Application for Letter of Map Revision (LOMR)
Bella Vista Ranch Phase 1
City of Reno, Nevada

Prepared for:
Centex Homes, Nevada

Prepared by:
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January, 2008
Job No. N0432

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1.0 INTRODUCTION

This narrative has been prepared to accompany an application for a Letter of Map Revision (LOMR) for Bella Vista Ranch Phase 1. Bella Vista Ranch is bounded on the east by Mira Loma Road, the west and south by the Damonte Ranch and Double Diamond Ranch developments, and the north by the Butler Ranch, a privately owned ranch. Bella Vista Ranch is located north of the new flood control detention facilities on Damonte Ranch, part of the regional flood control facilities. The development consists of a medium- to high-density single family residential area with lot sizes generally less than 1/8 acre. The property lies within the City of Reno's jurisdiction and within the Southeast Truckee Meadows Master Plan area Figure 1 shows a vicinity map for this area.

The Southeast Truckee Meadows Specific Plan area lies within the Steamboat Creek hydrologic basin. In addition to Steamboat Creek, flows from two branches of Whites Creek and flows from the Virginia Range affect this area. Regional detention facilities and major channel systems provide conveyance and control of 100-year storm waters. The area covered by this study is found on Panels 3178 and 3179 of FIRM Number 32031C3178 E, Washoe County, Nevada and Incorporated Areas. Both panels will be modified by this LOMR. The most recent floodplain adjustments were done under "An application for Letter of Map Revision (LOMR) for the Damonte Ranch/Double Diamond Ranch Regional Flood Control Improvements" (September 2004), FEMA Case No. 05-09-0105P. It was approved by FEMA in October 2005 (see panels 3186 and 3187 in Appendix E). Additionally, FEMA has recently issued a Conditional Letter of Map Revision (CLOMR) for Damonte Ranch Phase V and Bella Vista Ranch Phase 1 dated August 8, 2007 (Quad Knopf, 2007). Quad Knopf presently has a LOMR for Damonte Ranch V in review with FEMA under Case No. 07-09-1677R (Quad Knopf, 2007).

A number of hydrologic and hydraulic analysis reports are available for this area and the surrounding development. These reports are listed in the reference section.

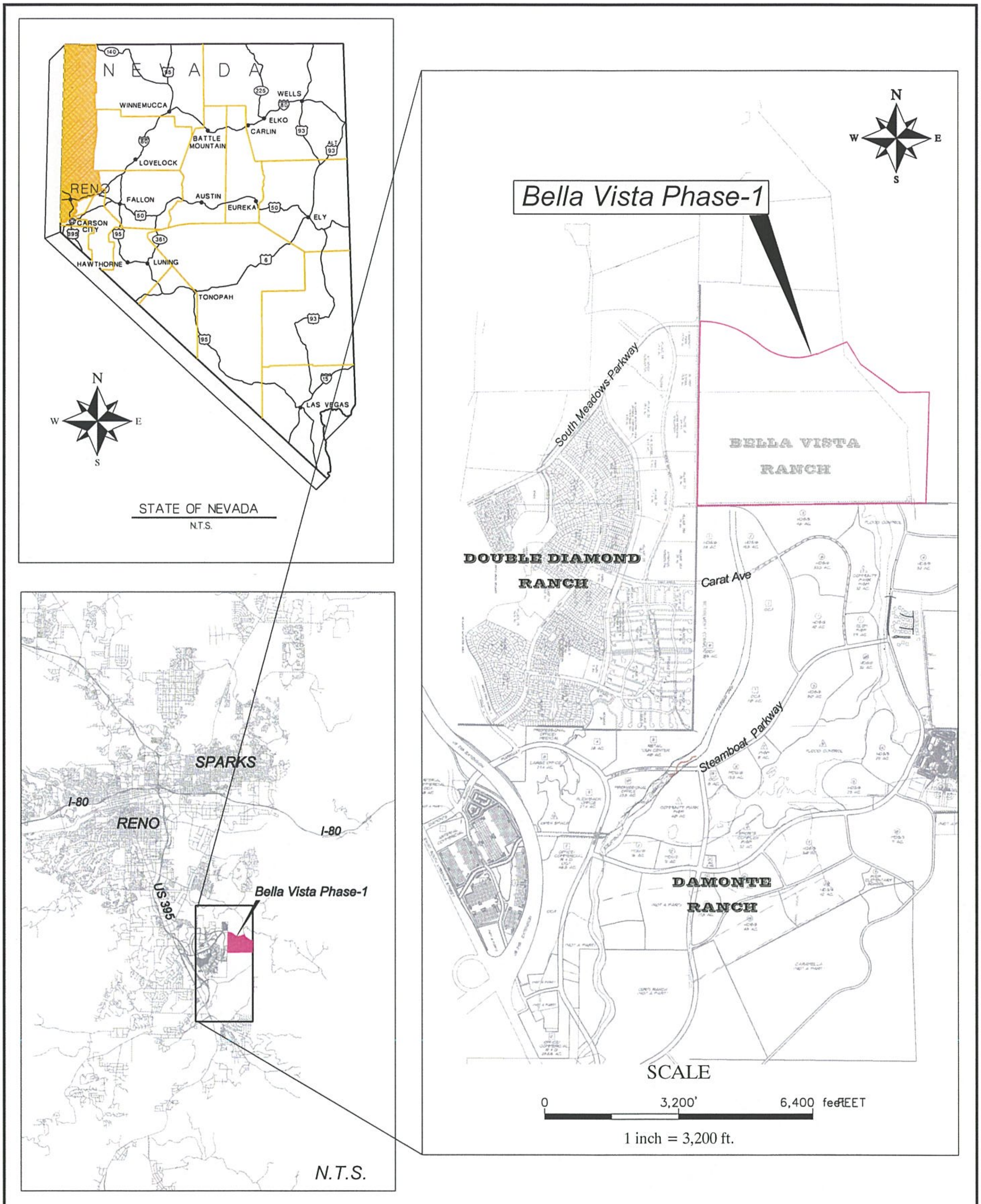

FIGURE 1
Vicinity Map
Bella Vista Phase-1 LOMR
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2.0 EXISTING AND DEVELOPED CONDITIONS

2.1 Existing Conditions

As mentioned earlier, the most recent floodplain adjustments (Figure 2) were done under Damonte Ranch/Double Diamond Ranch Regional Flood Control Improvements (FEMA Case No. 05-09-0105P), although another revision is currently under review (FEMA Case No. 07-09-1677R, Quad Knopf, 2007.) Steamboat Creek high flows will be split at the Damonte Diversion Structure. Approximately 4154 cfs, or 52% of the 100-year flood flow, will continue northward in the existing Steamboat Creek channel, and 3838 cfs, or 48% of the flow, will be diverted eastward through regional detention basin, wetlands and ponds, then northward to the where it crosses Damonte Ranch property line and sheet flows into the realigned Steamboat Creek Channel. The proposed model from Damonte Phase V (DRph5.dat) from the LOMR case currently under review by FEMA will be used as the existing condition model for the Bella Vista Phase 1. Results of the model are contained in the Appendix C. Figure 3, Damonte V Hydrologic Workmap, illustrates the area covered in the LOMR presently under review. Flows from the Realigned Steamboat Creek Channel (RSCC) through Bella Vista Phase 1 will be returned to sheet flow condition prior to reaching the Butler Ranch, in order to maintain existing flow conditions on the Butler Ranch, shown as watershed subbasin D5 in Figure 4.

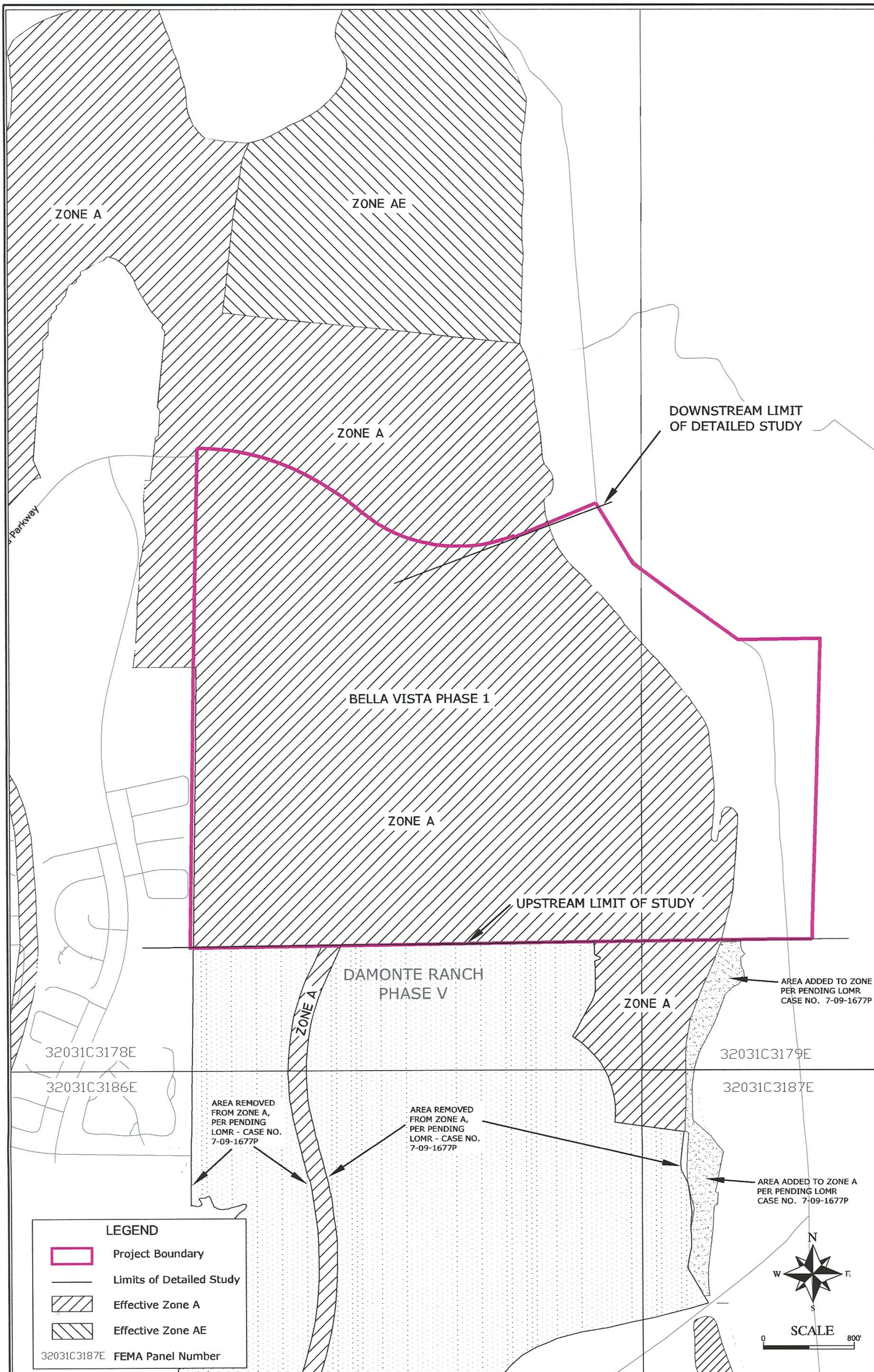
2.2 Developed Conditions

Bella Vista Ranch Phase 1 is located north of the new flood control channels and detention facilities on Damonte Ranch and south of the Butler Ranch, a privately owned ranch (Figure 1). The proposed condition model (DRph5+BV1.dat) is contained in Appendix C. Bella Vista Ranch Phase 1 is a medium- to high-density single family residential development with lot sizes generally less than 1/8 acre. RSCC has been improved to contain flood flows up to and including the design event, the 100-year, 24-hour storm, through the Bella Vista Ranch Phase 1 property. RSCC turns east just downstream from where it enters into Bella Vista Ranch from Damonte Ranch to its historic alignment along the toe of the Virginia Range.

FIG 1

New channels and storm drains have been constructed to convey the storm waters from the Bella Vista Ranch development to the RSCC. The West Boundary Channel discharges into an existing regional flood control channel south of South Meadows Parkway. The East-West Channel carries interior drainage from the southerly portion of Phase 1 and discharges into the RSCC upstream of South Meadows Parkway. An underground storm drain beginning at the intersection of Veterans Parkway and South Meadows Parkway carries flows from the northerly portion of Phase 1 and discharges into the RSCC where South Meadows Parkway currently terminates.

WHERE?



Sheet 1 of 1	FIGURE 2 Existing Conditions FEMA Zone Map Bella Vista Phase-1 LOMR Centex Homes Washoe County Nevada	Scale: 1" = 800'	Revisions:	Quad Knopf 9600 Prototype Ct. Reno, Nevada 89521 TEL: (775) 324-1212 FAX: (775) 324-2311 WEB: www.quadknopf.com N0432
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		Designed By: RH		

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3.0 HYDROLOGIC ANALYSIS

The hydrologic analyses for the Bella Vista Ranch Phase 1 project have been performed using the Corps of Engineers HEC-1 computer program (U.S. Army Corps of Engineers, 1998) and current effective models accepted by FEMA. The modeling analyses included with this report are for the existing condition (Damonte Ranch Phase V development; file name DRph5.dat) and the developed condition (Damonte Ranch Phase V development and Bella Vista Ranch Phase 1 development; file name DRph5+BV1.dat). The outputs from these models are included in Appendix C and in electronic format on a CD also located in Appendix C. The hydrologic workmaps and regional watershed map, Figures 3, 4 and 5, respectively, display the basin configuration used in the models. Refer to Nimbus Engineers (2004) for the watershed parameters used in the models. It should be noted that 100-year flood flows mentioned here are based on updated HEC-1 models, which contain the *As-Built UPDATE* for Damonte Ranch/Double Diamond Ranch Regional Flood Control Improvements, described in Appendix B.

WHO REQUIRES THIS?

The City of Reno requires mitigation of the increase in volume resulting from the 100-year, 72-hour storm event for development in the vicinity of Damonte and Bella Vista Ranches. Per information in the CLOMR (Quad Knopf, 2007), the pre-development 100-year, 72-hour model generated 101 acre-feet on the project site. The post-development model generated 121 acre-feet, an increase of 20 acre-feet from development of the Bella Vista Phase 1 project. The models are contained in the CLOMR (Quad Knopf, 2007).

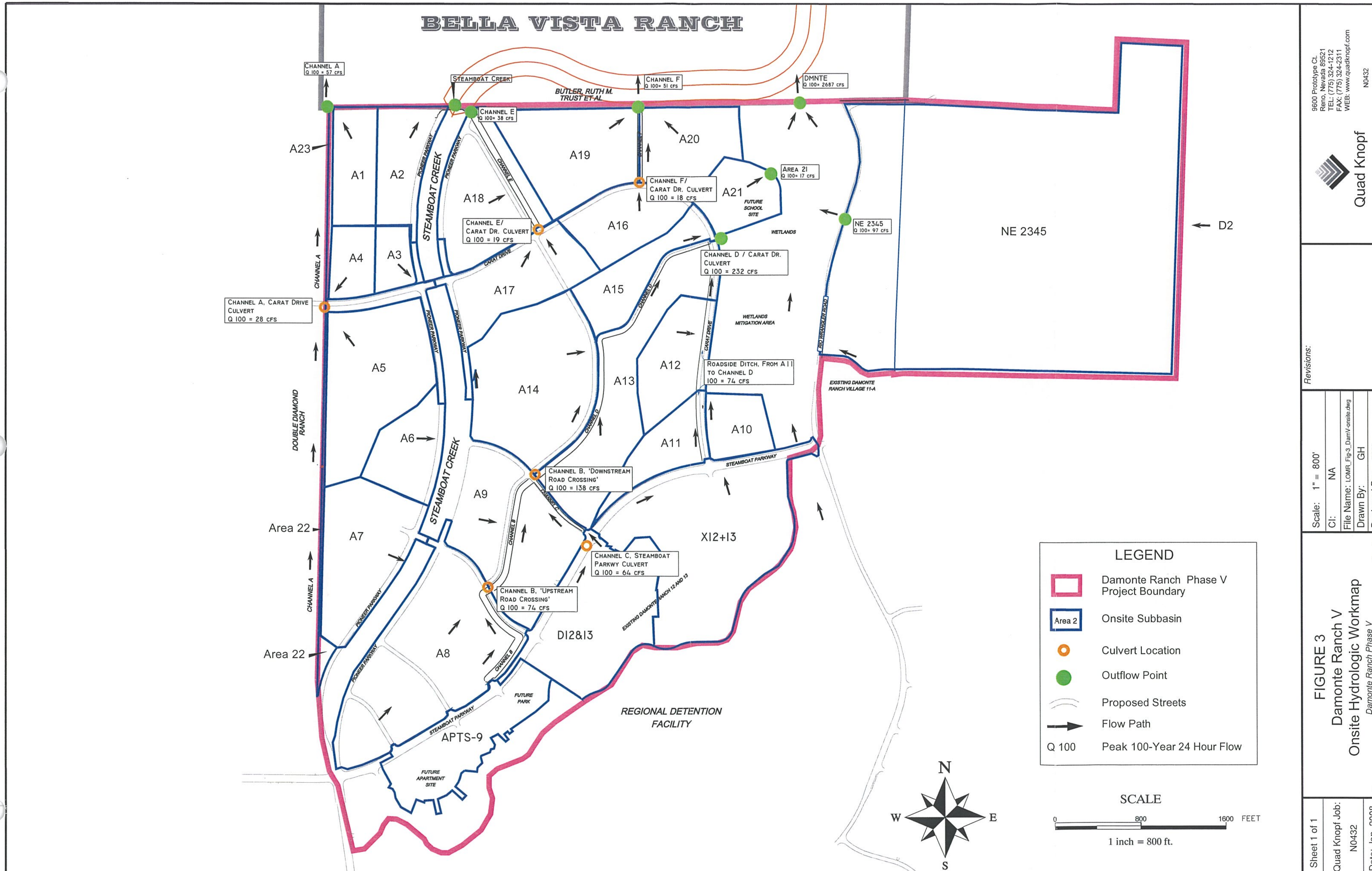
3.1 On-site Hydrologic Analysis

The SCS methodologies were originally used to develop the on-site parameters used in the HEC-1 hydrologic modeling for the Southeast Truckee Meadows. Due to revisions in the grading plan and lot layouts, the number of watersheds has increased from the original Southeast Truckee Meadows study. The watershed boundaries were also modified in this study to reflect as-built grading. The overall drainage patterns were not significantly altered. Figure 3 shows the existing condition watershed map for the region and Figure 4 shows the revised on-site watersheds used in the new post-development HEC-1 model.

Curve numbers originally developed for this area as a part of the Southeast Truckee Meadows Flood Control Master Plan were modified, as needed, based on development type (see the calculations for original curve numbers in Nimbus Engineers, 2004). On-site basins generally drain to the RSCC and the west side channel. The East-West channel will collect a portion of the flows from the future development on the western side of Steamboat Parkway (BVW-7) and from BV-5, BV-6, BV-7, BV-8, BV-9 and BV-10. Times of concentration were determined to be the minimum (10 minutes) based upon the formulas in the Washoe County, Hydrologic Criteria and Drainage Design Manual (Washoe County, 1996); therefore, calculations are not included. The new curve numbers for Bella Vista Ranch Phase 1 were determined based upon the criteria in Table 702 of the Washoe County, Hydrologic Criteria and Drainage Design Manual (Washoe County, 1996). Developed land-use conditions used to estimate curve numbers were 1/8 and 1/4 acre residential lots, neighborhood areas, and wetlands. The hydrologic parameters used in the revised HEC-1 model are included below in Table 1.

Table 1: On-Site Watershed Parameters

Sub-basin ID	Area (acres)	Area (sq mi)	CN Pre-Development	CN Post-Development
BV 1	19.67	0.031	74	90
BV 2	4.5	0.007	74	83
BV 3	7.88	0.012	74	90
BV 4	7.66	0.012	74	90
BV 5	3.38	0.005	74	83
BV 6	5.44	0.009	74	90
BV 7	10.25	0.016	74	90
BV 8	14.94	0.023	74	83
BV 9	11.36	0.018	74	83
BV 10	9.43	0.015	74	83
BV 11	7.66	0.012	74	84
BV 12	19.68	0.031	74	85
BV 13	3.47	0.005	74	87
BV 14	4.69	0.007	74	84
BV 15	11.3	0.018	74	83
BV 16	3.74	0.006	74	83
BVW 1	14.15	0.0271	74	81
BVW 3	18.6	0.0501	74	79
BVW 5	14.04	0.049	74	90
BVW 6	6.5	0.01	74	83
BVW 7	39.83	0.062	74	83
BVW 8	24.13	0.0431	74	83



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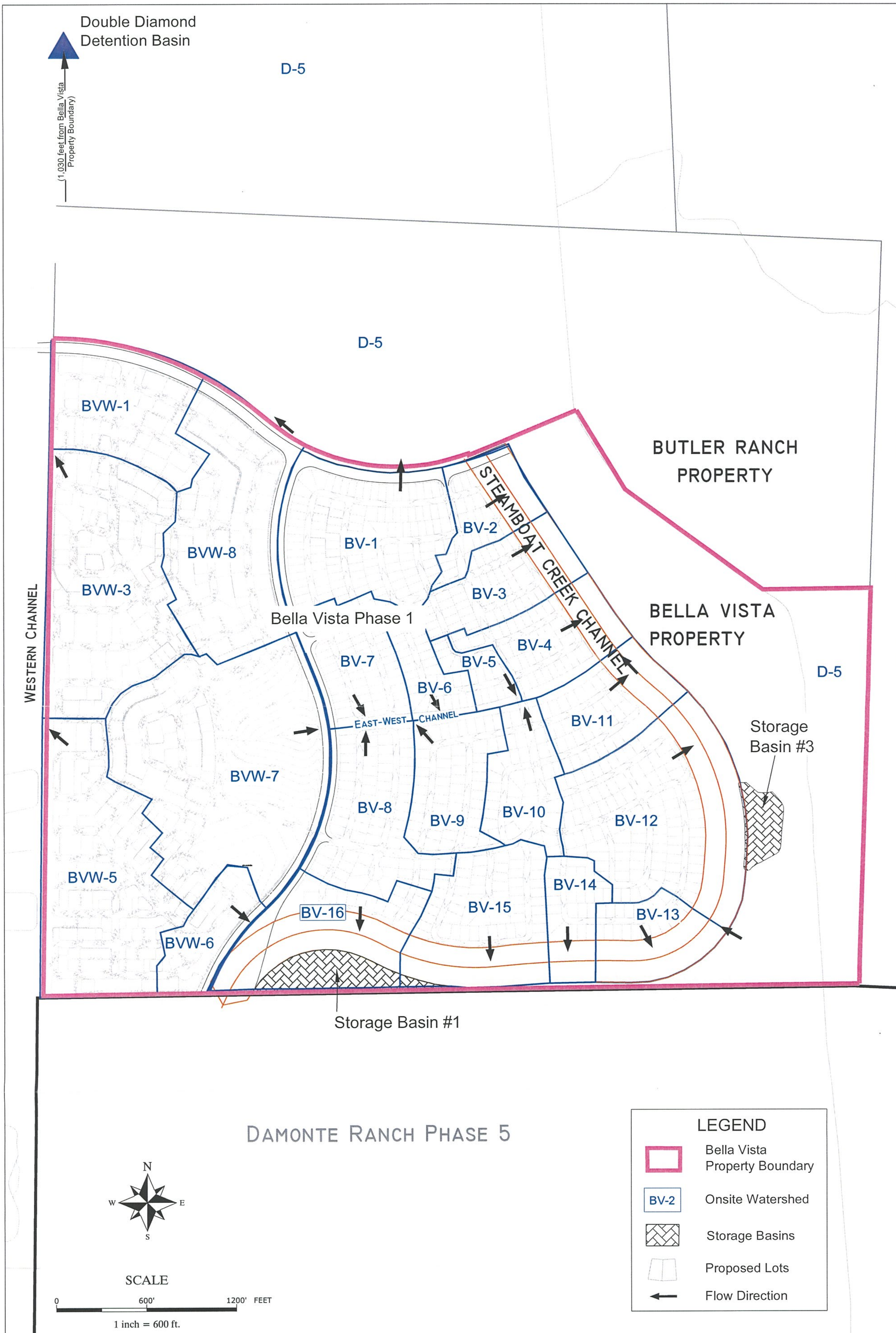

Sheet 1 of 1	FIGURE 4 Onsite Hydrologic Workmap Bella Vista Phase-1 LOMR Centex Homes Reno Nevada	Scale: 1" = 600' CI: NA File Name: LOMR_Fig4_bv onsite.dwg Drawn By: GH Designed By: RH	Revisions:	Quad Knopf 9600 Prototype Ct. Reno, Nevada 89521 TEL: (775) 324-1212 FAX: (775) 324-2311 WEB: www.quadknopf.com N0432
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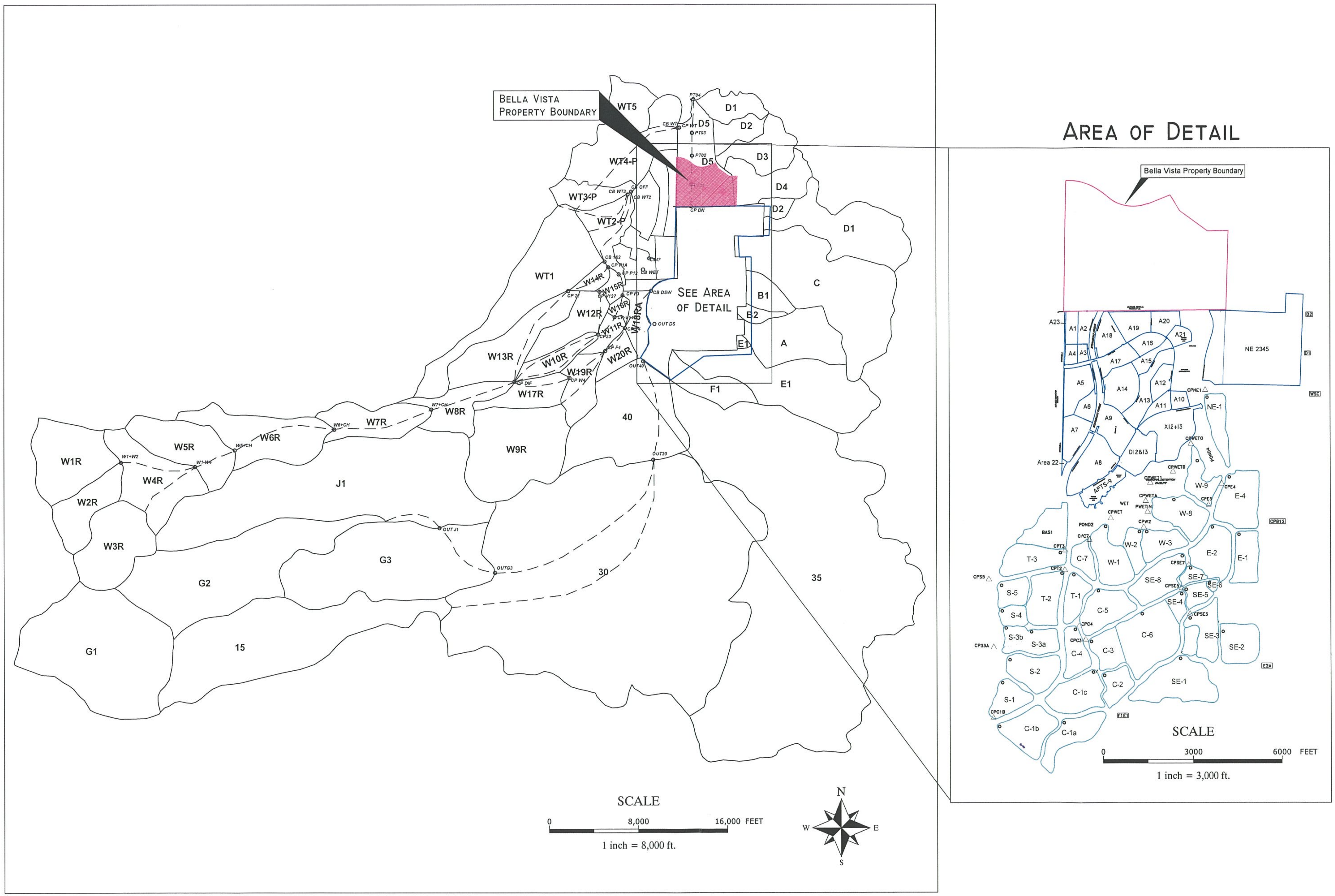

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References:

Scale: 1" = 8000' & 1" = 3000' (inset)
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FIGURE 5
Regional Watershed Map
Bella Vista Phase-1 LOMR
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3.2 Results

The 100-year, 24-hour peak discharges at key locations/control points are given in Table 2. As previously mentioned the outputs from these models are included in Appendix C, and in electronic format on a CD also located in Appendix C. The peak flows in the Main Steamboat channel are within acceptable limits and in compliance with the Southeast Truckee Meadows Specific Plan (see Section 4.0).

Table 2: 100-year, 24-hour Peak Discharges at Key Locations, Bella Vista Phase 1

Location	Model Node	Flow Rate (cfs)
Main Steamboat Channel, at Damonte Ranch Property Line = Upstream end of Bella Vista Phase 1	STM+E	4193
Main Steamboat Channel, after Channel F	STM+AF	4213
Main Steamboat Channel, after sheet flow from Damonte Wetlands	Stmbv3	6407
Main Steamboat Channel, after onsite sub basin 12	StBV33	6413
Main Steamboat Channel, after Confluence with East-West Channel	STMBV2	6452
Main Steamboat Channel, south of South Meadows Parkway	STM+ 2	6466
StmBV1, Northerly Phase 1 Boundary at Butler Ranch	StmBV1	6477
Western Perimeter Ditch at Outlet to Regional Channel	WSTOUT	117
Channel F	CHNL-F	51
DMNTE, Damonte Wetlands at entrance to Steamboat Realigned Channel	DMNTE	2762

As a check between the existing and proposed models, a comparison of the total flow in the RSCC downstream of Damonte Ranch Phase 5 was conducted. Separate check models, terminating at the northern Damonte Ranch border, were prepared. Drph5_chk drout.dat is the truncated existing condition model. The subbasins contributing to flows in Channel A, also known as the West Boundary Channel, were removed from this model since Channel A does not discharge into the RSCC until downstream from both the Damonte and Bella Vista Ranches. +BV1_chk drout.dat is the truncated proposed condition model. Subbasins for the West Boundary Channel were removed from this model as well. The peak flows from the two truncated models only differ by 2 cfs, 6382 cfs versus 6384 cfs. The flow rate under the natural, pre-development, condition in the Southeast Truckee Meadows is 8525 cfs (FEMA Case No. 01-09-589R; Nimbus Engineers, 2001) and the flow estimated in the approved Damonte/Double Diamond LOMR application (Nimbus Engineers, 2004) is 5972 cfs (6076cfs in the updated HEC-1 model, Appendix C). Hence, the planned development is in compliance with the Master Plan.

4.0 HYDRAULIC ANALYSIS

4.1 Existing Conditions

A series of detention/flow retarding basins were constructed for the Damonte Ranch flood control improvements. These improvements are designed to preserve and/or enhance existing wetlands, and to mitigate the effects of channelization and development on the Damonte Ranch site. The improvements and the resulting change in flow patterns were recognized in a LOMR under FEMA Case No. 05-09-0105P (Nimbus Engineers, 2004). In addition, there is currently a LOMR in review with FEMA for Damonte Ranch Phase V improvements under Case No. 07-09-1677R (Quad Knopf, 2007). The developed condition for the LOMR in review will be considered as the existing condition for this LOMR, as summarized below. The existing FIRM for this area is included as Plate 1.

Just downstream of the point where Branch 3 enters Steamboat Creek, the flow enters a diversion structure that directs approximately 52% of the 100-year peak flood flows (4154 cfs) northward in the Steamboat Creek low-flow channel. The remaining 48%, approximately 3838 cfs, of the flow is diverted eastward through the Regional Detention Basin, Wetlands Detention, and Pond 4, and then northward to the Damonte Ranch property line (Plate 2). Under existing conditions, the flows from both the Steamboat Creek channel and the flood control structures on Damonte Ranch are dispersed into sheet flow before entering the Bella Vista Ranch property line. Table 3 summarizes the HEC-2/HEC-RAS hydraulic models developed for the movement of the channelized flows from both the Steamboat Creek channel and the regional flood control structures to the Bella Vista Ranch (see Nimbus Engineers, 2004). It should be noted that all the elevations in the approved LOMR are referenced to the North American Geodetic Vertical Datum 1929 (NGVD29).

Table 3: Damonte Ranch Flood Control Facilities Models (Nimbus Engineers, 2004)

HEC-2 or HEC-RAS Input File Name	Hydraulic Model Description
30LOMR1.DAT*	Sheet flow across the Bella Vista Ranch
DDVIL30.DAT*	Flow spilling westward out of Steamboat Creek
Wetld.prj	Sheet flow across Wetlands
STEAST.prj	Detention basin flow to Bella Vista Ranch - Channelized flow to sheet flow
WEST.PRJ	Steamboat Creek channel flow to Bella Vista Ranch - Channelized flow to sheet flow
* HEC-2 models, all other are HEC-RAS	

The flood control facilities constructed as part of the development of Damonte Ranch V and delineated in the FEMA Case No. 07-09-1677R (Quad Knopf, 2007), currently under review by FEMA, further contain and control flows entering Bella Vista Ranch. The flows enter Bella Vista Ranch from Damonte Ranch at four locations: Steamboat Channel, West Boundary Channel, Channel F, and the Damonte Wetlands. The flows from both the RSCC and the flood control structures on Bella Vista and Damonte Ranches are dispersed into sheet flow before entering the Butler Ranch property north of the Bella Vista Phase 1 property line.

4.2 Developed Conditions

Hydraulic calculations for the RSCC were performed with HEC-RAS version 3.1.3 using the peak flows generated with the HEC-1, developed condition model described in the Hydrologic Analysis section of this report. The Hydraulic Workmap (see Plate 2) shows the alignment of the RSCC and the location of the HEC-RAS sections along the Channel alignment and wetlands. Standard Table No. 1 and 2 of the HEC-RAS calculations and HEC-RAS cross sections of the channel are contained in Appendix D. The As-Built Drawing for the RSCC in Bella Vista Phase 1 is included as Plate 2.

4.2.1 Completed RSCC: Bella Vista Reach

As-Built RSCC is compatible with the goals of the Steamboat Creek restoration plan and has been developed in consultation with the U.S. Army Corps of Engineers and the wetland scientists for the project. The channel will convey flows from west to east to combine with the flows from the Damonte Wetlands, then turning northward following the historic alignment of Steamboat Creek. Existing slopes and the flowline of the channel are consistent with the proposed construction plans and the CLOMR. The HEC-RAS model for the RSCC in Bella Vista ranch was developed based on the attached as-built hydraulic workmap contours (Plate 2).

DIGNEAD? — WHERE?

The channel between Veterans Parkway and South Meadows Parkway (River Station 84 through River Station 17) is a trapezoidal cross section with a 200-foot bottom and 3:1 side slopes. A meandering low flow channel was constructed throughout this reach. Manning's n-values of 0.035 were assumed for the flat bottom and the sides of the channel and 0.030 for the meandering low flow channel for this reach of creek.

From River Station 18 through River Station 48, the east bank of the RSCC intercepts the existing ground at 3:1 slope. Storage basin No. 3 has been constructed adjacent to the east bank from River Station 48 through River Station 51. From River Station 51 through River Station 54 the east bank intercepts existing ground at a 3:1 slope. Riprap has been placed around the inside and outside of curves to prevent bank erosion, as well as along the south bank of the channel between Storage Basin No. 1 and the beginning of the curve downstream of Basin No. 1. In addition, a riprap pad was placed on the channel bottom along the outside of the curve from station 53+50 to station 61+00. This pad and the riprap sloped and cutoff wall will protect the bank and channel bottom from erosion due to sheet flow spilling over the bank and into the channel from the Damonte Wetlands. Storage basin No. 1 has been constructed adjacent to the south bank from River Station 76 westerly to the culvert under Veterans Parkway, where the bank increases in height to meet culvert wing wall. The proposed development is in fill adjacent to west and north banks, eliminating the need for a levee along these sides. A 12-foot wide combination trail and access road is constructed at the top of the slope adjacent to the channel on the north and west side of the channel, adjacent to the development. The westerly bank increases in height as it approaches Veterans Parkway to meet the culvert wing walls.

Downstream of South Meadows Parkway the flow transitions to sheet flow as it enters ~~the~~ the Butler Ranch Property (River Stations 5 through 17). Grading in this reach is within a drainage easement. The bottom of the channel transitions from 200 feet to the existing incised channel. Side slopes intersect the existing ground on both sides of the channel allowing the flow to spill out into the natural floodplain. The divergence angle from channel flow to sheet flow was controlled by the use of non-effective flow areas along the westerly side to provide a theoretical smooth transition in width. A Manning's n-value of 0.030 was used for the first flow channel and a value of 0.035 was used for disturbed areas outside of the first flow channel. A Manning's value of 0.050 was retained for the undisturbed areas. The 0.050 value was taken from the existing LOMR (HEC-2 model: 30LOMR1.DAT).

The Phase 1 detailed study ends at the downstream side of South Meadows Parkway, the northerly boundary of the Bella Vista Ranch; however, as stated above, grading and construction activities have occurred downstream in a recorded drainage easement on the Butler Ranch property. In order to tie the revised floodplain boundary into the effective base flood boundary at the downstream limit of the study area, a known water surface elevation at HEC-RAS Station 0.225 was used as downstream control for Bella Vista reach (Figure 6). This water surface elevation was obtained from the existing condition hydraulic model (HEC-2 model: 30LOMR1.DAT). Since all elevations in the existing HEC-2 model are referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29), the downstream control elevation for Bella Vista reach was adjusted to North American Vertical Datum of 1988 (NAVD 88) by adding 3.33ft; therefore, the water surface elevation for downstream control is 4428.78 ft (the water surface elevation at HEC-2 Station 0.225 in Appendix D, 4425.45 ft plus 3.33 ft). The water surface elevations computed for the Bella Vista Phase 1 LOMR between Station 0.225 and South Meadows are equal to, or below, the water surface elevations computed in the existing hydraulics model (HEC-2 model: 30LOMR1.DAT); therefore, the new boundary of 100-year flooding within the existing boundary for 100-year flooding (Figure 6). A comparison of the existing water surface elevations and those computed for the Bella Vista Phase 1 LOMR are contained in Table 4 below. A normal depth with a slope of 0.003 was used upstream control of the Bella Vista reach.

From Steve?

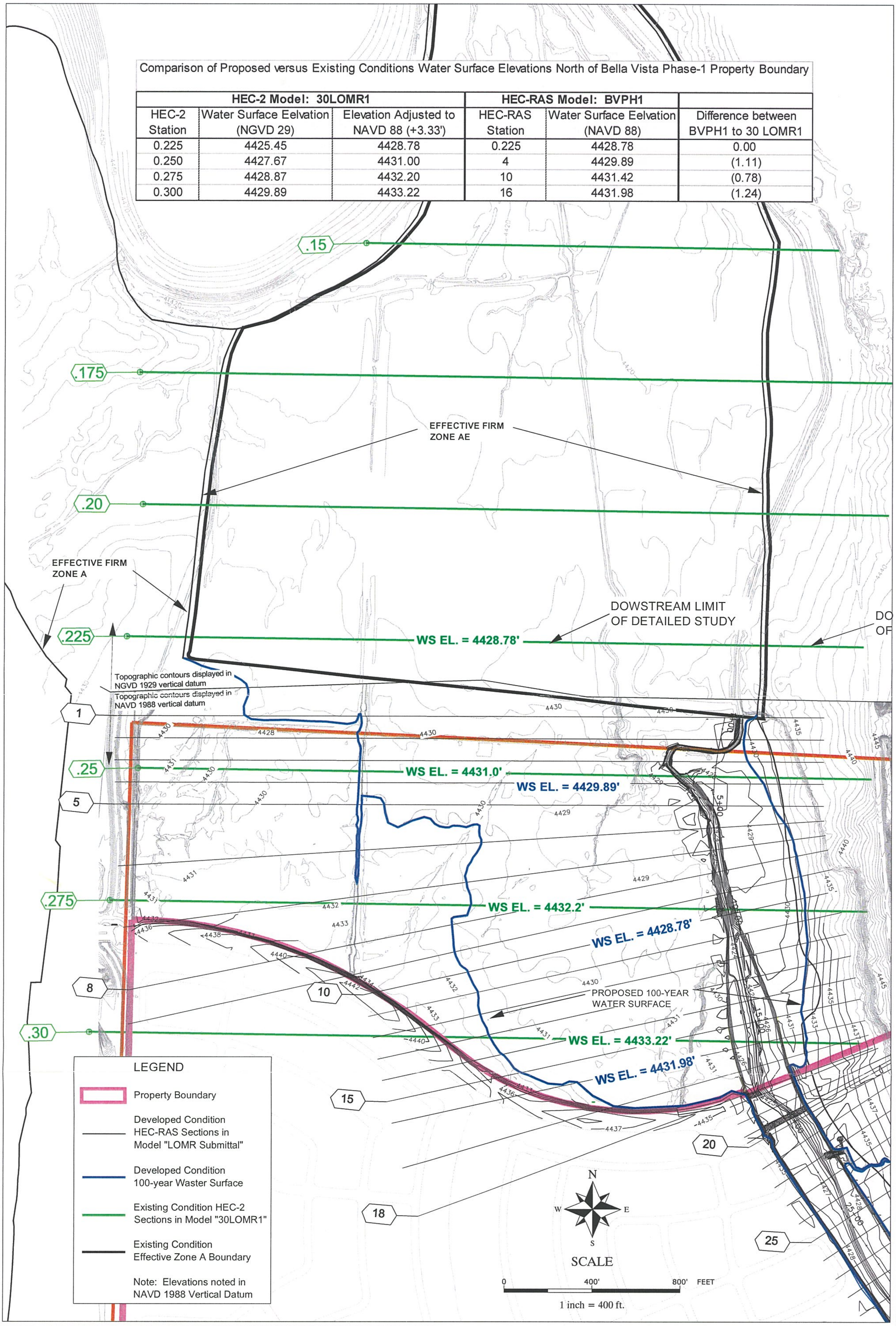
***Table 4**: Comparison of Proposed Versus Existing Conditions Water Surface Elevations North of Bella Vista Phase 1 Property Boundary*

HEC-2 Model: 30LOMR1			HEC-RAS Model: BVPH1		
HEC-2 Station	Water Surface Elevation (NGVD 29)	Elevation Adjusted to NAVD 88 (+3.33')	HEC-RAS Station	Water Surface Elevation (NAVD 88)	Difference between BVPH1 to 30 LOMR1
0.225	4425.45	4428.78	0.225	4428.78	0.00
0.250	4427.67	4431.00	4	4429.89	(1.11)
0.275	4428.87	4432.20	10	4431.42	(0.78)
0.300	4429.89	4433.22	16	4431.98	(1.24)

Flow from the Damonte Wetlands enters the RSCC as sheet flow. Node DMNTE in the proposed HEC-1 model indicates a peak flow of 2762 cfs at the confluence. This flow was used as Profile 1 in the HEC-RAS model for the Damonte Wetlands. (HEC-RAS model Damonte Phase V – Wetlands with a file name of Wetland.prj). The flow from the Damonte Wetlands to the RSCC is 2194 cfs when the RSCC is at its peak. The flow by parts routine in HEC-RAS and the flow of 2194 (Profile 2) were used to calculate the distribution of the wetland flow into the RSCC at Section .20 in the Wetlands model. The calculations are contained in Appendix D, Damonte Wetlands and the results are shown in the Table 5 below and are illustrated in Figure 7.

Comparison of Proposed versus Existing Conditions Water Surface Elevations North of Bella Vista Phase-1 Property Boundary

HEC-2 Model: 30LOMR1			HEC-RAS Model: BVPH1		
HEC-2 Station	Water Surface Eelvation (NGVD 29)	Elevation Adjusted to NAVD 88 (+3.33')	HEC-RAS Station	Water Surface Eelvation (NAVD 88)	Difference between BVPH1 to 30 LOMR1
0.225	4425.45	4428.78	0.225	4428.78	0.00
0.250	4427.67	4431.00	4	4429.89	(1.11)
0.275	4428.87	4432.20	10	4431.42	(0.78)
0.300	4429.89	4433.22	16	4431.98	(1.24)



Sheet 1 of 1	FIGURE 6	Scale: 1" = 400'	Revisions:	
Quad Knopf Job: N0432	Existing Versus Proposed Water Surface Elevations North of Property Boundary	CI: 1 foot		Quad Knopf
	Bella Vista Phase-1 LOMR	File Name: LOMR_Fig6&7_Plat2_TWM.dwg		9600 Prototype Ct. Reno, Nevada 89521 TEL: (775) 324-1212 FAX: (775) 324-2311 WEB: www.quadknopf.com
Date: Jan. 2008	Reno Centex Homes, Inc. Nevada	Drawn By: GH / Designed By: RH		N0432

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Table 5: Flow from Damonte Wetlands into RSCC

Steamboat Downstream	Flow Added	HEC-RAS FLOW	HEC-1 Node	Steamboat Stationing
5200	18	6408	STMBV3	5200
5300	129	6390		
5400	328	6261		
5500	540	5933		
5600	831	5393		
5700	286	4562		
5800	63	4276		
Total	2164	4213	STM+AF	7000

Culvert

A 10-barrel reinforced concrete box culvert with 12-foot wide barrels was constructed under Veterans Parkway. Eight of the barrels are 6-foot high and the remaining two barrels are 8-foot high to accommodate the low flow channel. The culvert barrels are parallel to the direction of flow and skewed to the roadway alignment. Upstream, the channel bottom transitions from the 150-foot width to the inside wall of the two outside barrels of the culvert. The 1:6 rockery walls intersect the culvert wing walls. Downstream the 200-foot bottom width channel transitions smoothly to the inside wall of the exterior culvert barrels. The 2:1 side riprap slopes parallel the edge of the bottom transition ending at the culvert headwall. A concrete apron is placed upstream and downstream of the culvert. Adjacent to the aprons upstream and downstream the channel is protected by riprap. The low flow channel continues through the riprap, apron, and the two center barrels of the culvert. Downstream of the culvert a riprap apron is serves as an energy dissipater on which a hydraulic jump occurs.

The upstream approach to the culvert is steep enough to cause the super critical flow through the culvert; therefore; the culvert was analyzed as a series of bridge piers. HEC-RAS does not compute super critical flow through culverts with different critical depths in the cells. The culvert does not seal therefore it can be analyzed as a series of bridge piers in lieu using the culvert option in HEC-RAS. The standard HEC-RAS bridge table is contained in Appendix D.

Storage Basins

Two storage basins have been constructed as part of the RSCC improvements (Plate 2 and Figure 4). These were constructed to contain the 20 acre-feet increase in volume of runoff due development, as discussed in the Hydrologic Section and in compliance with the CLOMR (Quad Knopf, 2007). These basins are designed to contain the volume removed from the RSCC near the peak flow for a 100-year design storm. The total capacity of the two basins is 25.71 acre-feet with a net retained volume of 21.82 acre-feet for 72-hours duration from the beginning of a storm event. Further discussion of the storage basin parameters is contained in the section *Storage Basin Outlet Structures*. Calculations for the volumes and the stage discharge curves are included in Appendix B.

Lateral Weirs

The concrete lateral weirs for Storage Basin 1 and Storage Basin 3 are shown on Plate 2. These weirs were designed to pass more than the desired volume to be stored and control the amount stored by placing an overflow spillway on the edge of the basin that will discharge back into the main channel. This eliminates the problem of clipping an exact volume of flow from an earthen channel. Both lateral weirs are constructed of a combination of riprap and concrete.

Varying rates of flow were used for the channel and lateral weir to calculate a rating curve for channel flow versus weir flow. The lateral weir table from HEC-RAS is contained in Appendix B. Using the rating curve and the peak hydrograph, a length of weir and weir elevation was set to pass the approximate volume required from the channel to the basins. Graphs of the computed flow to the basin versus total flow in the RSCC are contained in Appendix B.

Storage Basin Outlet Structures

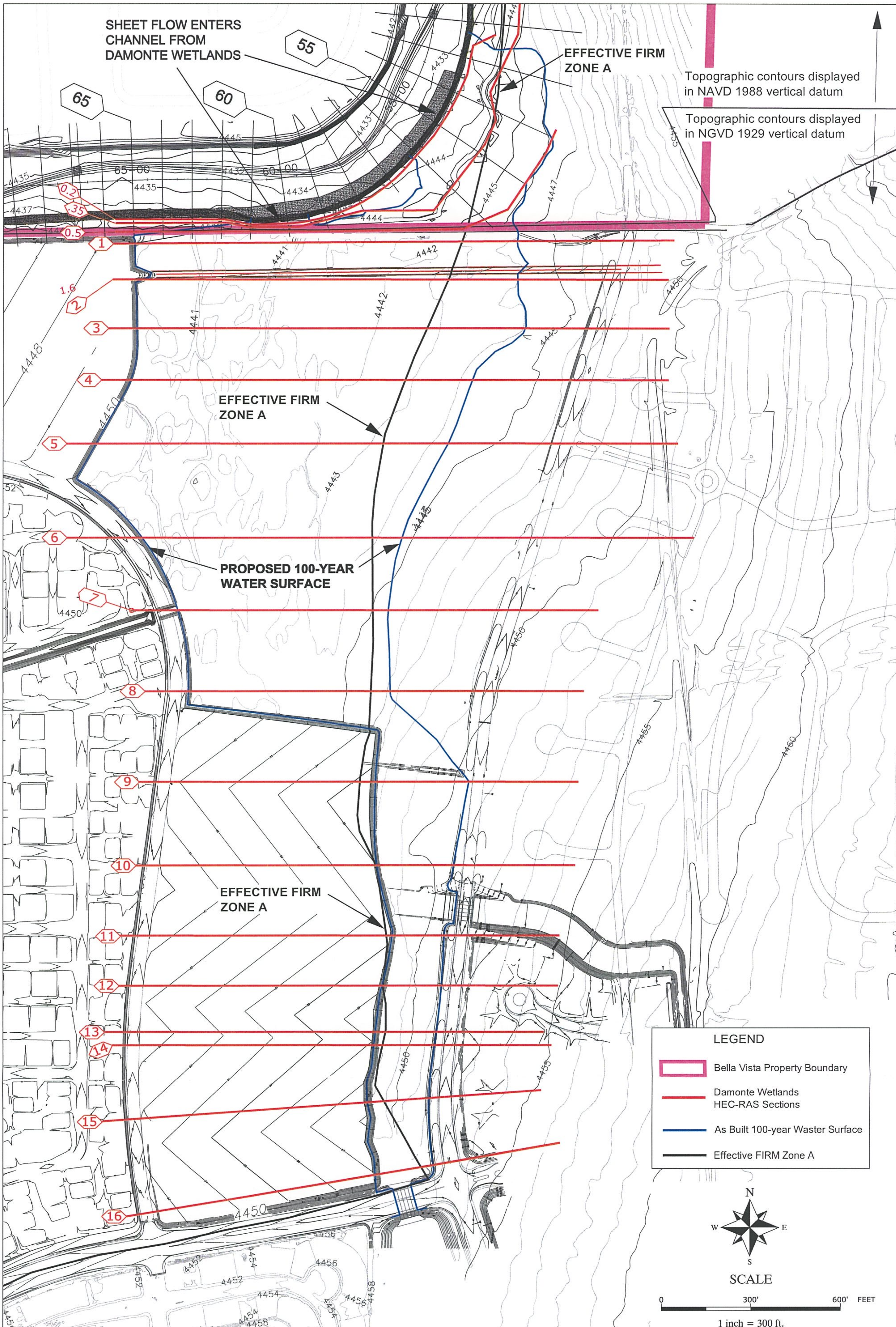
The outlet structures for each storage basin consist of a 12-inch RCP with a "Duck-bill" style flap gate on the downstream end with a 3-inch orifice through a 2-foot concrete plug on the upstream end. The upstream end is enclosed in a 2-foot high vertical slotted 24-inch diameter CMP with a grate on top.

Separate calculations were done for each basin to estimate the volume of flow remaining in the basin after 72 hours. The calculations were done on a time step method utilizing the Steamboat Hydrograph. The calculations were performed using a excel spread sheet to calculate the amount of flow leaving the basin with a 3-inch orifice as the outlet. The depth of flow in the RSCC will cause the pipe to remain in the outlet control condition during the 72-hour time frame. The depth of flow in the channel during this 72-hour time period was determined by assuming normal depth in the RSCC for the various flows calculation interval. Calculations for the discharge from the outlet structures and the net volume at the 72 hour time period are contained in Appendix B.

4.2.3 Results of Hydraulic Modeling

The annotated FIRM (Plates 3 and 4) illustrates the resulting floodplain areas of the hydraulic analyses. The RSCC will safely contain and convey the 100-year, 24-hour storm flow, and as a result, a large section of the Bella Vista Phase 1 development should be removed from the existing Special Flood Hazard Area (Zone A), as indicated on the annotated FIRM (Plate 3).

The results of the hydraulic analyses also indicate that the 100-year 24-hour storm flow is confined in the RSCC in Bella Vista Ranch Phase 1.



Sheet 1 of 1	FIGURE 7 Damonte Wetlands HEC-RAS Cross Sections Bella Vista Phase-1 LOMR	Scale: 1" = 300'	Revisions:	Quad Knopf 9600 Prototype Ct. Reno, Nevada 89521 TEL: (775) 324-1212 FAX: (775) 324-2311 WEB: www.quadknopf.com N0432
Quad Knopf Job: N0432		CI: 1 foot		
		File Name: LOMR_Fig6&7_Plat2_TWM.dwg		
		Drawn By: GH		
Date: Jan. 2008	Reno Centex Homes, Inc. Nevada	Designed By: RH		

J:\0432 as built LOMR BV PH 1\ACAD\LOMR Figs\LOMR_Fig6&7_Plat2_TWM.dwg, Fig-7_Dam wetlands

5.0 CONCLUSIONS

The following conclusions are based upon the detailed hydrologic and hydraulic analyses contained in this LOMR request for the Bella Vista Ranch Phase 1:

1) Detailed hydrologic and hydraulic analysis of the proposed conditions floodplain within the project study area shows that a large section of the Bella Vista Ranch Phase 1 may be removed from the existing FIRM (Zone A) flood plain.

2) The RSCC through the Bella Vista Phase 1 development will safely contain and convey the 100-year, 24-hour storm flow. The revised floodplain is shown in the annotated FIRM (Plates 3 and 4).

6.0 REFERENCES

Nimbus Engineers, Application for Letter of Map Revision (LOMR): Damonte Ranch / Double Diamond Ranch Regional Flood Control Improvements, September 2004.

Nimbus Engineers, Application for Conditional Letter of Map Revision (CLOMR): Damonte Ranch / Double Diamond Ranch Regional Flood Control Improvements, March 2001, Addendum September 2001.

Nimbus Engineers, Application for Letter of Map Revision, Branch 3 of Whites Creek, Hydraulic Analysis of Branch 3, March 2001.

Quad Knopf, Application for Letter of Map Revision (LOMR) for Damonte Ranch Phase V, City of Reno, Nevada, May 2007, (under review, FEMA Case No. 07-09-1677R).

Quad Knopf, Application for Conditional Letter of Map Revision (CLOMR) for Damonte Ranch Phase V and Bella Vista Ranch PHASE 1, City of Reno, Nevada, March 2007.

Quad Knopf, Bella Vista Phase 1 Hydrologic and Hydraulic Report, July 2005.

Quad Knopf, Flood Control Master Plan Bella Vista Ranch, May 2005.

Quad Knopf, Southeast Truckee Meadows Flood Control Master Plan Addendum Damonte Ranch Phase V, May 2005.

U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-1: Flood Hydrograph Package, Version 4.1, June 1998.

U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-RAS River Analysis System, Version 3.1.3, May 2005.

U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Washoe County, Nevada, South Part, August 1983.

U.S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Map, Verdi Quadrangle, Scale 1:24000, Contour Interval 20 Feet, 1994.

Washoe County, Hydrologic Criteria and Drainage Design Manual, Final Draft Report, December 2, 1996.

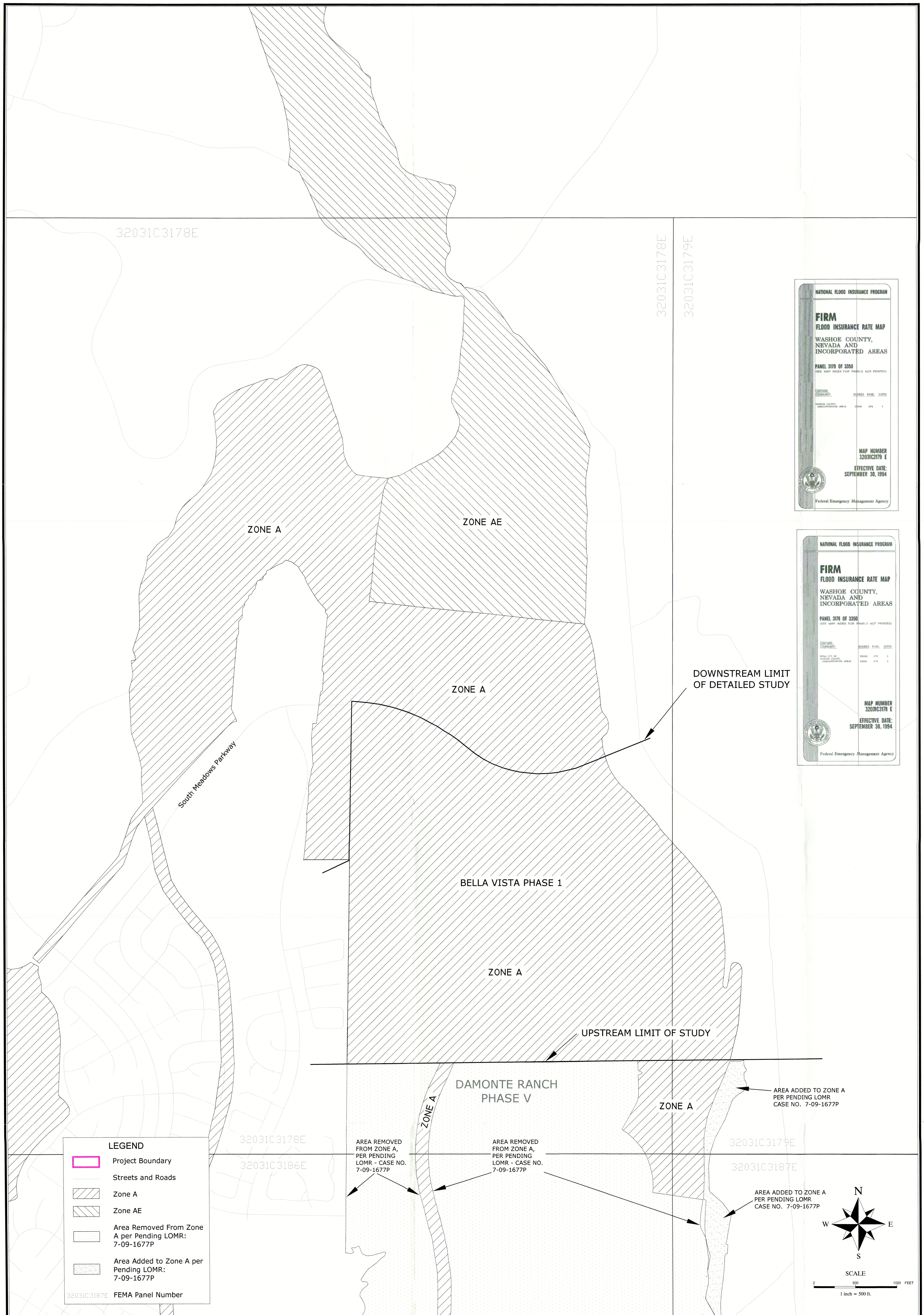


PLATE 1 Quad Knopf Job # N0432 January 2008	EXISTING FIRM PANELS 3178E & 3179E BELLA VISTA PHASE-1 LOMR Reno Washoe County Nevada	Scale: 1" = 500' Contour Interval: NA File: LOMR_FIRM-All-Panels_Ex&Pro.dwg Drawn By: GH Designed By: RH	Revisions: 1 2 3 4 5 6	Date:	References

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060082

3:\0432 as built LOMR BV PH 1\ACAD\LOMR Figs\LOMR_Fig2-Plat1-Plat3_Firms.dwg, Plate-1_Existing FIRM

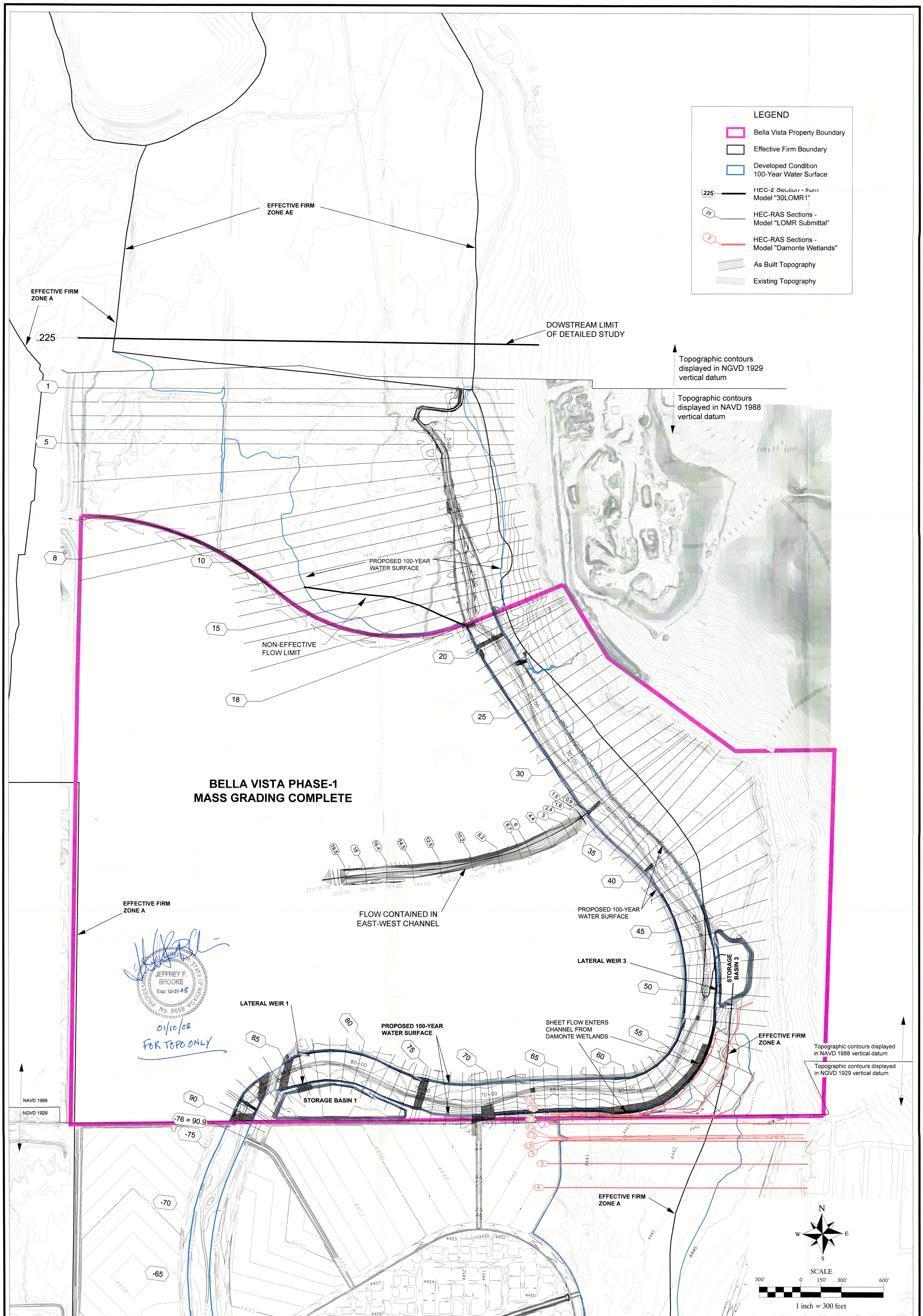

PLATE 2	TOPOGRAPHIC - HYDRAULIC WORKMAP Steamboat Channel As Built Bella Vista Phase-1 LOMR	Scale: 1" = 300'	Revisions:	Date:	References
Quad Knopf Job # N0432	Reno · Washoe County · Nevada	Contour Interval: 1 foot & 2 foot	1		
January 2008		File: LOMR_Fig6&7_Plat2_TWM.dwg	2		
		Drawn By: GH	3		
		Designed By: RH	4		
			5		
			6		

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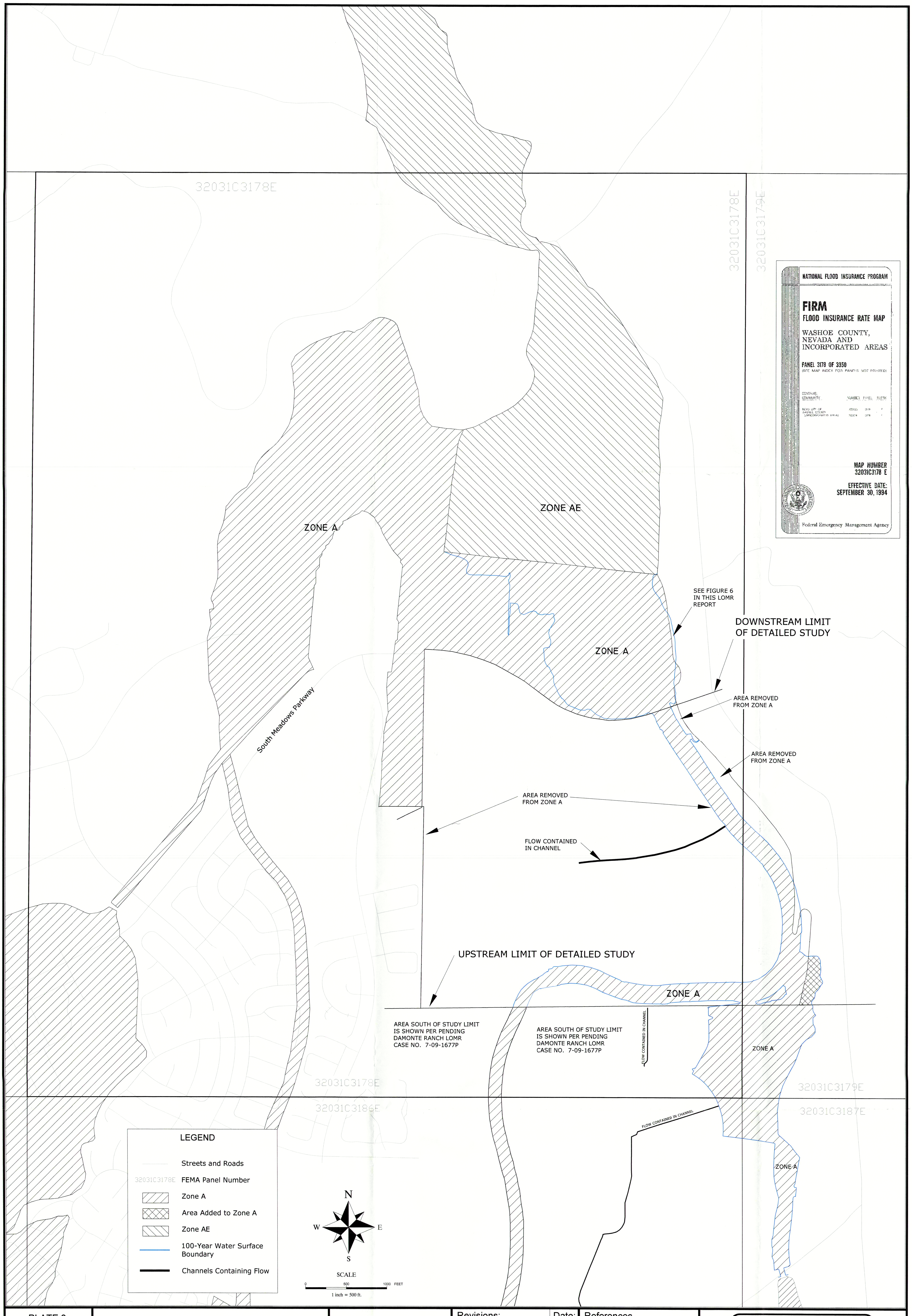

PLATE 3

Quad Knopf Job #
N0432

January 2008

ANNOTATED FIRM
PANEL NO. 32031C 3178E
BELLA VISTA PHASE-1 LOMR

Reno Washoe County Nevada

Scale: 1" = 500'
Contour Interval: NA
File: LOMR_Fig2_Plat1-Plat3_Firms.dwg
Drawn By: GH
Designed By: RH

Revisions:	Date:	References
1		
2		
3		
4		
5		

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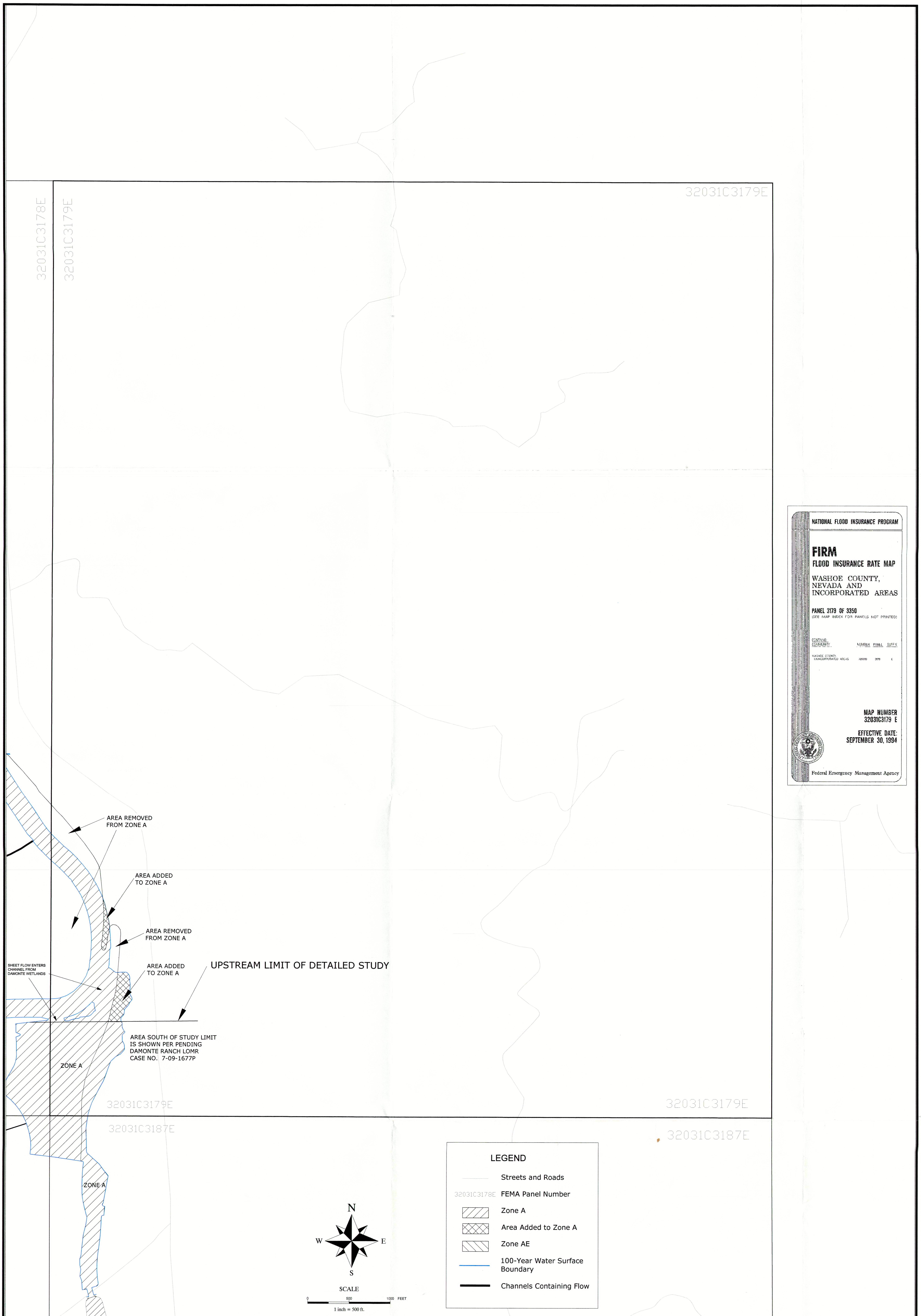

PLATE 4	ANNOTATED FIRM PANEL NO. 32031C 3179E BELLA VISTA PHASE-1 LOMR	Scale: 1" = 500'	Revisions:	Date:	References
Quad Knopf Job # N0432		Contour Interval: NA	1		
		File: LOMR_Fig2_Plat1-Plat3_Firms.dwg	2		
		Drawn By: GH	3		
		Designed By: RH	4		
January 2008	Reno Washoe County Nevada		5		
			6		

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APPENDIX A

FEMA FORMS
ANNEXATION MAP
DRAINAGE EASEMENT

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 1660-0016
Expires: August 31, 2007

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, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). 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 DHS-FEMA

This request is for a (check one):

☐ CLOMR: A letter from DHS-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 DHS-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
320020	City of Reno, Washoe County	NV	32031C	3178E	09/30/94
320020	Washoe County	NV	32031C	3179E	09/30/94

2. Flooding Source: **Steamboat Creek**
3. Project Name/Identifier: **Damonte Phase V and Bella Vista Ranch Phase 1**
4. FEMA zone designations affected: **A** (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 ☐ No, Attach Explanation	Fee amount: $4800

Please see the DHS-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: **Ralph Hogoboom**	Company: **Quad Knopf, Inc.**	
Mailing Address: **9600 Prototype Court** **Reno, NV 89521**	Daytime Telephone No.: **775-324-1212**	Fax No.: **775-324-2311**
	E-Mail Address: RalphH@quadknopf.com	
Signature of Requester (required): Ralph M Hogoboom		Date: **01/10/08**

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: **Neil Mann, Public Works Director**		Telephone No
Community Name: **City of Reno**	Community Official's Signature (required):	Date:

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: **Jeffrey F. Brooke**	License No.: **8658**	Expiration Date: **12/31/08**
Company Name: **PLACES Consulting Services Inc.**	Telephone No.: **775-355-7721**	Fax No.: **775-355-7795**
Signature:		Date: 01/10/08

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

Seal (Optional)

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE HYDROLOGY & HYDRAULICS FORM**	*O.M.B No. 3067-0148* *Expires September 30, 2005*

Flooding Source: Steamboat Creek
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)
Huffaker Narrows (PTO4)	108.12	7126	7106

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

☐ Statistical Analysis of Gage Records ☒ Precipitation/Runoff Model HEC-1 [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	Steamboat Channel Bella Vista Phase 1	.225	4428.78	4428.78
Upstream Limit	Steamboat Channel Bella Vista Phase 1	90.9	4451.12	4451.33

2. Hydraulic Method Used

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

B. HYDRAULICS (CONTINUED)

3. Pre-Submittal Review of Hydraulic Models

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

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

4. Models Submitted

Duplicate Effective Model*	Natural File Name:	Floodway File Name:
Corrected Effective Model*	Natural File Name:	Floodway File Name:
Existing or Pre-Project Conditions Model	Natural File Name:	Floodway File Name:
Revised or Post-Project Conditions Model	Natural File Name:	Floodway File Name:
Other - (attach description)	Natural File Name:	Floodway File Name:

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

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

C. MAPPING REQUIREMENTS

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

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

D. COMMON REGULATORY REQUIREMENTS

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

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

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

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

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

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

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

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

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE STRUCTURES FORM**	*O.M.B No. 1660-0016* *Expires: August 31, 2007*

PAPERWORK REDUCTION ACT

Flooding Source: **Steamboat Creek**
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**

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

   Location of Structure: **At Veterans Parkway - Bella Vista Phase 1**

   Downstream Limit/Cross Section: **85.94**

   Upstream Limit/Cross Section: **86.73**

2. **Name of Structure:**

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

   Location of Structure:

   Downstream Limit/Cross Section:

   Upstream Limit/Cross Section:

3. **Name of Structure:**

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

   Location of Structure: :

   Downstream Limit/Cross Section:

   Upstream Limit/Cross Section:

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

B. CHANNELIZATION

Flooding Source: **Steamboat Creek**

Name of Structure: **Steamboat Channel**

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 **4193-6477cfs (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): **Below or in Culvert**

4. Sediment Transport Considerations

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

C. BRIDGE/CULVERT

Flooding Source: **Steamboat Creek**

Name of Structure: Culvert in Steamboat Creek at Veterans Parkway

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.

4526

PARCEL MAP FOR BELLA VISTA RANCH

OWNERS' CERTIFICATE

THIS IS TO CERTIFY THAT ALLISON SOWLES BUTLER TRUST, AS TO AN UNDIVIDED 12%, DARYL ELLEN BUTLER TRUST, AS TO AN UNDIVIDED 12%, PAUL BRETT BUTLER III TRUST, AS TO AN UNDIVIDED 12%, SHELLEY BRYANT BUTLER TRUST, AS TO AN UNDIVIDED 12%, RUTH M. BUTLER TRUST, AS TO AN UNDIVIDED 28.45% AND PAUL B. BUTLER, SR., AS TO AN UNDIVIDED 23.55%, ARE THE OWNERS OF THE TRACT OF LAND REPRESENTED ON THIS PLAT AND HAVE CONSENTED TO THE PREPARATION AND RECORDATION OF THIS PLAT AND THAT THE SAME IS EXECUTED IN COMPLIANCE WITH AND SUBJECT TO THE PROVISIONS OF N.R.S. CHAPTER 278. THE RIGHT-OF-WAY AND PUBLIC UTILITY EASEMENTS AS SHOWN HEREON ARE HEREBY GRANTED.

ALLISON SOWLES BUTLER TRUST:

Paul B. Butler Jr.
PAUL B. BUTLER, JR., CO-TRUSTEE

NOTARY PUBLIC ACKNOWLEDGMENT
STATE OF CALIFORNIA } S.S.
COUNTY OF San Francisco

ON 03/01/06 BEFORE ME, Luis Torres, A NOTARY PUBLIC, PERSONALLY APPEARED PAUL B. BUTLER, JR., PERSONALLY KNOWN TO ME (OR PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE) TO BE THE PERSON(S) WHOSE NAME(S) IS/ARE SUBSCRIBED TO THE WITHIN INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE/SHE/THEY EXECUTED THE SAME IN HIS/HER/THEIR AUTHORIZED CAPACITY(IES), AND THAT BY HIS/HER/THEIR SIGNATURE(S) ON THE INSTRUMENT THE PERSON(S), OR THE ENTITY UPON BEHALF OF WHICH THE PERSON(S) ACTED, EXECUTED THE INSTRUMENT.

WITNESS MY HAND AND OFFICIAL SEAL.

Signature ______ (SEAL)

DAVID McCUNE, SENIOR VICE PRESIDENT, BANK OF AMERICA, N.A., CO-TRUSTEE

NOTARY PUBLIC ACKNOWLEDGMENT
STATE OF CALIFORNIA } S.S.
COUNTY OF San Francisco

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WITNESS MY HAND AND OFFICIAL SEAL.

Signature ______ (SEAL)

DARYL ELLEN BUTLER TRUST:

Paul B. Butler Jr.
PAUL B. BUTLER, JR., CO-TRUSTEE

NOTARY PUBLIC ACKNOWLEDGMENT
STATE OF CALIFORNIA } S.S.
COUNTY OF San Francisco

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WITNESS MY HAND AND OFFICIAL SEAL.

Signature ______ (SEAL)

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WITNESS MY HAND AND OFFICIAL SEAL.

Signature ______ (SEAL)

PAUL BRETT BUTLER, III TRUST:

Paul B. Butler Jr.
PAUL B. BUTLER, JR., CO-TRUSTEE

NOTARY PUBLIC ACKNOWLEDGMENT
STATE OF CALIFORNIA } S.S.
COUNTY OF San Francisco

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WITNESS MY HAND AND OFFICIAL SEAL.

Signature ______ (SEAL)

DAVID McCUNE, SENIOR VICE PRESIDENT, BANK OF AMERICA, N.A., CO-TRUSTEE

NOTARY PUBLIC ACKNOWLEDGMENT
STATE OF CALIFORNIA } S.S.
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WITNESS MY HAND AND OFFICIAL SEAL.

Signature ______ (SEAL)

SHELLEY BRYANT BUTLER TRUST:

Paul B. Butler Jr.
PAUL B. BUTLER, JR., CO-TRUSTEE

NOTARY PUBLIC ACKNOWLEDGMENT
STATE OF CALIFORNIA } S.S.
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DAVID McCUNE, SENIOR VICE PRESIDENT, BANK OF AMERICA, N.A., CO-TRUSTEE

NOTARY PUBLIC ACKNOWLEDGMENT
STATE OF CALIFORNIA } S.S.
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WITNESS MY HAND AND OFFICIAL SEAL.

Signature ______ (SEAL)

RUTH M. BUTLER TRUST:

Paul B. Butler Jr.
PAUL B. BUTLER, JR., CO-TRUSTEE

NOTARY PUBLIC ACKNOWLEDGMENT
STATE OF CALIFORNIA } S.S.
COUNTY OF San Francisco

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DAVID McCUNE, SENIOR VICE PRESIDENT, BANK OF AMERICA, N.A., CO-TRUSTEE

NOTARY PUBLIC ACKNOWLEDGMENT
STATE OF CALIFORNIA } S.S.
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Signature ______ (SEAL)

PAUL B. BUTLER TRUST:

DAVID McCUNE, SENIOR VICE PRESIDENT, BANK OF AMERICA, N.A., TRUSTEE

NOTARY PUBLIC ACKNOWLEDGMENT
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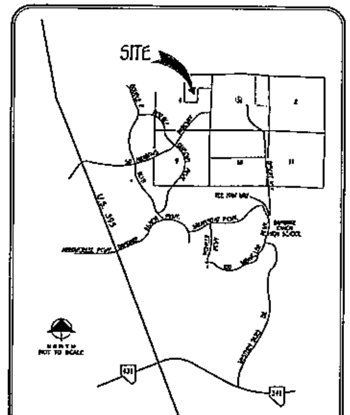
WITNESS MY HAND AND OFFICIAL SEAL.

Signature ______ (SEAL)

3359967



VICINITY MAP

TOTAL AREA: 1,021.77± Acres

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE NEVADA STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD83/94), AS DETERMINED FROM THE FOUND POSITIONS OF THE MONUMENTS SHOWN HEREON AS "ZOLEZZI" AND "WR049" USING THE COORDINATES AS PUBLISHED BY WASHOE COUNTY ENGINEERING. (I.C. N21°33'50"E)

TITLE COMPANY CERTIFICATE

THE UNDERSIGNED HEREBY CERTIFIES THAT THIS PLAT HAS BEEN EXAMINED AND THE SUBDIVIDER OFFERING THIS PLAT IS THE LAST TITLE HOLDER OF RECORD FOR ALL THE LANDS DELINEATED HEREON, AND THE LANDS ARE FREE FROM ANY LIENS OR ENCUMBRANCES AS OF 2-23, 2006, EXCEPT FOR DOCUMENT NO. Not Applicable.

FIRST CENTENNIAL TITLE COMPANY OF NEVADA

Signature ______ DATE: 3-3-06

Marlene Kelly
PRINT NAME, TITLE Sr. Vice Pres.

UTILITY COMPANIES CERTIFICATE

THE UTILITY EASEMENTS SHOWN ON THIS PLAT HAVE BEEN CHECKED, ACCEPTED, AND APPROVED BY THE UNDERSIGNED PUBLIC UTILITY COMPANIES.

CHARTER COMMUNICATIONS DATE: 3/3/2006

NEVADA BELL TELEPHONE COMPANY D.B.A. SBC NEVADA DATE: 3/3/06

SIERRA PACIFIC POWER COMPANY DATE: 3/6/2006

Susan Hood
WASHOE COUNTY DEPARTMENT OF WATER RESOURCES DATE: 3/2/06

WATER RIGHTS DEDICATION CERTIFICATE

THE WATER AND SEWER RESOURCE REQUIREMENTS SET FORTH IN ARTICLE 422 OF THE WASHOE COUNTY DEVELOPMENT CODE, RELATED TO THE DEDICATION OF WATER RESOURCES, HAVE BEEN SATISFIED FOR THE NEW PARCELS SHOWN HEREON.

Vahid Behmaram
WASHOE COUNTY UTILITY DIVISION DATE: 2/2/06

SURVEYOR'S CERTIFICATE

I, JEFFREY F. BROOKE, A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF NEVADA, CERTIFY THAT:

1. THIS PLAT REPRESENTS THE RESULTS OF A SURVEY CONDUCTED UNDER MY DIRECT SUPERVISION AT THE INSTANCE OF CENTEX HOMES.
2. THE LANDS SURVEYED LIE WITHIN SECTION 3, THE NE 1/4 OF SECTION 4 AND THE NORTH 1/2 OF SECTION 10, TOWNSHIP 18 NORTH, RANGE 20 EAST, WASHOE COUNTY, NEVADA, MOUNT DIABLO MERIDIAN, AND THE SURVEY WAS COMPLETED ON 03/08/06.
3. THIS PLAT COMPLIES WITH THE APPLICABLE STATE STATUTES AND ANY LOCAL ORDINANCES IN EFFECT ON THE DATE THAT THE GOVERNING BODY GAVE ITS FINAL APPROVAL.
4. THE MONUMENTS DEPICTED ON THE PLAT ARE OF THE CHARACTER SHOWN, OCCUPY THE POSITIONS INDICATED AND ARE OF SUFFICIENT NUMBER AND DURABILITY FOR THE SURVEY TO BE RETRACED.

JEFFREY F. BROOKE
P.L.S. 8450

PROFESSIONAL LAND SURVEYOR · STATE OF NEVADA · JEFFREY F. BROOKE · NO. 8450

03/07/06

TAX CERTIFICATE

THE UNDERSIGNED HEREBY CERTIFIES THAT ALL PROPERTY TAXES ON THE LAND FOR THE FISCAL YEAR HAVE BEEN PAID.

WASHOE COUNTY TREASURER DATE: 3/7/2006

Deputy Treasurer
TITLE

PARCEL MAP COMMITTEE CERTIFICATE

APPROVED AND ACCEPTED BY THE PARCEL MAP COMMITTEE OF THE CITY OF RENO, WASHOE COUNTY, NEVADA, THIS 8th DAY OF MARCH, 2006. CONDITIONAL APPROVAL OF THIS MAP WAS GRANTED ON THE 15th DAY OF AUGUST, 2005.

CHAIRMAN PARCEL MAP REVIEW COMMITTEE DATE: 3/8/2006

RECORDER'S STATEMENT

FILE NO. 3359967 FEE $31.00

FILED FOR RECORD AT THE REQUEST OF Places ON THIS 10th DAY OF March, 2006, AT 33 MINUTES PAST 4 O'CLOCK P.M., OFFICIAL RECORDS OF WASHOE COUNTY, NEVADA.

Kathryn L. Burke
COUNTY RECORDER

BY: Jondi Armstrong
DEPUTY

PARCEL MAP FOR

BELLA VISTA RANCH

SITUATE IN SECTION 3, THE NE 1/4 OF SECTION 4 & THE NORTH 1/2 OF SECTION 10 TOWNSHIP 18 NORTH, RANGE 20 EAST, MOUNT DIABLO MERIDIAN.

CITY OF RENO WASHOE COUNTY NEVADA

PLACES - Consulting Services Incorporated
Planners • Landscape Architects • Civil Engineers • Surveyors

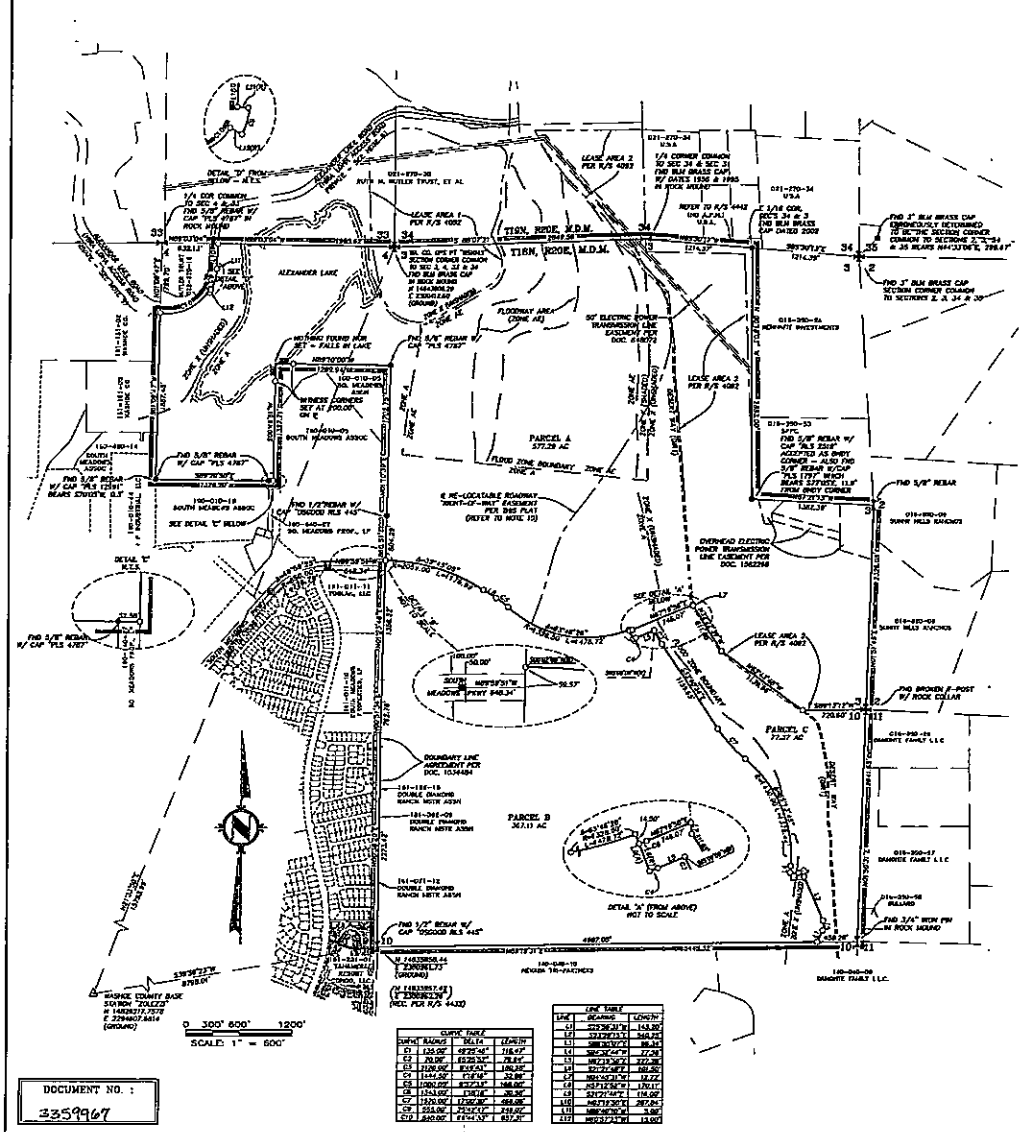
AUGUST 2005

Sheet 1 of 2 24015-00

PARCEL MAP 4526

CUMULATIVE INDEXES SHOULD BE EXAMINED FOR ANY SUBSEQUENT CHANGES TO THIS MAP

CUMULATIVE INDEXES



CURVE TABLE			
CURVE	RADIUS	DELTA	LENGTH
C1	135.00'	49°25'46"	116.47'
C2	70.00'	65°25'52"	79.94'
C3	2120.00'	8°49'43"	180.35'
C4	1444.50'	1°16'16"	32.00'
C5	1000.00'	8°57'35"	168.00'
C6	1343.00'	1°30'16"	35.36'
C7	1520.00'	17°50'30"	468.08'
C9	553.00'	25°47'41"	249.07'
C10	640.00'	61°44'35"	637.31'

LINE TABLE		
LINE	BEARING	LENGTH
L1	S75°36'31"W	143.20'
L2	S32°29'15"E	346.25'
L3	S86°30'07"E	86.34'
L4	S86°26'44"W	27.58'
L5	N82°13'36"E	327.38'
L6	S21°21'46"E	161.50'
L7	N04°45'31"W	12.72'
L8	N57°12'58"W	170.17'
L9	S21°21'46"E	116.09'
L10	N82°19'30"E	287.84'
L11	N88°46'00"W	3.00'
L12	N00°37'25"W	13.00'

DOCUMENT NO. : 3359967

REFERENCES

1. R/S 1797
2. R/S 2146
3. R/S 2786
4. R/S 2962
5. R/S 2786
6. R/S 4001
7. R/S 4432
8. R/S 4466
9. PM 3198
10. PM 3200
11. TM 3525
12. TM 3147
13. DOC. 684652, REC 3/27/1980
14. DOC. 621828, REC 8/7/1979
15. DOC. 648072, REC 12/20/1979
16. DOC. 1582268, REC 6/22/1992
17. DOC. 684652, REC 3/27/1980
18. DOC. 1460906, REC 2/20/1991
19. DOC. 1034484, REC 11/15/1985
20. DOC. 270161, REC 12/26/1972
21. TITLE REPORT BY FIRST CENTENNIAL TITLE COMPANY OF NEVADA, ORDER NO 131304-MI, DATED MAY 24, 2005 (5th AMENDMENT).
22. BLM NOTES AND PLAT OF THE CORRECTIVE DEPENDENT RESURVEY, DEPENDENT RESURVEY, SUBDIVISION AND METES-AND-BOUNDS SURVEY OF SECTION 34, T18N, R20E, MDM, DATED 6/11/2002
23. UNRECORDED SURVEY OF THE BELLA VISTA RANCH BY J. A. CAFFREY, 1944

NOTES

1. ALL REQUIRED IMPROVEMENTS SHALL BE INSTALLED BY THE OWNER IN ACCORDANCE WITH RMC CHAPTER 18.08 AS PARCELS ARE DEVELOPED.
2. FIRE HYDRANTS SHALL BE INSTALLED AS PER FIRE DEPARTMENT REQUIREMENTS WITH THE ISSUANCE OF BUILDING PERMITS.
3. WITH THE DEVELOPMENT OF EACH PARCEL AND PRIOR TO THE ISSUANCE OF ANY BUILDING PERMIT FOR SAID PARCEL, THE OWNER SHALL DEDICATE WATER RIGHTS TO THE SERVICING UTILITY SUFFICIENT TO SERVE THE DEVELOPMENT, AND SHALL PROVIDE THE CITY OF RENO WITH A WILL SERVE LETTER.
4. A PUBLIC UTILITY EASEMENT IS ALSO HEREBY GRANTED WITHIN EACH PARCEL FOR THE EXCLUSIVE PURPOSE OF INSTALLING AND MAINTAINING UTILITY SERVICE FACILITIES TO THAT PARCEL, WITH THE RIGHT TO EXIT THAT PARCEL WITH SAID UTILITY FACILITIES FOR THE PURPOSE OF SERVING ADJACENT PARCELS, AT LOCATIONS MUTUALLY AGREED UPON BY THE OWNER OF RECORD AT THE TIME OF INSTALLATION AND THE UTILITY COMPANY. PUBLIC UTILITY EASEMENTS SHALL INCLUDE USE BY CABLE TELEVISION PROVIDERS.
5. ALL CURVE DIMENSIONS HEREON ARE ARC LENGTH AND DELTA. ALL DISTANCES SHOWN ARE FEET AND DECIMALS THEREOF.
6. TOTAL AREA FOR THIS PARCEL MAP IS 1,021.77± ACRES CONSISTING OF 3 PARCELS.
7. THE COORDINATE VALUES SHOWN ARE GROUND BASED, DERIVED FROM A GRID-TO-GROUND FACTOR OF 1.000197939. TO OBTAIN GRID VALUES, DIVIDE THE COORDINATES SHOWN BY THE AFOREMENTIONED FACTOR.
8. FLOOD ZONE LINES AS SHOWN ON THIS MAP ARE APPROXIMATE. THEY ARE BASED UPON DIGITIZED INFORMATION TAKEN FROM FEMA FIRM MAPS NO. 32031C3178 & 32031C3179, PANELS 3178 & 3179 OF 3350, DATED SEPTEMBER 30, 1994.
9. THE ROAD SHOWN HEREON AS ALEXANDER LAKE ROAD IS A PRIVATE ACCESS ROAD AND IS NOT AN ACCESS ROAD FOR THIS PROJECT.
10. THE ROADWAY "RIGHT-OF-WAY" EASEMENT SHOWN HEREON IS TO INCLUDE ROADWAY, PUBLIC UTILITIES, SANITARY SEWER, STORM DRAIN AND OTHER PUBLIC IMPROVEMENTS. IT IS INTENDED FOR THE "TAHOE-PYRAMID LINK" AND IS RE-LOCATABLE TO THAT CORRIDOR WITH A MAXIMUM WIDTH OF 138 FEET.
11. PUBLIC UTILITY EASEMENTS ARE HEREBY GRANTED ON ALL INTERIOR LOT LINES 10 FEET IN WIDTH CENTERED ABOUT THE LOT LINES AND 5 FEET IN WIDTH ON ALL EXTERIOR LOT LINES.
12. PUBLIC UTILITY EASEMENTS INCLUDE CABLE TELEVISION.
13. ALL EASEMENTS LISTED IN THE TITLE REPORT (REFERENCE ITEM NO. 21) APPURTENANT TO THE PROPERTY WITHIN THE GRAPHIC BORDER ARE SHOWN HEREON, HOWEVER, THIS MAP DOES NOT PURPORT TO SHOW ALL EASEMENTS OF RECORD.

LEGEND

- FOUND SECTION CORNER MONUMENT AS NOTED
- FOUND SECTION 1/4 CORNER MONUMENT AS NOTED
- FND POINT AS NOTED
- SET 5/8" REBAR W/CAP PLS 8659
- STANDARD CENTERLINE MONUMENT PER DCO. T.M. 3525
- (R) RADIAL LINE
- BOUNDARY DESIGNATION
- P.U.E. PUBLIC UTILITY EASEMENT (INCLUDES CABLE TV)
- DIMENSION POINT – NOTHING FOUND NOR SET

DOCUMENT NO. : 3359967

3359967

PARCEL MAP
FOR
BELLA VISTA RANCH

SITUATE IN SECTION 3, THE NE 1/4 OF SECTION 4 & THE NORTH 1/2 OF SECTION 10 TOWNSHIP 18 NORTH, RANGE 20 EAST, MOUNT DIABLO MERIDIAN.

CITY OF RENO — WASHOE COUNTY — NEVADA

PLACES - Consulting Services Incorporated

AUGUST 2005

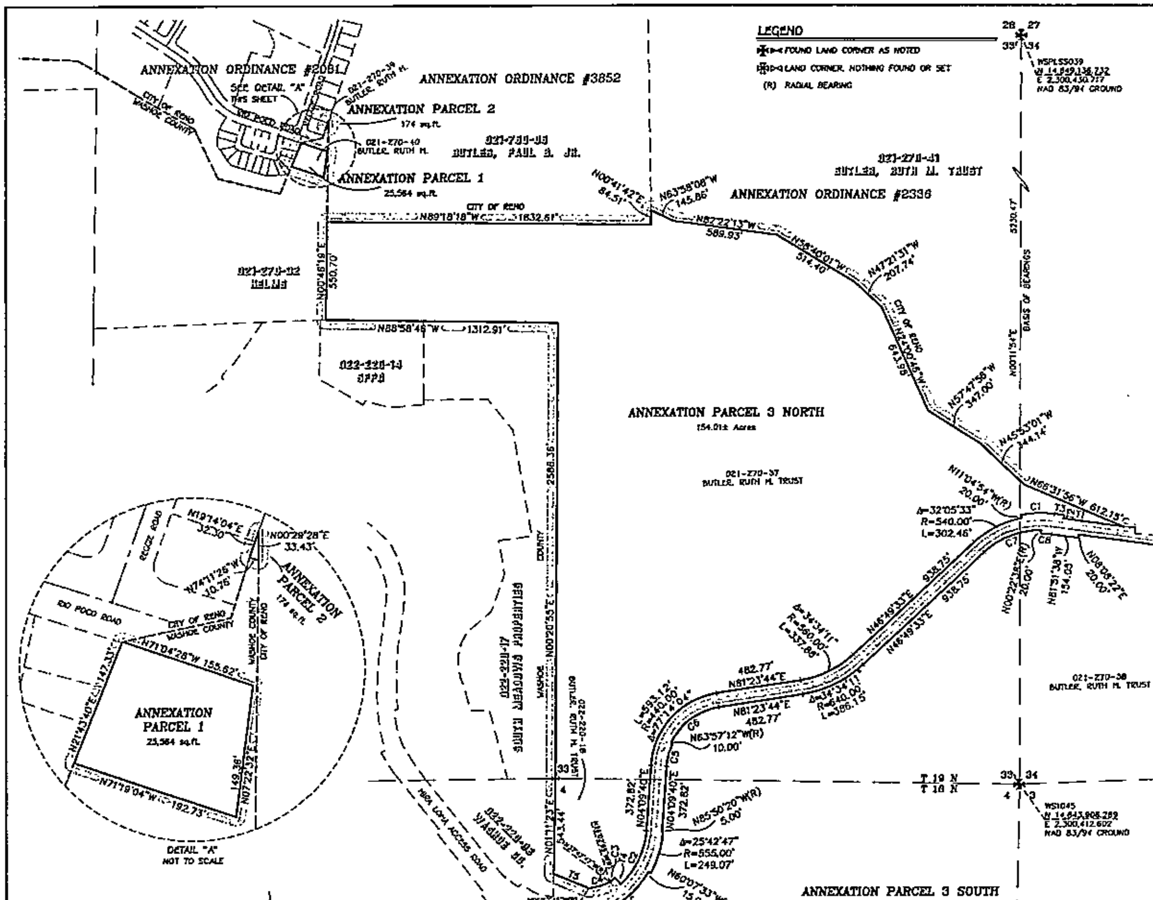
Sheet 2 of 2 — 24015-00

PARCEL MAP 4526A

4526A

CUMULATIVE INDEXES SHOULD BE EXAMINED FOR ANY SUBSEQUENT CHANGES TO THIS MAP

4157



LINE TABLE

LINE	BEARING	DISTANCE
T1	N81°31'38"W	343.68'
T2	N08°08'22"E	20.00'
T3	N81°31'38"W	54.05'
T4	N42°58'14"W(R)	50.00'
T5	N67°18'15"W	216.25'

CURVE TABLE

CURVE	DELTA	RADIUS	LENGTH
C1	19°13'16"	560.00'	187.86'
C2	42°54'06"	460.00'	344.44'
C3	05°13'27"	410.00'	37.38'
C4	20°05'10"	354.87'	124.41'
C5	21°53'08"	350.00'	133.69'
C6	55°20'56"	360.00'	347.77'
C7	43°33'05"	460.00'	349.65'
C8	07°45'44"	440.00'	59.61'

DOCUMENT NO. :
2783925

SCALE: 1" = 300'

CUMULATIVE INDEXES SHOULD BE EXAMINED FOR ANY SUBSEQUENT CHANGES TO THIS MAP

OWNER'S CERTIFICATE

WE, THE UNDERSIGNED OWNERS OF THE TRACT OF LAND SHOWN HEREON, HEREBY CONSENT TO THE PROPOSED ANNEXATION TO THE CITY OF RENO, NEVADA IN ACCORDANCE WITH THE DETAIL SHOWN HEREON, ALL IN ACCORDANCE WITH THE PROVISIONS OF N.R.S. CHAPTER 268.670.

RUTH M. BUTLER TRUST

Paul B. Butler, Jr. 8-14-02
PAUL B. BUTLER, JR., TRUSTEE DATE

COUNCIL APPROVAL

APPROVED AND ACCEPTED BY THE CITY COUNCIL OF THE CITY OF RENO, NEVADA THIS 10th DAY OF December 2002 AS PER ORDINANCE NO. 5396

~~JEFF GRIFFIN~~ MAYOR, Robert A. Cashell

ATTEST: Lynnette R. Jones
CITY CLERK AND
CLERK OF THE CITY COUNCIL

CITY OF RENO CORPORATE SEAL WASHOE COUNTY, NEVADA

SURVEYOR'S CERTIFICATE

I EDWARD A. FULLER, A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF NEVADA, CERTIFY THAT THE PARCELS SHOWN TRULY REPRESENT THE LAND PROPOSED FOR ANNEXATION TO THE CITY OF RENO, NEVADA.

EDWARD A. FULLER
P.L.S. 11827

PROFESSIONAL LAND SURVEYOR STATE OF NEVADA EDWARD A. FULLER No. 11827
8-7-02

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE NEVADA STATE PLANE COORDINATE SYSTEM, WEST ZONE (NAD83/94), AS DETERMINED FROM THE FOUND POSITIONS OF THE MONUMENTS SHOWN HEREON AS "WS1045" AND "WSPLS5039" USING THE COORDINATES AS PUBLISHED BY WASHOE COUNTY. (I.E. N00°11'54"E)

NOTES

1. THIS MAP DOES NOT REPRESENT A FIELD SURVEY. DATA SHOWN WAS COMPILED FROM RECORD INFORMATION.
2. PETITIONER IS THE RUTH M. BUTLER TRUST.

RECORDER'S STATEMENT

FILE NO. 2783925 FEE None
FILED FOR RECORD AT THE REQUEST OF City of Reno
ON THIS 31 DAY OF December 2002, AT 1 MINUTES PAST 9 O'CLOCK A.M. OFFICIAL RECORDS OF WASHOE COUNTY, NEVADA.

Kathryn L. Burke BY: C. Bartley
COUNTY RECORDER DEPUTY

MAP TO SUPPORT ANNEXATION OF CERTAIN LANDS TO THE CITY OF RENO

LYING WITHIN A PORTION OF SECTIONS 3, 4, AND 10, TOWNSHIP 18 NORTH, RANGE 20 EAST, AND SECTIONS 33 AND 34, TOWNSHIP 19 NORTH, RANGE 20 EAST, MOUNT DIABLO MERIDIAN.

CITY OF RENO WASHOE COUNTY NEVADA

MACKAY & SOMPS CIVIL ENGINEERS, INC.

AUGUST 2002

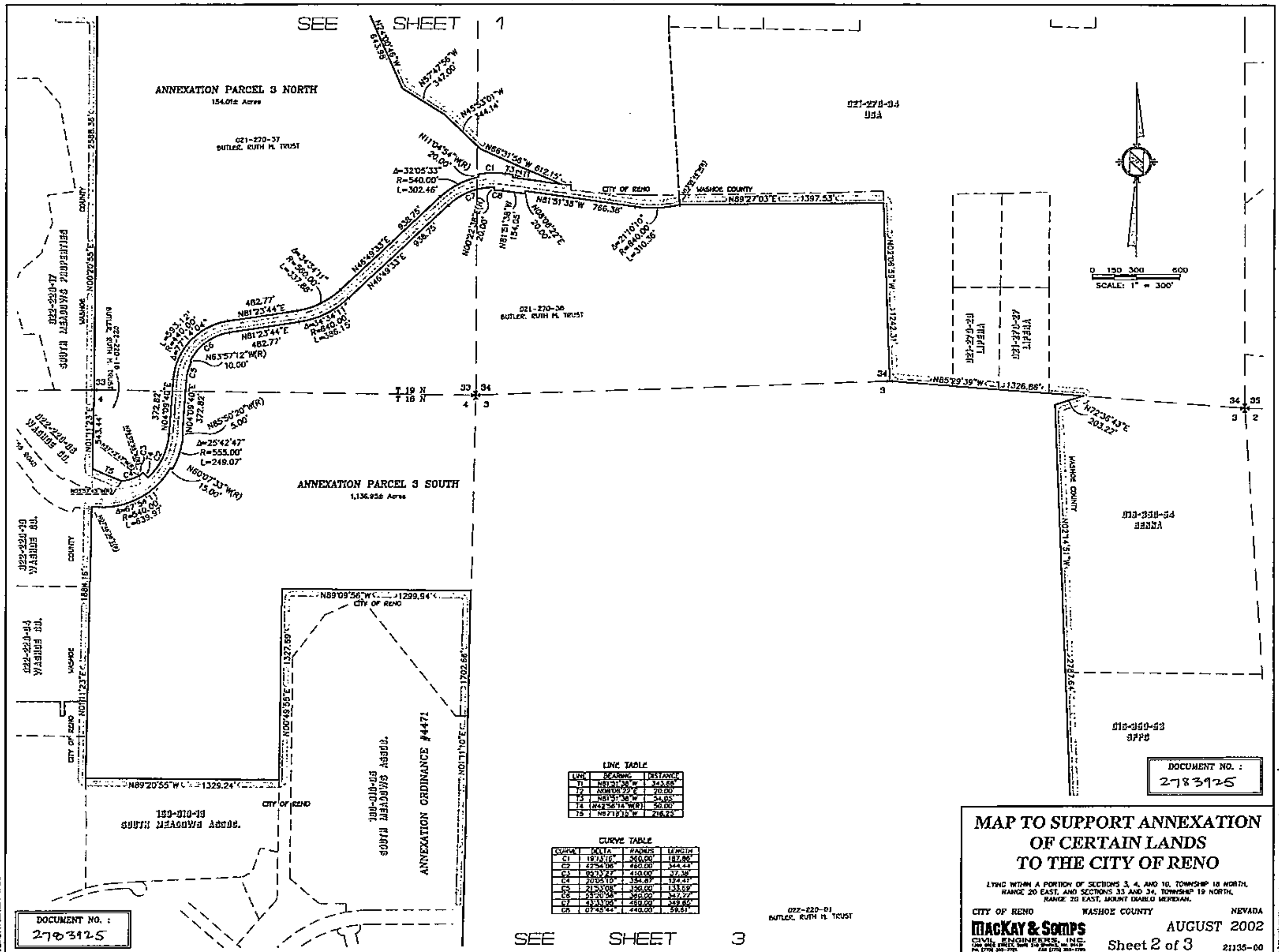
Sheet 1 of 3

21135-00

ANNEXATION TRACT MAP 4157

CUMULATIVE INDEXES 4157

4157A



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C6	55°20'38"	360.00'	347.77'
C7	43°33'09"	460.00'	349.65'
C8	07°45'44"	440.00'	59.61'

DOCUMENT NO. : 2783925

MAP TO SUPPORT ANNEXATION OF CERTAIN LANDS TO THE CITY OF RENO

LYING WITHIN A PORTION OF SECTIONS 3, 4, AND 10, TOWNSHIP 18 NORTH, RANGE 20 EAST, AND SECTIONS 33 AND 34, TOWNSHIP 19 NORTH, RANGE 20 EAST, MOUNT DIABLO MERIDIAN.

CITY OF RENO — WASHOE COUNTY — NEVADA

MACKAY & SOMPS CIVIL ENGINEERS, INC.

AUGUST 2002

Sheet 2 of 3

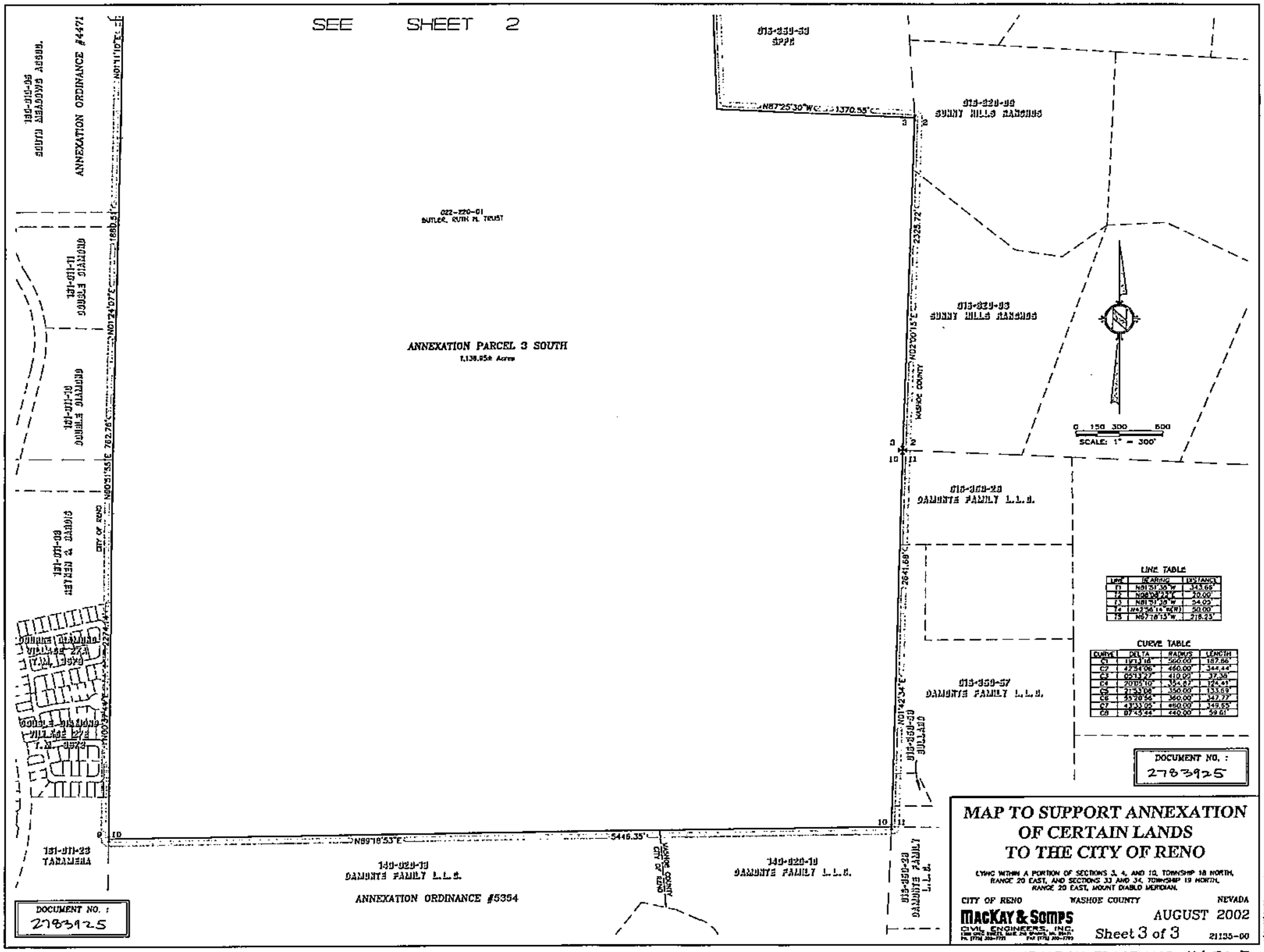
21135-00

ANNEXATION TRACT MAP 4157A

DOCUMENT NO. : 2783925

CUMULATIVE INDEXES SHOULD BE EXAMINED FOR ANY SUBSEQUENT CHANGES TO THIS MAP

4157B



LINE TABLE

LINE	BEARING	DISTANCE
T1	N81°51'38"W	343.66'
T2	N08°08'22"E	20.00'
T3	N81°51'38"W	34.05'
T4	N42°56'14"W(R)	50.00'
T5	N67°18'13"W	218.23'

CURVE TABLE

CURVE	DELTA	RADIUS	LENGTH
C1	19°13'16"	560.00'	187.86'
C2	42°54'06"	460.00'	344.44'
C3	05°13'27"	410.00'	37.38'
C4	20°05'10"	354.87'	124.41'
C5	21°53'08"	350.00'	133.69'
C6	55°20'56"	360.00'	347.77'
C7	43°33'05"	460.00'	349.65'
C8	07°45'44"	440.00'	59.61'

DOCUMENT NO. : 2783925

MAP TO SUPPORT ANNEXATION OF CERTAIN LANDS TO THE CITY OF RENO

LYING WITHIN A PORTION OF SECTIONS 3, 4, AND 10, TOWNSHIP 18 NORTH, RANGE 20 EAST, AND SECTIONS 33 AND 34, TOWNSHIP 19 NORTH, RANGE 20 EAST, MOUNT DIABLO MERIDIAN.

CITY OF RENO — WASHOE COUNTY — NEVADA

MACKAY & SOMPS CIVIL ENGINEERS, INC.

AUGUST 2002

Sheet 3 of 3

21135-00

ANNEXATION TRACT MAP 4157B

CUMULATIVE INDEXES 4157B

CUMULATIVE INDEXES SHOULD BE EXAMINED FOR ANY SUBSEQUENT CHANGES TO THIS MAP

DOC # 3399487
06/12/2006 11:21A Fee:31.00
BK1
Requested By
FIRST CENTENNIAL TITLE COMPANY
Washoe County Recorder
Kathryn L. Burke - Recorder
Pg 1 of 18 RPTT 0.00

RECORDING REQUESTED BY:

First Centennial Title Company of Nevada
1450 Ridgeview Drive, Suite 100
Reno, NV 89509-6335
13/304 MT

AND WHEN RECORDED MAIL TO:

Centex Homes
Attn: Forward Planning
10509 Professional Circle, Suite 200
Reno, NV 89521
300658.8

DRAINAGE EASEMENT AGREEMENT

THIS DRAINAGE EASEMENT AGREEMENT ("Agreement") is made and entered into this June 8, 2006, by and between Paul B. Butler, Jr. and/or Bank of America, N.A., as Co-Trustees or Trustee, as the case may be, of (a) The Ruth M. Butler Trust created under Declaration of Trust dated September 15, 1972, (b) The Allison Sowles Butler Trust dated October 1, 1973, (c) The Daryl Ellen Butler Trust dated October 1, 1973, (d) The Paul Brett Butler, III Trust dated October 1, 1973, (e) The Shelley Bryant Butler Trust dated October 1, 1973, and (f) The Paul B. Butler Trust dated August 10, 1971 (collectively, "Grantor"), and Centex Homes, a Nevada general partnership ("Grantee").

Recitals

A. On the date hereof, Grantee has acquired from Grantor that certain real property located in the City of Reno (the "City"), County of Washoe (the "County"), State of Nevada, more particularly described on Exhibit A attached hereto (the "Grantee Property").

B. In connection with Grantee's acquisition of the Grantee Property, Grantor desires to grant to Grantee certain easement rights over other real property owned by Grantor.

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, Grantor and Grantee hereby agree as follows:

1. Grant of Easement. Grantor hereby grants to Grantee, for the benefit of the Grantee Property, the following:

(a) a permanent easement for construction and maintenance of a water channel and water dispersion facilities (the "Channel Easement") upon that certain real property owned by Grantor, more particularly described on Exhibit B-1 and depicted on Exhibit B-2 attached hereto (the "Channel Easement Area"), together with the right to enter upon such real property at all reasonable times to remove any bushes, undergrowth and other obstructions interfering with the such facilities.

(b) an easement for surface drainage of water from the Channel Easement Area (the "Surface Drainage Easement") upon, over, across and through that certain real property owned by Grantor, more particularly described on Exhibit C-1 and depicted on Exhibit C-2 attached hereto (the "Surface Drainage Easement Area"). The Surface Drainage Easement shall automatically terminate as to all or any portion thereof on the date that the City, the County, and/or any other applicable governmental authorities cease to require the Surface Drainage Easement as a condition to the improvement of the Grantee Property as a residential development.

(c) a temporary easement for construction and maintenance of a siltation basin facility (the "Basin Easement") upon that certain real property owned by Grantor, more particularly described on Exhibit D-1 and depicted on Exhibit D-2 attached hereto (the "Basin Easement Area"), together with the right to enter upon ~~such real property~~ at all reasonable times to remove any bushes, undergrowth and other obstructions interfering ~~with the~~ such facility. The Basin Easement shall automatically terminate on the date ~~that is~~ six (6) months after the date hereof with respect to the Basin Easement Area, whereupon Grantee, ~~at its~~ sole expense, shall immediately remove all improvements within the Basin Easement Area and restore the Basin Easement Area to the same condition as existed ~~prior to~~ the date hereof.

The Channel Easement, the Surface Drainage Easement, and the Basin Easement are collectively referred to herein as the "Easements"; ~~and~~ the Channel Easement Area, the Drainage Easement Area, and the Basin Easement Area are collectively referred to herein as the "Easement Areas."

2. Non-Exclusive Easements. The Easements granted herein are non-exclusive and, accordingly, to the extent that other uses do not ~~interfere~~ with the use of the Easements by Grantee as permitted herein, ~~any Grantor~~ Parties (as hereinafter defined) shall be permitted to use the Easement Areas for any purpose they may desire including, without limitation, development of all or any portion of the Easement Areas for any purposes permitted by applicable law.

3. Repair and Maintenance. Grantee shall be solely responsible for maintaining the Easement Areas and the facilities located therein in good condition and repair, including replacement as necessary, except to the extent such maintenance is required as a result of the gross negligence or willful acts of Grantor Parties. As part of Grantee's maintenance responsibilities, Grantee shall restore the Easement Areas to the same condition as existed prior to such maintenance and/or replacement work.

4. Covenants of Grantee; Indemnity. Grantee covenants that it shall at all times comply with applicable laws, rules, regulations, ordinances and rulings (including, but not limited to, laws relating to the environment, natural resources or health and human safety), and Grantee shall indemnify and hold harmless Grantor, its officers, directors, trustees, managers, shareholders, employees, grantees, successors and assigns (collectively, "Grantor Parties") from all losses, costs, damages, claims, liabilities or expenses (including reasonably attorneys' fees) directly ~~or~~ indirectly suffered or incurred by or asserted against any Grantor Parties arising out of

or resulting from the use of the Easement or Easement Areas by Grantee, its employees or agents, except to the extent caused by the gross negligence or willful misconduct of Grantor Parties.

5. Default. If either party fails to perform as required hereunder and is given written notice of default, and if the defaulting party fails to correct the default within fifteen (15) days after such notice, or if in the case of a default involving potential danger to personal health or safety the defaulting party fails to correct the default within one (1) day after notice, then the nondefaulting party, at its election and in its sole discretion, may cure the default for and on behalf of the nondefaulting party, and any amounts which the non-defaulting party may expend for that purpose or which otherwise may be due by the defaulting party to the nondefaulting party shall be due on demand together with interest thereon at a rate which is the greater of fifteen percent (15%) per annum or the maximum rate permissible by law, from the date of expenditure to the date when full payment is made by the defaulting party.

6. Remedies. In the event of a breach or threatened breach of any term, covenant or condition of this Agreement, the nonbreaching party shall have, in addition to all other legal and equitable remedies available, the right to enforce the provisions hereof by injunctive relief or otherwise, without the necessity of proof of actual damage or inadequacy of any legal remedy. If any legal action or other proceeding is brought to enforce this Agreement, or because of an alleged dispute, breach, or default in connection with any of the provisions of this Agreement, the successful or prevailing party will be entitled to recover reasonable attorneys' fees and other costs incurred in that action or proceeding, in addition to any other relief to which it or they may be entitled.

7. Notices. If any notice required or desired to be given to either party hereunder shall be deemed given: (a) when delivered personally to that party, or (b) one (1) day after deposit with a nationally recognized overnight courier service, or (c) three (3) days after deposit in the United States mail, as certified mail, return receipt requested, postage prepaid. Notices delivered pursuant to subsections (b) or (c) hereof shall be delivered to the following addresses, all of which information shall be deemed current unless notice is given to the other party of a change hereto pursuant to the notice requirements herein:

If to Grantor:	c/o BVR Company 655 Montgomery Street, Suite 1740 San Francisco, CA 94111 Attention: Paul B. Butler, Jr.
Copy to:	Bank of America, N.A. 555 California Street, Suite 700 San Francisco, CA 94104 Attention: David McCune
If to Grantee:	Centex Homes 2527 Camino Ramon, Suite 250 San Ramon, CA 94583

Attention: Holly Traube Cordova, Esq.

Copy to: Centex Homes
10509 Professional Circle Suite 200
Reno, NV 89521
Attention: Division President and Land Acquisitions Manager

8. Successors and Assigns. The rights and obligations of Grantor and Grantee hereunder will be binding upon and will inure to the benefit of their respective successors and assigns. All provisions in this Agreement, including the benefits and burdens, shall run with the land.

9. Governing Law. This Agreement shall be construed in accordance with the laws of the State of Nevada.

10. Severability. All terms and conditions of this Agreement will be deemed severable. Should any of the terms and conditions hereof be deemed void or unenforceable, then (a) the remaining provisions will have full force and effect, and (b) those provisions deemed void or unenforceable will be interpreted, to the extent possible, so as to render such provisions enforceable and in a way consistent with the original intent of the parties hereto.

11. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument.

[SIGNATURES ON FOLLOWING THREE PAGES]

IN WITNESS WHEREOF, Grantor and Grantee have executed this Agreement on the date first above written.

GRANTEE:

CENTEX HOMES,
a Nevada general partnership

By: Centex Real Estate Corporation,
a Nevada corporation
Title: Managing Partner

By: ______________________
Name: Jeffrey Acker
Title: Division President

GRANTOR:

THE RUTH M. BUTLER TRUST DATED SEPTEMBER 15, 1972

By: ______________________
Name: PAUL B. BUTLER, JR.
Title: Co-Trustee

By: BANK OF AMERICA, N.A.
Title: Co-Trustee

By: ______________________
Name: David McCune
Title: Senior Vice President

THE ALLISON SOWLES BUTLER TRUST DATED OCTOBER 1, 1973

By: ______________________
Name: PAUL B. BUTLER, JR.
Title: Co-Trustee

By: BANK OF AMERICA, N.A.
Title: Co-Trustee

By: ______________________
Name: David McCune
Title: Senior Vice President

[GRANTOR SIGNATURES CONTINUED ON FOLLOWING TWO PAGES]

THE DARYL-ELLEN BUTLER TRUST DATED OCTOBER 1, 1973

By: [signature]
Name: PAUL B. BUTLER, JR.
Title: Co-Trustee

By: BANK OF AMERICA, N.A.
Title: Co-Trustee

By: [signature]
Name: David McCune
Title: Senior Vice President

THE PAUL BRETT BUTLER, III TRUST DATED OCTOBER 1, 1973

By: [signature]
Name: PAUL B. BUTLER, JR.
Title: Co-Trustee

By: BANK OF AMERICA, N.A.
Title: Co-Trustee

By: [signature]
Name: David McCune
Title: Senior Vice President

[GRANTOR SIGNATURES CONTINUED ON FOLLOWING PAGE]

THE SHELLEY BRYANT BUTLER TRUST DATED OCTOBER 1, 1973

By: Paul B. Butler Jr
Name: PAUL B. BUTLER, JR.
Title: Co-Trustee

By: BANK OF AMERICA, N.A.
Title: Co-Trustee

By:
Name: David McCune
Title: Senior Vice President

THE PAUL B. BUTLER TRUST DATED AUGUST 10, 1971

By: BANK OF AMERICA, N.A.
Title: Trustee

By:
Name: David McCune
Title: Senior Vice President

3399487
06/12/2006
8 of 18

STATE OF CALIFORNIA

COUNTY OF SAN FRANCISCO

On June 8, 2006 before me, Eugenie Coloma-Smith, a notary public for the State of California, personally appeared Paul B. Butler, Jr., ~~personally known~~ to ~~me~~ (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument, and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~) and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal (SEAL)

Eugenie Coloma Smith
(Signature)

EUGENIE L. COLOMA-SMITH
Commission # 1382712
Notary Public - California
San Francisco County
My Comm. Expires Nov 1, 2006

STATE OF CALIFORNIA

COUNTY OF SAN FRANCISCO

On June 8, 2006 before me, Eugenie Coloma-Smith, a notary public for the State of California, personally appeared David McCune, ~~personally known to me~~ (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument, and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~) and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal (SEAL)

Eugenie Coloma Smith
(Signature)

EUGENIE L. COLOMA-SMITH
Commission # 1382712
Notary Public - California
San Francisco County
My Comm. Expires Nov 1, 2006

STATE OF CALIFORNIA

COUNTY OF SAN FRANCISCO

On June 8, 2006 before me, Eugenie Coloma-Smith, a notary public for the State of California, personally appeared Jeffrey Acker, ~~personally known to me~~ (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument, and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(ies) and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal (SEAL)

Eugenie Coloma Smith
(Signature)

EUGENIE L. COLOMA-SMITH
Commission # 1382712
Notary Public - California
San Francisco County
My Comm. Expires Nov 1, 2006

LEGAL DESCRIPTION OF GRANTEE PROPERTY

All that certain real property situate in the City of Reno, County of Washoe, State of Nevada, being Parcels B and C, as depicted on that certain Parcel Map filed for record with the Washoe County Recorder on the 10th day of March, 2006, assigned official number 3359967.

Exhibit A
to
Drainage Easement Agreement

LEGAL DESCRIPTION OF CHANNEL EASEMENT AREA

All that certain real property situate within the southeast one-quarter (1/4) Section 3, T 18 N, R 20 E, MDM, City of Reno, County of Washoe, State of Nevada, lying within Parcel A of "Parcel Map Of Bella Vista Ranch" filed in the office of the Washoe County Recorder March 10, 2006, as Parcel Map 4526, File No. 3359967, Official Records of Washoe County, Nevada, more particularly described as follows:

BEGINNING at a point on said easement, from which point the Northwest corner of said Section Three (3), also known as Washoe County GPS point "WS1045", bears N 39°07'44" W, 3998.08 feet;
Thence, N 87°36'52" E, 61.00 feet;
Thence, along the arc of a non-tangent curve to the left from a tangent which bears S 02°25'27" E, having a radius of 1475.00 feet, a central angle of 10°01'30" and an arc length of 258.08 feet;
Thence, S 12°26'58" E, 183.60 feet;
Thence, S 23°14'10" E, 483.56 feet;
Thence, S 12°26'58" E, 131.75 feet;
Thence, along the arc of a tangent curve to the left, having a radius of 1184.50 feet, a central angle of 07°27'36", and an arc length of 154.23 feet, to the south line of said Parcel A;
Thence, along said south line, S 67°19'56" W, 213.31 feet;
Thence, continuing along said south line, along the arc of a tangent curve to the right, having a radius of 1343.00 feet, a central angle of 01°14'01", and an arc length of 28.91 feet;
Thence, leaving said south line, along the arc of a non-tangent curve to the right, from a tangent which bears N 20°21'55" W, having a radius of 1426.50 feet, a central angle of 07°54'57" and an arc length of 197.08 feet;
Thence, N 12°26'58" W, 113.67 feet;
Thence, N 01°57'36" W, 497.11 feet;
Thence, N 12°26'58" W, 187.90 feet;
Thence, along the arc of a tangent curve to the right, having a radius of 1536.00 feet, a central angle of 10°01'36", and an arc length of 268.80 feet, to the Point of Beginning.

CONTAINING: 3.96 acres of land, more or less.

BASIS OF BEARINGS: Nevada State Plane coordinated system, West Zone (NAD 83/94)..

Exhibit B-1
to
Drainage Easement Agreement

DEPICTION OF CHANNEL EASEMENT AREA

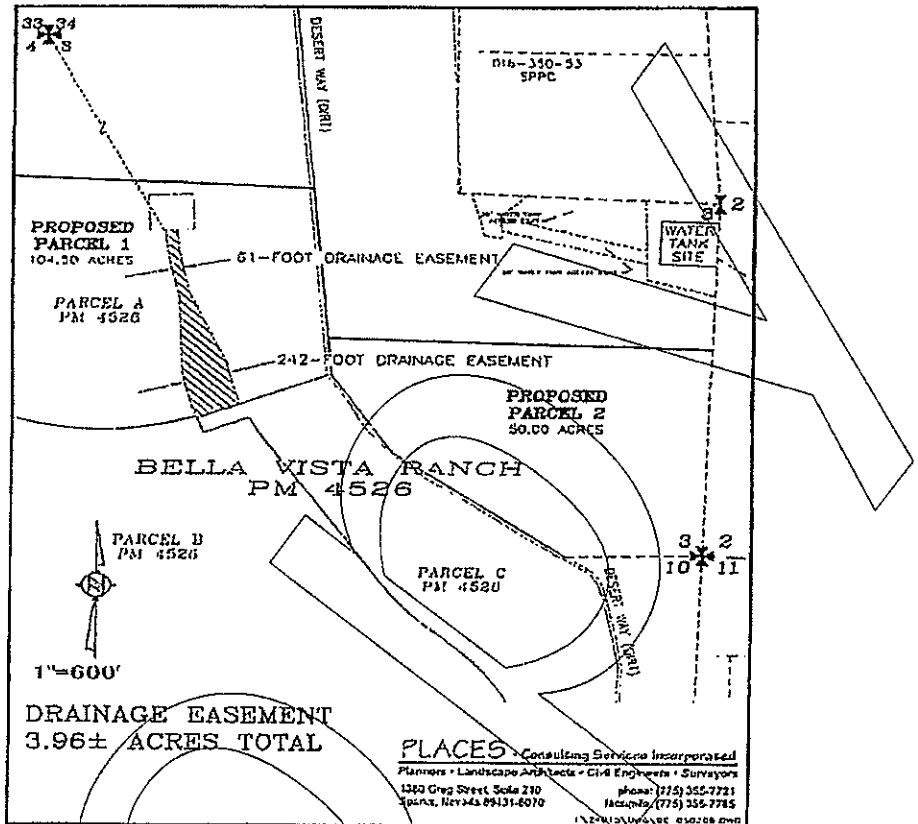


Exhibit B-2
to
Drainage Easement Agreement

LEGAL DESCRIPTION OF SURFACE DRAINAGE EASEMENT AREA

All that certain real property situate in a portion of Section 3, Township 18 North, Range 20 East, Mount Diablo Meridian, City of Reno, County of Washoe, State of Nevada, and being described as a portion of Parcel A of Parcel Map 4526 as recorded in Washoe County Official Records on March 10, 2006 under filing No. 3359967, more particularly described as follows:

COMMENCING at the Northwest corner of said Section Three (3), also known as Washoe County GPS point "WS1045", thence along the north line of said Section 3, N 88°07'21" E, 1147.20 feet, to the POINT OF BEGINNING:

Thence, continuing along the North line of said Section 3, N 88°07'21" E, 1441.44 feet;

Thence, leaving the said North line, along the West line of Lease Area #2 as shown on Record of Survey 4092 as recorded in Washoe County Official Records on June 10, 2002, under filing No. 2697841, the following six (6) courses;

1) S 52°06'39" E, 206.31 feet;

2) S 26°48'35" E, 219.31 feet;

3) S 46°40'54" E, 348.36 feet;

4) S 07°04'19" E, 720.02 feet;

5) S 00°29'07" E, 245.20 feet;

6) S 04°45'31" E, 2622.13 feet, to a point on the South line of said Parcel A;

Thence, leaving said West line, along said South line, the following seven (7) arcs, courses and distances;

1) S 67°19'56" W, 746.07 feet,

2) Along the arc of a tangent curve to the right, having a radius of 1343.00 feet, a central angle of 01°18'16", and an arc length of 30.58 feet,

3) N 21°21'48" W, 14.50 feet,

4) Along the arc of a non-tangent curve to the right, from a tangent which bears S 68°38'12" E, having a radius of 1328.50 feet, a central angle of 63°46'28" and an arc length of 1478.72 feet,

Exhibit C-1
to
Drainage Easement Agreement

5) Along the arc of a reverse curve to the left, having a radius of 1000.00 feet, a central angle of 09°37'33", and an arc length of 168.00 feet,

6) N 57°12'52" W, 170.11 feet,

7) Along the arc of a tangent curve to the left, having a radius of 2059.00 feet, a central angle of 32°45'08", and an arc length of 1176.99 feet, to a point on the West line of said Parcel A;

Thence, along the West line of said Parcel, N 01°23'46" E, 504.29 feet,

Thence, continuing along said West line, N 01°10'39" E, 1702.75 feet;

Thence, leaving said West line, N 01°10'39" E, 611.17 feet, to the south line of Lease Area #1 as shown on said Record of Survey 4092;

Thence, along said South line of Lease Area #1, the following four (4) arcs, courses and distances;

1) Along the arc of a non-tangent curve to the left, from a tangent which bears S 47°39'15" E, having a radius of 450.00 feet, a central angle of 74°39'25" and an arc length of 586.35 feet,

2) N 57°41'20" E, 658.22 feet,

3) Along the arc of a tangent curve to the left, having a radius of 300.00 feet, a central angle of 83°11'08", and an arc length of 435.56 feet,

4) N 25°29'48" W, 98.94 feet, to the Point of Beginning.

CONTAINING: 288.15 acres of land, more or less.

BASIS OF BEARINGS: Nevada State Plane coordinate system, West Zone Modified (NAD 83/94).

DEPICTION OF SURFACE DRAINAGE EASEMENT AREA

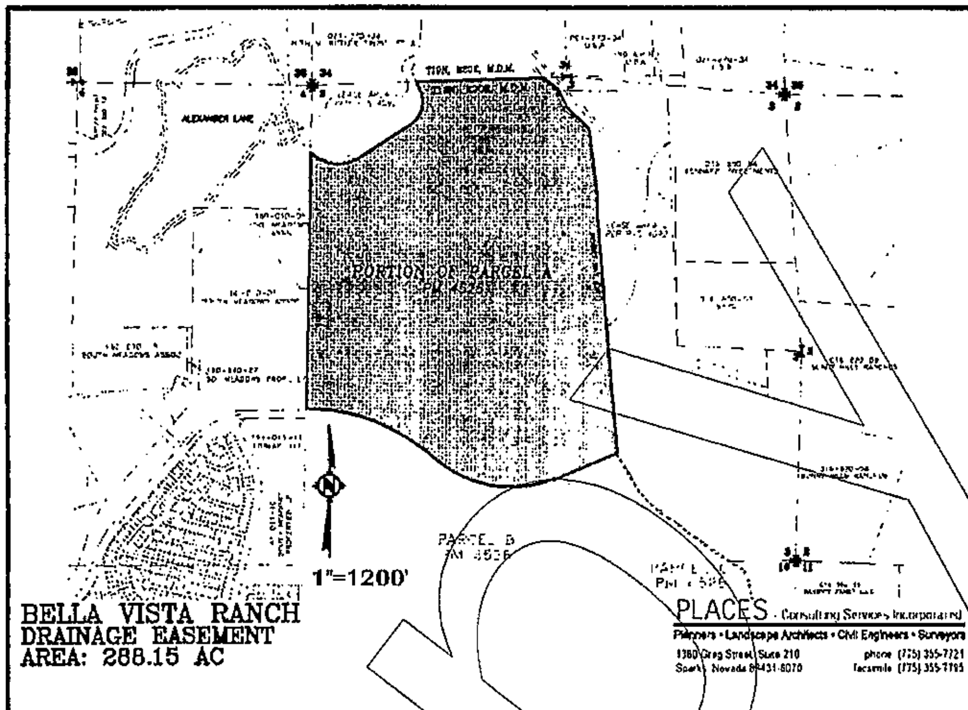


Exhibit C-2
to
Drainage Easement Agreement

LEGAL DESCRIPTION OF BASIN EASEMENT AREA

All that certain real property situate within the southeast one-quarter (1/4) Section 3, T 18 N, R 20 E, MDM, City of Reno, County of Washoe, State of Nevada, lying within Parcel A of "Parcel Map Of Bella Vista Ranch" filed in the office of the Washoe County Recorder March 10, 2006, as Parcel Map 4526, File No. 3359967, Official Records of Washoe County, Nevada, more particularly described as follows:

BEGINNING at a point on said easement, from which point the Northwest corner of said Section Three (3), also known as Washoe County GPS point "WS1045", bears N 40°18'42" W, 3766.55 feet;

Thence, N 88°12'25" E, 230.00 feet;

Thence, S 01°47'35" E, 230.32 feet;

Thence, S 87°36'52" W, 230.01 feet;

Thence, N 01°47'35" W, 232.70 feet, to the Point of Beginning.

CONTAINING: 1.22 acres of land, more or less.

BASIS OF BEARINGS: Nevada State Plane coordinate system, West Zone (NAD 83/94).

Exhibit D-1
to
Drainage Easement Agreement

DEPICTION OF SILTATION BASIN EASEMENT AREA

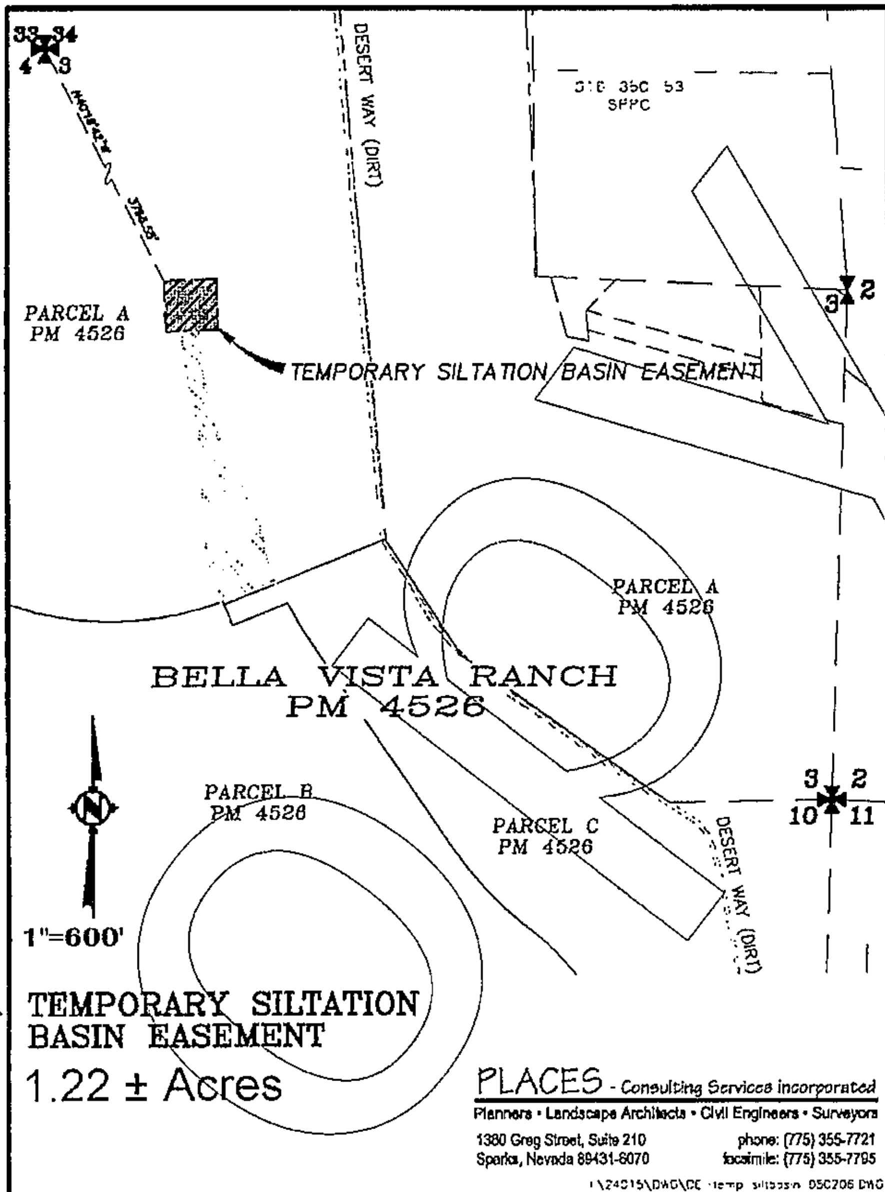


Exhibit D-2
to
Drainage Easement Agreement

WASHOE COUNTY RECORDER

OFFICE OF THE RECORDER
KATHRYN L. BURKE, RECORDER

1001 E. NINTH STREET
POST OFFICE BOX 11130
RENO, NEVADA 89520-0027
PHONE (775) 328-3661
FAX (775) 325-8010

LEGIBILITY NOTICE

The Washoe County Recorder's Office has determined that the attached document may not be suitable for recording by the method used by the Recorder to preserve the Recorder's records. The customer was advised that copies reproduced from the recorded document would not be legible. However, the customer demanded that the document be recorded without delay as the parties rights may be adversely affected because of a delay in recording. Therefore, pursuant to NRS 247.120 (3), the County Recorder accepted the document conditionally, based on the undersigned's representation (1) that a suitable copy will be submitted at a later date (2) it is impossible or impracticable to submit a more suitable copy.

By my signing below, I acknowledge that I have been advised that once the document has been microfilmed it may not reproduce a legible copy.

Lisa Quilici
Signature

6/12/06
Date

Lisa Quilici
Printed Name

APPENDIX B

SUPPORTING CALCULATIONS

Basins 1 and 3
As-Built UPDATE

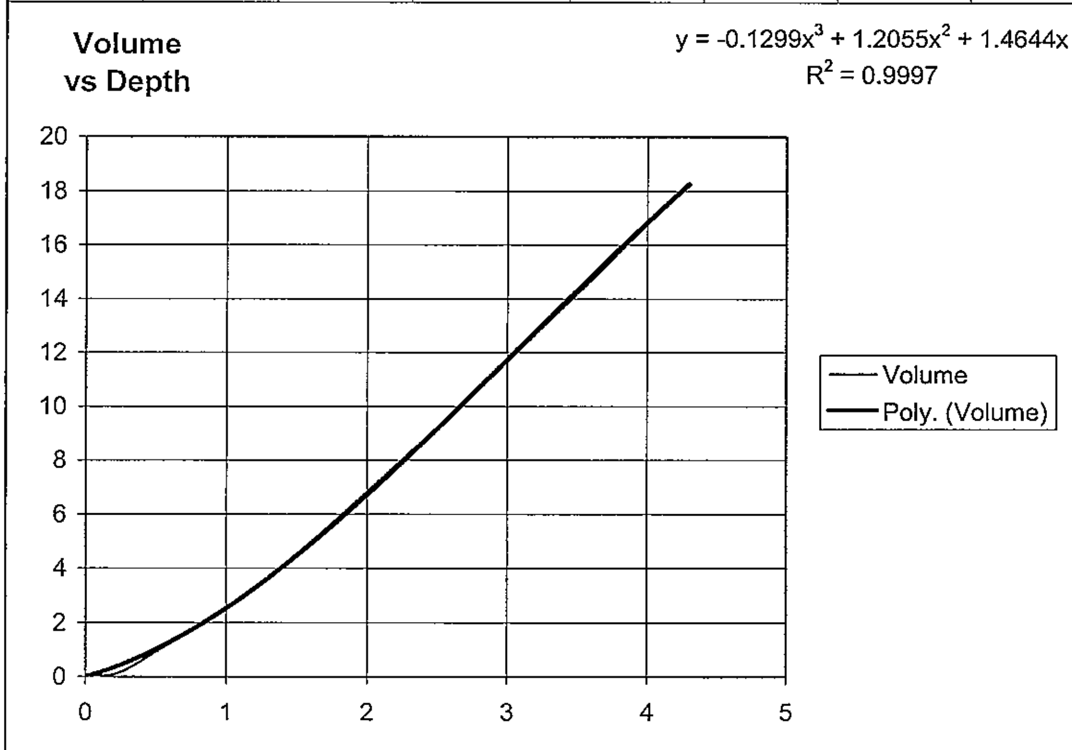
Quad Knopf
9(Prototype Court
Re.., NV 89521

Bella Vista Phase 1
MR
Storage Basin 1
Volume Calculations

Calc: RMH
Date rch 2007
Basin 1

Feet	Feet	cy	cf	af		Volume Curve Fit			
Depth	Elevation	Volume	Volume	Volume	Calc Vol	C3	C2	C1	C0
0	4437.7	0.000	0	0.000	0	-0.1299	1.2055	1.4644	0
0.3	4438	470	12690	0.291	0.544				
1.3	4439	5984	161568	3.709	3.656				
2.3	4440	13346	360342	8.272	8.165				
3.3	4441	21250	573750	13.171	13.292				
4.3	4442	29517	796959	18.296	18.259				
4.44					18.897				

Low Point in Basin	4437.70
Flow Point in Lateral Weir	4442.14
Volume at Depth = 4.44	18.897



Current stratum: Basin 1 Site
Current stratum: Basin 1 Site
Site name = Basin 1 Site
Low Point in Basin is 4437.7
From Surface Calculations

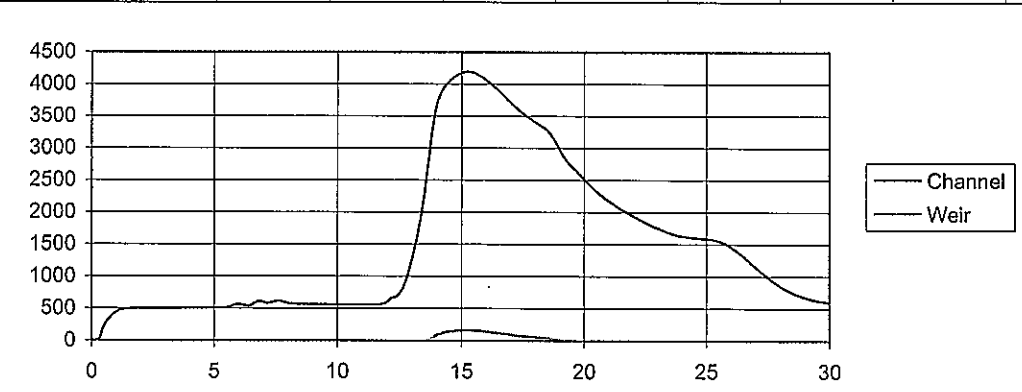
Elevation	Cut	Fill
4438	Cut = 16351	Fill = 470
4739	Cut = 11467	Fill = 5984
4440	Cut = 8648	Fill = 13346
4441	Cut = 6371	Fill = 21250
4442	Cut = 4458	Fill = 29517

QUAD KNOPF
9600 Prototype Court
Reno, NV 89521

Bella Vista Phase 1
LOMR
Basin No. 1
Hydrograph at Lateral Weir

Calc: RMH
Date: Sep 2007
Hydrograph

5		Node Name		STM+E	0				
STM+E	50005	27-Jul	0	0	1	1	360	71.415	
0	0.474	6.993	41.047	124.436	220.874	276.886	318.086	353.606	387.734
417.612	441.629	459.646	472.588	481.628	487.842	492.07	494.932	496.863	498.164
499.039	499.628	500.025	500.291	500.47	500.591	500.674	500.733	500.782	500.829
500.882	500.946	501.02	501.104	501.196	501.295	501.4	501.509	501.623	501.742
501.874	502.034	502.241	502.505	502.824	503.179	503.549	503.919	504.282	504.637
504.987	505.339	505.697	506.069	506.459	506.865	507.278	507.683	508.042	508.296
508.422	508.452	508.437	508.482	509.054	511.457	517.439	527.44	539.63	550.996
558.824	561.571	559.174	552.852	544.75	537.967	536.636	544.592	562.164	584.154
602.299	610.414	607.435	597.32	586.769	581.288	582.596	589.346	598.968	608.455
614.701	615.489	610.581	601.743	591.822	583.347	577.265	573.093	570.076	567.817
566.16	564.949	564.02	563.249	562.565	561.93	561.326	560.746	560.194	559.675
559.184	558.698	558.186	557.631	557.059	556.54	556.115	555.763	555.447	555.144
554.844	554.553	554.284	554.031	553.799	553.601	553.417	553.255	553.155	553.095
553.085	553.171	553.339	553.604	554.022	554.574	555.293	556.265	557.442	559.989
565.465	572.977	584.843	605.68	633.605	657.873	671.297	681.511	702.635	739.169
790.219	856.654	939.329	1040.45	1157.94	1285.02	1419.67	1565.91	1725.44	1900.3
2094.82	2313.98	2559.9	2827.74	3098.2	3340.22	3534.72	3680.47	3787.55	3866.66
3925.94	3972.32	4010.73	4044.07	4073.81	4100.5	4124.21	4144.78	4161.95	4175.46
4185.15	4190.91	4192.76	4190.78	4185.05	4175.74	4163.04	4147.25	4128.74	4107.91
4085.17	4060.91	4035.51	4009.3	3982.58	3955.54	3928.15	3899.81	3869.65	3837.47
3804.18	3770.85	3738.16	3706.53	3676.13	3647.05	3619.28	3592.77	3567.5	3543.36
3519.83	3496.28	3472.75	3449.65	3427.3	3405.88	3385.46	3366	3347.3	3328.31
3306.2	3277.28	3239.79	3194.84	3144.79	3091.1	3033.78	2973.81	2915.26	2861.89
2815.12	2774.9	2740.02	2708.43	2678.08	2647.61	2616.37	2583.99	2550.16	2515.43
2481.28	2448.44	2416.94	2386.65	2357.44	2329.26	2302.06	2275.76	2250.33	2225.69
2201.79	2178.59	2156.07	2134.22	2113.03	2092.48	2072.53	2053.13	2034.21	2015.67
1997.42	1979.4	1961.54	1943.82	1926.26	1908.89	1891.75	1874.89	1858.35	1842.16
1826.35	1810.92	1795.87	1781.22	1766.96	1753.09	1739.61	1726.52	1713.85	1701.62
1689.9	1678.78	1668.38	1658.81	1650.13	1642.39	1635.57	1629.57	1624.22	1619.35
1614.81	1610.51	1606.45	1602.67	1599.22	1596.14	1593.44	1591.03	1588.72	1586.24
1583.27	1579.48	1574.58	1568.34	1560.61	1551.25	1540.19	1527.38	1512.8	1496.45
1478.37	1458.64	1437.38	1414.74	1390.92	1366.12	1340.33	1313.19	1284.4	1254.91
1226.12	1197.93	1170.1	1142.51	1115.15	1088.1	1061.43	1035.23	1009.58	984.491
959.845	935.55	911.985	889.638	868.385	848.146	828.864	810.518	793.095	776.583
760.963	746.217	732.321	719.253	706.981	695.477	684.707	674.636	665.224	656.431
648.218	640.545	633.377	626.678	620.416	614.56	609.081	603.955	599.155	594.66



Q Knopf
9600 Prototype Court
Reno, NV 89521

Bell ta Phase 1
LOMR
Storage Basin 1
Lateral Weir Calculations

alc: RMH
Date: March 2007
Lat Weir

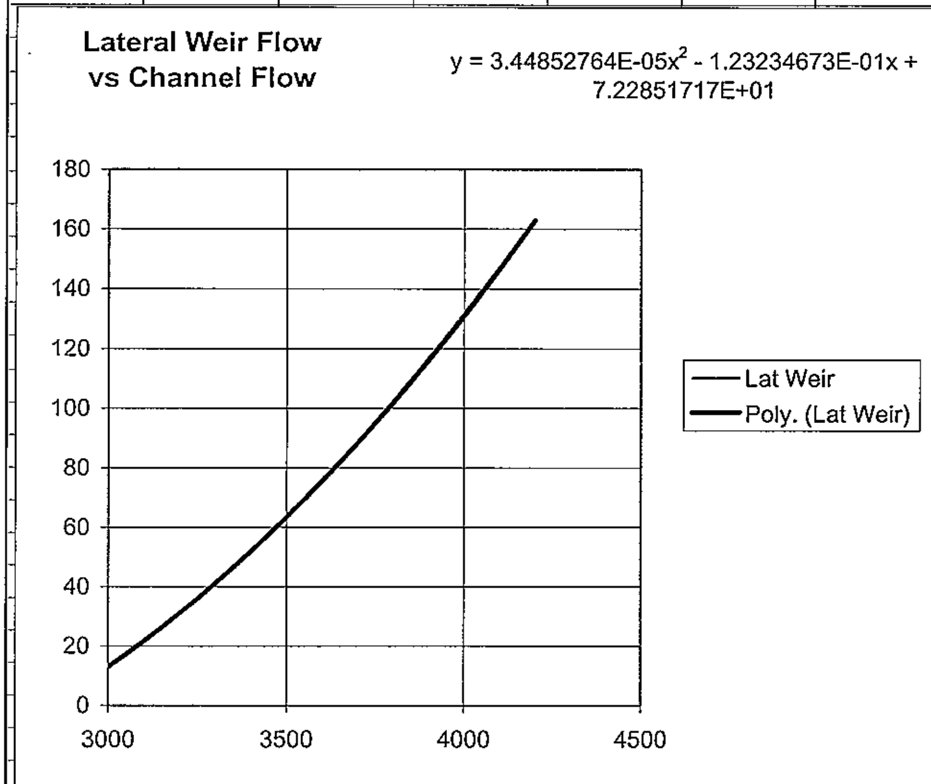
HEC-RAS Plan: latweir River: Steamboat Reach: Bella Vista

Reach	River Sta	Profile	Q US (cfs)	Q Leaving (cfs)	Q DS (cfs)	Q Weir (cfs)
Bella Vista	84.5	PF 1	4200	162.77	4038.02	162.77
Bella Vista	84.5	PF 2	3780	99.95	3680.65	99.95
Bella Vista	84.5	PF 3	3360	46.78	3313.66	46.78
Bella Vista	84.5	PF 4	2950	9.11	2941.02	9.11

Flowline of Weir = 4441.8
Length of Bottom = 50 ft
Wings = 25 ft
Coeff = 3.0

Lateral Wier Discharge vs Channel Flow

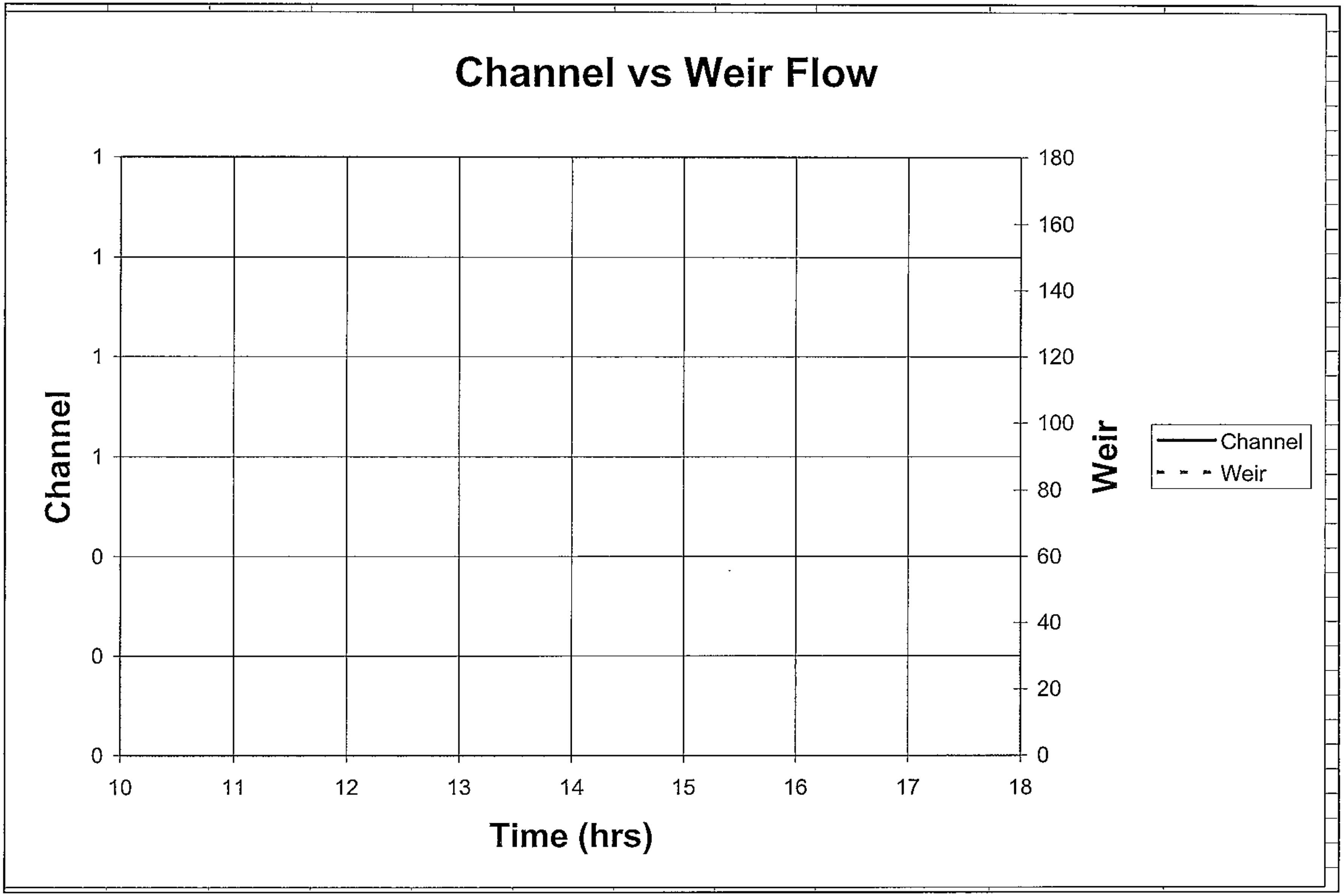
C3	C2	C1	C0
0	3.44852764E-05	-1.23234673E-01	7.22851717E+01



Channel Flow	HEC-RAS	Curve
4200	162.77	163.02
3780	99.95	99.20
3360	46.78	47.54
2950	9.11	8.85
2834		0.00

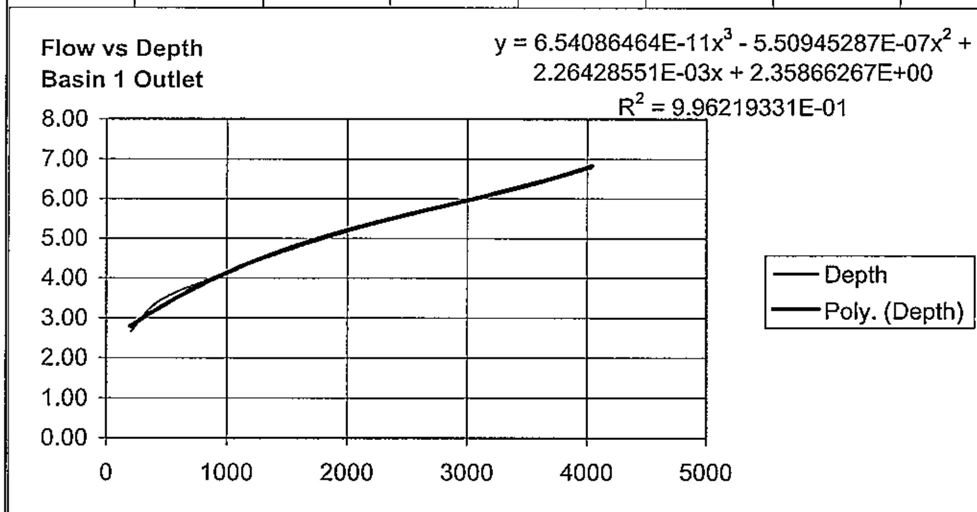
Volume To Basin	
Volume Removed	43.46

Hours	Flow	Flow	Vol		Hours	Flow	Flow			
Time	Channel	Weir	Basin		Time	Channel	Weir			
11.00	0.00	0.00	0.00		13.83	0.00	0.00			
11.08	0.00	0.00	0.00		13.92	0.00	0.00			
11.17	0.00	0.00	0.00		14.00	0.00	0.00			
11.25	0.00	0.00	0.00		14.08	0.00	0.00			
11.33	0.00	0.00	0.00		14.17	0.00	0.00			
11.42	0.00	0.00	0.00		14.25	0.00	0.00			
11.50	0.00	0.00	0.00		14.33	0.00	0.00			
11.58	0.00	0.00	0.00		14.42	0.00	0.00			
11.67	0.00	0.00	0.00		14.50	0.00	0.00			
11.75	0.00	0.00	0.00		14.58	0.00	0.00			
11.83	0.00	0.00	0.00		14.67	0.00	0.00			
11.92	0.00	0.00	0.00		14.75	0.00	0.00			
12.00	0.00	0.00	0.00		14.83	0.00	0.00			
12.08	0.00	0.00	0.00		14.92	0.00	0.00			
12.17	0.00	0.00	0.00		15.00	0.00	0.00			
12.25	0.00	0.00	0.00		15.08	0.00	0.00			
12.33	0.00	0.00	0.00		15.17	0.00	0.00			
12.42	0.00	0.00	0.00		15.25	0.00	0.00			
12.50	0.00	0.00	0.00		15.33	0.00	0.00			
12.58	0.00	0.00	0.00		15.42	0.00	0.00			
12.67	0.00	0.00	0.00		15.50	0.00	0.00			
12.75	0.00	0.00	0.00		15.58	0.00	0.00			
12.83	0.00	0.00	0.00		15.67	0.00	0.00			
12.92	0.00	0.00	0.00		15.75	0.00	0.00			
13.00	0.00	0.00	0.00		15.83	0.00	0.00			
13.08	0.00	0.00	0.00		15.92	0.00	0.00			
13.17	0.00	0.00	0.00		16.00	0.00	0.00			
13.25	0.00	0.00	0.00		16.08	0.00	0.00			
13.33	0.00	0.00	0.00		16.17	0.00	0.00			
13.42	0.00	0.00	0.00		16.25	0.00	0.00			
13.50	0.00	0.00	0.00		16.33	0.00	0.00			
13.58	0.00	0.00	0.00		16.42	0.00	0.00			
13.67	0.00	0.00	0.00		16.50	0.00	0.00			
13.75	0.00	0.00	0.00		16.58	0.00	0.00			


Channel vs Weir Flow
Channel
1
1
1
1
0
0
0
Weir
180
160
140
120
100
80
60
40
20
0
10
11
12
13
14
15
16
17
18
Time (hrs)
Channel
Weir

HEC-RAS Plan: Depth River: Steamboat Reach: Bella Vista						
Reach	River Sta	Profile	(cfs)	(ft)	(ft)	(ft)
			Q Total	Min Ch El	W.S. Elev	Depth
Bella Vista	74.75	PF 1	4038.02	4434.09	4440.87	6.78
Bella Vista	74.75	PF 2	3680.65	4434.09	4440.61	6.52
Bella Vista	74.75	PF 3	3313.66	4434.09	4440.33	6.24
Bella Vista	74.75	PF 4	2941.02	4434.09	4440.03	5.94
Bella Vista	74.75	PF 5	2520	4434.09	4439.69	5.60
Bella Vista	74.75	PF 6	2100	4434.09	4439.34	5.25
Bella Vista	74.75	PF 7	1680	4434.09	4438.95	4.86
Bella Vista	74.75	PF 8	1260	4434.09	4438.53	4.44
Bella Vista	74.75	PF 9	840	4434.09	4438.06	3.97
Bella Vista	74.75	PF 10	420	4434.09	4437.48	3.39
Bella Vista	74.75	PF 11	200	4434.09	4436.73	2.64

Channel Flow vs Channel Depth of Flow			
C3	C2	C1	C0
6.540865E-11	-5.509453E-07	2.264286E-03	2.358663E+00
Chanel Flow	HEC-RAS	Curve	
4038.02	6.78	6.83	
3680.65	6.52	6.49	
3313.66	6.24	6.19	
2941.02	5.94	5.92	
2520	5.60	5.61	
2100	5.25	5.29	
1680	4.86	4.92	
1260	4.44	4.47	
840	3.97	3.91	
420	3.39	3.22	
200	2.64	2.79	
4111	0.00	6.90	



Q KNOPF
9600 Prototype Court
Reno, NV 89521

Bel sta Phase 1
LOMR
Storage Basin 1
Hydrograph and Weir

alc: RMH
Date: March 2007
Hydoout

Per	Time	Chn. Flow	Weir Out	Weir AF
	Hrs	cfs	cfs	AF
164	13.67	2827.74	0.00	0.00
165	13.75	3098.20	21.50	0.15
166	13.83	3340.22	45.41	0.31
167	13.92	3534.72	67.55	0.47
168	14.00	3680.47	85.86	0.59
169	14.08	3787.55	100.24	0.69
170	14.17	3866.66	111.37	0.77
171	14.25	3925.94	120.00	0.83
172	14.33	3972.32	126.91	0.87
173	14.42	4010.73	132.75	0.91
174	14.50	4044.07	137.91	0.95
175	14.58	4073.81	142.57	0.98
176	14.67	4100.50	146.80	1.01
177	14.75	4124.21	150.60	1.04
178	14.83	4144.78	153.93	1.06
179	14.92	4161.95	156.74	1.08
180	15.00	4175.46	158.96	1.09
181	15.08	4185.15	160.55	1.11
182	15.17	4190.91	161.51	1.11
183	15.25	4192.76	161.82	1.11
184	15.33	4190.78	161.49	1.11
185	15.42	4185.05	160.54	1.11
186	15.50	4175.74	159.00	1.10
187	15.58	4163.04	156.91	1.08
188	15.67	4147.25	154.34	1.06
189	15.75	4128.74	151.33	1.04
190	15.83	4107.91	147.98	1.02
191	15.92	4085.17	144.36	0.99
192	16.00	4060.91	140.54	0.97
193	16.08	4035.51	136.57	0.94
194	16.17	4009.30	132.53	0.91
195	16.25	3982.58	128.46	0.88
196	16.33	3955.54	124.39	0.86
197	16.42	3928.15	120.32	0.83

Channel Flow vs Lateral Weir Flow			
C3	C2	C1	C0
0	3.44853E-05	-0.123235	72.28517
Elevation	Weir Flow		
4200	162.77	163.0	
3780	99.95	99.2	
3360	46.78	47.5	
2950	9.11	8.9	
2834	0	0.0	

Volume Removed 43.46 AF

J:\0432 as built LOMR BV PH 1\Speadsheets\December 07 Submittal\
DB Storage Area 1.XLS

Per	Time	Chn. Flow	Weir Out	Weir AF					
	Hrs	cfs	cfs	AF					
198	16.50	3899.81	116.16	0.80					
199	16.58	3869.65	111.80	0.77					
200	16.67	3837.47	107.21	0.74					
201	16.75	3804.18	102.54	0.71					
202	16.83	3770.85	97.94	0.67					
203	16.92	3738.16	93.51	0.64					
204	17.00	3706.53	89.28	0.61					
205	17.08	3676.13	85.29	0.59					
206	17.17	3647.05	81.53	0.56					
207	17.25	3619.28	77.99	0.54					
208	17.33	3592.77	74.67	0.51					
209	17.42	3567.50	71.54	0.49					
210	17.50	3543.36	68.60	0.47					
211	17.58	3519.83	65.76	0.45					
212	17.67	3496.28	62.97	0.43					
213	17.75	3472.75	60.21	0.41					
214	17.83	3449.65	57.55	0.40					
215	17.92	3427.30	55.00	0.38					
216	18.00	3405.88	52.59	0.36					
217	18.08	3385.46	50.33	0.35					
218	18.17	3366.00	48.19	0.33					
219	18.25	3347.30	46.17	0.32					
220	18.33	3328.31	44.14	0.30					
221	18.42	3306.20	41.80	0.29					
222	18.50	3277.28	38.80	0.27					
223	18.58	3239.79	35.00	0.24					
224	18.67	3194.84	30.56	0.21					
225	18.75	3144.79	25.79	0.18					
226	18.83	3091.10	20.86	0.14					
227	18.92	3033.78	15.81	0.11					
228	19.00	2973.81	10.78	0.07					
229	19.08	2915.26	6.11	0.04					
230	19.17	2861.89	2.05	0.01					
231	19.25	2815.12	0.00	0.00					

C KNOPF
9600 Prototype Court
Reno, NV 89521

Be sta Phase I
LOMR
Storage Basin No. 1
Outflow Calculations

Calc: RMH
Date: March 2007
Basin Out

Channel	Channel	Time	Channel	Storage	Basin	Basin	Average	Outflow	Outflow	Storage
Flow	W.S.	Hours	Depth	Bas Vol	W.S.	Depth	Delta WS	3	Volume	Volume
				by depth						by outfow
4061	4440.94	16.00	6.85	18.90	4442.14	4.44				18.90
3406	4440.35	18.00	6.26	18.85	4442.13	4.43	1.489	0.288	0.048	18.85
2515	4439.70	20.00	5.61	18.79	4442.12	4.42	2.097	0.342	0.057	18.79
1944	4439.25	22.00	5.16	18.73	4442.10	4.40	2.636	0.383	0.063	18.73
1630	4438.96	24.00	4.87	18.66	4442.09	4.39	2.992	0.409	0.068	18.66
1459	4438.78	26.00	4.69	18.59	4442.07	4.37	3.210	0.423	0.070	18.59
848	4438.01	28.00	3.92	18.52	4442.06	4.36	3.667	0.452	0.075	18.52
595	4437.61	30.00	3.52	18.44	4442.04	4.34	4.234	0.486	0.080	18.44
	4437.59	33.00	3.50	18.31	4442.01	4.31	4.423	0.497	0.123	18.31
	4437.59	36.00	3.50	18.19	4441.99	4.29	4.409	0.496	0.123	18.19
	4437.59	40.00	3.50	18.03	4441.95	4.25	4.378	0.494	0.163	18.03
	4437.59	48.00	3.50	17.70	4441.88	4.18	4.326	0.491	0.325	17.70
	4437.59	60.00	3.50	17.22	4441.78	4.08	4.241	0.486	0.482	17.22
	4437.59	72.00	3.50	16.74	4441.68	3.98	4.141	0.481	0.477	16.74
									2.154	
	After depth in channel decreases to 3.5 feet the water surface will be below the 3-inch oriface in the basin									

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Reno, NV 89521

Bella a Phase 1
LOMR
Starage Basin 3
Volume Calculations

lc: RMH
Date: March 2007
Basin 3

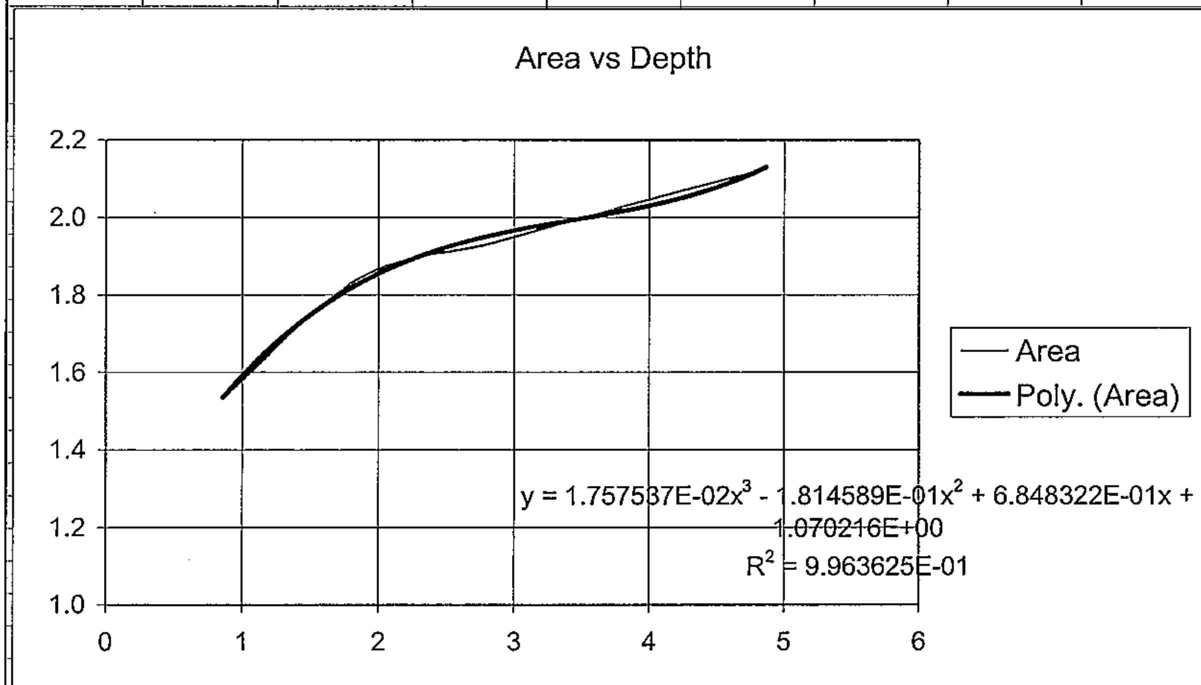
Depth	Area	Elevation	Area* Calculated	Volume Calculated	Volume
0	1.0702	4432.14	1.070	0.000	0
0.86	1.5329	4433.00	1.536	1.138	1.302
1.86	1.8425	4434.00	1.829	2.839	2.989
2.86	1.9360	4435.00	1.956	4.741	4.878
3.86	2.0340	4436.00	2.021	6.730	6.863
4.86	2.1267	4437.00	2.130	8.797	8.944

Basin 3 Area and Volume Curves

C4	C3	C2	C1	C0	
	0.017575	-0.181459	6.85E-01	1.070216	Area
4.39E-03	-0.060486	0.342416	1.070216	0	Volume

Volume Curve is intregrated from Area Curve

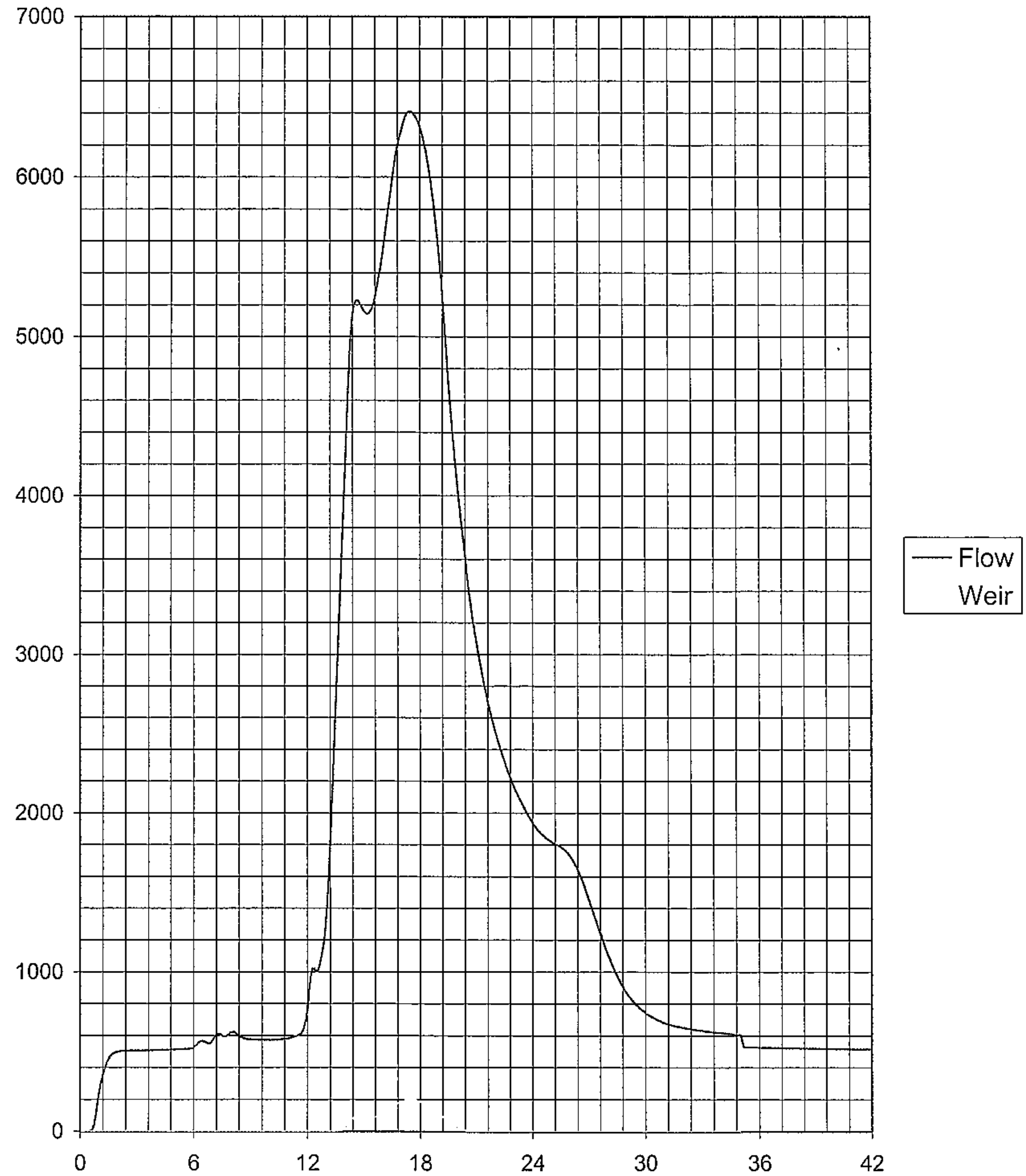
Flowline of Weir is 4436	6.730	AF
Flowline of Basin is 4432.14	0	AF
Net Volume	6.730	AF



* Areas are calculated from the contour lines on the as-built study map.

5		Node Name		STMBV3	43					
StmBV3	50005	27-Jul	0	0	1	1	420	85.274		
0	0.009	0.047	0.125	0.273	0.93	4.297	17.103	50.39	109.427	
182.209	247.733	298.168	339.409	375.317	406.565	432.524	452.882	468.086	479.041	
486.731	492.103	495.856	498.487	500.34	501.661	502.623	503.338	503.882	504.306	
504.648	504.933	505.18	505.404	505.617	505.803	505.947	506.071	506.196	506.328	
506.465	506.607	506.754	506.906	507.066	507.239	507.443	507.699	508.021	508.393	
508.794	509.206	509.618	510.024	510.423	510.818	511.213	511.617	512.036	512.474	
512.932	513.403	513.868	514.296	514.651	514.91	515.087	515.256	515.629	516.73	
519.488	524.966	533.473	543.914	554.19	562.052	565.816	565.122	560.834	554.81	
549.765	549.101	555.412	568.909	586.428	602.364	611.544	612.335	606.811	599.305	
594.256	594.07	598.647	606.246	614.338	620.168	621.853	618.926	612.391	604.184	
596.316	589.96	585.303	581.992	579.626	577.924	576.698	575.798	575.109	574.561	
574.127	573.782	573.495	573.245	573.03	572.868	572.771	572.721	572.675	572.621	
572.584	572.613	572.745	572.971	573.281	573.706	574.511	575.805	577.408	579.222	
581.186	583.327	585.648	588.122	590.804	593.714	596.9	600.551	604.735	612.331	
628.232	654.124	695.034	762.362	861.012	959.044	1016.7	1022.43	1008.7	1000.87	
1017.19	1057.04	1105.14	1158.74	1242.65	1358.96	1511.44	1698.68	1917.51	2160.65	
2418.34	2672.64	2930.63	3188.19	3443.13	3697.53	3954.57	4213.73	4469.11	4706.7	
4905.08	5052.76	5150.14	5205.09	5227.98	5228.27	5216.2	5198.33	5179.28	5162.22	
5149.47	5143.18	5144.91	5155.41	5174.8	5203.27	5240.69	5287.14	5343.05	5399.95	
5456.75	5521.88	5594.39	5672.89	5751.72	5817.53	5887.78	5961.39	6036.4	6110.8	
6166.9	6211.08	6254.37	6294.56	6330.56	6361.7	6387.56	6403.9	6406.77	6406.69	
6403.09	6395.42	6383.34	6366.48	6344.41	6316.89	6283.78	6245.19	6201.47	6153.1	
6100.49	6044.02	5978.09	5900.16	5818.23	5730.69	5635.5	5531.61	5420.05	5302.38	
5168.68	5020.59	4875.78	4736.72	4605.84	4484.21	4371.87	4262.14	4150.87	4047.4	
3949.33	3855.27	3764.66	3677	3592.17	3507.91	3421.23	3341.37	3267.03	3197.27	
3131.46	3069.13	3010.36	2955.03	2902.63	2852.75	2805.1	2758.61	2710.19	2665.63	
2624	2584.67	2547.21	2511.34	2476.83	2443.5	2411.19	2379.81	2349.49	2320.54	
2292.86	2266.2	2240.42	2215.44	2191.24	2167.76	2144.99	2122.9	2101.5	2080.76	
2060.65	2041.17	2022.31	2004.1	1986.77	1970.39	1954.62	1939.62	1922.53	1907.32	
1894.83	1883.77	1873.76	1864.56	1855.97	1847.86	1840.15	1832.82	1825.87	1819.34	
1813.24	1807.56	1802.21	1796.99	1791.66	1785.94	1779.49	1772.03	1763.36	1753.3	
1741.74	1728.5	1713.59	1697	1678.75	1658.86	1637.39	1614.5	1590.32	1564.98	
1538.57	1511.07	1482.37	1452.58	1422.21	1392	1362.23	1332.86	1303.82	1275.08	
1246.68	1218.68	1191.15	1164.14	1137.67	1111.71	1086.28	1061.6	1037.88	1015.25	
993.656	973.042	953.374	934.632	916.832	899.93	883.902	868.726	854.387	840.87	
828.127	816.123	804.825	794.207	784.229	774.843	766.009	757.693	749.871	742.503	
735.553	728.994	722.801	716.956	711.428	706.195	701.239	696.549	692.118	687.941	
684.017	680.346	676.927	673.738	670.755	667.952	665.306	662.802	660.418	658.141	
655.96	653.868	651.857	649.92	648.05	646.244	644.497	642.804	641.163	639.569	
638.019	636.511	635.043	633.612	632.215	630.852	629.52	628.218	626.945	625.699	
624.48	623.287	622.118	620.972	619.849	618.746	617.665	616.602	615.558	614.531	
613.521	612.527	611.549	610.584	609.633	608.696	607.771	606.857	605.956	605.081	

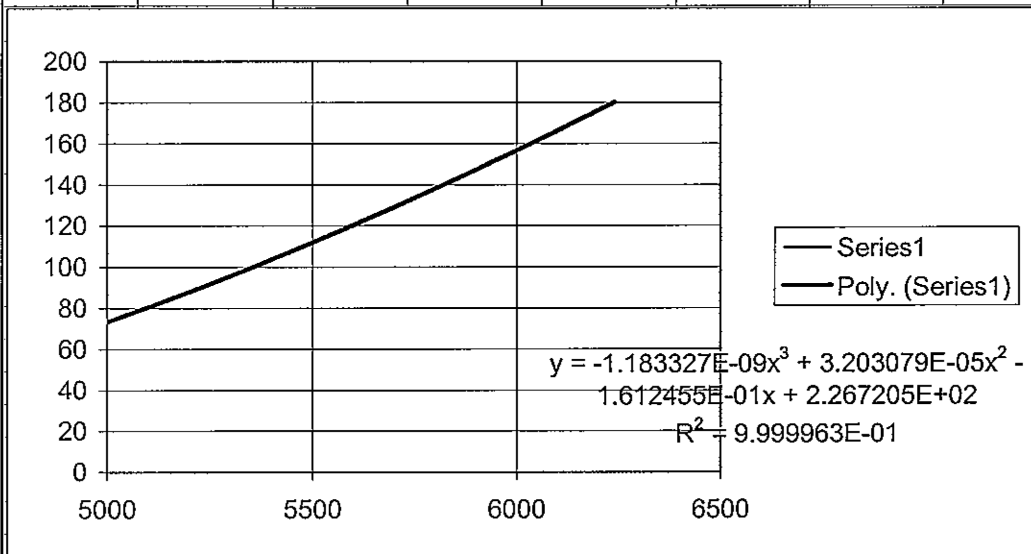
Bella Vista Phase 1
LOMR
Hydrograph at Lateral Weir



HEC-RAS Plan: LatWier River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q US	Q Leaving	Q DS	Q Weir
			(cfs)	(cfs)	(cfs)	(cfs)
Reach-1	49.65	PF 1	6238.02	180.11	6058.47	180.11
Reach-1	49.65	PF 2	5750.65	133.51	5617.87	133.51
Reach-1	49.65	PF 3	5073.66	78.67	4995.78	78.67
Reach-1	49.65	PF 4	4471.02	40.47	4431.2	40.47
Reach-1	49.65	PF 5	3840	12.67	3827.44	12.67
Reach-1	49.65	PF 6	3200	0.01	3200	0.01

Flowline of Weir = 4436.0
Length of Bottom = 15 ft
Wing = 25 feet
Coeff = 3.0

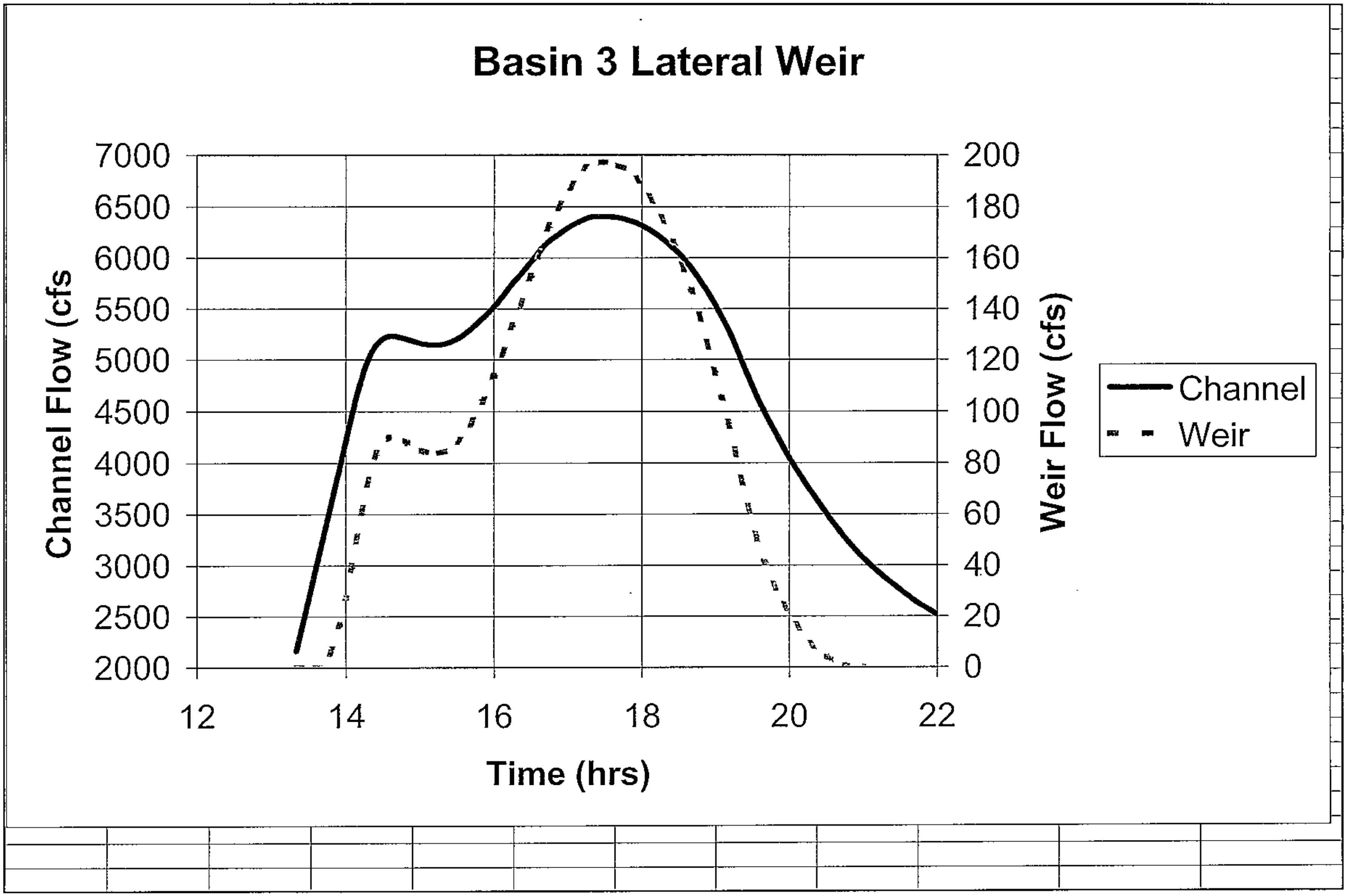


Lateral Weir Flow vs Channel Flow for Basin 3

C3	C2	C1	C0
-1.18E-09	3.203079E-05	-1.612455E-01	2.267205E+02
Channel	HEC-RAS	Curve	
6238	180.11	180.04	
5751	133.51	133.67	
5074	78.67	78.60	
4471	40.47	40.32	
3840	12.67	12.85	
3200	0.01	-0.05	
3206		0.00	

Volume Removed.	
Volume into Basin	61.34

13.33	2160.65	0.00		16.25	5751.72	133.77		19.17	5302.38	95.88	
13.42	2418.34	0.00		16.33	5817.53	139.73		19.25	5168.68	85.61	
13.50	2672.64	0.00		16.42	5887.78	146.20		19.33	5020.59	74.80	
13.58	2930.63	0.00		16.50	5961.39	153.09		19.42	4875.78	64.84	
13.67	3188.19	0.00		16.58	6036.40	160.24		19.50	4736.72	55.85	
13.75	3443.13	2.96		16.67	6110.80	167.45		19.58	4605.84	47.92	
13.83	3697.53	8.61		16.75	6166.90	172.96		19.67	4484.21	41.04	
13.92	3954.57	16.80		16.83	6211.08	177.35		19.75	4371.87	35.11	
14.00	4213.73	27.47		16.92	6254.37	181.68		19.83	4262.14	29.72	
14.08	4469.11	40.22		17.00	6294.56	185.74		19.92	4150.87	24.66	
14.17	4706.70	53.98		17.08	6330.56	189.40		20.00	4047.40	20.35	
14.25	4905.08	66.80		17.17	6361.70	192.58		20.08	3949.33	16.61	
14.33	5052.76	77.10		17.25	6387.56	195.24		20.17	3855.27	13.35	
14.42	5150.14	84.22		17.33	6403.90	196.93		20.25	3764.66	10.51	
14.50	5205.09	88.36		17.42	6406.77	197.23		20.33	3677.00	8.06	
14.58	5227.98	90.10		17.50	6406.69	197.22		20.42	3592.17	5.96	
14.67	5228.27	90.13		17.58	6403.09	196.85		20.50	3507.91	4.16	
14.75	5216.20	89.20		17.67	6395.42	196.06		20.58	3421.23	2.59	
14.83	5198.33	87.84		17.75	6383.34	194.81		20.67	3341.37	1.41	
14.92	5179.28	86.40		17.83	6366.48	193.07		20.75	3267.03	0.54	
15.00	5162.22	85.12		17.92	6344.41	190.81		20.83	3197.27	0.00	
15.08	5149.47	84.17		18.00	6316.89	188.00		20.92	3131.46	0.00	
15.17	5143.18	83.70		18.08	6283.78	184.65		21.00	3069.13	0.00	
15.25	5144.91	83.83		18.17	6245.19	180.76		21.08	3010.36	0.00	
15.33	5155.41	84.61		18.25	6201.47	176.39		21.17	2955.03	0.00	
15.42	5174.80	86.07		18.33	6153.10	171.60		21.25	2902.63	0.00	
15.50	5203.27	88.22		18.42	6100.49	166.44		21.33	2852.75	0.00	
15.58	5240.69	91.08		18.50	6044.02	160.97		21.42	2805.10	0.00	
15.67	5287.14	94.69		18.58	5978.09	154.67		21.50	2758.61	0.00	
15.75	5343.05	99.10		18.67	5900.16	147.35		21.58	2710.19	0.00	
15.83	5399.95	103.68		18.75	5818.23	139.79		21.67	2665.63	0.00	
15.92	5456.75	108.33		18.83	5730.69	131.89		21.75	2624.00	0.00	
16.00	5521.88	113.76		18.92	5635.50	123.49		21.83	2584.67	0.00	
16.08	5594.39	119.94		19.00	5531.61	114.58		21.92	2547.21	0.00	
16.17	5672.89	126.77		19.08	5420.05	105.31		22.00	2511.34	0.00	


Basin 3 Lateral Weir
Channel Flow (cfs
7000
6500
6000
5500
5000
4500
4000
3500
3000
2500
2000
Weir Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
12
14
16
18
20
22
Time (hrs)
Channel
Weir

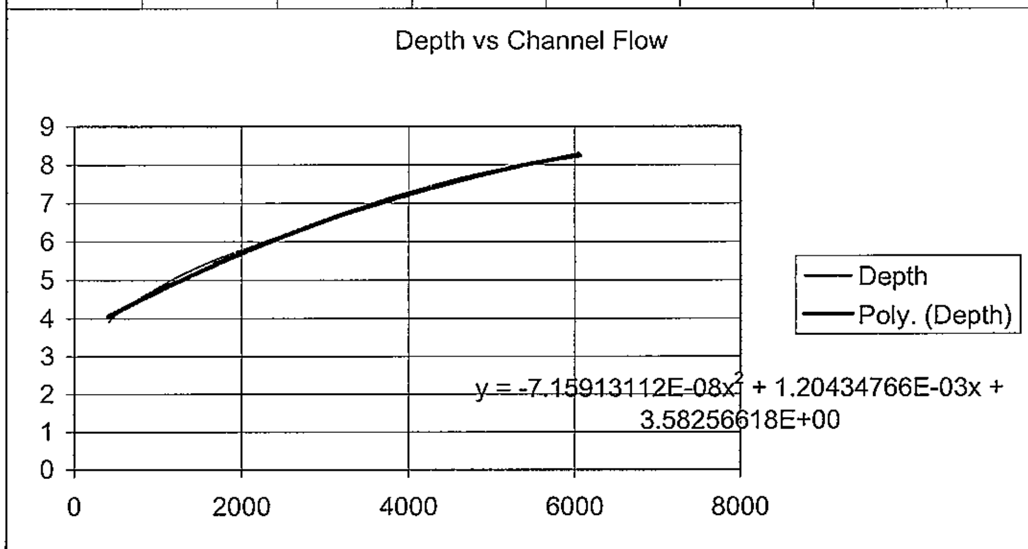
Ql KNOPF
9600 Prototype Court
Reno, NV 89521

Bell a Phase 1
LOMR
Starage Basin 3
Depth vs Channel Flow

lc: RMH
Date: March 2007
Depth

HEC-RAS	Plan: Depth	River: Steamboat	Reach: Bella Vista			
Reach	River Sta	Profile	(cfs)	(ft)	(ft)	(ft)
			Q Total	Min Ch El	W.S. Elev	Depth
Bella Vista	46	PF 1	6058	4428.65	4436.98	8.33
Bella Vista	46	PF 2	5617.87	4428.65	4436.75	8.10
Bella Vista	46	PF 3	4995.78	4428.65	4436.41	7.76
Bella Vista	46	PF 4	4431.2	4428.65	4436.09	7.44
Bella Vista	46	PF 5	3827.44	4428.65	4435.73	7.08
Bella Vista	46	PF 6	3200	4428.65	4435.32	6.67
Bella Vista	46	PF 7	2560	4428.65	4434.88	6.23
Bella Vista	46	PF 8	1920	4428.65	4434.38	5.73
Bella Vista	46	PF 9	1280	4428.65	4433.79	5.14
Bella Vista	46	PF 10	640	4428.65	4433	4.35
Bella Vista	46	PF 11	405	4428.65	4432.55	3.90

Equation for Depth vs Channel Flow at Banin 3 Outlet			
C3	C2	C1	C0
0	-7.159131E-08	1.204348E-03	3.582566E+00
Channel	HEC-RAS	Curve	WS Elev
6058	8.33	8.25	4436.90
5618	8.10	8.09	4436.74
4996	7.76	7.81	4436.46
4431	7.44	7.51	4436.16
3827	7.08	7.14	4435.79
3200	6.67	6.70	4435.35
2560	6.23	6.20	4434.85
1920	5.73	5.63	4434.28
1280	5.14	5.01	4433.66
640	4.35	4.32	4432.97
405	3.90	4.06	4432.71
			FL of Weir
4154	0.00	7.35	4436.00



Path
]DB Storage Area 3.XLS

Q KNOPF
9600 Prototype Court
Reno, NV 89521

Bell ta Phase 1
LOMR
Starage Basin 3
Outflow Calulations

alc: RMH
Date: March 2007
Basin Out

Channel	Time	Channel	Storage	Basin	Basin	Average	Outflow	Outflow	Storage	
W.S.	Hours	Depth	Bas Vol	W.S.	Depth	Delta WS	3	Volume	Volume	
			by depth						by outfow	
4434.30	24.00	5.65	6.73	4436.00	3.86				6.73	
4434.19	25.00	5.54	6.70	4435.98	3.84	1.750	0.312	0.026	6.70	0.00
4433.83	27.00	5.18	6.65	4435.96	3.82	1.964	0.331	0.055	6.65	0.00
4433.22	29.00	4.57	6.59	4435.93	3.79	2.417	0.367	0.061	6.59	0.00
4432.99	32.00	4.34	6.49	4435.88	3.74	2.801	0.395	0.098	6.49	0.00
4432.95	34.00	4.30	6.42	4435.85	3.71	2.898	0.402	0.066	6.42	0.00
4432.94	35.00	4.29	6.39	4435.83	3.69	2.899	0.402	0.033	6.39	0.00
4432.15	40.00	3.50	6.21	4435.74	3.60	3.245	0.426	0.176	6.21	0.00
4432.15	48.00	3.50	5.92	4435.60	3.46	3.521	0.443	0.293	5.92	0.00
4432.15	60.00	3.50	5.49	4435.38	3.24	3.340	0.432	0.428	5.49	0.00
4432.15	72.00	3.50	5.08	4435.17	3.03	3.128	0.418	0.414	5.08	0.00
4432.15	48.00	3.50	5.92	4435.60	3.46	3.235	0.425	-0.843	5.92	0.00
4432.15	60.00	3.50	5.49	4435.38	3.24	3.340	0.432	0.428	5.49	0.00
4432.15	72.00	3.50	5.08	4435.17	3.03	3.128	0.418	0.414	5.08	0.00
								1.650		
After depth in channel decreases to 3.5 feet the water surface will be below the 3-inch oriface in the basin										

As-Built UPDATE for Damonte Ranch/Double Diamond Ranch Regional Flood Control Improvements

1. Rating Table for the Regional Detention Basin (HEC-1 Model Node BAS1)

For the range of flows used in the Regional Detention Basin rating table (HEC-1 model node BAS1), the basin outlet culverts are under outlet control. When a culvert functions under outlet control (also called tailwater control or exit control), the headwater elevation for a given discharge is a function of the downstream condition (the tailwater elevation). For each flow, the headwater elevation is found by computing the losses through the culvert and adding them to the downstream tailwater energy grade elevation (see the **E.G. US** output in the culver table). These losses are the sum of the entrance loss, the exit loss, and the friction loss through the culvert barrel.

The analysis of culverts was made based on CON/SPAN shape as well as Box shape through out the length. Hydraulic Analysis for the culverts was performed using HEC-RAS version 3.1.3. The culvert data are updated based on document from Odyssey (see the attachment) and field measurements .The upstream and down stream HEC-RAS cross sections were obtained from the as built drawing (see Figure B-1) obtained from Odyssey Engineering. The HEC-RAS output is attached. The result is summarized in Table B-1 It indicates that change in head water (HW) elevation is insignificant of the culvert shape. Therefore, the rating table based on box culvert is used to update HEC-1 model.

Table B-1 Outflow Rating Table for HEC-1 Model Node BAS 1

CON/SPAN HW Elev. (ft)		BOX HW Elev. (ft)	Outflow Discharge (cfs)		
In Original HEC-1 Model	New	New	Culverts	36" Low Flow Pipe	Total
4477.6	4477.64	4477.64	500	15	515
4478.5	4478.54	4478.54	1000	21	1021
4479.3	4479.28	4479.28	1500	27	1527
4480.1	4479.95	4479.95	2000	31	2031
4480.7	4480.59	4480.59	2500	37	2537
4481.3	4481.24	4481.25	3000	59	3059
4481.9	4481.88	4481.87	3500	61	3561
4482.6	4482.44	4482.43	4000	63	4063

2. **Rating Table for Trapezoidal Weir from wetlands to Pond 4 (HEC-1 Model Node RT DT2)**

As-Build Dimensions for Trapezoidal Weir

Crest Elevation: 4454 ft

Crest Length, L= 30 ft and varies with side slopes: 3H:1V

Crest Width, W= 5ft

Weir Head, H=Water Surface Elev. – Crest Elevation

Weir Coefficient: C=2.80

The discharge over the weir is calculated using $Q=CL_{ave}H^{1.5}$, where $L_{ave} = 0.5 * (L_{crest} + L_{surface})$. See the attached sheet for detail calculation. The result is summarized in Table B-2.

Table B-2 Outflow Rating Table for HEC-1 Model Node RT DT2

Elevation	Outflow Discharge (cfs)		
(ft)	12" Culvert	Weir	Total
4453	3	0	3
4454	7.5	0	8
4455	17.5	92	110
4456	Negligible	285	285
4457	Negligible	567	567
4458	Negligible	941	941
4459	Negligible	1409	1409
4460	Negligible	1975	1975
4461	Negligible	2645	2645
4462	Negligible	3421	3421

3. **Result update for Post Project modeling**

The HEC-1 rating tables for BAS 1 and RT DT2 were updated using Table B-1 and Table B-2. The new HEC-1 model output (0243AB.out) is attached in Appendix C. A summary of flow rates and other data at key points in the HEC-1 model are shown in Table B-3.

Table B-3. Summary of Post-Project HEC-1 Modeling (from 0243AB.out)

Location	Model Point	Qin, cfs	Qout, cfs	W.S. Elev., ft.	Freeboard, ft.
Diversion Structure	DIVSTR	7992	7992	4488.0	1.0
Steamboat @ North Property Line	OUTDN	n/a	4150	n/a	n/a
Regional Detention Basin	BAS 1	3838	3410 (3238)	4481.68 (4481.51)	4.32 (3.49)
Wetlands Detention	RS DT2	3410 (3276)	2806 (2689)	4461.21 (4461.3)	3.79 (typical) (3.70)
Pond 4	POND4	2812 (2695)	2652 (2579)	4456.36 (4456.20)	1.64 (1.80)
Downstream End of Project	PT04	n/a	6424 (6362)	n/a	n/a

(.) previous results in LOMR (FEMA Case No. 05-09-0105P)

Odyssey ENGINEERING INCORPORATED
895 Roberta Lane, Suite 104, Sparks, NV 89431
(775) 359-3303 Fax (775) 359-3329

FAX TRANSMITTAL

Date: 12/12/06

Destination Fax Number: 775-324-2311

To: David Westhoff

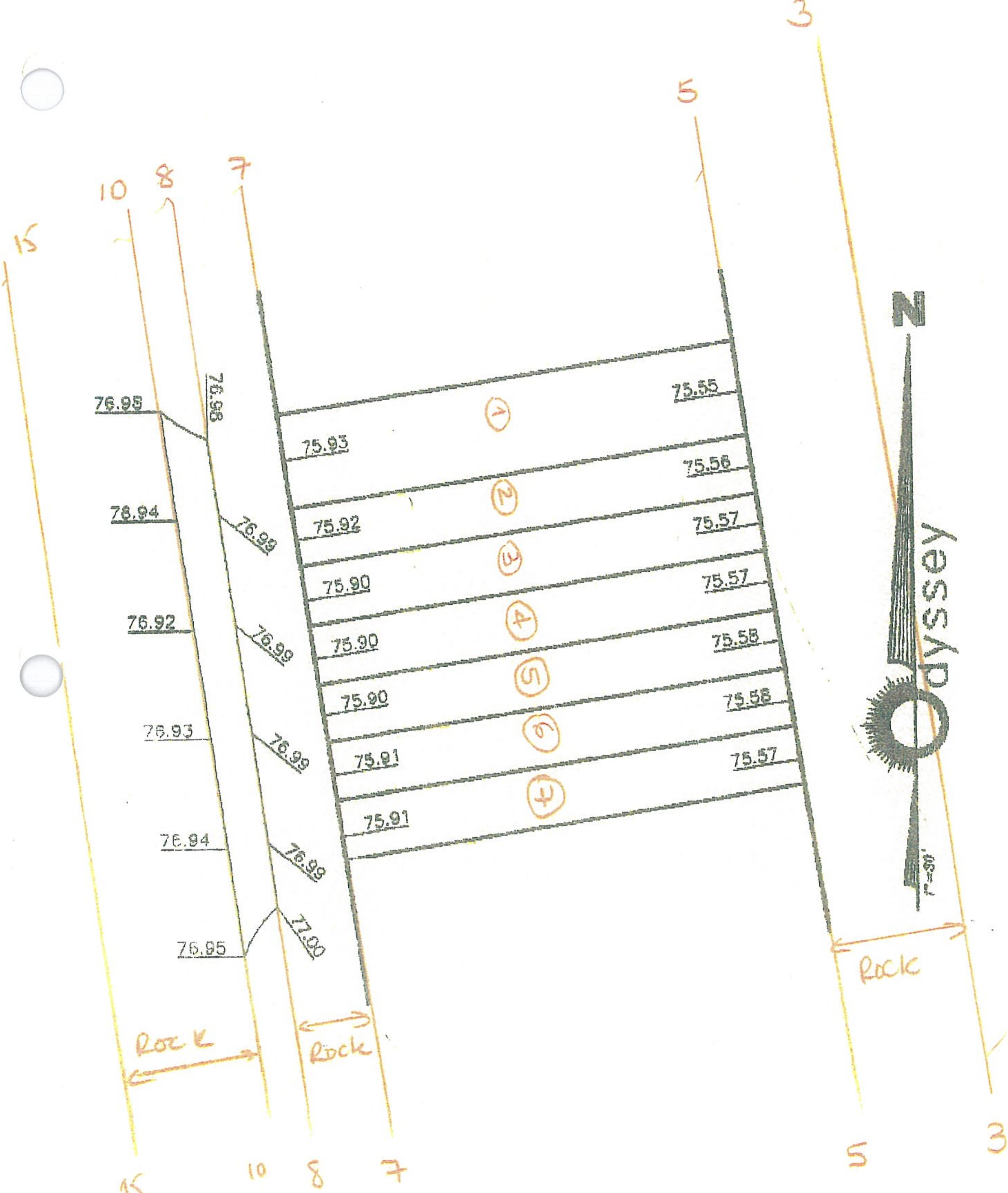
From: Sonny Bradley

Odyssey Job Number:

Subject: Damonte ranch as-built elevations

Remarks:

Total Number of Pages Including Cover Page: 2


3
5
10
8
7
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76.99
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75.58
75.90
75.58
76.93
76.99
75.91
75.57
75.91
76.94
76.99
76.95
77.00
N
Odyssey
Rock
Rock
Rock
15
10
8
7
5
3

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: Culvert out of Regional DB
Project File : RDB.prj
Run Date and Time: 1/2/2007 2:16:30 PM

Project in English units

PLAN DATA

Plan Title: Box Culvert(detailed data)
Plan File : j:\0432 Bella Vista -Centex Homes\hd\ras\CLOMR DPH5+BVPH1\Rating Table Update\RDB.p04

Geometry Title: Box Culvert (detailed data)
Geometry File : j:\0432 Bella Vista -Centex Homes\hd\ras\CLOMR DPH5+BVPH1\Rating Table Update\RDB.g03

Flow Title : Box Culvert(detailed data)
Flow File : j:\0432 Bella Vista -Centex Homes\hd\ras\CLOMR DPH5+BVPH1\Rating Table Update\RDB.f03

Plan Summary Information:

Number of:				
Cross Sections =	8	Multiple Openings =	0
Culverts =	1	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: Subcritical Flow

FLOW DATA

Flow Title: Box Culvert(detailed data)
Flow File : j:\0432 Bella Vista -Centex Homes\hd\ras\CLOMR DPH5+BVPH1\Rating Table Update\RDB.f03

Flow Data (cfs)

River	Reach	RS	PF 1	PF 2	PF 3	PF 4	PF 5	PF 6	PF 7	PF 8
Test	Culvert	20	500	1000	1500	2000	2500	3000	3500	4000
Regional Detenti	Basin Outlet	20	500	1000	1500	2000	2500	3000	3500	4000
Regional DBasin	Outlet Culverts	20	500	1000	1500	2000	2500	3000	3500	4000

River	Reach	RS	PF 9	PF 10
Test	Culvert	20	5000	6000
Regional Detenti	Basin Outlet	20	5000	6000
Regional DBasin	Outlet Culverts	20	5000	6000

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Regional DBasin	Outlet Culverts	PF 1		Normal S = 0.008333
Regional DBasin	Outlet Culverts	PF 2		Normal S = 0.008333
Regional DBasin	Outlet Culverts	PF 3		Normal S = 0.008333
Regional DBasin	Outlet Culverts	PF 4		Normal S = 0.008333
Regional DBasin	Outlet Culverts	PF 5		Normal S = 0.008333
Regional DBasin	Outlet Culverts	PF 6		Normal S = 0.008333
Regional DBasin	Outlet Culverts	PF 7		Normal S = 0.008333
Regional DBasin	Outlet Culverts	PF 8		Normal S = 0.008333
Regional DBasin	Outlet Culverts	PF 9		Normal S = 0.008333
Regional DBasin	Outlet Culverts	PF 10		Normal S = 0.008333

SUMMARY OF MANNING'S N VALUES

River:Regional DBasin

Reach	River Sta.	n1	n2	n3

Outlet Culverts	20	.035	.035	.035
Outlet Culverts	15	.045	.045	.045
Outlet Culverts	10	.013	.013	.013
Outlet Culverts	8	.013	.013	.013
Outlet Culverts	7	.013	.013	.013
Outlet Culverts	5.5	Culvert		
Outlet Culverts	5	.045	.045	.045
Outlet Culverts	3	.035	.035	.035
Outlet Culverts	2	.035	.035	.035

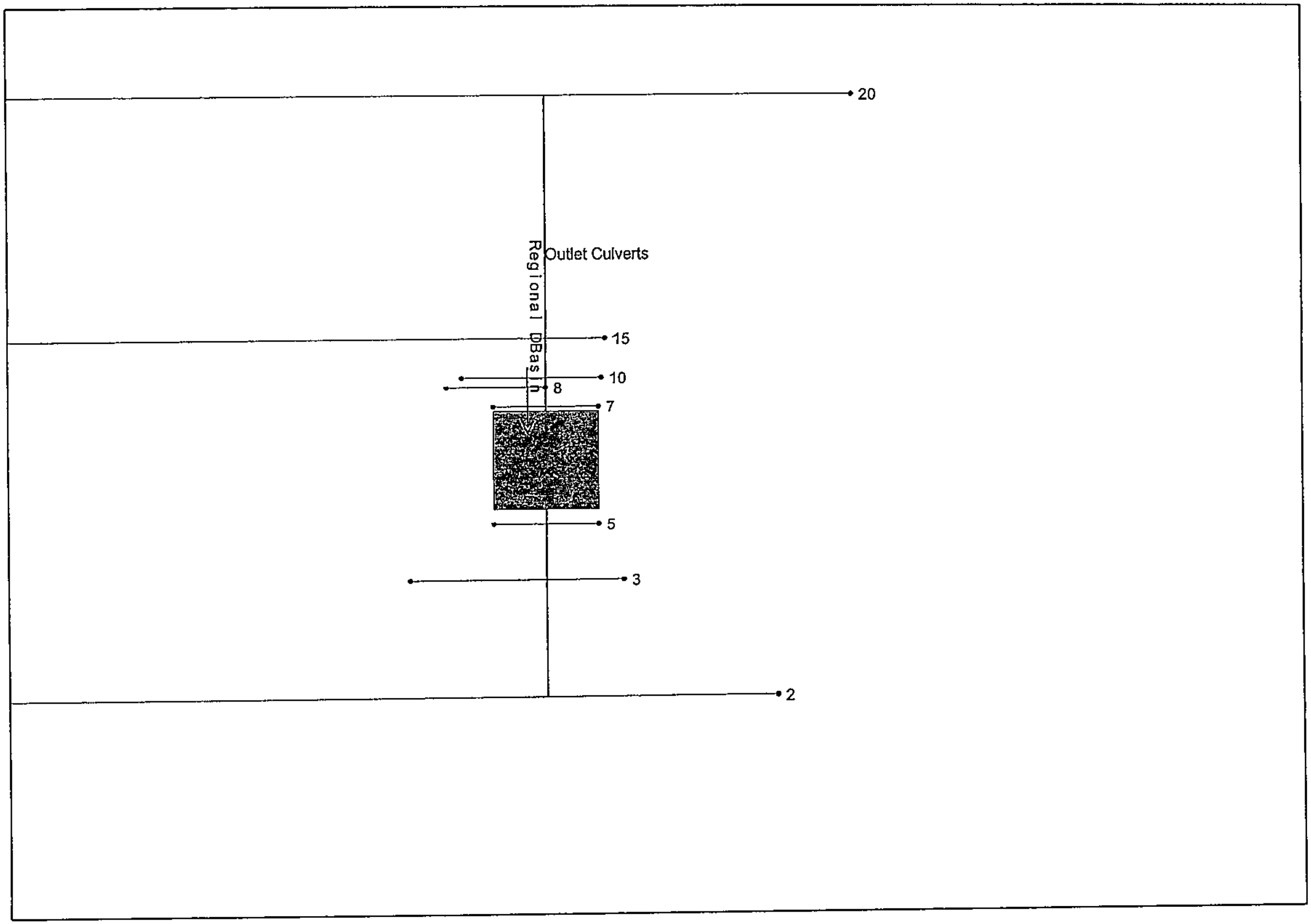
SUMMARY OF REACH LENGTHS

River: Regional DBasin

Reach	River Sta.	Left	Channel	Right
Outlet Culverts	20	248	248	248
Outlet Culverts	15	40	40	40
Outlet Culverts	10	10	10	10
Outlet Culverts	8	20	20	20
Outlet Culverts	7	120	120	120
Outlet Culverts	5.5	Culvert		
Outlet Culverts	5	72	58	42
Outlet Culverts	3	120	120	120
Outlet Culverts	2	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Regional DBasin

Reach	River Sta.	Contr.	Expan.
Outlet Culverts	20	.1	.3
Outlet Culverts	15	.3	.5
Outlet Culverts	10	.1	.3
Outlet Culverts	8	.1	.3
Outlet Culverts	7	.1	.3
Outlet Culverts	5.5	Culvert	
Outlet Culverts	5	.1	.3
Outlet Culverts	3	.3	.5
Outlet Culverts	2	.1	.3

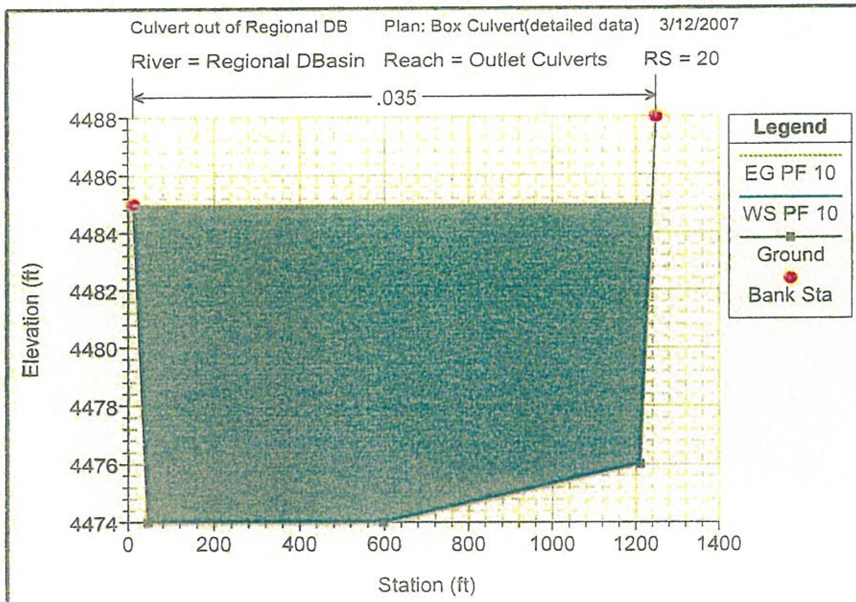

20
Outlet Culverts
Regional DBasin
15
10
8
7
5
3
2

HEC-RAS Plan: Detailed River: Regional DBasin Reach: Outlet Culverts

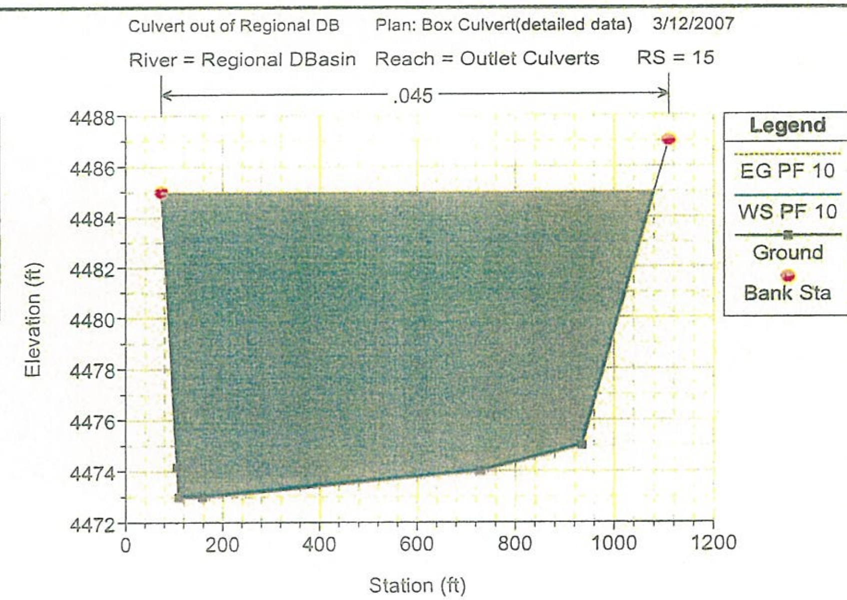
Reach	River Sta	Profile	E.G. US	W.S. US	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
Outlet Culverts	5.5 Culvert #1	PF 1	4477.64	4477.50	4477.48	4477.66	4485.01	73.01		0.15	3.70	2.89
Outlet Culverts	5.5 Culvert #2	PF 1	4477.64	4477.50	4477.46	4477.65	4485.01	72.18		0.15	3.61	2.87
Outlet Culverts	5.5 Culvert #3	PF 1	4477.64	4477.50	4477.42	4477.64	4485.01	71.24		0.15	3.50	2.85
Outlet Culverts	5.5 Culvert #4	PF 1	4477.64	4477.50	4477.42	4477.64	4485.01	71.24		0.15	3.50	2.85
Outlet Culverts	5.5 Culvert #5	PF 1	4477.64	4477.50	4477.41	4477.63	4485.01	70.40		0.15	3.45	2.83
Outlet Culverts	5.5 Culvert #6	PF 1	4477.64	4477.50	4477.42	4477.64	4485.01	70.58		0.15	3.49	2.84
Outlet Culverts	5.5 Culvert #7	PF 1	4477.64	4477.50	4477.44	4477.64	4485.01	71.36		0.15	3.54	2.85
Outlet Culverts	5.5 Culvert #1	PF 2	4478.54	4478.30	4478.37	4478.56	4485.01	144.26		0.32	5.09	4.23
Outlet Culverts	5.5 Culvert #2	PF 2	4478.54	4478.30	4478.35	4478.55	4485.01	143.67		0.32	5.02	4.23
Outlet Culverts	5.5 Culvert #3	PF 2	4478.54	4478.30	4478.32	4478.54	4485.01	142.74		0.32	4.91	4.22
Outlet Culverts	5.5 Culvert #4	PF 2	4478.54	4478.30	4478.32	4478.54	4485.01	142.74		0.32	4.91	4.22
Outlet Culverts	5.5 Culvert #5	PF 2	4478.54	4478.30	4478.31	4478.53	4485.01	141.79		0.32	4.86	4.21
Outlet Culverts	5.5 Culvert #6	PF 2	4478.54	4478.30	4478.32	4478.54	4485.01	141.96		0.32	4.90	4.22
Outlet Culverts	5.5 Culvert #7	PF 2	4478.54	4478.30	4478.33	4478.54	4485.01	142.84		0.32	4.94	4.23
Outlet Culverts	5.5 Culvert #1	PF 3	4479.28	4478.94	4479.12	4479.30	4485.01	215.49		0.53	6.32	5.38
Outlet Culverts	5.5 Culvert #2	PF 3	4479.28	4478.94	4479.10	4479.29	4485.01	215.05		0.53	6.24	5.39
Outlet Culverts	5.5 Culvert #3	PF 3	4479.28	4478.94	4479.08	4479.27	4485.01	214.28		0.53	6.12	5.39
Outlet Culverts	5.5 Culvert #4	PF 3	4479.28	4478.94	4479.08	4479.27	4485.01	214.28		0.53	6.12	5.39
Outlet Culverts	5.5 Culvert #5	PF 3	4479.28	4478.94	4479.06	4479.27	4485.01	213.24		0.53	6.07	5.38
Outlet Culverts	5.5 Culvert #6	PF 3	4479.28	4478.94	4479.08	4479.27	4485.01	213.36		0.53	6.12	5.39
Outlet Culverts	5.5 Culvert #7	PF 3	4479.28	4478.94	4479.09	4479.28	4485.01	214.30		0.53	6.16	5.39
Outlet Culverts	5.5 Culvert #1	PF 4	4479.95	4479.53	4479.78	4479.96	4485.01	285.65		0.79	7.45	6.41
Outlet Culverts	5.5 Culvert #2	PF 4	4479.95	4479.53	4479.77	4479.96	4485.01	286.14		0.79	7.37	6.44
Outlet Culverts	5.5 Culvert #3	PF 4	4479.95	4479.53	4479.75	4479.94	4485.01	286.08		0.79	7.24	6.46
Outlet Culverts	5.5 Culvert #4	PF 4	4479.95	4479.53	4479.75	4479.94	4485.01	286.08		0.79	7.24	6.46
Outlet Culverts	5.5 Culvert #5	PF 4	4479.95	4479.53	4479.74	4479.94	4485.01	285.19		0.79	7.19	6.46
Outlet Culverts	5.5 Culvert #6	PF 4	4479.95	4479.53	4479.75	4479.94	4485.01	285.04		0.79	7.24	6.46
Outlet Culverts	5.5 Culvert #7	PF 4	4479.95	4479.53	4479.76	4479.95	4485.01	285.83		0.79	7.29	6.45
Outlet Culverts	5.5 Culvert #1	PF 5	4480.59	4480.10	4480.37	4480.60	4485.01	354.61		1.12	8.57	7.37
Outlet Culverts	5.5 Culvert #2	PF 5	4480.59	4480.10	4480.38	4480.60	4485.01	356.87		1.12	8.49	7.44
Outlet Culverts	5.5 Culvert #3	PF 5	4480.59	4480.10	4480.37	4480.59	4485.01	358.23		1.12	8.33	7.49
Outlet Culverts	5.5 Culvert #4	PF 5	4480.59	4480.10	4480.37	4480.59	4485.01	358.23		1.12	8.33	7.49
Outlet Culverts	5.5 Culvert #5	PF 5	4480.59	4480.10	4480.37	4480.58	4485.01	357.64		1.12	8.27	7.50
Outlet Culverts	5.5 Culvert #6	PF 5	4480.59	4480.10	4480.37	4480.59	4485.01	356.99		1.12	8.33	7.48
Outlet Culverts	5.5 Culvert #7	PF 5	4480.59	4480.10	4480.38	4480.59	4485.01	357.43		1.12	8.38	7.47
Outlet Culverts	5.5 Culvert #1	PF 6	4481.25	4480.71	4480.91	4481.25	4485.01	421.30		1.53	9.90	8.30
Outlet Culverts	5.5 Culvert #2	PF 6	4481.25	4480.71	4480.93	4481.25	4485.01	424.53		1.53	9.76	8.39
Outlet Culverts	5.5 Culvert #3	PF 6	4481.25	4480.71	4480.96	4481.25	4485.01	431.46		1.53	9.48	8.55
Outlet Culverts	5.5 Culvert #4	PF 6	4481.25	4480.71	4480.96	4481.24	4485.01	431.42		1.53	9.48	8.55
Outlet Culverts	5.5 Culvert #5	PF 6	4481.25	4480.71	4480.97	4481.24	4485.01	432.21		1.53	9.41	8.59
Outlet Culverts	5.5 Culvert #6	PF 6	4481.25	4480.71	4480.96	4481.24	4485.01	430.08		1.53	9.48	8.55
Outlet Culverts	5.5 Culvert #7	PF 6	4481.25	4480.71	4480.96	4481.25	4485.01	429.00		1.53	9.56	8.50

HEC-RAS Plan: Detailed River: Regional DBasin Reach: Outlet Culverts (Continued)

Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
Outlet Culverts	5.5 Culvert #1	PF 7	4481.87	4481.29	4481.50	4481.87	4485.01	497.18		1.95	10.46	9.38
Outlet Culverts	5.5 Culvert #2	PF 7	4481.87	4481.29	4481.50	4481.87	4485.01	498.38		1.95	10.47	9.43
Outlet Culverts	5.5 Culvert #3	PF 7	4481.87	4481.29	4481.49	4481.87	4485.01	500.90		1.95	10.48	9.50
Outlet Culverts	5.5 Culvert #4	PF 7	4481.87	4481.29	4481.49	4481.87	4485.01	500.90		1.95	10.48	9.50
Outlet Culverts	5.5 Culvert #5	PF 7	4481.87	4481.29	4481.51	4481.87	4485.01	503.61		1.95	10.37	9.58
Outlet Culverts	5.5 Culvert #6	PF 7	4481.87	4481.29	4481.49	4481.87	4485.01	499.61		1.95	10.47	9.50
Outlet Culverts	5.5 Culvert #7	PF 7	4481.87	4481.29	4481.49	4481.87	4485.01	499.41		1.95	10.47	9.47
Outlet Culverts	5.5 Culvert #1	PF 8	4482.43	4481.79	4482.02	4482.44	4485.01	569.56		2.30	10.94	10.32
Outlet Culverts	5.5 Culvert #2	PF 8	4482.43	4481.79	4482.02	4482.43	4485.01	570.49		2.30	10.95	10.36
Outlet Culverts	5.5 Culvert #3	PF 8	4482.43	4481.79	4482.01	4482.43	4485.01	572.23		2.30	10.96	10.42
Outlet Culverts	5.5 Culvert #4	PF 8	4482.43	4481.79	4482.01	4482.43	4485.01	572.23		2.30	10.96	10.42
Outlet Culverts	5.5 Culvert #5	PF 8	4482.43	4481.79	4482.02	4482.42	4485.01	573.39		2.30	10.90	10.47
Outlet Culverts	5.5 Culvert #6	PF 8	4482.43	4481.79	4482.01	4482.43	4485.01	570.89		2.30	10.95	10.42
Outlet Culverts	5.5 Culvert #7	PF 8	4482.43	4481.79	4482.02	4482.43	4485.01	571.20		2.30	10.95	10.40
Outlet Culverts	5.5 Culvert #1	PF 9	4483.47	4482.73	4483.00	4483.48	4485.01	711.70		3.03	11.79	12.36
Outlet Culverts	5.5 Culvert #2	PF 9	4483.47	4482.73	4483.00	4483.48	4485.01	712.62		3.03	11.79	12.11
Outlet Culverts	5.5 Culvert #3	PF 9	4483.47	4482.73	4482.99	4483.47	4485.01	715.25		3.03	11.76	11.80
Outlet Culverts	5.5 Culvert #4	PF 9	4483.47	4482.73	4482.99	4483.47	4485.01	715.25		3.03	11.76	11.80
Outlet Culverts	5.5 Culvert #5	PF 9	4483.47	4482.73	4483.01	4483.47	4485.01	718.13		3.03	11.65	11.82
Outlet Culverts	5.5 Culvert #6	PF 9	4483.47	4482.73	4482.99	4483.47	4485.01	713.78		3.03	11.75	11.80
Outlet Culverts	5.5 Culvert #7	PF 9	4483.47	4482.73	4482.99	4483.47	4485.01	713.27		3.03	11.79	11.89
Outlet Culverts	5.5 Culvert #1	PF 10	4484.54	4483.72	4484.00	4484.55	4485.01	867.84		3.52	12.59	13.05
Outlet Culverts	5.5 Culvert #2	PF 10	4484.54	4483.72	4484.54	4484.44	4485.01	853.92		3.52	12.52	12.77
Outlet Culverts	5.5 Culvert #3	PF 10	4484.54	4483.72	4484.54	4484.41	4485.01	856.09		3.52	12.38	12.53
Outlet Culverts	5.5 Culvert #4	PF 10	4484.54	4483.72	4484.54	4484.41	4485.01	856.09		3.52	12.38	12.53
Outlet Culverts	5.5 Culvert #5	PF 10	4484.54	4483.72	4484.54	4484.39	4485.01	856.09		3.52	12.25	12.53
Outlet Culverts	5.5 Culvert #6	PF 10	4484.54	4483.72	4484.54	4484.41	4485.01	854.98		3.52	12.38	12.53
Outlet Culverts	5.5 Culvert #7	PF 10	4484.54	4483.72	4484.54	4484.44	4485.01	854.98		3.52	12.51	12.53



Culvert out of Regional DB Plan: Box Culvert(detailed data) 3/12/2007
River = Regional DBasin Reach = Outlet Culverts RS = 20
.035
Legend
EG PF 10
WS PF 10
Ground
Bank Sta
Elevation (ft)
4474
4476
4478
4480
4482
4484
4486
4488
Station (ft)
0
200
400
600
800
1000
1200
1400



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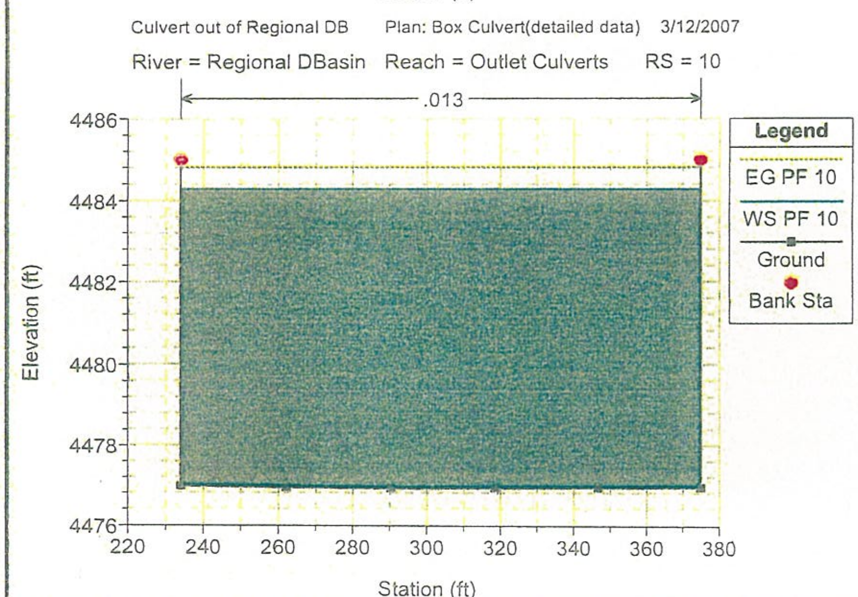
.045
Legend
EG PF 10
WS PF 10
Ground
Bank Sta
Elevation (ft)
4472
4474
4476
4478
4480
4482
4484
4486
4488
Station (ft)
0
200
400
600
800
1000
1200



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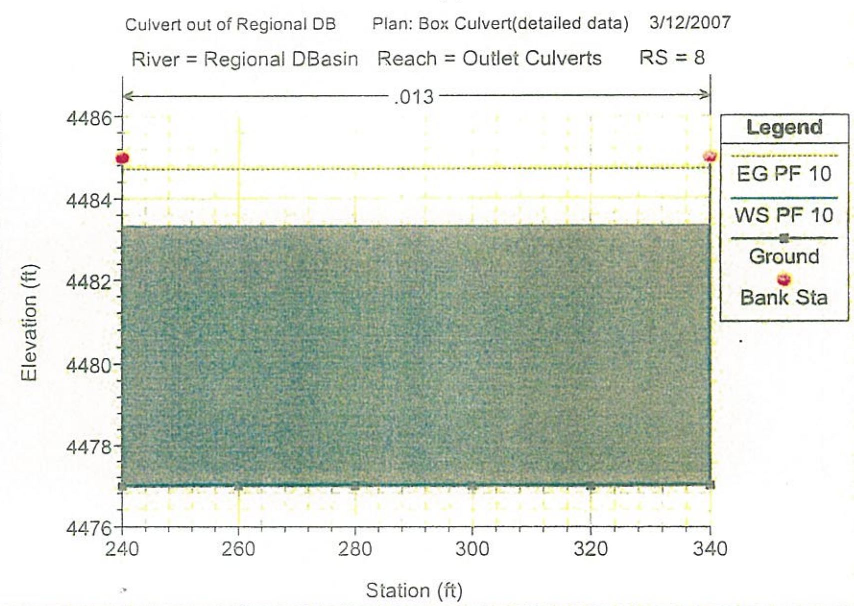
.013
Legend
EG PF 10
WS PF 10
Ground
Bank Sta
Elevation (ft)
4476
4478
4480
4482
4484
4486
Station (ft)
220
240
260
280
300
320
340
360
380



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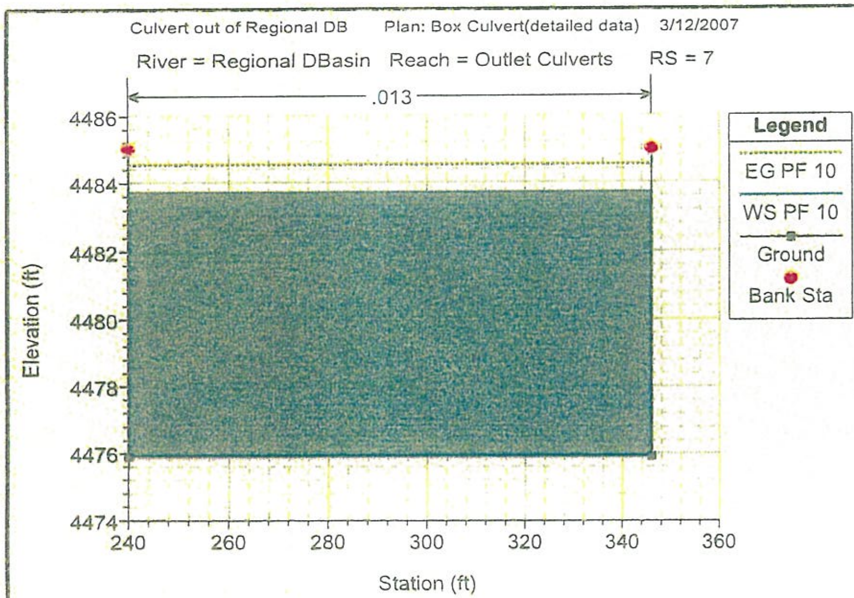
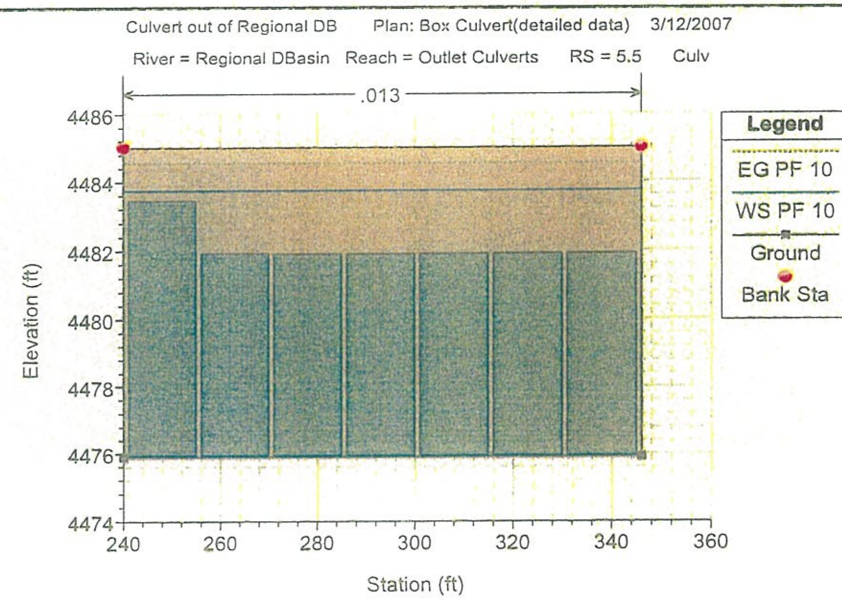
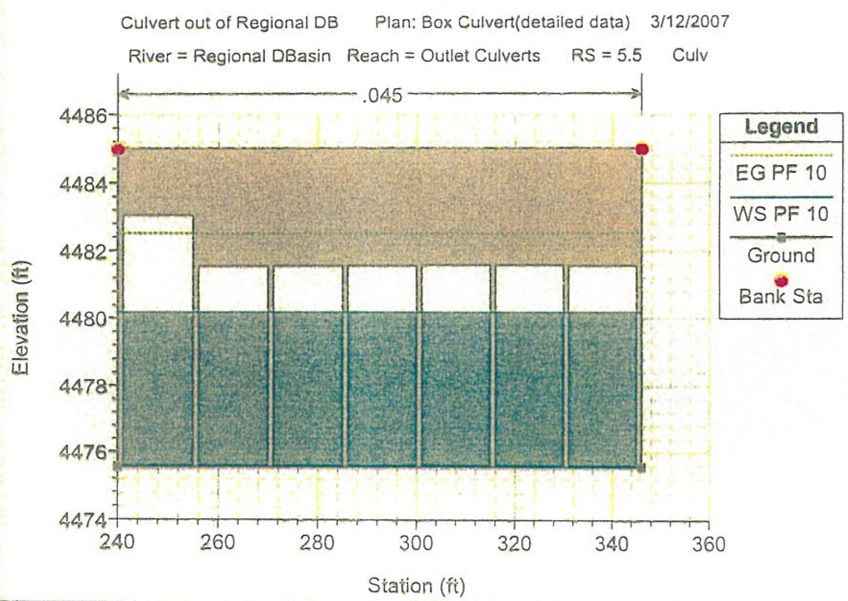
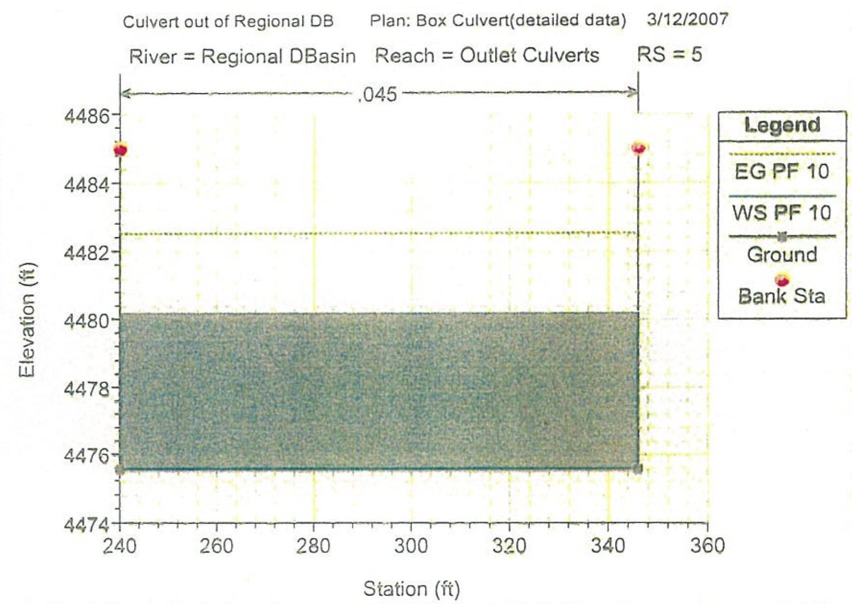
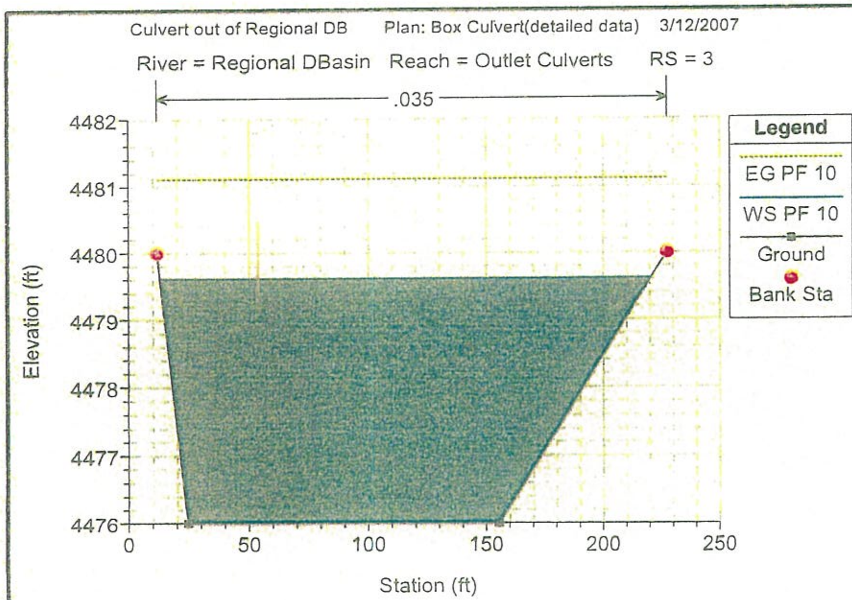
.013
Legend
EG PF 10
WS PF 10
Ground
Bank Sta
Elevation (ft)
4476
4478
4480
4482
4484
4486
Station (ft)
240
260
280
300
320
340

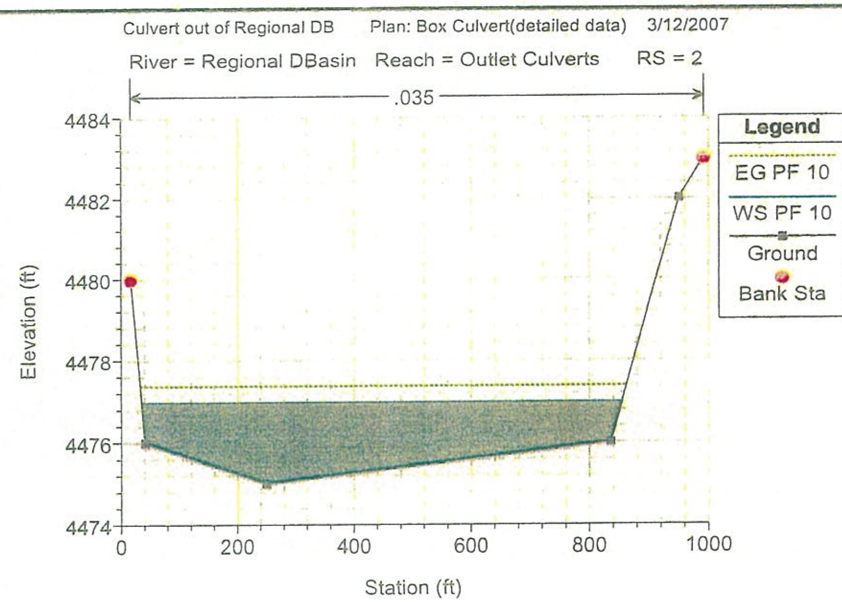

Culvert out of Regional DB Plan: Box Culvert(detailed data) 3/12/2007
River = Regional DBasin Reach = Outlet Culverts RS = 7
.013
Elevation (ft)
4486
4484
4482
4480
4478
4476
4474
240
260
280
300
320
340
360
Station (ft)
Legend
EG PF 10
WS PF 10
Ground
Bank Sta


Culvert out of Regional DB Plan: Box Culvert(detailed data) 3/12/2007
River = Regional DBasin Reach = Outlet Culverts RS = 5.5 Culv
.013
Elevation (ft)
4486
4484
4482
4480
4478
4476
4474
240
260
280
300
320
340
360
Station (ft)
Legend
EG PF 10
WS PF 10
Ground
Bank Sta


Culvert out of Regional DB Plan: Box Culvert(detailed data) 3/12/2007
River = Regional DBasin Reach = Outlet Culverts RS = 5.5 Culv
.045
Elevation (ft)
4486
4484
4482
4480
4478
4476
4474
240
260
280
300
320
340
360
Station (ft)
Legend
EG PF 10
WS PF 10
Ground
Bank Sta


Culvert out of Regional DB Plan: Box Culvert(detailed data) 3/12/2007
River = Regional DBasin Reach = Outlet Culverts RS = 5
.045
Elevation (ft)
4486
4484
4482
4480
4478
4476
4474
240
260
280
300
320
340
360
Station (ft)
Legend
EG PF 10
WS PF 10
Ground
Bank Sta


Culvert out of Regional DB Plan: Box Culvert(detailed data) 3/12/2007
River = Regional DBasin Reach = Outlet Culverts RS = 3
.035
Elevation (ft)
4482
4481
4480
4479
4478
4477
4476
0
50
100
150
200
250
Station (ft)
Legend
EG PF 10
WS PF 10
Ground
Bank Sta


Culvert out of Regional DB Plan: Box Culvert(detailed data) 3/12/2007
River = Regional DBasin Reach = Outlet Culverts RS = 2
.035
Elevation (ft)
4484
4482
4480
4478
4476
4474
0
200
400
600
800
1000
Station (ft)
Legend
EG PF 10
WS PF 10
Ground
Bank Sta

Revisions:
Date:
References

1" = 200'
PONDS-ASBUILT.dwg

HYDRAULIC WORKMAP
FIGURE B-1

Quad Knopf Job #
N0432
March, 2007

APPENDIX C

HEC-1 MODELS

DRph5.out
DRph5+BV1.out
Truncated

CD containing electronic version of models listed above

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1*****************************************
****************************************
 *                                        *                                                   *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *                                                   *   U.S. ARMY CORPS OF ENGINEERS
*
 *              JUN   1998                *                                                   *   HYDROLOGIC ENGINEERING CENTER
*
 *           VERSION 4.1                  *                                                   *         609 SECOND STREET
*
 *                                        *                                                   *      DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   04JAN08  TIME  13:38:25    *                                                   *          (916) 756-1104
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 *                                        *                                                   *
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                              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
           1           ID    DRph5 THE PROPOSED MODEL FOR DAMONTE PHASE 5 LOMR (CASE No. 07-09-1667P)
           2           ID    IS ALSO THE EXITING CONDITIONS MODEL FOR THE BELLA VISTA PHASE 1 LOMR.
           3           ID    IT WAS RE-RUN ON JANUARY 4, 2008.  ONLY THE ID INFORMATION WAS UPDATED
           4           ID    FOR THIS RUN.      JANUARY 2008 - Model Run date is 01/04/2008
           5           ID    *************************************************************************
           6           ID    CLOMR MODEL WAS USED WITHOUT CHANGE FOR THE LOMR MODEL FOR DAMONTE RANCH
           7           ID    PHASE 5 SUBMITTED MAY 5, 2007 AND NOT RERUN. LOMR AS-BUILT PLANS DID NOT
           8           ID    CHANGE THE HYDRAULIC PARAMETERS USED IN THE CLOMR.
           9           ID                    MARCH 2007 - Model Run date is 3/12/2007
          10           ID    ************************************************************************
          11           ID    UPDATED MODEL FOR DAMONTE RANCH PHASE V and BELLA VESTA PHASE 1 CLOMR
          12           ID                    MARCH 2007 - Model Run date is 3/12/2007
          13           ID    ************************************************************************
          14           ID    DAMONTE RANCH PHASE V   - MARCH 2005
          15           ID
          16           ID    * * INCLUDES DEVELOPMENT OF VILLAGE 11-B * *
          17           ID
          18           ID    UPDATED MODEL FROM LOMR SUBMITTAL FILE NAME 0243AB.DAT (Orig. 128CLOMR.DAT)
          19           ID    TO REFLECT GRADING PLANS AS OF 3/2005
          20           ID    100-Year HEC-1 for AS BUILT conditions.  Includes Steamboat Creek &
          21           ID    tributaries (i.e. Galena, Jones, Browns, Bailey, 30, & 40 watersheds);
          22           ID    Damonte Ranch with refined watersheds, detention stuctures, & refined
          23           ID    east range watersheds; Whites Creek watersheds collected by Branch 3 & 4
          24           ID    with routing onto Damonte; the remainder of the Whites Creek & split flow
          25           ID    from Thomas Creeks watersheds routed through Double Diamond;
          26           ID    & Bella Vista Ranch with the remaining east range watersheds.
          27           ID
          28           ID    File Name: DRph5.dat
          29           ID    Quad Knopf - formerly Nimbus Engineers
          30           ID
          31           ID
          32           ID
          33           ID    REVISIONS REFLECT PHASE V DEVELOPMENT PER GRADING PLAN DATED 2/2005
          34           ID    The model also includes the previous changes at the Diversion structure:
          35           ID    a) box culverts replaced the RCPs; b) an overflow weir was added to control
          36           ID    a major flood event
          37           ID
          38           ID
          39           ID    *************************************************************************
          40           ID
          41           ID     * *  MODIFIED 5-2005 TO REFLECT GRADING PLAN CHANGES AFFECTING EASTERN    * *
          42           ID     * *  BASINS NE-2, NE-3, NE-4,& NE-5.  THESE HAVE ALL BEEN COMBINED AS      * *
          43           ID     * *  THE REMOVAL OF MIRA LOMA RD. MAKES SEPARATION UNECESSARY             * *
          44           ID
          45           ID    *************************************************************************
                       *   Legend :
                       *    W(No.)R = Subbasin
                       *    CP XX = Combine flows at point XX
                       *    RT XX = Route to CP XX
                       *    DV XX = Divert hydrograph XX
                       *    DR XX = Recall hydrograph XX
                       *    XX = Street and Channel #, where applicable
                       *       V = Virginia, Z = Zolezzi, F = 580 (Freeway), W = Wedge
                       *  ************************************************************************
1                                           HEC-1 INPUT                                           PAGE  2

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

          46           IT       5 27JUL00     0005      288
```

```
IO      5       0
IN   15.0
*  TOTAL WATERSHED AREA = 85 SQ. MI.
*  AREAL REDUCTION =  0.94
JR    PREC    0.94

KK     W1R Whites Creek 1
BA    1.36
PB     5.5
PC     0.0    .002    .005    .008    .011    .014    .017    .020    .023    .026
PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
PC    .983    .986    .992    .995    .998    1.00
LS              63
UD    0.48
*

KK     W2R  Whites Creek No. 2
BA    0.84
PB     5.4
LS              65
UD    0.52
*

KK   W1+W2  Combine W1 and W2
HC       2
*

KK    RT-A  Route to pt A
RM       1      .1     0.4
*

KK     W3R  Whites Creek No. 3
BA    1.38
PB    5.25
LS              65
UD    0.54
*

KK    RT-A  Route to pt A
RM       1      .1      .4
*
```



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

KK     W4R  Whites Creek No. 4
BA    1.47
PB     5.0
LS              57
UD    0.72
*

KK   W1234  Combine W1-W4
HC       3
*

KK    RT-B  Route to pt B
RM       1      .1     0.4
*

KK     W5R  Whites Creek No. 5
BA    1.27
PB     4.8
LS              58
UD    0.85
*

KK   W5+CH  Combine W5 and channel
HC       2
*

KK    RT-C  Route to pt C
RM       2   0.185     0.4
*

KK     W6R  Whites Creek No. 6
BA    1.43
PB     4.1
LS              57
UD    1.23
*

KK   W6+CH  Combine W6 and channel
HC       2
*

KK    RT-D  Route to pt D
RM       1     0.1     0.4
*

KK     W7R  Whites Creek No. 7
BA    0.85
PB     3.4
LS              68
UD    0.96
*
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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     113            KK   W7+CH  Combine W7 and channel
     114            HC       2
                    *

     115            KK  RT-DIF  Route flows to Diffluence
     116            RM       1   0.104     0.4
                    *

     117            KK     W8R  Whites Creek No. 8
     118            BA    0.75
     119            PB     3.0
     120            LS               65
     121            UD    1.19
                    *

     122            KK  CP DIF  Combine flows at Diffluence
     123            HC       2
                    *

     124            KK    DV 4  Divert flows into channel #4 - south branch
     125            KM          Hydrograph at this station is flow in channel 4
     126            DT  CH 123
     127            DI       0     2000    3500    5100
     128            DQ       0     1700    2700    3750
                    *

     129            KK   RT W4  Route flows in channel #4 to Wedge Parkway
     130            RM       2    .178      .3
                    *

     131            KK    W17R  Whites Creek No. 17
     132            BA    0.58
     133            PB     2.8
     134            LS               67
     135            UD    0.31
                    *

     136            KK   CP W4  Combine flows at Wedge Parkway
     137            HC       2
                    *

     138            KK   RT F4  Route flows to proposed RCB at 580
     139            RM       1   0.111      .3
                    *

     140            KK    W19R  Whites Creek No. 19
     141            BA    0.33
     142            PB    2.75
     143            LS               60
     144            UD    0.22
                    *
1                                             HEC-1 INPUT                                      PAGE  5

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


     145            KK     W9R  Whites Creek No. 9  (Steamboat Hills Area, above Mt. Rose Hwy)
     146            BA    2.39
     147            PB     2.8
     148            LS               69
     149            UD    0.51
                    *

     150            KK   RT F4  Route flows to proposed RCB at 580  (Channel 4)
     151            RM       2   0.181     0.3
                    *

     152            KK   CP F4  Combine flows at proposed I-580 RCB  (Channel 4)
     153            HC       3
                    *

     154            KK   RT V4  Route flows to Virginia Street (Channel 4 near Browns School)
     155            RM       1   0.121      .3

     156            KK    W20R  Whites Creek No. 20
     157            BA    0.22
     158            PB    2.73
     159            LS               61
     160            UD    0.22
                    *

     161            KK   CP V4  Combine flows at Channel #4 and Virginia St. (near Browns School)
     162            HC       2
                    *

     163            KK  RT STM  ROUTE BRACH 4 TO STEAMBOAT CREEK  - THRU PROPOSED CHANNEL
     164            RK    2250   0.013    .035             TRAP      75       3
                    *
                    *
                    *  ****************************************************************************
                    *              STEAMBOAT CREEK MODEL
                    *  ****************************************************************************
                    *

     165            KK    G1G2 Upper Galena Creek - G1 & G2 COMBINED
     166            BA     8.0
     167            PB    4.89
     168            LS               70
     169            UD     1.9
                    *

     170            KK   OUTJ1 Route to Confluence with Jones Creek
     171            RD    5280    .046    0.07             TRAP      15     0.5
                    *
1                                             HEC-1 INPUT                                      PAGE  6
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 172         KK      J1 Jones Creek Watershed
 173         BA     6.4
 174         PB    3.51
 175         LS             58
 176         UD     1.3
             *

 177         KK   OUTJ1 Combine Jones and Galena Creek
 178         HC       2
             *

 179         KK   OUTG3 Route Galena to Pleasant Valley foothill
 180         RD    7392   0.043    0.07            TRAP      15         1
             *

 181         KK      G3 Lower Galena Creek
 182         BA     3.9
 183         PB     3.4
 184         LS             62
 185         UD     1.2
             *

 186         KK   OUTG3 Combine Galena flows at Pleasant Valley foothill
 187         HC       2
             *

 188         KK   OUT30 Route Galena Creek watershed to Steamboat Gage  (use COE routing)
 189         RM       7    0.61     0.2
             *

 190         KK      15 Browns Creek
 191         BA     4.2
 192         PB    4.10
 193         LS             61
 194         UD     1.7
             *

 195         KK   OUT30 Route Browns Creek to Steamboat Gage  (use COE routing)
 196         RM      16    1.34     0.2
             *

 197         KK      30 COE Watershed No. 30
 198         BA    16.7
 199         BF     500        0        1
 200         PB     2.8
 201         LS             77
 202         UD     1.8
             *
1                                    HEC-1 INPUT                                          PAGE  7

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

 203         KK   OUT30 Combine
 204         HC       3

 205         KK   OUT40 Route flows to HWY 341 (use COE routing)
 206         RM       3    0.23     0.2
             *

 207         KK      35 Bailey Canyon
 208         BA    15.3
 209         BF       0       10      1.1
 210         PB    2.95
 211         LS             80
 212         UD     2.2
             *

 213         KK      40 Watershed No.40
 214         BA     2.5
 215         PB    2.77
 216         LS             77
 217         UD     1.1
             *

 218         KK   OUT40  Combine Steamboat Ck with areas 35 and 40 at HWY 341
 219         HC       3
             *

 220         KK  OUT341  ROUTE STEAMBOAT THROUGH HWY 341 USING MODIFIED PULS
 221         RS       1    STOR       0
 222         SA     .31    9.48    46.1
 223         SE    4550    4560    4570
 224         SQ     300    2475   58000
             *

 225         KK    C-1B
 226         BA   0.072
 227         PB     2.5
 228         LS             69       64
 229         UD    0.22
             *

 230         KK    C-1A
 231         BA   0.062
 232         LS             64
 233         UD    0.20
             *

 234         KK   RT C1 ROUTING POD C-1A THRU CHANNEL C-1C TO CHANNEL C-1E
 235         RD    1000   0.014   0.030            TRAP       5         3
             *
1                                    HEC-1 INPUT                                          PAGE  8
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 236          KK   RT C1 ROUTING POD C-1A THRU CHANNEL C-1E TO CULVERT C-C2C
 237          RD    1800  0.0056   0.030            TRAP       5       3
              *

 238          KK   CPC1B
 239          HC       2
              *

 240          KK  CB CUR  Combine flows just north of SR 341 (Steamboat Ck)
 241          HC       2
              *

 242          KK   OUTDS  Route Steamboat to just north of south Damonte property line
 243          RM       2   0.153     .35
              *

 244          KK   CB DS  COMBINE STEAMBOAT & WHITES BRANCH 4 @ DAMONTE SOUTH BOUNDARY
 245          HC       2
              *

 246          KK  RT WHT  ROUTE TO SOUTH BOUNDARY OF WHITE'S CREEK MEADOW SUBDIVISION
 247          RM       1   0.084     0.2
              * WHITES CREEK BRANCH3
              *

 248          KK  DR 123  Recall channel 1, 2, and 3 flows
 249          DR  CH 123
              *

 250          KK  DV 2&3  Divert flows into channels 2 and 3 - two middle branches
 251          KM          Hydrograph at this station is flow in channels 2 and 3
 252          DT    CH 1
 253          DI       0    1700    2700    3750
 254          DQ       0     350     550     700
              *

 255          KK  RT 2&3  Route flows to pt where channels 2 and 3 combine (2000' u/s Virginia)
 256          RM       3    .245      .3

 257          KK    W10R  Whites Creek No. 10
 258          BA     0.3
 259          PB     2.8
 260          LS              55
 261          UD     .32
              *

 262          KK   CP 23  Combine local flows with channels 2 and 3
 263          HC       2
              *
```



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

 264          KK  DV 23A  Divert flows at CP 23 (Channels 2 and 3 Diverge)
 265          KM          Hydrograph at this station is in channel 3 (Channel 2 is diverted)
 266          DT    CH 2
 267          DI       0    2000    3500
 268          DQ       0    1000    1750
              *

 269          KK   RT V3  Route flow to Virginia St. (CP V3)
 270          RM       2   0.136      .2

 271          KK    W11R  Whites Creek No. 11
 272          BA    0.32
 273          PB     2.7
 274          LS              75
 275          UD    0.27
              *

 276          KK  CP V24  Combine Subbasin W11R, and Channel 3 at Virginia Street
 277          HC       2

 278          KK   RT F3  Route flow to F3 (Channel 3 at 580)
 279          RM       3   0.234     0.2
              *

 280          KK    W16R  Whites Creek No. 16
 281          BA    0.11
 282          PB     2.7
 283          LS              81
 284          UD    0.21
              *

 285          KK   CP F3  Combine flows at proposed RCB on 580  (Channel 3)
 286          HC       2
              *

 287          KK  RT DSW  ROUTE THRU DRAINAGE DITCH TO STEAMBOAT CREEK
              *  USED CHANNEL DESIGN PARAMETERS
 288          RD    2700   0.003   0.035            TRAP      50       3
              *

 289          KK   W18RA
              * Basin W18R - subdivided - area south of Channel #3 = W18RA
 290          BA    0.21
 291          PB     2.7
 292          LS              80
 293          UD    0.33
              *

 294          KK  CB DSW  COMBINE WHITES CREEK BRANCHES 3 & W18RA @ STEAMBOAT CREEK
```

```
     295       HC      2
               *
1                                          HEC-1 INPUT                                          PAGE 10

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


     296       KK     S-1
     297       BA   0.041
     298       PH       1   0.001   0.478   0.869   0.145    1.52    1.58    2.11    2.53
     299       LS              66
     300       UD    0.17
               *

     301       KK   RT S3 ROUTING POD S-1 THRU STEAMBOAT TO CPS3A
     302       RM       2      .2      .4
               *

     303       KK     S-2
     304       BA   0.062
     305       LS              62
     306       UD    0.20
               *

     307       KK   RT S3 ROUTING POD S-2 THRU STEAMBOAT TO CPS3A
     308       RM       1      .1      .1
               *

     309       KK    S-3A
     310       BA   0.039
     311       LS              63
     312       UD    0.17
               *

     313       KK   RT S3 ROUTING POD S-3A THRU CHANNEL ST-1 TO CPS3A
     314       RD    1000  0.0025   0.030            TRAP       5       3

     315       KK   CPS3A
     316       HC       3
               *

     317       KK   RT S5 ROUTING CPS3A THRU STEAMBOAT TO CPS5
     318       RM       4  0.3311     0.4
               *

     319       KK    S-3B
     320       BA   0.016
     321       LS              63
     322       UD    0.14

     323       KK   RT S5 ROUTING POD S-3B THRU STEAMBOAT TO CPS5
               *
     324       RM       3  0.2837     0.4
               *

     325       KK     S-4
     326       BA   0.021
     327       LS              63
     328       UD    0.16
               *
1                                          HEC-1 INPUT                                          PAGE 11

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


     329       KK   RT S5 ROUTING POD S-4 THRU STEAMBOAT TO CPS5
     330       RM       2  0.1497     0.4
               *

     331       KK     S-5
     332       BA   0.032
     333       LS              76
     334       UD    0.16

     335       KK   RT S5 ROUTING POD S-5 OVERLAND TO CPS5
     336       RM       2  0.1230     0.1
               *

     337       KK    CPS5
     338       HC       4
               *

     339       KK  RT WHT ROUTINT CPS5 TO WHT THRU STEAMBOAT
     340       RM       2  0.1775      .4

     341       KK  CB WHT  COMBINE STEAMBOAT CREEK W/ WHITES CREEK BRANCHES 3&4
     342       HC       3
               *

     343       KK      HD    WATERSHED TO ACCOUNT FOR COM & IND AREA IN WHITES CK MEADOWS
     344       KM              DISCHARGES TO STEAMBOAT CREEK
     345       BA    .114
     346       LS              95
     347       UD     .32
               *

     348       KK   CP HD   COMBINE HD WITH STEAMBOAT CREEK UPSTREAM OF DIVERSION STRUCTURE
     349       HC       2
               *
               *   DIVERSION FROM STEAMBOAT TO EAST

     350       KK  DIVSTR STAGE, STORAGE, AND DISCHARGE FROM DIVERSION POND
     351       KM   BACKWATER FROM THE 4 8'X10' RCBs
     352       KO       3
     353       RS       1    ELEV    4475
               * DIVERSION POND AREAS FOR ELEVATION 4475 TO 4490; 4 8'x 10' RCBs, I.E.4475
               * WEIR WIDTH = 240' @ CREST 4485'
```

```
                  * ADDITIONAL ELEVATIONS ADDED TO RESERVOIR , AREAS IN THESE 2 ARE
                  * KEPT CLOSE TO THE AREA AT ELEVATION 4488
  354             SA     .07    0.25    0.35    0.72    1.13    2.93    3.23    3.51    3.83    4.11
  355             SA    4.34    4.69
  356             SE    4475    4476    4477    4479    4480    4483    4484    4485    4486    4487
  357             SE    4488    4489
  358             SQ       0     124     336     920    1272    2512    2976    3272    4222    5914
  359             SQ    8003   10364
                  *
                  *
1                                            HEC-1 INPUT                                          PAGE 12

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


  360             KK   STEAM  DIVERSION
                  *  DI=CULVERT+WEIR FLOW, DQ=WEIR FLOW INTO DETENTION BASIN 1
  361             DT   BAS 1
                  *  DI CARDS FOR 5-108" RCP CULVERTS AND WEIR
  362             DI       0     124     336     920    1272    2512    2976    3272    4222    5914
  363             DI    8003   10364
                  *  DQ CARDS INDICATE FLOW OVER WEIR INTO BASIN 1
  364             DQ       0       0       0       0       0       0       0       0     726    2074
  365             DQ    3847    5980
                  *

  366             KK   OUTDM  Route Steamboat to DM (near middle of Damonte property)
  367             RM       2    0.15    0.25

  368             KK   OUTDN  ROUTE STEAMBOAT TO DN -DAMONTE NORTH BOUNDARY
  369             RM       2     0.2    0.25
                  *
                  *
                  *
                  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
                  *                  DAMONTE RANCH PHASE V
                  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
                  *
                  * NOTE: Basins denoted "* DR" correspond to Nimbus Model
                  *       443Post.dat (1/2005)
                  *
                  *
                  * PHASE V: ON-SITE AREA DRAINING TO STEAMBOAT CREEK
                  *

  370             KK      A7
                  * KK  DR 2
  371             BA   0.037
  372             PB     2.8
  373             LS             85
  374             UD   0.531
                  *

  375             KK   STM+7
  376             KM  COMBINE A7 INTO STEAMBOAT CRK
  377             HC       2
                  *
                  *

  378             KK      A6
                  * KK  DR 8
  379             BA    .019
  380             LS             90
  381             UD    .289
                  *
1                                            HEC-1 INPUT                                          PAGE 13

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


  382             KK   STM+6
  383             KM   COMBINE A6 INTO STEAMBOAT CRK
  384             HC       2
                  *
                  *

  385             KK      A3
  386             BA    .005
  387             LS             90
  388             UD    .167
                  *

  389             KK   STM+3
  390             KM   COMBINE A3 INTO STEAMBOAT CRK
  391             HC       2
                  *
                  *

  392             KK      A2
  393             BA    .020
  394             LS             90
  395             UD    .167
                  *

  396             KK   STM+2
  397             KM   COMBINE A2 INTO STEAMBOAT CRK
  398             HC       2
                  *
                  *
                  *

  399             KK    A17
  400             KM     CHANNEL E CROSSING AT CARAT DR.
                  * KK DR 18
  401             BA   0.029
                  * BA 0.031
  402             LS             83
```

```
   403          UD    .235
                *
                *

   404          KK    A18
                * KK DR 19
   405          BA   0.036
                * BA 0.021
   406          LS              83
   407          UD    .319
                *
```



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


   408          KK  CHNL-E
   409          KM  CHNL-E  CHANNEL E
   410          HC       2
                *
                *

   411          KK   STM+E
   412          KM   COMBINE CHANNEL E WITH STEAMBOAT CRK
   413          KM   DOWNSTREAM DAMONTE BNDRY
   414          HC       2
                *
                *

   415          KK  RT NST ROUTING CPSTM2 TO CPN4STM2
   416          RM       5  0.3916      .4
                *
                *
                *
                *
                * * NW-4 IS BEING DEVELOPED UNDER PHASE V
                * *
                * KK  NW-4
                * BA 0.129
                * PB   2.5
                * LS            73      68
                * UD  0.33
                *
                *
                *
                * * FOLLOWING DAMONTE BASINS DRAIN TO THE WESTERN PERIMETER DITCH

   417          KK      A4
                * KK  DR 6
   418          BA   0.017
   419          LS              90
   420          UD    .197
                *
                *

   421          KK     A23
   422          BA   0.004
   423          LS              85
   424          UD   0.531
                *

   425          KK      A1
                * KK  DR 8
   426          BA   0.014
                * BA 0.051
   427          LS              90
   428          UD    .289
                *
                *
                *
                *
```



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


   429          KK     A22
                * KK  DR 1
   430          BA   0.004
   431          LS              91
   432          UD   0.531
                *
                *

   433          KK      A5
                * KK  DR 4
   434          BA   0.047
                * BA 0.045
   435          LS              83
   436          UD    .313
                *

   437          KK  CARAT1
   438          KM   CARAT DR. CULVERT #1
   439          HC       2
                *
                *
                *
                *
                *
                *
                *
                *
                *

   440          KK  CHNL-A
   441          KM  CHNL-A DAMONTE WESTERN PERIMETER DITCH
```

```
442     HC       4
        *
        *
        *
        *
        * DAMONTE PHASE V: ON-SITE AREAS A16, A19, A20
        *

443     KK      A16
        * KK DR 20
444     KM   NODE FOR SIZING INLET TO CHANNEL F UNDER CARAT DR
445     BA   0.018
        * BA 0.021
446     LS               90
447     UD    .222
        *

448     KK      A19
        * KK DR 21
449     BA   0.036
450     LS               83
451     UD    .269
        *
```



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

452     KK      A20
        * KK DR 22
453     BA   0.023
454     LS               85
455     UD    .355
        * *
        *

456     KK  CHNL-F  CHANNEL F
457     KM   OUTLET 3
458     HC       3
        *

459     KK  STM+AF
460     KM  COMBINE CHANNEL A & F INTO STEAMBOAT CRK
461     HC       3
        *
        *
        *

462     KK  APTS-9
463     KM   FUTURE APARTMENTS / PARK SITE   - - PREVIOUSLY KNOWN IN
464     KM   NIMBUS MODELS AS PRE-DEV BASINS "W-4", "W-5", & "W-6"
        * PLANS CURRENTLY CALL FOR AN 18" STUB UNDER STEAMBOAT PKY
        * DRAINS TO CHANNEL B
465     BA   0.032
466     LS               87
467     UD    .279
        *
        *
        *

468     KK      A8
        * KK DR 10
469     BA   0.071
470     LS               88
471     UD    .338
        *
        *

472     KK  CHNL-B  UPSTREAM SECTION OF CHANNEL B
473     HC       2
        *
        *
        *

474     KK  D12&13
475     KM   EXISTING DAMONTE RANCH 12 & 13
        * KK EX 11  EXISTING BASIN #11 (D.R. 12&13)
476     BA   0.057
477     LS               84
478     UD    .312
        * *
        *
```



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

479     KK      A9
        * KK DR 12
480     BA   0.050
481     LS               83
482     UD    .286
        *
        *

483     KK  CHNL-C
484     KM  CHANNEL C
485     HC       2
        *
        *

486     KK     B&C
487     KM   COMBINE CHANNEL B & C
488     HC       2
        *
        *
```

```
489      KK     A14
         * KK DR 13
490      BA   0.055
491      LS              83
492      UD    .295
         *
         *

493      KK     A13
         * KKDR 14A
494      BA   0.045
         * BA 0.047
495      LS              83
496      UD    .295
         *
         *

497      KK     A15
         * KK DR 15
498      BA   0.018
         * BA 0.019
499      LS              87
500      UD    .308
         * *
         *

501      KK  CHNL-D  CHANNEL D
502      KM   CHANNEL D
503      HC       4
         *
         *
         *
```



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

504      KK     A11
         * KK DR 17
505      BA   0.014
         * BA 0.016
506      LS              90
507      UD    .275
         * *

508      KK     A12
         * KKDR 14B
509      BA   0.020
         * BA 0.043
510      LS              90
511      UD    .475
         * *
         *

512      KK   11+12  ROADSIDE DITCH ALONG CARAT DR
513      KM   ROADSIDE DITCH ALONG CARAT DR DRAINING A11 & A12
514      HC       2
         *
         *

515      KK  CHNL D CHANNEL D CROSSES CARAT DR
516      KM   CROSSING AT CARAT DR AND CHANNEL D
517      HC       2
         *
         *
         *
         *

518      KK  X12+13 EXISTING DAMONTE RANCH 12 & 13 (AREA 16)
519      KM   WAS DEVELOPED PRIOR TO DAMONTE RANCH PHASE V
520      KM   PREVIOUSLY KNOWN IN NIMBUS MODELS AS PRE-DEV BASIN "W-7"
521      BA   0.076
522      LS              86
523      UD    .733
         *
         *

524      KK     A10
         * KK DR 24
525      BA   0.012
526      LS              89
527      UD    .206
         *
         *

528      KK
529      HC       2
         *
         *
```



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

530      KK     A21  FUTURE SCHOOL
         * KK DR 23  FUTURE SCHOOL SITE
531      BA   0.015
532      LS              93
533      UD    .212
         *
         *

534      KK  WTLNDS  DISCHARGE TO WETLANDS
535      KO       3
536      HC       3
         * *
         *
```

```
                 *
                 *
                 *
                 *
    537          KK  RC BAS   RECALL DIVERSION FROM STEAMBOAT
    538          KM  OVERFLOW FROM DIV. STRUCTURE 1
    539          DR   BAS 1
                 *

    540          KK   BAS 1 STAGE, STORAGE, AND DISCHARGE FROM BASIN 1
    541          KM   MODIFY BASIN 1 MAKE IT 5 FT DEEPER TO REDUCE PEAK FLOWS TO EAST
    542          KO       3
    543          RS       1     ELEV    4473
                 *  *** BAS 1 OUTLET 7 PIPE ARCHES W/1-36" RCP *****
    544          SA      19   26.26   30.61   32.63    33.7   34.10   34.47   34.82   35.18   35.54
    545          SA   35.97
    546          SE    4475    4476    4477    4478    4479    4480    4481    4482    4483    4484
    547          SE    4485
    548          SQ       5       7      10     515    1021    1523    2027    2537    3059    3561
    549          SE  4475.4 4475.92  4476.6 4477.64 4478.54 4479.28 4479.95 4480.59 4481.25 4481.87
                 * Updated based on AS-BUILT data
                 * SQ     5       7      10     515    1021    1527    2031    2537    3059    35
                 * SE4475.4 4475.92  4476.6 4477.64 4478.54 4479.28 4479.95 4480.59 4481.25 4481.
                 * previous data
                 * SQ     5       7      10     515    1521    2027    2533    3038    3059    35
                 * SE4475.4 4475.92  4476.6  4477.6  4478.5  4479.3  4480.1  4480.7  4481.3  4481

    550          KK  BAS1DS
    551          DT  36DIVQ             130
                 *  ************** 100' WEIR ******************
    552          DI      10     515    1521    2027    2533    3038    3059    3562    4065
    553          DQ      10      15      21      27      33      38      59      62      65
                 *

    554          KK   POND2
    555          KM   POND 2 WILL OUTFLOW OVER NATURAL GROUND WITH NO DETENTION.  THE FLOW
    556          KM   WILL BE ROUTED OVERLAND TO THE FIRST COMBINATION POINT IN THE WETLANDS.
    557          RM       1     0.2     0.2
                 *
                 *
1                                         HEC-1 INPUT                                         PAGE 20

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


    558          KK     T-1
    559          BA   0.036
    560          PB     2.5
    561          LS              74      68
    562          UD    0.20
                 *

    563          KK   RT T2 ROUTING POD T-1 THRU CHANNEL T-1 TO CPT2
    564          RD     300    0.01   0.030            TRAP      10       3
                 *

    565          KK     T-2
    566          BA   0.065
    567          PB     2.5
    568          LS              73      70
    569          UD    0.21
                 *

    570          KK    CPT2              COMBINING PODS T1 AND T2
    571          HC       2

    572          KK   RT T3 ROUTING CPT2 THRU CHANNEL T-2 TO CPT3
    573          RD     970    0.01   0.030            TRAP      10       3
                 *

    574          KK     T-3
    575          BA   0.061
    576          PB     2.5
    577          LS              79      78
    578          UD    0.22
                 *

    579          KK    CPT3
    580          HC       2
                 *

    581          KK   CPD1A  COMBINING TAHOE AND CPT3 AND SPLIT FROM STEAMBOAT
    582          HC       2
                 *

    583          KK   RT WT   ROUTE TO CPWET
    584          RM       3  0.2621     0.1
                 *
                 *  East side drainages

    585          KK    WSF1  East side watershed F1
    586          BA   0.775
    587          PB    2.80
    588          LS              77
    589          UD     .24
                 *
1                                         HEC-1 INPUT                                         PAGE 21

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


    590          KK    WSE1  East side watershed E
    591          BA     2.1
    592          PB     2.8
    593          LS              78
    594          UD     .53
```

```
                *

 595            KK    F1E1  COMBINE F1 & E1
 596            HC       2
                *

 597            KK     C-2
 598            BA   0.034
 599            PB     2.5
 600            LS              62        20
 601            UD    0.17
                *

 602            KK    RT C3 ROUTING C-2 THRU CHANNEL C-3 TO CPC3
 603            RD    1050    0.005    0.030              TRAP       65        3
                *

 604            KK    C-1C
 605            BA   0.070
 606            PB     2.5
 607            LS              63        50
 608            UD    0.20

 609            KK    RT C3 ROUTING C-1C THRU CHANNEL C-3 TO CPC3
 610            RD    1050    0.005    0.030              TRAP       65        3
                *

 611            KK     C-3
 612            BA   0.034
 613            PB     2.5
 614            LS              63        20
 615            UD    0.18
                *

 616            KK    CPC3
 617            HC       4

 618            KK    RT C4 ROUTING CPC3 THRU CHANNEL C-4 TO CPC4
 619            RD     550    0.005    0.030              TRAP       65        3
                *

 620            KK     C-4
 621            BA   0.040
 622            PB     2.5
 623            LS              65        64
 624            UD    0.19
                *
1                                          HEC-1 INPUT                                          PAGE 22

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


 625            KK    CPC4 COMBINE CPC3 AND POD C-4
 626            HC       2

 627            KK    RT C7 ROUTING CPC4 THRU CHANNEL C-5 TO CHANNEL C-7
 628            RD    1700    0.005    0.030              TRAP       70        3

 629            KK    RT C7 ROUTING CPC4 THRU CHANNEL C-7 TO CPC7
 630            RD    1400   0.0045    0.030              TRAP       75        3
                *

 631            KK     C-5
 632            BA   0.068
 633            PB     2.5
 634            LS              70        63
 635            UD    0.20

 636            KK    RT C7 ROUTING POD C-5 THRU CHANNEL C-5 TO CHANNEL C-7
 637            RD     100    0.005    0.030              TRAP       70        3

 638            KK    RT C7  ROUTING POD C-5 THRU CHANNEL C-7 TO CPC7
 639            RD    1400   0.0045     .030              TRAP       75        3
                *

 640            KK     C-7
 641            BA   0.026
 642            PB     2.5
 643            LS              81        70
 644            UD    0.16
                *

 645            KK     C-6
 646            BA   0.125
 647            PB     2.5
 648            LS              64        20
 649            UD    0.23

 650            KK    RT C7 ROUTING POD C-6 THRU CHANNEL C-6 TO CHANNEL C5
 651            RD    2000   0.0120    0.030              TRAP       10        3

 652            KK    RT C7 ROUTING POD C-6 THRU CHANNLE C-5  TO CHANNEL C-7
 653            RD     100     .005     0.03              TRAP        3

 654            KK    RT C7 ROUTING POD C-6 THRU CHANNEL C-7 TO CPC7
 655            RD    1400   0.0045    0.030              TRAP       75        3

 656            KK    CPC7  COMBINING CPC4 AND PODS C-5, C-7, C-6
 657            HC       4

 658            KK    RT WT ROUTING CPC7 TO CPWET
 659            RM       2  0.1804      0.1
                *
1                                          HEC-1 INPUT                                          PAGE 23

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

```
 660          KK    W-1
 661          BA   0.065
 662          PB     2.5
 663          LS              81       65
 664          UD    0.22

 665          KK   RT W1 ROUTING POD W-1 TO CPWET
 666          RM       1       .1       .1

 667          KK   CPWET COMBINE CPC7, POD W-1, AND D1B (CET #1)
 668          HC       3

 669          KK   RT W1 ROUTING CPWET TO CPWET1
 670          RM       3  0.2708     0.1
              *  East side drainages

 671          KK     E2A
 672          KM   THIS IS A COMBINED WATERSHED (E2 & A)
 673          BA     2.1
 674          PB     2.8
 675          LS              78
 676          UD    0.53
              *

 677          KK    SE-2
 678          BA    0.06
 679          PB     2.5
 680          LS              72
 681          UD    0.19

 682          KK   RT S3 ROUTING POD SE-2 THRU CHANNEL SE-4B TO CPSE3
 683          RD    1300   0.045   0.035             TRAP      20       3
              *

 684          KK    SE-3
 685          BA   0.053
 686          PB     2.5
 687          LS              62       23
 688          UD    0.21
              *

 689          KK    SE-1
 690          BA   0.106
 691          PB     2.5
 692          LS              62       23
 693          UD    0.22

 694          KK   RT S3 ROUTING POD SE-1 THRU CHANNEL SE-4A TO CPSE3
 695          RD    1450  0.0186   0.030             TRAP      15       3
              *
```



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

 696          KK   CPSE3
 697          HC       3

 698          KK   RT S5 ROUTING CPSE3 THRU CHANNEL SE-5 TO CPSE5
 699          RD     920   0.006   0.030             TRAP      50       3
              *

 700          KK    SE-4
 701          BA   0.016
 702          PB     2.5
 703          LS              65       20
 704          UD    0.16
              *

 705          KK    SE-5
 706          BA   0.021
 707          PB     2.5
 708          LS             63         5
 709          UD    0.15

 710          KK   CPSE5 COMBINE CPSE5 CPSE5 AND PODS SE-4 AND SE-5
 711          HC       3

 712          KK   RT S7 ROUTING CPSE5 THRU CHANNEL SE-6 TO CPSE7
 713          RD    1025   0.006   0.030             TRAP      50       3
              *

 714          KK    SE-6
 715          BA   0.004
 716          PB     2.5
 717          LS              66
 718          UD    0.12

 719          KK   RT S7 ROUTING POD SE-6 THRU CHANNEL SE-7 TO CHANNEL SE-8
 720          RD     800   0.019   0.030             TRAP      18       3
              *

 721          KK    SE-7
 722          BA    0.10
 723          PB     2.5
 724          LS              76       65
 725          UD    0.14

 726          KK   CPSE7   COMBINE CPSE5 AND PODS SE-6 AND SE-7
 727          HC       3

 728          KK   RT WI ROUTING CPSE-7 THRU CHANNEL SE-8 TO CHANNEL SE-9
 729          RD     620  0.0060   0.030             TRAP      65       3
```



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

```
730           KK   RT WI  ROUTING CPSE-7 THRU CHANNEL SE-9 TO CPWTIN
731           RD    2000    .006     .03            TRAP      65       3
              *

732           KK    SE-8
733           BA   0.065
734           LS              78       64
735           UD    0.22

736           KK   RTWI ROUTING POD SE-8 THRU CHANNEL SE-8 TO CHANNEL SE-9
737           RD     120   0.006    0.03            TRAP      65       3

738           KK   RT WI ROUTING POD SE-8 THRU CHANNEL SE-9 TO CPWETIN
739           RD    2000   0.006   0.030            TRAP      65       3
              *

740           KK     W-2
741           BA   0.027
742           PB     2.5
743           LS              73        5
744           UD    0.18
              *

745           KK     W-3
746           BA    0.04
747           PB     2.5
748           LS              73       70
749           UD    0.18
              *

750           KK    CPW2
751           HC       2

752           KK  RTG WI
753           RM       1  0.0567     0.1

754           KK  PWETIN   COMBINE CPSE7 , CPW2, AND POD SE-8
755           HC       3

756           KK  CPWETA  COMBINE CPWTIN, OFFSITE FLOW E2A BEFORE ROUTING TO CPWET1
757           HC       2

758           KK   RT W1  ROUTE CPWTIN THRU WETLANDS TO CPWET1
759           RM       2  0.1462      .1

760           KK  CPWET1  COMBINE CPWTIN AND CPWET
761           HC       2

762           KK  RTWET1
763           KM   ADD ROUTING FROM CPWET1 TO CPWETB  ADDED 7/2/01 DEW
764           RM       1      .2      .2
              *
```



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

765           KK     WET
766           BA    0.12
767           PB     2.5
768           LS              81
769           UD    0.36

770           KK  CPWETB  COMBINE CPWET1 AND BASIN WETR (INFLOW OF DET #1)
771           HC       2

772           KK  RTWETB
773           KM   ROUTE WETB TO WETO
774           RM       1      .2      .2
              *

775           KK     E-2
776           BA    0.07
777           LS              74       38
778           UD    0.21

779           KK   RT E3 ROUTING POD E-2 THRU CHANNEL E-2 TO CPE3
780           RD    1000   0.007   0.030            TRAP       5       3
              *

781           KK     E-1
782           BA    0.05
783           PB     2.5
784           LS              63
785           UD     0.2

786           KK   RT E3  ROUTING POD E-1 THRU CHANNEL E-1 TO CHANNEL E-2
787           RD     950   0.026    0.03            TRAP       5       3
              *

788           KK    RTE3
789           RD    1000    .007     .03            TRAP       5       3

790           KK    CPE3   COMBINE PODS E-2 & E-1
791           HC       2
              *  East side drainages

792           KK    WSB2
793           BA    0.12
794           PB     2.6
795           LS              76
796           UD    0.07
              *

797           KK    WSB1
```

```
 798          BA    0.36
 799          PB     2.8
 800          LS              76
 801          UD     .18
```



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

 802          KK   CPB12   COMBINE WATERSHEDS B1 & B2
 803          HC       2

 804          KK   RT E3 ROUTING WSB12 THRU CHANNEL E-3A TO CHANNEL E-3B
 805          RD    1350   0.046   0.035              TRAP      15        3

 806          KK   RT E3 ROUTING WSB12 THRU CHANNEL E-3B TO CPE3
 807          RD    1300  0.0063   0.030              TRAP      15        3

 808          KK   RT E4 ROUTING CPE3 THRU CHANNEL E-4 TO CPE-4
 809          RD     970  0.0035   0.030              TRAP      15        3

 810          KK     E-4
 811          KM   MODIFY E-4, INCLUDE OLD E-3.  THESE 2 ARE NOW THE HIGH SCHOOL SITE
 812          BA     0.1
 813          PB     2.5
 814          LS              86
 815          UD     0.2

 816          KK   RT E4 ROUTING POD E-4 THRU CHANNEL E-4 TO CPE-4
 817          RD     430  0.0035   0.030              TRAP      15        3

 818          KK    CPE4  COMBINE CPE3 AND POD E-4
 819          HC       3
              *

 820          KK     W-8
 821          BA   0.063
 822          PB     2.5
 823          LS              81      63
 824          UD    0.19

 825          KK  CPWETO
 826          HC       3

 827          KK  RS DT2   ROUTE THRU DET #2
 828          KM   BELOW IS DATA FOR THE RESERVOIR ABOVE TRAPEZ WEIR,CALLED DT2 OR POND 3
 829          KM    DT2 INCLUDES PORTION OF WETLAND AS STORAGE
 830          RS       1    FLOW      -1
 831          SA       0     3.1    10.4      20    27.3    32.8    37.7    43.2    48.4    53.4
 832          SA    58.0
 833          SE    4452    4453    4454    4455    4456    4457    4458    4459    4460    4461
 834          SE    4462
 835          KM   INSERT TRAPEZOIDAL WEIR, CREST LENGT=65', ELEV=4454, Z=.25H:1V
 836          KM     LOW FLOW OUTLET IS 24" RCP AT IE=4451.3, ASSUMED TO BE INEFFECTUAL AFTER
 837          KM      WATER ELEVATION OVER WEIR REACHES 4455
 838          SQ       0       3       8     110     285     567     941    1409    1975    2645
 839          SQ    3421
              * SQ     0       6      15     168     378     693    1076    1509    1991      25
              * SQ  3089
              * SQ     0       7      16   189.5     496     888    1344    1796    2336      29
              * SQ  3626
              * Updated with AS-BUILT data (using weir coefficient C=2.8)
              * SQ     0       3       8     110     285     567     941    1409    1975      26
              * SQ  3421
              *
```



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

 840          KK     W-9
 841          BA   0.041
 842          PB     2.5
 843          LS              81      64
 844          UD    0.19
              *

 845          KK    CW-9
 846          KM   COMBINE W-9 & CPWETO
 847          HC       2
              *

 848          KK   POND4
 849          KO       3
 850          KM   ROUTE THRU POND 4 JUST UPSTREAM OF DAMONTE PKWY CULVERT
 851          KM    OUTLET MODELED AS 5 BOX CULVERTS 4' X 12'
 852          RS       1    STOR       0
 853          SA    0.02    2.93    6.18    9.21   13.70   17.95   22.95   25.19   25.84
 854          SE    4450    4451    4452    4453    4454    4455    4456    4457    4458
 855          SQ       0     200     500     950    1450    2000    2500    2800
 856          SE    4450 4451.08    4452 4453.07 4454.06 4455.04 4456.01  4456.7
              *
              *

 857          KK  WET-IN
 858          KM   COMBINE OFFSITE FLOW IN THE WETLANDS FROM THE SOUTH W/ ONSITE DRAINAGE
 859          HC       2
              *
              *  East side drainage
              *

 860          KK      D1
 861          BA    1.72
 862          PB     2.8
 863          LS              78
 864          UD     .45
```

```
865    KK   RT N1 ROUTING BASIN D1 THRU CHANNEL NE-2 TO CHANNEL NE-4A
866    RD    1150   .030    .035             TRAP      25        3

867    KK   RT N1 ROUTING BASIN D1 THRU CHANNEL NE-4A TO CHANNEL NE-5
868    RD    2500   .0236   .035             TRAP      25        3

869    KK   RT N1 ROUTING BASIN D1 THRU CHANNEL NE-5 TO CPNE-1
870    RD     800  0.0040   0.030            TRAP      80        3
       *

871    KK    WSC
872    BA   3.31
873    PB    2.8
874    LS             79
875    UD    .65
       *
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LINE   ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

876    KK   RT N1 ROUTING BASIN WSC THRU CHANNEL NE-4A TO CHANNEL NE-5
877    RD    2500  0.0236   0.035            TRAP      25        3

878    KK   RT N1 ROUTING BASIN WSC THRU CHANNEL NE-5 TO CPNE1
879    RD     800  0.0040   0.030            TRAP      80        3
       *
       *

880    KK    NE-1
881    BA   0.044
882    PB    2.5
883    LS             63       34
884    UD   0.24

885    KK   RT N1 ROUTING POD NE-1 THRU CHANNEL NE-5 TO CPNE1
886    RD     100   0.004    0.03            TRAP      80        3
       *

887    KK   CPNE1   COMBINE OFFSITE FLOW WSC AND D1 WITH NE-1
888    HC       3
       *

889    KK   RT W3  ROUTING CPNE1 THRU CHANNEL NE-6
890    RD     670    .004     .03            TRAP      80        3

891    KK   RT W3 ROUTING CPNE1 TO CPWET3
892    RM       3        1     0.1
       *
       *

893    KK     D2
894    BA   0.15
895    PB    2.6
896    LS             78
897    UD   0.06
       *

898    KK   RT N4 ROUTING BASIN D2 THRU CHANNEL NE-1 TO CHANNEL NE-3A
899    RD    1300  0.0192   0.035            TRAP       5        3
       *

900    KK   RT N4 ROUTING BASIN D2 THRU CHANNEL NE-3A TO CHANNEL NE-3B
901    RD    1100    0.03   0.035            TRAP       5        3
       *

902    KK   RT N4 ROUTING BASIN D2 THRU CHANNEL NE-3B TO CPNE4
903    RD    2050  0.0143   0.030            TRAP      15        3
       *
       *
       * * * NOTE: THE FLOWPATHS OF NE-2 THRU 5 HAVE BEEN CORRECTED
       * * *       AS PER THE 4/2005 SITE PLAN, HOWEVER WERE COMBINED
       * * *       INTO NE2345.  TO SUBDIVDE IT AGAIN, CHECK THE
       * * *       ROUTING CARDS- APPEARS TO BE MUSKINGUM OVERLAND FLOW
       * *
```



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

904    KK  NE2345
905    KM   COMPOSITE WATERSHED, INCLUDES BASINS FORMERLY KNOWN AS
906    KM   NE-2, NE-3, NE-4,& NE-5
907    BA  0.2320
908    PB    2.5
909    LS             65       30
910    UD   0.21
       *
       *
       *
       * KK  NE-3
       * BA 0.054
       * PB   2.5
       * LS           68       34
       * UD  0.25
       * KK RT N5 ROUTING POD NE-3 OVERLAND TO CPNE5
       * RM      3  0.2566      0.1
       * *
       * *
       * KK  NE-2
       * BA 0.057
       * PB   2.5
       * LS           69       34
       * UD  0.24
       * *
       * KK1CHNLH  (CENTRAL) CHANNEL H DRAINING OFFSITE BASIN D2, NE-3, NE-2
       * KM UPSTREAM SECTION OF CHANNEL H
```

```
* HC     3
* *
* KK RT N1 ROUTING POD NE-2 THRU CHANNEL NE-5 TO CPNE-1
* RD   800  0.0040   0.030             TRAP      80       3
* *
* *
* KK  NE-5
* BA 0.051
* PB   2.5
* LS            44      38
* UD  0.23
* *
* KK  NE-4
* BA 0.070
* PB   2.5
* LS            43      64
* UD  0.21
* *
* *
* KK2CHNLH  (CENTRAL) CHANNEL H
* KM DOWNSTREAM SECTION OF CHANNEL H
* KO     3
* HC     3
* *
* KK RT DN ROUTING CPNE5 OVERLAND THRU THE WETLANDS TO CPDN
* RM     2  0.1741     0.1
*
*
```



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

 911          KK   CPNE4   COMBINE BSIN D2 AND POD NE-4
 912          KO       3
 913          HC       2

 914          KK   RT W3 ROUTING CPNE4 TO CPWET3
 915          RM      10       1      .1
              *

 916          KK  CPWET3  COMBINE CPWETO AND CPNE4
 917          KO       3
 918          HC       2
              *

 919          KK   RT DN ROUTING CPWET3 TO CPDN OFFSITE
 920          RM       6  0.4830     0.1
              *
              *
              *

 921          KK   DMNTE   DOWNSTREAM CP TO SUM DAMONTE FLOW
 922          KO       3
 923          HC       2
              *
              *
              * (FOLLOWING IS PRE-DEV. BASINS THAT ARE PLANNED FOR DEVELOPMENT)
              *
              * KK   W-4
              * BA 0.038
              * PB   2.5
              * LS            79      68
              * UD  0.18
              * KK RT W6 ROUTING POD W-4 THRU CHANNEL NW-1 TO CHANNEL NW-2
              * RD   650  0.0038   0.030             TRAP       5       3
              * KK RT W6 ROUTING POD W-4 THRU CHANNEL NW-2 TO CPW6
              * RD   700  0.0021   0.030             TRAP       5       3
              * *
              * KK   W-5
              * BA 0.013
              * PB   2.5
              * LS            77      65
              * UD  0.14
              * KK RT W6 ROUTING POD W-5 THRU CHANNEL NW-2 TO CPW6
              * RD   700  0.0021   0.030             TRAP       5       3
              * *
              * KK   W-6
              * BA 0.017
              * PB   2.5
              * LS            77       5
              * UD  0.15
              * KK  CPW6   COMBINE PODS W-4, W-5 AND W-6
              * HC     3
              * *
              * *
              * KKRT DT2 ROUTING CPW6 THRU CHANNEL NW-3A TO CHANNEL NW-4
              * RD   350  0.0086   0.030             TRAP       5       3
              * KKRT DT2 ROUTING CPW6 THRU CHANNEL NW-4 TO CPDT2
              * RD  1200   0.005   0.030             TRAP       5       3
              *
              *
              * * NW-2 IS BEING DEVELOPED UNDER PHASE V
              * KK  NW-2
              * BA 0.066
              * PB   2.5
              * LS            78      50
              * UD  0.26
              *
              * KKRT DT2 ROUTING POD NW-2 THRU  CHANNEL NW-3B TO CHANNEL NW-4
              * RD   285   0.006   0.030             TRAP       0       3
              *
              * KK   W-7
              * KM USED TO DRAIN TO WETLANDS, NOW IS ROUTED UNDER STEAMBOAT PKWY TO A10
              * KM WAS DEVELOPED BY OTHERS, NOW KNOWN AS "EXIST. DAMONTE RANCH 12&13 (AREA 16)
              * BA 0.053
              * PB   2.5
```

```
* LS            76      70
* UD  0.17
* KK CPDT2        COMBINE CPW6 AND PODS NW-2 AND W-7
* HC     3
*
* KK RT N1 ROUTING CPDT2 THRU CHANNEL NW-5 TO CHANNEL NW-6
* RD  2275  0.0022   0.030             TRAP       5       3
* KK RT N1 ROUTING CPDT2 THRU CHANNEL NW-6 TO CPN1
* RD  1650  0.0014   0.030             TRAP      15       3
* *
*
* * NW-3 IS BEING DEVELOPED UNDER PHASE V
* KK  NW-3
* BA 0.076
* PB   2.5
* LS            73      65
* UD  0.22
* KK RT N1 ROUTING POD NW-3 THRU CHANNEL NW-6 TO CPN1
* RD  1650  0.0014   0.030             TRAP      15       3
*
*
*
*
* * NW-1 IS PARTIALLY BEING DEVELOPED UNDER PHASE V
```


```
924   KK     N-1
925   BA    0.02
      * BA 0.104
926   PB     2.5
927   LS             76      68
928   UD    0.29
      * *
      * KK  CPN1  COMBINE CPDT2 AND PODS NW-3 , N-1
      * HC     3
      * *

929   KK  RT N13  ROUT CPN1 THRU CHANNEL NW-7 TO CPN13
930   RD     800    .001     .03             TRAP      18       3
      *
      *
      *
      * * S-6 & S-7 ARE BEING DEVELOPED UNDER PHASE V
      * KK   S-6
      * BA 0.038
      * PB   2.5
      * LS            73      64
      * UD  0.24
      * *
      * KKRT ST2 ROUTING POD S-6 THRU STEAMBOAT TO CPSTM2
      * RM     8  0.6266      .4
      * *
      * KK   S-7
      * BA 0.046
      * PB   2.5
      * LS            73      64
      * UD  0.23
      * *
      *
      *
      *

931   KK  RT N13 ROUTING CPN4STM2 TO CPN13
932   RM      10  0.8647      .4
      *
      *
      *
      * * N-2 & N-3 ARE BEING DEVELOPED UNDER PHASE V
      *
      * KK   N-2
      * BA 0.047
      * PB   2.5
      * LS            75      68
      * UD  0.21
      * *
      * KK   N-3
      * BA 0.030
      * PB   2.5
      * LS            80       5
      * UD  0.11
      *
      * KK CPN13  COMBINE CPN1, CPNST AND PODS N-2 AND N-3
      * HC     2
      * KK  CPDN CPN13, CPWET3, CPNE5 AND OUTDN ROUTED TO CPDN, NORTH BNDRY OF DAMONTE
      * HC     3
      *
      *
      *
      * [END 443LOMR.dat]
      *
      *
      *
      *
      *
      *  ***************************************************************************
      *   Routing flow from Damonte property line to Bella Vista Ranch model
      *  ***************************************************************************
```


```
933   KK    RT01 ROUTING OF FLOW FROM DAMONTE
934   RM       8    1.25     0.1
```

```
 935            KK      D4  BELLA VISTA RANCH WATERSHED 4
 936            KM    CALCULATE RUNOFF FROM WATERSHED 4
 937            BA    0.80
 938            PB     2.5
 939            LS             73
 940            UD     .77

 941            KK    PT01   COMBINE FLOW FROM DAMONTE (RT01) WITH WATERSHED 4
 942            HC       3
                *
                *

 943            KK    RT02   ROUTE TO CONFLUENCE WITH WATERSHED 3
 944            RM       3    0.57      .1

 945            KK      D3   BELLA VISTA RANCH WATERSHED 3
 946            KM    CALCULATE RUNOFF FROM WATERSHED 3
 947            BA     0.7
 948            PB     2.5
 949            LS             79
 950            UD    0.77

 951            KK    PT02   COMBINE FLOWS FROM WATERSHED 3 WITH RT02
 952            HC       2

 953            KK    RT03   ROUTE TOTAL FLOW TO CONFLUENCE WITH WATERSHED 2
 954            RM       9    1.47      .1
                *
                *
                *
                *
                *   ***************************************************************************
                *   File name : 028AS-PH1.DAT (NOV 2000) - Includes only the section of this
                *   model that starts at "Begin Double Diamond Model" with watershed W18RB.
                *   This model was modified from AS-PH1.DAT (MAY 1995); Whites Creek Branches
                *   3 & 4 were diverted to Steamboat Creek.
                *   DOUBLE DIAMOND SUBDIVISION-PROJECT #0028 HYDROLOGIC & HYDRAULIC ANALYSIS
                *   SOUTH MEADOWS PARKWAY & CENTRAL CHANNEL
                *   SOUTH MEADOW/DOUBLE DIAMOND
                *   BY NIMBUS ENGINEERS, RENO, NV
                *   100-Year, 24 hour model
                *   WHITES CREEK MODEL COPIED FROM WHITECN.DAT
                *   FIS THOMAS CREEK 100-YEAR PEAK = 2544 CFS @ S. VIRGINIA STREET.
                *   WHITES CREEK SUBBASIN W18RB-NORTH OF WHITES CREEK BRANCH #3 DIVERSION
                *   ADD PHASE I, PHASE VI AND PHASE V TO CENTRAL CHANNEL
                *   FROM CARAT AVE TO END OF CENTRAL CHANNEL
                *   MODEL INCLUDES DOUBLE DIAMOND DEVELOPMENT PHASE I (PORTIONS OF VILLAGES 11 AN
                *   , PHASE I(VILLAGES 1, 2, 3 AND 4), PHASE VI )PARK, K-6 SCHOOL, AND VILLAGE 29
                *   AND PHASE V (VILLAGES 24 AND 25)
                *   100-YEAR,24-HOUR MODEL
                *   MODEL INCLUDES DOUBLE DIAMOND DEVELOPMENT PHASE II (VILLAGES 5 & 6 AND PARKS)
                *   , PHASE III (VILLAGES 16, 17, 18, AND 19), AND PHASE IV (VILLAGES 7, 8, 9,
                *   20, 21, 22, AND 23) PLUS WETLAND BETWEEN VILLAGES 18/19 & 20.
                *   USE SUBBASIN AREAS FROM MACKAY & SOMPS
                *   NIMBUS ENGINEERS, RENO, NEVADA
                *   MODEL MODIFIED FROM CARATDD.DAT (#9908)
                *   ***************************************************************************
1                                              HEC-1 INPUT                                        PAGE 34

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


 955            KK   W18RB WHITES CREEK SUBBASIN W18RB-NORTH BOUNDARY OF WHITES CK MEADOW SUBDIV.
 956            KM         DAMONTE RANCH NORTH OF WHITES CK. BRANCH #3 AND SOUTH OF DOUBLE DIAMOND
 957            KM          W18RB AREA REDUCED DUE TO ROUTING OF A PORTION OF IT TO STEAMBOAT CREE
 958            KM          NEW WATERSHED DRAINING TO STEAMBOAT CREEK, HD IS UPSTREAM OF DIVSTR
                * BA .2344
 959            BA    .133
 960            PB     2.6
                * LS           85
                * UD  0.30
 961            LS             95
 962            UD     .24
                *

 963            KK  V18-19 DOUBLE DIAMOND VILLAGES 18 & 19
 964            BA   .0548
 965            LS             92
 966            UD    0.24

 967            KK     V20 DOUBLE DIAMOND VILLAGE 20
 968            BA  0.0450
 969            LS             92
 970            UD    0.21

 971            KK     WET WETLANDS # 5 & #6 BETWEEN VILLAGES 18/19 AND VILLAGE 20
 972            BA   .0153
 973            LS             80
 974            UD    0.26

 975            KK  CB WET COMBINE W18RB, V18-19, V20, & WET RUNOFF HYDROGRAPHS IN THE WETLAND
 976            KM         BETWEEN VILLAGES 18/19 AND VILLAGE 20
 977            HC       4

 978            KK   PH-IV PHASE IV DOUBLE DIAMOND DEVELOPMENT (VILLAGES 7,8,9,21,22,&23).
 979            KM         VILLAGE 20 WAS MODELED ABOVE WITH FLOW ENTERING THE WETLAND SOUTH
 980            KM         OF WILBUR MAY BLVD.  DETAILED DRAINAGE PLANS WERE NOT AVAILABLE
 981            KM         AND AS A RESULT THE PHASE IV VILLAGES LIST FOR PH-IV WERE COMBINED.
 982            KM         AS PLANS ARE DEVELOPED, THE VILLAGES CAN BE MODELED SEPARATELY.
 983            BA  0.1931
 984            LS             92
 985            UD    0.31

 986            KK     E14 HYDROGRAPH FROM VILLAGE 6 DRAINAGE POINT E14
 987            KM   CALCULATE RUNOFF FROM SUBBASIN E14
 988            BA    .025
```

```
 989          LS            92
 990          UD    .225

 991          KK     C14
 992          KM   COMBINE RUNOFF FROM E14 WITH CENTRAL CHANNEL FLOW (FLOW FROM RT1617 & PH-IV)
 993          HC       3
```



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

 994          KK  E14-E1
 995          KM   ROUTE FLOW TO E1 ALONG CENTRAL CHANNEL
 996          RD     400    .004    .030            TRAP     100       3

 997          KK      E1
 998          KM   CALCULATE RUNOFF FROM SUBBASIN E1-VILLAGE 5
 999          BA   .0058
1000          LS            92
1001          UD    .135

1002          KK      C1
1003          KM   COMBINE RUNOFF FROM E1 WITH CENTRAL CHANNEL FLOW
1004          HC       2

1005          KK   E1-E2
1006          KM   ROUTE FLOW TO E2 ALONG CENTRAL CHANNEL
1007          RD     300    .004    .030            TRAP     100       3

1008          KK      E2
1009          KM   CALCULATE RUNOFF FROM SUBBASIN E2-VILLAGE 5
1010          BA    .003
1011          LS            92
1012          UD    .118

1013          KK      C2
1014          KM   COMBINE RUNOFF FROM E2 WITH CENTRAL CHANNEL FLOW
1015          HC       2

1016          KK   E2-E3
1017          KM   ROUTE FLOW TO E3 ALONG CENTRAL CHANNEL
1018          RD     300    .004    .030            TRAP     100       3

1019          KK      E3
1020          KM   CALCULATE RUNOFF FROM SUBBASIN E3-VILLAGE 5
1021          BA   .0025
1022          LS            92
1023          UD    .119

1024          KK      C3
1025          KM   COMBINE RUNOFF FROM E3 WITH CENTRAL CHANNEL FLOW
1026          HC       2

1027          KK   E3-E4
1028          KM   ROUTE FLOW TO E4 ALONG CENTRAL CHANNEL
1029          RD     360    .004    .030            TRAP     100       3

1030          KK      E4
1031          KM   CALCULATE RUNOFF FROM SUBBASIN E4-VILLAGE 5
1032          BA    .003
1033          LS            92
1034          UD    .113
```



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

1035          KK      C4
1036          KM   COMBINE RUNOFF FROM E4 WITH CENTRAL CHANNEL FLOW
1037          HC       2

1038          KK     D10
1039          KM   CALCULATE RUNOFF FROM SUBBASIN D10
1040          KM   SUBBASIN D10 IS LOCATED ALONG DOUBLE DIAMOND PKWY.  THE AREA DRAINED IS
1041          KM   COMPRISED OF PORTIONS OF VILLAGES 5,6,13,14,15,16 & 17 THAT BORDER THE PKWY.
1042          KM   THE D10 SYSTEM IS A PARALLEL STORM DRAIN SYSTEM
1043          KM   ALONG DOUBLE DIAMOND PARKWAY THAT DRAINS TO AN OPEN
1044          KM   CHANNEL ALONG THE SOUTH EDGE OF THE PARK LOCATED IMMEDIATELY SOUTHEAST OF
1045          KM   THE INTERSECTION OF CARAT AV. AND DOUBLE DIAMOND PKWY.
1046          BA    .122
1047          LS            92
1048          UD    .277

1049          KK     D12
1050          KM   CALCULATE RUNOFF FROM SUBBASIN D12-VILLAGE 5
1051          BA  0.0166
1052          LS            92
1053          UD   0.173

1054          KK    PARK
1055          KM   CALCULATE RUNOFF FROM PARK JUST SOUTH OF CARAT AVE
1056          BA   .0078
1057          LS            80
1058          UD     .14

1059          KK  C10PRK
1060          KM   COMBINE HYDROGRAPHS FROM PARK, D10, D12 AND CENTRAL CHANNEL
1061          HC       4

1062          KK  PK-CAR
1063          KM   ROUTE FLOW TO STATION ~62+20 ALONG CENTRAL CHANNEL
1064          RD     720    .004    .030            TRAP     100       3

1065          KK    PhVa PHASE V SUB-BASIN a
1066          BA   0.011
1067          LS            92
1068          UD    0.16
```

```
1069          KK      V4 DOUBLE DIAMOND VILLAGE 4 OF PHASE I
1070          BA   0.026
1071          LS            86
1072          UD    0.16

1073          KK    CB 1 COMBINE PhVa AND V4 AT STATION ~62+20
1074          HC       3
1                                      HEC-1 INPUT                                      PAGE 37

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


1075          KK   RT1-2
1076          KM    ROUTE TO CB 2 AT STATION ~74+65
1077          RD    1245    .004    0.04            TRAP     100       3

1078          KK    PhVb DOUBLE DIAMOND PHASE V AREA PhVb
1079          BA   0.028
1080          LS            92
1081          UD    0.23

1082          KK     CB2 COMBINE PvVb WITH CENTRAL CHANNEL FLOW AT STATION ~74+65
1083          HC       2

1084          KK   RT2-3 ROUTE CB2 DOWN CENTRAL CHANNEL TO CB 3 AT STATON ~79+00
1085          RD     435  .00204    0.04            TRAP     100       3

1086          KK     V12 PORTION OF VILLAGE 12 THAT DRAINS TO CENTRAL CHANNEL
1087          BA   0.015
1088          LS            86
1089          UD    0.16

1090          KK     V11 PORTION OF VILLAGE 11 THAT DRAINS TO CENTRAL CHANNEL
1091          BA   0.008
1092          LS            86
1093          UD    0.12

1094          KK      V3 PHASE I VILLAGE 3
1095          BA   0.026
1096          LS            86
1097          UD    0.19

1098          KK     CB3  COMBINE PORTIONS OF VILLAGES 11&12 WITH VILLAGE 3 AT STA 79+00
1099          HC       4

1100          KK   RT3-4
1101          KM   ROUTE CB3 DOWN CENTRAL CHANNEL TO CB4 AT STATION ~82+00
1102          RD     300 0.00204    0.04            TRAP     100       3

1103          KK    PhVc PHASE V SUB-AREA PhVc
1104          BA   0.022
1105          LS            92
1106          UD    0.19

1107          KK      V2 VILLAGE 2 OF PHASE I
1108          BA    0.04
1109          LS            86
1110          UD    0.20

1111          KK     CB4  COMBINE PhVc WITH VILLAGE 2
1112          HC       3
1                                      HEC-1 INPUT                                      PAGE 38

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


1113          KK   RT4-5  ROUTE CB4 DOWN CENTRAL CHANNEL TO CB5 AT STATION ~83+65
1114          RD     165 0.00204    0.04            TRAP     100       3

1115          KK  PARKVI PHASE VI PARK
1116          BA   0.004
1117          LS            80
1118          UD    0.14

1119          KK     CB5  COMBINE PHASE VI PARK WITH CENTRAL CHANNEL FLOW AT CB5
1120          HC       2

1121          KK   RT5-6  ROUTE CB5 DOWN CENTRAL CHANNEL TO CB6 AT STATION ~87+50
1122          RD     385 0.00204    0.04            TRAP     100       3

1123          KK  K6SCHL  PHASE VI K-6 SCHOOL
1124          BA   0.013
1125          LS            85
1126          UD    0.15

1127          KK     CB6  COMBINE K-6 SCHOOL WITH CENTRAL CHANNEL FLOW AT CB6
1128          HC       2

1129          KK   RT6-7  ROUTE CB6 DOWN CENTRAL CHANNEL TO CB7 AT STATION ~101+00
1130          KM          END OF CENTRAL CHANNEL
1131          RD    1350  .00204    0.04            TRAP     100       3

1132          KK      V1  PHASE I VILLAGE 1
1133          BA   0.037
1134          LS            86
1135          UD    0.21

1136          KK     V29  PHASE VI VILLAGE 29
1137          BA   0.065
1138          LS            92
1139          UD    0.20

1140          KK     CB7  COMBINATION POINT 7; END OF CENTRAL CHANNEL
1141          HC       3
              *  WHITES CREEK BRANCHES 1 & 2
```

```
1142           KK    DR 1  Recall Channel 1 Hydrograph (@ Diffluence)
1143           DR    CH 1

1144           KK   RT Z1  Route Channel 1 to Zolezzi Lane (approx. 2800' West of Virginia St.)
1145           RM       4     .34      .3

1146           KK    W13R  Whites Creek No. 13
1147           BA     1.3
1148           PB     2.8
1149           LS               61
1150           UD    0.52
1                                         HEC-1 INPUT                                          PAGE 39

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


1151           KK   CP Z1  Combine channel 1 w/ W13R at Zolezzi Lane
1152           HC       2

1153           KK   DV 1B  Divert flows to the north of Zolezzi (Channel 1A)
1154           KM          Hydrograph is for flows along Zolezzi (Channel 1B, Ea. to Virginia)
1155           DT   CH 1A
1156           DI       0     200    1500
1157           DQ       0     200     200

1158           KK  RT V12  Route Channel 1B to Virginia St.
1159           RM       1    0.12     .25

1160           KK    W12R  Whites Creek No. 12
1161           BA     0.6
1162           PB     2.8
1163           LS               61
1164           UD    0.45

1165           KK  CP V12  Combine Channel 1B and W12R at int. of Virginia and Zolezzi
1166           HC       2

1167           KK  DR CH2  Recall Channel 2 Hydrograph
1168           DR    CH 2

1169           KK  RT V12  Route Flows to int. of Virginia and Zolezzi
1170           RM       3    .221      .2

1171           KK  CP V12  Combine channels 1B and 2 at int. of Virginia and Zolezzi
1172           HC       2

1173           KK  RT F12  Route flows to proposed RCB at 580 (Channels 1B and 2)
1174           RM       2   0.201     0.2

1175           KK    W15R  Whites Creek No. 15
1176           BA    0.21
1177           PB     2.7
1178           LS               79
1179           UD    0.21

1180           KK  CP F12  Combine flows at proposed RCB at 580 (Channels 1B and 2)
1181           HC       2

1182           KK   DR 1A  Recall Channel 1A Hydrograph
1183           DR   CH 1A

1184           KK  RT F1A  Route flows to proposed RCB at 580 (Channel 1A)
1185           RM       4   0.306     0.2

1186           KK    W14R  Whites Creek No. 14
1187           BA    0.18
1188           PB     2.7
1189           LS               77
1190           UD    0.26
1                                         HEC-1 INPUT                                          PAGE 40

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


1191           KK  CP F1A  Combine flows at proposed RCB at 580 (Channel 1A)
1192           HC       2

1193           KK  CB 1&2  COMBINE WHITES CREEK BRANCHES 1 & 2 @ I-580
1194           HC       2
               *  ROUTE WHITES CREEK BRANCHES 1 & 2 TO THE CONFLUENCE W/ LUMBERJACK CHANNEL

1195           KK  RT WT2  ROUTE WHITES 1&2 THRU WS WT2P - CHANNEL "A"
1196           RD    3040  0.0026   0.035             TRAP     135       5

1197           KK  RT WT2  ROUTE WHITES 1&2 THRU WS WT2P- PARK AND OPEN SPACE
1198           RM       5    0.44    0.20

1199           KK  RT WT2  ROUTE WHITES CREEK 1&2 THRU WS WT2P - CHANNEL "B"
1200           RD    1914  0.0028   0.035             TRAP     151       3

1201           KK  WT 6P1  PORTION OF PHASE I VILLAGES 11, 12, & 13 DRAINING TO "B" CHANNEL
1202           BA    0.07
1203           PB     2.7
1204           LS               83
1205           UD    0.38

1206           KK  W WT2P  ON-SITE WATERSHED WT2P
               *  EXISTING CONDITION(NO ON-SITE DETENTION)
1207           BA    0.59
1208           PB     2.7
1209           LS               79
1210           UD    0.73

1211           KK  CB WT2   COMBINE WHITES CREEK 1&2 & WT2P
1212           HC       3

1213           KK  WS WT1  WATERSHED WT1 - AREAS BETWEEN WHITES CREEK AND THOMAS CREEK
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 1214           BA    1.93
 1215           PB    2.75
 1216           LS             66
 1217           UD    0.97

 1218           KK  RT WT3  ROUTE TO CONFLUENCE
 1219           RM       3    0.29    0.25

 1220           KK  THOMAS
 1221           KO       3
 1222           KM       HYDROGRAPH FROM FIS HYDROLOGY MODEL - THOM100.901
 1223           KM       THOMAS CREEK PEAK FLOW @ S. VIRGINIA STREET
 1224           BA   11.54
 1225           QI       0       0       0       0       0       0       0       0       0       0
 1226           QI       0       0       0       0       0       0       0       0       0       0
 1227           QI       0       0       0       0       0       0       0       0       0       0
 1228           QI       0       0       0       0       0       0       0       2       6      12
 1229           QI      20      29      41      54      70      89     112     144     203     385
 1230           QI     790    1223    1828    2544    2447    1943    1462    1170    1019     933
 1231           QI     873     825     786     756     729     698     665     636     613     594
 1232           QI     577     562     549     535     521     504     481     445     407     379
1                                            HEC-1 INPUT                                          PAGE 41

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

 1233           QI     362     350     341     334     327     321     316     310     305     300
 1234           QI     295     291     287     282     278     275     271

 1235           KK  DV HOL
 1236           KO       3
 1237           KM      SPLIT FLOW ACROSS HOLCOME LANE TO NORTH.
 1238           KM      REFER TO FIS HEC-2 MODEL FOR THOMAS CREEK - THOMAS A.DAT
 1239           KM      SPLIT FLOW RATING CALCULATED USING THOMAS A.DAT
 1240           DT  HOLCOM
 1241           DI       0    1000    2000    2550    3000    4000
 1242           DQ       0     274     955    1385    1746    2562

 1243           KK  RT WT3   ROUTE TO OPEN SPACE/WETLAND
 1244           RM       2   0.167    0.25

 1245           KK  DV THO   THOMAS CREEK DIVERSION AT WETLAND/OPEN SPACE
 1246           DT    THOM
 1247           DI       0     500    1000    1465
 1248           DQ       0       0       0     159

 1249           KK  RT WT3   ROUTE TO CONFLUENCE
 1250           RM       1   0.083    0.25

 1251           KK    WT3P  WATERSHED WT3P  - EXISTING CONDITION ( NO ON-SITE DETENTION)
 1252           BA    0.49
 1253           PB     2.7
 1254           LS             79
 1255           UD    0.33

 1256           KK  CB WT3  COMBINE OFFSITE FLOWS -WT1 & THOMAS CREEK & WT3P
                * KO     1
 1257           HC       3

 1258           KK  CB OFF  COMBINE WHITES CREEK 1&2 & THOMAS CREEK
 1259           HC       2

 1260           KK  RT WHC  ROUTE THRU WHITES CHANNEL "C"
 1261           RD    1689  0.0021   0.035            TRAP     150       3
                *

 1262           KK      D2   BELLA VISTA RANCH WATERSHED 2
 1263           KM    CALCULATE RUNOFF FROM WATERSHED 2
 1264           BA    0.36
 1265           PB     2.5
 1266           LS             70
 1267           UD    0.49
                *

 1268           KK  CB WHC  COMBINE WHITES CREEK BRANCHES 1,2,3,&4 & THOMAS CREEK
 1269           HC       2
1                                            HEC-1 INPUT                                          PAGE 42

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


 1270           KK  RT DET ROUTE TO DETENTION BASIN THRU PROPOSED CHANNEL
 1271           RD    1985 0.00275   0.035            TRAP     170       3
                *   ROUTE THRU DETENTION BASIN

 1272           KK  RT DET
 1273           RS       1    FLOW      -1
                *   AS-BUILT VOLUME - PHASE 1
 1274           SV       0   16.64   41.62   72.60  123.04  170.39  216.38  238.26
                *   PHASE 2 VOLUME - W/O ARCHEOLOGICAL SITE
 1275           SE  4422.7 4424.09 4425.20 4426.25 4427.55 4428.60 4429.52 4429.94
 1276           SQ       0     200     500    1000    2000    3000    4000    4500

 1277           KK   RT WT  ROUTE TO CP WT
 1278           RM       1    0.06    0.15

 1279           KK  THOMAS  RECALL DIVERSION FROM THOMAS CREEK
 1280           DR    THOM

 1281           KK   RT WT   ROUTE TO NORTHEAST PROP
 1282           RM      19    1.59     0.2
                *

 1283           KK    WT4P  ON-SITE WATERSHED WP4P
                *  EXISTING CONDITION (NO ON-SITE DETENTION)
 1284           BA    1.73
 1285           PB     2.7
 1286           LS             82
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1287          UD    1.62

1288          KK
1289          HC       2
              *

1290          KK    WT7P  ON-SITE WATERSHED WT7P
              * EXISTING CONDITIONS
1291          BA    0.16
1292          PB     2.7
1293          LS              80
1294          UD    1.48

1295          KK   RT WT   ROUTE TO CP WT
1296          RM       8    0.65    0.15

1297          KK  WS WT5  WATERSHED WT5
1298          BA    0.49
1299          PB    2.65
1300          LS              83
1301          UD    0.28
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1302          KK   RT WT  ROUTE TO CP WT
1303          RM       6    0.47    0.15

1304          KK   CB WT  COMBINE FLOWS AT NORTHEAST PROPERTY CORNER
1305          HC       3

1306          KK   CP WT  COMBINE ALL FLOWS @ CP WT
1307          HC       2
              *
              *   FLOW FROM DOUBLE DIAMOND ONTO BELLA VISTA RANCH NORTH OF THE NARROWS
              *

1308          KK    PT03   COMBINE FLOW FROM WATERSHED 2 WITH RT03 AND DOUBLE DIAMOND FLOWS
1309          HC       4

1310          KK    RT04   ROUTE TOTAL FLOW TO CONFLUENCE WITH WATERSHEDS 1 & 5, & DD
1311          RM      11    1.77     0.1

1312          KK      D1   BELLA VISTA RANCH WATERSHED 1
1313          KM    CALCULATE RUNOFF FROM WATERSHED 1
1314          BA    0.44
1315          PB     2.5
1316          LS              77
1317          UD    0.60

1318          KK      D5   BELLA VISTA RANCH WATERSHED 5
1319          KM    CALCULATE RUNOFF FROM WATERSHED 5
1320          BA    1.21
1321          PB     2.4
1322          LS              74
1323          UD    5.36

1324          KK    PT04  COMBINE FLOWS FROM WSD 1 & 5 WITH ROUTED FLOW FROM PT03
1325          KO       3
1326          HC       3
              *
1327          ZZ
```

```
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   50         W1R
               .
               .
   65          .         W2R
               .           .
               .           .
   70        W1+W2............
               V
               V
   72         RT-A
               .
               .
   74          .         W3R
               .           V
               .           V
   79          .         RT-A
               .           .
               .           .
   81          .           .          W4R
               .           .            .
               .           .            .
   86        W1234.......................
               V
               V
   88         RT-B
               .
               .
   90          .         W5R
               .           .
               .           .
   95        W5+CH............
               V
               V
   97         RT-C
               .
               .
   99          .         W6R
```

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              .           .
              .           .
104       W6+CH............
              V
              V
106        RT-D
              .
              .
108           .         W7R
              .           .
              .           .
113       W7+CH............
              V
              V
115     RT-DIF
              .
              .
117           .         W8R
              .           .
              .           .
122     CP DIF............
              .
              .
126           .------->  CH 123
124        DV 4
              V
              V
129      RT W4
              .
              .
131           .        W17R
              .           .
              .           .
136      CP W4............
              V
              V
138      RT F4
              .
              .
140           .        W19R
              .           .
              .           .
145           .           .          W9R
              .           .           V
              .           .           V
150           .           .       RT F4
              .           .           .
              .           .           .
152      CP F4........................
              V
              V
154      RT V4
              .
              .
156           .        W20R
              .           .
              .           .
161      CP V4............
              V
              V
163     RT STM
              .
              .
165           .        G1G2
              .           V
              .           V
170           .       OUTJ1
              .           .
              .           .
172           .           .          J1
              .           .           .
              .           .           .
177           .       OUTJ1............
              .           V
              .           V
179           .       OUTG3
              .           .
              .           .
181           .           .          G3
              .           .           .
              .           .           .
186           .       OUTG3............
              .           V
              .           V
188           .       OUT30
              .           .
              .           .
190           .           .          15
              .           .           V
              .           .           V
195           .           .       OUT30
              .           .           .
              .           .           .
197           .           .           .          30
              .           .           .           .
              .           .           .           .
203           .       OUT30........................
              .           V
              .           V
205           .       OUT40
              .           .
              .           .
207           .           .          35
              .           .           .
              .           .           .
213           .           .           .          40
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               .           .           .           .
218            .       OUT40........................
               .           V
               .           V
220            .      OUT341
               .           .
               .           .
225            .           .        C-1B
               .           .           .
               .           .           .
230            .           .           .        C-1A
               .           .           .           V
               .           .           .           V
234            .           .           .       RT C1
               .           .           .           V
               .           .           .           V
236            .           .           .       RT C1
               .           .           .           .
               .           .           .           .
238            .           .       CPC1B............
               .           .           .
               .           .           .
240            .      CB CUR............
               .           V
               .           V
242            .       OUTDS
               .           .
               .           .
244        CB DS............
               V
               V
246       RT WHT
               .
               .
249            .           .<-------  CH 123
248            .      DR 123
               .           .
               .           .
252            .           .-------->   CH 1
250            .      DV 2&3
               .           V
               .           V
255            .      RT 2&3
               .           .
               .           .
257            .           .        W10R
               .           .           .
               .           .           .
262            .       CP 23............
               .           .
               .           .
266            .           .-------->   CH 2
264            .      DV 23A
               .           V
               .           V
269            .       RT V3
               .           .
               .           .
271            .           .        W11R
               .           .           .
               .           .           .
276            .      CP V24............
               .           V
               .           V
278            .       RT F3
               .           .
               .           .
280            .           .        W16R
               .           .           .
               .           .           .
285            .       CP F3............
               .           V
               .           V
287            .      RT DSW
               .           .
               .           .
289            .           .       W18RA
               .           .           .
               .           .           .
294            .      CB DSW............
               .           .
               .           .
296            .           .         S-1
               .           .           V
               .           .           V
301            .           .       RT S3
               .           .           .
               .           .           .
303            .           .           .         S-2
               .           .           .           V
               .           .           .           V
307            .           .           .       RT S3
               .           .           .           .
               .           .           .           .
309            .           .           .           .        S-3A
               .           .           .           .           V
               .           .           .           .           V
313            .           .           .           .       RT S3
               .           .           .           .           .
               .           .           .           .           .
315            .           .       CPS3A........................
               .           .           V
               .           .           V
317            .           .       RT S5
               .           .           .
               .           .           .
319            .           .           .        S-3B
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               .           .           .           V
               .           .           .           V
323            .           .           .       RT S5
               .           .           .           .
               .           .           .           .
325            .           .           .           .         S-4
               .           .           .           .           V
               .           .           .           .           V
329            .           .           .           .       RT S5
               .           .           .           .           .
               .           .           .           .           .
331            .           .           .           .           .         S-5
               .           .           .           .           .           V
               .           .           .           .           .           V
335            .           .           .           .           .       RT S5
               .           .           .           .           .           .
               .           .           .           .           .           .
337            .           .        CPS5....................................
               .           .           V
               .           .           V
339            .           .      RT WHT
               .           .           .
               .           .           .
341       CB WHT........................
               .
               .
343            .          HD
               .           .
               .           .
348        CP HD............
               V
               V
350       DIVSTR
               .
               .
361            .------->   BAS 1
360        STEAM
               V
               V
366        OUTDM
               V
               V
368        OUTDN
               .
               .
370            .          A7
               .           .
               .           .
375        STM+7............
               .
               .
378            .          A6
               .           .
               .           .
382        STM+6............
               .
               .
385            .          A3
               .           .
               .           .
389        STM+3............
               .
               .
392            .          A2
               .           .
               .           .
396        STM+2............
               .
               .
399            .       A17
               .           .
               .           .
404            .           .         A18
               .           .           .
               .           .           .
408            .      CHNL-E............
               .           .
               .           .
411        STM+E............
               V
               V
415       RT NST
               .
               .
417            .          A4
               .           .
               .           .
421            .           .         A23
               .           .           .
               .           .           .
425            .           .           .          A1
               .           .           .           .
               .           .           .           .
429            .           .           .           .         A22
               .           .           .           .           .
               .           .           .           .           .
433            .           .           .           .           .          A5
               .           .           .           .           .           .
               .           .           .           .           .           .
437            .           .           .           .      CARAT1............
               .           .           .           .           .
               .           .           .           .           .
440            .      CHNL-A....................................
               .           .
               .           .
443            .           .         A16
               .           .           .
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              .           .           .
448           .           .           .         A19
              .           .           .           .
              .           .           .           .
452           .           .           .           .         A20
              .           .           .           .           .
              .           .           .           .           .
456           .           .     CHNL-F.........................
              .           .           .
              .           .           .
459        STM+AF.........................
              .
              .
462           .     APTS-9
              .           .
              .           .
468           .           .          A8
              .           .           .
              .           .           .
472           .     CHNL-B.............
              .           .
              .           .
474           .           .     D12&13
              .           .           .
              .           .           .
479           .           .           .          A9
              .           .           .           .
              .           .           .           .
483           .           .     CHNL-C.............
              .           .           .
              .           .           .
486           .        B&C.............
              .           .
              .           .
489           .           .        A14
              .           .           .
              .           .           .
493           .           .           .         A13
              .           .           .           .
              .           .           .           .
497           .           .           .           .         A15
              .           .           .           .           .
              .           .           .           .           .
501           .     CHNL-D.....................................
              .           .
              .           .
504           .           .        A11
              .           .           .
              .           .           .
508           .           .           .         A12
              .           .           .           .
              .           .           .           .
512           .           .      11+12.............
              .           .           .
              .           .           .
515           .     CHNL D.............
              .           .
              .           .
518           .           .     X12+13
              .           .           .
              .           .           .
524           .           .           .         A10
              .           .           .           .
              .           .           .           .
528           .           .            .............
              .           .           .
              .           .           .
530           .           .           .         A21
              .           .           .           .
              .           .           .           .
534           .     WTLNDS.........................
              .           .
              .           .
539           .           .           .<-------   BAS 1
537           .           .     RC BAS
              .           .           V
              .           .           V
540           .           .      BAS 1
              .           .           .
              .           .           .
551           .           .           .------->  36DIVQ
550           .           .     BAS1DS
              .           .           V
              .           .           V
554           .           .      POND2
              .           .           .         .
              .           .           .
558           .           .           .         T-1
              .           .           .           V
              .           .           .           V
563           .           .           .       RT T2
              .           .           .           .
              .           .           .           .
565           .           .           .           .         T-2
              .           .           .           .           .
              .           .           .           .           .
570           .           .           .        CPT2.............
              .           .           .           V
              .           .           .           V
572           .           .           .       RT T3
              .           .           .           .
              .           .           .           .
574           .           .           .           .         T-3
              .           .           .           .           .
              .           .           .           .           .
579           .           .           .        CPT3.............
              .           .           .           .
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              .           .           .           .
581           .           .       CPD1A............
              .           .           V
              .           .           V
583           .           .       RT WT
              .           .           .
              .           .           .
585           .           .           .        WSF1
              .           .           .           .
              .           .           .           .
590           .           .           .           .        WSE1
              .           .           .           .           .
              .           .           .           .           .
595           .           .           .        F1E1............
              .           .           .           .
              .           .           .           .
597           .           .           .           .         C-2
              .           .           .           .           V
              .           .           .           .           V
602           .           .           .           .       RT C3
              .           .           .           .           .
              .           .           .           .           .
604           .           .           .           .           .        C-1C
              .           .           .           .           .           V
              .           .           .           .           .           V
609           .           .           .           .           .       RT C3
              .           .           .           .           .           .
              .           .           .           .           .           .
611           .           .           .           .           .           .         C-3
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
616           .           .           .        CPC3....................................
              .           .           .           V
              .           .           .           V
618           .           .           .       RT C4
              .           .           .           .
              .           .           .           .
620           .           .           .           .         C-4
              .           .           .           .           .
              .           .           .           .           .
625           .           .           .        CPC4............
              .           .           .           V
              .           .           .           V
627           .           .           .       RT C7
              .           .           .           V
              .           .           .           V
629           .           .           .       RT C7
              .           .           .           .
              .           .           .           .
631           .           .           .           .         C-5
              .           .           .           .           V
              .           .           .           .           V
636           .           .           .           .       RT C7
              .           .           .           .           V
              .           .           .           .           V
638           .           .           .           .       RT C7
              .           .           .           .           .
              .           .           .           .           .
640           .           .           .           .           .         C-7
              .           .           .           .           .           .
              .           .           .           .           .           .
645           .           .           .           .           .           .         C-6
              .           .           .           .           .           .           V
              .           .           .           .           .           .           V
650           .           .           .           .           .           .       RT C7
              .           .           .           .           .           .           V
              .           .           .           .           .           .           V
652           .           .           .           .           .           .       RT C7
              .           .           .           .           .           .           V
              .           .           .           .           .           .           V
654           .           .           .           .           .           .       RT C7
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
656           .           .           .        CPC7....................................
              .           .           .           V
              .           .           .           V
658           .           .           .       RT WT
              .           .           .           .
              .           .           .           .
660           .           .           .           .         W-1
              .           .           .           .           V
              .           .           .           .           V
665           .           .           .           .       RT W1
              .           .           .           .           .
              .           .           .           .           .
667           .           .       CPWET........................
              .           .           V
              .           .           V
669           .           .       RT W1
              .           .           .
              .           .           .
671           .           .           .         E2A
              .           .           .           .
              .           .           .           .
677           .           .           .           .        SE-2
              .           .           .           .           V
              .           .           .           .           V
682           .           .           .           .       RT S3
              .           .           .           .           .
              .           .           .           .           .
684           .           .           .           .           .        SE-3
              .           .           .           .           .           .
              .           .           .           .           .           .
689           .           .           .           .           .           .        SE-1
              .           .           .           .           .           .           V
              .           .           .           .           .           .           V
694           .           .           .           .           .           .       RT S3
```

```
696   .    .    .    .    CPSE3........................
                               V
                               V
698   .    .    .    .    RT S5
700   .    .    .    .        .        SE-4
705   .    .    .    .        .          .        SE-5
710   .    .    .    .    CPSE5........................
                               V
                               V
712   .    .    .    .    RT S7
714   .    .    .    .        .        SE-6
                                          V
                                          V
719   .    .    .    .        .       RT S7
721   .    .    .    .        .          .        SE-7
726   .    .    .    .    CPSE7........................
                               V
                               V
728   .    .    .    .    RT WI
                               V
                               V
730   .    .    .    .    RT WI
732   .    .    .    .        .        SE-8
                                          V
                                          V
736   .    .    .    .        .       RTWI
                                          V
                                          V
738   .    .    .    .        .       RT WI
740   .    .    .    .        .          .         W-2
745   .    .    .    .        .          .           .        W-3
750   .    .    .    .        .          .        CPW2............
                                                     V
                                                     V
752   .    .    .    .        .          .      RTG WI
754   .    .    .    .   PWETIN........................
756   .    .    .   CPWETA............
                         V
                         V
758   .    .    .   RT W1
760   .    .  CPWET1............
                   V
                   V
762   .    .  RTWET1
765   .    .    .      WET
770   .    .  CPWETB............
                   V
                   V
772   .    .  RTWETB
775   .    .    .      E-2
                         V
                         V
779   .    .    .    RT E3
781   .    .    .    .        E-1
                               V
                               V
786   .    .    .    .    RT E3
                               V
                               V
788   .    .    .    .     RTE3
790   .    .    .     CPE3............
792   .    .    .    .     WSB2
797   .    .    .    .        .        WSB1
```

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802           .           .           .           .       CPB12............
              .           .           .           .           V
              .           .           .           .           V
804           .           .           .           .       RT E3
              .           .           .           .           V
              .           .           .           .           V
806           .           .           .           .       RT E3
              .           .           .           .           V
              .           .           .           .           V
808           .           .           .           .       RT E4
              .           .           .           .           .
              .           .           .           .           .
810           .           .           .           .           .         E-4
              .           .           .           .           .           V
              .           .           .           .           .           V
816           .           .           .           .           .       RT E4
              .           .           .           .           .           .
              .           .           .           .           .           .
818           .           .           .        CPE4........................
              .           .           .           .
              .           .           .           .
820           .           .           .           .         W-8
              .           .           .           .           .
              .           .           .           .           .
825           .           .      CPWETO........................
              .           .           V
              .           .           V
827           .           .      RS DT2
              .           .           .
              .           .           .
840           .           .           .         W-9
              .           .           .           .
              .           .           .           .
845           .           .        CW-9............
              .           .           V
              .           .           V
848           .           .       POND4
              .           .           .
              .           .           .
857           .      WET-IN............
              .           .
              .           .
860           .           .          D1
              .           .           V
              .           .           V
865           .           .       RT N1
              .           .           V
              .           .           V
867           .           .       RT N1
              .           .           V
              .           .           V
869           .           .       RT N1
              .           .           .
              .           .           .
871           .           .           .         WSC
              .           .           .           V
              .           .           .           V
876           .           .           .       RT N1
              .           .           .           V
              .           .           .           V
878           .           .           .       RT N1
              .           .           .           .
              .           .           .           .
880           .           .           .           .        NE-1
              .           .           .           .           V
              .           .           .           .           V
885           .           .           .           .       RT N1
              .           .           .           .           .
              .           .           .           .           .
887           .           .       CPNE1........................
              .           .           V
              .           .           V
889           .           .       RT W3
              .           .           V
              .           .           V
891           .           .       RT W3
              .           .           .
              .           .           .
893           .           .           .          D2
              .           .           .           V
              .           .           .           V
898           .           .           .       RT N4
              .           .           .           V
              .           .           .           V
900           .           .           .       RT N4
              .           .           .           V
              .           .           .           V
902           .           .           .       RT N4
              .           .           .           .
              .           .           .           .
904           .           .           .           .      NE2345
              .           .           .           .           .
              .           .           .           .           .
911           .           .           .       CPNE4............
              .           .           .           V
              .           .           .           V
914           .           .           .       RT W3
              .           .           .           .
              .           .           .           .
916           .           .      CPWET3............
              .           .           V
              .           .           V
919           .           .       RT DN
              .           .           .
              .           .           .
921           .       DMNTE............
              .           .
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  924          .           .         N-1
               .           .           V
               .           .           V
  929          .           .      RT N13
               .           .           V
               .           .           V
  931          .           .      RT N13
               .           .           V
               .           .           V
  933          .           .        RT01
               .           .           .
               .           .           .
  935          .           .           .          D4
               .           .           .           .
               .           .           .           .
  941          .        PT01........................
               .           V
               .           V
  943          .        RT02
               .           .
               .           .
  945          .           .          D3
               .           .           .
               .           .           .
  951          .        PT02............
               .           V
               .           V
  953          .        RT03
               .           .
               .           .
  955          .           .       W18RB
               .           .           .
               .           .           .
  963          .           .           .      V18-19
               .           .           .           .
               .           .           .           .
  967          .           .           .           .        V20
               .           .           .           .          .
               .           .           .           .          .
  971          .           .           .           .          .         WET
               .           .           .           .          .           .
               .           .           .           .          .           .
  975          .           .      CB WET...................................
               .           .           .
               .           .           .
  978          .           .           .       PH-IV
               .           .           .           .
               .           .           .           .
  986          .           .           .           .        E14
               .           .           .           .          .
               .           .           .           .          .
  991          .           .         C14.......................
               .           .           V
               .           .           V
  994          .           .      E14-E1
               .           .           .
               .           .           .
  997          .           .           .          E1
               .           .           .           .
               .           .           .           .
 1002          .           .          C1............
               .           .           V
               .           .           V
 1005          .           .       E1-E2
               .           .           .
               .           .           .
 1008          .           .           .          E2
               .           .           .           .
               .           .           .           .
 1013          .           .          C2............
               .           .           V
               .           .           V
 1016          .           .       E2-E3
               .           .           .
               .           .           .
 1019          .           .           .          E3
               .           .           .           .
               .           .           .           .
 1024          .           .          C3............
               .           .           V
               .           .           V
 1027          .           .       E3-E4
               .           .           .
               .           .           .
 1030          .           .           .          E4
               .           .           .           .
               .           .           .           .
 1035          .           .          C4............
               .           .           .
               .           .           .
 1038          .           .           .         D10
               .           .           .           .
               .           .           .           .
 1049          .           .           .           .        D12
               .           .           .           .          .
               .           .           .           .          .
 1054          .           .           .           .          .        PARK
               .           .           .           .          .           .
               .           .           .           .          .           .
 1059          .           .      C10PRK...................................
               .           .           V
               .           .           V
 1062          .           .      PK-CAR
               .           .           .
               .           .           .
 1065          .           .           .        PhVa
```

```
               .           .           .           .
1069           .           .           .           .          V4
               .           .           .           .           .
1073           .           .        CB 1........................
               .           .           V
               .           .           V
1075           .           .       RT1-2
               .           .           .
1078           .           .           .       PhVb
               .           .           .           .
1082           .           .         CB2............
               .           .           V
               .           .           V
1084           .           .       RT2-3
               .           .           .
1086           .           .           .        V12
               .           .           .           .
1090           .           .           .           .         V11
               .           .           .           .           .
1094           .           .           .           .           .          V3
               .           .           .           .           .           .
1098           .           .         CB3....................................
               .           .           V
               .           .           V
1100           .           .       RT3-4
               .           .           .
1103           .           .           .       PhVc
               .           .           .           .
1107           .           .           .           .          V2
               .           .           .           .           .
1111           .           .         CB4........................
               .           .           V
               .           .           V
1113           .           .       RT4-5
               .           .           .
1115           .           .           .     PARKVI
               .           .           .           .
1119           .           .         CB5............
               .           .           V
               .           .           V
1121           .           .       RT5-6
               .           .           .
1123           .           .           .     K6SCHL
               .           .           .           .
1127           .           .         CB6............
               .           .           V
               .           .           V
1129           .           .       RT6-7
               .           .           .
1132           .           .           .          V1
               .           .           .           .
1136           .           .           .           .         V29
               .           .           .           .           .
1140           .           .         CB7........................
               .           .           .
1143           .           .           .           .<-------    CH 1
1142           .           .           .        DR 1
               .           .           .           V
               .           .           .           V
1144           .           .           .       RT Z1
               .           .           .           .
1146           .           .           .           .        W13R
               .           .           .           .           .
1151           .           .           .       CP Z1............
               .           .           .           .
1155           .           .           .           .-------->   CH 1A
1153           .           .           .       DV 1B
               .           .           .           V
               .           .           .           V
1158           .           .           .      RT V12
               .           .           .           .
1160           .           .           .           .        W12R
               .           .           .           .           .
1165           .           .           .      CP V12............
               .           .           .           .
1168           .           .           .           .           .<-------    CH 2
1167           .           .           .           .      DR CH2
               .           .           .           .           V
               .           .           .           .           V
1169           .           .           .           .      RT V12
               .           .           .           .           .
```

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1171           .           .           .      CP V12............
               .           .           .           V
               .           .           .           V
1173           .           .           .      RT F12
               .           .           .           .
               .           .           .           .
1175           .           .           .           .        W15R
               .           .           .           .           .
               .           .           .           .           .
1180           .           .           .      CP F12............
               .           .           .           .
               .           .           .           .
1183           .           .           .           .           .<-------   CH 1A
1182           .           .           .           .       DR 1A
               .           .           .           .           V
               .           .           .           .           V
1184           .           .           .           .      RT F1A
               .           .           .           .           .
               .           .           .           .           .
1186           .           .           .           .           .        W14R
               .           .           .           .           .           .
               .           .           .           .           .           .
1191           .           .           .           .      CP F1A............
               .           .           .           .           .
               .           .           .           .           .
1193           .           .           .      CB 1&2............
               .           .           .           V
               .           .           .           V
1195           .           .           .      RT WT2
               .           .           .           V
               .           .           .           V
1197           .           .           .      RT WT2
               .           .           .           V
               .           .           .           V
1199           .           .           .      RT WT2
               .           .           .           .
               .           .           .           .
1201           .           .           .           .      WT 6P1
               .           .           .           .           .
               .           .           .           .           .
1206           .           .           .           .           .      W WT2P
               .           .           .           .           .           .
               .           .           .           .           .           .
1211           .           .           .      CB WT2........................
               .           .           .           .
               .           .           .           .
1213           .           .           .           .      WS WT1
               .           .           .           .           V
               .           .           .           .           V
1218           .           .           .           .      RT WT3
               .           .           .           .           .
               .           .           .           .           .
1220           .           .           .           .           .      THOMAS
               .           .           .           .           .           .
               .           .           .           .           .           .
1240           .           .           .           .           .           .------->  HOLCOM
1235           .           .           .           .           .      DV HOL
               .           .           .           .           .           V
               .           .           .           .           .           V
1243           .           .           .           .           .      RT WT3
               .           .           .           .           .           .
               .           .           .           .           .           .
1246           .           .           .           .           .           .------->    THOM
1245           .           .           .           .           .      DV THO
               .           .           .           .           .           V
               .           .           .           .           .           V
1249           .           .           .           .           .      RT WT3
               .           .           .           .           .           .
               .           .           .           .           .           .
1251           .           .           .           .           .           .        WT3P
               .           .           .           .           .           .           .
               .           .           .           .           .           .           .
1256           .           .           .           .      CB WT3........................
               .           .           .           .           .
               .           .           .           .           .
1258           .           .           .      CB OFF............
               .           .           .           V
               .           .           .           V
1260           .           .           .      RT WHC
               .           .           .           .
               .           .           .           .
1262           .           .           .           .          D2
               .           .           .           .           .
               .           .           .           .           .
1268           .           .           .      CB WHC............
               .           .           .           V
               .           .           .           V
1270           .           .           .      RT DET
               .           .           .           V
               .           .           .           V
1272           .           .           .      RT DET
               .           .           .           V
               .           .           .           V
1277           .           .           .       RT WT
               .           .           .           .
               .           .           .           .
1280           .           .           .           .           .<-------    THOM
1279           .           .           .           .      THOMAS
               .           .           .           .           V
               .           .           .           .           V
1281           .           .           .           .       RT WT
               .           .           .           .           .
               .           .           .           .           .
1283           .           .           .           .           .        WT4P
               .           .           .           .           .           .
               .           .           .           .           .           .
1288           .           .           .           .            ............
```

```
1290       .       .       .       .       .        WT7P
           .       .       .       .       .           V
           .       .       .       .       .           V
1295       .       .       .       .       .       RT WT
           .       .       .       .       .           .
           .       .       .       .       .           .
1297       .       .       .       .       .           .       WS WT5
           .       .       .       .       .           .            V
           .       .       .       .       .           .            V
1302       .       .       .       .       .           .        RT WT
           .       .       .       .       .           .            .
           .       .       .       .       .           .            .
1304       .       .       .       .    CB WT......................
           .       .       .       .       .
           .       .       .       .       .
1306       .       .       .    CP WT...........
           .       .       .       .
           .       .       .       .
1308     PT03..................................
           V
           V
1310     RT04
           .
           .
1312       .      D1
           .       .
           .       .
1318       .       .      D5
           .       .       .
           .       .       .
1324     PT04.......................

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1***************************************
**************************************
 *                                      *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*
 *              JUN   1998              *
*
 *              VERSION 4.1             *
*
 *                                      *
*
 *  RUN DATE   04JAN08  TIME  13:38:25  *
*
 *                                      *
*
 ****************************************
**************************************

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


DRph5 THE PROPOSED MODEL FOR DAMONTE PHASE 5 LOMR (CASE No. 07-09-1667P)
IS ALSO THE EXITING CONDITIONS MODEL FOR THE BELLA VISTA PHASE 1 LOMR.
IT WAS RE-RUN ON JANUARY 4, 2008.  ONLY THE ID INFORMATION WAS UPDATED
FOR THIS RUN.      JANUARY 2008 - Model Run date is 01/04/2008
*****************************************************************************
CLOMR MODEL WAS USED WITHOUT CHANGE FOR THE LOMR MODEL FOR DAMONTE RANCH
PHASE 5 SUBMITTED MAY 5, 2007 AND NOT RERUN. LOMR AS-BUILT PLANS DID NOT
CHANGE THE HYDRAULIC PARAMETERS USED IN THE CLOMR.
                  MARCH 2007 - Model Run date is 3/12/2007
****************************************************************************
UPDATED MODEL FOR DAMONTE RANCH PHASE V and BELLA VESTA PHASE 1 CLOMR
                  MARCH 2007 - Model Run date is 3/12/2007
****************************************************************************
DAMONTE RANCH PHASE V   - MARCH 2005

* * INCLUDES DEVELOPMENT OF VILLAGE 11-B * *

UPDATED MODEL FROM LOMR SUBMITTAL FILE NAME 0243AB.DAT (Orig. 128CLOMR.DAT)
TO REFLECT GRADING PLANS AS OF 3/2005
100-Year HEC-1 for AS BUILT conditions.  Includes Steamboat Creek &
tributaries (i.e. Galena, Jones, Browns, Bailey, 30, & 40 watersheds);
Damonte Ranch with refined watersheds, detention stuctures, & refined
east range watersheds; Whites Creek watersheds collected by Branch 3 & 4
with routing onto Damonte; the remainder of the Whites Creek & split flow
from Thomas Creeks watersheds routed through Double Diamond;
& Bella Vista Ranch with the remaining east range watersheds.

File Name: DRph5.dat
Quad Knopf - formerly Nimbus Engineers


REVISIONS REFLECT PHASE V DEVELOPMENT PER GRADING PLAN DATED 2/2005
The model also includes the previous changes at the Diversion structure:
a) box culverts replaced the RCPs; b) an overflow weir was added to control
a major flood event

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

* *  MODIFIED 5-2005 TO REFLECT GRADING PLAN CHANGES AFFECTING EASTERN    * *
* *  BASINS NE-2, NE-3, NE-4,& NE-5.  THESE HAVE ALL BEEN COMBINED AS     * *
* *  THE REMOVAL OF MIRA LOMA RD. MAKES SEPARATION UNECESSARY             * *

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

  47 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     27JUL 0  STARTING DATE
                  ITIME        0005  STARTING TIME
                     NQ         288  NUMBER OF HYDROGRAPH ORDINATES
                 NDDATE     28JUL 0  ENDING DATE
                 NDTIME        0000  ENDING TIME
                  ICENT          19  CENTURY MARK

             COMPUTATION INTERVAL     .08 HOURS
                  TOTAL TIME BASE   23.92 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
                  .94


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


            **************
            *            *
 350 KK     *   DIVSTR   *     STAGE, STORAGE, AND DISCHARGE FROM DIVERSION POND
            *            *
            **************

 352 KO       OUTPUT CONTROL VARIABLES
                  IPRNT           3  PRINT CONTROL
                  IPLOT           0  PLOT CONTROL
                  QSCAL          0.  HYDROGRAPH PLOT SCALE

             HYDROGRAPH ROUTING DATA

 353 RS       STORAGE ROUTING
                  NSTPS           1  NUMBER OF SUBREACHES
                   ITYP        ELEV  TYPE OF INITIAL CONDITION
                 RSVRIC     4475.00  INITIAL CONDITION
                      X         .00  WORKING R AND D COEFFICIENT

 354 SA            AREA          .1         .3         .3         .7        1.1        2.9        3.2        3.5        3.8        4.1
                                4.3        4.7

 356 SE       ELEVATION     4475.00    4476.00    4477.00    4479.00    4480.00    4483.00    4484.00    4485.00    4486.00    4487.00
                            4488.00    4489.00

 358 SQ       DISCHARGE          0.       124.       336.       920.      1272.      2512.      2976.      3272.      4222.      5914.
                              8003.     10364.

                                                             ***

                                             COMPUTED STORAGE-ELEVATION DATA

         STORAGE       .00        .15        .45       1.50       2.41       8.29      11.37      14.74      18.41      22.38
       ELEVATION   4475.00    4476.00    4477.00    4479.00    4480.00    4483.00    4484.00    4485.00    4486.00    4487.00

         STORAGE     26.60      31.12
       ELEVATION   4488.00    4489.00

 *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO    10364.
                 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.)

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

                          HYDROGRAPH AT STATION   DIVSTR
                            FOR PLAN 1, RATIO =  .94

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.92-HR
+   (CFS)       (HR)
                              (CFS)
+    7993.     14.83                     5230.        2037.        2037.        2037.
                            (INCHES)      .682        1.059        1.059        1.059
                             (AC-FT)     2593.        4027.        4027.        4027.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR        72-HR      23.92-HR
+  (AC-FT)      (HR)
        27.    14.83                       20.           7.           7.           7.

  PEAK STAGE    TIME                            MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR        72-HR      23.92-HR
+   (FEET)      (HR)
   4488.00     14.83                   4486.22      4480.73      4480.73      4480.73

                         CUMULATIVE AREA =    71.27 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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            **************
            *            *
  534 KK    *   WTLNDS   *      DISCHARGE TO WETLANDS
            *            *
            **************

  535 KO         OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

  536 HC         HYDROGRAPH COMBINATION
                       ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                    ***

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

                         HYDROGRAPH AT STATION   WTLNDS
                           FOR PLAN 1, RATIO =  .94

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                         6-HR        24-HR       72-HR     23.92-HR
+   (CFS)       (HR)
                              (CFS)
+      272.     12.17                    107.         42.         42.          42.
                            (INCHES)    2.144       3.351       3.351        3.351
                             (AC-FT)      53.         83.         83.          83.

                            CUMULATIVE AREA =      .47 SQ MI


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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            **************
            *            *
  540 KK    *    BAS 1   *     STAGE, STORAGE, AND DISCHARGE FROM BASIN 1
            *            *
            **************

  542 KO         OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

  543 RS         STORAGE ROUTING
                       NSTPS          1  NUMBER OF SUBREACHES
                        ITYP       ELEV  TYPE OF INITIAL CONDITION
                      RSVRIC    4473.00  INITIAL CONDITION
                           X        .00  WORKING R AND D COEFFICIENT

  544 SA                AREA        19.0       26.3       30.6       32.6       33.7       34.1       34.5       34.8       35.2       35.5
                                    36.0

  546 SE         ELEVATION       4475.00    4476.00    4477.00    4478.00    4479.00    4480.00    4481.00    4482.00    4483.00    4484.00
                                 4485.00

  548 SQ         DISCHARGE            5.         7.        10.       515.      1021.      1523.      2027.      2537.      3059.      3561.

  549 SE         ELEVATION       4475.40    4475.92    4476.60    4477.64    4478.54    4479.28    4479.95    4480.59    4481.25    4481.87

                                                                    ***

                                                    COMPUTED STORAGE-ELEVATION DATA

            STORAGE       .00      22.53      50.94      82.55     115.72     149.62     183.90     218.55     253.55     288.91
          ELEVATION   4475.00    4476.00    4477.00    4478.00    4479.00    4480.00    4481.00    4482.00    4483.00    4484.00

            STORAGE    324.66
          ELEVATION   4485.00

                                                COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       .00       8.14      20.45      22.53      39.06      50.94      70.94      82.55     100.33     115.72
            OUTFLOW      5.00       5.00       7.00       7.35      10.00     204.18     515.00     717.35    1021.00    1333.13
          ELEVATION   4475.00    4475.40    4475.92    4476.00    4476.60    4477.00    4477.64    4478.00    4478.54    4479.00

            STORAGE    125.16     147.92     149.62     169.80     183.90     192.53     214.03     218.55     253.55     288.91
            OUTFLOW   1523.00    2027.00    2066.71    2537.00    2861.32    3059.00    3561.00    3666.14    4475.67    5285.19
          ELEVATION   4479.28    4479.95    4480.00    4480.59    4481.00    4481.25    4481.87    4482.00    4483.00    4484.00

            STORAGE    324.66
            OUTFLOW   6094.72
          ELEVATION   4485.00

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

                         HYDROGRAPH AT STATION     BAS 1
                           FOR PLAN 1, RATIO =  .94

  PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                         6-HR        24-HR       72-HR     23.92-HR
+   (CFS)       (HR)
                              (CFS)
+     3412.     15.33                   1542.        393.        393.         393.
                            (INCHES)     .000        .000        .000         .000
```

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                    (AC-FT)      765.         776.         776.          776.

 PEAK STORAGE   TIME                               MAXIMUM AVERAGE STORAGE
                                             6-HR        24-HR       72-HR      23.92-HR
+  (AC-FT)      (HR)
     208.      15.33                         120.          37.         37.          37.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                             6-HR        24-HR       72-HR      23.92-HR
+   (FEET)      (HR)
   4481.69     15.33                    4479.10      4476.31     4476.31      4476.31

                    CUMULATIVE AREA =       .00 SQ MI


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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             **************
             *            *
  848 KK     *     POND4  *
             *            *
             **************

  849 KO          OUTPUT CONTROL VARIABLES
                        IPRNT            3  PRINT CONTROL
                        IPLOT            0  PLOT CONTROL
                        QSCAL           0.  HYDROGRAPH PLOT SCALE
                            ROUTE THRU POND 4 JUST UPSTREAM OF DAMONTE PKWY CULVERT
                             OUTLET MODELED AS 5 BOX CULVERTS 4' X 12'

                HYDROGRAPH ROUTING DATA

  852 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

  853 SA                 AREA           .0        2.9        6.2        9.2       13.7       18.0       23.0       25.2       25.8

  854 SE          ELEVATION       4450.00    4451.00    4452.00    4453.00    4454.00    4455.00    4456.00    4457.00    4458.00

  855 SQ          DISCHARGE            0.       200.       500.       950.      1450.      2000.      2500.      2800.

  856 SE          ELEVATION       4450.00    4451.08    4452.00    4453.07    4454.06    4455.04    4456.01    4456.70

                                                                                      ***

                                                                       COMPUTED STORAGE-ELEVATION DATA

             STORAGE        .00       1.06       5.52      13.16      24.54      40.32      60.72      84.78     110.30
           ELEVATION    4450.00    4451.00    4452.00    4453.00    4454.00    4455.00    4456.00    4457.00    4458.00

                                                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

             STORAGE        .00       1.06       1.31       5.52      13.16      13.82      24.54      25.37      40.32      41.04
             OUTFLOW        .00     185.17     200.00     500.00     920.63     950.00    1419.67    1450.00    1977.53    2000.00
           ELEVATION    4450.00    4451.00    4451.08    4452.00    4453.00    4453.07    4454.00    4454.06    4455.00    4455.04

             STORAGE      60.72      77.33      84.78     110.30
             OUTFLOW    2494.96    2800.00    2930.27    3364.78
           ELEVATION    4456.00    4456.70    4457.00    4458.00

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

                              HYDROGRAPH AT STATION    POND4
                                FOR PLAN 1, RATIO =  .94

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                             6-HR        24-HR       72-HR      23.92-HR
+   (CFS)       (HR)
                          (CFS)
+    2652.     17.83                        1686.         522.        522.          522.
                       (INCHES)             2.234        2.759       2.759         2.759
                        (AC-FT)              836.        1032.       1032.         1032.

 PEAK STORAGE   TIME                               MAXIMUM AVERAGE STORAGE
                                             6-HR        24-HR       72-HR      23.92-HR
+  (AC-FT)      (HR)
      69.      17.83                          36.          10.         10.          10.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                             6-HR        24-HR       72-HR      23.92-HR
+   (FEET)      (HR)
   4456.36     17.83                    4454.45      4451.53     4451.53      4451.53

                    CUMULATIVE AREA =      7.01 SQ MI


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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             **************
             *            *
  911 KK     *     CPNE4  *          COMBINE BSIN D2 AND POD NE-4
             *            *
             **************

  912 KO          OUTPUT CONTROL VARIABLES
                        IPRNT            3  PRINT CONTROL
```

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                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

  913 HC        HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                             ***

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

                          HYDROGRAPH AT STATION    CPNE4
                            FOR PLAN 1, RATIO =  .94

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.92-HR
+   (CFS)       (HR)
                              (CFS)
+     168.     12.08                    25.         10.         10.          10.
                            (INCHES)   .616        .968        .968         .968
                             (AC-FT)    13.         20.         20.          20.

                         CUMULATIVE AREA =      .38 SQ MI


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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             **************
             *            *
  916 KK     *   CPWET3   *       COMBINE CPWETO AND CPNE4
             *            *
             **************

  917 KO        OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

  918 HC        HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                             ***

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

                          HYDROGRAPH AT STATION   CPWET3
                            FOR PLAN 1, RATIO =  .94

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.92-HR
+   (CFS)       (HR)
                              (CFS)
+     811.     13.42                   240.         68.         68.          68.
                            (INCHES)   .409        .460        .460         .460
                             (AC-FT)   119.        134.        134.         134.

                         CUMULATIVE AREA =     5.46 SQ MI


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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             **************
             *            *
  921 KK     *    DMNTE   *       DOWNSTREAM CP TO SUM DAMONTE FLOW
             *            *
             **************

  922 KO        OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

  923 HC        HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                             ***

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

                          HYDROGRAPH AT STATION    DMNTE
                            FOR PLAN 1, RATIO =  .94

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.92-HR
+   (CFS)       (HR)
                              (CFS)
+    2762.     17.83                  1885.        632.        632.         632.
                            (INCHES)  1.355       1.810       1.810        1.810
                             (AC-FT)   935.       1249.       1249.        1249.

                         CUMULATIVE AREA =    12.94 SQ MI


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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                 *           *
 1220 KK         *   THOMAS  *
                 *           *
                 *************

 1221 KO             OUTPUT CONTROL VARIABLES
                          IPRNT           3  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE
                                 HYDROGRAPH FROM FIS HYDROLOGY MODEL - THOM100.901
                                 THOMAS CREEK PEAK FLOW @ S. VIRGINIA STREET

   48 IN             TIME DATA FOR INPUT TIME SERIES
                          JXMIN          15  TIME INTERVAL IN MINUTES
                         JXDATE      27JUL 0  STARTING DATE
                         JXTIME           5  STARTING TIME

                   SUBBASIN RUNOFF DATA

 1224 BA             SUBBASIN CHARACTERISTICS
                          TAREA       11.54  SUBBASIN AREA

                                                                      ***

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

                              HYDROGRAPH AT STATION   THOMAS
                                FOR PLAN 1, RATIO =  .00

  PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
                                             6-HR        24-HR        72-HR      23.92-HR
+   (CFS)        (HR)
                                (CFS)
+    2544.      13.25                       1030.         352.         352.          352.
                              (INCHES)       .829        1.131        1.131         1.131
                               (AC-FT)       511.         696.         696.          696.

                             CUMULATIVE AREA =    11.54 SQ MI


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

                              HYDROGRAPH AT STATION   THOMAS
                                FOR PLAN 1, RATIO =  .94

  PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
                                             6-HR        24-HR        72-HR      23.92-HR
+   (CFS)        (HR)
                                (CFS)
+    2544.      13.25                       1030.         352.         352.          352.
                              (INCHES)       .829        1.131        1.131         1.131
                               (AC-FT)       511.         696.         696.          696.

                             CUMULATIVE AREA =    11.54 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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                 *************
                 *           *
 1235 KK         *   DV HOL  *
                 *           *
                 *************

 1236 KO             OUTPUT CONTROL VARIABLES
                          IPRNT           3  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE
                                SPLIT FLOW ACROSS HOLCOME LANE TO NORTH.
                                REFER TO FIS HEC-2 MODEL FOR THOMAS CREEK - THOMAS A.DAT
                                SPLIT FLOW RATING CALCULATED USING THOMAS A.DAT

      DT             DIVERSION
                          ISTAD        HOLCOM  DIVERSION HYDROGRAPH IDENTIFICATION

      DI               INFLOW           .00   1000.00    2000.00    2550.00    3000.00    4000.00

      DQ         DIVERTED FLOW          .00    274.00     955.00    1385.00    1746.00    2562.00
                                                                      ***

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

                              DIVERSION HYDROGRAPH   HOLCOM
                                FOR PLAN 1, RATIO =  .94

  PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
                                             6-HR        24-HR        72-HR      23.92-HR
+   (CFS)        (HR)
                                (CFS)
+    1380.      13.25                        381.         121.         121.          121.
                              (INCHES)       .307         .389         .389          .389
                               (AC-FT)       189.         240.         240.          240.

                             CUMULATIVE AREA =    11.54 SQ MI


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

                              HYDROGRAPH AT STATION   DV HOL
                                FOR PLAN 1, RATIO =  .94

  PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
```

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                                    6-HR       24-HR       72-HR     23.92-HR
+   (CFS)       (HR)
                          (CFS)
+    1164.     13.25                649.        231.        231.         231.
                         (INCHES)   .523        .741        .741         .741
                          (AC-FT)   322.        456.        456.         456.

                          CUMULATIVE AREA =    11.54 SQ MI


      *** WARNING ***   UNIT HYDROGRAPH TRUNCATED FROM 324 TO 300 INTERVALS


      *** WARNING ***   UNIT HYDROGRAPH TRUNCATED FROM 324 TO 300 INTERVALS


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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             *            *
 1324 KK     *     PT04   *       COMBINE FLOWS FROM WSD 1 & 5 WITH ROUTED FLOW FROM PT03
             *            *
             **************

 1325 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

 1326 HC          HYDROGRAPH COMBINATION
                        ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                   ***

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

                           HYDROGRAPH AT STATION     PT04
                             FOR PLAN 1, RATIO =  .94

  PEAK FLOW      TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     23.92-HR
+   (CFS)       (HR)
                          (CFS)
+    7126.     17.42               6393.       2504.       2504.        2504.
                         (INCHES)   .549        .857        .857         .857
                          (AC-FT)  3170.       4949.       4949.        4949.

                          CUMULATIVE AREA =   108.26 SQ MI

1

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


                                                               RATIOS APPLIED TO PRECIPITATION
 OPERATION        STATION     AREA    PLAN               RATIO 1
                                                             .94

 HYDROGRAPH AT
+                     W1R      1.36      1   FLOW          809.
                                             TIME        12.42

 HYDROGRAPH AT
+                     W2R       .84      1   FLOW          507.
                                             TIME        12.42

  2 COMBINED AT
+                   W1+W2      2.20      1   FLOW         1317.
                                             TIME        12.42

 ROUTED TO
+                    RT-A      2.20      1   FLOW         1302.
                                             TIME        12.50

 HYDROGRAPH AT
+                     W3R      1.38      1   FLOW          762.
                                             TIME        12.50

 ROUTED TO
+                    RT-A      1.38      1   FLOW          758.
                                             TIME        12.58

 HYDROGRAPH AT
+                     W4R      1.47      1   FLOW          336.
                                             TIME        12.75

  3 COMBINED AT
+                   W1234      5.05      1   FLOW         2361.
                                             TIME        12.58

 ROUTED TO
+                    RT-B      5.05      1   FLOW         2348.
                                             TIME        12.67

 HYDROGRAPH AT
+                     W5R      1.27      1   FLOW          249.
                                             TIME        12.92

  2 COMBINED AT
+                   W5+CH      6.32      1   FLOW         2573.
                                             TIME        12.67
```

ROUTED TO					
+	RT-C	6.32	1	FLOW	2536.
				TIME	12.83
HYDROGRAPH AT					
+	W6R	1.43	1	FLOW	117.
				TIME	13.50
2 COMBINED AT					
+	W6+CH	7.75	1	FLOW	2617.
				TIME	12.83
ROUTED TO					
+	RT-D	7.75	1	FLOW	2603.
				TIME	13.00
HYDROGRAPH AT					
+	W7R	.85	1	FLOW	129.
				TIME	13.00
2 COMBINED AT					
+	W7+CH	8.60	1	FLOW	2731.
				TIME	13.00
ROUTED TO					
+	RT-DIF	8.60	1	FLOW	2719.
				TIME	13.08
HYDROGRAPH AT					
+	W8R	.75	1	FLOW	49.
				TIME	13.42
2 COMBINED AT					
+	CP DIF	9.35	1	FLOW	2764.
				TIME	13.08
DIVERSION TO					
+	CH 123	9.35	1	FLOW	2209.
				TIME	13.08
HYDROGRAPH AT					
+	DV 4	9.35	1	FLOW	555.
				TIME	13.08
ROUTED TO					
+	RT W4	9.35	1	FLOW	537.
				TIME	13.25
HYDROGRAPH AT					
+	W17R	.58	1	FLOW	87.
				TIME	12.25
2 COMBINED AT					
+	CP W4	9.93	1	FLOW	562.
				TIME	13.25
ROUTED TO					
+	RT F4	9.93	1	FLOW	546.
				TIME	13.33
HYDROGRAPH AT					
+	W19R	.33	1	FLOW	16.
				TIME	12.25
HYDROGRAPH AT					
+	W9R	2.39	1	FLOW	335.
				TIME	12.50
ROUTED TO					
+	RT F4	2.39	1	FLOW	326.
				TIME	12.67
3 COMBINED AT					
+	CP F4	12.65	1	FLOW	725.
				TIME	13.33
ROUTED TO					
+	RT V4	12.65	1	FLOW	710.
				TIME	13.42
HYDROGRAPH AT					
+	W20R	.22	1	FLOW	13.
				TIME	12.25
2 COMBINED AT					
+	CP V4	12.87	1	FLOW	715.
				TIME	13.42
ROUTED TO					
+	RT STM	12.87	1	FLOW	714.
				TIME	13.50
HYDROGRAPH AT					
+	G1G2	8.00	1	FLOW	2018.
				TIME	14.00
ROUTED TO					
+	OUTJ1	8.00	1	FLOW	2018.
				TIME	14.08
HYDROGRAPH AT					
+	J1	6.40	1	FLOW	313.
				TIME	13.67
2 COMBINED AT					
+	OUTJ1	14.40	1	FLOW	2307.

				TIME	14.00
ROUTED TO					
+	OUTG3	14.40	1	FLOW	2306.
				TIME	14.17
HYDROGRAPH AT					
+	G3	3.90	1	FLOW	285.
				TIME	13.42
2 COMBINED AT					
+	OUTG3	18.30	1	FLOW	2531.
				TIME	14.08
ROUTED TO					
+	OUT30	18.30	1	FLOW	2505.
				TIME	14.67
HYDROGRAPH AT					
+	15	4.20	1	FLOW	410.
				TIME	14.00
ROUTED TO					
+	OUT30	4.20	1	FLOW	401.
				TIME	15.33
HYDROGRAPH AT					
+	30	16.70	1	FLOW	2494.
				TIME	13.92
3 COMBINED AT					
+	OUT30	39.20	1	FLOW	5072.
				TIME	14.50
ROUTED TO					
+	OUT40	39.20	1	FLOW	5053.
				TIME	14.75
HYDROGRAPH AT					
+	35	15.30	1	FLOW	2158.
				TIME	14.33
HYDROGRAPH AT					
+	40	2.50	1	FLOW	416.
				TIME	13.17
3 COMBINED AT					
+	OUT40	57.00	1	FLOW	7318.
				TIME	14.58
ROUTED TO					
+	OUT341	57.00	1	FLOW	7314.
				TIME	14.67
			** PEAK STAGES IN FEET **		
			1	STAGE	4560.87
				TIME	14.67
HYDROGRAPH AT					
+	C-1B	.07	1	FLOW	60.
				TIME	12.08
HYDROGRAPH AT					
+	C-1A	.06	1	FLOW	4.
				TIME	12.17
ROUTED TO					
+	RT C1	.06	1	FLOW	4.
				TIME	12.33
ROUTED TO					
+	RT C1	.06	1	FLOW	4.
				TIME	12.58
2 COMBINED AT					
+	CPC1B	.13	1	FLOW	60.
				TIME	12.08
2 COMBINED AT					
+	CB CUR	57.13	1	FLOW	7326.
				TIME	14.67
ROUTED TO					
+	OUTDS	57.13	1	FLOW	7319.
				TIME	14.83
2 COMBINED AT					
+	CB DS	70.00	1	FLOW	7546.
				TIME	14.83
ROUTED TO					
+	RT WHT	70.00	1	FLOW	7538.
				TIME	14.92
HYDROGRAPH AT					
+	DR 123	.00	1	FLOW	2209.
				TIME	13.08
DIVERSION TO					
+	CH 1	.00	1	FLOW	452.
				TIME	13.08
HYDROGRAPH AT					
+	DV 2&3	.00	1	FLOW	1757.
				TIME	13.08
ROUTED TO					

+	RT 2&3	.00	1	FLOW TIME	1723. 13.33
HYDROGRAPH AT +	W10R	.30	1	FLOW TIME	3. 12.92
2 COMBINED AT +	CP 23	.30	1	FLOW TIME	1727. 13.33
DIVERSION TO +	CH 2	.30	1	FLOW TIME	863. 13.33
HYDROGRAPH AT +	DV 23A	.30	1	FLOW TIME	863. 13.33
ROUTED TO +	RT V3	.30	1	FLOW TIME	851. 13.50
HYDROGRAPH AT +	W11R	.32	1	FLOW TIME	108. 12.17
2 COMBINED AT +	CP V24	.62	1	FLOW TIME	867. 13.50
ROUTED TO +	RT F3	.62	1	FLOW TIME	847. 13.75
HYDROGRAPH AT +	W16R	.11	1	FLOW TIME	65. 12.08
2 COMBINED AT +	CP F3	.73	1	FLOW TIME	856. 13.75
ROUTED TO +	RT DSW	.73	1	FLOW TIME	853. 13.83
HYDROGRAPH AT +	W18RA	.21	1	FLOW TIME	92. 12.25
2 COMBINED AT +	CB DSW	.94	1	FLOW TIME	864. 13.83
HYDROGRAPH AT +	S-1	.04	1	FLOW TIME	14. 7.08
ROUTED TO +	RT S3	.04	1	FLOW TIME	13. 7.25
HYDROGRAPH AT +	S-2	.06	1	FLOW TIME	15. 7.08
ROUTED TO +	RT S3	.06	1	FLOW TIME	13. 7.17
HYDROGRAPH AT +	S-3A	.04	1	FLOW TIME	11. 7.08
ROUTED TO +	RT S3	.04	1	FLOW TIME	10. 7.25
3 COMBINED AT +	CPS3A	.14	1	FLOW TIME	35. 7.25
ROUTED TO +	RT S5	.14	1	FLOW TIME	34. 7.58
HYDROGRAPH AT +	S-3B	.02	1	FLOW TIME	5. 7.08
ROUTED TO +	RT S5	.02	1	FLOW TIME	5. 7.50
HYDROGRAPH AT +	S-4	.02	1	FLOW TIME	6. 7.08
ROUTED TO +	RT S5	.02	1	FLOW TIME	6. 7.25
HYDROGRAPH AT +	S-5	.03	1	FLOW TIME	21. 6.25

ROUTED TO					
+	RT S5	.03	1	FLOW	18.
				TIME	6.33
4 COMBINED AT					
+	CPS5	.21	1	FLOW	54.
				TIME	7.58
ROUTED TO					
+	RT WHT	.21	1	FLOW	54.
				TIME	7.75
3 COMBINED AT					
+	CB WHT	71.15	1	FLOW	7986.
				TIME	14.83
HYDROGRAPH AT					
+	HD	.11	1	FLOW	113.
				TIME	6.33
2 COMBINED AT					
+	CP HD	71.27	1	FLOW	7992.
				TIME	14.83
ROUTED TO					
+	DIVSTR	71.27	1	FLOW	7993.
				TIME	14.83
			** PEAK STAGES IN FEET **		
			1	STAGE	4488.00
				TIME	14.83
DIVERSION TO					
+	BAS 1	71.27	1	FLOW	3838.
				TIME	14.83
HYDROGRAPH AT					
+	STEAM	71.27	1	FLOW	4154.
				TIME	14.83
ROUTED TO					
+	OUTDM	71.27	1	FLOW	4153.
				TIME	15.00
ROUTED TO					
+	OUTDN	71.27	1	FLOW	4150.
				TIME	15.17
HYDROGRAPH AT					
+	A7	.04	1	FLOW	16.
				TIME	12.42
2 COMBINED AT					
+	STM+7	71.31	1	FLOW	4158.
				TIME	15.17
HYDROGRAPH AT					
+	A6	.02	1	FLOW	16.
				TIME	12.17
2 COMBINED AT					
+	STM+6	71.32	1	FLOW	4166.
				TIME	15.17
HYDROGRAPH AT					
+	A3	.00	1	FLOW	6.
				TIME	12.08
2 COMBINED AT					
+	STM+3	71.33	1	FLOW	4170.
				TIME	15.17
HYDROGRAPH AT					
+	A2	.02	1	FLOW	22.
				TIME	12.08
2 COMBINED AT					
+	STM+2	71.35	1	FLOW	4177.
				TIME	15.17
HYDROGRAPH AT					
+	A17	.03	1	FLOW	19.
				TIME	12.08
HYDROGRAPH AT					
+	A18	.04	1	FLOW	20.
				TIME	12.17
2 COMBINED AT					
+	CHNL-E	.06	1	FLOW	38.
				TIME	12.17
2 COMBINED AT					
+	STM+E	71.41	1	FLOW	4193.
				TIME	15.17
ROUTED TO					
+	RT NST	71.41	1	FLOW	4191.
				TIME	15.58
HYDROGRAPH AT					
+	A4	.02	1	FLOW	18.
				TIME	12.08
HYDROGRAPH AT					
+	A23	.00	1	FLOW	2.
				TIME	12.33

HYDROGRAPH AT					
+	A1	.01	1	FLOW	12.
				TIME	12.17
HYDROGRAPH AT					
+	A22	.00	1	FLOW	2.
				TIME	12.33
HYDROGRAPH AT					
+	A5	.05	1	FLOW	26.
				TIME	12.17
2 COMBINED AT					
+	CARAT1	.05	1	FLOW	28.
				TIME	12.17
4 COMBINED AT					
+	CHNL-A	.09	1	FLOW	57.
				TIME	12.17
HYDROGRAPH AT					
+	A16	.02	1	FLOW	18.
				TIME	12.08
HYDROGRAPH AT					
+	A19	.04	1	FLOW	22.
				TIME	12.17
HYDROGRAPH AT					
+	A20	.02	1	FLOW	13.
				TIME	12.25
3 COMBINED AT					
+	CHNL-F	.08	1	FLOW	51.
				TIME	12.17
3 COMBINED AT					
+	STM+AF	71.58	1	FLOW	4238.
				TIME	15.58
HYDROGRAPH AT					
+	APTS-9	.03	1	FLOW	24.
				TIME	12.17
HYDROGRAPH AT					
+	A8	.07	1	FLOW	50.
				TIME	12.17
2 COMBINED AT					
+	CHNL-B	.10	1	FLOW	74.
				TIME	12.17
HYDROGRAPH AT					
+	D12&13	.06	1	FLOW	34.
				TIME	12.17
HYDROGRAPH AT					
+	A9	.05	1	FLOW	30.
				TIME	12.17
2 COMBINED AT					
+	CHNL-C	.11	1	FLOW	64.
				TIME	12.17
2 COMBINED AT					
+	B&C	.21	1	FLOW	138.
				TIME	12.17
HYDROGRAPH AT					
+	A14	.05	1	FLOW	32.
				TIME	12.17
HYDROGRAPH AT					
+	A13	.05	1	FLOW	26.
				TIME	12.17
HYDROGRAPH AT					
+	A15	.02	1	FLOW	13.
				TIME	12.17
4 COMBINED AT					
+	CHNL-D	.33	1	FLOW	209.
				TIME	12.17
HYDROGRAPH AT					
+	A11	.01	1	FLOW	12.
				TIME	12.17
HYDROGRAPH AT					
+	A12	.02	1	FLOW	12.
				TIME	12.33
2 COMBINED AT					
+	11+12	.03	1	FLOW	23.
				TIME	12.17
2 COMBINED AT					
+	CHNL D	.36	1	FLOW	232.
				TIME	12.17
HYDROGRAPH AT					
+	X12+13	.08	1	FLOW	27.
				TIME	12.58
HYDROGRAPH AT					
+	A10	.01	1	FLOW	12.

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                                                TIME       12.08

 2 COMBINED AT
+                              .09      1       FLOW         37.
                                                TIME       12.58

HYDROGRAPH AT
+                  A21         .01      1       FLOW         17.
                                                TIME       12.08

 3 COMBINED AT
+               WTLNDS         .47      1       FLOW        272.
                                                TIME       12.17

HYDROGRAPH AT
+               RC BAS         .00      1       FLOW       3838.
                                                TIME       14.83

ROUTED TO
+                BAS 1         .00      1       FLOW       3412.
                                                TIME       15.33

                                        ** PEAK STAGES IN FEET **
                                        1       STAGE    4481.69
                                                TIME       15.33

DIVERSION TO
+               36DIVQ         .00      1       FLOW         61.
                                                TIME       15.33

HYDROGRAPH AT
+               BAS1DS         .00      1       FLOW       3351.
                                                TIME       15.33

ROUTED TO
+                POND2         .00      1       FLOW       3319.
                                                TIME       15.58

HYDROGRAPH AT
+                  T-1         .04      1       FLOW         34.
                                                TIME       12.08

ROUTED TO
+                RT T2         .04      1       FLOW         33.
                                                TIME       12.08

HYDROGRAPH AT
+                  T-2         .06      1       FLOW         61.
                                                TIME       12.08

 2 COMBINED AT
+                 CPT2         .10      1       FLOW         95.
                                                TIME       12.08

ROUTED TO
+                RT T3         .10      1       FLOW         89.
                                                TIME       12.17

HYDROGRAPH AT
+                  T-3         .06      1       FLOW         63.
                                                TIME       12.08

 2 COMBINED AT
+                 CPT3         .16      1       FLOW        152.
                                                TIME       12.08

 2 COMBINED AT
+                CPD1A         .16      1       FLOW       3341.
                                                TIME       15.58

ROUTED TO
+                RT WT         .16      1       FLOW       3316.
                                                TIME       15.83

HYDROGRAPH AT
+                 WSF1         .77      1       FLOW        335.
                                                TIME       12.17

HYDROGRAPH AT
+                 WSE1        2.10      1       FLOW        568.
                                                TIME       12.42

 2 COMBINED AT
+                 F1E1        2.88      1       FLOW        766.
                                                TIME       12.25

HYDROGRAPH AT
+                  C-2         .03      1       FLOW         10.
                                                TIME       12.08

ROUTED TO
+                RT C3         .03      1       FLOW         10.
                                                TIME       12.25

HYDROGRAPH AT
+                 C-1C         .07      1       FLOW         46.
                                                TIME       12.08

ROUTED TO
+                RT C3         .07      1       FLOW         45.
                                                TIME       12.17

HYDROGRAPH AT
+                  C-3         .03      1       FLOW         10.
                                                TIME       12.08

 4 COMBINED AT
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+	CPC3	3.01	1	FLOW	828.
				TIME	12.25
ROUTED TO +	RT C4	3.01	1	FLOW	819.
				TIME	12.25
HYDROGRAPH AT +	C-4	.04	1	FLOW	34.
				TIME	12.08
2 COMBINED AT +	CPC4	3.05	1	FLOW	837.
				TIME	12.25
ROUTED TO +	RT C7	3.05	1	FLOW	825.
				TIME	12.33
ROUTED TO +	RT C7	3.05	1	FLOW	811.
				TIME	12.42
HYDROGRAPH AT +	C-5	.07	1	FLOW	59.
				TIME	12.08
ROUTED TO +	RT C7	.07	1	FLOW	58.
				TIME	12.08
ROUTED TO +	RT C7	.07	1	FLOW	57.
				TIME	12.25
HYDROGRAPH AT +	C-7	.03	1	FLOW	28.
				TIME	12.08
HYDROGRAPH AT +	C-6	.13	1	FLOW	34.
				TIME	12.08
ROUTED TO +	RT C7	.13	1	FLOW	34.
				TIME	12.25
ROUTED TO +	RT C7	.13	1	FLOW	34.
				TIME	12.25
ROUTED TO +	RT C7	.13	1	FLOW	34.
				TIME	12.42
4 COMBINED AT +	CPC7	3.27	1	FLOW	892.
				TIME	12.33
ROUTED TO +	RT WT	3.27	1	FLOW	829.
				TIME	12.58
HYDROGRAPH AT +	W-1	.06	1	FLOW	62.
				TIME	12.08
ROUTED TO +	RT W1	.06	1	FLOW	56.
				TIME	12.17
3 COMBINED AT +	CPWET	3.50	1	FLOW	3393.
				TIME	15.83
ROUTED TO +	RT W1	3.50	1	FLOW	3366.
				TIME	16.08
HYDROGRAPH AT +	E2A	2.10	1	FLOW	568.
				TIME	12.42
HYDROGRAPH AT +	SE-2	.06	1	FLOW	14.
				TIME	12.08
ROUTED TO +	RT S3	.06	1	FLOW	14.
				TIME	12.17
HYDROGRAPH AT +	SE-3	.05	1	FLOW	16.
				TIME	12.08
HYDROGRAPH AT +	SE-1	.11	1	FLOW	32.
				TIME	12.08
ROUTED TO +	RT S3	.11	1	FLOW	32.
				TIME	12.17
3 COMBINED AT +	CPSE3	.22	1	FLOW	59.
				TIME	12.17

ROUTED TO +	RT S5	.22	1	FLOW TIME	60. 12.25
HYDROGRAPH AT +	SE-4	.02	1	FLOW TIME	5. 12.08
HYDROGRAPH AT +	SE-5	.02	1	FLOW TIME	1. 12.00
3 COMBINED AT +	CPSE5	.26	1	FLOW TIME	66. 12.25
ROUTED TO +	RT S7	.26	1	FLOW TIME	67. 12.33
HYDROGRAPH AT +	SE-6	.00	1	FLOW TIME	1. 12.08
ROUTED TO +	RT S7	.00	1	FLOW TIME	1. 12.42
HYDROGRAPH AT +	SE-7	.10	1	FLOW TIME	104. 12.00
3 COMBINED AT +	CPSE7	.36	1	FLOW TIME	123. 12.08
ROUTED TO +	RT WI	.36	1	FLOW TIME	121. 12.08
ROUTED TO +	RT WI	.36	1	FLOW TIME	123. 12.25
HYDROGRAPH AT +	SE-8	.06	1	FLOW TIME	59. 12.08
ROUTED TO +	RTWI	.06	1	FLOW TIME	58. 12.08
ROUTED TO +	RT WI	.06	1	FLOW TIME	57. 12.25
HYDROGRAPH AT +	W-2	.03	1	FLOW TIME	9. 12.08
HYDROGRAPH AT +	W-3	.04	1	FLOW TIME	40. 12.08
2 COMBINED AT +	CPW2	.07	1	FLOW TIME	49. 12.08
ROUTED TO +	RTG WI	.07	1	FLOW TIME	45. 12.08
3 COMBINED AT +	PWETIN	.49	1	FLOW TIME	215. 12.25
2 COMBINED AT +	CPWETA	2.59	1	FLOW TIME	746. 12.33
ROUTED TO +	RT W1	2.59	1	FLOW TIME	712. 12.50
2 COMBINED AT +	CPWET1	6.09	1	FLOW TIME	3430. 16.08
ROUTED TO +	RTWET1	6.09	1	FLOW TIME	3399. 16.33
HYDROGRAPH AT +	WET	.12	1	FLOW TIME	42. 12.25
2 COMBINED AT +	CPWETB	6.21	1	FLOW TIME	3406. 16.33
ROUTED TO +	RTWETB	6.21	1	FLOW TIME	3375. 16.50
HYDROGRAPH AT +	E-2	.07	1	FLOW TIME	45. 12.08

ROUTED TO					
+	RT E3	.07	1	FLOW	42.
				TIME	12.17
HYDROGRAPH AT					
+	E-1	.05	1	FLOW	2.
				TIME	12.17
ROUTED TO					
+	RT E3	.05	1	FLOW	2.
				TIME	12.25
ROUTED TO					
+	RTE3	.05	1	FLOW	2.
				TIME	12.42
2 COMBINED AT					
+	CPE3	.12	1	FLOW	42.
				TIME	12.17
HYDROGRAPH AT					
+	WSB2	.12	1	FLOW	68.
				TIME	12.00
HYDROGRAPH AT					
+	WSB1	.36	1	FLOW	174.
				TIME	12.08
2 COMBINED AT					
+	CPB12	.48	1	FLOW	213.
				TIME	12.08
ROUTED TO					
+	RT E3	.48	1	FLOW	211.
				TIME	12.08
ROUTED TO					
+	RT E3	.48	1	FLOW	197.
				TIME	12.17
ROUTED TO					
+	RT E4	.48	1	FLOW	188.
				TIME	12.17
HYDROGRAPH AT					
+	E-4	.10	1	FLOW	71.
				TIME	12.08
ROUTED TO					
+	RT E4	.10	1	FLOW	66.
				TIME	12.08
3 COMBINED AT					
+	CPE4	.70	1	FLOW	294.
				TIME	12.17
HYDROGRAPH AT					
+	W-8	.06	1	FLOW	63.
				TIME	12.08
3 COMBINED AT					
+	CPWETO	6.97	1	FLOW	3410.
				TIME	16.50
ROUTED TO					
+	RS DT2	6.97	1	FLOW	2805.
				TIME	17.33
			** PEAK STAGES IN FEET **		
			1	STAGE	4461.21
				TIME	17.33
HYDROGRAPH AT					
+	W-9	.04	1	FLOW	42.
				TIME	12.08
2 COMBINED AT					
+	CW-9	7.01	1	FLOW	2812.
				TIME	17.33
ROUTED TO					
+	POND4	7.01	1	FLOW	2652.
				TIME	17.83
			** PEAK STAGES IN FEET **		
			1	STAGE	4456.36
				TIME	17.83
2 COMBINED AT					
+	WET-IN	7.48	1	FLOW	2724.
				TIME	17.83
HYDROGRAPH AT					
+	D1	1.72	1	FLOW	530.
				TIME	12.33
ROUTED TO					
+	RT N1	1.72	1	FLOW	524.
				TIME	12.33
ROUTED TO					
+	RT N1	1.72	1	FLOW	520.
				TIME	12.42
ROUTED TO					
+	RT N1	1.72	1	FLOW	512.

				TIME	12.42
HYDROGRAPH AT +	WSC	3.31	1	FLOW TIME	820. 12.50
ROUTED TO +	RT N1	3.31	1	FLOW TIME	810. 12.58
ROUTED TO +	RT N1	3.31	1	FLOW TIME	809. 12.58
HYDROGRAPH AT +	NE-1	.04	1	FLOW TIME	18. 12.08
ROUTED TO +	RT N1	.04	1	FLOW TIME	18. 12.17
3 COMBINED AT +	CPNE1	5.07	1	FLOW TIME	1298. 12.50
ROUTED TO +	RT W3	5.07	1	FLOW TIME	1280. 12.50
ROUTED TO +	RT W3	5.07	1	FLOW TIME	756. 13.50
HYDROGRAPH AT +	D2	.15	1	FLOW TIME	102. 12.00
ROUTED TO +	RT N4	.15	1	FLOW TIME	88. 12.00
ROUTED TO +	RT N4	.15	1	FLOW TIME	85. 12.08
ROUTED TO +	RT N4	.15	1	FLOW TIME	80. 12.17
HYDROGRAPH AT +	NE2345	.23	1	FLOW TIME	97. 12.08
2 COMBINED AT +	CPNE4	.38	1	FLOW TIME	168. 12.08
ROUTED TO +	RT W3	.38	1	FLOW TIME	88. 13.08
2 COMBINED AT +	CPWET3	5.46	1	FLOW TIME	811. 13.42
ROUTED TO +	RT DN	5.46	1	FLOW TIME	778. 13.92
2 COMBINED AT +	DMNTE	12.94	1	FLOW TIME	2762. 17.83
HYDROGRAPH AT +	N-1	.02	1	FLOW TIME	16. 12.17
ROUTED TO +	RT N13	.02	1	FLOW TIME	14. 12.25
ROUTED TO +	RT N13	.02	1	FLOW TIME	13. 13.17
ROUTED TO +	RT01	.02	1	FLOW TIME	10. 14.75
HYDROGRAPH AT +	D4	.80	1	FLOW TIME	70. 12.67
3 COMBINED AT +	PT01	13.76	1	FLOW TIME	2776. 17.83
ROUTED TO +	RT02	13.76	1	FLOW TIME	2739. 18.42
HYDROGRAPH AT +	D3	.70	1	FLOW TIME	114. 12.67
2 COMBINED AT					

+	PT02	14.46	1	FLOW TIME	2745. 18.42
ROUTED TO +	RT03	14.46	1	FLOW TIME	2663. 19.83
HYDROGRAPH AT +	W18RB	.13	1	FLOW TIME	141. 12.08
HYDROGRAPH AT +	V18-19	.05	1	FLOW TIME	51. 12.08
HYDROGRAPH AT +	V20	.05	1	FLOW TIME	46. 12.08
HYDROGRAPH AT +	WET	.02	1	FLOW TIME	7. 12.17
4 COMBINED AT +	CB WET	.25	1	FLOW TIME	244. 12.08
HYDROGRAPH AT +	PH-IV	.19	1	FLOW TIME	158. 12.17
HYDROGRAPH AT +	E14	.03	1	FLOW TIME	24. 12.08
3 COMBINED AT +	C14	.47	1	FLOW TIME	412. 12.17
ROUTED TO +	E14-E1	.47	1	FLOW TIME	411. 12.17
HYDROGRAPH AT +	E1	.01	1	FLOW TIME	7. 12.00
2 COMBINED AT +	C1	.47	1	FLOW TIME	418. 12.17
ROUTED TO +	E1-E2	.47	1	FLOW TIME	413. 12.17
HYDROGRAPH AT +	E2	.00	1	FLOW TIME	4. 12.00
2 COMBINED AT +	C2	.47	1	FLOW TIME	417. 12.17
ROUTED TO +	E2-E3	.47	1	FLOW TIME	409. 12.17
HYDROGRAPH AT +	E3	.00	1	FLOW TIME	3. 12.00
2 COMBINED AT +	C3	.48	1	FLOW TIME	412. 12.17
ROUTED TO +	E3-E4	.48	1	FLOW TIME	402. 12.17
HYDROGRAPH AT +	E4	.00	1	FLOW TIME	4. 12.00
2 COMBINED AT +	C4	.48	1	FLOW TIME	406. 12.17
HYDROGRAPH AT +	D10	.12	1	FLOW TIME	106. 12.17
HYDROGRAPH AT +	D12	.02	1	FLOW TIME	18. 12.08
HYDROGRAPH AT +	PARK	.01	1	FLOW TIME	5. 12.08
4 COMBINED AT +	C10PRK	.63	1	FLOW TIME	530. 12.17
ROUTED TO +	PK-CAR	.63	1	FLOW TIME	515. 12.25

HYDROGRAPH AT					
+	PhVa	.01	1	FLOW	12.
				TIME	12.08
HYDROGRAPH AT					
+	V4	.03	1	FLOW	21.
				TIME	12.08
3 COMBINED AT					
+	CB 1	.66	1	FLOW	535.
				TIME	12.25
ROUTED TO					
+	RT1-2	.66	1	FLOW	530.
				TIME	12.25
HYDROGRAPH AT					
+	PhVb	.03	1	FLOW	27.
				TIME	12.08
2 COMBINED AT					
+	CB2	.69	1	FLOW	549.
				TIME	12.25
ROUTED TO					
+	RT2-3	.69	1	FLOW	537.
				TIME	12.33
HYDROGRAPH AT					
+	V12	.01	1	FLOW	12.
				TIME	12.08
HYDROGRAPH AT					
+	V11	.01	1	FLOW	7.
				TIME	12.00
HYDROGRAPH AT					
+	V3	.03	1	FLOW	20.
				TIME	12.08
4 COMBINED AT					
+	CB3	.74	1	FLOW	563.
				TIME	12.33
ROUTED TO					
+	RT3-4	.74	1	FLOW	555.
				TIME	12.33
HYDROGRAPH AT					
+	PhVc	.02	1	FLOW	23.
				TIME	12.08
HYDROGRAPH AT					
+	V2	.04	1	FLOW	30.
				TIME	12.08
3 COMBINED AT					
+	CB4	.80	1	FLOW	575.
				TIME	12.33
ROUTED TO					
+	RT4-5	.80	1	FLOW	569.
				TIME	12.33
HYDROGRAPH AT					
+	PARKVI	.00	1	FLOW	2.
				TIME	12.08
2 COMBINED AT					
+	CB5	.81	1	FLOW	571.
				TIME	12.33
ROUTED TO					
+	RT5-6	.81	1	FLOW	558.
				TIME	12.42
HYDROGRAPH AT					
+	K6SCHL	.01	1	FLOW	10.
				TIME	12.08
2 COMBINED AT					
+	CB6	.82	1	FLOW	568.
				TIME	12.42
ROUTED TO					
+	RT6-7	.82	1	FLOW	558.
				TIME	12.50
HYDROGRAPH AT					
+	V1	.04	1	FLOW	27.
				TIME	12.08
HYDROGRAPH AT					
+	V29	.06	1	FLOW	67.
				TIME	12.08
3 COMBINED AT					
+	CB7	.92	1	FLOW	578.
				TIME	12.50
HYDROGRAPH AT					
+	DR 1	.00	1	FLOW	452.
				TIME	13.08
ROUTED TO					
+	RT Z1	.00	1	FLOW	439.
				TIME	13.42

HYDROGRAPH AT					
+	W13R	1.30	1	FLOW	35.
				TIME	12.42
2 COMBINED AT					
+	CP Z1	1.30	1	FLOW	449.
				TIME	13.42
DIVERSION TO					
+	CH 1A	1.30	1	FLOW	200.
				TIME	13.00
HYDROGRAPH AT					
+	DV 1B	1.30	1	FLOW	249.
				TIME	13.42
ROUTED TO					
+	RT V12	1.30	1	FLOW	242.
				TIME	13.58
HYDROGRAPH AT					
+	W12R	.60	1	FLOW	18.
				TIME	12.42
2 COMBINED AT					
+	CP V12	1.90	1	FLOW	251.
				TIME	13.58
HYDROGRAPH AT					
+	DR CH2	.00	1	FLOW	863.
				TIME	13.33
ROUTED TO					
+	RT V12	.00	1	FLOW	844.
				TIME	13.58
2 COMBINED AT					
+	CP V12	1.90	1	FLOW	1095.
				TIME	13.58
ROUTED TO					
+	RT F12	1.90	1	FLOW	1061.
				TIME	13.75
HYDROGRAPH AT					
+	W15R	.21	1	FLOW	106.
				TIME	12.08
2 COMBINED AT					
+	CP F12	2.11	1	FLOW	1070.
				TIME	13.75
HYDROGRAPH AT					
+	DR 1A	.00	1	FLOW	200.
				TIME	13.00
ROUTED TO					
+	RT F1A	.00	1	FLOW	200.
				TIME	14.00
HYDROGRAPH AT					
+	W14R	.18	1	FLOW	69.
				TIME	12.17
2 COMBINED AT					
+	CP F1A	.18	1	FLOW	209.
				TIME	13.75
2 COMBINED AT					
+	CB 1&2	2.29	1	FLOW	1279.
				TIME	13.75
ROUTED TO					
+	RT WT2	2.29	1	FLOW	1271.
				TIME	13.92
ROUTED TO					
+	RT WT2	2.29	1	FLOW	1219.
				TIME	14.42
ROUTED TO					
+	RT WT2	2.29	1	FLOW	1215.
				TIME	14.50
HYDROGRAPH AT					
+	WT 6P1	.07	1	FLOW	32.
				TIME	12.25
HYDROGRAPH AT					
+	W WT2P	.59	1	FLOW	122.
				TIME	12.58
3 COMBINED AT					
+	CB WT2	2.95	1	FLOW	1233.
				TIME	14.50
HYDROGRAPH AT					
+	WS WT1	1.93	1	FLOW	73.
				TIME	12.83
ROUTED TO					
+	RT WT3	1.93	1	FLOW	72.
				TIME	13.17
HYDROGRAPH AT					
+	THOMAS	11.54	1	FLOW	2544.

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                                        TIME        13.25

 DIVERSION TO
+                HOLCOM    11.54    1   FLOW        1380.
                                        TIME        13.25

 HYDROGRAPH AT
+                DV HOL    11.54    1   FLOW        1164.
                                        TIME        13.25

 ROUTED TO
+                RT WT3    11.54    1   FLOW        1151.
                                        TIME        13.50

 DIVERSION TO
+                  THOM    11.54    1   FLOW          52.
                                        TIME        13.50

 HYDROGRAPH AT
+                DV THO    11.54    1   FLOW        1099.
                                        TIME        13.50

 ROUTED TO
+                RT WT3    11.54    1   FLOW        1097.
                                        TIME        13.58

 HYDROGRAPH AT
+                  WT3P      .49    1   FLOW         185.
                                        TIME        12.25

  3 COMBINED AT
+                CB WT3    13.96    1   FLOW        1163.
                                        TIME        13.58

  2 COMBINED AT
+                CB OFF    16.91    1   FLOW        2055.
                                        TIME        14.42

 ROUTED TO
+                RT WHC    16.91    1   FLOW        2050.
                                        TIME        14.50

 HYDROGRAPH AT
+                    D2      .36    1   FLOW          31.
                                        TIME        12.42

  2 COMBINED AT
+                CB WHC    17.27    1   FLOW        2058.
                                        TIME        14.50

 ROUTED TO
+                RT DET    17.27    1   FLOW        2055.
                                        TIME        14.58

 ROUTED TO
+                RT DET    17.27    1   FLOW        1743.
                                        TIME        15.08

                                    ** PEAK STAGES IN FEET **
                                    1   STAGE     4427.22
                                        TIME        15.08

 ROUTED TO
+                 RT WT    17.27    1   FLOW        1741.
                                        TIME        15.17

 HYDROGRAPH AT
+                THOMAS      .00    1   FLOW          52.
                                        TIME        13.50

 ROUTED TO
+                 RT WT      .00    1   FLOW          32.
                                        TIME        15.08

 HYDROGRAPH AT
+                  WT4P     1.73    1   FLOW         220.
                                        TIME        13.42

  2 COMBINED AT
+                           1.73    1   FLOW         220.
                                        TIME        13.42

 HYDROGRAPH AT
+                  WT7P      .16    1   FLOW          19.
                                        TIME        13.33

 ROUTED TO
+                 RT WT      .16    1   FLOW          18.
                                        TIME        14.00

 HYDROGRAPH AT
+                WS WT5      .49    1   FLOW         266.
                                        TIME        12.17

 ROUTED TO
+                 RT WT      .49    1   FLOW         202.
                                        TIME        12.58

  3 COMBINED AT
+                 CB WT     2.38    1   FLOW         327.
                                        TIME        12.67

  2 COMBINED AT
+                 CP WT    19.65    1   FLOW        1852.
                                        TIME        15.08

  4 COMBINED AT
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+                  PT03    106.61      1   FLOW        7307.
                                           TIME        15.58

 ROUTED TO
+                  RT04    106.61      1   FLOW        7104.
                                           TIME        17.42

 HYDROGRAPH AT
+                    D1       .44      1   FLOW          74.
                                           TIME        12.50

 HYDROGRAPH AT
+                    D5      1.21      1   FLOW          16.
                                           TIME        17.25

  3 COMBINED AT
+                  PT04    108.26      1   FLOW        7126.
                                           TIME        17.42
1
                                           SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                               (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                   INTERPOLATED TO
                                                                                COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO      VOLUME
                                                     PEAK                                    PEAK

                                 (MIN)     (CFS)     (MIN)       (IN)     (MIN)     (CFS)     (MIN)        (IN)

           FOR PLAN = 1  RATIO=  .94
             RT STM  MANE         1.51    714.59    808.24        .23      5.00    713.88    810.00         .23

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1609E+03 EXCESS= .0000E+00 OUTFLOW= .1602E+03 BASIN STORAGE= .8542E+00 PERCENT ERROR=   -.1


           FOR PLAN = 1  RATIO=  .00
              OUTJ1  MANE         5.00   2017.57    845.00       1.64      5.00   2017.57    845.00        1.64

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .7027E+03 EXCESS= .0000E+00 OUTFLOW= .6995E+03 BASIN STORAGE= .4234E+01 PERCENT ERROR=   -.1


           FOR PLAN = 1  RATIO=  .00
              OUTG3  MANE         5.00   2305.58    850.00       1.06      5.00   2305.58    850.00        1.06

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .8204E+03 EXCESS= .0000E+00 OUTFLOW= .8146E+03 BASIN STORAGE= .7346E+01 PERCENT ERROR=   -.2


           FOR PLAN = 1  RATIO=  .00
              RT C1  MANE         1.25      4.32    736.25        .77      5.00      4.25    740.00         .77

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2549E+01 EXCESS= .0000E+00 OUTFLOW= .2532E+01 BASIN STORAGE= .1746E-01 PERCENT ERROR=    .0


           FOR PLAN = 1  RATIO=  .00
              RT C1  MANE         1.75      4.35    747.25        .75      5.00      4.22    755.00         .75

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .2533E+01 EXCESS= .0000E+00 OUTFLOW= .2492E+01 BASIN STORAGE= .4446E-01 PERCENT ERROR=   -.1


           FOR PLAN = 1  RATIO=  .00
             RT DSW  MANE         5.00    853.15    830.00       4.91      5.00    853.15    830.00        4.91

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1933E+03 EXCESS= .0000E+00 OUTFLOW= .1915E+03 BASIN STORAGE= .2393E+01 PERCENT ERROR=   -.3


           FOR PLAN = 1  RATIO=  .00
              RT S3  MANE         1.50     10.23    433.50       3.62      5.00     10.19    435.00        3.62

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .7578E+01 EXCESS= .0000E+00 OUTFLOW= .7537E+01 BASIN STORAGE= .4286E-01 PERCENT ERROR=    .0


           FOR PLAN = 1  RATIO=  .00
              RT T2  MANE         1.22     33.64    726.53       4.06      5.00     33.35    725.00        4.06

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .7811E+01 EXCESS= .0000E+00 OUTFLOW= .7799E+01 BASIN STORAGE= .1283E-01 PERCENT ERROR=    .0


           FOR PLAN = 1  RATIO=  .00
              RT T3  MANE         2.92     92.71    727.83       3.21      5.00     89.30    730.00        3.22

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .1737E+02 EXCESS= .0000E+00 OUTFLOW= .1731E+02 BASIN STORAGE= .6834E-01 PERCENT ERROR=   -.1


           FOR PLAN = 1  RATIO=  .00
              RT C3  MANE         5.00     10.26    735.00       3.41      5.00     10.26    735.00        3.41

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .6284E+01 EXCESS= .0000E+00 OUTFLOW= .6188E+01 BASIN STORAGE= .1120E+00 PERCENT ERROR=   -.3


           FOR PLAN = 1  RATIO=  .00
              RT C3  MANE         5.00     44.83    730.00       2.29      5.00     44.83    730.00        2.29

 CONTINUITY SUMMARY (AC-FT) - INFLOW= .8628E+01 EXCESS= .0000E+00 OUTFLOW= .8549E+01 BASIN STORAGE= .1145E+00 PERCENT ERROR=   -.4


           FOR PLAN = 1  RATIO=  .00
              RT C4  MANE         1.42    822.95    736.19        .52      5.00    819.35    735.00         .52
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CONTINUITY SUMMARY (AC-FT) - INFLOW= .8381E+02 EXCESS= .0000E+00 OUTFLOW= .8371E+02 BASIN STORAGE= .1696E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT C7  MANE         4.45     832.02    738.88       .56      5.00    825.00    740.00        .56

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9168E+02 EXCESS= .0000E+00 OUTFLOW= .9137E+02 BASIN STORAGE= .6082E+00 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
             RT C7  MANE         3.88     815.34    741.08       .56      5.00    810.91    745.00        .56

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9140E+02 EXCESS= .0000E+00 OUTFLOW= .9111E+02 BASIN STORAGE= .5375E+00 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
             RT C7  MANE          .69      58.04    725.43      2.57      5.00     57.69    725.00       2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9343E+01 EXCESS= .0000E+00 OUTFLOW= .9339E+01 BASIN STORAGE= .1118E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT C7  MANE         5.00      56.55    735.00      2.54      5.00     56.55    735.00       2.54

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9352E+01 EXCESS= .0000E+00 OUTFLOW= .9242E+01 BASIN STORAGE= .1689E+00 PERCENT ERROR=   -.6

          FOR PLAN = 1  RATIO=  .00
             RT C7  MANE         5.00      33.94    735.00      1.17      5.00     33.94    735.00       1.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7894E+01 EXCESS= .0000E+00 OUTFLOW= .7825E+01 BASIN STORAGE= .8120E-01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RT C7  MANE          .24      33.82    734.87      1.17      5.00     33.82    735.00       1.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7814E+01 EXCESS= .0000E+00 OUTFLOW= .7811E+01 BASIN STORAGE= .3499E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RT C7  MANE         5.00      33.92    745.00      1.15      5.00     33.92    745.00       1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7824E+01 EXCESS= .0000E+00 OUTFLOW= .7696E+01 BASIN STORAGE= .1709E+00 PERCENT ERROR=   -.6

          FOR PLAN = 1  RATIO=  .00
             RT S3  MANE         1.50      13.80    730.50      1.90      5.00     13.65    730.00       1.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6124E+01 EXCESS= .0000E+00 OUTFLOW= .6084E+01 BASIN STORAGE= .4591E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT S3  MANE         5.00      31.51    730.00      1.36      5.00     31.51    730.00       1.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7771E+01 EXCESS= .0000E+00 OUTFLOW= .7724E+01 BASIN STORAGE= .5686E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT S5  MANE         5.00      59.58    735.00      1.75      5.00     59.58    735.00       1.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2057E+02 EXCESS= .0000E+00 OUTFLOW= .2044E+02 BASIN STORAGE= .1706E+00 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RT S7  MANE         5.00      66.58    740.00      1.79      5.00     66.58    740.00       1.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2471E+02 EXCESS= .0000E+00 OUTFLOW= .2454E+02 BASIN STORAGE= .2175E+00 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RT S7  MANE         1.00        .55    736.00      1.39      5.00       .50    745.00       1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2995E+00 EXCESS= .0000E+00 OUTFLOW= .2958E+00 BASIN STORAGE= .4227E-02 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RT WI  MANE         3.02     121.38    725.34      1.88      5.00    120.52    725.00       1.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3627E+02 EXCESS= .0000E+00 OUTFLOW= .3613E+02 BASIN STORAGE= .1719E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT WI  MANE         5.00     122.68    735.00      1.86      5.00    122.68    735.00       1.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3621E+02 EXCESS= .0000E+00 OUTFLOW= .3576E+02 BASIN STORAGE= .5598E+00 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
             RTWI   MANE          .76      58.84    725.86      2.71      5.00     58.13    725.00       2.71
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CONTINUITY SUMMARY (AC-FT) - INFLOW= .9414E+01 EXCESS= .0000E+00 OUTFLOW= .9405E+01 BASIN STORAGE= .1230E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RT WI  MANE        5.00     57.05    735.00      2.67      5.00     57.05    735.00       2.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9419E+01 EXCESS= .0000E+00 OUTFLOW= .9284E+01 BASIN STORAGE= .2083E+00 PERCENT ERROR=   -.8

          FOR PLAN = 1  RATIO=  .00
             RT E3  MANE        3.98     43.14    727.90      2.20      5.00     42.00    730.00       2.20

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8242E+01 EXCESS= .0000E+00 OUTFLOW= .8205E+01 BASIN STORAGE= .4259E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT E3  MANE        1.00      2.26    735.00       .50      5.00      2.26    735.00        .50

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1343E+01 EXCESS= .0000E+00 OUTFLOW= .1335E+01 BASIN STORAGE= .8296E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RTE3  MANE        1.25      2.26    745.00       .50      5.00      2.26    745.00        .50

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1336E+01 EXCESS= .0000E+00 OUTFLOW= .1323E+01 BASIN STORAGE= .1421E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT E3  MANE        2.19    214.40    723.98       .72      5.00    211.41    725.00        .72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1851E+02 EXCESS= .0000E+00 OUTFLOW= .1846E+02 BASIN STORAGE= .6918E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT E3  MANE        3.50    205.63    728.00       .72      5.00    196.52    730.00        .72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1845E+02 EXCESS= .0000E+00 OUTFLOW= .1837E+02 BASIN STORAGE= .1198E+00 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RT E4  MANE        3.53    192.31    731.27       .71      5.00    187.57    730.00        .71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1836E+02 EXCESS= .0000E+00 OUTFLOW= .1827E+02 BASIN STORAGE= .1105E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT E4  MANE        2.15     68.68    727.70      1.59      5.00     66.45    725.00       1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8479E+01 EXCESS= .0000E+00 OUTFLOW= .8463E+01 BASIN STORAGE= .3004E-01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RT N1  MANE        1.75    527.46    741.36       .40      5.00    524.16    740.00        .40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3716E+02 EXCESS= .0000E+00 OUTFLOW= .3714E+02 BASIN STORAGE= .5565E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT N1  MANE        4.13    524.45    744.13       .40      5.00    520.20    745.00        .40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3715E+02 EXCESS= .0000E+00 OUTFLOW= .3711E+02 BASIN STORAGE= .1322E+00 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RT N1  MANE        2.78    514.77    747.09       .40      5.00    511.73    745.00        .40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3711E+02 EXCESS= .0000E+00 OUTFLOW= .3706E+02 BASIN STORAGE= .1116E+00 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RT N1  MANE        3.56    815.58    752.02       .41      5.00    810.13    755.00        .41

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7198E+02 EXCESS= .0000E+00 OUTFLOW= .7193E+02 BASIN STORAGE= .1395E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT N1  MANE        2.36    809.53    754.46       .41      5.00    808.79    755.00        .41

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7195E+02 EXCESS= .0000E+00 OUTFLOW= .7189E+02 BASIN STORAGE= .1172E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT N1  MANE        1.20     17.99    727.21      2.95      5.00     17.57    730.00       2.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6939E+01 EXCESS= .0000E+00 OUTFLOW= .6929E+01 BASIN STORAGE= .1264E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RT W3  MANE        1.66   1291.37    751.31       .43      5.00   1279.89    750.00        .43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1159E+03 EXCESS= .0000E+00 OUTFLOW= .1158E+03 BASIN STORAGE= .1849E+00 PERCENT ERROR=   -.1
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          FOR PLAN = 1  RATIO=  .00
            RT N4  MANE         3.20     95.23    722.71      1.01      5.00     88.38    720.00        1.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8099E+01 EXCESS= .0000E+00 OUTFLOW= .8067E+01 BASIN STORAGE= .4219E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            RT N4  MANE         2.39     87.38    722.64      1.00      5.00     85.32    725.00        1.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8053E+01 EXCESS= .0000E+00 OUTFLOW= .8029E+01 BASIN STORAGE= .3054E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            RT N4  MANE         4.00     84.88    728.00      1.00      5.00     80.39    730.00        1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8045E+01 EXCESS= .0000E+00 OUTFLOW= .7986E+01 BASIN STORAGE= .8840E-01 PERCENT ERROR=   -.4

          FOR PLAN = 1  RATIO=  .00
           RT N13  MANE         5.00     14.11    735.00      6.33      5.00     14.11    735.00        6.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6837E+01 EXCESS= .0000E+00 OUTFLOW= .6763E+01 BASIN STORAGE= .9067E-01 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
           E14-E1  MANE         1.62    412.48    728.62      2.22      5.00    411.06    730.00        2.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5538E+02 EXCESS= .0000E+00 OUTFLOW= .5527E+02 BASIN STORAGE= .1670E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            E1-E2  MANE         1.21    413.41    731.11      2.36      5.00    413.31    730.00        2.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5942E+02 EXCESS= .0000E+00 OUTFLOW= .5936E+02 BASIN STORAGE= .1343E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            E2-E3  MANE         1.21    411.54    730.41      2.43      5.00    409.39    730.00        2.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6164E+02 EXCESS= .0000E+00 OUTFLOW= .6158E+02 BASIN STORAGE= .1392E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            E3-E4  MANE         1.46    408.98    731.46      2.49      5.00    402.02    730.00        2.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6347E+02 EXCESS= .0000E+00 OUTFLOW= .6334E+02 BASIN STORAGE= .1720E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
           PK-CAR  MANE         2.65    520.86    732.14      2.57      5.00    515.01    735.00        2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8632E+02 EXCESS= .0000E+00 OUTFLOW= .8602E+02 BASIN STORAGE= .4259E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            RT1-2  MANE         5.00    530.03    735.00      2.77      5.00    530.03    735.00        2.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9902E+02 EXCESS= .0000E+00 OUTFLOW= .9834E+02 BASIN STORAGE= .9926E+00 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
            RT2-3  MANE         2.34    539.29    738.46      2.84      5.00    536.73    740.00        2.84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1053E+03 EXCESS= .0000E+00 OUTFLOW= .1050E+03 BASIN STORAGE= .4521E+00 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
            RT3-4  MANE         1.60    556.29    740.48      3.08      5.00    554.78    740.00        3.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1220E+03 EXCESS= .0000E+00 OUTFLOW= .1218E+03 BASIN STORAGE= .3505E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            RT4-5  MANE          .87    569.85    740.54      3.16      5.00    568.79    740.00        3.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1354E+03 EXCESS= .0000E+00 OUTFLOW= .1353E+03 BASIN STORAGE= .2078E+00 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RT5-6  MANE         2.04    562.72    741.73      3.17      5.00    557.94    745.00        3.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1367E+03 EXCESS= .0000E+00 OUTFLOW= .1364E+03 BASIN STORAGE= .4902E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            RT6-7  MANE         5.00    557.74    750.00      3.23      5.00    557.74    750.00        3.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1427E+03 EXCESS= .0000E+00 OUTFLOW= .1414E+03 BASIN STORAGE= .1791E+01 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
```

```
            RT WT2  MANE         5.00   1271.33    835.00      2.36      5.00   1271.33    835.00       2.36

  CONTINUITY SUMMARY (AC-FT) - INFLOW= .2918E+03 EXCESS= .0000E+00 OUTFLOW= .2881E+03 BASIN STORAGE= .5190E+01 PERCENT ERROR=   -.5

           FOR PLAN = 1  RATIO=  .00
            RT WT2  MANE         5.00   1215.49    870.00      2.31      5.00   1215.49    870.00       2.31

  CONTINUITY SUMMARY (AC-FT) - INFLOW= .2843E+03 EXCESS= .0000E+00 OUTFLOW= .2824E+03 BASIN STORAGE= .3325E+01 PERCENT ERROR=   -.5

           FOR PLAN = 1  RATIO=  .00
            RT WHC  MANE         5.00   2049.74    870.00       .86      5.00   2049.74    870.00        .86

  CONTINUITY SUMMARY (AC-FT) - INFLOW= .7837E+03 EXCESS= .0000E+00 OUTFLOW= .7786E+03 BASIN STORAGE= .6366E+01 PERCENT ERROR=   -.2

           FOR PLAN = 1  RATIO=  .00
            RT DET  MANE         5.00   2054.69    875.00       .85      5.00   2054.69    875.00        .85

  CONTINUITY SUMMARY (AC-FT) - INFLOW= .7858E+03 EXCESS= .0000E+00 OUTFLOW= .7804E+03 BASIN STORAGE= .7286E+01 PERCENT ERROR=   -.2

1                                                      HEC-1 INPUT                                          PAGE  1

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

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

```
1*****************************************
***************************************
 *                                       *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*
 *              JUN   1998               *
*
 *            VERSION 4.1                *
*
 *                                       *
*
 *  RUN DATE   04JAN08  TIME  13:39:39   *
*
 *                                       *
*
 *****************************************
***************************************
```

```
*
*     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
             *DIAGRAM
   1         ID   DRph5+BV1 THE PROPOSED MODEL FOR DAMONTE PHASE 5 LOMR (CASE No. 07-09-1667P)
   2         ID   IS ALSO THE MODEL USED FOR THE SUBSTANIALLY COMPLETE HYDRAULIC MODEL FOR
   3         ID   STEAMBOAT CREEK THROUGH BELLA VISTA PHASE 1.
   4         ID   IT WAS RE-RUN ON JANUARY 4, 2008.  ONLY THE ID INFORMATION WAS UPDATED
   5         ID   FOR THIS RUN.      JANUARY 2008 - Model Run date is 01/04/2008
   6         ID  ************************************************************************
   7         ID   CLOMR MODEL WAS USED WITHOUT CHANGE FOR THE LOMR MODEL FOR DAMONTE RANCH
   8         ID   PHASE 5 (CASE No. 07-09-1667P).  SUBMITTED MAY 5, 2007 AND NOT RERUN. IT
   9         ID   DEFINED THE CHANNEL FLOWS FOR THE SUBSTANTIALLY COMPLETE STEAMBOAD CHANNEL
  10         ID   HYDRAULIC MODEL THROUGH BELLA VISTA PHASE 1.
  11         ID   LOMR AS-BUILT PLANS DID NOT CHANGE THE HYDROLOGIC PARAMETERS USED IN THE CLO
  12         ID                   MARCH 2007 - Model Run date is 3/12/2007
  13         ID  ***********************************************************************
  14         ID   UPDATED MODEL FOR DAMONTE RANCH PHASE V and BELLA VESTA PHASE 1 CLOMR
  15         ID   USED FOR THE SUBSTANIALLY COMPLETED MODEL THROUGH BELLA VISTA PHASE 1
  16         ID                   MARCH 2007 - Model Run date is 3/12/2007
  17         ID  ***********************************************************************
  18         ID   BELLA VESTA RANCH PHASE 1
  19         ID   FILE NAME: DRph5+BV1.dat - DECEMBER 2005   ( UPDATED: JANUARY 2005 )
  20         ID  ************************************************************************
  21         ID   DAMONTE RANCH PHASE V   - MARCH 2005
  22         ID
  23         ID   * * INCLUDES DEVELOPMENT OF VILLAGE 11-B * *
  24         ID
  25         ID   UPDATED MODEL FROM LOMR SUBMITTAL FILE NAME 0243AB.DAT (Orig. 128CLOMR.DAT)
  26         ID   TO REFLECT GRADING PLANS AS OF 3/2005
  27         ID   100-Year HEC-1 for AS BUILT conditions.  Includes Steamboat Creek &
  28         ID   tributaries (i.e. Galena, Jones, Browns, Bailey, 30, & 40 watersheds);
  29         ID   Damonte Ranch with refined watersheds, detention stuctures, & refined
  30         ID   east range watersheds; Whites Creek watersheds collected by Branch 3 & 4
  31         ID   with routing onto Damonte; the remainder of the Whites Creek & split flow
  32         ID   from Thomas Creeks watersheds routed through Double Diamond;
  33         ID   & Bella Vista Ranch with the remaining east range watersheds.
  34         ID
  35         ID   File Name: DRph5+bv1.dat
  36         ID   Quad Knopf formerly Nimbus Engineers
  37         ID
  38         ID
  39         ID
  40         ID   REVISIONS REFLECT PHASE V DEVELOPMENT PER GRADING PLAN DATED 2/2005
  41         ID   The model also includes the previous changes at the Diversion structure:
  42         ID   a) box culverts replaced the RCPs; b) an overflow weir was added to control
  43         ID   a major flood event
  44         ID
  45         ID
  46         ID  ************************************************************************
  47         ID
  48         ID   * *  MODIFIED 5-2005 TO REFLECT GRADING PLAN CHANGES AFFECTING EASTERN   * *
  49         ID   * *  BASINS NE-2, NE-3, NE-4,& NE-5.  THESE HAVE ALL BEEN COMBINED AS     * *
  50         ID   * *  THE REMOVAL OF MIRA LOMA RD. MAKES SEPARATION UNECESSARY            * *
  51         ID
  52         ID  ************************************************************************
             *   Legend :
             *    W(No.)R = Subbasin
             *    CP XX = Combine flows at point XX
             *    RT XX = Route to CP XX
             *    DV XX = Divert hydrograph XX
             *    DR XX = Recall hydrograph XX
```

```
                          *     XX = Street and Channel #, where applicable
                          *        V = Virginia, Z = Zolezzi, F = 580 (Freeway), W = Wedge
                          *   ******************************************************************************
1                                                    HEC-1 INPUT                                              PAGE  2

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

           53             IT       5 27JUL00    0005     288
           54             IO       5       0
           55             IN    15.0
                          *  TOTAL WATERSHED AREA = 85 SQ. MI.
                          *  AREAL REDUCTION =  0.94
           56             JR    PREC    0.94

           57             KK     W1R Whites Creek 1
           58             BA    1.36
           59             PB     5.5
           60             PC     0.0    .002    .005    .008    .011    .014    .017    .020    .023    .026
           61             PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
           62             PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
           63             PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
           64             PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
           65             PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
           66             PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
           67             PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
           68             PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
           69             PC    .983    .986    .992    .995    .998    1.00
           70             LS              63
           71             UD    0.48
                          *

           72             KK     W2R  Whites Creek No. 2
           73             BA    0.84
           74             PB     5.4
           75             LS              65
           76             UD    0.52
                          *

           77             KK   W1+W2  Combine W1 and W2
           78             HC       2
                          *

           79             KK    RT-A  Route to pt A
           80             RM       1      .1     0.4
                          *

           81             KK     W3R  Whites Creek No. 3
           82             BA    1.38
           83             PB    5.25
           84             LS              65
           85             UD    0.54
                          *

           86             KK    RT-A  Route to pt A
           87             RM       1      .1      .4
                          *
1                                                    HEC-1 INPUT                                              PAGE  3

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


           88             KK     W4R  Whites Creek No. 4
           89             BA    1.47
           90             PB     5.0
           91             LS              57
           92             UD    0.72
                          *

           93             KK   W1234  Combine W1-W4
           94             HC       3
                          *

           95             KK    RT-B  Route to pt B
           96             RM       1      .1     0.4
                          *

           97             KK     W5R  Whites Creek No. 5
           98             BA    1.27
           99             PB     4.8
          100             LS              58
          101             UD    0.85
                          *

          102             KK   W5+CH  Combine W5 and channel
          103             HC       2
                          *

          104             KK    RT-C  Route to pt C
          105             RM       2   0.185     0.4
                          *

          106             KK     W6R  Whites Creek No. 6
          107             BA    1.43
          108             PB     4.1
          109             LS              57
          110             UD    1.23
                          *

          111             KK   W6+CH  Combine W6 and channel
          112             HC       2
                          *

          113             KK    RT-D  Route to pt D
          114             RM       1     0.1     0.4
                          *

          115             KK     W7R  Whites Creek No. 7
```

```
              116            BA    0.85
              117            PB     3.4
              118            LS            68
              119            UD    0.96
                             *
 1                                                  HEC-1 INPUT                                  PAGE  4

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

              120            KK   W7+CH  Combine W7 and channel
              121            HC       2
                             *

              122            KK  RT-DIF  Route flows to Diffluence
              123            RM       1   0.104     0.4
                             *

              124            KK     W8R  Whites Creek No. 8
              125            BA    0.75
              126            PB     3.0
              127            LS            65
              128            UD    1.19
                             *

              129            KK  CP DIF  Combine flows at Diffluence
              130            HC       2
                             *

              131            KK    DV 4  Divert flows into channel #4 - south branch
              132            KM          Hydrograph at this station is flow in channel 4
              133            DT  CH 123
              134            DI       0    2000    3500    5100
              135            DQ       0    1700    2700    3750
                             *

              136            KK   RT W4  Route flows in channel #4 to Wedge Parkway
              137            RM       2    .178      .3
                             *

              138            KK    W17R  Whites Creek No. 17
              139            BA    0.58
              140            PB     2.8
              141            LS            67
              142            UD    0.31
                             *

              143            KK   CP W4  Combine flows at Wedge Parkway
              144            HC       2
                             *

              145            KK   RT F4  Route flows to proposed RCB at 580
              146            RM       1   0.111      .3
                             *

              147            KK    W19R  Whites Creek No. 19
              148            BA    0.33
              149            PB    2.75
              150            LS            60
              151            UD    0.22
                             *
 1                                                  HEC-1 INPUT                                  PAGE  5

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

              152            KK     W9R  Whites Creek No. 9  (Steamboat Hills Area, above Mt. Rose Hwy)
              153            BA    2.39
              154            PB     2.8
              155            LS            69
              156            UD    0.51
                             *

              157            KK   RT F4  Route flows to proposed RCB at 580  (Channel 4)
              158            RM       2   0.181     0.3
                             *

              159            KK   CP F4  Combine flows at proposed I-580 RCB  (Channel 4)
              160            HC       3
                             *

              161            KK   RT V4  Route flows to Virginia Street (Channel 4 near Browns School)
              162            RM       1   0.121      .3

              163            KK    W20R  Whites Creek No. 20
              164            BA    0.22
              165            PB    2.73
              166            LS            61
              167            UD    0.22
                             *

              168            KK   CP V4  Combine flows at Channel #4 and Virginia St. (near Browns School)
              169            HC       2
                             *

              170            KK  RT STM  ROUTE BRACH 4 TO STEAMBOAT CREEK  - THRU PROPOSED CHANNEL
              171            RK    2250   0.013    .035             TRAP      75       3
                             *
                             *
                             *  ******************************************************************************
                             *              STEAMBOAT CREEK MODEL
                             *  ******************************************************************************
                             *

              172            KK    G1G2 Upper Galena Creek - G1 & G2 COMBINED
              173            BA     8.0
              174            PB    4.89
```

```
 175          LS              70
 176          UD     1.9
              *

 177          KK   OUTJ1 Route to Confluence with Jones Creek
 178          RD    5280    .046    0.07           TRAP      15      0.5
              *
1                                         HEC-1 INPUT                                       PAGE  6

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


 179          KK      J1 Jones Creek Watershed
 180          BA     6.4
 181          PB    3.51
 182          LS              58
 183          UD     1.3
              *

 184          KK   OUTJ1 Combine Jones and Galena Creek
 185          HC       2
              *

 186          KK   OUTG3 Route Galena to Pleasant Valley foothill
 187          RD    7392   0.043    0.07           TRAP      15        1
              *

 188          KK      G3 Lower Galena Creek
 189          BA     3.9
 190          PB     3.4
 191          LS              62
 192          UD     1.2
              *

 193          KK   OUTG3 Combine Galena flows at Pleasant Valley foothill
 194          HC       2
              *

 195          KK   OUT30 Route Galena Creek watershed to Steamboat Gage  (use COE routing)
 196          RM       7    0.61     0.2
              *

 197          KK      15 Browns Creek
 198          BA     4.2
 199          PB    4.10
 200          LS              61
 201          UD     1.7
              *

 202          KK   OUT30 Route Browns Creek to Steamboat Gage  (use COE routing)
 203          RM      16    1.34     0.2
              *

 204          KK      30 COE Watershed No. 30
 205          BA    16.7
 206          BF     500       0       1
 207          PB     2.8
 208          LS              77
 209          UD     1.8
              *
1                                         HEC-1 INPUT                                       PAGE  7

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


 210          KK   OUT30 Combine
 211          HC       3

 212          KK   OUT40 Route flows to HWY 341 (use COE routing)
 213          RM       3    0.23     0.2
              *

 214          KK      35 Bailey Canyon
 215          BA    15.3
 216          BF       0      10     1.1
 217          PB    2.95
 218          LS              80
 219          UD     2.2
              *

 220          KK      40 Watershed No.40
 221          BA     2.5
 222          PB    2.77
 223          LS              77
 224          UD     1.1
              *

 225          KK   OUT40  Combine Steamboat Ck with areas 35 and 40 at HWY 341
 226          HC       3
              *

 227          KK  OUT341  ROUTE STEAMBOAT THROUGH HWY 341 USING MODIFIED PULS
 228          RS       1    STOR       0
 229          SA     .31    9.48    46.1
 230          SE    4550    4560    4570
 231          SQ     300    2475   58000
              *

 232          KK    C-1B
 233          BA   0.072
 234          PB     2.5
 235          LS              69      64
 236          UD    0.22
              *

 237          KK    C-1A
 238          BA   0.062
```

```
 239          LS              64
 240          UD    0.20
              *

 241          KK   RT C1 ROUTING POD C-1A THRU CHANNEL C-1C TO CHANNEL C-1E
 242          RD    1000   0.014   0.030              TRAP       5        3
              *
```



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

 243          KK   RT C1 ROUTING POD C-1A THRU CHANNEL C-1E TO CULVERT C-C2C
 244          RD    1800  0.0056   0.030              TRAP       5        3
              *

 245          KK   CPC1B
 246          HC       2
              *

 247          KK   CB CUR  Combine flows just north of SR 341 (Steamboat Ck)
 248          HC       2
              *

 249          KK   OUTDS  Route Steamboat to just north of south Damonte property line
 250          RM       2   0.153     .35
              *

 251          KK   CB DS  COMBINE STEAMBOAT & WHITES BRANCH 4 @ DAMONTE SOUTH BOUNDARY
 252          HC       2
              *

 253          KK  RT WHT  ROUTE TO SOUTH BOUNDARY OF WHITE'S CREEK MEADOW SUBDIVISION
 254          RM       1   0.084     0.2
              * WHITES CREEK BRANCH3
              *

 255          KK  DR 123  Recall channel 1, 2, and 3 flows
 256          DR  CH 123
              *

 257          KK  DV 2&3  Divert flows into channels 2 and 3 - two middle branches
 258          KM          Hydrograph at this station is flow in channels 2 and 3
 259          DT    CH 1
 260          DI       0    1700    2700    3750
 261          DQ       0     350     550     700
              *

 262          KK  RT 2&3  Route flows to pt where channels 2 and 3 combine (2000' u/s Virginia)
 263          RM       3    .245      .3

 264          KK    W10R  Whites Creek No. 10
 265          BA     0.3
 266          PB     2.8
 267          LS              55
 268          UD     .32
              *

 269          KK   CP 23  Combine local flows with channels 2 and 3
 270          HC       2
              *
```



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

 271          KK  DV 23A  Divert flows at CP 23 (Channels 2 and 3 Diverge)
 272          KM          Hydrograph at this station is in channel 3 (Channel 2 is diverted)
 273          DT    CH 2
 274          DI       0    2000    3500
 275          DQ       0    1000    1750
              *

 276          KK   RT V3  Route flow to Virginia St. (CP V3)
 277          RM       2   0.136      .2

 278          KK    W11R  Whites Creek No. 11
 279          BA    0.32
 280          PB     2.7
 281          LS              75
 282          UD    0.27
              *

 283          KK  CP V24  Combine Subbasin W11R, and Channel 3 at Virginia Street
 284          HC       2

 285          KK   RT F3  Route flow to F3 (Channel 3 at 580)
 286          RM       3   0.234     0.2
              *

 287          KK    W16R  Whites Creek No. 16
 288          BA    0.11
 289          PB     2.7
 290          LS              81
 291          UD    0.21
              *

 292          KK   CP F3  Combine flows at proposed RCB on 580  (Channel 3)
 293          HC       2
              *

 294          KK  RT DSW  ROUTE THRU DRAINAGE DITCH TO STEAMBOAT CREEK
              *  USED CHANNEL DESIGN PARAMETERS
 295          RD    2700   0.003   0.035              TRAP      50        3
              *

 296          KK   W18RA
```

```
          * Basin W18R - subdivided - area south of Channel #3 = W18RA
          BA    0.21
          PB     2.7
          LS             80
          UD    0.33
          *

          KK  CB DSW  COMBINE WHITES CREEK BRANCHES 3 & W18RA @ STEAMBOAT CREEK
          HC       2
          *
1                                        HEC-1 INPUT                                          PAGE 10

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


          KK     S-1
          BA   0.041
          PH       1   0.001   0.478   0.869   0.145    1.52    1.58    2.11    2.53
          LS              66
          UD    0.17
          *

          KK    RT S3 ROUTING POD S-1 THRU STEAMBOAT TO CPS3A
          RM       2      .2      .4
          *

          KK     S-2
          BA   0.062
          LS             62
          UD    0.20
          *

          KK    RT S3 ROUTING POD S-2 THRU STEAMBOAT TO CPS3A
          RM       1      .1      .1
          *

          KK     S-3A
          BA   0.039
          LS             63
          UD    0.17
          *

          KK    RT S3 ROUTING POD S-3A THRU CHANNEL ST-1 TO CPS3A
          RD    1000  0.0025   0.030            TRAP       5       3

          KK    CPS3A
          HC       3
          *

          KK    RT S5 ROUTING CPS3A THRU STEAMBOAT TO CPS5
          RM       4  0.3311     0.4
          *

          KK     S-3B
          BA   0.016
          LS             63
          UD    0.14

          KK    RT S5 ROUTING POD S-3B THRU STEAMBOAT TO CPS5
          *
          RM       3  0.2837     0.4
          *

          KK     S-4
          BA   0.021
          LS             63
          UD    0.16
          *
1                                        HEC-1 INPUT                                          PAGE 11

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


          KK    RT S5 ROUTING POD S-4 THRU STEAMBOAT TO CPS5
          RM       2  0.1497     0.4
          *

          KK     S-5
          BA   0.032
          LS             76
          UD    0.16

          KK    RT S5 ROUTING POD S-5 OVERLAND TO CPS5
          RM       2  0.1230     0.1
          *

          KK    CPS5
          HC       4
          *

          KK  RT WHT ROUTINT CPS5 TO WHT THRU STEAMBOAT
          RM       2  0.1775      .4

          KK  CB WHT  COMBINE STEAMBOAT CREEK W/ WHITES CREEK BRANCHES 3&4
          HC       3
          *

          KK      HD    WATERSHED TO ACCOUNT FOR COM & IND AREA IN WHITES CK MEADOWS
          KM               DISCHARGES TO STEAMBOAT CREEK
          BA    .114
          LS             95
          UD     .32
          *

          KK   CP HD   COMBINE HD WITH STEAMBOAT CREEK UPSTREAM OF DIVERSION STRUCTURE
          HC       2
          *
```

```
                *   DIVERSION FROM STEAMBOAT TO EAST

  357           KK  DIVSTR STAGE, STORAGE, AND DISCHARGE FROM DIVERSION POND
  358           KM   BACKWATER FROM THE 4 8'X10' RCBs
                * KO      1
  359           RS        1    ELEV     4475
                * DIVERSION POND AREAS FOR ELEVATION 4475 TO 4490; 4 8'x 10' RCBs, I.E.4475
                * WEIR WIDTH = 240' @ CREST 4485'
                * ADDITIONAL ELEVATIONS ADDED TO RESERVOIR , AREAS IN THESE 2 ARE
                * KEPT CLOSE TO THE AREA AT ELEVATION 4488
  360           SA     .07    0.25    0.35    0.72    1.13    2.93    3.23    3.51    3.83    4.11
  361           SA    4.34    4.69
  362           SE    4475    4476    4477    4479    4480    4483    4484    4485    4486    4487
  363           SE    4488    4489
  364           SQ       0     124     336     920    1272    2512    2976    3272    4222    5914
  365           SQ    8003   10364
                *
                *
```



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


  366           KK   STEAM  DIVERSION
                *  DI=CULVERT+WEIR FLOW, DQ=WEIR FLOW INTO DETENTION BASIN 1
  367           DT   BAS 1
                *  DI CARDS FOR 5-108" RCP CULVERTS AND WEIR
  368           DI       0     124     336     920    1272    2512    2976    3272    4222    5914
  369           DI    8003   10364
                *  DQ CARDS INDICATE FLOW OVER WEIR INTO BASIN 1
  370           DQ       0       0       0       0       0       0       0       0     726    2074
  371           DQ    3847    5980
                *

  372           KK   OUTDM  Route Steamboat to DM (near middle of Damonte property)
  373           RM       2    0.15    0.25

  374           KK   OUTDN  ROUTE STEAMBOAT TO DN ~DAMONTE NORTH BOUNDARY
  375           RM       2     0.2    0.25
                *
                *
                *
                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
                *                   DAMONTE RANCH PHASE V
                * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
                *
                * NOTE: Basins denoted "* DR" correspond to Nimbus Model
                *        443Post.dat (1/2005)
                *
                *
                * PHASE V: ON-SITE AREA DRAINING TO STEAMBOAT CREEK
                *

  376           KK      A7
                * KK  DR 2
  377           BA   0.037
  378           PB     2.8
  379           LS              85
  380           UD   0.531
                *

  381           KK   STM+7
  382           KM  COMBINE A7 INTO STEAMBOAT CRK
  383           HC       2
                *
                *

  384           KK      A6
                * KK  DR 8
  385           BA    .019
  386           LS              90
  387           UD    .289
                *
```



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


  388           KK   STM+6
  389           KM   COMBINE A6 INTO STEAMBOAT CRK
  390           HC       2
                *
                *

  391           KK      A3
  392           BA    .005
  393           LS              90
  394           UD    .167
                *

  395           KK   STM+3
  396           KM   COMBINE A3 INTO STEAMBOAT CRK
  397           HC       2
                *
                *

  398           KK      A2
  399           BA    .020
  400           LS              90
  401           UD    .167
                *

  402           KK   STM+2
  403           KM   COMBINE A2 INTO STEAMBOAT CRK
  404           HC       2
                *
                *
```

```
*
KK    A17
KM    CHANNEL E CROSSING AT CARAT DR.
* KK DR 18
BA   0.029
* BA 0.031
LS              83
UD    .235
*
*

KK    A18
* KK DR 19
BA   0.036
* BA 0.021
LS              83
UD    .319
*
```



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

KK  CHNL-E
KM  CHNL-E  CHANNEL E
HC       2
*
*

KK   STM+E
KM   COMBINE CHANNEL E WITH STEAMBOAT CRK
KM   DOWNSTREAM DAMONTE BNDRY
HC       2
KO       3
*
*

KK  RT NST ROUTING CPSTM2 TO CPN4STM2
RM       5  0.3916      .4
*
*
*
*
* * NW-4 IS BEING DEVELOPED UNDER PHASE V
* *
* KK  NW-4
* BA 0.129
* PB   2.5
* LS             73      68
* UD  0.33
*
*
*
* * FOLLOWING DAMONTE BASINS DRAIN TO THE WESTERN PERIMETER DITCH
* KK    A4
* KK  DR 6
* BA 0.017
* LS             90
* UD  .197
*
*
* KK   A23
* BA 0.004
* LS             85
* UD 0.531
*
* KK    A1
* KK  DR 8
* BA 0.014
* BA 0.051
* LS             90
* UD  .289
*
*
*
*
* KK   A22
* KK  DR 1
* BA 0.004
* LS             91
* UD 0.531
*
*
* KK    A5
* KK  DR 4
* BA 0.047
* BA 0.045
* LS             83
* UD  .313
*
* KKCARAT1
* KM CARAT DR. CULVERT #1
* HC      2
*
*
*
*
*
*
*
*
* KKCHNL-A
* KMCHNL-A DAMONTE WESTERN PERIMETER DITCH
* HC      4
*
```

```
                     *
                     *
                     *
                     * DAMONTE PHASE V: ON-SITE AREAS A16, A19, A20
                     *
1                                        HEC-1 INPUT                                        PAGE 15

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


           424       KK     A16
                     * KK DR 20
           425       KM   NODE FOR SIZING INLET TO CHANNEL F UNDER CARAT DR
           426       BA   0.018
                     * BA 0.021
           427       LS             90
           428       UD    .222
                     *

           429       KK     A19
                     * KK DR 21
           430       BA   0.036
           431       LS             83
           432       UD    .269
                     *

           433       KK     A20
                     * KK DR 22
           434       BA   0.023
           435       LS             85
           436       UD    .355
                     * *
                     *

           437       KK  CHNL-F  CHANNEL F
           438       KM   OUTLET 3
           439       HC       3
                     *

           440       KK  STM+AF
           441       KM  COMBINE CHANNEL A & F INTO STEAMBOAT CRK
           442       HC       2
                     *
                     * INSERT BELLA VISTA PHASE 1A DEVELOPED

           443       KK  BVW 6  UNDEVELOPED BELLA VISTA ONSITE WATERSHED
           444       PB     2.4
           445       BA    .010
           446       LS             74
           447       UD   0.167
                     *

           448       KK   RT W6 ROUTE BVW6 TO 16
           449       RD     910   .0024    .035           TRAP     200       3
                     *

           450       KK   BV 16  BELLA VISTA ONSITE WATERSHED
           451       PB     2.4
           452       BA    .006
           453       LS             83
           454       UD   0.167
                     *
1                                        HEC-1 INPUT                                        PAGE 16

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


           455       KK  Stm+16
           456       HC       2
                     *

           457       KK   RT 16 ROUTE 16 TO 15
           458       RD     910   .0024    .035           TRAP     200       3
                     *

           459       KK   BV 15  BELLA VISTA ONSITE WATERSHED
           460       BA    .018
           461       LS             83
           462       UD   0.167
                     *

           463       KK  Stm+15
           464       HC       3
                     *

           465       KK  RT BV3 ROUTE Stm+15 TO BV3
                     * KO     2
           466       RD    1560   .0024    .035           TRAP      200       3
                     *
                     *
                     *

           467       KK  APTS-9
           468       KM   FUTURE APARTMENTS / PARK SITE   - - PREVIOUSLY KNOWN IN
           469       KM   NIMBUS MODELS AS PRE-DEV BASINS "W-4", "W-5", & "W-6"
                     * PLANS CURRENTLY CALL FOR AN 18" STUB UNDER STEAMBOAT PKY
                     * DRAINS TO CHANNEL B
           470       PB     2.8
           471       BA   0.032
           472       LS             87
           473       UD    .279
                     *
                     *
                     *

           474       KK      A8
                     * KK DR 10
```

```
475          BA   0.071
476          LS             88
477          UD    .338
             *
             *

478          KK  CHNL-B  UPSTREAM SECTION OF CHANNEL B
479          HC       2
             *
             *
             *
```



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

480          KK  D12&13
481          KM   EXISTING DAMONTE RANCH 12 & 13
             * KK EX 11  EXISTING BASIN #11 (D.R. 12&13)
482          BA   0.057
483          LS             84
484          UD    .312
             * *
             *

485          KK      A9
             * KK DR 12
486          BA   0.050
487          LS             83
488          UD    .286
             *
             *

489          KK  CHNL-C
490          KM  CHANNEL C
491          HC       2
             *
             *

492          KK     B&C
493          KM   COMBINE CHANNEL B & C
494          HC       2
             *
             *

495          KK     A14
             * KK DR 13
496          BA   0.055
497          LS             83
498          UD    .295
             *
             *

499          KK     A13
             * KKDR 14A
500          BA   0.045
             * BA 0.047
501          LS             83
502          UD    .295
             *
             *

503          KK     A15
             * KK DR 15
504          BA   0.018
             * BA 0.019
505          LS             87
506          UD    .308
             * *
             *
```



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

507          KK  CHNL-D  CHANNEL D
508          KM   CHANNEL D
509          HC       4
             *
             *
             *

510          KK     A11
             * KK DR 17
511          BA   0.014
             * BA 0.016
512          LS             90
513          UD    .275
             * *

514          KK     A12
             * KKDR 14B
515          BA   0.020
             * BA 0.043
516          LS             90
517          UD    .475
             * *
             *

518          KK   11+12  ROADSIDE DITCH ALONG CARAT DR
519          KM   ROADSIDE DITCH ALONG CARAT DR DRAINING A11 & A12
520          HC       2
             *
             *

521          KK  CHNL D CHANNEL D CROSSES CARAT DR
522          KM   CROSSING AT CARAT DR AND CHANNEL D
```

```
 523            HC       2
                *
                *
                *
                *

 524            KK  X12+13 EXISTING DAMONTE RANCH 12 & 13 (AREA 16)
 525            KM   WAS DEVELOPED PRIOR TO DAMONTE RANCH PHASE V
 526            KM   PREVIOUSLY KNOWN IN NIMBUS MODELS AS PRE-DEV BASIN "W-7"
 527            BA   0.076
 528            LS              86
 529            UD    .733
                *
                *

 530            KK     A10
                * KK DR 24
 531            BA   0.012
 532            LS              89
 533            UD    .206
                *
                *
```



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


 534            KK
 535            HC       2
                *
                *

 536            KK     A21  FUTURE SCHOOL
                * KK DR 23  FUTURE SCHOOL SITE
 537            BA   0.015
 538            LS              93
 539            UD    .212
                *
                *

 540            KK  WTLNDS  DISCHARGE TO WETLANDS
 541            KO       3
 542            HC       3
                * *
                *
                *
                *
                *
                *

 543            KK  RC BAS   RECALL DIVERSION FROM STEAMBOAT
 544            KM  OVERFLOW FROM DIV. STRUCTURE 1
 545            DR   BAS 1
                *

 546            KK   BAS 1 STAGE, STORAGE, AND DISCHARGE FROM BASIN 1
 547            KM   MODIFY BASIN 1 MAKE IT 5 FT DEEPER TO REDUCE PEAK FLOWS TO EAST
                * KO     1
 548            RS       1    ELEV    4473
                *  *** BAS 1 OUTLET 7 PIPE ARCHES W/1-36" RCP *****
 549            SA      19   26.26   30.61   32.63    33.7   34.10   34.47   34.82   35.18   35.54
 550            SA   35.97
 551            SE    4475    4476    4477    4478    4479    4480    4481    4482    4483    4484
 552            SE    4485
 553            SQ       5       7      10     515    1021    1523    2027    2537    3059    3561
 554            SE  4475.4 4475.92  4476.6 4477.64 4478.54 4479.28 4479.95 4480.59 4481.25 4481.87
                * Updated based on AS-BUILT data
                * SQ     5       7      10     515    1021    1527    2031    2537    3059    35
                * SE4475.4 4475.92  4476.6 4477.64 4478.54 4479.28 4479.95 4480.59 4481.25 4481.
                * previous data
                * SQ     5       7      10     515    1521    2027    2533    3038    3059    35
                * SE4475.4 4475.92  4476.6  4477.6  4478.5  4479.3  4480.1  4480.7  4481.3  4481

 555            KK  BAS1DS
 556            DT  36DIVQ             130
                *  ************* 100' WEIR ******************
 557            DI      10     515    1521    2027    2533    3038    3059    3562    4065
 558            DQ      10      15      21      27      33      38      59      62      65
                *
```



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


 559            KK   POND2
 560            KM   POND 2 WILL OUTFLOW OVER NATURAL GROUND WITH NO DETENTION.  THE FLOW
 561            KM   WILL BE ROUTED OVERLAND TO THE FIRST COMBINATION POINT IN THE WETLANDS.
 562            RM       1     0.2     0.2
                *
                *

 563            KK     T-1
 564            BA   0.036
 565            PB     2.5
 566            LS              74      68
 567            UD    0.20
                *

 568            KK   RT T2 ROUTING POD T-1 THRU CHANNEL T-1 TO CPT2
 569            RD     300    0.01   0.030            TRAP      10       3
                *

 570            KK     T-2
 571            BA   0.065
 572            PB     2.5
 573            LS              73      70
 574            UD    0.21
```

```
                  *
 575              KK    CPT2              COMBINING PODS T1 AND T2
 576              HC       2

 577              KK   RT T3 ROUTING CPT2 THRU CHANNEL T-2 TO CPT3
 578              RD     970    0.01   0.030             TRAP      10       3
                  *

 579              KK     T-3
 580              BA   0.061
 581              PB     2.5
 582              LS              79       78
 583              UD    0.22
                  *

 584              KK    CPT3
 585              HC       2
                  *

 586              KK   CPD1A  COMBINING TAHOE AND CPT3 AND SPLIT FROM STEAMBOAT
 587              HC       2
                  *

 588              KK   RT WT   ROUTE TO CPWET
 589              RM       3  0.2621     0.1
                  *
                  *  East side drainages
```



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


 590              KK    WSF1  East side watershed F1
 591              BA   0.775
 592              PB    2.80
 593              LS              77
 594              UD     .24
                  *

 595              KK    WSE1  East side watershed E
 596              BA     2.1
 597              PB     2.8
 598              LS              78
 599              UD     .53
                  *

 600              KK    F1E1  COMBINE F1 & E1
 601              HC       2
                  *

 602              KK     C-2
 603              BA   0.034
 604              PB     2.5
 605              LS              62       20
 606              UD    0.17
                  *

 607              KK   RT C3 ROUTING C-2 THRU CHANNEL C-3 TO CPC3
 608              RD    1050   0.005   0.030             TRAP      65       3
                  *

 609              KK    C-1C
 610              BA   0.070
 611              PB     2.5
 612              LS              63       50
 613              UD    0.20

 614              KK   RT C3 ROUTING C-1C THRU CHANNEL C-3 TO CPC3
 615              RD    1050   0.005   0.030             TRAP      65       3
                  *

 616              KK     C-3
 617              BA   0.034
 618              PB     2.5
 619              LS              63       20
 620              UD    0.18
                  *

 621              KK    CPC3
 622              HC       4
```



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


 623              KK   RT C4 ROUTING CPC3 THRU CHANNEL C-4 TO CPC4
 624              RD     550   0.005   0.030             TRAP      65       3
                  *

 625              KK     C-4
 626              BA   0.040
 627              PB     2.5
 628              LS              65       64
 629              UD    0.19
                  *

 630              KK    CPC4 COMBINE CPC3 AND POD C-4
 631              HC       2

 632              KK   RT C7 ROUTING CPC4 THRU CHANNEL C-5 TO CHANNEL C-7
 633              RD    1700   0.005   0.030             TRAP      70       3

 634              KK   RT C7 ROUTING CPC4 THRU CHANNEL C-7 TO CPC7
 635              RD    1400  0.0045   0.030             TRAP      75       3
                  *
```

```
636       KK    C-5
637       BA  0.068
638       PB    2.5
639       LS            70      63
640       UD   0.20

641       KK   RT C7 ROUTING POD C-5 THRU CHANNEL C-5 TO CHANNEL C-7
642       RD    100   0.005   0.030           TRAP      70       3

643       KK   RT C7  ROUTING POD C-5 THRU CHANNEL C-7 TO CPC7
644       RD   1400  0.0045    .030           TRAP      75       3
          *

645       KK    C-7
646       BA  0.026
647       PB    2.5
648       LS            81      70
649       UD   0.16
          *

650       KK    C-6
651       BA  0.125
652       PB    2.5
653       LS            64      20
654       UD   0.23

655       KK   RT C7 ROUTING POD C-6 THRU CHANNEL C-6 TO CHANNEL C5
656       RD   2000  0.0120   0.030           TRAP      10       3
```



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

657       KK   RT C7 ROUTING POD C-6 THRU CHANNLE C-5  TO CHANNEL C-7
658       RD    100    .005    0.03           TRAP       3

659       KK   RT C7 ROUTING POD C-6 THRU CHANNEL C-7 TO CPC7
660       RD   1400  0.0045   0.030           TRAP      75       3

661       KK    CPC7  COMBINING CPC4 AND PODS C-5, C-7, C-6
662       HC      4

663       KK   RT WT ROUTING CPC7 TO CPWET
664       RM      2  0.1804     0.1
          *

665       KK    W-1
666       BA  0.065
667       PB    2.5
668       LS            81      65
669       UD   0.22

670       KK   RT W1 ROUTING POD W-1 TO CPWET
671       RM      1      .1      .1

672       KK   CPWET COMBINE CPC7, POD W-1, AND D1B (CET #1)
673       HC      3

674       KK   RT W1 ROUTING CPWET TO CPWET1
675       RM      3  0.2708     0.1
          *  East side drainages

676       KK    E2A
677       KM   THIS IS A COMBINED WATERSHED (E2 & A)
678       BA    2.1
679       PB    2.8
680       LS            78
681       UD   0.53
          *

682       KK   SE-2
683       BA   0.06
684       PB    2.5
685       LS            72
686       UD   0.19

687       KK   RT S3 ROUTING POD SE-2 THRU CHANNEL SE-4B TO CPSE3
688       RD   1300   0.045   0.035           TRAP      20       3
          *

689       KK   SE-3
690       BA  0.053
691       PB    2.5
692       LS            62      23
693       UD   0.21
          *
```



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

694       KK   SE-1
695       BA  0.106
696       PB    2.5
697       LS            62      23
698       UD   0.22

699       KK   RT S3 ROUTING POD SE-1 THRU CHANNEL SE-4A TO CPSE3
700       RD   1450  0.0186   0.030           TRAP      15       3
          *

701       KK   CPSE3
702       HC      3

703       KK   RT S5 ROUTING CPSE3 THRU CHANNEL SE-5 TO CPSE5
704       RD    920   0.006   0.030           TRAP      50       3
          *
```

```
 705          KK    SE-4
 706          BA   0.016
 707          PB    2.5
 708          LS             65       20
 709          UD    0.16
              *

 710          KK    SE-5
 711          BA   0.021
 712          PB    2.5
 713          LS            63         5
 714          UD    0.15

 715          KK   CPSE5 COMBINE CPSE5 CPSE5 AND PODS SE-4 AND SE-5
 716          HC       3

 717          KK   RT S7 ROUTING CPSE5 THRU CHANNEL SE-6 TO CPSE7
 718          RD    1025   0.006   0.030            TRAP      50       3
              *

 719          KK    SE-6
 720          BA   0.004
 721          PB    2.5
 722          LS             66
 723          UD    0.12

 724          KK   RT S7 ROUTING POD SE-6 THRU CHANNEL SE-7 TO CHANNEL SE-8
 725          RD     800   0.019   0.030            TRAP      18       3
              *

 726          KK    SE-7
 727          BA    0.10
 728          PB    2.5
 729          LS             76       65
 730          UD    0.14
```

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

 731          KK   CPSE7   COMBINE CPSE5 AND PODS SE-6 AND SE-7
 732          HC       3

 733          KK   RT WI ROUTING CPSE-7 THRU CHANNEL SE-8 TO CHANNEL SE-9
 734          RD     620  0.0060   0.030            TRAP      65       3

 735          KK   RT WI  ROUTING CPSE-7 THRU CHANNEL SE-9 TO CPWTIN
 736          RD    2000    .006     .03            TRAP      65       3
              *

 737          KK    SE-8
 738          BA   0.065
 739          LS             78       64
 740          UD    0.22

 741          KK   RTWI ROUTING POD SE-8 THRU CHANNEL SE-8 TO CHANNEL SE-9
 742          RD     120   0.006    0.03            TRAP      65       3

 743          KK   RT WI ROUTING POD SE-8 THRU CHANNEL SE-9 TO CPWETIN
 744          RD    2000   0.006   0.030            TRAP      65       3
              *

 745          KK     W-2
 746          BA   0.027
 747          PB     2.5
 748          LS             73        5
 749          UD    0.18
              *

 750          KK     W-3
 751          BA    0.04
 752          PB     2.5
 753          LS             73       70
 754          UD    0.18
              *

 755          KK    CPW2
 756          HC       2

 757          KK  RTG WI
 758          RM       1  0.0567     0.1

 759          KK  PWETIN   COMBINE CPSE7 , CPW2, AND POD SE-8
 760          HC       3

 761          KK  CPWETA  COMBINE CPWTIN, OFFSITE FLOW E2A BEFORE ROUTING TO CPWET1
 762          HC       2

 763          KK   RT W1  ROUTE CPWTIN THRU WETLANDS TO CPWET1
 764          RM       2  0.1462      .1
```

1 HEC-1 INPUT PAGE 26

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

 765          KK  CPWET1  COMBINE CPWTIN AND CPWET
 766          HC       2

 767          KK  RTWET1
 768          KM   ADD ROUTING FROM CPWET1 TO CPWETB  ADDED 7/2/01 DEW
 769          RM       1       .2       .2
              *

 770          KK     WET
 771          BA    0.12
 772          PB     2.5
```

```
LS              81
UD    0.36

KK  CPWETB  COMBINE CPWET1 AND BASIN WETR (INFLOW OF DET #1)
HC       2

KK  RTWETB
KM   ROUTE WETB TO WETO
RM       1      .2      .2
*

KK     E-2
BA    0.07
LS              74      38
UD    0.21

KK   RT E3 ROUTING POD E-2 THRU CHANNEL E-2 TO CPE3
RD    1000   0.007   0.030             TRAP       5       3
*

KK     E-1
BA    0.05
PB     2.5
LS              63
UD     0.2

KK   RT E3  ROUTING POD E-1 THRU CHANNEL E-1 TO CHANNEL E-2
RD     950   0.026    0.03             TRAP       5       3
*

KK    RTE3
RD    1000    .007     .03             TRAP       5       3

KK    CPE3   COMBINE PODS E-2 & E-1
HC       2
*  East side drainages

KK    WSB2
BA    0.12
PB     2.6
LS              76
UD    0.07
*
```



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

KK    WSB1
BA    0.36
PB     2.8
LS              76
UD     .18

KK   CPB12   COMBINE WATERSHEDS B1 & B2
HC       2

KK   RT E3 ROUTING WSB12 THRU CHANNEL E-3A TO CHANNEL E-3B
RD    1350   0.046   0.035             TRAP      15       3

KK   RT E3 ROUTING WSB12 THRU CHANNEL E-3B TO CPE3
RD    1300  0.0063   0.030             TRAP      15       3

KK   RT E4 ROUTING CPE3 THRU CHANNEL E-4 TO CPE-4
RD     970  0.0035   0.030             TRAP      15       3

KK     E-4
KM   MODIFY E-4, INCLUDE OLD E-3.  THESE 2 ARE NOW THE HIGH SCHOOL SITE
BA     0.1
PB     2.5
LS              86
UD     0.2

KK   RT E4 ROUTING POD E-4 THRU CHANNEL E-4 TO CPE-4
RD     430  0.0035   0.030             TRAP      15       3

KK    CPE4  COMBINE CPE3 AND POD E-4
HC       3
*

KK     W-8
BA   0.063
PB     2.5
LS              81      63
UD    0.19

KK  CPWETO
HC       3

KK  RS DT2   ROUTE THRU DET #2
KM   BELOW IS DATA FOR THE RESERVOIR ABOVE TRAPEZ WEIR,CALLED DT2 OR POND 3
KM    DT2 INCLUDES PORTION OF WETLAND AS STORAGE
RS       1    FLOW      -1
SA       0     3.1    10.4      20    27.3    32.8    37.7    43.2    48.4    53.4
SA    58.0
SE    4452    4453    4454    4455    4456    4457    4458    4459    4460    4461
SE    4462
KM   INSERT TRAPEZOIDAL WEIR, CREST LENGT=65', ELEV=4454, Z=.25H:1V
KM     LOW FLOW OUTLET IS 24" RCP AT IE=4451.3, ASSUMED TO BE INEFFECTUAL AFTER
KM       WATER ELEVATION OVER WEIR REACHES 4455
SQ       0       3       8     110     285     567     941    1409    1975    2645
SQ    3421
* SQ     0       6      15     168     378     693    1076    1509    1991      25
* SQ  3089
* SQ     0       7      16   189.5     496     888    1344    1796    2336      29
* SQ  3626
* SQ     0       3       8     110     285     567     941    1409    1975      26
```

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          * SQ  3421
          *
```



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

 845      KK     W-9
 846      BA   0.041
 847      PB     2.5
 848      LS               81       64
 849      UD    0.19
          *

 850      KK    CW-9
 851      KM   COMBINE W-9 & CPWETO
 852      HC       2
          *

 853      KK   POND4
          * KO     1
 854      KM   ROUTE THRU POND 4 JUST UPSTREAM OF DAMONTE PKWY CULVERT
 855      KM    OUTLET MODELED AS 5 BOX CULVERTS 4' X 12'
 856      RS       1    STOR      0
 857      SA    0.02    2.93    6.18    9.21   13.70   17.95   22.95   25.19   25.84
 858      SE    4450    4451    4452    4453    4454    4455    4456    4457    4458
 859      SQ       0     200     500     950    1450    2000    2500    2800
 860      SE    4450 4451.08    4452 4453.07 4454.06 4455.04 4456.01  4456.7
          *
          *

 861      KK  WET-IN
 862      KM   COMBINE OFFSITE FLOW IN THE WETLANDS FROM THE SOUTH W/ ONSITE DRAINAGE
 863      HC       2
          *
          *  East side drainage
          *

 864      KK      D1
 865      BA    1.72
 866      PB     2.8
 867      LS               78
 868      UD     .45

 869      KK   RT N1 ROUTING BASIN D1 THRU CHANNEL NE-2 TO CHANNEL NE-4A
 870      RD    1150    .030    .035            TRAP      25       3

 871      KK   RT N1 ROUTING BASIN D1 THRU CHANNEL NE-4A TO CHANNEL NE-5
 872      RD    2500   .0236    .035            TRAP      25       3

 873      KK   RT N1 ROUTING BASIN D1 THRU CHANNEL NE-5 TO CPNE-1
 874      RD     800  0.0040   0.030            TRAP      80       3
          *

 875      KK     WSC
 876      BA    3.31
 877      PB     2.8
 878      LS               79
 879      UD     .65
          *
```



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

 880      KK   RT N1 ROUTING BASIN WSC THRU CHANNEL NE-4A TO CHANNEL NE-5
 881      RD    2500  0.0236   0.035            TRAP      25       3

 882      KK   RT N1 ROUTING BASIN WSC THRU CHANNEL NE-5 TO CPNE1
 883      RD     800  0.0040   0.030            TRAP      80       3
          *
          *

 884      KK    NE-1
 885      BA   0.044
 886      PB     2.5
 887      LS               63       34
 888      UD    0.24

 889      KK   RT N1 ROUTING POD NE-1 THRU CHANNEL NE-5 TO CPNE1
 890      RD     100   0.004    0.03            TRAP      80       3
          *

 891      KK   CPNE1   COMBINE OFFSITE FLOW WSC AND D1 WITH NE-1
 892      HC       3
          *

 893      KK   RT W3  ROUTING CPNE1 THRU CHANNEL NE-6
 894      RD     670    .004     .03            TRAP      80       3

 895      KK   RT W3 ROUTING CPNE1 TO CPWET3
 896      RM       3       1     0.1
          *
          *

 897      KK      D2
 898      BA    0.15
 899      PB     2.6
 900      LS               78
 901      UD    0.06
          *

 902      KK   RT N4 ROUTING BASIN D2 THRU CHANNEL NE-1 TO CHANNEL NE-3A
 903      RD    1300  0.0192   0.035            TRAP       5       3
          *

 904      KK   RT N4 ROUTING BASIN D2 THRU CHANNEL NE-3A TO CHANNEL NE-3B
```

```
905          RD    1100    0.03   0.035            TRAP       5       3
             *

906          KK   RT N4 ROUTING BASIN D2 THRU CHANNEL NE-3B TO CPNE4
907          RD    2050  0.0143   0.030            TRAP      15       3
             *
             *
             * * * NOTE: THE FLOWPATHS OF NE-2 THRU 5 HAVE BEEN CORRECTED
             * * *       AS PER THE 4/2005 SITE PLAN, HOWEVER WERE COMBINED
             * * *       INTO NE2345.  TO SUBDIVDE IT AGAIN, CHECK THE
             * * *       ROUTING CARDS- APPEARS TO BE MUSKINGUM OVERLAND FLOW
             * *
```



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


908          KK  NE2345
909          KM   COMPOSITE WATERSHED, INCLUDES BASINS FORMERLY KNOWN AS
910          KM   NE-2, NE-3, NE-4,& NE-5
911          BA  0.2320
912          PB     2.5
913          LS             65      30
914          UD    0.21
             *
             *
             *
             * KK  NE-3
             * BA 0.054
             * PB   2.5
             * LS            68      34
             * UD  0.25
             * KK RT N5 ROUTING POD NE-3 OVERLAND TO CPNE5
             * RM      3  0.2566     0.1
             * *
             * *
             * KK  NE-2
             * BA 0.057
             * PB   2.5
             * LS            69      34
             * UD  0.24
             * *
             * KK1CHNLH  (CENTRAL) CHANNEL H DRAINING OFFSITE BASIN D2, NE-3, NE-2
             * KM UPSTREAM SECTION OF CHANNEL H
             * HC      3
             * *
             * KK RT N1 ROUTING POD NE-2 THRU CHANNEL NE-5 TO CPNE-1
             * RD    800  0.0040   0.030            TRAP      80       3
             * *
             * *
             * KK  NE-5
             * BA 0.051
             * PB   2.5
             * LS            44      38
             * UD  0.23
             * *
             * KK  NE-4
             * BA 0.070
             * PB   2.5
             * LS            43      64
             * UD  0.21
             * *
             * *
             * KK2CHNLH  (CENTRAL) CHANNEL H
             * KM DOWNSTREAM SECTION OF CHANNEL H
             * KO      3
             * HC      3
             * *
             * KK RT DN ROUTING CPNE5 OVERLAND THRU THE WETLANDS TO CPDN
             * RM      2  0.1741      0.1
             *
             *
```



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

915          KK    CPNE4   COMBINE BSIN D2 AND POD NE-4
916          KO        3
917          HC        2

918          KK    RT W3 ROUTING CPNE4 TO CPWET3
919          RM       10        1       .1
             *

920          KK   CPWET3  COMBINE CPWETO AND CPNE4
921          KO        3
922          HC        2
             *

923          KK    RT DN ROUTING CPWET3 TO CPDN OFFSITE
924          RM        6  0.4830     0.1
             *
             *
             *

925          KK    DMNTE   DOWNSTREAM CP TO SUM DAMONTE FLOW
             * KO      3
926          HC        2
             *

927          KK    BV 14  BELLA VISTA ONSITE WATERSHED
928          BA     .007
929          LS              84
930          UD    0.167
             *
             * KKStm+14
```

```
               * HC     2
               *

   931         KK   RT 14 ROUTE 14 TO 13
   932         RD     875   .0024    .035            TRAP     200       3
               *

   933         KK   BV 13  BELLA VISTA ONSITE WATERSHED
   934         BA    .005
   935         LS             87
   936         UD   0.167
               *

   937         KK      D4  BELLA VISTA RANCH OFFSITE WATERSHED D4
   938         KM    OFFSITE WATERSHED D
   939         PB     2.5
   940         BA    0.80
   941         LS             73
   942         UD     .77
               *
```



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

   943         KK  RT D4
   944         RM       3    0.57      .1
               *

   945         KK  StmBV3
   946         HC       5
   947         KO       3
               *
               *

   948         KK   RT 13 ROUTE 13 TO 12
   949         RD    1300   .0024    .035            TRAP      200       3
               *

   950         KK   BV 12  BELLA VISTA ONSITE WATERSHED
   951         BA    .031
   952         LS             85
   953         UD   0.167
               *

   954         KK  StBV33
   955         KO       3
   956         HC       2
               *

   957         KK   RT 12 ROUTE 12 TO 11
   958         RD     550   .0024    .035            TRAP      200       3
               *

   959         KK   BVW 7  BELLA VISTA -DEVELOPED- ONSITE WATERSHED
   960         KM    USE TO SIZE CULVERT
   961         PB     2.4
   962         BA    .062
   963         LS             83
   964         UD   0.283
               *
               *

   965         KK  RT W7
   966         RD     500   .0025    .035            TRAP       5
               *

   967         KK    BV 8  BELLA VISTA ONSITE WATERSHED
   968         KM    BEGIN EAST-WEST CHANNEL
   969         PB     2.4
   970         BA    .023
   971         LS             83
   972         UD   0.167
               *
```



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

   973         KK    BV 7  BELLA VISTA ONSITE WATERSHED
   974         BA    .016
   975         LS             90
   976         UD   0.167
               *

   977         KK   7+8
   978         HC       3
               *

   979         KK   RT
   980         RD     600   .0025    .035            TRAP       5
               *

   981         KK    BV 6  BELLA VISTA ONSITE WATERSHED
   982         BA    .009
   983         LS             90
   984         UD   0.167
               *

   985         KK    BV 9  BELLA VISTA ONSITE WATERSHED
   986         BA    .018
   987         LS             83
   988         UD   0.167
               *

   989         KK   6+9
   990         HC       3
```

```
                 *
 991             KK   RT
 992             RD     315   .0025    .035            TRAP       5
                 *

 993             KK    BV 5  BELLA VISTA ONSITE WATERSHED
 994             BA    .005
 995             LS             83
 996             UD   0.167
                 *

 997             KK   BV 10  BELLA VISTA ONSITE WATERSHED
 998             BA    .015
 999             LS             83
1000             UD   0.167
                 *

1001             KK  5+10
1002             HC       3
                 *
1                                          HEC-1 INPUT                                        PAGE 34

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


1003             KK   RT
1004             RD     850   .0025    .035            TRAP       5
                 *

1005             KK   BV 11  BELLA VISTA ONSITE WATERSHED
1006             BA    .012
1007             LS             84
1008             UD   0.167
                 *

1009             KK  EST-WST
1010             KM          EAST-WEST  CHANNEL OUTLET TO STEAMBOAT CRK
1011             HC       2
                 *
                 * KK BV 12  BELLA VISTA ONSITE WATERSHED
                 * BA  .031
                 * LS           85
                 * UD 0.167
                 *
                 * KKRTto11
                 * RD   550   .0024    .035            TRAP      200       3
                 *
                 * KK     D3   BELLA VISTA RANCH OFFSITE WATERSHED D3
                 * KM   BELLA VISTA RANCH OFFSITE WATERSHED D3
                 * BA   0.7
                 * LS            79
                 * UD  0.77
                 *
                 * KK  RT03
                 * RM     9    1.47       .1
                 *
                 *
                 * KK DR-6    PART OF BELLA VISTA PHASE 2
                 * BA  .029
                 * PB   2.4
                 * LS            87
                 * UD  .167
                 *

1012             KK  StmBV2
1013             KM   COMBINATION POINT APPROX. @ PT02,
1014             KM   WHERE THE CENTRAL CHANNEL & OFFSITE WATERSHED D3 JOIN
1015             HC       2
                 *

1016             KK  RTto4
1017             RD     550   .0024    .035            TRAP      200       3
                 *
1                                          HEC-1 INPUT                                        PAGE 35

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


1018             KK   BV 4  BELLA VISTA ONSITE WATERSHED
1019             BA    .012
1020             LS             90
1021             UD   0.167
                 *

1022             KK  Stm+ 4
1023             HC       2
                 *

1024             KK  RTto3
1025             RD     500   .0025    .035            TRAP      200       3
                 *

1026             KK   BV 3  BELLA VISTA ONSITE WATERSHED
1027             BA    .012
1028             LS             90
1029             UD   0.167
                 *
                 *
                 * KK DR-5   PART OF BELLA VISTA PHASE 2
                 * BA  .103
                 * PB   2.4
                 * LS            78
                 * UD  .167
                 *

1030             KK  Stm+ 3
```

```
1031          HC       2
              *

1032          KK  RTto2
1033          RD     500   .0025    .035            TRAP      200       3
              *

1034          KK   BV 2  BELLA VISTA ONSITE WATERSHED
1035          BA    .007
1036          LS              83
1037          UD   0.167
              * *
              *
              * KK  DR-7       PART OF BELLA VISTA PHASE 2
              * BA  .096
              * LS             49
              * UD  .167
              *

1038          KK  Stm+ 2
1039          HC       2
              *
              *
```



```
1040          KK  RTStBV1 ROUTE Stm+ 2 TO StBV1
1041          RD     300   .0024    .035            TRAP     200       3
              *

1042          KK  BVW 8  DEVELOPED BELLA VISTA ONSITE WATERSHED
1043          PB     2.5
1044          BA   .0431
1045          LS              83
1046          UD   0.167
              *

1047          KK   BV 1  BELLA VISTA ONSITE WATERSHED
1048          BA    .031
1049          LS              90
1050          UD   0.167
              *

1051          KK   HC1+8   COMBINE BVW 8 AND BV1 IN WESTERN CHANNEL
1052          HC       2
              * *

1053          KK  StmBV1   COMBINATION POINT AT NORTH END OF BELLA VISTA PHASE 1A AND 1B
1054          HC       2
              * *
              * KKRTBVL ROUTE StmBV1 TO BVL
              * RD  1500   .0024    .035            TRAP      200       3
              *
              * ************************************************************************
              *    DR-2, DR-3, AND DR-4 PART OF VISTA PHASE 2
              * ************************************************************************
              *
              * KK DR-2
              * BA  .041
              * PB   2.4
              * LS             90
              * UD  .167
              *
              *
              * KK DR-3
              * BA  .029
              * PB   2.4
              * LS             90
              * UD  .167
              *
              *
              * KK DR-4
              * BA  .070
              * PB   2.4
              * LS             75
              * UD  .167
              *
              *
              * KKCPBVL
              * KM Downstream (North) Boundary of current Bella Vista Bndry
              * KM This sums all drainage on the east side of Bella Vista
              * HC     4
              *
              *
```



```
1055          KK    RT03   ROUTE TOTAL FLOW TO CONFLUENCE AT PT03
1056          RM      28    2.33    0.10
              *

1057          KK      D3   BELLA VISTA RANCH OFFSITE WATERSHED D3
1058          KM     BELLA VISTA RANCH OFFSITE WATERSHED D3
1059          BA     0.7
1060          LS              79
1061          UD    0.77
              *

1062          KK    RT03
1063          RM       9    1.47      .1
              *

1064          KK  PT03
```

```
1065          HC      2
              *
              *
              * * FOLLOWING DAMONTE BASINS DRAIN TO THE WESTERN PERIMETER DITCH
              *

1066          KK     A22
1067          PB     2.8
              * KK  DR 1
1068          BA   0.004
1069          LS              91
1070          UD   0.531
              *
              *

1071          KK      A5
              * KK  DR 4
1072          BA   0.047
              * BA 0.045
1073          LS              83
1074          UD    .313
              *

1075          KK  CARAT1
1076          KM   CARAT DR. CULVERT #1
1077          HC       2
              *
              *

1078          KK      A4
              * KK  DR 6
1079          BA   0.017
1080          LS              90
1081          UD    .197
              *
              *
```



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


1082          KK     A23
1083          BA   0.004
1084          LS              85
1085          UD   0.531
              *

1086          KK      A1
              * KK  DR 8
1087          BA   0.014
              * BA 0.051
1088          LS              90
1089          UD    .289
              *
              *

1090          KK  CHNL-A
1091          KM  CHNL-A DAMONTE WESTERN PERIMETER DITCH AT DAMONTE-BELLA VISTA BNDRY
1092          HC       4
              *
              *  BELLA VISTA WATERSHEDS BVW-5. -3, -2 DISCHARGE TO WESTERN CHANNEL

1093          KK   BVW-5   BELLA VISTA ONSITE SUBBASIN DISCHARGING TO WESTERN CHANNEL
1094          PB     2.4
1095          BA    .049
1096          LS              90
1097          UD    .167
              *

1098          KK  ACHBV5   COMBINE BVW-5 WITH FLOW IN WESTERN CHANNEL FROM DAMONTE V
1099          HC       2
              *

1100          KK  RT5-3    ROUTE BVW-5 TO BVW-3
1101          RD     1800  .0024   .035           TRAP     10      3
              *

1102          KK   BVW-3
1103          PB      2.4
1104          BA    .0501
1105          LS              79
1106          UD     .167
              *

1107          KK  CP3&5    COMBINE BVW-3 AND BVW-5
1108          HC        2
              *
              * KK RT3-1     ROUTE FROM BVW 3 TO BVW-1
              * RD    735  .0024   .035           TRAP     10      3
              *
```



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


1109          KK   BVW-1    BELLA VISTA ONSITE WATERSHED 1
1110          PB      2.4
1111          BA    .0271
1112          LS              81
1113          UD     .167
              *

1114          KK  WSTOUT   COMBINE FLOWS AT DOWNSTREAM END OF WESTERN CHANNEL
1115          HC        2
              *
              * KK DR-1    BELLA VISTA PHASE 2 VILLAGE 1
              * BA    .053
```

```
      * LS           86
      * UD   .167
      *
      * KKCPBVR   COMBINATION POINT AT NORTH END OF BELLA VISTA PHASE 1A AND 1B
      * HC    2
1116  KK    RT03   ROUTE TOTAL FLOW TO CONFLUENCE AT PT03
1117  RM      28    2.33    0.10
      *
1118  KK    PT03   COMBINATION POINT AFTER BELLA VESTA
1119  HC      2
      * [FOLLOWING IS PRE-DEV. BASINS THAT ARE PLANNED FOR DEVELOPMENT]
      *
      * KK   W-4
      * BA 0.038
      * PB   2.5
      * LS           79      68
      * UD  0.18
      * KK RT W6 ROUTING POD W-4 THRU CHANNEL NW-1 TO CHANNEL NW-2
      * RD   650  0.0038   0.030            TRAP       5       3
      * KK RT W6 ROUTING POD W-4 THRU CHANNEL NW-2 TO CPW6
      * RD   700  0.0021   0.030            TRAP       5       3
      * *
      * KK   W-5
      * BA 0.013
      * PB   2.5
      * LS           77      65
      * UD  0.14
      * KK RT W6 ROUTING POD W-5 THRU CHANNEL NW-2 TO CPW6
      * RD   700  0.0021   0.030            TRAP       5       3
      * *
      * KK   W-6
      * BA 0.017
      * PB   2.5
      * LS           77       5
      * UD  0.15
      * KK  CPW6   COMBINE PODS W-4, W-5 AND W-6
      * HC     3
      * *
      * *
      * KKRT DT2 ROUTING CPW6 THRU CHANNEL NW-3A TO CHANNEL NW-4
      * RD   350  0.0086   0.030            TRAP       5       3
      * KKRT DT2 ROUTING CPW6 THRU CHANNEL NW-4 TO CPDT2
      * RD  1200   0.005   0.030            TRAP       5       3
      *
      *
      * * NW-2 IS BEING DEVELOPED UNDER PHASE V
      * KK  NW-2
      * BA 0.066
      * PB   2.5
      * LS           78      50
      * UD  0.26
      *
      * KKRT DT2 ROUTING POD NW-2 THRU  CHANNEL NW-3B TO CHANNEL NW-4
      * RD   285   0.006   0.030            TRAP       0       3
      *
      * KK   W-7
      * KM USED TO DRAIN TO WETLANDS, NOW IS ROUTED UNDER STEAMBOAT PKWY TO A10
      * KM WAS DEVELOPED BY OTHERS, NOW KNOWN AS "EXIST. DAMONTE RANCH 12&13 (AREA 16)
      * BA 0.053
      * PB   2.5
      * LS           76      70
      * UD  0.17
      * KK CPDT2         COMBINE CPW6 AND PODS NW-2 AND W-7
      * HC     3
      *
      * KK RT N1 ROUTING CPDT2 THRU CHANNEL NW-5 TO CHANNEL NW-6
      * RD  2275  0.0022   0.030            TRAP       5       3
      * KK RT N1 ROUTING CPDT2 THRU CHANNEL NW-6 TO CPN1
      * RD  1650  0.0014   0.030            TRAP      15       3
      * *
      *
      * * NW-3 IS BEING DEVELOPED UNDER PHASE V
      * KK  NW-3
      * BA 0.076
      * PB   2.5
      * LS           73      65
      * UD  0.22
      * KK RT N1 ROUTING POD NW-3 THRU CHANNEL NW-6 TO CPN1
      * RD  1650  0.0014   0.030            TRAP      15       3
      *
      *
      *
      *
      * * NW-1 IS PARTIALLY BEING DEVELOPED UNDER PHASE V
      * KK   N-1
      * BA  0.02
      * BA 0.104
      * PB   2.5
      * LS           76      68
      * UD  0.29
      * *
      * KK  CPN1  COMBINE CPDT2 AND PODS NW-3 , N-1
      * HC     3
      * *
      * KKRT N13  ROUT CPN1 THRU CHANNEL NW-7 TO CPN13
      * RD   800    .001     .03            TRAP      18       3
      *
      *
      *
      * * S-6 & S-7 ARE BEING DEVELOPED UNDER PHASE V
      * KK   S-6
      * BA 0.038
      * PB   2.5
      * LS           73      64
      * UD  0.24
```

```
* *
* KKRT ST2 ROUTING POD S-6 THRU STEAMBOAT TO CPSTM2
* RM     8  0.6266      .4
* *
* KK   S-7
* BA 0.046
* PB   2.5
* LS            73      64
* UD  0.23
* *
*
*
*
* KKRT N13 ROUTING CPN4STM2 TO CPN13
* RM    10  0.8647      .4
*
*
*
* * N-2 & N-3 ARE BEING DEVELOPED UNDER PHASE V
*
* KK   N-2
* BA 0.047
* PB   2.5
* LS            75      68
* UD  0.21
* *
* KK   N-3
* BA 0.030
* PB   2.5
* LS            80       5
* UD  0.11
*
* KK CPN13  COMBINE CPN1, CPNST AND PODS N-2 AND N-3
* HC     2
* KK  CPDN CPN13, CPWET3, CPNE5 AND OUTDN ROUTED TO CPDN, NORTH BNDRY OF DAMONTE
* HC     3
*
*
*
* [END 443LOMR.dat]
*
*
*
*
*
*  ****************************************************************************
*   Routing flow from Damonte property line to Bella Vista Ranch model
*  ****************************************************************************
* KK  RT01 ROUTING OF FLOW FROM DAMONTE
* RM     8    1.25     0.1
* KK    D4  BELLA VISTA RANCH WATERSHED 4
* KM  CALCULATE RUNOFF FROM WATERSHED 4
* BA  0.80
* PB   2.5
* LS            73
* UD   .77
* KK  PT01   COMBINE FLOW FROM DAMONTE (RT01) WITH WATERSHED 4
* HC     2
*
*
* KK  RT02   ROUTE TO CONFLUENCE WITH WATERSHED 3
* RM     3    0.57      .1
* KK    D3   BELLA VISTA RANCH WATERSHED 3
* KM  CALCULATE RUNOFF FROM WATERSHED 3
* BA   0.7
* PB   2.5
* LS            79
* UD  0.77
* KK  PT02   COMBINE FLOWS FROM WATERSHED 3 WITH RT02
* HC     2
* KK  RT03   ROUTE TOTAL FLOW TO CONFLUENCE WITH WATERSHED 2
* RM     9    1.47      .1
*
*
*
*
*  ****************************************************************************
*  File name : 028AS-PH1.DAT (NOV 2000) - Includes only the section of this
*  model that starts at "Begin Double Diamond Model" with watershed W18RB.
*  This model was modified from AS-PH1.DAT (MAY 1995); Whites Creek Branches
*  3 & 4 were diverted to Steamboat Creek.
*  DOUBLE DIAMOND SUBDIVISION-PROJECT #0028 HYDROLOGIC & HYDRAULIC ANALYSIS
*  SOUTH MEADOWS PARKWAY & CENTRAL CHANNEL
*  SOUTH MEADOW/DOUBLE DIAMOND
*  BY NIMBUS ENGINEERS, RENO, NV
*  100-Year, 24 hour model
*  WHITES CREEK MODEL COPIED FROM WHITECN.DAT
*  FIS THOMAS CREEK 100-YEAR PEAK = 2544 CFS @ S. VIRGINIA STREET.
*  WHITES CREEK SUBBASIN W18RB-NORTH OF WHITES CREEK BRANCH #3 DIVERSION
*  ADD PHASE I, PHASE VI AND PHASE V TO CENTRAL CHANNEL
*  FROM CARAT AVE TO END OF CENTRAL CHANNEL
*  MODEL INCLUDES DOUBLE DIAMOND DEVELOPMENT PHASE I (PORTIONS OF VILLAGES 11 AN
*  , PHASE I(VILLAGES 1, 2, 3 AND 4), PHASE VI )PARK, K-6 SCHOOL, AND VILLAGE 29
*  AND PHASE V (VILLAGES 24 AND 25)
*  100-YEAR,24-HOUR MODEL
*  MODEL INCLUDES DOUBLE DIAMOND DEVELOPMENT PHASE II (VILLAGES 5 & 6 AND PARKS)
*  , PHASE III (VILLAGES 16, 17, 18, AND 19), AND PHASE IV (VILLAGES 7, 8, 9,
*  20, 21, 22, AND 23) PLUS WETLAND BETWEEN VILLAGES 18/19 & 20.
*  USE SUBBASIN AREAS FROM MACKAY & SOMPS
*  NIMBUS ENGINEERS, RENO, NEVADA
*  MODEL MODIFIED FROM CARATDD.DAT (#9908)
*  ****************************************************************************
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LINE ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

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KK   W18RB WHITES CREEK SUBBASIN W18RB-NORTH BOUNDARY OF WHITES CK MEADOW SUBDIV.
KM         DAMONTE RANCH NORTH OF WHITES CK. BRANCH #3 AND SOUTH OF DOUBLE DIAMOND
KM          W18RB AREA REDUCED DUE TO ROUTING OF A PORTION OF IT TO STEAMBOAT CREE
KM          NEW WATERSHED DRAINING TO STEAMBOAT CREEK, HD IS UPSTREAM OF DIVSTR
* BA .2344
BA    .133
PB     2.6
* LS           85
* UD  0.30
LS             95
UD      .24
*

KK  V18-19 DOUBLE DIAMOND VILLAGES 18 & 19
BA   .0548
LS             92
UD     0.24

KK     V20 DOUBLE DIAMOND VILLAGE 20
BA  0.0450
LS             92
UD     0.21

KK     WET WETLANDS # 5 & #6 BETWEEN VILLAGES 18/19 AND VILLAGE 20
BA   .0153
LS             80
UD     0.26

KK  CB WET COMBINE W18RB, V18-19, V20, & WET RUNOFF HYDROGRAPHS IN THE WETLAND
KM         BETWEEN VILLAGES 18/19 AND VILLAGE 20
HC       4

KK   PH-IV PHASE IV DOUBLE DIAMOND DEVELOPMENT (VILLAGES 7,8,9,21,22,&23).
KM         VILLAGE 20 WAS MODELED ABOVE WITH FLOW ENTERING THE WETLAND SOUTH
KM         OF WILBUR MAY BLVD.  DETAILED DRAINAGE PLANS WERE NOT AVAILABLE
KM         AND AS A RESULT THE PHASE IV VILLAGES LIST FOR PH-IV WERE COMBINED.
KM         AS PLANS ARE DEVELOPED, THE VILLAGES CAN BE MODELED SEPARATELY.
BA  0.1931
LS             92
UD     0.31

KK     E14 HYDROGRAPH FROM VILLAGE 6 DRAINAGE POINT E14
KM   CALCULATE RUNOFF FROM SUBBASIN E14
BA    .025
LS             92
UD    .225

KK     C14
KM   COMBINE RUNOFF FROM E14 WITH CENTRAL CHANNEL FLOW (FLOW FROM RT1617 & PH-IV)
HC       3
```



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

KK  E14-E1
KM   ROUTE FLOW TO E1 ALONG CENTRAL CHANNEL
RD     400    .004    .030            TRAP     100       3

KK      E1
KM   CALCULATE RUNOFF FROM SUBBASIN E1-VILLAGE 5
BA   .0058
LS             92
UD    .135

KK      C1
KM   COMBINE RUNOFF FROM E1 WITH CENTRAL CHANNEL FLOW
HC       2

KK   E1-E2
KM   ROUTE FLOW TO E2 ALONG CENTRAL CHANNEL
RD     300    .004    .030            TRAP     100       3

KK      E2
KM   CALCULATE RUNOFF FROM SUBBASIN E2-VILLAGE 5
BA    .003
LS             92
UD    .118

KK      C2
KM   COMBINE RUNOFF FROM E2 WITH CENTRAL CHANNEL FLOW
HC       2

KK   E2-E3
KM   ROUTE FLOW TO E3 ALONG CENTRAL CHANNEL
RD     300    .004    .030            TRAP     100       3

KK      E3
KM   CALCULATE RUNOFF FROM SUBBASIN E3-VILLAGE 5
BA   .0025
LS             92
UD    .119

KK      C3
KM   COMBINE RUNOFF FROM E3 WITH CENTRAL CHANNEL FLOW
HC       2

KK   E3-E4
KM   ROUTE FLOW TO E4 ALONG CENTRAL CHANNEL
RD     360    .004    .030            TRAP     100       3

KK      E4
KM   CALCULATE RUNOFF FROM SUBBASIN E4-VILLAGE 5
BA    .003
LS             92
UD    .113
```

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

               KK      C4
               KM    COMBINE RUNOFF FROM E4 WITH CENTRAL CHANNEL FLOW
               HC       2

               KK     D10
               KM    CALCULATE RUNOFF FROM SUBBASIN D10
               KM    SUBBASIN D10 IS LOCATED ALONG DOUBLE DIAMOND PKWY.  THE AREA DRAINED IS
               KM    COMPRISED OF PORTIONS OF VILLAGES 5,6,13,14,15,16 & 17 THAT BORDER THE PKWY.
               KM    THE D10 SYSTEM IS A PARALLEL STORM DRAIN SYSTEM
               KM    ALONG DOUBLE DIAMOND PARKWAY THAT DRAINS TO AN OPEN
               KM    CHANNEL ALONG THE SOUTH EDGE OF THE PARK LOCATED IMMEDIATELY SOUTHEAST OF
               KM    THE INTERSECTION OF CARAT AV. AND DOUBLE DIAMOND PKWY.
               BA    .122
               LS             92
               UD    .277

               KK     D12
               KM    CALCULATE RUNOFF FROM SUBBASIN D12-VILLAGE 5
               BA  0.0166
               LS             92
               UD   0.173

               KK    PARK
               KM    CALCULATE RUNOFF FROM PARK JUST SOUTH OF CARAT AVE
               BA   .0078
               LS             80
               UD     .14

               KK  C10PRK
               KM    COMBINE HYDROGRAPHS FROM PARK, D10, D12 AND CENTRAL CHANNEL
               HC       4

               KK  PK-CAR
               KM    ROUTE FLOW TO STATION ~62+20 ALONG CENTRAL CHANNEL
               RD     720    .004    .030            TRAP     100       3

               KK    PhVa PHASE V SUB-BASIN a
               BA   0.011
               LS             92
               UD    0.16

               KK      V4 DOUBLE DIAMOND VILLAGE 4 OF PHASE I
               BA   0.026
               LS             86
               UD    0.16

               KK    CB 1 COMBINE PhVa AND V4 AT STATION ~62+20
               HC       3
```



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


               KK   RT1-2
               KM     ROUTE TO CB 2 AT STATION ~74+65
               RD    1245    .004    0.04            TRAP     100       3

               KK    PhVb DOUBLE DIAMOND PHASE V AREA PhVb
               BA   0.028
               LS             92
               UD    0.23

               KK     CB2 COMBINE PvVb WITH CENTRAL CHANNEL FLOW AT STATION ~74+65
               HC       2

               KK   RT2-3 ROUTE CB2 DOWN CENTRAL CHANNEL TO CB 3 AT STATON ~79+00
               RD     435  .00204    0.04            TRAP     100       3

               KK     V12 PORTION OF VILLAGE 12 THAT DRAINS TO CENTRAL CHANNEL
               BA   0.015
               LS             86
               UD    0.16

               KK     V11 PORTION OF VILLAGE 11 THAT DRAINS TO CENTRAL CHANNEL
               BA   0.008
               LS             86
               UD    0.12

               KK      V3 PHASE I VILLAGE 3
               BA   0.026
               LS             86
               UD    0.19

               KK     CB3  COMBINE PORTIONS OF VILLAGES 11&12 WITH VILLAGE 3 AT STA 79+00
               HC       4

               KK   RT3-4
               KM   ROUTE CB3 DOWN CENTRAL CHANNEL TO CB4 AT STATION ~82+00
               RD     300 0.00204    0.04            TRAP     100       3

               KK    PhVc PHASE V SUB-AREA PhVc
               BA   0.022
               LS             92
               UD    0.19

               KK      V2 VILLAGE 2 OF PHASE I
               BA    0.04
               LS             86
               UD    0.20

               KK     CB4  COMBINE PhVc WITH VILLAGE 2
               HC       3
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LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

               KK   RT4-5  ROUTE CB4 DOWN CENTRAL CHANNEL TO CB5 AT STATION ~83+65
               RD     165 0.00204    0.04              TRAP     100       3

               KK  PARKVI PHASE VI PARK
               BA   0.004
               LS              80
               UD    0.14

               KK     CB5  COMBINE PHASE VI PARK WITH CENTRAL CHANNEL FLOW AT CB5
               HC       2

               KK   RT5-6  ROUTE CB5 DOWN CENTRAL CHANNEL TO CB6 AT STATION ~87+50
               RD     385 0.00204    0.04              TRAP     100       3

               KK  K6SCHL  PHASE VI K-6 SCHOOL
               BA   0.013
               LS              85
               UD    0.15

               KK     CB6  COMBINE K-6 SCHOOL WITH CENTRAL CHANNEL FLOW AT CB6
               HC       2

               KK   RT6-7  ROUTE CB6 DOWN CENTRAL CHANNEL TO CB7 AT STATION ~101+00
               KM          END OF CENTRAL CHANNEL
               RD    1350  .00204    0.04              TRAP     100       3

               KK      V1  PHASE I VILLAGE 1
               BA   0.037
               LS              86
               UD    0.21

               KK     V29  PHASE VI VILLAGE 29
               BA   0.065
               LS              92
               UD    0.20

               KK     CB7  COMBINATION POINT 7; END OF CENTRAL CHANNEL
               HC       3
               *  WHITES CREEK BRANCHES 1 & 2

               KK    DR 1  Recall Channel 1 Hydrograph (@ Diffluence)
               DR    CH 1

               KK   RT Z1  Route Channel 1 to Zolezzi Lane (approx. 2800' West of Virginia St.)
               RM       4     .34      .3

               KK    W13R  Whites Creek No. 13
               BA     1.3
               PB     2.8
               LS              61
               UD    0.52
```



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

               KK   CP Z1  Combine channel 1 w/ W13R at Zolezzi Lane
               HC       2

               KK   DV 1B  Divert flows to the north of Zolezzi (Channel 1A)
               KM          Hydrograph is for flows along Zolezzi (Channel 1B, Ea. to Virginia)
               DT   CH 1A
               DI       0     200    1500
               DQ       0     200     200

               KK  RT V12  Route Channel 1B to Virginia St.
               RM       1    0.12     .25

               KK    W12R  Whites Creek No. 12
               BA     0.6
               PB     2.8
               LS              61
               UD    0.45

               KK  CP V12  Combine Channel 1B and W12R at int. of Virginia and Zolezzi
               HC       2

               KK  DR CH2  Recall Channel 2 Hydrograph
               DR    CH 2

               KK  RT V12  Route Flows to int. of Virginia and Zolezzi
               RM       3    .221      .2

               KK  CP V12  Combine channels 1B and 2 at int. of Virginia and Zolezzi
               HC       2

               KK  RT F12  Route flows to proposed RCB at 580 (Channels 1B and 2)
               RM       2   0.201     0.2

               KK    W15R  Whites Creek No. 15
               BA    0.21
               PB     2.7
               LS              79
               UD    0.21

               KK  CP F12  Combine flows at proposed RCB at 580 (Channels 1B and 2)
               HC       2

               KK   DR 1A  Recall Channel 1A Hydrograph
               DR   CH 1A

               KK  RT F1A  Route flows to proposed RCB at 580 (Channel 1A)
               RM       4   0.306     0.2
```

```
KK    W14R  Whites Creek No. 14
BA    0.18
PB     2.7
LS              77
UD    0.26
```



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

KK  CP F1A  Combine flows at proposed RCB at 580 (Channel 1A)
HC       2

KK  CB 1&2  COMBINE WHITES CREEK BRANCHES 1 & 2 @ I-580
HC       2
*  ROUTE WHITES CREEK BRANCHES 1 & 2 TO THE CONFLUENCE W/ LUMBERJACK CHANNEL

KK  RT WT2  ROUTE WHITES 1&2 THRU WS WT2P - CHANNEL "A"
RD    3040  0.0026   0.035              TRAP     135        5

KK  RT WT2  ROUTE WHITES 1&2 THRU WS WT2P- PARK AND OPEN SPACE
RM       5    0.44    0.20

KK  RT WT2  ROUTE WHITES CREEK 1&2 THRU WS WT2P - CHANNEL "B"
RD    1914  0.0028   0.035              TRAP     151        3

KK  WT 6P1  PORTION OF PHASE I VILLAGES 11, 12, & 13 DRAINING TO "B" CHANNEL
BA    0.07
PB     2.7
LS              83
UD    0.38

KK  W WT2P  ON-SITE WATERSHED WT2P
*  EXISTING CONDITION(NO ON-SITE DETENTION)
BA    0.59
PB     2.7
LS              79
UD    0.73

KK  CB WT2   COMBINE WHITES CREEK 1&2 & WT2P
HC       3

KK  WS WT1  WATERSHED WT1 - AREAS BETWEEN WHITES CREEK AND THOMAS CREEK
BA    1.93
PB    2.75
LS              66
UD    0.97

KK  RT WT3  ROUTE TO CONFLUENCE
RM       3    0.29    0.25

KK  THOMAS
* KO     1
KM      HYDROGRAPH FROM FIS HYDROLOGY MODEL - THOM100.901
KM      THOMAS CREEK PEAK FLOW @ S. VIRGINIA STREET
BA   11.54
QI       0       0       0       0       0       0       0       0       0       0
QI       0       0       0       0       0       0       0       0       0       0
QI       0       0       0       0       0       0       0       0       0       0
QI       0       0       0       0       0       0       0       2       6      12
QI      20      29      41      54      70      89     112     144     203     385
QI     790    1223    1828    2544    2447    1943    1462    1170    1019     933
QI     873     825     786     756     729     698     665     636     613     594
QI     577     562     549     535     521     504     481     445     407     379
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ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

QI     362     350     341     334     327     321     316     310     305     300
QI     295     291     287     282     278     275     271

KK  DV HOL
* KO     1
KM     SPLIT FLOW ACROSS HOLCOME LANE TO NORTH.
KM     REFER TO FIS HEC-2 MODEL FOR THOMAS CREEK - THOMAS A.DAT
KM     SPLIT FLOW RATING CALCULATED USING THOMAS A.DAT
DT  HOLCOM
DI       0    1000    2000    2550    3000    4000
DQ       0     274     955    1385    1746    2562

KK  RT WT3   ROUTE TO OPEN SPACE/WETLAND
RM       2   0.167    0.25

KK  DV THO   THOMAS CREEK DIVERSION AT WETLAND/OPEN SPACE
DT    THOM
DI       0     500    1000    1465
DQ       0       0       0     159

KK  RT WT3   ROUTE TO CONFLUENCE
RM       1   0.083    0.25

KK    WT3P  WATERSHED WT3P  - EXISTING CONDITION ( NO ON-SITE DETENTION)
BA    0.49
PB     2.7
LS              79
UD    0.33

KK  CB WT3  COMBINE OFFSITE FLOWS -WT1 & THOMAS CREEK & WT3P
* KO     1
HC       3

KK  CB OFF  COMBINE WHITES CREEK 1&2 & THOMAS CREEK
HC       2

KK  RT WHC  ROUTE THRU WHITES CHANNEL "C"
RD    1689  0.0021   0.035              TRAP     150        3
```

```
           *
1425       KK      D2   BELLA VISTA RANCH WATERSHED 2
1426       KM    CALCULATE RUNOFF FROM WATERSHED 2
1427       BA    0.36
1428       PB     2.5
1429       LS             70
1430       UD    0.49
           *
1431       KK  CB WHC  COMBINE WHITES CREEK BRANCHES 1,2,3,&4 & THOMAS CREEK
1432       HC       2
```

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

1433       KK  RT DET ROUTE TO DETENTION BASIN THRU PROPOSED CHANNEL
1434       RD    1985 0.00275   0.035            TRAP     170       3
           *   ROUTE THRU DETENTION BASIN

1435       KK  RT DET
1436       RS       1    FLOW      -1
           *   AS-BUILT VOLUME - PHASE 1
1437       SV       0   16.64   41.62   72.60  123.04  170.39  216.38  238.26
           *   PHASE 2 VOLUME - W/O ARCHEOLOGICAL SITE
1438       SE  4422.7 4424.09 4425.20 4426.25 4427.55 4428.60 4429.52 4429.94
1439       SQ       0     200     500    1000    2000    3000    4000    4500

1440       KK   RT WT  ROUTE TO CP WT
1441       RM       1    0.06    0.15

1442       KK  THOMAS  RECALL DIVERSION FROM THOMAS CREEK
1443       DR    THOM

1444       KK   RT WT   ROUTE TO NORTHEAST PROP
1445       RM      19    1.59     0.2
           *

1446       KK    WT4P  ON-SITE WATERSHED WP4P
           *  EXISTING CONDITION (NO ON-SITE DETENTION)
1447       BA    1.73
1448       PB     2.7
1449       LS             82
1450       UD    1.62

1451       KK
1452       HC       2
           *

1453       KK    WT7P  ON-SITE WATERSHED WT7P
           * EXISTING CONDITIONS
1454       BA    0.16
1455       PB     2.7
1456       LS             80
1457       UD    1.48

1458       KK   RT WT   ROUTE TO CP WT
1459       RM       8    0.65    0.15

1460       KK  WS WT5  WATERSHED WT5
1461       BA    0.49
1462       PB    2.65
1463       LS             83
1464       UD    0.28
```

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

1465       KK   RT WT  ROUTE TO CP WT
1466       RM       6    0.47    0.15

1467       KK   CB WT  COMBINE FLOWS AT NORTHEAST PROPERTY CORNER
1468       HC       3

1469       KK   CP WT  COMBINE ALL FLOWS @ CP WT
1470       HC       2
           *
           *   FLOW FROM DOUBLE DIAMOND ONTO BELLA VISTA RANCH NORTH OF THE NARROWS
           *

1471       KK    PT03   COMBINE FLOW FROM WATERSHED 2 WITH RT03 AND DOUBLE DIAMOND FLOWS
1472       HC       3

1473       KK    RT04   ROUTE TOTAL FLOW TO CONFLUENCE WITH WATERSHEDS 1 & 5, & DD
1474       RM      11    1.77     0.1

1475       KK      D1   BELLA VISTA RANCH WATERSHED 1
1476       KM    CALCULATE RUNOFF FROM WATERSHED 1
1477       BA    0.44
1478       PB     2.5
1479       LS             77
1480       UD    0.60

1481       KK      D5   BELLA VISTA RANCH WATERSHED 5
1482       KM    CALCULATE RUNOFF FROM WATERSHED 5
           * BA  1.21
1483       BA    0.75
1484       PB     2.4
1485       LS             74
           * UD  5.36
1486       UD    2.68

1487       KK    PT04  COMBINE FLOWS FROM WSD 1 & 5 WITH ROUTED FLOW FROM PT03
1488       KO       3
1489       HC       3
```

```
                           *
           1490           ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING         (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR       (<---) RETURN OF DIVERTED OR PUMPED FLOW

    57         W1R
                 .
                 .
    72           .         W2R
                 .           .
                 .           .
    77       W1+W2............
                 V
                 V
    79        RT-A
                 .
                 .
    81           .         W3R
                 .           V
                 .           V
    86           .        RT-A
                 .           .
                 .           .
    88           .           .         W4R
                 .           .           .
                 .           .           .
    93       W1234........................
                 V
                 V
    95        RT-B
                 .
                 .
    97           .         W5R
                 .           .
                 .           .
   102       W5+CH............
                 V
                 V
   104        RT-C
                 .
                 .
   106           .         W6R
                 .           .
                 .           .
   111       W6+CH............
                 V
                 V
   113        RT-D
                 .
                 .
   115           .         W7R
                 .           .
                 .           .
   120       W7+CH............
                 V
                 V
   122      RT-DIF
                 .
                 .
   124           .         W8R
                 .           .
                 .           .
   129      CP DIF............
                 .
                 .
   133           .------->  CH 123
   131        DV 4
                 V
                 V
   136       RT W4
                 .
                 .
   138           .        W17R
                 .           .
                 .           .
   143       CP W4............
                 V
                 V
   145       RT F4
                 .
                 .
   147           .        W19R
                 .           .
                 .           .
   152           .           .         W9R
                 .           .           V
                 .           .           V
   157           .           .       RT F4
                 .           .           .
                 .           .           .
   159       CP F4........................
                 V
                 V
   161       RT V4
                 .
                 .
   163           .        W20R
                 .           .
                 .           .
   168       CP V4............
                 V
                 V
   170      RT STM
```

```
            .
            .
172         .      G1G2
            .         V
            .         V
177         .     OUTJ1
            .         .
            .         .
179         .         .        J1
            .         .         .
            .         .         .
184         .     OUTJ1..........
            .         V
            .         V
186         .     OUTG3
            .         .
            .         .
188         .         .        G3
            .         .         .
            .         .         .
193         .     OUTG3..........
            .         V
            .         V
195         .     OUT30
            .         .
            .         .
197         .         .        15
            .         .         V
            .         .         V
202         .         .     OUT30
            .         .         .
            .         .         .
204         .         .         .        30
            .         .         .         .
            .         .         .         .
210         .     OUT30....................
            .         V
            .         V
212         .     OUT40
            .         .
            .         .
214         .         .        35
            .         .         .
            .         .         .
220         .         .         .        40
            .         .         .         .
            .         .         .         .
225         .     OUT40....................
            .         V
            .         V
227         .    OUT341
            .         .
            .         .
232         .         .      C-1B
            .         .         .
            .         .         .
237         .         .         .      C-1A
            .         .         .         V
            .         .         .         V
241         .         .         .     RT C1
            .         .         .         V
            .         .         .         V
243         .         .         .     RT C1
            .         .         .         .
            .         .         .         .
245         .         .     CPC1B..........
            .         .         .
            .         .         .
247         .    CB CUR..........
            .         V
            .         V
249         .     OUTDS
            .         .
            .         .
251     CB DS..........
            V
            V
253    RT WHT
            .
            .
256         .         .<-------  CH 123
255         .    DR 123
            .         .
            .         .
259         .         .------->    CH 1
257         .    DV 2&3
            .         V
            .         V
262         .    RT 2&3
            .         .
            .         .
264         .         .      W10R
            .         .         .
            .         .         .
269         .     CP 23..........
            .         .
            .         .
273         .         .------->    CH 2
271         .    DV 23A
            .         V
            .         V
276         .     RT V3
            .         .
            .         .
278         .         .      W11R
            .         .         .
            .         .         .
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283           .      CP V24............
              .           V
              .           V
285           .       RT F3
              .           .
              .           .
287           .           .        W16R
              .           .           .
              .           .           .
292           .       CP F3............
              .           V
              .           V
294           .      RT DSW
              .           .
              .           .
296           .           .       W18RA
              .           .           .
              .           .           .
301           .      CB DSW............
              .           .
              .           .
303           .           .         S-1
              .           .           V
              .           .           V
308           .           .       RT S3
              .           .           .
              .           .           .
310           .           .           .         S-2
              .           .           .           V
              .           .           .           V
314           .           .           .       RT S3
              .           .           .           .
              .           .           .           .
316           .           .           .           .        S-3A
              .           .           .           .           V
              .           .           .           .           V
320           .           .           .           .       RT S3
              .           .           .           .           .
              .           .           .           .           .
322           .           .       CPS3A........................
              .           .           V
              .           .           V
324           .           .       RT S5
              .           .           .
              .           .           .
326           .           .           .        S-3B
              .           .           .           V
              .           .           .           V
330           .           .           .       RT S5
              .           .           .           .
              .           .           .           .
332           .           .           .           .         S-4
              .           .           .           .           V
              .           .           .           .           V
336           .           .           .           .       RT S5
              .           .           .           .           .
              .           .           .           .           .
338           .           .           .           .           .         S-5
              .           .           .           .           .           V
              .           .           .           .           .           V
342           .           .           .           .           .       RT S5
              .           .           .           .           .           .
              .           .           .           .           .           .
344           .           .        CPS5....................................
              .           .           V
              .           .           V
346           .           .     RT WHT
              .           .           .
              .           .           .
348      CB WHT........................
              .
              .
350           .          HD
              .           .
              .           .
355       CP HD............
              V
              V
357      DIVSTR
              .
              .
367           .------->  BAS 1
366       STEAM
              V
              V
372       OUTDM
              V
              V
374       OUTDN
              .
              .
376           .          A7
              .           .
              .           .
381       STM+7............
              .
              .
384           .          A6
              .           .
              .           .
388       STM+6............
              .
              .
391           .          A3
              .           .
              .           .
395       STM+3............
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              .
398           .          A2
              .           .
              .           .
402       STM+2............
              .
              .
405           .         A17
              .           .
              .           .
410           .           .        A18
              .           .           .
              .           .           .
414           .      CHNL-E............
              .           .
              .           .
417       STM+E............
              V
              V
422      RT NST
              .
              .
424           .         A16
              .           .
              .           .
429           .           .         A19
              .           .           .
              .           .           .
433           .           .           .         A20
              .           .           .           .
              .           .           .           .
437           .      CHNL-F........................
              .           .
              .           .
440      STM+AF............
              .
              .
443           .      BVW 6
              .           V
              .           V
448           .       RT W6
              .           .
              .           .
450           .           .       BV 16
              .           .           .
              .           .           .
455           .      Stm+16............
              .           V
              .           V
457           .       RT 16
              .           .
              .           .
459           .           .       BV 15
              .           .           .
              .           .           .
463      Stm+15........................
              V
              V
465      RT BV3
              .
              .
467           .      APTS-9
              .           .
              .           .
474           .           .          A8
              .           .           .
              .           .           .
478           .      CHNL-B............
              .           .
              .           .
480           .           .      D12&13
              .           .           .
              .           .           .
485           .           .           .          A9
              .           .           .           .
              .           .           .           .
489           .           .      CHNL-C............
              .           .           .
              .           .           .
492           .         B&C............
              .           .
              .           .
495           .           .         A14
              .           .           .
              .           .           .
499           .           .           .         A13
              .           .           .           .
              .           .           .           .
503           .           .           .           .         A15
              .           .           .           .           .
              .           .           .           .           .
507           .      CHNL-D....................................
              .           .
              .           .
510           .           .         A11
              .           .           .
              .           .           .
514           .           .           .         A12
              .           .           .           .
              .           .           .           .
518           .           .       11+12............
              .           .           .
              .           .           .
521           .      CHNL D............
  .           .           .
              .           .
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524           .           .      X12+13
              .           .           .
              .           .           .
530           .           .           .         A10
              .           .           .           .
              .           .           .           .
534           .           .           .............
              .           .           .
              .           .           .
536           .           .           .         A21
              .           .           .           .
              .           .           .           .
540           .      WTLNDS........................
              .           .
              .           .
545           .           .           .<-------  BAS 1
543           .           .      RC BAS
              .           .           V
              .           .           V
546           .           .       BAS 1
              .           .           .
              .           .           .
556           .           .           .------->  36DIVQ
555           .           .      BAS1DS
              .           .           V
              .           .           V
559           .           .       POND2
              .           .           .
              .           .           .
563           .           .           .         T-1
              .           .           .           V
              .           .           .           V
568           .           .           .       RT T2
              .           .           .           .
              .           .           .           .
570           .           .           .           .         T-2
              .           .           .           .           .
              .           .           .           .           .
575           .           .           .        CPT2............
              .           .           .           V
              .           .           .           V
577           .           .           .       RT T3
              .           .           .           .
              .           .           .           .
579           .           .           .           .         T-3
              .           .           .           .           .
              .           .           .           .           .
584           .           .           .        CPT3............
              .           .           .           .
              .           .           .           .
586           .           .       CPD1A............
              .           .           V
              .           .           V
588           .           .       RT WT
              .           .           .
              .           .           .
590           .           .           .        WSF1
              .           .           .           .
              .           .           .           .
595           .           .           .           .        WSE1
              .           .           .           .           .
              .           .           .           .           .
600           .           .           .        F1E1............
              .           .           .           .
              .           .           .           .
602           .           .           .           .         C-2
              .           .           .           .           V
              .           .           .           .           V
607           .           .           .           .       RT C3
              .           .           .           .           .
              .           .           .           .           .
609           .           .           .           .           .        C-1C
              .           .           .           .           .           V
              .           .           .           .           .           V
614           .           .           .           .           .       RT C3
              .           .           .           .           .           .
              .           .           .           .           .           .
616           .           .           .           .           .           .         C-3
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
621           .           .           .        CPC3....................................
              .           .           .           V
              .           .           .           V
623           .           .           .       RT C4
              .           .           .           .
              .           .           .           .
625           .           .           .           .         C-4
              .           .           .           .           .
              .           .           .           .           .
630           .           .           .        CPC4............
              .           .           .           V
              .           .           .           V
632           .           .           .       RT C7
              .           .           .           V
              .           .           .           V
634           .           .           .       RT C7
              .           .           .           .
              .           .           .           .
636           .           .           .           .         C-5
              .           .           .           .           V
              .           .           .           .           V
641           .           .           .           .       RT C7
              .           .           .           .           V
              .           .           .           .           V
643           .           .           .           .       RT C7
              .           .           .           .           .
```

```
645                                              C-7
650                                                         C-6
                                                              V
                                                              V
655                                                       RT C7
                                                              V
                                                              V
657                                                       RT C7
                                                              V
                                                              V
659                                                       RT C7
661                          CPC7...............................
                                V
                                V
663                          RT WT
665                                   W-1
                                        V
                                        V
670                                 RT W1
672                 CPWET....................
                        V
                        V
674                 RT W1
676                            E2A
682                                  SE-2
                                        V
                                        V
687                                 RT S3
689                                              SE-3
694                                                         SE-1
                                                              V
                                                              V
699                                                       RT S3
701                                 CPSE3.......................
                                        V
                                        V
703                                 RT S5
705                                              SE-4
710                                                         SE-5
715                                 CPSE5.......................
                                        V
                                        V
717                                 RT S7
719                                              SE-6
                                                    V
                                                    V
724                                             RT S7
726                                                         SE-7
731                                 CPSE7.......................
                                        V
                                        V
733                                 RT WI
                                        V
                                        V
735                                 RT WI
737                                              SE-8
                                                    V
                                                    V
741                                             RTWI
                                                    V
                                                    V
743                                             RT WI
745                                                          W-2
750                                                                     W-3
755                                                         CPW2............
                                                               V
                                                               V
757                                                       RTG WI
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               .           .           .           .           .           .           .
759            .           .           .           .      PWETIN........................
               .           .           .           .           .
               .           .           .           .           .
761            .           .           .      CPWETA............
               .           .           .           V
               .           .           .           V
763            .           .           .       RT W1
               .           .           .           .
               .           .           .           .
765            .           .      CPWET1............
               .           .           V
               .           .           V
767            .           .      RTWET1
               .           .           .
               .           .           .
770            .           .           .         WET
               .           .           .           .
               .           .           .           .
775            .           .      CPWETB............
               .           .           V
               .           .           V
777            .           .      RTWETB
               .           .           .
               .           .           .
780            .           .           .         E-2
               .           .           .           V
               .           .           .           V
784            .           .           .       RT E3
               .           .           .           .
               .           .           .           .
786            .           .           .           .         E-1
               .           .           .           .           V
               .           .           .           .           V
791            .           .           .           .       RT E3
               .           .           .           .           V
               .           .           .           .           V
793            .           .           .           .        RTE3
               .           .           .           .           .
               .           .           .           .           .
795            .           .           .        CPE3............
               .           .           .           .
               .           .           .           .
797            .           .           .           .        WSB2
               .           .           .           .           .
               .           .           .           .           .
802            .           .           .           .           .        WSB1
               .           .           .           .           .           .
               .           .           .           .           .           .
807            .           .           .           .       CPB12............
               .           .           .           .           V
               .           .           .           .           V
809            .           .           .           .       RT E3
               .           .           .           .           V
               .           .           .           .           V
811            .           .           .           .       RT E3
               .           .           .           .           V
               .           .           .           .           V
813            .           .           .           .       RT E4
               .           .           .           .           .
               .           .           .           .           .
815            .           .           .           .           .         E-4
               .           .           .           .           .           V
               .           .           .           .           .           V
821            .           .           .           .           .       RT E4
               .           .           .           .           .           .
               .           .           .           .           .           .
823            .           .           .        CPE4........................
               .           .           .           .
               .           .           .           .
825            .           .           .           .         W-8
               .           .           .           .           .
               .           .           .           .           .
830            .           .      CPWETO........................
               .           .           V
               .           .           V
832            .           .      RS DT2
               .           .           .
               .           .           .
845            .           .           .         W-9
               .           .           .           .
               .           .           .           .
850            .           .        CW-9............
               .           .           V
               .           .           V
853            .           .       POND4
               .           .           .
               .           .           .
861            .      WET-IN............
               .           .
               .           .
864            .           .          D1
               .           .           V
               .           .           V
869            .           .       RT N1
               .           .           V
               .           .           V
871            .           .       RT N1
               .           .           V
               .           .           V
873            .           .       RT N1
               .           .           .
               .           .           .
875            .           .           .         WSC
               .           .           .           V
               .           .           .           V
880            .           .           .       RT N1
```

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              .           .           .           V
              .           .           .           V
882           .           .           .       RT N1
              .           .           .           .
              .           .           .           .
884           .           .           .           .       NE-1
              .           .           .           .          V
              .           .           .           .          V
889           .           .           .           .      RT N1
              .           .           .           .          .
              .           .           .           .          .
891           .           .       CPNE1........................
              .           .           V
              .           .           V
893           .           .       RT W3
              .           .           V
              .           .           V
895           .           .       RT W3
              .           .           .
              .           .           .
897           .           .           .          D2
              .           .           .           V
              .           .           .           V
902           .           .           .       RT N4
              .           .           .           V
              .           .           .           V
904           .           .           .       RT N4
              .           .           .           V
              .           .           .           V
906           .           .           .       RT N4
              .           .           .           .
              .           .           .           .
908           .           .           .           .      NE2345
              .           .           .           .           .
              .           .           .           .           .
915           .           .           .       CPNE4............
              .           .           .           V
              .           .           .           V
918           .           .           .       RT W3
              .           .           .           .
              .           .           .           .
920           .           .      CPWET3............
              .           .           V
              .           .           V
923           .           .       RT DN
              .           .           .
              .           .           .
925           .       DMNTE............
              .           .
              .           .
927           .           .       BV 14
              .           .           V
              .           .           V
931           .           .       RT 14
              .           .           .
              .           .           .
933           .           .           .       BV 13
              .           .           .           .
              .           .           .           .
937           .           .           .           .          D4
              .           .           .           .           V
              .           .           .           .           V
943           .           .           .           .      RT D4
              .           .           .           .           .
              .           .           .           .           .
945      StmBV3................................................
              V
              V
948       RT 13
              .
              .
950           .       BV 12
              .           .
              .           .
954      StBV33............
              V
              V
957       RT 12
              .
              .
959           .       BVW 7
              .           V
              .           V
965           .      RT W7
              .           .
              .           .
967           .           .        BV 8
              .           .           .
              .           .           .
973           .           .           .        BV 7
              .           .           .           .
              .           .           .           .
977           .       7+8  ........................
              .           V
              .           V
979           .       RT
              .           .
              .           .
981           .           .        BV 6
              .           .           .
              .           .           .
985           .           .           .        BV 9
              .           .           .           .
              .           .           .           .
989           .       6+9  ........................
              .           V
              .           V
```

```
 991      .       RT
          .            .
          .            .
 993      .            .           BV 5
          .            .            .
          .            .            .
 997      .            .            .          BV 10
          .            .            .            .
          .            .            .            .
1001      .      5+10  .........................
          .            V
          .            V
1003      .       RT
          .            .
          .            .
1005      .            .          BV 11
          .            .            .
          .            .            .
1009      .      EST-WS.............
          .            .
          .            .
1012 StmBV2............
          V
          V
1016 RTto4
          .
          .
1018      .       BV 4
          .            .
          .            .
1022 Stm+ 4............
          V
          V
1024 RTto3
          .
          .
1026      .       BV 3
          .            .
          .            .
1030 Stm+ 3............
          V
          V
1032 RTto2
          .
          .
1034      .       BV 2
          .            .
          .            .
1038 Stm+ 2............
          V
          V
1040 RTStBV
          .
          .
1042      .      BVW 8
          .            .
          .            .
1047      .            .          BV 1
          .            .            .
          .            .            .
1051      .       HC1+8.............
          .            .
          .            .
1053 StmBV1............
          V
          V
1055   RT03
          .
          .
1057      .          D3
          .            V
          .            V
1062      .        RT03
          .            .
          .            .
1064 PT03   ............
          .
          .
1066      .         A22
          .            .
          .            .
1071      .            .            A5
          .            .            .
          .            .            .
1075      .      CARAT1.............
          .            .
          .            .
1078      .            .            A4
          .            .            .
          .            .            .
1082      .            .            .          A23
          .            .            .            .
          .            .            .            .
1086      .            .            .            .           A1
          .            .            .            .            .
          .            .            .            .            .
1090      .      CHNL-A.....................................
          .            .
          .            .
1093      .            .          BVW-5
          .            .            .
          .            .            .
1098      .      ACHBV5.............
          .            V
          .            V
1100      .      RT5-3
          .            .
```

```
                .           .
1102            .           .       BVW-3
                .           .           .
                .           .           .
1107            .     CP3&5 .............
                .           .
                .           .
1109            .           .       BVW-1
                .           .           .
                .           .           .
1114            .      WSTOUT............
                .           V
                .           V
1116            .        RT03
                .           .
                .           .
1118         PT03............
                .
                .
1120            .       W18RB
                .           .
                .           .
1128            .           .      V18-19
                .           .           .
                .           .           .
1132            .           .           .         V20
                .           .           .           .
                .           .           .           .
1136            .           .           .           .         WET
                .           .           .           .           .
                .           .           .           .           .
1140            .      CB WET....................................
                .           .
                .           .
1143            .           .       PH-IV
                .           .           .
                .           .           .
1151            .           .           .         E14
                .           .           .           .
                .           .           .           .
1156            .         C14........................
                .           V
                .           V
1159            .      E14-E1
                .           .
                .           .
1162            .           .          E1
                .           .           .
                .           .           .
1167            .          C1............
                .           V
                .           V
1170            .       E1-E2
                .           .
                .           .
1173            .           .          E2
                .           .           .
                .           .           .
1178            .          C2............
                .           V
                .           V
1181            .       E2-E3
                .           .
                .           .
1184            .           .          E3
                .           .           .
                .           .           .
1189            .          C3............
                .           V
                .           V
1192            .       E3-E4
                .           .
                .           .
1195            .           .          E4
                .           .           .
                .           .           .
1200            .          C4............
                .           .
                .           .
1203            .           .         D10
                .           .           .
                .           .           .
1214            .           .           .         D12
                .           .           .           .
                .           .           .           .
1219            .           .           .           .        PARK
                .           .           .           .           .
                .           .           .           .           .
1224            .      C10PRK....................................
                .           V
                .           V
1227            .      PK-CAR
                .           .
                .           .
1230            .           .        PhVa
                .           .           .
                .           .           .
1234            .           .           .          V4
                .           .           .           .
                .           .           .           .
1238            .        CB 1........................
                .           V
                .           V
1240            .       RT1-2
                .           .
                .           .
1243            .           .        PhVb
```

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                    .             .            .
1247                .          CB2............
                    .             V
                    .             V
1249                .        RT2-3
                    .             .
                    .             .
1251                .             .          V12
                    .             .            .
                    .             .            .
1255                .             .            .          V11
                    .             .            .            .
                    .             .            .            .
1259                .             .            .            .          V3
                    .             .            .            .            .
                    .             .            .            .            .
1263                .          CB3...................................
                    .             V
                    .             V
1265                .        RT3-4
                    .             .
                    .             .
1268                .             .         PhVc
                    .             .            .
                    .             .            .
1272                .             .            .           V2
                    .             .            .            .
                    .             .            .            .
1276                .          CB4.......................
                    .             V
                    .             V
1278                .        RT4-5
                    .             .
                    .             .
1280                .             .       PARKVI
                    .             .            .
                    .             .            .
1284                .          CB5............
                    .             V
                    .             V
1286                .        RT5-6
                    .             .
                    .             .
1288                .             .       K6SCHL
                    .             .            .
                    .             .            .
1292                .          CB6............
                    .             V
                    .             V
1294                .        RT6-7
                    .             .
                    .             .
1297                .             .           V1
                    .             .            .
                    .             .            .
1301                .             .            .          V29
                    .             .            .            .
                    .             .            .            .
1305                .          CB7.......................
                    .             .
                    .             .
1308                .             .            .<-------    CH 1
1307                .             .         DR 1
                    .             .            V
                    .             .            V
1309                .             .        RT Z1
                    .             .            .
                    .             .            .
1311                .             .            .         W13R
                    .             .            .            .
                    .             .            .            .
1316                .             .        CP Z1............
                    .             .            .
                    .             .            .
1320                .             .            .------->   CH 1A
1318                .             .        DV 1B
                    .             .            V
                    .             .            V
1323                .             .       RT V12
                    .             .            .
                    .             .            .
1325                .             .            .         W12R
                    .             .            .            .
                    .             .            .            .
1330                .             .       CP V12............
                    .             .            .
                    .             .            .
1333                .             .            .            .<-------    CH 2
1332                .             .            .       DR CH2
                    .             .            .            V
                    .             .            .            V
1334                .             .            .       RT V12
                    .             .            .            .
                    .             .            .            .
1336                .             .       CP V12............
                    .             .            V
                    .             .            V
1338                .             .       RT F12
                    .             .            .
                    .             .            .
1340                .             .            .         W15R
                    .             .            .            .
                    .             .            .            .
1345                .             .       CP F12............
                    .             .            .
                    .             .            .
```

```
1348            .           .           .           .<-------  CH 1A
1347            .           .           .       DR 1A
                .           .           .           V
                .           .           .           V
1349            .           .           .      RT F1A
                .           .           .           .
                .           .           .           .
1351            .           .           .           .        W14R
                .           .           .           .           .
                .           .           .           .           .
1356            .           .           .      CP F1A............
                .           .           .           .
                .           .           .           .
1358            .           .      CB 1&2............
                .           .           V
                .           .           V
1360            .           .      RT WT2
                .           .           V
                .           .           V
1362            .           .      RT WT2
                .           .           V
                .           .           V
1364            .           .      RT WT2
                .           .           .
                .           .           .
1366            .           .           .      WT 6P1
                .           .           .           .
                .           .           .           .
1371            .           .           .           .      W WT2P
                .           .           .           .           .
                .           .           .           .           .
1376            .           .      CB WT2........................
                .           .           .
                .           .           .
1378            .           .           .      WS WT1
                .           .           .           V
                .           .           .           V
1383            .           .           .      RT WT3
                .           .           .           .
                .           .           .           .
1385            .           .           .           .      THOMAS
                .           .           .           .           .
                .           .           .           .           .
1403            .           .           .           .           .------->  HOLCOM
1399            .           .           .           .      DV HOL
                .           .           .           .           V
                .           .           .           .           V
1406            .           .           .           .      RT WT3
                .           .           .           .           .
                .           .           .           .           .
1409            .           .           .           .           .------->    THOM
1408            .           .           .           .      DV THO
                .           .           .           .           V
                .           .           .           .           V
1412            .           .           .           .      RT WT3
                .           .           .           .           .
                .           .           .           .           .
1414            .           .           .           .           .        WT3P
                .           .           .           .           .           .
                .           .           .           .           .           .
1419            .           .           .      CB WT3........................
                .           .           .           .
                .           .           .           .
1421            .           .      CB OFF............
                .           .           V
                .           .           V
1423            .           .      RT WHC
                .           .           .
                .           .           .
1425            .           .           .          D2
                .           .           .           .
                .           .           .           .
1431            .           .      CB WHC............
                .           .           V
                .           .           V
1433            .           .      RT DET
                .           .           V
                .           .           V
1435            .           .      RT DET
                .           .           V
                .           .           V
1440            .           .       RT WT
                .           .           .
                .           .           .
1443            .           .           .           .<-------    THOM
1442            .           .           .      THOMAS
                .           .           .           V
                .           .           .           V
1444            .           .           .       RT WT
                .           .           .           .
                .           .           .           .
1446            .           .           .           .        WT4P
                .           .           .           .           .
                .           .           .           .           .
1451            .           .           .            ............
                .           .           .           .
                .           .           .           .
1453            .           .           .           .        WT7P
                .           .           .           .           V
                .           .           .           .           V
1458            .           .           .           .       RT WT
                .           .           .           .           .
                .           .           .           .           .
1460            .           .           .           .           .      WS WT5
                .           .           .           .           .           V
                .           .           .           .           .           V
1465            .           .           .           .           .       RT WT
```

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                 .          .          .          .          .          .
                 .          .          .          .          .          .
 1467            .          .          .     CB WT.......................
                 .          .          .          .
                 .          .          .          .
 1469            .          .     CP WT...........
                 .          .          .
                 .          .          .
 1471        PT03......................
                 V
                 V
 1473        RT04
                 .
                 .
 1475            .         D1
                 .          .
                 .          .
 1481            .          .          D5
                 .          .          .
                 .          .          .
 1487        PT04......................

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
***************************************
*                                       *          *
*
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *          *   U.S. ARMY CORPS OF ENGINEERS
*
*              JUN   1998               *          *   HYDROLOGIC ENGINEERING CENTER
*
*             VERSION 4.1               *          *         609 SECOND STREET
*
*                                       *          *      DAVIS, CALIFORNIA 95616
*
*  RUN DATE   04JAN08  TIME  13:39:39   *          *          (916) 756-1104
*
*                                       *          *
*
*****************************************
***************************************
```

```
DRph5+BV1 THE PROPOSED MODEL FOR DAMONTE PHASE 5 LOMR (CASE No. 07-09-1667P)
IS ALSO THE MODEL USED FOR THE SUBSTANIALLY COMPLETE HYDRAULIC MODEL FOR
STEAMBOAT CREEK THROUGH BELLA VISTA PHASE 1.
IT WAS RE-RUN ON JANUARY 4, 2008.  ONLY THE ID INFORMATION WAS UPDATED
FOR THIS RUN.      JANUARY 2008 - Model Run date is 01/04/2008
******************************************************************************
CLOMR MODEL WAS USED WITHOUT CHANGE FOR THE LOMR MODEL FOR DAMONTE RANCH
PHASE 5 (CASE No. 07-09-1667P).  SUBMITTED MAY 5, 2007 AND NOT RERUN. IT
DEFINED THE CHANNEL FLOWS FOR THE SUBSTANTIALLY COMPLETE STEAMBOAD CHANNEL
HYDRAULIC MODEL THROUGH BELLA VISTA PHASE 1.
LOMR AS-BUILT PLANS DID NOT CHANGE THE HYDROLOGIC PARAMETERS USED IN THE CLO
                MARCH 2007 - Model Run date is 3/12/2007
*****************************************************************************
UPDATED MODEL FOR DAMONTE RANCH PHASE V and BELLA VESTA PHASE 1 CLOMR
USED FOR THE SUBSTANIALLY COMPLETED MODEL THROUGH BELLA VISTA PHASE 1
                MARCH 2007 - Model Run date is 3/12/2007
*****************************************************************************
BELLA VESTA RANCH PHASE 1
FILE NAME: DRph5+BV1.dat - DECEMBER 2005    ( UPDATED: JANUARY 2005 )
******************************************************************************
DAMONTE RANCH PHASE V   - MARCH 2005

* * INCLUDES DEVELOPMENT OF VILLAGE 11-B * *

UPDATED MODEL FROM LOMR SUBMITTAL FILE NAME 0243AB.DAT (Orig. 128CLOMR.DAT)
TO REFLECT GRADING PLANS AS OF 3/2005
100-Year HEC-1 for AS BUILT conditions.  Includes Steamboat Creek &
tributaries (i.e. Galena, Jones, Browns, Bailey, 30, & 40 watersheds);
Damonte Ranch with refined watersheds, detention stuctures, & refined
east range watersheds; Whites Creek watersheds collected by Branch 3 & 4
with routing onto Damonte; the remainder of the Whites Creek & split flow
from Thomas Creeks watersheds routed through Double Diamond;
& Bella Vista Ranch with the remaining east range watersheds.

File Name: DRph5+bv1.dat
Quad Knopf formerly Nimbus Engineers


REVISIONS REFLECT PHASE V DEVELOPMENT PER GRADING PLAN DATED 2/2005
The model also includes the previous changes at the Diversion structure:
a) box culverts replaced the RCPs; b) an overflow weir was added to control
a major flood event

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

* *  MODIFIED 5-2005 TO REFLECT GRADING PLAN CHANGES AFFECTING EASTERN   * *
* *  BASINS NE-2, NE-3, NE-4,& NE-5.  THESE HAVE ALL BEEN COMBINED AS    * *
* *  THE REMOVAL OF MIRA LOMA RD. MAKES SEPARATION UNECESSARY            * *

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

```
  54 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     27JUL 0  STARTING DATE
```

```
              ITIME        0005  STARTING TIME
                 NQ         288  NUMBER OF HYDROGRAPH ORDINATES
             NDDATE      28JUL 0  ENDING DATE
             NDTIME        0000  ENDING TIME
              ICENT          19  CENTURY MARK

          COMPUTATION INTERVAL     .08 HOURS
               TOTAL TIME BASE   23.92 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
                .94
```

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

         **************
         *            *
  417 KK *    STM+E   *
         *            *
         **************

  421 KO        OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

  420 HC        HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                              ***

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

                        HYDROGRAPH AT STATION    STM+E
                          FOR PLAN 1, RATIO =  .94

  PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.92-HR
+   (CFS)      (HR)
                        (CFS)
+    4193.     15.17               3636.      1624.       1624.       1624.
                      (INCHES)      .473       .843        .843        .843
                       (AC-FT)     1803.      3210.       3210.       3210.

                        CUMULATIVE AREA =    71.41 SQ MI
```

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

         **************
         *            *
  540 KK *   WTLNDS   *       DISCHARGE TO WETLANDS
         *            *
         **************

  541 KO        OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

  542 HC        HYDROGRAPH COMBINATION
                      ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                              ***

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

                        HYDROGRAPH AT STATION   WTLNDS
                          FOR PLAN 1, RATIO =  .94

  PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.92-HR
+   (CFS)      (HR)
                        (CFS)
+     272.     12.17                107.         42.         42.         42.
                      (INCHES)     2.144       3.351       3.351       3.351
                       (AC-FT)       53.         83.         83.         83.

                        CUMULATIVE AREA =      .47 SQ MI
```

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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
***
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```
              **************
              *            *
  915 KK      *   CPNE4    *       COMBINE BSIN D2 AND POD NE-4
              *            *
              **************

  916 KO           OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

  917 HC           HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                   ***

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

                         HYDROGRAPH AT STATION    CPNE4
                           FOR PLAN 1, RATIO =  .94

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR     23.92-HR
+   (CFS)        (HR)
                              (CFS)
+      168.     12.08                    25.          10.         10.          10.
                            (INCHES)    .616         .968        .968         .968
                             (AC-FT)     13.          20.         20.          20.

                         CUMULATIVE AREA =      .38 SQ MI


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

              **************
              *            *
  920 KK      *   CPWET3   *       COMBINE CPWETO AND CPNE4
              *            *
              **************

  921 KO           OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

  922 HC           HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                   ***

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

                         HYDROGRAPH AT STATION   CPWET3
                           FOR PLAN 1, RATIO =  .94

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR     23.92-HR
+   (CFS)        (HR)
                              (CFS)
+      811.     13.42                   240.          68.         68.          68.
                            (INCHES)    .409         .460        .460         .460
                             (AC-FT)    119.         134.        134.         134.

                         CUMULATIVE AREA =    5.46 SQ MI


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

              **************
              *            *
  945 KK      *   StmBV3   *
              *            *
              **************

  947 KO           OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE

  946 HC           HYDROGRAPH COMBINATION
                        ICOMP           5  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                   ***

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

                         HYDROGRAPH AT STATION   StmBV3
                           FOR PLAN 1, RATIO =  .94

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR     23.92-HR
+   (CFS)        (HR)
                              (CFS)
+     6407.     17.33                  5560.        2249.       2249.        2249.
                            (INCHES)    .606         .977        .977         .977
                             (AC-FT)   2757.        4445.       4445.        4445.

                         CUMULATIVE AREA =   85.27 SQ MI
```

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

              **************
              *            *
  954 KK      *   StBV33   *
              *            *
              **************

  955 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

  956 HC          HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                           ***

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

                          HYDROGRAPH AT STATION   StBV33
                            FOR PLAN 1, RATIO =  .94

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR      23.92-HR
+   (CFS)       (HR)
                           (CFS)
+    6413.     17.42                   5567.       2250.       2250.        2250.
                        (INCHES)        .607        .977        .977         .977
                         (AC-FT)       2760.       4446.       4446.        4446.

                         CUMULATIVE AREA =   85.30 SQ MI


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

              **************
              *            *
 1487 KK      *    PT04    *       COMBINE FLOWS FROM WSD 1 & 5 WITH ROUTED FLOW FROM PT03
              *            *
              **************

 1488 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

 1489 HC          HYDROGRAPH COMBINATION
                        ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                           ***

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

                          HYDROGRAPH AT STATION     PT04
                            FOR PLAN 1, RATIO =  .94

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR      23.92-HR
+   (CFS)       (HR)
                           (CFS)
+    7106.     21.58                   6406.       2234.       2234.        2234.
                        (INCHES)        .550        .765        .765         .765
                         (AC-FT)       3176.       4415.       4415.        4415.

                         CUMULATIVE AREA =  108.24 SQ MI

1

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


                                                               RATIOS APPLIED TO PRECIPITATION
 OPERATION        STATION      AREA    PLAN              RATIO 1
                                                             .94

 HYDROGRAPH AT
+                    W1R       1.36      1     FLOW         809.
                                               TIME        12.42

 HYDROGRAPH AT
+                    W2R        .84      1     FLOW         507.
                                               TIME        12.42

  2 COMBINED AT
+                  W1+W2       2.20      1     FLOW        1317.
                                               TIME        12.42

 ROUTED TO
+                   RT-A       2.20      1     FLOW        1302.
                                               TIME        12.50

 HYDROGRAPH AT
+                    W3R       1.38      1     FLOW         762.
                                               TIME        12.50
```

ROUTED TO					
+	RT-A	1.38	1	FLOW	758.
				TIME	12.58
HYDROGRAPH AT					
+	W4R	1.47	1	FLOW	336.
				TIME	12.75
3 COMBINED AT					
+	W1234	5.05	1	FLOW	2361.
				TIME	12.58
ROUTED TO					
+	RT-B	5.05	1	FLOW	2348.
				TIME	12.67
HYDROGRAPH AT					
+	W5R	1.27	1	FLOW	249.
				TIME	12.92
2 COMBINED AT					
+	W5+CH	6.32	1	FLOW	2573.
				TIME	12.67
ROUTED TO					
+	RT-C	6.32	1	FLOW	2536.
				TIME	12.83
HYDROGRAPH AT					
+	W6R	1.43	1	FLOW	117.
				TIME	13.50
2 COMBINED AT					
+	W6+CH	7.75	1	FLOW	2617.
				TIME	12.83
ROUTED TO					
+	RT-D	7.75	1	FLOW	2603.
				TIME	13.00
HYDROGRAPH AT					
+	W7R	.85	1	FLOW	129.
				TIME	13.00
2 COMBINED AT					
+	W7+CH	8.60	1	FLOW	2731.
				TIME	13.00
ROUTED TO					
+	RT-DIF	8.60	1	FLOW	2719.
				TIME	13.08
HYDROGRAPH AT					
+	W8R	.75	1	FLOW	49.
				TIME	13.42
2 COMBINED AT					
+	CP DIF	9.35	1	FLOW	2764.
				TIME	13.08
DIVERSION TO					
+	CH 123	9.35	1	FLOW	2209.
				TIME	13.08
HYDROGRAPH AT					
+	DV 4	9.35	1	FLOW	555.
				TIME	13.08
ROUTED TO					
+	RT W4	9.35	1	FLOW	537.
				TIME	13.25
HYDROGRAPH AT					
+	W17R	.58	1	FLOW	87.
				TIME	12.25
2 COMBINED AT					
+	CP W4	9.93	1	FLOW	562.
				TIME	13.25
ROUTED TO					
+	RT F4	9.93	1	FLOW	546.
				TIME	13.33
HYDROGRAPH AT					
+	W19R	.33	1	FLOW	16.
				TIME	12.25
HYDROGRAPH AT					
+	W9R	2.39	1	FLOW	335.
				TIME	12.50
ROUTED TO					
+	RT F4	2.39	1	FLOW	326.
				TIME	12.67
3 COMBINED AT					
+	CP F4	12.65	1	FLOW	725.
				TIME	13.33
ROUTED TO					
+	RT V4	12.65	1	FLOW	710.
				TIME	13.42
HYDROGRAPH AT					
+	W20R	.22	1	FLOW	13.
				TIME	12.25

2 COMBINED AT					
+	CP V4	12.87	1	FLOW	715.
				TIME	13.42
ROUTED TO					
+	RT STM	12.87	1	FLOW	714.
				TIME	13.50
HYDROGRAPH AT					
+	G1G2	8.00	1	FLOW	2018.
				TIME	14.00
ROUTED TO					
+	OUTJ1	8.00	1	FLOW	2018.
				TIME	14.08
HYDROGRAPH AT					
+	J1	6.40	1	FLOW	313.
				TIME	13.67
2 COMBINED AT					
+	OUTJ1	14.40	1	FLOW	2307.
				TIME	14.00
ROUTED TO					
+	OUTG3	14.40	1	FLOW	2306.
				TIME	14.17
HYDROGRAPH AT					
+	G3	3.90	1	FLOW	285.
				TIME	13.42
2 COMBINED AT					
+	OUTG3	18.30	1	FLOW	2531.
				TIME	14.08
ROUTED TO					
+	OUT30	18.30	1	FLOW	2505.
				TIME	14.67
HYDROGRAPH AT					
+	15	4.20	1	FLOW	410.
				TIME	14.00
ROUTED TO					
+	OUT30	4.20	1	FLOW	401.
				TIME	15.33
HYDROGRAPH AT					
+	30	16.70	1	FLOW	2494.
				TIME	13.92
3 COMBINED AT					
+	OUT30	39.20	1	FLOW	5072.
				TIME	14.50
ROUTED TO					
+	OUT40	39.20	1	FLOW	5053.
				TIME	14.75
HYDROGRAPH AT					
+	35	15.30	1	FLOW	2158.
				TIME	14.33
HYDROGRAPH AT					
+	40	2.50	1	FLOW	416.
				TIME	13.17
3 COMBINED AT					
+	OUT40	57.00	1	FLOW	7318.
				TIME	14.58
ROUTED TO					
+	OUT341	57.00	1	FLOW	7314.
				TIME	14.67
			** PEAK STAGES IN FEET **		
			1	STAGE	4560.87
				TIME	14.67
HYDROGRAPH AT					
+	C-1B	.07	1	FLOW	60.
				TIME	12.08
HYDROGRAPH AT					
+	C-1A	.06	1	FLOW	4.
				TIME	12.17
ROUTED TO					
+	RT C1	.06	1	FLOW	4.
				TIME	12.33
ROUTED TO					
+	RT C1	.06	1	FLOW	4.
				TIME	12.58
2 COMBINED AT					
+	CPC1B	.13	1	FLOW	60.
				TIME	12.08
2 COMBINED AT					
+	CB CUR	57.13	1	FLOW	7326.
				TIME	14.67
ROUTED TO					
+	OUTDS	57.13	1	FLOW	7319.

Operation	Station	Area	Plan		Value
				TIME	14.83
2 COMBINED AT					
+	CB DS	70.00	1	FLOW	7546.
				TIME	14.83
ROUTED TO					
+	RT WHT	70.00	1	FLOW	7538.
				TIME	14.92
HYDROGRAPH AT					
+	DR 123	.00	1	FLOW	2209.
				TIME	13.08
DIVERSION TO					
+	CH 1	.00	1	FLOW	452.
				TIME	13.08
HYDROGRAPH AT					
+	DV 2&3	.00	1	FLOW	1757.
				TIME	13.08
ROUTED TO					
+	RT 2&3	.00	1	FLOW	1723.
				TIME	13.33
HYDROGRAPH AT					
+	W10R	.30	1	FLOW	3.
				TIME	12.92
2 COMBINED AT					
+	CP 23	.30	1	FLOW	1727.
				TIME	13.33
DIVERSION TO					
+	CH 2	.30	1	FLOW	863.
				TIME	13.33
HYDROGRAPH AT					
+	DV 23A	.30	1	FLOW	863.
				TIME	13.33
ROUTED TO					
+	RT V3	.30	1	FLOW	851.
				TIME	13.50
HYDROGRAPH AT					
+	W11R	.32	1	FLOW	108.
				TIME	12.17
2 COMBINED AT					
+	CP V24	.62	1	FLOW	867.
				TIME	13.50
ROUTED TO					
+	RT F3	.62	1	FLOW	847.
				TIME	13.75
HYDROGRAPH AT					
+	W16R	.11	1	FLOW	65.
				TIME	12.08
2 COMBINED AT					
+	CP F3	.73	1	FLOW	856.
				TIME	13.75
ROUTED TO					
+	RT DSW	.73	1	FLOW	853.
				TIME	13.83
HYDROGRAPH AT					
+	W18RA	.21	1	FLOW	92.
				TIME	12.25
2 COMBINED AT					
+	CB DSW	.94	1	FLOW	864.
				TIME	13.83
HYDROGRAPH AT					
+	S-1	.04	1	FLOW	14.
				TIME	7.08
ROUTED TO					
+	RT S3	.04	1	FLOW	13.
				TIME	7.25
HYDROGRAPH AT					
+	S-2	.06	1	FLOW	15.
				TIME	7.08
ROUTED TO					
+	RT S3	.06	1	FLOW	13.
				TIME	7.17
HYDROGRAPH AT					
+	S-3A	.04	1	FLOW	11.
				TIME	7.08
ROUTED TO					
+	RT S3	.04	1	FLOW	10.
				TIME	7.25
3 COMBINED AT					
+	CPS3A	.14	1	FLOW	35.
				TIME	7.25
ROUTED TO					

+	RT S5	.14	1	FLOW	34.
				TIME	7.58
HYDROGRAPH AT +	S-3B	.02	1	FLOW	5.
				TIME	7.08
ROUTED TO +	RT S5	.02	1	FLOW	5.
				TIME	7.50
HYDROGRAPH AT +	S-4	.02	1	FLOW	6.
				TIME	7.08
ROUTED TO +	RT S5	.02	1	FLOW	6.
				TIME	7.25
HYDROGRAPH AT +	S-5	.03	1	FLOW	21.
				TIME	6.25
ROUTED TO +	RT S5	.03	1	FLOW	18.
				TIME	6.33
4 COMBINED AT +	CPS5	.21	1	FLOW	54.
				TIME	7.58
ROUTED TO +	RT WHT	.21	1	FLOW	54.
				TIME	7.75
3 COMBINED AT +	CB WHT	71.15	1	FLOW	7986.
				TIME	14.83
HYDROGRAPH AT +	HD	.11	1	FLOW	113.
				TIME	6.33
2 COMBINED AT +	CP HD	71.27	1	FLOW	7992.
				TIME	14.83
ROUTED TO +	DIVSTR	71.27	1	FLOW	7993.
				TIME	14.83
			** PEAK STAGES IN FEET **		
			1	STAGE	4488.00
				TIME	14.83
DIVERSION TO +	BAS 1	71.27	1	FLOW	3838.
				TIME	14.83
HYDROGRAPH AT +	STEAM	71.27	1	FLOW	4154.
				TIME	14.83
ROUTED TO +	OUTDM	71.27	1	FLOW	4153.
				TIME	15.00
ROUTED TO +	OUTDN	71.27	1	FLOW	4150.
				TIME	15.17
HYDROGRAPH AT +	A7	.04	1	FLOW	16.
				TIME	12.42
2 COMBINED AT +	STM+7	71.31	1	FLOW	4158.
				TIME	15.17
HYDROGRAPH AT +	A6	.02	1	FLOW	16.
				TIME	12.17
2 COMBINED AT +	STM+6	71.32	1	FLOW	4166.
				TIME	15.17
HYDROGRAPH AT +	A3	.00	1	FLOW	6.
				TIME	12.08
2 COMBINED AT +	STM+3	71.33	1	FLOW	4170.
				TIME	15.17
HYDROGRAPH AT +	A2	.02	1	FLOW	22.
				TIME	12.08
2 COMBINED AT +	STM+2	71.35	1	FLOW	4177.
				TIME	15.17
HYDROGRAPH AT +	A17	.03	1	FLOW	19.
				TIME	12.08

HYDROGRAPH AT +	A18	.04	1	FLOW TIME	20. 12.17
2 COMBINED AT +	CHNL-E	.06	1	FLOW TIME	38. 12.17
2 COMBINED AT +	STM+E	71.41	1	FLOW TIME	4193. 15.17
ROUTED TO +	RT NST	71.41	1	FLOW TIME	4191. 15.58
HYDROGRAPH AT +	A16	.02	1	FLOW TIME	18. 12.08
HYDROGRAPH AT +	A19	.04	1	FLOW TIME	22. 12.17
HYDROGRAPH AT +	A20	.02	1	FLOW TIME	13. 12.25
3 COMBINED AT +	CHNL-F	.08	1	FLOW TIME	51. 12.17
2 COMBINED AT +	STM+AF	71.49	1	FLOW TIME	4213. 15.58
HYDROGRAPH AT +	BVW 6	.01	1	FLOW TIME	3. 12.08
ROUTED TO +	RT W6	.01	1	FLOW TIME	3. 12.75
HYDROGRAPH AT +	BV 16	.01	1	FLOW TIME	4. 12.08
2 COMBINED AT +	Stm+16	.02	1	FLOW TIME	6. 12.75
ROUTED TO +	RT 16	.02	1	FLOW TIME	6. 13.33
HYDROGRAPH AT +	BV 15	.02	1	FLOW TIME	11. 12.08
3 COMBINED AT +	Stm+15	71.53	1	FLOW TIME	4225. 15.58
ROUTED TO +	RT BV3	71.53	1	FLOW TIME	4225. 15.58
HYDROGRAPH AT +	APTS-9	.03	1	FLOW TIME	24. 12.17
HYDROGRAPH AT +	A8	.07	1	FLOW TIME	50. 12.17
2 COMBINED AT +	CHNL-B	.10	1	FLOW TIME	74. 12.17
HYDROGRAPH AT +	D12&13	.06	1	FLOW TIME	34. 12.17
HYDROGRAPH AT +	A9	.05	1	FLOW TIME	30. 12.17
2 COMBINED AT +	CHNL-C	.11	1	FLOW TIME	64. 12.17
2 COMBINED AT +	B&C	.21	1	FLOW TIME	138. 12.17
HYDROGRAPH AT +	A14	.05	1	FLOW TIME	32. 12.17
HYDROGRAPH AT +	A13	.05	1	FLOW TIME	26. 12.17
HYDROGRAPH AT +	A15	.02	1	FLOW TIME	13. 12.17

4 COMBINED AT					
+	CHNL-D	.33	1	FLOW	209.
				TIME	12.17
HYDROGRAPH AT					
+	A11	.01	1	FLOW	12.
				TIME	12.17
HYDROGRAPH AT					
+	A12	.02	1	FLOW	12.
				TIME	12.33
2 COMBINED AT					
+	11+12	.03	1	FLOW	23.
				TIME	12.17
2 COMBINED AT					
+	CHNL D	.36	1	FLOW	232.
				TIME	12.17
HYDROGRAPH AT					
+	X12+13	.08	1	FLOW	27.
				TIME	12.58
HYDROGRAPH AT					
+	A10	.01	1	FLOW	12.
				TIME	12.08
2 COMBINED AT					
+		.09	1	FLOW	37.
				TIME	12.58
HYDROGRAPH AT					
+	A21	.01	1	FLOW	17.
				TIME	12.08
3 COMBINED AT					
+	WTLNDS	.47	1	FLOW	272.
				TIME	12.17
HYDROGRAPH AT					
+	RC BAS	.00	1	FLOW	3838.
				TIME	14.83
ROUTED TO					
+	BAS 1	.00	1	FLOW	3412.
				TIME	15.33
			** PEAK STAGES IN FEET **		
			1	STAGE	4481.69
				TIME	15.33
DIVERSION TO					
+	36DIVQ	.00	1	FLOW	61.
				TIME	15.33
HYDROGRAPH AT					
+	BAS1DS	.00	1	FLOW	3351.
				TIME	15.33
ROUTED TO					
+	POND2	.00	1	FLOW	3319.
				TIME	15.58
HYDROGRAPH AT					
+	T-1	.04	1	FLOW	34.
				TIME	12.08
ROUTED TO					
+	RT T2	.04	1	FLOW	33.
				TIME	12.08
HYDROGRAPH AT					
+	T-2	.06	1	FLOW	61.
				TIME	12.08
2 COMBINED AT					
+	CPT2	.10	1	FLOW	95.
				TIME	12.08
ROUTED TO					
+	RT T3	.10	1	FLOW	89.
				TIME	12.17
HYDROGRAPH AT					
+	T-3	.06	1	FLOW	63.
				TIME	12.08
2 COMBINED AT					
+	CPT3	.16	1	FLOW	152.
				TIME	12.08
2 COMBINED AT					
+	CPD1A	.16	1	FLOW	3341.
				TIME	15.58
ROUTED TO					
+	RT WT	.16	1	FLOW	3316.
				TIME	15.83
HYDROGRAPH AT					
+	WSF1	.77	1	FLOW	335.
				TIME	12.17
HYDROGRAPH AT					
+	WSE1	2.10	1	FLOW	568.

				TIME	12.42
2 COMBINED AT +	F1E1	2.88	1	FLOW TIME	766. 12.25
HYDROGRAPH AT +	C-2	.03	1	FLOW TIME	10. 12.08
ROUTED TO +	RT C3	.03	1	FLOW TIME	10. 12.25
HYDROGRAPH AT +	C-1C	.07	1	FLOW TIME	46. 12.08
ROUTED TO +	RT C3	.07	1	FLOW TIME	45. 12.17
HYDROGRAPH AT +	C-3	.03	1	FLOW TIME	10. 12.08
4 COMBINED AT +	CPC3	3.01	1	FLOW TIME	828. 12.25
ROUTED TO +	RT C4	3.01	1	FLOW TIME	819. 12.25
HYDROGRAPH AT +	C-4	.04	1	FLOW TIME	34. 12.08
2 COMBINED AT +	CPC4	3.05	1	FLOW TIME	837. 12.25
ROUTED TO +	RT C7	3.05	1	FLOW TIME	825. 12.33
ROUTED TO +	RT C7	3.05	1	FLOW TIME	811. 12.42
HYDROGRAPH AT +	C-5	.07	1	FLOW TIME	59. 12.08
ROUTED TO +	RT C7	.07	1	FLOW TIME	58. 12.08
ROUTED TO +	RT C7	.07	1	FLOW TIME	57. 12.25
HYDROGRAPH AT +	C-7	.03	1	FLOW TIME	28. 12.08
HYDROGRAPH AT +	C-6	.13	1	FLOW TIME	34. 12.08
ROUTED TO +	RT C7	.13	1	FLOW TIME	34. 12.25
ROUTED TO +	RT C7	.13	1	FLOW TIME	34. 12.25
ROUTED TO +	RT C7	.13	1	FLOW TIME	34. 12.42
4 COMBINED AT +	CPC7	3.27	1	FLOW TIME	892. 12.33
ROUTED TO +	RT WT	3.27	1	FLOW TIME	829. 12.58
HYDROGRAPH AT +	W-1	.06	1	FLOW TIME	62. 12.08
ROUTED TO +	RT W1	.06	1	FLOW TIME	56. 12.17
3 COMBINED AT +	CPWET	3.50	1	FLOW TIME	3393. 15.83
ROUTED TO +	RT W1	3.50	1	FLOW TIME	3366. 16.08
HYDROGRAPH AT					

+	E2A	2.10	1	FLOW TIME	568. 12.42
HYDROGRAPH AT +	SE-2	.06	1	FLOW TIME	14. 12.08
ROUTED TO +	RT S3	.06	1	FLOW TIME	14. 12.17
HYDROGRAPH AT +	SE-3	.05	1	FLOW TIME	16. 12.08
HYDROGRAPH AT +	SE-1	.11	1	FLOW TIME	32. 12.08
ROUTED TO +	RT S3	.11	1	FLOW TIME	32. 12.17
3 COMBINED AT +	CPSE3	.22	1	FLOW TIME	59. 12.17
ROUTED TO +	RT S5	.22	1	FLOW TIME	60. 12.25
HYDROGRAPH AT +	SE-4	.02	1	FLOW TIME	5. 12.08
HYDROGRAPH AT +	SE-5	.02	1	FLOW TIME	1. 12.00
3 COMBINED AT +	CPSE5	.26	1	FLOW TIME	66. 12.25
ROUTED TO +	RT S7	.26	1	FLOW TIME	67. 12.33
HYDROGRAPH AT +	SE-6	.00	1	FLOW TIME	1. 12.08
ROUTED TO +	RT S7	.00	1	FLOW TIME	1. 12.42
HYDROGRAPH AT +	SE-7	.10	1	FLOW TIME	104. 12.00
3 COMBINED AT +	CPSE7	.36	1	FLOW TIME	123. 12.08
ROUTED TO +	RT WI	.36	1	FLOW TIME	121. 12.08
ROUTED TO +	RT WI	.36	1	FLOW TIME	123. 12.25
HYDROGRAPH AT +	SE-8	.06	1	FLOW TIME	59. 12.08
ROUTED TO +	RTWI	.06	1	FLOW TIME	58. 12.08
ROUTED TO +	RT WI	.06	1	FLOW TIME	57. 12.25
HYDROGRAPH AT +	W-2	.03	1	FLOW TIME	9. 12.08
HYDROGRAPH AT +	W-3	.04	1	FLOW TIME	40. 12.08
2 COMBINED AT +	CPW2	.07	1	FLOW TIME	49. 12.08
ROUTED TO +	RTG WI	.07	1	FLOW TIME	45. 12.08
3 COMBINED AT +	PWETIN	.49	1	FLOW TIME	215. 12.25
2 COMBINED AT +	CPWETA	2.59	1	FLOW TIME	746. 12.33

ROUTED TO					
+	RT W1	2.59	1	FLOW	712.
				TIME	12.50
2 COMBINED AT					
+	CPWET1	6.09	1	FLOW	3430.
				TIME	16.08
ROUTED TO					
+	RTWET1	6.09	1	FLOW	3399.
				TIME	16.33
HYDROGRAPH AT					
+	WET	.12	1	FLOW	42.
				TIME	12.25
2 COMBINED AT					
+	CPWETB	6.21	1	FLOW	3406.
				TIME	16.33
ROUTED TO					
+	RTWETB	6.21	1	FLOW	3375.
				TIME	16.50
HYDROGRAPH AT					
+	E-2	.07	1	FLOW	45.
				TIME	12.08
ROUTED TO					
+	RT E3	.07	1	FLOW	42.
				TIME	12.17
HYDROGRAPH AT					
+	E-1	.05	1	FLOW	2.
				TIME	12.17
ROUTED TO					
+	RT E3	.05	1	FLOW	2.
				TIME	12.25
ROUTED TO					
+	RTE3	.05	1	FLOW	2.
				TIME	12.42
2 COMBINED AT					
+	CPE3	.12	1	FLOW	42.
				TIME	12.17
HYDROGRAPH AT					
+	WSB2	.12	1	FLOW	68.
				TIME	12.00
HYDROGRAPH AT					
+	WSB1	.36	1	FLOW	174.
				TIME	12.08
2 COMBINED AT					
+	CPB12	.48	1	FLOW	213.
				TIME	12.08
ROUTED TO					
+	RT E3	.48	1	FLOW	211.
				TIME	12.08
ROUTED TO					
+	RT E3	.48	1	FLOW	197.
				TIME	12.17
ROUTED TO					
+	RT E4	.48	1	FLOW	188.
				TIME	12.17
HYDROGRAPH AT					
+	E-4	.10	1	FLOW	71.
				TIME	12.08
ROUTED TO					
+	RT E4	.10	1	FLOW	66.
				TIME	12.08
3 COMBINED AT					
+	CPE4	.70	1	FLOW	294.
				TIME	12.17
HYDROGRAPH AT					
+	W-8	.06	1	FLOW	63.
				TIME	12.08
3 COMBINED AT					
+	CPWETO	6.97	1	FLOW	3410.
				TIME	16.50
ROUTED TO					
+	RS DT2	6.97	1	FLOW	2805.
				TIME	17.33
			** PEAK STAGES IN FEET **		
			1	STAGE	4461.21
				TIME	17.33
HYDROGRAPH AT					
+	W-9	.04	1	FLOW	42.
				TIME	12.08
2 COMBINED AT					
+	CW-9	7.01	1	FLOW	2812.
				TIME	17.33

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 ROUTED TO
+                  POND4       7.01      1   FLOW        2652.
                                             TIME        17.83

                                         ** PEAK STAGES IN FEET **
                                         1   STAGE     4456.36
                                             TIME        17.83

  2 COMBINED AT
+                 WET-IN       7.48      1   FLOW        2724.
                                             TIME        17.83

 HYDROGRAPH AT
+                     D1       1.72      1   FLOW         530.
                                             TIME        12.33

 ROUTED TO
+                  RT N1       1.72      1   FLOW         524.
                                             TIME        12.33

 ROUTED TO
+                  RT N1       1.72      1   FLOW         520.
                                             TIME        12.42

 ROUTED TO
+                  RT N1       1.72      1   FLOW         512.
                                             TIME        12.42

 HYDROGRAPH AT
+                    WSC       3.31      1   FLOW         820.
                                             TIME        12.50

 ROUTED TO
+                  RT N1       3.31      1   FLOW         810.
                                             TIME        12.58

 ROUTED TO
+                  RT N1       3.31      1   FLOW         809.
                                             TIME        12.58

 HYDROGRAPH AT
+                   NE-1        .04      1   FLOW          18.
                                             TIME        12.08

 ROUTED TO
+                  RT N1        .04      1   FLOW          18.
                                             TIME        12.17

  3 COMBINED AT
+                  CPNE1       5.07      1   FLOW        1298.
                                             TIME        12.50

 ROUTED TO
+                  RT W3       5.07      1   FLOW        1280.
                                             TIME        12.50

 ROUTED TO
+                  RT W3       5.07      1   FLOW         756.
                                             TIME        13.50

 HYDROGRAPH AT
+                     D2        .15      1   FLOW         102.
                                             TIME        12.00

 ROUTED TO
+                  RT N4        .15      1   FLOW          88.
                                             TIME        12.00

 ROUTED TO
+                  RT N4        .15      1   FLOW          85.
                                             TIME        12.08

 ROUTED TO
+                  RT N4        .15      1   FLOW          80.
                                             TIME        12.17

 HYDROGRAPH AT
+                 NE2345        .23      1   FLOW          97.
                                             TIME        12.08

  2 COMBINED AT
+                  CPNE4        .38      1   FLOW         168.
                                             TIME        12.08

 ROUTED TO
+                  RT W3        .38      1   FLOW          88.
                                             TIME        13.08

  2 COMBINED AT
+                 CPWET3       5.46      1   FLOW         811.
                                             TIME        13.42

 ROUTED TO
+                  RT DN       5.46      1   FLOW         778.
                                             TIME        13.92

  2 COMBINED AT
+                  DMNTE      12.94      1   FLOW        2762.
                                             TIME        17.83

 HYDROGRAPH AT
+                  BV 14        .01      1   FLOW           5.
                                             TIME        12.08

 ROUTED TO
+                  RT 14        .01      1   FLOW           6.
```

				TIME	12.58
HYDROGRAPH AT					
+	BV 13	.00	1	FLOW	4.
				TIME	12.08
HYDROGRAPH AT					
+	D4	.80	1	FLOW	70.
				TIME	12.67
ROUTED TO					
+	RT D4	.80	1	FLOW	57.
				TIME	13.25
5 COMBINED AT					
+	StmBV3	85.27	1	FLOW	6407.
				TIME	17.33
ROUTED TO					
+	RT 13	85.27	1	FLOW	6407.
				TIME	17.42
HYDROGRAPH AT					
+	BV 12	.03	1	FLOW	22.
				TIME	12.08
2 COMBINED AT					
+	StBV33	85.30	1	FLOW	6413.
				TIME	17.42
ROUTED TO					
+	RT 12	85.30	1	FLOW	6411.
				TIME	17.58
HYDROGRAPH AT					
+	BVW 7	.06	1	FLOW	28.
				TIME	12.17
ROUTED TO					
+	RT W7	.06	1	FLOW	26.
				TIME	12.17
HYDROGRAPH AT					
+	BV 8	.02	1	FLOW	14.
				TIME	12.08
HYDROGRAPH AT					
+	BV 7	.02	1	FLOW	14.
				TIME	12.08
3 COMBINED AT					
+	7+8	.10	1	FLOW	50.
				TIME	12.08
ROUTED TO					
+	RT	.10	1	FLOW	48.
				TIME	12.17
HYDROGRAPH AT					
+	BV 6	.01	1	FLOW	8.
				TIME	12.08
HYDROGRAPH AT					
+	BV 9	.02	1	FLOW	11.
				TIME	12.08
3 COMBINED AT					
+	6+9	.13	1	FLOW	66.
				TIME	12.17
ROUTED TO					
+	RT	.13	1	FLOW	66.
				TIME	12.17
HYDROGRAPH AT					
+	BV 5	.00	1	FLOW	3.
				TIME	12.08
HYDROGRAPH AT					
+	BV 10	.01	1	FLOW	9.
				TIME	12.08
3 COMBINED AT					
+	5+10	.15	1	FLOW	77.
				TIME	12.17
ROUTED TO					
+	RT	.15	1	FLOW	76.
				TIME	12.17
HYDROGRAPH AT					
+	BV 11	.01	1	FLOW	8.
				TIME	12.08
2 COMBINED AT					
+	EST-WS	.16	1	FLOW	84.
				TIME	12.17
2 COMBINED AT					
+	StmBV2	85.46	1	FLOW	6452.
				TIME	17.58
ROUTED TO					
+	RTto4	85.46	1	FLOW	6451.
				TIME	17.58
HYDROGRAPH AT					

+	BV 4	.01	1	FLOW	11.
				TIME	12.08
2 COMBINED AT +	Stm+ 4	85.48	1	FLOW	6457.
				TIME	17.58
ROUTED TO +	RTto3	85.48	1	FLOW	6457.
				TIME	17.58
HYDROGRAPH AT +	BV 3	.01	1	FLOW	11.
				TIME	12.08
2 COMBINED AT +	Stm+ 3	85.49	1	FLOW	6463.
				TIME	17.58
ROUTED TO +	RTto2	85.49	1	FLOW	6463.
				TIME	17.58
HYDROGRAPH AT +	BV 2	.01	1	FLOW	4.
				TIME	12.08
2 COMBINED AT +	Stm+ 2	85.50	1	FLOW	6466.
				TIME	17.58
ROUTED TO +	RTStBV	85.50	1	FLOW	6465.
				TIME	17.58
HYDROGRAPH AT +	BVW 8	.04	1	FLOW	27.
				TIME	12.08
HYDROGRAPH AT +	BV 1	.03	1	FLOW	29.
				TIME	12.08
2 COMBINED AT +	HC1+8	.07	1	FLOW	57.
				TIME	12.08
2 COMBINED AT +	StmBV1	85.57	1	FLOW	6477.
				TIME	17.58
ROUTED TO +	RT03	85.57	1	FLOW	6414.
				TIME	20.00
HYDROGRAPH AT +	D3	.70	1	FLOW	114.
				TIME	12.67
ROUTED TO +	RT03	.70	1	FLOW	79.
				TIME	14.08
2 COMBINED AT +	PT03	86.27	1	FLOW	6421.
				TIME	20.00
HYDROGRAPH AT +	A22	.00	1	FLOW	2.
				TIME	12.33
HYDROGRAPH AT +	A5	.05	1	FLOW	26.
				TIME	12.17
2 COMBINED AT +	CARAT1	.05	1	FLOW	28.
				TIME	12.17
HYDROGRAPH AT +	A4	.02	1	FLOW	18.
				TIME	12.08
HYDROGRAPH AT +	A23	.00	1	FLOW	2.
				TIME	12.33
HYDROGRAPH AT +	A1	.01	1	FLOW	12.
				TIME	12.17
4 COMBINED AT +	CHNL-A	.09	1	FLOW	57.
				TIME	12.17
HYDROGRAPH AT +	BVW-5	.05	1	FLOW	44.
				TIME	12.08
2 COMBINED AT +	ACHBV5	.14	1	FLOW	98.
				TIME	12.08
ROUTED TO +	RT5-3	.14	1	FLOW	98.
				TIME	12.33

QA 100 YR @ BELLA VISTA NORTH BOUNDARY

HYDROGRAPH AT +	BVW-3	.05	1	FLOW TIME	14. 12.08
2 COMBINED AT +	CP3&5	.19	1	FLOW TIME	108. 12.33
HYDROGRAPH AT +	BVW-1	.03	1	FLOW TIME	9. 12.08
2 COMBINED AT +	WSTOUT	.21	1	FLOW TIME	117. 12.33
ROUTED TO +	RT03	.21	1	FLOW TIME	70. 14.92
2 COMBINED AT +	PT03	86.48	1	FLOW TIME	6460. 20.00
HYDROGRAPH AT +	W18RB	.13	1	FLOW TIME	141. 12.08
HYDROGRAPH AT +	V18-19	.05	1	FLOW TIME	51. 12.08
HYDROGRAPH AT +	V20	.05	1	FLOW TIME	46. 12.08
HYDROGRAPH AT +	WET	.02	1	FLOW TIME	7. 12.17
4 COMBINED AT +	CB WET	.25	1	FLOW TIME	244. 12.08
HYDROGRAPH AT +	PH-IV	.19	1	FLOW TIME	158. 12.17
HYDROGRAPH AT +	E14	.03	1	FLOW TIME	24. 12.08
3 COMBINED AT +	C14	.47	1	FLOW TIME	412. 12.17
ROUTED TO +	E14-E1	.47	1	FLOW TIME	411. 12.17
HYDROGRAPH AT +	E1	.01	1	FLOW TIME	7. 12.00
2 COMBINED AT +	C1	.47	1	FLOW TIME	418. 12.17
ROUTED TO +	E1-E2	.47	1	FLOW TIME	413. 12.17
HYDROGRAPH AT +	E2	.00	1	FLOW TIME	4. 12.00
2 COMBINED AT +	C2	.47	1	FLOW TIME	417. 12.17
ROUTED TO +	E2-E3	.47	1	FLOW TIME	409. 12.17
HYDROGRAPH AT +	E3	.00	1	FLOW TIME	3. 12.00
2 COMBINED AT +	C3	.48	1	FLOW TIME	412. 12.17
ROUTED TO +	E3-E4	.48	1	FLOW TIME	402. 12.17
HYDROGRAPH AT +	E4	.00	1	FLOW TIME	4. 12.00
2 COMBINED AT +	C4	.48	1	FLOW TIME	406. 12.17
HYDROGRAPH AT +	D10	.12	1	FLOW TIME	106. 12.17

		Station	Area	Plan		Value
HYDROGRAPH AT	+	D12	.02	1	FLOW	18.
					TIME	12.08
HYDROGRAPH AT	+	PARK	.01	1	FLOW	5.
					TIME	12.08
4 COMBINED AT	+	C10PRK	.63	1	FLOW	530.
					TIME	12.17
ROUTED TO	+	PK-CAR	.63	1	FLOW	515.
					TIME	12.25
HYDROGRAPH AT	+	PhVa	.01	1	FLOW	12.
					TIME	12.08
HYDROGRAPH AT	+	V4	.03	1	FLOW	21.
					TIME	12.08
3 COMBINED AT	+	CB 1	.66	1	FLOW	535.
					TIME	12.25
ROUTED TO	+	RT1-2	.66	1	FLOW	530.
					TIME	12.25
HYDROGRAPH AT	+	PhVb	.03	1	FLOW	27.
					TIME	12.08
2 COMBINED AT	+	CB2	.69	1	FLOW	549.
					TIME	12.25
ROUTED TO	+	RT2-3	.69	1	FLOW	537.
					TIME	12.33
HYDROGRAPH AT	+	V12	.01	1	FLOW	12.
					TIME	12.08
HYDROGRAPH AT	+	V11	.01	1	FLOW	7.
					TIME	12.00
HYDROGRAPH AT	+	V3	.03	1	FLOW	20.
					TIME	12.08
4 COMBINED AT	+	CB3	.74	1	FLOW	563.
					TIME	12.33
ROUTED TO	+	RT3-4	.74	1	FLOW	555.
					TIME	12.33
HYDROGRAPH AT	+	PhVc	.02	1	FLOW	23.
					TIME	12.08
HYDROGRAPH AT	+	V2	.04	1	FLOW	30.
					TIME	12.08
3 COMBINED AT	+	CB4	.80	1	FLOW	575.
					TIME	12.33
ROUTED TO	+	RT4-5	.80	1	FLOW	569.
					TIME	12.33
HYDROGRAPH AT	+	PARKVI	.00	1	FLOW	2.
					TIME	12.08
2 COMBINED AT	+	CB5	.81	1	FLOW	571.
					TIME	12.33
ROUTED TO	+	RT5-6	.81	1	FLOW	558.
					TIME	12.42
HYDROGRAPH AT	+	K6SCHL	.01	1	FLOW	10.
					TIME	12.08
2 COMBINED AT	+	CB6	.82	1	FLOW	568.
					TIME	12.42
ROUTED TO	+	RT6-7	.82	1	FLOW	558.
					TIME	12.50
HYDROGRAPH AT	+	V1	.04	1	FLOW	27.

				TIME	12.08
HYDROGRAPH AT +	V29	.06	1	FLOW TIME	67. 12.08
3 COMBINED AT +	CB7	.92	1	FLOW TIME	578. 12.50
HYDROGRAPH AT +	DR 1	.00	1	FLOW TIME	452. 13.08
ROUTED TO +	RT Z1	.00	1	FLOW TIME	439. 13.42
HYDROGRAPH AT +	W13R	1.30	1	FLOW TIME	35. 12.42
2 COMBINED AT +	CP Z1	1.30	1	FLOW TIME	449. 13.42
DIVERSION TO +	CH 1A	1.30	1	FLOW TIME	200. 13.00
HYDROGRAPH AT +	DV 1B	1.30	1	FLOW TIME	249. 13.42
ROUTED TO +	RT V12	1.30	1	FLOW TIME	242. 13.58
HYDROGRAPH AT +	W12R	.60	1	FLOW TIME	18. 12.42
2 COMBINED AT +	CP V12	1.90	1	FLOW TIME	251. 13.58
HYDROGRAPH AT +	DR CH2	.00	1	FLOW TIME	863. 13.33
ROUTED TO +	RT V12	.00	1	FLOW TIME	844. 13.58
2 COMBINED AT +	CP V12	1.90	1	FLOW TIME	1095. 13.58
ROUTED TO +	RT F12	1.90	1	FLOW TIME	1061. 13.75
HYDROGRAPH AT +	W15R	.21	1	FLOW TIME	106. 12.08
2 COMBINED AT +	CP F12	2.11	1	FLOW TIME	1070. 13.75
HYDROGRAPH AT +	DR 1A	.00	1	FLOW TIME	200. 13.00
ROUTED TO +	RT F1A	.00	1	FLOW TIME	200. 14.00
HYDROGRAPH AT +	W14R	.18	1	FLOW TIME	69. 12.17
2 COMBINED AT +	CP F1A	.18	1	FLOW TIME	209. 13.75
2 COMBINED AT +	CB 1&2	2.29	1	FLOW TIME	1279. 13.75
ROUTED TO +	RT WT2	2.29	1	FLOW TIME	1271. 13.92
ROUTED TO +	RT WT2	2.29	1	FLOW TIME	1219. 14.42
ROUTED TO +	RT WT2	2.29	1	FLOW TIME	1215. 14.50
HYDROGRAPH AT +	WT 6P1	.07	1	FLOW TIME	32. 12.25
HYDROGRAPH AT					

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+                W WT2P        .59     1   FLOW         122.
                                           TIME         12.58

  3 COMBINED AT
+                CB WT2       2.95     1   FLOW        1233.
                                           TIME        14.50

 HYDROGRAPH AT
+                WS WT1       1.93     1   FLOW          73.
                                           TIME        12.83

 ROUTED TO
+                RT WT3       1.93     1   FLOW          72.
                                           TIME        13.17

 HYDROGRAPH AT
+                THOMAS      11.54     1   FLOW        2544.
                                           TIME        13.25

 DIVERSION TO
+                HOLCOM      11.54     1   FLOW        1380.
                                           TIME        13.25

 HYDROGRAPH AT
+                DV HOL      11.54     1   FLOW        1164.
                                           TIME        13.25

 ROUTED TO
+                RT WT3      11.54     1   FLOW        1151.
                                           TIME        13.50

 DIVERSION TO
+                  THOM      11.54     1   FLOW          52.
                                           TIME        13.50

 HYDROGRAPH AT
+                DV THO      11.54     1   FLOW        1099.
                                           TIME        13.50

 ROUTED TO
+                RT WT3      11.54     1   FLOW        1097.
                                           TIME        13.58

 HYDROGRAPH AT
+                  WT3P        .49     1   FLOW         185.
                                           TIME        12.25

  3 COMBINED AT
+                CB WT3      13.96     1   FLOW        1163.
                                           TIME        13.58

  2 COMBINED AT
+                CB OFF      16.91     1   FLOW        2055.
                                           TIME        14.42

 ROUTED TO
+                RT WHC      16.91     1   FLOW        2050.
                                           TIME        14.50

 HYDROGRAPH AT
+                    D2        .36     1   FLOW          31.
                                           TIME        12.42

  2 COMBINED AT
+                CB WHC      17.27     1   FLOW        2058.
                                           TIME        14.50

 ROUTED TO
+                RT DET      17.27     1   FLOW        2055.
                                           TIME        14.58

 ROUTED TO
+                RT DET      17.27     1   FLOW        1743.
                                           TIME        15.08

                                    ** PEAK STAGES IN FEET **
                                       1   STAGE     4427.22
                                           TIME        15.08

 ROUTED TO
+                 RT WT      17.27     1   FLOW        1741.
                                           TIME        15.17

 HYDROGRAPH AT
+                THOMAS        .00     1   FLOW          52.
                                           TIME        13.50

 ROUTED TO
+                 RT WT        .00     1   FLOW          32.
                                           TIME        15.08

 HYDROGRAPH AT
+                  WT4P       1.73     1   FLOW         220.
                                           TIME        13.42

  2 COMBINED AT
+                             1.73     1   FLOW         220.
                                           TIME        13.42

 HYDROGRAPH AT
+                  WT7P        .16     1   FLOW          19.
                                           TIME        13.33

 ROUTED TO
+                 RT WT        .16     1   FLOW          18.
                                           TIME        14.00
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HYDROGRAPH AT +	WS WT5	.49	1	FLOW TIME	266. 12.17
ROUTED TO +	RT WT	.49	1	FLOW TIME	202. 12.58
3 COMBINED AT +	CB WT	2.38	1	FLOW TIME	327. 12.67
2 COMBINED AT +	CP WT	19.65	1	FLOW TIME	1852. 15.08
3 COMBINED AT +	PT03	107.05	1	FLOW TIME	7183. 19.83
ROUTED TO +	RT04	107.05	1	FLOW TIME	7096. 21.58
HYDROGRAPH AT +	D1	.44	1	FLOW TIME	74. 12.50
HYDROGRAPH AT +	D5	.75	1	FLOW TIME	19. 14.58
3 COMBINED AT +	PT04	108.24	1	FLOW TIME	7106. 21.58

1

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

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
FOR PLAN = 1 RATIO= .94									
RT STM	MANE	1.51	714.59	808.24	.23	5.00	713.88	810.00	.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1609E+03 EXCESS= .0000E+00 OUTFLOW= .1602E+03 BASIN STORAGE= .8542E+00 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
OUTJ1	MANE	5.00	2017.57	845.00	1.64	5.00	2017.57	845.00	1.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7027E+03 EXCESS= .0000E+00 OUTFLOW= .6995E+03 BASIN STORAGE= .4234E+01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
OUTG3	MANE	5.00	2305.58	850.00	1.06	5.00	2305.58	850.00	1.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8204E+03 EXCESS= .0000E+00 OUTFLOW= .8146E+03 BASIN STORAGE= .7346E+01 PERCENT ERROR= -.2

FOR PLAN = 1 RATIO= .00									
RT C1	MANE	1.25	4.32	736.25	.77	5.00	4.25	740.00	.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2549E+01 EXCESS= .0000E+00 OUTFLOW= .2532E+01 BASIN STORAGE= .1746E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RT C1	MANE	1.75	4.35	747.25	.75	5.00	4.22	755.00	.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2533E+01 EXCESS= .0000E+00 OUTFLOW= .2492E+01 BASIN STORAGE= .4446E-01 PERCENT ERROR= -.1

FOR PLAN = 1 RATIO= .00									
RT DSW	MANE	5.00	853.15	830.00	4.91	5.00	853.15	830.00	4.91

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1933E+03 EXCESS= .0000E+00 OUTFLOW= .1915E+03 BASIN STORAGE= .2393E+01 PERCENT ERROR= -.3

FOR PLAN = 1 RATIO= .00									
RT S3	MANE	1.50	10.23	433.50	3.62	5.00	10.19	435.00	3.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7578E+01 EXCESS= .0000E+00 OUTFLOW= .7537E+01 BASIN STORAGE= .4286E-01 PERCENT ERROR= .0

FOR PLAN = 1 RATIO= .00									
RT W6	MANE	1.75	3.22	764.75	2.98	5.00	3.14	765.00	2.99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1675E+01 EXCESS= .0000E+00 OUTFLOW= .1592E+01 BASIN STORAGE= .1015E+00 PERCENT ERROR= -1.1

FOR PLAN = 1 RATIO= .00									
RT 16	MANE	5.00	6.47	800.00	4.21	5.00	6.47	800.00	4.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3743E+01 EXCESS= .0000E+00 OUTFLOW= .3601E+01 BASIN STORAGE= .1704E+00 PERCENT ERROR= -.8

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FOR PLAN = 1  RATIO=  .00
  RT BV3  MANE        1.56   4224.67    935.32       .83      5.00   4224.65    935.00        .83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3187E+04 EXCESS= .0000E+00 OUTFLOW= .3181E+04 BASIN STORAGE= .6589E+01 PERCENT ERROR=    .0

FOR PLAN = 1  RATIO=  .00
   RT T2  MANE        1.22     33.64    726.53      4.06      5.00     33.35    725.00       4.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7811E+01 EXCESS= .0000E+00 OUTFLOW= .7799E+01 BASIN STORAGE= .1283E-01 PERCENT ERROR=    .0

FOR PLAN = 1  RATIO=  .00
   RT T3  MANE        2.92     92.71    727.83      3.21      5.00     89.30    730.00       3.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1737E+02 EXCESS= .0000E+00 OUTFLOW= .1731E+02 BASIN STORAGE= .6834E-01 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
   RT C3  MANE        5.00     10.26    735.00      3.41      5.00     10.26    735.00       3.41

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6284E+01 EXCESS= .0000E+00 OUTFLOW= .6188E+01 BASIN STORAGE= .1120E+00 PERCENT ERROR=   -.3

FOR PLAN = 1  RATIO=  .00
   RT C3  MANE        5.00     44.83    730.00      2.29      5.00     44.83    730.00       2.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8628E+01 EXCESS= .0000E+00 OUTFLOW= .8549E+01 BASIN STORAGE= .1145E+00 PERCENT ERROR=   -.4

FOR PLAN = 1  RATIO=  .00
   RT C4  MANE        1.42    822.95    736.19       .52      5.00    819.35    735.00        .52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8381E+02 EXCESS= .0000E+00 OUTFLOW= .8371E+02 BASIN STORAGE= .1696E+00 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
   RT C7  MANE        4.45    832.02    738.88       .56      5.00    825.00    740.00        .56

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9168E+02 EXCESS= .0000E+00 OUTFLOW= .9137E+02 BASIN STORAGE= .6082E+00 PERCENT ERROR=   -.3

FOR PLAN = 1  RATIO=  .00
   RT C7  MANE        3.88    815.34    741.08       .56      5.00    810.91    745.00        .56

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9140E+02 EXCESS= .0000E+00 OUTFLOW= .9111E+02 BASIN STORAGE= .5375E+00 PERCENT ERROR=   -.3

FOR PLAN = 1  RATIO=  .00
   RT C7  MANE         .69     58.04    725.43      2.57      5.00     57.69    725.00       2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9343E+01 EXCESS= .0000E+00 OUTFLOW= .9339E+01 BASIN STORAGE= .1118E-01 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
   RT C7  MANE        5.00     56.55    735.00      2.54      5.00     56.55    735.00       2.54

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9352E+01 EXCESS= .0000E+00 OUTFLOW= .9242E+01 BASIN STORAGE= .1689E+00 PERCENT ERROR=   -.6

FOR PLAN = 1  RATIO=  .00
   RT C7  MANE        5.00     33.94    735.00      1.17      5.00     33.94    735.00       1.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7894E+01 EXCESS= .0000E+00 OUTFLOW= .7825E+01 BASIN STORAGE= .8120E-01 PERCENT ERROR=   -.2

FOR PLAN = 1  RATIO=  .00
   RT C7  MANE         .24     33.82    734.87      1.17      5.00     33.82    735.00       1.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7814E+01 EXCESS= .0000E+00 OUTFLOW= .7811E+01 BASIN STORAGE= .3499E-02 PERCENT ERROR=    .0

FOR PLAN = 1  RATIO=  .00
   RT C7  MANE        5.00     33.92    745.00      1.15      5.00     33.92    745.00       1.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7824E+01 EXCESS= .0000E+00 OUTFLOW= .7696E+01 BASIN STORAGE= .1709E+00 PERCENT ERROR=   -.6

FOR PLAN = 1  RATIO=  .00
   RT S3  MANE        1.50     13.80    730.50      1.90      5.00     13.65    730.00       1.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6124E+01 EXCESS= .0000E+00 OUTFLOW= .6084E+01 BASIN STORAGE= .4591E-01 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
   RT S3  MANE        5.00     31.51    730.00      1.36      5.00     31.51    730.00       1.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7771E+01 EXCESS= .0000E+00 OUTFLOW= .7724E+01 BASIN STORAGE= .5686E-01 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
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            RT S5  MANE         5.00      59.58     735.00       1.75       5.00      59.58     735.00         1.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2057E+02 EXCESS= .0000E+00 OUTFLOW= .2044E+02 BASIN STORAGE= .1706E+00 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
            RT S7  MANE         5.00      66.58     740.00       1.79       5.00      66.58     740.00         1.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2471E+02 EXCESS= .0000E+00 OUTFLOW= .2454E+02 BASIN STORAGE= .2175E+00 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
            RT S7  MANE         1.00        .55     736.00       1.39       5.00        .50     745.00         1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2995E+00 EXCESS= .0000E+00 OUTFLOW= .2958E+00 BASIN STORAGE= .4227E-02 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
            RT WI  MANE         3.02     121.38     725.34       1.88       5.00     120.52     725.00         1.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3627E+02 EXCESS= .0000E+00 OUTFLOW= .3613E+02 BASIN STORAGE= .1719E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            RT WI  MANE         5.00     122.68     735.00       1.86       5.00     122.68     735.00         1.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3621E+02 EXCESS= .0000E+00 OUTFLOW= .3576E+02 BASIN STORAGE= .5598E+00 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
            RTWI   MANE          .76      58.84     725.86       2.71       5.00      58.13     725.00         2.71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9414E+01 EXCESS= .0000E+00 OUTFLOW= .9405E+01 BASIN STORAGE= .1230E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
            RT WI  MANE         5.00      57.05     735.00       2.67       5.00      57.05     735.00         2.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9419E+01 EXCESS= .0000E+00 OUTFLOW= .9284E+01 BASIN STORAGE= .2083E+00 PERCENT ERROR=   -.8

          FOR PLAN = 1  RATIO=  .00
            RT E3  MANE         3.98      43.14     727.90       2.20       5.00      42.00     730.00         2.20

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8242E+01 EXCESS= .0000E+00 OUTFLOW= .8205E+01 BASIN STORAGE= .4259E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            RT E3  MANE         1.00       2.26     735.00        .50       5.00       2.26     735.00          .50

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1343E+01 EXCESS= .0000E+00 OUTFLOW= .1335E+01 BASIN STORAGE= .8296E-02 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
              RTE3  MANE        1.25       2.26     745.00        .50       5.00       2.26     745.00          .50

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1336E+01 EXCESS= .0000E+00 OUTFLOW= .1323E+01 BASIN STORAGE= .1421E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            RT E3  MANE         2.19     214.40     723.98        .72       5.00     211.41     725.00          .72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1851E+02 EXCESS= .0000E+00 OUTFLOW= .1846E+02 BASIN STORAGE= .6918E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            RT E3  MANE         3.50     205.63     728.00        .72       5.00     196.52     730.00          .72

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1845E+02 EXCESS= .0000E+00 OUTFLOW= .1837E+02 BASIN STORAGE= .1198E+00 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
            RT E4  MANE         3.53     192.31     731.27        .71       5.00     187.57     730.00          .71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1836E+02 EXCESS= .0000E+00 OUTFLOW= .1827E+02 BASIN STORAGE= .1105E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            RT E4  MANE         2.15      68.68     727.70       1.59       5.00      66.45     725.00         1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8479E+01 EXCESS= .0000E+00 OUTFLOW= .8463E+01 BASIN STORAGE= .3004E-01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
            RT N1  MANE         1.75     527.46     741.36        .40       5.00     524.16     740.00          .40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3716E+02 EXCESS= .0000E+00 OUTFLOW= .3714E+02 BASIN STORAGE= .5565E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
            RT N1  MANE         4.13     524.45     744.13        .40       5.00     520.20     745.00          .40
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CONTINUITY SUMMARY (AC-FT) - INFLOW= .3715E+02 EXCESS= .0000E+00 OUTFLOW= .3711E+02 BASIN STORAGE= .1322E+00 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RT N1  MANE          2.78    514.77    747.09       .40      5.00    511.73    745.00         .40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3711E+02 EXCESS= .0000E+00 OUTFLOW= .3706E+02 BASIN STORAGE= .1116E+00 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RT N1  MANE          3.56    815.58    752.02       .41      5.00    810.13    755.00         .41

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7198E+02 EXCESS= .0000E+00 OUTFLOW= .7193E+02 BASIN STORAGE= .1395E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT N1  MANE          2.36    809.53    754.46       .41      5.00    808.79    755.00         .41

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7195E+02 EXCESS= .0000E+00 OUTFLOW= .7189E+02 BASIN STORAGE= .1172E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT N1  MANE          1.20     17.99    727.21      2.95      5.00     17.57    730.00        2.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6939E+01 EXCESS= .0000E+00 OUTFLOW= .6929E+01 BASIN STORAGE= .1264E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RT W3  MANE          1.66   1291.37    751.31       .43      5.00   1279.89    750.00         .43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1159E+03 EXCESS= .0000E+00 OUTFLOW= .1158E+03 BASIN STORAGE= .1849E+00 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT N4  MANE          3.20     95.23    722.71      1.01      5.00     88.38    720.00        1.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8099E+01 EXCESS= .0000E+00 OUTFLOW= .8067E+01 BASIN STORAGE= .4219E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT N4  MANE          2.39     87.38    722.64      1.00      5.00     85.32    725.00        1.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8053E+01 EXCESS= .0000E+00 OUTFLOW= .8029E+01 BASIN STORAGE= .3054E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT N4  MANE          4.00     84.88    728.00      1.00      5.00     80.39    730.00        1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8045E+01 EXCESS= .0000E+00 OUTFLOW= .7986E+01 BASIN STORAGE= .8840E-01 PERCENT ERROR=   -.4

          FOR PLAN = 1  RATIO=  .00
             RT 14  MANE          5.00      6.00    755.00      7.43      5.00      6.00    755.00        7.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2890E+01 EXCESS= .0000E+00 OUTFLOW= .2779E+01 BASIN STORAGE= .1348E+00 PERCENT ERROR=   -.8

          FOR PLAN = 1  RATIO=  .00
             RT 13  MANE          1.10   6406.63   1044.13       .98      5.00   6406.56   1045.00         .98

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4443E+04 EXCESS= .0000E+00 OUTFLOW= .4438E+04 BASIN STORAGE= .5986E+01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RT 12  MANE          5.00   6411.11   1055.00       .96      5.00   6411.11   1055.00         .96

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4453E+04 EXCESS= .0000E+00 OUTFLOW= .4397E+04 BASIN STORAGE= .6710E+02 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
            RT W7   MANE          2.12     26.74    730.83      2.06      5.00     26.36    730.00        2.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6847E+01 EXCESS= .0000E+00 OUTFLOW= .6831E+01 BASIN STORAGE= .2881E-01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
             RT     MANE          2.00     48.84    727.10      3.58      5.00     47.84    730.00        3.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1933E+02 EXCESS= .0000E+00 OUTFLOW= .1929E+02 BASIN STORAGE= .6615E-01 PERCENT ERROR=   -.1

          FOR PLAN = 1  RATIO=  .00
             RT     MANE           .94     65.63    729.55      4.43      5.00     65.61    730.00        4.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3030E+02 EXCESS= .0000E+00 OUTFLOW= .3026E+02 BASIN STORAGE= .4590E-01 PERCENT ERROR=    .0

          FOR PLAN = 1  RATIO=  .00
             RT     MANE          2.38     76.68    731.86      4.72      5.00     76.08    730.00        4.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3737E+02 EXCESS= .0000E+00 OUTFLOW= .3727E+02 BASIN STORAGE= .1415E+00 PERCENT ERROR=   -.1
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FOR PLAN = 1  RATIO=  .00
  RTto4  MANE        .46   6451.52  1054.74      .97      5.00  6451.47  1055.00       .97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4431E+04 EXCESS= .0000E+00 OUTFLOW= .4429E+04 BASIN STORAGE= .2591E+01 PERCENT ERROR=    .0

FOR PLAN = 1  RATIO=  .00
  RTto3  MANE        .42   6457.31  1054.94      .97      5.00  6457.30  1055.00       .97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4435E+04 EXCESS= .0000E+00 OUTFLOW= .4433E+04 BASIN STORAGE= .2330E+01 PERCENT ERROR=    .0

FOR PLAN = 1  RATIO=  .00
  RTto2  MANE        .42   6463.12  1055.02      .97      5.00  6463.12  1055.00       .97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4440E+04 EXCESS= .0000E+00 OUTFLOW= .4438E+04 BASIN STORAGE= .2333E+01 PERCENT ERROR=    .0

FOR PLAN = 1  RATIO=  .00
  RTStBV MANE        .68   6465.35  1055.08      .97      5.00  6465.33  1055.00       .97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4440E+04 EXCESS= .0000E+00 OUTFLOW= .4437E+04 BASIN STORAGE= .3723E+01 PERCENT ERROR=    .0

FOR PLAN = 1  RATIO=  .00
  RT5-3  MANE       5.00     98.31   740.00     4.04      5.00    98.31   740.00      4.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2975E+02 EXCESS= .0000E+00 OUTFLOW= .2917E+02 BASIN STORAGE= .6256E+00 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
  E14-E1 MANE       1.62    412.48   728.62     2.22      5.00   411.06   730.00      2.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5538E+02 EXCESS= .0000E+00 OUTFLOW= .5527E+02 BASIN STORAGE= .1670E+00 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
  E1-E2  MANE       1.21    413.41   731.11     2.36      5.00   413.31   730.00      2.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5942E+02 EXCESS= .0000E+00 OUTFLOW= .5936E+02 BASIN STORAGE= .1343E+00 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
  E2-E3  MANE       1.21    411.54   730.41     2.43      5.00   409.39   730.00      2.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6164E+02 EXCESS= .0000E+00 OUTFLOW= .6158E+02 BASIN STORAGE= .1392E+00 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
  E3-E4  MANE       1.46    408.98   731.46     2.49      5.00   402.02   730.00      2.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6347E+02 EXCESS= .0000E+00 OUTFLOW= .6334E+02 BASIN STORAGE= .1720E+00 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
  PK-CAR MANE       2.65    520.86   732.14     2.57      5.00   515.01   735.00      2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8632E+02 EXCESS= .0000E+00 OUTFLOW= .8602E+02 BASIN STORAGE= .4259E+00 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
  RT1-2  MANE       5.00    530.03   735.00     2.77      5.00   530.03   735.00      2.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9902E+02 EXCESS= .0000E+00 OUTFLOW= .9834E+02 BASIN STORAGE= .9926E+00 PERCENT ERROR=   -.3

FOR PLAN = 1  RATIO=  .00
  RT2-3  MANE       2.34    539.29   738.46     2.84      5.00   536.73   740.00      2.84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1053E+03 EXCESS= .0000E+00 OUTFLOW= .1050E+03 BASIN STORAGE= .4521E+00 PERCENT ERROR=   -.2

FOR PLAN = 1  RATIO=  .00
  RT3-4  MANE       1.60    556.29   740.48     3.08      5.00   554.78   740.00      3.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1220E+03 EXCESS= .0000E+00 OUTFLOW= .1218E+03 BASIN STORAGE= .3505E+00 PERCENT ERROR=   -.1

FOR PLAN = 1  RATIO=  .00
  RT4-5  MANE        .87    569.85   740.54     3.16      5.00   568.79   740.00      3.16

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1354E+03 EXCESS= .0000E+00 OUTFLOW= .1353E+03 BASIN STORAGE= .2078E+00 PERCENT ERROR=    .0

FOR PLAN = 1  RATIO=  .00
  RT5-6  MANE       2.04    562.72   741.73     3.17      5.00   557.94   745.00      3.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1367E+03 EXCESS= .0000E+00 OUTFLOW= .1364E+03 BASIN STORAGE= .4902E+00 PERCENT ERROR=   -.1
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          FOR PLAN = 1  RATIO=  .00
            RT6-7  MANE          5.00    557.74    750.00      3.23      5.00    557.74    750.00       3.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1427E+03 EXCESS= .0000E+00 OUTFLOW= .1414E+03 BASIN STORAGE= .1791E+01 PERCENT ERROR=   -.3

          FOR PLAN = 1  RATIO=  .00
            RT WT2  MANE         5.00   1271.33    835.00      2.36      5.00   1271.33    835.00       2.36

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2918E+03 EXCESS= .0000E+00 OUTFLOW= .2881E+03 BASIN STORAGE= .5190E+01 PERCENT ERROR=   -.5

          FOR PLAN = 1  RATIO=  .00
            RT WT2  MANE         5.00   1215.49    870.00      2.31      5.00   1215.49    870.00       2.31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2843E+03 EXCESS= .0000E+00 OUTFLOW= .2824E+03 BASIN STORAGE= .3325E+01 PERCENT ERROR=   -.5

          FOR PLAN = 1  RATIO=  .00
            RT WHC  MANE         5.00   2049.74    870.00       .86      5.00   2049.74    870.00        .86

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7837E+03 EXCESS= .0000E+00 OUTFLOW= .7786E+03 BASIN STORAGE= .6366E+01 PERCENT ERROR=   -.2

          FOR PLAN = 1  RATIO=  .00
            RT DET  MANE         5.00   2054.69    875.00       .85      5.00   2054.69    875.00        .85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7858E+03 EXCESS= .0000E+00 OUTFLOW= .7804E+03 BASIN STORAGE= .7286E+01 PERCENT ERROR=   -.2

1                                                    HEC-1 INPUT                                              PAGE  1

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

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*** NORMAL END OF HEC-1 ***
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1****************************************                            ***************************************
 *                                      *                            *                                     *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                            *   U.S. ARMY CORPS OF ENGINEERS      *
 *             JUN   1998               *                            *   HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1                *                            *        609 SECOND STREET            *
 *                                      *                            *     DAVIS, CALIFORNIA 95616         *
 *  RUN DATE   04JAN08  TIME  11:08:39  *                            *         (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
             1          ID   ***************************************************************************
             2          ID   TRUNCATED MODEL FOR DAMONTE RANCH PHASE V and BELLA VESTA RANCH PHASE 1
             3          ID                     JANUARY 2008
             4          ID   ***************************************************************************
             5          ID   FILE NAME: BVCHK.DAT IS A PORTION OF DRph1+BV1.DAT THE PROPOSED
             6          ID   CONDITION MODEL FOR BELLA VISTA PHASE 1
             7          ID   THIS MODEL TO BE USED ONLY FOR CHECKING EXISTING CONDITIONS MODEL FOR
             8          ID   FLOWS IN STEAMBOAT CHANNEL AT THE COMMON BOUNDARY LINE BETWEEN DAMONTE
             9          ID   PHASE 5 AND BELLA VISTA PHASE 1.


  3 COMBINED AT
+                DMNTE     84.43     1  FLOW        6384.
                                        TIME        17.42
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DMNTE is the combined runoff from the Damonte Phase V Model. Subbasins for Channel A the Westside Channel have been eliminated from the Model as well as all downstream subbasins. The model was combined at a point in Steamboat Channel just below the Damonte Wetlands and the routing cards were not corrected.

Complete copies of the Model are included on the CD submitted with the LOMR application.

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1***************************************                                  ***************************************
 *                                     *                                  *                                     *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1) *                                  *   U.S. ARMY CORPS OF ENGINEERS      *
 *             JUN  1998               *                                  *   HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1               *                                  *        609 SECOND STREET            *
 *                                     *                                  *      DAVIS, CALIFORNIA 95616        *
 * RUN DATE  04JAN08  TIME  11:04:40   *                                  *        (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
           1           ID   ****************************************************************************
           2           ID    TRUNCATED MODEL FOR DAMONTE RANCH PHASE V and BELLA VESTA RANCH PHASE 1
           3           ID                      JANUARY 2008
           4           ID   ****************************************************************************
           5           ID    FILE NAME: DRCHK.dat IS A PORTION OF DRph1.DAT THE EXISTING
           6           ID    CONDITION MODEL FOR BELLA VISTA PHASE 1
           7           ID    THIS MODEL TO BE USED ONLY FOR CHECKING EXISTING CONDITIONS MODEL FOR
           8           ID    FLOWS IN STEAMBOAT CHANNEL AT THE COMMON BOUNDARY LINE BETWEEN DAMONTE
           9           ID    PHASE 5 AND BELLA VISTA PHASE 1.
          10           ID   ****************************************************************************


3 COMBINED AT
+               DRSUM     84.45     1   FLOW        6382.
                                        TIME        17.42
```

DRSUM is the combined runoff from the Damonte Phase V Model. Subbasins for Channel A the Westside Channel have been eliminated from the Model as well as all downstream subbasins. The model was combined at a point in Steamboat Channel just below the Damonte Wetlands and the routing cards were not corrected.

Complete copies of the Model are included on the CD submitted with the LOMR application.

APPENDIX D

HEC-RAS MODELS

Steamboat
Damonte Wetlands
East-West

HEC-RAS Plan: LOMR River: Steamboat Reach: Bella Vista Profile: PF 1

Reach	River 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
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Bella Vista	90.9	PF 1	4193.00	4444.03	4451.33	4449.12	4451.86	0.003751	5.85	716.91	136.41	0.45
Bella Vista	90	PF 1	4193.00	4444.78	4450.38		4451.33	0.008219	7.83	536.69	153.62	0.74
Bella Vista	89.5	PF 1	4193.00	4443.89	4450.21		4450.91	0.005993	6.67	628.29	156.42	0.59
Bella Vista	89	PF 1	4193.00	4443.75	4450.15		4450.67	0.002509	5.80	723.08	157.48	0.48
Bella Vista	88.83	PF 1	4193.00	4443.65	4450.11		4450.63	0.002520	5.78	726.02	155.95	0.47
Bella Vista	88.68	PF 1	4193.00	4443.49	4449.99		4450.57	0.004827	6.12	685.43	151.41	0.51
Bella Vista	88	PF 1	4193.00	4443.30	4449.71		4450.31	0.003047	6.22	674.57	145.04	0.51
Bella Vista	87.85	PF 1	4193.00	4443.05	4449.40		4450.09	0.006108	6.66	629.27	145.09	0.56
Bella Vista	87.55	PF 1	4193.00	4442.92	4449.08		4449.91	0.007504	7.29	575.20	135.01	0.62
Bella Vista	87.3	PF 1	4193.00	4442.78	4448.56	4447.81	4449.66	0.010837	8.40	499.23	124.81	0.74
Bella Vista	87.05	PF 1	4193.00	4442.63	4447.75	4447.75	4449.49	0.002014	10.59	395.94	114.46	1.00
Bella Vista	86.97	PF 1	4193.00	4441.70	4445.67	4446.71	4449.28	0.006950	15.25	274.91	117.72	1.76
Bella Vista	86.89	PF 1	4193.00	4440.76	4444.35	4445.69	4449.09	0.011397	17.48	239.88	121.51	2.19
Bella Vista	86.81	PF 1	4193.00	4439.83	4443.16	4444.67	4448.89	0.016297	19.21	218.28	125.39	2.57
Bella Vista	86.73	PF 1	4193.00	4438.90	4442.02	4443.65	4448.65	0.021714	20.65	203.02	129.34	2.90
Bella Vista	86.45		Bridge									
Bella Vista	85.94	PF 1	4193.00	4437.56	4441.09	4442.40	4445.74	0.012815	17.32	242.15	136.46	2.29
Bella Vista	85.88	PF 1	4193.00	4437.34	4440.94	4442.26	4445.66	0.013007	17.44	240.47	136.13	2.31
Bella Vista	85.82	PF 1	4193.00	4437.10	4440.78	4442.11	4445.57	0.013234	17.57	238.68	135.76	2.33
Bella Vista	85.76	PF 1	4193.00	4436.87	4440.63	4441.97	4445.48	0.013456	17.69	237.02	135.40	2.36
Bella Vista	85.7	PF 1	4193.00	4436.64	4440.47	4441.87	4445.40	0.013691	17.82	235.33	135.04	2.38
Bella Vista	85.6*	PF 1	4193.00	4436.63	4440.51	4441.79	4444.92	0.152159	16.86	248.70	139.95	2.23
Bella Vista	85.5*	PF 1	4193.00	4436.63	4443.28	4441.73	4443.89	0.006407	6.26	669.40	152.62	0.53
Bella Vista	85.4*	PF 1	4193.00	4436.62	4443.24	4441.64	4443.81	0.006107	6.09	688.81	158.86	0.52
Bella Vista	85.3*	PF 1	4193.00	4436.61	4443.20	4441.58	4443.74	0.005814	5.91	709.49	165.50	0.50
Bella Vista	85.2*	PF 1	4193.00	4436.60	4443.17	4441.49	4443.68	0.005498	5.72	732.91	172.66	0.49
Bella Vista	85.1*	PF 1	4193.00	4436.60	4443.14	4441.43	4443.61	0.005201	5.53	757.95	180.56	0.48
Bella Vista	85	PF 1	4193.00	4436.59	4443.11	4441.34	4443.55	0.004870	5.32	787.58	189.58	0.46
Bella Vista	84.5		Lat Struct									
Bella Vista	84	PF 1	4031.64	4436.31	4442.98	4440.74	4443.24	0.001542	4.12	984.31	246.30	0.36
Bella Vista	83	PF 1	4031.64	4436.11	4442.86	4440.31	4443.10	0.001170	3.93	1026.61	223.49	0.32
Bella Vista	82	PF 1	4031.64	4435.92	4442.72	4440.36	4442.97	0.001325	4.08	989.22	224.75	0.34
Bella Vista	81	PF 1	4031.64	4435.92	4442.52	4440.54	4442.82	0.001685	4.40	917.31	225.95	0.38
Bella Vista	80	PF 1	4031.64	4435.69	4442.35	4440.34	4442.65	0.001679	4.42	912.50	222.76	0.38
Bella Vista	79	PF 1	4031.64	4435.16	4442.10	4440.46	4442.46	0.002162	4.80	840.58	223.23	0.44
Bella Vista	78	PF 1	4031.64	4435.10	4441.93	4440.06	4442.25	0.001818	4.56	884.60	220.63	0.40
Bella Vista	77	PF 1	4031.64	4435.05	4441.67	4440.06	4442.04	0.002328	4.90	822.59	219.86	0.45
Bella Vista	76	PF 1	4031.64	4434.88	4441.24	4440.10	4441.74	0.003607	5.69	708.09	210.50	0.55
Bella Vista	75.25	PF 1	4031.64	4434.54	4441.04	4439.67	4441.47	0.002979	5.26	767.14	216.71	0.49

HEC-RAS Plan: LOMR River: Steamboat Reach: Bella Vista Profile: PF 1 (Continued)

Reach	River 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
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Bella Vista	75	PF 1	4031.64	4434.43	4440.96		4441.38	0.004462	5.14	784.02	218.85	0.48
Bella Vista	74.75	PF 1	4031.64	4434.09	4440.88		4441.26	0.003984	4.94	815.62	221.99	0.45
Bella Vista	74	PF 1	4031.64	4433.08	4440.77		4441.06	0.001554	4.26	945.90	231.37	0.37
Bella Vista	73	PF 1	4031.64	4432.70	4440.68		4440.92	0.001018	3.96	1018.18	227.69	0.33
Bella Vista	72	PF 1	4031.64	4432.92	4440.58		4440.82	0.000957	3.89	1035.42	224.05	0.32
Bella Vista	71.25	PF 1	4031.64	4433.06	4440.51		4440.74	0.000999	3.92	1028.01	223.46	0.32
Bella Vista	71	PF 1	4031.64	4433.10	4440.48		4440.72	0.001117	3.93	1025.58	223.28	0.32
Bella Vista	70.6	PF 1	4031.64	4432.99	4440.43		4440.67	0.001134	3.92	1029.65	227.23	0.32
Bella Vista	70	PF 1	4051.64	4432.83	4440.37		4440.60	0.001128	3.89	1040.35	232.03	0.32
Bella Vista	69.75	PF 1	4051.64	4432.73	4440.33		4440.58	0.001145	3.93	1030.25	230.56	0.33
Bella Vista	69	PF 1	4051.64	4432.44	4440.22		4440.48	0.001277	4.09	991.27	225.85	0.34
Bella Vista	68	PF 1	4051.64	4432.50	4440.02		4440.33	0.001656	4.46	909.34	221.11	0.39
Bella Vista	67	PF 1	4051.64	4432.30	4439.92		4440.17	0.001230	4.06	998.83	222.57	0.34
Bella Vista	66.75	PF 1	4051.64	4432.23	4439.89		4440.14	0.001375	4.04	1002.81	222.71	0.34
Bella Vista	66	PF 1	4051.64	4432.01	4439.80		4440.04	0.001180	4.00	1012.71	223.42	0.33
Bella Vista	65	PF 1	4051.64	4432.09	4439.62		4439.91	0.001486	4.31	939.07	220.22	0.37
Bella Vista	64	PF 1	4051.64	4432.00	4439.49		4439.76	0.001375	4.22	960.60	219.85	0.36
Bella Vista	63	PF 1	4051.64	4431.64	4439.38		4439.63	0.001169	4.01	1010.94	221.99	0.33
Bella Vista	62	PF 1	4051.64	4431.47	4439.26		4439.51	0.001208	3.99	1014.87	225.81	0.33
Bella Vista	61	PF 1	4051.64	4431.32	4439.17		4439.38	0.001071	3.70	1094.81	244.37	0.31
Bella Vista	60	PF 1	4051.64	4431.12	4439.10		4439.28	0.000845	3.35	1208.60	247.21	0.27
Bella Vista	59	PF 1	4051.64	4431.00	4439.02		4439.19	0.000838	3.32	1219.63	251.25	0.27
Bella Vista	58	PF 1	4114.64	4430.60	4438.97		4439.11	0.000610	3.02	1361.79	255.26	0.23
Bella Vista	57	PF 1	4400.64	4430.43	4438.89		4439.05	0.000652	3.17	1388.52	251.89	0.24
Bella Vista	56	PF 1	5231.64	4430.27	4438.71		4438.96	0.001072	3.97	1319.27	248.31	0.30
Bella Vista	55	PF 1	5771.64	4430.38	4438.56		4438.84	0.001142	4.25	1358.76	242.62	0.32
Bella Vista	54	PF 1	6099.64	4429.90	4438.37		4438.71	0.001483	4.68	1303.60	241.42	0.35
Bella Vista	53	PF 1	6227.64	4429.76	4438.18		4438.55	0.001471	4.92	1266.11	234.19	0.37
Bella Vista	52	PF 1	6245.64	4429.60	4438.05		4438.41	0.001382	4.77	1309.02	236.25	0.36
Bella Vista	51	PF 1	6245.64	4429.32	4437.91		4438.27	0.001293	4.80	1300.38	228.11	0.35
Bella Vista	50	PF 1	6245.64	4429.29	4437.76	4435.02	4438.13	0.001446	4.89	1276.66	234.45	0.37
Bella Vista	49.7		Lat Struct									
Bella Vista	49	PF 1	6064.75	4429.02	4437.64	4434.80	4437.99	0.001330	4.78	1269.61	230.28	0.36
Bella Vista	48	PF 1	6064.75	4429.09	4437.44	4434.88	4437.84	0.001612	5.05	1200.29	231.37	0.39
Bella Vista	47	PF 1	6064.75	4428.86	4437.23	4434.94	4437.66	0.001849	5.29	1147.41	229.25	0.42
Bella Vista	46	PF 1	6064.75	4428.65	4436.98	4434.86	4437.46	0.002149	5.55	1093.63	224.74	0.44
Bella Vista	45	PF 1	6064.75	4428.45	4436.82		4437.25	0.001825	5.21	1164.73	229.88	0.41
Bella Vista	44	PF 1	6064.75	4428.34	4436.58		4437.04	0.002116	5.47	1109.16	229.55	0.44
Bella Vista	43	PF 1	6064.75	4428.48	4436.37		4436.84	0.001992	5.47	1109.47	226.11	0.43

HEC-RAS Plan: LOMR River: Steamboat Reach: Bella Vista Profile: PF 1 (Continued)

Reach	River 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
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Bella Vista	42	PF 1	6064.75	4428.55	4436.07		4436.61	0.002568	5.86	1035.34	228.71	0.49
Bella Vista	41	PF 1	6064.75	4428.16	4435.71		4436.33	0.002897	6.30	962.95	232.03	0.54
Bella Vista	40	PF 1	6064.75	4427.76	4435.54		4436.04	0.002143	5.71	1061.25	231.36	0.47
Bella Vista	39.75	PF 1	6064.75	4427.66	4435.49		4435.98	0.002707	5.60	1082.65	232.43	0.46
Bella Vista	39	PF 1	6064.75	4427.35	4435.37		4435.80	0.001715	5.29	1147.12	234.68	0.42
Bella Vista	38	PF 1	6064.75	4427.05	4435.22		4435.63	0.001561	5.14	1179.75	233.96	0.40
Bella Vista	37	PF 1	6064.75	4426.92	4435.04		4435.47	0.001679	5.28	1147.64	233.63	0.42
Bella Vista	36	PF 1	6064.75	4426.78	4434.91		4435.30	0.001426	5.02	1207.12	233.70	0.39
Bella Vista	35	PF 1	6064.75	4426.50	4434.74		4435.15	0.001535	5.16	1175.03	231.04	0.40
Bella Vista	34	PF 1	6064.75	4426.17	4434.54		4434.99	0.001678	5.38	1126.81	222.13	0.42
Bella Vista	33.75	PF 1	6064.75	4426.06	4434.49		4434.94	0.002423	5.39	1124.80	223.59	0.42
Bella Vista	33	PF 1	6109.75	4425.81	4434.32		4434.78	0.001780	5.45	1121.96	228.00	0.43
Bella Vista	32	PF 1	6109.75	4425.75	4434.18		4434.60	0.001599	5.25	1164.05	230.42	0.41
Bella Vista	31	PF 1	6109.75	4425.81	4434.08		4434.44	0.001265	4.86	1257.33	230.74	0.37
Bella Vista	30	PF 1	6109.75	4425.88	4433.91		4434.31	0.001447	5.07	1204.59	228.83	0.39
Bella Vista	29	PF 1	6109.75	4425.70	4433.75		4434.16	0.001470	5.13	1190.39	225.21	0.39
Bella Vista	28	PF 1	6109.75	4425.40	4433.60		4434.01	0.001492	5.12	1194.09	227.51	0.39
Bella Vista	27	PF 1	6109.75	4425.09	4433.39		4433.84	0.001787	5.40	1132.16	228.94	0.43
Bella Vista	26	PF 1	6109.75	4424.93	4433.23		4433.66	0.001672	5.30	1152.64	229.67	0.42
Bella Vista	25	PF 1	6109.75	4425.02	4433.07		4433.50	0.001621	5.23	1168.81	233.52	0.41
Bella Vista	24	PF 1	6109.75	4425.06	4432.93		4433.33	0.001471	5.09	1201.40	232.48	0.39
Bella Vista	23	PF 1	6109.75	4424.74	4432.82		4433.19	0.001243	4.87	1256.89	256.43	0.37
Bella Vista	22	PF 1	6109.75	4424.43	4432.67		4433.06	0.001300	4.98	1225.93	230.07	0.38
Bella Vista	21	PF 1	6109.75	4424.17	4432.55		4432.93	0.001295	4.95	1234.87	231.06	0.38
Bella Vista	20	PF 1	6109.75	4423.92	4432.24		4432.76	0.001913	5.77	1059.00	227.62	0.47
Bella Vista	19.8	PF 1	6109.75	4423.86	4432.22		4432.71	0.001764	5.62	1087.39	228.12	0.45
Bella Vista	19.55	PF 1	6109.75	4423.75	4432.18		4432.65	0.003055	5.51	1108.32	227.89	0.44
Bella Vista	19	PF 1	6109.75	4423.53	4432.14		4432.52	0.001299	4.92	1247.96	271.87	0.37
Bella Vista	18.25	PF 1	6109.75	4423.18	4432.10		4432.42	0.000970	4.49	1360.47	233.75	0.33
Bella Vista	18	PF 1	6134.75	4423.08	4432.07	4428.87	4432.39	0.001089	4.56	1352.31	262.65	0.33
Bella Vista	17	PF 1	6134.75	4422.80	4432.04	4428.39	4432.28	0.000732	3.96	1653.77	859.04	0.29
Bella Vista	16	PF 1	6134.75	4422.79	4431.98	4428.39	4432.20	0.000679	3.87	1890.24	1053.58	0.29
Bella Vista	15	PF 1	6134.75	4422.78	4431.93	4428.33	4432.13	0.000588	3.80	2163.06	1284.60	0.27
Bella Vista	14	PF 1	6134.75	4422.78	4431.86	4428.42	4432.07	0.000678	3.98	2321.96	1408.68	0.29
Bella Vista	13	PF 1	6134.75	4422.77	4431.84	4428.77	4431.99	0.000574	3.42	2792.12	1485.44	0.29
Bella Vista	12	PF 1	6134.75	4422.76	4431.74		4431.92	0.000637	4.29	2862.36	1474.65	0.29
Bella Vista	11	PF 1	6134.75	4422.76	4431.53		4431.82	0.001291	5.78	2476.18	1528.71	0.42
Bella Vista	10	PF 1	6134.75	4422.75	4431.42		4431.66	0.001713	6.17	2467.24	1576.98	0.47
Bella Vista	9	PF 1	6134.75	4422.74	4431.27	4430.66	4431.46	0.001113	5.38	2855.20	1609.15	0.39

HEC-RAS Plan: LOMR River: Steamboat Reach: Bella Vista Profile: PF 1 (Continued)

Reach	River 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
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Bella Vista	8	PF 1	6134.75	4422.74	4431.16	4430.42	4431.32	0.000998	5.11	2981.47	1595.94	0.37
Bella Vista	7	PF 1	6134.75	4422.73	4430.95	4430.23	4431.13	0.001137	5.37	2771.82	1443.85	0.39
Bella Vista	6	PF 1	6134.75	4422.72	4430.66	4430.14	4430.88	0.001546	5.86	2524.03	1412.74	0.45
Bella Vista	5	PF 1	6134.75	4422.71	4430.09	4430.06	4430.51	0.002761	7.57	2168.11	1771.68	0.59
Bella Vista	4	PF 1	6134.75	4422.71	4429.89	4429.72	4430.23	0.002320	7.00	2377.22	1746.16	0.54
Bella Vista	3	PF 1	6134.75	4422.80	4429.59	4429.50	4429.92	0.004278	7.69	2086.40	1687.42	0.69
Bella Vista	2	PF 1	6134.75	4422.23	4429.41	4427.84	4429.55	0.002399	4.74	2624.84	1718.97	0.50
Bella Vista	1	PF 1	6134.75	4421.90	4429.33	4428.13	4429.38	0.000985	2.75	3586.62	1795.14	0.31
Bella Vista	.225	PF 1	6134.75	4422.58	4428.78	4427.82	4428.85	0.003106	2.05	2990.74	2168.96	0.31

HEC-RAS Plan: LOMR River: Steamboat Reach: Bella Vista Profile: PF 1

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Bella Vista	90.9	PF 1	4451.86	4451.33	0.53	0.48	0.04		4193.00		136.41
Bella Vista	90	PF 1	4451.33	4450.38	0.95	0.35	0.08		4188.91	4.09	153.62
Bella Vista	89.5	PF 1	4450.91	4450.21	0.69	0.18	0.05		4193.00		156.42
Bella Vista	89	PF 1	4450.67	4450.15	0.52	0.04	0.00		4193.00		157.48
Bella Vista	88.83	PF 1	4450.63	4450.11	0.52	0.05	0.01		4193.00		155.95
Bella Vista	88.68	PF 1	4450.57	4449.99	0.58	0.26	0.00		4193.00		151.41
Bella Vista	88	PF 1	4450.31	4449.71	0.60	0.21	0.01		4193.00		145.04
Bella Vista	87.85	PF 1	4450.09	4449.40	0.69	0.17	0.01		4193.00		145.09
Bella Vista	87.55	PF 1	4449.91	4449.08	0.83	0.22	0.03		4193.00		135.01
Bella Vista	87.3	PF 1	4449.66	4448.56	1.10	0.10	0.06		4193.00		124.81
Bella Vista	87.05	PF 1	4449.49	4447.75	1.74	0.02	0.01		4193.00		114.46
Bella Vista	86.97	PF 1	4449.28	4445.67	3.61	0.03	0.19		4193.00		117.72
Bella Vista	86.89	PF 1	4449.09	4444.35	4.74	0.07	0.11		4193.00		121.51
Bella Vista	86.81	PF 1	4448.89	4443.16	5.73	0.11	0.10		4193.00		125.39
Bella Vista	86.73	PF 1	4448.65	4442.02	6.62	0.15	0.09		4193.00		129.34
Bella Vista	86.45		Bridge								
Bella Vista	85.94	PF 1	4445.74	4441.09	4.66				4193.00		136.46
Bella Vista	85.88	PF 1	4445.66	4440.94	4.72	0.08	0.01		4193.00		136.13
Bella Vista	85.82	PF 1	4445.57	4440.78	4.79	0.08	0.01		4193.00		135.76
Bella Vista	85.76	PF 1	4445.48	4440.63	4.86	0.08	0.01		4193.00		135.40
Bella Vista	85.7	PF 1	4445.40	4440.47	4.93	0.08	0.01		4193.00		135.04
Bella Vista	85.6*	PF 1	4444.92	4440.51	4.41	0.32	0.15		4193.00		139.95
Bella Vista	85.5*	PF 1	4443.89	4443.28	0.61	0.06	0.01		4193.00		152.62
Bella Vista	85.4*	PF 1	4443.81	4443.24	0.58	0.06	0.01		4193.00		158.86
Bella Vista	85.3*	PF 1	4443.74	4443.20	0.54	0.06	0.01		4193.00		165.50
Bella Vista	85.2*	PF 1	4443.68	4443.17	0.51	0.05	0.01		4193.00		172.66
Bella Vista	85.1*	PF 1	4443.61	4443.14	0.48	0.05	0.01		4193.00		180.56
Bella Vista	85	PF 1	4443.55	4443.11	0.44	0.26	0.05		4193.00		189.58
Bella Vista	84.5		Lat Struct								
Bella Vista	84	PF 1	4443.24	4442.98	0.26	0.13	0.01		4018.95	12.70	246.30
Bella Vista	83	PF 1	4443.10	4442.86	0.24	0.12	0.00		4031.64		223.49
Bella Vista	82	PF 1	4442.97	4442.72	0.26	0.15	0.00		4031.64		224.75
Bella Vista	81	PF 1	4442.82	4442.52	0.30	0.17	0.00		4031.64		225.95
Bella Vista	80	PF 1	4442.65	4442.35	0.30	0.19	0.01		4031.64		222.76
Bella Vista	79	PF 1	4442.46	4442.10	0.36	0.20	0.01		4031.64		223.23
Bella Vista	78	PF 1	4442.25	4441.93	0.32	0.20	0.01		4031.64		220.63

HEC-RAS Plan: LOMR River: Steamboat Reach: Bella Vista Profile: PF 1 (Continued)

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Bella Vista	77	PF 1	4442.04	4441.67	0.37	0.29	0.01		4031.64		219.86
Bella Vista	76	PF 1	4441.74	4441.24	0.50	0.25	0.02		4031.64		210.50
Bella Vista	75.25	PF 1	4441.47	4441.04	0.43	0.09	0.01		4031.64		216.71
Bella Vista	75	PF 1	4441.38	4440.96	0.41	0.11	0.01		4031.64		218.85
Bella Vista	74.75	PF 1	4441.26	4440.88	0.38	0.18	0.03		4031.64		221.99
Bella Vista	74	PF 1	4441.06	4440.77	0.28	0.12	0.01		4031.64		231.37
Bella Vista	73	PF 1	4440.92	4440.68	0.24	0.10	0.00		4031.64		227.69
Bella Vista	72	PF 1	4440.82	4440.58	0.24	0.07	0.00		4031.64		224.05
Bella Vista	71.25	PF 1	4440.74	4440.51	0.24	0.03	0.00		4031.64		223.46
Bella Vista	71	PF 1	4440.72	4440.48	0.24	0.05	0.00		4031.64		223.28
Bella Vista	70.6	PF 1	4440.67	4440.43	0.24	0.07	0.00		4031.64		227.23
Bella Vista	70	PF 1	4440.60	4440.37	0.24	0.03	0.00		4051.64		232.03
Bella Vista	69.75	PF 1	4440.58	4440.33	0.24	0.09	0.00		4051.64		230.56
Bella Vista	69	PF 1	4440.48	4440.22	0.26	0.14	0.00		4051.64		225.85
Bella Vista	68	PF 1	4440.33	4440.02	0.31	0.14	0.02		4051.64		221.11
Bella Vista	67	PF 1	4440.17	4439.92	0.26	0.03	0.00		4051.64		222.57
Bella Vista	66.75	PF 1	4440.14	4439.89	0.25	0.10	0.00		4051.64		222.71
Bella Vista	66	PF 1	4440.04	4439.80	0.25	0.13	0.00		4051.64		223.42
Bella Vista	65	PF 1	4439.91	4439.62	0.29	0.14	0.00		4051.64		220.22
Bella Vista	64	PF 1	4439.76	4439.49	0.28	0.13	0.01		4051.64		219.85
Bella Vista	63	PF 1	4439.63	4439.38	0.25	0.12	0.00		4051.64		221.99
Bella Vista	62	PF 1	4439.51	4439.26	0.25	0.11	0.01		4051.64		225.81
Bella Vista	61	PF 1	4439.38	4439.17	0.21	0.09	0.01		4051.64		244.37
Bella Vista	60	PF 1	4439.28	4439.10	0.17	0.08	0.00		4051.64		247.21
Bella Vista	59	PF 1	4439.19	4439.02	0.17	0.07	0.01		4051.64		251.25
Bella Vista	58	PF 1	4439.11	4438.97	0.14	0.06	0.00		4114.64		255.26
Bella Vista	57	PF 1	4439.05	4438.89	0.16	0.08	0.01		4400.64		251.89
Bella Vista	56	PF 1	4438.96	4438.71	0.24	0.11	0.00		5231.64		248.31
Bella Vista	55	PF 1	4438.84	4438.56	0.28	0.13	0.01		5771.64		242.62
Bella Vista	54	PF 1	4438.71	4438.37	0.34	0.15	0.00		6099.64		241.42
Bella Vista	53	PF 1	4438.55	4438.18	0.38	0.14	0.01		6227.64		234.19
Bella Vista	52	PF 1	4438.41	4438.05	0.35	0.13	0.00		6245.64		236.25
Bella Vista	51	PF 1	4438.27	4437.91	0.36	0.14	0.00		6245.64		228.11
Bella Vista	50	PF 1	4438.13	4437.76	0.37	0.14	0.01		6245.64		234.45
Bella Vista	49.7		Lat Struct								
Bella Vista	49	PF 1	4437.99	4437.64	0.35	0.15	0.00		6064.75		230.28

HEC-RAS Plan: LOMR River: Steamboat Reach: Bella Vista Profile: PF 1 (Continued)

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Bella Vista	48	PF 1	4437.84	4437.44	0.40	0.17	0.00		6064.75		231.37
Bella Vista	47	PF 1	4437.66	4437.23	0.43	0.20	0.00		6064.75		229.25
Bella Vista	46	PF 1	4437.46	4436.98	0.48	0.20	0.02		6064.75		224.74
Bella Vista	45	PF 1	4437.25	4436.82	0.42	0.20	0.00		6064.75		229.88
Bella Vista	44	PF 1	4437.04	4436.58	0.46	0.21	0.00		6064.75		229.55
Bella Vista	43	PF 1	4436.84	4436.37	0.46	0.23	0.01		6064.75		226.11
Bella Vista	42	PF 1	4436.61	4436.07	0.53	0.27	0.01		6064.75		228.71
Bella Vista	41	PF 1	4436.33	4435.71	0.62	0.25	0.03		6064.75		232.03
Bella Vista	40	PF 1	4436.04	4435.54	0.51	0.06	0.01		6064.75		231.36
Bella Vista	39.75	PF 1	4435.98	4435.49	0.49	0.16	0.02		6064.75		232.43
Bella Vista	39	PF 1	4435.80	4435.37	0.43	0.16	0.01		6064.75		234.68
Bella Vista	38	PF 1	4435.63	4435.22	0.41	0.16	0.00		6064.75		233.96
Bella Vista	37	PF 1	4435.47	4435.04	0.43	0.15	0.01		6064.75		233.63
Bella Vista	36	PF 1	4435.30	4434.91	0.39	0.15	0.00		6064.75		233.70
Bella Vista	35	PF 1	4435.15	4434.74	0.41	0.16	0.00		6064.75		231.04
Bella Vista	34	PF 1	4434.99	4434.54	0.45	0.05	0.00		6064.75		222.13
Bella Vista	33.75	PF 1	4434.94	4434.49	0.45	0.15	0.00		6064.75		223.59
Bella Vista	33	PF 1	4434.78	4434.32	0.46	0.17	0.01		6109.75		228.00
Bella Vista	32	PF 1	4434.60	4434.18	0.43	0.14	0.02		6109.75		230.42
Bella Vista	31	PF 1	4434.44	4434.08	0.37	0.14	0.00		6109.75		230.74
Bella Vista	30	PF 1	4434.31	4433.91	0.40	0.15	0.00		6109.75		228.83
Bella Vista	29	PF 1	4434.16	4433.75	0.41	0.15	0.00		6109.75		225.21
Bella Vista	28	PF 1	4434.01	4433.60	0.41	0.16	0.00		6109.75		227.51
Bella Vista	27	PF 1	4433.84	4433.39	0.45	0.17	0.00		6109.75		228.94
Bella Vista	26	PF 1	4433.66	4433.23	0.44	0.16	0.00		6109.75		229.67
Bella Vista	25	PF 1	4433.50	4433.07	0.42	0.15	0.01		6109.75		233.52
Bella Vista	24	PF 1	4433.33	4432.93	0.40	0.14	0.01		6109.75		232.48
Bella Vista	23	PF 1	4433.19	4432.82	0.37	0.13	0.00		6109.31	0.44	256.43
Bella Vista	22	PF 1	4433.06	4432.67	0.39	0.13	0.00		6109.75		230.07
Bella Vista	21	PF 1	4432.93	4432.55	0.38	0.16	0.01		6109.75		231.06
Bella Vista	20	PF 1	4432.76	4432.24	0.52	0.04	0.01		6109.75		227.62
Bella Vista	19.8	PF 1	4432.71	4432.22	0.49	0.06	0.01		6109.75		228.12
Bella Vista	19.55	PF 1	4432.65	4432.18	0.47	0.10	0.03		6109.75		227.89
Bella Vista	19	PF 1	4432.52	4432.14	0.38	0.08	0.02		6106.89	2.86	271.87
Bella Vista	18.25	PF 1	4432.42	4432.10	0.31	0.03	0.00		6109.75		233.75
Bella Vista	18	PF 1	4432.39	4432.07	0.32	0.09	0.02		6131.51	3.24	262.65

HEC-RAS Plan: LOMR River: Steamboat Reach: Bella Vista Profile: PF 1 (Continued)

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Bella Vista	17	PF 1	4432.28	4432.04	0.24	0.07	0.01	95.28	6004.46	35.01	859.04
Bella Vista	16	PF 1	4432.20	4431.98	0.22	0.06	0.01	393.75	5669.47	71.53	1053.58
Bella Vista	15	PF 1	4432.13	4431.93	0.20	0.06	0.00	651.57	5407.93	75.25	1284.60
Bella Vista	14	PF 1	4432.07	4431.86	0.21	0.06	0.02	827.67	5181.88	125.19	1408.68
Bella Vista	13	PF 1	4431.99	4431.84	0.15	0.06	0.00	1141.01	4947.88	45.86	1485.44
Bella Vista	12	PF 1	4431.92	4431.74	0.19	0.09	0.01	1817.19	3807.80	509.76	1474.65
Bella Vista	11	PF 1	4431.82	4431.53	0.29	0.15	0.01	2045.14	3186.87	902.75	1528.71
Bella Vista	10	PF 1	4431.66	4431.42	0.24	0.18	0.02	2963.09	2094.49	1077.18	1576.98
Bella Vista	9	PF 1	4431.46	4431.27	0.19	0.13	0.01	2840.00	2185.94	1108.80	1609.15
Bella Vista	8	PF 1	4431.32	4431.16	0.16	0.19	0.00	2832.31	2052.46	1249.98	1595.94
Bella Vista	7	PF 1	4431.13	4430.95	0.18	0.24	0.00	2993.01	2024.17	1117.57	1443.85
Bella Vista	6	PF 1	4430.88	4430.66	0.23	0.35	0.02	2975.77	2197.51	961.46	1412.74
Bella Vista	5	PF 1	4430.51	4430.09	0.42	0.25	0.02	2430.92	2658.02	1045.81	1771.68
Bella Vista	4	PF 1	4430.23	4429.89	0.34	0.31	0.00	2744.31	2534.87	855.57	1746.16
Bella Vista	3	PF 1	4429.92	4429.59	0.33	0.31	0.06	3782.09	1823.83	528.83	1687.42
Bella Vista	2	PF 1	4429.55	4429.41	0.13	0.15	0.03	4597.05	1537.70		1718.97
Bella Vista	1	PF 1	4429.38	4429.33	0.05	0.53	0.00	5361.23	749.88	23.64	1795.14
Bella Vista	.225	PF 1	4428.85	4428.78	0.07				6134.75		2168.96

Plan: LOMR Steamboat Bella Vista RS: 86.45 Profile: PF 1

E.G. US. (ft)	4448.65	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	4442.02	E.G. Elev (ft)	4448.14	4445.79
Q Total (cfs)	4193.00	W.S. Elev (ft)	4442.23	4441.35
Q Bridge (cfs)	4193.00	Crit W.S. (ft)	4443.81	4442.64
Q Weir (cfs)		Max Chl Dpth (ft)	3.33	3.79
Weir Sta Lft (ft)		Vel Total (ft/s)	19.51	16.91
Weir Sta Rgt (ft)		Flow Area (sq ft)	214.92	248.00
Weir Submerg		Froude # Chl	1.88	1.53
Weir Max Depth (ft)		Specif Force (cu ft)	2853.71	2747.39
Min El Weir Flow (ft)	4451.49	Hydr Depth (ft)	1.79	2.07
Min El Prs (ft)	4446.86	W.P. Total (ft)	155.38	161.45
Delta EG (ft)	2.90	Conv. Total (cfs)	28317.6	35043.4
Delta WS (ft)	0.93	Top Width (ft)	120.01	119.58
BR Open Area (sq ft)	770.23	Frctn Loss (ft)		
BR Open Vel (ft/s)	19.51	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	1.89	1.37
Br Sel Method	Momentum	Power Total (lb/ft s)	36.94	23.21

HEC-RAS Plan: LOMR River: Steamboat Reach: Bella Vista Profile: PF 1

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Crit W.S.	Frctn Loss	C & E Loss	Top Width	Q Left	Q Channel	Q Right	Vel Chnl
			(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft/s)
Bella Vista	86.81	PF 1	4448.89	4443.16	4444.67	0.11	0.10	125.39		4193.00		19.21
Bella Vista	86.73	PF 1	4448.65	4442.02	4443.65	0.15	0.09	129.34		4193.00		20.65
Bella Vista	86.45 BR U	PF 1	4448.14	4442.23	4443.81			120.01		4193.00		19.51
Bella Vista	86.45 BR D	PF 1	4445.79	4441.35	4442.64			119.58		4193.00		16.91
Bella Vista	85.94	PF 1	4445.74	4441.09	4442.40			136.46		4193.00		17.32
Bella Vista	85.88	PF 1	4445.66	4440.94	4442.26	0.08	0.01	136.13		4193.00		17.44

HEC-RAS Plan: LOMR River: Steamboat Reach: Bella Vista Profile: PF 1

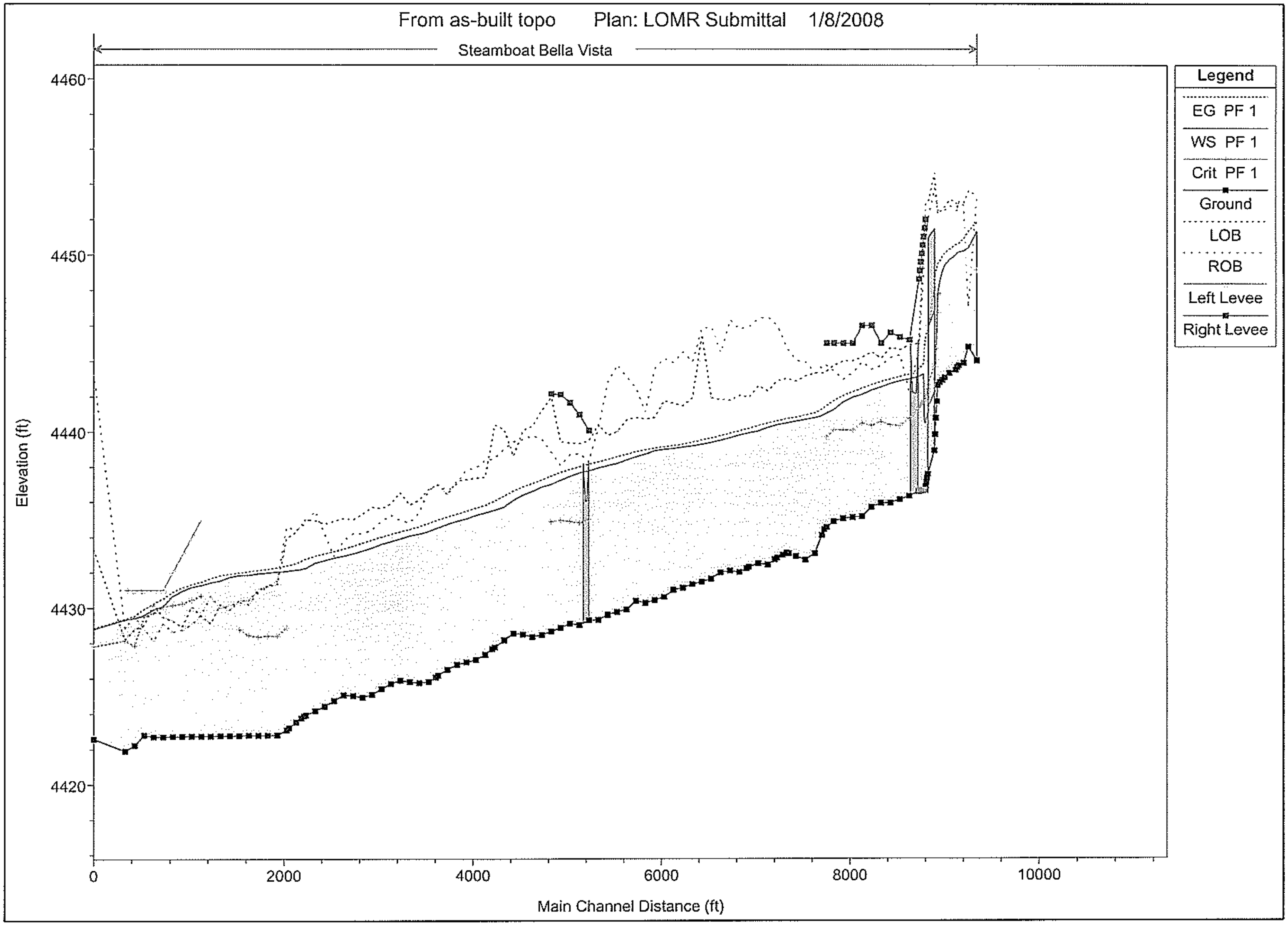
Reach	River Sta	Profile	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
			(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
Bella Vista	84.5	PF 1	4193.00	161.95	4031.64	161.95		77.19	0.93	0.77	4442.14	4443.52	4443.10	4443.28	4443.00
Bella Vista	49.7	PF 1	6245.64	181.29	6064.75	181.29		48.41	1.73	1.08	4436.00	4438.13	4437.76	4438.05	4437.69

Plan: LOMR Steamboat Bella Vista RS: 84.5 Lat Struct Profile: PF 1

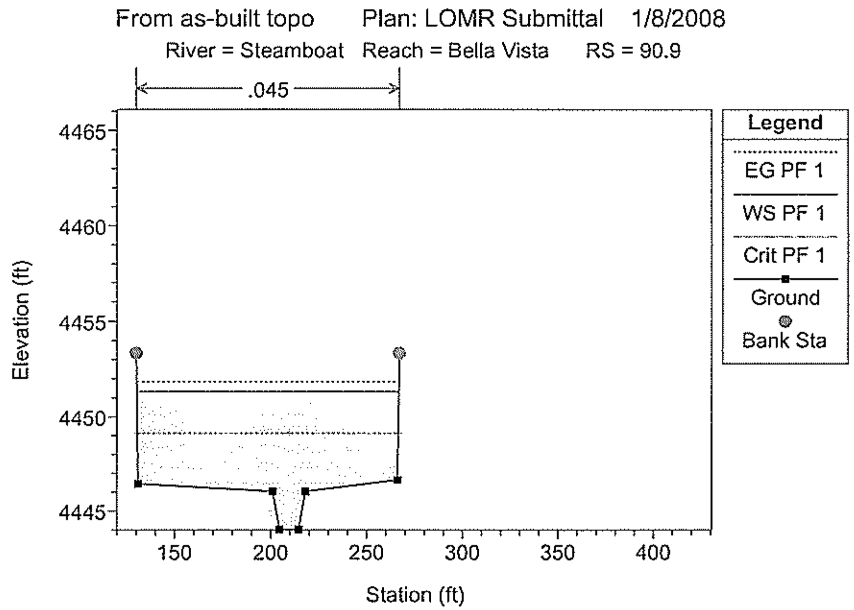
E.G. US. (ft)	4443.52	Weir Sta US (ft)	0.00
W.S. US. (ft)	4443.10	Weir Sta DS (ft)	118.00
E.G. DS (ft)	4443.28	Weir Max Depth (ft)	0.93
W.S. DS (ft)	4443.00	Weir Avg Depth (ft)	0.77
Q US (cfs)	4193.00	Weir Submerg	0.00
Q Leaving Total (cfs)	161.95	Min El Weir Flow (ft)	4442.14
Q DS (cfs)	4031.64	Wr Top Wdth (ft)	77.19
Perc Q Leaving	3.85	Q Gate Group (cfs)	
Q Weir (cfs)	161.95	Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)	59.36	Gate Invert (ft)	
		Gate Weir Coef (ft)	

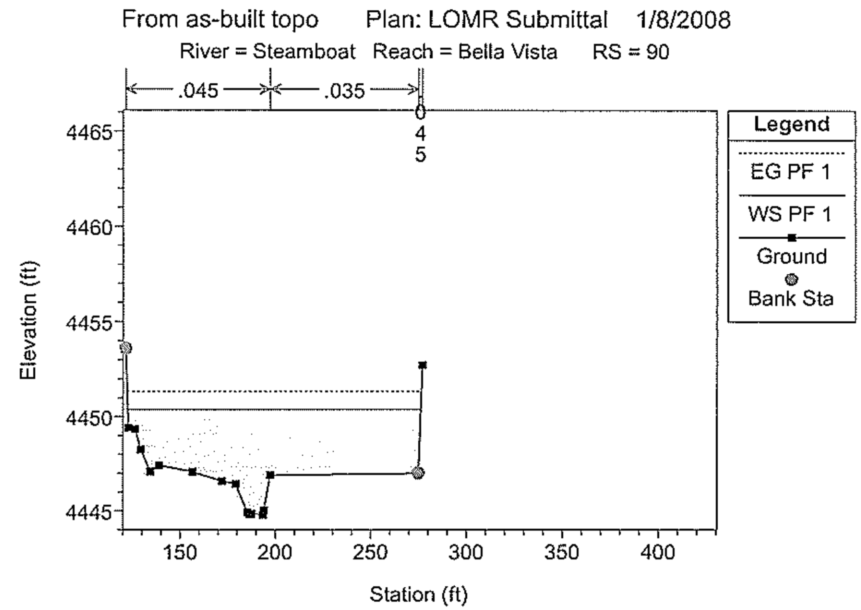
Plan: LOMR Steamboat Bella Vista RS: 49.7 Lat Struct Profile: PF 1

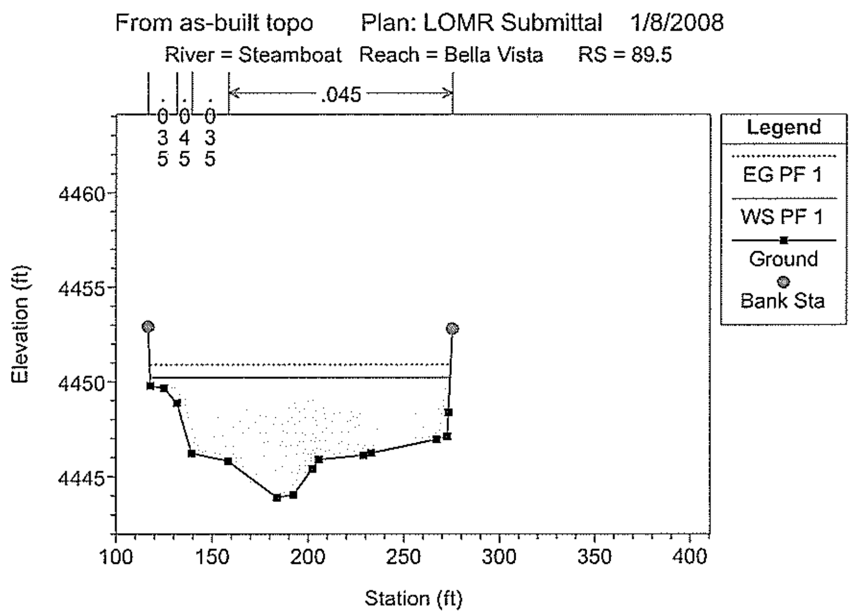
E.G. US. (ft)	4438.13	Weir Sta US (ft)	0.00
W.S. US. (ft)	4437.76	Weir Sta DS (ft)	59.00
E.G. DS (ft)	4438.05	Weir Max Depth (ft)	1.73
W.S. DS (ft)	4437.69	Weir Avg Depth (ft)	1.08
Q US (cfs)	6245.64	Weir Submerg	0.00
Q Leaving Total (cfs)	181.29	Min El Weir Flow (ft)	4436.00
Q DS (cfs)	6064.75	Wr Top Wdth (ft)	48.41
Perc Q Leaving	2.90	Q Gate Group (cfs)	
Q Weir (cfs)	181.29	Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)	52.32	Gate Invert (ft)	
		Gate Weir Coef (ft)	

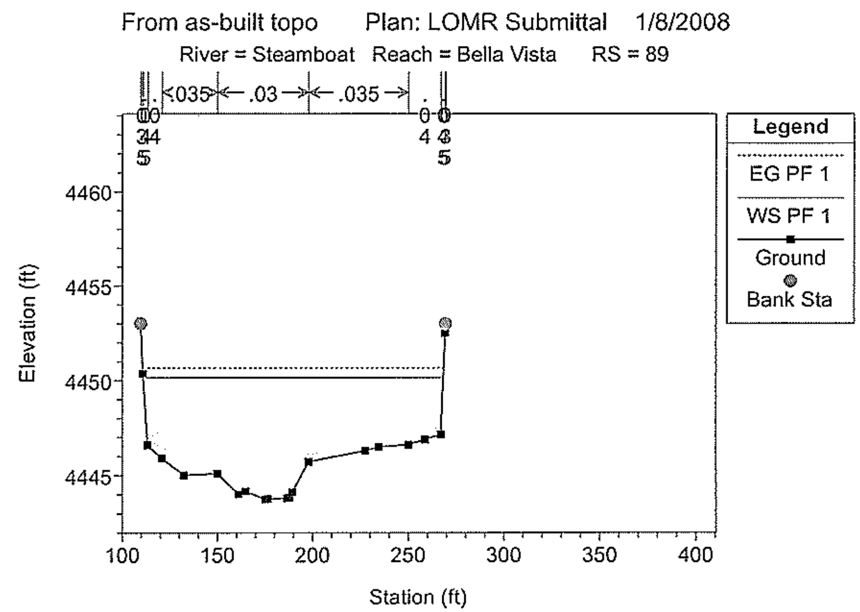


1 in Horiz. = 1500 ft 1 in Vert. = 8 ft

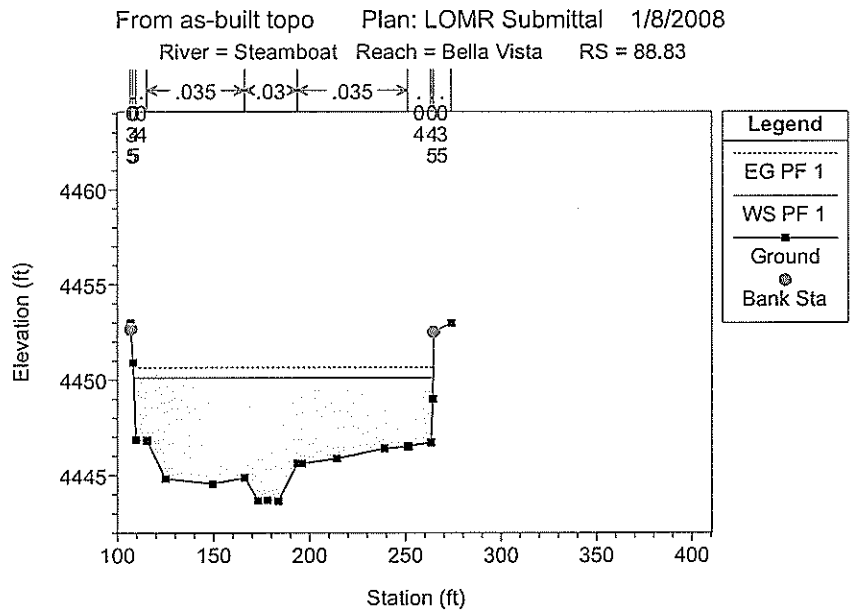


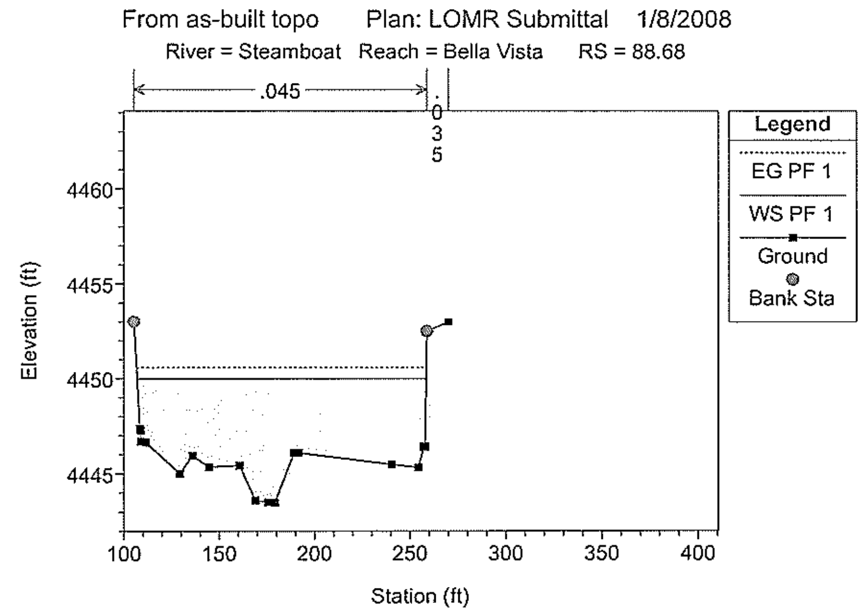


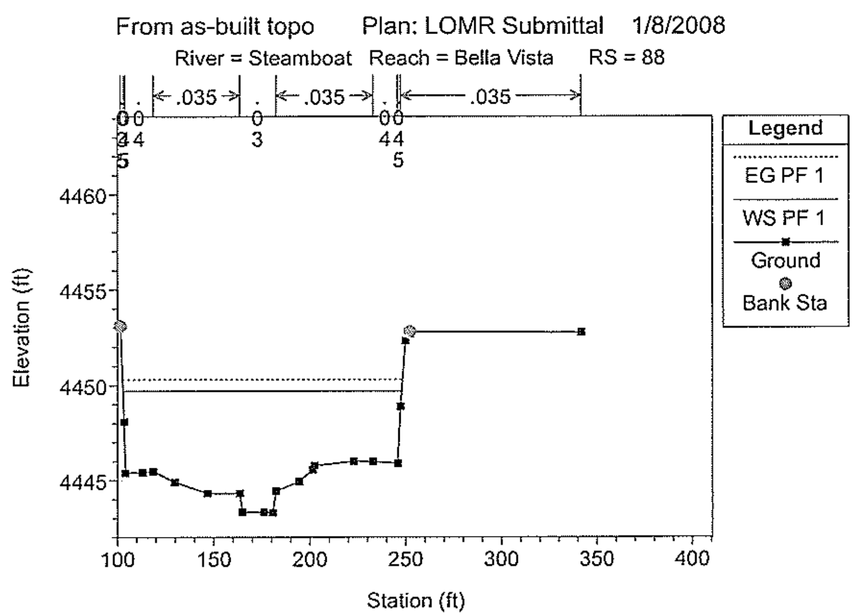


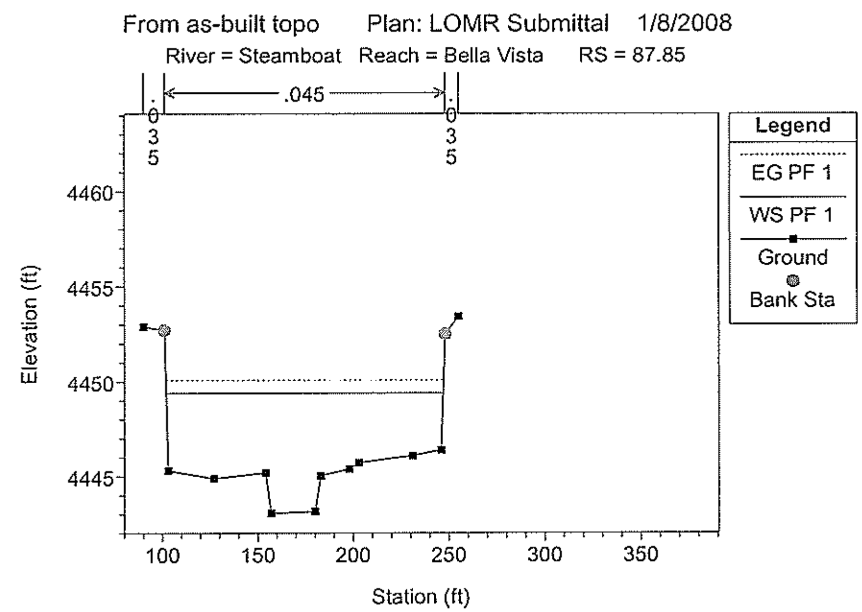


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

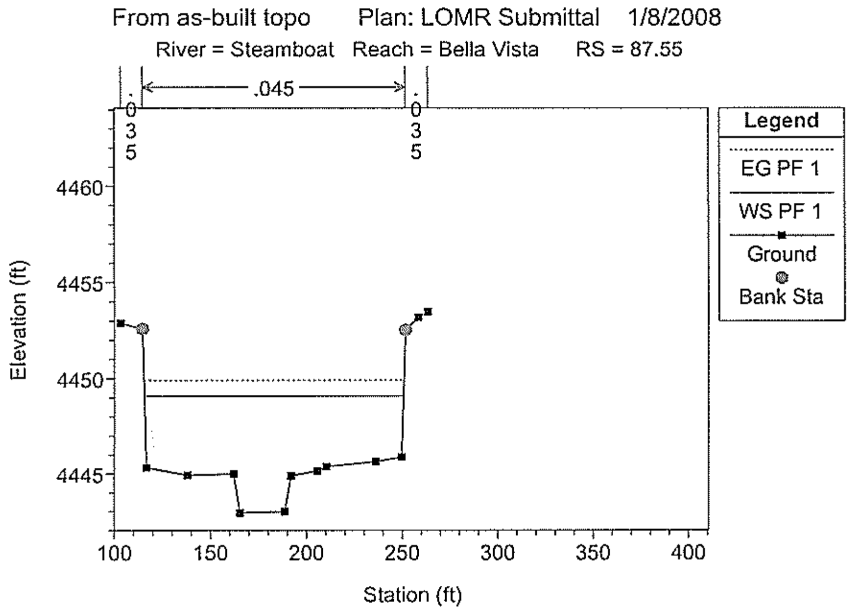


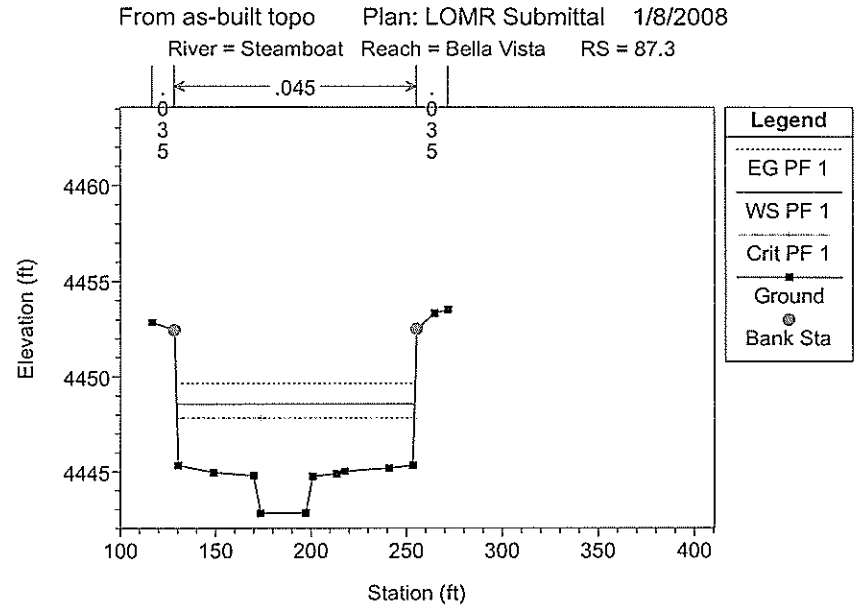


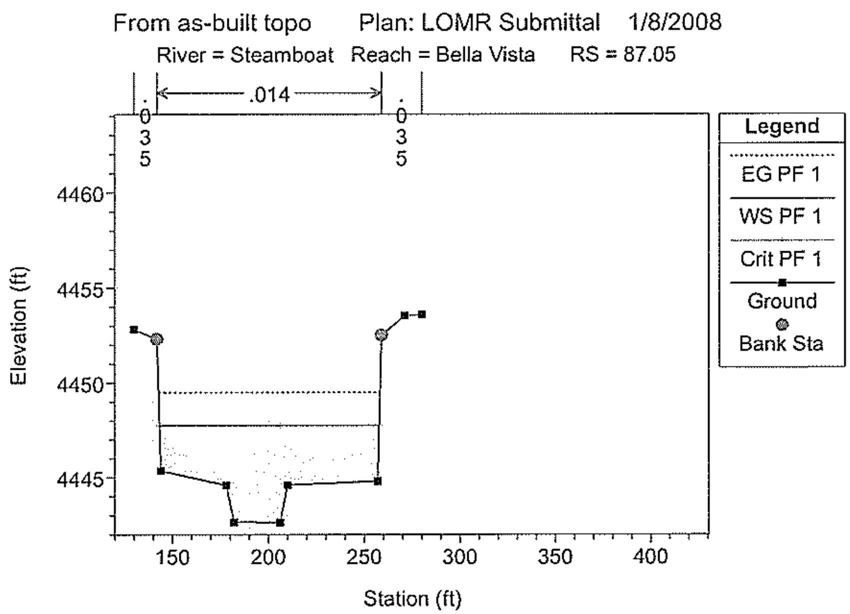


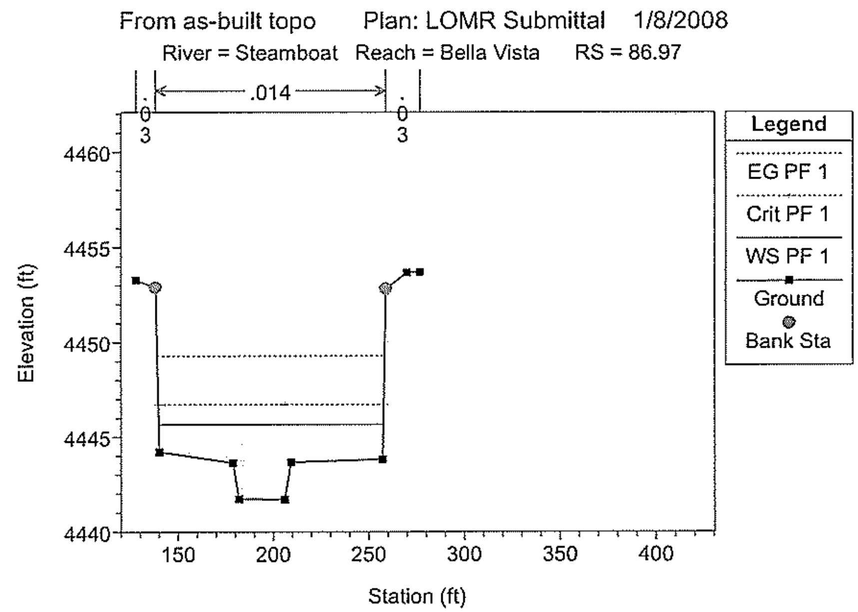


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

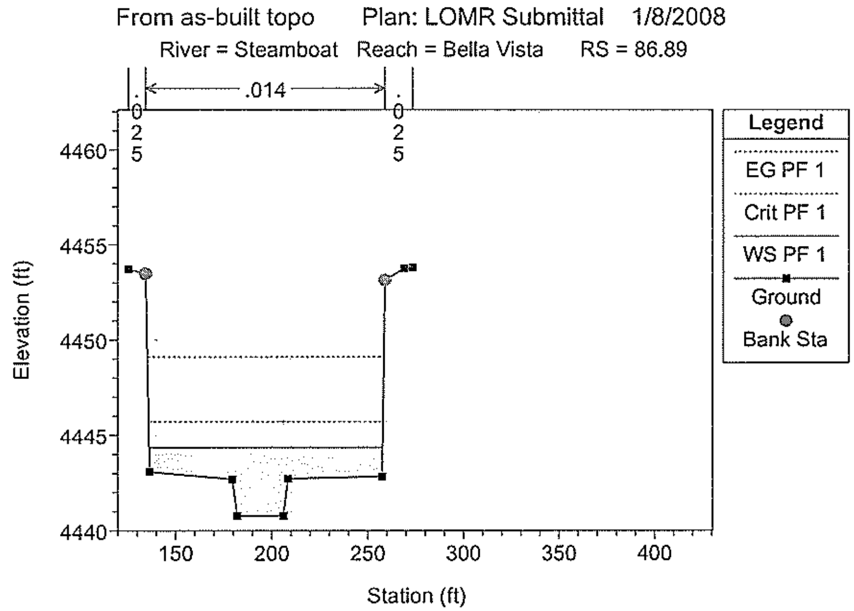


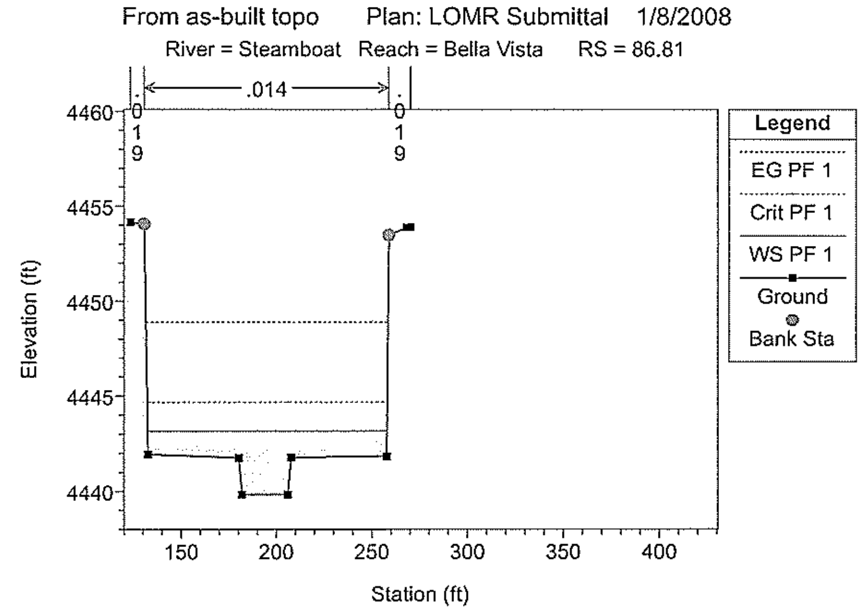


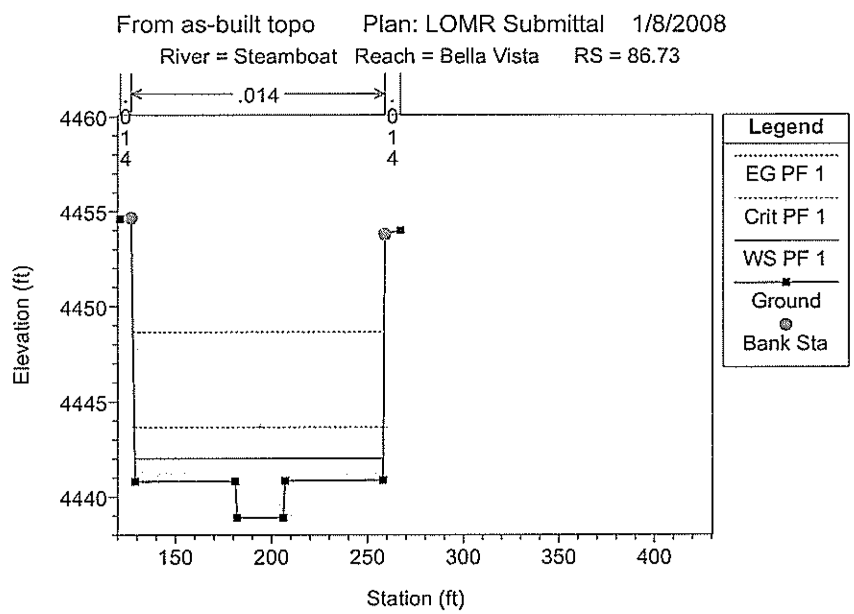


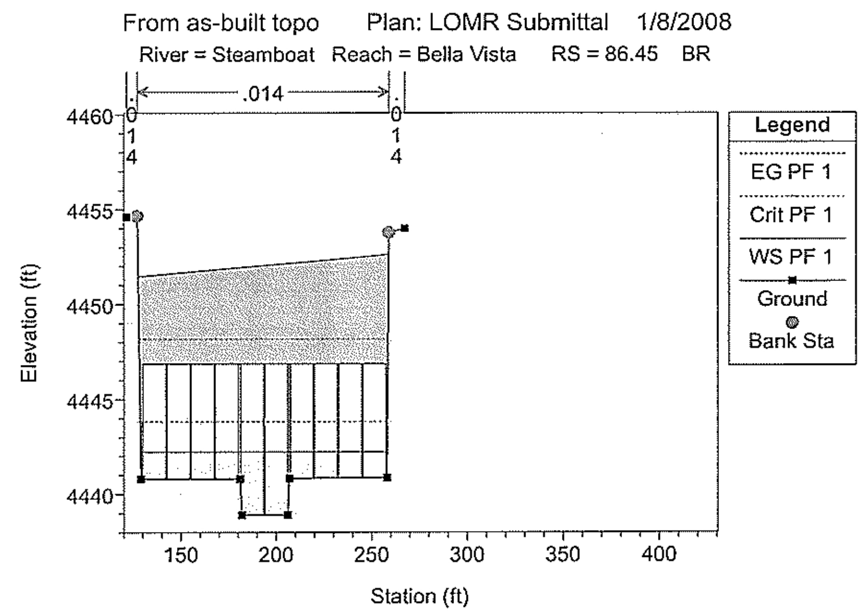


1 in Horiz. = 100 ft 1 in Vert. = 10 ft



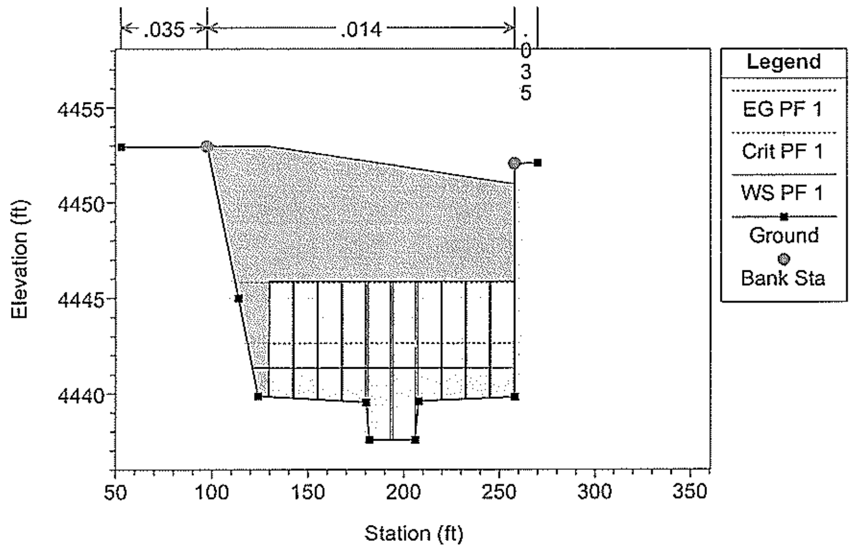




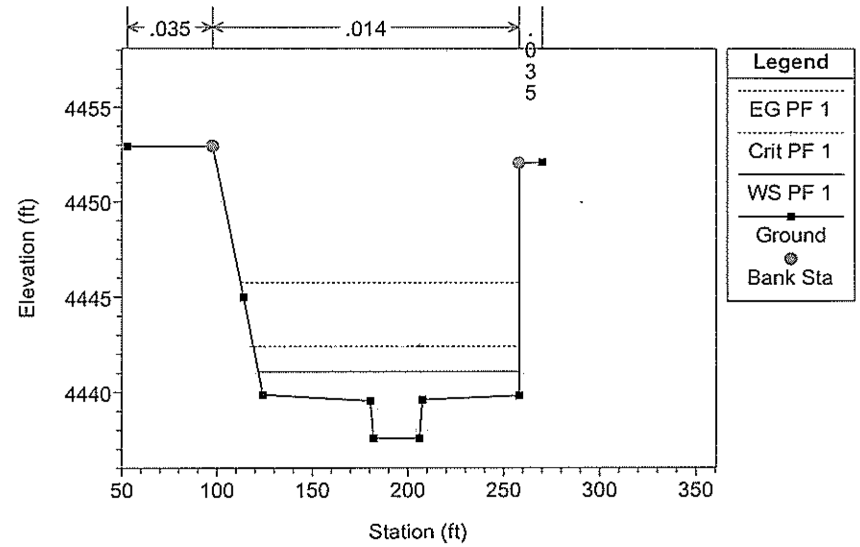


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

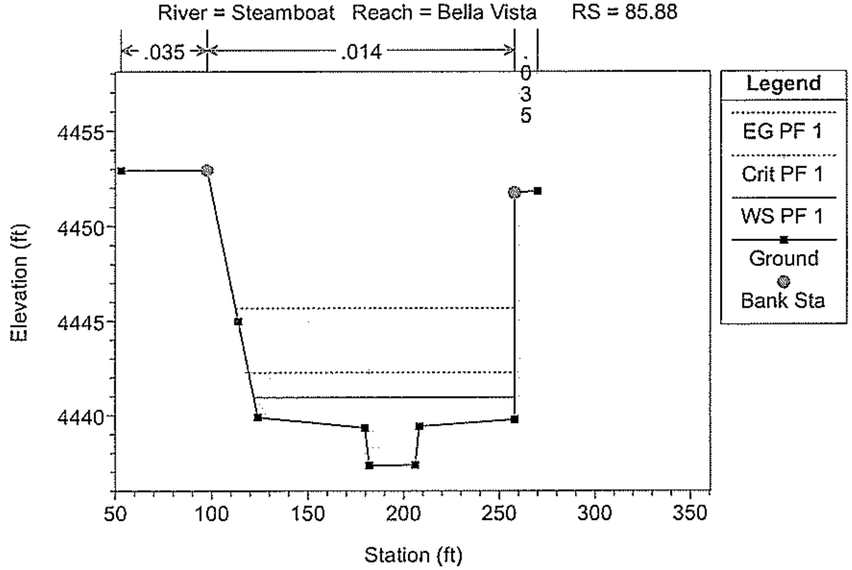
From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 86.45   BR



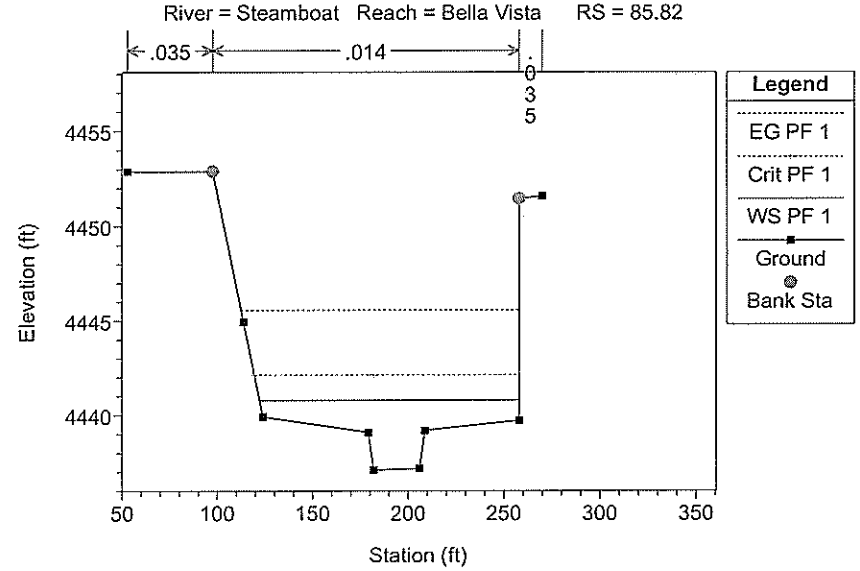
From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 85.94



From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 85.88

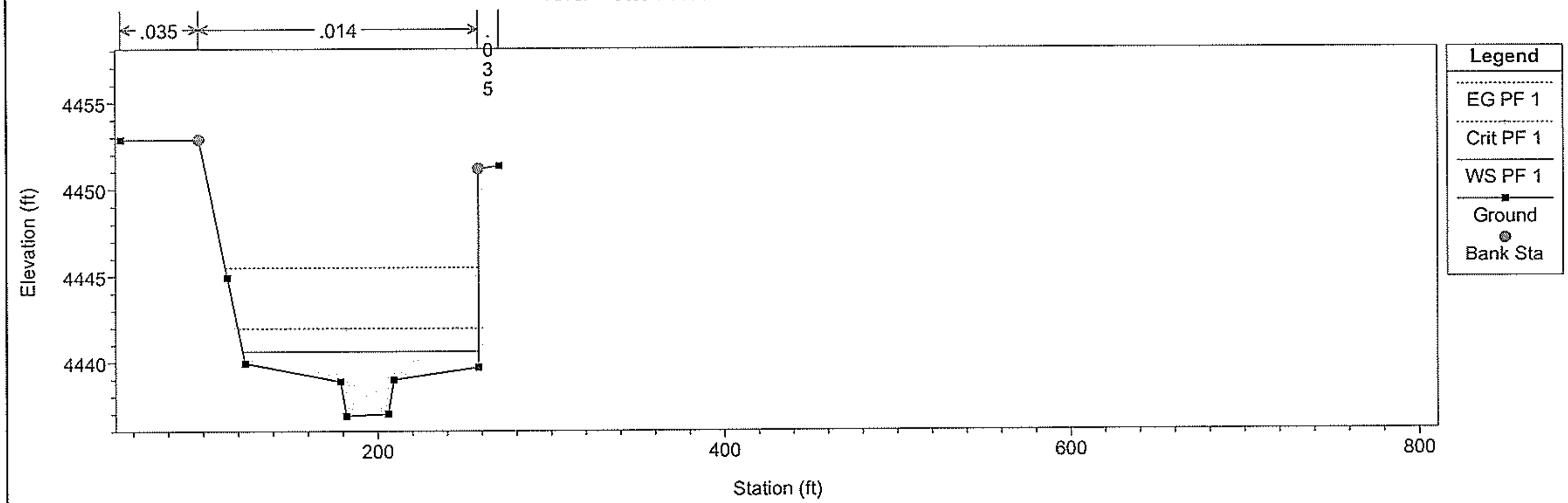


From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 85.82

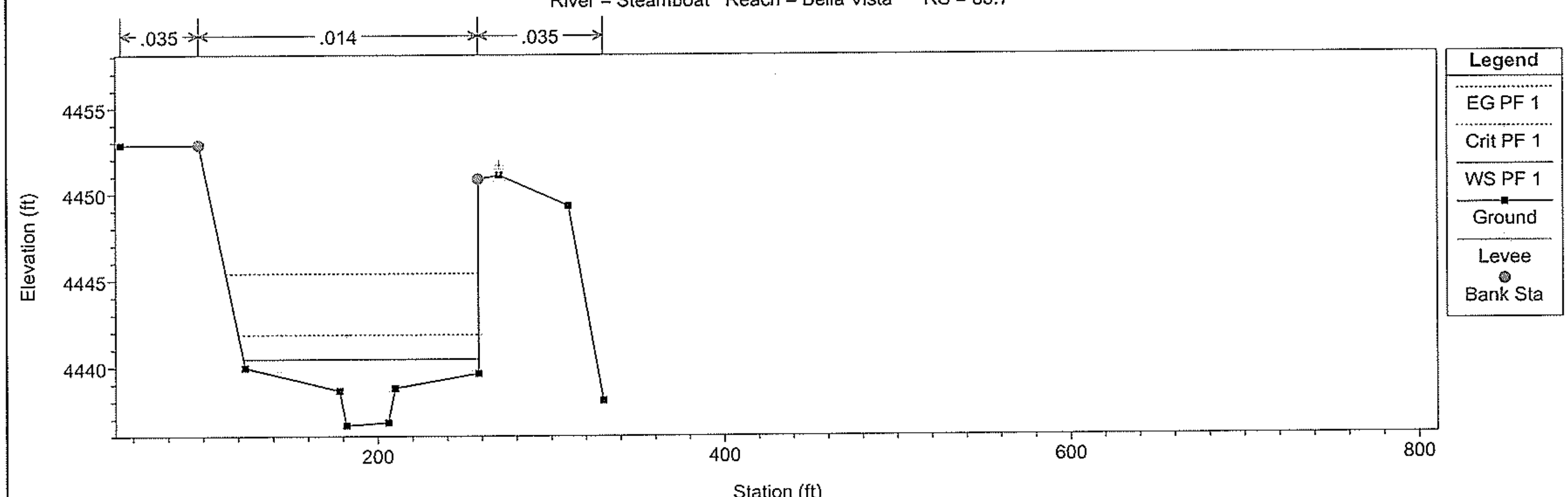


1 in Horiz. = 100 ft   1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 85.76

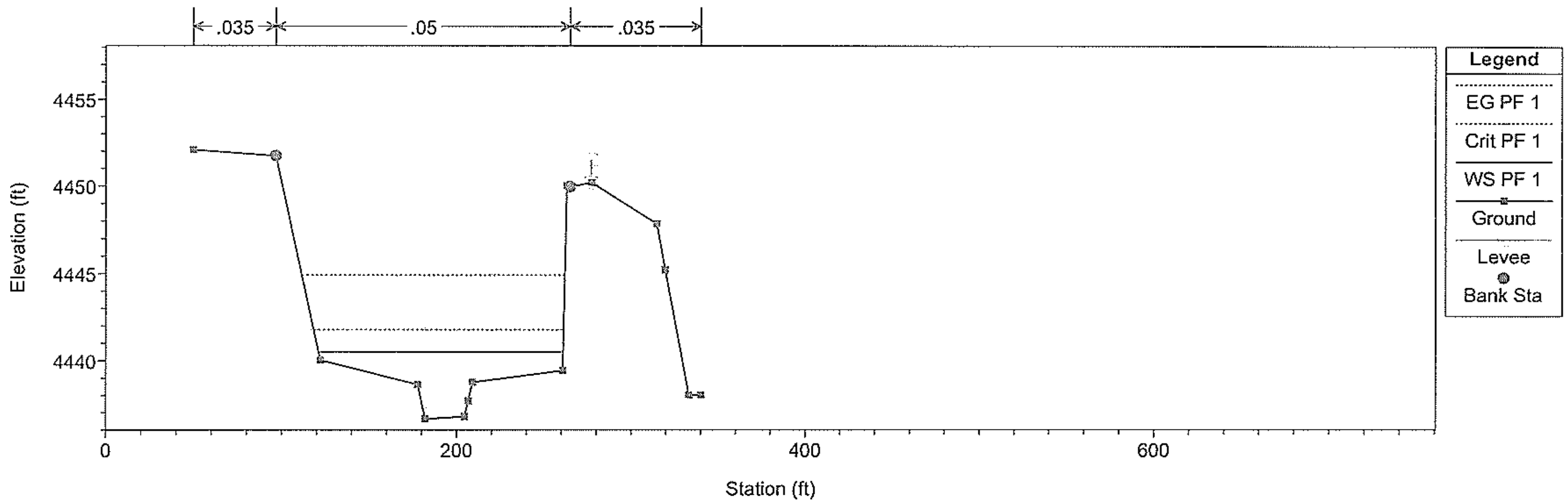


From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 85.7

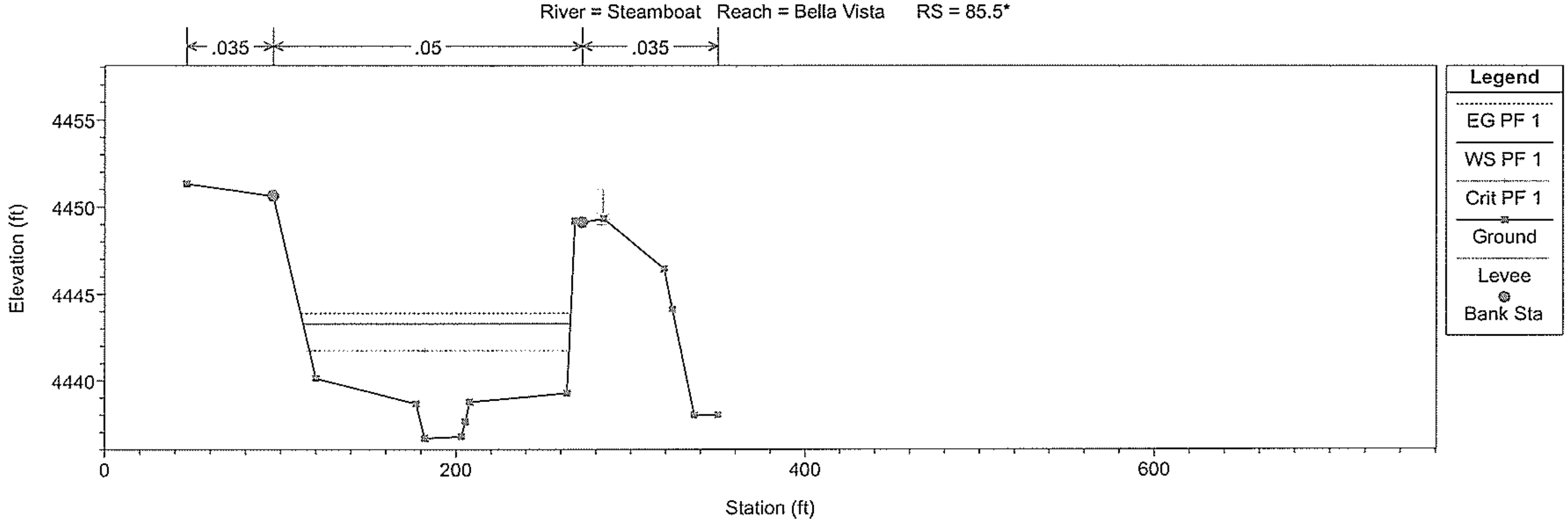


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat Reach = Bella Vista   RS = 85.6*



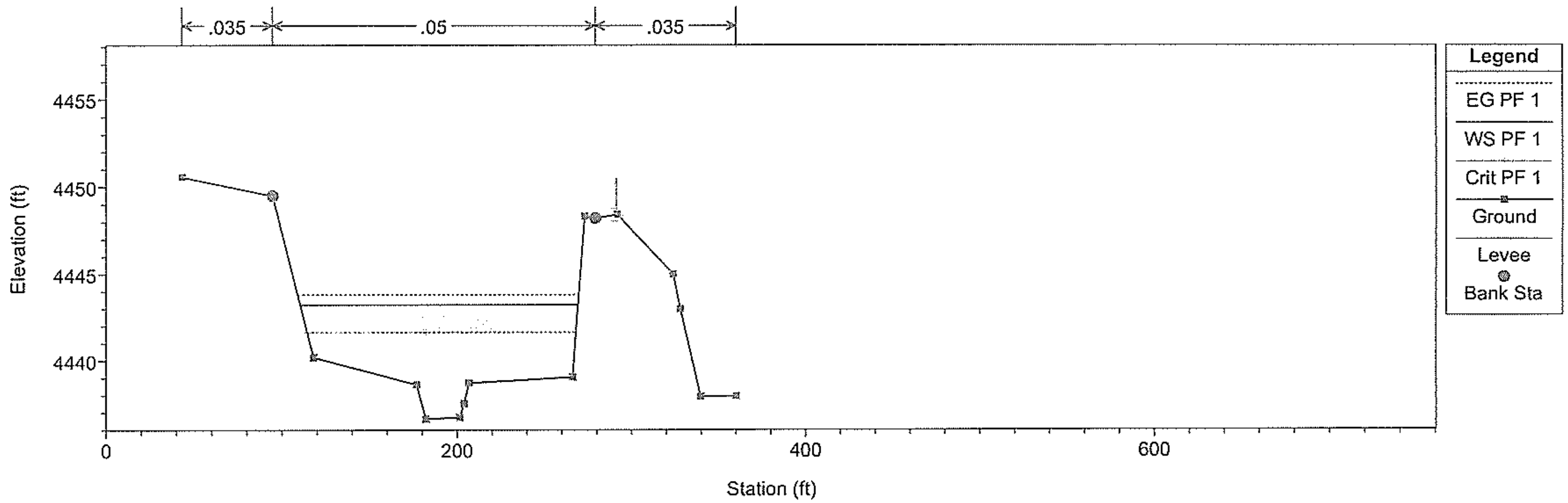
From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat Reach = Bella Vista   RS = 85.5*



1 in Horiz. = 100 ft   1 in Vert. = 10 ft

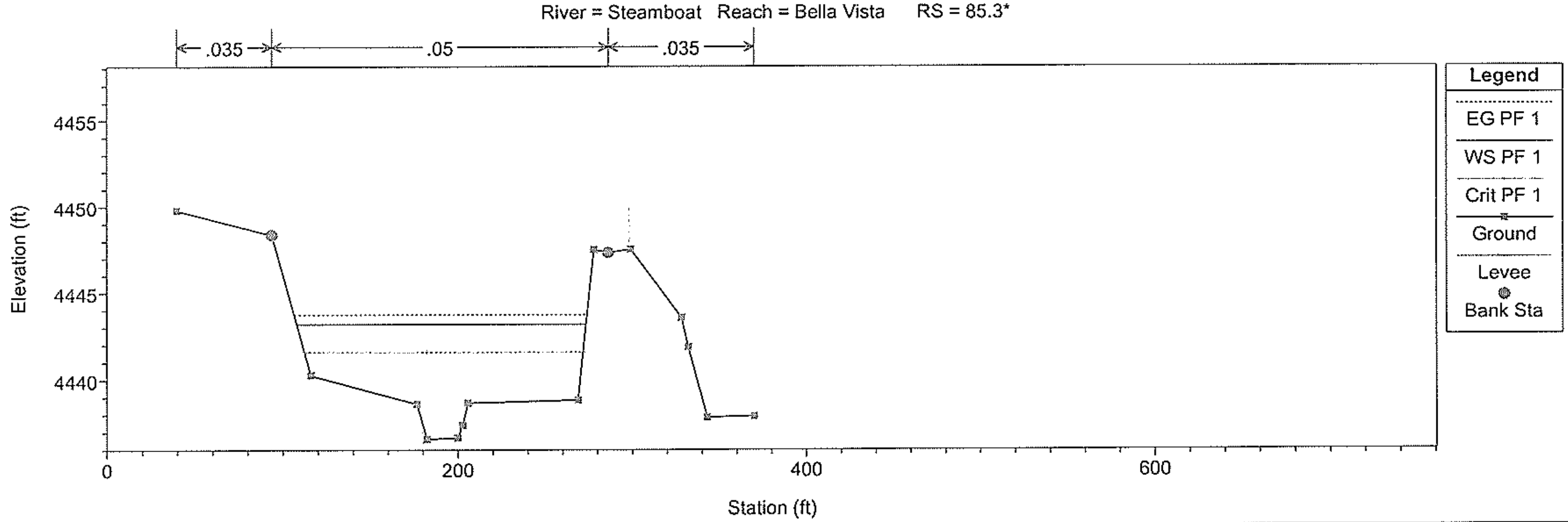
From as-built topo   Plan: LOMR Submittal   1/8/2008

River = Steamboat   Reach = Bella Vista   RS = 85.4*

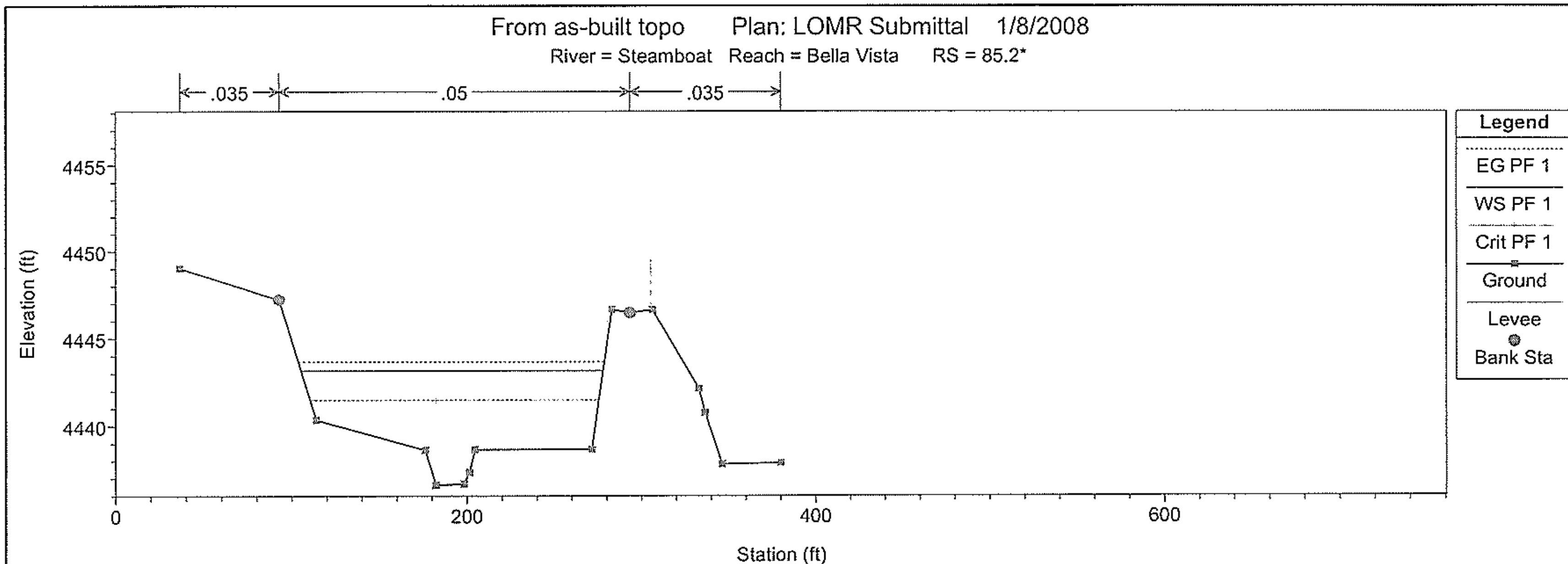


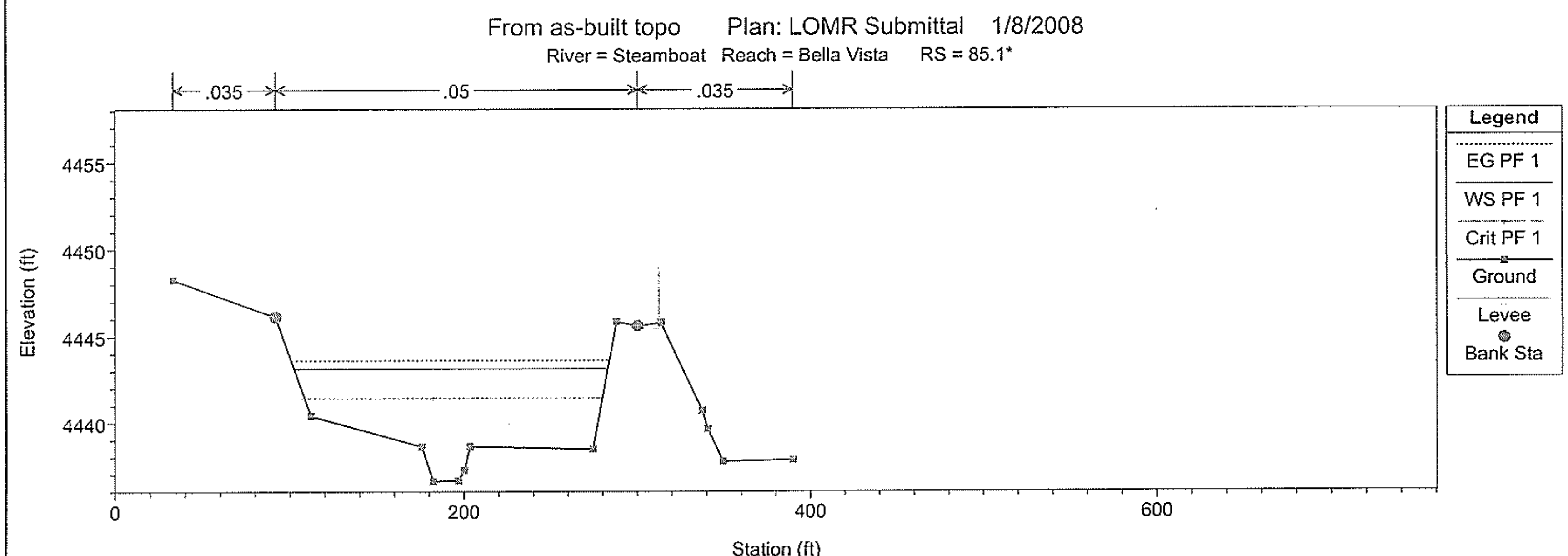
From as-built topo   Plan: LOMR Submittal   1/8/2008

River = Steamboat   Reach = Bella Vista   RS = 85.3*

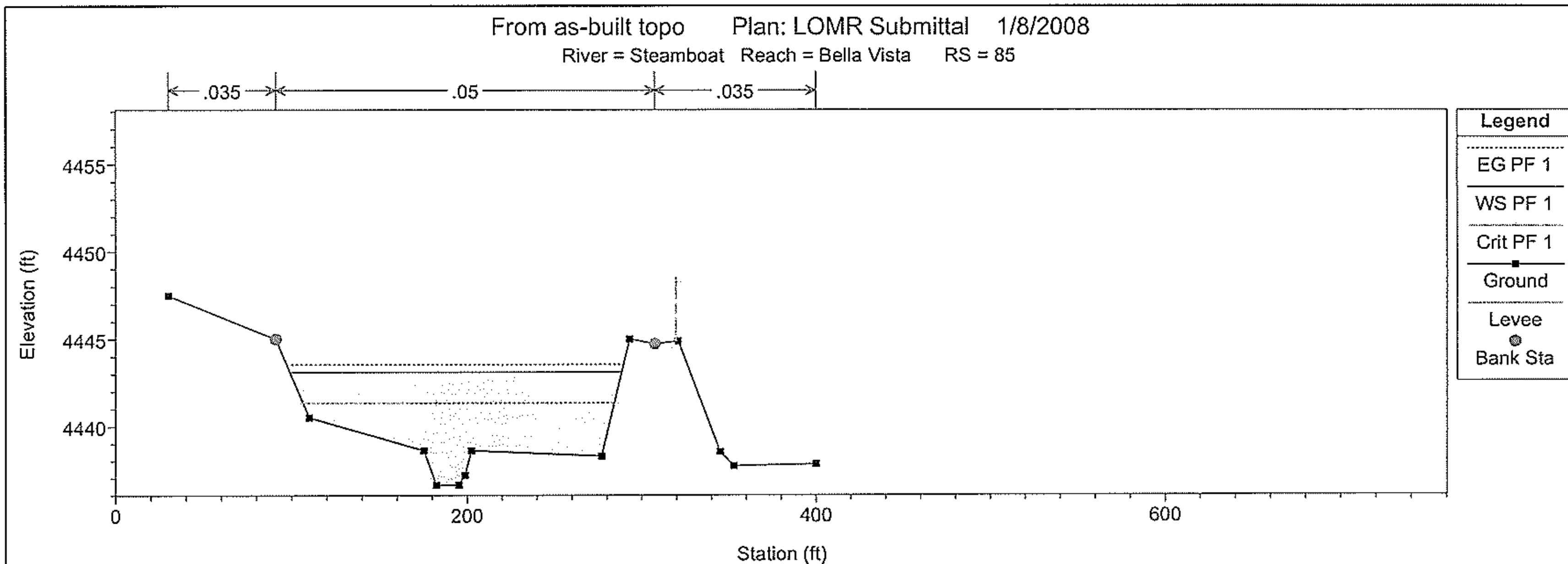


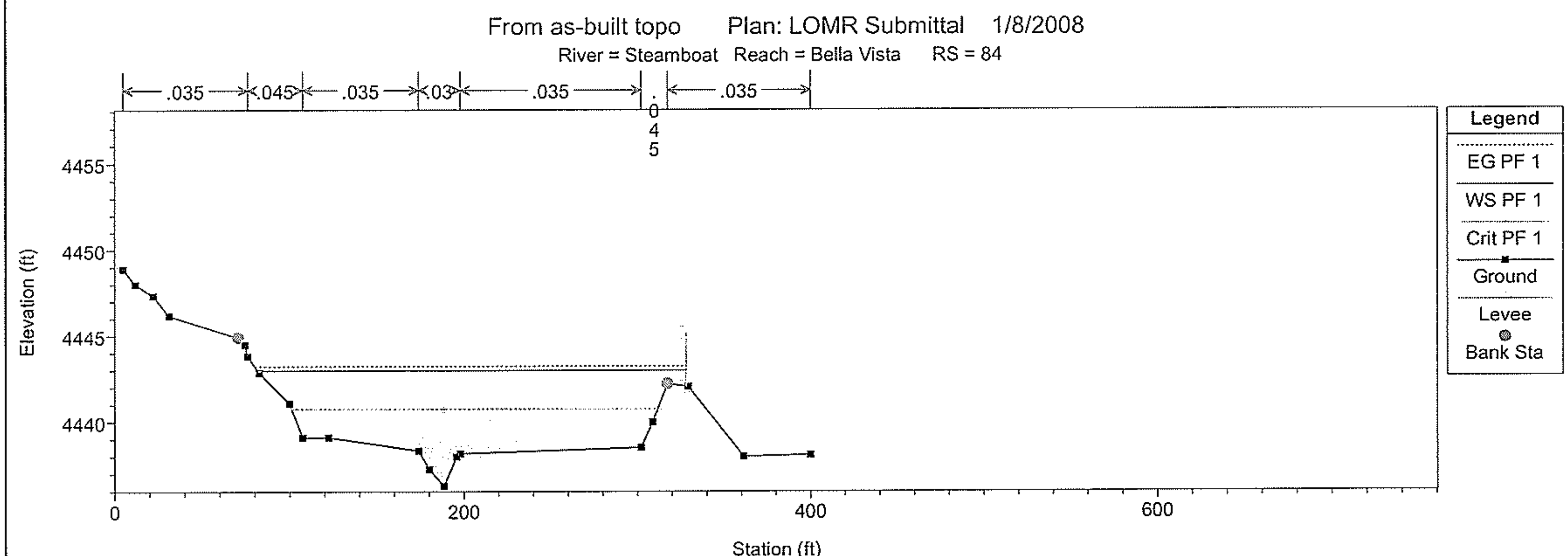
1 in Horiz. = 100 ft   1 in Vert. = 10 ft



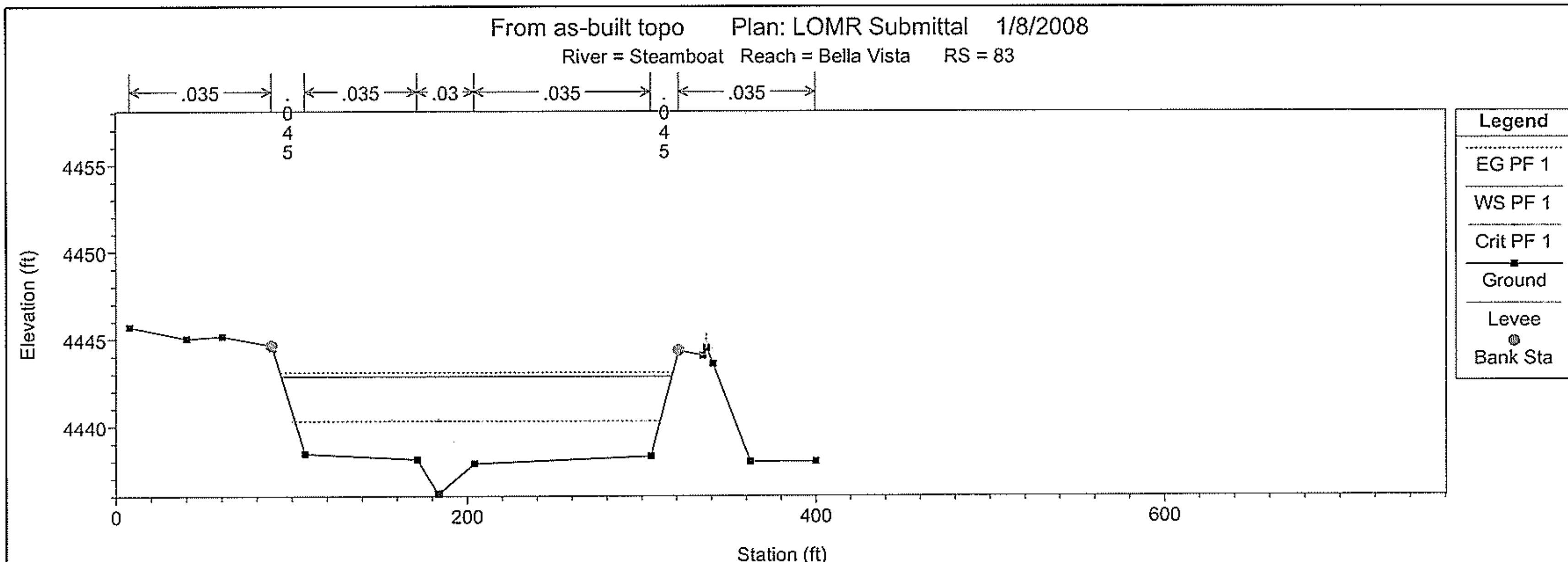


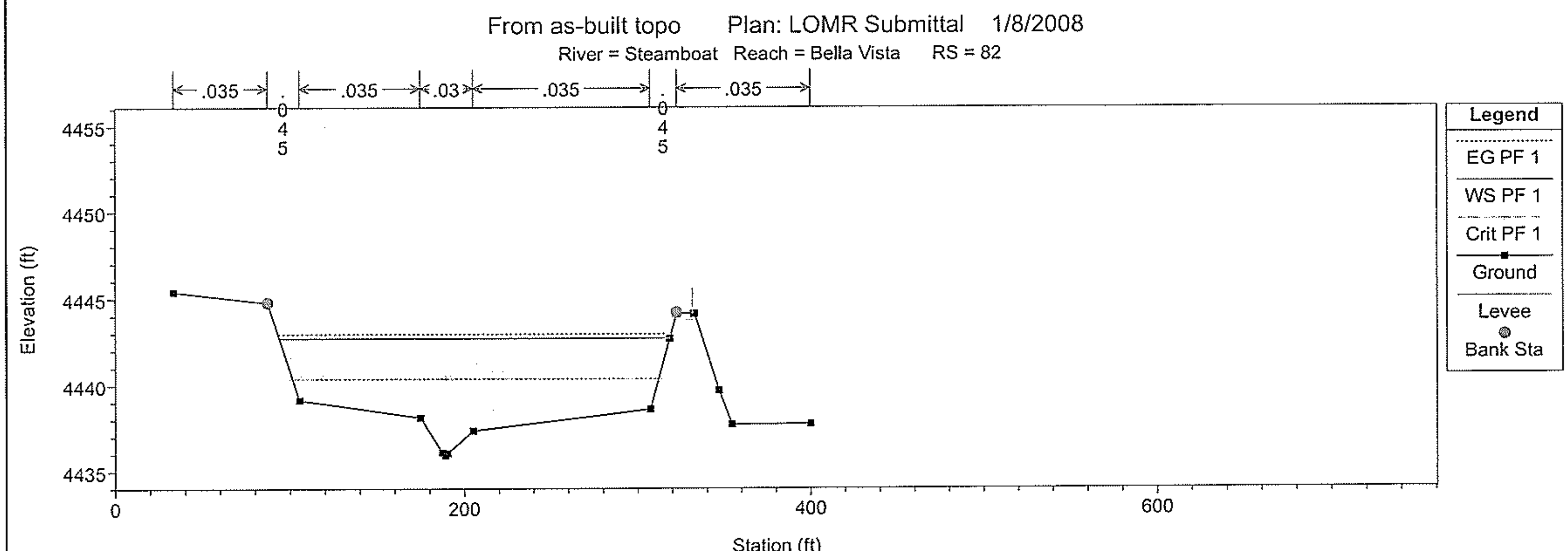
1 in Horiz. = 100 ft 1 in Vert. = 10 ft





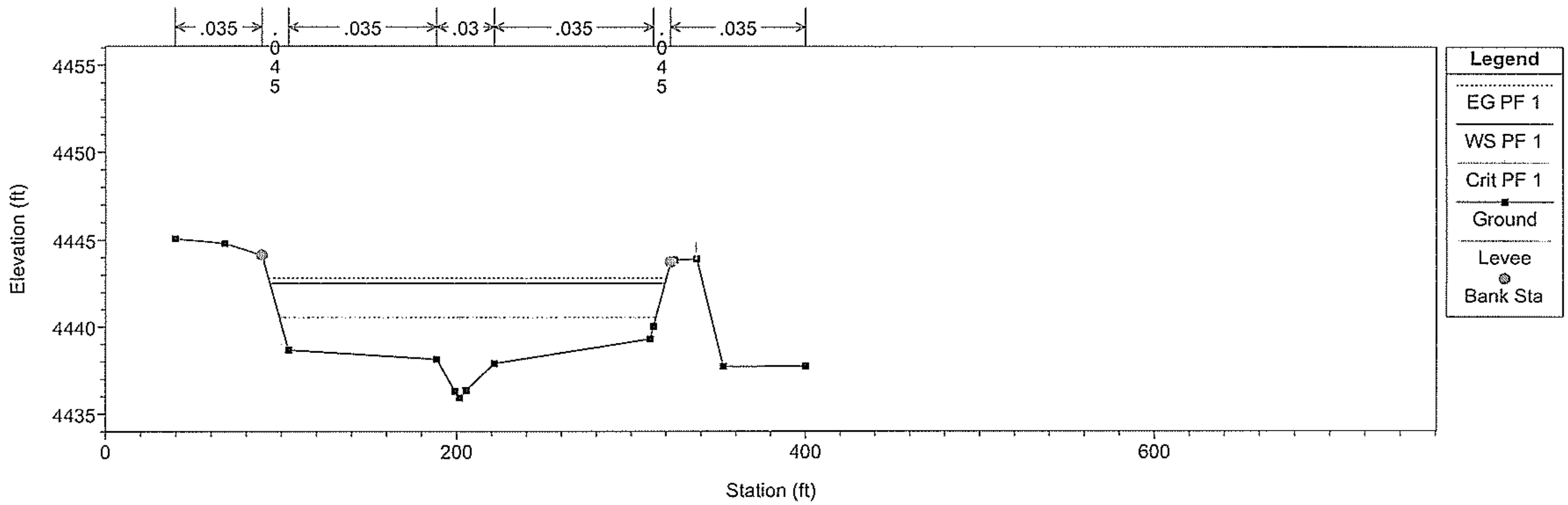
1 in Horiz. = 100 ft 1 in Vert. = 10 ft



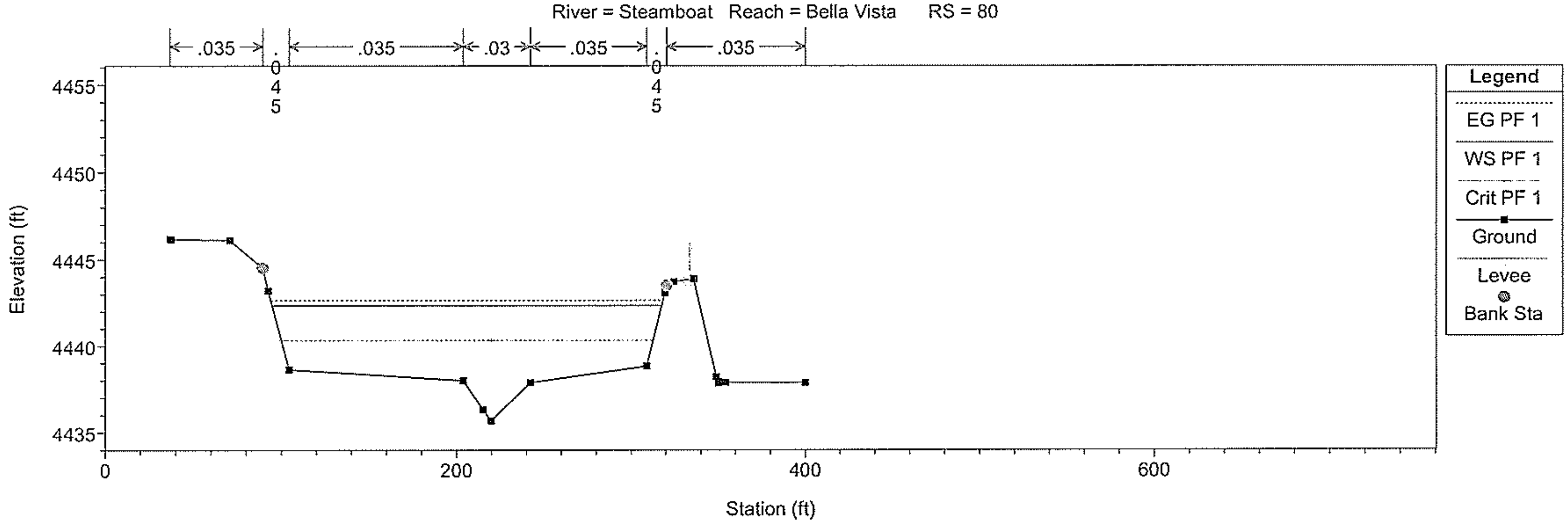


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 81



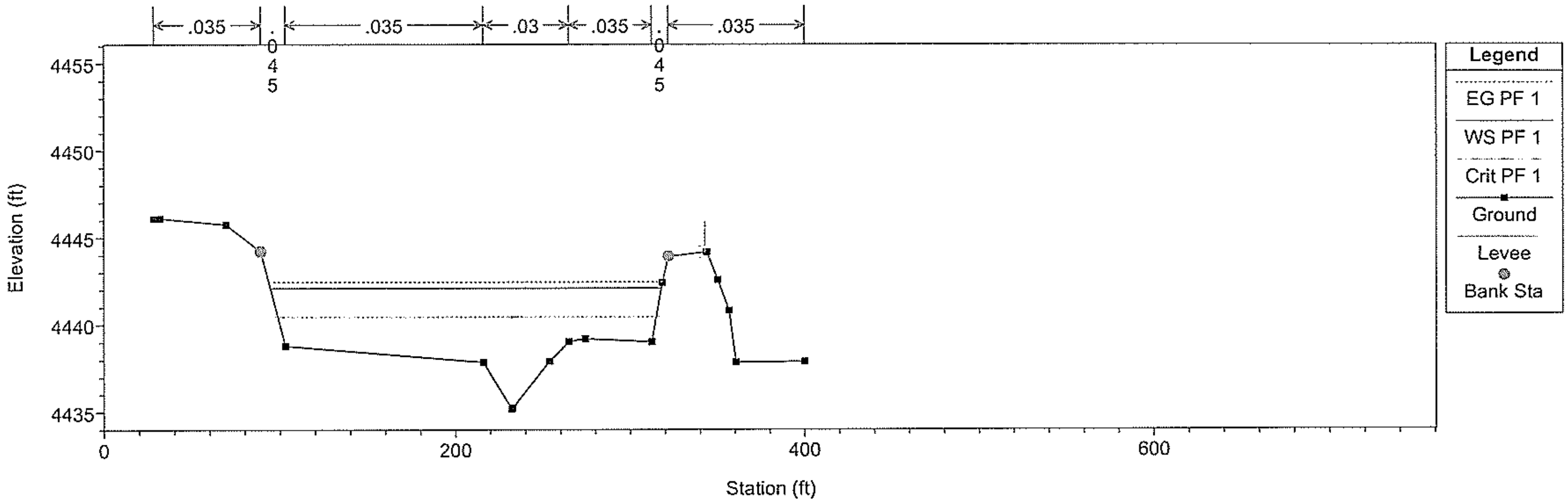
From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 80



1 in Horiz. = 100 ft 1 in Vert. = 10 ft

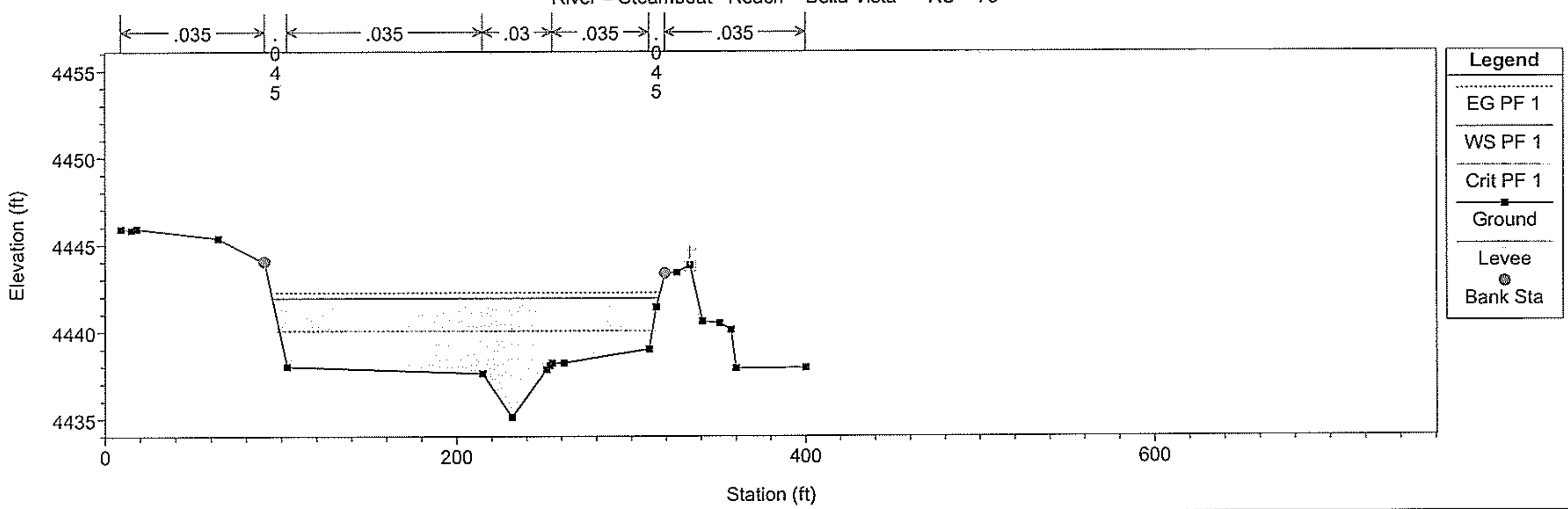
From as-built topo   Plan: LOMR Submittal   1/8/2008

River = Steamboat   Reach = Bella Vista   RS = 79



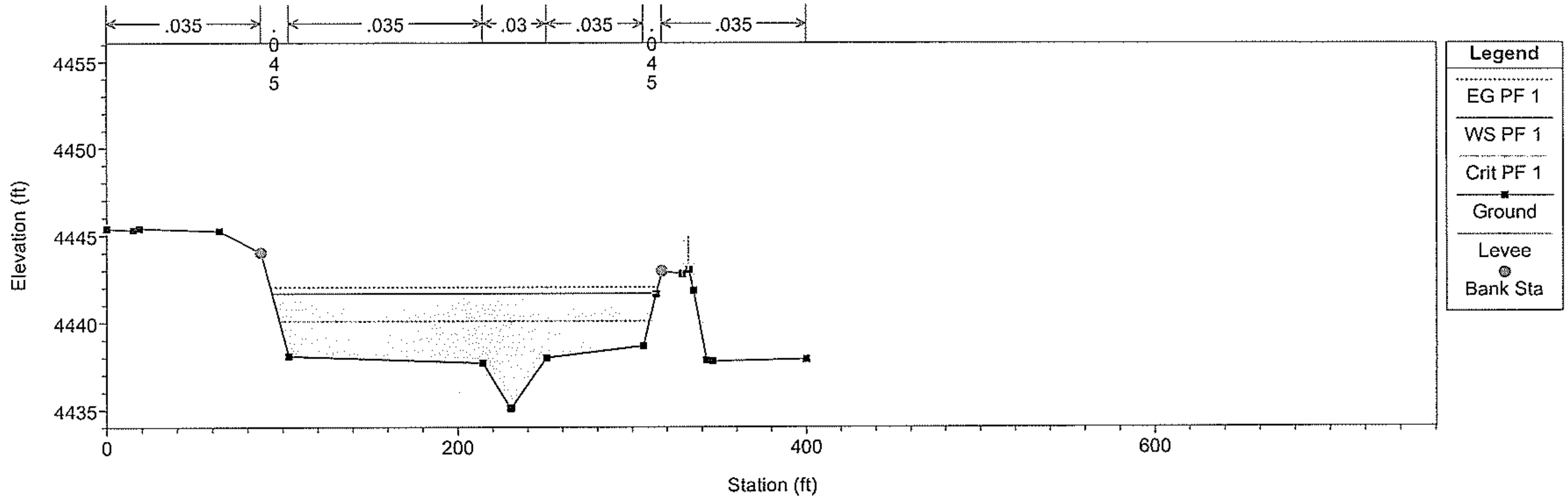
From as-built topo   Plan: LOMR Submittal   1/8/2008

River = Steamboat   Reach = Bella Vista   RS = 78

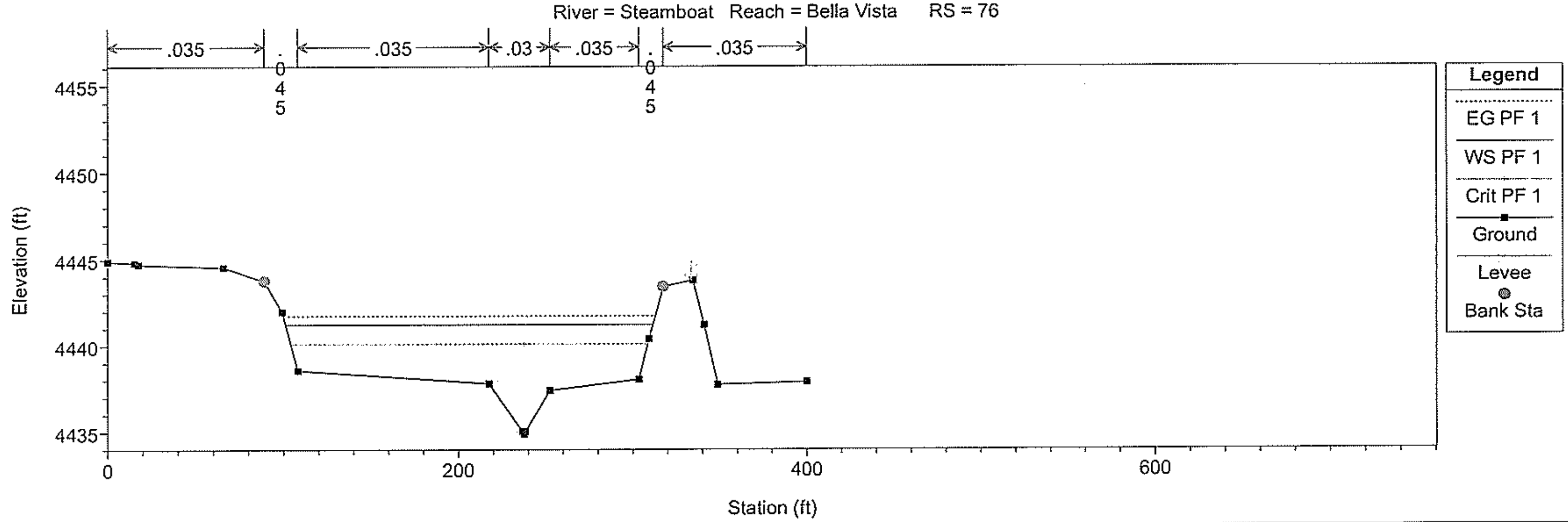


1 in Horiz. = 100 ft   1 in Vert. = 10 ft

From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 77

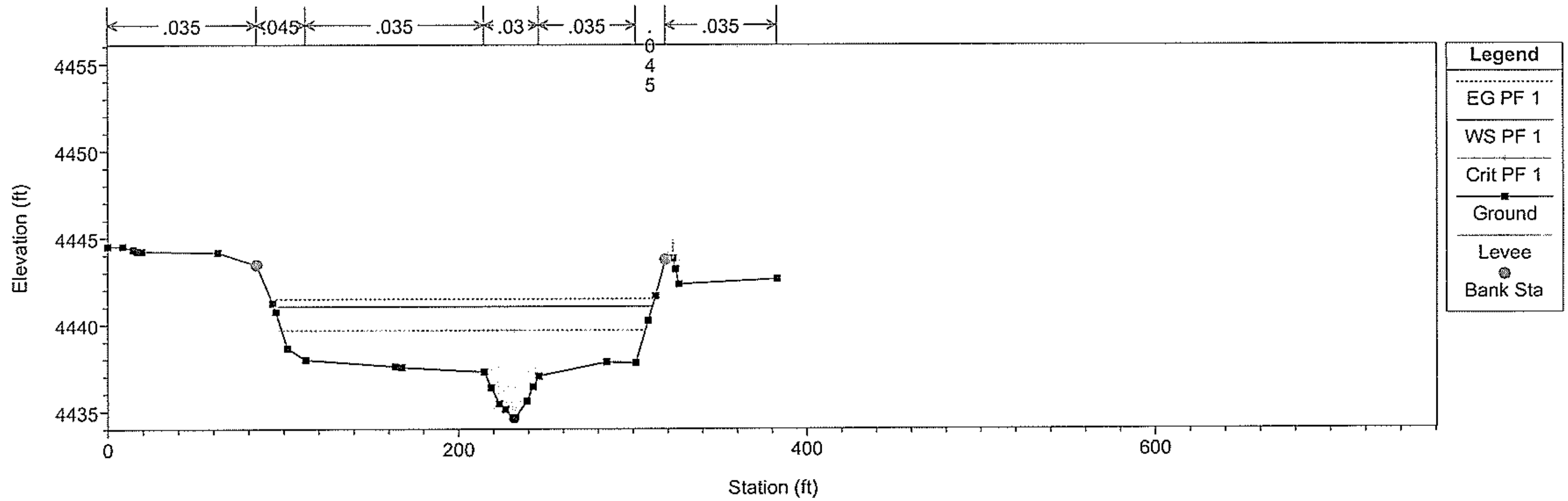


From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 76

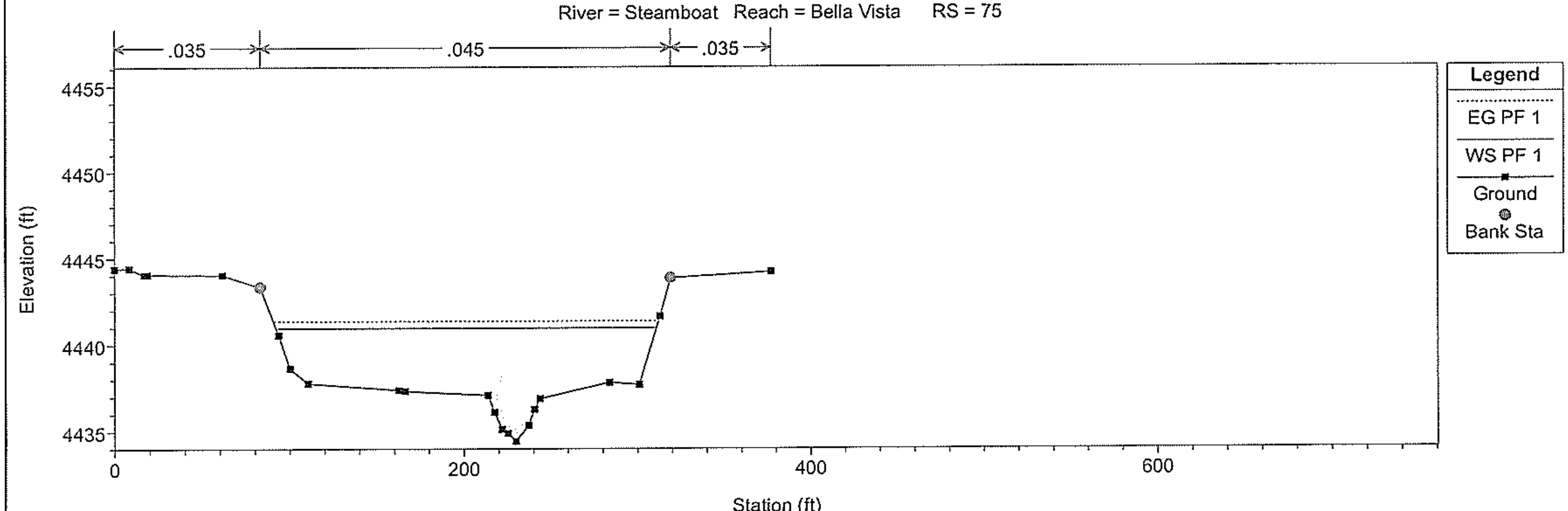


1 in Horiz. = 100 ft   1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 75.25

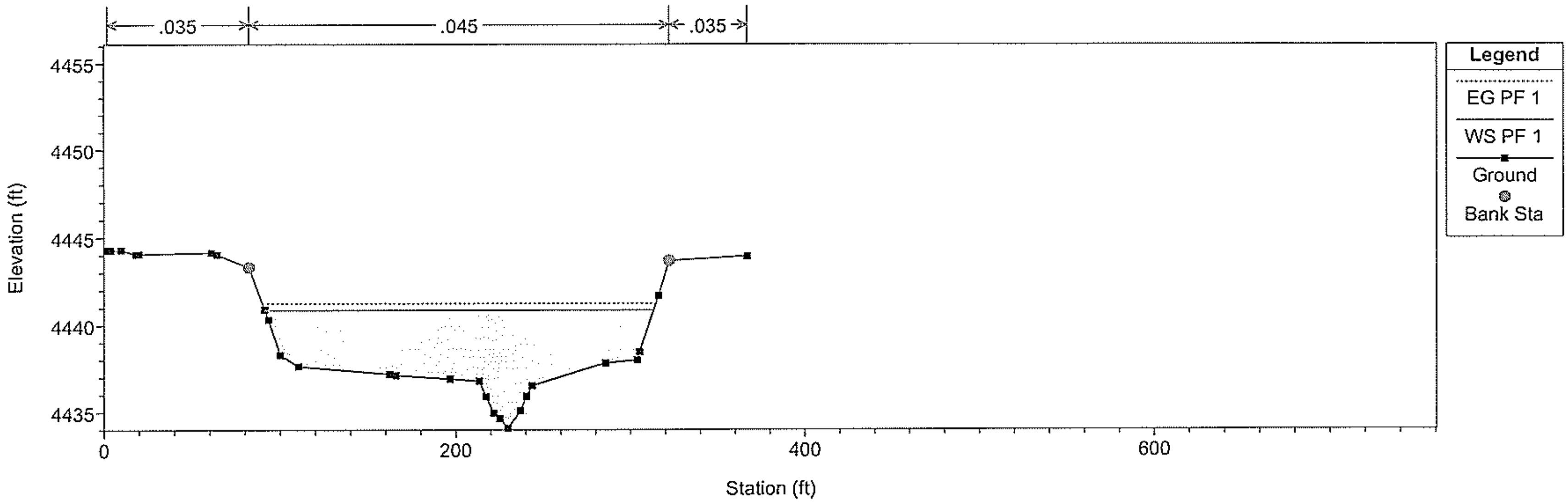


From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 75

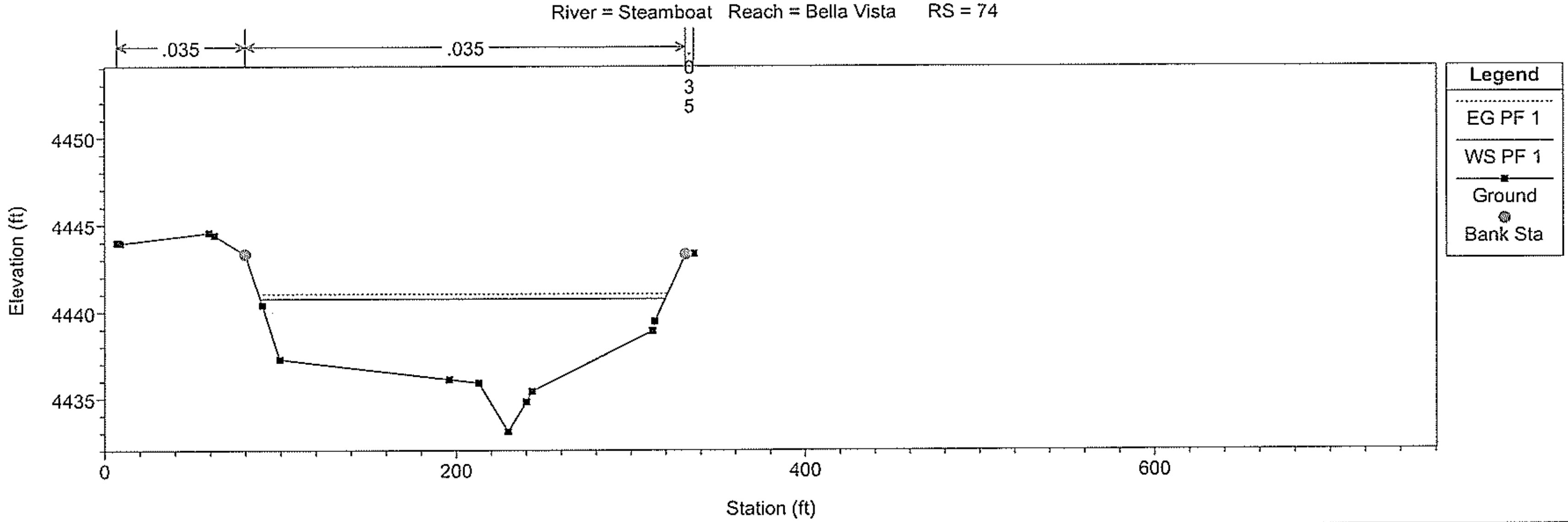


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 74.75



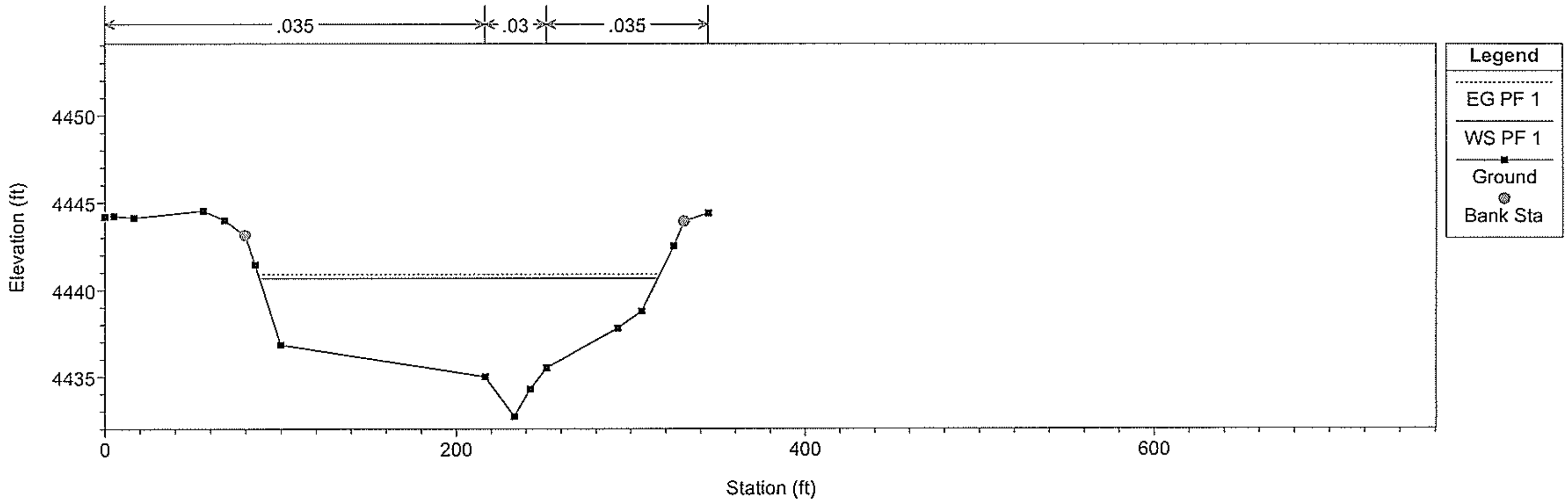
From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 74



1 in Horiz. = 100 ft 1 in Vert. = 10 ft

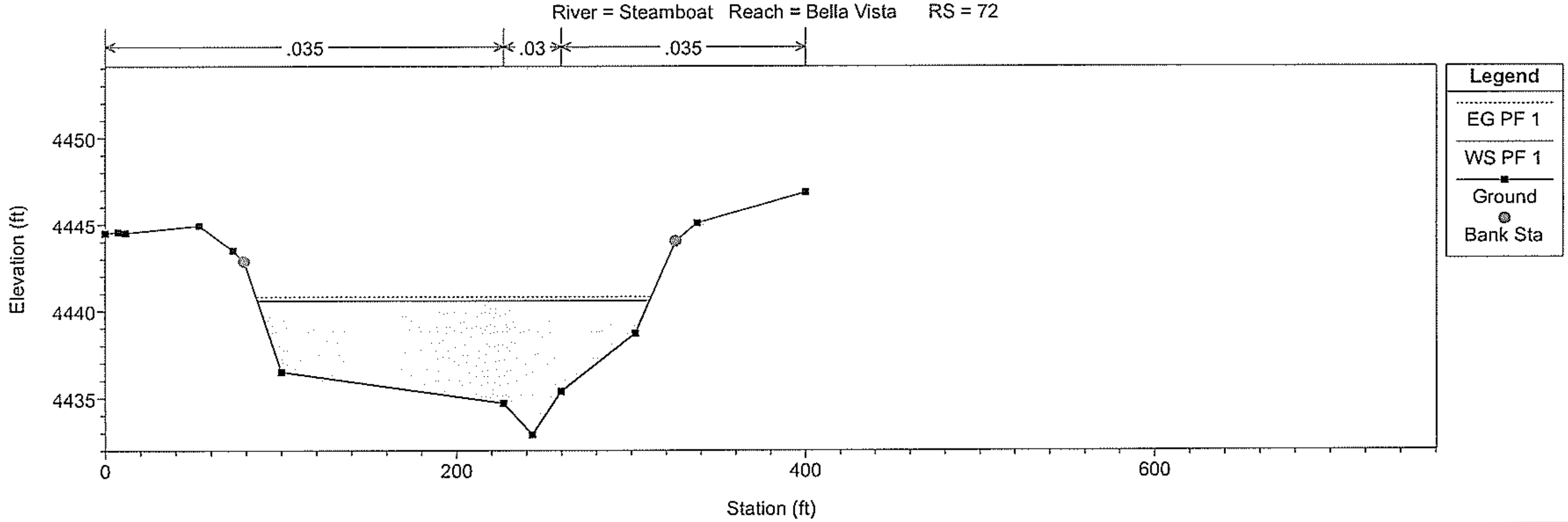
From as-built topo Plan: LOMR Submittal 1/8/2008

River = Steamboat Reach = Bella Vista RS = 73



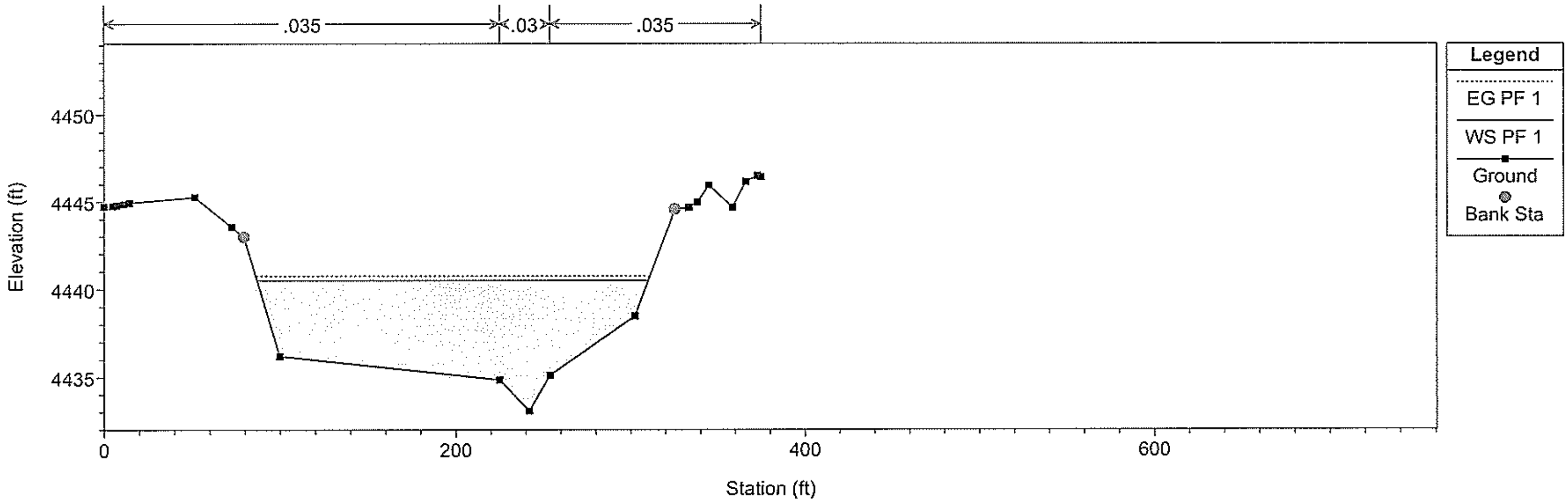
From as-built topo Plan: LOMR Submittal 1/8/2008

River = Steamboat Reach = Bella Vista RS = 72

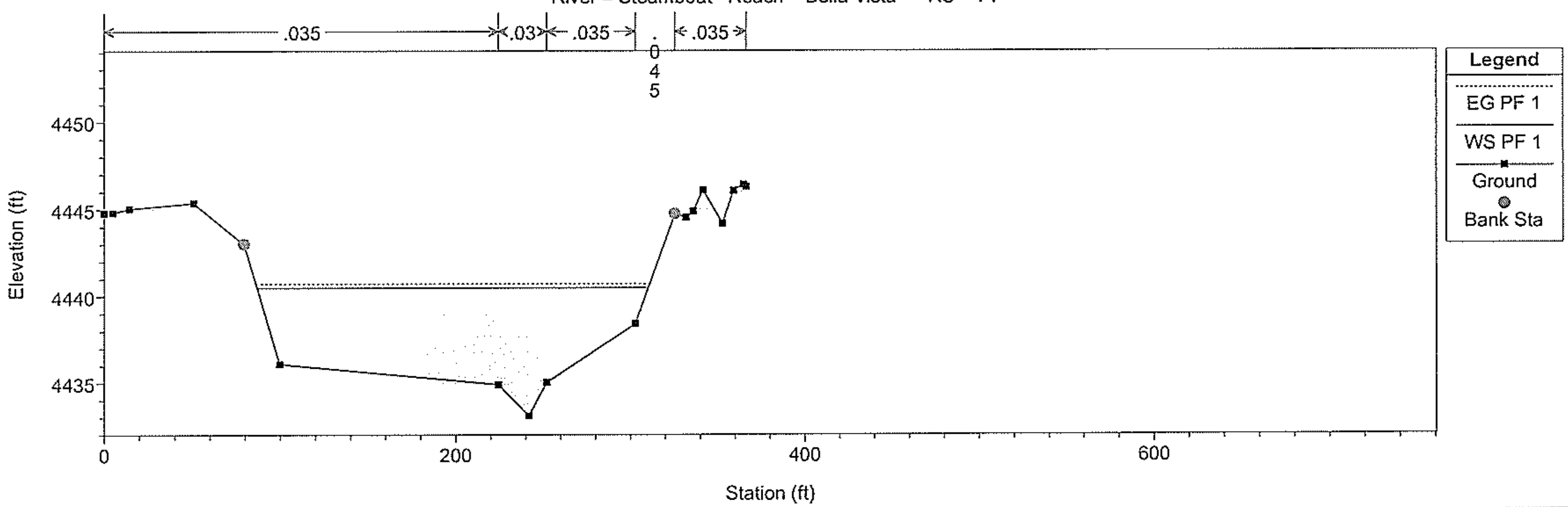


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 71.25

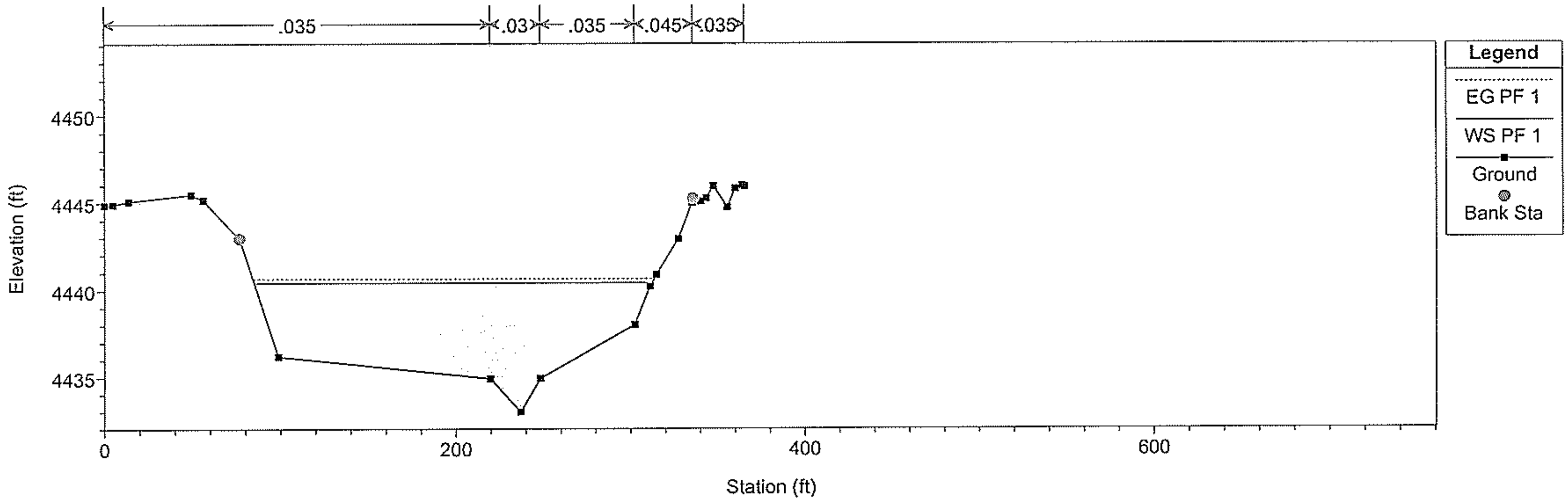


From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 71

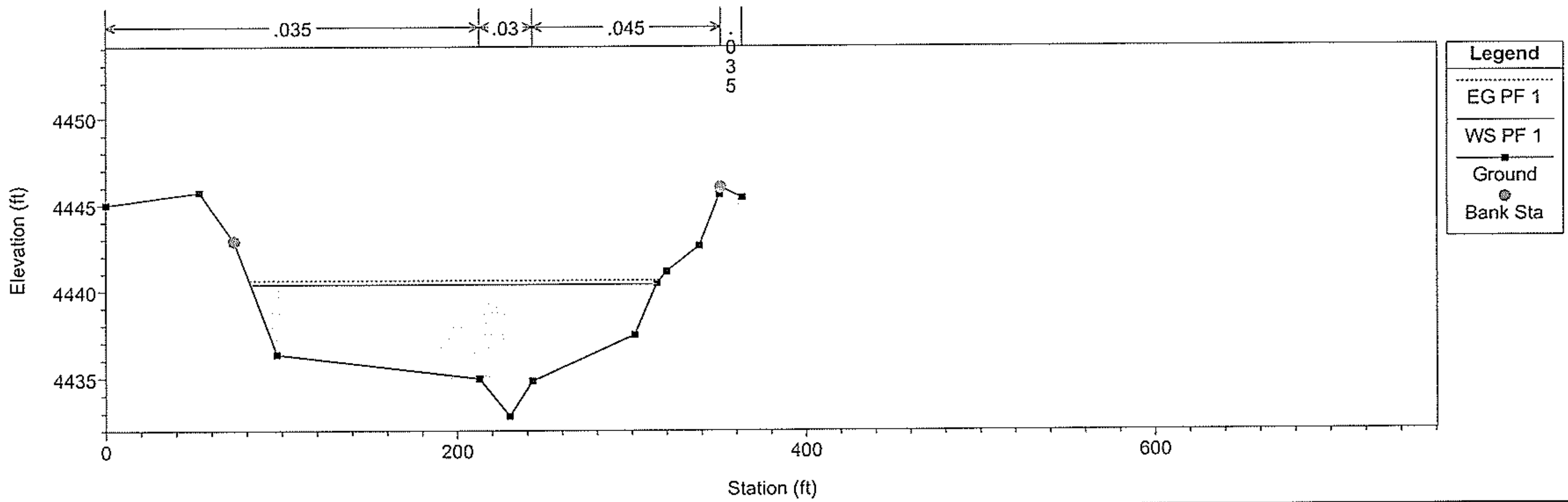


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 70.6



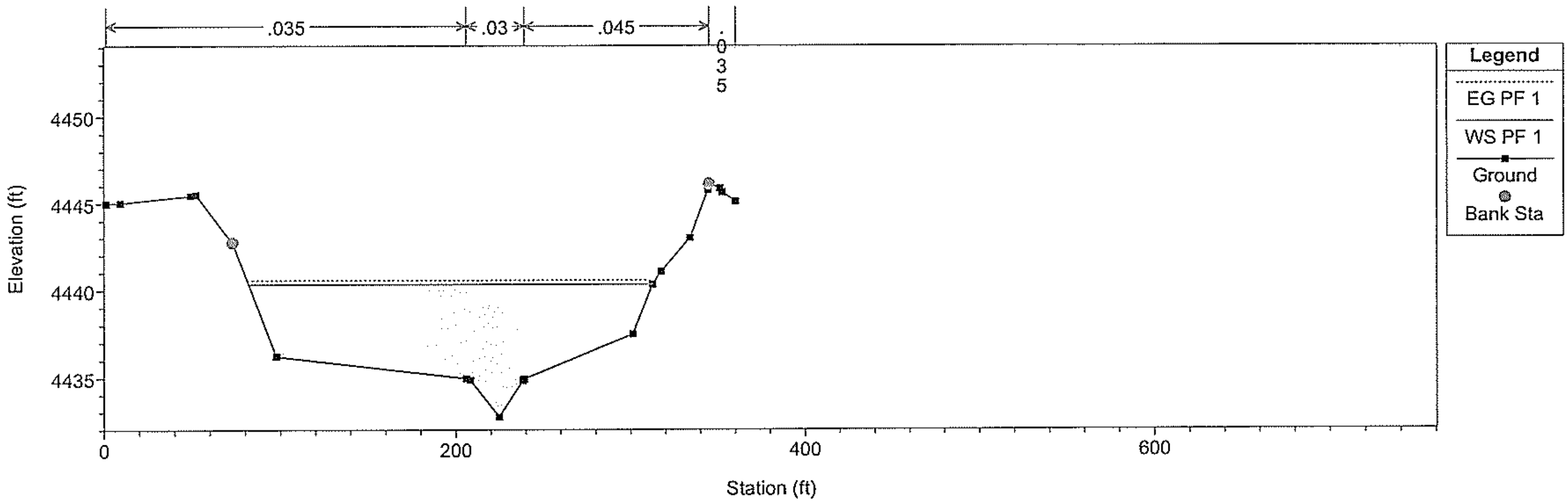
From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 70



1 in Horiz. = 100 ft 1 in Vert. = 10 ft

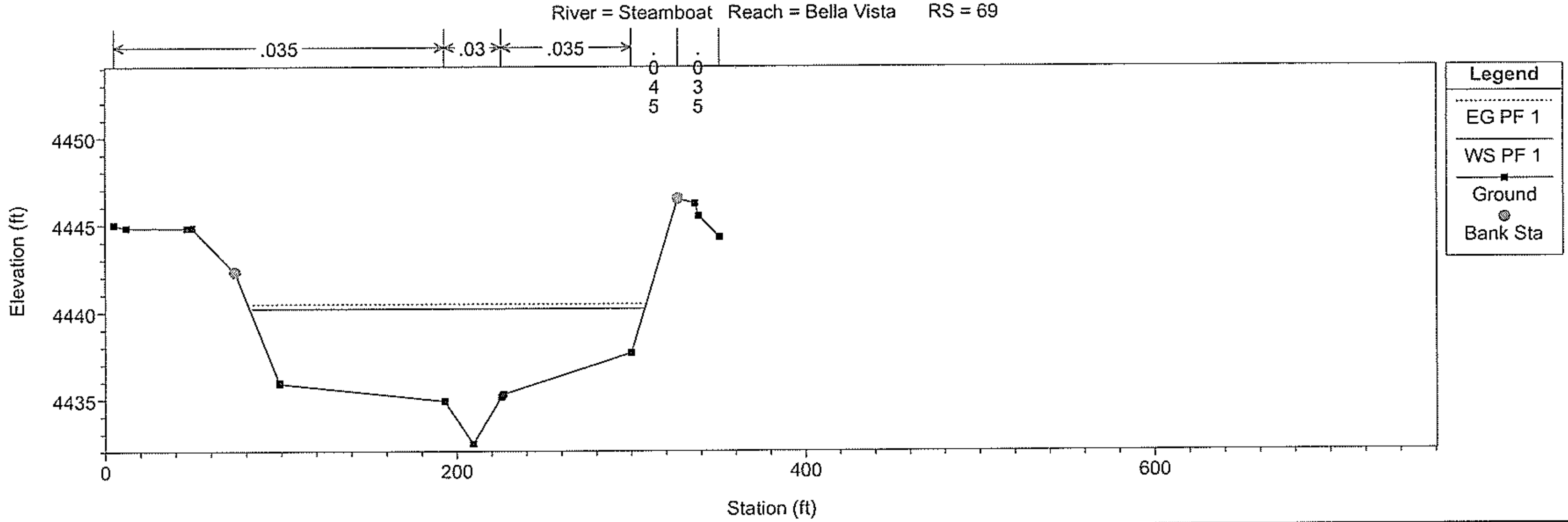
From as-built topo Plan: LOMR Submittal 1/8/2008

River = Steamboat Reach = Bella Vista RS = 69.75

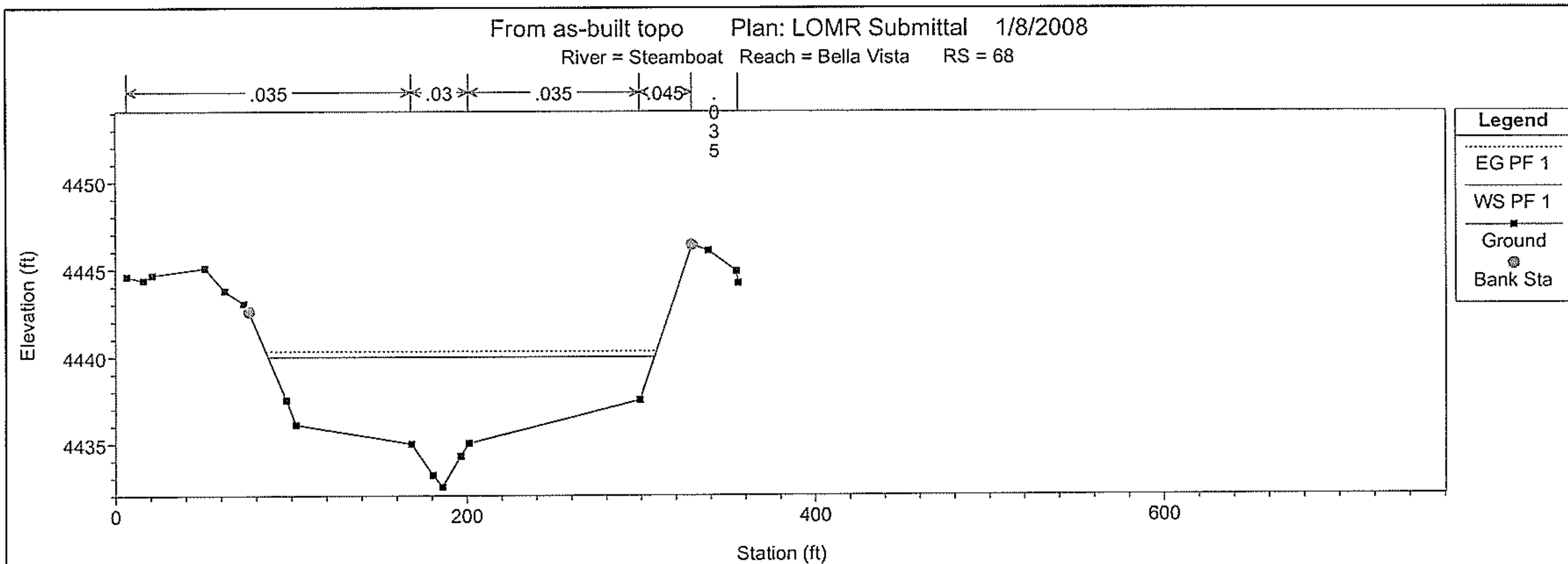


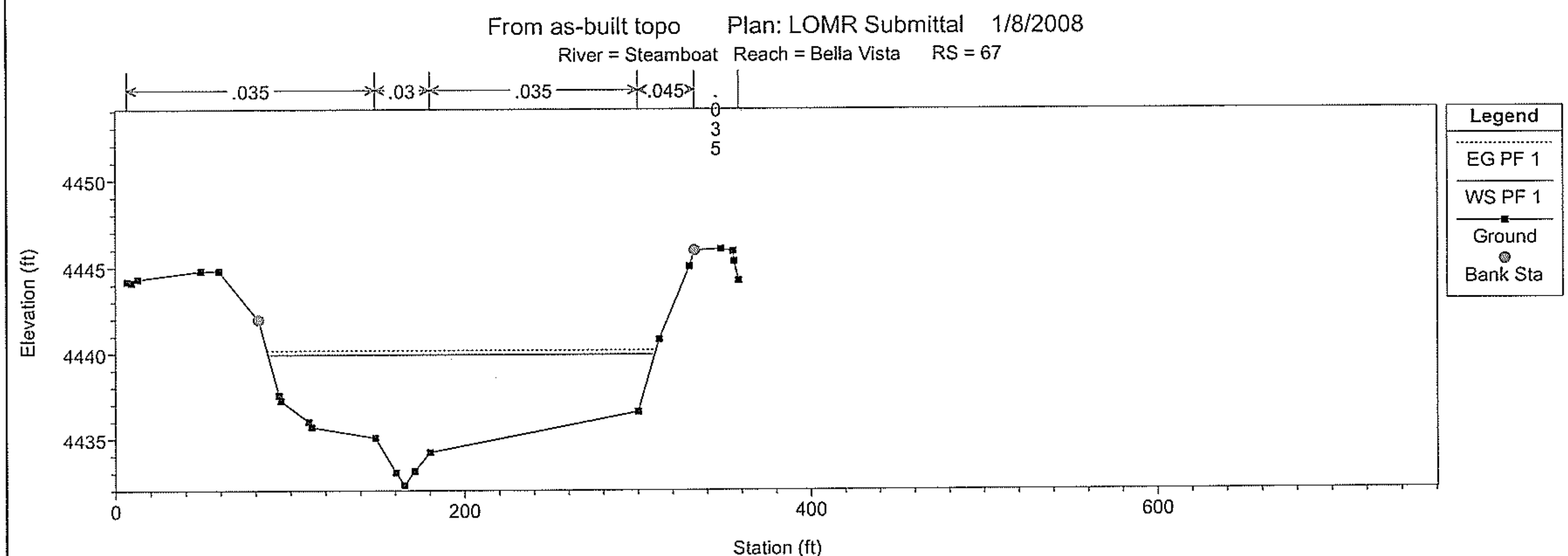
From as-built topo Plan: LOMR Submittal 1/8/2008

River = Steamboat Reach = Bella Vista RS = 69



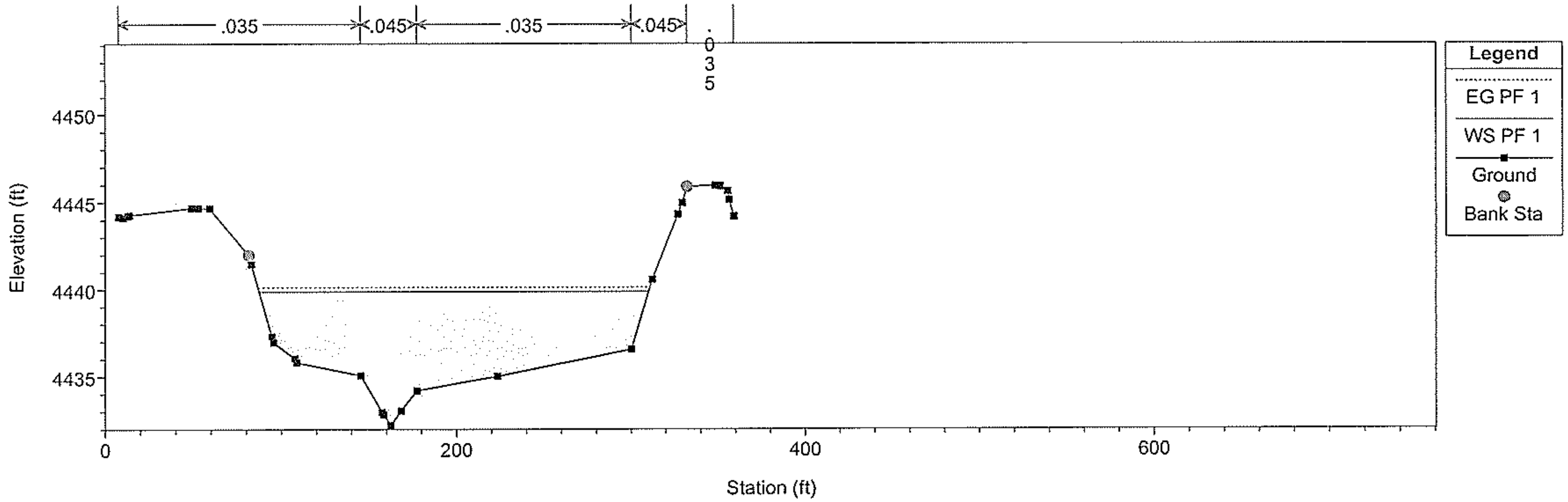
1 in Horiz. = 100 ft 1 in Vert. = 10 ft



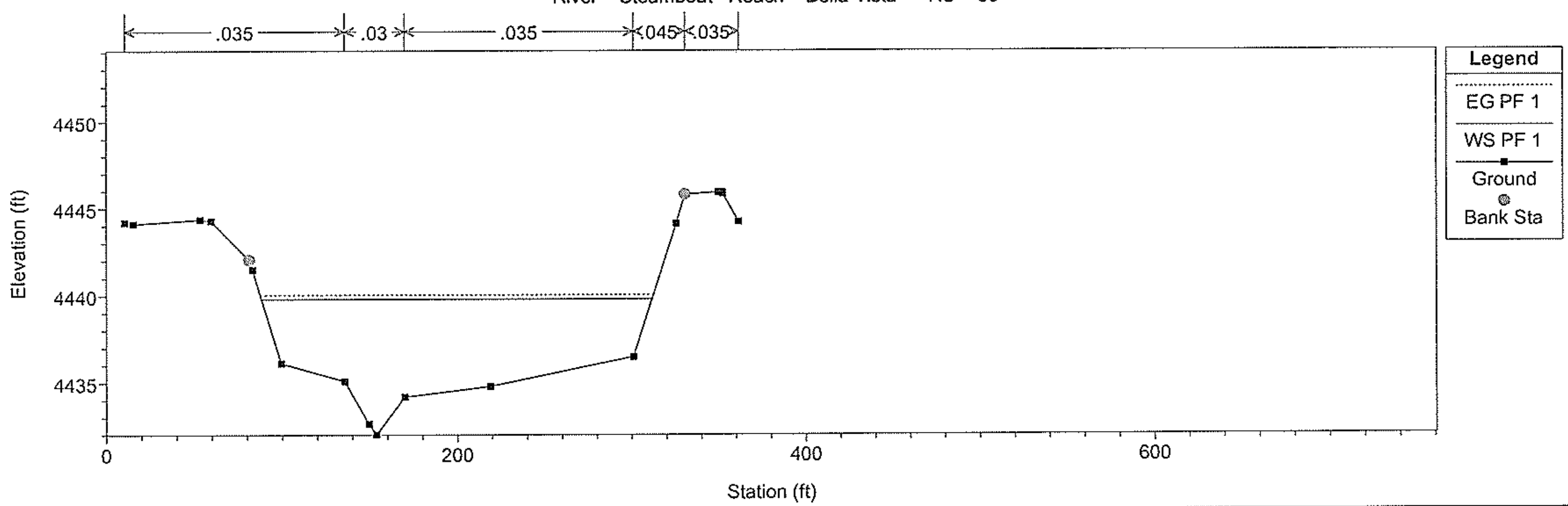


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 66.75

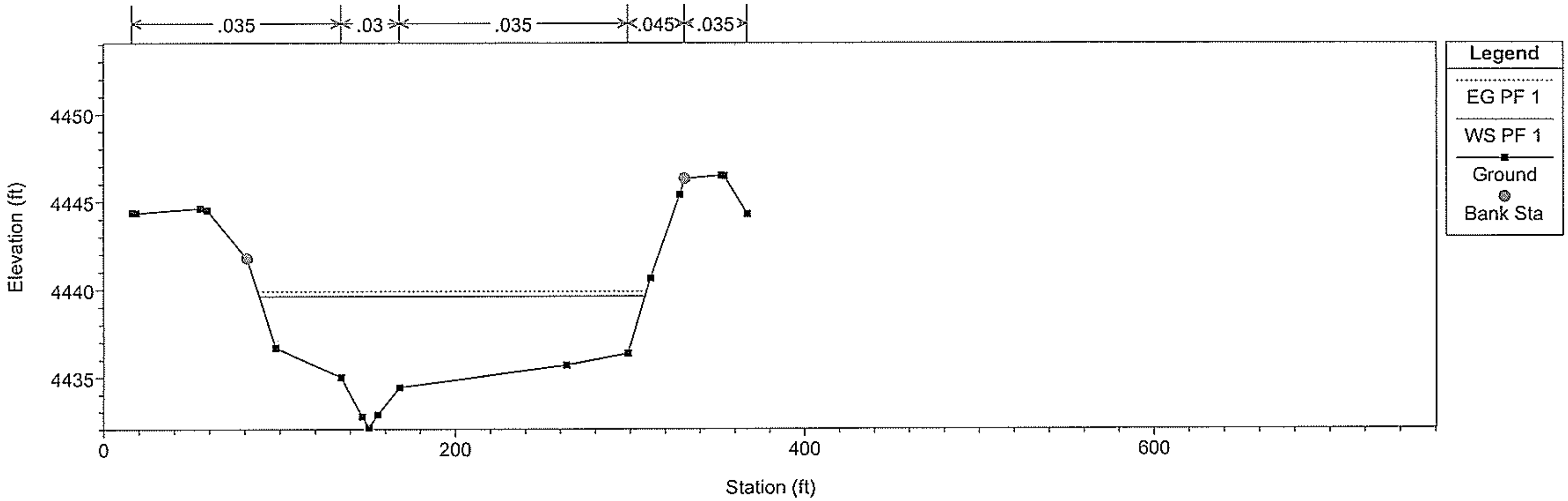


From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 66

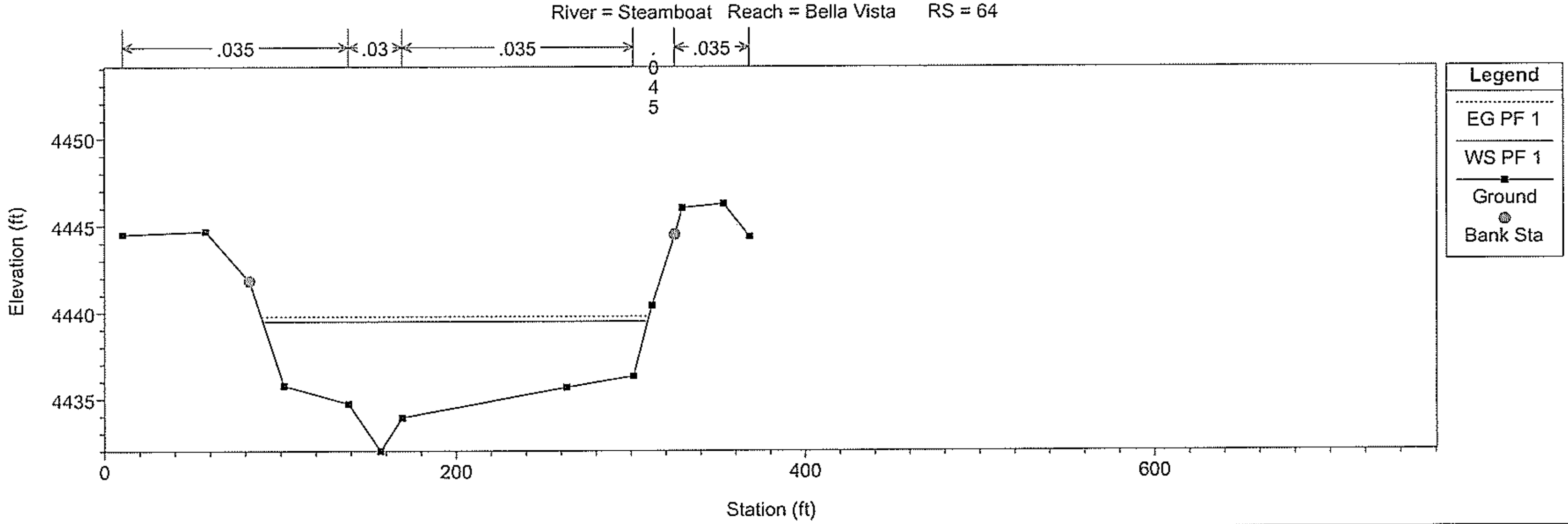


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat Reach = Bella Vista   RS = 65

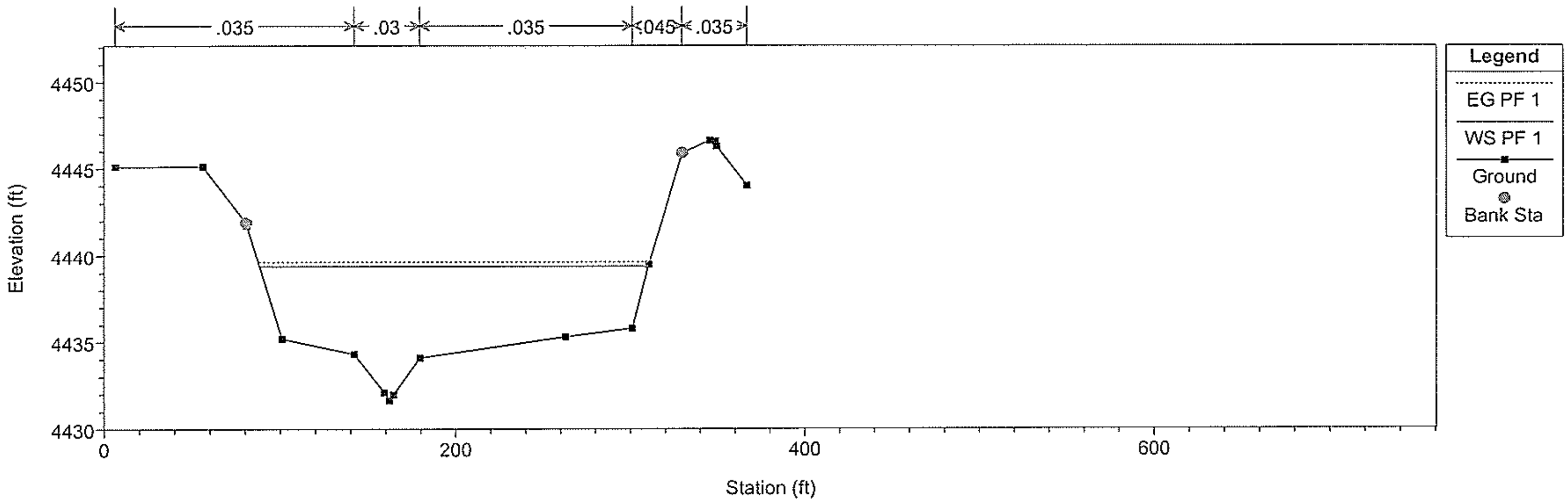


From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat Reach = Bella Vista   RS = 64

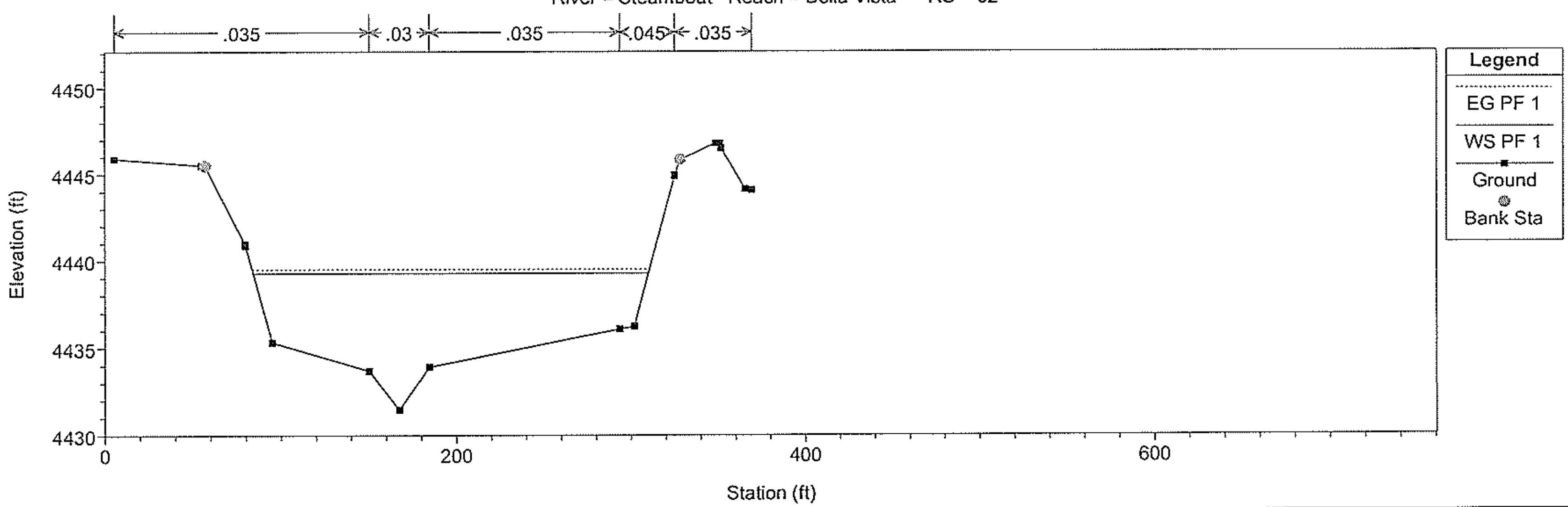


1 in Horiz. = 100 ft   1 in Vert. = 10 ft

From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat Reach = Bella Vista   RS = 63

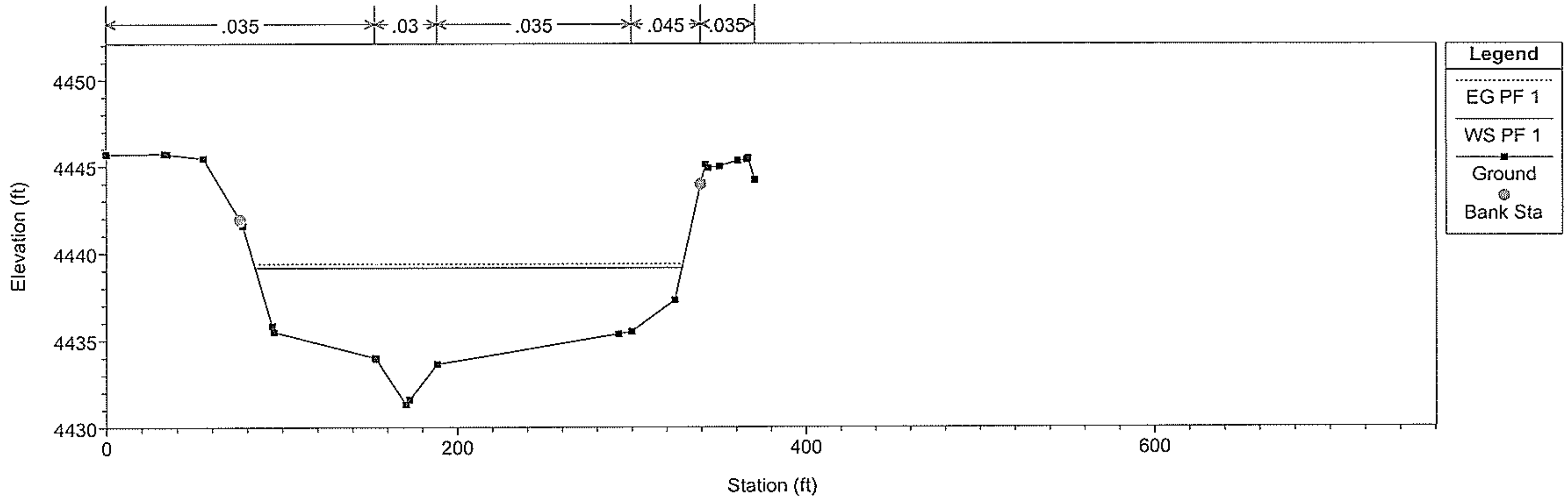


From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat Reach = Bella Vista   RS = 62

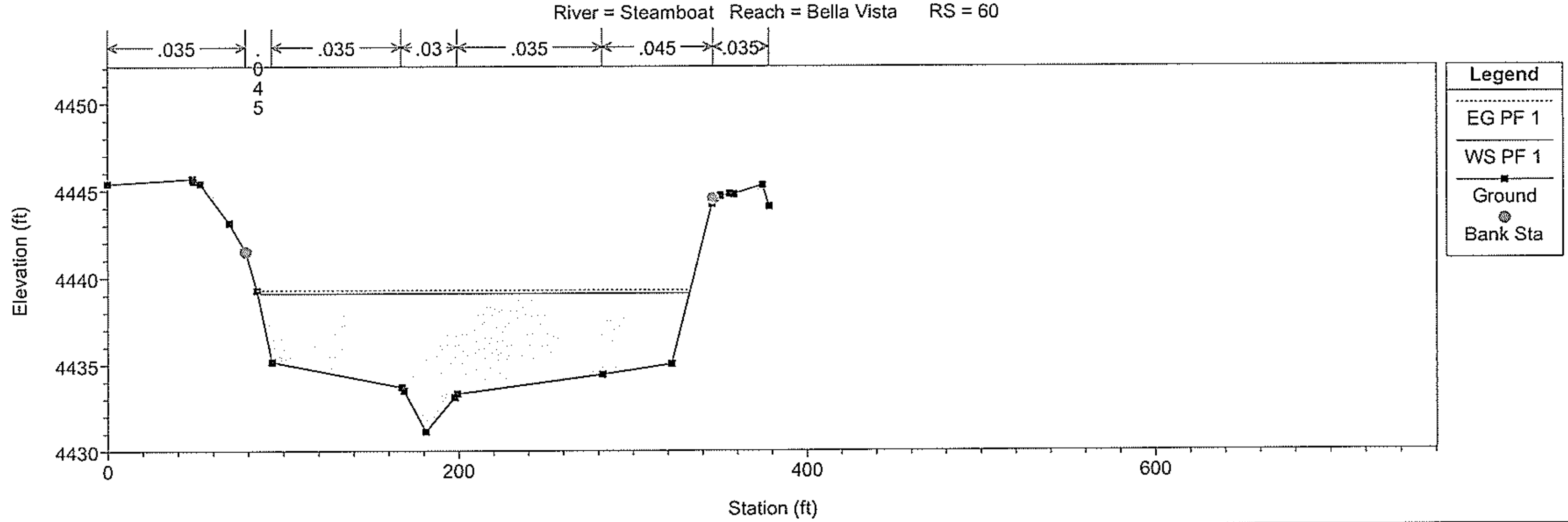


1 in Horiz. = 100 ft   1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 61



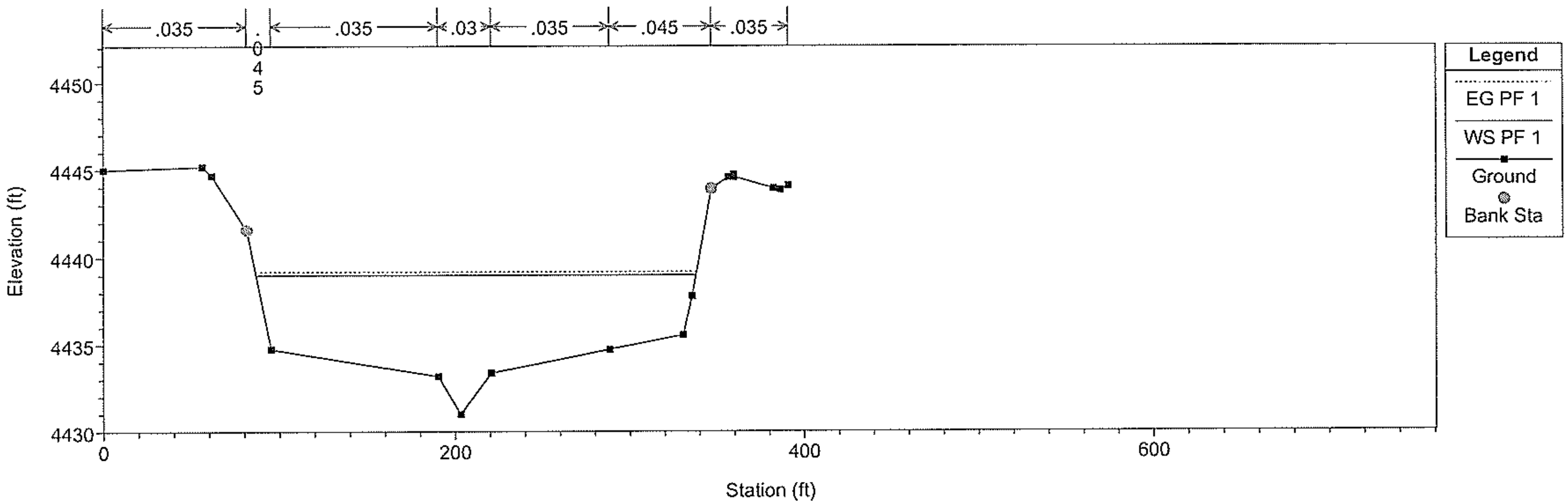
From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 60



1 in Horiz. = 100 ft 1 in Vert. = 10 ft

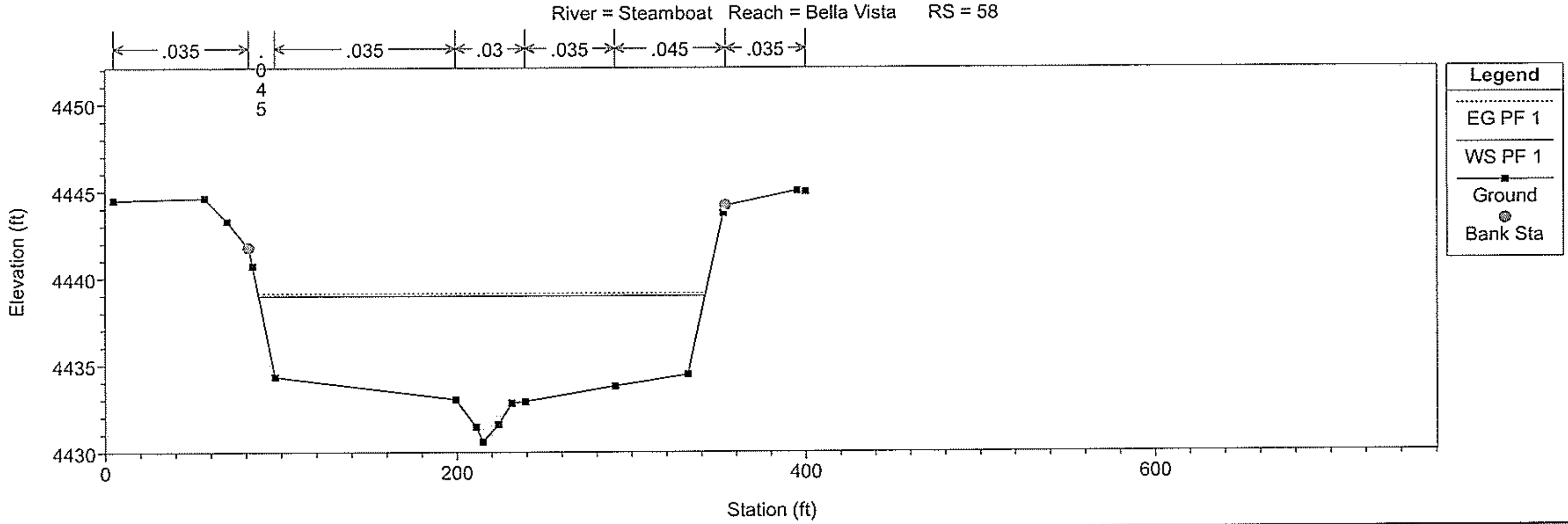
From as-built topo   Plan: LOMR Submittal   1/8/2008

River = Steamboat   Reach = Bella Vista   RS = 59

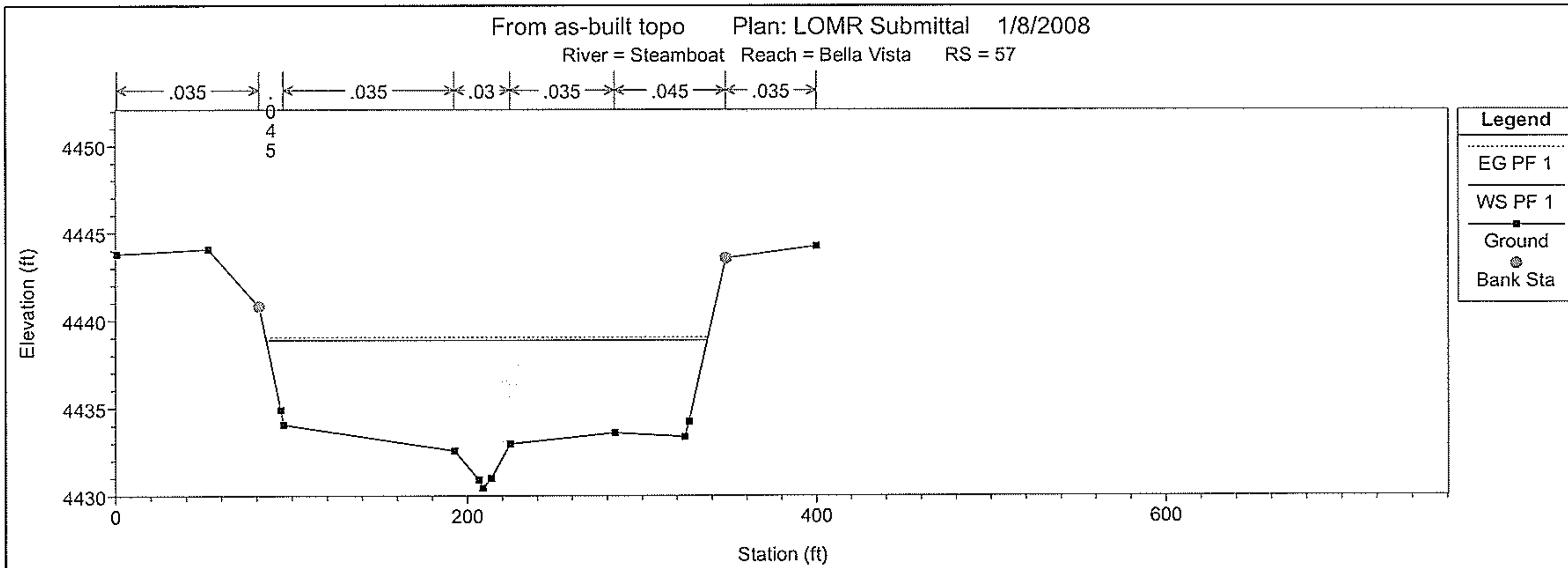


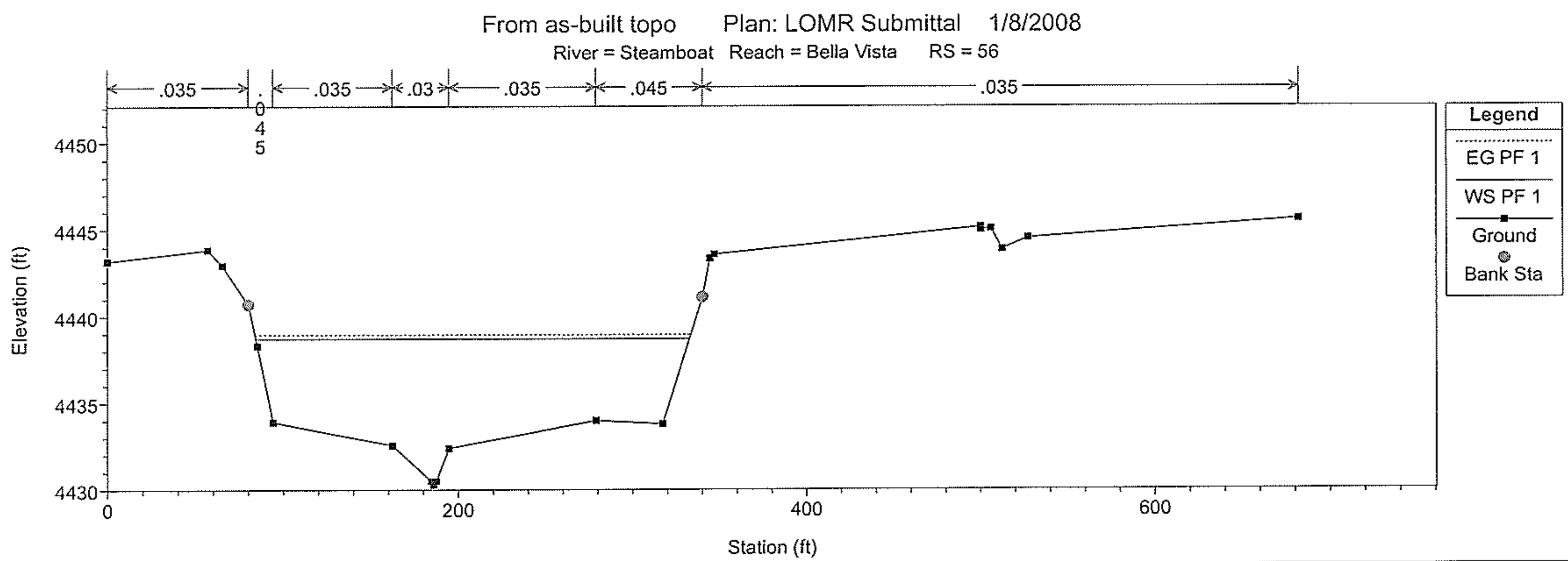
From as-built topo   Plan: LOMR Submittal   1/8/2008

River = Steamboat   Reach = Bella Vista   RS = 58



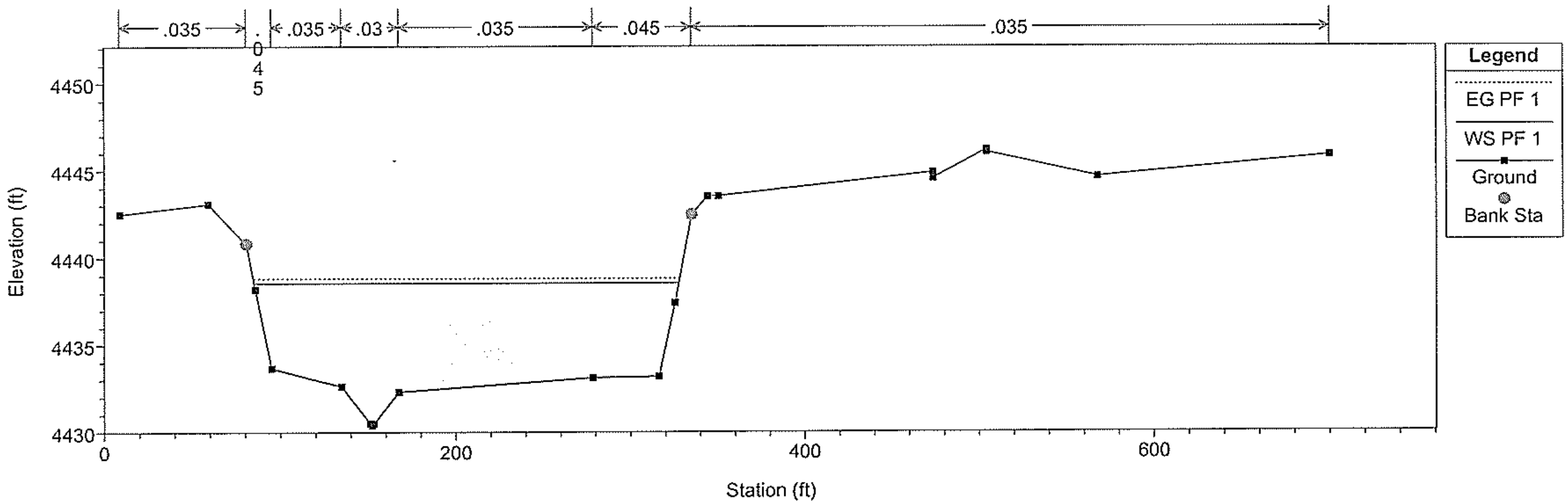
1 in Horiz. = 100 ft   1 in Vert. = 10 ft



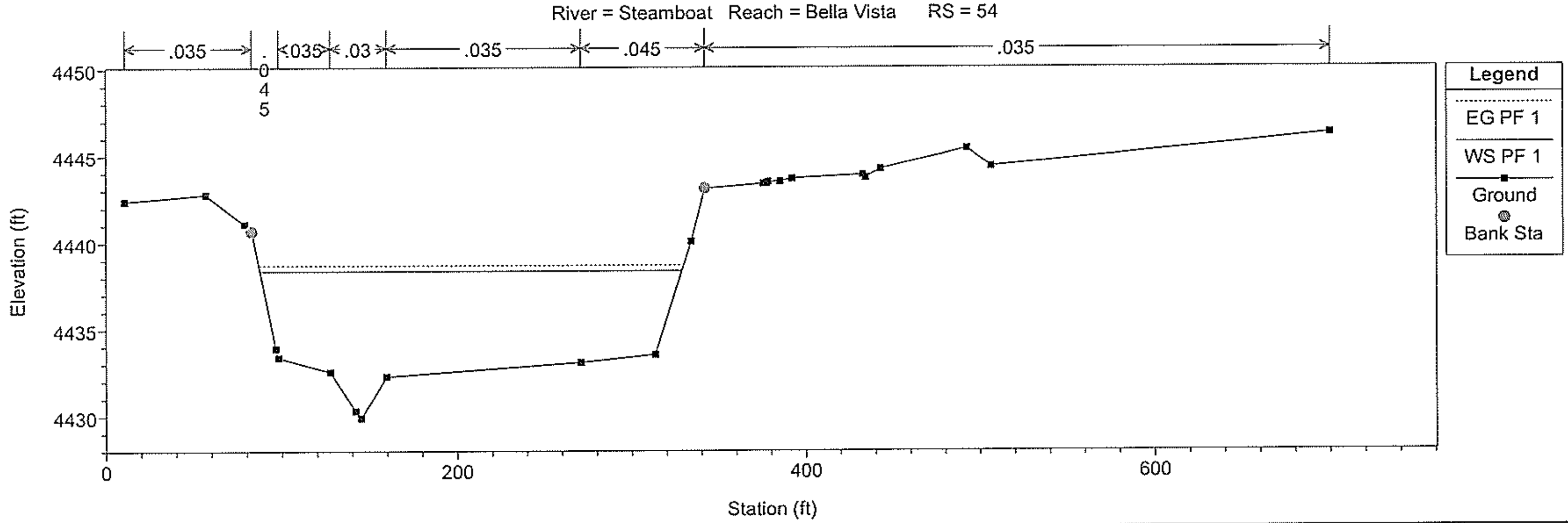


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

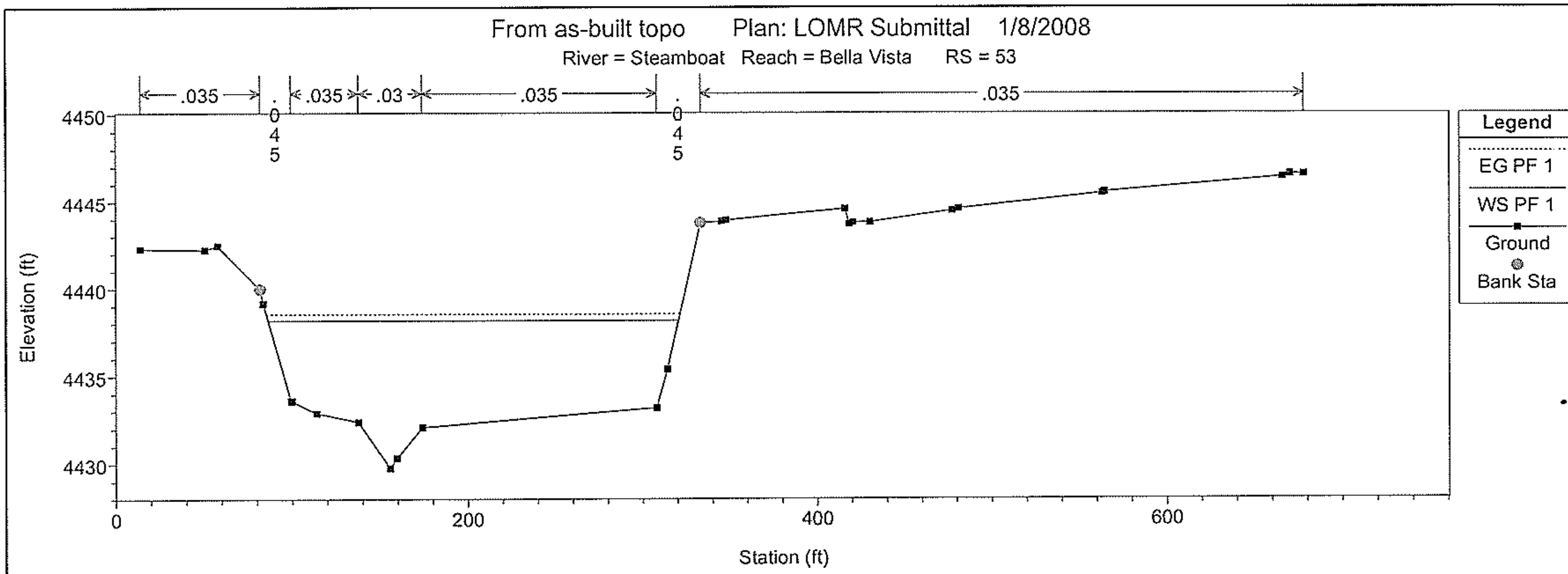
From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 55

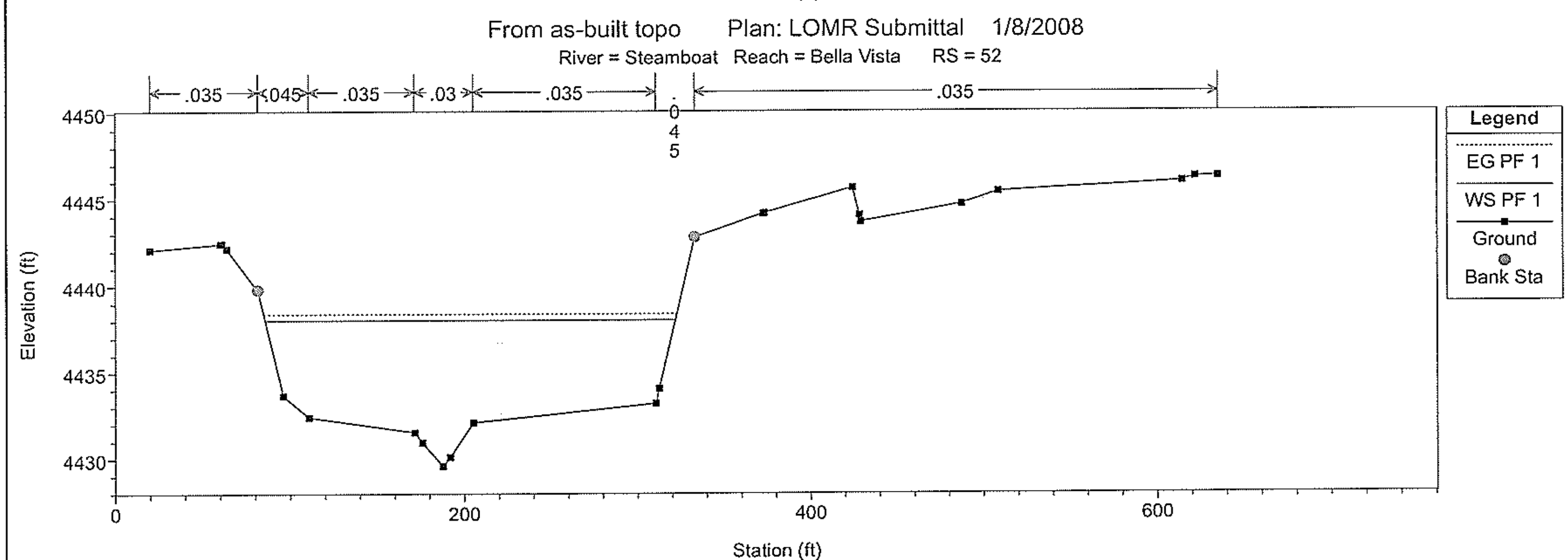


From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 54



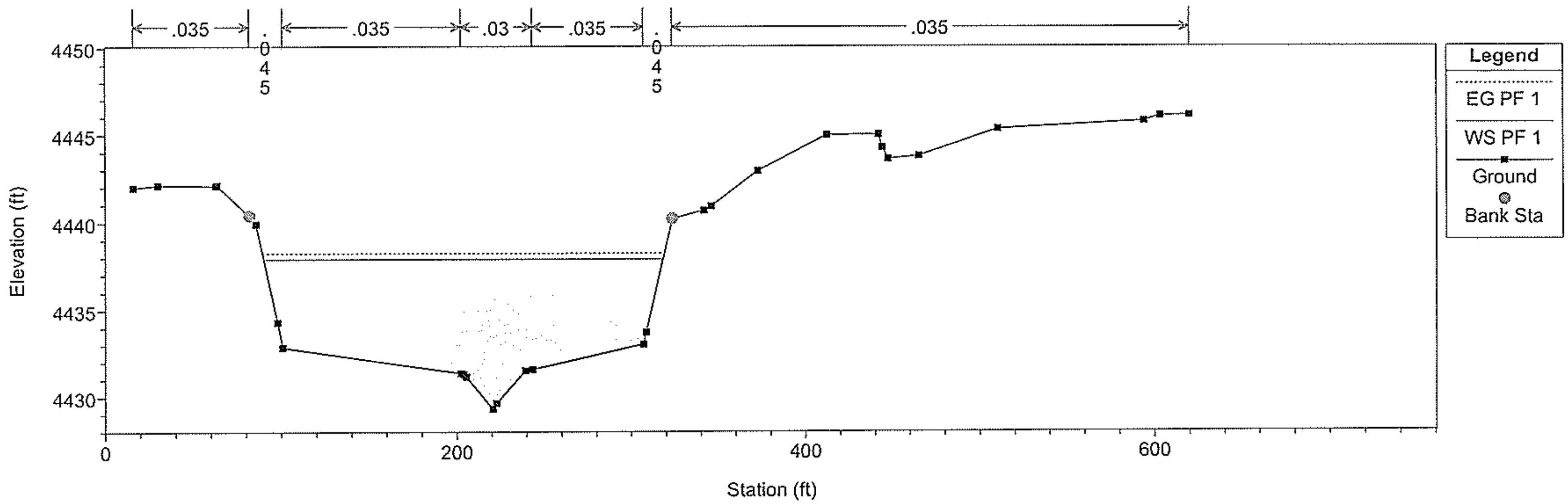
1 in Horiz. = 100 ft 1 in Vert. = 10 ft



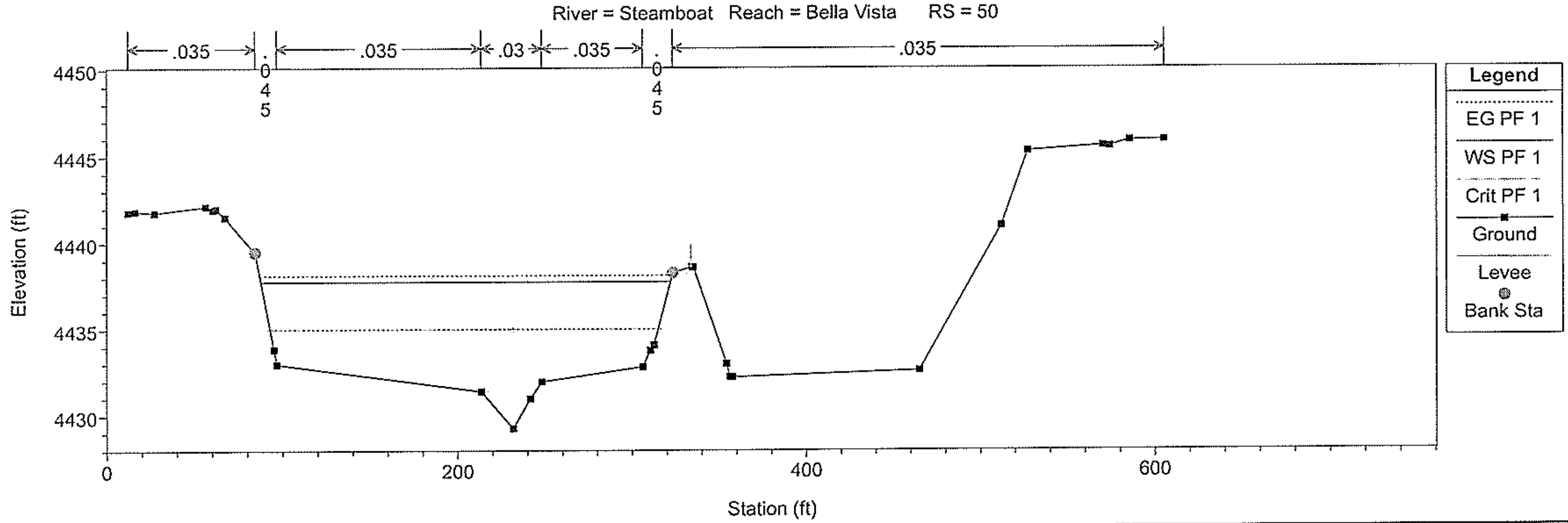


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

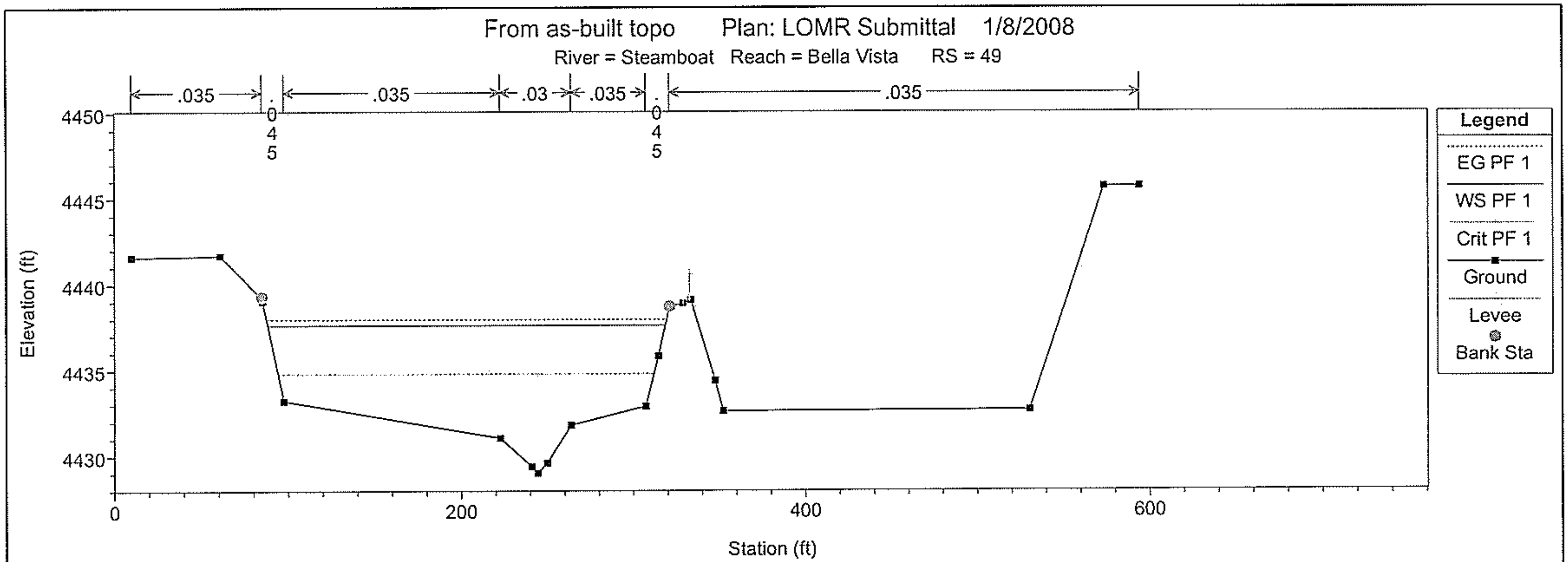
From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 51

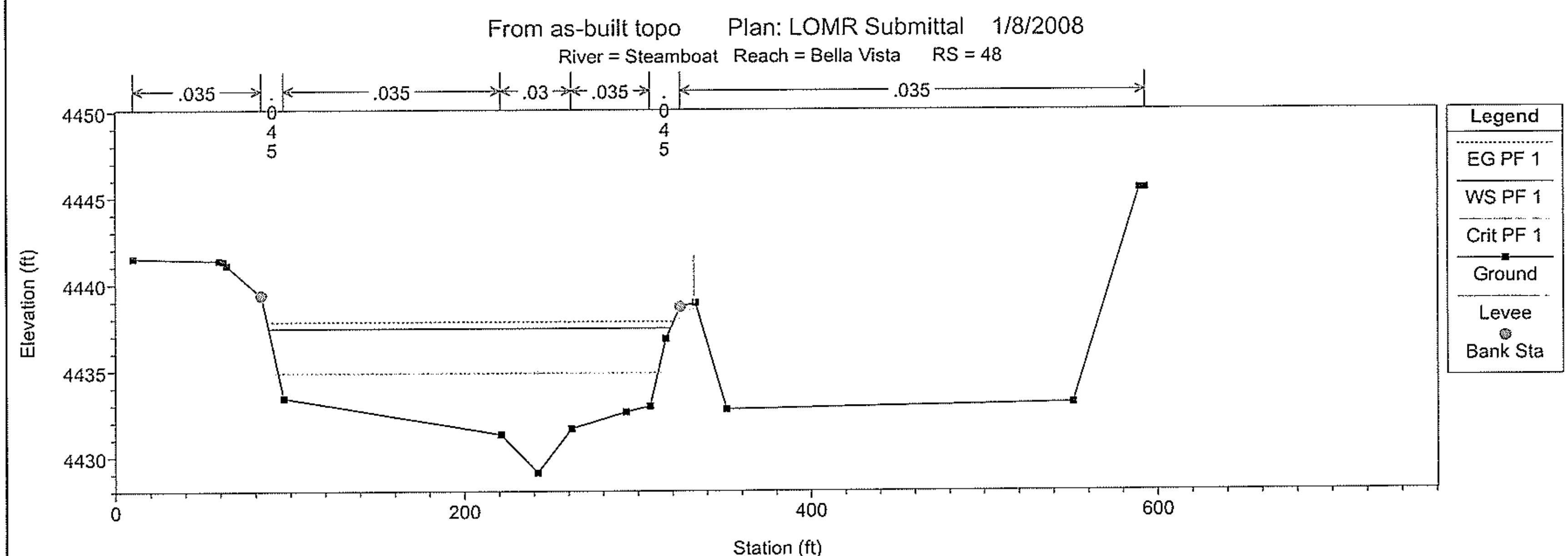


From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 50

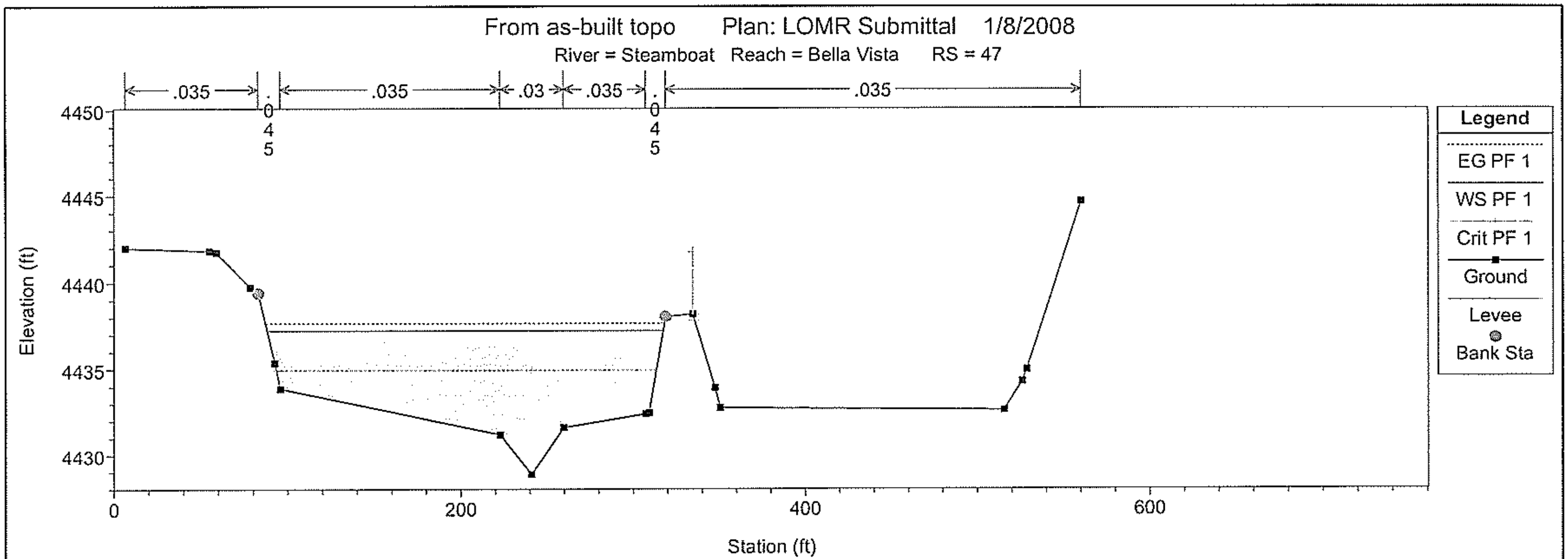


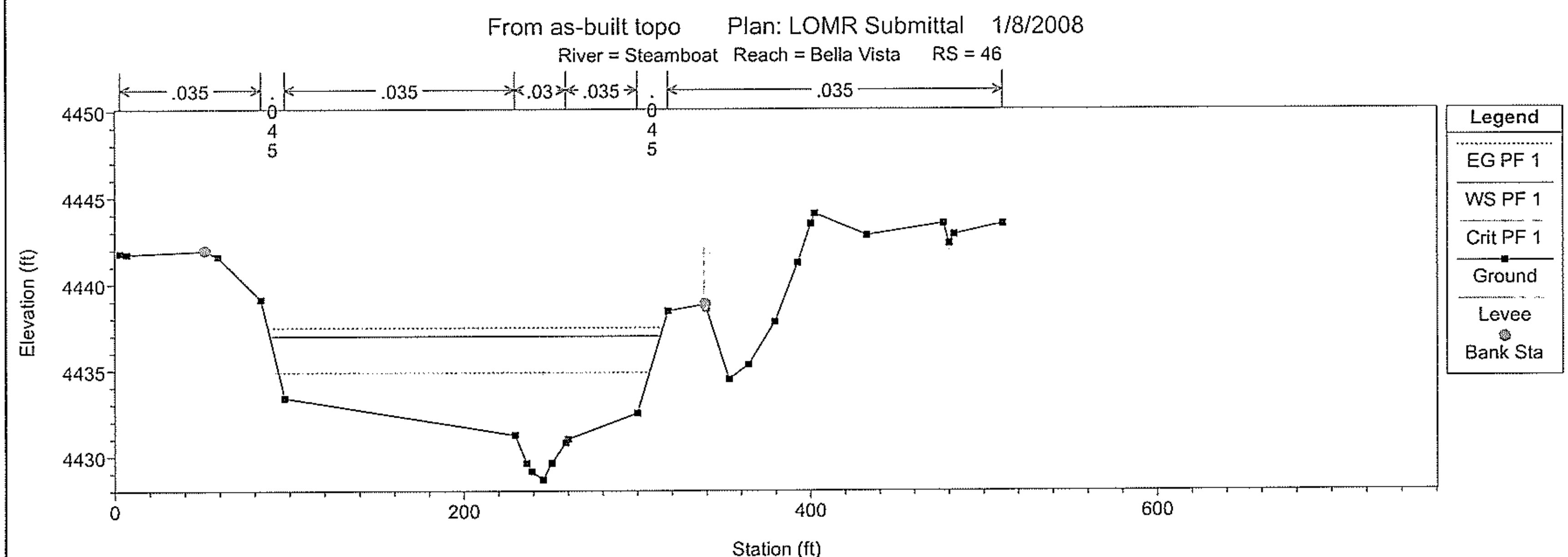
1 in Horiz. = 100 ft 1 in Vert. = 10 ft



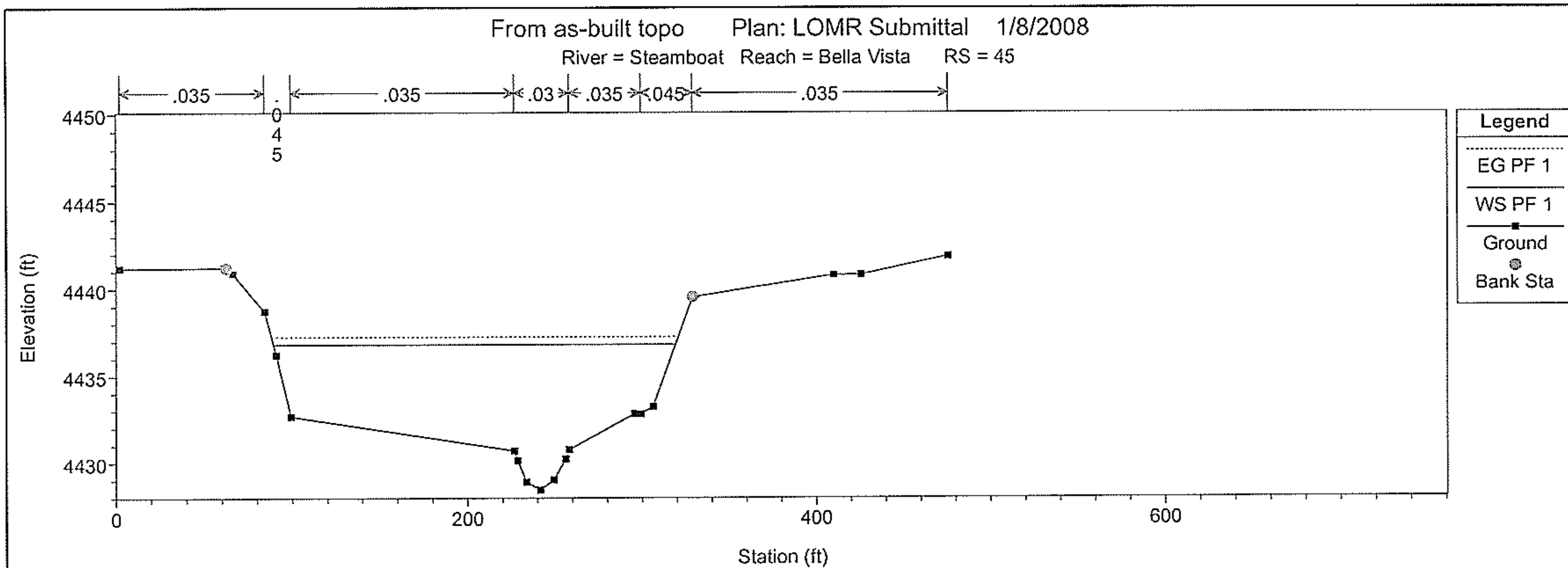


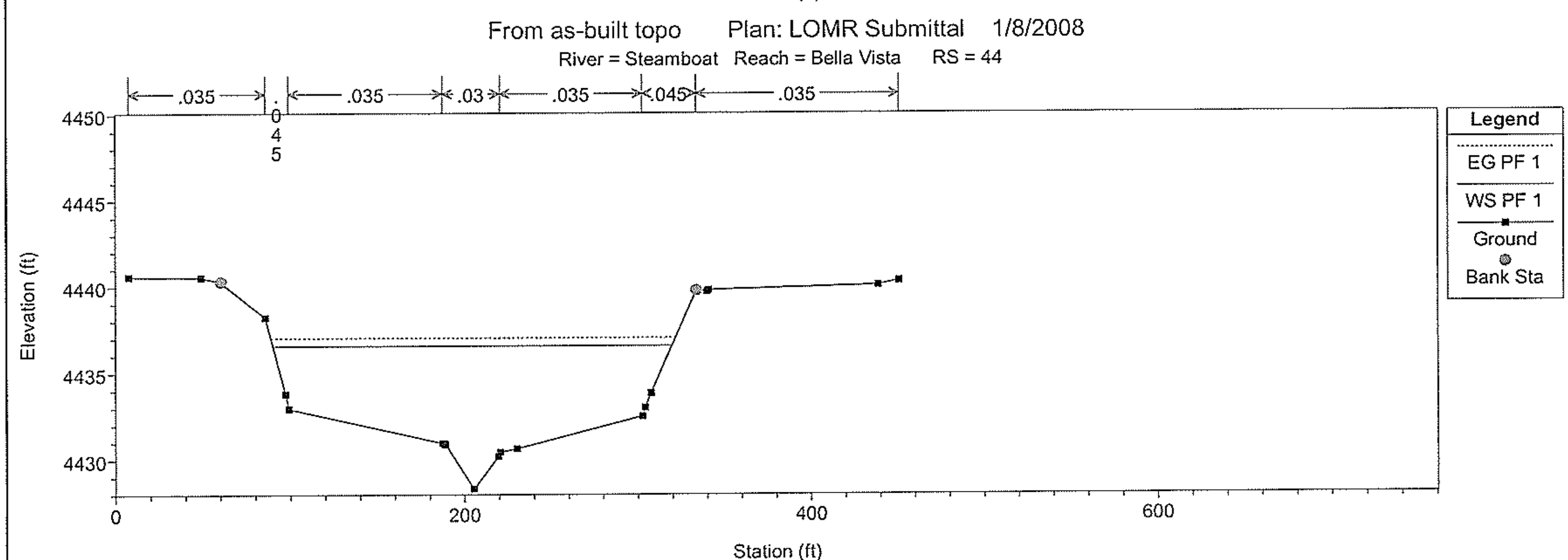
1 in Horiz. = 100 ft 1 in Vert. = 10 ft





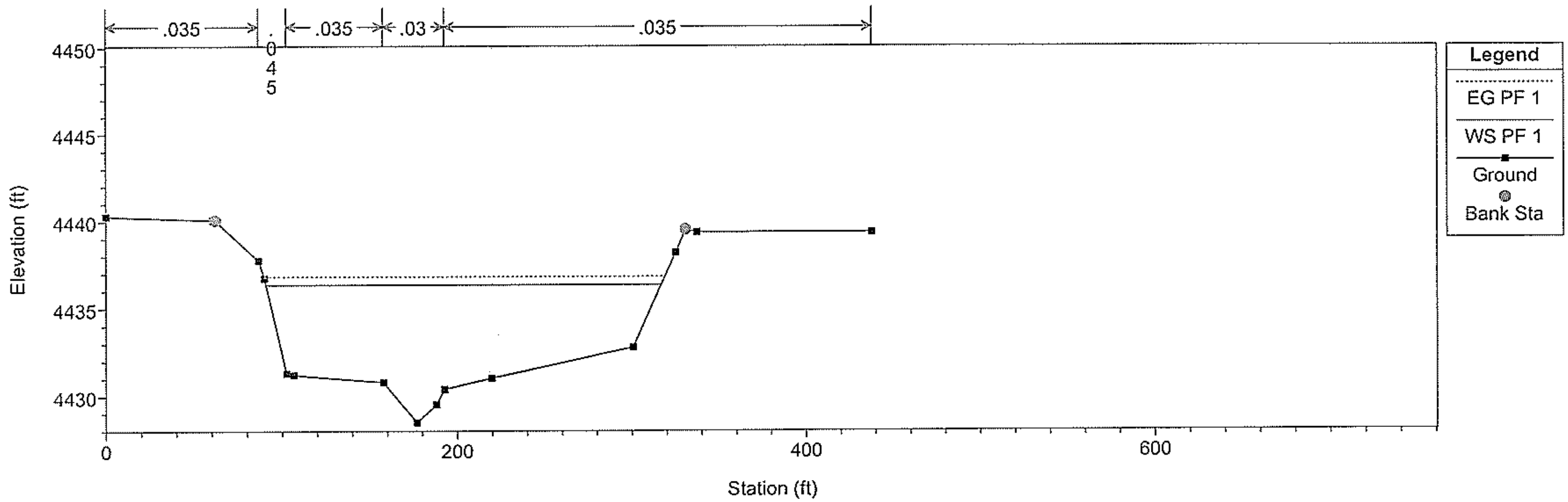
1 in Horiz. = 100 ft 1 in Vert. = 10 ft



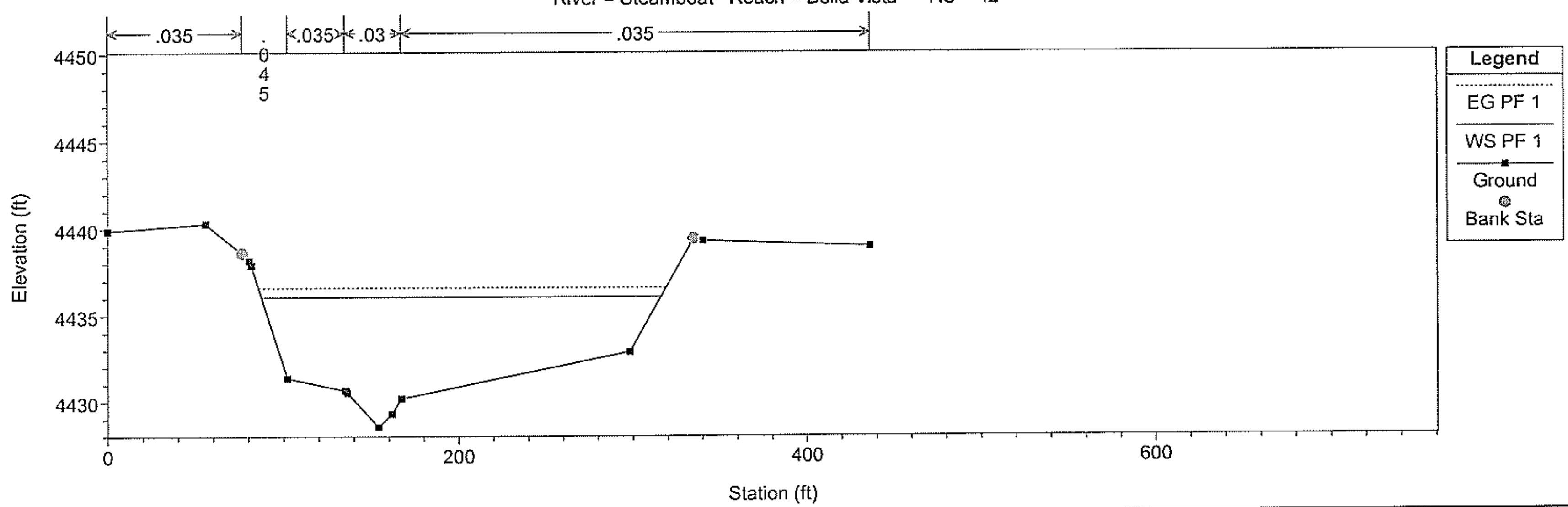


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 43

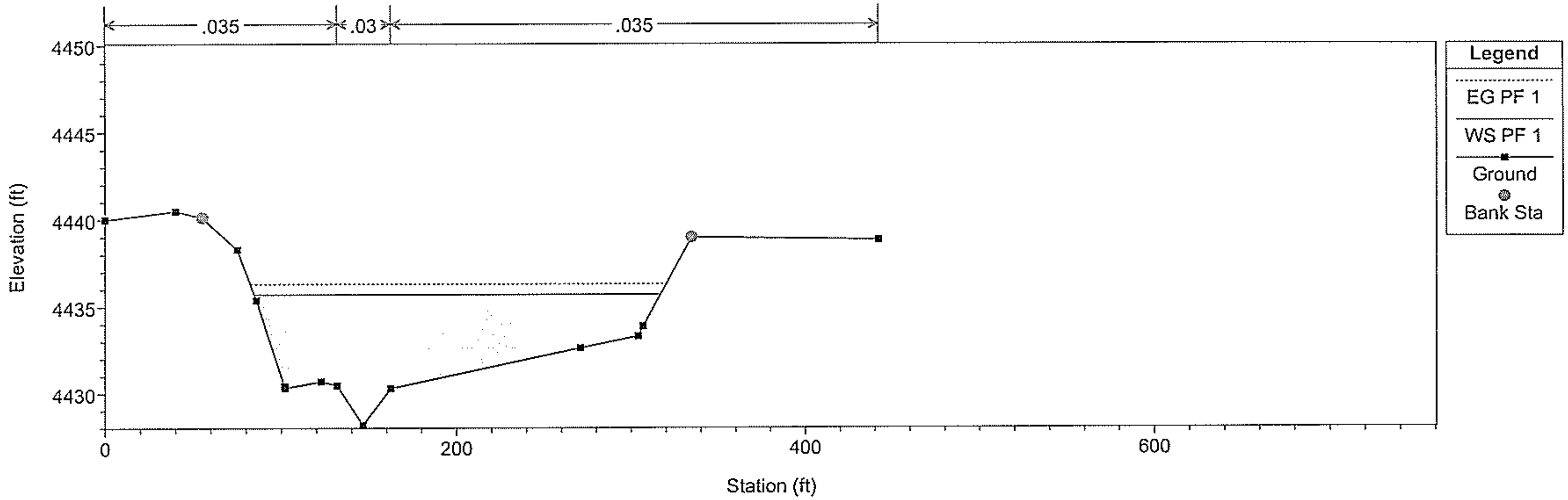


From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 42

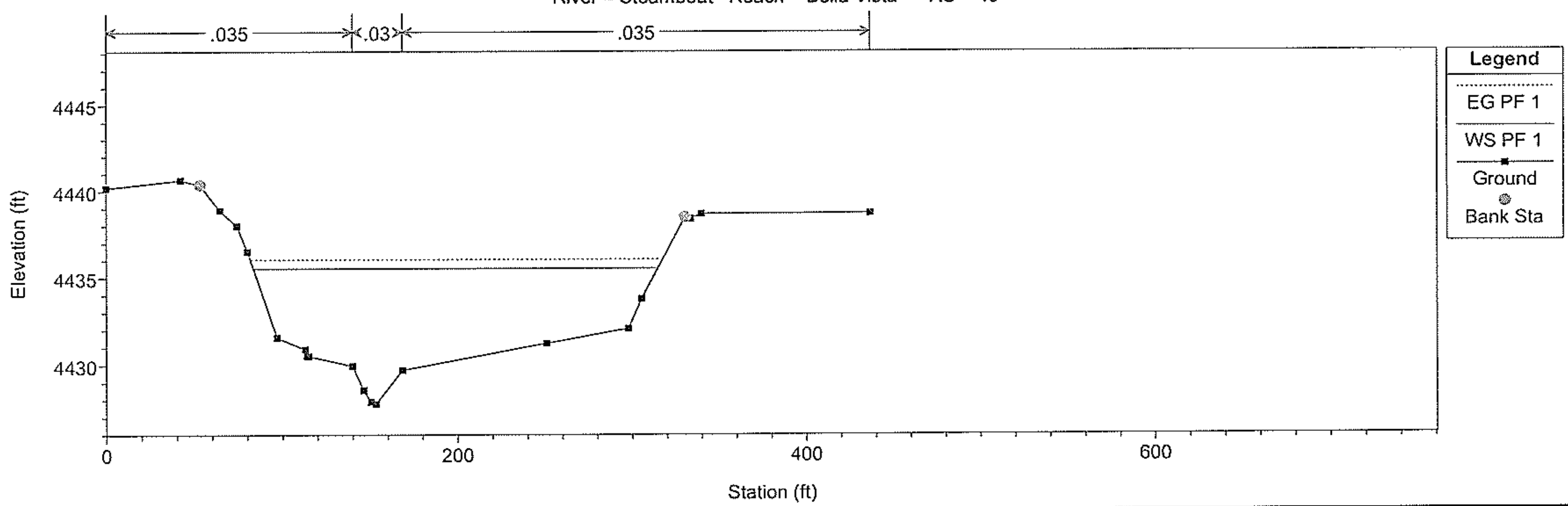


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 41



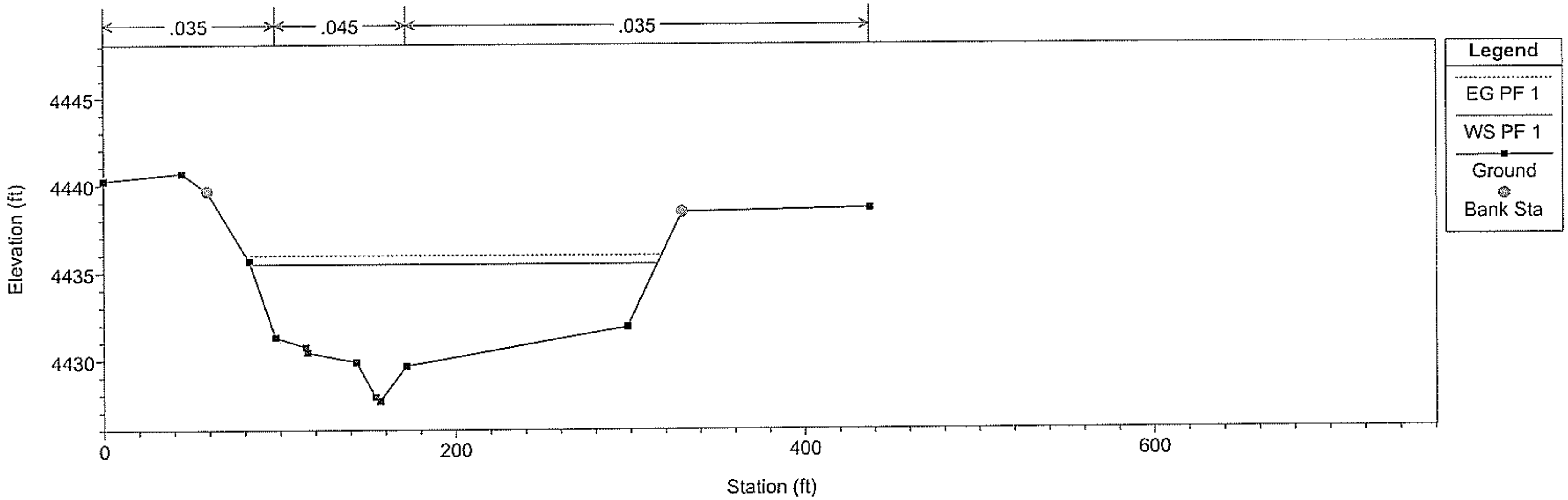
From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 40



1 in Horiz. = 100 ft 1 in Vert. = 10 ft

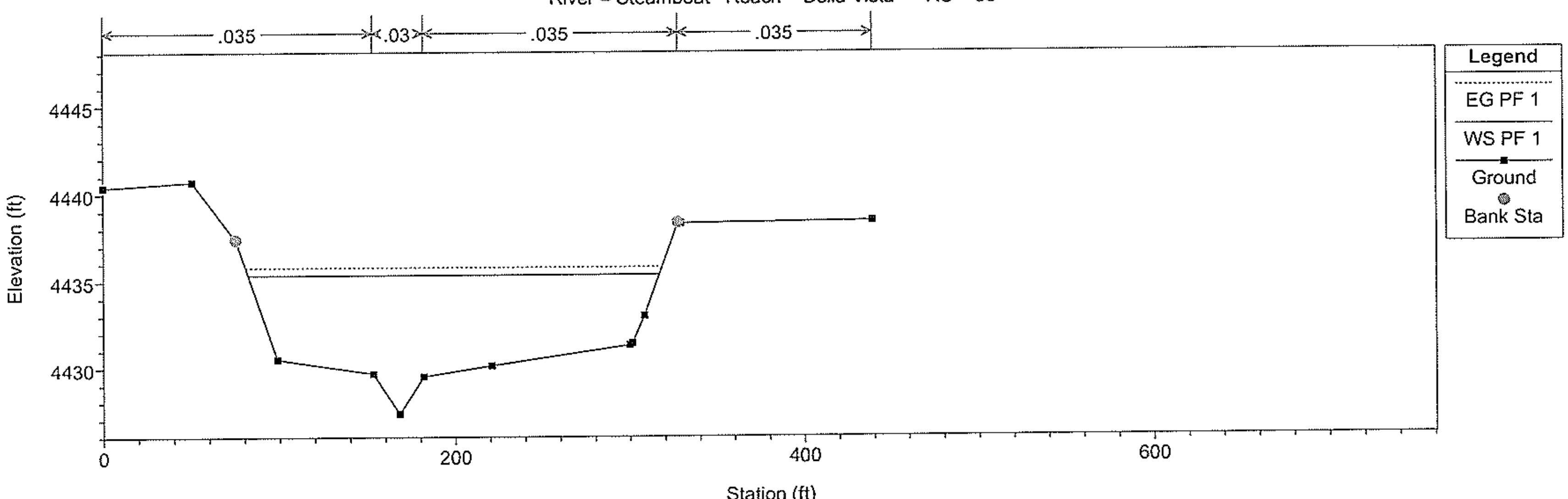
From as-built topo Plan: LOMR Submittal 1/8/2008

River = Steamboat Reach = Bella Vista RS = 39.75



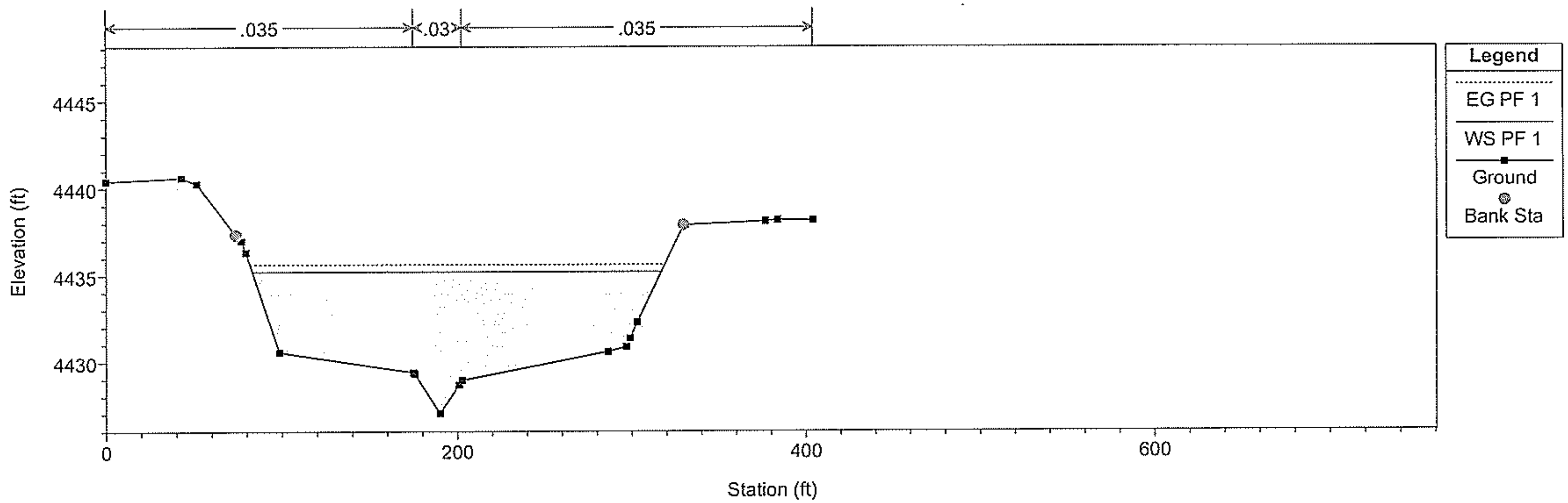
From as-built topo Plan: LOMR Submittal 1/8/2008

River = Steamboat Reach = Bella Vista RS = 39

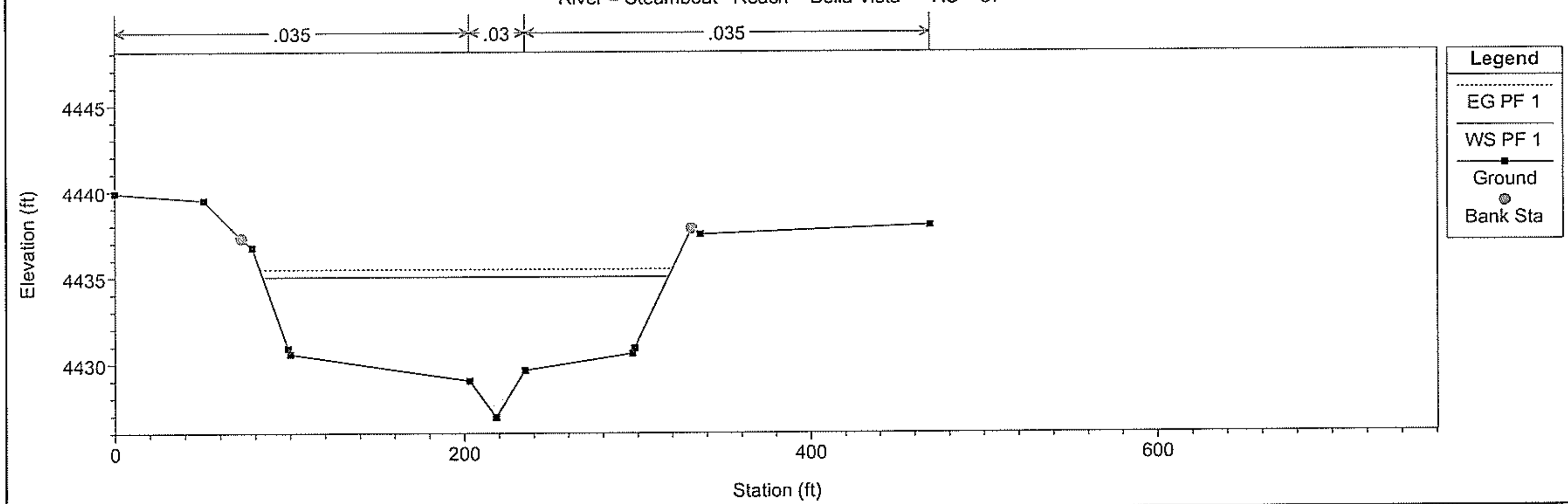


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 38

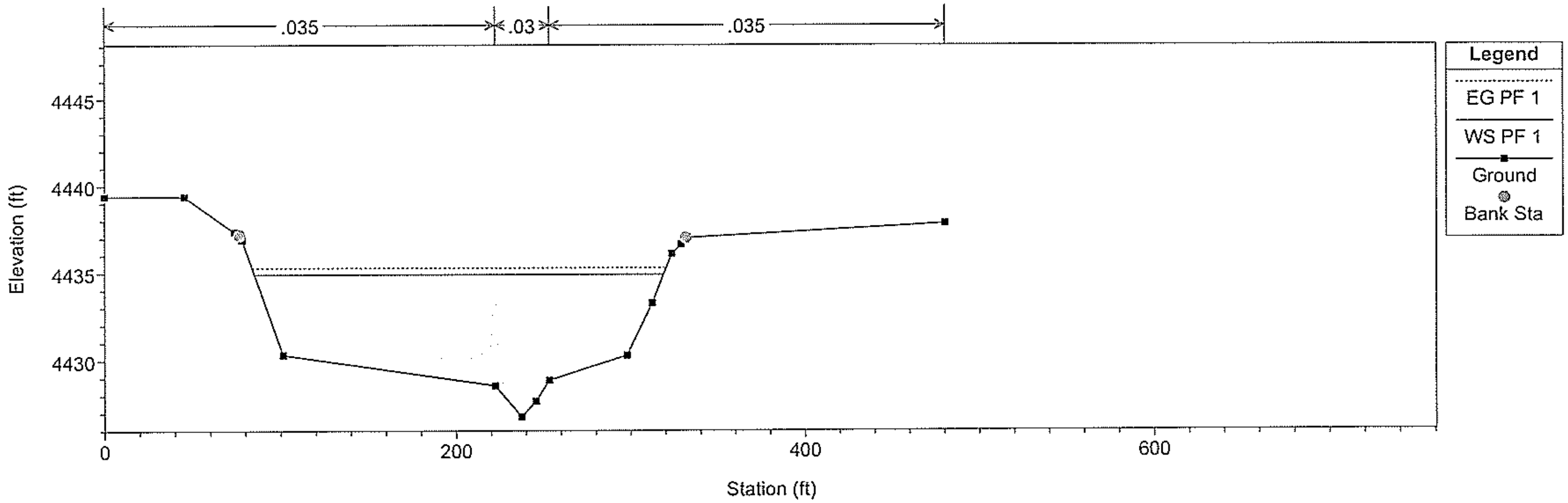


From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 37

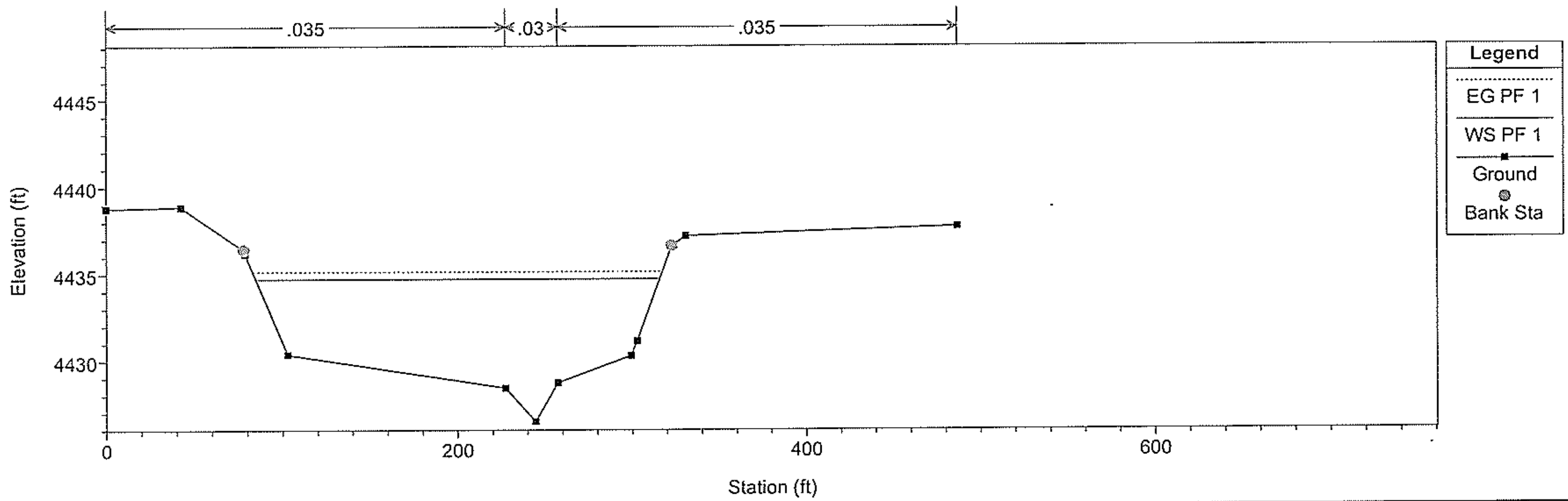


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 36



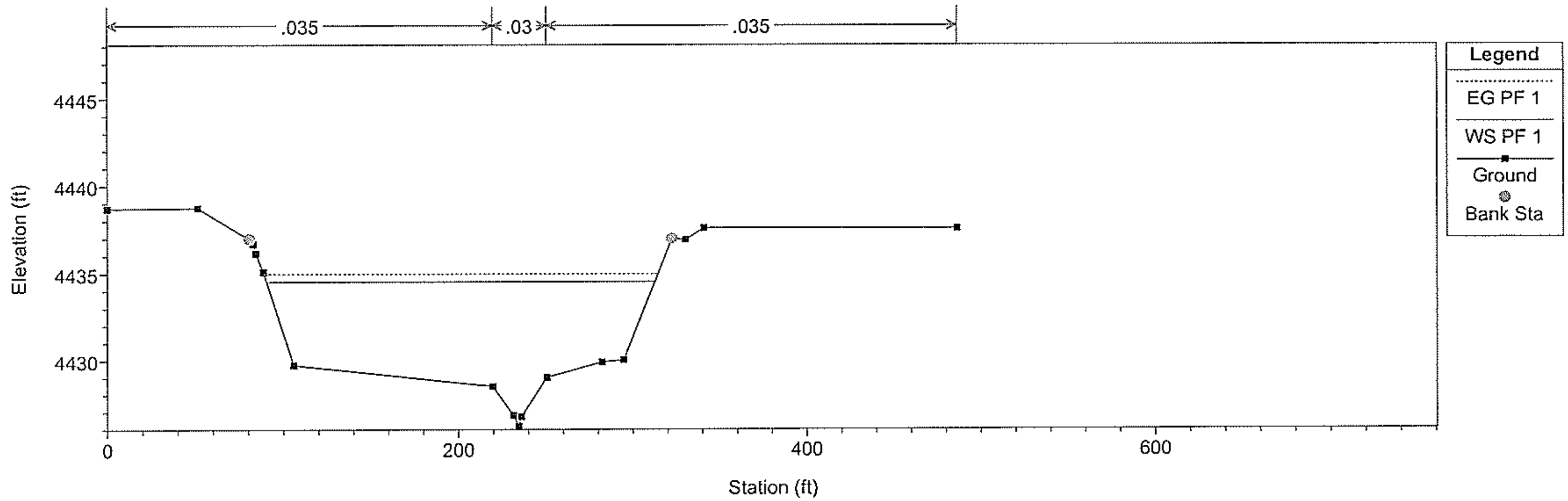
From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 35



1 in Horiz. = 100 ft 1 in Vert. = 10 ft

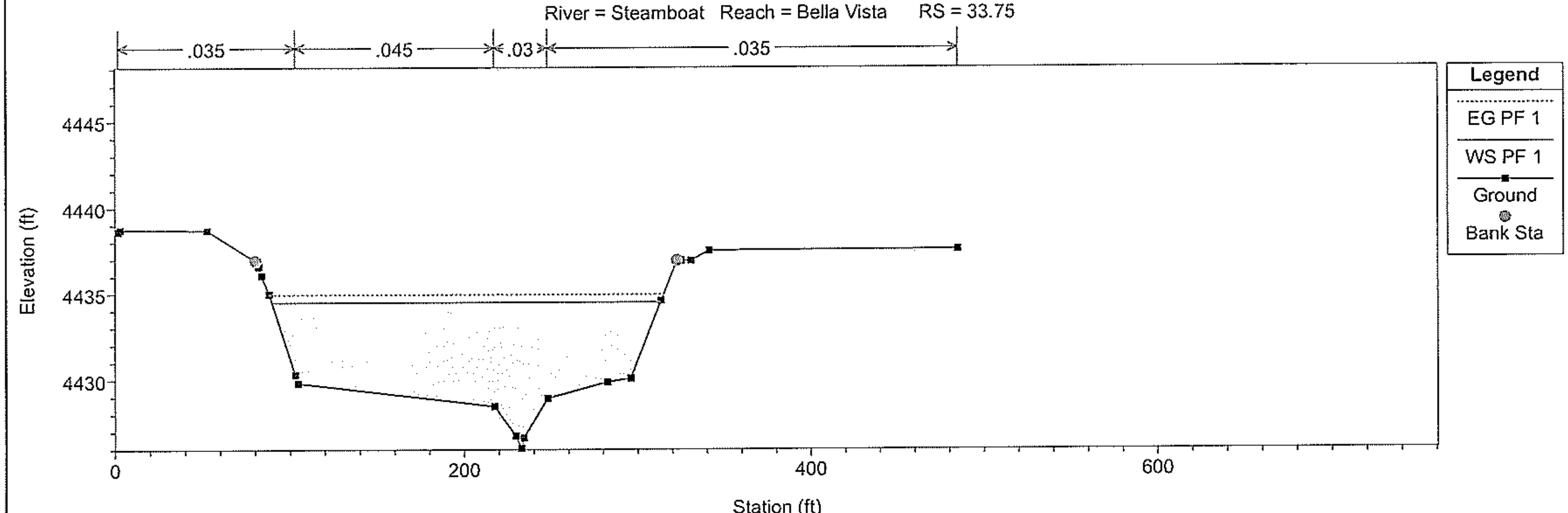
From as-built topo Plan: LOMR Submittal 1/8/2008

River = Steamboat Reach = Bella Vista RS = 34



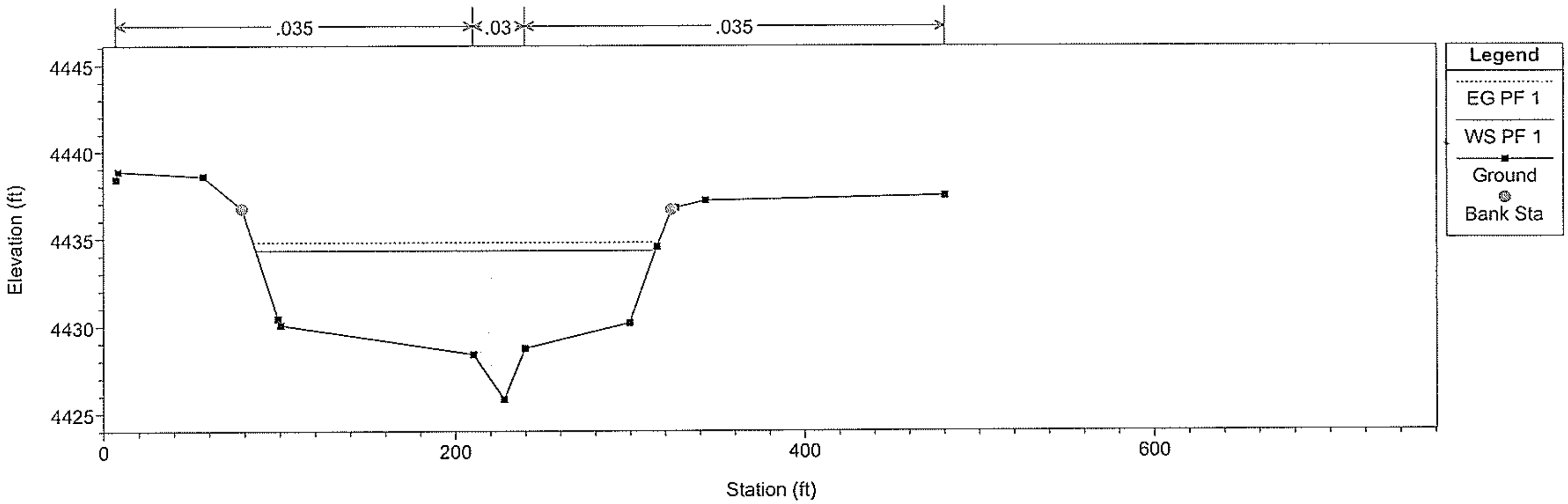
From as-built topo Plan: LOMR Submittal 1/8/2008

River = Steamboat Reach = Bella Vista RS = 33.75

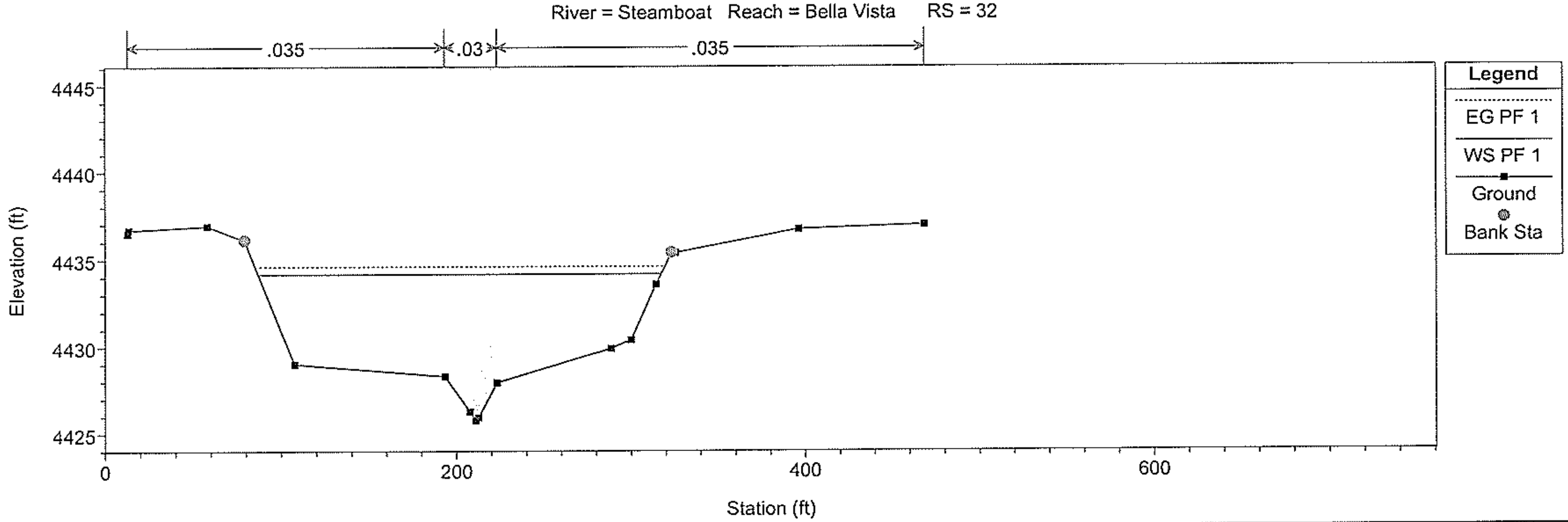


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 33

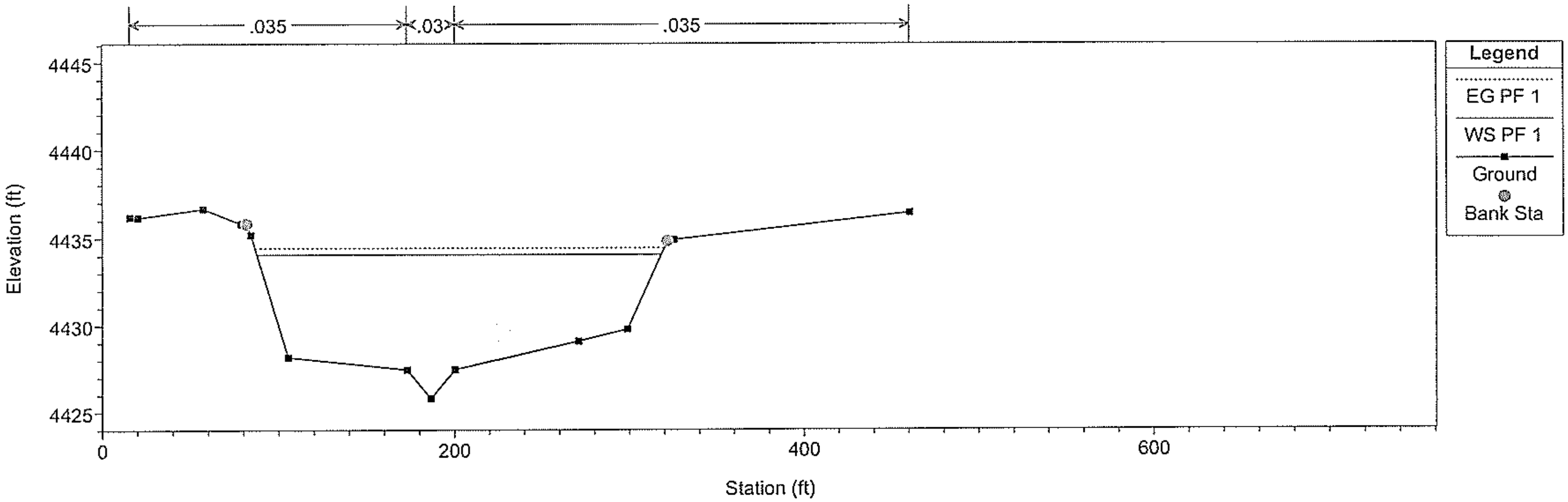


From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 32

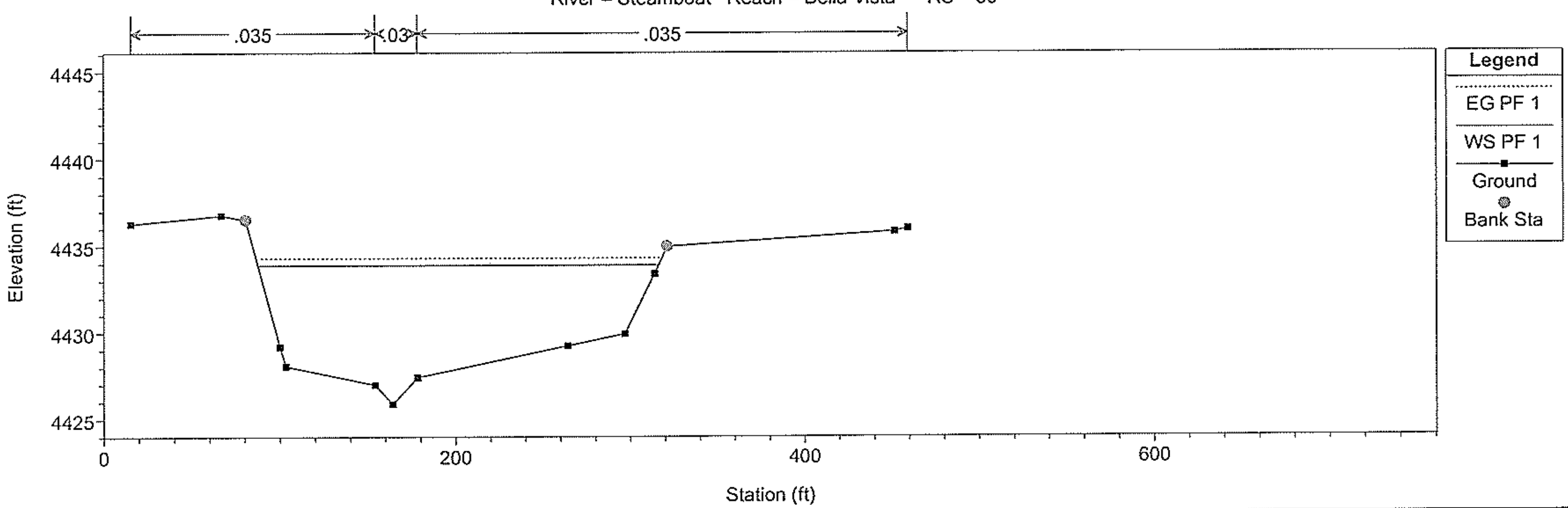


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 31

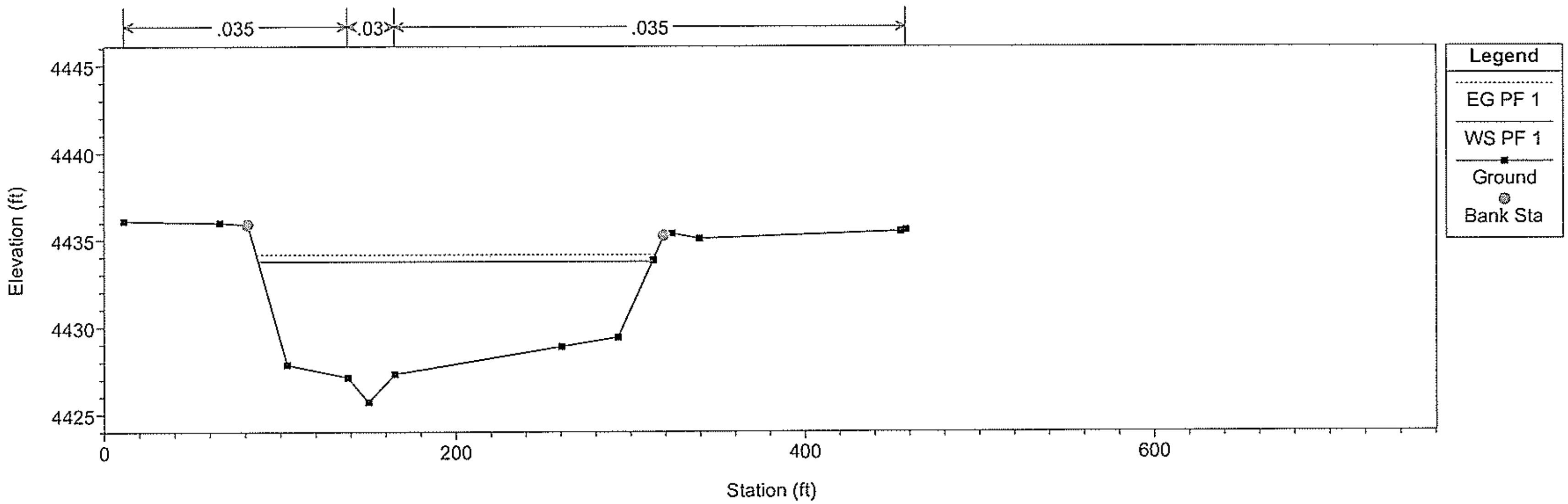


From as-built topo Plan: LOMR Submittal 1/8/2008
River = Steamboat Reach = Bella Vista RS = 30

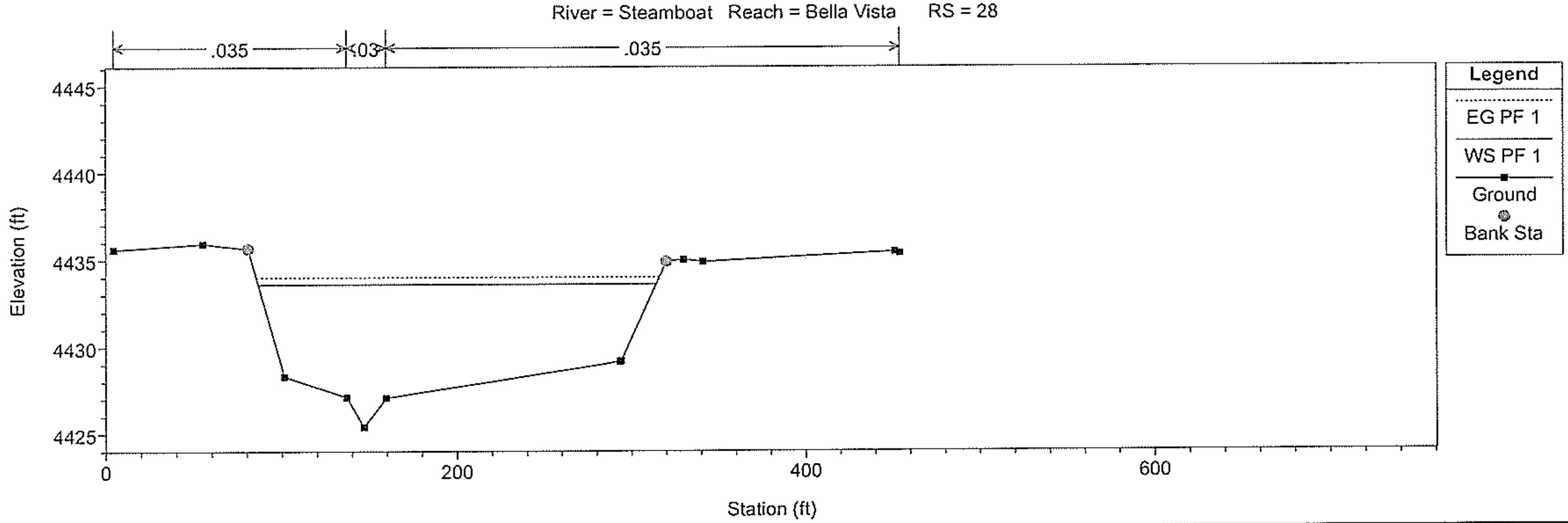


1 in Horiz. = 100 ft 1 in Vert. = 10 ft

From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 29

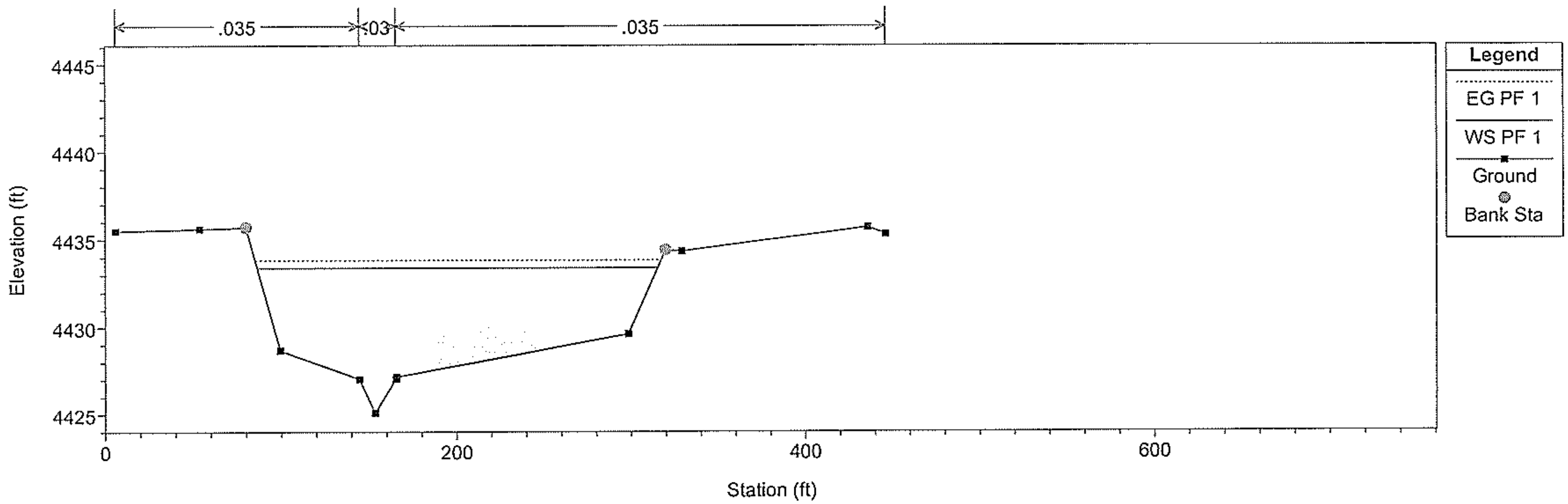


From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 28

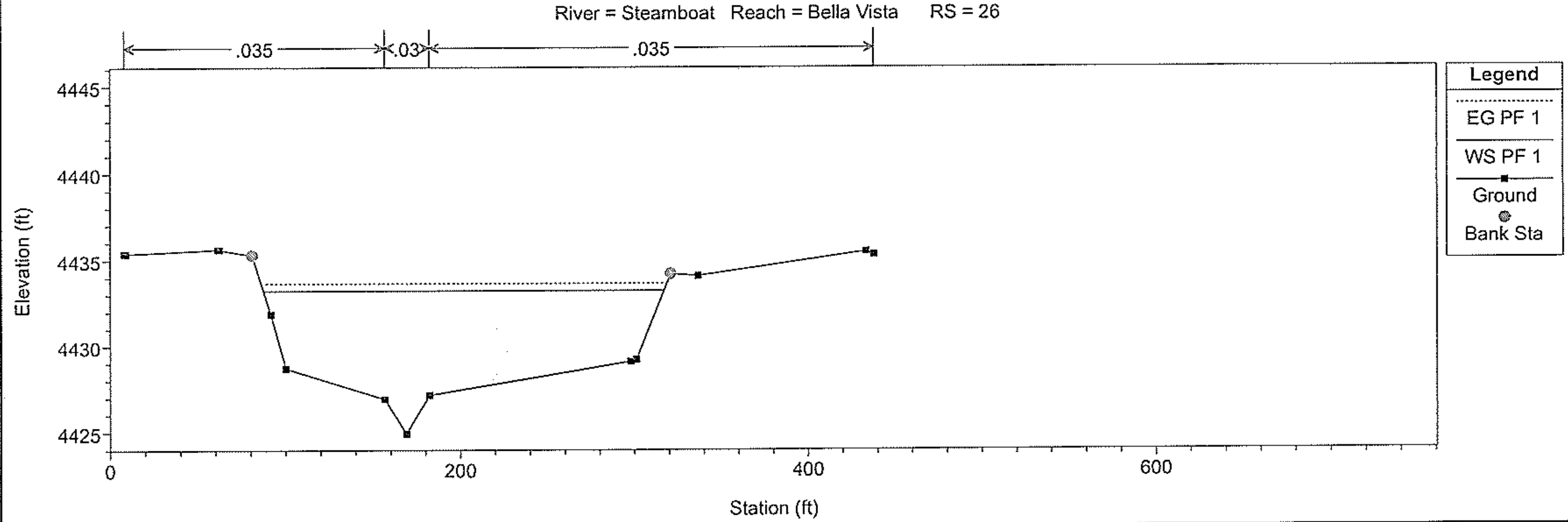


1 in Horiz. = 100 ft   1 in Vert. = 10 ft

From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat Reach = Bella Vista   RS = 27



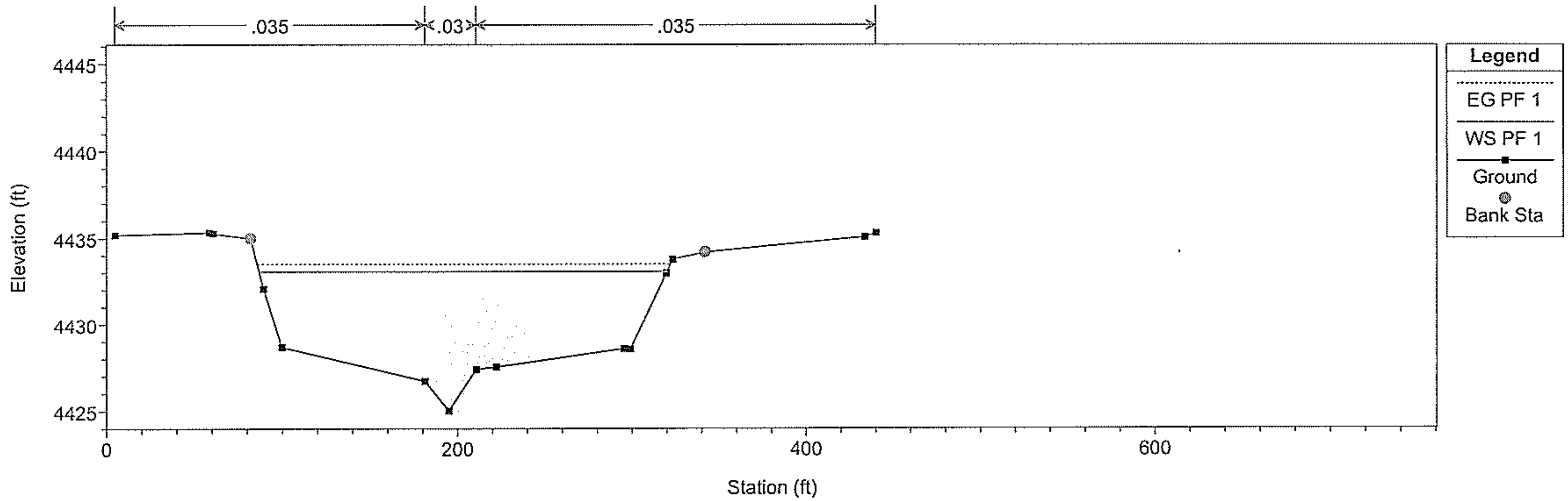
From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat Reach = Bella Vista   RS = 26



1 in Horiz. = 100 ft   1 in Vert. = 10 ft

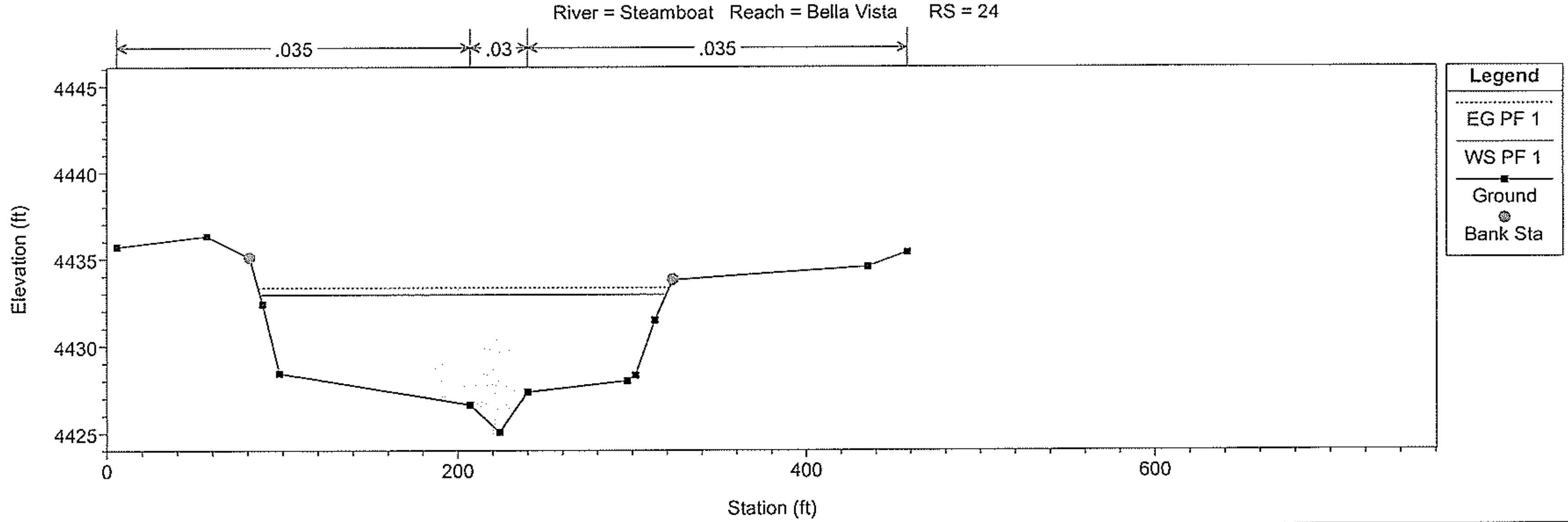
From as-built topo   Plan: LOMR Submittal   1/8/2008

River = Steamboat   Reach = Bella Vista   RS = 25

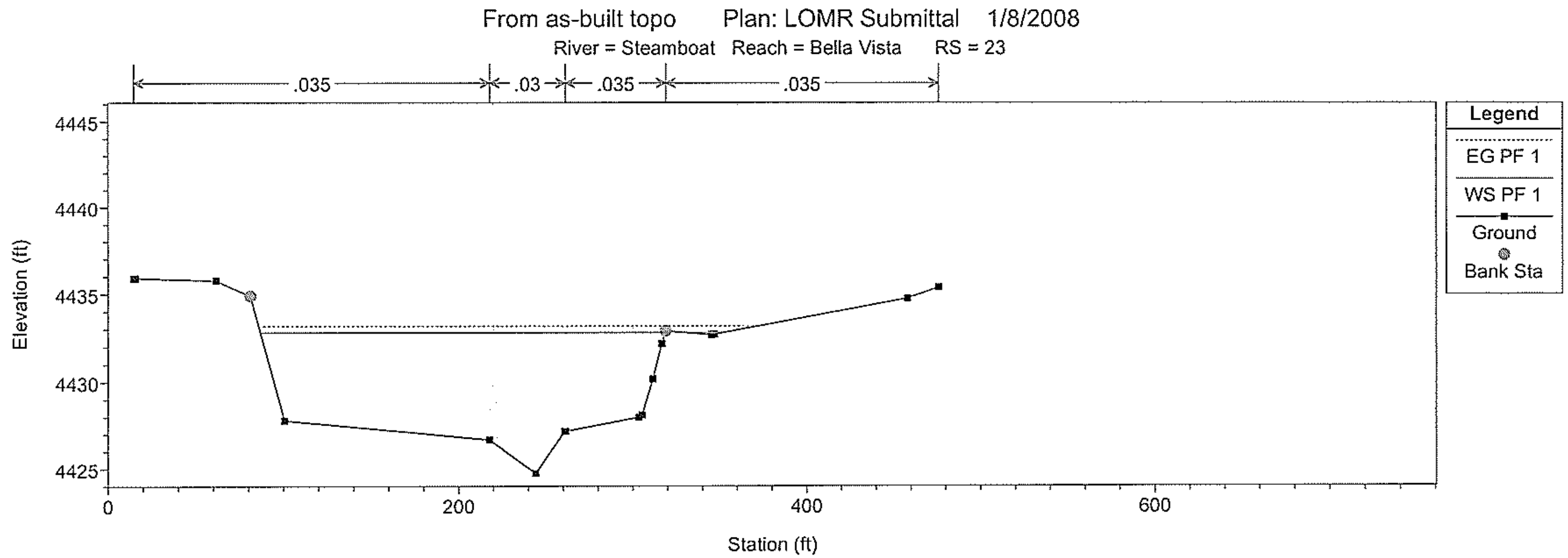


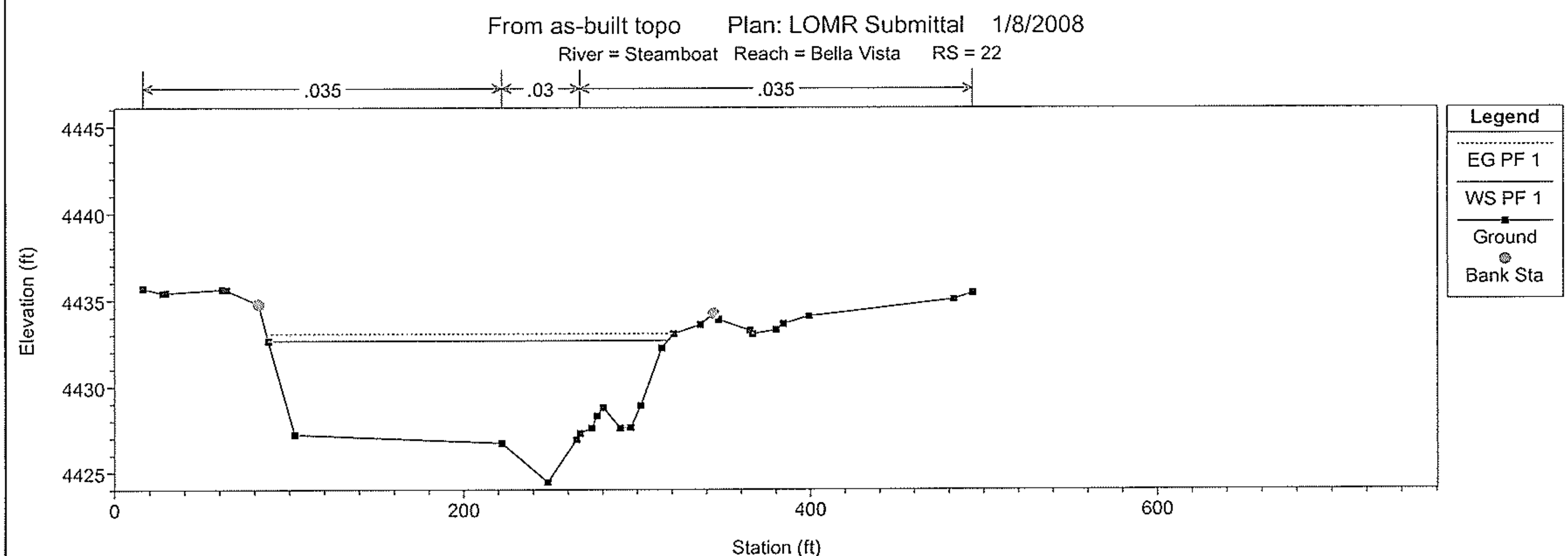
From as-built topo   Plan: LOMR Submittal   1/8/2008

River = Steamboat   Reach = Bella Vista   RS = 24

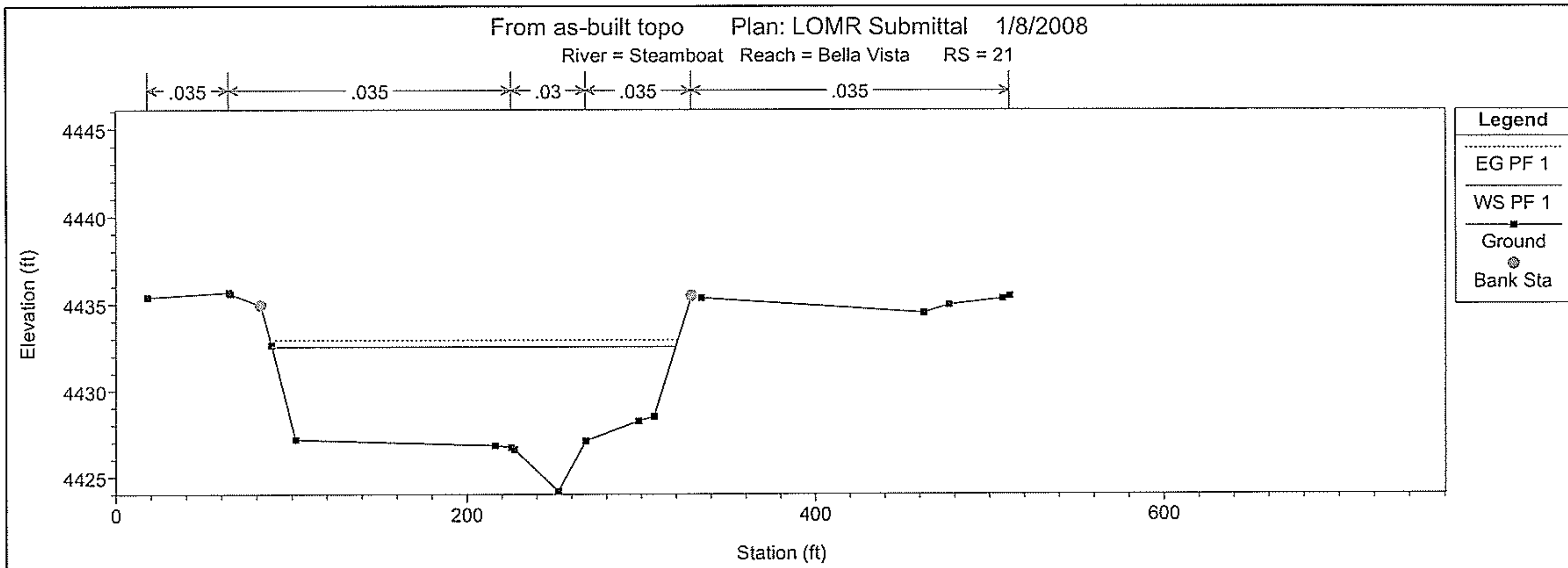


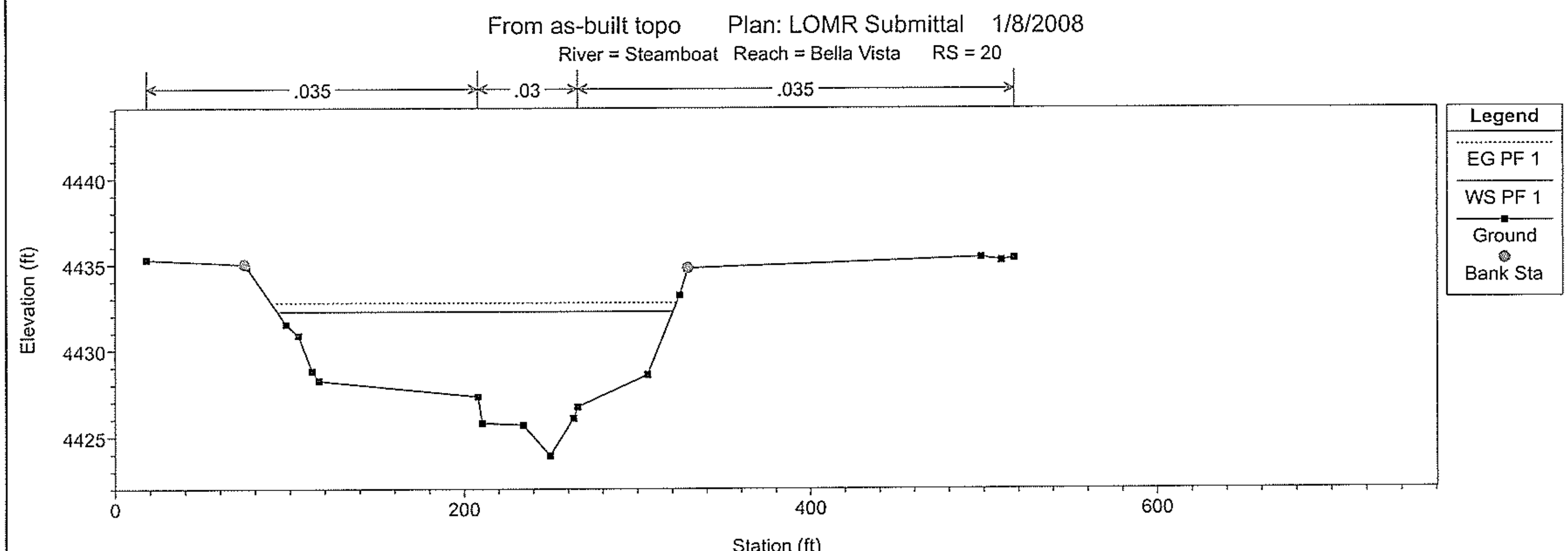
1 in Horiz. = 100 ft   1 in Vert. = 10 ft



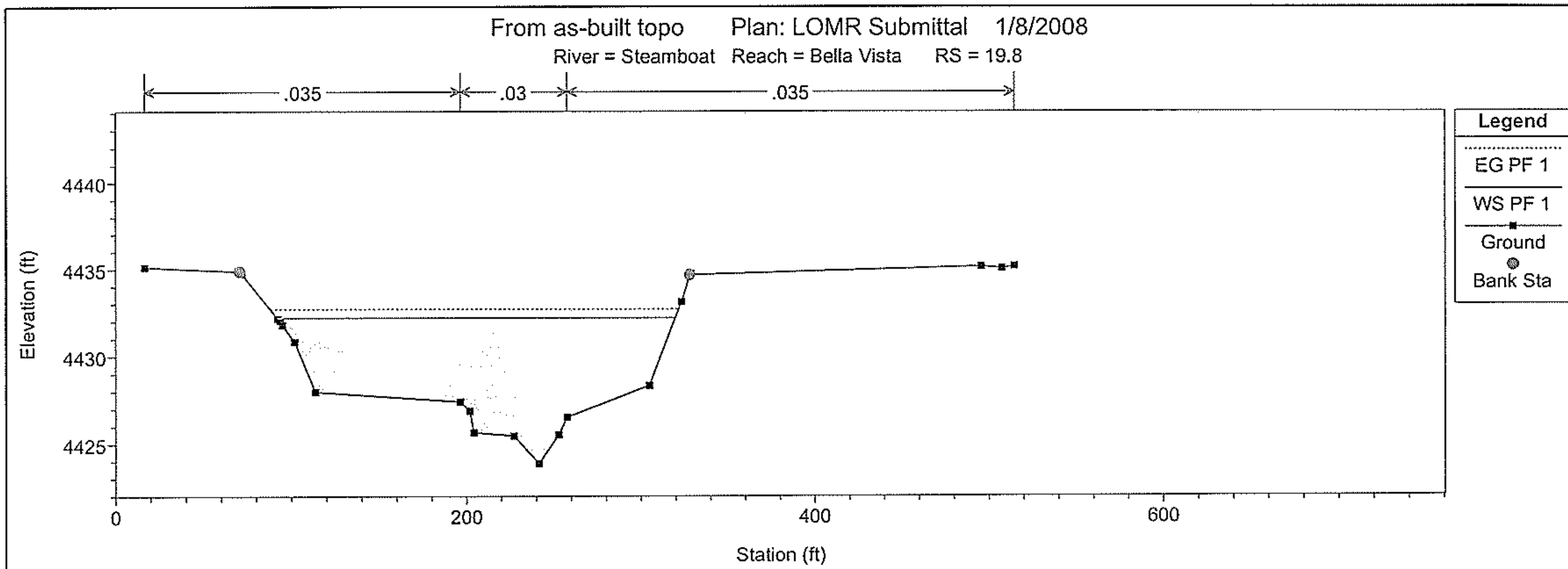


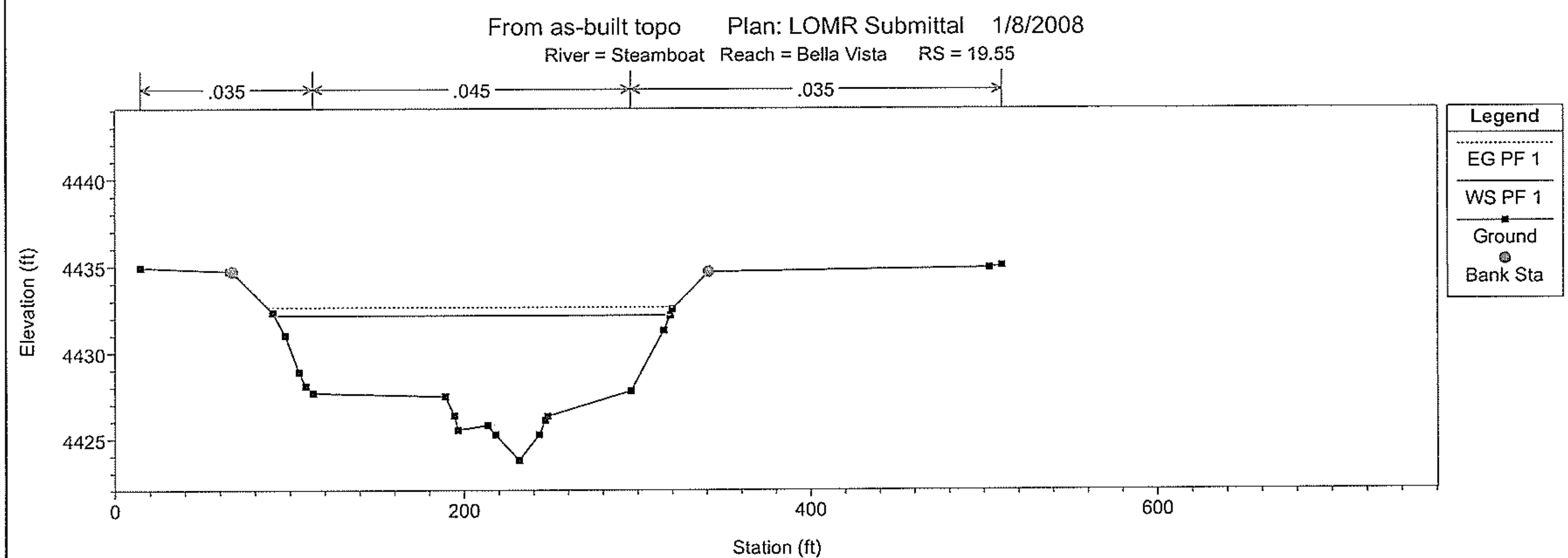
1 in Horiz. = 100 ft 1 in Vert. = 10 ft



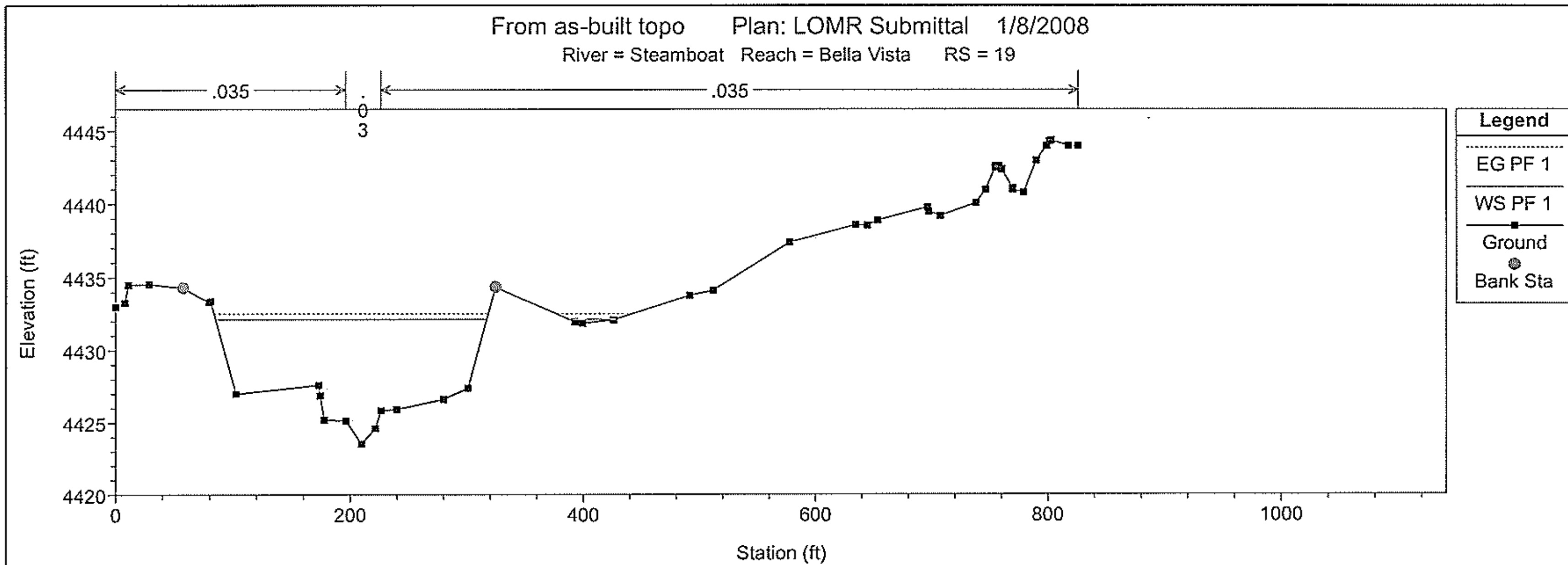


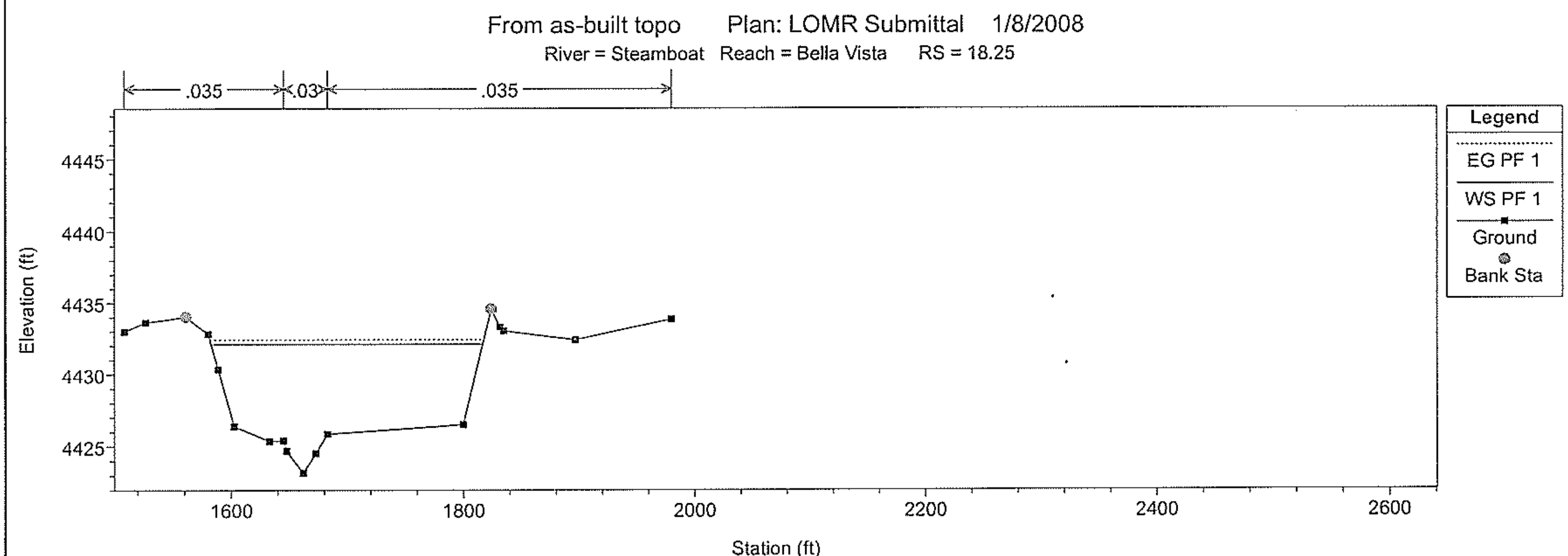
1 in Horiz. = 100 ft 1 in Vert. = 10 ft



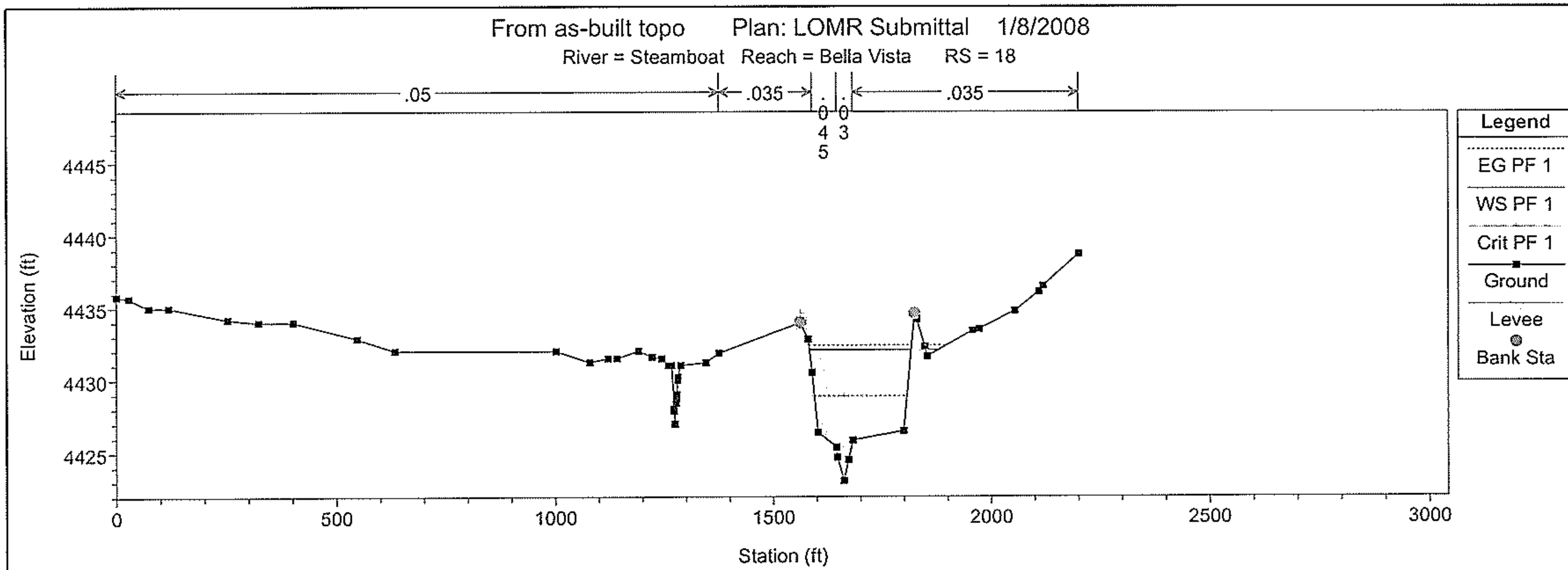


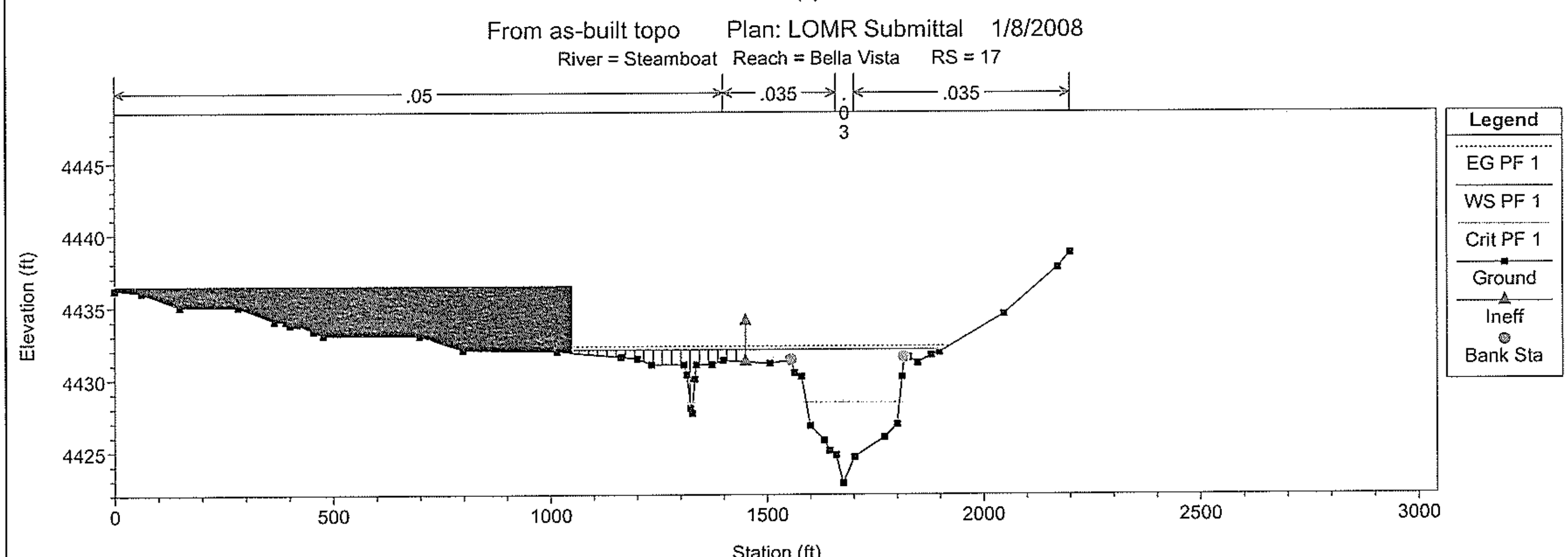
1 in Horiz. = 100 ft 1 in Vert. = 10 ft



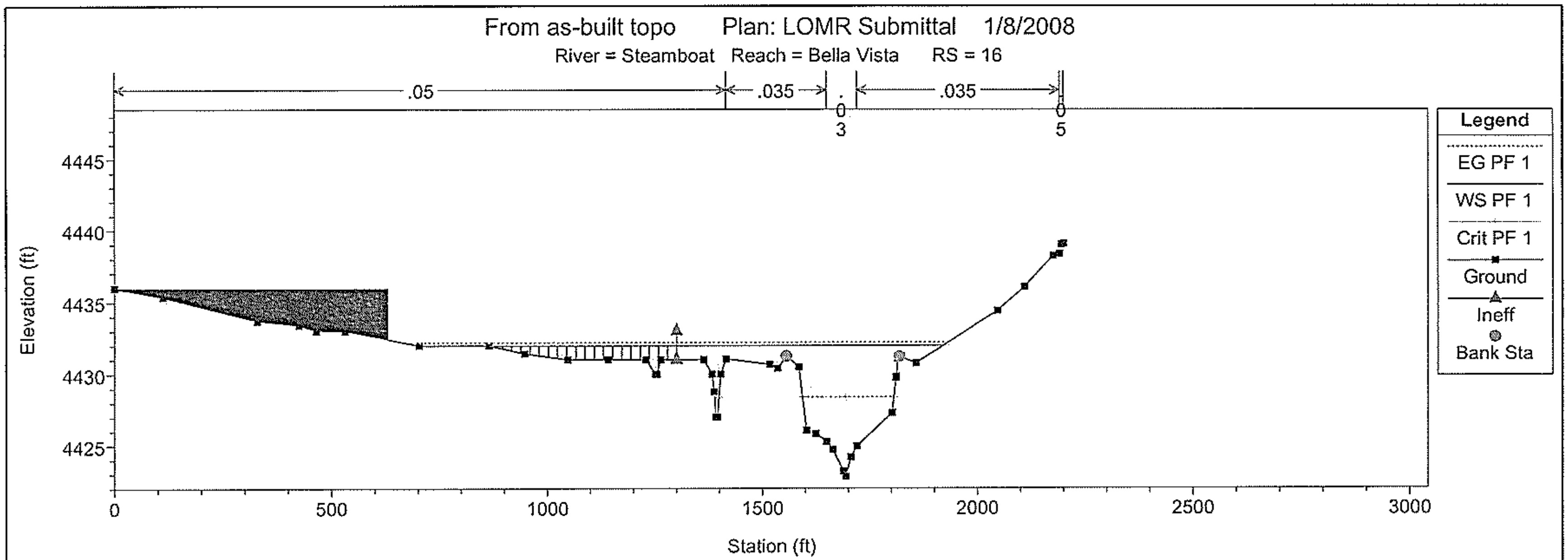


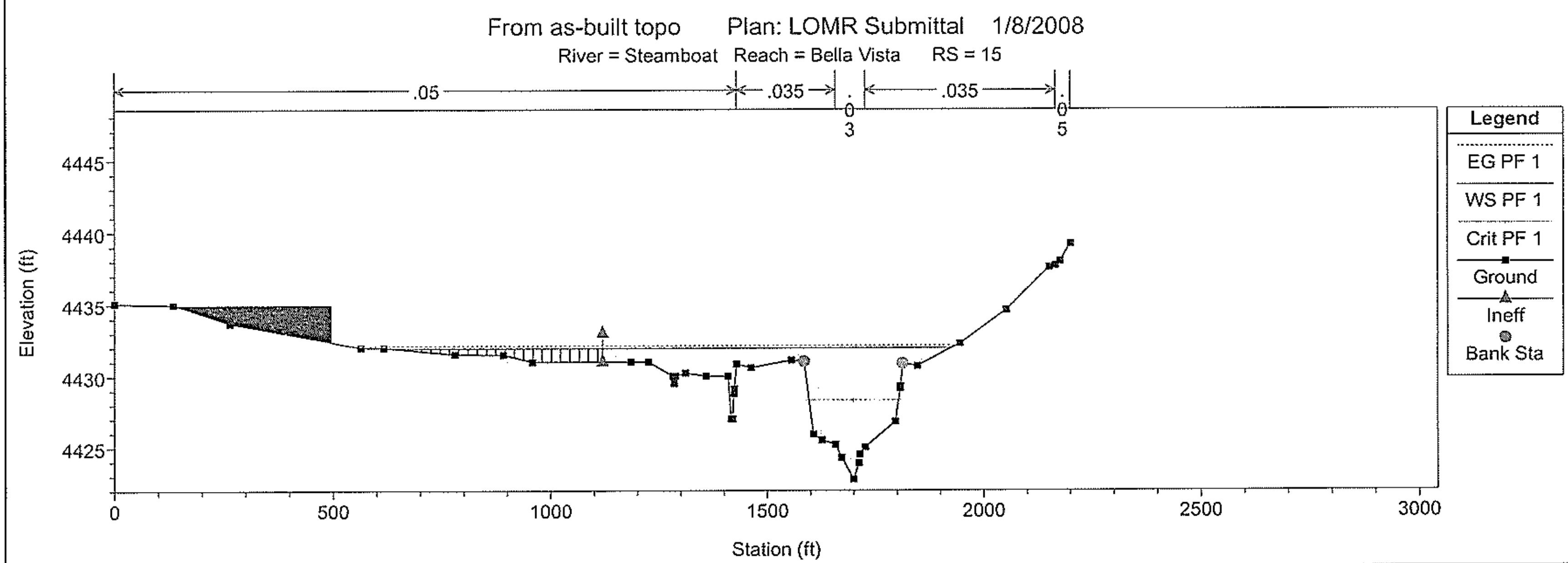
1 in Horiz. = 150 ft 1 in Vert. = 12 ft





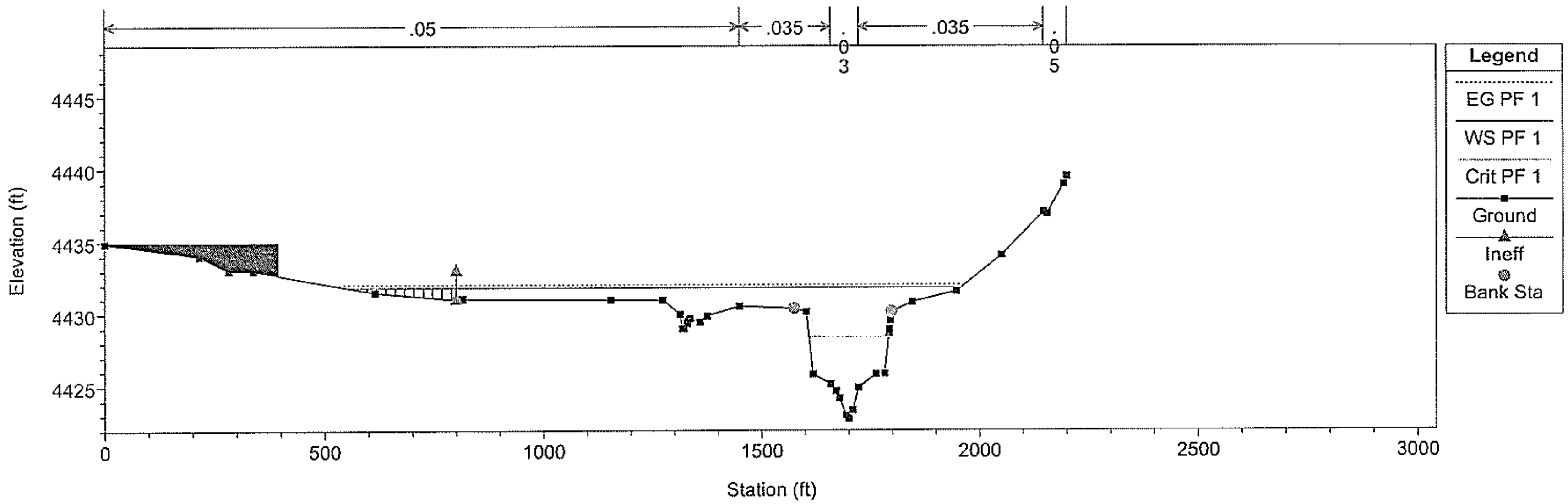
1 in Horiz. = 400 ft 1 in Vert. = 12 ft



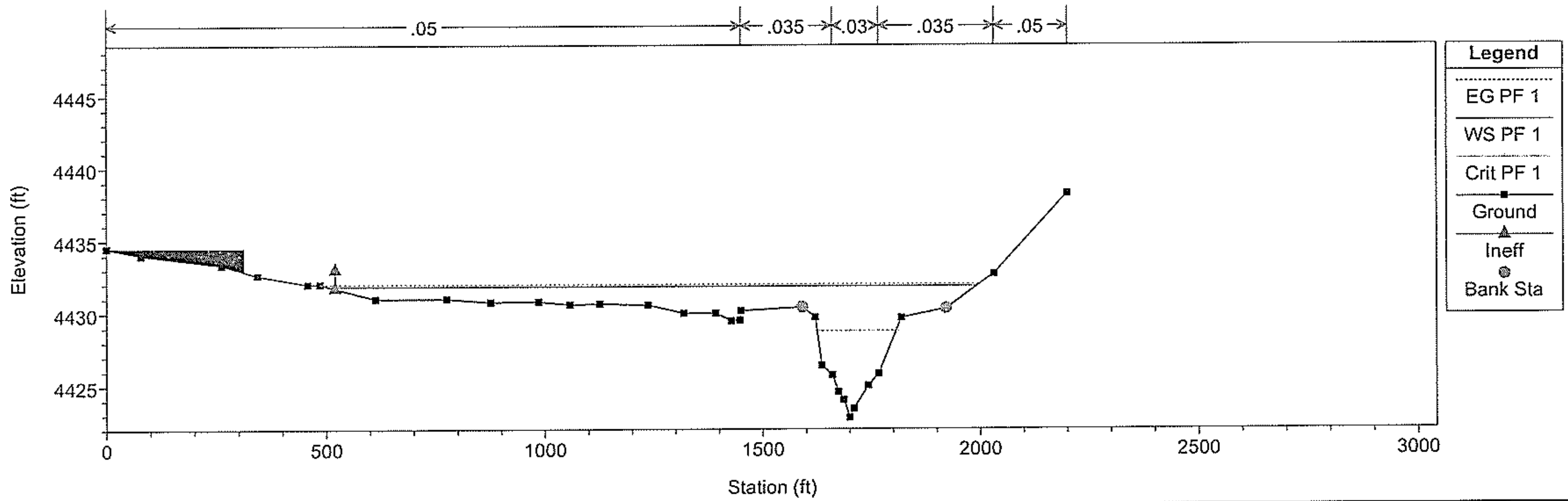


1 in Horiz. = 400 ft 1 in Vert. = 12 ft

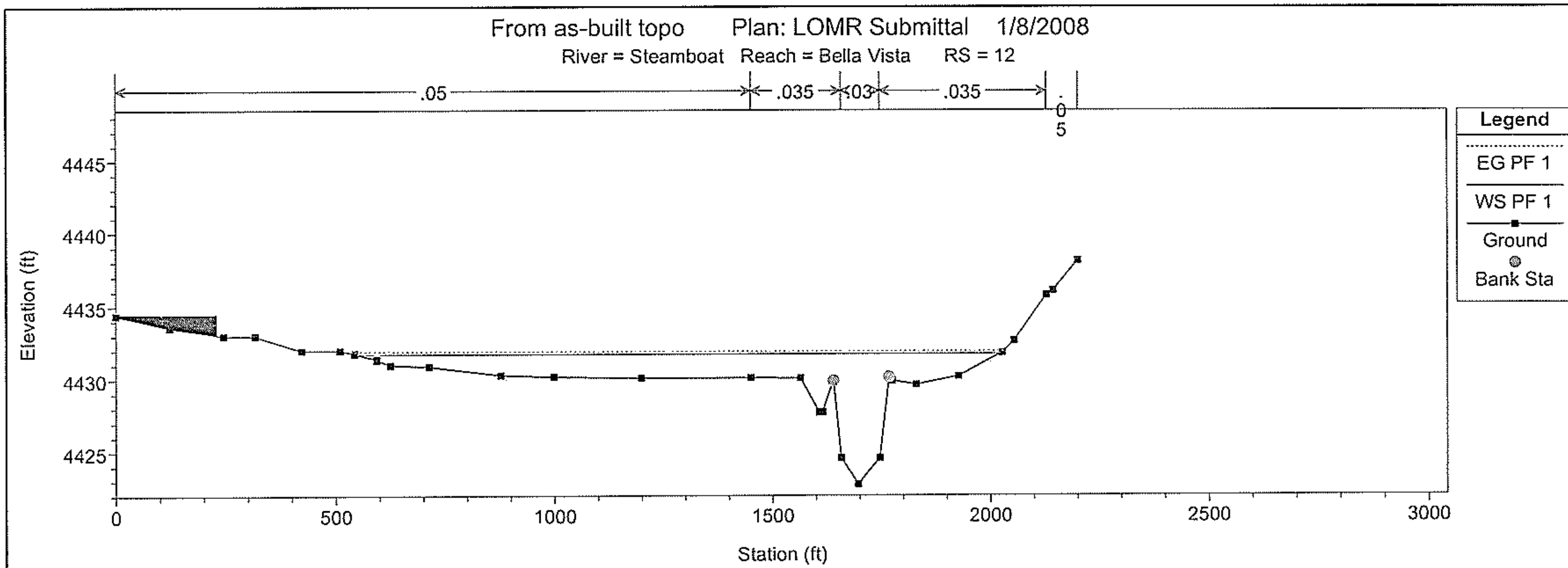
From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 14

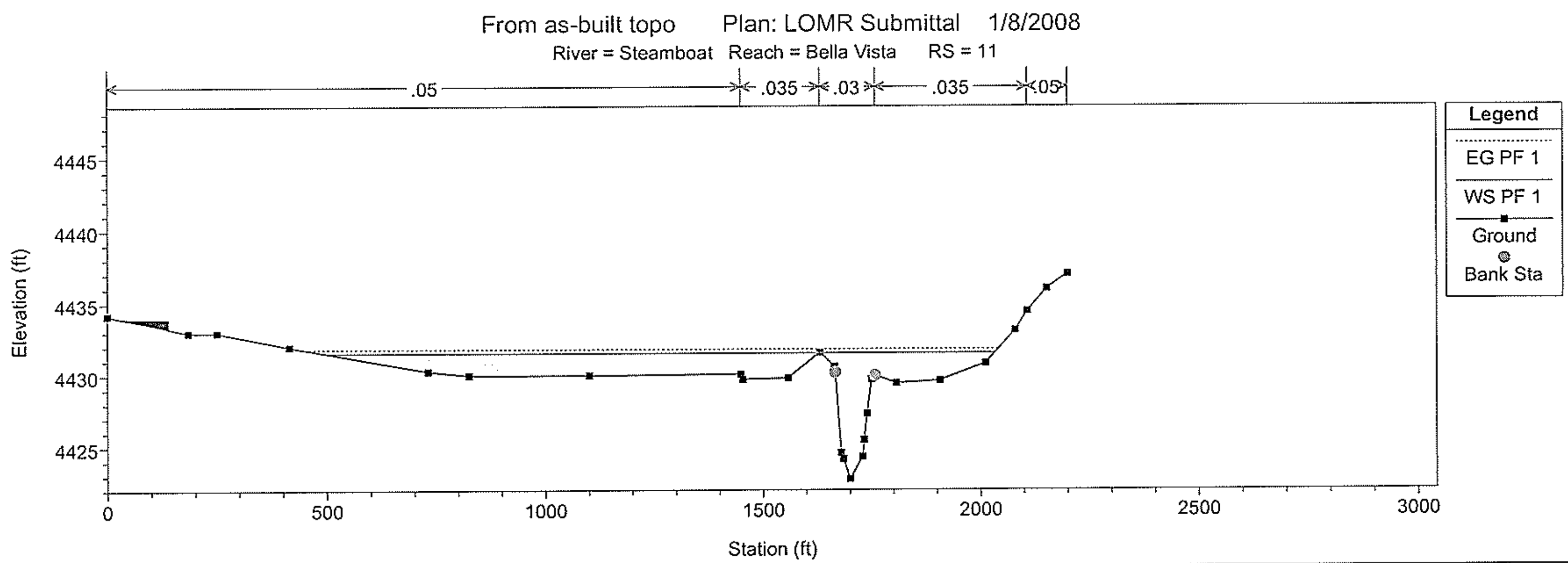


From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 13



1 in Horiz. = 400 ft   1 in Vert. = 12 ft

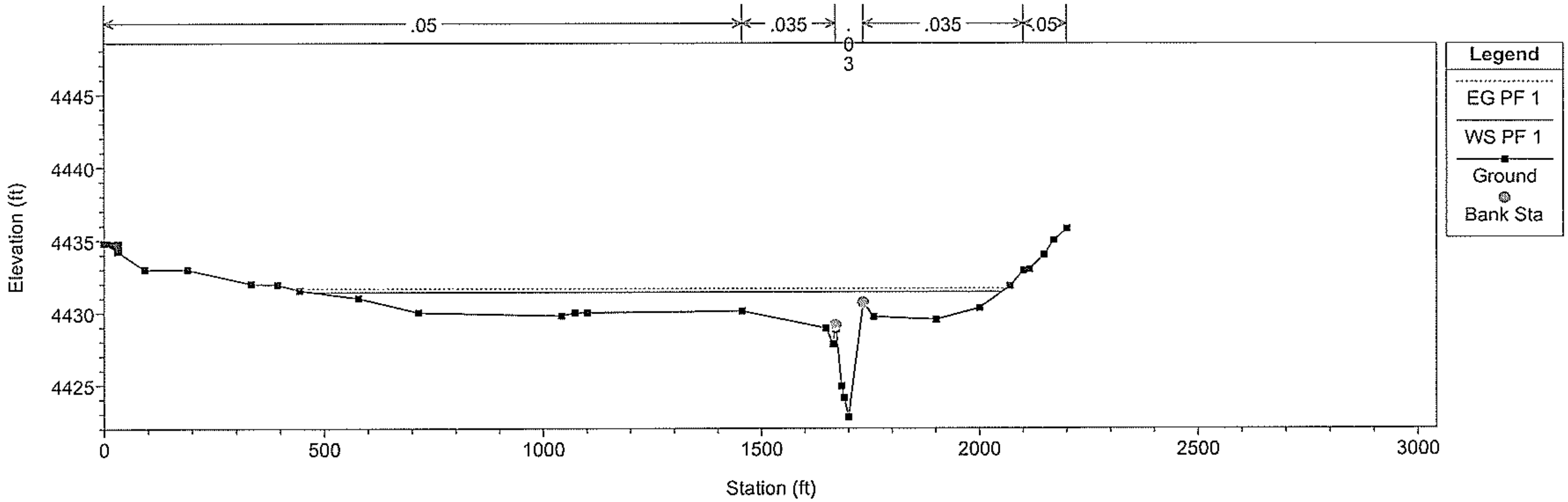




1 in Horiz. = 400 ft 1 in Vert. = 12 ft

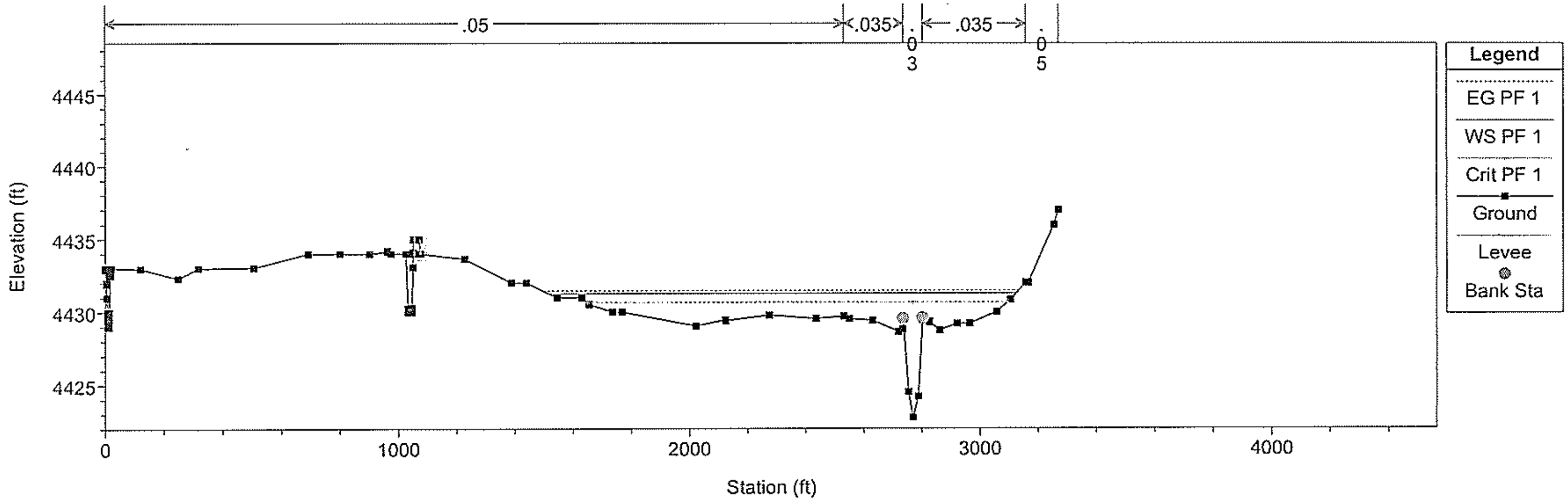
From as-built topo Plan: LOMR Submittal 1/8/2008

River = Steamboat Reach = Bella Vista RS = 10

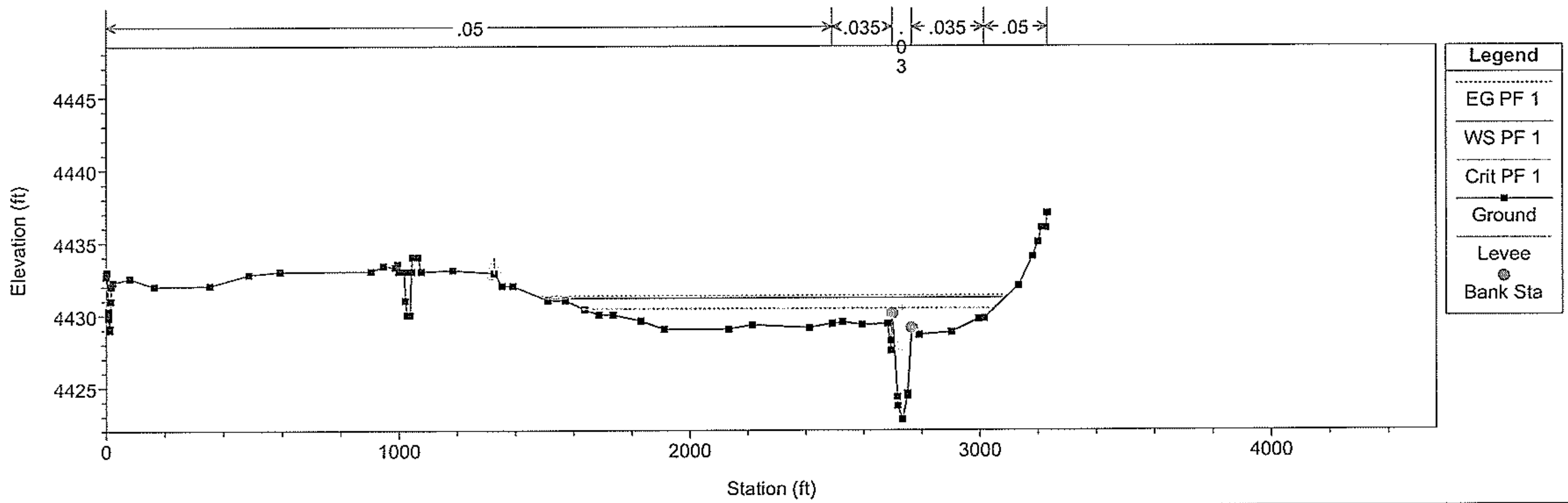


1 in Horiz. = 400 ft 1 in Vert. = 12 ft

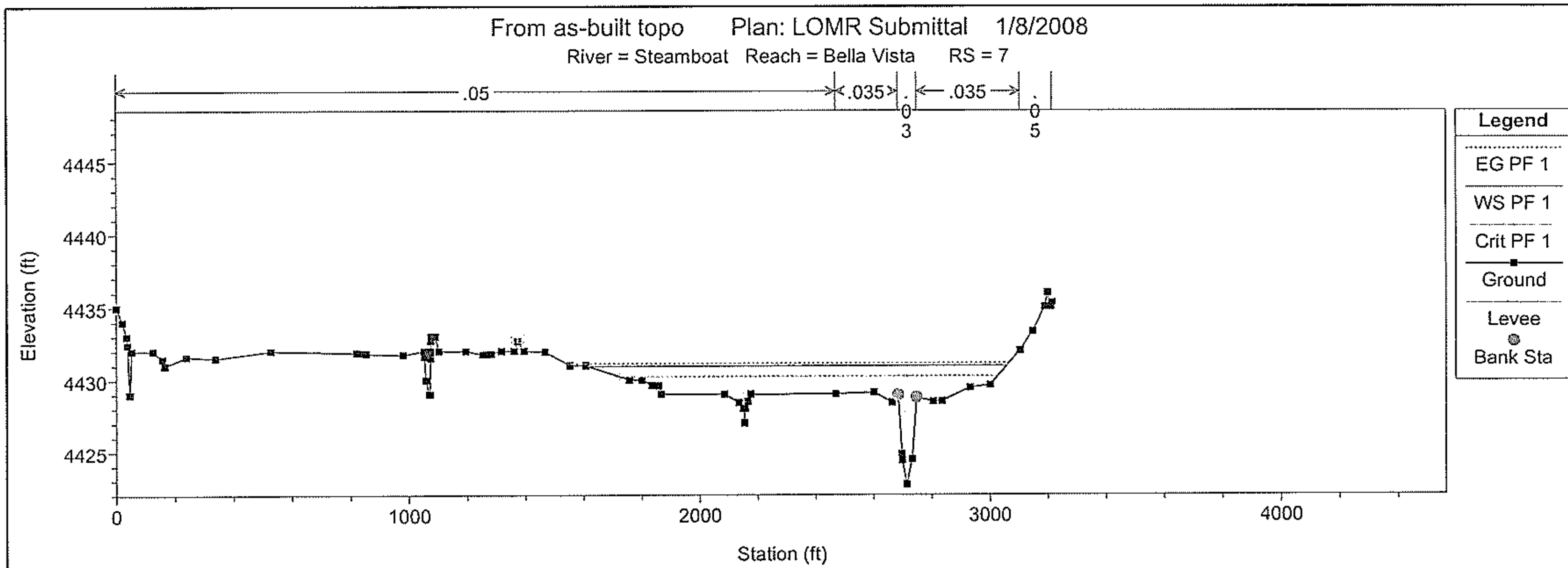
From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 9

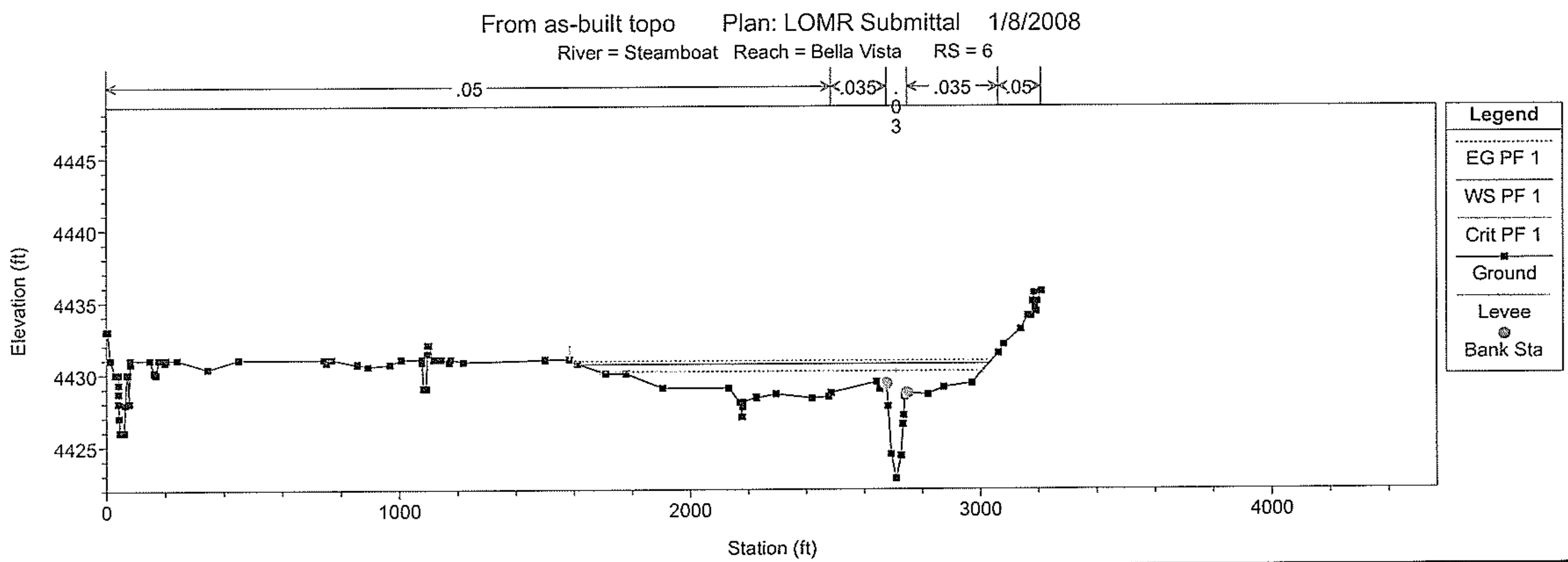


From as-built topo   Plan: LOMR Submittal   1/8/2008
River = Steamboat   Reach = Bella Vista   RS = 8

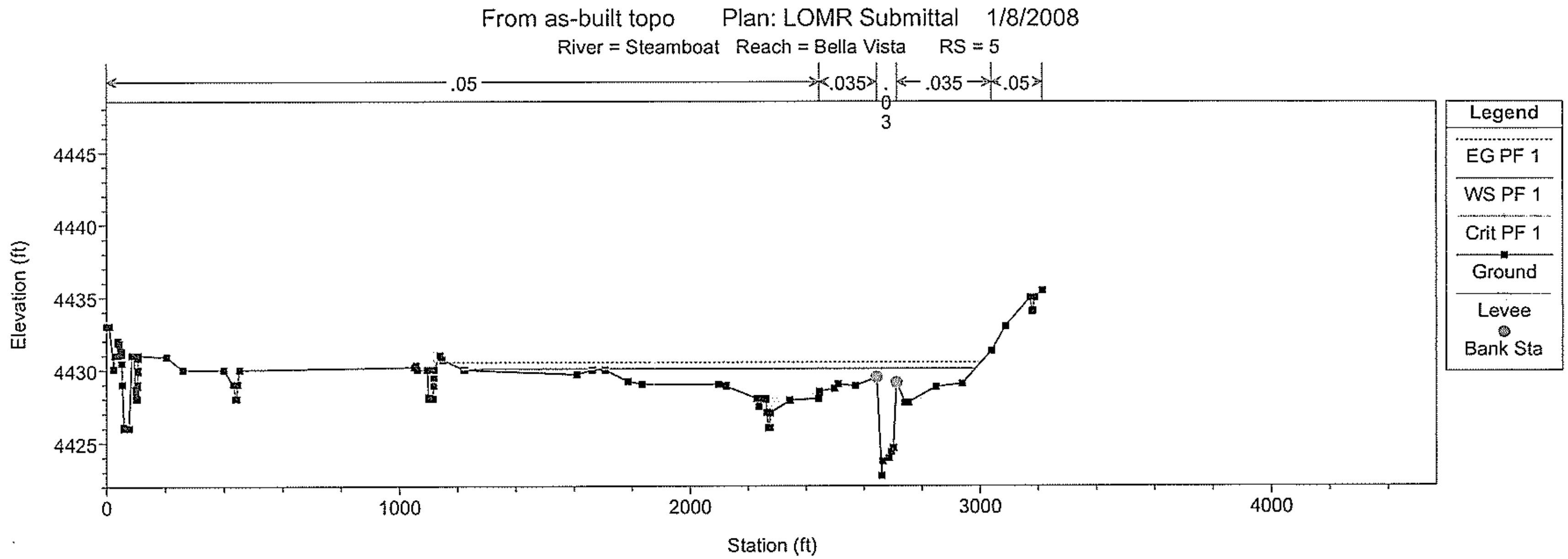


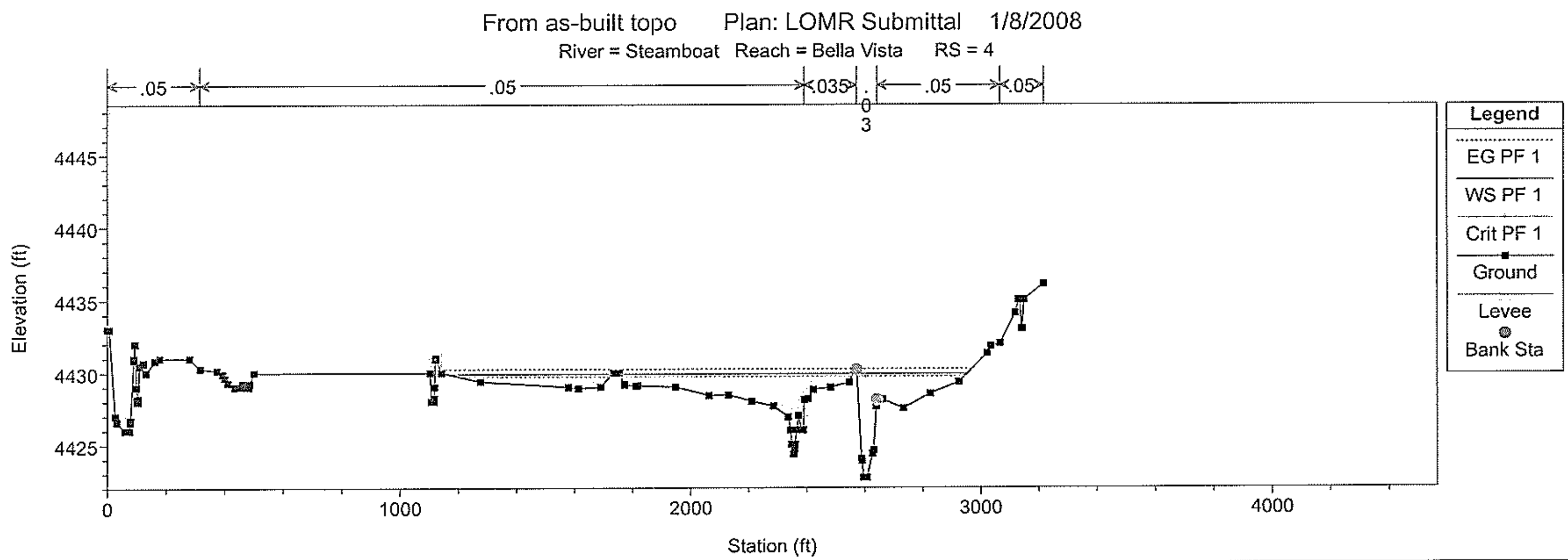
1 in Horiz. = 600 ft   1 in Vert. = 12 ft





1 in Horiz. = 600 ft 1 in Vert. = 12 ft

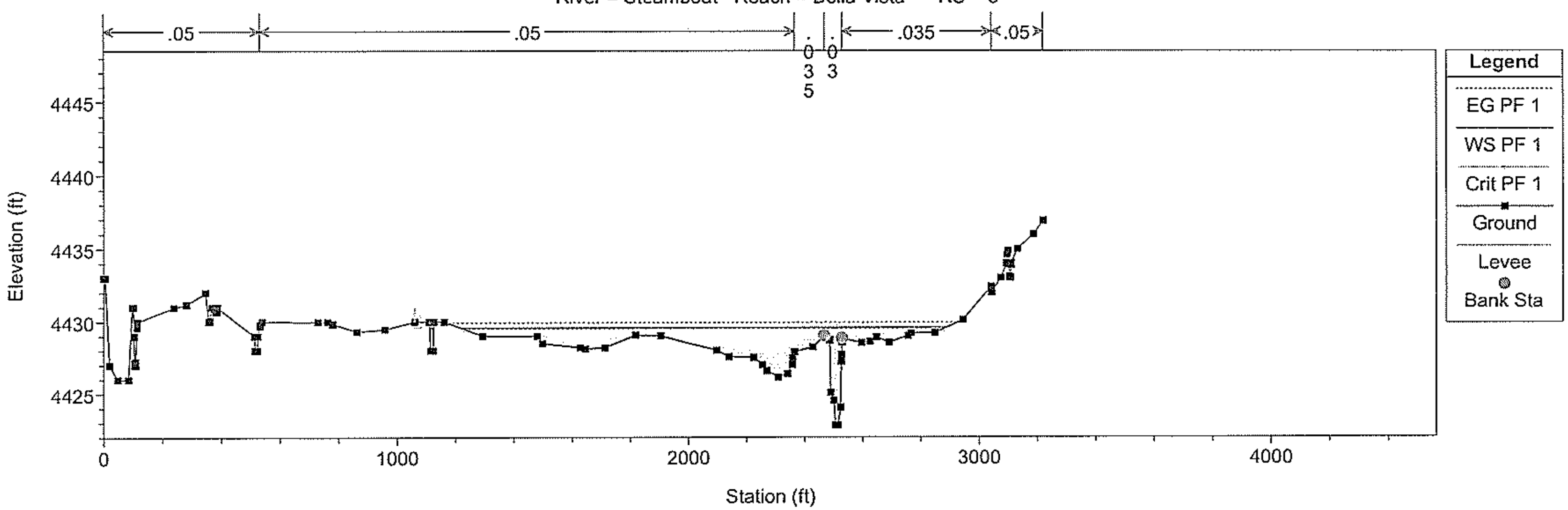




1 in Horiz. = 600 ft 1 in Vert. = 12 ft

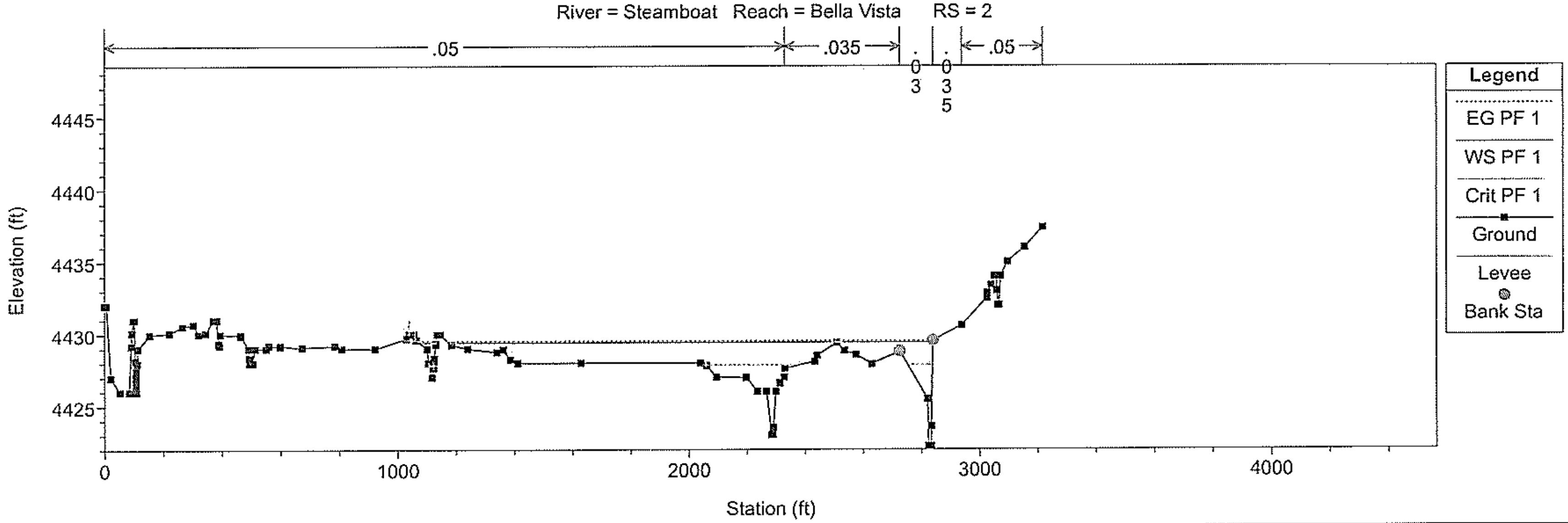
From as-built topo   Plan: LOMR Submittal   1/8/2008

River = Steamboat   Reach = Bella Vista   RS = 3



From as-built topo   Plan: LOMR Submittal   1/8/2008

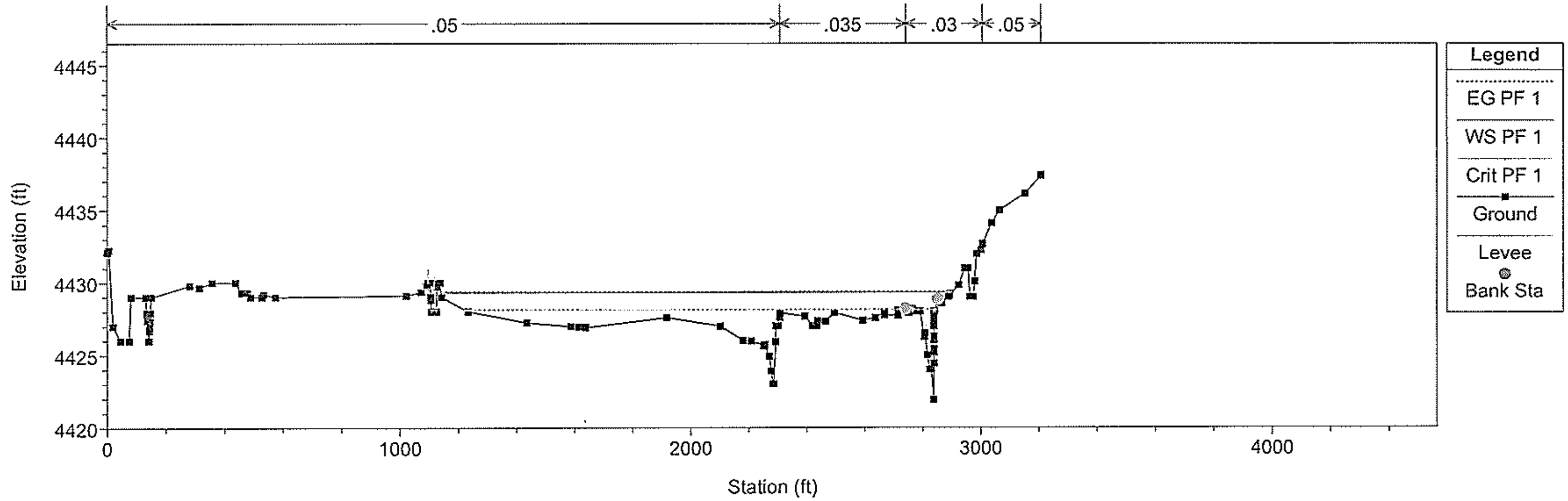
River = Steamboat   Reach = Bella Vista   RS = 2



1 in Horiz. = 600 ft   1 in Vert. = 12 ft

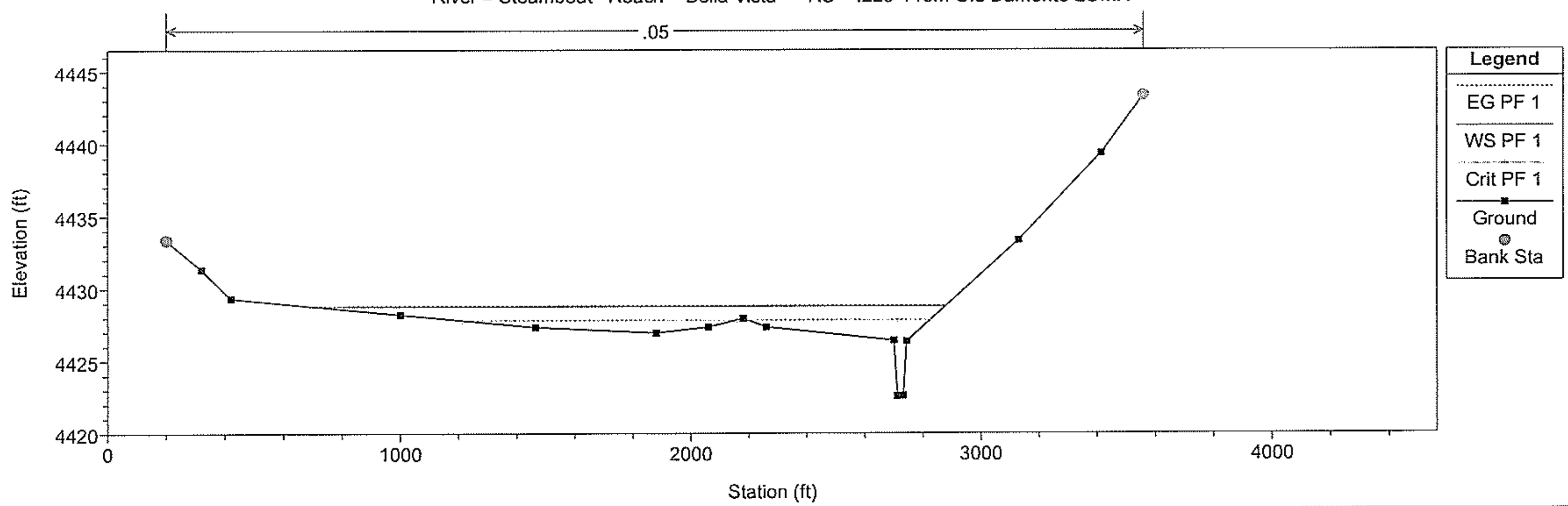
From as-built topo   Plan: LOMR Submittal   1/8/2008

River = Steamboat   Reach = Bella Vista   RS = 1



From as-built topo   Plan: LOMR Submittal   1/8/2008

River = Steamboat   Reach = Bella Vista   RS = .225 From Old Damonte LOMR



1 in Horiz. = 600 ft   1 in Vert. = 12 ft

Calculation of Damonte Wetlands Sheet Flow into Steamboat Creek

793.3 Damonte Cross Section 0.20 = 5240 Steamboat Stationing
1554.6 Damonte Cross Section 0.20 = 5830 Steamboat Stationing

Profile 2 in the HEC-RAS Model is the amount of runoff sheet flowing into Steamboat Creek at the time Steamboat Creek is at maximum flow.

From Damonte Wetlands HEC-RAS Model Profile 2

DAMONTE WETLANDS RIVER STATION - 0.20 | Profile | #PF | 2

Flow by parts

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)
1	Chan	793.3	945.56	34.52	20.53	119.85	1.57	0.17	1.68
2	Chan	945.56	1097.82	314.54	85.06	152.26	14.34	0.56	3.7
3	Chan	1097.82	1250.08	615.07	127.2	152.26	28.03	0.84	4.84
4	Chan	1250.08	1402.33	980.68	168.29	152.26	44.7	1.11	5.83
5	Chan	1402.33	1554.59	249.18	70.07	132.98	11.36	0.53	3.56
			Total	2194					

Difference in 0.2 Stationing	761.29
Difference in Steamaboat Stationing	590
Ratio of Stationing	0.775

Steamboat Left	Steamboat Right	Flow	Flow per foot		Steamboat Downstream	Flow Added		HEC-RAS FLOW	HEC-1 Node	Stmboat Stationing
5240	5358	34.52	0.293		5200	18		6407	STMBV3	5200
5358	5476	314.54	2.666		5300	129		6389		
5476	5594	615.07	5.212		5400	328		6261		
5594	5712	980.68	8.311		5500	540		5933		
5712	5830	249.18	2.112		5600	831		5393		
	Total	2194			5700	286		4562		
					5800	63		4276		
					Total	2194		4213	STM+AF	7000

HEC-RAS Plan: DamVStm River: RIVER-1 Reach: Reach-1

Reach	River 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
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	16	PF 1	2762.00	4449.00	4454.69	4452.88	4454.94	0.002158	3.96	696.91	199.13	0.37
Reach-1	16	PF 2	2194.00	4449.00	4454.22	4452.56	4454.43	0.002142	3.63	603.59	195.34	0.36
Reach-1	15	PF 1	2762.00	4449.00	4454.14	4452.39	4454.38	0.002172	3.87	713.12	212.09	0.37
Reach-1	15	PF 2	2194.00	4449.00	4453.68	4452.11	4453.88	0.002107	3.55	617.26	204.14	0.36
Reach-1	14	PF 1	2762.00	4448.80	4453.61	4452.07	4453.88	0.002600	4.15	665.31	204.12	0.41
Reach-1	14	PF 2	2194.00	4448.80	4453.15	4451.75	4453.38	0.002628	3.83	573.36	200.45	0.40
Reach-1	13	PF 1	2762.00	4448.50	4453.54	4451.53	4453.75	0.001705	3.65	756.81	204.92	0.33
Reach-1	13	PF 2	2194.00	4448.50	4453.09	4451.25	4453.26	0.001619	3.30	664.59	201.25	0.32
Reach-1	12	PF 1	2762.00	4447.81	4453.30	4451.00	4453.49	0.001428	3.50	788.59	198.95	0.31
Reach-1	12	PF 2	2194.00	4447.81	4452.87	4450.65	4453.02	0.001289	3.12	703.08	195.46	0.29
Reach-1	11	PF 1	2762.00	4448.23	4452.72	4451.47	4453.10	0.003862	4.96	556.33	175.55	0.49
Reach-1	11	PF 2	2194.00	4448.23	4452.36	4451.13	4452.67	0.003544	4.44	493.84	172.68	0.46
Reach-1	10	PF 1	2762.00	4447.00	4452.14	4450.66	4452.34	0.002300	3.64	758.71	257.89	0.37
Reach-1	10	PF 2	2194.00	4447.00	4451.81	4450.38	4451.98	0.002113	3.25	675.12	255.41	0.35
Reach-1	9	PF 1	2762.00	4446.88	4450.17	4450.17	4450.84	0.021243	6.56	421.27	315.73	1.00
Reach-1	9	PF 2	2194.00	4446.88	4449.93	4449.93	4450.55	0.022425	6.32	347.36	286.73	1.01
Reach-1	8	PF 1	2762.00	4443.82	4446.25	4445.13	4446.34	0.001799	2.31	1196.72	674.57	0.31
Reach-1	8	PF 2	2194.00	4443.82	4446.04	4444.99	4446.11	0.001722	2.09	1051.01	666.63	0.29
Reach-1	7	PF 1	2762.00	4443.40	4445.45		4445.60	0.004495	3.01	916.28	688.12	0.46
Reach-1	7	PF 2	2194.00	4443.40	4445.26		4445.38	0.004523	2.79	785.24	663.84	0.45
Reach-1	6	PF 1	2762.00	4442.00	4444.72		4444.80	0.002302	2.24	1233.11	874.95	0.33
Reach-1	6	PF 2	2194.00	4442.00	4444.51		4444.58	0.002335	2.08	1057.08	850.00	0.33
Reach-1	5	PF 1	2762.00	4441.43	4444.42		4444.45	0.000602	1.32	2086.88	1191.85	0.18
Reach-1	5	PF 2	2194.00	4441.43	4444.24		4444.26	0.000524	1.17	1875.50	1161.57	0.16
Reach-1	4	PF 1	2762.00	4441.95	4444.31		4444.33	0.000483	1.24	2221.36	1182.00	0.16
Reach-1	4	PF 2	2194.00	4441.95	4444.14		4444.16	0.000389	1.08	2034.69	1139.28	0.14

HEC-RAS Plan: DamVStm River: RIVER-1 Reach: Reach-1 (Continued)

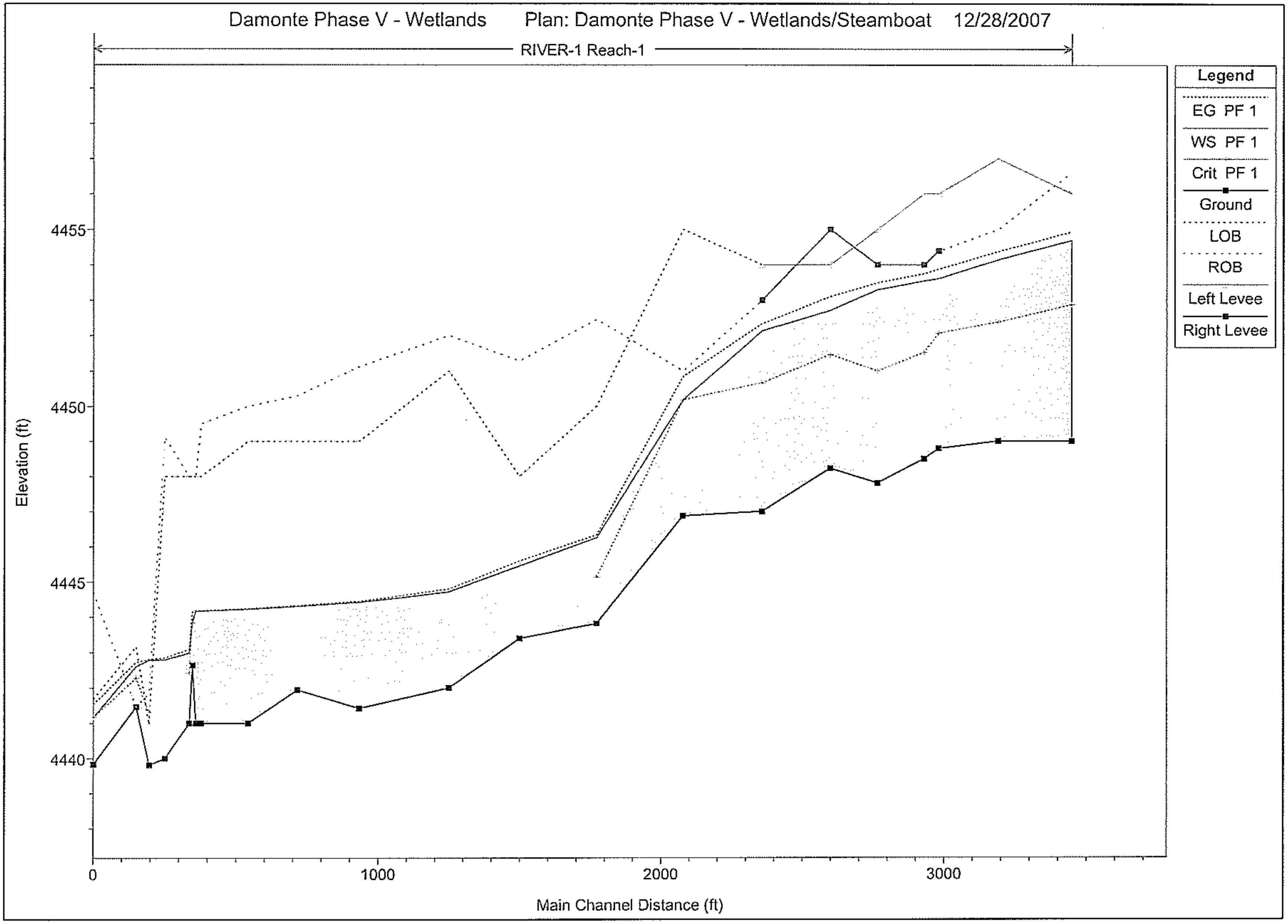
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	3	PF 1	2762.00	4441.00	4444.23		4444.25	0.000433	1.16	2388.33	1304.56	0.15
Reach-1	3	PF 2	2194.00	4441.00	4444.08		4444.10	0.000358	1.00	2197.64	1299.05	0.14
Reach-1	2	PF 1	2762.00	4441.00	4444.18		4444.19	0.000261	0.99	2781.10	1304.58	0.12
Reach-1	2	PF 2	2194.00	4441.00	4444.04		4444.05	0.000201	0.84	2604.62	1286.27	0.10
Reach-1	1.6	PF 1	2762.00	4441.00	4444.17		4444.19	0.000259	1.00	2771.32	1286.59	0.12
Reach-1	1.6	PF 2	2194.00	4441.00	4444.04		4444.05	0.000199	0.84	2598.34	1269.75	0.10
Reach-1	1.5	PF 1	2762.00	4442.64	4443.84	4443.84	4444.15	0.027422	4.46	618.79	1001.06	1.00
Reach-1	1.5	PF 2	2194.00	4442.64	4443.73	4443.73	4444.01	0.029065	4.25	515.66	936.39	1.01
Reach-1	1.4	PF 1	2762.00	4441.00	4442.98	4442.42	4443.08	0.004024	2.57	1073.82	941.55	0.42
Reach-1	1.4	PF 2	2194.00	4441.00	4442.81	4442.30	4442.90	0.004071	2.39	918.88	908.69	0.42
Reach-1	1	PF 1	2762.00	4440.00	4442.80		4442.86	0.001627	1.90	1453.62	1017.19	0.28
Reach-1	1	PF 2	2194.00	4440.00	4442.65		4442.70	0.001412	1.68	1302.42	981.53	0.26
Reach-1	0.5	PF 1	2762.00	4439.82	4442.79	4441.31	4442.82	0.000337	1.27	2333.43	1610.98	0.16
Reach-1	0.5	PF 2	2194.00	4439.82	4442.64	4441.23	4442.66	0.000281	1.11	2106.22	1531.67	0.14
Reach-1	0.35	PF 1	2762.00	4441.47	4442.61	4442.28	4442.73	0.004210	2.14	1034.93	1222.13	0.46
Reach-1	0.35	PF 2	2194.00	4441.47	4442.48	4442.17	4442.58	0.004307	1.93	874.73	1156.15	0.45
Reach-1	.2	PF 1	2762.00	4439.84	4441.17	4441.17	4441.55	0.034325	4.94	559.24	770.97	1.02
Reach-1	.2	PF 2	2194.00	4439.84	4441.05	4441.05	4441.39	0.034333	4.66	471.16	709.59	1.01

HEC-RAS Plan: DamVStm River: RIVER-1 Reach: Reach-1

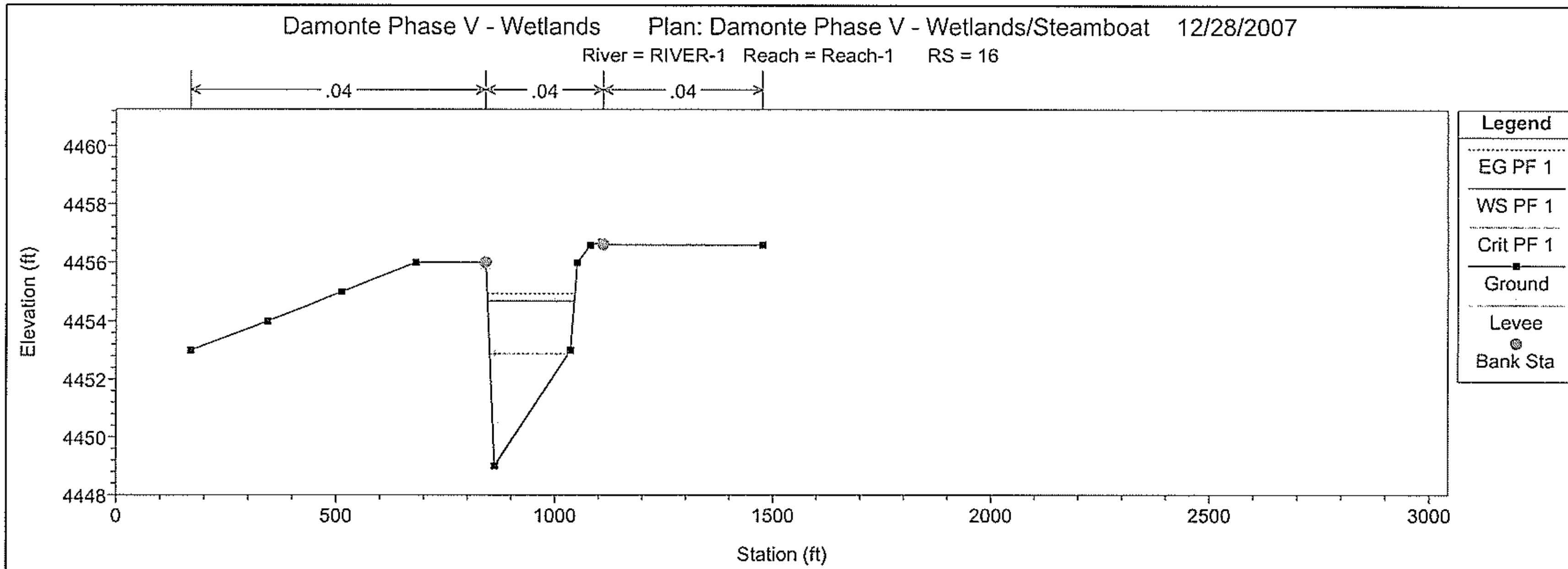
Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Reach-1	16	PF 1	4454.94	4454.69	0.24	0.56	0.00		2762.00		199.13
Reach-1	16	PF 2	4454.43	4454.22	0.21	0.55	0.00		2194.00		195.34
Reach-1	15	PF 1	4454.38	4454.14	0.23	0.50	0.00		2762.00		212.09
Reach-1	15	PF 2	4453.88	4453.68	0.20	0.49	0.00		2194.00		204.14
Reach-1	14	PF 1	4453.88	4453.61	0.27	0.11	0.02		2762.00		204.12
Reach-1	14	PF 2	4453.38	4453.15	0.23	0.11	0.02		2194.00		200.45
Reach-1	13	PF 1	4453.75	4453.54	0.21	0.25	0.00		2762.00		204.92
Reach-1	13	PF 2	4453.26	4453.09	0.17	0.24	0.01		2194.00		201.25
Reach-1	12	PF 1	4453.49	4453.30	0.19	0.37	0.02		2762.00		198.95
Reach-1	12	PF 2	4453.02	4452.87	0.15	0.33	0.02		2194.00		195.46
Reach-1	11	PF 1	4453.10	4452.72	0.38	0.71	0.05		2762.00		175.55
Reach-1	11	PF 2	4452.67	4452.36	0.31	0.65	0.04		2194.00		172.68
Reach-1	10	PF 1	4452.34	4452.14	0.21	1.46	0.05		2762.00		257.89
Reach-1	10	PF 2	4451.98	4451.81	0.16	1.38	0.05		2194.00		255.41
Reach-1	9	PF 1	4450.84	4450.17	0.67	1.32	0.18		2762.00		315.73
Reach-1	9	PF 2	4450.55	4449.93	0.62	1.29	0.17		2194.00		286.73
Reach-1	8	PF 1	4446.34	4446.25	0.08	0.74	0.01		2762.00		674.57
Reach-1	8	PF 2	4446.11	4446.04	0.07	0.72	0.01		2194.00		666.63
Reach-1	7	PF 1	4445.60	4445.45	0.14	0.78	0.02		2762.00		688.12
Reach-1	7	PF 2	4445.38	4445.26	0.12	0.79	0.02		2194.00		663.84
Reach-1	6	PF 1	4444.80	4444.72	0.08	0.33	0.02		2762.00		874.95
Reach-1	6	PF 2	4444.58	4444.51	0.07	0.31	0.01		2194.00		850.00
Reach-1	5	PF 1	4444.45	4444.42	0.03	0.12	0.00		2762.00		1191.85
Reach-1	5	PF 2	4444.26	4444.24	0.02	0.10	0.00		2194.00		1161.57

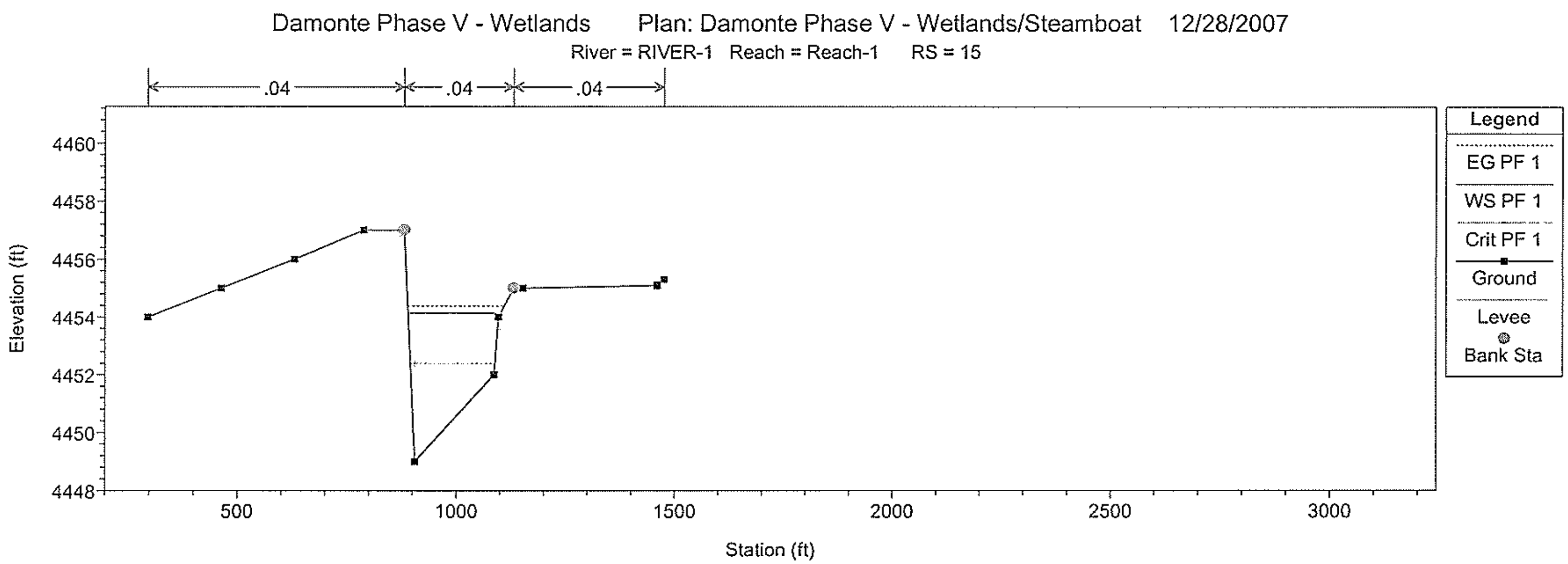
HEC-RAS Plan: DamVStm River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
Reach-1	4	PF 1	4444.33	4444.31	0.02	0.08	0.00		2762.00		1182.00
Reach-1	4	PF 2	4444.16	4444.14	0.02	0.06	0.00		2194.00		1139.28
Reach-1	3	PF 1	4444.25	4444.23	0.02	0.05	0.00		2762.00		1304.56
Reach-1	3	PF 2	4444.10	4444.08	0.02	0.04	0.00		2194.00		1299.05
Reach-1	2	PF 1	4444.19	4444.18	0.02	0.00	0.00		2762.00		1304.58
Reach-1	2	PF 2	4444.05	4444.04	0.01	0.00	0.00		2194.00		1286.27
Reach-1	1.6	PF 1	4444.19	4444.17	0.02	0.01	0.03		2762.00		1286.59
Reach-1	1.6	PF 2	4444.05	4444.04	0.01	0.01	0.03		2194.00		1269.75
Reach-1	1.5	PF 1	4444.15	4443.84	0.31	0.09	0.06		2762.00		1001.06
Reach-1	1.5	PF 2	4444.01	4443.73	0.28	0.09	0.06		2194.00		936.39
Reach-1	1.4	PF 1	4443.08	4442.98	0.10	0.21	0.01		2762.00		941.55
Reach-1	1.4	PF 2	4442.90	4442.81	0.09	0.19	0.01		2194.00		908.69
Reach-1	1	PF 1	4442.86	4442.80	0.06	0.04	0.01		2762.00		1017.19
Reach-1	1	PF 2	4442.70	4442.65	0.04	0.03	0.01		2194.00		981.53
Reach-1	0.5	PF 1	4442.82	4442.79	0.02	0.08	0.01		2636.33	125.67	1610.98
Reach-1	0.5	PF 2	4442.66	4442.64	0.02	0.07	0.01		2122.93	71.07	1531.67
Reach-1	0.35	PF 1	4442.73	4442.61	0.12	1.16	0.03		839.95	1922.05	1222.13
Reach-1	0.35	PF 2	4442.58	4442.48	0.11	1.17	0.02		609.47	1584.53	1156.15
Reach-1	.2	PF 1	4441.55	4441.17	0.38				2762.00		770.97
Reach-1	.2	PF 2	4441.39	4441.05	0.34				2194.00		709.59



1 in Horiz. = 500 ft   1 in Vert. = 4 ft

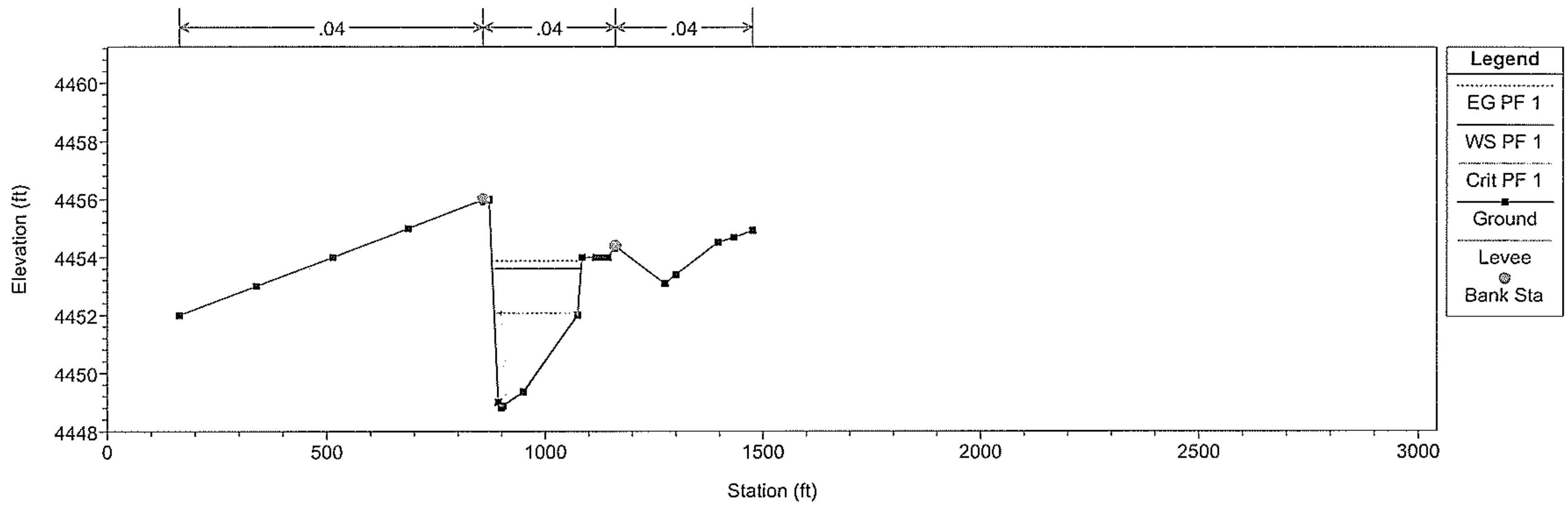




1 in Horiz. = 400 ft 1 in Vert. = 6 ft

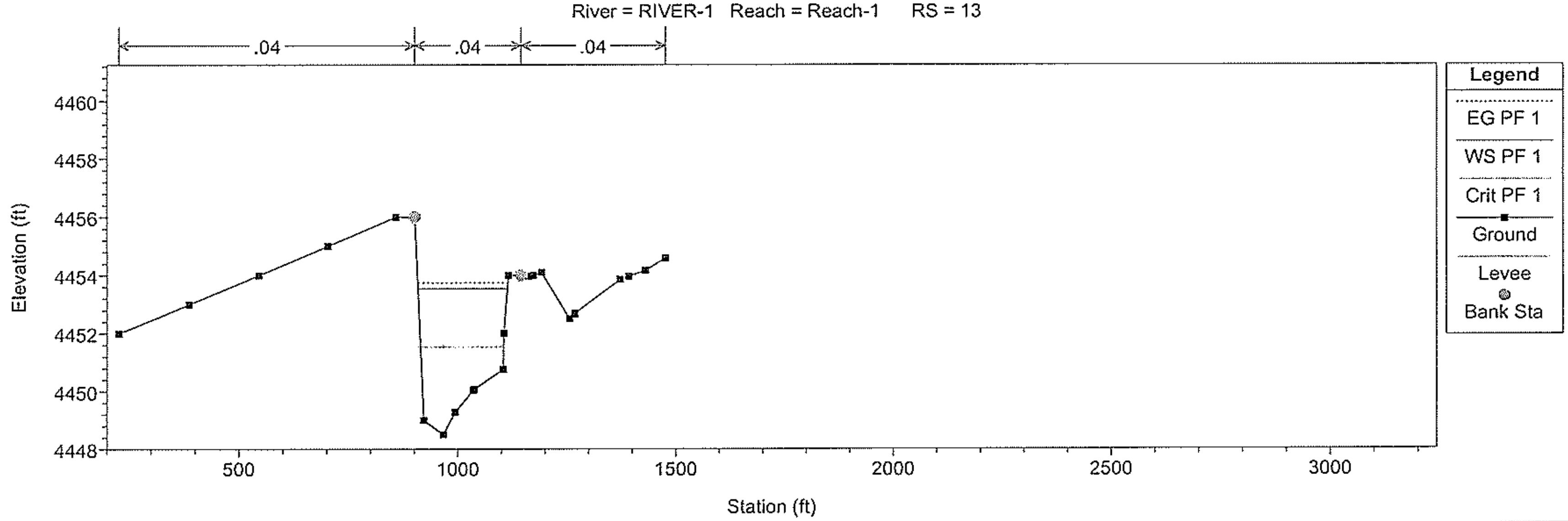
Damonte Phase V - Wetlands Plan: Damonte Phase V - Wetlands/Steamboat 12/28/2007

River = RIVER-1 Reach = Reach-1 RS = 14



Damonte Phase V - Wetlands Plan: Damonte Phase V - Wetlands/Steamboat 12/28/2007

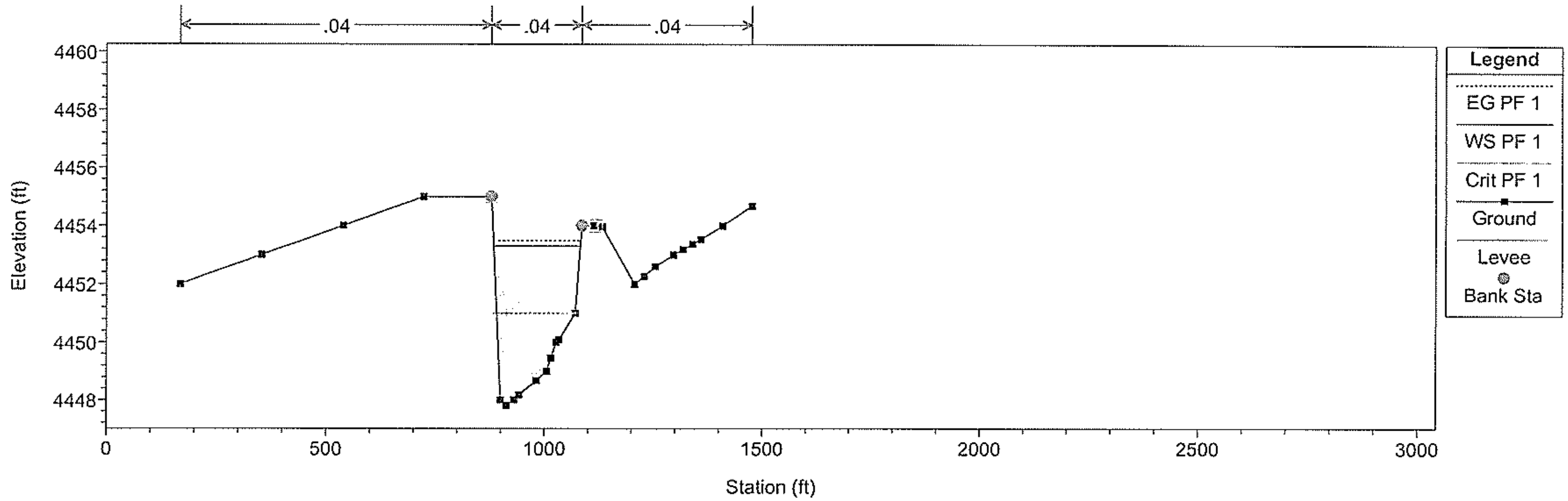
River = RIVER-1 Reach = Reach-1 RS = 13



1 in Horiz. = 400 ft 1 in Vert. = 6 ft

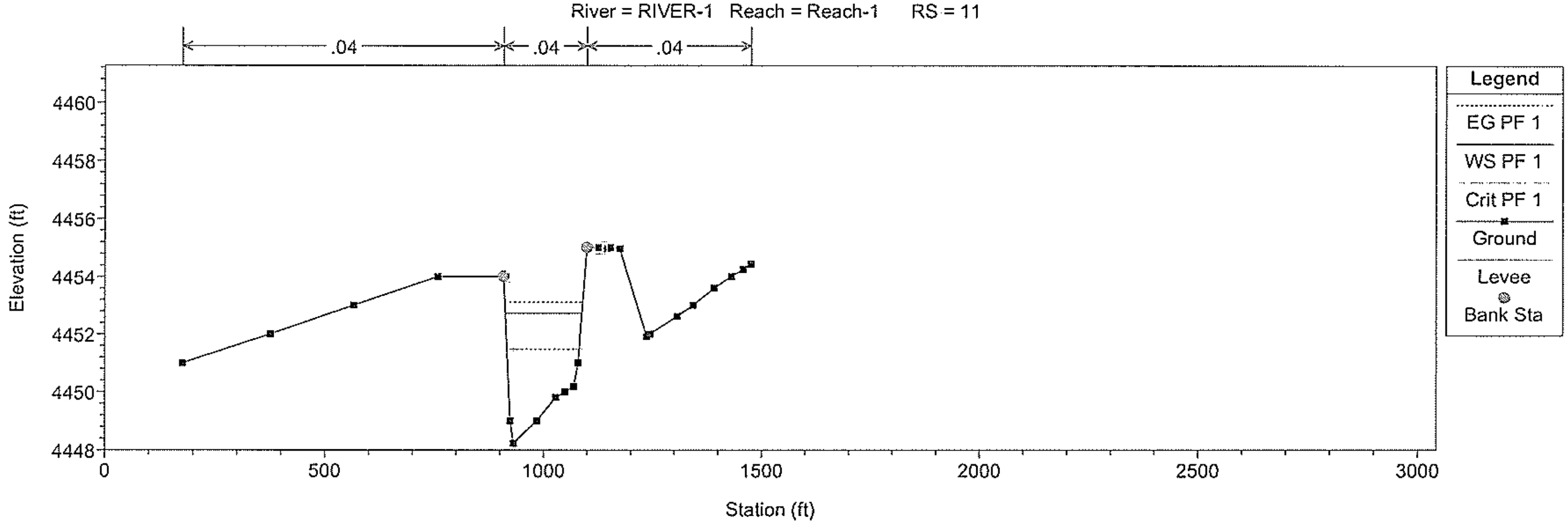
Damonte Phase V - Wetlands Plan: Damonte Phase V - Wetlands/Steamboat 12/28/2007

River = RIVER-1 Reach = Reach-1 RS = 12



Damonte Phase V - Wetlands Plan: Damonte Phase V - Wetlands/Steamboat 12/28/2007

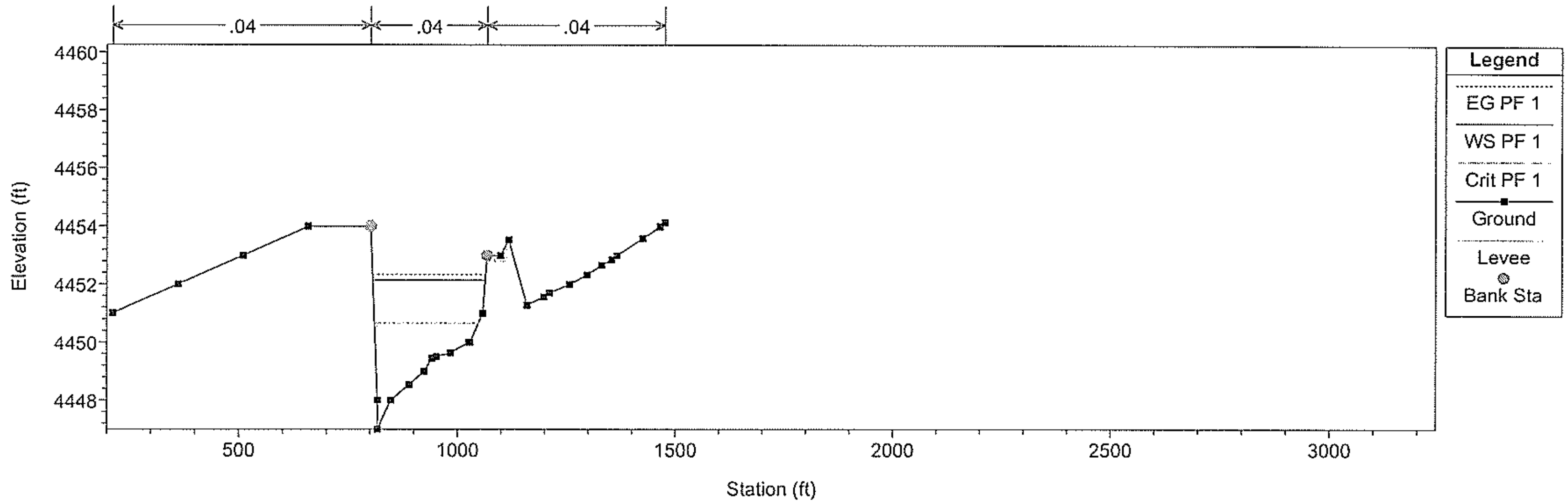
River = RIVER-1 Reach = Reach-1 RS = 11



1 in Horiz. = 400 ft 1 in Vert. = 6 ft

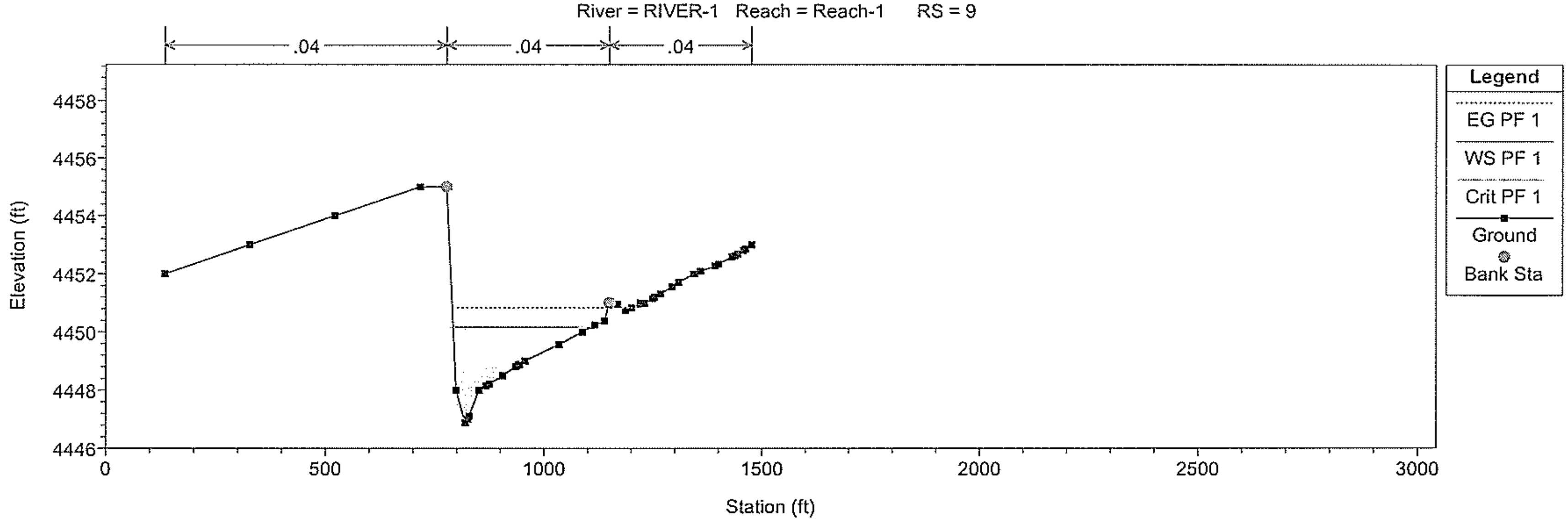
Damonte Phase V - Wetlands   Plan: Damonte Phase V - Wetlands/Steamboat   12/28/2007

River = RIVER-1   Reach = Reach-1   RS = 10

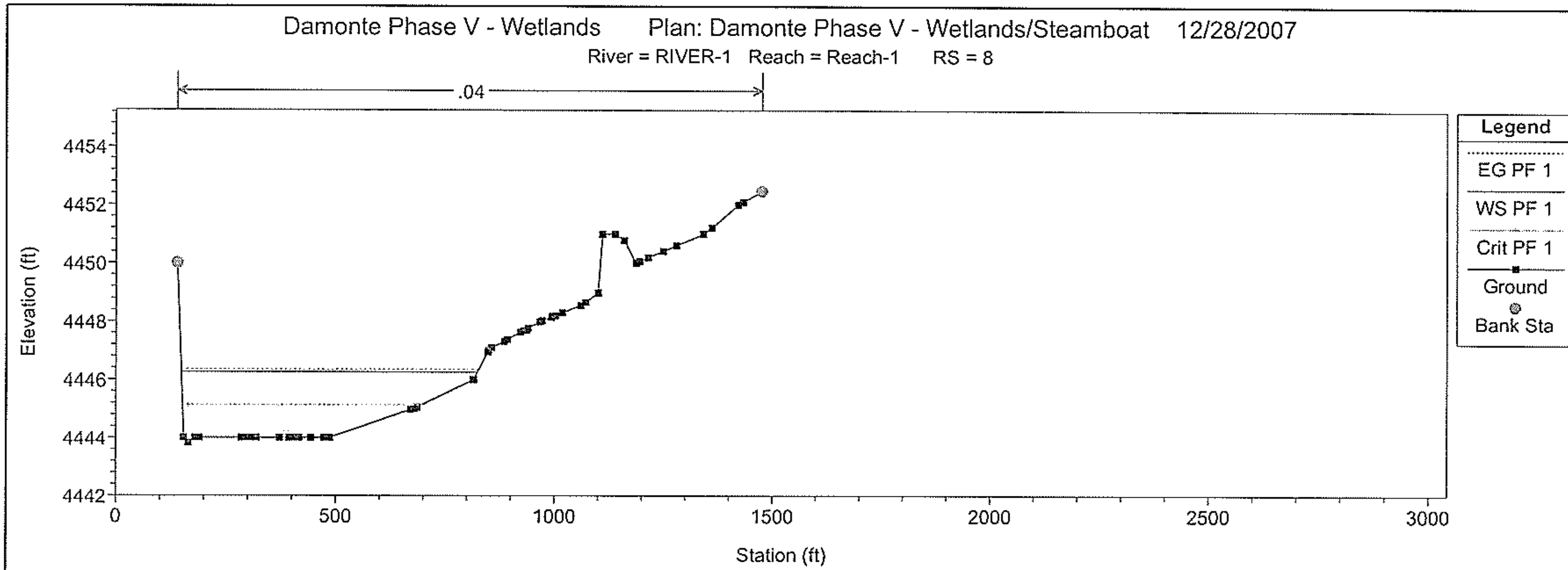


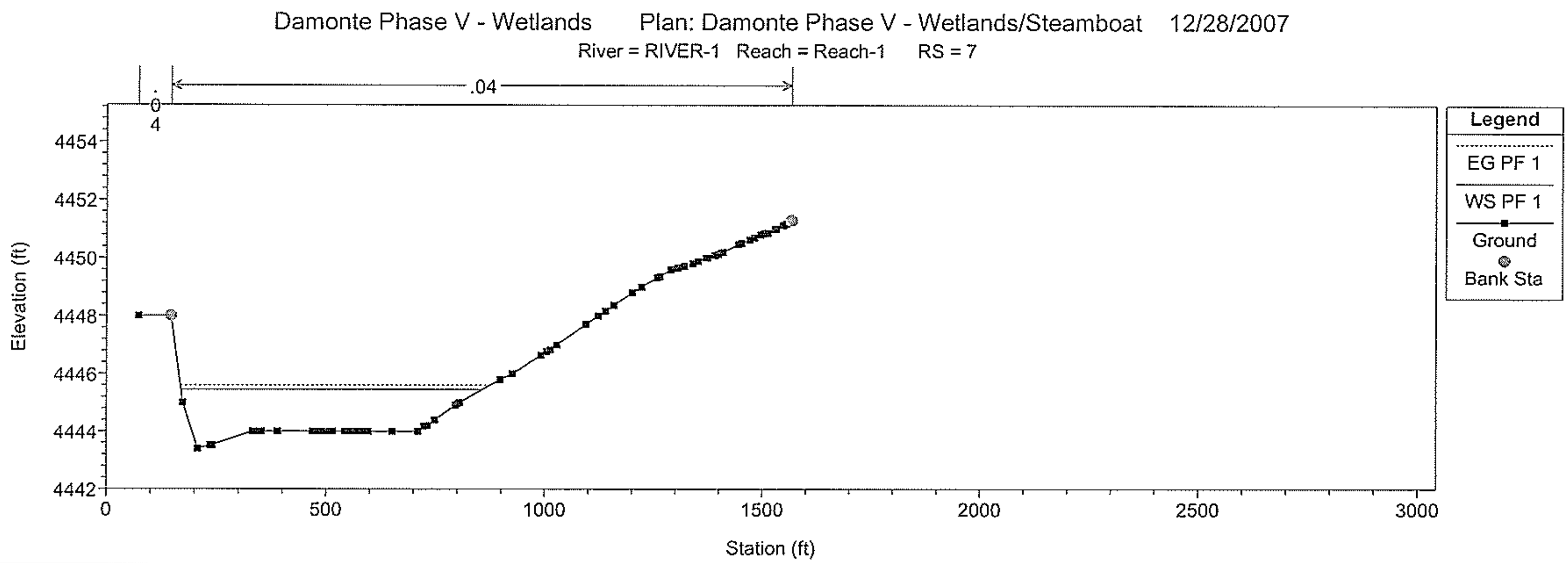
Damonte Phase V - Wetlands   Plan: Damonte Phase V - Wetlands/Steamboat   12/28/2007

River = RIVER-1   Reach = Reach-1   RS = 9



1 in Horiz. = 400 ft   1 in Vert. = 6 ft

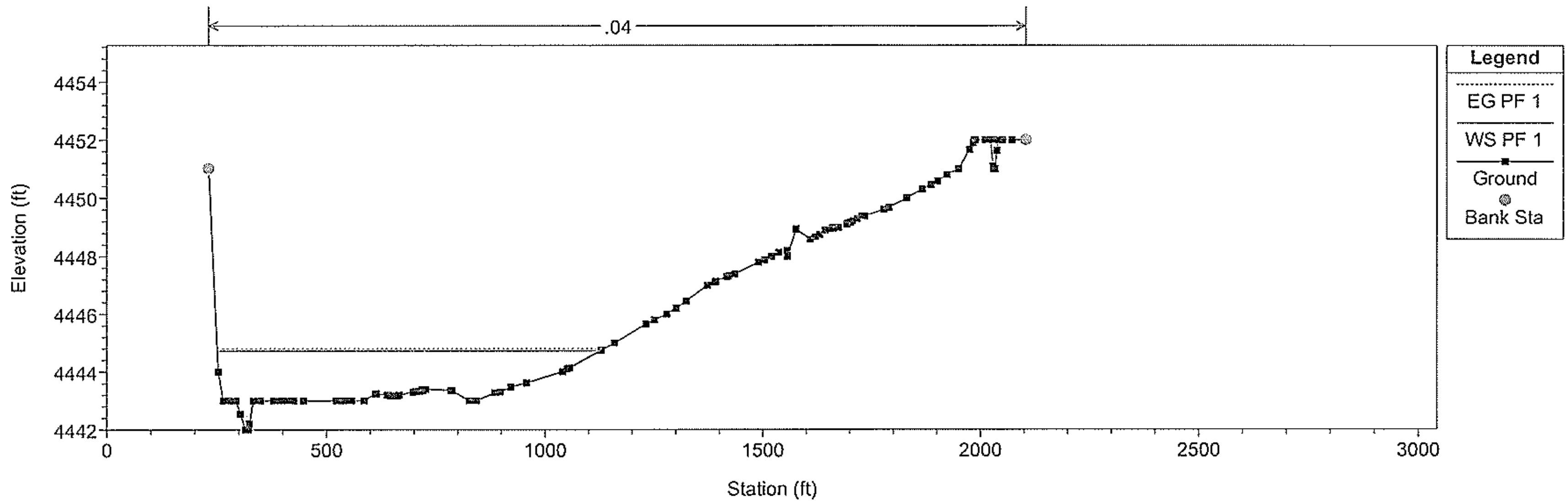




1 in Horiz. = 400 ft 1 in Vert. = 6 ft

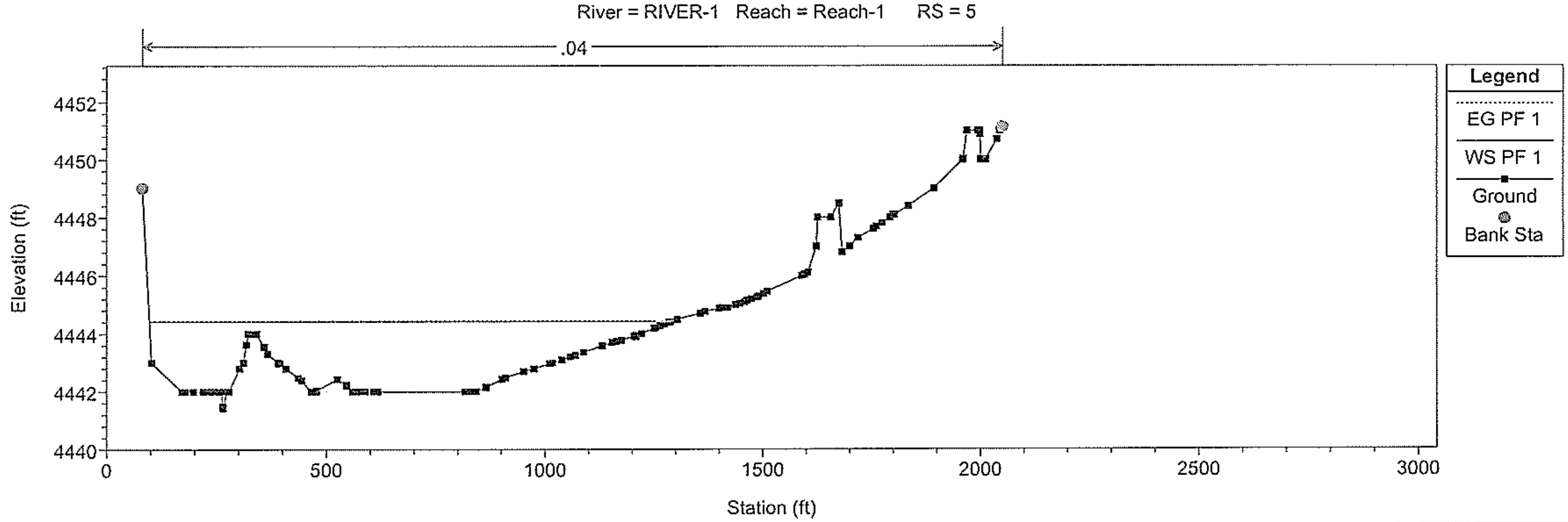
Damonte Phase V - Wetlands Plan: Damonte Phase V - Wetlands/Steamboat 12/28/2007

River = RIVER-1 Reach = Reach-1 RS = 6



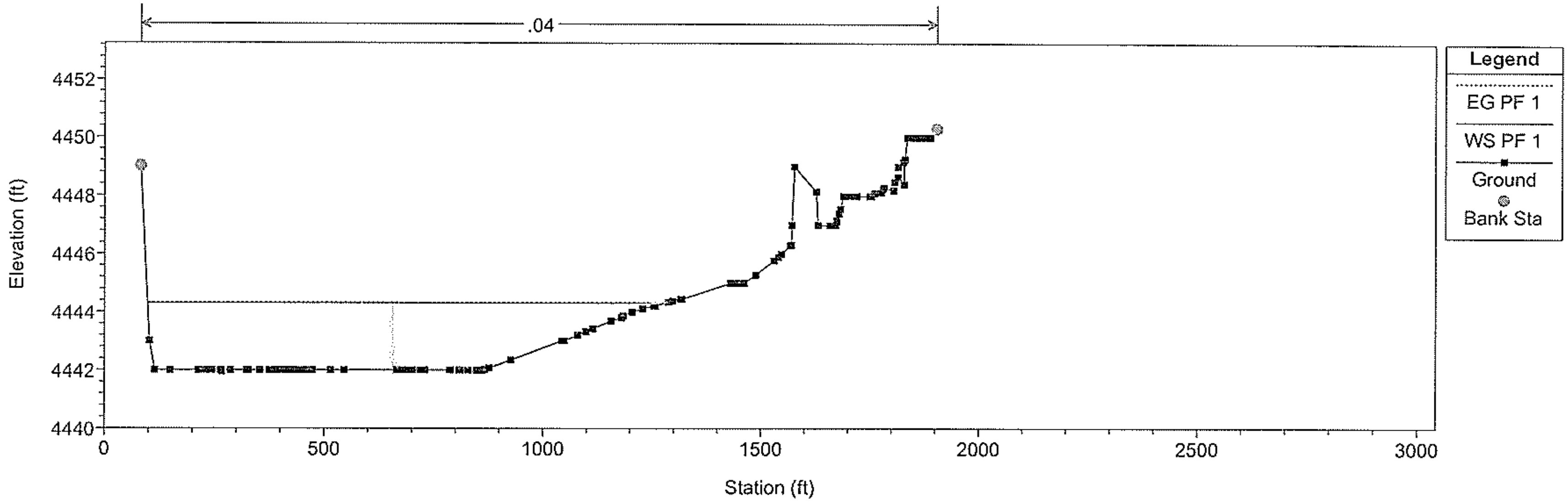
Damonte Phase V - Wetlands Plan: Damonte Phase V - Wetlands/Steamboat 12/28/2007

River = RIVER-1 Reach = Reach-1 RS = 5

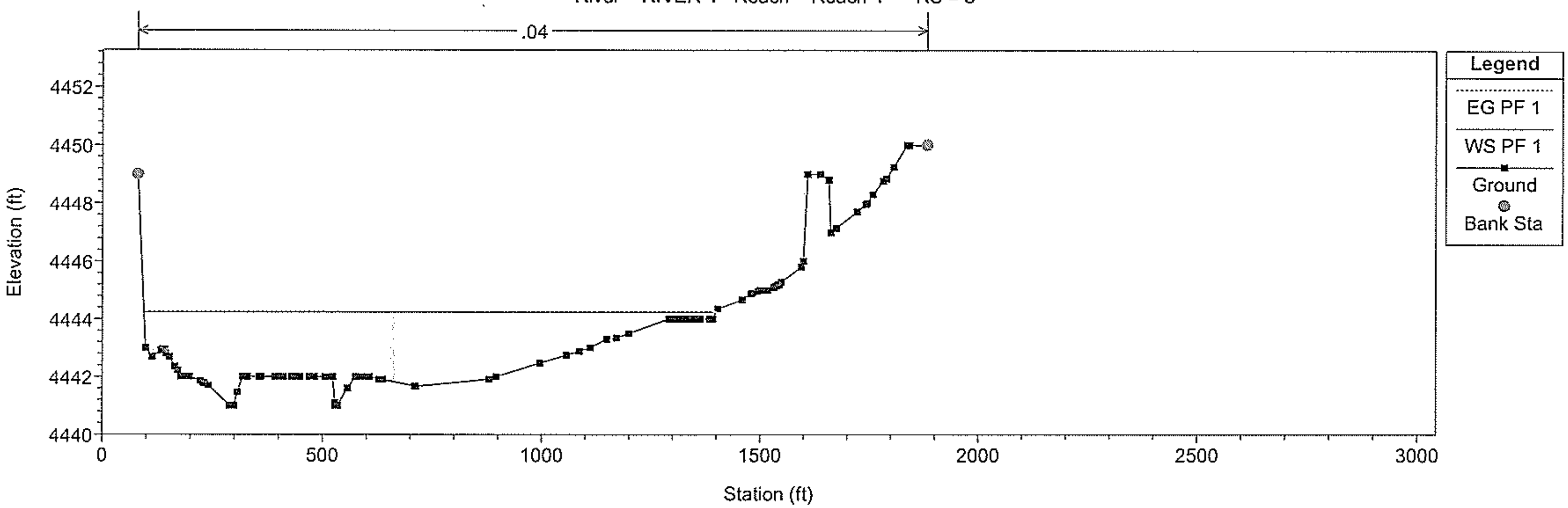


1 in Horiz. = 400 ft 1 in Vert. = 6 ft

Damonte Phase V - Wetlands Plan: Damonte Phase V - Wetlands/Steamboat 12/28/2007
River = RIVER-1 Reach = Reach-1 RS = 4



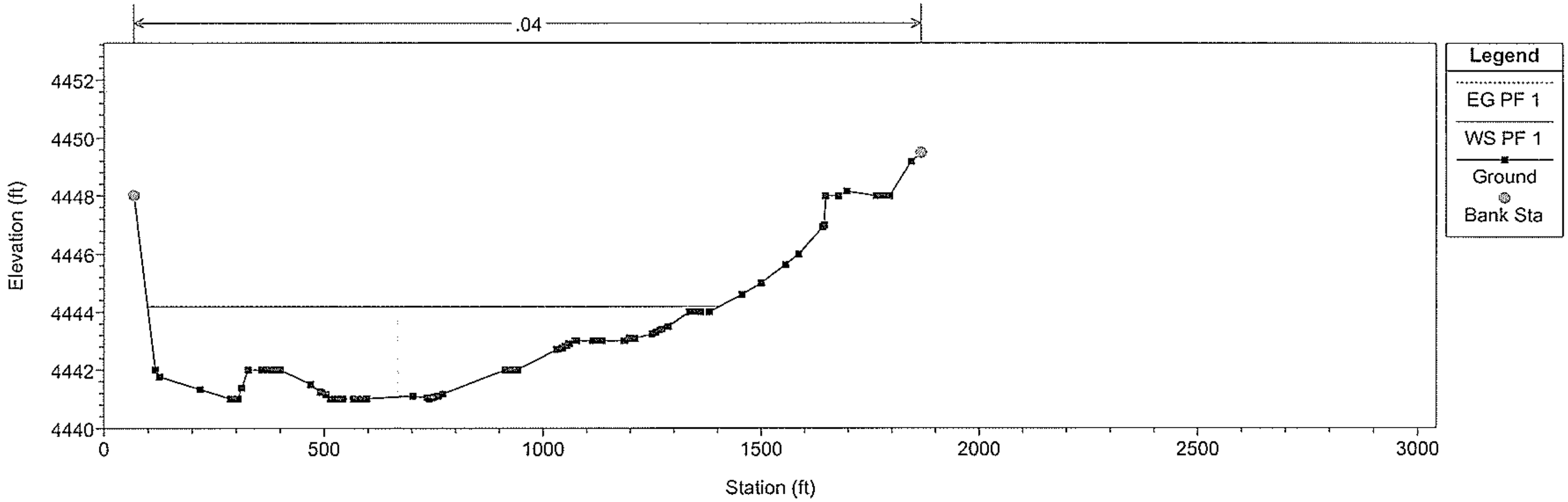
Damonte Phase V - Wetlands Plan: Damonte Phase V - Wetlands/Steamboat 12/28/2007
River = RIVER-1 Reach = Reach-1 RS = 3



1 in Horiz. = 400 ft 1 in Vert. = 6 ft

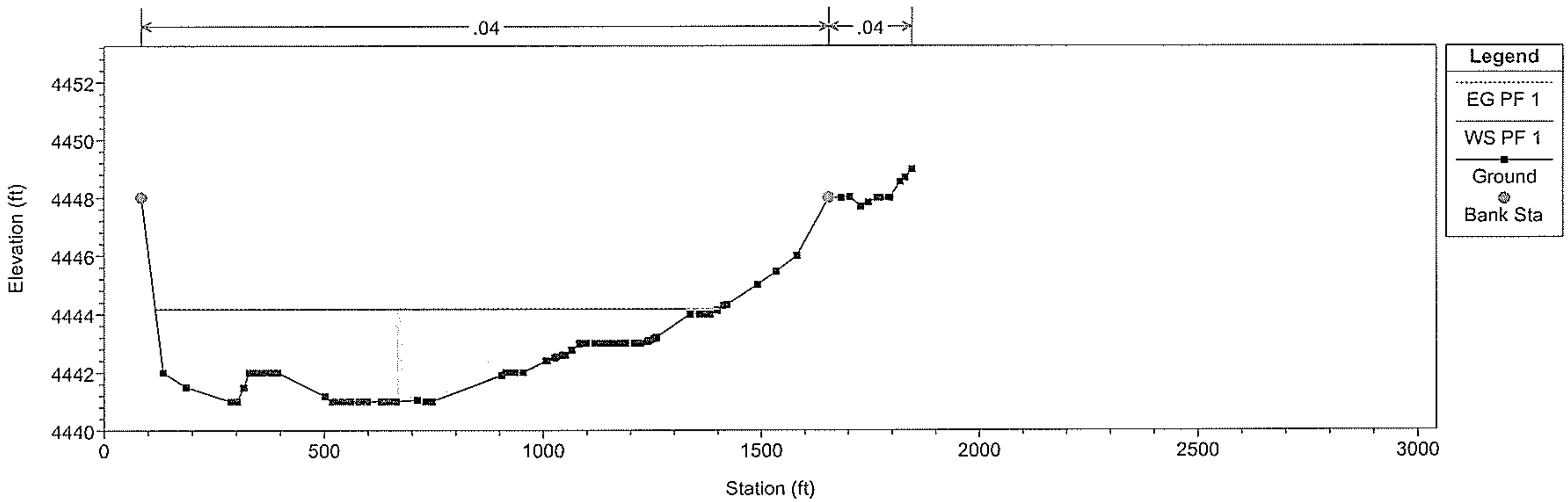
Damonte Phase V - Wetlands   Plan: Damonte Phase V - Wetlands/Steamboat   12/28/2007

River = RIVER-1   Reach = Reach-1   RS = 2



Damonte Phase V - Wetlands   Plan: Damonte Phase V - Wetlands/Steamboat   12/28/2007

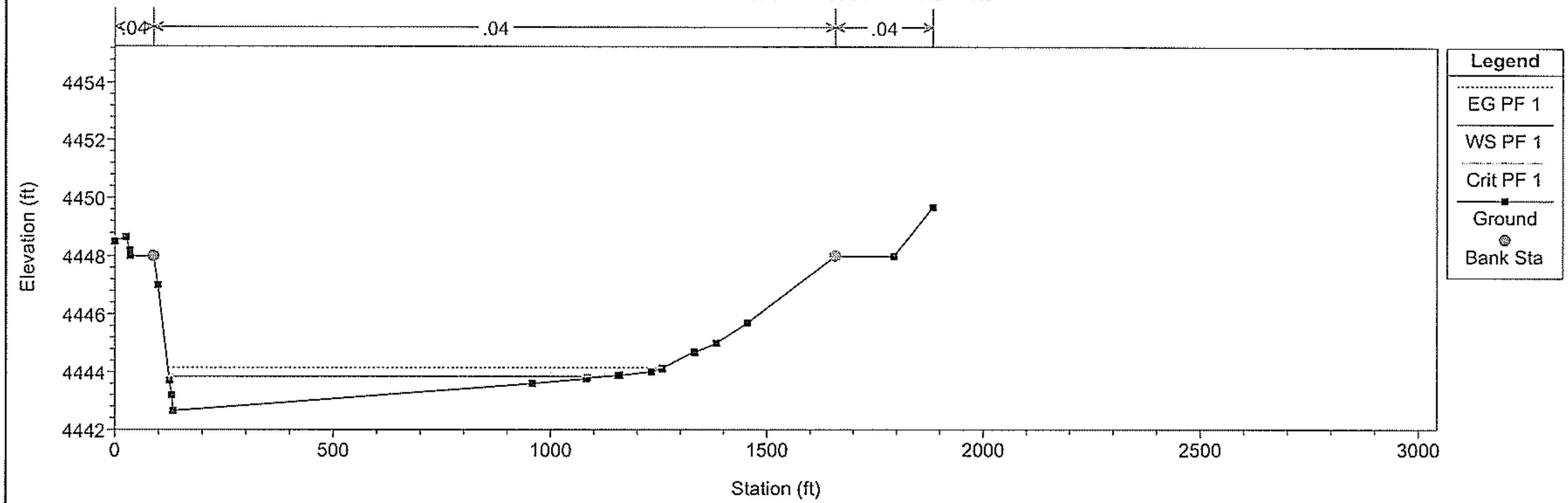
River = RIVER-1   Reach = Reach-1   RS = 1.6



1 in Horiz. = 400 ft   1 in Vert. = 6 ft

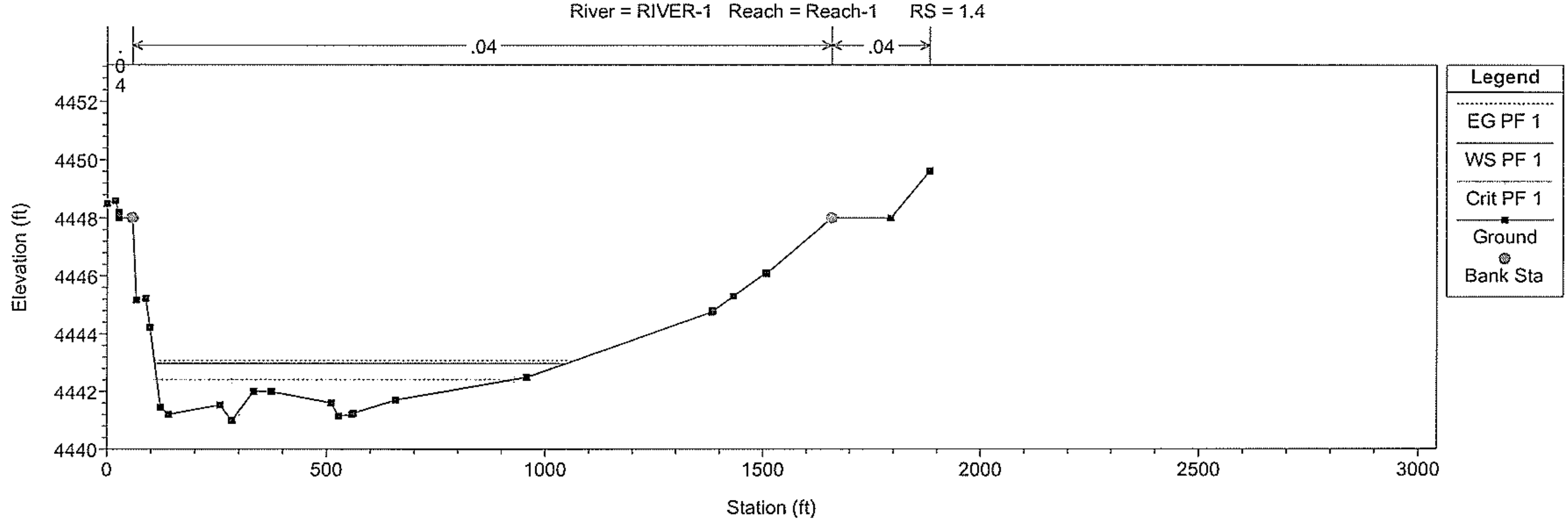
Damonte Phase V - Wetlands Plan: Damonte Phase V - Wetlands/Steamboat 12/28/2007

River = RIVER-1 Reach = Reach-1 RS = 1.5



Damonte Phase V - Wetlands Plan: Damonte Phase V - Wetlands/Steamboat 12/28/2007

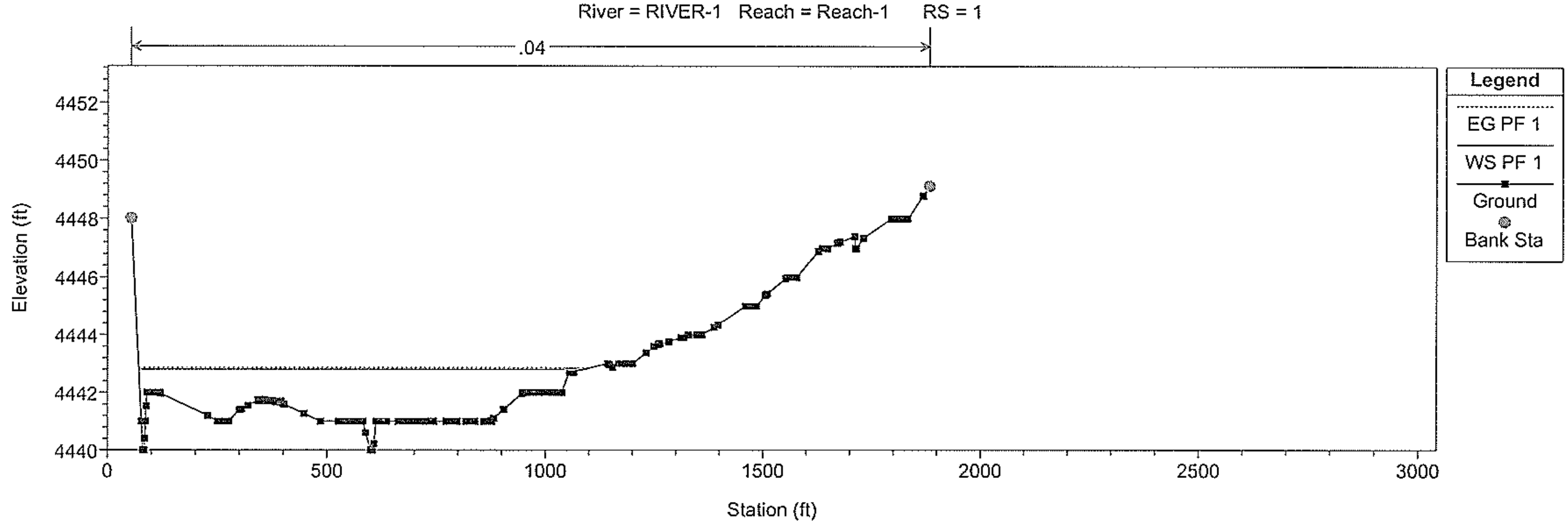
River = RIVER-1 Reach = Reach-1 RS = 1.4



1 in Horiz. = 400 ft 1 in Vert. = 6 ft

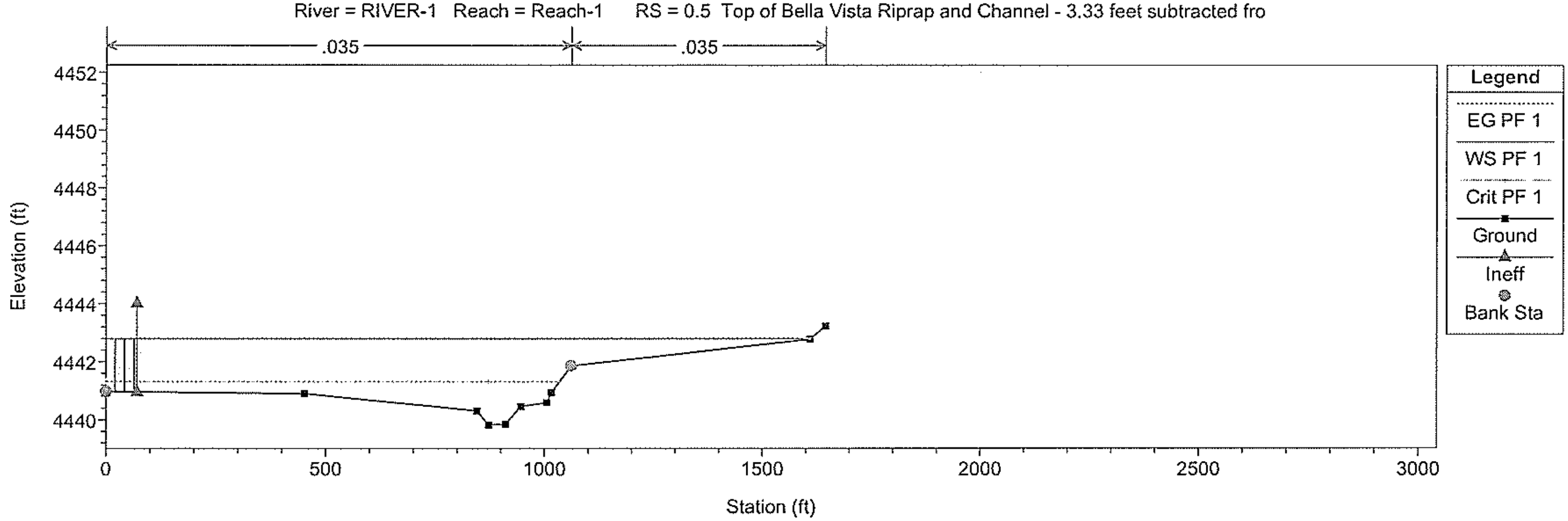
Damonte Phase V - Wetlands   Plan: Damonte Phase V - Wetlands/Steamboat   12/28/2007

River = RIVER-1   Reach = Reach-1   RS = 1

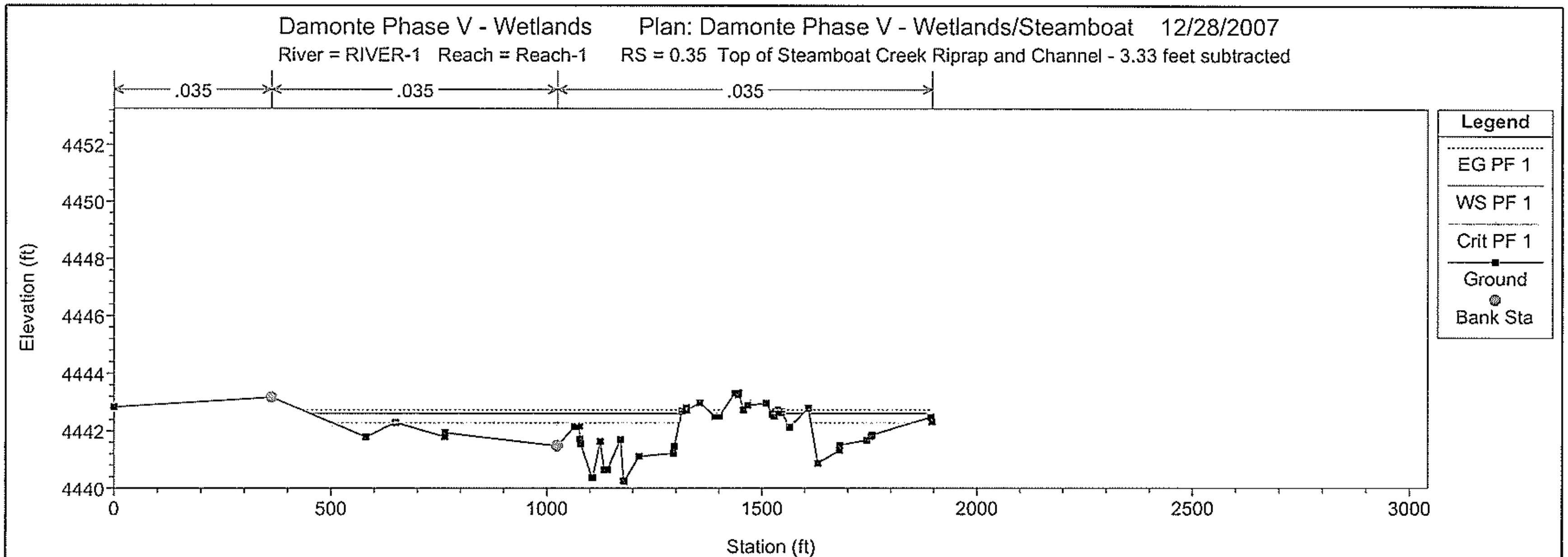


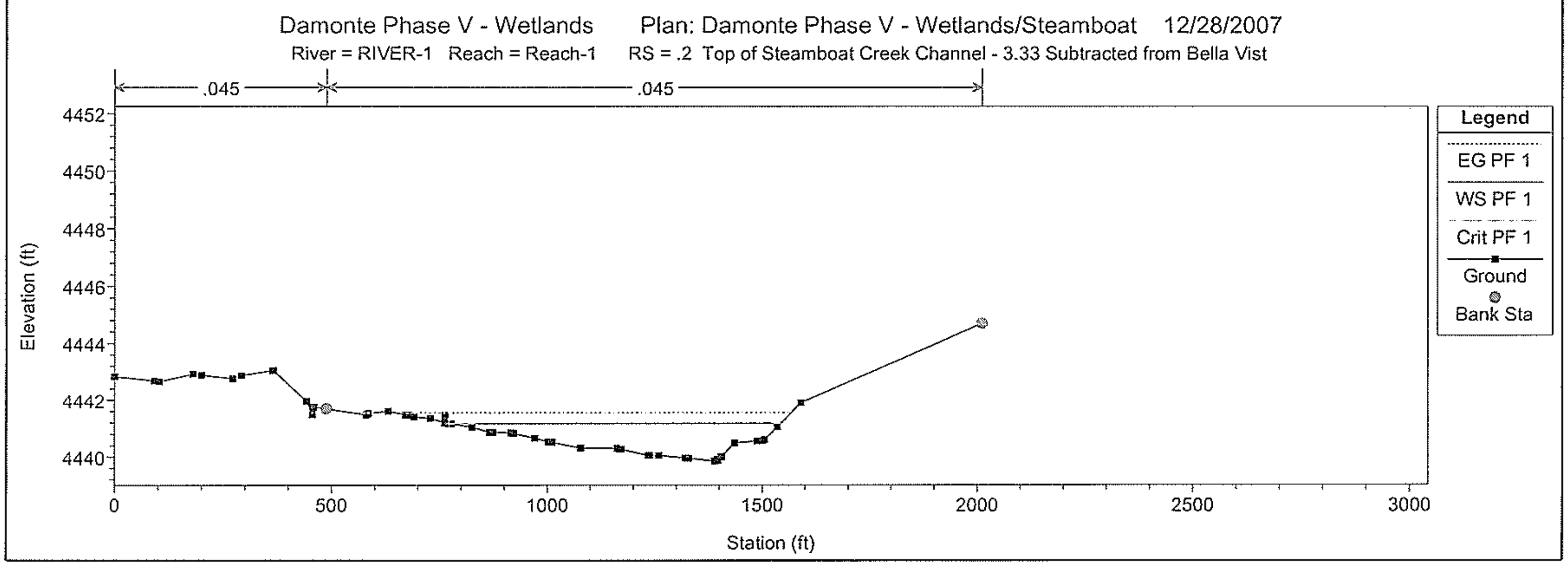
Damonte Phase V - Wetlands   Plan: Damonte Phase V - Wetlands/Steamboat   12/28/2007

River = RIVER-1   Reach = Reach-1   RS = 0.5 Top of Bella Vista Riprap and Channel - 3.33 feet subtracted fro



1 in Horiz. = 400 ft   1 in Vert. = 6 ft





1 in Horiz. = 400 ft 1 in Vert. = 6 ft

HYDROGRAPH AT STATION EST-WS
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = .94
This is the hydrograph of the East West Channel at the Steamboat Confluence

DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW
27 JUL 0005	1	0.	27 JUL 0605	73	0.	27 JUL 1205	145	56.	27 JUL 1805	217	39.
27 JUL 0010	2	0.	27 JUL 0610	74	0.	27 JUL 1210	146	76.	27 JUL 1810	218	39.
27 JUL 0015	3	0.	27 JUL 0615	75	0.	27 JUL 1215	147	84.	27 JUL 1815	219	38.
27 JUL 0020	4	0.	27 JUL 0620	76	0.	27 JUL 1220	148	83.	27 JUL 1820	220	38.
27 JUL 0025	5	0.	27 JUL 0625	77	0.	27 JUL 1225	149	80.	27 JUL 1825	221	38.
27 JUL 0030	6	0.	27 JUL 0630	78	0.	27 JUL 1230	150	76.	27 JUL 1830	222	37.
27 JUL 0035	7	0.	27 JUL 0635	79	0.	27 JUL 1235	151	71.	27 JUL 1835	223	37.
27 JUL 0040	8	0.	27 JUL 0640	80	0.	27 JUL 1240	152	67.	27 JUL 1840	224	37.
27 JUL 0045	9	0.	27 JUL 0645	81	0.	27 JUL 1245	153	65.	27 JUL 1845	225	37.
27 JUL 0050	10	0.	27 JUL 0650	82	0.	27 JUL 1250	154	64.	27 JUL 1850	226	36.
27 JUL 0055	11	0.	27 JUL 0655	83	0.	27 JUL 1255	155	64.	27 JUL 1855	227	36.
27 JUL 0100	12	0.	27 JUL 0700	84	0.	27 JUL 1300	156	63.	27 JUL 1900	228	36.
27 JUL 0105	13	0.	27 JUL 0705	85	0.	27 JUL 1305	157	63.	27 JUL 1905	229	35.
27 JUL 0110	14	0.	27 JUL 0710	86	0.	27 JUL 1310	158	62.	27 JUL 1910	230	35.
27 JUL 0115	15	0.	27 JUL 0715	87	0.	27 JUL 1315	159	62.	27 JUL 1915	231	35.
27 JUL 0120	16	0.	27 JUL 0720	88	0.	27 JUL 1320	160	61.	27 JUL 1920	232	35.
27 JUL 0125	17	0.	27 JUL 0725	89	0.	27 JUL 1325	161	61.	27 JUL 1925	233	34.
27 JUL 0130	18	0.	27 JUL 0730	90	0.	27 JUL 1330	162	60.	27 JUL 1930	234	34.
27 JUL 0135	19	0.	27 JUL 0735	91	0.	27 JUL 1335	163	60.	27 JUL 1935	235	34.
27 JUL 0140	20	0.	27 JUL 0740	92	0.	27 JUL 1340	164	59.	27 JUL 1940	236	33.
27 JUL 0145	21	0.	27 JUL 0745	93	0.	27 JUL 1345	165	59.	27 JUL 1945	237	33.
27 JUL 0150	22	0.	27 JUL 0750	94	0.	27 JUL 1350	166	58.	27 JUL 1950	238	33.
27 JUL 0155	23	0.	27 JUL 0755	95	0.	27 JUL 1355	167	58.	27 JUL 1955	239	33.
27 JUL 0200	24	0.	27 JUL 0800	96	0.	27 JUL 1400	168	57.	27 JUL 2000	240	32.
27 JUL 0205	25	0.	27 JUL 0805	97	0.	27 JUL 1405	169	57.	27 JUL 2005	241	32.
27 JUL 0210	26	0.	27 JUL 0810	98	0.	27 JUL 1410	170	56.	27 JUL 2010	242	32.
27 JUL 0215	27	0.	27 JUL 0815	99	0.	27 JUL 1415	171	56.	27 JUL 2015	243	32.

27 JUL 0220	28	0.	*	27 JUL 0820	100	0.	*	27 JUL 1420	172	56.	*	27 JUL 2020	244	31.
27 JUL 0225	29	0.	*	27 JUL 0825	101	0.	*	27 JUL 1425	173	55.	*	27 JUL 2025	245	31.
27 JUL 0230	30	0.	*	27 JUL 0830	102	0.	*	27 JUL 1430	174	55.	*	27 JUL 2030	246	31.
27 JUL 0235	31	0.	*	27 JUL 0835	103	0.	*	27 JUL 1435	175	54.	*	27 JUL 2035	247	31.
27 JUL 0240	32	0.	*	27 JUL 0840	104	0.	*	27 JUL 1440	176	54.	*	27 JUL 2040	248	30.
27 JUL 0245	33	0.	*	27 JUL 0845	105	0.	*	27 JUL 1445	177	53.	*	27 JUL 2045	249	30.
27 JUL 0250	34	0.	*	27 JUL 0850	106	0.	*	27 JUL 1450	178	53.	*	27 JUL 2050	250	30.
27 JUL 0255	35	0.	*	27 JUL 0855	107	0.	*	27 JUL 1455	179	53.	*	27 JUL 2055	251	30.
27 JUL 0300	36	0.	*	27 JUL 0900	108	0.	*	27 JUL 1500	180	52.	*	27 JUL 2100	252	29.
27 JUL 0305	37	0.	*	27 JUL 0905	109	0.	*	27 JUL 1505	181	52.	*	27 JUL 2105	253	29.
27 JUL 0310	38	0.	*	27 JUL 0910	110	0.	*	27 JUL 1510	182	51.	*	27 JUL 2110	254	29.
27 JUL 0315	39	0.	*	27 JUL 0915	111	0.	*	27 JUL 1515	183	51.	*	27 JUL 2115	255	29.
27 JUL 0320	40	0.	*	27 JUL 0920	112	0.	*	27 JUL 1520	184	51.	*	27 JUL 2120	256	29.
27 JUL 0325	41	0.	*	27 JUL 0925	113	0.	*	27 JUL 1525	185	50.	*	27 JUL 2125	257	28.
27 JUL 0330	42	0.	*	27 JUL 0930	114	0.	*	27 JUL 1530	186	50.	*	27 JUL 2130	258	28.
27 JUL 0335	43	0.	*	27 JUL 0935	115	0.	*	27 JUL 1535	187	49.	*	27 JUL 2135	259	28.
27 JUL 0340	44	0.	*	27 JUL 0940	116	0.	*	27 JUL 1540	188	49.	*	27 JUL 2140	260	28.
27 JUL 0345	45	0.	*	27 JUL 0945	117	0.	*	27 JUL 1545	189	49.	*	27 JUL 2145	261	27.
27 JUL 0350	46	0.	*	27 JUL 0950	118	0.	*	27 JUL 1550	190	48.	*	27 JUL 2150	262	27.
27 JUL 0355	47	0.	*	27 JUL 0955	119	0.	*	27 JUL 1555	191	48.	*	27 JUL 2155	263	27.
27 JUL 0400	48	0.	*	27 JUL 1000	120	0.	*	27 JUL 1600	192	47.	*	27 JUL 2200	264	27.
27 JUL 0405	49	0.	*	27 JUL 1005	121	0.	*	27 JUL 1605	193	47.	*	27 JUL 2205	265	27.
27 JUL 0410	50	0.	*	27 JUL 1010	122	0.	*	27 JUL 1610	194	47.	*	27 JUL 2210	266	26.
27 JUL 0415	51	0.	*	27 JUL 1015	123	0.	*	27 JUL 1615	195	46.	*	27 JUL 2215	267	26.
27 JUL 0420	52	0.	*	27 JUL 1020	124	0.	*	27 JUL 1620	196	46.	*	27 JUL 2220	268	26.
27 JUL 0425	53	0.	*	27 JUL 1025	125	0.	*	27 JUL 1625	197	46.	*	27 JUL 2225	269	26.
27 JUL 0430	54	0.	*	27 JUL 1030	126	0.	*	27 JUL 1630	198	45.	*	27 JUL 2230	270	26.
27 JUL 0435	55	0.	*	27 JUL 1035	127	1.	*	27 JUL 1635	199	45.	*	27 JUL 2235	271	25.
27 JUL 0440	56	0.	*	27 JUL 1040	128	1.	*	27 JUL 1640	200	45.	*	27 JUL 2240	272	25.
27 JUL 0445	57	0.	*	27 JUL 1045	129	1.	*	27 JUL 1645	201	44.	*	27 JUL 2245	273	25.
27 JUL 0450	58	0.	*	27 JUL 1050	130	1.	*	27 JUL 1650	202	44.	*	27 JUL 2250	274	25.
27 JUL 0455	59	0.	*	27 JUL 1055	131	1.	*	27 JUL 1655	203	43.	*	27 JUL 2255	275	25.
27 JUL 0500	60	0.	*	27 JUL 1100	132	1.	*	27 JUL 1700	204	43.	*	27 JUL 2300	276	24.
27 JUL 0505	61	0.	*	27 JUL 1105	133	1.	*	27 JUL 1705	205	43.	*	27 JUL 2305	277	24.
27 JUL 0510	62	0.	*	27 JUL 1110	134	2.	*	27 JUL 1710	206	42.	*	27 JUL 2310	278	24.

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    27 JUL 0515   63        0.   *  27 JUL 1115  135        2.   *  27 JUL 1715  207       42.   *  27 JUL 2315  279       24.
    27 JUL 0520   64        0.   *  27 JUL 1120  136        2.   *  27 JUL 1720  208       42.   *  27 JUL 2320  280       24.
    27 JUL 0525   65        0.   *  27 JUL 1125  137        3.   *  27 JUL 1725  209       41.   *  27 JUL 2325  281       23.
    27 JUL 0530   66        0.   *  27 JUL 1130  138        3.   *  27 JUL 1730  210       41.   *  27 JUL 2330  282       23.
    27 JUL 0535   67        0.   *  27 JUL 1135  139        3.   *  27 JUL 1735  211       41.   *  27 JUL 2335  283       23.
    27 JUL 0540   68        0.   *  27 JUL 1140  140        4.   *  27 JUL 1740  212       40.   *  27 JUL 2340  284       23.
    27 JUL 0545   69        0.   *  27 JUL 1145  141        6.   *  27 JUL 1745  213       40.   *  27 JUL 2345  285       23.
    27 JUL 0550   70        0.   *  27 JUL 1150  142       10.   *  27 JUL 1750  214       40.   *  27 JUL 2350  286       23.
    27 JUL 0555   71        0.   *  27 JUL 1155  143       17.   *  27 JUL 1755  215       40.   *  27 JUL 2355  287       22.
    27 JUL 0600   72        0.   *  27 JUL 1200  144       32.   *  27 JUL 1800  216       39.   *  28 JUL 0000  288       22.
                                 *                                *                                *
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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR         24-HR        72-HR      23.92-HR
+   (CFS)       (HR)
                            (CFS)
+      84.     12.17                  53.          21.          21.          21.
                         (INCHES)    3.105        4.909        4.909        4.909
                          (AC-FT)     26.          42.          42.          42.

                         CUMULATIVE AREA =      .16 SQ MI
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Peak flow is listed at 12.17 hours and 84 cfs at confluence with Steamboat Creek.

HYDROGRAPH AT STATION RT 12
PLAN 1, RATIO = .94
This is the routed hydrograph from STMbv3 Downstream to the East-West Channel Confluence

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
27	JUL	0005	1	0.	27	JUL	0605	73	518.	27	JUL	1205	145	604.	27	JUL	1805	217	6263.
27	JUL	0010	2	0.	27	JUL	0610	74	519.	27	JUL	1210	146	621.	27	JUL	1810	218	6247.
27	JUL	0015	3	0.	27	JUL	0615	75	520.	27	JUL	1215	147	651.	27	JUL	1815	219	6226.
27	JUL	0020	4	0.	27	JUL	0620	76	522.	27	JUL	1220	148	704.	27	JUL	1820	220	6201.
27	JUL	0025	5	0.	27	JUL	0625	77	527.	27	JUL	1225	149	784.	27	JUL	1825	221	6171.
27	JUL	0030	6	0.	27	JUL	0630	78	534.	27	JUL	1230	150	871.	27	JUL	1830	222	6137.
27	JUL	0035	7	0.	27	JUL	0635	79	543.	27	JUL	1235	151	939.	27	JUL	1835	223	6099.
27	JUL	0040	8	0.	27	JUL	0640	80	553.	27	JUL	1240	152	977.	27	JUL	1840	224	6056.
27	JUL	0045	9	0.	27	JUL	0645	81	560.	27	JUL	1245	153	998.	27	JUL	1845	225	6006.
27	JUL	0050	10	0.	27	JUL	0650	82	565.	27	JUL	1250	154	1017.	27	JUL	1850	226	5948.
27	JUL	0055	11	1.	27	JUL	0655	83	566.	27	JUL	1255	155	1046.	27	JUL	1855	227	5882.
27	JUL	0100	12	3.	27	JUL	0700	84	563.	27	JUL	1300	156	1086.	27	JUL	1900	228	5807.
27	JUL	0105	13	10.	27	JUL	0705	85	559.	27	JUL	1305	157	1139.	27	JUL	1905	229	5724.
27	JUL	0110	14	32.	27	JUL	0710	86	556.	27	JUL	1310	158	1216.	27	JUL	1910	230	5630.
27	JUL	0115	15	73.	27	JUL	0715	87	556.	27	JUL	1315	159	1325.	27	JUL	1915	231	5528.
27	JUL	0120	16	130.	27	JUL	0720	88	561.	27	JUL	1320	160	1476.	27	JUL	1920	232	5417.
27	JUL	0125	17	192.	27	JUL	0725	89	571.	27	JUL	1325	161	1672.	27	JUL	1925	233	5299.
27	JUL	0130	18	251.	27	JUL	0730	90	586.	27	JUL	1330	162	1911.	27	JUL	1930	234	5171.
27	JUL	0135	19	302.	27	JUL	0735	91	599.	27	JUL	1335	163	2180.	27	JUL	1935	235	5034.
27	JUL	0140	20	345.	27	JUL	0740	92	608.	27	JUL	1340	164	2464.	27	JUL	1940	236	4894.
27	JUL	0145	21	382.	27	JUL	0745	93	610.	27	JUL	1345	165	2751.	27	JUL	1945	237	4757.
27	JUL	0150	22	412.	27	JUL	0750	94	608.	27	JUL	1350	166	3037.	27	JUL	1950	238	4628.
27	JUL	0155	23	437.	27	JUL	0755	95	604.	27	JUL	1355	167	3317.	27	JUL	1955	239	4507.
27	JUL	0200	24	456.	27	JUL	0800	96	601.	27	JUL	1400	168	3593.	27	JUL	2000	240	4393.
27	JUL	0205	25	470.	27	JUL	0805	97	600.	27	JUL	1405	169	3866.	27	JUL	2005	241	4282.
27	JUL	0210	26	481.	27	JUL	0810	98	603.	27	JUL	1410	170	4137.	27	JUL	2010	242	4174.
27	JUL	0215	27	488.	27	JUL	0815	99	609.	27	JUL	1415	171	4402.	27	JUL	2015	243	4067.
27	JUL	0220	28	493.	27	JUL	0820	100	615.	27	JUL	1420	172	4648.	27	JUL	2020	244	3964.
27	JUL	0225	29	497.	27	JUL	0825	101	620.	27	JUL	1425	173	4860.	27	JUL	2025	245	3866.
27	JUL	0230	30	500.	27	JUL	0830	102	622.	27	JUL	1430	174	5026.	27	JUL	2030	246	3771.
27	JUL	0235	31	502.	27	JUL	0835	103	620.	27	JUL	1435	175	5140.	27	JUL	2035	247	3680.

27	JUL	0240	32	503.	*	27	JUL	0840	104	615.	*	27	JUL	1440	176	5210.	*	27	JUL	2040	248	3591.
27	JUL	0245	33	504.	*	27	JUL	0845	105	608.	*	27	JUL	1445	177	5244.	*	27	JUL	2045	249	3503.
27	JUL	0250	34	505.	*	27	JUL	0850	106	601.	*	27	JUL	1450	178	5253.	*	27	JUL	2050	250	3417.
27	JUL	0255	35	505.	*	27	JUL	0855	107	595.	*	27	JUL	1455	179	5246.	*	27	JUL	2055	251	3336.
27	JUL	0300	36	506.	*	27	JUL	0900	108	590.	*	27	JUL	1500	180	5230.	*	27	JUL	2100	252	3259.
27	JUL	0305	37	506.	*	27	JUL	0905	109	587.	*	27	JUL	1505	181	5213.	*	27	JUL	2105	253	3188.
27	JUL	0310	38	507.	*	27	JUL	0910	110	584.	*	27	JUL	1510	182	5198.	*	27	JUL	2110	254	3121.
27	JUL	0315	39	507.	*	27	JUL	0915	111	582.	*	27	JUL	1515	183	5187.	*	27	JUL	2115	255	3058.
27	JUL	0320	40	507.	*	27	JUL	0920	112	580.	*	27	JUL	1520	184	5184.	*	27	JUL	2120	256	2999.
27	JUL	0325	41	508.	*	27	JUL	0925	113	579.	*	27	JUL	1525	185	5190.	*	27	JUL	2125	257	2942.
27	JUL	0330	42	508.	*	27	JUL	0930	114	578.	*	27	JUL	1530	186	5205.	*	27	JUL	2130	258	2888.
27	JUL	0335	43	508.	*	27	JUL	0935	115	578.	*	27	JUL	1535	187	5230.	*	27	JUL	2135	259	2837.
27	JUL	0340	44	509.	*	27	JUL	0940	116	577.	*	27	JUL	1540	188	5264.	*	27	JUL	2140	260	2786.
27	JUL	0345	45	509.	*	27	JUL	0945	117	577.	*	27	JUL	1545	189	5308.	*	27	JUL	2145	261	2737.
27	JUL	0350	46	509.	*	27	JUL	0950	118	576.	*	27	JUL	1550	190	5358.	*	27	JUL	2150	262	2689.
27	JUL	0355	47	509.	*	27	JUL	0955	119	576.	*	27	JUL	1555	191	5411.	*	27	JUL	2155	263	2645.
27	JUL	0400	48	509.	*	27	JUL	1000	120	576.	*	27	JUL	1600	192	5466.	*	27	JUL	2200	264	2604.
27	JUL	0405	49	510.	*	27	JUL	1005	121	576.	*	27	JUL	1605	193	5524.	*	27	JUL	2205	265	2565.
27	JUL	0410	50	510.	*	27	JUL	1010	122	575.	*	27	JUL	1610	194	5585.	*	27	JUL	2210	266	2529.
27	JUL	0415	51	510.	*	27	JUL	1015	123	575.	*	27	JUL	1615	195	5650.	*	27	JUL	2215	267	2495.
27	JUL	0420	52	510.	*	27	JUL	1020	124	575.	*	27	JUL	1620	196	5714.	*	27	JUL	2220	268	2462.
27	JUL	0425	53	510.	*	27	JUL	1025	125	575.	*	27	JUL	1625	197	5775.	*	27	JUL	2225	269	2431.
27	JUL	0430	54	511.	*	27	JUL	1030	126	575.	*	27	JUL	1630	198	5831.	*	27	JUL	2230	270	2400.
27	JUL	0435	55	511.	*	27	JUL	1035	127	575.	*	27	JUL	1635	199	5886.	*	27	JUL	2235	271	2370.
27	JUL	0440	56	511.	*	27	JUL	1040	128	575.	*	27	JUL	1640	200	5940.	*	27	JUL	2240	272	2341.
27	JUL	0445	57	512.	*	27	JUL	1045	129	575.	*	27	JUL	1645	201	5994.	*	27	JUL	2245	273	2313.
27	JUL	0450	58	512.	*	27	JUL	1050	130	575.	*	27	JUL	1650	202	6046.	*	27	JUL	2250	274	2286.
27	JUL	0455	59	513.	*	27	JUL	1055	131	575.	*	27	JUL	1655	203	6092.	*	27	JUL	2255	275	2259.
27	JUL	0500	60	513.	*	27	JUL	1100	132	576.	*	27	JUL	1700	204	6130.	*	27	JUL	2300	276	2233.
27	JUL	0505	61	513.	*	27	JUL	1105	133	576.	*	27	JUL	1705	205	6159.	*	27	JUL	2305	277	2208.
27	JUL	0510	62	514.	*	27	JUL	1110	134	577.	*	27	JUL	1710	206	6184.	*	27	JUL	2310	278	2184.
27	JUL	0515	63	514.	*	27	JUL	1115	135	578.	*	27	JUL	1715	207	6207.	*	27	JUL	2315	279	2160.
27	JUL	0520	64	515.	*	27	JUL	1120	136	579.	*	27	JUL	1720	208	6227.	*	27	JUL	2320	280	2137.
27	JUL	0525	65	515.	*	27	JUL	1125	137	580.	*	27	JUL	1725	209	6246.	*	27	JUL	2325	281	2115.
27	JUL	0530	66	516.	*	27	JUL	1130	138	581.	*	27	JUL	1730	210	6262.	*	27	JUL	2330	282	2093.
27	JUL	0535	67	516.	*	27	JUL	1135	139	583.	*	27	JUL	1735	211	6276.	*	27	JUL	2335	283	2072.
27	JUL	0540	68	516.	*	27	JUL	1140	140	584.	*	27	JUL	1740	212	6287.	*	27	JUL	2340	284	2052.
27	JUL	0545	69	517.	*	27	JUL	1145	141	586.	*	27	JUL	1745	213	6292.	*	27	JUL	2345	285	2033.
27	JUL	0550	70	517.	*	27	JUL	1150	142	588.	*	27	JUL	1750	214	6292.	*	27	JUL	2350	286	2015.
27	JUL	0555	71	518.	*	27	JUL	1155	143	591.	*	27	JUL	1755	215	6286.	*	27	JUL	2355	287	1996.
27	JUL	0600	72	518.	*	27	JUL	1200	144	595.	*	27	JUL	1800	216	6276.	*	28	JUL	0000	288	1977.

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Depth upstream of confluence should be similar to depth at Station 46 which is downstream of Basin No. 3.
Computed formula for depth is:

Equation for Depth vs Channel Flow at Banin 3 Outlet			
C3	C2	C1	C0
0	-7.16E-08	1.20E-03	3.58E+00
0.0000E+00	-7.1591E-08	1.2043E-03	3.5826E+00

At flow = 621 cfs computed depth equals 4.30 feet. Flowline of Steamboat Creek at Confluence is 4425.81
therefore water surface in Steamboat Creek at Time = 12.17 equals 4430.1.

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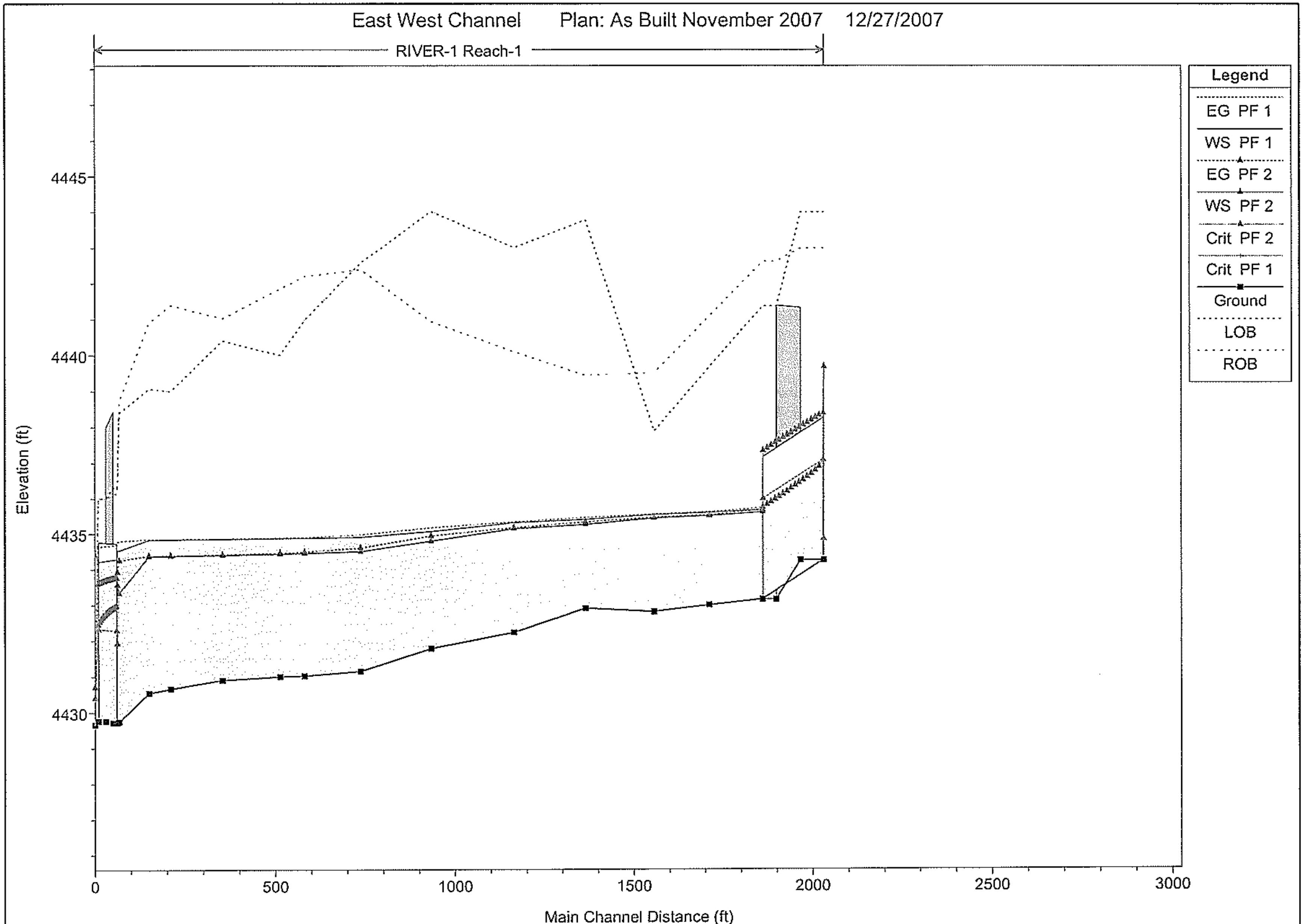
HEC-RAS Plan: asblt River: RIVER-1 Reach: Reach-1

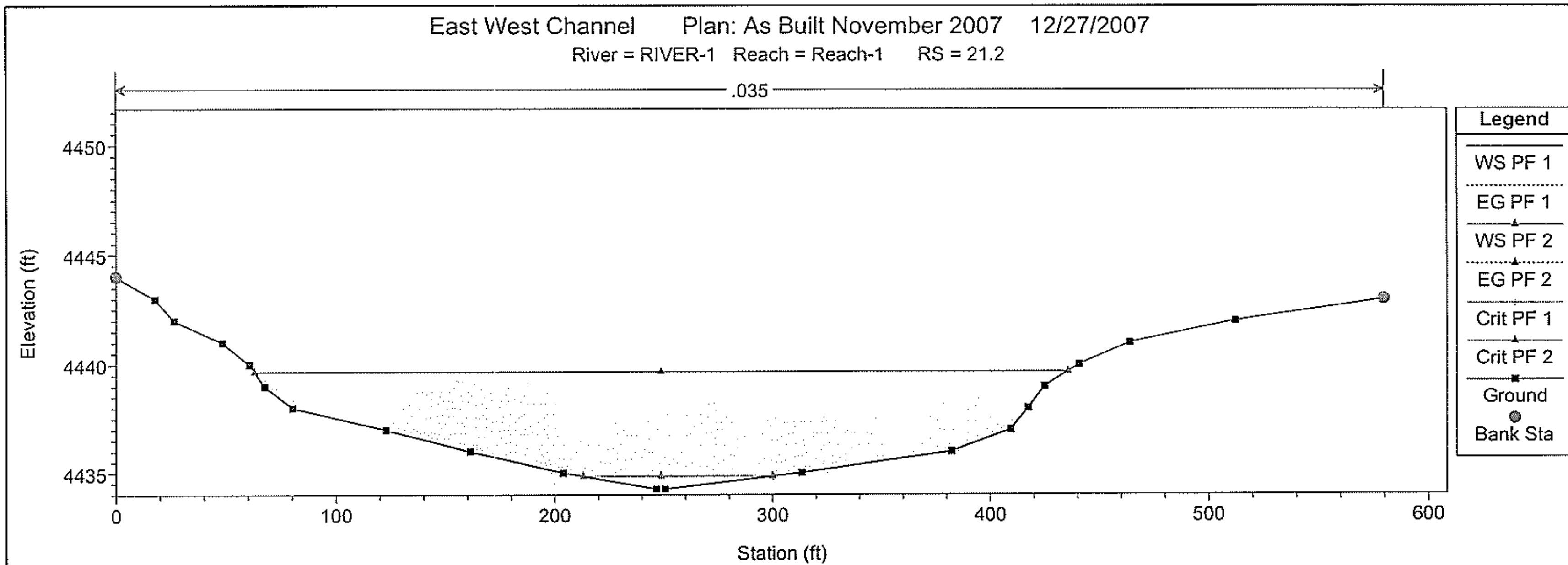
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	21.2	PF 1	86.72	4434.25	4439.67	4434.84	4439.67	0.000000	0.06	1366.56	372.73	0.01
Reach-1	21.2	PF 2	86.72	4434.25	4439.67	4434.84	4439.67	0.000000	0.06	1366.56	372.73	0.01
Reach-1	20		Culvert									
Reach-1	19.5	PF 1	86.72	4433.15	4435.67		4435.72	0.001683	1.86	46.51	52.33	0.35
Reach-1	19.5	PF 2	86.72	4433.15	4435.60		4435.66	0.002158	2.02	43.03	51.91	0.39
Reach-1	18	PF 1	99.82	4432.99	4435.58		4435.61	0.000412	1.24	80.22	57.87	0.19
Reach-1	18	PF 2	99.82	4432.99	4435.50		4435.52	0.000506	1.33	75.13	57.32	0.20
Reach-1	16.4	PF 1	99.82	4432.80	4435.53		4435.55	0.000338	1.16	86.25	59.94	0.17
Reach-1	16.4	PF 2	99.82	4432.80	4435.43		4435.45	0.000418	1.24	80.23	58.64	0.19
Reach-1	14.5	PF 1	103.63	4432.90	4435.39		4435.44	0.000888	1.83	56.69	40.76	0.27
Reach-1	14.5	PF 2	103.63	4432.90	4435.25		4435.32	0.001188	2.03	51.15	39.23	0.31
Reach-1	12.5	PF 1	106.99	4432.23	4435.31		4435.33	0.000353	1.31	81.54	48.19	0.18
Reach-1	12.5	PF 2	106.99	4432.23	4435.13		4435.17	0.000475	1.46	73.45	46.44	0.20
Reach-1	10.2	PF 1	131.65	4431.78	4435.06		4435.17	0.001376	2.63	50.07	28.45	0.35
Reach-1	10.2	PF 2	131.65	4431.78	4434.79		4434.94	0.002148	3.10	42.53	26.46	0.43
Reach-1	8.2	PF 1	137.62	4431.15	4434.90		4434.96	0.000742	2.09	65.99	33.47	0.26
Reach-1	8.2	PF 2	137.62	4431.15	4434.49		4434.60	0.001331	2.59	53.12	30.15	0.34
Reach-1	6.7	PF 1	137.62	4431.02	4434.88		4434.90	0.000201	1.20	114.72	50.58	0.14
Reach-1	6.7	PF 2	137.62	4431.02	4434.45		4434.48	0.000351	1.47	93.89	46.70	0.18
Reach-1	6	PF 1	137.62	4431.00	4434.87		4434.88	0.000170	1.06	129.92	61.33	0.13
Reach-1	6	PF 2	137.62	4431.00	4434.43		4434.46	0.000327	1.32	103.97	57.31	0.17
Reach-1	4.4	PF 1	137.62	4430.90	4434.85		4434.86	0.000117	0.85	161.20	79.82	0.11
Reach-1	4.4	PF 2	137.62	4430.90	4434.39		4434.41	0.000232	1.09	126.31	72.38	0.15
Reach-1	3	PF 1	139.55	4430.66	4434.84		4434.85	0.000079	0.79	177.46	74.04	0.09
Reach-1	3	PF 2	139.55	4430.66	4434.37		4434.38	0.000143	0.97	144.11	68.58	0.12

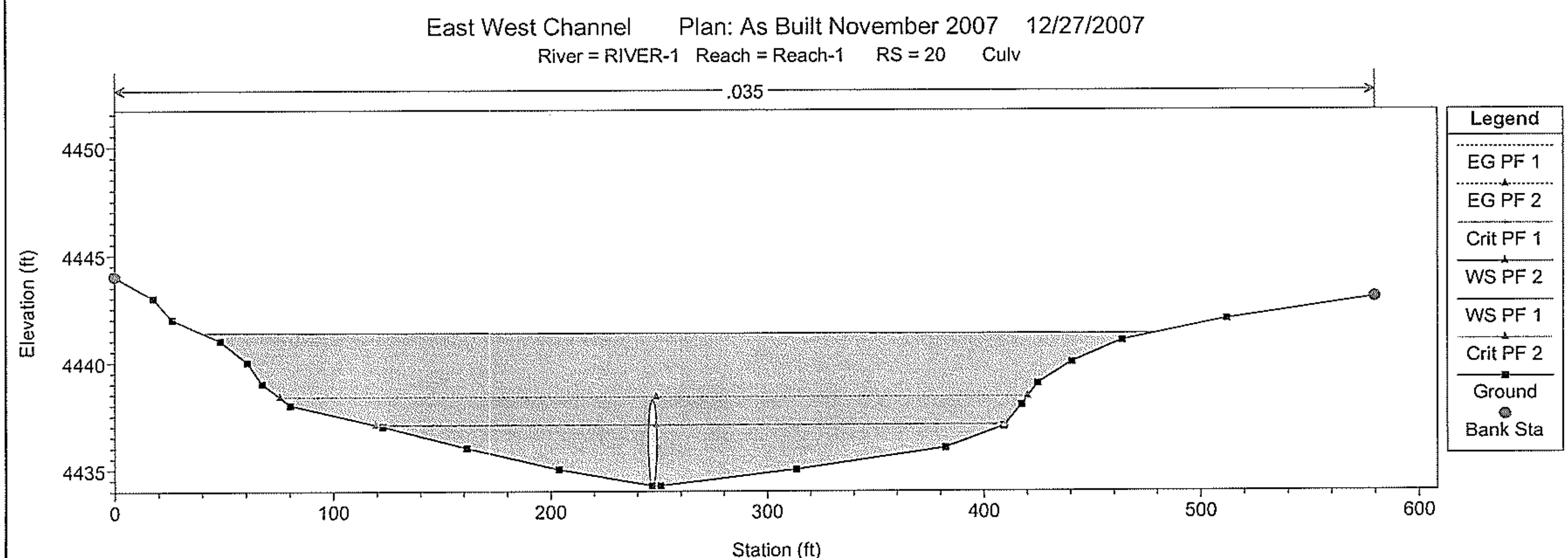
HEC-RAS Plan: asblt River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
Reach-1	20 Culvert #1	PF 1	4439.67	4439.67	4438.83	4439.67	4441.39	86.72		4.00	9.15	10.10
Reach-1	20 Culvert #1	PF 2	4439.67	4439.67	4438.83	4439.67	4441.39	86.72		4.07	9.15	10.10
Reach-1	1.3 Culvert #1	PF 1	4434.77	4434.53	4433.83	4434.77	4438.45	139.55		0.32	5.10	5.23
Reach-1	1.3 Culvert #1	PF 2	4433.92	4433.56	4433.83	4433.92	4438.45	139.55		1.25	7.17	8.68



1 in Horiz. = 400 ft 1 in Vert. = 4 ft

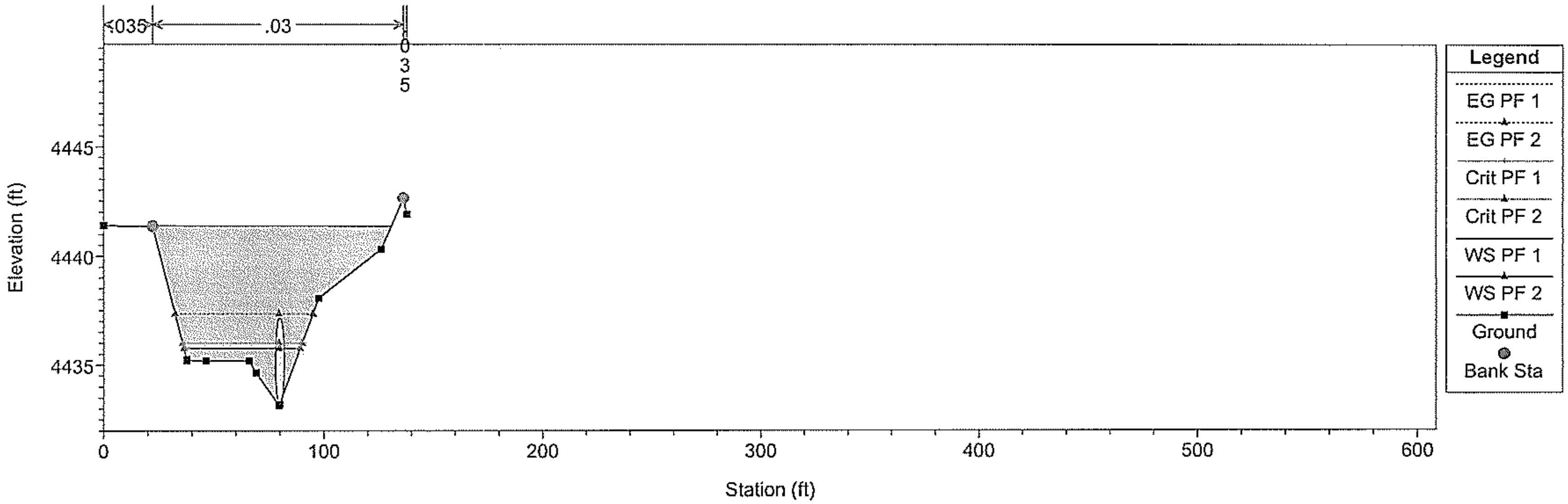




1 in Horiz. = 80 ft 1 in Vert. = 8 ft

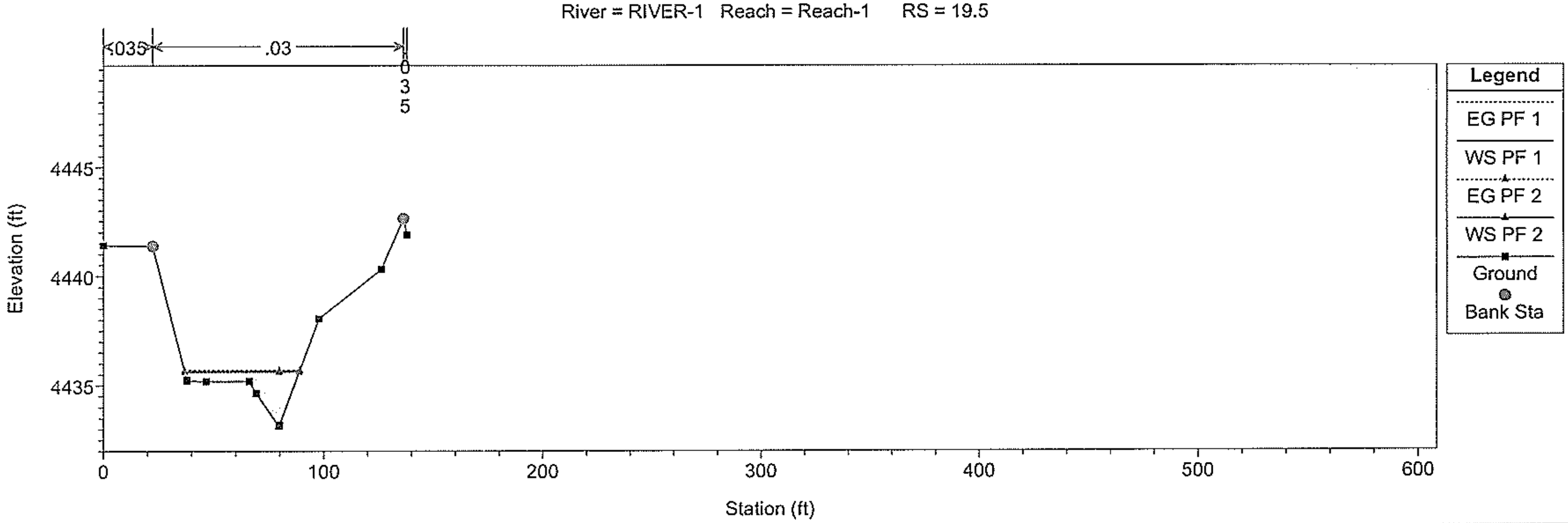
East West Channel   Plan: As Built November 2007   12/27/2007

River = RIVER-1   Reach = Reach-1   RS = 20   Culv



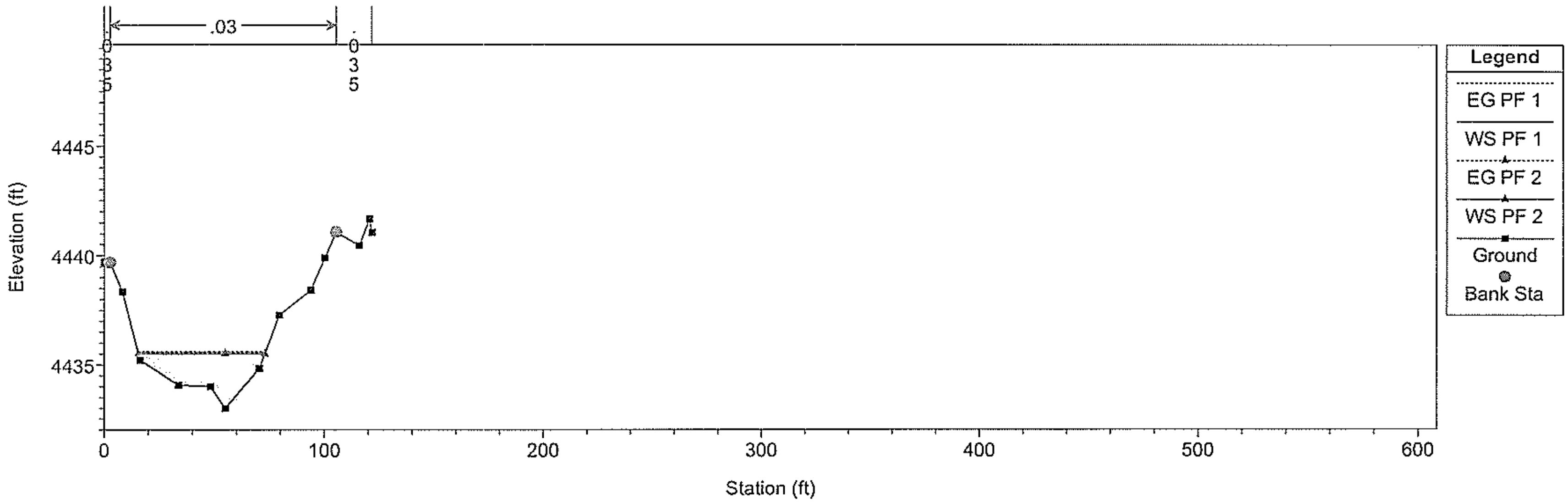
East West Channel   Plan: As Built November 2007   12/27/2007

River = RIVER-1   Reach = Reach-1   RS = 19.5

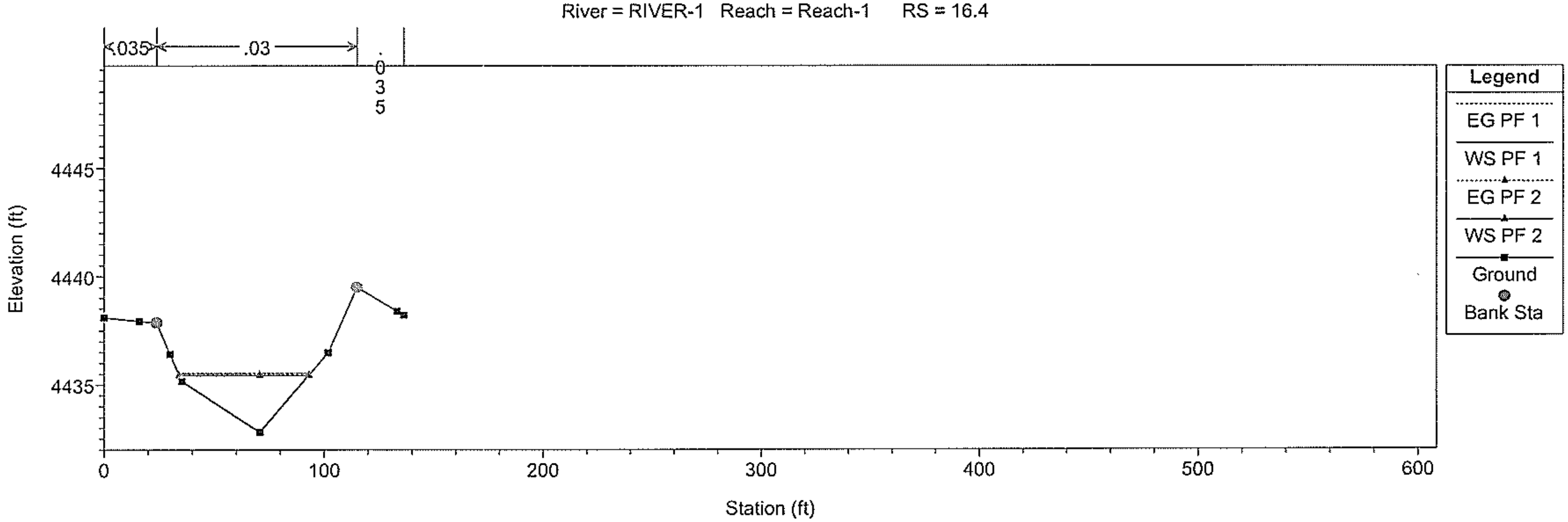


1 in Horiz. = 80 ft   1 in Vert. = 8 ft

East West Channel Plan: As Built November 2007 12/27/2007
River = RIVER-1 Reach = Reach-1 RS = 18



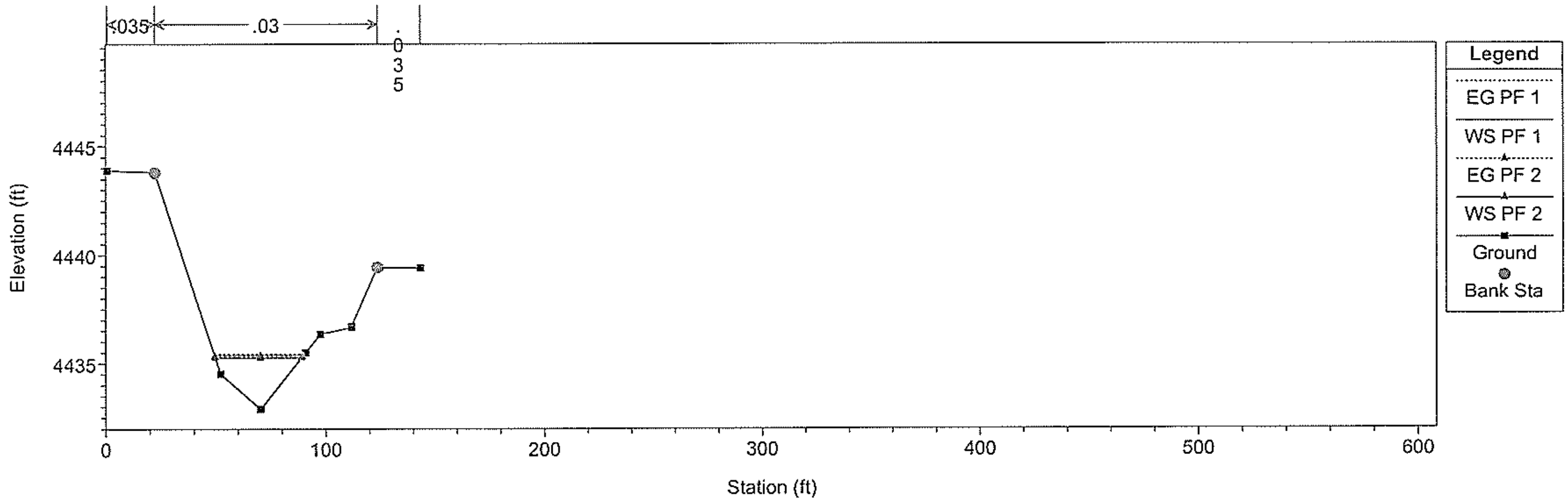
East West Channel Plan: As Built November 2007 12/27/2007
River = RIVER-1 Reach = Reach-1 RS = 16.4



1 in Horiz. = 80 ft 1 in Vert. = 8 ft

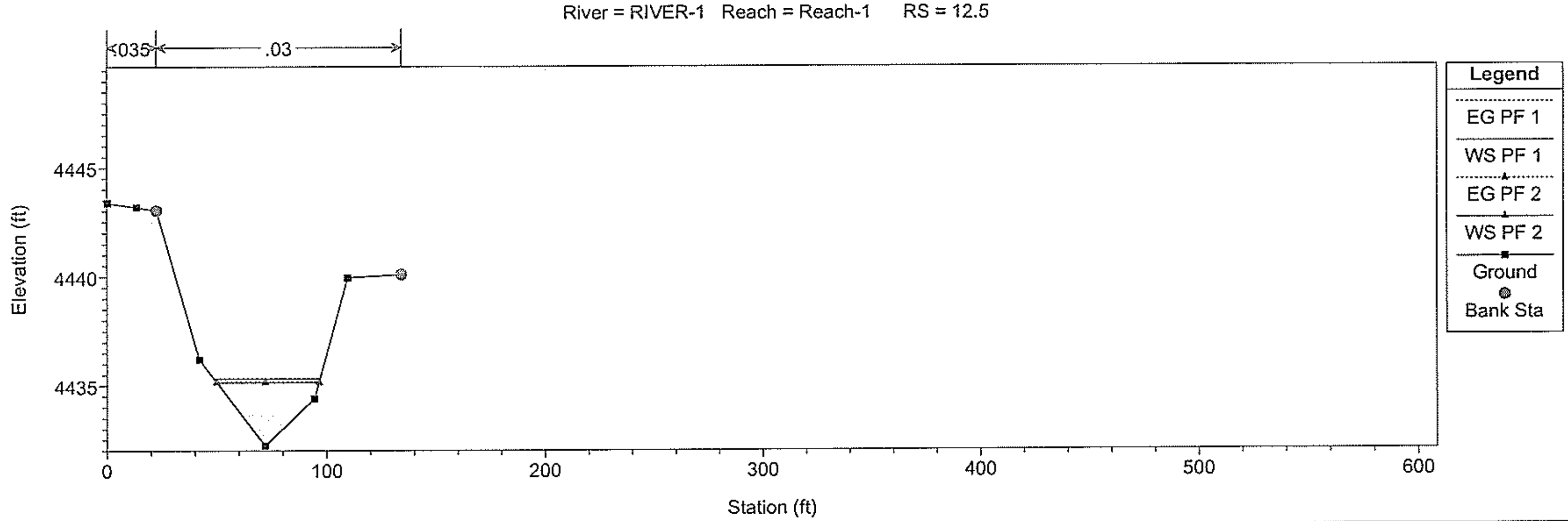
East West Channel Plan: As Built November 2007 12/27/2007

River = RIVER-1 Reach = Reach-1 RS = 14.5



East West Channel Plan: As Built November 2007 12/27/2007

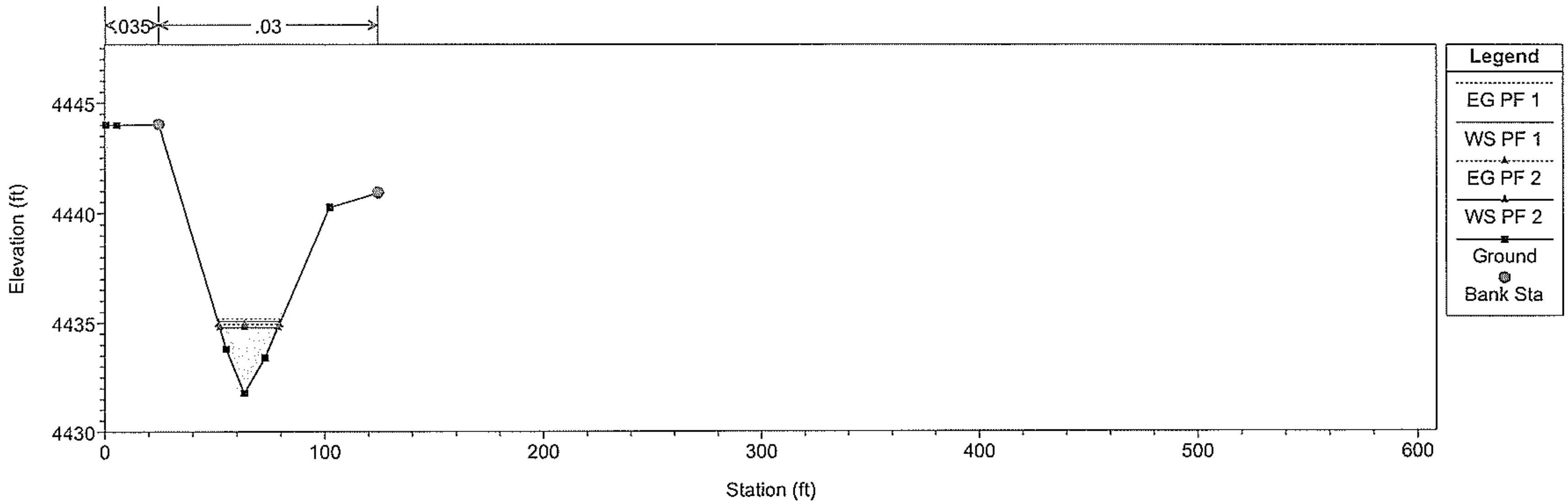
River = RIVER-1 Reach = Reach-1 RS = 12.5



1 in Horiz. = 80 ft 1 in Vert. = 8 ft

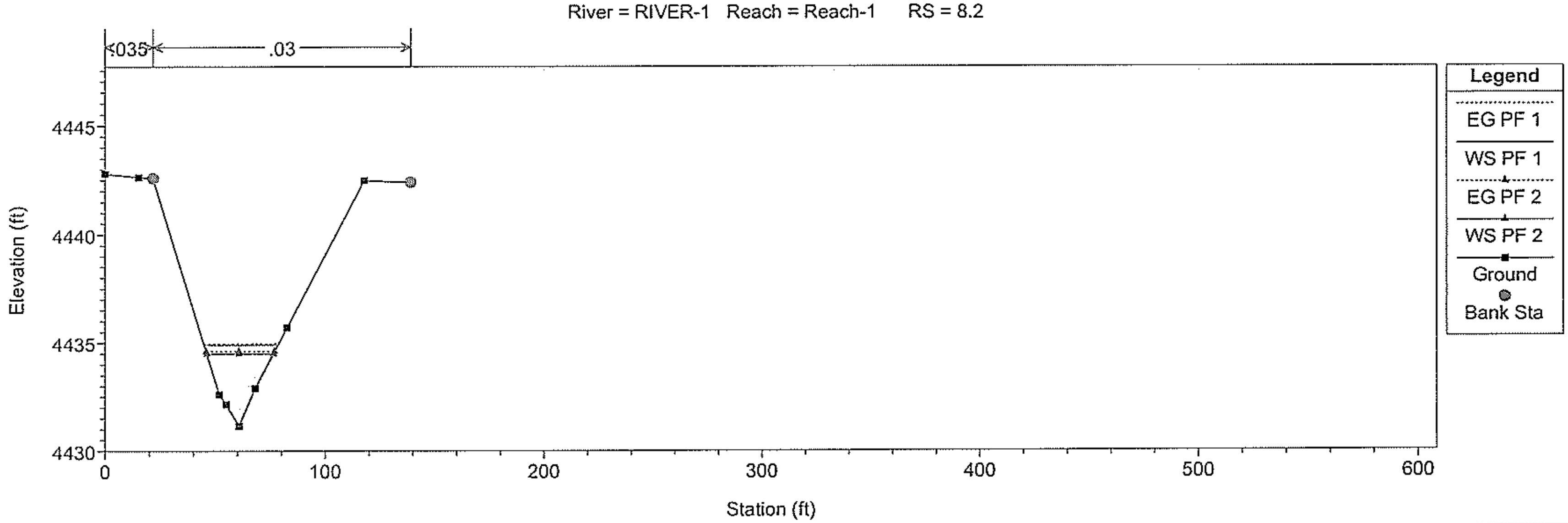
East West Channel Plan: As Built November 2007 12/27/2007

River = RIVER-1 Reach = Reach-1 RS = 10.2



East West Channel Plan: As Built November 2007 12/27/2007

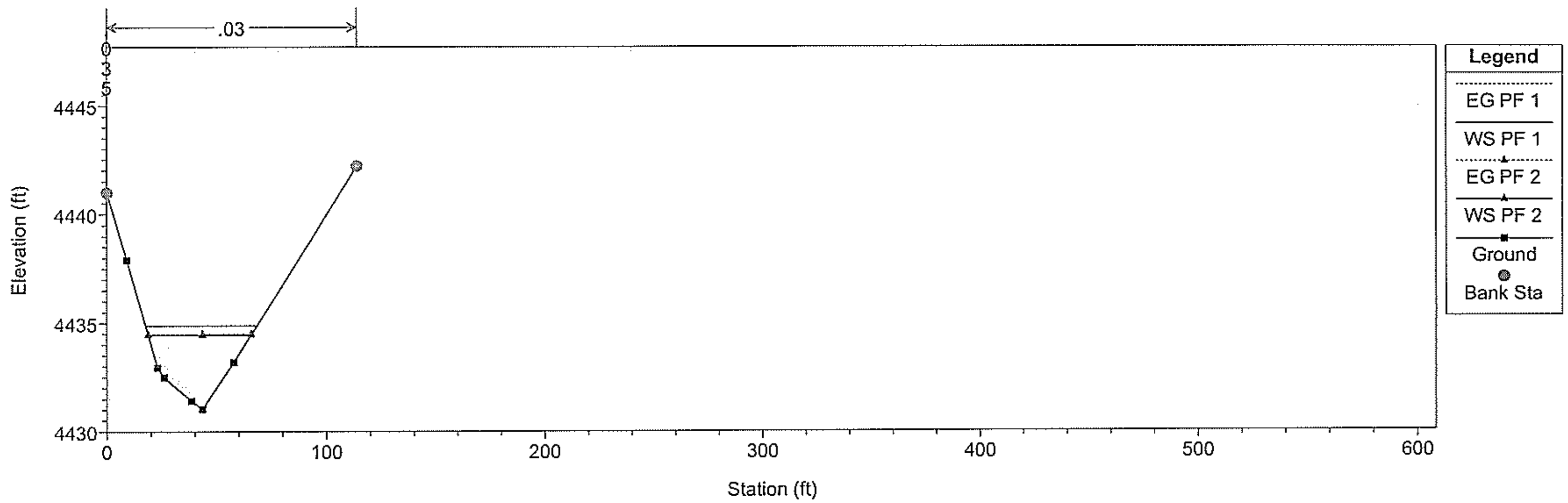
River = RIVER-1 Reach = Reach-1 RS = 8.2



1 in Horiz. = 80 ft 1 in Vert. = 8 ft

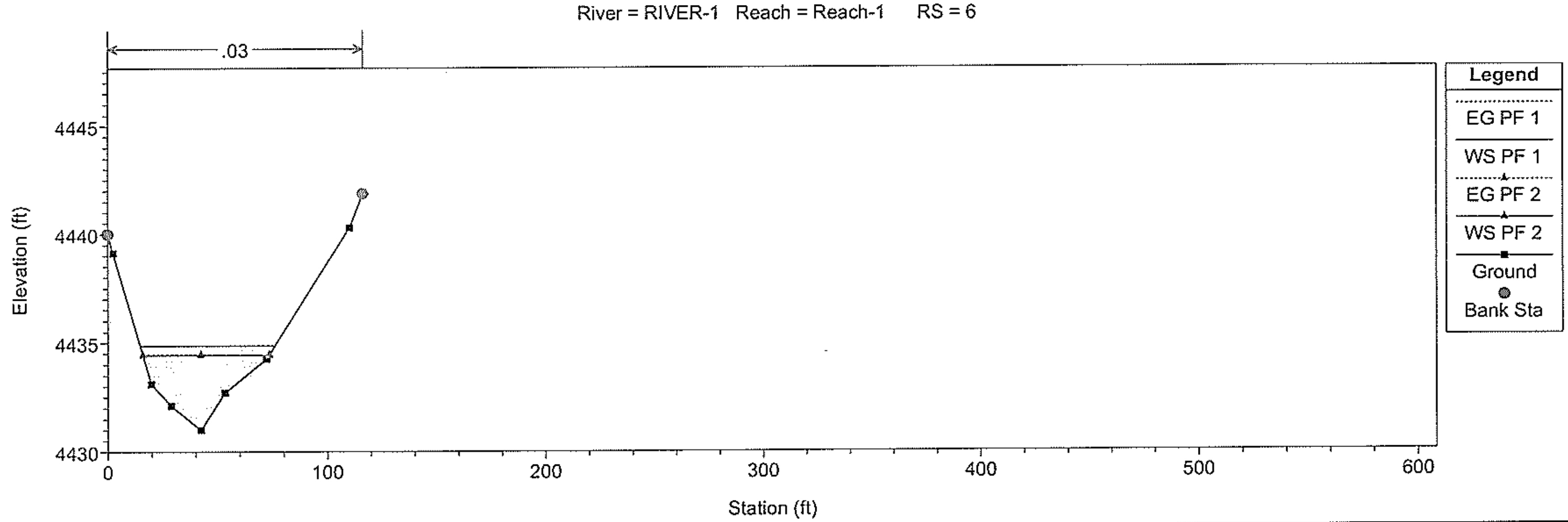
East West Channel Plan: As Built November 2007 12/27/2007

River = RIVER-1 Reach = Reach-1 RS = 6.7



East West Channel Plan: As Built November 2007 12/27/2007

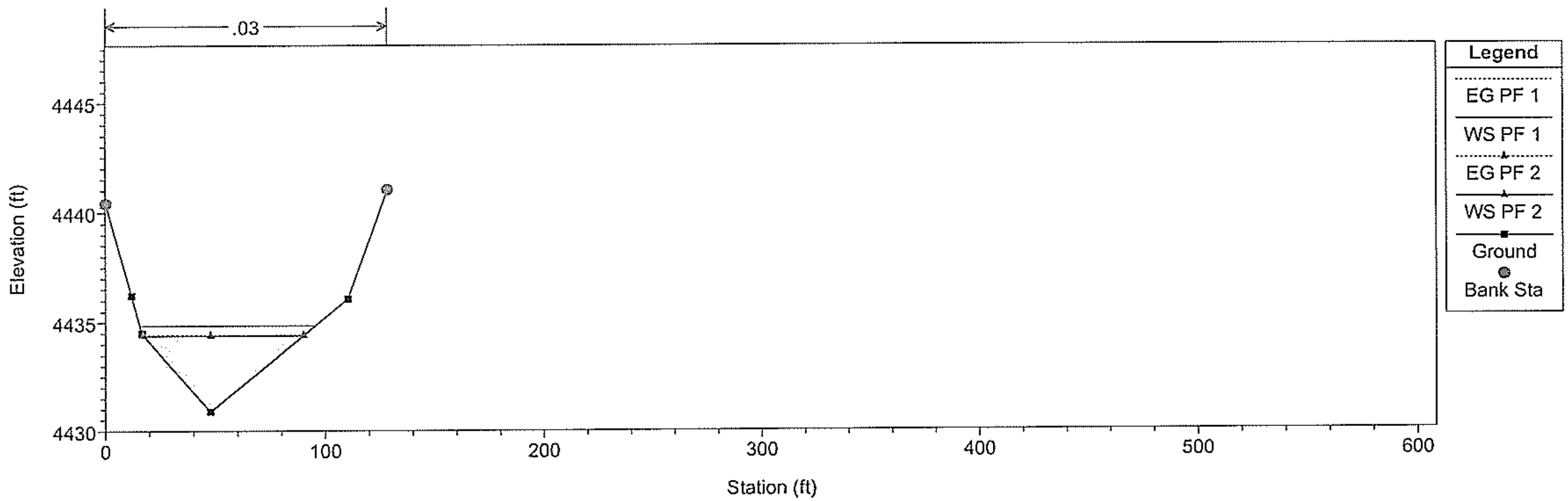
River = RIVER-1 Reach = Reach-1 RS = 6



1 in Horiz. = 80 ft 1 in Vert. = 8 ft

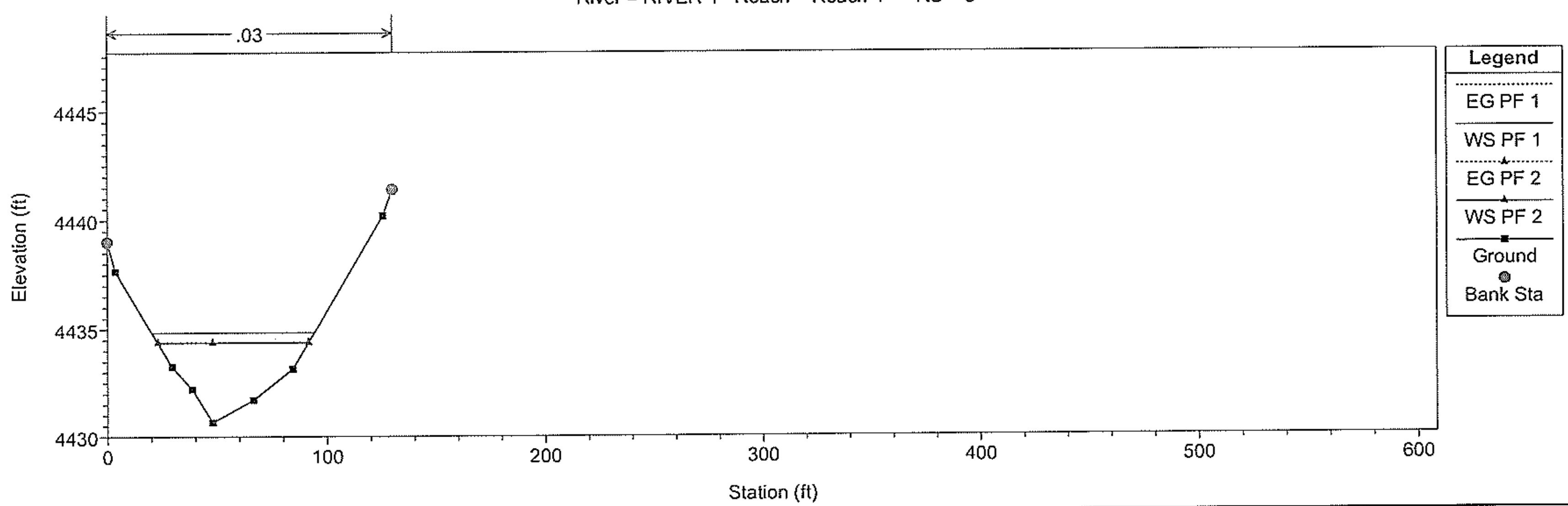
East West Channel Plan: As Built November 2007 12/27/2007

River = RIVER-1 Reach = Reach-1 RS = 4.4

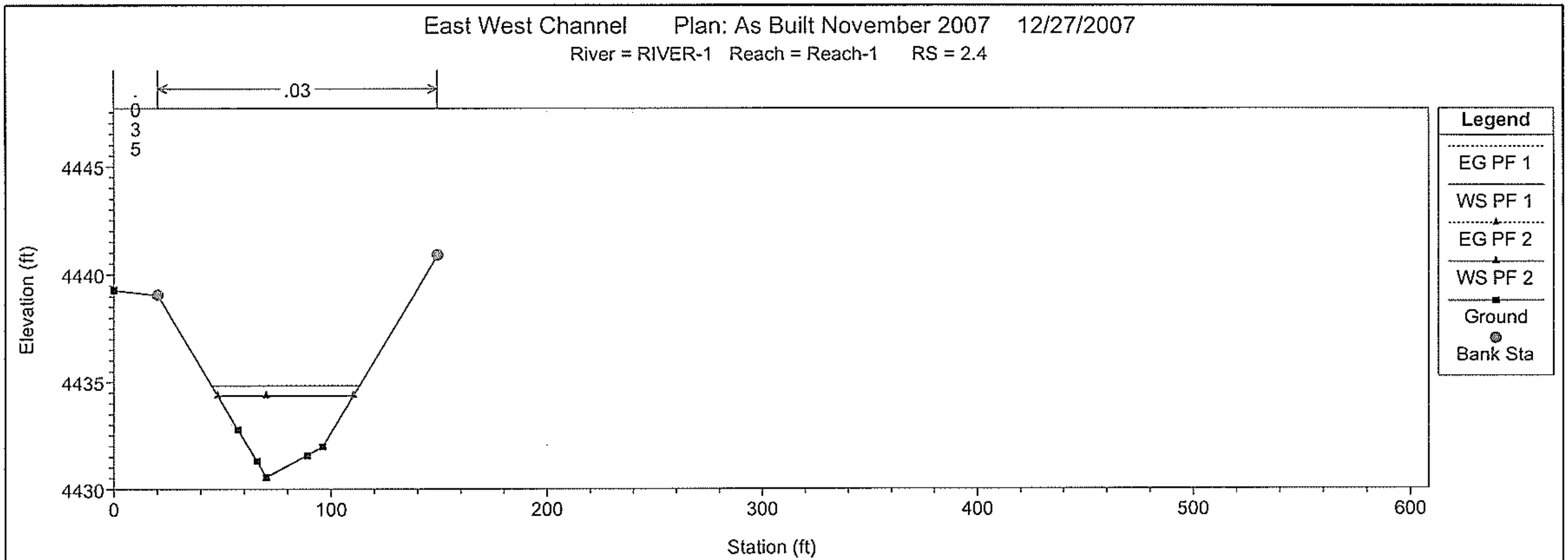


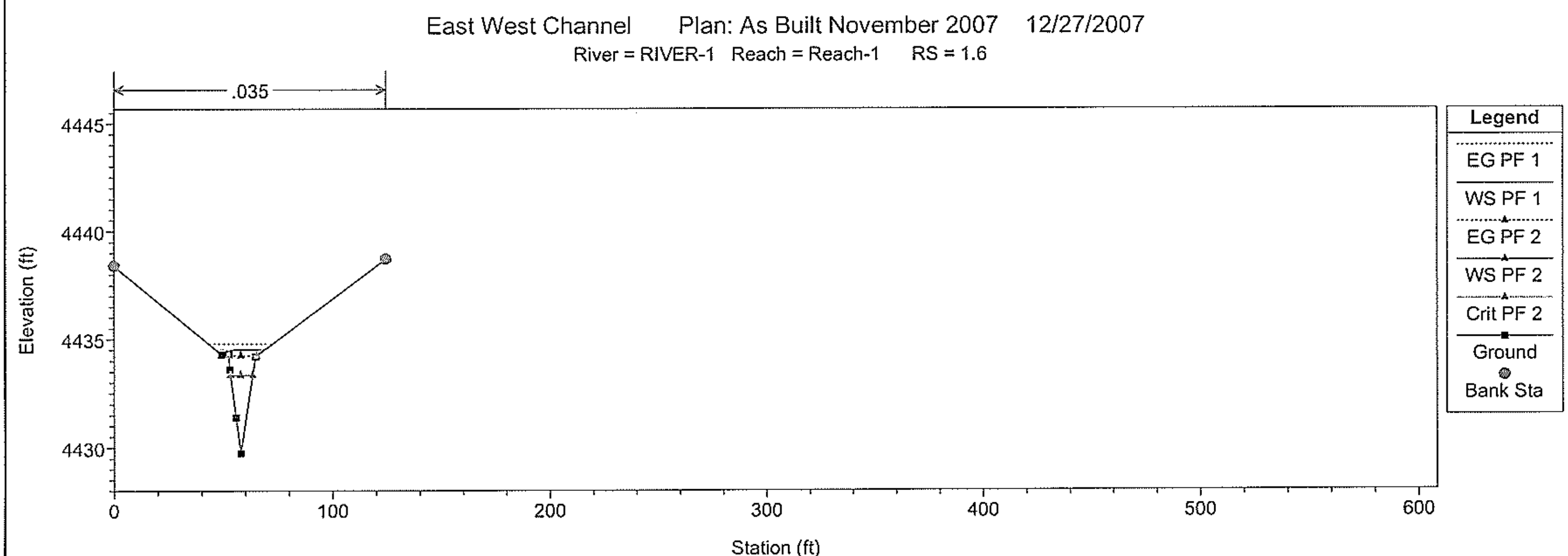
East West Channel Plan: As Built November 2007 12/27/2007

River = RIVER-1 Reach = Reach-1 RS = 3



1 in Horiz. = 80 ft 1 in Vert. = 8 ft

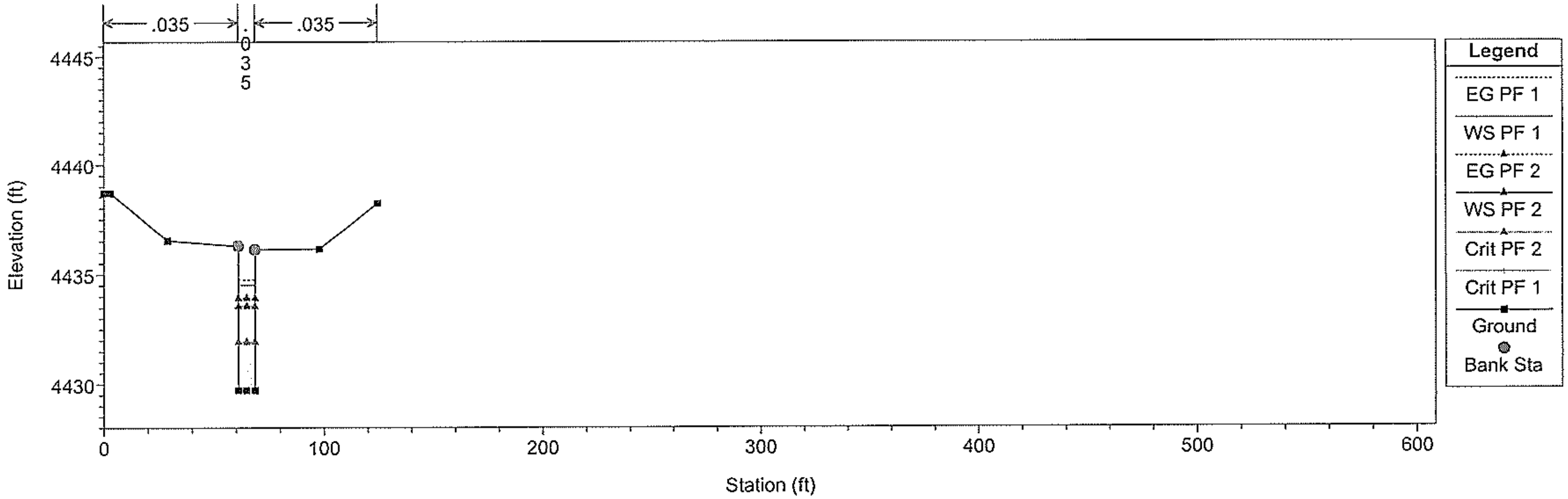




1 in Horiz. = 80 ft 1 in Vert. = 8 ft

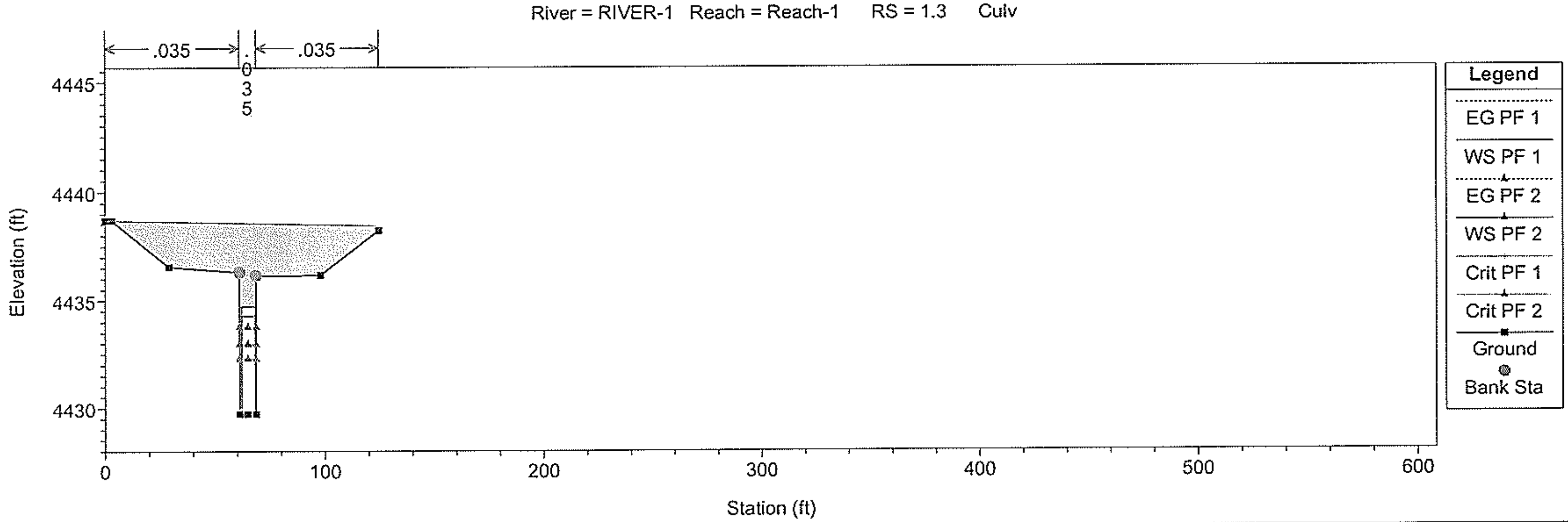
East West Channel Plan: As Built November 2007 12/27/2007

River = RIVER-1 Reach = Reach-1 RS = 1.5



East West Channel Plan: As Built November 2007 12/27/2007

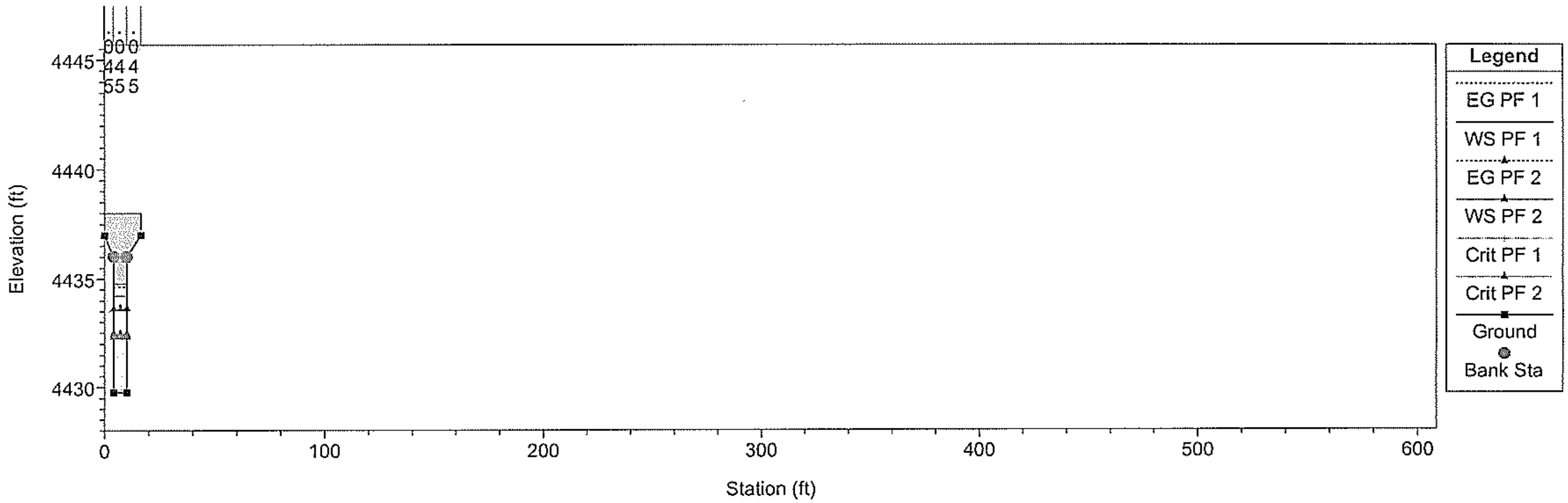
River = RIVER-1 Reach = Reach-1 RS = 1.3 Culv



1 in Horiz. = 80 ft 1 in Vert. = 8 ft

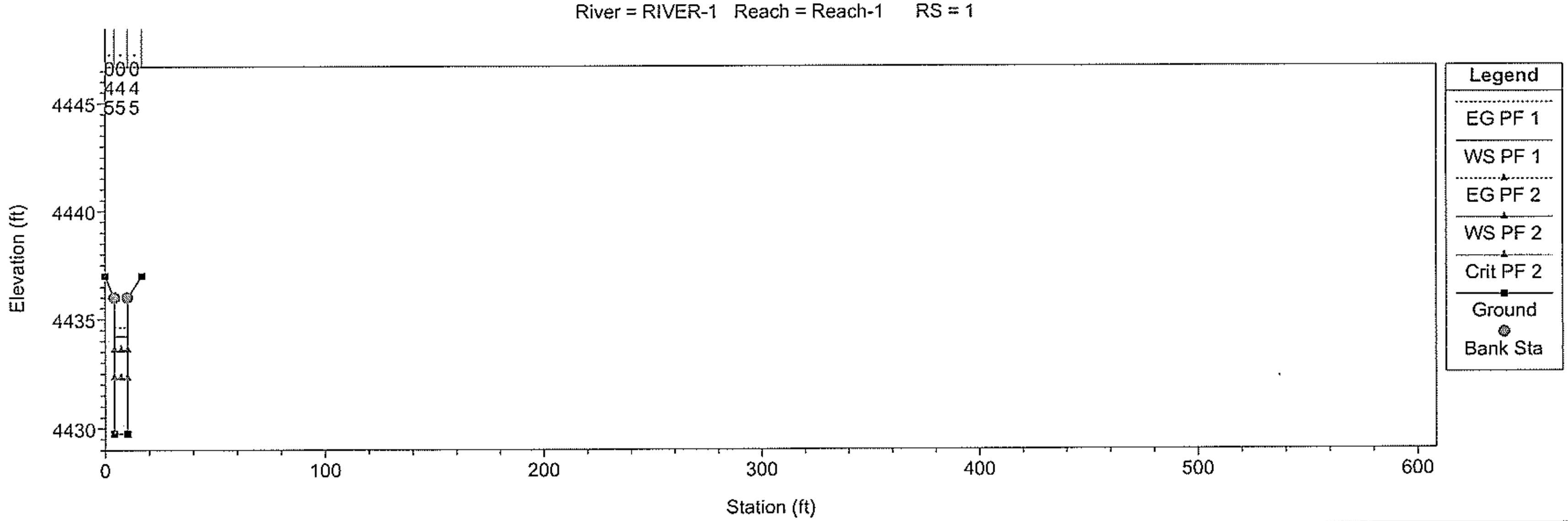
East West Channel Plan: As Built November 2007 12/27/2007

River = RIVER-1 Reach = Reach-1 RS = 1.3 Culv



East West Channel Plan: As Built November 2007 12/27/2007

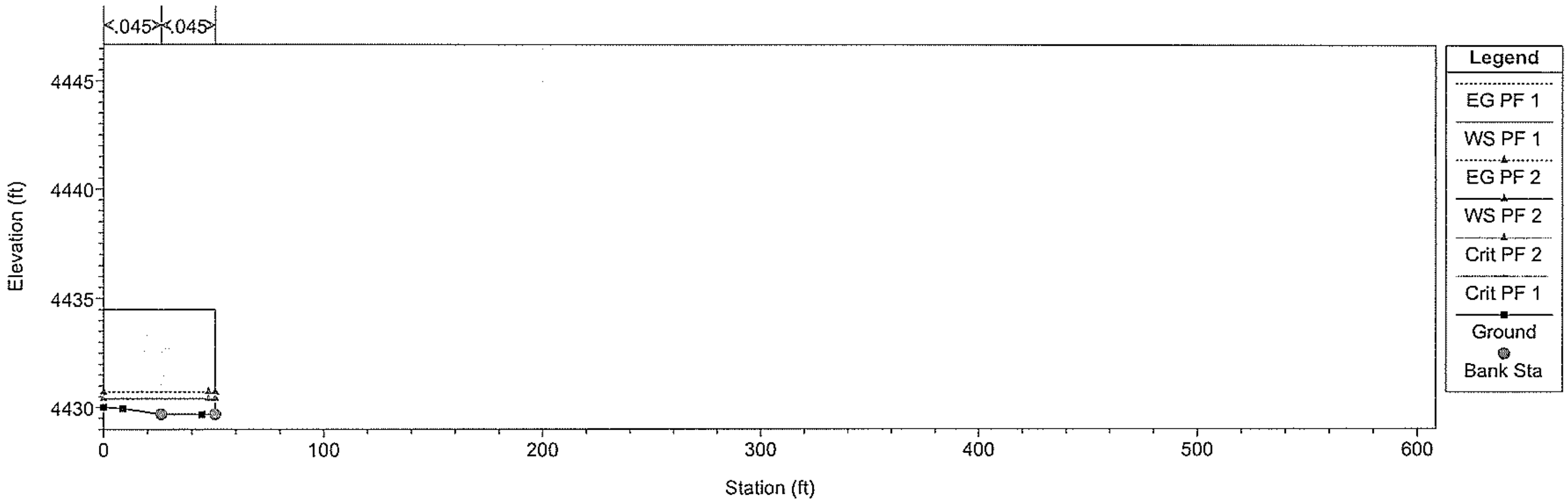
River = RIVER-1 Reach = Reach-1 RS = 1



1 in Horiz. = 80 ft 1 in Vert. = 8 ft

East West Channel Plan: As Built November 2007 12/27/2007

River = RIVER-1 Reach = Reach-1 RS = 0.9



1 in Horiz. = 80 ft 1 in Vert. = 8 ft