69          LS        0      93
70          UD      .18
            *

71          KK        .
72          KM    COMBINE B AND D4
73          HC        2
            *
```

1 HEC-1 INPUT PAGE 3

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

74          KK       R6
75          KM    ROUTE B AND D4 TO PT.7
76          RK     1080     .01    .028       0    TRAP      100       10
            *

77          KK       D5
78          KM    BASIN D5
79          BA    .0967
80          LS        0      93
81          UD      .19
            *

82          KK     PT.7
83          KM    COMBINE ABOVE
84          KO        2
85          HC        3
            *

86          KK      DET
87          KM    DETENTION POND
88          KO        3
89          RS        1    STOR         0
90          SV        0    1.89     8.47   22.65   51.70   97.66
91          SE       10      15       20      25      30      33
92          SL       10    3.14      0.6     0.5
93          SS       30     110        3     1.5
94          KO        1
            *

95          KK       R7
96          KM    ROUTE OUTFALL TO PT.4
97          RK     1200    .004    .016       0    TRAP        0       50
            *

98          KK        C
99          KM    OFFSITE FLOWS UNDER WARM SPRINGS
100         BA    .6297
101         LS        0      77
102         UD      .69
            *

103         KK       R8
104         KM    ROUTE C TO PT.4
105         RK      680    .004     .03       0    TRAP       28        2
            *

106         KK       D6
107         KM    BASIN D6
108         BA    .0203
109         LS        0      93
110         UD      .19
            *
```

1 HEC-1 INPUT PAGE 4

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

111         KK       D7
112         KM    BASIN D7
```

```
113           BA   .0178
114           LS      0      93
115           UD     .13
              *

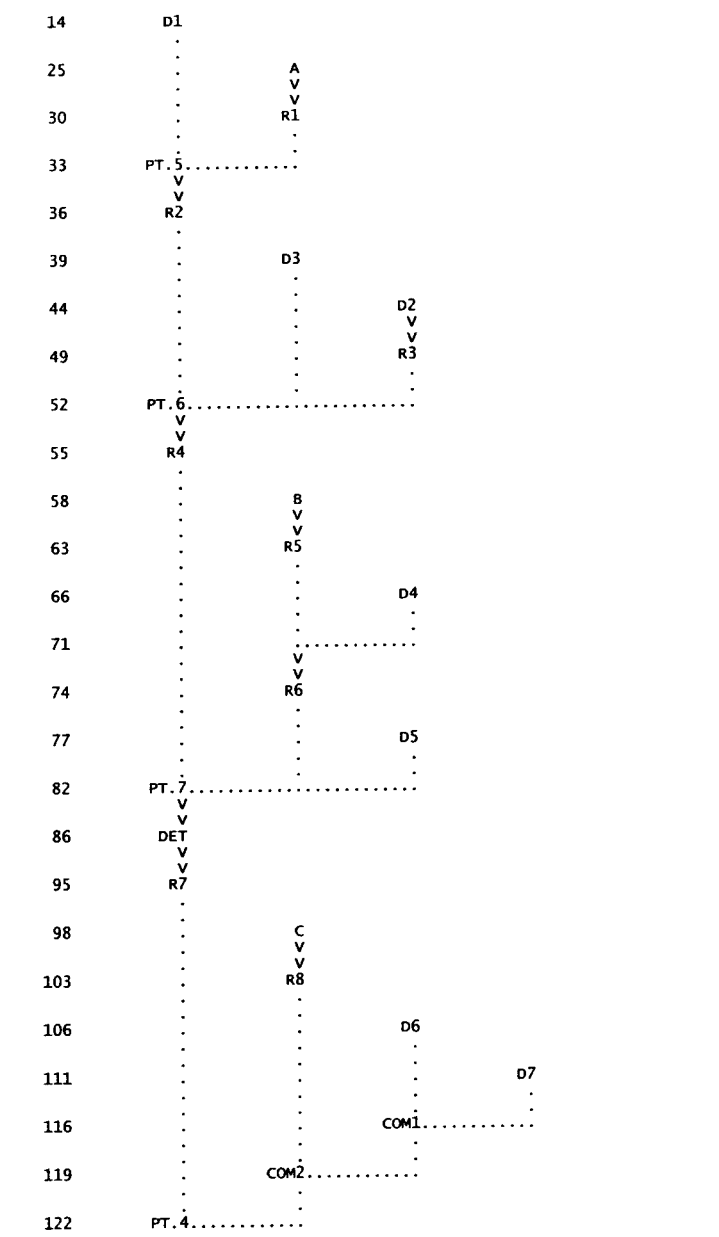
116           KK    COM1
117           KM   COMBINE DETENTION D6 & D7
118           HC       2
              *

119           KK    COM2
120           KM   COMBINE D6, D7, & C
121           HC       2
              *

122           KK    PT.4
123           KM   COMBINE DETENTION OUTFALL W/ C, D6, & D7
124           HC       2
              *
125           ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1**

```
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUL   1997                *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   18JUL07  TIME  18:27:31   *
*                                       *
*****************************************
```


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


```
**********************************************************************************
HENDERSON COMMERCIAL CENTER FILE: HCC-24H.DAT
07/13/07 ER 100-YR / 24-HR STORM
HCCU2B.DAT EXIST OFFSITE/DEV ONSITE W/ 24" RCP
ULTIMATE SCENARIO WEIR LENGTH=110 FEET
**********************************************************************************

  JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:


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

   IT          HYDROGRAPH TIME DATA
                     NMIN         30  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME        0000  STARTING TIME
                       NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      7    0  ENDING DATE
                   NDTIME        0530  ENDING TIME
                   ICENT           19  CENTURY MARK

                 COMPUTATION INTERVAL      .50 HOURS
                     TOTAL TIME BASE  149.50 HOURS

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

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

          **************
          *            *
82 KK     *      PT.7  *
          *            *
          **************

84 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          2  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

85 HC          HYDROGRAPH COMBINATION
                    ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                        ***

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

                                                HYDROGRAPH AT STATION     PT.7
                                                   SUM OF  3 HYDROGRAPHS

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

                                                                                                                                                
 DA MON HRMN   ORD      FLOW     *   DA MON HRMN   ORD      FLOW     *   DA MON HRMN   ORD      FLOW     *   DA MON HRMN   ORD      FLOW
                                  *                                   *                                   *
  1     0000     1        0.     *    2     1330    76        0.     *    4     0300   151        0.     *    5     1630   226        0.
  1     0030     2        0.     *    2     1400    77        0.     *    4     0330   152        0.     *    5     1700   227        0.
  1     0100     3        0.     *    2     1430    78        0.     *    4     0400   153        0.     *    5     1730   228        0.
  1     0130     4        0.     *    2     1500    79        0.     *    4     0430   154        0.     *    5     1800   229        0.
  1     0200     5        0.     *    2     1530    80        0.     *    4     0500   155        0.     *    5     1830   230        0.
  1     0230     6        0.     *    2     1600    81        0.     *    4     0530   156        0.     *    5     1900   231        0.
  1     0300     7        0.     *    2     1630    82        0.     *    4     0600   157        0.     *    5     1930   232        0.
  1     0330     8        0.     *    2     1700    83        0.     *    4     0630   158        0.     *    5     2000   233        0.
  1     0400     9        0.     *    2     1730    84        0.     *    4     0700   159        0.     *    5     2030   234        0.
  1     0430    10        0.     *    2     1800    85        0.     *    4     0730   160        0.     *    5     2100   235        0.
  1     0500    11        0.     *    2     1830    86        0.     *    4     0800   161        0.     *    5     2130   236        0.
  1     0530    12        0.     *    2     1900    87        0.     *    4     0830   162        0.     *    5     2200   237        0.
  1     0600    13        1.     *    2     1930    88        0.     *    4     0900   163        0.     *    5     2230   238        0.
  1     0630    14        2.     *    2     2000    89        0.     *    4     0930   164        0.     *    5     2300   239        0.
  1     0700    15        2.     *    2     2030    90        0.     *    4     1000   165        0.     *    5     2330   240        0.
  1     0730    16        3.     *    2     2100    91        0.     *    4     1030   166        0.     *    6     0000   241        0.
  1     0800    17        4.     *    2     2130    92        0.     *    4     1100   167        0.     *    6     0030   242        0.
  1     0830    18        5.     *    2     2200    93        0.     *    4     1130   168        0.     *    6     0100   243        0.
  1     0900    19        6.     *    2     2230    94        0.     *    4     1200   169        0.     *    6     0130   244        0.
  1     0930    20        7.     *    2     2300    95        0.     *    4     1230   170        0.     *    6     0200   245        0.
  1     1000    21       10.     *    2     2330    96        0.     *    4     1300   171        0.     *    6     0230   246        0.
  1     1030    22       13.     *    3     0000    97        0.     *    4     1330   172        0.     *    6     0300   247        0.
  1     1100    23       18.     *    3     0030    98        0.     *    4     1400   173        0.     *    6     0330   248        0.
  1     1130    24       33.     *    3     0100    99        0.     *    4     1430   174        0.     *    6     0400   249        0.
  1     1200    25      352.     *    3     0130   100        0.     *    4     1500   175        0.     *    6     0430   250        0.
  1     1230    26      363.     *    3     0200   101        0.     *    4     1530   176        0.     *    6     0500   251        0.
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1	1300	27	255.	*	3	0230	102	0.	*	4	1600	177	0.	*	6	0530	252	0.
1	1330	28	166.	*	3	0300	103	0.	*	4	1630	178	0.	*	6	0600	253	0.
1	1400	29	113.	*	3	0330	104	0.	*	4	1700	179	0.	*	6	0630	254	0.
1	1430	30	83.	*	3	0400	105	0.	*	4	1730	180	0.	*	6	0700	255	0.
1	1500	31	67.	*	3	0430	106	0.	*	4	1800	181	0.	*	6	0730	256	0.
1	1530	32	56.	*	3	0500	107	0.	*	4	1830	182	0.	*	6	0800	257	0.
1	1600	33	48.	*	3	0530	108	0.	*	4	1900	183	0.	*	6	0830	258	0.
1	1630	34	42.	*	3	0600	109	0.	*	4	1930	184	0.	*	6	0900	259	0.
1	1700	35	39.	*	3	0630	110	0.	*	4	2000	185	0.	*	6	0930	260	0.
1	1730	36	36.	*	3	0700	111	0.	*	4	2030	186	0.	*	6	1000	261	0.
1	1800	37	34.	*	3	0730	112	0.	*	4	2100	187	0.	*	6	1030	262	0.
1	1830	38	31.	*	3	0800	113	0.	*	4	2130	188	0.	*	6	1100	263	0.
1	1900	39	29.	*	3	0830	114	0.	*	4	2200	189	0.	*	6	1130	264	0.
1	1930	40	28.	*	3	0900	115	0.	*	4	2230	190	0.	*	6	1200	265	0.
1	2000	41	26.	*	3	0930	116	0.	*	4	2300	191	0.	*	6	1230	266	0.
1	2030	42	25.	*	3	1000	117	0.	*	4	2330	192	0.	*	6	1300	267	0.
1	2100	43	23.	*	3	1030	118	0.	*	5	0000	193	0.	*	6	1330	268	0.
1	2130	44	23.	*	3	1100	119	0.	*	5	0030	194	0.	*	6	1400	269	0.
1	2200	45	22.	*	3	1130	120	0.	*	5	0100	195	0.	*	6	1430	270	0.
1	2230	46	21.	*	3	1200	121	0.	*	5	0130	196	0.	*	6	1500	271	0.
1	2300	47	20.	*	3	1230	122	0.	*	5	0200	197	0.	*	6	1530	272	0.
1	2330	48	20.	*	3	1300	123	0.	*	5	0230	198	0.	*	6	1600	273	0.
2	0000	49	19.	*	3	1330	124	0.	*	5	0300	199	0.	*	6	1630	274	0.
2	0030	50	14.	*	3	1400	125	0.	*	5	0330	200	0.	*	6	1700	275	0.
2	0100	51	9.	*	3	1430	126	0.	*	5	0400	201	0.	*	6	1730	276	0.
2	0130	52	5.	*	3	1500	127	0.	*	5	0430	202	0.	*	6	1800	277	0.
2	0200	53	2.	*	3	1530	128	0.	*	5	0500	203	0.	*	6	1830	278	0.
2	0230	54	1.	*	3	1600	129	0.	*	5	0530	204	0.	*	6	1900	279	0.
2	0300	55	1.	*	3	1630	130	0.	*	5	0600	205	0.	*	6	1930	280	0.
2	0330	56	0.	*	3	1700	131	0.	*	5	0630	206	0.	*	6	2000	281	0.
2	0400	57	0.	*	3	1730	132	0.	*	5	0700	207	0.	*	6	2030	282	0.
2	0430	58	0.	*	3	1800	133	0.	*	5	0730	208	0.	*	6	2100	283	0.
2	0500	59	0.	*	3	1830	134	0.	*	5	0800	209	0.	*	6	2130	284	0.
2	0530	60	0.	*	3	1900	135	0.	*	5	0830	210	0.	*	6	2200	285	0.
2	0600	61	0.	*	3	1930	136	0.	*	5	0900	211	0.	*	6	2230	286	0.
2	0630	62	0.	*	3	2000	137	0.	*	5	0930	212	0.	*	6	2300	287	0.
2	0700	63	0.	*	3	2030	138	0.	*	5	1000	213	0.	*	6	2330	288	0.
2	0730	64	0.	*	3	2100	139	0.	*	5	1030	214	0.	*	7	0000	289	0.
2	0800	65	0.	*	3	2130	140	0.	*	5	1100	215	0.	*	7	0030	290	0.
2	0830	66	0.	*	3	2200	141	0.	*	5	1130	216	0.	*	7	0100	291	0.
2	0900	67	0.	*	3	2230	142	0.	*	5	1200	217	0.	*	7	0130	292	0.
2	0930	68	0.	*	3	2300	143	0.	*	5	1230	218	0.	*	7	0200	293	0.
2	1000	69	0.	*	3	2330	144	0.	*	5	1300	219	0.	*	7	0230	294	0.
2	1030	70	0.	*	4	0000	145	0.	*	5	1330	220	0.	*	7	0300	295	0.
2	1100	71	0.	*	4	0030	146	0.	*	5	1400	221	0.	*	7	0330	296	0.
2	1130	72	0.	*	4	0100	147	0.	*	5	1430	222	0.	*	7	0400	297	0.
2	1200	73	0.	*	4	0130	148	0.	*	5	1500	223	0.	*	7	0430	298	0.
2	1230	74	0.	*	4	0200	149	0.	*	5	1530	224	0.	*	7	0500	299	0.
2	1300	75	0.	*	4	0230	150	0.	*	5	1600	225	0.	*	7	0530	300	0.
				*					*					*				

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	149.50-HR
+ (CFS)	(HR)					
		(CFS)				
+ 363.	12.50		135.	43.	14.	7.
		(INCHES)	1.053	1.352	1.352	1.352
		(AC-FT)	67.	86.	86.	86.

CUMULATIVE AREA = 1.19 SQ MI

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          **************
          *            *
 86 KK    *     DET    *
          *            *
          **************

 88 KO        OUTPUT CONTROL VARIABLES
                   IPRNT          3  PRINT CONTROL
                   IPLOT          0  PLOT CONTROL
                   QSCAL          0.  HYDROGRAPH PLOT SCALE

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

           HYDROGRAPH ROUTING DATA

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

 90 SV          STORAGE         .0      1.9      8.5     22.6     51.7     97.7

 91 SE        ELEVATION       10.00    15.00    20.00    25.00    30.00    33.00

 92 SL        LOW-LEVEL OUTLET
                   ELEVL       10.00  ELEVATION AT CENTER OF OUTLET
                   CAREA        3.14  CROSS-SECTIONAL AREA
                    COQL         .60  COEFFICIENT
                    EXPL         .50  EXPONENT OF HEAD

 93 SS        SPILLWAY
                    CREL       30.00  SPILLWAY CREST ELEVATION
                   SPWID      110.00  SPILLWAY WIDTH
                    COQW        3.00  WEIR COEFFICIENT
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EXPW 1.50 EXPONENT OF HEAD

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COMPUTED OUTFLOW-ELEVATION DATA

OUTFLOW	.00	15.24	16.87	18.89	21.47	24.87	29.53	36.35	47.27	67.57
ELEVATION	10.00	11.02	11.25	11.56	12.02	12.71	13.82	15.79	19.79	30.00
OUTFLOW	69.43	81.82	114.97	179.10	284.44	441.22	659.66	949.98	1322.42	1787.19
ELEVATION	30.03	30.12	30.27	30.48	30.75	31.08	31.47	31.92	32.43	33.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.38	.47	.59	.76	1.02	1.44	1.89	2.93	8.19
OUTFLOW	.00	15.24	16.87	18.89	21.47	24.87	29.53	33.79	36.35	47.27
ELEVATION	10.00	11.02	11.25	11.56	12.02	12.71	13.82	15.00	15.79	19.79
STORAGE	8.47	22.65	51.70	52.18	53.57	55.87	59.10	63.24	68.29	74.26
OUTFLOW	47.78	58.52	67.57	69.43	81.82	114.97	179.10	284.44	441.22	659.66
ELEVATION	20.00	25.00	30.00	30.03	30.12	30.27	30.48	30.75	31.08	31.47
STORAGE	81.14	88.94	97.66							
OUTFLOW	949.98	1322.42	1787.19							
ELEVATION	31.92	32.43	33.00							

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 1322. TO 1787.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION DET

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	10.0	3		0200	101	0.	.0	10.0	5		0400	201	0.	.0	10.0
1		0030	2	0.	.0	10.0	3		0230	102	0.	.0	10.0	5		0430	202	0.	.0	10.0
1		0100	3	0.	.0	10.0	3		0300	103	0.	.0	10.0	5		0500	203	0.	.0	10.0
1		0130	4	0.	.0	10.0	3		0330	104	0.	.0	10.0	5		0530	204	0.	.0	10.0
1		0200	5	0.	.0	10.0	3		0400	105	0.	.0	10.0	5		0600	205	0.	.0	10.0
1		0230	6	0.	.0	10.0	3		0430	106	0.	.0	10.0	5		0630	206	0.	.0	10.0
1		0300	7	0.	.0	10.0	3		0500	107	0.	.0	10.0	5		0700	207	0.	.0	10.0
1		0330	8	0.	.0	10.0	3		0530	108	0.	.0	10.0	5		0730	208	0.	.0	10.0
1		0400	9	0.	.0	10.0	3		0600	109	0.	.0	10.0	5		0800	209	0.	.0	10.0
1		0430	10	0.	.0	10.0	3		0630	110	0.	.0	10.0	5		0830	210	0.	.0	10.0
1		0500	11	0.	.0	10.0	3		0700	111	0.	.0	10.0	5		0900	211	0.	.0	10.0
1		0530	12	0.	.0	10.0	3		0730	112	0.	.0	10.0	5		0930	212	0.	.0	10.0
1		0600	13	1.	.0	10.0	3		0800	113	0.	.0	10.0	5		1000	213	0.	.0	10.0
1		0630	14	1.	.0	10.1	3		0830	114	0.	.0	10.0	5		1030	214	0.	.0	10.0
1		0700	15	2.	.0	10.1	3		0900	115	0.	.0	10.0	5		1100	215	0.	.0	10.0
1		0730	16	3.	.1	10.2	3		0930	116	0.	.0	10.0	5		1130	216	0.	.0	10.0
1		0800	17	3.	.1	10.2	3		1000	117	0.	.0	10.0	5		1200	217	0.	.0	10.0
1		0830	18	4.	.1	10.3	3		1030	118	0.	.0	10.0	5		1230	218	0.	.0	10.0
1		0900	19	5.	.1	10.4	3		1100	119	0.	.0	10.0	5		1300	219	0.	.0	10.0
1		0930	20	7.	.2	10.4	3		1130	120	0.	.0	10.0	5		1330	220	0.	.0	10.0
1		1000	21	8.	.2	10.6	3		1200	121	0.	.0	10.0	5		1400	221	0.	.0	10.0
1		1030	22	11.	.3	10.7	3		1230	122	0.	.0	10.0	5		1430	222	0.	.0	10.0
1		1100	23	15.	.4	11.0	3		1300	123	0.	.0	10.0	5		1500	223	0.	.0	10.0
1		1130	24	21.	.7	11.9	3		1330	124	0.	.0	10.0	5		1530	224	0.	.0	10.0
1		1200	25	45.	7.3	19.1	3		1400	125	0.	.0	10.0	5		1600	225	0.	.0	10.0
1		1230	26	56.	19.9	24.0	3		1430	126	0.	.0	10.0	5		1630	226	0.	.0	10.0
1		1300	27	61.	30.3	26.3	3		1500	127	0.	.0	10.0	5		1700	227	0.	.0	10.0
1		1330	28	63.	36.4	27.4	3		1530	128	0.	.0	10.0	5		1730	228	0.	.0	10.0
1		1400	29	64.	39.6	27.9	3		1600	129	0.	.0	10.0	5		1800	229	0.	.0	10.0
1		1430	30	64.	41.0	28.2	3		1630	130	0.	.0	10.0	5		1830	230	0.	.0	10.0
1		1500	31	64.	41.4	28.2	3		1700	131	0.	.0	10.0	5		1900	231	0.	.0	10.0
1		1530	32	64.	41.3	28.2	3		1730	132	0.	.0	10.0	5		1930	232	0.	.0	10.0
1		1600	33	64.	40.8	28.1	3		1800	133	0.	.0	10.0	5		2000	233	0.	.0	10.0
1		1630	34	64.	40.0	28.0	3		1830	134	0.	.0	10.0	5		2030	234	0.	.0	10.0
1		1700	35	64.	39.1	27.8	3		1900	135	0.	.0	10.0	5		2100	235	0.	.0	10.0
1		1730	36	63.	38.0	27.6	3		1930	136	0.	.0	10.0	5		2130	236	0.	.0	10.0
1		1800	37	63.	36.8	27.4	3		2000	137	0.	.0	10.0	5		2200	237	0.	.0	10.0
1		1830	38	63.	35.6	27.2	3		2030	138	0.	.0	10.0	5		2230	238	0.	.0	10.0
1		1900	39	62.	34.2	27.0	3		2100	139	0.	.0	10.0	5		2300	239	0.	.0	10.0
1		1930	40	62.	32.8	26.8	3		2130	140	0.	.0	10.0	5		2330	240	0.	.0	10.0
1		2000	41	61.	31.4	26.5	3		2200	141	0.	.0	10.0	6		0000	241	0.	.0	10.0
1		2030	42	61.	30.0	26.3	3		2230	142	0.	.0	10.0	6		0030	242	0.	.0	10.0
1		2100	43	60.	28.5	26.0	3		2300	143	0.	.0	10.0	6		0100	243	0.	.0	10.0
1		2130	44	60.	26.9	25.7	3		2330	144	0.	.0	10.0	6		0130	244	0.	.0	10.0
1		2200	45	59.	25.4	25.5	4		0000	145	0.	.0	10.0	6		0200	245	0.	.0	10.0
1		2230	46	59.	23.8	25.2	4		0030	146	0.	.0	10.0	6		0230	246	0.	.0	10.0
1		2300	47	58.	22.3	24.9	4		0100	147	0.	.0	10.0	6		0300	247	0.	.0	10.0
1		2330	48	57.	20.7	24.3	4		0130	148	0.	.0	10.0	6		0330	248	0.	.0	10.0
2		0000	49	56.	19.2	23.8	4		0200	149	0.	.0	10.0	6		0400	249	0.	.0	10.0
2		0030	50	55.	17.6	23.2	4		0230	150	0.	.0	10.0	6		0430	250	0.	.0	10.0
2		0100	51	53.	15.8	22.6	4		0300	151	0.	.0	10.0	6		0500	251	0.	.0	10.0
2		0130	52	52.	13.9	21.9	4		0330	152	0.	.0	10.0	6		0530	252	0.	.0	10.0
2		0200	53	50.	11.9	21.2	4		0400	153	0.	.0	10.0	6		0600	253	0.	.0	10.0
2		0230	54	49.	10.0	20.5	4		0430	154	0.	.0	10.0	6		0630	254	0.	.0	10.0
2		0300	55	47.	8.0	19.7	4		0500	155	0.	.0	10.0	6		0700	255	0.	.0	10.0
2		0330	56	43.	6.2	18.3	4		0530	156	0.	.0	10.0	6		0730	256	0.	.0	10.0
2		0400	57	40.	4.5	17.0	4		0600	157	0.	.0	10.0	6		0800	257	0.	.0	10.0
2		0430	58	36.	2.9	15.8	4		0630	158	0.	.0	10.0	6		0830	258	0.	.0	10.0
2		0500	59	31.	1.6	14.1	4		0700	159	0.	.0	10.0	6		0900	259	0.	.0	10.0
2		0530	60	18.	.6	11.5	4		0730	160	0.	.0	10.0	6		0930	260	0.	.0	10.0
2		0600	61	4.	.1	10.3	4		0800	161	0.	.0	10.0	6		1000	261	0.	.0	10.0
2		0630	62	0.	.0	10.0	4		0830	162	0.	.0	10.0	6		1030	262	0.	.0	10.0
2		0700	63	0.	.0	10.0	4		0900	163	0.	.0	10.0	6		1100	263	0.	.0	10.0
2		0730	64	0.	.0	10.0	4		0930	164	0.	.0	10.0	6		1130	264	0.	.0	10.0
2		0800	65	0.	.0	10.0	4		1000	165	0.	.0	10.0	6		1200	265	0.	.0	10.0
2		0830	66	0.	.0	10.0	4		1030	166	0.	.0	10.0	6		1230	266	0.	.0	10.0
2		0900	67	0.	.0	10.0	4		1100	167	0.	.0	10.0	6		1300	267	0.	.0	10.0

2	0930	68	0.	.0	10.0	4	1130	168	0.	.0	10.0	6	1330	268	0.	.0	10.0
2	1000	69	0.	.0	10.0	4	1200	169	0.	.0	10.0	6	1400	269	0.	.0	10.0
2	1030	70	0.	.0	10.0	4	1230	170	0.	.0	10.0	6	1430	270	0.	.0	10.0
2	1100	71	0.	.0	10.0	4	1300	171	0.	.0	10.0	6	1500	271	0.	.0	10.0
2	1130	72	0.	.0	10.0	4	1330	172	0.	.0	10.0	6	1530	272	0.	.0	10.0
2	1200	73	0.	.0	10.0	4	1400	173	0.	.0	10.0	6	1600	273	0.	.0	10.0
2	1230	74	0.	.0	10.0	4	1430	174	0.	.0	10.0	6	1630	274	0.	.0	10.0
2	1300	75	0.	.0	10.0	4	1500	175	0.	.0	10.0	6	1700	275	0.	.0	10.0
2	1330	76	0.	.0	10.0	4	1530	176	0.	.0	10.0	6	1730	276	0.	.0	10.0
2	1400	77	0.	.0	10.0	4	1600	177	0.	.0	10.0	6	1800	277	0.	.0	10.0
2	1430	78	0.	.0	10.0	4	1630	178	0.	.0	10.0	6	1830	278	0.	.0	10.0
2	1500	79	0.	.0	10.0	4	1700	179	0.	.0	10.0	6	1900	279	0.	.0	10.0
2	1530	80	0.	.0	10.0	4	1730	180	0.	.0	10.0	6	1930	280	0.	.0	10.0
2	1600	81	0.	.0	10.0	4	1800	181	0.	.0	10.0	6	2000	281	0.	.0	10.0
2	1630	82	0.	.0	10.0	4	1830	182	0.	.0	10.0	6	2030	282	0.	.0	10.0
2	1700	83	0.	.0	10.0	4	1900	183	0.	.0	10.0	6	2100	283	0.	.0	10.0
2	1730	84	0.	.0	10.0	4	1930	184	0.	.0	10.0	6	2130	284	0.	.0	10.0
2	1800	85	0.	.0	10.0	4	2000	185	0.	.0	10.0	6	2200	285	0.	.0	10.0
2	1830	86	0.	.0	10.0	4	2030	186	0.	.0	10.0	6	2230	286	0.	.0	10.0
2	1900	87	0.	.0	10.0	4	2100	187	0.	.0	10.0	6	2300	287	0.	.0	10.0
2	1930	88	0.	.0	10.0	4	2130	188	0.	.0	10.0	6	2330	288	0.	.0	10.0
2	2000	89	0.	.0	10.0	4	2200	189	0.	.0	10.0	7	0000	289	0.	.0	10.0
2	2030	90	0.	.0	10.0	4	2230	190	0.	.0	10.0	7	0030	290	0.	.0	10.0
2	2100	91	0.	.0	10.0	4	2300	191	0.	.0	10.0	7	0100	291	0.	.0	10.0
2	2130	92	0.	.0	10.0	4	2330	192	0.	.0	10.0	7	0130	292	0.	.0	10.0
2	2200	93	0.	.0	10.0	5	0000	193	0.	.0	10.0	7	0200	293	0.	.0	10.0
2	2230	94	0.	.0	10.0	5	0030	194	0.	.0	10.0	7	0230	294	0.	.0	10.0
2	2300	95	0.	.0	10.0	5	0100	195	0.	.0	10.0	7	0300	295	0.	.0	10.0
2	2330	96	0.	.0	10.0	5	0130	196	0.	.0	10.0	7	0330	296	0.	.0	10.0
3	0000	97	0.	.0	10.0	5	0200	197	0.	.0	10.0	7	0400	297	0.	.0	10.0
3	0030	98	0.	.0	10.0	5	0230	198	0.	.0	10.0	7	0430	298	0.	.0	10.0
3	0100	99	0.	.0	10.0	5	0300	199	0.	.0	10.0	7	0500	299	0.	.0	10.0
3	0130	100	0.	.0	10.0	5	0330	200	0.	.0	10.0	7	0530	300	0.	.0	10.0

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	149.50-HR
64.	15.00	(CFS)	63.	43.	14.	7.
		(INCHES)	.496	1.351	1.352	1.352
		(AC-FT)	31.	86.	86.	86.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	149.50-HR
41.	15.00	39.	18.	6.	3.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	149.50-HR
28.23	15.00	27.74	20.61	13.54	11.70

CUMULATIVE AREA = 1.19 SQ MI

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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	D1	77.	12.00	15.	5.	2.	.08		
HYDROGRAPH AT	A	80.	12.50	26.	8.	3.	.29		
ROUTED TO	R1	77.	12.50	26.	8.	3.	.29		
2 COMBINED AT	PT.5	123.	12.00	41.	13.	4.	.37		
ROUTED TO	R2	115.	12.50	41.	13.	4.	.37		
HYDROGRAPH AT	D3	68.	12.00	13.	4.	1.	.07		
HYDROGRAPH AT	D2	22.	12.00	4.	1.	0.	.02		
ROUTED TO	R3	19.	12.00	4.	1.	0.	.02		
3 COMBINED AT	PT.6	194.	12.00	59.	19.	6.	.47		
ROUTED TO	R4	174.	12.00	59.	19.	6.	.47		
HYDROGRAPH AT	B	154.	12.50	53.	17.	6.	.60		
ROUTED TO	R5	150.	12.50	53.	17.	6.	.60		
HYDROGRAPH AT	D4	23.	12.00	5.	1.	0.	.02		
2 COMBINED AT	.	160.	12.50	58.	18.	6.	.62		

+	ROUTED TO	R6	155.	12.50	58.	18.	6.	.62		
+	HYDROGRAPH AT	D5	91.	12.00	18.	6.	2.	.10		
+	3 COMBINED AT	PT.7	363.	12.50	135.	43.	14.	1.19		
+	ROUTED TO	DET	64.	15.00	63.	43.	14.	1.19		
+									28.23	15.00
+	ROUTED TO	R7	64.	15.00	63.	43.	14.	1.19		
+	HYDROGRAPH AT	C	156.	12.50	56.	18.	6.	.63		
+	ROUTED TO	R8	153.	12.50	56.	18.	6.	.63		
+	HYDROGRAPH AT	D6	19.	12.00	4.	1.	0.	.02		
+	HYDROGRAPH AT	D7	17.	12.00	3.	1.	0.	.02		
+	2 COMBINED AT	COM1	36.	12.00	7.	2.	1.	.04		
+	2 COMBINED AT	COM2	170.	12.50	63.	20.	7.	.67		
+	2 COMBINED AT	PT.4	225.	12.50	122.	63.	21.	1.86		

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SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
R1	MANE	1.86	79.85	754.02	1.04	30.00	77.13	750.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1626E+02 EXCESS= .0000E+00 OUTFLOW= .1626E+02 BASIN STORAGE= .4109E-06 PERCENT ERROR= .0

R2	MANE	2.06	122.79	724.00	1.31	30.00	115.23	750.00	1.32

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2606E+02 EXCESS= .0000E+00 OUTFLOW= .2606E+02 BASIN STORAGE= .2722E-05 PERCENT ERROR= .0

R3	MANE	2.11	22.21	724.17	2.22	30.00	19.44	720.00	2.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2788E+01 EXCESS= .0000E+00 OUTFLOW= .2790E+01 BASIN STORAGE= .1138E-11 PERCENT ERROR= -.1

R4	MANE	1.82	193.25	724.48	1.50	30.00	173.69	720.00	1.51

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3758E+02 EXCESS= .0000E+00 OUTFLOW= .3758E+02 BASIN STORAGE= .5595E-05 PERCENT ERROR= .0

R5	MANE	1.08	153.13	751.70	1.04	30.00	149.55	750.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3339E+02 EXCESS= .0000E+00 OUTFLOW= .3339E+02 BASIN STORAGE= .1456E-06 PERCENT ERROR= .0

R6	MANE	1.33	159.74	752.37	1.09	30.00	155.07	750.00	1.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3639E+02 EXCESS= .0000E+00 OUTFLOW= .3639E+02 BASIN STORAGE= .6815E-06 PERCENT ERROR= .0

R7	MANE	1.92	64.37	903.69	1.35	30.00	64.35	900.00	1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8587E+02 EXCESS= .0000E+00 OUTFLOW= .8587E+02 BASIN STORAGE= .9094E-06 PERCENT ERROR= .0

R8	MANE	.86	156.05	751.78	1.04	30.00	152.66	750.00	1.05

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3504E+02 EXCESS= .0000E+00 OUTFLOW= .3504E+02 BASIN STORAGE= .9208E-07 PERCENT ERROR= .0

*** NORMAL END OF HEC-1 ***

GIBSON CLOMR (ADDENDUM #4)
CITY OF HENDERSON
M & O LETTER

CITY OF HENDERSON
240 Water Street
P. O. Box 95050
Henderson, NV 89009

July 18, 2007
Case No.: 06-09-B898R

Sheila M. Norlin, CFM; National LOMC Manager
Federal Emergency Management Agency
Michael Baker Jr., Inc.
3601 Eisenhower Avenue
Alexandria, VA 22304-6425

Reference: Case No.: 06-09-B898R (Gibson Channel to Pioneer Outfall Phase II)
Community: City of Henderson, NV
Comm. No.: 320005

Dear Ms. Norlin:

The City of Henderson will continue to operate and maintain the Henderson Commerce Center (HCC) detention basin. Although this detention basin is not identified on the Clark County Regional Flood Control District Master Plan, the City has accepted responsibility for maintenance of said detention basin and agrees to follow the maintenance procedures and frequencies as outlined in the CCRFCD's Operation and Maintenance Manual. The City of Henderson's Maintenance Manager is responsible for ensuring that these maintenance activities are carried out.

Please do not hesitate to contact me if you need further information. I can be reached at (702) 267-3061.

Sincerely,

The City of Henderson

Joseph V. Damiani, P.E., CFM
Flood Control Coordinator
Public Works Department